No Roof come-back when you specify PABCO ROOFS which require the use of FLOATAINE

The improved roof asphalt that will not soften run, leak or slide.

The PARAFFINE COMPANIES, Inc.

A $12,000,000 Corporation Operating 17 Plants on the Pacific Coast

San Diego
Oakland
Los Angeles
Portland
San Francisco
Seattle
G-55
ULTRA CHINA
LAVATORY
of which 1558 were installed
in the buildings listed below

PACIFIC
PLUMBING FIXTURES
Pacific Sanitary Manufacturing Co.

Main Office:
67 New Montgomery Street, San Francisco
Factories: Richmond and San Pablo, Calif.
Branches: Los Angeles and Portland

1. Bank of Italy, Los Angeles
2. Holliday School, Portland
3. Union Oil Bldg., Los Angeles
4. Loew State Bldg., Los Angeles
5. Dexter Horton Building, Seattle
7. Pittock Block, Portland
8. State Bldg., San Francisco
9. California Bank, Los Angeles
10. Physicians Bldg., San Francisco
11. Spring Valley Building, San Francisco
12. Galileo High School, San Francisco
"Pacific Service"
WILL BE RENDERED WITH HELP OF
Westinghouse

ELEVATOR EQUIPMENT
This eighteen-story building, one of the latest and finest in the West, is being equipped with six high speed elevators operated by Westinghouse Variable Voltage Elevator Motors and Controls—and installed by Spencer Elevator Company.

These cars operate at 600 feet per minute and with the smoothest possible acceleration and deceleration.

Westinghouse Elevator Equipment is installed by Spencer Elevator Company of San Francisco, Llewellyn Iron Works of Los Angeles, Kuehner and Hecht of Chicago and Atlantic Elevator Company of New York City.

Westinghouse Electric and Manufacturing Company
Main Offices and Works—East Pittsburgh, Pennsylvania
Western District Offices:
Denver
Las Angeles
San Francisco
Seattle

When writing to Advertisers please mention this magazine.
Twenty-Four Hours of Daylight

WITH

Westinghouse

SOL-LUX LIGHTING UNITS

The dim lighting of old time offices was supplemented by desk lamps, giving only a small spot of illumination and involving a troublesome cord and a loss of desk space and neatness.

Old time composing rooms were incomplete without a vineyard of lamp cords trailing about to lamps hanging over the type desks and stones, leaving most of the room in shadow, and accumulated trash unseen.

The modern offices and composing rooms of the McGraw-Hill Company, publishers of a large number of engineering and trade journals, are always comfortably bright and cheerful. Typist and typesetter alike enjoy working under such conditions. A Westinghouse Illuminating Engineer designed the lighting plan, and Sol-Lux units provide the light—thirty per cent more light than is transmitted by other similar units.

Write to the nearest district office for your copy of Catalog 40-B, prepared expressly for architects and engineers.

Westinghouse Electric and Manufacturing Company
George Cutter Works
South Bend, Indiana

Western District Offices:
Denver
Los Angeles
San Francisco
Seattle

When writing to Advertisers please mention this magazine.
“Standard”

THIRTY-SIX years’ experience manufacturing and installing Electric Time Keeping Systems. Helpful engineering data cheerfully furnished architects, engineers and school boards insuring satisfactory results, and a direct factory branch office completely equipped to render immediate service.

The Standard
Electric Time Company
461 Market St., San Francisco, Cal. Telephone Sutter 241

“—a distinct advance in modern fenestration”

UNIVERSAL WINDOWS
AWNING TYPE

are multiple-sash windows of which the sashes may be operated jointly or separately, using the lower sash as a manual, with such ease that a five-year-old child can open or close them without effort. They give instantly from 1% to 100% ventilation (in many cases making a mechanical system unnecessary) are easily and safely cleaned from the inside, and act as awnings without obstructing light and air like the old-fashioned kind which they displace. They have obtained wide acceptance among architects of repute—our list of large installations proves.

See Stewart’s, 17th Edition, pages 1298 and 1299—or write for our illustrated folder TODAY

UNIVERSAL SALES CO.
1916 BROADWAY, OAKLAND, CALIFORNIA

The Architect and Engineer—January, 1924—Vol. LXXVI, No. 1. Published monthly $2.50 a year.
627 Foxcroft Building, San Francisco, California. Entered as second-class matter, November 2, 1905, at the Post Office at San Francisco, California, under the act of March 3, 1879.
Covered and sided with galvanized ARMCO-Ingot Iron

It is ARMCO-Ingot Iron

Engineers for the Port of Seattle have used ARMCO-Ingot Iron since 1915 for roofing and siding. Although exposed to the attack of salt-laden air, this iron has given a service that "more than pleased."

ARMCO-Ingot Iron is the purest iron refined in furnaces. It has proved time and again that it withstands corrosion and gives the greatest return for the dollar invested.

Where to order ARMCO-Ingot Iron sheets: ARMCO Warehouse, Tenth and Bryant Streets, San Francisco; California Cornice Works, Los Angeles; A. M. Castle Co. of Washington, Seattle; Spokane Sheet Metal Supply Co., Spokane.

THE AMERICAN ROLLING MILL COMPANY
MIDDLETOWN, OHIO

When writing to Advertisers please mention this magazine.
Scientific "Daylighting"

SUNLIGHT streaming through an unshaded window causes an almost unbearable glare. Ordinary window equipment does little to regulate the candlepower of the sun; its function being to either admit or exclude sunlight.

On the other hand, Western Venetian Blinds perform a real service of scientific daylighting. By means of an ingenious arrangement of easily adjustable slats, direct light rays cannot enter but are reflected and diffused, and thus bright sunlight is transformed into soft restful daylight.

Moreover, this modern window equipment renders an equally efficient service in regulation of ventilation.

Because of greater service Western Venetian Blinds have been specified by prominent architects as equipment for many of the principal banks, office buildings, schools, etc., of America.

Write for Special Bank and Office Building Catalogs

Pages 1081 to 1085 Inclusive
17th Edition

Western Blind & Screen Company
General Offices, Los Angeles; Factories, Los Angeles and Kansas City
New York, N. Y., 25 W. 43rd St.
Atlanta, Ga., 300 Flatiron Bldg.
Kansas City, Mo., 1416 & 14th & Menzall
Chicago, Ill., 326 W. Madison St.
Portland, Ore., 213 Fitzpatrick Bldg.
San Francisco, Cal., 521 Fleet St Bldg.
Texas Agents: Two Republics Sales Service
523 Hicks Bldg., San Antonio
Kirby Bldg., Dallas

How a Ray of Light Travels Via Western Venetian Blinds

Each ray of bright sunlight is reflected and diffused into soft, restful daylight, thus eliminating blinding glare.

MORE LIGHT~MORE AIR~LESS GLARE
ART STONE
Artstone, Inc., 2-4 Valencia St., San Francisco.

ASBESTOS MATERIALS
Johns-Manville Inc., of California, 500 Post street, San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Jones Bros. Asbestos Supply Co., Inc., 512 Second St., San Francisco.

Plant Rubber & Asbestos Works, 537-539 Brannan St., San Francisco.

AUTOMOBILE TURN TABLES
M. E. Hammond, Pacific building, San Francisco.

ART METAL
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
California Artistic Metal & Wire Co., 349 Seventh street, San Francisco.

ARCHITECTURAL TERRA COTTA
Gladding, McBean & Company, Crocker Bldg., San Francisco.
Livermore Fire Brick Works, 604 Mission St., San Francisco.
Tropic Pottery, Inc., Glendale, Cal.

BANK FIXTURES AND INTERIORS
Home Mfg. Co., 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.

BANK SCREEN REFLECTORS
I. P. Frink, Inc., 77 O'Farrell Street, San Francisco.

BATHROOM ACCESSORIES
The Fairfacts Company, Inc., 234 W. 14th St., San Francisco.

BEDS—WALL
California Wall Bed Co., 714 Market St., San Francisco.

BELTING AND PACKING
New York Belting and Packing Company, 519 Mission St., San Francisco.
H. N. Cook Belting Co., 401 Howard St., San Francisco.

Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

BLACKBOARDS
Stewart Sales Co., 247 Rialto Building, San Francisco.

BLINDS—VENETIAN AND DIFFUSELITE
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.
Western Blind & Screen Company, factory, Los Angeles; San Francisco representatives, Edward C. Dehn, Hearst Bldg., and C. F. Weber Co.

BOILERS
Birchfield Boiler Company, Tacoma, Washington. See advertisement for Coast agencies.
Kewanee Boiler Company, Factory Branch, Extension Building, San Francisco.

Kewanee Water Supply System, Simonds Machinery Co., 117 New Montgomery St., San Francisco.
Main Iron Works, 1000 Sixteenth Street, San Francisco.

BONDS FOR CONTRACTORS
Boding Company of America, Kohl Bldg., San Francisco.
Globe Indemnity Co., 444 California St., San Francisco.
Fidelity & Casualty Co. of New York, Balfour Bldg., San Francisco.
Standard Accident Insurance Company, California Commercial Union Building, San Francisco.

BOXBOARD FIBRE SHIPPING CASES
The Paraffle Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BRASS GOODS, CASTINGS, ETC.
H. Mueller Manufacturing Co., 1072-76 Howard St., San Francisco.

BRICK FACE, COMMON, ENAMEL, GLAZED
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
N. Clark & Sons, 116 Natoma St., San Francisco.
Richmond Pressed Brick Co., Sharon Bldg., San Francisco. Plant at Richmond, Cal.
Livermore Fire Brick Works and California Brick Co., 604 Mission St., San Francisco.
Cannon & Co., Sacramento; and 77 O'Farrell St., San Francisco.

BRICK & CEMENT COATING
Armorite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clinton St., Los Angeles.
The Paraffle Companies, Inc., 475 Brannan St., San Francisco.
Wadsworth, Howland & Co., Inc., J. Hambly & San, 1333 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.

BRICK STAINS

Armorite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.

BUILT-IN FIXTURES
Built-In Fixture Company, 2605 San Pablo Ave., near Dwight Way, Berkeley, and Hosier Store, Pacific Building, San Francisco.

BUILDERS' HARDWARE
Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn., Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.

Palace Hardware Company, Agents Corbin goods, 531 Market St., San Francisco.

BUILDING MATERIALS, SUPPLIES, ETC.

RALSTON IRON WORKS, INC.
ESTABLISHED 1876
Representing Pauly Jail Building Co.

Office and Works
20th and Indiana Streets
SAN FRANCISCO
Phone Mission 5230

Structural Steel
ARCHITECTS’ SPECIFICATION INDEX—Continued

Waterhouse-Wilcox Co., 523 Market St., San Francisco.
Standard Supply Company, Standard Avenue, near Webster Street, Alameda.

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

BURGLAR ALARMS
Smith Electric Company, 50 Natoma St., San Francisco.

CABINET MAKERS
Fink & Schindler Company, 218 13th St., San Francisco.
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.

CEMENT
Atlas Portland Cement Co., agencies in all principal California cities.
Medusa Stannics White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, San Francisco, and principal Coast Cities.
Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.
Monolith Portland Cement Company, 708 Market St., San Francisco and Los Angeles.

CEMENT EXTERIOR WATERPROOF PAINT
Armurate, sold by W. F. Fuller & Co., all principal Coast cities.
Minow Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Bay State Brick and Cement Coating, sold by James Hambly, 229-233 Clay St., San Francisco.

CEMENT STUCCO
“California” sold by California Stucco Products Company, Halfmoon building, San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Front Bldg., Los Angeles.
Tropico Pottery, Inc., Glendale, Cal.

United Material Co., Sharon Bldg., San Francisco.
CLOCKS—ELECTRIC TIME
Standard Electric Time Co., 461 Market St., San Francisco.
Pacific Electric Clock Company, 86 Third St., San Francisco.

COLD STORAGE PLANTS
Cyclops Iron Works, 837 Folsom St., San Francisco.

COMPOSITION FLOORS
“Linolest” plastic flooring, Hill, Hubbell & Co., 115 De Haro St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Abasten Magnesia Company, 25 South Park, San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

CONCRETE FURNITURE
Art Stone Distributing Company, 2-4 Valencia St., at Market, San Francisco.

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward R. Baron Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clifton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.

Truscon Steel Co., 700 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
“Sherarduct,” Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Hansen, Robertson & Zumwalt, 3145 Broadway, Oakland.
Barrett & HIlp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegrist Co., Inc., 807 Clous Spreckels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.

Dinwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Clinton Construction Company, 923 Folsom St., San Francisco.

Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, Park Ave., San Francisco.

---

A. Quandt & Sons
OUR WORK IS THE BEST GUARANTEE OF THE QUALITY OF OUR SERVICE
Painters-Decorators
Since 1885
374 Guererro St.
San Francisco
320 Central Ave.
Los Angeles

Satinette White Enamel
Platline Cabinet Finish
Elastica Interior and Elastica Exterior
Standard Varnish Works
55 Stevenson Street
San Francisco
Smith Electric Company

“Quality First”

ELECTRICAL CONSTRUCTION

CONTRACTING, WIRING, FIXTURES, MOTORS, SUPPLIES, REPAIRING

50 Natoma Street

Telephone Sutter 1378

ARCHITECTS’ SPECIFICATION INDEX—Continued

T. B. Goodwin, 180 Jessie St., San Francisco,
Vukievic & Bagge, 515 Bryant St., San Francisco.
Peters Construction Company, 705 Atlas Building,
San Francisco, and Builders’ Exchange,
Oakland.
Robert Trot, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 155 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco
and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.
Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS’ EQUIPMENT

Edward R. Bacon Co., Folsom at 17th St., San Francisco, and Los Angeles.

CONVENIENCE OUTLETs

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

Cork Tile

Van Fleet-Frear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

Cork tile for Floors

Bonded Floors Company, 370 Second St., San Francisco; 263 S. Los Angeles St., Los Angeles.
David E. Kennedy, Sharon building, San Francisco, Story building, Los Angeles.

Crushed Rock

Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

Curtains—Steel, Rolling, Fireproof


Damp-Proofing and Waterproofing

“Imperial,” manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Minwax Co., Inc., 22 Battery St., San Francisco, and 658 S. Clarence St., Los Angeles.
“Panco” Damp-Proofing compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

Door Hangers

Pitcher Hanger, sold by National Mill & Lumber Co., 325 Market St., San Francisco.

Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.

Drain Pipe and Fittings

“Corroresist” Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

Drinking Fountains

Crane Company, San Francisco, Oakland, and Los Angeles.
Paciﬁc Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

Dumb Waiters

Spencer Elevator Company, 164-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.
Elevator Supplies Co., Inc., Hoboken, N.J.; San Francisco office, 185 Fifth St.
“Chelse” dumb waiters, sold by M. E. Hammond, Pacific building, San Francisco.

Electrical Contractors

Butte Electric Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 956 Folsom St., San Francisco.
Central Electric Company, 177-79 Minna St., San Francisco.
New Page, McKenny Co., 589 Howard St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
H. S. Thiel, 85 Columbia Square, San Francisco.
Brown-Langlais Electrical Construction Co., 315 Fifth Street, San Francisco.
Newberry Electric Company, Alta Bldg., San Francisco.
Smith Electric Company, 50 Natoma St., San Francisco.
Decker Electrical Construction Company, 149 New Montgomery St., San Francisco.
Electric Construction Company, 616 Broadway, Fresno.

Electric Plate Warmer

The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

Electrical Plugs, Receptacles, Sockets, Etc.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

Electrical Supplies and Equipment

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

Electric Safety Interlocks


Independent Automatic Sprinkler Company

Fire Protection Engineers

O. T. Johnson Building, Los Angeles

72 Natoma Street, San Francisco

Metropolitan 4597

S. F. Phone, Garfield 201
ARCHITECTS' SPECIFICATION INDEX—Continued

THE PELTON WATER WHEEL CO.
Hydraulic Engineers
Light-Duty High-Head Pumps for Tank and Other Building Service
Heavy-Duty Pumps for Municipal and General Water Supply

2022 Harrison Street
San Francisco
NASON’S OPAQUE FLAT FINISH—A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.
Made in California to stand Pacific Coast climatic conditions

R. N. Nason & Co., Paint Makers
PORTLAND
151 Potrero Ave.—SAN FRANCISCO—436 Market St.

WASHINGTON
1648 1st Ave. SEATTLE

ARCHITECTS’ SPECIFICATION INDEX—Continued

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco
and 553 S. Clarence St., Los Angeles.

FLOORS—MASTIC—FLOOR COVERING
Hubbell & Company, 115 Davis St., San Francisco.
The Paraffine Companies, Inc., San Francisco,
Los Angeles, Portland and Seattle.

FLUE LINING
California Brick Company, 604 Mission St., San Francisco.

FLUSH VALVES
Handy Self-Cleaning Flush Valve Co., 731 Folsom St., San Francisco.

FUEL OIL SYSTEMS
S. T. Johnson Co., 1337 Mission St., San Francisco.
S. F. Bowser & Co. Inc., 612 Howard St., San Francisco.
Wayne Tank and Oil Co., 430 Fourth St., San Francisco.

FURNACES—WARM AIR
Mangrum & Otter, 827 Mission St., San Francisco.
Montague Range and Furnace Co., 826 Mission St., San Francisco.
C. B. Babcock Company, 768 Mission St., San Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH
Home Manufacturing Company, 543 Brannan St., San Francisco.
W. & J. Sluane, 216 Sutter St., San Francisco.
Western States Scatting Co., 39 Second St., San Francisco.
H. Rumph, 567 Howard St., San Francisco.
Fink & Schindler Company, 218-19th St., San Francisco.

FURRING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

GARAGE HARDWARE
The Stanley Works, New Britain, Conn., Coast sales offices, San Francisco, Los Angeles and Seattle, Wash.

GARDEN FURNITURE
Art Stone Distributing Company, 2-4 Valencia St., at Market, San Francisco.

GAS HEATING
Pittsburgh Water Heater Company, 478 Sutter St., San Francisco.
Ruud Automatic Water Heater, sold by Ruud Heater Company, 431 Sutter St., San Francisco.

GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobbleick-Kibbe Glass Co., 666 Howard St., San Francisco.
Fuller & Goepf, 52 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
W. P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
Ellery Arms Co., 583 Market St., San Francisco.

HARDWALL PLASTER
“Empire,” manufactured by Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.

HARDWARE
Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Corbin hardware, sold by Palace Hardware Co., 367 Market St., San Francisco.
Vonnegut hardware, sold by Abell-Jensen Co., Call Bldg., San Francisco.

HARDWOODS
White Brothers, 5th and Brannan Streets, San Francisco.

HEATING AND VENTILATING CONTRACTORS
Alex Coleman, 766 Ellis St., San Francisco.
Gibbs-Schmidt Company, 198 Otis St., San Francisco.
Hateley & Hateley, Mitau Bldg., Sacramento.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Lawson & Drucker, 430 Hayes St., San Francisco.
Lupen and Hawley, 906 7th St., Sacramento.
William F. Wilson Co., 328 Mason St., San Francisco.
W. F. Peck, 5656 College Ave., Oakland.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
W. S. Haines & Co.’s steam specialties.
O. M. Simmons Company, 115 Mission St., San Francisco.


W. S. Haines & Co., Steam Specialties,
Vacuum and Vapor Systems of Heating
“Twenty-four years of satisfactory service.”
(See Page 1503 of Sweet’s Catalogue)

O. M. SIMMONS CO.
115 Mission St., San Francisco
Phone: Douglas 5497
ARCHITECTS' SPECIFICATION INDEX—Continued

Williams Radiator Company, 571 Mission St., San Francisco.
Warren Webster & Company, Sharon Building, San Francisco.

HEATERS, TRAYS, RADIATORS, ETC.
General Gas Light Company, 768 Mission St., San Francisco.
Ra-Do Fumeless Gas Radiators, Petter Radiator Corporation, 478 Sutter St., San Francisco.
Humphrey Radiantite, sold by Rudd Heater Company, 431 Sutter St., San Francisco.
Williams Radiator Company, "Gas Steam Radiators," 571 Mission St., San Francisco.
McLaughlin Metal Works, 223 J St., Sacramento.

HOLLOW BUILDING Tile (Burned Cl ay)
California Brick Company, 604 Mission St., San Francisco.

HOLLOW TILE BLOCKS
Cannon & Co., plant at Sacramento; 77 O'Farrell St., San Francisco.
California Brick Company, 604 Mission St., San Francisco.

HOSE—UNDERWRITERS UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 527-539 Franklin St., San Francisco.

HOSPITAL FIXTURES
Mott Company of California, 533 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.

ICE MAKING MACHINERY
Cyclops Iron Works, 837 Folsom St., San Francisco.
"Espigadour," sold by W. L. Cochran, 880 Mission St., San Francisco.

INCRINATORS
The Incinerite, sold by M. E. Hammond, Mezzanine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

INSULATION
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

JAIL EQUIPMENT

LAMP POSTS, ELECTROLIGHTS, ETC.
J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT
Emerson Knight, 704 Market St., San Francisco.

Cotton & Co., Call Building, San Francisco.

LANDSCAPE GARDENING
MacRorie-McLaren Co., 514-516 Phelan Bldg., San Francisco.

LATHING AND PLASTERING
McGruer & Simpson, 226 Tehama St., San Francisco.
A. Knowles, Call-Post Bldg., San Francisco.

LATHING MATERIAL—WIRE, METAL, ETC.
Pacific Materials Co., 525 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Trusco Steel Co., 700 Mission Street, San Francisco.

Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

LIGHT, HEAT AND POWER
Great Western Power Company, Stockton St., near Sutter, San Francisco.
Pacific Gas & Electric Co., Sutter St., San Francisco.

LIGHTING FIXTURES
D. Dierson Co., 20 Second Street, San Francisco.
Distributors, Solar-Lite fixtures.
Roberts Mfg. Co., 663 Mission St., San Francisco.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

LIMESTONE, INDIANA
Indiana Limestone Quarrymen's Association, Box 778, Bedford, Indiana.

LINOLEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.
W. & J. Sloan, 216 Sutter St., San Francisco.
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.
Bonded Floors Company, 370 Second St., San Francisco; 263 St. Los Angeles St., Los Angeles.

LINOTYPE
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

LUMBER
Hart-Weed Lumber Co., Fifth and Berry Sts., San Francisco.
Pope & Tabot, foot of Third St., San Francisco.
ARCHITECTS' SPECIFICATION INDEX—Continued

Santa Fe Lumber Co., 16 California St., San Francisco.
J. F. Higgins Lumber Company, 423 Sixth St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.
White Bros., 5th and Brannan Sts., San Francisco.
MANTELS—WOOD, TILE, ETC.
Marble & Otter, 827-831 Mission St., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 355 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tomkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

METAL DOORS AND WINDOWS
Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.
U. S. Metal Products Co., 330 Tenth St., San Francisco.

METAL FURNITURE
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

METAL STORE FRONTS
Cobbledick-Kibbe Glass Company, 666-8 Howard street, San Francisco, and Washington at Third St., Oakland.

MILL WORK
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.
The Fink & Schindler Company, 218-13th St., San Francisco.

OIL BURNERS
S. T. Johnson Co., 1337 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.
Rotary Oil Burner Company, 159 Twelfth St., Oakland.

OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 439 Fourth St., San Francisco; 830 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., Zelig Francisco.
Palm Iron & Bridge Works, Sacramento.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.

PANIC DOORS
Vonnegut hardware, sold by Abeer-Jensen Co.

PAINT FOR CEMENT AND STUCCO
Wadsworth, Howland & Co., Inc., Jas. Hambly & Son, 1333 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.

PAINT FOR STEEL STRUCTURES, BRIDGES, ETC.
The Paraffine Companies, Inc., 34 First St., San Francisco.
Bill Hubbell & Company, 115 Davis St., San Francisco.

PAINTING, TINTING, ETC.
I. R. Kissel, 1747 Sacramento St., San Francisco.

PAINTS, OILS, ETC.
Magruder Bros., 414-124 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
R. N. Hanson & Company, San Francisco, Los Angeles, Portland and Seattle.
W. P. Fuller & Co., all principal Coast cities. Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Fire Retardant Products Co., 2838 Hannah St., Oakland, Cal.
Oakland Paint Manufacturing Company, 727 Antonia St., Los Angeles, and Hearst Building, San Francisco.

PARTITIONS—FOLDING AND ROLLING

SILENT CALL Chicago SIGNAL SYSTEMS
HOSPITAL GARNETT YOUNG AND COMPANY
Garnett Young and Company
Pacific Coast Sales Engineers
812 Howard St., San Francisco
Los Angeles

Seattle

Portland
Von Duprin
Self-Releasing Fire Exit Latches

PROGRESS

Compared to the Von Duprin latch of today, the first model was a crude, cumbersome thing.

Yet that first Von Duprin latch was a revolutionary step in door hardware design. For the first time in history the inmates of large buildings were assured of safe exit, once they reached the doors. The deadly crash at the exits was defeated.

Since that time there have been many improvements and refinements in Von Duprin latches, and as fast as new needs arise there will be new improvements to meet them. Everything possible is being done—and will be done in the future—to give the people living or working in a Von Duprin equipped building every conceivable protection against the hazards of panics and locked doors.

Complete details in "Sweet's," pages 1415-1419, or ask us for Catalog 12-L.

Sunbeam School,
Cleveland, Ohio
W. R. McCormack,
Cleveland Board of Education
Architect
C. C. Kinney, Contractor

Vonnegut Hardware Co.
Indianapolis, Ind.
Frigidaire
The Electric Refrigerator for Home, Apartment, Store, Etc.

Made By DELCO-LIGHT COMPANY, Dayton, Ohio
W. L. COCHRAN, INC., Distributor, 880 Mission St., San Francisco

ARCHITECTS' SPECIFICATION INDEX—Continued

PLASTERING CONTRACTORS
A. Knowles, Call Bldg., San Francisco.
MacGruer & Simpson, 265 Tehama St., San Francisco.

PLASTER REINFORCEMENT
National Steel Fabric Co., A. C. Rublson Co.,
Pacific Coast Sales Manager, Monadnock Building, San Francisco.

PLUMBING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Giffey-Schmid Company, 198 Otis St., San Francisco.
Hateley & Hateley, Mitsui Bldg., Sacramento.
Scott Co., Inc., 243 Minna St., San Francisco.
Wm. F. Wilson Co., 525 Mason St., San Francisco.
Luppen & Hawley, 966 7th St., Sacramento.
W. H. Picard, 5656 College Ave., Oakland.
H. C. Newman Company, 2041 Telegraph Ave., Oakland.

PLUMBING SUPPLY HOUSES
Crane Company, all principal coast cities.
Haines, Jones & Cadbury Co., 837 Folsom St., San Francisco.
Holbrook, Merrill & Stetson, 64 Sutter St., San Francisco.
H. Mueller Manufacturing Company, 1072-76 Howard St., San Francisco.
J. L. Mott Iron Works, D. H. Gulick, selling agent, 553 Mission St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, 324-325 Wells Fargo Building, 85 Second St., San Francisco.

POLES AND PILING
Santa Fe Lumber Co., 16 California St., San Francisco.

PUMPS—HAND OR POWER
Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 117 New Montgomery St., San Francisco.
Ocean Shore Iron Works, 558 Eighth St., San Francisco.
Pelon Water Wheel Co., 2922 Harrison St., San Francisco.
S. F. Bower & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Tank & Pump Co., 430 Fourth St., San Francisco; 830 S. Los Angeles St., Los Angeles.
Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.

REINFORCING STEEL
Edward L. Soule, Rialto Bldg., San Francisco.
Bert-Falk & Co., Call Bldg., San Francisco.
Judean Iron Works, San Francisco and Oakland.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.

Truscon Steel Co., 709 Mission St., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

REFLECTORS
I. P. Frink, Inc., 77 O'Farrell St., San Francisco.

REFRIGERATORS
*Frigidaire,* sold by W. L. Cochrane, 880 Mission St., San Francisco.

COOLED AND ROOFING MATERIALS
"Mallory" and "Ruberoid," also "Fasco" ten and twenty year roofs, manufactured by the Paraffine Companies, Inc., San Francisco.
H. H. Robertson Co., Hobart Bldg., San Francisco.
Jones Brothers Asbestos Supply Co., 512 Second St., San Francisco.
Johns-Manville Inc., of California, 500 Post St., San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

RUBBER TILING—INTERLOCKING

RUGS & CARPETs
W. & J. Sloane, 216 Sutter St., San Francisco.

SAFETY TREADS
Pacific Materials Co., 525 Market St., San Francisco.

SAND
Coast Rock & Gravel Co., Call Bldg., San Francisco.
Del Monte White Sand, Del Monte Properties Co., 401 Crocker Bldg., San Francisco.

SASH AND CABLE CHAINS
Coast agents, Rawlins & Smith, San Francisco and Los Angeles.

SAFEs AND VAULTs
Hermann Safe Company, 216 Fremont St., San Francisco.

SCALES
Toledo Scale Company, 676 Mission St., San Francisco.

SCENIC PAINTING—DROP CURTAINS, ETC.
The Edwin H. Flagg Scene Co., Los Angeles and San Francisco.

SCHOOL AND THEATER EQUIPMENT
H. Lumpf, 567 Howard St., San Francisco.

SHEATHING AND SOUND DEADENING
The Paraffine Companies, Inc., 34 First St., San Francisco and principal Coast cities.

ELECTRICAL LAYOUTS AND PLANS
FOR BUILDINGS, INDUSTRIAL PLANTS, ETC.

ROBERT L. ST. JOHN
Phone Douglas 5902 1011 FLAT IRON BUILDING San Francisco, Calif.
ARCHITECTS' SPECIFICATION INDEX—Continued

SHEET METAL WORK
Fordeiner Carcine Works, 269 Potrero Ave., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

SHINGLE STAINS
Bass-Hueter Paint Company, all principal Coast cities.
Capot's Creosote Stains, sold by Pacific Bldg., Materials Co., 525 Market St., San Francisco.
Fuller's Pioneer Shingle Stains, made by W. P. Fuller & Co., San Francisco.
The Paraffine Companies, San Francisco, and principal Coast Cities.

SHUTTERS—ROLLING, FIRE, STEEL, WOOD
J. G. Wilson Corp., 621 North Broadway, Los Angeles, and Sharon Building, San Francisco.

SIGNALING & PROTECTIVE SYSTEMS
Garnett, Young & Co., 612 Howard St., San Francisco.

SINKS—COMPOSITION

SKYLIGHTS
H. H. Robertson Co., represented on the Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

STEEL HEATING BOILERS
Kewanee Boiler, factory branch, Exposition Building, San Francisco.

STEEL TANKS, PIPE, ETC.
Ocean Shore Iron Works, 55 Eighth St., San Francisco.

STEEL TANKS
Main Iron Works, 1000 Sixteenth St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.

STEEL AND IRON—STRUCTURAL
Central Iron Works, 621 Florida St., San Francisco.
Herrick Iron Works, 18th and Campbell Sts., Oakland.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
Mortenson Construction Co., 19th and Indiana Sts., San Francisco.
Pacific Rolling Mills, 17th and Mississippi Sts., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Ralston Iron Works, 20th and Indiana streets, San Francisco.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.
Western Iron Works, 141 Beale St., San Francisco.

STEEL LUMBER
The General Fireproofing Company, 20 Beale Street, San Francisco.

STEEL ROLLING DOORS
Kinnear Rolling Steel Doors, sold by Pacific Building Materials Co., Underwood Bldg., San Francisco.
Wilson Rolling Steel Doors, the J. G. Wilson Corporation, 621 North Broadway, Los Angeles and Waterhouse Wilcox Co., 525 Market St., San Francisco.

STEEL SASH
Bayley-Springfield solid steel sash, sold by Pacific Materials Co., 525 Market St., San Francisco.
"Fenestra" Solid Steel Sash, manufactured by Detroit Steel Products Co., factory sales office, 251 Kearny St., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
Trueson Steel Company, 709 Mission St., San Francisco.

STEEL TANKS
Main Iron Works, 1000 Sixteenth Street, San Francisco.

STEP AND WALK BRICK
California Brick Company, 604 Mission St., San Francisco.

STONE
Indiana Limestone Quarrymen's Association, Box 778, Bedford, Indiana.

STREET LIGHTING EQUIPMENT

STUCCO, COMPOSITION
California Stucco Co., Hepburn Building, San Francisco.

STUCCO-PLASTER REINFORCEMENT
National Steel Fabric Company, A. C. Rolofson Co., Pacific Coast Sales Managers, Monadnock Building, San Francisco.

STUDDING—FIREPROOF STEEL
The General Fireproofing Company, 20 Beale Street, San Francisco.

SWITCHES AND SWITCHBOARDS

TELEPHONE SYSTEMS
"Stromberg-Carlson Telephones," Garnett Young & Company, 612 Howard St., San Francisco.

TERRA COTTA
N. Clark & Sons, 116 Natoma St., San Francisco.
Gladding McBean & Co., Crocker Building, San Francisco.

THEATER AND OPERA CHAIRS
WESTERN STATES SEATING CO., 133 Kearny St., San Francisco.

THERMOSTATS FOR HEAT REGULATION
Johnson Service, Rialto Bldg., San Francisco.

TILES FOR FLOORS, MANTELS, ROOFS
Cannon & Co., Sacramento; and 77 O'Farrell St., San Francisco.

Gladding, McBean & Co., Crocker Bldg., San Francisco.

Livermore Fire Brick Works and California Brick Company, 604 Mission St., San Francisco.

Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.

TRAVELING CRANES
Cyclops Iron Works, 837 Folsom St., San Francisco.

VALVES
Schroeder Valve Company, 1500 N. Main Street, Los Angeles; 16 Steuart St., San Francisco.

VALVES—PIECES AND FITTINGS
Crane Radiator Valves, manufactured by Crane Co., Second and Brannan Sts., San Francisco.

Grinnell Co., 453 Mission St., San Francisco.

O. M. Simmons Co., 115 Mission St., San Francisco.


VALVE PACKING
N. H. Cook Beltmg Co., 317 Howard St., San Francisco.

VARNISHES

W. P. Fuller Co., all principal Coast cities.


Standard Varnish Works, 55 Stevenson St., San Francisco.

The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

VENNEERS AND VENEERED PANELS
White Brothers, 5th and Brannan Streets, San Francisco.

VENTILATORS
H. H. Robertson Co., represented on the Pacific Coast by H. M. Holway, 1607 Hobart Building, San Francisco.

VITRIFIED CHINAWARE
Pacific Sanitary Manufacturing Company, 67 New Montgomery St., San Francisco.

West Coast Porcelain Manufacturers, Wells Fargo Building, San Francisco.

WATERPROOFING (See Dampproofing)
Medusa Waterproofing, manufactured by Sandusky Cement Co., Cleveland, Ohio. Carried in stock and sold by leading building supply dealers in California, Oregon and Washingt

The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

WALL HEADS—SEATS, ETC. (See Beda)

WALL BOARD
“Amiwood” and “Pabco,” manufactured by The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

“Campo-Board,” White Brothers, distributors, 5th and Brannan Streets, San Francisco.

WESTERN ASBESTOS MANGLES COMPANY, 25 South Park, San Francisco.

WALL PAINT

WALL PAPER AND DRAPERIES
The Tormey Co., 681 Geary St., San Francisco.

W. J. Sloane, 216-228 Sutter St., San Francisco.

WARDROBES, SCHOOL
W. L. Evans, 700 Block B., Washington, Indiana.


WATER SUPPLY SYSTEMS

WHEELBARROWS—STEEL
Western Iron Works, Beale and Main Sts., San Francisco.

WHITE ENAMEL
“Gold Bead,” manufactured and sold by Bass-Hueber Paint Co. All principal Coast cities.


“Satinette,” Standard Varnish Works, 55 Stevenson St., San Francisco.

The Paraffine Companies, Inc., 54 First St., San Francisco, Los Angeles, Portland and Seattle.

WINDOES
The Casement Hardware Company, 241 Polkome Building, Chicago, Ill.

Vincent Whitney Company, 556 Market Street, San Francisco.

WINDOES SHADES
W. & J. Sloane, 216 Sutter Street, San Francisco.

D. N. & E. Walter, 562 Mission street, San Francisco.

WINDOES SASH CHAIN
The Smith & Egge Mfg. Co., Bridgeport, Conn.


WINDOES, REVERSIBLE, CASEMENT, ETC.
Hauer Window Co., 1562 Harrison St., San Francisco.


Crittell Casement Window Company, Detroit; Waterhouse-Wilcox Company, agents, 523 Market St., San Francisco.

Universal Sales Co., 1916 Broadway, Oakland; San Francisco, Los Angeles and Portland.

WIRE, ELECTRICAL
Garnett Young & Company, 612 Howard St. San Francisco.

WIRE FENCE
Standard Fence Co., 245 Market street, San Francisco; and 310 12th street, Oakland.

GLOBE AUTOMATIC SPRINKLERS
Will protect your building and business from destruction by fire and reduce your Insurance Rate. Write for estimates.

Pacific Fire Extinguisher Company
FIRE PROTECTION ENGINEERS
424-440 Howard Street, San Francisco
Manufacturing Plant, 258 Fremont St.
THE BEAUTY OF THE CLASSIC DESIGN TO THE FACADE of the SAN FRANCISCO STOCK EXCHANGE BUILDING IS ENRICHED BY THE USE OF

Architectural Terra Cotta made by N. Clark & Sons

ARCHITECTURAL TERRA COTTA has many unique advantages that make it the ideal permanent building material. It affords wonderful opportunities for color and ornament. It possesses also, peculiar practical qualities that make it the most resourceful and reliable medium employed in modern construction.

Estimates and samples furnished on request.

N. CLARK & SONS
Main Office, 116 Natoma Street, San Francisco
Los Angeles Office, 1022 Detwiler Building, Los Angeles
Works—West Alameda
HE special Face Brick used in the new Bank of Italy Building at Seventh and Olive Streets, Los Angeles, California, fulfills the architect’s purpose in symbolizing the dignity and worth of the structure and of the banking institution it shelters.

"The Standard of Quality in Clay Products"

L.A. Pressed Brick Co.  
ENTIRE SIXTH FLOOR—FROST BLDG.  
Second and Broadway  
Phones Main 562 — 60489  
LOS ANGELES
CORDOVA ROOF TILE
FURNISHED AND LAID BY
GLADDING, McBEAN & CO.
FOUNDED 1875
CROCKER BUILDING, SAN FRANCISCO

Cordova Roof Tile are used for the trough, cover tile, hips and ridges. They may be laid regularly or irregularly, double or single eaved, with equal facility. These characteristics, combined with the inherent harmony of tones, make possible innumerable combinations of form and color.

TROPICO POTTERIES, INC.
GLENDALE, LOS ANGELES
CALIFORNIA
A CHARMING angle with canopied entrance. The rich tone of the brick, the wide flush-cut joints, the soldier belt course, and rowlock and soldier sills are all simple elements, but form together a most attractive whole. Another example of the artistic possibilities of standard size face brick. If you admire beautiful brickwork you will be interested in "Architectural Details in Brickwork." The half-tone plates, issued in three series, each in an enclosed folder ready for filing, will be sent to any architect requesting them on his office stationery. Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Ill.
The Huntington Apartments

FACED WITH

CANNON FACE BRICK

This new apartment building is attracting much attention in San Francisco because of its commanding location on the corner of California and Taylor Streets and because of its distinctive exterior obtained through the use of Cannon's No. 28 Special Pink Face Brick.

CANNON & CO.

Manufacturers of Face Brick, Floor Tile and Denison Interlocking Tile

OFFICE AND PLANT: 12th STREET AND S. P. RY., SACRAMENTO
EXHIBIT AT 77 O'FARRELL STREET, SAN FRANCISCO
FOR INTERIOR FINISH

Beautiful Color Effects.
Appealing Surface Textures.
Elaborate and Rich Modeling.
All without excessive cost and offering a solution which is unhackneyed and satisfying.

Literature assisting effective specification will be sent on request. Address:

NATIONAL TERRA COTTA SOCIETY
19 WEST 44th STREET
NEW YORK, N. Y.

When writing to Advertisers please mention this magazine.
Service—Beauty—Economy

That's Why the Engineer of the American Can Company Specified

RICHMOND FACED BRICK

Richmond Pressed Brick Company
Richmond, California

Los Angeles Pressed Brick Company
Los Angeles, California

United Materials Company
Northern California Distributors
Sharon Building
San Francisco

When writing to Advertisers please mention this magazine.
Just Off the Press

A 60-page manual of home architecture—illustrated with more than 50 photos and floor plans of some of the most modern and attractive homes in California.

Sent postpaid for 50 cents

California Common Brick Manufacturers Association

342 Douglas Building, Dept. A-1
Los Angeles

---

GLASS

Fuller & Goepp

Manufacturers of
Art and Leaded Glass MIRRORS

Dealers in Sani-Onyx White Glass for Modern Home and Office Fixtures

32 Page Street, San Francisco
Market 498
Jackson at 11th, Oakland
Lakeside 7272

OUR OAKLAND PLANT

When writing to Advertisers please mention this magazine.
Its Beauty Will Endure

The architect who specifies Dickey Mastertile walls builds to defy Fire, Time and Weather.

Dickey Mastertile is the lowest priced permanent material, widely specified for every type of construction, from the modest home to the largest of office buildings, hospitals and schools.

DICKEY MASTERTILE
The Standard Hollow Building Tile Manufactured by
CALIFORNIA BRICK COMPANY
Associated with LIVERMORE FIRE BRICK WORKS,
MAKERS OF DICKEY FACE BRICK
604 MISSION STREET, SAN FRANCISCO  BUILDERS' EXCHANGE, OAKLAND

When writing to Advertisers please mention this magazine.
Announcing Our

SEVENTY FIFTH ANNIVERSARY

The Passing of the Third Quarter of a Century, during which we have been engaged in business is an event of which we are justly proud. Truly we can say we have grown with the West, shared in its development and gained the confidence of its people.

W. P. FULLER & CO.
MANUFACTURERS OF PAINTS, VARNISHES, ENAMELS
PIONEER WHITE LEAD

When writing to Advertisers please mention this magazine.
January, 1924

HUBBELL

Beside the Bed —
a Duplex Outlet

A Hubbell Duplex Convenience Outlet, thoughtfully located where the bed goes, provides current for the table lamp and, in addition, baby's milk warmer, heating pad, or fan.

Hubbell Convenience Outlets, Duplex and Single, are made with shallow bodies for thin partitions and require no additional wiring. The double Te-Slots accommodate any standard plug cap, whether the blades be parallel or tandem.

We should welcome an invitation from any architect to confer with him with regard to the most favorable location of Convenience Outlets in any class of building.

HARVEY HUBBELL INC.
ELECTRICAL WIRING DEVICES
BRIDGEPORT, CONN., U.S.A.

Remember it's the TeSlots, that make outlets "Convenient"

When writing to Advertisers please mention this magazine.
Loft Building of Winchester Co.
164 Townsend Street, San Francisco

H. C. Baumann, Architect

Equipped with

CALIFORNIA STEEL WINDOWS

Michel & Pfeffer
Iron Works
Harrison and Tenth Streets
San Francisco Cal.

Phone Hemlock 3080

When writing to Advertisers please mention this magazine.
W. I. and C. I. Front Entrance
Apartment House of Mr. James Welsh
1007 Sutter Street, San Francisco
H. C. Baumann, Architect

Ornamental and
Miscellaneous Iron Work
STEEL SASH   WIRE WORK

Michel & Pfeffer
Iron Works
Harrison and Tenth Streets
San Francisco, Calif.

Phone Hemlock 3080

When writing to Advertisers please mention this magazine.
SCHROEDER DIRECT-FLUSH VALVES

for Toilets and Urinals

The ideal installation for Office Buildings, Hotels, Apartments, Schools and Hospitals.

Schroeder Flush Valves are always dependable under constant or intermittent use. They do away with cumbersome tanks, waste of water and constant repair bills, and meet every modern sanitary requirement. They make possible the utmost economy of space. Positive closing regardless of pressure.

Specify Schroeder Flush Valves.
They give your clients long and satisfactory service

An attractive nickel-plated fixture of simple mechanical construction that pays for itself many times over in a life-time of service.

SCHROEDER FLUSH VALVE CO.
Main Office and Factory:
1300-1302 NO. MAIN ST., LOS ANGELES, CALIF.
SAN FRANCISCO OFFICE—16 STEUART ST.

The following is a list of a few of the buildings equipped with the “SCHROEDER DIRECT FLUSH VALVE,” by Architects,

H. C. BAUMANN AND EDWARD JOSE.

50 Apartment Building, Leavenworth and O'Farrell Streets, Stock and Jose, Builders.
520 Taylor Street, 44 Apartments, James Welch, Builder.
Kirkland Apartments, Geary near Hyde Street.
Goodrich Rubber Co. Building, 650 Second Street,
Bush near Leavenworth, 30 Apartments, Louis Johnson, Builder.
Snow Apartments, Laguna and California Streets.
Loft Building, Fourth and Mission Streets.
1007 Sutter Street, 38-Apartment Building.
Pine and Octavia, 15-Apartment Building.
Epp Apartments, California and Cornwall.
Nelson Apartments, Divisadero and California.
40-Apartment Building, Turk and Leavenworth, D. J. Clancy, Builder.

When writing to Advertisers please mention this magazine.
LARGE quantities of Monolith Plastic Waterproof Portland Cement were used in constructing this fine building.

The Fresno Bee Building was designed by Leonard F. Starks and built by Geo. D. Hudnut, Inc., of Sacramento. Frank Hart, of Fresno, was the plastering contractor.

We manufacture two cements—one is Monolith Portland Cement, a high grade uniform Portland. The other is Monolith Plastic Waterproof Portland Cement. Both are guaranteed to pass specifications. In ordering from your dealer be sure to specify which cement you desire.

Write for Booklet.

MONOLITH PORTLAND CEMENT CO.

LOS ANGELES
A.G. Bartlett Bldg
13th Floor.

SAN FRANCISCO
800 Claus Spreckels Bldg.

PORTLAND
516 Pittock Block
Specify **HANDY FLUSH VALVES**
It is NON-CLOGGING
It functions perfectly with any make or kind of bowl.
Gives perfect cleansing flush — washes bowl clean.

Model A — Indirect Flush:
For residences served by one-half inch supply pipe.
Write for complete catalogue.

Model B — Direct Flush:
For hotels, office and other buildings served with three-quarter inch or larger supply pipe.

HAN D Y S E L F- C L E A N I N G F L U S H V A L V E C O.
731 FOLSOM STREET, SAN FRANCISCO, CAL.
Demonstration in Universal Exhibits Monadnock Bldg., San Francisco

---

**RA-DO FUMELESS GAS RADIATORS**
The Ideal “Year-Round” Heating System
For The Home—New or Old
Easiest and Cheapest to Install
Lowest Operating Cost

POTTER RADIATOR CORPORATION
5954 Pasadena Ave., LOS ANGELES
393 Sutter St., SAN FRANCISCO
1700 San Pablo Ave., OAKLAND

---

POWER AND HEATING BOILERS
STEEL TANKS, STACKS, BREECHINGS, SHEET AND PLATE WORK
MACHINERY AND IRON CASTINGS

MAIN IRON WORKS
Main Office and Works: 7th, DAGGETT AND 16th STS.
Telephone Market 752-753
San Francisco, Calif.

---

**PUMPING MACHINERY**
“AMERICAN-MARSH”
House, Sump and Fire Pumps
FOR ALL SPECIFICATIONS

SIMONDS MACHINERY CO.,
PHONE KEARNY 1457

816-818-820 FOLSOM ST,
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Architects who have successfully designed bank structures have been careful to specify materials that expressed the good taste and cheer radiated by the modern bank building. In the recently completed Dexter Horton Bank Building, in Seattle, Bass-Hueter Flat Coat Wall Paint was used throughout. The soft, restful finish was equally appropriate for the interior of the bank and the hundreds of offices rising above it.

OTHER USERS OF FLAT COAT WALL PAINT
The Good Samaritan Hospital, Portland, and the Army and Navy Hospital, San Diego, were also finished with this Bass-Hueter product. In the latter it was used in conjunction with our washable Satin Egg Shell Finish.

Write for color cards, giving 12 available colors, covering capacity, and full directions for using an different surfaces.

BASS-HUETER PAINT CO.

PASADENA
HOLLYWOOD
SANTA ANA
LONG BEACH
BUENOS AIRES, R. A.

SAN FRANCISCO
LOS ANGELES
SEATTLE

PORTLAND
OAKLAND
TACOMA
FRESNO
HONOLULU, T. H.

When writing to Advertisers please mention this magazine.
Symbol of Satisfaction
FOR YOU—

Your Copy of "Water Softening and Filtration"
Now Ready—Send for It Today

The Engineering Department of the Wayne Tank & Pump Company, manufacturers of the Wayne Water Softener, has prepared a booklet which every architect and every consulting engineer should have within reach.

This booklet, illustrated on the opposite page, not only discusses water softening in general, but goes into the subject specifically in its relation and its value to various industries and institutions.

You are undoubtedly familiar with the benefits from using soft water for many purposes. Your work of arranging and applying the Wayne Water Softener under various conditions will be aided by the better understanding this booklet will give you. It is, in a sense, a hand-book on the practical application.

Wayne Water Softeners are manufactured by the largest company in this field, one of the soundest and most widely known manufacturing concerns in America. They are installed under a complete guarantee of owner satisfaction.

The Wayne organization is international. The owner of a Wayne Water Softener can depend upon expert and prompt service from the Wayne organization.

Do not wait until a client asks you about water softening, or the Wayne Water Softener, before equipping yourself with this information. Just drop us a line today saying "Please send your booklet on Water Softening and Filtration."

Wayne Tank & Pump Co., 862 Canal St., Fort Wayne, Ind.

Wayne Tank & Pump Co. of Canada, (Ltd.), Toronto, Ontario, Canada

Division Offices in: Atlanta, Boston, Chicago, Cincinnati, Cleveland, Columbus, Dallas, Dayton, Des Moines, Detroit, Indianapolis, Jacksonville, Kansas City, Milwaukee, Minneapolis, New York, Omaha, Peoria, Philadelphia, Pittsburgh, San Francisco, St. Louis and South Bend

Warehouses in: Philadelphia and San Francisco

An International Organization with Sales and Service Offices Everywhere

Wayne equipment is manufactured completely in one plant and every phase of its operation is backed and guaranteed by the largest institution in the world producing water softeners, with 30 years' experience and a sales and service organization international in scope.
Substantial and Sanitary

This store has a reputation for substantiality and cleanliness. The "ACORN" Oak Flooring laid in this building fully supports this character.

STRABLE HARDWOOD COMPANY

G. H. BROWN, President

DISTRIBUTORS

Strablewood Quality Hardwoods

537 First Street

Oakland, California

When writing to Advertisers please mention this magazine.
Each shipment of “OLD MISSION” Portland Cement is guaranteed not only to equal but to surpass all requirements of the standard specifications for Portland Cement as adopted by the U. S. Government and by the American Society for Testing Materials. A Guarantee Certificate is mailed with the bill of lading of each car, giving number of car, date packed, and number of barrels, over the signature of the chief chemist.
ATCHISON
REVOLVING DOORS
Straight or Curved Wings
ASK FOR CATALOG
PACIFIC MATERIALS CO., 525 MARKET ST., S. F.

PALACE HARDWARE CO.
Good Buildings Deserve Good Hardware
581 MARKET ST. 6063 SUTTER
“San Francisco’s Leading Hardware Store”

EMPIRE HARDWALL PLASTER
MANUFACTURED BY
Pacific Portland Cement Company, Consolidated
PACIFIC BUILDING  SAN FRANCISCO  PHONE GARFIELD 4100
PORTLAND    SAN JOSE    LOS ANGELES

When writing to Advertisers please mention this magazine.
Interior Trim of this Beautiful Bank and Office Building is

"Bataan" Mahogany

Different from Philippine mahogany—grown in the highlands in the Island of Luzon—free from worm holes—retains its lustre for all time

CADWALLADER-GIBSON CO., INC.
Main Office and Yard: 5th and Brannan Streets, San Francisco
Seattle Oakland Los Angeles
UNIVERSITY OF CALIFORNIA CAMPANILE  
John Gilson Howard, Architect

Impregnable to Time

Construct a building of RAYMOND GRANITE today, and your grandchildren's grandchildren will see it in the years to come as it is today.
St. Genevieve Golden Vein Marble
Silver Gray Background Marked with Veins of Gold

Decoratively, few domestic marbles have the qualities of St. Genevieve Golden Vein.

Its absence of dominant color with its warm richness of tone makes it ideal in most decorative schemes.

Structurally it meets every requirement. It can be used outside or inside, and is particularly adaptable for carving.

Color plates or samples on request.

Bowery Bank, 42nd Street, New York City
York & Sawyer, Architects
Shipway Marble Co., Marble Manufacturers

TOMPpINS-KIEL MARBLE COMPANY

505 FIFTH AVENUE
NEW YORK CITY

CHICAGO
SAN FRANCISCO
SYLACAUGA, ALA.
KNOXVILLE, TENN.
Matson Building, San Francisco  Bliss & Faville, Architects  Lindgren-Swinerton Inc., Builders

ARMCO-INGOT

Herringbone
RIGID METAL LATH

Used on above 16 story office building and also on the following buildings:
California Commercial  Alexander
Union  Standard Oil
Balfour  Fitzhugh

The General Fireproofing Co.
20 Beale Street, San Francisco

When writing to Advertisers please mention this magazine.
Come to the Land of Stone!

"SECURITY" has been written indelibly across the mind of the present day builder. Large or small the modern structure must have the endurance of a fortress. So selection of materials becomes a paramount problem.

During the early months of the New Year thousands of prospective builders will visit the famous Indiana Limestone district. Here in this picturesque land the world's greatest natural stone deposit sprawls out over a vast area of tumbling countryside. When the early spring operations are in full swing, the whole district becomes a thrilling spectacle of engineering skill.

Bedford and Bloomington, the home of Indiana Limestone—midway between Indianapolis and Louisville on the Dixie Highway—are easily accessible and just an hour from French Lick Springs. To meet the swelling tide of commerce Bedford recently opened the new Greystone Hotel, America's finest one hundred room hostelry. There and at the Bedford Stone Club the guest will find genuine hospitality.

Builders benefit by visiting the Indiana Limestone district, for it provides a spectacle of fascinating interest and educational value.

Build the Nation Securely With

Indiana Limestone

The Nation's Building Stone
Because it is the fixture in most constant use, convenience and right proportions in the lavatory are important factors in the comfort derived from a fine bathroom. For the same reason, there is special need of enduring quality. Provisions for maximum convenience and long and satisfying service are matched by beauty of contour, color and finish in every detail of Crane lavatories and other bathroom appointments. Crane attention to design is as much a feature of the simplest fixtures of porcelain or enamel as of the distinctive units incorporating French and Italian statuary and colored marbles.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Forty-five Cities

National Exhibit Rooms Chicago, New York, Atlantic City and San Francisco

Works: Chicago, Bridgeport, Birmingham, Chattanooga and Trenton

CRANE, LIMITED, MONTREAL. CRANE-BENNETT, LTD., LONDON

CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO

In CRANE, PARIS

When writing to Advertisers please mention this magazine.
Consult an Architect before Building
This advice appears in our national magazine advertising to home builders.

"The Story of Oak Floors"
from the earliest times to the present day, contains 24 pages of information and suggestions valuable to architects.

For OAK FLOORS
Suggestions in Color sent FREE

This unusual book contains plates of the new color finishes which will harmonize oak floors with walls, hangings, and drapes, and add just that needed touch of individuality to the floors of a room. Your clients in talking over the new home, will appreciate the decorative possibilities of 'weathered' finish in the living room or library, 'gray' in the dining room, and 'forest green' in the enclosed sun-porches. In re-modeling commissions, recommend

3/8" oak over the old softwood floors
just as sound and enduring as flooring used in new construction. Color finishes may be interestingly applied here, as well.

Over 70,000,000 people will see oak floors advertised this year. As many of those to whom we send this new book will consult you about the color suggestions mentioned, we will appreciate the opportunity to send you your copy.

Please mail the coupon below, today.

Oak Flooring Bureau
1036 Ashland Block, Chicago

Please send me your free, illustrated book, "The Story of Oak Floors."

Name: ..........................................................

Address: ..................................................

Sent free and postpaid on request.
Planning the Kitchen

You will find of great assistance in planning a modern efficient kitchen the 30 standardized devices that comprise the line of Peerless Built-in Furniture.

Send for "Architect's Handbook" and "The Book of Built-in Furniture." Write direct to factory or call up any agent listed below.

BUILT-IN FIXTURE COMPANY
2608 SAN PABLO AVE., BERKELEY, CALIF.

THE HOOSIER STORE
Pacific Building
San Francisco
1124 Franklin Street
Oakland

PEERLESS BUILT-IN FIXTURE CO.
Metropolitan Building
Los Angeles

CRESS & CO.
Portland

W. E. ZERWECK
Stockton

JOHN BREUNER CO.
Sacramento
H. G. SHIRLEY
Fresno

When writing to Advertisers please mention this magazine.
Rydal Mixing Valve will appeal to Architects

THE Rydal mixing valve accomplishes, in two complete turns, what the ordinary mixing valve attempts to accomplish in a half turn.

Architects as well as the public condemn mixing valves on account of their quick change in temperature which has, at times, caused the user a great deal of discomfort.

With the Rydal mixer, the temperature of the water can be changed two degrees at a time.

Furnished with a movable dial plate which reads—shut, cold, warm and hot.

The concealed mixer has a regulating screw under the dial plate.

This screw controls the travel of the volume plungers.

By this screw regulation the mixer can be set to open to any point between the words Warm and Hot. Under ordinary conditions, the maximum temperature desired can thereby always be obtained.

Plungers are of different diameters, thus preventing the possibility of error in replacing.

Plungers are of the floating type, allowing seats to close off tight when the wear of the washers has been uneven.

Seats are removable and are of different diameter threads to prevent incorrect installation when replacing.

Operating stem furnished with a heavy square thread, having a large bearing surface which makes a long life thread.
We have standardized the sizes of chain to correspond with the weights of sash for which they are intended. This important feature is not the result of haphazard estimates, but of painstaking laboratory investigation.

**American Chain Co., Inc., Bridgeport, Conn.**

District Sales Offices:

- Boston
- Chicago
- New York
- Philadelphia
- Pittsburgh
- San Francisco

Largest Manufacturers of Welded and Weldless Chains and Makers of the Famous WEEDE Automobile Accessories

---

**ORIGINATORS OF SASH CHAINS**

18,000 feet of our No. 1 "Red Metal" Sash Chain used in the Matson Building, San Francisco, Cal., Bliss and Faville, Architects. Our chains have also been installed in the new Los Angeles Biltmore Hotel and the Fitzhugh Building, San Francisco.

"Giant Metal" Sash Chain. "Red Metal" Sash Chain. Steel Sash Chain.

SEND FOR SASH CHAIN CATALOG A1.
SEE PAGE 1253, SWEET'S 18th CATALOG.

**THE SMITH AND EGGE MFG. COMPANY**

BRIDGEPORT, CONN.

RAWLINS & SMITH
604 Mission Street, San Francisco
618 American Bank Bldg., Los Angeles

COAST AGENTS
Portland Cement Stucco Is Quality Stucco

The high recognition accorded Portland Cement Stucco by the architectural and engineering professions is due primarily to its dependability. The reason for this dependability is the fact that its most important ingredient—Portland Cement—is standardized.

Not only has Portland Cement Stucco superior strength and durability; applied in accordance with the most advanced specifications, it assures structures of distinction and beauty.

Our new booklet, "Portland Cement Stucco," gives all details of good practice. From these you can write your own specifications.

This booklet is yours for the asking. It is a practical "how-to-do-it" book for the superintendent and foreman, as well as a reference book for the architect, engineer and contractor. Here are a few of the things it contains:

- Typical Construction Details with Sketches.
- Varieties of Surface Finish and How Obtained.
- Notes on Coloring Pigments.
- Proportioning Mixtures.
- Use of Hydrated Lime.
- Back Plastered Work.

Send today for "Portland Cement Stucco." It is a booklet you will want to keep. Address our nearest District Office.

PORTLAND CEMENT ASSOCIATION
A National Organization

When writing to Advertisers please mention this magazine.
WARMTH—At the Touch of a Button

Let your clients enjoy the house-wide, convenient heat of the Babcock High Efficiency Gas Furnace—the leakless, odorless furnace with the long fire-travel.

GUARANTEED FOR 5 YEARS

Distributors:
Frank J. Klimm Co., San Francisco.
Pacific Gas Appliance Co., Oakland.
Beacon Light Company, Los Angeles
Southern California Gas Co., Los Angeles

BABCOCK
"HIGH EFFICIENCY"
GAS FURNACE

Made by C. B. BABCOCK COMPANY, San Francisco

Pump Governors
Oil-Burner Governors
Reducing Valves
Safety Valves
Oil Valves
Blow Off Valves
Boiler Feed Valves
Vacuum Pump Governors
Vacuum Regulating Valves
Oil Pumping Sets
Little Giant Improved
Oil Burners
Duplex Oil Pumps
Rotary Oil Pumps
Oil Heaters
Draft Gauges
Boiled Feed Pumps

G. E. WITT CO., Inc., Engineers
C. W. VAUGHN, President and Manager
MANUFACTURERS AND DISTRIBUTORS
862-864 Howard St. Phone Douglas 4404: San Francisco, Cal.

AMERICAN MARBLE AND MOSAIC CO.

Factory:
on Water Front, South San Francisco
Near Grand Ave. and Ferry Slip
Telephone Mission 6043

Office:
25 Columbia Square, San Francisco
Near Folsom St., Bet. 6th and 7th
Telephone Market 3070

When writing to Advertisers please mention this magazine.
the ARCHITECT & ENGINEER

Contents

VOL. LXXVI JANUARY, 1924 Number 1

HOTEL FOR MR. JAMES WELSH, SAN FRANCISCO - Frontispiece
Baumann and Jose, Architect and Engineer

SOME APARTMENT HOUSES AND OTHER BUILDINGS - 55
Frederick Jennings

WINNING DESIGNS IN BRICK HOUSE COMPETITION - 73
Full page plates of nine prize awards

A PLEA FOR MORE ART AND BEAUTY - 83
F. W. Fitzpatrick, Consulting Architect

THE EMBARCADERO SUBWAY, SAN FRANCISCO - 95
Frank G. White, Chief Engineer

RIGHT ANGLE REDUCES COST OF GARAGE CONSTRUCTION - 99

BUILDING FOR MODESTO LODGE OF ELKS - 100
James H. Hoose, Architect

SIZE AND WEIGHTS OF HOLLOW BUILDING TILE SIMPLIFIED - 103

THE SAFETY FACTOR IN BUILDING - 104

PROPER HEATING OF DWELLINGS - 105

EDITORIAL - 106

WITH THE ARCHITECTS - 111

THE ENGINEER - 114

THE CONTRACTOR - 116

Published Monthly by
THE ARCHITECT and ENGINEER Inc.
626-628 Folsom Building San Francisco
W. L. Keruiff, Frederick W. Jones, W. D. Parishwood
President Vice-President Secretary
HOTEL FOR MR. JAMES WELSH, SAN FRANCISCO
BAUMANN & JOSE,  ARCHITECT AND ENGINEER
Some Apartment Houses and Other Buildings.

By FREDERICK JENNINGS

In the following pages will be found a varied showing of hotels, apartment houses, flats and private homes, designed by Messrs. H. C. Baumann and Edward Jose of San Francisco. A majority of the buildings are creditable examples of present day tendency to combine good architecture with modern facilities for comfort and convenience. Baumann apartment houses show unmistakable evidence of study and careful planning. The exteriors are as attractive as the interiors are "homey" and livable. What more could one wish? There is a refreshing absence of the stereotyped four walls and uninteresting entrances in the apartments here illustrated. The facades, though plain in many instances, possess character, the entrances are generously proportioned and ornate, windows are large enough to permit of abundant sunshine and wide, over-hanging cornices have, in some of the most recent designs, been eliminated, thereby giving more light to the upper stories.

Structurally most of the buildings are of reinforced concrete, which material not only insures a substantial building but permits of a different treatment than is possible with frame construction. For example, note the absence of ungainly over-hanging galvanized cornices, so much in evidence in some of the older buildings in San Francisco.

Heretofore the tendency in apartment house construction in San Francisco has been to crowd too many rooms into a building where ground values are high. This was thought necessary in order to obtain sufficient income on the investment. The experience of Messrs. Baumann and Jose has been that fewer rooms on a floor, with plenty of closet space, light and ventilation, will command higher rental than narrow hall-ways and court apartments possessing limited ventilation and light.

The average life of a Class C or frame apartment house varies from twenty-five to forty years, with a possible depreciation of from 2 to 5 per cent. In twenty years time the average apartment house in the classes referred to above, is no longer in the first class and consequently
APARTMENT HOUSE FOR MR. JAMES WELSH, SAN FRANCISCO
BAUMANN AND JOSE, ARCHITECT AND ENGINEER
APARTMENT HOUSE FOR MR. LOUIS JOHNSON, SAN FRANCISCO
BAUMANN AND JOSE,
ARCHITECT AND ENGINEER
APARTMENT HOUSE FOR MESSRS. STOCK AND JOSE, SAN FRANCISCO
BAUMANN AND JOSE, ARCHITECT AND ENGINEER
the rentals must be materially reduced. It has been the aim of Messrs. Baumann and Jose to encourage high class construction whenever possible and that their judgment in this respect has been sound is borne out by a recent transaction where substantial profits were obtained. The average cost of a frame apartment house today is from $1,000 to $1200 per room; Class C $1400 per room, and Class A approximately $2000 per room. Most of the new apartment buildings in the down town section of San Francisco have two and three room suites which bring average rentals of $65.00 per month for the former and $85.00 per month for the latter. Apartments in the outside districts having from five to eight rooms bring a monthly rental of from $125.00 to $250.00.
ELEVATION, APARTMENTS FOR MR. JACOB WEISSBEIN
Baumann and Jose, Architect and Engineer

PLAN, APARTMENTS FOR MR. JACOB WEISSBEIN
Baumann and Jose, Architect and Engineer
APARTMENT HOUSE FOR MR. D. J. CLANCEY, SAN FRANCISCO
BAUMANN AND JOSE.
ARCHITECT AND ENGINEER
RESIDENCE OF MR. PAUL GAVIATI, SAN FRANCISCO BAUMANN AND JOSE, ARCHITECT AND ENGINEER
GARAGE FOR MR. FRANK CLARK, SAN FRANCISCO
Baumann and Jose, Architect and Engineer

APARTMENTS FOR MR. DANIEL McKILLOP, SAN FRANCISCO
Baumann and Jose, Architect and Engineer
ELEVATION. APARTMENTS FOR MR. M. VUKICIVICH, SAN FRANCISCO
Baumann and Jose, Architect and Engineer

PLAN. APARTMENTS FOR MR. M. VUKICIVICH
Baumann and Jose, Architect and Engineer
PLANS, HOUSE FOR MR. M. A. ROTH, SAN FRANCISCO
BAUMANN AND JOSE, ARCHITECT AND ENGINEER
HOUSE FOR MR. K. E. PARKER, SAN FRANCISCO
BAUMANN AND JOSE, ARCHITECT AND ENGINEER
Wind Direction Potent Factor in Laying Out Cities

Washington, D.C., which was laid out in 1789 by Maj. Pierre Charles L’Enfant, is an example of the advantages to be obtained from planning cities with the future well in mind. The city of Springfield, Ill., is about to adopt a city plan, contemplating for the future city, among other features, a union railroad station, an industrial district, the creation of a lake in the valley of the Sangamon river, and a civic center.

The industrial zone is to be located in the extreme northeast part of the city. Attention was given to the source of local water supply, proximity to railroads and terminals, housing conditions, and available sites for industrial plants. An important consideration, however, in choosing this location was the prevailing wind direction. It is always preferable that smoke, gases and noise should blow away from, not over, the residential parts of the city.

The 44-year weather record of the Weather Bureau of the United States Department of Agriculture for Springfield shows that the prevailing wind direction is from the northwest in January and February and from the south during all the other months. It was clearly indicated that by locating the industrial zone in the northeast, smoke-bearing winds would blow over the city but a small part of the time.
SMALL BRICK HOUSE COMPETITION

Awarded First Prize

DESIGNED BY HARRISON CLARK
LOS ANGELES, CALIFORNIA
Winning Designs in Brick Home Competition.

ONE of the most successful architectural competitions held on the Pacific Coast in recent years has just been brought to a close. This competition which was conducted under the auspices of the two California chapters of the American Institute of Architects and the California Common Brick Manufacturers Association, was launched primarily to stimulate the interest of home builders in the use of common brick as a medium for practical and architectural beauty in the designing of California homes.

Over one hundred designs were submitted in the competition, which attracted widespread interest throughout California and neighboring states, $1000 in prizes being awarded to the designers of the nine winning exhibits. The first prize of $400 was awarded to Harrison Clark of Los Angeles. The names of the other prize winners follow: second prize, $200, to A. McD. McSweeney; third prize, $100, to F. W. Mullay, and $50 each in the following order to L. Riggs, Santa Barbara, C. W. Lemmon, J. E. Stanton, W. G. Bryne, L. F. Fuller and C. E. Perry, all of Los Angeles.

Special mention was given to A. McD. McSweeney, who was debarred from a fifth prize by the rule that no contestant should receive more than one prize. Special mention was also given to C. R. Perryman, W. K. Graveley, J. A. Lockwood, L. F. Sherwood and J. D. Winn, all of Los Angeles and W. L. Moody, Santa Monica.

So much interest in the results of the competition was evidenced by the building trades and by the building public that arrangements were made immediately following the close of the competition for a public exhibition of all the designs submitted. For two weeks the drawings were on display at the Metropolitan Exhibit in Los Angeles.

The designs not only show the interesting possibilities of brick in small house construction, but they indicate that the brick house is not necessarily an expensive one. Some of the most beautiful and practicable designs submitted are for houses costing considerably less than $7500.

The competition discloses the latest developments in California small house architecture. The modern tendency in Southern California, based on the experience of recent years, shows an interesting departure from much that has heretofore been standard practice in room arrangement and grouping.

To those contemplating building, the display represents a wealth of suggestions in exterior design and interior arrangement. Plans are now being made to offer a small brick house plan service, using the prize winning designs together with a number of other attractive exhibits submitted in the recent competition. Those interested in securing further details regarding the proposd plan service are requested to write to the secretary of the California Brick Manufacturers Association. 342 Douglas building, Los Angeles.

* * * *

For the first time in the history of the brick business in the United States, the manufacturers from the East and Middle West are coming to the Pacific coast for their annual convention. The meeting of the Common Brick Manufacturers' association of America will be held the week beginning February 11th, at Los Angeles.
SMALL BRICK HOUSE COMPETITION

Awarded Second Prize

DESIGNED BY A. McD. McSWEENEY
LOS ANGELES, CALIFORNIA
Small Brick House Competition

Awarded Third Prize

DESIGNED BY F. W. MULLAY
LOS ANGELES, CALIFORNIA
Awarded Fourth Prize

DESIGNED BY L. RIGGS
SANTA BARBARA, CALIF.
Awarded Fifth Prize

DESIGNED BY C. W. LEMMON
LOS ANGELES, CALIFORNIA
Awarded Sixth Prize

DESIGNED BY J. E. STANTON
LOS ANGELES, CALIFORNIA
Awarded Seventh Prize

Small Brick House Competition

DESIGNED BY W. G. BRYNE
LOS ANGELES, CALIFORNIA
Awarded Eighth Prize

Designed by L. F. Fuller
Los Angeles, California
COMMON - BRICK
SMALL HOUSE COMPETITION

Awarded Ninth Prize

DESIGNED BY C. E. PERRY
LOS ANGELES, CALIFORNIA
A Plea for More Art and Beauty*

By F. W. FITZPATRICK, Consulting Architect

THE eye is virtually the main doorway to the mind and is undoubtedly also one of the most important factors, or instruments, or whatever you want to call them, than can be used in the process of civilizing, educating, bettering the human kind, the genus homo. We have evidences of it every day.

We just naturally crave for pleasant or pretty things to look at, and light is one of them. So with our tenements and the humbler domiciles, the wisest regulation any city can introduce is that which prescribes a reasonable amount of outdoor window surface for light and air into every living or sleeping-room. That regulation has cut down crime and disease amazingly.

Not so many years ago a manufacturer would establish his plant at a convenient point, but that was about all he thought of. Even if the buildings were half-way respectable, the surroundings were sadly neglected. All around those buildings scrap-heaps accumulated, the more unsightly the place became, the dirtier, why, the busier was it supposed to be, the more prosperous its owner. Indeed the so-called hard-headed

*The illustrations are from paintings by the author.
business man would have been ashamed to make a concession to, or expend any money for, what he termed, "silly prettiness." Art and Business couldn’t travel together, the latter looked down upon the former as effeminate, an evidence of weakness, something to be scorned. Then came the insurance experts who made at least decency in factories profitable. They offered lowered premiums if those factories were cleaned up a bit and the refuse removed. Not that the insurance companies were doing this in any virtuous or pro bono publico spirit, but simply because it would lessen the danger of fire and their consequent losses. Followed then the pure-food “cranks” who had the authorities step in and insist that in at least certain factories extreme cleanliness must be the rule.

After a while it was noted by the alert business men that in

SURF APARTMENTS, ROCHESTER, N. Y.
John A. Armstrong, Architect; Gordon and Kuebler, Associate Architects

those “reformed” factories the operatives did better work, more of it, and seemed more cheerful. So much so that the keen business men began to put one and one together, and it dawned upon them that cleanliness, much daylight and at least half-way decent surroundings were assets instead of mere expenses, that what had been termed useless extravagance was actually producing a profit. A few pioneers plunged even farther, they made their workshops beautiful, cheerful, convenient for the workers. They actually added frills, rest-rooms, pictures, gardens with real fountains in them and behold, it all produced big returns upon the investment. The workers felt it, they came better dressed, cleaner, brighter in mind and body; more self-respecting and self-reliant, they speeded up the work and evidenced greater loyalty to their employers. Today the man who maintains a slipshod, dirty, unattractive
factory generally has an exceedingly poor investment on hand. Art in Business does pay.

Why, in Cuba they've known that for years, and in the big cigar factories a good reader is employed to read interesting stories to the workers. Their work is the better for it.

A man who puts a fresh coat of paint on his house feels an inch taller when he goes down the street. Take a hobo and wash him up and dress him in natty raiment and he'll act like a gentleman—for a while anyway. When he falls, it will be because he's very far gone in some disease or other—and very weak. Isn't drink a disease?

An old school-teacher was telling me some time ago that in the old times when he took a village school where the big bullies had a reputation for man-handling every teacher who had attempted to preside there, his first move was to whitewash and clean up that schoolroom, hang up a few chromos, put a couple of cans of flowers in the window, and then invite those bullies to help him keep the flowers watered and a certain daintiness about. He avers he never had any trouble, and his physique was not such as to inspire awe, so he attributes the reform to the power of Art over Matter!

The civic leagues and societies that get after the authorities to compel the cleaning up of cities and who offer prizes and other inducements for well-kept lawns, attractive flower-beds, reformed back yards, and the like, are doing more good work to advance culture, civilization, and Christianity than are the missionaries sent, at infinitely greater cost, into far distant lands.

Perhaps I may be thought to be a bit radical when I say that Art
MOVING PICTURE THEATER, CHICAGO
Newhouse & Burnham, Architects

MASONIC SHRINE TEMPLE
Design and Painting by F. W. Fitzpatrick
should be made more or less compulsory. I mean by Art, Beauty. A little child may and probably will squirm at being bathed. We know that bathing is necessary, therefore it is administered willy-nilly. So in this case, we know that the general public, much as the little child, rebels, just naturally squirms at anything intended for its own good. Here’s the point: By years of patient hammering we have gotten our cities to insisting upon buildings being erected a certain way, so they will neither fall down, nor burn up with the old-time alacrity; we’ve secured the relegation of soap of other smelly factories to regions where they no longer offend us; so with boiler and such noisy shops; we’re cutting down the bell-ringing, yelling, and other unnecessary noises in our cities. Our ears and our noses are being fairly protected, albeit it has been hard work, for each step was most bitterly opposed, it was fought for tooth and nail. The broad principle of the greater good of the many even at the cost of the individual is not very well understood here. The average American citizen, proud of his liberty and rights, couldn’t get it out of his head that he ought to be able to build where and how he pleased upon his own property and make all the noise he wanted to and be as much of a nuisance as he might elect. His “personal” liberty stuck out all over him porcupine-like. Well, we’ve done so well for the ears and nose and progressed so far for the safety of the rest of our anatomy that, it seems to me, we ought to give some little thought and attention to the comfort and pleasure of the eye as well.

In many cities they’ve followed Washington’s example and have an Art Commission that passes upon all public work to keep it in harmony with some established plan of artistic development. I’m urging that we go further than that. Our Building Departments carefully examine every plan made for private as well as for public buildings and prescribe just how the walls shall be for strength, how high the building may go, what the sanitary details must be, etc., etc., all in the effort to make our buildings safe and healthful. The people have become used to such control and direction. Why not go a step more? There have been many such steps since the first big fight that was made because the city wanted its sidewalks alike and the same width and level. Therefore personal liberty was such that you walked on brick, stone, plank, or cinders, all in the same block, and you went up or down steps to the different levels to which the kind-hearted owners of property built their sidewalks in an earnest endeavor to have you break your neck.

The city Art Commissions should have greater power and should co-operate with the Building Departments and pass on all plans for all buildings, private as well as public. Not that I’m clamoring for a certain style of architecture, or that greater expense and elaboration be insisted upon in private buildings, all I want is that our eyes should not be abused, offended, murdered any more than we permit our ears and noses to be. Buildings on any one block should conform to certain major lines, they should not be allowed to scream at each other, there should be a certain harmony of color and material, an effort made toward the really artistic. As it is now, buildings are planted down every one different from the other, a new and sometimes startling creation every twenty-five feet, for all the world as if a confectioner attempted a novel confection by sticking together slices of every imaginable kind, color, shape, and previous condition of cake he could lay hands upon and then wonder at the hodge-podge effect.

Why should we have to look upon buildings that appal us with their utter ugliness? Why should we put all our efforts into one class of
Workmen's Apartments, Social Center, etc., Sydney, Australia
Beuchamp Clamp, Architect; F. W. Fitzpatrick, Consultant
Carrere and Hastings and Shreve.
Lamb & Blake, Associate Architects

CHICORA COLLEGE, COLUMBIA, S. C.
CHARLES C. WILSON, ARCHITECT
BANK AND OFFICE BUILDING, COLUMBUS, OHIO
RICHARDS, MCCARTHY & BULFORD, ARCHITECTS
A FAMILY HOTEL, CHICAGO, ILLINOIS
F. W. FITZPATRICK, CONSULTING ARCHITECT
CATHEDRAL, WHEELING, WEST VIRGINIA
F. F. FARIS, ARCHITECT
F. W. FITZPATRICK, CONSULTANT
Building? For instance, in Washington there are wondrously fine public buildings, marvels of art, but the private individual is permitted to build any freak construction he wishes and the uglier it is the better it seems to serve his purpose. In consequence there are miles and miles of hideous structures and, in spite of the beautiful government buildings, the city as a whole is irreparably marred, spoiled beyond redemption. Everywhere, in Cleveland as well as Washington, in Chicago as well as in New York, there are misfits, awful efforts at originality, colors that swear at one, "designs" that were conceived in sin and brought forth in terrible travail. In some cities they rule distressingly crippled beggars off the streets; by the same token why must we tolerate advertising signs and such things that literally insult any sense of beauty we may possess?

It's a big field; there's endless work to be done in it. We need to cultivate beauty in our homes, in our schools, on our streets, everywhere in our lives and wherever we are, and we'll be the better for it all. They say cleanliness is next to godliness and, I maintain, beauty is first cousin to cleanliness, nay, I do believe they are twins!

Build for Permanence and Beauty.

I would have, then, our ordinary dwelling houses built to last, and built to be lovely; as rich and full of pleasantness as may be within and without, and with differences as might suit and express each man's character and occupation and partly his history.—Ruskin.
The Embarcadero Subway, San Francisco

By FRANK G. WHITE
Chief Engineer for California State Harbor Commission

The increasing congestion of traffic at the intersection of Market street and the Embarcadero, San Francisco, has been apparent for some time, not only to the Board of State Harbor Commissioners but to city and street railway officials and to the public. The extent of this congestion, however, is probably known to comparatively few. A traffic count made a few months ago showed that between the hours of 7 a.m. and 5 p.m. approximately 8,000 vehicles passed along the Embarcadero across the lower end of Market street. The passing of these vehicles caused an entire cessation of street railway car movement during the eleven hours between 7 a.m. and 6 p.m. of 4 hours and 48 minutes and, of course, there was a corresponding tie-up of vehicular traffic during this same period of 6 hours and 12 minutes. The congestion is materially increased, also, by the passenger travel through the Ferry building amounting to 51,000,000 persons annually or approximately 140,000 per day.

In order to meet this situation the Board is constructing a vehicular subway along the Embarcadero under the street railway loop in front of the Ferry building. This subway will carry the auto traffic, and over it will pass the street railway cars and pedestrians without interference from vehicles.

The total length of the subway is 986 feet, consisting of two open approach sections, each 238 feet in length and one central closed section 380 feet in length. The grade in the approaches is 3.75 per cent. The southerly entrance is located just north of Mission street and the northerly entrance is opposite the foot of Merchant street. At either end the closed section extends 85 feet beyond the nearest street railway loop track, in order to provide a pedestrian way and a passage for automobiles approaching the Ferry building. The width of the subway is 23 feet and the clear height of the closed section is 13 feet. The width is sufficient to accommodate the widest trucks traveling in a single line in each direction; and based on traffic studies, it is believed that this will permit of an increase of 50 per cent over the present traffic.

The subway is so located that the westerly side is on the outer slope of an old loose rock seawall. Between this wall and the Ferry building the Embarcadero is carried by a timber platform supported on piles. The platform is 13.5 feet below city base and carries a sand fill upon which the street pavement is laid. These piles were taken advantage of in designing the foundation for the subway and where required, additional piles will be driven. The timber platform ends 280 feet south of the northerly entrance and new piles will be required for supporting this section of the approach.

The subway was designed as a reinforced concrete structure except that the street railway tracks are to be carried in the roof of the closed section on structural steel members. In the typical section the minimum thickness of the roof is 1 foot 10 inches, of the floor 2 feet 5 inches and of the walls 2 feet.

The plans for the construction provide for the removal of the timber platform and the driving of tongue and groove sheet piling to enclose the trench. The piles are then to be cut off at the proper grade, the new piles driven and the bottom sealed in sections by depositing
three feet of tremie concrete around the heads of the piles. After this
has set the trench is to be unwatered and the laitance removed from the
top of the tremie concrete. The outside wall forms are then to be set
and the bottom and sides covered with membrane waterproofing. This
waterproofing is to be carried continuously across the bottom and up
the sides to an elevation above high tide. The permanent bottom, side
walls and roof are then to be poured in the dry.

The drainage of the subway will be effected by means of two 8-inch
drains cast in the side walls below the level of the floor. These drains
will lead to a pump pit located on the south side near the center of the
closed section. Thirty drain inlets are provided, the spacing being
approximately 40 feet in the closed section and 100 feet in the
approaches. In the pump pit will be installed a horizontal centrifugal
pump with a 4-inch discharge. The pump will be directly connected to
a motor with a switch operated by a float installed in the sump.

The closed section of the subway will be lighted by electricity, the
lights being located along both sides in pockets let into the concrete at
the junction of the side walls and roof. In addition light will be ad-
mitted through an opening 18 by 23 feet located in the center of the
loop. This opening as well as the open approach sections will be enclosed
by paneled parapet walls.

A general contract for the construction of the subway was awarded
on November 1, 1923, to the Tibbitts-Pacific Company for $238,700.00.
To this will be added the cost of the cement, pumping installation, light-
ing and paving, making the total cost approximately $342,000.00. The
expense is to be borne jointly by the Board of State Harbor Com-
missioners, the City of San Francisco and the Market Street Railway Co.
on the following basis: Harbor Commission 50 per cent., City of San
Francisco 25 per cent, Municipal Railway 12½ per cent, Market Street
Railway 12½ per cent. It is expected that the project will be completed
in July, 1924.

English Women Enter Building Professions.

English women are turning their attention to professional vocations
formerly confined exclusively to men. A number of them are engaged
in civil, mechanical and electrical engineering, and there are at least a
half a dozen firms of women contractors which have carried through the
construction of large buildings. Electric lighting, too, as a branch of
domestic engineering appeals to many because they have the home
maker’s point of view, and in consequence are frequently more success-
ful than men in this field. One firm of women electricians makes a
specialty of lighting country homes.

* * * *

Wanted—Bamboo Erectors

An American builder visited an interior Chinese city and struck up an
acquaintance with a native in the same line. The Chinese builder
thought the town ought to put up some skyscrapers, to which the
tourist assented.

“Could we get some experts from your country?” was the next in-
quiry.

“Sure.”

“And how should we advertise?”

“Well,” replied the American, “if I were you I’d advertise for struc-
tural steel workers who understand bamboo.”—St. Paul Dispatch.
Right Angle Parking Reduces Cost of Garage Construction.

Frequently, as consulting garage engineers, the Ramp Building Corporation, is called upon to approve plans for garages in which the cars are shown parked diagonally instead of at right angles.

From a space economy viewpoint, this arrangement is not so efficient as the ordinary method of parking. This statement may be proved by cutting out two rectangular pieces of paper of the same size to represent car spaces and placing them upon another larger piece of paper, one vertex and the other at an angle, but with the lower part of each touching a common baseline. It will be observed that the length of the diagonal car space, measured perpendicular to the base line, is 10 per cent greater than the other. In garage terms, this means that a car 15 feet long when parked diagonally extends into the aisle 1 1/2 feet more than when parked in the usual way.

The effect on the width of the car space is similar. If car spaces are laid out both ways in a given distance, it will be found that more cars can be accommodated when they are arranged at right angles to the aisle. As an example, consider a building 160 feet long. By parking the cars at right angles to the aisle, 22 can be accommodated while with diagonal parking only 19 can be stored.

Another disadvantage of diagonal parking is that the columns cannot be spaced as systematically as when the ordinary system is used. This increases construction cost and makes it more difficult to prove-in the flat slab system.

The advantages urged in favor of this scheme are that it is easier to drive a car in and out of its parking space. Either one of these advantages may be true individually, but they cannot both be true of any one car space. As an example, let us assume that the car spaces are slanted in the direction in which the cars leave. In this case it will certainly be easier for the car to be driven out of its space. However, when the car is to be driven back into the space again, it is necessary first to turn the car around in the aisle.

The advantage of a quick exit does not balance the disadvantage of narrow aisles, loss of storage space, the expense of irregular column locations, and the trouble of backing the car into its space.

* * * *

Soap Instead of Oil for Forms

Although no specific tests have been reported recently to show that crude oil prevents bonding of concrete, it is generally recognized that it is impossible to get rid of the thin oily coating after oil has been used on forms in concrete construction work. Anything which cuts down the suction between coats, leads to weak bonding.

It has been suggested that soap would avoid this condition and a cheap soap thoroughly dissolved in water to a consistency of a very thin paste and applied hot with a whitewash brush or broom would undoubtedly give as good results as oil where it is desired to apply a finishing coat to the surface of the concrete after the removal of the forms. As the soap is soluble in cold water, after the forms are removed, the concrete could be hosed down and would have a better surface for the bonding of plaster.—Concrete.
MODESTO LODGE

BUILDING FOR MODESTO LODGE OF ELKS
JAMES H. HOOSE, ARCHITECT
PLANS, ELKS BUILDING, MODESTO
JAMES H. HOOSE, ARCHITECT
Sizes and Weights of Hollow Building Tile Simplified

As a result of a general conference of manufacturers, distributors and users of hollow building tile recently held at the Department of Commerce, Washington, under the auspices of the Division of Simplified Practice, it was unanimously agreed that definite weights and sizes of that commodity be considered as the standard of practice for the industry for the current year.

A survey of variety in sizes, dimensions, and weights reported at the preliminary conference of manufacturers held at the department on June 19, showed 36 different sizes, each made in a wide variety of weights. A compilation and review of the figures brought out by this survey was made by the Standard Committee of the Hollow Building Tile Association and was used as a basis for adoption at the general conference.

The discussion opened on the 12x12x12 standard load bearing wall tile for end construction. It was contended that this size did not permit of combined brick and tile construction for the city of Washington. It was brought out by the tile manufacturers that this size would adequately meet the requirements of any construction and that its failure to do so in Washington was due to the fact that builders in that vicinity were not using the standard size brick as adopted at the Brick Conference held at the Department of Commerce on June 21.

A standing committee of the conference consisting of three representatives of manufacturers, three of distributors, and three of consumers, the personnel to be announced later, was decided upon as a means of providing a follow-up to insure the adoption of the simplifications embodied in the recommendation of the conference; to effect a greater degree of contact and co-operation between the department and the industry, and to consider further eliminations or substitutions in the existing varieties of tile.

The following list gives in detail the weights, sizes, and types of tile adopted at the conference:

**STANDARD LOAD BEARING WALL TILE**

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(\frac{3}{4}) x 12 x 12</td>
<td>3 cells</td>
<td>20 lbs.</td>
</tr>
<tr>
<td>6 x 12 x 12</td>
<td>6 cells</td>
<td>30 lbs.</td>
</tr>
<tr>
<td>8 x 12 x 12</td>
<td>10 cells</td>
<td>36 lbs.</td>
</tr>
<tr>
<td>10 x 12 x 12</td>
<td>6 cells</td>
<td>42 lbs.</td>
</tr>
<tr>
<td>12 x 12 x 12</td>
<td>6 cells</td>
<td>48 lbs.</td>
</tr>
<tr>
<td>3(\frac{3}{4}) x 5 x 12</td>
<td>1 cell</td>
<td>9 lbs.</td>
</tr>
<tr>
<td>8 x 5 x 12</td>
<td>2 cells</td>
<td>16 lbs.</td>
</tr>
<tr>
<td>8 x 6(\frac{3}{4}) x 12</td>
<td>4 cells</td>
<td>16 lbs.</td>
</tr>
<tr>
<td>8 x 7(\frac{3}{4}) x 12</td>
<td>6 cells</td>
<td>24 lbs.</td>
</tr>
<tr>
<td>8 x 10(\frac{3}{4}) x 12</td>
<td>7 cells</td>
<td>32 lbs.</td>
</tr>
<tr>
<td>3 x 12 x 12</td>
<td>3 cells</td>
<td>15 lbs.</td>
</tr>
<tr>
<td>4 x 12 x 12</td>
<td>3 cells</td>
<td>16 lbs.</td>
</tr>
<tr>
<td>6 x 12 x 12</td>
<td>3 cells</td>
<td>22 lbs.</td>
</tr>
<tr>
<td>8 x 12 x 12</td>
<td>4 cells</td>
<td>30 lbs.</td>
</tr>
<tr>
<td>10 x 12 x 12</td>
<td>4 cells</td>
<td>36 lbs.</td>
</tr>
<tr>
<td>12 x 12 x 12</td>
<td>4 cells</td>
<td>40 lbs.</td>
</tr>
</tbody>
</table>

**Standard Partition Tile**

**Standard Split Furring Tile**

**Standard Book Tile**
The Safety Factor in Building

The New York Section of the American Society of Civil Engineers has been considering the subject of structural safety in building. Its study has been limited to building operations of technical character, excluding such simple building work as may be carried out safely by craftsmen without technical direction.

It finds that many practices in the conduct of building are unsound and unsafe, and the fundamental cause lies in the fact that incompetent persons are allowed to build and do build. One of the suggestions offered to offset this defect was the inception of some form of government control which will place it on the owner that he hire the proper architects and engineers and good contractors and building inspectors.

A saving feature of building failures, however, is that they are not chargeable to lack of technical knowledge. The problem of safe building is organizational rather than technical. Ignorance of what good building requires, belief that building codes guarantee safety with ample margin for neglect or variation, dependence upon the city building department, neglect of duty, confusion as to where responsibility lies—or even absence of responsibility for some part of the work—and often plain cupidity—these are reasons. Present conditions of building control make it possible for a man with no knowledge of building to present plans for a building, obtain a permit for erecting it, employ craftsmen, create public dangers subject only to the perhaps not forthcoming objections of the building inspector, and finally put the structure to public use.

The answer is obvious. Building operations of technical character should not be permitted except under the close supervision of a rigidly state licensed structural engineer or architect. No building of any unusual scale should be undertaken without careful planning. It should be technically perfect planning, and not the hit-or-miss variety that merely rough diagrams and important truss.—American Builder.

Electricity Replaces Man-Power in India

The reluctance of the inhabitants of India to adopt anything new has long been the reason that the country has been classed as a backward nation. The change from the old method to the new has been extremely slow in India, due mostly to the natives' tendency to hold to the practices of their forefathers regardless of the merit of the old and the new methods of accomplishing the same results.

Because of the low cost of living and the low standard at which the natives live, labor has been obtainable for an extremely small cost. This fact, too, has mitigated against the adoption of labor-saving devices that are used in other parts of the world. For centuries the hand-pulled punkah has been the instrument that has been used as a fan in India. Illuminating has also been done with antiquated instruments. Cocoanut oil lamps have been the means of securing light at night for hundreds of years.

Despite this conservatism of the people of India, according to Mr. H. A. Doolittle, American consul at Madras, the electric fan and the electric light have shown a marked tendency to replace the punkah and the cocoanut oil lamp. The number of both private and municipal installations in the smaller towns is rapidly growing and a greater interest is being shown in electricity in all areas.—Journal of Electricity.
Proper Heating of Dwellings

The efficient operation of a home heating plant depends on many factors, including proper construction of the chimney flue, proper installation, a thorough understanding of the plant in order to get a maximum return from the fuel used, tight house construction, a correct degree of humidity, and good ventilation, says the Division of Agricultural Engineering of the United States Department of Agriculture. The problems of construction can be solved only by a skilled builder, while experience is the best teacher as to satisfactory ways of handling the individual home heating plant. The other factors, however, can be controlled with a little careful attention at the start of the winter season.

Cracks around doors and windows and leaky floors waste a great deal of heat in the average house. Under conditions of moderate temperature and wind the resulting air change is not objectionable and does not materially affect the operation of the heating plant. But when snow or rain is driven before a wind of 25 to 60 miles an hour, if window and door cracks permit, the air will change four or five times more rapidly than it should. Many people try to remedy this by shutting off the rooms on the windward side in an effort to force the heat into the other rooms. The only sure cure, however, says the department, is to use storm sash, wood and felt weather stripping or metal stripping, and calking materials to fill in the cracks and to make the house comfortable in all kinds of weather.

Anent Imitation Marble

A writer in the New York Times, a great newspaper that prides itself on its conservatism, recently made the rather bold statement that the greater part of the interior marble work to be seen in such profusion in New York hotels, banks and theatres, was made just inside the door "where any passerby, if he were sufficiently interested, could step in and watch the making." Continuing, the article asserts that "none but the expert would know the difference between the manufactured product and the finest marbles from the most renowned quarries of the world."

We can forgive newspaper reporters certain inaccuracies due to the haste with which they are forced to prepare their copy, but when it comes to asserting in cold type that imitation marble cannot be distinguished by even a casual and untrained observer, it is putting it too boldly, and we doubt if there was ever an imitation stone of any kind that could pass detection by anyone. Because of its crude and inarticulate appearance the imitation is always very evident.—Stone.

Electric Lamps Bring Wrought Iron Again in Vogue

One of the pleasant notes in modern home decoration is given by the revival of the use of wrought iron, and never have utility and beauty gone hand in hand so well. There are wrought iron sconces like the old-fashioned candle ones, for side wall illumination, and some are very much dressed up, and ornamented to a degree which our forefathers would think impossible with wrought iron. The intelligent use of color and proper designing makes them things of beauty.

Then there is the hall lantern. Wrought iron lanterns in quaint patterns, and fitted with tinted glass or parchment, give us the right effect. The "torchier" or pedestal lamp is also useful for hall illumination, and can be had in a range of patterns, the genuine craftsman can produce from forged iron.
THE RELIGION OF BEAUTY

Elsewhere in this number is printed a thoughtful discussion of the "Religion of Beauty," by Mr. F. W. Fitzpatrick of Chicago. A very forceful appeal is made to the architect and planner to cultivate beauty, not only in one's personal appearance (Our ladies paramount) but in our homes, our schools and on our streets.

The history of the origin and development, growth and decline of beautiful artistic forms constitutes a major portion of the history of civilization. As regards each particular people, the history of their efforts to conceive and express absolute perfection, or what is commonly called Beauty, in form and color, is with the single exception of the history of their speculative opinions, the most reliable test of the stage of progress which they have attained; nor is it an indication of the abundance of their external resources or even of their intellectual activity alone, that the history of the art of a people is thus important. It determines their moral, their religious position, for the inseparable connection between the beautiful and the good is in no way more clearly manifested than in that fact, that the first inroads of demoralization and social disorder are invariably indicated by a diminution in the strength and purity of artistic forms, especially in architecture.

Mr. Fitzpatrick is right in appealing for greater attention to matters artistic, the popularizing of Art, making it an every-day, intimate, and working function.

We've learned that our religion, whatever it be, is not a Sunday dress to be set aside work-days; it's something we must live to, something to be with us constantly and to guide our every thought and act. To our religious beliefs, whatever they may be—and no man is so low as to be without some—let us add (for our own material and spiritual welfare, our selfish interests if you wish) the RELIGION OF BEAUTY.

"SAFETY ENGINEERING"

Safety Engineering as a distinct profession does not exist except in the minds of a few theorists. The engineer, through his work, is primarily responsible for the unparalleled progress of the present century in practically every industry. All good engineering practice is safe. Any machine which does not have all the necessary devices to ensure the safety of its operators, is not satisfactory equipment from an engineering standpoint. Of all the terms used by engineers the word "safe" out-
ranks all others in the frequency of its use. It stands for an intrinsic element of good engineering and is an internal quality.

The field of engineering may be considered to be represented by the area within a great circle. Safe engineering applies to all properly designed and operated machines. The periphery of the great circle may be used to represent the contact with human life. On this line we find the problems of human welfare and safety. This is the external phase of good engineering.

Accidents are, in general, the result of human incompetence, either mental or physical. Education and selection of men, having for an object the setting at a task, where hazard is encountered, of qualified men only, could eliminate ninety per cent of preventable accidents. Therefore it appears that the term “safety engineering” really stands for nothing more than that part of human engineering which has for its object the training of men to be careful and competent in hazardous employment.

The Department of Safety of the California Industrial Accident Commission has as its object the rendering of assistance in promoting the observance of safe engineering practice and the adoption of safe conduct on the part of employees, both in precept and in fact. That it is accomplishing splendid results one need only to peruse the commission’s annual report which shows a noticable decrease in accidents heretofore attributed to carelessness, or absence of proper safety devices.

“AMERICAN PLAN” FOR ANOTHER YEAR

The wage scale which has been in effect on all work operated under the “American Plan” in San Francisco during the past year will continue in effect this year. The only changes are an increase of 65c a day in wages of teamsters and truck drivers. In making this announcement, the central council of the San Francisco Builders’ Exchange declares no occasion has arisen for revision of the wage scale, which, it will be recalled, was fixed by the impartial wage board after a careful investigation of living costs and a study of the various trades, and is regarded as an equitable adjustment, taking into account living conditions and the average skill required in the different crafts. In the resolutions adopted by the Central Council continuing the wage scale through 1924, it is declared that “while this is the standard wage scale for general average skill in the building crafts, variations shall be allowed in individual cases based on those mechanics who possess greatly superior skill, such additional compensation being warranted by the superiority of the output.” There is no question but that opportunities for both labor and capital in San Francisco have been materially improved under the “American Plan.”

THE FIRE HAZARD IN OUR DEPARTMENT STORES

The country may well give thanks that the Christmas season has passed without a holocaust in one of our big department stores!

Our fire-prevention “cranks” have done all they could to have conditions bettered in these stores, made a little less ripe for a terrific disaster, but with slight effect. We Americans learn only by sad experiences and awful lessons, at least in the matter of Fire and then only insofar as some one particular detail is most forcefully brought to our attention.

It took the destruction of goodly parts of Baltimore, of San Francisco and of Toronto before we really could make a dent in our city councils to adopt worth while general building regulations. The great
Iroquois theatre fire in Chicago forced attention to theatres and, for a while at least, anywhere and everywhere we easily had same restrictions in regard to theater-building—but nothing else. Then the Collingwood school burned and hundreds of little children were destroyed and attention was centered on schools, so that now they are fairly safely built and protected. But we have not yet had a great fire in a department store, so, of course, it is the dickens own job to get those stores into proper shape against fire and panic.

Imagine the setting and then be convinced that it is only through some extraordinarily lucky chance we have escaped such a catastrophe. Narrow aisles, counters piled high with inflammable goods, great open courts through five and more stories of a store, so that five minutes after a fire started on the main floor the whole structure would be afame. Stairs and elevators poorly indicated, a surging mob seeking egress and if it does get to the ground story it will mill around and around to find the exits and those are probably whirligig store doors! Imagine it, I say. Why, at a low estimation a couple of thousand people could be burned or crushed to death in a few minutes. There would be sob editorials, investigations, great memorials mayhap in honor of the dead, indignation at owners of store and authorities for permitting such conditions to exist. But of what avail? Those people will stay dead. A rather heavy price to pay for a lesson. Oh, of course, after it, we could secure almost any regulation we ask for those stores. But why wait? It didn’t happen this Christmas time. Who will guarantee it will not next year? Why not a little prevention instead of sorrow and regret and much scourrying to remedy conditions “after the fact?”

F. W. F.

---

THE QUESTION DRAWER

Edited by

JOHN GRACE

Editor The Architect and Engineer,
San Francisco.

I am trying to find the reason why when the cold water self-closing faucet of a wash basin closes there immediately is a “knock” in the pipe. I am referring to the plumbing installation in a hotel or apartment house.

I have read The Architect and Engineer for many years and am under the impression that an article once appeared in your magazine with an explanation and a simple remedy to correct this trouble for varying pressures.

Will you kindly advise me where to look further on this subject.

Yours faithfully,
J. M. McLuckie.
Vancouver, B. C., Dec. 1, 1923.

This knock is generally caused by air in the pipe. There should be an air chamber at least 16 inches long behind each outlet. If the water pipes run to the top of the building and drop down, the knocking can be stopped by placing a large air chamber in the attic to act as a cushion. The air chamber should be at least one size larger than the water pipe itself.

Painting a Skyscraper

Editor The Architect and Engineer,
San Francisco.

Can you inform me what is being done to the Claus Spreckels building at Market and Third streets? Is the stonework being painted, and if so, why?

INQUISITIVE.

The Claus Spreckels building at Market and Third streets, San Francisco, is being treated to several coats of lead and oil for the purpose of preserving the face stone which has commenced to show evidence of disintegration, due to atmospheric conditions. Experts say that the sulphuric fumes and chemical acids from fuel oil and automobile gas exhausts, have a penetrating effect on certain kinds of building material. The salt air peculiar to San Francisco’s climate, coming in contact with these acids and fumes, causes a disintegration of the stone, making it necessary to protect the outer surface with some sort of preservative. The applications being given to the exterior of the Claus Spreckels building consist of a first coat of Kellogg’s raw oil, a second coat—40 per cent. sublimed lead, 10 per cent. lead carbonate, 30 per cent. silica, and 30 per cent. pure French zinc oxide ground in raw oil, and finally a third coat, consisting of 30 per cent. lead carbonate, 40 per cent. sublimed lead, and 30 per cent. French zinc oxide ground in raw oil.
FOLLOWING is a summary of building projects involving more than $250,000 comprising work expected to start during 1924 in Los Angeles and other Southern California cities. Where no other city is mentioned, all locations and addresses are in the city of Los Angeles.

STORE AND OFFICE BUILDING, 12 stories and basement, 86x160 ft., e. cor. Ninth and Olive Sts.; Sun Realty Co., owners; T. E. Beelman, Union Bank Bldg., architects; Macdonald & Kahn, 603 Loew State Bldg., contractors.

BANK AND OFFICE BUILDING, 12 stories and basement, class A, steel frame, 75x150 ft.; First St. and Fine Ave., Long Beach; Security Trust & Savings Bank, owners; Curlett & Beelman, Union Bank Bldg., architects; plans being prepared.

BANK AND OFFICE BUILDING, 13 stories and basement, class A, reinforced concrete, 60x140 ft.; 620 offices; Hollywood Blvd. and McCadden Pl.; Commercial Bldg. Co., owners; Federal Trust & Savings Bank, lessee; Wm. Simpson Construction Co., 315 Bank of Italy Bldg., contractors; plans being prepared.

BANK AND OFFICE BUILDING, 14 stories and basement, class A, steel frame, 145x150 ft.; 350 offices, Club building; Ninth and Hill Sts.; syndicate personnel not disclosed, owners; J. C. Austin and Lymann Farwell, associated architects, preliminary plans made; Birch O'Neal Co., contractors.

BANK AND OFFICE BUILDING, 12 stories and basement, class A steel frame, 104x119 ft.; 700 offices; U. S. cor. Seventh and Spring Sts.; syndicate represented by Joe Toplitzky, owners; Hellman Commercial Trust & Savings Bank, lessor; Schultze & Weaver, Pacific Mutual Bldg., architects; Seefeld Engineering Construction Co., Pacific Finance Bldg., contractors; excavation started.

BANK AND OFFICE BUILDING, 12 stories and basement, class A reinforced concrete, 78x110 ft.; 220 offices; e. cor. Eleventh and Broadway, Citizens Mortgage Co., owners; Noerenberg & Johnson, 401 Los Angeles Bldg., architects, commissioned to prepare plans.

STORE AND OFFICE BUILDING, 12 stories and basement, class A reinforced concrete, 160x200 ft., San Diego; owner's name withheld; John Parkinson and Donald B. Parkinson, architects; plans being prepared.

BANK AND OFFICE BUILDING, 12 stories and basement, class A steel frame, 74x150 ft.; n. e. cor. Hollywood Blvd. and Ivar Ave.; Guaranty Building & Loan Asso., owners; J. G. Austin and F. M. Ashley, 1125 Dewtell Bldg., architects; Wm. Simpson Const. Co., $600,000, Bank of Italy Bldg., contractors; foundation started; permit issued.

STORE AND OFFICE BUILDING, 12 stories and basement, class A steel frame, 74x150 ft.; 200 offices, Hollywood Bldg. and Ivar Ave.; Guaranty Building & Loan Asso., owners; J. G. Austin and F. M. Ashley, 1125 Dewtell Bldg., architects; Wm. Simpson Const. Co., $600,000, Bank of Italy Bldg., contractors; foundation started; permit issued.

BANK AND OFFICE BUILDING, 12 stories and basement, class A steel frame or reinforced concrete, 45x125 ft.; n. e. cor. Main and Com- mercial Sts.; Pacific Southwest Trust & Savings Bank, owners; Dodd & Richards, 905 Brack Shops Bldg., architects; plans being prepared.

STORE AN OFFICE BUILDING, 13 stories, steel frame, 57x150 ft.; e. cor. Spring and Seventh Sts.; Cahn-C McCabe Co., owners (Financial Center Bldg.); S. Tilden Norton and F. H. Wallis, 716 S. Spring St., architects; foundation started; general contract not let; permit issued.

BANK AND OFFICE BUILDING, 12 stories and basement, class A, reinforced concrete, 350x115 ft.; 700 offices, Spring St. near Sixth St.; Pacific Southwest Trust & Savings Bank, owner; John Parkinson and Donald B. Parkinson, architects; plans being prepared.

STORE AND OFFICE BUILDING, 12 stories and basement, reinforced concrete construction; Builders Exchange Bldg.; Van Nuys Investment Co., owner; Morgan, Walls & Clements, architects.

TELEPHONE BUILDING, 4 stories and basement (designed for heilich limit), class A, reinforced concrete, 90x150 ft.; s. e. cor. Washington St. and Grand Ave.; Southern California Telephone Co., owners; plans prepared by city's company's engineers at San Francisco; work will be started during 1924.

MERCANTILE BUILDING, 12 stories and basement, class A, steel frame, 130x120 ft.; between Seventh and Eighth Sts.; Meyer Steel Co., owners; Curlett & Beelman, Union Bank Bldg., architects; plans being prepared.

MERCANTILE BUILDING, 5 stories and basement, class A, steel frame, 62x154 ft. (Desmond's store), n. e. side Broadway s. of Seventh St.; Columbia Investment Co., owners; A. C. Martin, 238 Higgins Bldg., architect; bids being called.

NEWSPAPER BUILDING, 3 stories and basement, class A reinforced concrete, 100 ft. on "Tenston St.," 360 ft. on Georgia St., and 235 ft. deep; Evening Herald, owner; Morgan, Walls & Clements, Van Nuys Bldg., architects; plans prepared.

STUDIO BUILDING, 12 stories and basement, class A steel frame, 60x145 ft., Hollywood Blvd. nr. Cherokee; Platt Music Co., owner; Schultze & Weaver, Pacific Mutual Bldg., architects.

MARKET BUILDING, 3 stories and basement, class A reinforced concrete, 150x110 ft., southwest corner Broadway and Union; Young & Robeson Co., owner; Chas. F. Plummer, Story Bldg., architects; Weymouth Crowell Co., 2056 W. Ninth St., contractor; work just started; permit issued.

LOFT BUILDING, 12 stories and basement, class A reinforced concrete, 51x150 ft.; east side Broadway between Eighth and Ninth Sts.; Wor- litzter Co., owner; Walker & Eisen, Pacific Finance Bldg., architects; bids taken.

STORE AND LOFT BUILDING, 11 stories and basement, class A reinforced concrete, 100x150 ft., west side Broadway between Ninth and Tenth Sts.; A. C. Blumenthal and associates, owners; Kenneth Macdonald & Co., Pacific Bldg., architects; Macdonald & Kahn, Loew State Bldg., contractors; site being cleared.

ADDITION TO BULLOCK'S STORE, 12 stories and basement, class A reinforced concrete, 60x110 ft.; opposite Hill St. near Seventh; John Parkinson and Donald Parkinson, architects; plans being prepared.

LOFT BUILDING, 10 stories and basement, Grand Ave., near Sixth St.; T. E. Kaufman, owner; Walker & Eisen, Pacific Finance Bldg., architects; plans being prepared.

LOFT BUILDING, 13 stories and basement, class A reinforced concrete, 50x90 ft., northeast corner Seventh and Los Angeles Sts.; S. Goodman, owner; Walker & Eisen, Pacific Finance Bldg., architects; plans being prepared.
American Institute of Architects
(ORGANIZED 1857)
San Francisco Chapter
OFFICERS FOR 1924

President .................. J. S. Fairweather
Vice-President .............. John Reid, Jr.,
Secretary-Treasurer ......... Albert J. Evers

Directors
George W. Keuhl ................ Three Years
Arthur Brown ................ Three Years
William Mooser .............. Two Years
J. H. Blohme ................ Two Years
Earle B. Bertz .............. One Year
Harris Allen ................. One Year

Oregon Chapter, Portland

President .................. Charles D. James
Vice-President .............. Folger Johnson
Secretary .................... William L. Smith
Treasurer ..................... Ormond R. Bean

Directors
Wm. C. Knighton          Wm. G. Percell  John V. Benits

Southern California Chapter

President .................. Reginald D. Johnson
Vice-President .............. A. M. Edelman
Secretary .................... David J. Wimmer
Treasurer .................... A. C. Zimmerman

Directors
David J. Wimmer ............ One Year
Edwin Bergstrom ............ Two Years
D. C. Allison ................ Three Years

Washington State Chapter, Seattle

President .................. James H. Schack
First Vice-President ........ A. H. Albertson
Second Vice-President, Herkert: A. Bell, Tacoma
Third Vice-President . . . . Geo. H. Keith, Spokane
Secretary .................... William G. Brust
Treasurer ..................... Carl Siebrand

Secretary-Executive Committee, Sherwood D. Foed

Delegates to the Institute Convention—
The President and Secretary, ex-officio, and
Albert Held and Carl Siebrand.

San Francisco Architectural Club
77 O'Farrell Street

President .................. Mark T. Jorgensen
Vice-President .............. Edgar B. Hurt
Secretary .................... Carl R. Schmitt
Treasurer ..................... Lawrence H. Keyser

Directors
William Rowe          Felix Raynaud  J. B. McCool

Los Angeles Architectural Club

President .................. Jess Stantion
Vice-President .............. Sumner Spaulding
Secretary .................... J. C. Simms
Treasurer ..................... Paul Penland

Directors
D. Wilkinson          W. S. Davis  C. A. Truevell, Jr.

California State Board of Architecture
Northern District

Phelan Building, San Francisco

President .................. Clarence R. Ward
Secy. & Treasurer ........... Sylvan Schnattacher

233 Post Street

Edward Glass          John J. Donahue  James R. Miller

Southern District
Pacifi st Finance Bldg., Los Angeles

President .................. William J. Dodd
Secy. & Treasurer .......... A. M. Edelman
John Parkinson          Myron Hunt  W. H. Wheeler

THE ARCHITECT AND ENGINEER

LOFT BUILDING, 9 stories, 150 ft. high, 120x200 ft., reinforced concrete and steel frame; Olive St. between 4th and 5th Sts.; Southern California Telephone Co., owner; plans being prepared by engineering department, San Francisco.

APARTMENT BUILDING, 7 stories, class A reinforced concrete, 88 apartments (Las Moradas); Rossmore and Rosewood Aves.: Park W. Co., owner; J. C. Austin and F. M. Ashley, Detwiler Bldg., architects; plans being prepared, $750,000

APARTMENT BUILDING, 12 stories, class A reinforced concrete, 125x150 ft., 536 rooms, 12 ft. stories; Long Beach; Chas. H. and Fred Stillwell, owners; Russell & Alpaugh, Story Bldg., architects; Vauchin Construction Co., treasurer; excavation started.

HOTEL BUILDING, 13 stories, class A steel frame, 1500 rooms, Seventh and Bixel Sts., extending through to Eleventh St.; syndicate represented by Joe Toplitsky, owners; Shultz & Weaver, Pacific Mutual Bldg., architects; plans being prepared; work to be started next April.

APARTMENT BUILDING, 12 stories and basement, class A steel frame, 500 rooms; Grand Ave. between Sixth and Seventh Sts. (annex to Biltmore hotel): Central Investment Co., owners; Shultze & Weaver, Pacific Mutual Bldg., architects; plans being prepared, $3,000,000.

APARTMENT BUILDING, 12 stories and basement, reinforced concrete, 110x150 ft.; Hollywood Blvd. and La Brea Ave.; A. C. Blumenthal and associates, owners; Kenneth MacDonald, 1052 Brick Shops Bldg., architect; plans being prepared.

APARTMENT BUILDING, 13 stories and basement, class A reinforced concrete, 150x100 ft., 300 rooms; w. c. cor. Wilshire Blvd. and Armoree Ave.; Ruth Roland, owner; Walker & Eisen Pacific Finance Bldg., architects; plans being prepared.


APARTMENT BUILDING, 12 stories and 14 stories, 84x121 ft., 300 rooms (San Marcos); Ocean Ave. near Cedar Way, extending through to Seaside Blvd., Long Beach; Walter Homr Co., P. E. Rosen, Ross Abdull, owners; Walker & Eisen, Pacific Finance Bldg., architects, H. L. Goyert, associated; plans being prepared.

HOTEL BUILDING, 9 stories and basement, class A reinforced concrete, 95x130 ft., 325 rooms; s. w. cor. Fifth and San Pedro Sts.; E. N. Adam owner: Russell & Alpaugh, 1106 Story Bldg., architects; H. T. Johnson Co., 304 Broadway Bldg., contractors; plans being prepared.

HOTEL BUILDING, 14 stories, class A reinforced concrete, 92x147 ft., 620 rooms; 636-44 S. Main St.: Metropolitan Hotel Corp. (W. W. Paden and associates), owners, Leo L. Smith, 218-22 Byrne Bldg., architects; bids taken.

HOTEL BUILDING, 12 stories, class A reinforced concrete, 60x126 ft., 252 rooms; Rixel and Ingham Sts.; Mrs. H. Foote and J. Foote, owners; L. L. Jones, 603 Grasse Bldg., architects; bids being taken.

APARTMENT BUILDING, 7 stories, class A reinforced concrete, Hermassa Ave.: F. S. Vroelen, owner, Myron Hunt, architect; plans being prepared.

ADDITION TO HAYWARD HOTEL, Sixth and Spring Sts., H. C. Fryman, owner, John Parkinson and Donald B. Parkinson, architects.

$800,000

$800,000

$500,000

$500,000

$500,000

$800,000

$800,000

$500,000

$500,000

$800,000

$800,000

(Concluded on Page 122)
With the Architects
Building Reports and Personal Mention of Interest to the Profession

Chapter Elects Officers
Architect Reginald D. Johnson was elected president of the Southern California Chapter of the American Institute of Architects at the December meeting. Other officers elected are: vice-president, A. M. Edelman; secretary, David J. Witmer; treasurer, A. C. Zimmerman; member board of directors, D. C. Allison. The new officers were installed at the January meeting by the retiring president, Sumner P. Hunt.

For delegates to the annual national convention of the Institute, the following members were elected: Messrs. A. M. Edelman, Myron Hunt, Sumner P. Hunt, D. C. Allison, J. E. Stanton, John Parkinson, C. E. Noerenberg and Carleton M. Winslow. It is anticipated that the Chapter will be entitled to ten delegates, the president and secretary being ex-officio members of the delegation.

On recommendation of the committee on education, it was decided to hold an architectural exhibition this year. In order to curtail the quantity of material to be displayed, the exhibition will be confined to residential work and to the work receiving the medal awards for the most architectural merit. Each member of the Chapter will be restricted to the proper presentation of two residential subjects. In making the medal awards, the work of any licensed architect will be eligible for consideration.

Urges Municipal Commission
At the last monthly meeting of the Washington Chapter of the American Institute of Architects, Seattle, an address was given by Architect David J. Meyers in which he emphasized the need of a city planning commission. His talk was in line with the efforts of the organization to bring before the public the necessity of scientific and artistic planning for the growth of the city. He gave an account of other cities, showing what work is being done along this line.

Richmond Apartments
A four-story frame and stucco apartment house has been designed for Richmond by Architect E. H. Hildebrand, 110 Sutter street, San Francisco. Bids have been taken and contracts will be let shortly, amounting to approximately $60,000.

Architects Donate Services
The offer of the Allied Architects' Association of Los Angeles to develop, through co-operation with municipal departments and other agencies, a comprehensive and harmonious plan for the administrative center, which will fix the arrangement of the streets, parkings, sidewalks and grades thereof, the locations for the various civic buildings proposed and the treatment of the entire area of land set aside for the purpose, has been accepted by the special committee representing the Los Angeles City Council, the County Board of Supervisors and the Community Development Association.

Messrs. Charles H. Cheney, F. L. Olmstead and Harland Bartholomew will cooperate with the city, the county and the architects, free of cost to the city and county, in working out the plans.

State Architectural Board Vacancies
Terms of thirty-nine Stephens appointees to various state boards and commissions have expired and their successors will be named in the immediate future by Governor Richardson, according to word from Sacramento.

Included in the list of state appointive officers, the following expirations are shown: Northern Board of Architecture, terms of all members (five) expired; Southern Board of Architecture, terms of all members (five) expired; Land Settlement Board, attorney general holds that four members are in office under invalid commissions.

Death of Herman Barth
The death of Architect Herman Barth with offices in the Phelan building, San Francisco, occurred December 11th at the Franklin hospital, San Francisco. Mr. Barth was in an automobile accident the day previous to his death but at that time it was not thought that his injuries were serious. He was 58 years of age and had practiced architecture in San Francisco for more than 25 years. One of his best designs is the southern wing of the San Francisco City and County hospital. Mr. Barth was a member of the San Francisco Chapter, A. I. A.
British Columbia Architects

Mr. S. M. Eveleigh, who has already served for one year as president of the Architectural Institute of British Columbia, was re-elected at a recent meeting in Vancouver, B.C.

Comparatively few changes in the personnel of the council of the Institute were made at the annual session. Prof. E. G. Matheson, of the University of British Columbia faculty, who is the provincial government appointee on the council, tendered his resignation owing to the increasing demands on his time made by university duties. Mr. A. L. Mercer, the first president of the Institute, who has served on the council for the past year, also resigned, but was elected to the post of honorary treasurer.

In place of the latter the Institute elected Architect James A. Benzie, while Prof. Matheson's place is to be filled later by a government appointee in compliance with the provisions of the Institute's act of incorporation. Architect F. L. Townley who has filled the post of registrar ever since the incorporation of the Institute, was again returned unopposed. The council now consists of the president and Architects G. L. T. Sharp and Jas. A. Benzie, of Vancouver; J. C. M. Keith of Victoria, and one to be named later by the government.

Bank Building

The H. H. Winner Company, Sharon building, San Francisco, has completed plans for a $50,000 one-story reinforced concrete bank building for the Bank of Sausalito. Mr. Winner's office is also turning out plans for the new Sonoma County National Bank building at Petaluma to cost $150,000, and for alterations to the First National Bank at Ventura.

Architect Gutterson Busy

New work in the office of Architect Henry H. Gutterson, 526 Powell street, San Francisco, includes a $10,000 residence for Colonel C. H. McNeil to be built in the burned district, Berkeley; two, $15,000 dwellings in St. Francis Wood, for the Garden Homes Company, and a $22,000 house for the same owners on San Buena Ventura avenue, San Francisco.

Oakland Bakery and Garage

Plans have been prepared by Architects Meyer and Johnson for a one-story bakery and garage to be erected at 22nd and Myrtle streets, Oakland, for the Rose Baking Company.

Zoning Ordinance Unconstitutional

Los Angeles zoning ordinances which seek to prohibit erection of certain types of structures in certain parts of the city were declared unconstitutional in a decision handed down by the second district court of appeals.

Only in cases where the public health, safety or welfare is concerned can the city exercise arbitrary police powers, the decision stated. Where these are not concerned the individual should be given the "unrestricted right to use and enjoy" his property, the court held, adding that inasmuch as zoning ordinances are primarily intended to further the aesthetic appearance of the city they cannot be regarded as necessary to the public health, safety or welfare.

The decision was handed down in the case of George Lee Miller and Frances Miller, who appealed from a decision by the superior court denying their application for a writ of mandate to compel the board of public works to grant them permission for construction of a four-story flat in a district restricted by zoning ordinances to two-family structures.

Two Apartment Houses

Plans have been completed by Architects Baumann & Jose, 251 Kearny street, San Francisco, for two three-story frame and stucco apartment houses to be built on the west side of Van Ness avenue, between Chestnut and Francisco streets, San Francisco, for Mr. Axel Johnson. They will cost $50,000 each. The same architects have made plans for a $45,000 apartment house for Mr. Wm. Hoffman to be built on the south side of Chestnut street, west of Van Ness avenue, San Francisco.

Branch Bank Building

Plans have been completed by Architects Bakewell and Brown, 251 Kearny street, San Francisco, for a one-story and mezzanine reinforced concrete and terra cotta branch bank building at 22nd and Valencia streets, San Francisco, for the Hibernia Savings & Loan Society. One structure will cost $100,000.

Personal

Architects H. G. Corwin and E. H. Merrill have dissolved partnership. Mr. Merrill will continue the practice of his profession at 3981 W. 6th street, while Mr. Corwin has opened a new office at 129 W. Washington street, Los Angeles. Architect Henry H. Gutterson announces the removal of his office from 278 Post street, to 526 Powell street, San Francisco.
The Advent of the Skyscraper

The late 19th century witnessed the advent of the skyscraper, and from year to year the number of towering structures in American cities has been growing steadily. At the present time several new buildings, which will become landmarks in their cities, are in various stages of construction.

The 32-story Shelton hotel in New York, the tallest building in the world used for human habitation, has just been completed. In Detroit the 29-story Book-Cadillac, the tallest transient hotel in the world, is being built. In Chicago the new 32-story Straus building is probably the most notable recent addition to America's great office buildings from the standpoint of utility, beauty and income production.

Other notable skyscrapers recently built or now in the course of construction, are the Standard Oil building of New York, rising to a height of 511 feet, and the Chicago Temple building in Chicago, which, with its slender spire, will reach a height of 556 feet.

The Chicago Tribune tower building, one of the most distinctively architectural structures in the country, will be, with its tower, 400 feet high.

One prominent American architect made the statement that with a base of sufficient proportions, he would not hesitate to undertake the erection of a building 2,000 feet high.

Studio Building

A four-story and basement Class B store and studio building is being designed by Architect Edward E. Young for Messrs. Perkins and Trowbridge. It will be erected on the southwest corner of Market and Ninth streets, San Francisco, at an estimated cost of $200,000.

Packing Plant

Mr. Phillip Bush, engineer for the California Packing Corporation, 101 California street, San Francisco, is preparing plans for a large packing house to be built on the block bounded by B, C, 16th and 17th streets, Sacramento, at an estimated cost of $800,000.

Department Store Building

Plans are being prepared by Architect James T. Narbett of Richmond for a three-story concrete and brick department store building to be erected at Ninth street and MacDonald avenue, Richmond, for Albert's, of San Rafael.

Eighth Avenue Residence

Architect Walter Falch has prepared plans for a $12,000 residence at Eighth avenue and Lawton street, San Francisco, for Mr. Walter Schaefer.

Annual Meeting of Architect's Society

Architect Harry H. James of Seattle, was chosen successor to Julius Sittel as president of the Washington State Society of Architects, at the eighth annual meeting, held December 6 at the Northhold Inn, Seattle. The other officers elected are: first vice-president, Wm. J. Jones, Seattle; second vice-president, Edgar Blair; third vice-president, T. F. Doan; fourth vice-president, Vernon Watson. Emil Guenther was elected secretary-treasurer, and Mr. Blair was elected to the board of trustees. During the meeting, which was attended by a number of out of town members, several interesting talks were given. The state licensing law and its application to architects, also the state building code, were discussed by Mr. James. Architect Doan of Bellingham gave a talk in which he pointed out the necessity of enforcing certain laws which would be beneficial to the architect and the general public. Architect Charles Saunders of the American Institute of Architects, who was a guest at the banquet, gave a talk on "The Value of an Idea," which was highly instructive, and well received. Other speakers of the evening were Edgar Blair, Harold H. Ginnold and Wm. Jones. Several applications for membership were received after the business meeting was over.

Magazine for Eastern School

The following item, published in the Daily Advertiser of Lafayette, Ala., is evidence of appreciation of the value of The Architect and Engineer outside the State of California:

The donor of a life subscription to The Architect and Engineer magazine, for the library of Southwestern Institute, by Mr. Edward Mehler, of San Francisco, was announced today. Mr. Mehler was until recently a resident of this city, being representative for the Trelford Co., which has the commissary contract for the Western Pacific. A short time ago he was transferred to San Francisco. During his stay here Mr. Mehler, himself a college man, took much interest in local school activities. Before leaving he mentioned the fact that there is no architectural or engineering magazine in the Institute library and expressed the desire to make the donation referred to above, which was accepted with much appreciation on the part of the local school.

Henry McCullough Dead

The death of Mr. Henry McCullough, pioneer contractor in Alameda county, occurred at his home in Berkeley, December 15th, following an illness of less than one week. Mr. McCullough built many of the prominent public and commercial buildings in the College City, including the city hall and First National bank. He was at one time a member of the contracting firm of Kidder & McCullough.
A Monument in Accident Prevention

By J. J. ROSEDALE, Consulting Safety Engineer

COMMENTS have been made to the effect that the new Matson building in San Francisco and illustrated in the November Architect and Engineer, is a beautiful monument which attracts the attention of strangers on the ferry and steamers approaching San Francisco. While these comments are true, it is doubtful if very many know that this building is likewise a monument in accident prevention, in that not a serious nor fatal accident occurred on this structure during the course of its construction. This remarkable record will be of considerable interest to the building industry and may possibly assist in bringing about better safety conditions on construction work in California.

Time and again, certain contractors and foremen have been known to say, “Safety work is all right in manufacturing plants, but it can’t be done on construction work.” It is gratifying to state that the new Matson building is proof that it can be done.

Certain contractors, too, who have frequent accidents on their jobs, are in the habit of saying, “What difference does it make? We are insured and can afford accidents. The insurance company will take care of our losses.” These contractors are like persons who play solitary and cheat themselves. They are only fooling themselves, for they will realize if they study their compensation insurance costs, that their rates are very high and that they, or the owners, are paying for their high ratio of accidents on buildings. The present plan of experience rating gives every contractor in California an equal opportunity to reduce his compensation costs and save money for himself and the owner, providing such contractor will take every necessary precaution to prevent accidents on his work.

The Matson building has broken all records in the prevention of accidents; for every effort was made by the Lindgren Swinerton Company, Inc., the contractors, to provide all necessary safeguards and precautions for their employees. In fact, these contractors have gone a step further in the matter of preventing accidents by engaging the services of a specialist (the writer) to look after the safety work on all their construction jobs. They are performing a humanitarian deed in preventing needless accidents and also saving money for their clients, the building owners.

Construction on the Matson building was started January 29th, 1922, and up to about November 1st, 1923, an average of 200 workers, representing 21 different crafts, were engaged in its construction. The building has a frontage of 173½ feet on two streets and is 317 feet in height from the basement to the tower.

Insurance companies and contractors are astonished at the excellent record made and the low cost of compensation paid out on this job. There were 60 lost time minor accidents, none of which, it is gratifying to state, were serious or fatal injuries. The cost of compensation and medical fees was $6,841.

The cost of safeguarding workers on this building was as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planking floors</td>
<td>$6,250.00</td>
</tr>
<tr>
<td>Guarding machinery</td>
<td>250.00</td>
</tr>
<tr>
<td>Guarding floor openings, stairs, two elevator cages, two elevator shafts</td>
<td>3,800.00</td>
</tr>
<tr>
<td>Sidewalk canopy</td>
<td>1,350.00</td>
</tr>
<tr>
<td>Canopy on suspended scaffold, railings, toe boards and outside protection</td>
<td>750.00</td>
</tr>
<tr>
<td>Ladders and temporary stairways</td>
<td>800.00</td>
</tr>
</tbody>
</table>

Total                                             | $12,900.00 |

The total cost of safeguarding 200 workmen for a period of about 19 months was $12,900.00, or $64.50 per employee.

These excellent results were accomplished through frequent inspections by the writer in the capacity of chief construction engineer for the California Industrial Accident Commission up to July 1st, 1923, and since that time as consulting safety engineer for the Lindgren, Swinerton Co., Inc., and with the hearty cooperation of C. E. Greenwood, superintendent for Lindgren, Swinerton Co., Inc., the Matson Navigation Company, their construction engineers, Messrs. A. A. Brown and U. G. Brown, their building inspector, H. J. Wagner, and the foremen, sub-contractors and employees.

Architect Resigns

Louis S. Stone, Stockton architect, has resigned as a member of the Stockton Architectural Commission, which is in charge of preparing plans for the proposed municipal auditorium. W. J. Wright and Glen Allen, the other members of the commission, have agreed to complete plans for the structure in accordance with the original contract.
Centennial of Cement Industry

OLD RECORDS on file in the British patent office show that in 1824—just one hundred years ago—an English bricklayer named Joseph Aspdin was awarded a patent for a material he called “Portland cement”. At that time a number of men were engaged in experiments in an effort to produce a cement superior to the natural cements then in use. As far back as 1756 an English contractor named John Smeaton had discovered that an impure limestone containing a certain amount of clayey matter possessed decided hydraulic properties when burned. Aspdin’s contribution was his discovery of the value of taking proper proportions of different ingredients and then pulverizing and thoroughly mixing them before they were burned into clinker, which later was finely ground. He called his material “Portland” cement because when it hardened it resembled a building stone quarried on the Isle of Portland.

Although Aspdin’s invention was brought out in 1824, it was not until 1872 that the Portland cement industry started in the United States. Of course natural cements had been used here for years, and in the late sixties imported Portland cement was gaining a strong foothold in the American market. In 1872 David O. Saylor established a plant for the manufacture of Portland cement at Coplay, Pennsylvania, and so far as can be ascertained this is the first plant of its kind to be started in this country. Within a few years other plants were built in South Bend, Indiana, Kalamazoo, Michigan, and various parts of the east.

Many interesting stories are told in connection with the early efforts to produce Portland cement in the United States. One man used a cook stove in which to burn rock while conducting his experiments. Another used a piece of sewer pipe as a kiln, and ground his materials in a coffee mill. Still another pressed a bent car-axle into service as a part of a grinding machine. For a number of years the reputation of imported cements was so strong that American manufacturers had a difficult time in securing a market for their product. It was not until the late nineties that the home product took its place on an equal footing with imported cement, and eventually won the market.

One hundred years after the invention of the material, the plants of the United States are producing more Portland cement than the rest of the world combined. United States Geological Survey figures indicate that about 135,000,000 barrels were made in this country in 1923. This development has necessitated the revolutionizing of methods of manufacture. Where the early pioneers used crude dome-like kilns for burning their raw materials a modern plant contains huge rotary kilns—steeply brick-lined, cylinders that may weigh as much as eight Pullman cars. One of these great modern kilns will produce as much clinker in a day as one of the old kilns could turn out in a year. The old-fashioned grinding machinery has been supplanted by a variety of crushers and roll, hammer and ball mills, in which the raw materials and clinker are reduced to a powder finer than flour.

The centennial of the invention of Portland cement is an important date in industrial history, and as such will be fittingly observed by various organizations in the building field.

Appointed District Engineer

The Portland Cement Association announces the appointment of Mr. J. E. Jellick as district engineer in charge of its Los Angeles office, 548 South Spring street.

Mr. Jellick received his training at the University of Idaho. For ten years he was engaged in various engineering work in Southern California with the Southern California Edison Company and the Los Angeles County Road Department as senior resident engineer. For the latter he was in responsible charge of constructing many Southern California highways.

About two years ago Mr. Jellick joined the staff of the Portland Cement Association, serving as field engineer in Los Angeles County until his recent appointment as district engineer.

To Standardize Prepared Roofing

At a meeting held by the Department of Commerce with representatives of the division of simplified practice and the chamber of commerce of the United States, manufacturers, distributors and consumers of prepared roofing agreed to the following simplifications as being of benefit not only to the industry but also to the public at large:

1. To eliminate all grades or kinds of slate-surfaced and also stone-surfaced prepared roofing that do not measure up to the requirements of the “Class C Label” of the Underwriters Laboratories.

2. To reduce the varieties of smooth surface roofing to even lines or grades—weights and qualities being considered.

This simplified practice recommendation, became effective Jan. 1, 1924, and is to hold for one year.
Field of the Contractor

Counting the Cost Correctly
Some Reasons for Wide Variations in Bids
By E. W. Robinson

In dealing with estimates, first in importance is the record of estimates. On all important jobs there should be two, and sometimes three independent estimates of quantities of work to be done. These should be made on sheets of a distinctive color. Notations should be made on these sheets as the items are listed, so that any one can at any time check the quantities or extensions pertaining to any single or particular part of the structure. Totals should be transferred to the cost sheets, also colored for quick identification.

Cost sheets should not only show the amount of work to be done, unit and total costs, but should also show in detail how the unit costs were determined. This is often done on scratch paper which is destroyed thus making it difficult to check the accuracy of an estimate. Complete detail records of estimates will greatly assist in revising figures for changes in plans and specifications and will also be valuable in court in event of litigation.

Another important idea in dealing with costs is to co-ordinate cost keeping and cost estimating. The system of keeping cost on work under construction must be such that the data can be used for estimating on future work. Conversely an estimate of cost should be so detailed that when the work is being done the actual cost can be checked against the estimate.

I believe it is better to first estimate the cost of labor and materials on the job and then add the overhead. It is the practice of my company to divide this into job overhead and office overhead. The latter item is more constant, while the job overhead, including supervision, watching waterboys, liability insurance, depreciation of equipment on the job, field office expense, bond premium, etc., is subject to wide variation.

It is perhaps a source of wonder to owners as well as to engineers in charge of work as to the reason for the great variations in bids from constructors for doing a certain specified amount of work. It is perhaps only fair to state that it is also true that some of the bidders on a job wonder how some of their competitors arrived at the amount of their proposals. Some of the things that cause wide variations in the proposals are as follows:

First—Sometimes a constructor does not want the job, but bids on it as a matter of policy. He therefore, does not spend much time on his estimate and plays entirely safe by bidding high.

Second—A man may bid on a class of work that he is entirely unfamiliar with, and if he has no records of former bids of similar work to judge by he may be ultra conservative in his estimated costs, or he may be exceedingly low.

Third—It is a fact that occasionally crooked constructors, or those entirely irresponsible put in a wild bid, usually much lower than the work can be done for, hoping that by some trick or by some accident he may get the job at an adjusted figure, which will net a profit.

Fourth—Errors in interpreting the plans and specifications sometimes lead to large errors. This is especially liable to happen where only one man works up an estimate, and shows the importance of having at least two complete and independent estimates of the quantities of work to be done, and preferably by two different estimators.

Fifth—Occasionally a bidder will have inside information, that the other bidders do not have, as to an impending drop in the price of some materials of importance, or to proposed changes to be made in the plans after bids are received.

Sixth—Perhaps the greatest cause for wide variations in bids is a simple error in the estimate, usually in the addition or multiplication. The writer has compared estimates with a great many constructors, after the letting, and can say that in 90 per cent. of the cases all great variations were found to be in the simplest of operations in preparing the summary of the estimate, what is commonly called a "bust." In preparing an estimate of a building with eight or ten typical floors, it is an easy matter to include one floor too many, or one floor too few (i.e., third to ninth floor inclusive easily called six floors).

As the estimator's experience broadens he learns from his own experience, and

*A paper read before the Texas Section of the American Society of Civil Engineers.
from the experience of others, a great many things affecting costs that may appear surprising at first thought. For instance, it is common practice by many to estimate the labor cost of placing wood trim in rooms, such as picture moulding, chair rail and base board, at a certain price per linear foot per member. Thus a three member base would cost 50 per cent. more to place than two member, yet in most cases, if a good job is required in fitting the base to the plaster wall, it will actually cost less to place a three member base than that composed of two members.

Anyone will likely agree off hand that it should cost more to shovel by hand crushed stone than rounded gravel, and without further analysis to estimate the shovelling of all crushed stone alike. Yet crushed stone of certain sizes, or where it is uniform size, as it is for sprinkling filters, costs much more to handle than a mixture of varying sides. Also crushed trap rock weighing 32 cubic pounds or more per cubic yard will be much more costly to handle than crushed limestone weighing 2500 pounds per cubic yard.

This is not only because of the weight of the stone itself, but because there seems to be a tendency for it to separate from the mortar in handling when used as a concrete aggregate. There is a tendency for a person seeking information as to cost of mixing and placing concrete, for example, to watch a job under construction, count the number of men working, find out the number of cubic yards placed in an hour or a day, and take that as the labor cost for estimating the doing of similar work. Not only does he generally miss the lost time every job is subject to, but data taken in the morning when the men are fresh will not be comparable with what the same men do in the afternoon when tired. Nor is work done on a cool day properly comparable with that done on a hot day. Also if there is an extensive plant used in placing the concrete the casual observer does not get the cost of moving and preparing the plant for each run of concrete.

The writer knows of two jobs where this cost was one-third of the total labor cost of placing concrete where the year age involved amounted to 8000 cubic yards. Inverted concrete spandrel beams on a building or through concrete girders on a bridge look the same as other beams and girders on the plans, but the labor cost of forming and placing concrete is from 25 to 50 per cent. higher than it is where the beam or girder rests by itself. Another matter of concrete design calling for additional labor cost is where the widths of beams cannot be formed with stock widths of lumber. Also timber structures must be studied closely for waste in cutting from stock lengths of lumber. It has been found that frequently workmen will shovel and weigh gravel or crushed stone to a concrete mixer at a cheaper price per cubic yard than they will shovel and wheel the same material the same total distance. All of these incidents and many others of similar nature are usually gained from actual experience and generally at some cost.

To Stop “Snowballing”

Building contractors in Los Angeles and other cities in lower California have decided to balk further “snowballing” practices of building labor. Realizing that the fault rests with the contractors themselves the executive committee of the Associated General Contractors of America held a meeting recently at which resolutions were prepared calling on every employer of building labor to refrain from the practice of recruiting skilled mechanics from other jobs by money inducements above the prevailing wage scale. Bonuses of from $2 to $6 a day have been offered by builders to men engaged on other structures. Pyramiding of wages in excess of the contract scale has been the result, for a contractor must pay to hold his men after he has secured them and must be ready to meet any offer that might be made to his crew. The following is the resolution, a copy of which has been sent to every builder in lower California.

“Whereas, the Southern California Chapter, Associated General Contractors of America, represents about 100 of the principal builders and construction contractors in Southern California and has the interests of the building public and this great industry in mind, and

“Whereas, it has come to our attention that in the past many contractors and others have made the serious mistake of recruiting crews of skilled workmen from other jobs by the unethical practice of offering a wage more than the prevailing scale, and

“Whereas, this practice has served to work a hardship upon the builders so deprived of help and restricted the output of the local workmen because of lost time in turnover and the removal of incentive for honest effort, now

“Therefore, be it resolved, That the Southern California Chapter, Associated General Contractors of America, does heartily condemn this practice among any employers and calls upon the builders and contractors of Southern Cali-
Colored Lighting Aids Realtor in Renting Store Room

That the power of light has been appreciated by many persons outside of the electrical industry, has again been proved in San Francisco, says the Journal of Electricity. In one of the residential sections of the city a real estate agent had the occasion to rent a store room that was adjacent to a moving picture theatre.

The store room had stood vacant for some time and the agent had been unable to rent it despite the fact that considerable effort was exerted in endeavoring to do so. Signs were placed in the windows that fronted the street and the other customary aids employed by agents were used.

The public failed to take any notice of the vacancy and no applications were received by the agent or owner. Then the agent decided to illuminate the store at night in order that persons might be attracted in that way.

In lighting the store an extensive installation of colored lights was made. Red, orange, yellow and blue color screens were placed over the light sources in the interior of the store room. As the display window at the front of the store occupied the entire space, all of the lighting effects that were secured in the room were visible from the street. The exterior of the store was not lighted at all and the vivid contrast of the colorfully lighted interior to the dark street was most marked.

According to eye-witnesses, the store, after being so lighted, attracted a large amount of attention. Crowds coming to and from the moving picture theatre gathered in front of the window and peered into the store room. The realtor's sign, located in the store room, served to notify interested persons of the reasons for so illuminating the store. The location was rented shortly after the experiment was made.

Office Building Owners and Managers to Confer

The members of the office building management profession on the Pacific coast will meet in San Francisco at the Fairmont hotel, February 8th and 9th to consider some of the problems confronting them. The delegates will come primarily from California, but a considerable number are expected from Portland and Seattle as well as from cities to the east.

Several prominent men are on the program. Mr. W. L. Huber, C. E., will present a paper on "Types of Construction," dealing with the advantages, disadvantages and economics of various types.

Mr. Thos. McCaughren of the Pacific Board of Fire Underwriters will explain some of the basic principles of schedule rating. The aim of this paper will be to show how various economies in construction or variety of tenancies may affect the insurance rate adversely.

Mr. F. C. Dutton, manager of the Insurance Exchange building, San Francisco, is preparing a paper on the relation of light and area to rental values. It is Mr. Dutton's thought that these two factors are not given the weight they merit. Given a standard size room with a standard amount of light, at a certain rental, other layouts could be appraised accordingly. The writer proposes to set up such standards, based upon an exhaustive study.

Some of the other subjects to be dealt with are "Relationship of Owner to Manager"; "Modern Salesmanship Applied to Selling of Office Space"; and "Purchasing Procedure".

A prominent eastern man will be present to deliver an address at the closing banquet. He has not been definitely selected but will be a nationally known figure in the office building management profession.

Paint Company Expands

Mr. A. B. Campbell, who is well known on the Pacific coast by paint and varnish manufacturers, has become northern representative for the Brininstool company of Los Angeles, with headquarters in San Francisco, and warehouse facilities have been established in San Francisco to take care of the transbay business. The company reports that it is having a good demand for its materials in the bay region, particularly the San-a-Cote and Vel-va-Cote which products are being used extensively in office buildings, schools and other public structures. Mr. Campbell has been actively engaged in the paint and varnish business for the past twenty-five years.
Apprenticeship One of America's Greatest Problems

By FRANKLIN D. ROOSEVELT
President of the American Construction Council

WAT I feel is one of the great problems in American industry today is the lack of young men to fill the ranks of certain trades, and the surplus of young men crowding some of the so-called "white collar" occupations.

This problem is essentially a national one, and can only be solved as such. The curing of a few local troubles is not enough. For this reason I feel that the belief expressed at the recent gathering in Washington under the auspices of the Federal Board for Vocational Training, that the American Construction Council was particularly well fitted as a national organization to take up this work so far as the construction industry was concerned, was well founded.

You have, first of all, to find in what building trades a shortage of manpower really exists. Some local shortages you will find are only the result of bad distribution, and a survey of this will open the way to the discovery of a remedy.

Having found where young men are needed there next follows to be determined what sort of school, or training, is needed to turn out graduates fitted to become apprentices—young men who will be welcomed into the ranks of skilled labor by all concerned. I hope you will establish such practical standards as will make any young man so trained eagerly sought after.

If you succeed in this your third problem—of how to assure those who take up these courses employment as steady as any building trade employment can be made—becomes comparatively easy.

In your work you may feel assured of the full support of the American Construction Council. On the Council as a whole will fall, I think, the duty of arousing the country to the need of placing skilled manual labor on a par with the clerical and non-manual occupations in public esteem.

What we need is more of the appreciation of the dignity of craftsmanship—the true guild spirit of the middle ages which made the workmanship of their day something to be studied and admired by all the generations following.

The following is Secretary Herbert Hoover's sentiments on the same subject given in a telegram addressed to the American Construction Council:

"At the time of the meeting of the American Construction Council's com-
mittee on apprenticeship I am very glad to extend my best wishes for its success in coping with one of the most difficult problems that faces the country today. There is no solution except by co-operation of the employer and labor and that is the purpose of your conference. There has been too little attention paid to the training of building trades workers and that this is partly responsible for the shortages which have been complained of recently no one can deny. Limitations in some trade unions have their corresponding action in some contractors' unwillingness to give facilities for apprentices. The printing trades have solved the problem by joint action of the employers and employees and that your committee should have taken it up gives hope of trial consideration. It is my hope that the Department of Commerce will be able to give active support to such constructive measures as may be agreed upon by all the groups represented in the council."

General Contractors Hold Banquet

The General Contractors' Association of San Francisco held its annual Christmas banquet in the French room of the Palace hotel, Thursday evening, December 20th. Approximately 100 persons attended.

With Ralph McLeran acting as toastmaster a pleasant evening was spent. Mayor Jas. J. Rolph Jr. whom Toastmaster McLeran introduced as the "builder of big things," was the principal speaker and selected as his topic the Hetch Hetchy project and the upbuilding of San Francisco. Other speakers included Chief of Police Daniel J. O'Brien, Warren Shannon, John Monk, Chas. Gompertz, Edw. Ginley and Fred. Lindgren.

Passing of Asa L. White

Mr. Asa L. White, pioneer lumberman on the Pacific coast, and a national figure in the hardwood business, died Dec. 6 at his Los Gatos ranch, after an illness of several months. Mr. White was born in New Brunswick eighty-one years ago and came to California in 1868. Four years later, with his brother, the late Peter White, he organized the firm of White Bros. Peter White came to California in 1850.

Mrs. White died two years ago. Surviving are a son, William Thornton White of Oakland, and a daughter, Mrs. Moses W. Faitonte, of Newark, N.J.
Average Building Costs in Southern California

The Valuation Committee of the Southern California Chapter of the General Contractors of America has just completed a compilation of the present average building costs in Southern California.

The information in the compilation will be used by the county assessor as an aid in determining the correct valuation of buildings. It will also be used by the mortgage and loan departments of many local banking institutions as a guide to the accurate appraisal of structures.

The Valuation Committee is composed of Messrs. J. C. Bannister, P. M. Jones, and Paul B. Davidson. The chart showing their report follows:

Class A steel frame buildings—Cost per cubic foot: Office buildings, 53 cents; hotels, 58 cents; lofts, 28 cents; warehouses, 25 cents.

Class A reinforced concrete buildings—Cost per cubic foot: Office buildings, 50 cents; hotels, 55 cents; lofts, 25 cents; warehouses, 20 cents.

Class B brick buildings—Cost per cubic foot: Stores or theaters on ground, rooms, apartments, etc., above, 33 cents; apartments, 38 cents; lofts, 20 cents; warehouses, 15 cents. One-story garages, per square foot, $1.75; one-story stores, per square foot, $2.25.

Frame buildings—Cost per square foot: California houses, good, $3; medium, $2.50; cheap, $1.75. Bungalows, special, $5 to $6; good, $3.60; medium, $3; cheap, $2.50. Bungalows, out of town (no restrictions), good, $3.75; medium, $2.75; cheap, $2. Residences, two-story, good, $6 to $8; medium, $4.50; cheap, $3. Outbuildings, good, $2 to $2.50; medium, $1.70; cheap, $1. Corrugated-iron buildings, all kinds, approximately $1.

Portland Cement Stucco Standardized

The American Concrete Institute investigated the methods of applying Portland cement stucco for more than six years before it finally adopted its Standard No. 25—Recommended Practice for Portland Cement Stucco—on April 1, 1923.

In arriving at this recommended practice, the Institute's committee C-3 considered the views based on the actual experience of engineers and architects from every part of the country, including America's foremost users of stucco.

The Portland Cement Association has published a reprint of the committee's report under the title "Portland Cement Stucco," a copy of which may be obtained free upon application to the Association in Chicago.

Other matter in this edition includes twelve plates of stucco surfaces, four of them in color, three full pages of drawings of stucco details and seven new pages of photographic illustrations showing stucco finished houses of various types in widely distributed locations.

Attention is also directed to the tables showing quantities of materials and of colors and to the summary of important points to be remembered in the use of stucco.

Foreign Combinations to be Probed

The following summary of a section of the annual report of the Department of Commerce has been prepared and released by the Department's Trade Press Service:

Notice given by the American government of its intention to thoroughly investigate the activities of foreign combinations controlling raw materials of vital need to American industry and for which our manufacturers are predominantly dependent on imports, has resulted in stemming the tide of advancing prices, according to the annual report of Secretary of Commerce Hoover for the past fiscal year, which will be made public shortly in accordance with the law.

In discussing the situation Secretary Hoover says: "There are a number of necessary raw materials for the supply of which we are predominantly dependent on imports from foreign countries. Possibly as a result of the war, but more particularly during the past eighteen months, there has been a growing tendency for producers of these commodities to combine in control of prices as against the American market. This is particularly the case in nitrates, tanning extracts, quinine, rubber, sisal, tin, cork, mercury, tungsten, and various minor minerals."

"The effect of these price combinations in the consequent higher cost to American consumers presents a most serious problem," Secretary Hoover declares, pointing out that while we are vigorously in control of price combinations in respect to our own industries, we are, of course, powerless to reach these foreign combinations through our antitrust laws.

"Under authority of Congress," the secretary's report says, "an exhaustive examination of such combinations was undertaken by the department before the close of the fiscal year to determine—first, the character and extent of the combinations themselves; second, whether alternative sources of these raw materials could be stimulated and therefore natural competition induced; third,
THE selection of Buttonlath as the base for the walls of a building is a tribute to the judgment of the architect. Buttonlath is in successful use today in thousands of California homes, factories and office buildings.

BUTTONLATH MANUFACTURING CO.
207 BALBOA BUILDING, SAN FRANCISCO

NOT only will a Kennedy Valve give satisfaction right now, but it will continue to give good service for a long period of years. The Kennedy Valves you specify today will still be in service of your clients five, ten and twenty-five years hence.

Kennedy Valve records extending through almost half a century of uninterrupted service testify to the long-time satisfaction that can be expected of the Kennedy of present-day improved design.

Ask us to send you the Kennedy Catalog describing in detail the 500 different types and sizes of Kennedy Valves and explaining the special Kennedy features.

THE KENNEDY VALVE MFG. CO.

Branches and Supply Depots: New York, 95 John St.; San Francisco, 23-25 Minna St.; Boston, 47 India St.; Chicago, 228 N. Jefferson St. Export Office: Elmira, N. Y.
Sales Offices: Salt Lake City, El Paso.

When writing to Advertisers please mention this magazine.
what relief could be obtained by stimulation of synthetic or substitute materials within our own borders; and fourth, what protective or retaliatory legislation could be undertaken."

**LOS ANGELES BUILDING FORECAST FOR 1924**

(Continued from page 109)

**WAREHOUSE**, 10 stories and basement, class A reinforced concrete, 100x190 ft. (for L. A. Furniture Mart), 600 e. cor. San Pedro and Commercial Sts.; Los Angeles Warehouse Co., owner; A. C. Martin, 224 Higgins Bldg., architect; plans being prepared.

**HOTEL BUILDING**, 5 stories 400 rooms, Point Loma; reinforced concrete construction; Point Loma Hotel Co., owner; Myron Hunt, architect; plans being prepared.

**APARTMENT HOTEL**, 11 stories, class A, steel frame or reinforced concrete; San Vicente Blvd. and Ocean Ave., Santa Monica; Shoreham Apartment Hotel Co., owners; Davies & Baume, Long Beach, architects; preliminary plans made.

**APARTMENT BUILDING**, class A, Ambassador apartment, Almond Place and Ocean Ave., Long Beach; W. Horace Austin, Long Beach, architect; Stradley & Newton Co., Los Angeles, contractors; plans being completed, $750,000.

**JONATHAN CLUB BUILDING**, class A, steel frame, 150x150 ft. (will contain stores, offices and club quarters); n. w. cor. Sixth and Figueroa Sts.; Schum A. Weaver, Pacific Mutual Bldg., architects; plans being prepared, $2,000,000.

**WOMAN’S ATHLETIC CLUB BUILDING**, 7 stories and basement, class A, reinforced concrete, 150x150 ft., Flower St. between Eighth and Ninth; Allison & Allison, Hibberd Bldg., architects; plans completed, $800,000.

**SHRINE AUDITORIUM**, class A, reinforced concrete and steel, 588x302 ft.; Royal and Jefferson Sts.; At Malakiah Temple, owner; J. C. Austin and C. Albert Landsburgh, consulting architects; revised plans completed and bids to be taken, $2,500,000.

**SOUTHERN CALIFORNIA BUILDING**, 12 stories and basement, 290 dormitory rooms; Wilshire Blvd. between Corsonado and Carondelet Sts.; Edwin Bergstrom, Citizens National Bank Bldg., architect; plans being prepared, $2,000,000.

**ELKS LODGE BUILDING**, 12 stories, class A, steel frame, 262x150 ft., s. w. cor. Sixth St. and Parkview Ave.; Lodge No. 99, B. P. O. E., owner; Curdell & Beedman, Union Bank Bldg., architects; plans being prepared, $1,500,000.

**LOS ANGELES COUNTY HALL OF JUSTICE**, 11 stories and basement, class A steel frame, 155x150 ft., n. e. cor. Broadway and Temple St.; Allied Architects Association, architects; excavation completed and foundation started; bids on general contract and other work to be called for soon, $1,000,000.

**LOS ANGELES COUNTY HOSPITAL BUILDINGS**, additions to present group, class A and class C construction; Allied Architects Association, architects; plans being prepared, $4,000,000.

**PASADENA CITY HALL, LIBRARY AND AUDITORIUM, CIVIC CENTER, Pasadena; competition to be held to select architect; bonds voted, $4,000,000.

**LOS ANGELES CITY HALL**, class A, to be built in civic center, Main St. north of First; competition to be held to select architect; bonds voted, $3,500,000.

**LOS ANGELES CITY CENTRAL LIBRARY**, class A construction, Normal Hill, Fifth St. and Grand Ave.; Bertram Goodhue, New York, and C. M. Winslow, Van N竹s Bldg., Los Angeles, architects; working plans being made, $5,000,000.

**THE ARCHITECT AND ENGINEER**

**The Registration Tangle**

"Architectural registration is getting to be like the automobile laws in the early days. You can scarcely cross a state line without being arrested. Most state registration laws, to be sure, include a provision for reciprocity, but this happens to contain a joker. Ordinarily it stipulates that registration shall be granted without examination to registered architects from other states, provided the qualifications required there are equal and the same privilege is extended in return. Now, as no two states have exactly the same requirements—some demanding more general education; some more professional education; and some, more practical experience—it is open to any state to refuse reciprocity, either on the ground that its requirements are greater in this or that respect, or if they are less, on the ground that they are not accepted as equal by the other state.

It has been, moreover, the practice of the National Council of Architectural Registration Boards that when registration was granted in the home state under exemption from examination provisions, as was ordinarily the case with practitioners of experience and standing, such registration is not accepted as ground for registration by transfer in another state; in other words, registration by exemption stops at the state line. To the unfortunate beneficiary of exemption at home the other state says: Go back and be examined in your own state, and then we will consider a transfer of registration. Very well, he takes the examination at home, perhaps a "senior examination" intended for men in practice for many years and calculated to establish his experience and personal responsibility, perhaps even the full written examination theoretical and practical. Even then he has no reasonable assurance that it will be accepted in the other state. Michigan has recently refused a transfer of registration from another state, giving the ground that the examination there only lasted two days, whereas the Michigan examination lasts three. There is little else to do than to appear and take an examination in each state.

As one can scarcely anticipate when one may get a job in another state, this may still not prevent one from breaking the law. The examinations may be held as stated at rare intervals, and no provision be made for an ad interim registration. Your building may have to be done before there is opportunity for you to appear to prove your competence.

All this is not an argument against registration. Good or bad, it has got past argument when twenty odd states
Reed Memorial Chapel, Denver, Colorado

This beautiful chapel is built of Carrara marble, designed by Signore Romanelli, noted Italian sculptor of Florence. The stone was quarried and executed in Italy. All the stone work was set in mortar of Medusa Stainless White Cement. McPhee & McGinity, Denver, supplied the Medusa products.

Send for Interesting Bulletins and see our catalogs in Sweets.

THE SANDUSKY CEMENT Co., Dept. P, Cleveland, Ohio
Medusa Stainless White Cement—Plain and Waterproofed—and Medusa Waterproofing are carried in stock and sold by leading building-supply dealers in California, Oregon and Washington.

MEDUSA WHITE CEMENT
have a law of some sort. The others need one now if it is only as a club in self-defense against the requirements of other states. But one may hope that this mutual clubbing will give way to a broader policy. As with the automobile, reason will begin to prevail when the nuisance gets intolerable enough.—Architectural Record.

To the above the Bulletin of the Illinois Society of Architects adds the following caustic comment:

"Whenever the architectural profession becomes as well organized as the medical profession and its members are willing to devote as much time and thought to professional matters as is devoted by the doctors, then conditions will change.

"Can anyone conceive of a more utterly ridiculous situation than to compel a thoroughly qualified architect of many years of successful practice and holding a certificate of registration by examination in any state, to be compelled to take a written examination in another state before a board composed of a chemical engineer, a land surveyor, an electrical engineer, a railroad engineer and an instructor of design who has never had any actual architectural practice?

"If architects complain that the public does not respect the law controlling the profession, architects should interest themselves in the securing of at least sensible regulation and sane control by actual practitioners of their own profession."

Monolith Portland Cement Company
One of the new advertisers in this month's Architect and Engineer is the Monolith Portland Cement Company of Los Angeles, whose plant is at Monolith, California. So great has been the demand for this company's material that its output has been sold several months ahead. Monolith is different from the ordinary cement because of its waterproof properties, the latter being ground into the material in the process of manufacture. In other words, Monolith is waterproof in the sack and may be transported or stored in the dampest weather without the necessity of taking special precautions to keep it dry. Besides the Monolith plastic waterproof cement, this company also manufactures a plain Portland cement of high uniform grade. The company's products are for sale by all building material dealers.

Not His Fault
The story was brought out during the work now going on in connection with the erection of a well-known factory. The new foreman being a hustler and wanting to make a record for himself, caught one of the brick masons snatching a bit of rest in the shade of a wheelbarrow.

"What do you think you are getting paid for? Get on the job if you don't want to be fired," he commanded.

"All right," drawled the mason, "but I can't see what all the rush is about. Rome wasn't built in a day, you know."

"That may be," was the foreman's rejoinder, "but I wasn't boss of that job."
Ques.: How are Industrial Steel Sash cleaned?
Ans.: By using "Metprodco Industrial Casements"

"Metprodco Industrial Casements" are designed for frequent cleaning, as the ventilators are placed in position that make it possible to readily reach the entire exterior glass surface.

"PACIFIC COAST PRODUCTS"

Our Engineering Department is at your service for further information

UNITED STATES METAL PRODUCTS CO.
330 Tenth St., San Francisco, Calit.
Lumber Exchange, Seattle, Wash.
Exchange Bldg., Portland, Ore.

Bank of Italy Bldg., Los Angeles, Calit.
Paulsen Bldg., Spokane, Wash.
Provident Bldg., Tacoma, Wash.

When writing to Advertisers please mention this magazine.
THE ARCHITECT AND ENGINEER

Prepared Roofing Versus Shingles
By DOZIER FINLEY
Director Technical Research, Paraffine Companies, Inc.

The agitation against the use of shingles does not come from the manufacturers of prepared roofing, but comes from fire prevention engineers, who have made the most careful study of fire hazards throughout the United States; who have made innumerable tests of every type of material entering into the construction of buildings, from the cellar to the peak of the roof, and who have carefully studied all of the conditions obtaining in the larger conflagrations, as well as in small fires occurring during the past half century. These fire prevention engineers have determined a minimum of susceptibility in the matter of inflammable fire-retardant and fireproof materials, and have brought every pressure to bear on manufacturers, on municipal bodies and all others concerned, whereby materials having at least this minimum resistance to fire shall be used in building construction.

The largest number of these fire prevention engineers is in the employ of the National Board of Underwriters' Laboratories, Inc., fire insurance companies, local boards of underwriters and the like. Not a few of them are employed by large corporations to protect the property of these corporations.

The prepared roofing manufacturers, among many other makers of building materials, have spent thousands of dollars in research work to bring their product to a point where it will pass the recommendations of these fire prevention engineers. They have so far succeeded that they can supply roofing materials composed of paper, tar and rags, which are so treated and compounded that they will pass the same tests for fire resistance and production of burning brands as are passed by the tile and metal roofs.

It may be inconceivable to the lay mind how paper, tar and rags can resist fire, being in themselves inflammable. No one knows better than the fire prevention engineer that fire is a peculiar thing and that the best method of extinguishing it is by smothering it. A homely illustration is that of smothering a kettle of burning grease by throwing a cloth over it. In the instance of the prepared roof, not only is there a smothering action, but under an intense burning heat the material tends to form into a mass of coke, which acts as a retardant to the progress of the fire.

The prepared roofing manufacturers have no quarrel with the shingle manufacturers and do not attempt to place shingled roofs in an unfavorable light. It is to be pointed out that the shingle manufacturers have every opportunity in the world to co-operate with the fire prevention engineers and through research work to improve their product in such a manner that it will pass the tests that are deemed requisite by these engineers.

Those whom the fire prevention engineers represent have the largest amount of money invested in this matter and consequently are the ones most to be considered. The insurance on building construction is carried by those who give employment to these experts, and, naturally, the whole trend of the work of these experts is to develop every means and method possible to safeguard the property in which their superiors have billions of dollars at stake.

Attractive Built-In Fixtures
With the cost of building still high the owner naturally seeks to keep down the expense as far as possible by economizing in space. Therefore, when building a home or an apartment house, he finds that built-in fixtures are a factor not to be overlooked. His approval is more likely to be given if the fixtures in question contribute to the beauty and comfort of the interior.

To this end the Built-in Fixture Company, 2608 San Pablo avenue, Berkeley, is manufacturing a line of utilities not heretofore equalled. For example, there are the cooler type cupboard, the table cabinet, the broom closet unit equipped with ironing board door, all of which may be installed separately or in combination. There is no wasted wall space where built-in fixtures have been specified. Other units include the breakfast seat and table which may be installed in old or new houses, also the kitchen cabinet—a tremendous saver, the Peerless bathroom cabinet with mirror, medicine chest, etc., and last but not least, Peerless phone cabinet with seat, a handy shelf to write on and place for hanging the directory which folds up on the inside of the door and is concealed from view when the phone is not in use.

Spiritual Carbon
Knocking, in an individual, is just as much evidence of lack of power as it is in an automobile.
United States Short 1,000,000 Homes

SOMETHING of the problem confronting the construction industry and the building material supplies manufacturers was disclosed at the three-day convention of the National Conference of Housing in America at Philadelphia on December 5, 6 and 7. Statistics presented by speakers disclosed a shortage of from 800,000 to 1,000,000 homes in the United States at this time. Profiteering, irregular employment, unwillingness of banking institutions to lend money on real estate and failure of contractors to employ apprentices were blamed for this shortage.

New York, Chicago, Philadelphia, Cleveland and Boston are now facing an acute housing shortage. In many other cities there are no houses available for workingmen and few are under construction.

To relieve the housing shortage, that is dangerous to the health and morals of young Americans, at least six remedies must be adopted, according to officials of the conference. They are:

1. Banks must lift the embargo on money for building. At present banks are unwilling to make loans over 50 per cent. of the value of the building. This retards construction and also allows profiteering on second mortgages.

2. Builders must be content with smaller profits to stimulate construction.

3. The type of house for the workingman must be changed so as to get cheaper construction. “Gingerbread” designs that are unnecessary can be eliminated. This would open the home market to the salaried group of from $55 to $50 a week; and 30 per cent. more of the population would be home-owners.

4. Cost of building materials must be lowered by increased production, with wages of the makers of the materials the same as now received.

5. Cities must improve suburban properties, installing sewers, water mains, and electricity, so the land will be available for building operations.

6. Building codes of “Tatankhamen’s time” must be changed to modern codes and standardized. Variety could then be eliminated and production of building material produced at lower cost.

Personal

Announcement is made of an association between Messrs. Maurice C. Couchot and Jesse Rosenwald, consulting engineers, building and industrial plants, with offices at 60 Sansome street, San Francisco. Mr. Couchot was formerly located at 234 Pine street, San Francisco.

Mr. Howard Frost, president of Los Angeles Pressed Brick Company, has been elected a director of the American Face Brick Association. He will serve for three years.

Mr. Arthur S. Bent of Bent Bros. Construction Company, has been elected a member of the Los Angeles Board of Education to succeed Mr. Frank O. Bristol, resigned.

Architect Ralph O. Beattie has moved from 555 N. Western avenue to 2813 S. Bronson avenue, Los Angeles.

Architects Quintin & Kerr, 310 Weber building, Alhambra, have taken over the architectural business of Architect Ervin T. Smith. Mr. Smith is now residing at Casa Grande, Arizona.

Mr. Emmet G. Martin, formerly manager of the offices of Architect Albert G. Martin in Los Angeles, has opened offices for the practice of architecture at 603 Citizens National Bank building, Los Angeles. Mr. Arlos R. Sedgley, architect, is in charge. Manufacturers’ catalogs are requested.

The Concrete Construction

of the following buildings designed by architects and engineers,

BAUMANN AND JOSE

and illustrated in this issue was executed by

L. VANNUCCI

BROS.

16th and CHURCH STREETS

SAN FRANCISCO

Six-story apartment house for Chas. A. Johnson, Sacramento and Jones Streets.

Six-story apartment house for Chas. A. Johnson, Hyde and Sutter Streets.

Six-story hotel for J. Welsh, Sutter near Jones Street.

Six-story apartment house for J. Welsh, Sutter and Hyde Streets.
BOOK REVIEWS
Edited by CHARLES PETER WEEKS

Portfolio of Designs for Moderate Cost, Indiana Limestone Homes. Vol. 5, Series B. Published by Indiana Limestone Quarrymen's Association, Bedford, Indiana.

This book, beautifully printed, features a new use of stone in the building of residences and is something more than simply a building material producers' booklet. It has a direct message to architects that we believe will interest them. Practical suggestions are given for the use of rough-sawn quarry-run stone in moderate cost residence construction. All the designs shown in this booklet were specially prepared after considerable study of the problem.

The publishers state that while they are making a small charge for this booklet, when sent to the ordinary individual, it will nevertheless be mailed free to all architects requesting same; also to architectural draftsmen writing for same on employer's business stationery, the charge being simply to prevent the promiscuous mailing of the booklet, and restrict the general mailing to bona fide interested parties.

Brick Men to Convene

The week of February 10th will be Brick Week in California. On that date a caravan of 500 brick manufacturers from all parts of the country will arrive in Los Angeles to attend the ninth annual convention of the Common Brick Manufacturers' Association of America.

As guests of the California Common Brick Manufacturers' Association, the visiting brickmen will tour the central part of the state before descending on Los Angeles. After the convention week their itinerary includes visits to the principal points of interest in Southern California and the border, thence East through Arizona and Texas.

The caravan will arrive over the Union Pacific in three ten-coach sections, under the direction of Ralph P. Stoddard, secretary-manager of the brickmakers' national organization. Secretary Stoddard is now conferring with California brick manufacturers and completing arrangements for the convention, regarding which he is quoted as saying:

"This is the first time we have ever held a national convention west of Kansas City. We decided to hold our 1924 convention in California because your state is fast taking the lead as the principal brick producing state in the Union. Illinois is the only state whose brick production exceeds yours, but your manufacturers are increasing their output by leaps and bounds. Los Angeles today is one of the leading brick producing centers in the world. California manufactures 25 per cent of the nation's common brick."

In Charge of Factory Sales

Mr. C. H. Davies, for a good many years in the employ of S. F. Bowser & Company, and principally known to the manufacturing industry through his management of Bowser's factory division in Chicago, has assumed charge of the factory sales promotion division of the entire Bowser organization, with headquarters in Fort Wayne.

Mr. Davies relieves Mr. L. E. Porter, assistant general manager, of this branch of promotional work, and now works in collaboration with Mr. T. B. Kingsley, general sales manager of S. F. Bowser & Company. Under Mr. Porter's direction, in connection with his other duties, the factory's business has shown a very appreciable increase during the past several months.

The Meaning of Co-Operation

"You have a dollar, I have a dollar.
We swap.
Now you have my dollar,
And I have your dollar.
We are no better off.
You have an idea,
I have an idea.
We swap.
Now you have two ideas,
And I have two ideas.
Both are richer.
What you gave you have.
What you got I did not lose,
This is co-operation."

—Improvement Bulletin.

Standardization of Concrete Mixers

Fourteen provisions for standardization of concrete mixers were approved by the Joint Committee on Construction Equipment in session with members of the Associated General Contractors and representatives of mixer manufacturers. These provisions, which cover over thirty specific points involved in the standardization of mixers, provide for a reduction in the number of types manufactured, cover the furnishing of auxiliary equipment standard capacities and ratings and many other points of mutual interest to the manufacturer and the user of equipment.
Walls finished with Cabot's Double-White; roof stained with Cabot's Creosote Stains in mottled colors.
Witmer & Watson, Architects, Los Angeles

Cabot's

DOUBLE-WHITE

Whiter than white lead and has 50 per cent more opacity or hiding power. Two coats will do the work of three of lead and oil. Has the same flat white and beautiful texture that Old Virginia White shows on shingles on brickwork.
A sample can of Cabot's Double-White will be sent to any architect on request

Cabot's Creosote Stains, Waterproof Cement, and Brick Stain
"Quilt" Conserve Wood Preservative, Damp-Prooﬁng
Protective Paints, Waterproofing, etc.

Pacific Materials Co., San Francisco
Waterhouse-Wilcox Pacific Co., Los Angeles
Theo. F. Snyder, San Diego, Cal.
S. W. R. Dally, Seattle
Cress & Co., Portland

Helpful Reference Data for Your Files

This unusual detail folio covers practically every elevator door installation problem. It makes complete facts instantly available in technical form for plans, specifications and detail drawings. Many architects now save time and labor by making blue prints direct from these drawings. Write Department "EE" for a complimentary copy and particulars of

"IDEAL"
Elevator Door Hardware

Richards-Wilcox Mfg. Co.

San Francisco Office: 525 Market Street

When writing to Advertisers please mention this magazine.
Using Birchfield Boilers

The following buildings have recently been equipped with Birchfield boilers:

- Biltmore Apartments, Los Angeles
- Hammon & Peterson Apartments, Seattle
- Eagles Building, Cle Elum
- Kress Building, Long Beach
- Sunnyside M. E. Church, Portland
- Willard Building, Longview
- D. & R. Theater, Aberdeen
- Fairfax High School, Los Angeles
- City of Spokane Garage, Spokane
- Paul Revere Apartments, Seattle
- Hamilton School, Yakima
- Black Manufacturing Company Building, Seattle
- Warstock Theater, Portland
- W. S. Leland Office, San Francisco
- Pacific Car and Foundry Company Hotel, Renton
- Brawley School, Brawley
- Agnew State Hospital, Agnew
- West Riverside School, Riverside
- Otis Elevator Building, San Francisco
- Eagles Hall, Aberdeen
- Campfire Girls Clubhouse, Seattle
- Fields Motor Car Company, Portland
- Portland Railway Light and Power Company
- L. O. O. F. Temple, Astoria
- Wallace School, Kelso

Birchfield boilers have also been selected for over one hundred schools, scattered all the way from Petersburg, Alaska, on the north, to Brawley, California, near the Mexican border, on the south.

Emphasizing the merit of Birchfield boilers is the selection of them by the Bureau of Indian Affairs of the Dominion of Canada for their new school at Kamloops, B. C.

SCHOOLHOUSE GLAZING

No other country has schoolhouse construction advanced so rapidly or to such a degree of perfection—thanks to the ingenuity and enterprise of the American architect.

Every new structure reflects the tendency to use more and yet more glazing. Structural problems have been skillfully overcome until many modern schoolhouses appear like veritable greenhouses for the culture of our future citizens. “Plenty of air, light and sunshine” is a leading thought of leading schoolhouse architects.

The next thought is to specify “The Best Glass”—that which is notable for its strength, lustre and clearness, and which means the addition of quality and beauty to the whole structure.

Scientific accuracy governs every phase of the manufacture of our glass. The result is a window glass which is decided superior to ordinary glass. It is more easily glazed, permits cleaner vision, and, having a higher modulus of rupture and greater tensile strength, is stronger and hence more economical.

Perfectly melted in the world’s largest melting furnaces, our glass is mechanically blown and drawn to a uniform thickness by our new and improved method, at the same time making possible the best flattening ever obtained. With less wave than other glass, this machine-made glass is “The Best Glass” for all glazing purposes.

Specify glass manufactured by American Window Glass Company and be assured of doubly-inspected glass, graded to a standard of quality now recognized as the national standard. The genuine is distinguishable by the elliptical trade mark which appears on every box.
Makes the sash self-adjusting — Cannot rattle.
All hardware entirely concealed — One size fits all sash.
Outside of sash easily washed from inside of room. No hinges or adjusters are required — Easy to operate. May be installed to swing to right or to left — Equally effective for transoms. No special sash or frame details are required. — Easily applied to old or new sash. It is inexpensive and the price is right.

Whitco Hardware is sold only through the Hardware Trade

There is no Substitute for Experience
when it comes to fabricating or installing

STEEL BARS
We’ve had a full quarter-century of it

The Circle — for Consistence
The Triangle — for Strength

GUNN, CARLE & CO.
444 Market St. SAN FRANCISCO Sutter 2720
STOCKS AND WAREHOUSE, 10TH AND BRYANT STS.
Steam Heating and Ventilating
For Commercial and Public Buildings
Furnace Heating for the Home
Mangrum & Otter, Inc.
827-831 Mission Street
San Francisco, Cal.
Phone Kearny 3155

Another Solar-Lite Installation
The Solar-Lite unit will be used throughout the new Fitzhugh Building, San Francisco. Reid Bros., Architects.
The Solar Lite is chosen by most architects because of its diffusion and quality of light. Some of the recent installations include Standard Oil Building, Oakland Bank of Savings.

D. Dierssen Company
20 Second Street
San Francisco
Western Distributors

Elevators Installed and in Course of Construction

Estimates Cheerfully Given
Pacific Elevator & Equipment Company
1129-31 Howard Street
San Francisco, Calif.
Manufacturers of A. C. & D. C. Elevators—Passenger or Freight

Fenestra
SOLID STEEL WINDOWS

Detroit Steel Products Co., Detroit
251 Kearny Street, San Francisco
Pacific Coast Branch Factory at Emeryville
Phone Sutter 1250

When writing to Advertisers please mention this magazine.
ES STEEL FIREPROOF THEATRE CURTAINS

Are constructed of steel and covered with vitrified asbestos on the stage side. Any fire starting on the stage is prevented from spreading to the auditorium. They are operated by hydraulic power and comply with all fire regulations. By a slight change in construction they can be used as sound proof curtains between the gymnasium and auditorium in high school buildings.

See Sweet’s Architectural Catalog and Exhibit at Architects’ Samples Corporation (N. Y. C.)

ELEVATOR SUPPLIES COMPANY, INC.
Main Offices and Works: HOBOKEN, NEW JERSEY

Branch Offices
CLEVELAND
1039 Walnut Avenue
CHICAGO
111 S. Jefferson Street

SAN FRANCISCO
188 Fifth Street
LOS ANGELES
1120 S. Hope St.

PHILADELPHIA
1714 Ludlow Street
ST. LOUIS
Railway Exchange Bldg.

ARTSTONE, INC.
ORNAMENTAL CONCRETE
for
GARDENS AND BUILDINGS

Benches
Urns
Flower Boxes
Ferneries
Bird Baths
Pools and Fountains, etc.

Shields
Cornices
Festunes
Coppings
Building Designs in
Concrete or Plaster

Office—Show Room
2-4 VALENCIA STREET, AT MARKET
Telephone Hemlock 421

San Francisco

ARCHITECTS’ SPECIFICATION INDEX—Continued
E. B. Noble, President
A. E. Wilkins, Vice-Pres.

Beam, Angle, Channels, and Universal Mill Plates for immediate shipment from stock

Pacific Rolling Mill Co.
SUPPLIERS OF
FABRICATED STRUCTURAL STEEL, Forgings Bolts, Rivets, Frogs, Switches, Cast Iron Castings

General Office and Works
17th and MISSISSIPPI STS., SAN FRANCISCO
Telephone Market 215

W. B. MORRIS, Pres.
H. H. MORRIS, V.-P.
L. J. GATES, Sec.

Western Iron Works
STRUCTURAL IRON AND STEEL CONTRACTORS

Steel Wheel-barrows in Stock
141-147 Beale St. and 132-148 Main St.
SAN FRANCISCO
Phones: GARFIELD 2575—2576

Steel Frame, California State Building, Civic Center, San Francisco.
FABRICATED BY
THE PALM IRON AND BRIDGE WORKS (Incorporated)
15th and R Streets, Sacramento

Bliss & Faville, Architects

WESTERN ASBESTOS MAGNESIA CO.
INSULATING ENGINEERS AND CONTRACTORS

CELOTEX
PLASTER BASE INSULATOR
SOUND DEADENER ACOUSTIC CORRECTOR
21-29 South Park Bet. 2nd and 3rd Sts.
San Francisco, Cal.

Asbestos and Asphalt Slate Shingles and Roofings
Asbestos and Composition Roofings—Roof Castings
Magnesia and Asbestos Pipe and Boiler Coverings
Cold Storage Insulation—Sectional Expansion Paving Joint
"Linofelt" Sound Deadener—Wall Board
Cork Pipe Covering, Board and Granulated Cork

Telephone Douglas 3860

When writing to Advertisers please mention this magazine.
Best Method for Plastering Homes

Fireproof, crackproof and economical in every way.

This method has reinforced plaster 1/4" thick and the additional economy of saving 1/4" floor space.

Specify TRUSCON 1-A METAL LATH with 1/4" grounds which is available at a cost comparable with Wood Lath.

Ask us for detailed information

TRUSCON STEEL COMPANY

Chas. Halloway, Branch Manager
709 MISSION ST. Phone Douglas 7135 SAN FRANCISCO

KINNEAR Steel Rolling Doors

Greatest Economy in Operation, Space, Repair

KINNEAR Steel Rolling Doors work easily and quickly which saves valuable time every day, whether run by hand, mechanically, or by motor. Accidental damage to a few slats can be easily repaired by the replacing of new ones. Compact in construction, traveling only in a vertical plane, they make possible the greatest saving in floor space. Made to fit the building.

Write today for illustrated catalog. Our Engineering Department is at your service for unusual problems—our branch offices insure perfect installations.

The KINNEAR MFG. COMPANY
861-871 Field Avenue
Columbus, Ohio
325 Market Street,
San Francisco,
Calif.

When writing to Advertisers please mention this magazine.
 Builders

ARE you in the market for WIRE NAILS?
It will pay you to submit your specifications to us.
We are carrying a large warehouse stock and can quote for mill shipment.
Inquiries will receive prompt attention.

EDW. L. SOULE, CO.
RIALTO BUILDING
SAN FRANCISCO

QUALITY AND AT LOW COST

By using LAMAO trim in the average home instead of the ordinary soft woods you increase the value of the home materially and the additional expense is very nominal.

LAMAO is a white Philippine hardwood that lends itself readily to practically any colored stains.

This wood is trade marked and a quality standard is maintained.

Samples will be gladly furnished architects, contractors and builders. Write today.

CADWALLADER-GIBSON COMPANY
INC.
5th and BRANNAN STREETS
SAN FRANCISCO, CALIF.
also Los Angeles Oakland Seattle
Lumber--Veneers--Panels--Hardwood Flooring

ARCHITECTS' SPECIFICATION INDEX—Continued
Present Cost of Building Materials

THESE quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, January, 1924.

All prices f. o. b. cars San Francisco or Oakland For country work add freight and cartage to prices given.

Bond—1 ½% amount of contract.

Brickwork—
Common, $35.00 per 1000 laid.
Face, $75.00 per 1000 laid.
Enamel, $150.00 per 1000 laid.
Common, f. o. b. cars, $15.50, plus cartage.
Face, f. o. b. cars, $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (Delivered to building in carload lots.)
12 x 12 x 3 in. $102.00 per M
12 x 12 x 4 in. 115.00 per M
12 x 12 x 6 in. 160.00 per M
12 x 12 x 8 in. 165.00 per M

Hod carriers, $6.50 per day.
Bricklayers, $10.00 per day.
Lime—$2.25 per bbl.; carload, $2.15.

Composition Floors—24 c to 50 c per sq. ft. In large quantities, 24 c per sq. ft.
Composition Stucco—$1.90 to $2.10 per sq. yard (applied).

Concrete Work (material at San Francisco bunkers)—
No. 3 rock $2.15 per yd.
No. 4 rock 2.30 per yd.
Niles pea gravel 3.50 per yd.
Niles gravel 2.35 per yd.
Niles top gravel 2.75 per yd.
City gravel 2.15 per yd.
River sand 1.75 per yd.
Delivered bank sand 1.00 per yd.

SAND
Del Monte $1.25 to $1.50 per ton
Fan Shell Beach (Car long, f. o. b. Lake Majella)... $2.50 to $3.00 per ton
Swiss cement $2.68 per bbl.
Belgian cement 2.65 per bbl.
Cement (f. o. b. cars)... 3.01 per bbl.
Rebate for sacks, 10c each.
Atlas “White” $9.75 per bbl.
Medusa “White” $9.95 per bbl.
Forms, Labors $30.00 per M

Wage—
Concrete workers $5.00 per day
Cement finishers 8.50 per day
Laborers 5.00 per day

Damproofing—
Two-cost work, 25c per yard.
Membrane waterproofing—4 layers of P. B. saturated felt, $5.25 per square.
Hot coating work, $2.00 per square.
Wage—Roofers, $8.00 per day.

Electric Wiring—$6.00 to $10.00 per outlet for conduit work (including switches).

Knob and tube, average $3.00 to $5.50 per outlet.
Wage—Electricians $3.50 per day.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in 4-story bldg. $3500; direct automatic, about $3000.

N. B.—Materials and labor are plentiful at present time.

Excavation—
$1.25 per yard, if sand. Teams, $10.00 per day.
Trucks, $11 to $35 per day.
Above figures are an average without water.
Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $105.00 per balcony.

Glass—(Consult with manufacturers.)
24 ounce, 16c per square foot.
Plate, $1.10 per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 30c per sq. ft.
Obscure glass, 28c per square foot.
Note—Add extra for setting.
Wage—Cutters, $8.00 per day.

Heating—
Average, $2.25 per sq. ft. of radiation, according to conditions.
Wage—Steamfitters, $9.00 per day.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.
Wage—Iron workers, bridge and structural, $9.00 per day.
Architectural iron workers, $7.00 per day.

Lumber—(Prices delivered to bldg. site)
Common, $37.00 per M (average).
Com'n O.P. (select, avrg...) $42.50 per M

Flooring—
1 x 7 No. 2—Form lumber $25.00 per M
1 x 4 No. 1 flooring 68.00 per M
1 x 4 No. 2 flooring 62.00 per M
1 x 4 No. 3 flooring 65.00 per M
1 1/4 x 4 and 6 No. 2 flooring 65.00 per M

Slab grain—
1 x 4 No. 2 flooring 56.00 per M
1 x 4 No. 3 flooring 50.00 per M

No. 1 common run to
T. & G. $3.80 per 1000
Lath 6.00 per 1000

Shingles—(Add cartage to prices quoted)
Redwood, No. 1... $1.10 per bbl.
Redwood, No. 2... .90 per bbl.
Red Cedar 1.25 per bbl.

Building Paper—
1 ply per 1000 ft. roll... $6.25
2 ply per 1000 ft. roll... 9.60
3 ply per 1000 ft. roll... 14.55

Sash cord (carlons) No. 7... 1.25 per 100 ft.
Sash cord com. No. 8... 1.40 per 100 ft.
Sash cord spot No. 7... 1.90 per 100 ft.
Sash cord spot No. 8... 2.30 per 100 ft.
Sash weights cast iron... 60.00 Ton
Nails, $.45 base.

Hardwood Flooring—
1 x 3/4" T & G Maple $137.00 M
1 x 3/4" T & G Maple 114 M
1 x 3/4" & G Edge Maple 116 M
Clr. Qt. Oak... $179.00 M
Sel. Qt. Oak... 135 M
Sel. Pla. Oak... 140 M
Clear Maple... 135 M
Orion... 140 M
Bagne... 120 M
Laying and Finishing 16c ft.

Obscure floor, $2.00 per run.
January, 1924

Wage— Floor layers $9.35 per day.

Millwork—
O. P., $100 and up per 1000. R. W., $120 and up per 1000.
Double hung box window frames, average) with trim, $3.00 and up, each.
Doors, including trim (single panel), $10.50 and up, each.
Doors, including trim (five panel), $8.50 each.
Screen doors, $3.50 each.
Cases for kitchen pantries seven feet high, per linear foot, $7.50 each.
Dining room cases, $8.00 per linear foot.
Laths— Rough carpentry, warehouse heavy framing (average) $16 per m.
For smaller work, average, $28.00 to $35.00 per 1000.
Wage— Carpenters, $8.00 per day.
Laborers— $5.00 per day.

Marble— (Not cut), add 40c to 60c per ft. for setting.
Columbia ........................................ $1.60 sq. ft.
Alaska .......................................... 1.60 sq. ft.
San Saba ...................................... 3.15 sq. ft.
Tennessee ..................................... 2.00 sq. ft.
Verde Antique .................................. 2.75 sq. ft.
Westfield Green ............................... 3.50 sq. ft.
Wages— Marble setters, $8.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—
Two-coat work ................................ 30c per yard
Three-coat work .............................. 45c per yard
Whitewashing .................................. 5c per yard
Cold water painting .......................... 9c per yard
Turpentine, $1.20 per gal. in cases and
$1.05 per gal. in tanks.
Raw Linseed oil...$1.05 per gal. in bbls.
Boiled Linseed Oil... 1.10 per gal. in bbls.
Pioneer white and red lead, 11% c lb. in
one-ton purchases; 12 c lb. for less than
500 lbs.
Wages— Painters, $8.00 per day.

Patent Chimneys—
6-inch ........................................... $1.50 linole foot
8-inch ........................................... 1.75 linole foot
10-inch .......................................... 2.25 linole foot
12-inch .......................................... 3.00 linole foot

Pipe Casings— 14" (average), $7.50 each.

Plastering— (Including Lathing)
Interior, on wood lath, 65c per yard.
Interior, on metal lath, $1.25 per yard.
Exterior, on brick or concrete, $1.50 per yard.
Portland White, $1.75.
Interior on brick or terra cotta, 60c to
70c per yard.
Exterior, on metal lath, $1.85 to $2.25 per yard.
Wood lath, $7.00 a yard per 1000,
Metal studling, $1.25 to $1.50 per yard.
Suspended ceiling and walls (metal
furring, lathing and plastering), $2.00 per yard.
Galv. metal lath, 35c and up per yard,
according to gauge and weight
14ime, f. o. b. S. P. warehouse, $2.50 bbl.
Lime, bulk, per ton of 2000 lbs., $19.50
Hardwall plaster, $15.40 per ton, f. o. b.
warehouse. (Rebate on sacks, 15c.)

Finishing plaster (carload lots), $19.00.
Hydrate of lime, $19.50 per ton, f. o. b.
warehouse.
Wage— Plasterers, $10.00 per day.
Lathers, $8.00 per day.
Hod carriers, $7.00 per day.

Plumbing—
From $70.00 for fixture up, according
to grade, quantity and runs.
Wage— Plumbers, $9.00 per day.

Reinforcing Steel—
Base price for car load lots, $3.80 per
100 lbs., f. o. b. cars on docks.
Average cost to install, $25 per ton.
Wage— House smiths, $8.00 per day.

Roofing—
Five-ply tar and gravel, $6.25 per
square for 30 squares or over.
Less than 30 squares, $6.50 per square.
Tile, $35.00 to $50.00 per square.
Redwood Shingles, $12.00 per square in
place.
Cedar Shingles, $12.00 per sq. in place.
Rein'd Pabco, 7 yr. roof, $7.50 per sq.
Rein'd Pabco, 10 yr. roof, $10.25 per sq.
Rein'd Pabco, 20 yr. roof, $13.50 per sq.
Recoat, with Gravel, $3.00 per square.
Wages— Roofers, $8.00 per day.

Sheet Metal—
Windows— Metal, $2.00 a square foot.
Fire doors, (average), including hard-
ware, $2.30 per sq. ft.

Skylights—
Copper, $1.25 a square foot (not glazed)
Galvanized iron, 55c a square foot (not
 glazed).
Wages— Sheet metal workers, $8.50 per
day.

Stone—
Granite, average $7.50 sq. ft. in place.
Sandstone, average Blue, $4.75; Bosie,
$2.80 sq. ft. in place.
Indiana Limestone, $3.00 per sq. ft. in
place.
Wages— Stone cutters, $8.00 per day.
Stone setters, $8.50 per day.

Store Fronts—
Copper sash bars for store fronts, cor-
ner, center and around sides, will
average 85c per lin. ft.
Note—Consult with agents.

Structural Steel— $112 per ton (erected).
This quotation is an average for com-
paratively small quantities.
Light truss work higher; plain beam
and column work in large quantities, less.
Cost of steel for average building
(erec ted), $108 per ton.

Steel Sash—
All makes, from S. F. stock, 26c to 34c
per sq. ft.
All makes, plant shipment, 28c to 34c
per sq. ft.

(Includes millings and hardware.)

Tile—White glazed, 50c per foot.
White floor, 80c per foot.
Colored floor tile, $1.00 per foot.
Promenade tile, $1.00 per sq. ft. laid.
Wages— Tile setters, $8.50 per day.
The Best Costs No More

Specify
PERFECTION BRAND OAK FLOORING

nationally known for its high quality and perfect manufacture.

Charming Vistas
through small home or mansion are achieved only thru the use of perfect Oak floors. The velvety lustre of "Perfection" gives tone and individuality to every interior.

Specify PERFECTION OAK FLOORING

IT GUARANTEES THE HIGHEST SATISFACTION—ITS COST IS AS LOW AS ANY.

White Brothers
Hardwood Headquarters

Northern California Distributors
5th AND BRANNAN STREETS
San Francisco
PERMALIGHT

FLAT MILL WHITE

A Snow White Paint in Oil, giving equal opacity of cold water paints. Can be applied with spraying machines at a small increase of cost over water paints for use in factories, warehouses, loft buildings, laundries.

Hill, Hubbell & Co.
TECHNICAL PAINTS
SAN FRANCISCO

No one will be more pleased to make it hot for their fellow-men than the manufacturers of

BIRCHFIELD

Steel Heating Boilers

A list of Birchfield Installations will be mailed for the asking.

WALKER S. LELAND
660 Howard St. San Francisco

LARIMER & LAUER
1824 So. Hope St. Los Angeles

BIRCHFIELD BOILER CO.
Manufacturers, Tacoma, Wash.

When writing to Advertisers please mention this magazine,
January, 1924

This beautiful SNOW WHITE, SANITARY SINK will not only contribute to the appearance of the Home or Apartment House, but it will make the property more rentable or salable. Architects make no mistake when they specify Petrium Snow White Sinks.

PETRIUM SANITARY SINK CO., Fifth and Page Streets, Berkeley
On display: Hoosier Store, Pacific Building, San Francisco
Sterling Furniture Co., 1049 Market St., San Francisco
Building Material Exhibits, 77 O’Farrell St., San Francisco
Oakland—Building Material & Manufacturing Exhibit, 1424 Franklin Street.

---

Sacramento Union High School Building

Equipped with Kewanee Steel Oil Burning Boilers

Where the demand is for the best, Kewanee Steel Heating Boilers come first

Low Pressure Heating Boilers

High Pressure Power Boilers

Kewanee Boiler Company
KEWANEE ILLINOIS

San Francisco, 216 Pine Street

Los Angeles, 420 E. Third Street
MATCHES IN BEAUTY AND FINISH
THE FINEST FURNISHINGS

This beautiful square tube "California" Wall Bed in either walnut or mahogany finish hung on a "California" Secret Installation door is the latest in design and finish of wall bed construction. The "California" Secret Installation solves the problem of having too many doors and windows and at the same time conforms to the most modern ideas in wall decoration.

Write for Complete Data and Specifications

CALIFORNIA WALL BED COMPANY
714 Market Street, San Francisco
163 Thirteenth Street, Oakland
1040 S. Broadway, Los Angeles

The Ornamentation on the Vase and Plaque was
SAND BLASTED with

FAN SHELL BEACH SAND
ONE OF THE WHITE SANDS SHIPPED BY
DEL MONTE PROPERTIES COMPANY
Phone Sutter 6130
401 CROCKER BUILDING
San Francisco

When writing to Advertisers please mention this magazine.
Not a substitute for Anything!

But a vast improvement over lath and plaster for lining walls and ceilings

Pacific Five-Ply Board is really lath and plaster in the proper proportions and in convenient form. It is a wood core encased in a fireproof, moisture proof mineral cement, stronger than the best concrete.

By actual tests Pacific Five-Ply Board is far superior to either pulp wall board or plaster board in tensile strength, deflection and resistance to puncture. Will not contract or expand, bulge, warp, crack or crumble; is air tight and fire resistant.

Pacific Five-Ply Board is sawed and worked just as you would handle lumber. It comes in sheets 4 feet wide and in lengths from 6 to 16 feet. It is strong, durable, attractive in appearance, easily installed, sanitary, and economical. Send for descriptive literature.

This TRADE MARK means much to the conscientious Architect and Builder

It means a satisfied client

High-Grade Plumbing Fixtures

Holbrook, Merrill & Stetson

64 SUTTER STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
It does not get hard—

Palmetto Twist Packing

It makes an ideal packing for Radiator Valves—may be unstranded to fit any size valve

H. N. COOK BELTING COMPANY
401-433 HOWARD ST. SAN FRANCISCO

The Electrically Controlled-Gas Fired

McLAUGHLIN FURNACE

burns gas within a Welded Armco Iron Combustion Chamber.
The “Double Radiator” extracts 88% of B. T. U. input, reducing flue gas temperatures from 400 deg. to 300 deg. F. (Smith, Emery & Co. test).
Each of the Three Separate Burners is controlled by Magnetic Valves and always consume a constant quantity of gas.

Write for Information

McLAUGHLIN METAL WORKS
223 J Street, Sacramento, Calif.

San Francisco W. P. Goss
Stockton Willard
Fresno Evans
Chico Hall
Hardware Co. Heating Co. Metal Works

When writing to Advertisers please mention this magazine.
Apartment House for Mr. James Welsh, San Francisco

Another BAUMANN & JOSE
Architectural Creation

Another MARSHALL & STEARNS
Wall Bed Installation

When writing to Advertisers please mention this magazine.
Specify

**MINWAX**

Brick and Cement Coating for Exterior Brick and Plastered Walls

A permanent coating that is absolutely waterproof and positively will not flake, peel or craze.

Waterproof your buildings while they are dry

Send for Booklet on Products, Data and Specifications

MINWAX CO., Inc.

K. M. HAYDEN  W. C. LEA

22 Battery St.  653 So. Clarence St.
San Francisco  Los Angeles

**CORROSIRON**

the acid-proof drain pipe

Make your acid drain lines permanent

Corrosiron drain pipe and fittings manufac-
tured and carried in stock in San Francisco

PACIFIC FOUNDRY COMPANY

Harrison and Eighteenth Streets

SAN FRANCISCO

You'll be pleased to hear—

that our Byron Jackson Deepwell Turbine has given us splendid results and has done more than expected. Having no alternative we have been forced to keep it running continuously for more than three months and though this is of course severe treatment, the unit is running sweetly.

So writes the Toi Gold Mining Co. of Idu, Japan. This is but typical of the many tributes that are voluntarily paid to Byron Jackson Pumps. It is easy to keep a buyer satisfied who has immediate access to factory service, but it is a real test of supreme engineering and construction to produce a pump that will serve unfalteringly and alone in the remote places of the world.

For fifty years acknowledged as a leader.

Byron Jackson Pump Mfg. Co., Inc.

Wherever water is to be lifted

Sharon Building, San Francisco
Salt Lake City, Los Angeles, Visalia, Portland, Ore.

**RETARDO**

protects against fire

It insures your client of reasonable protection against fire, both interior and exterior.

RETARDO preserves the surface, beautifies, and is manufactured in all colors and for all purposes.

RETARDO costs no more than ordinary paint, but does more work.

Send for color chart and further information

Fire Retardent Products Co.
2838 Hannah Street  Oakland, Calif.

**FIRE PREVENTATIVE PAINT**

When writing to Advertisers please mention this magazine.
JOHNSON'S ROTARY CRUDE OIL BURNER

Can be installed in any BOILER or FURNACE

Gives Satisfactory Results
Simple to Operate—Automatic—Safe
Let us tell you more about this Oil Burner.

S. T. JOHNSON CO.
1337 Mission Street
San Francisco
Phone Market 2739

Agencies:
SEATTLE  LOS ANGELES  FRESNO  SAN DIEGO  SACRAMENTO

SIMPLEX BURNERS

BUNTING IRON WORKS
1215 FIRST NATIONAL BANK BLDG.
SAN FRANCISCO Phone Sutter 3225

Member of the Oil Burners Manufacturers’ Association of California

Specify “ROTARY”—the Oil Burner with the Revolving Grate

Produces the highest efficiency in all standard furnaces, either steam, hot water or hot air, because of the short high temperature flame.

ROTARY OIL BURNER COMPANY, Inc.
159-12th STREET, OAKLAND
PHONE OAKLAND 2994

Architects—Specify BABY RAY

Domestic Type Burner. It burns low-priced Diesel Oil with high efficiency. Especially designed for bungalows and dwellings.

POWER PLANT ENG. CO.
1933 5th Ave., Seattle
J. F. SHEA
2nd and Ankeny Sts.
Portland, Ore.

W. S. Ray Manufacturing Co.
118 New Montgomery St.
San Francisco
Milton and Bosworth Sts.
San Francisco

W. S. RAY MFG. CO.
2442 San Pablo Ave.
Oakland

RAY OIL BURNER CO.
(of So. California)
831 Crocker St.
Los Angeles

When writing to Advertisers please mention this magazine.
MARBLE
Finished and Installed

VERMONT MARBLE COMPANY
244 Brannan St., San Francisco
Phone Kearny 3470
East End 11th St. Bridge, Tacoma

Cast Iron Stairs and Store Fronts

C. J. HILLARD & CO., Inc.
Nineteenth and Minnesota Streets
Telephone Mission 1763
SAN FRANCISCO, CALIF.

DEPENDABILITY
"Since 1858"
LINOLEUMS
Window Shades
Carpets
Draperies
Rugs
Estimates furnished

D. N. & E.
Walter & Co.
562-572 Mission Street
SAN FRANCISCO
Los Angeles Portland Seattle

Sacramento County Court House,
Sacramento, Cal.

Specify
COLUMBIA MARBLE
Samples and complete information relative to the use of Columbia Marble sent upon request.

COLUMBIA MARBLE CO.
413 Rialto Building, San Francisco
Telephone Sutter 1244

When writing to Advertisers please mention this magazine.
MODERN HEATING SERVICE

A steam or hot water heating system with a boiler burning gas fuel is one of the most satisfying methods of heating known today. They are convenient, dependable and healthful heating equipment for the home. The element of fire hazard is minimized, thereby insuring safety.

With such a gas fired heating system, the home may be automatically maintained at a uniform temperature. You control the time interval and degree of heat by merely setting the thermostatic regulator.

Heating systems using gas fuel are so flexible and economical in operation that they are adapted to any style of home or building.

Our gas heating specialists have some interesting data on such installations.

PACIFIC GAS AND ELECTRIC COMPANY

P.G. and E.

“PACIFIC SERVICE”

TANKS DEPENDABLE PUMPS

Experience with Pacific Coast conditions, coupled with diversified experience on every sort and size of installation, whether for handling gasoline and oil or affecting economic lubrication—

Experience that will help you better serve the owner—

Experience that can be had only upon application to this house, which opened its first Pacific Coast branches in 1908.

Tell us your problem, and we will go to work—without obligation, of course.

S.F. BOWSER & COMPANY, Inc.

Pump and Tank Headquarters

FORT WAYNE, INDIANA.

Sales and Service Offices and Representatives Everywhere

722-3 New Bank of Italy Building, Los Angeles

612 Howard St., San Francisco

When writing to Advertisers please mention this magazine.
Buy This BETTER Water Heater
Better because it gives Perfect Hot Water Service—instantaneous, in-
exhaustible and inexpensive—not just once in a while, but all the
time—
Better because it is simply made—
Better because it is made by men whose experience dates back to
e 1898, when the world's first success-
ful automatic water heater—a RUUD—was built.
Every RUUD is equipped with an in-
ternal automatic thermostat, double
fuel control, condensation sheds.
RUUD HEATER CO.,
431 Sutter St.
San Francisco
Phone Sutter 1640

Alvaline, Cementoline
and other
Jones-Duncan Products
MAGNER BROTHERS
PAINT MAKERS
Telephone: Market 113
414-424 Ninth St. San Francisco

THE ARCHITECT AND ENGINEER

HEATING-PLUMBING
COMPLETE PLUMBING AND
HEATING SYSTEMS INSTALLED IN ALL CLASSES OF
BUILDINGS—ALSO POWER PLANTS
GILLEY-SCHMID CO., Inc.
198 OTIS ST., SAN FRANCISCO
Tel. MARKET 965

THE TORMEY CO.
General Painters
Phone Franklin
5-5-9-8
1042 Larkin St., San Francisco, Cal.

ELEVATOR ACCESSORIES
We manufacture and install pneumatic ele-
avator door controls and interlocks. (A
safety first equipment which has been mak-
ing good for over ten years.) For infor-
mation concerning elevator safety and
economy we cordially invite you to call
RANDALL CONTROL AND
HYDROMETRIC CORPORATION
523 Central Bldg.
Los Angeles, Cal.
263A Minna St.
San Francisco, Cal.
Phone 11901
Phone Douglas 2397

RUSSWIN
BUILDERS' HARDWARE
JOOST BROS., Inc.
SAN FRANCISCO AGENTS
We Carry Complete Stock:
Fishing Tackle—Guns—Mechanics' Tools—
Paint—Crockery and Glassware—Stoves—
Household Goods. Telephone Market 891.
NO BRANCH STORE
Mazda Lamps Electric Goods

When writing to Advertisers please mention this magazine.
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACIFIC MANUFACTURING COMPANY</td>
<td>MAIN OFFICE: SANTA CLARA, CALIFORNIA</td>
</tr>
<tr>
<td></td>
<td>SAN FRANCISCO, 177 Stevenson Street</td>
</tr>
<tr>
<td></td>
<td>OAKLAND, 1001 Franklin Street</td>
</tr>
<tr>
<td></td>
<td>LOS ANGELES, 908 Washington Building</td>
</tr>
<tr>
<td></td>
<td>SAN JOSE, 16 North First Street</td>
</tr>
<tr>
<td>LARSEN-SIEGRIST CO., Inc.</td>
<td>BUILDING CONSTRUCTION</td>
</tr>
<tr>
<td></td>
<td>807 Claus Spreckels Building</td>
</tr>
<tr>
<td></td>
<td>SAN FRANCISCO</td>
</tr>
<tr>
<td>HEATING VENTILATION</td>
<td>PLUMBING SHEET METAL WORK</td>
</tr>
<tr>
<td>FLOOR AND WALL TILING</td>
<td>SCOTT CO., INC.</td>
</tr>
<tr>
<td></td>
<td>243 MINNA STREET</td>
</tr>
<tr>
<td></td>
<td>SAN FRANCISCO</td>
</tr>
<tr>
<td>VAN EMON ELEVATOR COMPANY</td>
<td>PASSENGER ELEVATORS FREIGHT</td>
</tr>
<tr>
<td></td>
<td>1159-65 Howard Street</td>
</tr>
<tr>
<td></td>
<td>Market 808</td>
</tr>
<tr>
<td></td>
<td>San Francisco, Calif.</td>
</tr>
<tr>
<td>THE HERMANN SAFE CO.</td>
<td>Manufacturers of Fire and Burglar Proof Safes, Vaults and Safe Deposit Boxes</td>
</tr>
<tr>
<td></td>
<td>Also Representatives for the YORk SAFE &amp; LOCK CO. OF YORk, PA.</td>
</tr>
<tr>
<td></td>
<td>216-224 Fremont Street</td>
</tr>
<tr>
<td></td>
<td>San Francisco, Cal.</td>
</tr>
<tr>
<td>Res. Tel. Merritt 3600</td>
<td>HERBERT BECKWITH</td>
</tr>
<tr>
<td></td>
<td>Everson Building</td>
</tr>
<tr>
<td></td>
<td>OAKLAND</td>
</tr>
<tr>
<td>JOHN M. BARTLETT</td>
<td>GENERAL CONTRACTOR</td>
</tr>
<tr>
<td></td>
<td>Office</td>
</tr>
<tr>
<td></td>
<td>357 - 12th ST. OAKLAND</td>
</tr>
<tr>
<td></td>
<td>Phone Lakeside 6750</td>
</tr>
<tr>
<td></td>
<td>Res. Phone Berkeley 6884W</td>
</tr>
<tr>
<td>WESTERN STATES SEATING COMPANY</td>
<td>39 Second Street, San Francisco</td>
</tr>
<tr>
<td></td>
<td>2133 Kern Street, Fresno, Calif.</td>
</tr>
<tr>
<td></td>
<td>1040 So. Broadway, Los Angeles, Calif.</td>
</tr>
</tbody>
</table>

When writing to Advertisers please mention this magazine.
I. R. KISSEL

Decorator, Painter and Paperhanger

1747 SACRAMENTO ST., Bet. Polk St. and Van Ness Ave., SAN FRANCISCO

ROBERT TROST

General Building Contractor

We Specialize in High Grade Work and Employ Skilled Labor in every Branch of the Building Industry.

26th and Howard Streets
SAN FRANCISCO

ALFRED H. VOGT

GENERAL CONTRACTOR
CONCRETE CONSTRUCTION

185 Stevenson Street, San Francisco

LAWTON & VEZEY

CONTRACTORS AND BUILDERS

EVERSON BUILDING
OAKLAND, CALIFORNIA

MONSON BROS.

Building Construction

251 Kearny Street, San Francisco
Telephone Douglas 6619

PETERS CONSTRUCTION CO.

GENERAL CONTRACTORS

705 Atlas Building
501 MISSION ST., SAN FRANCISCO
Phone Douglas 9063

HANNAH BROS.

CONTRACTORS AND BUILDERS

142 Sansome Street, San Francisco

When writing to Advertisers please mention this magazine.
Furnaces

AGENTS FOR
FRONT RANK All Steel Warm Air Furnaces
AND THE OLD RELIABLE
THATCHER Cast Iron Warm Air Furnaces

REGISTERS—FURNACE FITTINGS—REPAIRS

Montague Range and Furnace Company
327-329 JESSIE STREET
Phone Garfield 1422
826-830 MISSION STREET
SAN FRANCISCO, CALIF.

A Permanent Exhibition of Architects’ Samples

Universal

Visit Our Showrooms

Building Materials, Engineering Equipment Specialties

Exhibits

Plan to Display Your Products

MONADNOCK BUILDING
681 Market Street
SAN FRANCISCO, CALIF.

VLAARITE
FLAT OIL PAINT
FOR PLASTERED WALLS AND ENAMEL UNDERCOATING

Vlaarite Flat White is made to meet exacting requirements and is guaranteed to be light proof, and covers so well and solid that two coats look like three. It will not turn grey, dries over night and sands easily.

Specify VLAARITE
PAINTS VARNISHES ENAMELS KALSOMINES

OAKLEY PAINT MANUFACTURING CO.
727 ANTONIA ST., LOS ANGELES
833 HEARST BLDG., SAN FRANCISCO

Some Uses for Asbestos Protected Metal

Robertson Process Asbestos Protected Metal (which has all the advantages of a sheet metal roofing plus a built-up roofing) is not only specified for the usual corrugated roofing and siding purposes, but also for pent houses, fencing, overhead passage ways, passenger shelters and shipping platform canopies. Recently 5400 feet were used on the canopy for the new Montgomery Ward & Company building in Oakland.

H. H. ROBERTSON CO.
H. M. Holway, District Manager
1007 Hobart Bldg., San Francisco
600 Metropolitan Bldg., Los Angeles
I. M. SOMMER & CO.
ENGINEERS AND
GENERAL CONTRACTORS
Phone Hemlock 1100
901 BRYANT ST., SAN FRANCISCO

K. E. PARKER COMPANY, Inc.
GENERAL CONTRACTORS
Phone Sutter 5661
Room 515 Clunie Building, SAN FRANCISCO

R. W. LITTLEFIELD
Building Construction
357 12th Street, Room 9, Oakland, Cal.
Phone Lakeside 6750

H. H. HILP, Jr.  J. FRANK BARRETT
BARRETT & HILP
CONCRETE CONSTRUCTION
BUILDERS
GENERAL CONTRACTORS
918 HARRISON STREET, near 5th, SAN FRANCISCO
Telephone DOUGLAS 700

CAEN STONE
A refined, elegant, interior finish.

A. KNOWLES
CONTRACTOR AND PLASTERER
442 Call-Post Building
San Francisco

STEELFORMS Signify ECONOMY, RAPIDITY, and EFFICIENCY
STEELFORM CONTRACTING COMPANY
STEELFORMS FOR CONCRETE BUILDINGS
C. B. Hopkins, C. E., Manager
681 Market Street, San Francisco

DAVID NORDSTROM
GENERAL CONTRACTOR
4146 Emerald Street, Oakland

M. E. VUKICEVICH  SPENCER B. BAGGE
VUKICEVICH & BAGGE
GENERAL CONTRACTORS
Phone Sutter 5691
815 Bryant Street, San Francisco

When writing to Advertisers please mention this magazine.
Steel Bars

FOR CONCRETE REINFORCEMENT
Cut to Length, Fabricated, Installed

Tel. Douglas 3466 B A D T - F A L K & C O.
346 Call-Post Bldg., 74 New Montgomery St., San Francisco

Passenger and Freight Elevators

For Every Service

SPENCER ELEVATOR COMPANY
166-180 Seventh Street
San Francisco

PACIFIC DEPARTMENT

GLOBE INDEMNITY COMPANY
Bonds and Casualty Insurance for Contractors
FRANK M. HALL, formerly Robertson & Hall, Mgr.
444 California Street
Phone Sutter 2280
SAN FRANCISCO

CARL H. PETERSON
BUILDER

PHONE DOUGLAS 1876 185 STEVENSON STREET
SAN FRANCISCO

R. McLERAN & CO.
GENERAL CONTRACTORS

PHONE DOUGLAS 2370
HEARST BUILDING
SAN FRANCISCO, CAL.

D. ZELINSKY & SONS
PAINTERS AND DECORATORS

PHONE DOUGLAS 2370
165 GROVE STREET
SAN FRANCISCO

ELECTRIC CONSTRUCTION CO.
CONTRACTING ELECTRICIANS
L. G. JEFFREY, Manager
616 BROADWAY
FRESNO

When writing to Advertisers please mention this magazine.
TEMPERATURE REGULATION
JOHNSON SERVICE COMPANY
Manufacturers and Installers of JOHNSON Heat CONTROL
Humidity
For schools, residences, hospitals, banks, public buildings, also canneries
and all kinds of industrial plants—Hot water tank regulators, air and
water reducing valves
Radio Bldg., SAN FRANCISCO; 605 Van Ness Bldg., LOS ANGELES

ATLAS HEATING AND VENTILATING COMPANY, INC.
ENGINEERS AND CONTRACTORS
Steam and Hot Water Heating. Coal and Gas, Pipe and Pipeless Furnaces
Sheet Metal Work Patent Chimneys
everything in heating
Phone Douglas 378 557-567 FOURTH STREET
San Francisco

CLARENCE DRUCKER HERMAN LAWSON
LAWSON & DRUCKER PLUMBING—HEATING—CONTRACTORS
450 HAYES STREET
TELEPHONE MARKET 275 SAN FRANCISCO, CAL.

H. G. NEWMAN CO.
PLUMBING HEATING
OAKLAND 3329 2004 TELEGRAPH AVENUE OAKLAND

ALEX COLEMAN
CONTRACTING PLUMBER
706 ELLIS STREET, SAN FRANCISCO Phone FRANKLIN 1006

WM. F. WILSON COMPANY
MODERN SANITARY APPLIANCES
Special Systems of Plumbing for Residences, Hotels, Schools, Colleges, Office Buildings, Etc.
Phone Sutter 357 328-330 Mason Street, San Francisco

W. H. PICARD
Plumbing, Heating, Ventilating and Power Plants
5656 College Avenue 5662 Keith Avenue Piedmont 7522 Oakland, Calif.

Analyse Your Costs quickly, accurately and completely from the handy unit tables of the Building Labor Calculator
Based on twenty-five years of public estimating and general contracting experience, these tables
give material quantities and labor hours in decimal constants and in convenient units, as per
100 square feet, 100 square yards and so forth, and are independent of price or wage fluctuations.
No other book like it!
For sample pages, descriptive data and free examination offer, clip this ad and write
GORDON M. TAMBLYN, 9 Sweeney Building, Denver, Colorado.

When writing to Advertisers please mention this magazine.
from tree to consumer

Pine and Redwood Lumber
SASH DOORS AND MILL WORK
SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL
Main Office and Yards:
FIRST AND OAK STREETS, OAKLAND
Phone Oakland 1820

POPE & TALBOT
Manufacturers, Exporters and Dealers in
Lumber, Timber, Piles, Spars, Etc.
Office, Yards and Planing Mills
859-869 THIRD STREET, SAN FRANCISCO, CAL.

GUARANTEED
OAK AND MAPLE FLOORING
Insist on "Higgins" — It Costs No More
J. E. HIGGINS LUMBER CO.
SAN FRANCISCO
If It's Hardwood — We Have It

When writing to Advertisers please mention this magazine.
**Why does Plaster Crack?**

Plaster and Stucco crack, and sometimes fall off because expansion and contraction of lath causes the finipers or "keys" which hold it in place, to break off.

National Stucco-Plaster Reinforcement eliminates "keys.">

Our new catalog explains and proves how and why it is best to build with reinforced concrete, plaster, and stucco. Write for a copy—it is free.

**NATIONAL STEEL FABRIC CO.**  
(Subsidiary of Pittsburgh Steel Co.)  
Monadnock Building, San Francisco, Calif.

World’s Largest Manufacturers of Welded Steel Fabric

---

**Acorn Brand**  
Oak Flooring

Guarantee complete floor satisfaction by specifying

Architects and contractors are proving this by actual practice.

**Strable Hardwood Co.**  
HARDWOOD LUMBER

511-545 First St., Oakland, Calif.  
Phone Oakland 245

---

**Formal Garden Effects**  
may be obtained on your Country Estate within a period of two to three years.

**MacRORIE-McLAREN CO.**  
LANDSCAPE ENGINEERS  
and General Nurserymen

Suite 301 Phelan Bldg., San Francisco  
Nurseries at Beresford
Clinton
Electrically welded Wire Fabric
The Ideal Mesh Reinforcement for Concrete

Wickwire Spencer Steel Corporation
SAN FRANCISCO  LOS ANGELES
144 Townsend St.  316 E. Market St.
Douglas 1421  Pico 4851

Recent
Office Buildings
STANDARD OIL
SAN FRANCISCO
MATSON NAVIGATION CO.
SAN FRANCISCO
CALIFORNIA STATE
LIFE INSURANCE COMPANY
SACRAMENTO

Lindgren & Swinerton, Inc.
New Standard Oil Building
225 Bush Street
On the Sixth Floor

"CALIFORNIA STUCCO"
It is a finishing plaster coat made in many beautiful colors, from a true Portland Cement base, which assures everlasting qualities.

"The Stucco which is making California Architecture famous"
For Sale by All Dealers

California Stucco Products Co.
58 SUTTER ST., SAN FRANCISCO
1503 S. ALAMEDA ST., LOS ANGELES

School Floors!

Although originally designed for factory use, Bloxonend flooring is being installed in the gymnasiums and manual training rooms of many of the country's finest schools. Bloxonend is the only end grain flooring that combines durability with lasting smoothness. Laid over concrete without embedding sleepers.

Write for Specifications
Carter Bloxonend Flooring Co.
H. M. HOLWAY, District Manager
San Francisco:  Los Angeles:
1007 Hobart Bldg.  600 Metropolitan Bldg.
Portland: Chamber of Commerce Building

When writing to Advertisers please mention this magazine.
HANSEN, ROBERTSON & ZUMWALT
General Contractors
and Managers of Construction

Steam Heating and Power Plant Equipment
JAMES I. KRUEGER
Representative
ILLINOIS ENGINEERING COMPANY
SKIDMORE VACUUM AND BOILER FEED PUMP
EUREKA BRASS WORKS
417 Market St. Suite 320
San Francisco, Calif.

CHARLES T. PHILLIPS COMPANY
CONSULTING ENGINEERS
HEATING, VENTILATING, ELECTRIC WIRING, PLUMBING
Roberts Building, Los Angeles

CYCLOPS IRON WORKS
ICE MAKING and REFRIGERATING MACHINERY, TRAVELING CRANES
Office and Works:
837-847 FOLSOM ST.
SAN FRANCISCO, CAL.
Telephone: SUTTER 3030

GRINNELL AUTOMATIC SPRINKLER
GRINNELL COMPANY
VALVES ENGINEERS AND CONTRACTORS
OF THE PACIFIC
PIPE and FITTINGS
453 Mission Street, San Francisco
CHEMICAL FIRE EXTINGUISHERS and FIRE ENGINES

Fire Protection Engineering Company
ENGINEERS AND CONTRACTORS
Automatic Sprinkler Systems
Executive Offices and Factory
112 SANSOME STREET
San Francisco, California

Chemical Engines
Hand Fire Extinguishers
Motor Driven Fire Apparatus

CLINTON CONSTRUCTION COMPANY
of California
BUILDERS AND MANAGERS OF CONSTRUCTION
923 Folsom Street
San Francisco

RADIATOR AIR VALVES
Traps, Rapid Riser Vents, Vacuum and Condensation Pumps
They Are Absolutely Guaranteed
JAS. P. MARSH & CO., Represented by HULTING, HURST & HULTING
Monadnock Building (Telephone Sutter 5295), San Francisco, Cal.

When writing to Advertisers please mention this magazine.
January, 1924

ROBERTS MFG. CO.

Lighting Fixtures
Electric Appliances
Incandescent Lamps

WILLYS FARM LIGHTING
AND POWER PLANTS

663 Mission Street
San Francisco

FAIRFACTS China Fixtures outwear fixtures made of tile. Fairfacts Fixtures are non-porous and non-absorbent. They are unmatched in dignity and grace of line. Write for catalog, F. Details and specifications also appear in Sweet's Architectural Catalog.

THE FAIRFACTS COMPANY, Inc.
Manufacturers
234-236 West 14th Street, New York City
Dept. E.

FAIRFACTS Fixtures
INSTALLED IN YOUR BATHROOM WALLS

FIRST FEDERAL TRUST COMPANY
A Savings Bank affiliated
with The First National
Bank of San Francisco

POST & MONTGOMERY STS.
San Francisco

Blackboards
First Grade Natural Slate
Green or Black Composition Board
School Furniture and Supplies

Estimates Given for Complete
Installations

STEWART SALES CO.
247 Rialto Building, San Francisco, Cal.

STANLEY
Ball-Bearing BUTTS

When writing to Advertisers please mention this magazine.
MORTENSON CONSTRUCTION CO.
CONTRACTORS FOR STRUCTURAL STEEL AND IRON
H. MORTENSON, President
Office and Shops: Corner 19th and Indiana Streets
Phone: Mission 5033
SAN FRANCISCO, CAL.

JUDSON MANUFACTURING COMPANY
Main Office:
817-821 FOLSOM STREET
Telephone Sutter 6820
SAN FRANCISCO

HERRICK IRON WORKS
STRUCTURAL STEEL
Office and Works, 18th and Campbell Streets
Oakland, Cal. Phone Lakeside 1460

CENTRAL IRON WORKS, Inc.
STRUCTURAL STEEL
Office 2050 BRYANT STREET
SAN FRANCISCO, CAL.

Golden Gate Iron Works
STRUCTURAL STEEL AND ORNAMENTAL IRON CONTRACTORS
Howard and 11th Streets
SAN FRANCISCO

SCHRADER IRON WORKS, Inc.
STRUCTURAL STEEL CONTRACTORS
Fire Escapes, Waterproof Trap Doors, Ornamental Iron Work
1247-1249 HARRISON STREET
SAN FRANCISCO, CAL.
Telephone Market 287

When writing to Advertisers please mention this magazine.
An Economical Drinking Fountain

—for—

Schools and Theatres

Architects write for latest Catalog

Haws Sanitary Drinking Faucet Co.
1808 Harmon Street, Berkeley,

Model No. 7A

George S. MacGruer  Robert M. Simpson  Members of Builders Exchange

MacGruer & Simpson

CONTRACTING PLASTERERS

PLAIN AND ORNAMENTAL

Cement, Stucco and Artificial Stone

Phone Garfield 512  266 Tehama Street, San Francisco

JOHN TRAYNOR  CHARLES HARCOURT

OCEAN SHORE IRON WORKS

Manufacturers of
BOILERS, STEEL TANKS, STEEL PLATE SPECIALTIES

Dealers in
BOILERS, TANKS, PUMPS, ENGINES
GENERAL MACHINERY, ETC.

Office and Works:  Phones Market 462 and 463
550-558 EIGHTH STREET  SAN FRANCISCO, CAL.

OPEN HEARTH

Reinforcing Steel Bars

Square Deformed—Immediate Shipment—Cut to required lengths

PACIFIC COAST STEEL COMPANY
Sales Office, Rialto Building  SAN FRANCISCO  Phone Sutter 1564

When writing to Advertisers please mention this magazine
BUTTE ELECTRIC AND MFG. CO.
PAUL BUTTE, Owner
HIGH GRADE ELECTRICAL INSTALLATIONS
FEDERAL ELECTRIC BANK PROTECTION SYSTEMS
DOUGLAS 145 Moved to 956 Folsom Street San Francisco

H. S. TITTLE
CONTRACTING ELECTRICAL ENGINEER
85 COLUMBIA SQUARE, SAN FRANCISCO Phone HEMLOCK 2865

To Be "Low Bidder" Not Always Our Aim
"QUALITY AND SERVICE ALWAYS"
Our nation-wide organization and large experience in this field assure you always of fair estimates and absolute satisfaction.

F. E. NEWBERY ELECTRIC CO.
Alta Building, 381 Bush Street, San Francisco Phone Sutter 6361

San Francisco, Cal. Oakland, Cal. Los Angeles, Cal.

NE PAGE, McKENNY CO.
Electrical Engineers and Contractors
Phone Sutter 2369 589 Howard St., San Francisco, Cal.

BERKELEY ELECTRICAL COMPANY
ELECTRICAL CONTRACTORS—FIXTURES
2142 Center St. PHONE BERKELEY 8747 Berkeley, Calif.

STANDARD SUPPLY COMPANY
BUILDING MATERIAL AND FUEL
OAKLAND ALAMEDA BERKELEY
Main Office and Yard—Standard Ave., near Webster St., Alameda
Telephone Lakeside 8270

PHONE KEARNY 1954
DECKER ELECTRICAL CONSTRUCTION CO.
149 NEW MONTGOMERY STREET SAN FRANCISCO

Browne-Langlais Electrical Construction Co.
Agents for ROBBINS and MYERS MOTORS, PACKARD MAZDA LAMPS
313 FIFTH STREET, SAN FRANCISCO Telephone Douglas 976

When writing to Advertisers please mention this magazine.
January, 1924

1828—MOTT—1923

Architects and their clients are invited to visit our show rooms, 553-555 Mission St. San Francisco, D. H. Gulick, manager.

MOTT COMPANY
of California

DOUGLAS 2046

FELIX BUTTE

BUTTE ELEC. EQUIPMENT CO.
Trade Mark BEECO Registered
ELECTRICAL CONTRACTORS
530 FOLSOM STREET
SAN FRANCISCO

L. SIEBERT
DESIGNERS AND MANUFACTURERS OF
J. GENSLER
SWITCH BOARDS · PANEL BOARDS
PROTECTIVE POWER PANELS
Drendell Electrical and Mfg. Co.
1345-47 HOWARD STREET
SAN FRANCISCO, CALIF.

MUELLER
Faucets give full value in wear and service.
The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?
THE NEWEST AND BEST THING IN FAUCETS
H. MUELLER MFG. CO.
1072-76 HOWARD STREET
SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
MILLER FOLDING IRONING BOARD
ELIMINATES WALL CABINET—IS INSTALLED IN KITCHEN CUPBOARD
NO PLASTER GROUNDS
SAVES WALL SPACE AND LABOR
CASING OR PAINTING
TIME AND MATERIAL
Exhibited by LANNOM BROS. MFG. CO
and sold by 362 Magnolia St., Oakland, Calif.
Send for Catalogue to W. N. MILLER
844 Thirteenth St., Oakland

PACIFIC ELECTRIC CLOCK CO.
J. J. Estabrook
56 THIRD STREET
SAN FRANCISCO, CALIF.

C. F. STAUFFACHER, President
A. A. STAUFFACHER, Vice-President
THE FINK & SCHINDLER CO.
Manufacturers of INTERIOR WOODWORK AND FIXTURES
BANK, OFFICE AND STORE FITTINGS
SPECIAL FURNITURE
218-228 THIRTEENTH STREET
Bet. Mission and Howard Sts.
SAN FRANCISCO, CAL.
Telephone Market 474

QUALITY
SPRAY PAINTING
COMMERCIAL AND INDUSTRIAL PAINTERS
Phone Douglas 4779
39 Tehama Street, San Francisco
Roofs Repaired

ERNEST HELD, General Manager
HOME MANUFACTURING CO.
BANK, STORE AND OFFICE FITTINGS
FURNITURE AND HARDWOOD INTERIORS
CABINET WORK OF EVERY DESCRIPTION
543 and 545 BRANNAN ST.
Phone Kearny 1514
SAN FRANCISCO, CAL.

Mullen Manufacturing Co.
BANK, STORE AND OFFICE FIXTURES—CABINET WORK OF GUARANTEED QUALITY—CHURCH SEATING
Office and Factory:
Telephone Market 8692
64 Rausch St., Bet. 7th and 8th Sts, San Francisco

JAMES L. McLAUGHLIN
GENERAL CONTRACTOR
Phones Douglas 6645—6646
251 KEARNY STREET, SAN FRANCISCO

Dolan Wrecking & Construction Co.
(D. J. DOLAN)
Lumber, Lath, Nails, Shingles, Doors, Windows and Plumbing Supplies, New and Second Hand
Phone Market 4264
Office and Yard, 1607-1639 MARKET ST., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Fire Protection Corporation
Engineers and Contractors
FOR
Automatic
Sprinkler Systems
315 Montgomery St.  San Francisco, Cal.
Phone Sutter 2993

EASYSET
STORE FRONTS
GLASS OF ALL KINDS
Mirrors Art Bevel Plate
Cobbledick-Kibbe Glass Co.
666-668 HOWARD ST.,
SAN FRANCISCO, CAL.
WASHINGTON AT THIRD ST.
OAKLAND, CAL.

Phone Doug. 3123-4  Oak. 5636-1

WIRING

CENTRAL ELECTRIC CO.
and dealers
177-179 Minna Street, San Francisco
Phone Douglas 4832

A BETTER IRON CONSTRUCTION
United Alloy Steel Corporation
CANTON, OHIO
Black Galvanized and
Blue Annealed Sheet
WESTERN SALES OFFICES
Santa Fe Building, San Francisco
LOS ANGELES  PORTLAND
528 Title Insurance Bldg.  301 Henry Building

H.RUMPF
CONTRACTING DECORATOR
CUSTOM BUILT FURNITURE
DRAPERIES AND FURNISHINGS
School and Theater Equipment
Drop Curtains, Draperies
Specializing in Furnishings for Hotels,
Lodges, Clubs, Steamships, Apartment
Houses.
Estimates Furnished
567 HOWARD STREET, SAN FRANCISCO, CAL.

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deadening.
JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 POST STREET
San Francisco

"BLAZING" THE TRAIL
We've been doing it for many years—
giving the Sportsman Better Value for
Quality than he ever before received.
"Value at a Fair Price" in everything for
the Sportsman.

When writing to Advertisers please mention this magazine.
Protection Against Fire from Adjoining Buildings

If yours is a problem that has to contend with fire in adjacent buildings, we recommend for your consideration our gravity closing shutter. It is entirely self-closing either through the fusng, at approximately 160 degrees, of a link on the outside of the building, or it can be closed by hand from inside the building by merely unhooking a chain which holds the automatic device in check. In either event the closing is automatic and positive. After closing, new link can be inserted and the shutter reset from inside of the building.

Send for our new Catalog No. 1 which fully describes the entire line of Wilson Steel Doors and Shutters.

Wilson Gravity Closing Shutter. Note chain which allows of operation from inside of building.

The J. G. WILSON Corp.
621 N. Broadway, Los Angeles, Cal.
11 East 36th Street, New York City
Offices in All Principal Cities

Nonpareil Corkboard Insulation for Cold Storage Rooms

ESTIMATES FURNISHED FOR COMPLETE ERECTION

VAN FLEET FREEAR COMPANY
557 HOWARD STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Look for this Trademark Ifk

And if it's there don't worry any more about your
Valves and Fittings

Specify and insist upon having

The Kelly & Jones Co.
Valves and Fittings
Byers Genuine
Wrought Iron Pipe
Republic Steel Pipe

Complete Line of Plumbing Supplies
Large Stocks for Prompt Delivery
Catalogue on request

California Steam &
Plumbing Supply Co.
671-679 Fifth Street, Corner Bluxome
SAN FRANCISCO CALIFORNIA

The Elevator Floor
whether in Office Building, Hotel or
Department Store, is subjected to a
great deal of wear and tear.

—SPECIFY—
INTERLOCKING RUBBER TILING

and you've provided your client's building with a
durable, economical, practical
material that is sure to give satisfaction. Twenty tons
installed in the Standard Oil Building, San Francisco.
Stock on hand for immediate delivery.

NEW YORK BELTING AND PACKING CO.
NEW YORK
San Francisco Branch 519 MISSION ST. Phone Douglas 1837
Small booklet of designs mailed on request

When writing to Advertisers please mention this magazine.
The Architect who specifies **Otis Elevators** may do so with the assurance that the responsibility of the Otis Elevator Company extends beyond satisfactory installation. Buildings equipped with **Otis Elevators** enjoy the advantage of prompt service and careful inspection rendered by over a hundred Otis offices.

**Otis Elevator Company**

2300 Stockton St.  
San Francisco

Offices in all principal cities
The Architect & Engineer

February 1924

Rancho Santa Fe—California’s Perfectly Planned Community

Published in San Francisco
50 cents a copy - $2.50 a year
Our continuous year round advertising makes your clients appreciate the quality they will receive when you specify.

PACIFIC
PLUMBING FIXTURES
PACIFIC SANITARY MANUFACTURING CO.
Main Office: 12 New Montgomery St., San Francisco
Factories: Richmond and San Pablo, California
Branches: Los Angeles, Portland

Trademark Registered
February, 1924

PABCO
20 year

Roof Specifications contain the Roof Maintenance Agreement of this $12,000,000 corporation, assuring that the roofs will remain or be maintained in weather-tight condition for 20 years.

The PARAFFINE COMPANIES Inc
17 plants on the coast
LOS ANGELES - PORTLAND - SAN FRANCISCO - SEATTLE
Commercial Lighting is a Specialist's Job

The qualified illuminating engineer can often add a very definite rental asset to an office or store building—one which attracts better tenants, enhances rental values, and diminishes vacancies and the cost of remodeling due to frequent changes. Commercial lighting has become a specialist's job.

If this knowledge of commercial illumination can be applied to the original plan of the whole building it results in a utilization of floor-space that increases the total rent.

The Westinghouse Bureau of Commercial Lighting is well qualified to serve you. You can reach it through any Westinghouse Office.

Westinghouse Electric and Manufacturing Company
George Cutter Works, South Bend, Indiana
Western District Offices:
Denver
Los Angeles
Seattle
San Francisco

Westinghouse
Throughout The West

New and modern public buildings in every large western city mark the rapid strides of commercial progress in the West.

Like many such, the Dexter Horton Building in Seattle, is equipped by Kaestner & Hecht with eight high speed elevators driven by Westinghouse Elevator Motors and operated by Westinghouse Variable Voltage Controls.

Westinghouse Electric & Manufacturing Company
Main Offices and Works—East Pittsburgh, Pennsylvania
Western District Offices:
Denver
Los Angeles
San Francisco
Seattle
"Standard"

Thirty-Six years' experience manufacturing and installing Electric Time Keeping Systems. Helpful engineering data cheerfully furnished architects, engineers and school boards insuring satisfactory results, and a direct factory branch office completely equipped to render immediate service.

The Standard Electric Time Company
461 Market St., San Francisco, Cal.
Telephone Sutter 241

PRASCO PINLESS SWINGING HOSE RACK
For 30, 75, 100 ft. Underwriters Unlined Linen Hose
No pins to break, bend, or jam
Hose pays off one loop after the other

Plant Rubber & Asbestos Works
537 Brannan St., San Francisco
Tel. Sutter 2100

20th Century
Concrete Mixers are Built in California. A real Mixer for heavy work
Carried in stock in sizes from 4 to 40 Cubic Yards

Edward R. Bacon Company
Folsom at 17th St., San Francisco
Los Angeles Sacramento Fresno

Corrosiron
the acid-proof drain pipe
Make your acid drain lines permanent

Corrosiron drain pipe and fittings manufactured and carried in stock in San Francisco

PACIFIC FOUNDRY COMPANY
Harrison and Eighteenth Streets
SAN FRANCISCO
ARMCO-Ingot Iron pipe, 16 to 12 gauge, 6 to 18 inches diameter, manufactured by the Montague Pipe & Steel Company, for the Thermalita Irrigation District, Oroville, California.

ARMCO-Ingot Iron Blue Annealed Pipe is an Economy Pipe

The service life of Ingot Iron is the big reason why the Thermalita Irrigation District, Oroville, California, secured 350 tons of Blue Annealed ARMCO-Ingot Iron pipe from the Montague Pipe and Steel Company. It is the most economical pipe money can buy.

For every installation where longer service gives ultimate economy, engineers—guided by the extended life of Armco installations—are specifying this enduring iron.

Where to order ARMCO-Ingot Iron sheets: Armco Warehouse, Tenth and Bryant Sts., San Francisco; California Cornice Works, Los Angeles; A. M. Castle Co. of Washington, Seattle; Spokane Sheet Metal Supply Co., Spokane.

Send Post Card for Booklet:
ARMCO-Ingot Iron Blue Annealed Sheets

The American Rolling Mill Co., Middletown, Ohio

When writing to Advertisers please mention this magazine.
## Index to Advertisements

(For Classified Directory and Specification Index see pages B to 18)

<table>
<thead>
<tr>
<th>A</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Chain Company</td>
<td>50</td>
</tr>
<tr>
<td>American Face Brick Assn.</td>
<td>24</td>
</tr>
<tr>
<td>American Marble &amp; Mosaic Co.</td>
<td>22</td>
</tr>
<tr>
<td>American Rolling Mills Company</td>
<td>5</td>
</tr>
<tr>
<td>American Window Glass Co.</td>
<td>125</td>
</tr>
<tr>
<td>Atlas Heating &amp; Ventilating Co.</td>
<td>130</td>
</tr>
<tr>
<td>Art Stone, Incorporated</td>
<td>14</td>
</tr>
<tr>
<td>Atlantic Pacific Agencies Corp.</td>
<td>14</td>
</tr>
<tr>
<td>Babcock Company, C. B.</td>
<td>52</td>
</tr>
<tr>
<td>Bacon, Edward R., Co.</td>
<td>4</td>
</tr>
<tr>
<td>Badd-Falk &amp; Company</td>
<td>119</td>
</tr>
<tr>
<td>Barrett &amp; Hilp</td>
<td>148</td>
</tr>
<tr>
<td>Bartell, John M.</td>
<td>145</td>
</tr>
<tr>
<td>Bass-Huceter Company</td>
<td>35</td>
</tr>
<tr>
<td>Beckwith, Herbert</td>
<td>115</td>
</tr>
<tr>
<td>Benjamin Electric Mfg. Co.</td>
<td>146</td>
</tr>
<tr>
<td>Birchfield Boiler Company</td>
<td>131</td>
</tr>
<tr>
<td>Bonded Floors Company</td>
<td>143</td>
</tr>
<tr>
<td>Bowser, S. F., Company</td>
<td>140</td>
</tr>
<tr>
<td>Brooks &amp; Doerr</td>
<td>140</td>
</tr>
<tr>
<td>Brown-Langlais Electric Co.</td>
<td>159</td>
</tr>
<tr>
<td>Brininstool Company, The</td>
<td>127</td>
</tr>
<tr>
<td>Bull-Dog Floor Clip Co.</td>
<td>37</td>
</tr>
<tr>
<td>Bruce, E. L. Company</td>
<td>141</td>
</tr>
<tr>
<td>Bunting Iron Works</td>
<td>141</td>
</tr>
<tr>
<td>Butte Electrical Equipment Co.</td>
<td>159</td>
</tr>
<tr>
<td>Buttonlath Mfg. Company</td>
<td>140</td>
</tr>
<tr>
<td>Cabot, Samuel Company</td>
<td>132</td>
</tr>
<tr>
<td>Cadwallder-Gibson Company</td>
<td>156</td>
</tr>
<tr>
<td>California Artistic Metal &amp; Wire Company</td>
<td>156</td>
</tr>
<tr>
<td>California Brick Company</td>
<td>27</td>
</tr>
<tr>
<td>California Common Brick Mfrs., Association</td>
<td>76</td>
</tr>
<tr>
<td>California Steam &amp; Plumbing Supply Co.</td>
<td>163</td>
</tr>
<tr>
<td>California Stucco Products Co.</td>
<td>133</td>
</tr>
<tr>
<td>California Wall Bed Company</td>
<td>136</td>
</tr>
<tr>
<td>Carter Blovonend Flooring Co.</td>
<td>126</td>
</tr>
<tr>
<td>Casement Hardware Company</td>
<td>161</td>
</tr>
<tr>
<td>Central Electric Company</td>
<td>156</td>
</tr>
<tr>
<td>Central Iron Works</td>
<td>156</td>
</tr>
<tr>
<td>Clark, N. &amp; Sons</td>
<td>19</td>
</tr>
<tr>
<td>Clinton Construction Company</td>
<td>134</td>
</tr>
<tr>
<td>Coast Rock &amp; Gravel Company</td>
<td>168</td>
</tr>
<tr>
<td>Cobbledick-Kibbe Glass Co.</td>
<td>161</td>
</tr>
<tr>
<td>Cochran, W. L., Inc.</td>
<td>16</td>
</tr>
<tr>
<td>Colman, Alex</td>
<td>150</td>
</tr>
<tr>
<td>Columbia Marble Company</td>
<td>142</td>
</tr>
<tr>
<td>Check &amp; Gillis</td>
<td>131</td>
</tr>
<tr>
<td>Cook Marble Company</td>
<td>158</td>
</tr>
<tr>
<td>Crane Company</td>
<td>48</td>
</tr>
<tr>
<td>Crittell Casement Window Co.</td>
<td>154</td>
</tr>
<tr>
<td>Cyclops Iron Works</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>158</td>
</tr>
<tr>
<td>Decker Electrical Con. Co.</td>
<td>158</td>
</tr>
<tr>
<td>Del Monte Properties Company</td>
<td>136</td>
</tr>
<tr>
<td>Detroit Steel Products Company</td>
<td>126</td>
</tr>
<tr>
<td>Dierren, D. Co.</td>
<td>128</td>
</tr>
<tr>
<td>Dillon, Wrenching Company</td>
<td>160</td>
</tr>
<tr>
<td>Drendell Electrical &amp; Mfg. Co.</td>
<td>159</td>
</tr>
<tr>
<td>Dunham, C. A., Company.</td>
<td>28</td>
</tr>
<tr>
<td>Electric Construction Company</td>
<td>158</td>
</tr>
<tr>
<td>Elevator Supplies Company, Inc.</td>
<td>139</td>
</tr>
<tr>
<td>Ellery Arms Company</td>
<td>161</td>
</tr>
<tr>
<td>Fairfacts Company, Inc.</td>
<td>37</td>
</tr>
</tbody>
</table>

**Federal Ornamental Iron Works** 156
**Fidelity & Casualty Company** 166
**Fink & Schindler Company** 160
**Fire Protection Corporation** 16
**Fire Protection Engineering Co.** 154
**Flagg, Edwin H. Co.** 145
**Frick, L. P., Inc.** 155
**Fuller & Goeppl** 26
**Fuller, W. P. & Company** 30

- **Garnett Young & Company** 14
- **General Fire Proofing Co.** 44
- **Gillely Schmied Company** 144
- **Gladding, McBean & Company** 21
- **Globe Indemnity Company** 149
- **Golden Gate Iron Works** 156
- **Grinnell Company of California** 154
- **Gunn-Carle Company** 133

- **Haines, Jones & Cadbury Co.** 46
- **Handy Self Cleansing Flush Valve Co.** 15
- **Hansen, Robertson & Zumwall** 29
- **Harvey Hubbell Company** 156
- **Hammont, M. E.** 155
- **Hauser Window Company** 22
- **Haws Sanitary Drinking Faucet Co.** 157
- **Hermann Safe Company** 145
- **Herrick Iron Works** 156
- **Higgins Lumber Company** 151
- **Hillard, C. J. Company** 142
- **Hill, Hubbell & Company** 134
- **Holbrook, Trill & Stetson** 137
- **Home Manufacturing Company** 160
- **Hulting, Hurst & Hulting** 154
- **Hunt & Company, Robt. W.** 134
- **Hunt & Hudson** 144

**Indiana Limestone Company** 45
**Independent Automatic Sprinkler Co.** 167
**J**
**Jensen, C. H. Company** 161
**Johns-Manville, Inc.** 150
**Johnson Service Company** 147
**Johnson, S. T. Company** 141
**Jones Bros. Arbesco Company** 153
**Juost Bros.** 144
**Judson Manufacturing Company** 156

**K**
**Kennedy Valve Company** 121
**Kenwood Boiler Company** 133
**Kinnear Manufacturing Co.** 28
**Kissell, I. R.** 129
**Knowles, A.** 148
**Krueger, James I.** 158

**L**
**Lannon Brothers** 160
**Larsen, Siegel Co., Inc.** 160
**Lawson & Drucker** 150
**Lawton & Vossey** 145
**Lindgren, Swinerton Inc.** 153
**Littlefield, R. W.** 148
**Los Angeles Pressed Brick Company** 28

**M**
**Mac Gruer & Simpson** 137
**Mac Rorie & Mc Lelan Company** 152
**Magne Bros.** 144
**Main Iron Works** 34
**Mangrum & Otter, Inc.** 128
Architects' Specification Index
(For Key to Advertisements, see pages 6 and 7)

Artstone, Inc., 24 Valencia St., San Francisco.
 Ashton Materials
Johns-Manville Inc., of California, 500 Post street, San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Jones Bros. Asbestos Supply Co., Inc., 500 Second St., San Francisco.
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

Art Metal
Federal Ornamental Iron and Bronze Co., 16th and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
California Artistic Metal & Wire Co., 349 Seventh street, San Francisco.

Architectural Terra Cotta
N. Clark & Sons, 116 Natoma St., San Francisco.
Livermore Fire Brick Works, 604 Mission Street, San Francisco.
Treasure Pottery, Inc., Glendale, Cal.

Automobile Turntables
M. E. Hammond, Pacific building, San Francisco.

Bank Fixtures and Interiors
Home Mfg. Co., 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
Pacific Manufacturing Company, San Francisco.
Los Angeles. Oakland and Santa Clara.
The Fink & Schindler Company, 218-219th St., San Francisco.

Bathroom Accessories

Beds—Wall
California Wall Bed Co., 714 Market St., San Francisco.

Belting and Packing
New York Belting and Packing Company, 519 Mission St., San Francisco.
H. N. Cook Belting Co., 401 Howard St., San Francisco.
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

Blackboards
Stewart Sales Co., 247 Kaliao Building, San Francisco.
Western States Seating Company, 39 Second Street, San Francisco.

Blinds—Venetian and Diffuselite
The G. Wilson Corporation, Call-Poole building, San Francisco, and 621 North Broadway, Los Angeles.
Western Blind & Screen Company, factory, Los Angeles; San Francisco representatives, Edward C. Dehn, Hearst Bldg., and C. F. Webber Co.

Boilers
Birchfield Boiler Company, Tacoma, Washington. See advertisement for Coast agencies.
Kewanee Boiler Company, Factory Branch, exposition building, San Francisco.
Main Iron Works, 1000 Sixteenth Street, San Francisco.

Bonding and Contractors
Bonding Company of America, Kehl Bldg., San Francisco.
Globe Indemnity Co., 444 California St., San Francisco.
Fidelity & Casualty Co. of New York, Balfour Bldg., San Francisco.
Standard Accident Insurance Company, California Commercial Union Building, San Francisco.

Box-Board Fibre Shipping Cases
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

Brass Goods, Castings, Etc.
H. Mueller Manufacturing Co., 1072-76 Howard St., San Francisco.

Brick—Face, Common, Enamel, Glazed
N. Clark & Sons, 116 Natoma St., San Francisco.
Richmond Pressed Brick Co., Sharon Bldg., San Francisco. Plant at Richmond, Cal.
Livermore Fire Brick Works and California Brick Co., 604 Mission St., San Francisco.

Cannon & Co., Sacramento; and 77 O'Farrell St., San Francisco.

Brick & Cement Coating
Armourite and Concrete, manufactured by W. P. Puller & Co., all principal Coast cities.

Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.
The Paraffine Companies, Inc., 475 Brannan St., San Francisco.

Wadsworth, Howland & Co., Inc., Jas. Hambly & Son, 1333 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.

Brick Stains
Armourite and Concreta, manufactured by W. P. Puller & Co., all principal Coast cities.

Built-in Fixtures
Built-in Fixture Company, 2608 San Pablo Ave., near Dwight Way, Berkeley, and Hooister Store, Pacific Building, San Francisco.

Builders' Hardware
Jost Bros., agent for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Hickey Works, New Britain, Conn., Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.

Palace Hardware Company, Agents Corbin goods, 581 Market St., San Francisco.

Ralston Iron Works, Inc.
Established 1876
Structural Steel
Representing Pauly Jail Building Co.

Office and Works
20th and Indiana Streets
San Francisco
Phone Mission 5230

Ralston Iron Works, Inc.
ARCHITECTS' SPECIFICATION INDEX—Continued

BUILDING MATERIALS, SUPPLIES, ETC.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.
C. H. Jenom Co., Call Building, San Francisco.
Standard Supply Company, Standard Avenue, near Webster Street, Alameda.

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

BURGLAR ALARMS
Smith Electric Company, 50 Natoma St., San Francisco.

CABINET MAKERS
Fink & Schindler Company, 218 13th St., San Francisco.
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.

CEMENT
Medusa Stannite White Cement, plain and water-proofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, San Francisco, and Principal Coast Cities.
Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.
Monolith Portland Cement Company, 702 Market St., San Francisco and Los Angeles.

CEMENT EXTERIOR WATERPROOF PAINT
Armourite, sold by W. F. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Battery St., San Francisco and 5524 Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Bay State Brick and Cement Coating, sold by James Hambly, 229-233 Clay St., San Francisco.

CEMENT—WATERPROOF
Monolith Portland Cement Co., 215 W. 7th St., Los Angeles, and 800 Claus Spreckels Building, San Francisco.

CEMENT STUCCO
"California" sold by California Stucco Products Company, Holbrook building, San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
N. Clark & Sons, 116 Natoma St., San Francisco, California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.

Cannon & Co., Sacramento, Cal.
Gladling, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropic Potteries, Inc., Glendale, Cal.

CLOCKS—ELECTRIC TIME
Standard Electric Time Co., 461 Market St., San Francisco.
Pacific Electric Clock Company, 86 Third St., San Francisco.

COLD STORAGE PLANTS
Cyclopa Iron Works, 837 Polson St., San Francisco.

CONCRETE CONSTRUCTION
Vannucci Bros., 16th and Church Streets, San Francisco.
Villades Bros., Inc., 749 Monadnock Building, San Francisco.

COMPOSITION FLOORS
"Linotol" plastic flooring, Hill, Hubbell & Co., 115 Davis St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Aestos Magnesia Company, 25 South Park, San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

CONCRETE FURNITURE
Art Stone Distributing Company, 2-4 Valencia St., at Market, San Francisco.

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward E. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
"Sherarduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Hansen, Robertson & Zumwall, 4145 Broadway, Oakland.

Satinette White Enamel
Flatline Cabinet Finish
Elastica Interior and Elastica Exterior
Standard Varnish Works
53 Stevenson Street
San Francisco
Smith Electric Company

“Quality First”

ELECTRICAL CONSTRUCTION
CONTRACTING  •  WIRING  •  FIXTURES  MOTORS  •  SUPPLIES  •  REPAIRING

50 Natoma Street

Telephone Sutter 1378

ARCHITECTS’ SPECIFICATION INDEX—Continued

Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Berkwith, Everson Bldg., Oakland.
Larsen-Siegfried Co., Inc., 907 Claus Spreckels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dinnwedie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, Park Ave., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco.
Vukovich & Bagge, 815 Bryant St., San Francisco.
Robert Trott, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS’ EQUIPMENT

Edward R. Bacon Co., Folsom at 17th St., San Francisco, and Los Angeles.

CONVENIENCE OUTLETS

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Barnett Young & Co., 612 Howard St.

CORK TILE

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 426 S. Spring St., Los Angeles.

CORK TILES FOR FLOORS

Redfield Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.
David E. Kennedy, Sharon Building, San Francisco, Story Building, Los Angeles.

CRUSHED ROCK

Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL ROLLING, FIREPROOF

The J. G. Wilson Corporation, Call-Post Building, San Francisco, and 621 North Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING

“Imperial,” manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Min wax Co., Inc., 22 Battery St., San Francisco, and 623 S. Clarence St., Los Angeles.

“Pahoe” Damp-Proofing Compound, sold by the Pacific Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

DOOR RANGERS

Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.

DRAIN PIPE AND FITTINGS


DRAIN TILE

California Brick Company, 604 Mission Street, San Francisco.

DRINKING FOUNTAINS

Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS

Spencer Elevator Company, 164-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 156 Fifth St.
“Chelsea” dumb waiters, sold by M. E. Hammond, Pacific building, San Francisco.

ELECTRICAL CONTRACTORS

Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 956 Folsom St., San Francisco.
Central Electric Company, 177-79 Minna St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Brown-Langlais Electrical Construction Co., 315 Fifth Street, San Francisco.
Newberry Electric Company, Alta Bldg., San Francisco.
Smith Electric Company, 50 Natoma St., San Francisco.
Decker Electrical Construction Company, 149 New Montgomery St., San Francisco.
Electric Construction Company, 616 Broadway, San Francisco.

ELECTRIC PLATE WARMER

The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc., sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL PLUGS, RECEPTACLES, ETC.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Barnett Young & Co., 612 Howard St., San Francisco.

Independent Automatic Sprinkler Company
Fire Protection Engineers

208 S. San Pedro Street, Los Angeles
72 Natoma Street, San Francisco

S. F. Phone, Garfield 204
TOLEDO AUTOMATIC SPRINGLESS SCALES
12 OUNCES TO 20 TONS
for Factories, Warehouses, Wholesale Houses—in any kind of business
where accurate weight is desired

676 MISSION ST. Phone Sutter 250
TOLEDO SCALE CO. SAN FRANCISCO
California

ARCHITECTS' SPECIFICATION INDEX—Continued

ELECTRICAL SUPPLIES AND EQUIPMENT

Harvey Habbell, Inc., Bridgeport, Conn., represented in San Francisco by Gannett Young & Co., 612 Howard St.

ELECTRIC SAFETY INTERLOCKS

ELECTRIC HEATING
West Electric Heaters, manufactured by W. Wealey Hicks, Rialto Building, San Francisco.
"Gloleg" manufactured by Strait & Richards, Inc., Newark, N. J., represented by Atlantic Pacific Agencies Corporation, 204 Rialto Building, San Francisco.

ELEVATORS—PASSENGER AND FREIGHT
Pacific Elevator & Equipment Co., 1129 Howard Street, San Francisco.
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.
Van Emon Elevator Company, 1159 Howard St., San Francisco.

ELEVATOR MOTORS AND CONTROL

ELEVATOR SIGNALS, DOOR EQUIPMENT
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 186 Fifth St.
Randall Control & Hydrometric Corporation, 265A Minna St., San Francisco, and 523 Central Bldg., Los Angeles.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Hunter & Hudson, Rialto Bldg., San Francisco.
Robert L. St. John, 1011 Flat Iron Bldg., San Francisco.

FAIENCE TILE
Tropics Pottery, Inc., Glendale, Cal.

FELTS
The Paraffle Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATCHES
Vonunrat Hardware Co., Indianapolis, Ind., represented in San Francisco by C. H. Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 banana St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 142 Sansome St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffle Companies, Inc., 34 Flirt St., San Francisco.

FITTINGS—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
The Fink & Cladner Company, 218-13th St., San Francisco.
Mullen Manufacturing Co., 64 Rassch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLAG POLES—STEEL
Pole & Tub Works, Newark, N. J., represented by H. M. Holway, 1007 Hobart Building, San Francisco, and 600 Metropolitan Building, Los Angeles.

FLOORING, BLOCK
Carter, Bloxom Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.

FLOORING, HEAVY DUTY
Carter, Bloxom Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

FLOORS—TILE, CORK, ETC.
Mangrum & Utter, 827 Mission St., San Francisco.

FLOOR VARNISH
Bass-Hunter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.

THE PELTON WATER WHEEL CO.
Hydraulic Engineers
Light-Duty High-Head Pumps for Tank and Other Building Service
Heavy-Duty Pumps for Municipal and General Water Supply
2022 Harrison Street
San Francisco
NASON'S OPAQUE FLAT FINISH A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.
Made in California to stand Pacific Coast climatic conditions
R. N. Nason & Co., Paint Makers
PORTLAND
151 Potrero Ave.—SAN FRANCISCO—436 Market St.
SEATTLE

ARCHITECTS' SPECIFICATION INDEX—Continued

Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, 53 Stevenson Street, San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FLOORS—HARDWOOD
Oak Flooring Bureau, Ashland Block, Chicago, III.
Cadwallader, Gibson Co., 5th & Brannan St., San Francisco.
Petrow & Co., 320 California St., San Francisco.
Strable Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
J. E. Higgins Lumber Company, 125 Sixth St., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 655 S. Clarence St., Los Angeles.

FLOORS—MASONRY—FLOOR COVERING
Hill, Hubbell & Company, 115 Davis St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FLOR LINING
California Brick Company, 604 Mission St., San Francisco.

FLUSH VALVES
Handy Self-Cleaning Flush Valve Co., 731 Polk St., San Francisco.
Shroeder Flush Valve Company, 1300 N. Main Street, Los Angeles and 16 Stewart Street, San Francisco.

FUEL OIL SYSTEMS
S. T. Johnson Co., 1337 Mission St., San Francisco.
S. F. Bewer & Co. Inc., 612 Howard St., San Francisco.
Wayne Tank and Oil Co., 430 Fourth St., San Francisco.

FURNACES—WARM AIR
Mangrum & Otter, 327 Mission St., San Francisco.
Montague Range and Furnace Co., 826 Mission St., San Francisco.
C. B. Babcock Company, 768 Mission St., San Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH
Home Manufacturing Company, 543 Brannon St., San Francisco.
W. & J. Slane, 216 Sutter St., San Francisco.
Western States Seating Co., 39 Second St., San Francisco.
H. Ross, 267 Howard St., San Francisco.
Fisk & Schindler Company, 218-19th St., San Francisco.

FURRING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

GARAGE HARDWARE
The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.

GARDEN FURNITURE
Art Stone Distributing Company, 2-4 Valencia St., San Francisco.

GAS HEATING
Pittsburg Water Heater Company, 478 Sutter St., San Francisco.
Ruud Automatic Water Heater, sold by Ruud Heater Company, 431 Sutter St., San Francisco.

GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
W. P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASTIC EQUIPMENT—LOCKERS, ETC.
Ellery Arma Co., 583 Market St., San Francisco.

HARDWARE
"Emprise," manufactured by California Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.

HARDWARE
Jouett, Bwln, agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
Vonoreau hardware, sold by G. H. Jensen Co., Call Bldg., San Francisco.

HEATING AND VENTILATING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gillies-Schmid Company, 198 Otis St., San Francisco.

The Perfect Automatic Valve
W. S. Haines & Co., Steam Specialties, Vacuum and Vapor Systems of Heating
"Twenty-four years of satisfactory service."
(See Page 1603 of Sweet's Catalogue)
O. M. SIMMONS CO.
113 Mission St., San Francisco
Phone: Douglas 5497
LIMESTONE, INDIANA
Indiana Limestone Quarrymen's Association, Box 776, Bedford, Indiana.

LINOILEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.

The Paraffine Companies, factory in Oakland; office, 34 First St., near Blakely, San Francisco.

W. & J. Sloane, 216 Sutter St., San Francisco.

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.

LINOTILE
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

LUMBER
Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.


Pope & Talbot, foot of Third St., San Francisco.

Santa Fe Lumber Co., 16 California St., San Francisco.

J. E. Higgins Lumber Company, 423 Sixth St., San Francisco.

Sunset Lumber Company, First and Oak Sts., Oakland.

MANTELS—WOOD, TILE, ETC.
Mangrum & Otter, 827-831 Mission St., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.

Ray Cook Marble Company, foot of Powell St., Oakland.

Joseph Musto Sone, Keenan Co., 535 N. Point St., San Francisco.

Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.

Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.

Columbia Marble Co., 413 Rialto Bidg., San Francisco.

METAL DOORS AND WINDOWS
Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.

U. S. Metal Products Co., 330 Tenth St., San Francisco.

Forderer Cornice Works, 269 Potrero Ave., San Francisco.

Michel & Pfeffer, Harrison and Tenth Streets, San Francisco.

METAL FURNITURE
Forderer Cornice Works, 269 Potrero Ave., San Francisco.

United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

ARCHITECTS' SPECIFICATION INDEX—Continued

METAL STORE FRONTS
Cobbidiack-Kibbe Glass Company, 666-6 Howard street, San Francisco, and Washington at Third St., Oakland.

METAL TRIM

MILL WORK
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.

National Mill and Lumber Co., San Francisco and Oakland.


The Fink & Schindler Company, 218-13th St., San Francisco.

OIL BURNERS

S. T. Johnson Co., 1337 Mission St., San Francisco.

G. E. Witt Co., 862 Howard St., San Francisco.

The Most Pleasing and Effective Form of Fireplace Heat

No costly flue construction, dampers or ash pit doors — merely substitute false work to receive the mantel and wire fireplace for GLOLOG. Even distribution of heat — An attractive room furnishing.

Write for complete data and wiring specifications for fireplaces.

STRAIGHT & RICHARDS, Newark, N. J.
ATLANTIC PACIFIC AGENCIES CORP.
RIALTO BLDG. • Western Distributors • SAN FRANCISCO

GLOLOG ELECTRIC FIREPLACE HEAT

SILENT CALL
Chicago
HOSPITAL
GARNETT YOUNG AND COMPANY
Pacific Coast Sales Engineers
612 Howard St., San Francisco

Seattle
Los Angeles
Portland
For Safety’s Sake

The lives of school children are America’s most precious asset, for the leaders of the next generation must come from the ranks of these boys and girls.

To protect these young lives, the school boards of many cities have insisted that every possible safeguard be thrown around them while they are in school. One of the most important safeguards is the installation of Von Duprin latches on all exit doors.

The Von Duprins promote the safe exit of the children in time of fire or panic. Once a child reaches the door, a touch on the cross bar gives immediate release from the dangers within the building.

Installing Von Duprins is a small thing, reckoned as part of the building cost, but a wonderfully important thing in time of panic.

See “Sweet’s,” pages 1415-1419, or ask us for Catalog 12-L.
Frigidaire
The Electric Refrigerator for Home, Apartment, Store, Etc.

Made By DELCO-LIGHT COMPANY, Dayton, Ohio
W. L. COCHRAN, INC., Distributor, 880 Mission St., San Francisco

ARCHITECTS’ SPECIFICATION INDEX—Continued

PAINTING, TINTING, ETC.
I. R. Kinsel, 1747 Sacramento St., San Francisco.
D. Zelinsky & Sons, San Francisco and Los Angeles.
The Tormey Co., 681 Geary St., San Francisco.
A. Quandt & Sons, 374 Guerrero St., San Francisco.
Artistic Painting Company, 59 Tehama St., San Francisco.

PAINTS, OILS, ETC.
Magnier Bros., 414-424 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
W. P. F. & E. Co., all principal Coast cities.
Standard Varnish Works, 55 Stevenson St., San Francisco.
Oakley Paint Manufacturing Company, 727 Anstasia St., Los Angeles, and Hearst Building, San Francisco.

PARTITIONS—FOLDING AND ROLLING
The J. G. Wilson Corporation, Call-Post Building, San Francisco, and 624 North Broadway, Los Angeles.

PLASTERING CONTRACTORS
A. Knowles, Call Bldg., San Francisco.
MacGruer & Simpson, 268 Tehama St., San Francisco.

PLASTER REINFORCEMENT
National Steel Fabric Co., A. C. Ruleson Co., Pacific Coast Sales Manager, Monnandock Building, San Francisco.

PLUMBING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gilhey-Schmidt Company, 198 Otis St., San Francisco.
Hatley & Hatley, Mitsu Bldg., Sacramento.
Scott Co., Inc., 243 Mission St., San Francisco.
Wm. F. Wilson Co., 325 Mason St., San Francisco.
Luppen & Hawley, 966 7th St., Sacramento.
W. H. Picard, 5656 College Ave., Oakland.

PLUMBING SUPPLY HOUSES
Cranco Company, all principal coast cities.
Heine, Jones & Cadbury Co., 457 Folsom St., San Francisco.
Holbrook, Merrill & Stetson, 64 Sutter St., San Francisco.
H. Mueller Manufacturing Company, 1072-76 Howard St., San Francisco.
J. L. Mott Iron Works, D. H. Gulick, selling agent, 553 Mission St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturer, 334-336 Wells Fargo Building, 85 Second St., San Francisco.

POLES AND PILING
Sons Fe Lumber Co., 16 California St., San Francisco.

PUMPS—HAND OR POWER
Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 816 Folsom Street, San Francisco.

Oscal Stove Iron Works, 558 Eighth St., San Francisco.
Pelton Water Wheel Co., 2622 Harrison St., San Francisco.
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Tank & Pump Co., 430 Fourth St., San Francisco; 580 S. Los Angeles St., Los Angeles.
Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.

REINFORCING STEEL
Edward L. Soule, Rialto Bldg., San Francisco.
Badt-Falk & Co., Call Bldg., San Francisco.
Judson Iron Works, San Francisco and Oakland.
George Carle & Co., Inc., 444 Market St., San Francisco.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscott Steel Co., 709 Mission St., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

REFLECTORS
I. P. Frick, Inc., 77 O'Farrell St., San Francisco.

REFRIGERATORS
'Frigidaire," Sold by W. L. Cochran, 880 Mission St., San Francisco.

ROOF MATERIALS
"Maltoid" and "Ruberoid," also "Fabro" ten and twenty year roofs, manufactured by the Paraffine Companies, Inc., San Francisco.
Gladding, McBean & Co., Crocker Building, San Francisco.
California Brick Company, 804 Mission Street, San Francisco.
M. H. Robertson Co., Hobart Bldg., San Francisco.
Jones Brothers Asbestos Supply Co., 500 Second St., San Francisco.
Johns-Manville Inc., of California, 500 Post St., San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

RUBBER TILING—INTERLOCKING
Weight Rubber Products Co., represented by Cheek & Gillis, 625 Call Bldg., San Francisco.

ELECTRICAL LAYOUTS AND PLANS
FOR BUILDINGS, INDUSTRIAL PLANTS, ETC.

ROBERT L. S. JOHN
Phone Douglas 5902 1011 FLAT IRON BUILDING
San Francisco, Calif.
BULL DOG FLOOR CLIPS

The use of this clip to anchor wood floors to concrete is cheap insurance against floor buckle and dry rot. Write for samples and special information.

BULL DOG FLOOR CLIP SALES CO.
77 O'Farrell St., San Francisco
690 Metropolitan Bldg., Los Angeles
L. T. KELLEY, General Manager

ARCHITECTS' SPECIFICATION INDEX—Continued

RUGS & CARPETS
W. & J. Sloane, 216 Sutter St., San Francisco.

SAFETY TREADS
Pacific Materials Co., 525 Market St., San Francisco.

SAND
Cast Rock & Gravel Co., Call Bldg., San Francisco.
Del Monte White Sand, Del Monte Properties Co., 401 Crocker Bldg., San Francisco.

SASH AND CABLE CHAINS
American Chain Co., Bridgeport, Conn. and Rialto Building, San Francisco.

SAFE AND VAULTS
Hermann Safe Company, 216 Fremont St., San Francisco.

SAILS
Toledo Scale Company, 617 Mission St., San Francisco.

SCENIC PAINTING—DROP CURTAINS, ETC.
The Edwin H. Flag Scenic Co., Los Angeles and San Francisco.

SHEATHING AND SOUND DEADENING
The Paraffine Companies, Inc., 34 First St., San Francisco and principal Coast cities.

SHEET METAL WORK
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

SHINGLE STAINS
Bass-Hunter Paint Company, all principal Coast cities.
Fuller's Pioneer Shingle Staine, made by W. P. Fuller & Co., San Francisco.
The Paraffine Companies, San Francisco, and principal Coast Cities.

SHUTTERS—ROLLING, FIRE, STEEL, WOOD
J. G. Wilson Corp., 621 North Broadway, Los Angeles, and Call-Post Building, San Francisco.

SIGNALLING & PROTECTIVE SYSTEMS
Garrett, Young & Co., 612 Howard St., San Francisco.

SINKS—COMPOSITION

SKYLIGHTS
H. H. Robertson Co., represented on the Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

STEEL FLAG POLES
Pole and Tube Works, Newark, N. J., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

STEEL TANKS
Ocean Shore Iron Works, 55 Eighth St., San Francisco.
ARCHITECTS’ SPECIFICATION INDEX—Continued

STUDDING—FIREPROOF STEEL
The General Fireproofing Company, 20 Beale Street, San Francisco.

SWITCHES AND SWITCHBOARDS

TELEPHONE SYSTEMS
THEATER AND OPERA CHAIRS
Western States Seating Co., 133 Kearny St., San Francisco.

THERMOSTATS FOR HEAT REGULATION
Johnson Service, Rialto Bldg., San Francisco.

TILES FOR FLOORS, MANTELS, ROOFS
Cannon & Co., Sacramento; and 77 0’Farrell St., San Francisco.
Livermore Fire Brick Works and California Brick Company, 654 Mission St., San Francisco.
Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles, St., Los Angeles.

TRAVELING CRANES
Cyclops Iron Works, 837 Folsom St., San Francisco.

VALVES—PIPES AND FITTINGS
Craner Radiator Valves, manufactured by Craner Co., Second and Brainard Sts., San Francisco.
Grinnell Co., 452 Mission St., San Francisco.
O. M. Simmons Co., 115 Mission St., San Francisco.
Schroeder Valve Company, 1300 N. Main Street, Los Angeles; 16 Steuart St., San Francisco.

VALVE PACKING

VARNISHES
W. F. Fuller Co., all principal Coast cities.


VITREOUS CHINAWARE
Pacific Sanitary Manufacturing Company, 87 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, Wells Fargo Building, San Francisco.

WATERPROOFING (See also Dampproofing)
Munson Waterproofing, manufactured by Sandusky Cement Co., Cleveland, Ohio. Carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

WALL BEDS—SEATS, ETC. (See Bed).

WALL BOARD

WATER SUPPLY SYSTEMS
Kewanee Water Supply System—Simonds Machinery Co., agents, 816 Folsom Street, San Francisco.

WHEELBARROWS—STEEL
Western Iron Works, Beale and Main Sts., San Francisco.

WHITE ENAMEL
"Gold Seal," manufactured and sold by Bass-Hueter Paint Co. All principal Coast cities.

The Paraffine Companies, Inc., 34 First St., San Francisco, Los Angeles, Portland and Seattle.

WINDOW SHADES
D. B. & E. Walter, 542 Mission Street, San Francisco.

WINDOWS, REVERSIBLE, CASEMENT, ETC.
Hauser Window Co., 1302 Harrison St., San Francisco.
J. G. Wilson Corporation, 621 N. Broadway, Los Angeles; Call-Post Building, San Francisco.
Criticl Casement Window Company, Detroit; Western House-Wilcox Company, agents, 523 Market St., San Francisco.
The Casement Hardware Company, 241 Pohonce Building, Chicago, Ill.

WIRE FENCE
Standard Fence Co., 245 Market street, San Francisco; and 310 12th street, Oakland.

GLOBE AUTOMATIC SPRINKLERS
Will protect your building and business from destruction by fire and reduce your Insurance Rate. Write for estimates.

Pacific Fire Extinguisher Company
FIRE PROTECTION ENGINEERS
424-440 Howard Street, San Francisco

Manufacturing Plant, 298 Fremont St.
CLASSIC REPOSE, DIGNITY AND REFINEMENT
in the ABOVE BUILDING ARE ENHANCED
BY THE USE OF
Architectural Terra Cotta made by N. Clark & Sons

THE wide range of textures and tones available in
this medium as well as the ease with which it lends
itself to decorative enrichment, insures the owner of a
note of contrast so necessary in a distinctive building.
Decorously challenging attention, it imprints a prom-
inent advertisement in the mind of the passerby.

Estimates and samples furnished on request.

N. CLARK & SONS
Main Office, 116 Natoma Street, San Francisco
Los Angeles Office, 1022 Detwiler Building, Los Angeles
Works—West Alameda
Here are a few of the other new buildings in which L. A. Pressed Brick Co. products were used—

Stock Exchange Bldg.
Pacific Finance Bldg.
Hotel Ritz
Sun Realty Bldg.
Biltmore Hotel
L. A. Railway Bldg.
County High School
First M. E. Church
Metropolitan Theatre
Bank of Italy Bldg.

LOSA NGELES PRESS ED BRICK COMPANY— one of the many great structures that have recently come out of the fire—the new Union Oil Building at Seventh and Hope Streets. These kilns are pouring forth their product in a never ending stream, night and day. Today's burning will be part of tomorrow's skyline. The clay of California translated by fire into a city of permanent beauty and strength.

"The Standard of Quality in Clay Products"

LA'Pressed Brick Co
ENTIRE SIXTH FLOOR...... FROST BLDG
Second and Broadway    Phones MUM 502 - 60489

LOS ANGELES
FACE BRICK - HOLLOW TILE - ROOFING TILE - TERRA COTTA ETC
CORDOVA ROOF TILE
FURNISHED AND LAID BY

GLADDING, McBEAN & CO.
FOUNDED 1875

CROCKER BUILDING, SAN FRANCISCO

The beautiful color combinations obtained with Cordova Roof Tile are achieved by the nature of the clay and the scientific process of mixing and burning. This gives to all roofs a soft harmonious overtone, which is, perhaps, one of their greatest charms.

TROPICO POTTERIES, INC.
GLENDALE, LOS ANGELES
CALIFORNIA
Stedman NATURIZED FLOORING

"The Original Reinforced Rubber Floor"

Also specified by Weeks & Day in Huntington Apartments and Chronicle Building. Suitable for Hotel and Apartment Lobbies, Stores, Banks, Hospitals, Residences, Offices, Corridors

Silent — Durable — Economical

Sold and laid by C. H. JENSEN CO., 74 New Montgomery Street, San Francisco

HAUSER WINDOWS

add to the appearance and comfort of Apartment Houses, Hotels, Residences.

HAUSER WINDOW CO.

Factory, Office and Show Rooms:
1362 Harrison St., San Francisco

Phone Hemlock 1062

When writing to Advertisers please mention this magazine.
West Side Junior High School, Bay City, Michigan
Perkins, Fellows & Hamilton, Architects
Un glazed Terra Cotta used for ornamental trim throughout

DEPENDABLE TERRA COTTA

Twenty-six manufacturers of Terra Cotta produce material conforming to an adopted standard of the highest excellence. Dependable results are thus assured under open competition in public work.

For Standard Specifications lately perfected by the Terra Cotta Industry covering proper requirements in manufacture and setting, address

NATIONAL TERRA COTTA SOCIETY
19 WEST 44th STREET NEW YORK, N. Y.

When writing to Advertisers please mention this magazine.
THE severe, classical lines of this doorway, at once simple and elegant, fit admirably into the brick field of the wall surface with its neat tracery of Flemish Bond. If you do not have "Architectural Details in Brickwork," ask for the portfolio. The halftone plates, issued in three series, each in a folder ready for filing, will be sent to any architect requesting them on his office stationery. The plates show many examples of the beautiful effects that can be economically obtained through the use of standard sized face brick.

Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Illinois.
Broadcasting — the fact that

Richmond Face Brick

are used for the exterior finish of this Radio Station in Oakland, will give the Architect knowledge of the quality and beauty of the material. Richmond Face Brick are synonymous with Service, Beauty and Economy.

Richmond Pressed Brick Company
Richmond, California

Los Angeles Pressed Brick Company
Los Angeles, California

United Materials Company
Northern California Distributors
Sharon Building

San Francisco
HERE'S a 60-page book that should be in the hands of every architect. Brimful of ideas in exterior design and interior arrangement, packed with dependable information, facts and figures regarding building in brick. Contains photographs of more than 50 beautiful California homes.

California Common Brick Manufacturers Association
342 Douglas Bldg. Los Angeles, Calif.

G L A S S

Fuller & Goepp
Manufacturers of
Art and Leaded Glass MIRRORS

Dealers in Sani-Onyx White Glass for Modern Home and Office Fixtures

32 Page Street, San Francisco
Market 498
Jackson at 11th, Oakland
Lakeside 7272

OUR OAKLAND PLANT

When writing to Advertisers please mention this magazine.
The Stucco Never Cracks

Stucco or cement plaster applied over Dickey Mastertile adheres permanently without peeling or cracking. That is one of the reasons why Dickey Mastertile is being widely specified by architects, not only for homes, but for load bearing and curtain walls in much of the most important construction.

Dickey Mastertile is highly fire resistant, light, amply strong and speedily erected. It builds walls with dead air spaces that insulate against temperature changes, moisture and sound. Usually no furring or other waterproofing is required, plaster being applied directly to the inside surface of the wall. It is the lowest priced of all permanent building materials.

DICKEY MASTERTILE

Builds Walls that Defy Fire, Time and Weather
MADE BY
CALIFORNIA BRICK COMPANY
Associated with LIVERMORE FIRE BRICK WORKS,
MANUFACTURERS OF DICKEY FACE BRICK
AND OTHER CLAY PRODUCTS

604 Mission Street, San Francisco Builders' Exchange, Oakland

When writing to Advertisers please mention this magazine.
The sum of the whole

Dunham Heating Service is more than the mere name of a system that has brought comfort, economy and satisfaction to countless thousands of office buildings, industrial plants, schools, churches, factories, stores,—yes, and to residences.

Dunham Heating Service—the sum of the whole—is greater than any of the attributes of name, or materials, or machines, or men, which enter into the manufacture of Dunham Products, great though each of these may be as a factor in co-ordinating the Dunham Idea.

For Dunham Heating is a vital, living thing, which marches on through the years as a safeguard to every purchaser of any Dunham Trap or product that has ever left the Dunham Factories.

Sixty branch and local sales offices in the United States and Canada bring Dunham Heating Service as close to your office as your telephone. Consult your telephone directory for the address of our representative in your city.

Ask him for the names of representative Pacific Coast installations.

C. A. DUNHAM CO.

Los Angeles 119 E. Third Street
San Francisco 524 Sheldon Building
Seattle 2021 L. C. Smith Building
Portland 410 Board of Trade Building
Spokane 405 Sherwood Building

KINNEAR ROLLING DOORS

The Door that fits Your Building

THE Kinnear Rolling Door is built individually to meet the requirements of the building. It is the modern industrial door—for all types of buildings. It gives protection against fire and burglary.

For endurance, perfect performance and the utmost economy—leading architects use Kinnear Steel Rolling Doors. Our Engineering Department at your service. Ask for illustrated catalog.

Kinnear Manufacturing Co.
661-671 Field Ave.,
Columbus, Ohio
San Francisco, 525 Market St.
February, 1924

HUBBELL

Duplex Convenience Outlet. Composition body No. 5890; Porcelain body No. 6257. Stamped brass flush plate for either of above, No. 6258.

Hubbell Convenience Outlets are also made in the single types shown above, with round or rectangular plates.

For the Kitchen Cabinet
— a Duplex Outlet

Waist-high — within arm’s reach — close beside the kitchen cabinet. Here is one place where a woman client likes to find a Hubbell Duplex Convenience Outlet — providing connections for waffle iron, mixer, grill or other electric kitchen appliances.

Hubbell Duplex Convenience Outlets take any standard plug cap, whether the blades be parallel or tandem. Made with shallow bodies for thin partitions.

Our fullest cooperation with regard to the most favorable location of convenience outlets in any class of building is gladly extended to architects.

HARVEY HUBBELL, INC
ELECTRICAL WIRING DEVICES
BRIDGEPORT, CONN., U.S.A.

Remember it's the TeSlots, that make outlets "Convenient"

When writing to Advertisers please mention this magazine.
CONCRETA
Defies Time & Weather

Proof of the remarkable durability of this concrete paint has been recorded repeatedly for years past. Two instances which have recently come to our notice are shown in the accompanying illustrations.

Apart from its durability, Concreta is also noted for its mellow, stone-like texture.

On account of these unique qualities, Concreta is much sought wherever the preservation and beautifying of concrete, stucco or brick surfaces are required.

W. P. FULLER & CO.
301 MISSION ST. SAN FRANCISCO

FULLER
PAINTS SINCE '49
VARNISHES

SPECIFICATIONS —
Refer to Sweet's Architectural Catalogue, page 1441.
California Steel Windows

The steel windows in this building were galvanized by the hot process, making them proof against corrosion for years to come, and reducing the cost of upkeep to a minimum.

When writing to Advertisers please mention this magazine.
The new Salt Lake City Country Club.
A. O. Treganza, Architect

In Spending $350,000 They Took no Chance on the Flooring

This charming country club, in characteristic harmony with unusual surroundings, has just been completed to the satisfaction of architect, building committee and club membership.

Not the least important of the many carefully considered factors that enrich the interior, are the beautiful floors and finish. Over 10,000 feet of quartered red guaranteed Bruce oak flooring were used, and the finish throughout is quartered oak, also furnished by Bruce.

A dependable product is essential to bring to full fruition the work of the architect and the builder. A dependable product is what the E. L. Bruce Company spares no pains to make.

We will be glad to assist you in solving any floor problem that may arise, if you will write us.

E.L. Bruce Company
MEMPHIS TENNESSEE

Largest Makers of Oak Flooring in the World

When writing to Advertisers please mention this magazine.
February, 1924

CENTRAL CHRISTIAN CHURCH
GLENDALE, CALIFORNIA

This building was designed by Architect Robert H. Orr, of Los Angeles. W. R. Boyd, of Glendale, was the Builder, and Wm. Keen, of Burbank, the Plastering Contractor. The entire exterior was plastered with MONOLITH PLASTIC WATERPROOF PORTLAND CEMENT.

WATER-PROOF

The waterproof properties of MONOLITH are ground into each particle in the process of manufacture, and can therefore never be separated from the material. MONOLITH PLASTIC WATERPROOF PORTLAND CEMENT may be transported and stored in the dampest weather, without requiring special precautions to prevent deterioration.

We manufacture two cements—one is Monolith Portland Cement, a high grade uniform Portland. The other is Monolith Plastic Waterproof Portland Cement. Both are guaranteed to pass specifications. In ordering from your dealer be sure to specify which cement you desire.

Write for Booklet.

MONOLITH PORTLAND CEMENT CO.

LOS ANGELES		SAN FRANCISCO		PORTLAND
A.G.Bartlett Bldg	800 Claus Spreckels	516 Pittock Block
13th floor.

MONOLITH PORTLAND CEMENT CO.

MONOLITH PORTLAND CEMENT CO.

MONOLITH PORTLAND CEMENT CO.
Specify HANDY FLUSH VALVES

It is NON-CLOGGING
It functions perfectly with any make or kind of bowl.
Gives perfect cleansing flush — washes bowl clean.

Model A—Indirect Flush: For residences served by one-half inch supply pipe.
Model B—Direct Flush: For hotels, office and other buildings served with three-quarter inch or larger supply pipe.

Write for complete catalogue.

HANDY SELF-CLEANING FLUSH VALVE CO.
731 FOLSOM STREET, SAN FRANCISCO, CAL.

Demonstration in Universal Exhibits Monadnock Bldg., San Francisco

ALL CAST IRON—3 Sizes (3, 5, and 7 Sections)

RA-DO FUMELESS GAS RADIATORS
The Ideal "Year-Round" Heating System
For The Home—New or Old
Easiest and Cheapest to Install
Lowest Operating Cost

POTTER RADIATOR CORPORATION
5954 Pasadena Ave., LOS ANGELES
393 Sutter St., SAN FRANCISCO
1700 San Pablo Ave., OAKLAND

POWER AND HEATING BOILERS
STEEL TANKS, STACKS, BREECHINGS, SHEET AND PLATE WORK
MACHINERY AND IRON CASTINGS

MAIN IRON WORKS
Main Office and Works: 7th, DAGGETT AND 16th STS.
Telephone Market 752-753
San Francisco, Calif.

PUMPING MACHINERY
"AMERICAN-MARSH"
House, Sump and Fire Pumps

FOR ALL SPECIFICATIONS

SIMONDS MACHINERY CO., 816-818-820 FOLSOM ST.
PHONE KEARNY 1457
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
100% Soft Water
Now Within the Reach of All

Every Architect and Construction Engineer Should Know Whether the Water in His Territory is Commercially Hard

The Wayne rapid rate Water Softener is economical to buy and to operate. It is compact and easily installed.

Its rapid rate of softening activity makes soft water storage unnecessary—and insures an unlimited supply of 100% soft water from every household faucet. Made in a range of sizes to meet all requirements of industrial plants, office buildings and institutions.

Wayne rapid rate Water Softeners are thoroughly time-tried and use-tested.

They are made and guaranteed by an organization with thirty years' experience, and which is today generally recognized as the leader in this field.

For the information of the purchasers of Wayne Water Softeners or those of any other make, particularly such purchasers as those who have been threatened with suits to recover royalties, Judge Arthur J. Tuttle in the United States District Court at Detroit on November 8th, 1923, found the Gans patent No. 1,195,923 to be void. This is the patent which one of our competitors claimed to be infringed by all zeolite water softener manufacturers.

A Book You Can Use—Sent Free on Request
Write for copy of our booklet—"Water Softening and Filtration." We send it gladly to those interested.

Wayne Tank & Pump Co., 862 Canal Street, Fort Wayne, Ind.
An International Organization With Sales and Service Offices Everywhere
Horrocks and Imperial Desks
Marble Chairs
Brown Morse Filing Cabinets
In All Standard Finishes

PHOTO KEARNY 512

Phoenix Desk Company

"Quaint Village"
A. B. Zweckel, Architect
Los Angeles.

Mottled Roofs
Mottled roof effects are much more artistic in stained shingles than in slate or tile. The tones merge into one another, avoiding the checker-board effect. The above house is a beautiful example of mottled effects in

Cabot's Creosote Shingle Stains
The stucco walls are also stained in blended effects with Cabot’s Waterproof Stucco Stains, which harmonize completely with the shingle-stains on the roofs and timbers.

Send for Samples, Circulars and full information

Cabot’s Creosote Stains, Stucco and Brick Stains, “Quilt,” Mortar Colors, Damproofing, Waterproofing, Conservo Wood Preservative, etc.

Pacific Materials Co., San Francisco
Waterhouse-Wilcox-Pacific Co., Los Angeles
Theo. F. Snyder, San Diego, Cal.

S. W. R. Dally, Seattle
Cress & Co., Portland

When writing to Advertisers please mention this magazine.
China versus tile

Facts you should know about bathroom fixtures

A recent investigation of the relative merits of china and tile bathroom accessories was conducted in New England by a disinterested agency. The investigation brought out these facts:

In point of durability, Fairfacts China Fixtures far outwear fixtures made of tile. Cold and heat have little effect on china, while temperature changes cause tile to craze or crack. Fairfacts China Fixtures, because of their fine close texture and heavy construction, are much stronger than tile; they never wear out, never become shabby.

In point of sanitation, the china of Fairfacts Fixtures was found to be far superior to the porous texture of tile. Tile fixtures, when crazed, absorb moisture and dirt and are unsanitary. Because of their shape, Fairfacts Fixtures were found much easier to clean.

In point of beauty, the majority of architects considered Fairfacts designs to be unmatched in dignity and grace of line.

Write for catalog F. Details and specifications also appear in Sweet's Architectural Catalog.

THE FAIRFACTS COMPANY, INC.
Manufacturers
234-236 West 14th Street New York City
Dept. E

Fairfacts Fixtures

When writing to Advertisers please mention this magazine.
SCHOOL BUILDING FOR THE CITY OF OAKLAND

R. W. Littlefield, Builder

C. W. Dickey, Architect

The Architect and owners planned this building to outlast the bonds issued to finance it. "WOLVERINE" Maple Flooring was used.

STRABLE HARDWOOD COMPANY

G. H. BROWN

DISTRIBUTORS

Strablewood Quality Hardwoods

537 FIRST STREET

OAKLAND, CALIFORNIA

When writing to Advertisers please mention this magazine.
Each shipment of "OLD MISSION" Portland Cement is guaranteed not only to equal but to surpass all requirements of the standard specifications for Portland Cement as adopted by the U. S. Government and by the American Society for Testing Materials. A Guarantee Certificate is mailed with the bill of lading of each car, giving number of car, date packed, and number of barrels, over the signature of the chief chemist.

8000 SACKS DAILY

SALES OFFICE:
Suite 715, STANDARD OIL BUILDING
225 BUSH STREET, SAN FRANCISCO
PHONE SUTTER 3075
PLANT: SAN JUAN, CAL.

When writing to Advertisers please mention this magazine.
Seven Points of Worth

Consider these valuable points of service and economy. Western Venetian Blinds:

- Utilize 100% of available window area for lighting purposes.
- Permit the regulation of daylight and ventilation.
- Eliminate the intense glare of the sun, and change bright sunlight into soft, restful daylight.
- Reduce the heat from the sun.
- Serve in place of both awnings and shades, and perform a better service.
- Give from 20 to 30 years of satisfactory service at a minimum of maintenance.
- Harmonize with, and enhance the architectural beauty of business structures.

No other window equipment has these seven points of worth; nor will any other render such efficient service, for so long a time, at an equally low cost.

Write for Special Bank and Office Building Catalogue
See Swee’s Catalog, pages 1081 to 1085 inclusive, 17th Edition

Western Blind & Screen Company
General Offices, Los Angeles; Factories, Los Angeles and Kansas City

New York, N. Y., 35 W. 43rd St.
Chicago, Ill., 326 W. Madison St.
Atlanta, Ga., 309 Flatiron Bldg.
Kansas City, Mo., 14th & Monigall
Portland, Ore., 213 Fitzpatrick Bldg.
San Francisco, Cal., 921 Hearst Bldg.

Texas Agents: Two Republics Sales Service
523 Hicks Bldg., San Antonio

MORE LIGHT ~ MORE AIR ~ LESS GLARE
Raymond Granite lasts not only a lifetime, but countless lifetimes. For thousands of years granite has persisted in all climates. Time fails to efface its beauty — its durability. It is the stone of centuries.
Napoleon Gray Marble
The Beautiful, Economical & Practical

Try as you will, you will find it difficult to locate a gray tone marble with all the attributes of Napoleon Gray. It has the wearing qualities and a non-slip surface for a floor, the structural beauty for both interior and exterior wall material, yet the cheapness of price that makes its use an economy. It can be carved. And last but not least, we can assure you of immediate shipments in any quantity.

Samples or color plates sent on request.

TOMPKINS-KIEL MARBLE COMPANY
305 FIFTH AVENUE
NEW YORK CITY

CHICAGO
SAN FRANCISCO
SYLACAUGA, ALA.
KNOXVILLE, TENN.
BUILDING FOR WALTON N. MOORE DRY GOODS COMPANY, SAN FRANCISCO
Geo. W. Kelham, Architect
Foundation Company, Builders

FURRING CHANNELS
CORNER BEAD and ARMCO IRON

Herringbone
RIGID METAL LATH
Let us tell you the many advantages of HERRINGBONE

The General Fireproofing Co.
20 Beale Street, San Francisco
When writing to Advertisers please mention this magazine.
A valuable book for Architects

A PORTFOLIO of house designs prepared by a leading firm of Architects under the supervision of our Technical Director is just off the press. These designs combine economy of space with attractive arrangement of rooms, and will be a valuable addition to your reference file. This portfolio sent free to Architects requesting it on their office stationery. Address, Indiana Limestone Quarrymen’s Association, Box 770, Bedford, Indiana.

Build The Nation Securely With

Indiana Limestone

The Nation's Building Stone

When writing to Advertisers please mention this magazine.
Rydal Mixing Valve will appeal to Architects

The Rydal mixing valve accomplishes, in two complete turns, what the ordinary mixing valve attempts to accomplish in a half turn.

Architects as well as the public condemn mixing valves on account of their quick change in temperature which has, at times, caused the user a great deal of discomfort.

With the Rydal mixer, the temperature of the water can be changed two degrees at a time.

Furnished with a movable dial plate which reads—shut, cold, warm and hot.

The concealed mixer has a regulating screw under the dial plate. This screw controls the travel of the volume plungers.

By this screw regulation the mixer can be set to open to any point between the words Warm and Hot. Under ordinary conditions, the maximum temperature desired can thereby always be obtained.

Plungers are of different diameters, thus preventing the possibility of error in replacing.

Plungers are of the floating type, allowing seats to close off tight when the wear of the washers has been uneven.

Seats are removable and are of different diameter threads to prevent incorrect installation when replacing.

Operating stem furnished with a heavy square thread, having a large bearing surface which makes a long life thread.

Haines, Jones & Cadbury Co.
Makers of Plumbing Supplies
857-859 Folsom Street, San Francisco
Philadelphia-New York-Richmond, Va.-Savannah
Jacksonville-Charlotte
How these elegant apartments —idle for months—were quickly rented

*Oak Flooring turned a loss into a profit*

These new modern apartments, in a high-class residential district of St. Louis, were a failure. Why? Because people wouldn’t live on the cold hard terrazzo floors with which they were equipped. Every expedient had been tried to make the rooms livable, including carpets which shrank after being cleaned for the new tenant, and often had to be replaced because of objectional color.

At last, oak flooring was laid throughout, over the terrazzo, adding that essential element of comfort that people demand.

Now, with permanent oak floors, easily kept bright and clean, healthful under foot, beautiful with the warmth of Nature’s own coloring, empty profit-consuming apartments are being quickly rented.

*Nature’s Gift of Everlasting Beauty*

Consult an Architect before Building

This advice appears in our national advertising to the consumer

We will be glad to give you the benefit of our experience in solving your floor problems. Write for your copy of our new 24 page book, "The Story of Oak Floors," with plates of the new color finishes, and other suggestions of interest to architects and their clients.

1036 Ashland Block, Chicago
The builders of Crittall steel casements, windows, and French doors have held leadership in this craft for generations. Made by hand, in many designs, Crittall products express an artistry that is traditional with this name. They are preferred by architects and home builders for the assurance vested in their reputation as well as for their grace, utility, and fine workmanship. Crittalloy, the copper-bearing steel, now adds greater endurance and rust-resisting qualities to all Crittall products.
Because it is the fixture in most constant use, convenience and right proportions in the lavatory are important factors in the comfort derived from a fine bathroom. For the same reason, there is special need of enduring quality. Provisions for maximum convenience and long and satisfying service are matched by beauty of contour, color and finish in every detail of Crane lavatories and other bathroom appointments. Crane attention to design is as much a feature of the simplest fixtures of porcelain or enamel as of the distinctive units incorporating French and Italian statuary and colored marbles.

CRANE

GENERAL OFFICES: CRANE BUILDING, 636 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Forty-five Cities:
National Exhibit Rooms Chicago, New York, Atlantic City and San Francisco
Works: Chicago, Bridgeport, Birmingham, Chattanooga and Trenton

CRANE, LIMITED, MONTREAL. CRANE-BENNERT, LTD., LONDON
CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO
CF CRANE, PARIS

When writing to Advertisers please mention this magazine.
We have standardized the sizes of chain to correspond with the weights of sash for which they are intended. This important feature is not the result of haphazard estimates, but of pains-taking laboratory investigation.

**American Chain Co., Inc., Bridgeport, Conn.**

District Sales Offices:
- Boston
- Chicago
- New York
- Philadelphia
- Pittsburgh
- San Francisco

Largest Manufacturers of Welded and Weldless Chains
and Makers of the Famous WEED Automobile Accessories

---

**No Banging Doors Here**

The Wesley Hospital, Wichita, Kansas, is one of the many hospitals from coast to coast in which R-W IDEAL Elevator Door Hardware has been installed. Every advantage of "Silence is Golden" is attained through the choice of this equipment.

**Where Silence is Golden**

Silence in elevator door operation is as important as positive, safe and speedy action. This is especially apparent in hospitals, hotels and apartment buildings where banging, clattering doors cannot be tolerated. The choice of R-W IDEAL Elevator Door Hardware is unquestionable assurance of silence and satisfactory service. The proven superiority of this equipment, which includes door controllers and a wide variety of hangers, is responsible for its almost universal acceptance as the standard elevator door hardware.

Write today for Catalog EE-21, which fully describes this equipment.
Portland Cement Stucco Is Quality Stucco

The high recognition accorded Portland Cement Stucco by the architectural and engineering professions is due primarily to its dependability. The reason for this dependability is the fact that its most important ingredient—Portland Cement—is standardized.

Not only has Portland Cement Stucco superior strength and durability; applied in accordance with the most advanced specifications, it assures structures of distinction and beauty.

Our new booklet, “Portland Cement Stucco,” gives all details of good practice. From these you can write your own specifications.

This booklet is yours for the asking. It is a practical “how-to-do-it” book for the superintendent and foreman, as well as a reference book for the architect, engineer and contractor. Here are a few of the things it contains:

- Typical Construction Details with Sketches.
- Varieties of Surface Finish and How Obtained.
- Notes on Coloring Pigments.
- Proportioning Mixtures.
- Use of Hydrated Lime.
- Back Plastered Work.

Send today for “Portland Cement Stucco.” It is a booklet you will want to keep. Address our nearest District Office.

PORTLAND CEMENT ASSOCIATION
A National Organization
to Improve and Extend the Uses of Concrete

Atlanta
Birmingham
Boston
Chicago
Dallas
Denver
Des Moines
Detroit
Indianapolis
Jacksonville
Kansas City
Los Angeles
Memphis
Minneapolis
New Orleans
New York
Pittsburgh
Philadelphia
St. Louis
Pittsburgh
Portland, Ore.
Salt Lake City
San Francisco
Seattle
San Francisco
Portland, Ore.
Washington, D.C.

When writing to Advertisers please mention this magazine.
Housewide Heat
At the Touch
Of a Button

The folks who live in the homes you build can summon warmth at the press of a button—if you have installed the Babcock High Efficiency Gas Furnace.

Designed by gas engineers. Long fire travel. Leakless joints.

5 Year Guarantee

Sold in Alameda County by
PACIFIC GAS APPLIANCE CO.
1533 Clay Street, Oakland

BABCOCK
"HIGH EFFICIENCY"
GAS FURNACE
Manufactured by C. B. BABCOCK COMPANY, San Francisco

Pump Governors
Oil-Burner Governors
Reducing Valves
Safety Valves
Oil Valves
Blow Off Valves

Boiler Feed Valves
Vacuum Pump Governors
Vacuum Regulating Valves
Oil Pumping Sets
Little Giant Improved
Oil Burners

Duplex Oil Pumps
Rotary Oil Pumps
Oil Heaters
Draft Gauges
Boiled Feed Pumps

G. E. WITT CO., Inc., Engineers
C. W. VAUGHN, President and Manager

MANUFACTURERS AND DISTRIBUTORS
862-864 Howard St. Phone Douglas 4404 San Francisco, Cal.

J. M. Fabbris, Vice-Pres.
J. A. Mackenzie, Secretary
A. F. Edwards, Pres.
J. Rubiolo, Asst. Mgr.
D. A. Batsford, Asst. Mgr.

AMERICAN MARBLE AND MOSAIC CO.

Factory:
on Water Front, South San Francisco
Near Grand Ave. and Ferry Slip
Telephone Mission 6013

Office:
25 Columbia Square, San Francisco
Near Folsom St., Bet. 6th and 7th
Telephone Market 5078

When writing to Advertisers please mention this magazine.
## Contents

**VOL. LXXVI**  
**FEBRUARY, 1924**  
**Number 2**

<table>
<thead>
<tr>
<th>Article</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arcade, Commercial Building, Rancho Santa Fe, Del Mar, California</td>
<td>55</td>
</tr>
<tr>
<td>Requa and Jackson, Architects</td>
<td></td>
</tr>
<tr>
<td>Rancho Santa Fe, California's Perfectly Planned Community</td>
<td></td>
</tr>
<tr>
<td>Lee Shippey</td>
<td></td>
</tr>
<tr>
<td>The Fox Theatre, Oakland</td>
<td>65</td>
</tr>
<tr>
<td>Irving F. Morrow</td>
<td></td>
</tr>
<tr>
<td>From the Lakes to Naples</td>
<td>77</td>
</tr>
<tr>
<td>E. N. Kierulf, R. S. M.</td>
<td></td>
</tr>
<tr>
<td>First Curved Concrete Arch Bridge</td>
<td>91</td>
</tr>
<tr>
<td>John J. Burch</td>
<td></td>
</tr>
<tr>
<td>Electricity in Home Heating</td>
<td>95</td>
</tr>
<tr>
<td>O. R. Bathgate</td>
<td></td>
</tr>
<tr>
<td>City Planning and Housing</td>
<td>100A</td>
</tr>
<tr>
<td>Carol Aronovici, City Planning Consultant</td>
<td></td>
</tr>
<tr>
<td>Reducing Material Costs</td>
<td>101</td>
</tr>
<tr>
<td>Sullivan W. Jones, Architect</td>
<td></td>
</tr>
<tr>
<td>Analyzing Modern Specifications</td>
<td>103</td>
</tr>
<tr>
<td>Ira T. Martin</td>
<td></td>
</tr>
<tr>
<td>Editorial</td>
<td>106</td>
</tr>
<tr>
<td>With the Architects</td>
<td>109</td>
</tr>
<tr>
<td>Great Increase of Building in Cities of Pacific Coast</td>
<td>113</td>
</tr>
<tr>
<td>With the Engineers</td>
<td>115</td>
</tr>
<tr>
<td>Field of the Contractor</td>
<td>117</td>
</tr>
</tbody>
</table>

Published Monthly by  
THE ARCHITECT and ENGINEER Inc.  
626-627 Foxcroft Building San Francisco  
H. L. Kierulf Frederick W. Jones J. Penhorwood  
President Vice-President Secretary
ARCADE, COMMERCIAL BUILDING, RANCHO SANTA FE, DEL MAR, CALIFORNIA
REQUA AND JACKSON, ARCHITECTS

Frontispiece
The Architect and Engineer
February, 1924
Rancho Santa Fe—California's Perfectly Planned Community
By LEE SHIPLEY

THINK of a park-line area of fifteen square miles in which many hundred handsome homes and a village containing all necessary educational and business buildings are to be constructed—and all of these improvements to be completed under the supervision of an architect. Could you find one square mile, much less fifteen, along the Champs Elysees or Riverside Drive, in Irvington-on-Hudson or Piedmont or Beverly Hills, in which there are no inharmonious structures or displeasing views?

Yet there is one such community—or, at least, one now is building. It has been planned on the theory that often your neighbors' architecture is quite as important to you as your own, and the planners have recognized the importance of architectural supervision of the entire area. They have safeguarded it by restrictions such as never before have been put on a similarly large area, and it is worth noting, for the benefit of all other communities, that those restrictions are...
SKETCH FOR CIVIC AUDITORIUM AND SCHOOL ROOMS—REQUA AND JACKSON, ARCHITECTS

FILLING STATION, ACCESSORIES SALES ROOM AND WOMEN'S REST ROOM, RANCHO SANTA FE, DEL MAR, CALIFORNIA
LA MORADA, THE GUEST HOUSE, RANCHO SANTA FE, DEL MAR
REQUA AND JACKSON,
ARCHITECTS
FACADE, COMMERCIAL BUILDING, RANCHO SANTA FE, DEL MAR
REQUA AND JACKSON,
ARCHITECTS
proving a distinct advantage rather than a handicap to this development. People such as any community would be glad to have are eager to associate themselves with an enterprise which has become widely known as “the most perfectly planned land development project in the world.” Everyone who is building a home there is not only willingly but eagerly consulting with the company’s architects—first as to the site on which to build and then as to the building itself. And those who have watched the advancement of the undertaking are convinced that the result, within a few years, will be an achievement without rival.

The Santa Fe Land Improvement Company, subsidiary of the Santa Fe Railway system, bought Rancho Santa Fe, a 9000-acre cattle range in Northern San Diego County, California, years ago. It was a place to which nature had been most generous—undulating slopes guarded on three sides by mountain-etched skyline and within sight of the sea to the West, as if the encircling mountains had flung out an arm of friendly hills to protect it. And it was sentient with history and romance. Originally it was a Spanish land grant to Don Juan Mario Osuna, soldier of fortune and first alcalde of San Diego, who chose it as the loveliest and most fertile spot he could find and built on it an adobe manor house which still stands. The estate and its owner, Leandro Osuna, who inherited it, figured prominently in the war with Mexico.

The Santa Fe interests, with vision beyond that of many great business concerns, recognized the opportunity to convert the virgin range into an intensively beautified and highly organized community. They studied its possibilities and after deciding upon a plan for the best general development, they had experts—qualified architects, landscape, irrigation and other engineers, devote over a year to comprehensive study, before final plans were approved.
It is noteworthy that landscape and architecture were the first considerations in this “most perfectly planned” community. The first definite step was the dividing of the area into some 400 units, ranging from five to forty acres, each of which offered an attractive homesite, so that the completed community would somewhat resemble one of the beautiful chateau districts of Southern Europe. In the heart of these a group of commercial buildings, a delightful guest house and a school group were planned, Colonial-Spanish architecture being decided on as the appropriate expression of the history and romantic atmosphere of the region. Next, a graceful system of highways, 53 miles of fine hard roads serving every tract, was laid out. And not until that background was complete—the whole area laid off like an immense landscape garden in the midst of which the civic center gleamed like a mirage of some lovely village in the Pyrenees—were those who sought to build country homes there encouraged to proceed.

Messrs. Requa & Jackson of San Diego were chosen as architects for the project because of experience and special training for the type of architecture selected. Mr. Richard S. Requa, in specializing for Spanish design, traveled through many Latin countries and studied many an unfrequented street and picturesque Spanish village. Both Mr. Requa and Mr. Jackson are students of Aztec-Hopi Indian influence on Spanish architecture. The remodelling of Ojai, one of the most interesting architectural achievements in California, is one of their successes.

These architects were commissioned to design all buildings of the civic center group, thereby establishing a standard for other structures which soon will crown commanding sites in the landscape. All home designs must meet with their approval, so far as exteriors are concerned, so that an ever harmonious picture may be seen whichever way one looks in a region with a thousand beautiful, inspiring and even thrilling views.
LOUNGING ROOM, GUEST HOUSE, RANCHO SANTA FE, DEL MAR
RIQUA AND JACKSON, ARCHITECTS
The old adobe mansion of Don Juan, with walls three feet thick, cool and inviting and reposing serenely under the shade of giant pepper trees with an air of solid and substantial hospitality after three-quarters of a century, convinced the architects that adobe was the structural material best suited.

The first building erected was La Morada ("the home")—the guest house of the project. The substantial and restful simplicity of its design expresses eloquently the charming Latin note dominating the type of architecture to prevail. Its broad hospitable terrace invites, its wide doors and windows give it a friendly openness.

Inside, although there is every modern comfort, the atmosphere of old Spain is maintained. One enters a charming room. At one end a Spanish balcony and broad arches suggest "los portales"; in the other end is a large friendly fireplace. The decorative fineness of the entire room lies in the exquisite simplicity of proportions and in the velvety texture of the walls. No pictures are on the walls and they would be out of place there; but every window frames a picture of exquisite beauty.

Not far from the guest house, like a busy village near the great folk's chateau in the Pyrenees, are quaint shops and offices, and across the plaza from them, splendidly expressing the refined educational and social activities of the community, will soon arise the master building of the group—an inspiring, spacious structure, accommodating all school grades, high school and civic auditorium.

Not even a gas station in this "perfectly planned" project may be inartistic or offensive to the eyes. This adjunct to the garage group looks like a quaint old village well, around which native flowers grow, and it probably is the only filling station in America that speeding motorists halt their cars merely to look at and admire. The shops are so softened by true Spanish feeling that the commonplace of commercialism is disguised.

The restrictions provide that each of the 400 tract buyers in Rancho Santa Fe, whether his tract be small or large, must build a home to fulfil the requirements. Restrictions range from five thousand to fifteen thousand dollars. Many of the tracts have been purchased by eastern or northern business men and bankers who will engage expert superintendents for the development of their model orchards. That means that eventually considerably more than the 400 homes originally provided for must be built, and caretakers’ residences, no less than those of owners, must bear out the idea of beauty and harmony. Garages and all service buildings must meet the restrictions.

It is an interesting fact that the architectural restrictions are attracting quite as many people to Rancho Santa Fe as are the demonstrations of conditions ideally suited to the culture of sub-tropic fruits. Already nearly half of the great park has been bought and is being developed by people eager to fulfil all the restrictions, eager to help build up an ideal—eager, in short, to do their part toward making Rancho Santa Fe the most beautiful and artistically harmonious area of its size in the world. That ought to be enough to teach other community planners and developers the importance and feasibility of architectural supervision for an entire community.

* * * *

The disinclination of boys to become apprenticed as bricklayers is said to be causing concern in the building trade. We can only conclude that a career of leisure has no attraction for our young hustlers.—Punch (London).
FOX THEATRE, OAKLAND, CALIFORNIA
WEEKS & DAY, ARCHITECTS
The Fox Theatre, Oakland*

By IRVING F. MORROW

SOMEDAY I shall write an article on architectural photography. This, being a matter in which I have had no personal experience, offers a subject on which I could discourse with unabated conviction. (Is not detachment necessary for an unprejudiced view?) But if I have never come to personal encounter with the numerous difficulties besetting the path of the photographer of architectural subjects, I have often pondered on the not uncommon insufficiency of results as compared with reality in the case of buildings I admire. I rarely sit down to write an architectural review without an impulse to offer some apology or explanation or extenuation for at least some of the pictures illustrating it; an impulse which on more than one occasion I have been unable to suppress. It appears that photography, like every other human activity, comes to acquire a recognized technique in its own name, quite apart from its relation to the ostensible purpose served by the result. A picture may be photographically impeccable, but quite futile from the architectural point of view. I have seen many a one which was made with exactly the right exposure through exactly the right lens on exactly the right plate, and subsequently printed in exactly the right manner on exactly the right paper, a sum of virtues which should approximate technical excellence; and yet the picture was considerably deficient because of a trifling failure to point the lens in the right direction. But postulating ample technical ability and intelligence on the part of the manipulator, I still consider it worth while now and then to sound the reminder that photography—at least commercial photography—is largely mechanical and not as impeccably exact as commonly assumed. We are too apt to take the pretentions of mechanical processes of reproduction uncritically at their face value. We accept the performance of phonograph record and player piano as unimpeachable duplicates of personal performance; which, even in their most admirable manifestations they most certainly are not. The photograph enjoys a like, but equally unwarranted, ascription of entire adequacy. A photograph may be photographically unexceptionable, even meritorious, and yet quite fail to convey a true conception of the subject. Sometimes this is due to rather subtle deviations of the angle of the lens from the normal angle of vision; sometimes to the slightest variation in relative values; sometimes to the mere loss of color, for which the camera cannot instinctively compensate as can the artist in black and white. But whatever the cause, it is well to stop and remember now and then that the fact is general.

I am moved to these reflections because of the conviction that the photographs of Messrs. Weeks and Day's Fox theatre at Oakland cannot begin to convey to the reader who has not seen the building, the impressions that arise on personal inspection. I say this is no spirit of mere captiousness toward the pictures; form, color and light have all conspired to make the problem one of the greatest difficulty. Nor do I do so merely to set Messrs. Weeks and Day in the best light before readers, however much this disinterested motive may be present. I am speaking, I admit, partly in self-defense, in order to justify a personal enthusiasm which might otherwise seem to some degree unaccountable.

For, as a matter of fact, I regard the Fox theatre as one of the most successful examples of theatre architecture in northern California. In-

Indeed, it will hold its own with any building I know on the Pacific Coast of equal size and pretension. It attracts from two points of view. As a critic concerned with architecture as a living art, I am interested in the fundamental manner in which the architects have envisaged their problem. In a stylistic sense (which is the small sense) the building is not new. There is no attempt to devise a new system of ornamentation, nor to insinuate a specious novelty through exhuming a system which is merely currently unfamiliar. The building is none the less original, because its architectural structure and form have been conceived with entire freshness of vision and independence, out of the practical and moral conditions surrounding and conditioning the problem. (I should say, in passing, that I am speaking throughout more particularly of the interior than of the exterior, which I regard as no more than adequate.) To use an expression often misused and misunderstood, the planning is good. I do not use the term with the familiar academic connotation of a pretty paper pattern, but to indicate that the parts are well arranged with reference to their use, and to their effect, either when one is at rest or in progress through the building.
On the purely decorative side, the building is equally noteworthy. The decorative elements, as I said, are not new. For all I know, they may have been assiduously adapted from the "best examples" out of the numerous books obtainable on French architecture. But the effect is one of uniqueness because they are logically and beautifully applied to an architectural scheme whose bones represent a real and valid composition. The handling of ornament is almost uniformly successful. Its composition and placing are finely considered, the scale is right, the modeling is beautiful and of just the correct relief for the effect desired in each case. This would imply a wide variety of handling, from the summit of the main façade to the details of the ladies' retiring room; and, in fact, I believe at no point have effects of scale and relief been noticeably miscalculated.

But the theatre's greatest glory and the architects' most conspicuous achievement is perhaps the handling of the color. The whole interior, except for the Caen stone walls of the high entrance lobby, is treated in full polychrome, with materials, fabrics and painting all impressed into service. I know of no building among us which combines equal richness and harmony. Brilliant colors handled timidly and sporadically produce
irritation. Handled with assurance and consistency, the result of the highest coloring may be one of dignity and repose; and this result has been achieved here. The gorgeous red and blue ceiling over the stone walled entrance lobby, as well as its richly colored and textured floor, strike the note in a convincing and truly impressive manner; and thereafter there is no lapse from the exacting standard set. All parts are
finished, and consistently finished. One has no misgivings that a glance to the side or rear is playing unfairly with the architects.

A theatre should be joyous; a monumental theatre not undignified. It should leave the patron neither apathetic nor restless. This one achieves such a result. In fact, a visit here is more than ample compensation for the average moving picture entertainment.
MAIN FLOOR FOYER, FOX THEATRE, OAKLAND, CALIFORNIA
WEEKS & DAY.

ARCHITECTS
ENTRANCE LOBBY, FOX THEATRE, OAKLAND, CALIFORNIA
WEEKS & DAY, ARCHITECTS
BALCONY FOYER, FOX THEATRE, OAKLAND, CALIFORNIA
WEEKS & DAY, ARCHITECTS
LADIES' REST ROOM

MEN'S SMOKING ROOM, FOX THEATRE, OAKLAND
Weeks & Day, Architects
Dropping swiftly down from the St. Gothard, through a long valley, while still in Switzerland one observes the beginning of things Italian. The houses of stucco with tile roofs and pink walls, and the groves of olives and little patches of vineyard on the hillsides; at the Lago Lugano all becomes Italian except the money. Lugano the town at the western end of the lake, built upon a curving shore line and climbing up the steep slope behind, is as lovely a bit of soft coloring on a fall day as any traveler might seek. A few wooden houses, but they are scarce; stone and stucco, long windows and balconies and tall queerly shaped chimneys have altogether taken the place of the snug, tiny windowed Swiss houses. A lazy, quiet dreamy town, it casts a spell upon the new arrival, preparing him for the greater enjoyment and study of the Italy that begins with tomorrow morning's trip down the cool lake to Porlezza.

Here is the true frontier—a cluster of houses at the extreme eastern end of the lake; and before the little dingy puffing train bears the traveler away he turns for a last look at the mountains of Switzerland tinged pink and gold in the early sunshine and then sets out for that best known and most spoken of—gem of all the Italian lakes, Como—though to me Maggiore is no wit less lovely. An hour from Porlezza and the train drops down from the crest of a range and Como is spread out below, shimmering, a great pale turquoise. At Menaggio one lunches and takes the boat, and from noon until evening shadows are slanting across water and hills, villas and gardens, is treated to so much of beauty and incomparable charm that the head must swim at what the eyes must constantly feast upon. A tiny town there, a group of colored dwellings fronting a beach, over there a short way upon that point, rise walls
HADRIAN'S TOMB AND THE TIBER, ROME

CATHEDRAL OF ST. MARCO (ST. MARKS), VENICE
TWILIGHT IN VENICE
Facade of the Doges Palace, the Piazzeta and Santa Maria Del Salute in the distance

COURTYARD AND STAIRWAY, DOGES PALACE, VENICE
flanked by cedars, a glimpse of a tiled roof and balconies; windows thrown open to the soft air, a path lined with blue-black cypress, broken by flights of marble steps and here and there the gleam of rich white old garden pieces—perhaps a fountain, a sun dial, a bench all lichen covered; one has these things all afternoon from Menaggio to Como Porto, each exceeding the other in charm and color. Como Porto is dirty and dusty, but withal has much to recommend it; a church with a very rich facade, interesting streets and in the environs some villas with very fine gardens. From Como Porto over land to Luino on the Lago Maggiore the trip is a trifle tiring, being made by tramcar over tracks of no uncertain evenness, but bits of the hilly countryside prove of interest, especially the narrow valley just before arrival at Luino. I had the good fortune to go down Maggiore on a cloudless afternoon with the

shores softened by a faint haze and under a sun of almost copper hue, which ensemble lent an air of distance to things close at hand, and set over all a brooding softness and a great peace. The Iles des Borromes were like phantom ships stealing out of a lonely harbor at sundown, and as we neared Pallanza lights were twinkling along the shore and far up on the slopes of the hills. Early morning was a revelation, for under a mask of changing tones it showed a lake of clearest blue with a sky of fine white clouds.

Across the lake to Stresa and thence via the Simplon line to Milan takes the better part of the afternoon. Milan is too commercial to be one of the beautiful Italian cities, but it is well laid out and contains a few treasures that as long as they remain will draw people and their just admiration. The Cathedral is stately and of magnificent proportions, its facade adorned with numerous figures and boasting one of the finest pairs of bronze doors in Europe. The interior, dim, lofty and tranquil with fine old stained glass and columns, is a splendid composition; different from the cathedrals of France and Germany it is most
pleasing, and its very difference makes it more interesting to those who know the other churches and have studied them systematically. The treasure of all Milan however, is sheltered in a tiny church with a cloistered garden near the outskirts of the city, and it is here that every traveler comes to see and to go away richer for that sight—occupying a long end wall in one of the chapels, fast fading and damaged, yet holding something so sublime, so simple, yet so powerful—the world-famed “Last Supper,” by Leonardo da Vinci; and so as it often happens, one of the world treasures is found in this unadorned simple little church of Santa Maria Della Grazi, with its drowsy garden shut in by arcaded cloisters.

On a bright, warm day I went south from Milan through a charming countryside, past old walled towns, each with its church and cam-

THE CATHEDRAL OF MILAN
An interesting view from across the housetops

panille, its gates and battlements, and caught glimpses of straggling streets and squalid little houses. The haze of late afternoon was settling as the train crossed an expanse of marsh land, rumbled over a long causeway and under a grey train shed, out of this—into—at last, the city of dreams, the “City of Beautiful Nonsense”; all my life I had waited for this moment. I approached with fear and trembling, was I to be disappointed? Was it to fall flat? I waited, my gondola edged out from a tiny side canal into the full glory that is Venice at sundown, with shadows falling on old palaces, the last rays of the sun slanting across the dome of the Salute, and far away the banks of the Lido misty in blue heat haze. There was no disappointment, it was the Venice of all my dreams, with all its richness, its color, its rare old charm, and later when I stood in the square of San Marco, dim now in twilight, under the tall shaft of the campanile, with the dark mass of St. Mark’s and the Palace of the Doges stark against a blue-black sky, I was too utterly happy to be thankful that I had found the city of dreams and that Venice had received me thus. Of the beauties and charm of
CAPRI, BAY OF NAPLES

LUGANO AND THE LAGO LUGANO
the church of St. Mark and of the palace of the Doges I shall say little here; nearly every one is familiar with them either through the medium of prints or books, or actual sight: their richness, the utter beauty of mosaics and paintings, of arched and vaulted rooms defies, I think, description. But of the little side canals of the houses with gardens and walls with carved balconies and marble landing stairs, of these I may speak for their charms are reserved for him who goes away from the Grand Hotel, the plaza and the grand canal. Go by foot, and it can be done—the whole city may be crossed by means of small bridges—to see these treasures which are merely the every day homes of every day people, peer into some little garden, steal into a dark forbidding looking doorway to find a courtyard, that the painter and the architect search all day to find and once found haunt it for weeks and guard it jealously.

The time of departure came and reluctantly I turned away from Venice feeling that I had not done it justice, but my time was becoming short and other places were beckoning; so the fast express bore me away to Florence. This, the art center of the world, has far too much for one to see in a short visit and besides has been the rendezvous of so many writers I fear my poor description would fall very short. It is a city which holds a treasure in almost every street and it demands time and thought upon the part of those who would see these properly. To see more than one gallery, or at the most two a day is a fatal mistake, for the human mind can absorb only so much at a time; where one good museum or gallery is seen in a morning the afternoon were better spent in the open, and here it is the life and the color of the city is to be found; a keen pleasure and no end of interesting things may be found by reading or sketching some afternoon in the court yard of the Bargello or under the arcades along the Arno, and the passing people, form an ever changing colorful picture. A morning spent in viewing the exterior of the Duomo, the Campanille of Giotto, and the exquisite detail of the Paradise Doors better prepares one for the greater enjoyment of the interiors in the afternoon. Some day when the very warmth of the sun and the blue of the sky almost forbids of staying indoors a carriage taken to Fiesole will a thousand times repay; the white road winds up steep green slopes, passed walled villas with gardens a riot of blossoms amidst the softer grey-green of olive trees and gnarled old figs. There is a Romanesque church at Fiesole, one of the oldest of its type, adhering altogether to the true Romanesque and they are rather scarce. Inside and out it betrays its age in the softness of the coloring of walls and pillars which can come only with years of rain and sun. It is these days—these little jaunts away from the heart of the city that bring a true love of Florence and of the old and beautiful in the Italian cities. One regrets sincerely the hour that the train draws out and leaves the domes and spires shimmering in the mauve haze of some autumn day.

I think that there is no lovelier hour to arrive in Rome than the lazy hour just preceding tea time when the sun is full in the west; as you roll along in your open taxi on the way to your hotel, you catch a glimpse of the Corso Vitterio Emanuelli, that busiest of Rome's thoroughfares, sweeping in a gentle curve past the great, white monument of Italy's Unknown Soldier; next between those tall houses you see for an instant the dome of St. Peters and the sulky mass of the Castle of St. Angelo, that seems to keep vigil beside the Tiber over all of Rome. If by chance you have chosen your hotel wisely it will be near the Borghese Gardens, where a short walk in the early morning light or at twilight, will show you the city at her best. These gardens offer one of the most
LOOKING EAST ACROSS LAGO COMO

DETAIL OVER GATEWAY TO COURTYARD OF THE DOGES PALACE, VENICE
charming places to spend leisure time and to gain a knowledge of the landscape of public parks that I know of; particularly as no formal gardens are to be found, yet all is laid out with a nicety of arrangement that is equalled only by Golden Gate Park in San Francisco. Long avenues of cedars, paths bordered by low hedges, small knolls covered with oaks and lichen-rocks, altogether make up one of the finest public gardens in the world. The zoological garden deserves mention for its arrangement, there being few cages, the animals kept in bounds only by deep moats, so that one sees royal Bengals and stately lions regarding him from some small hillock dotted with stunted oaks and great bare rocks, giving to the whole, the surroundings' true appearance of the most natural; the animals are healthy, keep themselves clean and the whole is free from that peculiar odor found in most zoos where the animals are closely confined.

A weekday morning as early as possible is the best time to visit St. Peter's; few are about and the great cathedral is quiet. A visit at this time gives freedom from passing people, the chance of finding the chapels empty and the whole morning is made more interesting and pleasurable by having it all to oneself, as in all great churches, the more sunny the day the better the tones of stained glass are brought out, the easier the texture of tapestries is seen and all the stone and marble work is softer and warmer. St. Peter's demands more than one visit to realize the majesty, the harmony and the sheer grandeur of it, but never two visits the same day or even succeeding days. Seen on a sunlit morning when shafts of golden light are slanting down, across the great rotunda, and every bit of marble has life and warmth, when the mosaics glitter and are reflected, is a picture that dwells in the mind long after Rome is left behind. One of the vast number of churches in Rome has given to me a picture that I carry about in my mind and from which I receive more than my share of pleasure; it may be because I am
partial to gardens and to walled gardens in particular, and it boasts one of the loveliest cloistered gardens I have seen; the cloisters borne by twisted columns, delicate and slender, an old well-head set in the center and over all is set a great peace, broken only by the chimes calling the hours, an old church and very beautiful St. John of Lantern.

Of the ancient ruins I can say but little—they are immortalized in song, in poem and in history; to me they seemed always to be brooding, not dead things of a dead age but only sleeping things, not centuries old, but old only in the lights and shadows of some yesterday. The masses of fallen stone, that had seen Rome in her eternal glory, had watched the Caesars come and pass, had seen the dignity of the Senate and the State they were not dead, merely asleep, crooned by the lull of the soft little winds that beat up from the south. After seeing Rome intimately, go for your last view of her to some high place and look across the entire city, catch the thrill that comes with sight of sunlight or moonlight on many domes and spires, on gentle hills crowned with the temples and palaces of yesterday, watching over the marts and avenues, churches and monuments of today. The tip most top of Hadrians Tomb or the summit of the Palatine Hill will give you these things and you will carry away to other places lingering, colorful and lovely pictures of the Eternal City.

One of the most enjoyable railway journeys in Central Italy, I consider to be the trip from Rome south to Naples, through long green valleys and past charming small towns in the farming districts. Probably the most fascinating hour for arrival in Naples is after dark. On a clear night you can catch the glow of Vesuvius, the long sweep of lights around the arc of the bay and far out dead ahead in the east the twinkle of a few scattered lights on Capri; you awaken to your first day with the memory of a sunrise over the incomparable bay and all Naples is laid out at your feet—that is if you have selected a hotel high on the hills, for it is here only that the full beauty and majesty of the city, the bay and the curving shore that sweeps away almost out of sight may be enjoyed and appreciated at early morn, at noon and at the mystery hour—twilight. The cathedral in Naples is an interesting type, similar to the Pantheon in Rome—a huge dome, a great circular room and small radiating chapels. The aquarium, so justly famous, demands time and thought and is worth more than one or two visits. It is surpassed possibly by the one at Honolulu, which boasts the most startling collection of tropical fish in the world, but at Naples are seen the fauna and flora of the deep Mediterranean besides fish from nearly all the seven seas. The famous palace, which has been made into a royal gallery, is unique and marvelous and one may easily spend some days in carefully going over its rooms and their treasures. Of Pompei I shall say little. It must be seen, must be gone over foot by foot to be known and it demands thought and time, suffice that from it we learn something of those who built it, something of architecture and house planning, of construction and arrangement. One could scarcely believe that the houses were heated with steam by the most ingenious of methods; a large stone tank beneath the floors contained water which was heated by hot stones or by fires built directly under the tank, the only vent for the steam being up the inside of the walls through hollow tiles, thus warming the walls of each apartment. Two days of delightful vistas of blue water, lovely gardens and a great sense of restfulness are the reward of those who
make the journey to Amalfi, Sorrento and across the narrow strip of
sea to Capri, a garden spot of this entire coast.

When one's Italian travels are coming to an end, and as the train is
speeding away from Genon towards Nice and the French Rivera, then is
the time that one looks back on the country and the towns, the cities
and the gardens and is so thankful that, despite the warnings of one's
friends, or the tales without foundation of dirt and inconveniences, one
has given the time and the study and is taking away such vivid and
lasting pictures of so much that is harmonious, beautiful and full of rare
charm. For the color and delight of things Italian in Italy will be long-
est to remain, and the last to fade of all the pictures I have carried
away in my mind.

* * * *

Ventilation of Garages in Building Basements

PRESENT day practice seems to be tending toward the construction
of garages in the basements of office buildings and large apartment
houses, and this opens up a new problem in ventilation. A new
code is in preparation in Washington, D. C., which will probably embody
requirements in the way of ventilation for basement garages.

In response to a request by Albert L. Harris, municipal architect
for the District of Columbia, who is also chairman of a board which is
preparing this new building code, the following views have been ex-
pressed on the subject by Nelson S. Thompson, chief engineer, Office of
Supervising Architect, Treasury Department:

"My idea of the proposition is that the dangers to be anticipated
from so constructing garages have been greatly exaggerated, especially
from the standpoint of ventilation. This being a new departure in the
engineering field, those taking the first steps are inclined to overrate the
difficulties of the problem, and in order to keep themselves safe and above
criticism are very apt to go to unnecessary expense in the matter of
installing fans and other apparatus.

"An office building in a city is of necessity a high building, and,
being high, is a natural chimney, with a tendency to pump the air from
the lower floors into the upper floors by the action of gravity and the
operation of elevators, etc., so that above a certain neutral zone in the
building the air escapes outward. I have tested the air many times in
such buildings, and found that the flow of air was from the basement
doors in, and then, with leakage from the outside to the inside, the air
flowed upward to somewhere about midheight of the building, where
a neutral zone existed. Above this neutral the tendency was to flow out-
ward, this tendency increasing with the height.

"Under these conditions it is obvious that to prevent the fumes
from the garage in the basement from issuing into the occupied portion
of the building it will be absolutely necessary to seal off, as far as pos-
sible, all points of ingress for the air from the basement portion.
There should be no stairway leading down from the interior of the build-
ing to the basement garage space, unless it is cut off absolutely.

"Thus, if you have to have a stairway down to the garage, my idea
would be to have an open entrance vestibule with storm-doors leading
into the first floor, for ingress to the upper floors of the building, and a
stairway leading from this open vestibule down into the basement ga-
rage, this stairway to be closed in and having self-closing doors to pre-
vent as much as possible the fouling of the air in the open entrance area.
In fact, I do not see why a stairway is necessary at all.
"In spite of the fact that, as stated by Professor Yandell Henderson, professor of applied physiology at Yale College, the blood has power to absorb three or four hundred times the amount of carbon monoxide that it will absorb of oxygen, and that when the blood is fairly well saturated with carbon monoxide he does not know how long it would take under natural conditions for it to oxidize out, I feel that the means which have been outlined by engineers for taking care of this new problem of garage construction have gone to unnecessary refinement.

"It would nevertheless be the part of wisdom, until the real practical facts have been worked out, to introduce into the building code some regulations governing the ventilation of these spaces, with the distinct statement that they are purely tentative and subject to amendment upon the development of further knowledge concerning the matter. I think the following requirements are basic:

"First—I would insist that from these basement garage spaces there should be led at least two large ventilating flues, air tight in construction, up into the attic space, where they should be connected to a multiblade fan discharging outboard. No other connections to these fans should be permitted. The area of the shafts should be based upon changing the air not less than six times per hour at a speed of not to exceed 1,000 feet per minute in the shaft.

"The fans should be absolutely standard, with standard control, motor-driven, and hand-controlled. If desired, they might be provided with remote control, so that they could be stopped and started from the garage in the basement. The idea of having two or more fans, one steam-driven and one electric-driven, with a number of automatic devices to come into play under purely theoretical conditions, seems to me to be unnecessary.

"Second—I also think that fully 90 per cent of the extensive air ducts used in the schemes to date to distribute the air throughout these garage spaces are unnecessary, both as air flues and vent flues. Until we get further information on the proposition, I suggest that the tentative code be (and that it be frankly tentative) that these spaces shall be provided with fresh-air fans at a sufficient number of points, discharging air at or near the floor level, to insure the sweeping out of carbon monoxide gas, on the principle of about six changes of air per hour in the garage.

"The two or more ventilating shafts referred to previously should be provided at or near the ceiling of the garage with wire grilles.

"I have an idea that after observation on one or two of these basement garages, the whole proposition of ventilation will be handled by the installation in one or two of the basement windows of the ordinary reversible-type propeller fans for the introduction or discharge of air, probably supplemented by one or two generous vent flues, leading up to a vent in the attic to overcome the chimney effect of the building, in event of any failure to properly seal the basement off from the upper portion of the building.

"No matter what scheme is adopted, it certainly will be incumbent on the owners of the buildings to devise drastic rules for the guidance of the automobile owners in regard to bringing their cars in properly without smoke or the undue production of carbon monoxide, and leaving the garage without the usual machine-gun firing that we expect to hear about the time we are trying to get to sleep, and the consequent discharge of a lot of unburned or partially-burned gas. They should be re-
quired to learn to operate their machines quietly and with proper combustion.

"About 90 per cent of ear drivers are incompetent to run a gas engine, so far as the proper burning of gas is concerned; but if proper rules are enforced the ventilation will be comparatively simple.

"We must always keep in mind in this connection the effect of gravity, which works all the time."

** * * *

Brick Laying Now Costs Five Cents a Brick

According to a recent survey of brick laying and its different phases, the price of placing each brick in a wall in a new building, has been fixed at approximately five cents. Here are the figures: Common brick cost contractors $18 a thousand. Mortar costs between $5 and $6 for each 1,000 bricks. The bricklayer's helper gets $5 a day. The bricklayer himself gets between $11 and $13.50 a day, depending upon how much bonus the contractor has to pay to get him to work. This would make the cost of laying 1,000 bricks, supposing the bricklayer handled that number a day, at the lowest estimate $39 and at the highest, $42.50. However, contractors say, the average bricklayer nowadays places only 600 bricks a day. It costs, therefore, to lay a thousand bricks somewhere between $49.66 and $53.08, or about 5 cents each. When face bricks are being laid, upon which the workman must exercise care, the cost is more.

Before the war, contractors assert, it was nothing uncommon for bricklayers to place between 1,500 and 2,000 bricks a day. They now work nearly the year round. Allowing for a layoff of 12 weeks because of inclement weather, they earn $2,800 annually at the present scale of wages. Production now per man is about 40 per cent of what it was before the war, according to the contractors. But even with this era of high wages and small output, they say bricklayers are hard to find, due to the many restrictions put upon apprentices by union labor. It is declared that the shortage is so acute that upon $250,000 jobs, where ordinarily 30 or 40 bricklayers would be employed, only six or eight are working.—Digest of Organization Activities.

** * * *

Future Generations to See American Architecture as it is Today

Their descendants quite likely will not recognize them, but certain Americans identified with the building industry are due to stage a comeback to this earth 5,000 years from now. They will not return exactly in person, as it were—only their shadow selves will re-appear in 6924, but they will look virtually just as natural as they did in 1924. The comeback will be staged via the motion picture screen.

Scenes from a number of building pictures will be included in the collection which Watterson R. Rothacker is preparing to present to the Smithsonian Institute for preservation to posterity. These scenes will be taken from movies which the Rothacker Film Company has made in the past visualizing various phases of the industry—architecture, engineering, construction, lumber, cement and even the furniture that goes inside the finished building. The scenes will be selected with a view to giving people centuries hence a comprehensive picture of the building industry early in the Twentieth Century. The shadow images of several hundred different workers identified with the industry will be included.
THE first concrete arch ever constructed on a curve is a feature of the Great Western Gateway bridge under construction at Schenectady, New York. According to engineering authority this arch is considered a freak in concrete construction.

Figure 1 is a view taken from the Schenectady side showing the curve. The bridge crosses a branch of the Mohawk at right angles; then curves decidedly to the right; runs across a large island; crosses the main river, which is the New York State Barge Canal; crosses another island, then another branch of the Mohawk to the Scotia approach. The view shows about one-fourth of the total length of the structure. After the curve, the line of direction is perfectly straight. The large pier at the right of the photograph is the end of the Schenectady approach.

Figure 2 shows a view taken under the curved arch. The forms are still in place, showing the details of the construction. The wooden truss which is seen is removed after the concrete has hardened and used in constructing the next arch.

Figure 3 shows the top of the curved arch. From Figure 1 it will be noted that the other arches are composed of three concrete trusses, while the truss of the curved arch is solid, to give added strength and stability. From Figure 3 the reinforcements can be seen. The photograph also gives an idea of the width of the bridge. The roadway will be 40 feet wide, flanked on both sides by sidewalks 6 feet wide. These, together with the railings, will make the structure about 55 feet in total width.

First Curved Concrete Arch Bridge

By JOHN J. BURCH
FIG. 2—VIEW TAKEN UNDER CURVED ARCH, BRIDGE AT SCHENECTADY, NEW YORK

FIG. 3 SHOWING TOP OF CURVED ARCH, BRIDGE AT SCHENECTADY, NEW YORK
When completed, this will be the longest highway bridge in Northern New York, being exceeded in length only by the four bridges at New York City. The total length will be 4436 feet, but of this 260 feet will be approaches, leaving the actual length of the bridge 4176 feet.

It is estimated that the total cost will be upwards of $3,000,000, and that the structure will be completed in the fall of the current year.

* * * *

**Story Heights for Garages**

* * * *

What is the minimum story height that will be satisfactory for a multi-story garage? Architects and owners pondering over this question should find the following information of value:

Garages may be erected to serve three purposes—for passenger car storage, truck storage, or as a service station. The minimum clear headroom necessary for the different types of garages is as follows:

1. Passenger car storage, 8 feet.
2. Truck storage, 13 1/2 feet.
3. Sales and service, 12 feet.

Allowing 2 feet in each case for the thickness of the floor, depth of the beams, and such features as steam pipes, sprinkler system and lighting system, the figures for story heights, from finished floor to finished floor, become:

1. Passenger car storage, 8 feet.
2. Truck storage, 13 1/2 feet.
3. Sales and service, 14 feet.

In efficient modern multi-story garages which house either passenger cars or trucks, it is not necessary to provide more than the minimum clearance. Service stations, however, require more headroom because in some cases monorail hoist systems are specified and in others, arrangements for suspending the car bodies from the ceiling must be provided for. Allowing 12 feet in the clear should provide sufficient headroom for these features.

Showrooms, as a rule, should have higher ceilings than the rest of the building because of appearance to the prospective buyer. A high ceiling with large luxurious columns has a psychological effect.

* * * *

**How Soon Will Wall Plaster Dry?**

The U. S. Bureau of Standards receives numerous inquiries as to when plaster can be painted safely. A careful study of this subject led to the conclusion that plaster can be painted safely when dry. The next question is how long does it take plaster to dry? This is of importance, not only as regards painting, but also in the erection of wood trim, and because of its effect on the general speeding up of construction.

A slow-drying plaster may cause financial loss to the contractor because of delay in completing the work, and it may cause loss of occupancy to the owner. Plans have therefore been made to measure the relative rates of drying of different kinds of plaster under different atmospheric conditions. The equipment necessary for this research has been designed, and is now being made in the bureau's shop.

* * * *

Only half of the voters vote, and generally the wrong half.—American Lumberman.
OFFICE BUILDING AND WAREHOUSE, SAN FRANCISCO
BAUMANN AND JOSE, ARCHITECT AND ENGINEER
Electricity in Home Heating
By O. H. BATHGATE in Heating and Ventilating Magazine

FAR back in the ages, perhaps a thousand centuries or more, primitive man, little more than an animal himself, fought with nature and the savage beasts of his time for a mere existence, the privilege of living.

His first urgent need was for food. Hunger spurred his inventive genius to the creating of crude implements of destruction for the hunt. Then storms of his region, beating upon his unprotected body, compelled the erection of rude shelters and the making of rough clothes, fashioned from the skins of wild animals he had slain.

Protection from the elements must have been as great a problem as any that he faced in those truly strenuous times and while the rough shelters of stones and earth, branches of trees, etc., and the clothes of fur served as a measure of protection, especially to man living in the colder climates, how he must have longed for a more comfortable existence!

His first acquaintance with fire had nothing in it to inspire him nor to cause anything except a feeling of dread. Here was a flaming demon, unloosed by lightning or volcanic eruption that, time after time, destroyed his woodland home, that drove the game from his countryside and left naught but charred and blackened ruins. It was just another enemy to contend with and one whose power compelled a deep respect.

Details of his subsequent actions must ever be a matter of conjecture, a secret hidden by the lapse of time, yet we know that he eventually lost his fear of this new factor in his life and learned to control it.

Back to his tribe he carried his new found treasure and we can imagine the excitement and delight that must have prevailed. Here was a weapon that the fiercest animals of the forest feared—a weapon that would protect the tribe from its most dangerous foe. They slept close by it for protection at first and later for its cheery warmth. After a time they learned to use it in preparing food. This source of heat and light, this protector from savage beasts and cooker of foods soon became the most precious thing primitive man possessed—his greatest ally and friend.

No doubt the tribesmen wondered not a little at the magic sparks which would fly from the pieces of flint as they chipped them to make weapons, until the day when one of the sparks lit in the frayed and splintered wood of the chipping block, smouldered and then burst into flame. Here was their friend again—come out of the stones to light the fire and bring them comfort and protection.

As his weapons became better, man feared the animals less and less. He did not need the fire for protection so much as he needed it for cooking and for comfort. Now there was not so much dread of the long cold winter season. His home might be a cave, a hut or a tent, but whatever it was there was the fire in the center to warm it. However, the smoke from the open fire choked him at times and stung his eyeballs till the tears came. Again necessity and discomfort spurred his ingenuity. He learned that a hole in the top of the hut would let the smoke out. This was the first idea of a chimney. Later within his close winter quarters he felt that the fire in the center of the room
took up too much space. He built a pit of mud and stones against the wall and built a fire in it. He used a tube of branches plastered with mud to convey the smoke from the pit directly out through the hole in the roof. This was the first rude fireplace with a chimney, the counterpart in principle of the many fireplaces which have cheered homes ever since.

As our life today becomes more complex, we ask more and more of the men who make it possible to heat our homes. Primitive man had little to worry about after he mastered his greatest problem, how to make the fire. He cared little for appearance so long as the fire did his work. He was pleased if he had a chimney to take the smoke out of his hut. He never had to give a thought to the fuel he burned. There was always more in the forest and no bills to pay. What he wanted was H-E-A-T.

Heat is still the first demand and always will be as long as winter comes and men must produce with efficiency. But modern conditions call for more. First we asked for a method of heating that would not mar the appearance of our rooms. Then we asked for heat with greater comfort; now, with our forests devasted, the last word from the coal fields urges us to ask again and this time for heat with the greatest economy of fuel.

In order that the problem of domestic heating may receive its full share of consideration, attention may be called to the U. S. Government figures on the total coal consumption in the United States during the year 1918. This amount was 857,000,000 tons. With 16½ per cent of the total mined early being used for domestic purposes, the consumers expense for this fuel approaches one billion dollars. In addition to this direct-fired fuel cost, the constantly increasing domestic electric heating load is reaching enormous proportions, more especially in those sections of the country where hydraulically generated power rates are low and climatic conditions are comparatively temperate.

A summary of mean monthly atmospheric temperatures of four cities taken during the last fifty years indicates the relative extent so far as districts are concerned, to which consideration should be given to this kind of heating problem.

<table>
<thead>
<tr>
<th>Month</th>
<th>Seattle Deg. F.</th>
<th>San Francisco Deg. F.</th>
<th>Los Angeles Deg. F.</th>
<th>Pittsburgh Deg. F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>40</td>
<td>50</td>
<td>54</td>
<td>31</td>
</tr>
<tr>
<td>February</td>
<td>42</td>
<td>51</td>
<td>56</td>
<td>31</td>
</tr>
<tr>
<td>March</td>
<td>45</td>
<td>53</td>
<td>57</td>
<td>40</td>
</tr>
<tr>
<td>April</td>
<td>50</td>
<td>54</td>
<td>60</td>
<td>51</td>
</tr>
<tr>
<td>May</td>
<td>55</td>
<td>55</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>June</td>
<td>59</td>
<td>57</td>
<td>65</td>
<td>71</td>
</tr>
<tr>
<td>July</td>
<td>64</td>
<td>57</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>August</td>
<td>64</td>
<td>58</td>
<td>71</td>
<td>73</td>
</tr>
<tr>
<td>September</td>
<td>59</td>
<td>59</td>
<td>69</td>
<td>66</td>
</tr>
<tr>
<td>October</td>
<td>52</td>
<td>58</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>November</td>
<td>46</td>
<td>56</td>
<td>61</td>
<td>43</td>
</tr>
<tr>
<td>December</td>
<td>42</td>
<td>51</td>
<td>55</td>
<td>34</td>
</tr>
</tbody>
</table>

| Average     | 51              | 55                    | 62                  | 53                |

From the above table it is reasonable to conclude that the West Coast districts are from a climatic standpoint more fortunately located than Pittsburgh or other localities having wide variations in seasonal temperatures. It would seem that where the average monthly temperature difference exceeds 25 to 30 degrees, the application of electric
heat to the home will be limited to those of large financial means and possibly to some others who may wish to use electricity for auxiliary heating during the early fall and late spring.

Of the more numerous types of electric heaters now installed for home heating purposes, the following may be listed:

Radiant air heaters.
Convection air heaters.
Radiant convection air heaters.
Pipe and pipeless furnace heaters.
Conduction radiator heaters.
Induction type water heaters.

The radiant type air heaters include the 660-watt Cozy Glow type of heater to that of units as large as 6000 or 8000 watts. Its principle of heating is similar to that of the old type open fire place or more modern radiant fire gas type of heater. The electric heat application of this principle differs very little, if any, from that of the direct fuel fired heater.

The unit type convection air heater is one built along the lines of maximum air circulating principle with provision for the absorption of radiant heat by convection air currents passing over low temperature electric heating elements. Several designs of this type of heater are now being made in the city of Seattle, although I have never found any of these in service elsewhere in the States.

The radiant convection type of air heater is made of electric heating coils, operating at a temperature corresponding to a radiant glow and, in conjunction with this, provision in design allows air circulating current to move upwards past the heating elements, thereby effecting a distribution of a part of the dissipated heat to remote sections of the room.

For electric heating where only localized sections of a home are to be heated, at any one time, the combination radiant-convection air heater has the advantages of all the other types, combined. It is more durable and more endurable than the strictly radiant type. It operates at near maximum efficiency both as relative to heating and the distribution of heat. The nearest approach to this type of heater is manufactured and sold in large quantities in the San Francisco district.

The electrically-heated pipe and pipeless furnaces as developed, consist of the ordinary fuel fired warm air heating furnace, equipped with low temperature heating elements in space formerly occupied by combustion chamber. With air heating furnaces of this type, built with substantial heat insulated covering, the efficiency factor, the humidity and ventilation of the home and the simplicity of temperature control equipment all tend to make this kind of heating worthy of careful consideration. Where it is desired to have the entire home heated all or most of the time this kind of system has few disadvantages. The absence of any kind of heating apparatus in the rooms is a realization with this indirect convection air heating system.

The direct application of electric heating elements to steam or hot water radiators of the old standard type is used to a limited extent in certain localities but this practice necessitates objectionable control operating features that may more than offset its advantages.

The direct application of electric heat either in the form of a steel clad element or an induction type heater to home heating hot water or steam tanks located in the basement, is a system now in use to some
extent and is one not without merit. This kind of system must depend on the usual type of water or steam radiator for a medium of heat distribution in the rooms to be heated.

For control, the simplest kind of thermostatic equipment will function with even greater accuracy and more efficient results than can be obtained with any type of fuel-fire heating boiler.

The thermal storage principle involved and particularly adaptable to this type of heating system is one that the power companies soliciting load have not overlooked and on this account alone, the future for this type of electric house heating looks promising. During off-peak power loads on the power company's lines, clock-operated switches may be used on separate house heating lines which will permit raising the temperature of the water in the boiler to a maximum. This accumulation of thermal energy can be used for room heating when the family arises in the morning and again toward evening when the power load peak has returned.

It is with such possibilities as above mentioned, together with the continuous rising costs of coal and consistent decrease in cost of large blocks of power now being generated or under development in hydraulic systems, that we do not hesitate to predict that in a very few years electric home heating will be more common in large areas of the United States than any other type of heating systems.

Twenty-five millions of the total population of the United States live in climates such as are found in Seattle to San Diego and to Atlanta in the East, most of which country is largely served by water power or that generated from cheap oil. With a climate such as exists in Pennsylvania and New York, the average number of a season's heating hours is about 3,000. In the South and West the average at 900 may be considered unusually large. The relative intensity of heat demand in the two localities is around one to two or in other terms, the electricity required for heating a home during a season, is approximately one to ten for the Pacific Slope and Southern territory in comparison with locations such as Pittsburgh, Pa.

Having recognized the large differences in home heating demands in sections of the country where electricity can compete with other fuels on a heat unit cost basis, it is desirable to point out here the electric heating power possibilities, in those sections in which reliable data has been obtained.

In comparing home heating by coal and electricity, we may assume an average practical efficiency obtainable in either instance. If the operating labor factor for firing and handling ashes is entirely ignored, the operating cost for electric heat at one cent per kilowatt hour corresponds to a $16.00 per ton coal rate.

With a 350 B.T.U. gas at $1.25 per 1,000 cu. ft. which corresponds to some city gas rates in the northwest, a two-cent kilowatt hour electric rate is the equivalent for domestic heating.

In considering the application of heat to furnaces, ovens or homes, superficial comparisons are often made without considering relatively, the products to be heated, heating cycle, temperatures and designs of equipment by which the heat is applied. In this respect the value of a comparison of house heating equipments is of as little consequence as one of industrial furnaces that may operate at 1,000 to 5,000° F., where production factors do not permit with celerity, a direct comparison.

In considering electric home heating from a purely efficiency stand-
point, the type of heater, the kind of heating desired and the care exercised in operating the equipment are factors, vital to its success.

As an example of efficient electric home heating, I would recommend, from my experience of the art and knowledge based on actual operating data collected in the San Francisco Bay district, a combination radiant-convection type room air heater for each section of the building to be heated. The back of these heating units would be well thermally insulated so as to reduce the radiant heat into the walls to a minimum. The front and vertical plane of the heater would permit at least 75 per cent use of the convection principle of heat transfer to the room.

Manual or combination of manual—thermostatic control for each heater are practical methods in use in a large number of homes.

By operating a unit type heater system of this kind only during such times as the rooms are occupied, the power heating cost will be as low as is practical to obtain. The discomfort of intermittent room heating as thus recommended on account of efficiency, will with a little psychological cultivation, becomes almost negligible.

In the eleven Western states there is a possibility of developing 42,500,000 horsepower. Approximately 5 per cent of this total available has been developed and it has been estimated that another 2,500,000 horsepower will be put in service during the next ten years. It is reasonable to suppose, since this section of the country never will compare industrially with the East where raw materials are found in greater quantity—that large amounts of these blocks of power will be used for heating purposes and particularly for home heating where favorable conditions exist.

Most all of the Pacific Coast power companies are soliciting home heating load and have prepared or are preparing to fix their rates to attract the consumer.

The rates at present vary widely in different localities, the minimum for any large municipality being around one-half cent per kilowatt hour.

During the coldest month of the winter 1921-1922 in the San Francisco district, the following data were obtained. The kilowatt hour figures include power used for heating water for domestic service and electric air heaters for the rooms.

A 12-room home used 1760 K. W. H.
A 10-room home used 1450 K. W. H.
A 6-room home used 1110 K. W. H.
A 5-room home used 700 K. W. H.
A 12-room apartment used 5000 K. W. H.
A 10-room home in Los Angeles used 1700 K. W. H.
A 12-room apartment (2 and 3 rooms each apartment) located in Portland—monthly electrical bills for lighting, water heating, range and room heating are $5.09 min. and $12.69 max.

In Tacoma, Washington—electric home heating has become so popular, that a new home is not considered modern unless it is provided with full electrical equipment, including heat. The average home uses, each year, about $80.00 worth of heat, $45.00 worth of cooking and lighting current and $30.00 for water heating.

The house heating contracts in Tacoma for several years back are as follows: 1919-701; 1920-1356; 1921-2229. The residence light contracts during these same years were 1919-20859; 1920-22168; 1921-23688. In other words, the contracts for home heating during these
three years were more than 60 per cent of the additional contracts for home lighting.

For air heaters and ranges, the Tacoma contracts number 12,757 against 23,688 for residence lighting.

Present range, water heater and air heaters connected 30,000 K. W.

The homes heated electrically in the city of Seattle were in 1922-1978, which represented a phenomenal increase in the comparatively short period of its existence.

Some very extensive reports have been compiled on the subject of home heating electrically, but these now being several years old they are not based on modern practice and have just as little bearing on present day efficient practice as does the old reciprocating steam engine have to the modern low-pressure turbine.

Power companies located in sections of the country where electric home heating is and should be favorably considered are promoting installations in every way possible.

The general tendency of power rates is downward with the result of growth of water and air heating loads, seeming to indicate that this class of business will increase very rapidly in the next few years.

The canvass of households by one of the California power companies indicates that where one person is interested in an electric range, three are interested in obtaining at least a moderate amount of electric heat for rooms. Otherwise stated, the demand for room heaters will likely be very much larger than for ranges or water heaters, although in many instances, all three of these utensils will be installed.

The kilowatt hours sold in Seattle for domestic heat was in 1916—526,000 and in 1921—3,812,000, or an increase of 650 per cent in five years.

One more thought within the scope of this paper that has not as yet been referred to, is in connection with electric heat in the office, in large apartment buildings, in hotels, churches, theaters, studios, schools and other types of public buildings. No less than ten architects and heating engineers in Los Angeles and San Francisco, have expressed the opinion to me that where power rates were reasonably low, they were willing and would have little difficulty in incorporating modern electric heating equipment in designs of many different classes of buildings. They are already working out extensive plans along these lines and as a result, electric air heaters are now being sold extensively in lots of a few to several hundred per building for this class of service.

In considering the information in this report, it must be remembered that the facts are of practical origin based on electric home heating and its application in temperate climate where coal is high in price and hydraulic-electric power is low in price and of almost unlimited possibilities for extending the development.

* * * *

17,000,000 Autos in World.

Before the end of January, 1924, the world will have in operation 17,000,000 automobiles—passenger cars and trucks—according to an estimate by Mr. M. H. Hoepli, chief of the automobile division, U. S. Department of Commerce.

Of that total, he says, 14,000,000 will be running in the United States, or about one to every eight persons, whereas in the rest of the world the proportion will be about one to 112 persons.

The number of cars in operation is expected to show an increase of seventeen per cent over the same date a year ago.
City Planning and Housing
By CAROL ARONOVI CI, Associate Editor

Regional Planning
By CAROL ARONOVI CI
City Planning Consultant

EIGHTEEN years ago the Prime Minister and the President of the Local Government Board of England received a deputation of prominent citizens representing the National Housing and Town Planning Council, which placed before these high officials the outline of a national housing and town planning program. This program contained the first clear statement of the scope and necessity for regional planning, and it read in part as follows:

"A central commission, or a special department of the Local Government board with extensive powers as to land, housing and transit, should be established to consider the main condition of growth of the various districts in the country and, where the county or borough area is not suitable, to map out what may be called 'Scientific Areas', for each of which there should be subsequently established a statutory committee consisting as to a majority, of representatives of the local authorities, and, as to the remainder, of experts nominated by the Central Commission."

This was perhaps the first bold attempt to break through the artificial political boundaries of county and borough and to establish scientific areas as the normal unit for "the development of comprehensive and scientific planning."

Yielding to the fascination of the study of the history of city planning, I doubt whether we shall find a single example of regional planning. From the oldest example of town planning the City of Kahun, which was built to accommodate the workers employed in the building of the Ilahun pyramid about 2500 B.C., and throughout the history of city planning of almost 4500 years we have no reliable evidence of regional planning beyond the extensive military plans involving mostly offensive expeditions of armed forces. There is, however, ample evidence of cities being planned in relation to the regions in which they are located.

So far we have used the term regional planning without definition, without outlining the scope and meaning, and without relating its value to modern conditions.

Scientists who have examined into the influence of geographic conditions as a factor in the distribution of population have found that the cities are born, grow, develop and decay according to fundamental natural laws. They have found that a city is the product of soil, climate, land contour, accessibility, and relation to water supply, food supply, raw materials, etc. It is the child of its natural environment. The growth, progress and decay of cities can be measured by the efficiency and foresighted use made of this environment in serving the interests of the population living in these cities. Regional planning is therefore the application of scientific principles to the utilization of the natural environment in the interest of cities and their surrounding territory, regardless of political boundaries.

The assumption that municipalities, boroughs, counties, or even
states lines which had their inception in political intrigue, commercial or industrial competition, inadequate transportation, administrative convenience or legal difficulties, is obviously inadequate and out of date. The social and economic boundaries of a community should be determined by the units of social and economic efficiency and not by political expediency. Thus a city like New York is rapidly losing its identity as a self contained social and economic unit and spreading its interests, its field and possibilities of cooperative development and service beyond the boundaries of boroughs and State. About 200 governmental units, breaking through borough, county and State boundaries are now comprised within the scientific area of the metropolitan district. Similar conditions are to be found in Philadelphia, Chicago, Boston and other large cities.

* * * *

On the Pacific Coast, San Francisco Bay stands out as a natural center around which more than 20 municipalities of varying sizes are affiliated by the geographical conditions which make them interdependent by the very nature of their geographic location. Shall this interdependence find expression in the development of common aims based upon a common scheme of planning for the future, and should the possibilities and demands of the times be met on a broad basis of regional planning for regional service, or shall it find expression in destructive competition, political myopia, and petty parochialism? But the question may reasonably be asked: What constitutes a region or a metropolitan district?

Any one familiar with a specific region may at a glance define with considerable accuracy the limits of a metropolitan district or area capable of comprehensive planning as a unit of social and economic life. Where mountains and valley and access to water frontage have not developed a natural self-contained area, the transit facilities, the distribution of population, the character of the soil, the availability of natural resources, the division of productive activity will act as guides. New York's metropolitan area may be calculated as the region with a 50 mile radius. Philadelphia is perhaps more nearly the center of a district with a radius of 25 miles, while San Francisco Bay may be the center of a region of more or less irregular outline and not exceeding 35 miles at any point.

In this country where means of transportation are constantly growing in extent and increasing in efficiency and speed, the radii of regional boundaries may change from time to time, but the principle of common interest remains the same. The horse drawn vehicle limited the boundaries of social and economic units of community development to a five and ten mile radius, the railroads and the automobile have expanded the sphere of interdependency to from 25 to 50 mile radii, and the heavier and lighter than air fliers will further extend the boundaries of intensive intercommunity traffic and business.

That these limits of regional development have long ago overtaken the limits of our vision in intercommunity planning is quite obvious. An examination of maps of specific regions will reveal an entanglement of highway and rail lines inconsistent with regional requirements and economy. The distribution of business and industry is haphazard and uneconomical to both producer and the public, the distribution of community functions is competitive and uncontrolled by either suitability of site or efficiency or service, while costs of improvements represent
duplication and waste. This is particularly the case with water supply, sewage disposal, transportation, highway construction, location and distribution of public and semi-public buildings, park sites, harbor development and terminal facilities.

Regional planning affords a new outlook into the future development of American life. It tends to correlate the functions of the various political units into a geographic whole in which each unit has an organic place and function in relation to the whole.

A regional plan is not merely a combination of community plans. Nor should it supercede the local plan which deals with local problems. It should function in the interest of each community only so far as such community bears a relation to the adjoining regional territory and serves its interests as well as receives the benefits and advantages of regional development.

All regional planning should be preceded by regional survey. These surveys should consist of a comprehensive stock taking of all the human, business and industrial factors in their relation to the natural geographic environment, its advantages and disadvantages in the development of social and economic institutions. The scope of such survey will be dealt with in the next article.

* * *

NATIONAL CITY PLANNING CONFERENCE

The annual meeting of the National Conference on City Planning will take place this year in the city of Los Angeles from April 7 to April 10, inclusive. While the final program has not yet been announced, if the conference maintains its usual standard, it is expected that the deliberation will be of national importance, as those in attendance and the speakers will be the representatives of the profession and the leaders in the city planning movements throughout the country.

The past year has brought a number of important and at times, disconcerting court decisions bearing on the legal powers of municipalities, county and state, in matters of the planning and replanning of cities. New York’s great enterprise for a regional survey, Chicago’s vast undertaking along the lines of carrying out its original comprehensive plan, the work of the Federal government through the Department of the Interior in relation to zoning and housing, have all marked epochs of city and town planning during the past year.

Many of those in attendance have taken a leading part in the more advanced and constructive movements in the interests of city planning and will bring their message to the National Conference. Those interested in housing, zoning, regional planning and general community improvement, should find inspiration in this important conference, which for the first time is to be held on the Pacific Coast.

Among those who are expected are the following: Messrs. Edward M. Bassett, E. P. Goodrich, B. A. Haldeman, John Nolen, Lawrence Veiller, Robert Whitten, Frank B. Williams, and others.

* * *

REVIEWS OF RECENT BOOKS


The reader has before him three imposing volumes each dealing with regional problems and regional plans of distinct sections of England. These studies are teeming with facts and follow scientific methods of investigation laid down by such leaders as Patrick Geddes and Patrick Abercrombie.

The compactness of community development in England and the close interrelation of individual communities is responsible for the widespread interest in Regional Surveys and Planning. That the interest in Regional Surveys should have reached the point where it finds expression in District Regional Surveys associations, such as was created in Liverpool six years ago, will be quite surprising to American readers. The books mentioned above bear testimony to the importance that this subject is assuming. In general outline, in the arrangement of facts and the compactness of description these volumes present very unusual merit, but the scope of regional survey work in this country should not follow closely the lines laid down by the English planners. The perspective of fact values is quite different in this country and presents peculiar local angles that should not be overlooked.


American cities are growing apace. The highways and byways are extending their tentacles into new and undeveloped territories engulfing hill sites and farm sites and creating urban conditions where there were fields and forests less than a decade ago.

The speculative and human value of these new developments generally described as subdivisions involves hundreds of millions of dollars in investments and profits. These values, however, are largely dependent upon the way in which subdivisions are planned and carried out.

Site Planning in Practice is the first authoritative work embodying some of the fundamental principles of subdivision development and reviewing the valuable experience of English estate development. This is not the place for a critical analysis of American experience, nor for a review of the conditions which have led to the confusion due to poor subdivision work that now exists in many cities.

Engineers and architects will find in this book a comprehensive and adequate guide in the study of land subdivision, the principles to be considered and their relation to the community and individual buildings. We must caution the reader however, against a too ready acceptance of English methods as applicable to American conditions.


Principles of Real Estate Practice is a book which, although dealing with a purely business subject represents a very unusual degree of social and economic consideration in so far as real estate affects the community and the individual building.

The tendency towards translating all business activity into fundamental principles and to inject features of scientific research which would professionalize the work of the dealer in real estate has nowhere been more clearly demonstrated than in this book.

The chapter on “Subdividing and City Planning” is valuable as a supplement to “Site Planning in Practice,” reviewed above, as it furnishes some data regarding American conditions and methods and touches upon the possible means of legal control in land subdivision work in this country.
Reducing Material Costs*

By SULLIVAN W. JONES, Architect

The building industry can never be operated economically until there is a basic standardization and a maintained balance between supply and demand.

Our difficulties of high costs and high prices are due to the very general, and I might say almost universal, adherence to the unsound doctrine of competition and unco-ordinated individual initiative. Those in public office have always capitalized for political ends the public's belief in competition and individual initiative as the dynamos of progress.

There are men in Washington who know that competition must ultimately lead either to chaos or to monopoly; who know that the so-called anti-trust laws operate to create monopolies; but who are afraid to light a new torch of leadership.

If we examine the conditions under which housing material is constructed we find that instead of having a machine or a set of machines producing the exact number of bricks, of tile, of gallons of paint, and of square feet of sheet metal, all of the exact type and quality required, we have anywhere from two to 200 individual plants making each of these and the other parts of buildings.

As I have epitomized the situation in the building industry it would be bad enough, but it is made worse by the fact that the assembler of the house does not really know which of the 200 competitive products is best suited to his needs; and, moreover, even if he does know exactly what he wants, frequently he does not know where to get it if it is manufactured, or how to describe what he wants in terms which mean the same thing to the manufacturer as to himself. There is no common or standard terminology.

There is no co-ordination of effort in competitive production and selling. There can be none. It is a case of every man for himself, without regard for what others are doing and without much regard for the consuming public's needs or ability to consume. This pushful competitive production and selling we call individual initiative. It is that, of course, but it has run riot and does not work.

We select our contractors through price competition and steadfastly adhere to the practice in spite of the growing knowledge of the fact that it increases the cost of our building somewhere between 4 and 10 per cent. For our more important projects we select our architects by competition.

A competition held recently for an important building in the Middle West cost the competitors certainly not less than $150,000, and while the owner of this particular building did not pay that loss, the owners of other buildings on which the unsuccessful architects were employed must divide it up between them.

Competitive individual initiative results in another item of waste which is charged through to the consumer and, in the building industry, becomes a permanent investment in buildings on which interest must be paid forever. This other item of waste is the over-development of productive capacity to satisfy temporary demand and is not infrequently the consequence of the process of substitution.

*Abstract of an address before the National Housing Conference, Philadelphia.
There are in this country today three companies manufacturing overhead trolley appliances. Any one of them can supply the entire demand for the produce. Approximately one-half of the brick plants of the country could, if they were operated efficiently and on whole time, supply the country’s entire demand for brick.

We waste something like half of the lumber we cut because of obsolete grading rules and practices which have taken no account of the use requirements, but only of the needs of competitive merchandising.

The first step in a waste eliminating program is the establishment of standards for both dimensions and performance characteristics or qualities. By means of such standards the consumer may intelligently define and express his needs with full assurance that the producer will understand him. This will eliminate one element of uncertainty on the producing side of the market.

* * * *

Aluminum Paint Makes Radiators Less Efficient

The aluminum or bronze paint generally applied to radiators greatly reduces their effectiveness and makes it necessary to have a larger surface for the same heating effect, according to experiments performed by Dr. W. W. Coblentz of the Bureau of Standards. Dr. Coblentz finds that the heat radiated from an aluminum painted radiator surface is less than a third of that emitted by a radiator of the same size painted with a non-metallic paint, enameled, or simply allowed to rust.

On the other hand he finds that aluminum paint is a very effective means of reducing the amount of heat transmitted through a thin material. Applied to the under side of a tent or awning it reduces by three-fourths the amount of heat from the sun which gets through the cloth, while if used on the cover of an automobile or ice wagon it cuts in half the heat let through and makes the temperature inside the vehicle more nearly that found in natural shade, thereby making it much more comfortable.

* * * *

Says Skyscrapers Are Seldom Financial Success

Experience indicates that a skyscraper, as long as it is surrounded by low buildings, permitting it to secure from adjoining property an abundance of light and air, may pay a satisfactory return on the investment,” said Mr. Robert Whitten, city planning expert of Cleveland, and continued: “When, however, equally high or higher buildings surround it, darkening the rooms in the lower half or more of the first building, its offices become less desirable, its tenants move into the newer buildings, and its income drops to a point where it may cease to pay a fair return. Some of the adjoining buildings in turn suffer a like experience. It is generally agreed that the very high buildings are not a great financial success, and that where many are built in close proximity to each other they are a serious damage to surrounding property, detrimental to health, a menace to safety and a contributory cause of traffic congestion.”

* * * *

Every American is a 100 per cent American or no American at all. There is no such thing as a counterfeit dollar that is good for fifty, sixty or eighty cents.—Toledo Blade.
Analyzing Modern Specifications
By IRA T. MARTIN

IN analyzing modern specifications one is often caused to wonder if efficiency, about which we have read and heard so much recently, was just a fad to pass with the season or whether it is a factor still to be reckoned with in the analysis of our various engineering problems.

The public in general possibly knows very little of the expense and painstaking efforts put forth by manufacturers of operating machinery to supply the prospective purchaser with reliable data regarding the actual performance of their various products.

Practically every reliable manufacturer can and does furnish data regarding the performance of his products that is capable of reducing to a minimum the speculative element in the purchase of equipment for any specific purpose. Operating machinery is not unlike other commodities in many respects. You would hardly buy canned goods without a label, and yet the label does not in any way effect the contents of the can. Why then the importance attached to the label? Is it not that the label indicates the firm responsible for the product and that the standards of the firm reflect the quality of the goods.

None of our modern achievements have been discovered in their perfection. They have first been brought out in a crude form and afterward developed to their present point of perfection. In each of these various lines capital and talent have been combined to achieve perfection and this degree of perfection has been expressed in the term efficiency. In the commercial world the term efficiency has been taken as synonymous of superior quality, and as such has been commercialized to such an extent that its true value to the engineering world has been jeopardized.

In order that we may arrive at the true value of the term efficiency we must consider its source. If it comes from a salesman we are justified in interpreting the term to mean superior quality, but if it comes from an engineering source it can have but one meaning, facts that can be substantiated, conditions that can be written into specifications, a basis upon which to compute future costs and profit and a true basis of comparison.

Many questionable tactics may be overlooked in a salesman if he brings in the “name on the dotted line.” Among these may be included the commercializing of the term efficiency. With the engineer it is an entirely different matter. The customer has already placed his name on the dotted line, as far as the engineer is concerned, and the problem becomes one of delivering the goods. If the patent medicine man on the corner sells you gum drops for indigestion you cannot help but admire his ability to sell you to the idea. Why? Because there is no label on the can. If your physician gives you a prescription or specification for the same thing you have cause for resentment for the reason that, where professional services enter in, sales tactics become a breach of confidence. Specifications are then a form of guarantee backed by engineering knowledge and setting forth clearly the results to be accomplished in a manner understandable to the purchaser, as well as the contractor.

A specification then becomes of special importance primarily to three parties; to the purchaser because it represents the value of his investment; to the contractor because it involves an obligation he is
contracting to perform and to the engineer because it is his label. Too often the purchaser presuming his inability to understand a specification makes little, if any, effort toward an analysis. Such a practice is certainly inexcusable. Any mind capable of originating the idea of a structure or enterprise and capable of bringing it to a realization is certainly capable of judging, at least, the vital points involved in the specification. If the specification is not understandable it is a sure sign of weakness in the document, for its one purpose is to establish an understanding between the owner and the contractor.

The contractor usually studies a specification very closely but this does not necessarily mean that it is subject to analysis. The best evidence of this is the fact that while contractors are usually satisfied with about the same margin of profit there is often wide discrepancies in the bidding. This is for the most part due to a difference of interpretation of the specifications.

In order that a true interpretation be made possible, the effect of technical terms embodied therein must be analyzed. If the term efficiency is used, the intended interpretation should be clearly stated also, or the bidder be required to define the term as used in the proposal. Provision must also be made for all necessary tests and demonstrations to verify the correctness of any claims embodied in a specification or proposal and these tests recorded and made a part of the conditions of acceptance by the owner.

If this is not done the true intent of the use of the term efficiency is reversed and instead of protecting the purchaser in the matter of performance and establishing a standard to be met by competitive bidders it becomes an element of uncertainty and interpreted by the contractor in accordance with his understanding of the architect or engineer in charge of the work as to the demands that will be made to establish the claims specified in the proposal. If one contractor is certain or reasonably sure that no demands will be made for proof of efficiency and another contractor has not this assurance, certainly no common understanding has been reached, with the result that neither the purchaser nor the legitimate contractor have been protected, but the way has been opened for the practice of unscrupulous methods.

The term "or equal," the purpose of which was intended to broaden the scope of specification and invite competition, may also be completely reversed in its effect. If the term be interpreted to mean the equivalent by actual comparison on proven performances as established by universally recognized methods, the original purpose has been retained. If, on the contrary, it is interpreted to be the personal opinion of some architect or engineer, the original purpose may be entirely defeated and the manufacturer's data rendered useless and the purchaser's opportunity for legitimate competition narrowed to conform to the opinion of an individual.

The demand of the engineering profession has been for reliable data and now that the manufacturing world is prepared to comply with these demands in the most proficient manner, what are we going to do about it? One thing is sure, the manufacturers have shifted the burden of proof and it is up to the engineering profession to accept this data, or prove that it is unreliable. The data, as stated before, is just as reliable as the firm issuing it. If, then, a firm is conceded to be responsible its data must be accepted as a basis of comparison, and with the proper provision for demonstrative proof in the actual installation, all elements of uncertainty are removed. The man who is able and willing to pay his obligations does not hesitate to give a note. The manufacturer who
is able to substantiate his claims regarding the preference of his products is just as ready to sign a contract requiring demonstrative tests.

Natural laws never change, and as they are the foundation of all engineering, it is only reasonable to conclude that they take precedence over opinions, which substantiates the fact that reliable engineering data should form the basis of all specifications to the exclusion so far as is possible of the human element which may be a very uncertain factor.

Present day standardization has provided a recognized, and, in most cases, a legalized method of measuring every commodity entering into building construction and regardless of the exact text of a specification these standards must be recognized. Any attempt to obligate a contractor beyond the clearly defined terms of a specification shows lack of confidence upon the part of the architect or engineer as to the accuracy and completeness of their specification. This, again, tends to tear down rather than strengthen the understanding between the owner and the contractor.

The maximum efficiency of any specification is reached when it secures for the owner full value of his investment. Any building program requires an owner, a builder and a material dealer. The closer and more harmonious these factors are combined, the more satisfactory and efficient the results. To insure this satisfaction requires a definite understanding before the program is started as well as harmony of purpose during the carrying out of the same. This, then, is the obligation assumed by the architect or engineer. It is perfectly proper to say “my attorney,” but it is essentially “our architect” if the full purpose is to be accomplished.

The term “lowest responsible bidder” certainly is intended to convey the idea of fair play on the part of the owner in awarding the contract. If this is to be as intended, a definite specification as to essential details of what will be accepted, is imperative.

Quality and price are two essential factors of value, and where value is the desired result both factors must be considered. A specification which calls for results and demands the manufacturer to stipulate both quality and price, leaves the purchaser to buy on value and not on price. There can be but one conclusion, the person who draws an efficient specification must understand their full requirements in definite and undisputable terms and must confine his activities to that place in the construction program allotted to his profession.

* * * *

Architects for Sacramento Municipal Auditorium

Mr. J. S. Dean of Dean & Dean, architects, has been appointed City Architect of Sacramento and he will be in charge of the preparation of plans for the new municipal auditorium for which $750,000 bonds were recently voted. Mr. G. Albert Lansburgh, architect of San Francisco and Mr. Arthur Brown, Jr., of Bakewell & Brown, will collaborate with Mr. Dean in the preparation of the plans.

* * * *

The trouble with us Americans is that first we pass the law, and then we pass the buck.—American Lumberman.

* * * *

Now that glands are the fashion as a panacea for every ill or want, why not give the sweat-glands a good tryout and see what happens?—San Diego Union.

* * * *

The law of supply and demand doesn’t always obtain. Look how many reformers we have, and how little reform.—Bethlehem Globe.
THE ARCHITECT AND ENGINEER

In Seattle there is a movement by the Washington Society of Architects to secure legislation looking to certain changes in the State license law calculated to give architects and engineers greater protection. The initiative has been taken by Mr. Harry H. James, newly elected president of the Society, who suggests a measure which would require building plans accepted by all city building departments to be prepared by an accredited architect or structural engineer.

Just how so stringent a measure as this would work here in California is questionable. It is certain, however, it would not make matters much worse than they are at present. Too many poorly designed structures by incompetent draftsmen are allowed to pass muster under our very liberal building laws, and if permitted to go on unheeded the future of the accredited architect seems problematical. So long as a designer may practice without a license why should he trouble himself to appear before the State Board in quest of a diploma? Yet if this indifferent attitude is allowed to go on and buildings are permitted to be built without the stamp of a licensed practitioner, what is to become of the profession? The public needs to be educated into a finer appreciation of the difference between a licensed architect and an unlicensed draftsman or the self-styled architectural engineer.

CITY PLANNING AND HOUSING

The last two decades have marked a new epoch in the life and development of American cities. The problems arising out of the requirements of public health, the stupendous growth of industrial centers, the rapid changes in the methods and means of transportation, the highly centralized business development and the many tentacled inroads that cities are making upon their rural boundaries, have forced us to face new problems, and to glean new possibilities in the visualizing and planning of the future city. From Calcutta to Petrograd, and from Tokyo to New York the civilized world is taking heed of the science and art of city planning which alone can secure for us communities in which the life, the labor and the leisure of the people may be carried on efficiently and economically, and with the least waste of human resources.

The section on City Planning and Housing of The Architect and Engineer, commencing with this number and to be made a regular feature of future issues, will be devoted to the discussion of sub-
In order that our readers may become thoroughly informed, the following quotations from answers submitted are published:

"Liquidated damages are damages awarded by arbitration, compromise or appeal to the courts."

"Liquidated damages are damages to property, real estate, land, etc., due to carelessness, accidents, etc., when the property spoiled is to be paid for."

"Liquidated damages are awarded in proportion to the damage, while penalties are claimed for amount stated in the agreement."

"Liquidated damages are caused by the failure to pay the creditors, all their bills are liquidated in one common sum against a party or parties."

"Liquidated damages are where the owner sets aside a certain sum to care for certain damages occurring during construction, and for which the contractor is not charged."

"Liquidated damages is where some firm by some reason desire to absorb, go out of business, discontinue shipment of materials to said contracting firm, says it be a cement contractor affected by No. 1 firm or party then No. 2 contractor is suffering liquidated damages."

Loads for Hollow Tile Walls

"Wasteful use of building materials, with consequent increase of construction costs and rents, is often due to lack of knowledge of how much load these materials can safely bear. This situation prompts architects, contractors, and the framers of building codes to call for an amount of material they know will be safe, without knowing whether or not it is excessive."

The U. S. Bureau of Standards has published the results of thirty-two tests on walls of hollow tile. These walls were 4 feet long by 12 feet high, and were 6, 8, and 12 inches thick, representing the outer wall of a house. Among other results, these tests showed that a wall with the hollow spaces or cells of the tile set vertically is nearly twice as strong as one in which the cells are placed horizontally.

These tests are described and the results given in Technologic Paper No. 238 of the Bureau of Standards, entitled "Some Tests of Hollow Tile Walls." Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Skyscrapers No Help to Congestion

A news dispatch from London quotes Mr. Raymond Unwin, distinguished town planner, as severely criticizing American skyscrapers and expressing belief that this country will have to find some other...
way to expand its cities. Discussing the office building problem in New York City Mr. Unwin is quoted as saying:

"With every added story the effective floor area per story is reduced and the cost per square foot is increased, while the greater number of elevators required take their toll of space from each succeeding floor.

"Every story added tends to darken all the floors below; even in spite of the bright light of New York this is becoming increasingly evident, and the number of rooms in which artificial light has to be used is much greater than in England.

"New York is discovering that you cannot dispense with transportation by going up. You merely change the horizontally moving street car for the vertically traveling elevator.

"Increased height means increased traffic congestion, while the darkening of offices and its consequent injury to health and efficiency is serious. Eyesight is injured and tuberculosis and other diseases are encouraged."

Tokyo Not Yet Repopulated

Temporary structures are still being built in Tokyo at a rapid rate, and from present indications such work will continue through the winter and well into the summer months since refugees are returning in great numbers for which shelters must be provided. In spite of the great number that has returned to Tokyo since the earthquake, close to half a million refugees are still living with their friends and relatives in the country and in other cities of Japan to which they fled, according to reports reaching the Department of Commerce.

According to an investigation made by the Metropolitan Police Board, refugees who are yet to return to Tokyo number about 467,000. A great many are also quartered with friends in Tokyo and some 86,000 are living in public barracks. Those still living in temporary shacks built by themselves during the earthquake period are said to number 5,200.

A total of 110,223 structures of various kinds had been erected in Tokyo up to November 23, at which time work was said to be going ahead at a rapid rate. Of this number 52,908 were residences; 49,722, stores with living quarters; 5,939, shops and offices, and 2,755 factories. Many of these temporary structures it is reported are as good and better in some instances than the buildings which were destroyed, especially in the poorer sections of the city.

No permanent buildings have been erected to date because of Imperial Decree prohibiting such operations until the Capitol Restoration Board has completed its plans for such building.
With the Architects

Building Reports and Personal Mention of Interest to the Profession

Architect Knoll Busy

Plans have been completed by Architect A. H. Knoll, Hearst building, San Francisco, for a one-story reinforced concrete store and shop building on Geary street and 2nd avenue. Estimated cost $20,000; also, for alterations to a two-story Class C store and loft building at Broadway, Franklin and Hobart streets, Oakland, and alterations and additions to a three-story store and office building at Mission and 22nd streets, San Francisco, for the O'Brien-Kiernan Investment Company. The probable cost of the latter work is $200,000, the improvements to include a large market on the ground floor, offices on the second floor and apartments on the third floor.

Berkeley Architect Busy

New work in the office of Architect W. H. Ratcliff, Jr., of Berkeley, includes an eight-story Class A bank and office building for the Mercantile Trust Company, an auditorium for Mills College, two apartment houses, the first unit of a group of edifices for All Soul's Church to be erected at Cedar and Arch streets, Berkeley, and a large residence for Mr. H. H. Halloran on Belrose avenue, Claremont.

Designing Fraternity Houses

Architects Masten and Hurd, who recently moved their San Francisco offices to 278 Post street, are preparing plans for a fraternity house to be erected on Euclid avenue, Berkeley, for the Tau Kappa Epsilon, estimated to cost $30,000. They are also preparing drawings for a two-story frame club building on the same street for the Del Rey Club.

Six-Story Apartment House

Plans are being prepared by William F. Gunnison and H. P. Merritt, 57 Post street, San Francisco, for a six-story Class B apartment house on Van Ness avenue, San Francisco, for J. Pasqualetti, of the American Concrete Company. There will be twelve six-room apartments.

$700,000 Portland Building

An eight-story Class A store, theater and physician's office building is to be erected in Portland on the site of Pantries theater. The owner is the Hoyt Estate. No architect has been selected as yet.

Pebble Beach Homes

There is every prospect of considerable building activity at Pebble Beach, Monterey county, this year.

Plans are being prepared by Architect Houghton Sawyer, Hearst building, San Francisco, for a $35,000 residence at Pebble Beach for Mr. Wm. W. Orrick. There will be fourteen rooms and six baths.

Architect Clarence Tantau of San Francisco is preparing plans for a $35,000 country house at Pebble Beach for Mr. Samuel F. B. Morse, president of the Del Monte Properties Company. The house is being designed in the Spanish farm house type, arranged around a patio. Mr. Tantau is also preparing drawings for a country house in the same locality for Mr. W. R. Alburger, manager of the Key Route system, and for a studio and residence for Francis McComas, the artist.

Plans are being prepared by Architect George Washington Smith of Santa Barbara for a large country house at Pebble Beach for Mrs. Templeton Crocker.

Designing Apartment Houses

Messrs. Baumann & Jose, 251 Kearny street, San Francisco, have prepared plans for the following new apartment buildings:

Six-story reinforced concrete apartment house, south side of California street, west of Jones, San Francisco, for C. Peterson, estimated to cost $125,000; six-story reinforced concrete store and apartment building, 12th and L street, Sacramento, for Mr. B. S. Berry, to cost $100,000; three-story frame store and apartment building, Valencia street, between 15th and 16th streets, San Francisco, for Messrs. Bertram and Lundstrum, to cost $35,000.

Humboldt County Hotel

Architect George E. McCrea, 369 Pine street, San Francisco, is completing working drawings for a hotel to be erected near Garberville, Humboldt county, for the Benbo Development Company at an estimated cost of $100,000. Construction will be of native stone, concrete and wood and there will be approximately fifty rooms, a large lobby and dining hall. Several cottages will also be constructed besides a garage and store building.
American Institute of Architects
Organized 1857
San Francisco Chapter
OFFICERS FOR 1924
President ........................................... J. S. FAIRWEATHER
Vice-President ..................................... John Reid, Jr.,
Secretary-Treasurer ................................... Albert J. EVERS
Directors
George W. Kelham .................................. Three Years
Arthur Brown ........................................ Three Years
William Mosner ...................................... Two Years
J. H. Bloom ......................................... Two Years
Earle B. Metz ....................................... One Year
Harris Allen ........................................ One Year
Oregon Chapter, Portland
President ............................................. Charles D. JAMES
Vice-President ...................................... Folger Johnson
Secretary ............................................ William L. Smith
Treasurer ............................................. Ormond R. Bean
Directors
Wm. C. Knight ..................................... Wm. G. Purcell John V. BENNIS

Southern California Chapter
President ............................................. Reginald D. Johnson
Vice-President ...................................... A. M. Edelman
Secretary ............................................ David J. Witmer
Treasurer ............................................. A. C. Zimmerman
Directors
David J. Witmer ................................... One Year
Edwin Bergstrom ................................... Two Years
D. C. Allison ........................................ Three Years

Washington State Chapter, Seattle
President ............................................ James H. Schack
First Vice-President ................................ A. H. Albertson
Second Vice-President ............................... Herbert A. Bell
Third Vice-President ................................ George H. Keith
Secretary ............................................ William G. Brust
Treasurer ............................................. Carl Siebrand
Member Executive Committee, Sherwood D. Foid

San Francisco Architectural Club
77 O'farrell Street
President ............................................. Mark T. Jorgensen
Vice-President ...................................... Edgar B. Hurt
Secretary ............................................ Carl R. Schmidts
Treasurer ............................................. Lawrence H. Keyser
Directors
William Rowe ......................................... Felix Raynaud
J. B. McCool .........................................

Los Angeles Architectural Club
President ............................................. Jess Stanton
Vice-President ...................................... Sumner Spaulding
Secretary ............................................ J. C. Simms
Treasurer ............................................. Paul Penland
Directors
D. Wilkinson ......................................... W. S. Davis
C. A. Truesdell Jr.,

California State Board of Architecture
Northern District
Phelan Building, San Francisco
President ............................................. Clarence R. Ward
Secy., & Treasurer ................................... Sylvain Schnaittacher
253 Post Street
Edward Glass John J. Donovan James R. Miller

Southern District
Pacific Finance Bldg., Los Angeles
President ............................................. William J. Dodd
Secy. & Treasurer ................................... A. M. Edelman
John Parkinson ....................................... Myron Hunt W. H. Wheeler

THE ARCHITECT AND ENGINEER

To Make Trip Abroad
Professor Albert C. Phelps, of the College of Architecture at Cornell University, will again, as in 1923, act as leader of a group of architectural students during a trip in Europe next summer, according to an announcement just issued by the Institute of International Education, 522 Fifth avenue, New York, under whose auspices the trip is being arranged.

According to the preliminary announcement, the architectural course under Professor Phelps will be one of four overlapping courses, which together will compose a general arts tour: the other three sections being designed primarily for students of painting, of landscape architecture, and of history, respectively. The architecture section, while not excluding objects of outstanding interest outside of the architectural field, will emphasize the study of important buildings and decorative compositions, the examination of drawings and models by the world's greatest designers, etc., and will give opportunity to photograph and sketch details of architecture and decoration.

Washington Chapter Elects Officers
Washington State Chapter of the American Institute of Architects held its annual meeting at Seattle January 12th. The speakers were Mr. C. D. James of Portland, who told of the work of the American Building Association and what it had accomplished; Mr. Charles M. Allen, who talked about the small house service bureau; Dr. John C. Perkins, who gave an illustrated lecture on Gothic architecture; and Mr. Charles H. Beb, who recited a poem on the construction of the Taj Mahal of India. The annual banquet was held in the evening when Dr. John H. Gowen, of the University of Washington, gave the principal address. The following officers were elected: James H. Schack, Seattle, president; A. H. Albertson, Seattle, first vice-president; Herbert A. Bell, Tacoma, second vice-president; George H. Keith, Spokane, third vice-president; W. G. Brust, Seattle, secretary; Carl Siebrand, Seattle, treasurer; Sherwood D. Ford, Seattle, member executive committee.

School Plans Completed
Plans have been completed by Architects Shea & Shea at San Francisco for the new High School building at San Rafael, for which there is available $200,000. There will be sixteen class rooms and auditorium. The same architects are completing drawings for additional wings to the St. Mary's hospital at Hayes and Stanyan streets, which will provide one hundred and twenty-five new rooms. The estimated cost of the addition is $300,000. Construction will be in charge of Mr. Jas. L. McLaughlin.
February, 1924

Personal

Mr. Walter P. Williams has opened an office for the practice of architecture at 7868 Girard street, La Jolla, Calif.

Messrs. Bissner & Howard, architectural designers, have opened an office in the Security Bank building, 1608 Mission street, South Pasadena. Members of the firm are Harold J. Bissner, formerly of Long Beach and Pasadena, and W. R. Howard, formerly of Salt Lake City.

Mr. H. J. Quinn, formerly manager of the Oakland office and for the past three years manager for the Pacific Mfg Co. in Los Angeles, has severed his connection with that company, and announces the formation of the Hubert Quinn Millwork Co., Inc., with offices at 226-7 Marshall-Strong building, and plant on San Fernando road, adjoining the Pacific Door & Sash Co. Mr. W. F. Hayward is the new Los Angeles manager of the Pacific Mfg Co.

Architects Masten and Hurd announce the removal of their offices from 168 Sutter street to 278 Post street, San Francisco.

Mr. B. Hedstrom, architect, has opened offices at 215 Market street, San Francisco.

Messrs. Ruggles & McKee, consulting architects and engineers, have opened offices for the practice of the professions at 1429 Broadway, Oakland. Trade literature and manufacturers' catalogues will be appreciated.

Messrs. Clifford A. Truesdell, Jr., and H. Carlton Newton, architects and engineers, announce their co-partnership under the firm name of Truesdell & Newton, succeeding Truesdell, Purinton & Newton, with offices at 302-7 San Fernando building, Los Angeles.

Architect Morris Bruce of San Francisco is traveling abroad.

Store and Apartment Buildings

Hutchinson & Mills, 1214 Webster street, Oakland, have prepared plans for a two-story store and apartment building at Domingo and Ashby avenues, Berkeley, to cost $30,000. Mr. Leslie R. Wilson, 2216 Blake street, Berkeley, is the owner and builder. Other new work in Hutchinson & Mills' office includes a $6500 residence for Mr. Thomas Fairfield, a $7500 residence for Mr. F. F. Anderson, and a two-story flat building in Berkeley for Mr. Donohue.

Oakland Auto Sales Building

Plans have been completed by Architect B. G. McDougall, 393 Sacramento street, for an automobile sales building and garage for the Buick Agency at Twentieth and Webster streets, Oakland. The owner of the property is Mr. Frank J. Hurley. Lindgren-Swinerton, Inc., have the contract at $109,000.

Oakland Hotel and Apartments

Plans have been completed in the office of the East Bay Planners, L. H. Ford, 306 14th street, Oakland, for a six-story steel and brick hotel for the Colt Investment Company, to be erected at 15th and Harrison streets, Oakland, at an estimated cost of $500,000. The building will contain 200 rooms, with 80 per cent baths, ten stores, a large lobby, dining room and banquet hall.

Mr. Ford has also completed drawings for a three-story frame apartment house for Mr. C. S. Lockwood, to be erected on Ellita avenue, off of Grand avenue, Oakland, at an estimated cost of $45,000, and for a one-story frame building of eight stores on 13th avenue and East 14th street, Oakland, estimated to cost $15,000.

Honolulu Growing

The architects in Honolulu are busy, according to Mr. B. E. Bryan of the Strable Hardwood Company, who has just returned from the Hawaiian Islands.

There are plans on the boards for all classes of buildings, including apartment houses, public and commercial buildings and dwellings, according to Mr. Bryan.

The general outlook for building activity in the Islands is excellent. More homes are needed and it is the general opinion that a large number will be built there this year.

Architect Sues For Fee

Papers in a suit filed by Architect W. L. Schmoller of San Francisco vs. Weller P. Stead, have been filed in the office of the county clerk at Redwood City, having been transferred from the Superior Court of San Francisco county on a motion for a change of venue granted the defendant. The plaintiff seeks judgment for $655, a sum alleged to be due for architect's fees.

Long Beach Architectural Club

Following are the new officers of the Long Beach Architectural club: Harvey Lochner, president; Natt A. Piper, first vice-president; W. Horace Austin, second vice-president; Earl R. Bobbe, secretary; Leonard P. Wikoff, treasurer; Roy L. Wertz, sergeant-at-arms. James Rainey was named head of a committee to arrange a sketch contest.

St. Francis Wood Homes

Architect Joseph L. Stewart, Claus Spreckels building, San Francisco, has completed plans for a two-story Spanish type house to be built in St. Francis Wood for Dr. Lloyd Bryan at an estimated cost of $22,000. Mr. Stewart has also prepared plans for an English type house to be built in St. Francis Wood for Mr. H. S. Porter at a cost of $18,000.
New Member of Firm
Beginning with the new year the firm of Bebb and Gould, Seattle architects, took into junior partnership, Mr. Earl G. Park, who has been continuously identified with Mr. Bebb, subsequently the firm of Bebb and Gould, for more than twenty-five years. Mr. Park has been head of the drafting room several years and is well known to the firm's many clients, the contractors and material men throughout the city. He was admitted to the American Institute of Architects in 1918.

Post Office Building
A contract has been awarded to MacDonald & Kahn of San Francisco to erect a five-story Class A post office building at Market and Washington streets and the Embarcadero, San Francisco, from plans by Architect Alfred S. Alschuler of Chicago. The owner of the property is Mr. Jacob Kulp of Chicago, who has leased the building to the government for a term of years.

Pass State Examination
Six architects passed the mid-winter examination held at the University of Washington January 2nd. Eight men took the examination, those passing were: Henry S. Bertelson, Spokane; Stanley A. Smith, Pullman; Oscar F. Nelson, and John Paul Jones, Seattle; Franklin C. Stanton, Olympia; and George McPherson, Grandview.

Architect Walter Falch Busy
New work in the office of Walter C. Falch, Hearst building, San Francisco, includes a two-story and basement frame store and apartment building to be built on 27th avenue, East Oakland; alterations and additions to the country home in Belmont of Dr. H. C. Warren, and a $12,000 house for Mr. Walter Schafer in Windsor Terrace, San Francisco.

New Cement Plant
The Pacific Portland Cement company will build a new cement plant in Redwood City from plans by its engineer, Mr. W. C. Stevenson. The plant will include a large mill, stock house, warehouse and office building and will have a capacity of twenty-five hundred barrels of cement a day.

Sacramento Office Building
Architect F. A. S. Foale of Sacramento has been commissioned to prepare plans for a twelve-story steel frame and concrete office building at 11th and K streets, Sacramento, for Messrs. William S. & H. H. Hart, local restaurant men.

Westinghouse Company's New Plant
The Westinghouse Electric & Manufacturing Company has recently awarded a contract to the Dinwiddie Construction Company of San Francisco for the construction of a second large building unit on the twelve acre lot of ground owned by the Westinghouse Company in Emeryville. This new plant when completed will cost close to $500,000. The new building will provide accommodations for a large assembling shop, extensive service and repair shops, a zone warehouse and various other facilities designed to render Westinghouse products and service more accessible and efficient to customers in the West.

The new plant was designed by Mr. Bernard H. Prack, consulting architect of Pittsburgh, Pa., and Oakland, who also designed the building of the Westinghouse High Voltage Insulator Company, located on the same piece of property in Emeryville, and which factory has just recently been put into successful operation. The same architect has completed construction of a large new factory in Emeryville for the Standard Underground Cable Company. W. G. Prack, a brother of the head of the firm of architects, is in charge of their Oakland office.

Architects Move
Architect Ira W. Hoover of Planada, Merced county, has moved to 408 So. Oxford avenue, Los Angeles.
Architect C. E. Perry, Jr., of Vallejo has moved to 211 Virginia street, that city.
Architect John O. Lofquist, formerly of Shea and Lofquist of San Francisco, has moved from 1399 Tamalpais Road, Berkeley, to 362 28th avenue, San Francisco.

San Pedro Hotel
Architects Noerenberg and Johnson, Los Angeles Railway building, Los Angeles, are preparing plans for a six-story reinforced concrete hotel to be built in San Pedro for Mr. Weldon and associates. The estimated cost is $500,000.

Oakland Apartment House
Plans have been completed by Architects Miller and Warneck, Perry building, Oakland, for a three-story and basement brick and concrete apartment house to be erected on 12th street, Oakland, for Mr. I. Mendelsohn.

San Jose Parochial School
St. Patrick's Parish, San Jose, have authorized the completion of plans for a parochial school at Ninth and Santa Clara streets, to cost $120,000. Mr. Charles J. I. Devlin of San Francisco is the architect.
Great Increase of Building in Cities of Pacific Coast*

With a grand total of $492,449,908 in building permits issued during 1923 in fifty-four cities of the Pacific Coast States, an increase of more than thirty-eight per cent in building activities was shown for the year just ended over the total figures of these cities for 1922.

Utah, with four cities reporting, showed the greatest relative annual gain—fifty-three per cent—while California with thirty-five cities reporting, came second with a gain of forty-two per cent over 1922. Washington gained twenty per cent, Oregon seventeen per cent and Arizona fourteen per cent over the previous year. Annual gains of the larger cities are: Los Angeles, fifty-six per cent; San Francisco, three per cent; Portland, eleven per cent; Seattle, sixteen per cent; Salt Lake City, thirty-four per cent; Long Beach, sixty-eight per cent; Oakland, twelve per cent, and San Diego, twenty-one per cent. California's total, $414,887,500 is eighty-four per cent of the whole. Of the first twenty-five cities in the United States showing greatest volume of permits during the year 1923, six cities are located on the Pacific Coast.

BUILDING PERMITS

<table>
<thead>
<tr>
<th>City</th>
<th>1922</th>
<th>1923</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>971,115</td>
<td>1,480,676</td>
</tr>
<tr>
<td>Alhambra</td>
<td>3,451,236</td>
<td>7,280,530</td>
</tr>
<tr>
<td>Bakersfield</td>
<td>1,898,686</td>
<td>1,170,905</td>
</tr>
<tr>
<td>Berkeley</td>
<td>5,610,028</td>
<td>7,857,139</td>
</tr>
<tr>
<td>Beverly Hills</td>
<td>2,047,739</td>
<td>3,891,078</td>
</tr>
<tr>
<td>Chico</td>
<td>234,604</td>
<td>479,644</td>
</tr>
<tr>
<td>Compton</td>
<td>378,450</td>
<td>1,681,492</td>
</tr>
<tr>
<td>Emeryville</td>
<td>280,307</td>
<td>875,451</td>
</tr>
<tr>
<td>Eureka</td>
<td>578,300</td>
<td>921,700</td>
</tr>
<tr>
<td>Fresno</td>
<td>7,225,150</td>
<td>10,047,694</td>
</tr>
<tr>
<td>Glendale</td>
<td>6,305,970</td>
<td>23,693,580</td>
</tr>
<tr>
<td>Long Beach</td>
<td>14,041,148</td>
<td>200,133,181</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>121,206,787</td>
<td>945,074</td>
</tr>
<tr>
<td>Modesto</td>
<td>1,122,601</td>
<td>27,628,897</td>
</tr>
<tr>
<td>Oakland</td>
<td>24,468,223</td>
<td>1,558,243</td>
</tr>
<tr>
<td>Palo Alto</td>
<td>9,412,480</td>
<td>11,554,186</td>
</tr>
<tr>
<td>Pasadena</td>
<td>1,426,887</td>
<td>1,752,047</td>
</tr>
<tr>
<td>Piedmont</td>
<td>767,357</td>
<td>1,695,816</td>
</tr>
<tr>
<td>Pomona</td>
<td>451,492</td>
<td>1,156,686</td>
</tr>
<tr>
<td>Richmond</td>
<td>897,071</td>
<td>1,147,924</td>
</tr>
<tr>
<td>Riverside</td>
<td>1,488,429</td>
<td>2,393,827</td>
</tr>
<tr>
<td>Sacramento</td>
<td>9,401,753</td>
<td>9,699,556</td>
</tr>
<tr>
<td>San Bernardino</td>
<td>2,209,663</td>
<td>2,142,861</td>
</tr>
<tr>
<td>San Diego</td>
<td>10,280,990</td>
<td>12,525,428</td>
</tr>
<tr>
<td>San Francisco</td>
<td>45,327,206</td>
<td>48,594,011</td>
</tr>
<tr>
<td>San Jose</td>
<td>1,967,720</td>
<td>9,970,702</td>
</tr>
<tr>
<td>San Leandro</td>
<td>1,064,054</td>
<td>1,711,885</td>
</tr>
<tr>
<td>San Rafael</td>
<td>219,800</td>
<td>490,325</td>
</tr>
<tr>
<td>Santa Ana</td>
<td>3,771,831</td>
<td>5,166,557</td>
</tr>
<tr>
<td>Santa Barbara</td>
<td>4,257,873</td>
<td>3,842,812</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>715,045</td>
<td>1,076,750</td>
</tr>
<tr>
<td>Santa Monica</td>
<td>3,876,405</td>
<td>5,557,679</td>
</tr>
<tr>
<td>Stockton</td>
<td>3,141,900</td>
<td>3,897,130</td>
</tr>
<tr>
<td>Vallejo</td>
<td>478,471</td>
<td>252,777</td>
</tr>
<tr>
<td><strong>WASHINGTON</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aberdeen</td>
<td>437,111</td>
<td>1,009,001</td>
</tr>
<tr>
<td>Everett</td>
<td>623,702</td>
<td>1,455,406</td>
</tr>
<tr>
<td>Hoquiam</td>
<td>480,640</td>
<td>608,457</td>
</tr>
<tr>
<td>Seattle</td>
<td>19,783,835</td>
<td>22,482,678</td>
</tr>
<tr>
<td>Spokane</td>
<td>3,177,234</td>
<td>2,483,063</td>
</tr>
<tr>
<td>Tacoma</td>
<td>4,250,352</td>
<td>5,220,193</td>
</tr>
<tr>
<td>Vancouver</td>
<td>238,970</td>
<td>628,970</td>
</tr>
<tr>
<td>Walla Walla</td>
<td>514,710</td>
<td>419,348</td>
</tr>
<tr>
<td><strong>UTAH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logan</td>
<td>388,400</td>
<td>232,100</td>
</tr>
<tr>
<td>Ogden</td>
<td>1,019,223</td>
<td></td>
</tr>
</tbody>
</table>

*Compiled by The Architect and Engineer from figures furnished by Municipal Building Departments and Chambers of Commerce.
Quite True!

Old Ben always weighed his words carefully.

The contractor put him to work digging a trench from the house to the water main in the street. Old Ben was busy with pick and shovel when an acquaintance approached, and cheerfully inquired: “Digging out a hole?”

Old Ben considered the question carefully, and as he took a fresh grip on the handle of the pick, replied thoughtfully: “Not so. I be just diggin’ out the dirt an’ leavin’ the hole.”

Oakland Residence Work
Architect W. E. Schirmer, Thayer building, Oakland, has completed plans for a $14,000 residence for Mr. H. J. Kaiser to be built at Lake Knoll, Oakland. Mr. Schirmer has also completed drawings for a house in Piedmont for Mrs. Bryan and one in Lakeshore Highlands for Mr. Grassman, to cost $13,000 each.

Bank and Office Building
Architects Morgan, Walls and Clements, Van Nuys building, Los Angeles, have been commissioned to prepare plans for a twelve-story Class A bank and office building to be erected on the northwest corner of Ninth and Hill streets, Los Angeles, for the Pacific National Bank.

Addition to Bank Building
Architect H. A. Minton, 550 Montgomery street, San Francisco, has completed drawings for a two-story Class A addition to the Bank of Italy building at Broadway and 11th street, Oakland. It is estimated the improvements will cost $100,000.

Los Angeles Club Building
Architect Edwin Bergstrom, Citizens National Bank building, Los Angeles, has been commissioned to prepare plans for a thirteen-story Class A club building for the Southern California Commercial Club. The structure will cost in the neighborhood of $1,000,000.

California’s Cement Production
All records of production and shipment of Portland cement in California were broken by the output for 1923. The following figures show the production, shipments and stocks on hand for three years, as contained in a preliminary report of the U. S. Geological Survey:

<table>
<thead>
<tr>
<th>Year</th>
<th>Production, bbls.</th>
<th>Shipments, bbls.</th>
<th>Stocks, Dec. 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>1923</td>
<td>11,496,000</td>
<td>8,419,000</td>
<td>7,327,000</td>
</tr>
<tr>
<td>1922</td>
<td>9,394,000</td>
<td>5,882,000</td>
<td>7,129,000</td>
</tr>
<tr>
<td>1921</td>
<td>6,400,000</td>
<td>4,243,000</td>
<td>5,114,000</td>
</tr>
</tbody>
</table>

Production in California for December, 1923, was 965,000 bbls., as compared with 700,000 bbls. in December, 1922, and 558,000 bbls. in 1921. Shipments for the month totaled 889,000 bbls., as compared with 647,000 bbls. in December, 1922, and 491,000 bbls. in 1921.

Production and shipments for 1923 and stocks on hand at the close of the year for the entire United States were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Production, bbls.</th>
<th>Shipments, bbls.</th>
<th>Stocks, Dec. 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>1923</td>
<td>13,377,000</td>
<td>113,870,000</td>
<td>98,293,000</td>
</tr>
<tr>
<td>1922</td>
<td>11,687,000</td>
<td>91,583,000</td>
<td>95,951,000</td>
</tr>
<tr>
<td>1921</td>
<td>9,105,000</td>
<td>79,386,000</td>
<td>92,958,000</td>
</tr>
</tbody>
</table>

The remarkable record made by the industry during 1923 in taking care of a demand which has increased over 40 per cent in two years could scarcely have been achieved under less favorable conditions. The cement industry is particularly sensitive to transportation and fuel situations and the absence of shortage of both these essentials during 1923 was most helpful.

Production of portland cement in December was nearly 10,000,000 bbls. and shipments were about 6,400,000 bbls., both records for that month although showing the usual seasonal decline from preceding months.

Stocks of finished cement in manufacturers’ hands increased over 3,500,000 bbls. during the month and December 31 were 10,581,000 bbls., a quantity exceeded only once during the past eight years.

Addition to Department Store
A ten-story Class A addition costing $400,000 to Bullock’s Department store in Los Angeles has been commenced from plans by Architects John and Donald B. Parkinson of that city.
THE Associated Oil Company, L. D. Jurs, chief engineer, has recently had completed at its plant in Avon, Contra Costa county, California, a storehouse of somewhat unusual type of construction. It was erected by Villadsen Bros., Incorporated, structural engineers and builders, with offices in San Francisco and Salt Lake City. The selection of this particular type of building was made by the Associated Oil Company after careful inquiry into the various

CONCRETE STOREHOUSE FOR ASSOCIATED OIL COMPANY, AVON

Associated Oil Company Adopts Unique Type of Construction

INTERIOR STOREHOUSE FOR ASSOCIATED OIL COMPANY, AVON
types of concrete construction. Besides offering a pleasing appearance the building possesses all the durable qualities of the most rigid construction. It is of reinforced concrete throughout, 180 feet long, 50 feet wide and 15 feet between arches. Considerable reduction in sectional area of members is permitted by the use of the Parabolic arch which also produces a well balanced design.

While innumerable buildings with similar long concrete spans have been erected abroad during the past twenty years, very few have been built in the United States. Engineers who have followed this type of construction have been impressed with the spaciousness of the interiors and absence of members to collect dust and obstruct light. The fact that the buildings are permanent and present a good appearance are additional factors in their favor. Structures of this type, according to the builders, may be erected at practically the same cost as non-fireproof structural steel buildings. This particular type of construction is not only suited to storehouses, but may be applied to machine shops, power plants, train sheds, public markets and garages.

The Associated Oil Company is so well pleased with its initial experiment of this type of construction that it has awarded a contract to Villadsen Bros. to build a two-story office building at its Avon plant at an estimated cost of $40,000. Construction will be of concrete in accordance with plans by the engineering department of the oil company. Old Mission Portland cement was used in building the storehouse and will also be used for the office building.

1924 National Convention of Engineers

San Francisco has been designated by National Headquarters, American Association of Engineers, as the place for holding the 1924 national convention.

The San Francisco Chapter has elected L. F. Leurey convention manager, and Chas. C. De Wolf, assistant convention manager, as representatives of San Francisco and Oakland, respectively.

Manager Leurey's plans include the usual committees, such as, arrangement, finance, advertising, transportation, hotel accommodations, entertainment, etc.

Program and papers will be cared for by National Headquarters.

The meeting place will be the Palace hotel, San Francisco, in accordance with National Headquarters' requirements as to seating capacity, committee rooms, etc.

Advertising literature supply has been arranged with various organizations, including "Californians, Incorporated," Convention and Hotel League, Chambers of Commerce of San Francisco and Oakland.

THE ARCHITECT AND ENGINEER

Chapters in California will not be called upon by San Francisco for financial assistance; but California Chapters are requested to make their arrangements for greeting and entertaining those traveling through their cities to and from the convention; are urged to send maximum number of delegates to the convention, to show A. A. E.'s strength in California, and to come to the convention with songs, banners, bands, slogans, etc., according to the initiative of each Chapter, to demonstrate the interest and enthusiasm of California engineers.

The date for the convention is between April 15th and June 15th.

San Francisco urges that the dates be June 11, 12, 13, Wednesday, Thursday and Friday. Three full days are required for business, with little or no time for excursions.

Bridge Engineer Resigns

The resignation of Mr. H. E. Warrington, bridge engineer of the California Highway Commission for the last four years, became effective February 1st. Mr. Harlan B. Miller, assistant bridge engineer, will have charge of the department pending appointment of a successor. During his service with the commission Mr. Warrington has had responsible charge of the design of many bridges and of the acceptance of designs of others involving the expenditure of some five million dollars.

Among the more noteworthy structures designed under Mr. Warrington's supervision might be mentioned the heavy steel bridge over the Feather river at Oroville, the five girders bridge over the Big Tujunga river in Los Angeles county, the Bear Gulch bridge, a beautiful arch span of 128 feet, a heavy arch over the South Fork of the Yuba river, the Stony Creek bridge, the Rio Hondo bridge in Los Angeles county, the Susan river arch bridge at the Devil's Corral in Lassen county, the San Gabriel river bridge in Los Angeles county and the Whitewater river bridge in Riverside county.

Previous to coming with the State, Mr. Warrington was for eight years bridge engineer of Los Angeles county.

A. A. Anderson Resigns

Mr. A. A. Anderson, secretary of the Los Angeles Chapter, A. S. E., has resigned his position with the California Railroad Commission, to be associated with Mr. Stanley Benedict, until recently a railroad commissioner, formerly U. S. Congressman, and now an active officer of the California Building & Loan Association and the Capital Finance Corporation of California, with offices in the Pacific Finance building, Los Angeles.
Field of the Contractor

Economic Aspects of Day Labor Construction*
By ARTHUR S. BENT, Los Angeles

In discussing with you this question it is quite likely I shall be unable to hold myself strictly to its economic aspect, except in the broadest sense of the term, because the consequences of its decision are far reaching and many sided and are not confined merely to the measure of dollars and cents. Indeed I am not sure this is its most important aspect.

Comparing “firm contracts” and “day labor” I believe it would not be hard to demonstrate that these two methods of carrying on year after year, the huge construction program of this nation, are so radically different that their results must to some degree affect differently our national character itself.

The problem we are to consider is not hypothetical. All over the country today there is a growing tendency among public officials to do public work by day labor. This is not confined to maintenance, or to minor municipal operations, but reaches to single major projects of great importance. River levees built by the Federal government, highways built by states, dams and canals built by irrigation districts, asylums and hospitals by counties, schools and sewers and paving by cities—all by day labor. The real causes of this tendency are not easy to determine, but the reasons given by public officials are quite simple and specific. Chiefly they are, first, “to save the contractor’s profit,” next, to permit of more elasticity in carrying on work—under day labor method the responsibility upon the governing bodies of knowing just what they are going to do and how, does not press heavily. Next, work can be started quicker. But back of these and other reasons lie basic causes which are not so easy to get at. Sometimes it is a desire for power and the support in authority, which comes from a large body of subservient employees. Sometimes it is just politics of the old sordid variety, less common now but not yet gone from public life. To some extent it is traceable to a tendency toward socialism. Sometimes there is genuine discontent with contractors, or distrust of them. And let us in fairness say that sometimes it comes from a sincere, if mistaken, impulse to save money.

Whatever may be the underlying causes, the tendency is unmistakably manifesting itself and as construction men who not only are vitally interested but who should be expert in their knowledge and their conclusions, we, are considering the matter as unselfishly and honestly as we can and asking the public to review our findings in the same spirit.

If we believe, this is a question of grave importance, involving much more than our own interests, then it must be so by virtue of the magnitude of the construction industry, or its vital connection with society, or both, and so we may be pardoned for bringing up once more a picture of construction as we now see it and a suggestion of the part it plays in the life of the world today.

In Secretary Hoover’s last year book this statement is made: “Construction in the United States in 1922 exceeded five billions of dollars, equalling the combined value of wheat, corn, oats, barley and rye, almost equalling the net operating receipts of all the railroads in the United States and exceeding by 50 per cent the total exports of this country. Activity in construction bears a close relation to general business conditions.”

S. W. Straus in a recent White House conference said, “There is potential need for eight billion dollars’ worth of new buildings in the United States today. The nation’s volume of buildings for 1924 will reach five billions, and all of this is just so much new capital created to contribute its share of Federal, State and city taxes.”

Secretary of Labor Davis recently stated as follows: “More than eleven millions of our people are dependent for their living upon the construction industry and 22 per cent of all the skilled and unskilled labor of the country is engaged in the building branch alone. Some 250,000 freight cars are required to handle the materials. Our building bill is $200 per year for each family in the United States,” Mr. Davis concluded, “it is truly the chief barometer of the business of the country. When construction gains, prosperity is with us. It is the great outstanding influence for good or bad in our financial progress.”

Another author has recently referred to construction as the “big tool of mankind” and says “it has always been the
best means of expressing the impulses underlying civilization.

Evidently, construction contributes heavily to the tremendous buying power of our people and the savings banks of the country reflect to a remarkable degree the activity of this field. Construction is truly the key industry which unlocks the rest.

The cold facts are impressive. About 30 per cent of the nation's wealth is produced by construction and it absorbs 60 per cent of our national savings. Some 3,000 other industries are dependent upon it. Over 90 per cent of the iron, copper, lead and zinc we produce is consumed in construction. It is simple truth to say that construction precedes and underlies all human development. "Everywhere the spirit of the builder hovers over the earth." Everywhere he is ceaselessly shaping the amazing structure through which human life functions and finds opportunity and happiness—building the highway over which it is traveling to its ultimate destiny.

Now, who do the advocates of day labor work ask us to take in his stead for handling the 5,000 million dollars we will put into construction this year? Why, a politician, placed in office by a campaign in which his ability as a construction manager was not even remotely considered. He holds that office for a limited time until a new but similar official may take his place. He has no organization, no plant, no experience and frequently so little executive ability that the business world has passed him by, and public office is the best job he can get.

It is a commonplace to say that we all recognize the propriety and necessity of a certain amount of day labor work. Many emergencies can best be met by this method. Most maintenance work should be so carried on. And there are rare cases where the conditions indicate it for major operations. But in spite of such notable instances of successful construction as the Miami Conservancy District and the Los Angeles Aqueduct, the prosecution of public work by day labor has been a long story of waste of public money and the development of inefficiency. This is such common knowledge that I shall take your time with only a few examples, and moreover, shall confine myself to my own observations.

The State of California had a most significant experience in building highways by day labor, which is fairly illustrated by an excerpt from the report of the United States Bureau of Public Roads published in 1920. This shows from a study of twenty California highways, ten of which were done by contract and ten by the State's forces, that the contracted jobs exceeded the engineer's estimates by 39 per cent while the day labor jobs exceeded the engineer's estimates by 193 per cent.

In the joint report of the two great California automobile clubs may be found the statement that of 300 highway jobs done by day labor, and amounting to seven millions of dollars, the State's account showed unit costs on only five jobs. On two of these five, the State first called for bids and rejected them on recommendation of the State Engineer, who then undertook the work himself. The record shows the following figures:

<table>
<thead>
<tr>
<th>Engineer's Contractor's</th>
<th>Actual Cost</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid</td>
<td>to State</td>
<td></td>
</tr>
<tr>
<td>Excavating... .55</td>
<td>1.10</td>
<td>1.17 per cu. ft.</td>
</tr>
<tr>
<td>Concrete... .450</td>
<td>7.50</td>
<td>10.55 per cu. yd.</td>
</tr>
</tbody>
</table>

In totals this means on the first job a bid of $117,000 and an actual cost of $160,000 or a loss to the State of over 37 per cent, and on the second job a bid of $43,000 and a cost of $81,000 or a loss to the State of almost 90 per cent.

With such facts within their knowledge what shall we think were the reasons that led State officials to continue this method to the extent of $7,000,000 worth of highways; and were their reasons typical? It is gratifying to add that the present California administration went into office under a pledge to stop this reckless waste and to carry on its public construction under public competition and firm contracts protected by surety bonds.

The Gila Dam in Arizona was estimated to cost $800,000. It was built by day labor, without change of plan at a cost of nearly $2,000,000.

A county engineer of northern California made the statement to me that during his administration practically all of the highways built by day labor ran 20 per cent above the bids received for the same work, and moreover, that inaction was poor and labor inefficient. Also, that in the few cases where cost keeping was attempted at all, nothing was allowed for equipment or its depreciation.

I could fill my allotted time with illustrations, big and little, of the waste of public funds on day labor construction, but every man here could do the same thing. The taxpayer everywhere comments on this waste and has his sarcastic joke about it. The story is written too plainly to be misunderstood. But let me add a word or two from experts who are disinterested.

California State Highway Engineer Morton says, "We have no conviction that day labor work generally offers a means of saving money. We know that it increases the overhead expense, and by scattering the energies of the administrative officials, detracts from the quality and quantity of supervision given to contracts."

Now two fundamental questions next

(Concluded on page 122)
What the California Highway Commission Has Done and is Doing

By ROBERT M. MORTON, State Highway Engineer.

The total length of state highways in California, including unconstructed roads, is about 6,400 miles. This system has been built up from time to time by the mandates of bond issue enactments, approved by the electorate of the state, and by legislative action. The state highway mileage is slightly less than 10 per cent. of the estimated total public highway mileage of the state.

The interpretation of the provisions of the First Bond Act formed the nucleus of the present state highway system with a total of 3,082 miles of highway. As a result of the Second Bond Issue, voted in 1915, 680 additional miles were added. The 1919 Bond Issue brought 1,798 miles into the system. By legislative enactment, the mountain highways under maintenance by the state prior to 1910, and other roads to a total length of about 840 miles have been added. This last item has been added to the system with practically no appropriation for construction.

With the end of 1923 there have been constructed 920 miles of grading with or without rock or gravel surface. There have been constructed 2,035 miles of grading with concrete or other hard surfaced pavement; 267 miles constructed by the counties have been added to the system on which no work has yet been done by the state, making a total of 2,302 miles of pavements. This leaves a total of 3,178 miles, practically fifty per cent of the system upon which no work has as yet been done except for incomplete surveys.

Of the paved mileage, including both state highway construction and that taken over from the counties, 305 miles have already been reconstructed or are provided for in existing contracts.

Leaving out of account reconstruction requirements, the estimate of the Highway department for the completion of the state highway system prepared last spring for the legislature, which included paving on about 1,000 additional miles and grading and surfacing on the balance, amounted to slightly over 200 million dollars. It is recognized that the traffic increases during the period in which this expenditure could be made if funds were provided, would probably make necessary the paving of more than 1,000 additional miles. Therefore the estimate of 200 million represents the cost based on our present standards, and is a minimum figure.

With this situation confronting them, the commission has capital funds available, about two-thirds of which consists of uncollected Federal aid already authorized by Congress of $12,000,000.

The obligations of the 1919 Bond Act are interpreted to mean that at least $20,000,000 must be expended upon the additional roads added to the system by that act. To date there has been about $11,000,000 expended upon these additional roads so that 75 per cent. of the present capital funds must be allotted to roads of the Third Bond Issue. The element which appeared most disturbing to the new commission was to find so much work under way on relatively unimportant roads, and to see so much important main line construction incomplete.

With so many complex factors the new commission believed it necessary to feel their way, to personally investigate and learn for themselves the real situation.

Since assuming charge of the state highway department, the strain upon the funds for maintenance and reconstruction promises to be relieved by the new motor vehicle and gas tax measures which we conservatively estimate will produce at least 50 per cent. more annual revenue than the old measure. The receipts of 1923 under the old measure will be about $5,000,000. Next year’s revenue should be at least $7,500,000.

The commission early adopted the policy of concentrating future capital expenditures so far as legally possible upon main line roads. This side-tracked plans which were in the office for other locations until new financing is provided, and made it necessary for the engineers to prepare surveys and plans on approved main line locations. This has caused an unavoidable lull in the progress. However, the expenditures of the commission from bond funds for new construction in 1923 will be at least $12,000,000.

Construction completed and accepted during 1923 includes a total of 428 miles, 142 miles of which was grading and surfacing. 89 miles consisted of reconstruction of pavements.

At present there are contracts in force and bids in the office for 346 miles of construction of which 196 miles is grading and surfacing, and 57 miles is reconstruction of pavement or grade. Bids are being opened each week on one or more jobs. The work authorized last spring on main line roads and upon sections chosen for reconstruction has now reached the specification stage and the
The Architect and Engineer

The maintenance, small betterments and reconstruction necessities will absorb for many years all of the gas tax and motor vehicle fund money which will come into the coffers of the state. At this time we are launching a program of about five million dollars for about 175 miles of reconstruction during 1924. The state could use twice this sum annually in replacing sections which are an actual menace to traffic. It is not only the pavements which need rebuilding; on unpaved mountain sections practically the whole road must be rebuilt before it can be paved. On the main highways through Mendocino and Humboldt counties the requirements faced by the state for rebuilding is appalling, and this at a time when there still remains almost 100 miles of unconstructed road on that route. The width to be used for most of the concrete type of surfacing work will be 20 feet, averaging 6 inches in thickness over the top of the old pavement. The shoulders will average 8 inches beyond the limits of the old pavement. On this class of work, a center longitudinal joint will be used, with reinforcing across the edge of the old pavement.

Profiting by the examples of excellent concrete pavement construction in Oregon and Washington, we shall install some sections with transverse expansion joints.

Wood as a Building Material

The United States Forest Products Laboratory, Madison, Wis., which since 1919, has been giving demonstration courses in kiln drying of lumber, boxing and crating, gluing of wood, and wood properties, announces a new course covering wood as a building material. This course is designed for architects, construction engineers, contractors, and others interested in the use of wood in building construction.

The subject matter will be presented in lectures and demonstrations by the experts of the laboratory, many of whom are well known to the building trade. The course will include some of the subjects that have been presented in the kiln drying, gluing, and other courses, which have been attended by hundreds of men from all parts of the country. In addition, the new course will take up the properties and uses of various species of woods in building construction; methods of determining the strength of wood; safe working stresses for structural timbers; effect of varying dimensions and of form of beam and joist on strength; decay in wood, its effect and methods of prevention; grading rules; moisture-resistant coatings; and fire prevention in wood construction.
WRITE IN ON THE SPECIFICATIONS

Buttonlath

THE selection of Buttonlath as the base for the walls of a building is a tribute to the judgment of the architect. Buttonlath is in successful use today in thousands of California homes, factories and office buildings.

BUTTONLATH MANUFACTURING CO.
207 BALBOA BUILDING, SAN FRANCISCO

Kennedy

The Standard Valve

The test of valve quality is the length of time the valve continues to render the most efficient service without giving trouble or entailing expense. There are Kennedy Valves of the long-time kind all over the United States and Canada doing good work in every variety of valve service.

You can be sure that every Kennedy Valve you install will be permanently satisfactory in every way. The Kennedy Catalog explains the details of design and construction that assure easy operation, low repair cost, negligible attendance and unusual durability. Send for a copy and use it to help make a selection of Kennedy Valves for trial.

THE KENNEDY VALVE
MFG. CO, ELMIRA, N.Y.

Branches and Supply Depots:
NEW YORK, 93 John Street
SAN FRANCISCO, 23-25 Minna Street
CHICAGO, 204-8 N. Jefferson Street

Sales Offices:
Philadelphia
Salt Lake City
Seattle
El Paso

When writing to Advertisers please mention this magazine.
Economic Aspects of Day Labor Construction

(Concluded from page 117)

present themselves. First—Has the evolution of this tremendous activity which touches so vitally every human life, developed an adequate specialized ability, either executive or technical? Second—Is that ability essential to its orderly progress?

If I could show you at this very moment in one amazing panorama, merely the physical problems which are being solved right now by the master constructors of the world, what an impressive answer it would be to our first question. What stupendous difficulties are being met, what marvelous works are being wrought. Great subways burrowed beneath the rivers and railways and buildings of New York. Factories whose deep foundations are crowding back the Mississippi river with its tidal sweep of over 30 feet. Concrete chimneys 300 feet high, 20 feet in diameter, built entirely upon the roof of a power house. Huge dams thrown across mountain gorges in the high Sierras, while torrential streams flow uninterrupted. Railways hung like spider threads along sheer cliffs and spanning mighty rivers. Docks and seawalls that make good the challenge "thas far and no farther." Subaqueous conduits that lie on the ocean's bed, and towers that pierce the sky. Aqueducts traversing deserts and ranges and lakes. Highways through swamps and under mountains. Buildings that tower in safety and beauty 50 stories above the city's streets. All of this and much more our flash light would show, and upon the throttle of this mighty engine of modern civilization, rests the competent hand of the general contractor.

Day labor work never has and never will develop the full efficiency and close economy which are the very heart of every successful contractor's history. And moreover, I make the assertion, not carelessly, that competent examination of even the most conspicuous examples of apparently successful day labor undertakings in this country, would probably reveal, not only an unnecessary cost, but the further fact that the engineers did not hold themselves to the methods or standards they would have demanded of the contractor. On a certain well known important construction, my own firm was specifically instructed by the Chief Engineer that our bid must be based upon aggregates obtained by opening up a remote quarry and crushing both rock and sand, because the aggregates along the job were not suitable. But when he decided to do the job himself, he used the forbidden material exclusively, and on completion announced in public print a saving which, as a matter of fact, was much less than the amount we had added for the quarrying and hauling. His answer to me was, "well, I could safely do things that I could never permit under a contract." The maintenance gang that has been kept upon that particular piece of work ever since, is another story.

I also emphatically deny the soundness of the familiar argument for day labor, that it removes the incentive for slighting and insures better quality of work, and assert from my observations that just the opposite is true. We contractors in all lines of construction are constantly held up to the details of meticulous standards and specifications which no engineer or architect imposes upon himself. The engineer has no higher authority to criticize his own work. This is not a proper basis for public construction.

Neither will the public mind concede much favor to the other chief argument, that day labor permits the engineer to enter upon the work without the necessity of first fully preparing his plans. Great emergencies may occasionally justify such procedure, but as a method it is improper and unsound and leads to careless estimates and increased costs. It would be as proper to allow a contractor to plant the job one tool at a time as his need arose, as it is for an engineer to enter upon it before he has made the fullest possible study and worked his plans out to completion.

But the fundamental and glaring unsoundness in the day labor method of expending public funds lies in the utter lack of responsibility back of the estimates and hopes of the officials in charge. It seems axiomatic that the taxpayer is entitled to assurance as to the ultimate cost of public work. The best of intentions and the most honest efforts on the part of officials are a poor substitute for guaranteed costs, and financial responsibility. The taxpayers of the country would not knowingly put this option into the hands of the evershifting stream of politicians who pass through our public offices.

The contract method is time-honored and sound. It is based upon well established economic truths. Its competition develops low costs and enforces high efficiency. It furnishes the guarantees and responsibility upon which the safe financing of construction projects must rest. Such evils as it has from the public's point of view are not inherent in the method. They are solely the result of the failure of owners to demand skill, integrity and responsibility in their contractors.

But the day labor system is fundamentally unsound. It breeds dangerous politics, encourages inefficiency, lowers construction standards, develops extravagance, decreases production, destroys individuality and lets loose that spirit of
McKinley Memorial, Niles, Ohio

This lasting tribute to our martyred President is built of the finest materials obtainable.

All stone work is laid up in mortar of Medusa Non-Staining White Cement. Messrs. McKim, Mead and White, Architects. John Parker, Contractor.

Architects are invited to send for interesting Bulletins and to see our catalogues in Sweet's.

THE SANDUSKY CEMENT CO., Dept. P, Cleveland, Ohio

Medusa Stainless White Cement—Plain and Waterproofed—and Medusa Waterproofing are carried in stock and sold by leading building-supply dealers in California, Oregon and Washington.

MEDUSA WHITE CEMENT
disloyalty to duty, which notoriously during the war spread like a plague over the whole world. We all need the spur of competition. We all need to feel the pressure of definite responsibility. We all need the rewards of individual initiative and effort. America's splendid and amazing career fairly rests on that foundation. Listen to the words of that discouraged prophet of day labor and communism, Leon Trotsky, as they appeared recently in the Literary Digest. "Our nationalized industries, even those working under exceptionally favorable auspices and well equipped, all are working at a loss. Our administrators and directors are not real masters who attend to every little detail, who watch everything, who save every minute of time and every cent of money, who work day and night caring for the needs of our plants." The same false theory upon which day labor rests has benumbed the great soul of Russia and not even her vast resources, greater than our own, will restore her.

To Make Cement Survey

The Secretary of Commerce has appointed an advisory committee to make, under the general direction of the Department of Commerce, a comprehensive survey of the properties and uses of cement and concrete. The committee will co-operate with the Bureau of Standards and officials of the department. The committee consists of:


The cement industry has grown so rapidly and has achieved such great importance in the United States, and the use of cement in the construction of roads, bridges and buildings has become so great and so diversified that the intelligent and appropriate use of this material becomes a matter of great economic interest to the public.

Research work is now being carried on by the Bureau of Standards and by various public and private research laboratories and commercial and professional organizations in the properties, characteristics and proper use of cement; in the improvement of methods, equipment and appliances tending toward improved efficiency and economy; the seasonal use of cement, especially in winter weather, important in its relation to continuity of employment of labor and the elimination of "peaks" and "depressions" and the spread of manufacture and distribution more evenly.

New Federal Law for Public Contracts

Cutting "red tape" in government contracts, was the task assigned Mr. Gordon A. Ramsay, Chicago lawyer, when he was called to Washington by General Charles Gates Dawes, the first director of the Bureau of the Budget. Mr. Ramsay was appointed assistant to the director and his specific work was to become chairman of and to organize the Interdepartmental Board of Contracts and Adjustments. Rather a high-sounding name, but, in plain English, the board is trying to "humanize" contracts between the government and the people who do things for the government.

Mr. Ramsay has succeeded in securing the adoption of the first standardized government contract ever approved by Uncle Sam—a government lease, which is now used by all the departments where the government is a tenant, eliminating all of the unfair clauses heretofore included, notably the clause giving the government only the right to cancel without cause on 30 days' notice. The government's rent roll approximates $22,000,000 per year.

Under Mr. Ramsay's supervision, complications of the following have been completed: Decisions of the Supreme Court of the United States, the Court of Claims, the Attorney General and the Federal statutes relating to government contracts, also a tentative standardized work or construction contract, modernized as far as the present laws will permit, and similarly a tentative contract relating to supplies.

Mr. Ramsay and the board is working on a draft of a new public contract Federal law, suggestions regarding which he welcomes from contractors, architects and engineers with a view to ultimately having the contract procedure of the government as nearly in accord with that of commercial usage as possible.

Contractors Elect Officers

The following officers were elected at the fifth annual meeting of the Associated General Contractors of America in Chicago, January 26:

President — Frederick L. Cranford, Brooklyn, N. Y.

Vice-President-at-Large — A. S. Downey, Seattle, Wash.

Vice-Presidents — Leonard C. Wason, Boston; H. H. Wilson, Harrisburg, Pa.


The vice-presidents and the directors are to hold office until 1927.
TRADE LITERATURE

Deadening Quilt
Two booklets that should prove very interesting to architects and contractors have recently been published by Samuel Cabot, Inc., of Boston, Mass. One booklet of 28 pages describes in detail the various uses of Cabot’s Deadening Quilt as a sound deadener. This material consists of a felt matting of cured cel-grass stitched with strong thread, securely fastened, between two layers of exceedingly strong, tough “Kraft” paper. The cel-grass fibres are long and flat and cross each other at every angle. This forms a thick, resilient cushion of small and irregular cells of dead air, confined by the ribbon of cel-grass. The structure thus built up—first a layer of matter and then a layer of air—makes an ideal muffler of noise. The sound waves are broken up and absorbed or dissipated. This material is used on buildings of all kinds, especially for musical studios, schools, apartment houses, bowling alleys, etc. The fire-resisting qualities and the non-decaying qualities of the “quilt” are both set forth and demonstrated.

The other booklet describes the use of Cabot’s Quilt for Heat Installation. These booklets will be sent to any architect, engineer or contractor by writing to Samuel Cabot, Inc., Boston, Mass.

In addition to “Quilt,” Samuel Cabot, Inc., manufactures creosote shingle stains, waterproof stucco and brick stain, Old Virginia white, Conservo wood preservative, roofing stains, mortar colors and damp proofing.

New Casement Window Catalogue
The Crittal Casement Window Company announces a new catalogue, No. 1-24 which illustrates Crittal Solid Steel Reversible Windows. These windows are made of rolled steel sections and are of a quality equivalent to Crittal casements. Their price is lower than the price of casements, as these windows are designed for use in office buildings, schools and hospitals where price is somewhat of a consideration. They are by no means a cheap window, however, as quality has always been the foremost aim with this concern.

While this window is not new, having been on the market for two years or more, this is the first catalogue that has been published concerning it.

Benjamin Industrial Lighting Equipment
The Benjamin Electric Mfg. Co., Chicago, has prepared a new bulletin of 80
The big, new,
Standard Oil Building
in San Francisco
is heated by the
WEBSTER SYSTEM OF
STEAM HEATING
—so are many other big, famous,
popular buildings in this country
and elsewhere heated with Webster
Systems of Steam Heating. Inquire
for full particulars.

Warren Webster & Company
HOME OFFICE: CAMDEN, N.J.
SAN FRANCISCO: SHARON BLDG.
LOS ANGELES: 306 CROCKER ST.

National Steel Fabric Co.
(Subsidiary of Pittsburgh Steel Co.)
Monadnock Building,
San Francisco, Cal.

Win-Dor
Casement
Window Operators
ALL WORK FROM
INSIDE THE SCREENS

THE sash may be wood or metal.
The screens may swing, slide or
roll. No let-in of insects to
open or close the casement. Con-
venient, unobtrusive, easy working.
Made in 3 types and various finishes,
to meet varying needs and costs.

Catalog No. 10 prepared espe-
cially for architects. Send for it.

The Casement Hardware Co.
241 Pelouze Bldg., Chicago, Ill.

SCHROEDER VALVES
Manufactured by
SCHROEDER FLUSH VALVE CO.
Los Angeles Chicago San Francisco
pages, No. 52, devoted to Industrial Lighting Equipment.

In addition to the general catalogue material, there is an extensive series of illustrations showing the results of correct illumination in industrial plants of all types.

There is also a section devoted to the philosophy of good illumination as an industrial necessity, and essay on the discussion of the important points to consider, the use of charts, and a demonstration of making the more simple calculations for correct industrial illumination. Copies of the bulletin will be sent to architects, engineers and contractors by writing to the Benjamin Electric Mfg. Co., Extra Chicago, or to 580 Howard street, San Francisco.

The Watchman That Never Sleeps

The following news item, clipped from the Portland Oregonian, is as compact a lesson in effective fire-prevention as we have had the pleasure of reading:

The automatic sprinkler system at the Heywood-Wakefield furniture factory and wholesale house, Tenth and Irving streets, prevented a serious fire at that place early last night, when a box full of oily rags became ignited and scorched the wall. The heat melted the sensitive metal lock on the sprinkler above the blaze, letting loose a deluge of water and setting off the fire alarm in the building.

Edward Larsen, who was working in the office, notified the fire department and apparatus quickly arrived at the building. The firemen found the fire practically extinguished by the water from the sprinklers.

This system was installed by this company after its disastrous fire last April, when the interior of the factory was consumed by fire. Had it not been for the effective sprinkler a repetition of this might have easily occurred, as no watchman was in the building last night.

Here we have all the ordinary elements—the warning of a disastrous fire; the following installation of an efficient sprinkler system; the prevention of another destructive fire. The extraordinary element would be the installation of a sprinkler system before, not after the fingers of destroying flame have pointed out the wisdom of such a course.

There is no better fire insurance than a properly installed sprinkler system. It is the one watchman that never sleeps. It deals with incipient blaze before the most alert and efficient fire department can get to it. Its whole cost may be said to be wiped out with its first preventative action.—Valve World.

Rapid Brick Construction

What was probably the speediest piece of face brick construction in San Francisco was recently finished in the building of the new twelve-story California hotel at Taylor and O'Farrell streets. It is said that the face brick work on this structure was finished in just twelve
and one-half days. The building on completion will represent a reported investment of $1,300,000. E. E. Young is the architect; Matthew A. Little, owner and builder; and Reed & Reed, masonry contractors. The face brick was manufactured by N. Clark & Sons.

Opens San Francisco Office
R. B. Bell & Co., of Los Angeles, who have been designing and manufacturing lighting fixtures for the past 12 years and who are representatives for Hope's steel casement windows, manufactured in England, have opened San Francisco offices and display rooms at 693 Sutter street. A recent development in Hope steel sash has been the introduction of standard sizes at prices which compare favorably with wood windows and which are carried in warehouse stock. The sash is particularly applicable to residences and apartment houses.

Moves to Larger Quarters
Jones Bros Asbestos Supply Co., Inc., distributors of the Philip Carey products, announce the removal of their offices and warehouse to larger quarters at 500 Second street, corner Bryant, San Francisco. The company's new telephone number is Douglas 7650.

Another Solar-Lite Installation
The Solar-Lite unit will be used throughout the new Fitzhugh Building, San Francisco. Reid Bros., Architects.

The Solar Lite is chosen by most architects because of its diffusion and quality of light. Some of the recent installations include Standard Oil Building, Oakland Bank of Savings.

D. DIERSSEN COMPANY
20 Second Street
San Francisco

WESTERN DISTRIBUTORS

Steam Heating and Ventilating
For Commercial and Public Buildings
Furnace Heating for the Home
Mangrum & Otter, Inc.
827-831 Mission Street
San Francisco, Cal.
Phone Kearny 3155

DETROIT STEEL PRODUCTS CO., Detroit
251 Kearny Street, San Francisco
Phone Sutter 1250
Pacific Coast Branch Factory at Emeryville

When writing to Advertisers please mention this magazine.
Oil as Fuel for Heating Homes

By G. S. Miller*

A home fuel it has long been felt that coal is basically unsatisfactory. It is often dirty and the manner of its delivery makes for dirt, and it is still more dirty in the coal bin. It burns and yields a fair degree of heat, but the ashes and the clinkers make the householder wonder whether, after all, he has gotten his money's worth. When spring comes the basement is due for a general overhauling—and everything else in the house. The whole year through the householder is paying tribute to coal and the dirt it spreads over everything.

A natural process of evolution has brought the use of oil to the fore as an ideal fuel. The broom has been replaced with the vacuum cleaner; the tallow candle and the oil lamp by the electric light.

A good oil burner can produce nearly perfect combustion, distributing all the heat generated where it will do most good, operating in a cleanly fashion and without any waste or refuse.

Oil burners may be installed in any home-heating plant—whether steam, vapor, hot water or hot air. When properly installed they require no attention; are comparatively noiseless in their operation and are so well made as to be practically trouble-proof. Their operation can be controlled automatically through a thermostat in an upstairs room. Any desired degree of heat may be maintained within close limits by simply setting the thermostat at the temperature desired. It is as simple as switching on an electric light, and when one considers the advantage on a cold morning of not having to shake down a coal bed in the basement and sniff up an irritating amount of ash dust, there is small wonder that oil burners should enjoy the popularity they do. Those who have them in successful use know they are a clean, efficient and safe heating mechanism which can be depended upon at all times. Oil fuel can be used in any hot water, steam or vapor boiler, or in a hot-air furnace. The successful oil-burning mechanism must break up the oil properly—that is, mix the oil with the oxygen contained in the air in proper proportions, converting it into gas. The grade of oil best adapted to a burner requires consideration, so that one will not order fuel oil when he should use gas oil. Know the grade required for your burner and available in your locality and act accordingly.

Fuel oil burners are built for very small boilers as well as large ones; hence they provide a ready means of supplying outlying building, such as garages, greenhouses, chicken houses, etc., where the temperature required may be different from the home. All such can have their individual temperature control, the burner only operating as needed.

The cost of heating homes by oil cannot be given in a general way, as the amount consumed depends, the same as any other kind of fuel, on the weather, local conditions and the latitude of the place where used.

A comparison with coal, however, offers a fairly close approximation that can be understood by the average home owner who has in most cases, good reason to remember the amount and price he has reluctantly parted with to obtain necessary heat.

A good grade of anthracite or bituminous coal contains around 14,000 B. T. U.'s to the pound, but due to poorly designed heating plants, soot covered heating surfaces and air infiltration, the average home heating plant rarely averages 50 per cent efficiency and most of the time closer to 30 or 40 per cent. With a well designed heating plant and a good oil burner properly installed in the same, one can often obtain efficiency of 60 to 70 per cent, with exercise of ordinary care. The average oil contains approximately 140,000 B. T. U.'s per gallon, and with efficiency of 60 per cent would give 84,000 B. T. U.'s for heating purposes from a gallon of oil, which costs along the Pacific seaboard, at the present time, approximately 3 cents a gallon, more or less, depending on the distance from tidewater.

With coal having B. T. U. contents of 14,000 B. T. U.'s per pound, burned with an efficiency of 50 per cent, it would require about 12 pounds of coal to equal a gallon of oil, burned at 60 per cent. Allowing a cost of $20 a ton in the consumer's coal bin or a cent a pound, it would take 12½ cents worth of coal to equal in heat value the gallon of oil, with all the dirt, labor and annoyance attending on the firing of coal thrown in for good measure.

As the price of coal and the heat contents of same vary in different parts of the country, each consumer will have to estimate his own cost for these different fuels, but for a rough approximation, 125 to 150 gallons of oil will equal a ton of coal burned under the average conditions of household use.

*Manager Burner Department, W. S. Ray Manufacturing Co., San Francisco.
Beam, Angle, Channels, and Universal Mill Plates for immediate shipment from stock

**Pacific Rolling Mill Co.**

**SUPPLIERS OF**

FABRICATED STRUCTURAL STEEL, Forgings
Bolts, Rivets, Frogs, Switches, Cast Iron Castings

General Office and Works
17th and MISSISSIPPI STS., SAN FRANCISCO

---

W. B. MORRIS, Pres.
H. H. MORRIS, V.-F.
L. J. GATES, Sec.

**Western Iron Works**

STRUCTURAL IRON AND STEEL CONTRACTORS

141-147 Beale St. and 132-148 Main St.

**Steel Wheelbarrows in Stock**

Phones: GARFIELD 2575—2576

---

**Steel Frame, California State Building, Civic Center, San Francisco.**

FABRICATED BY
THE PALM IRON AND BRIDGE WORKS (Incorporated)

15th and R Streets, Sacramento

---

**WESTERN ASBESTOS MAGNESIA CO.**

**INSULATING ENGINEERS AND CONTRACTORS**

CELOTEX
INSULATING LUMBER

PLASTER BASE
INSULATOR
SOUND DEADENER
ACOUSTIC CORRECTOR

21-29 South Park
Bet. 2nd and 3rd Sts.

Asbestos and Asphalt Slate Shingles and Roofings
Asbestos and Composition Roofings—Roof Coatings
Magnesia and Asbestos Pipe and Boiler Coverings
Cold Storage Insulation—Sectional Expansion Paving Joint
“Linofelt” Sound Deadener—Wall Board
Cork Pipe Covering, Board and Granulated Cork

Telephone Douglas 3660
San Francisco, Cal.

When writing to Advertisers please mention this magazine.
The Guaranty Clause in your linoleum specification—

The one-year guaranty generally written into building specifications is adequate, no doubt, for general construction work. But it isn't adequate for battleship linoleum floors. Experience proves that even a very inferior battleship linoleum floor will go through the first year of service without defects becoming apparent. It's later years that tell the story of poor materials and workmanship.

A specification, however carefully it is prepared, cannot in itself prevent substitution of inferior materials or faulty installation by an unscrupulous contractor.

There is one absolutely sure way, however, to safe-guard your clients' flooring investment. That is to stipulate in your specification that the contractor shall furnish a 5-year Guaranty Bond for the full amount of the contract.

Any reputable flooring contractor will agree that you are fully justified in demanding this assurance of quality in the battleship linoleum floors he installs. If he objects—look out!

As the largest concern in the country specializing in the installation of resilient floors, we are vitally interested in the service rendered by all floors of this type, whether installed by us or not. Our flooring engineers will gladly give you the benefit of their wide experience in the solution of any troublesome flooring problems. This service involves no obligation whatever. Write or telephone our nearest office.

BONDED FLOORS COMPANY
INCORPORATED
DIVISION OF CONGOLEUM COMPANY, INC.
MANUFACTURERS—ENGINEERS—CONTRACTORS
370 2nd St. Offices in Principal
San Francisco Cities of the U. S. A.
263 S. Los Angeles St.
Los Angeles
Specify "LAMAO" for Interior Trim

A Philippine hardwood that lends itself to practically any colored stain. LAMAO finishes a beautiful walnut or Oak and when finished as Mahogany, it is hard to tell it from Honduras Mahogany.

The additional expense of using LAMAO trim in the average home instead of softwoods is very nominal and it materially increases the value of the home.

Write for comparative costs and samples.

Cadwallader-Gibson Co., Inc.
5th AND BRANNAN STREETS
SAN FRANCISCO
LOS ANGELES OAKLAND SEATTLE
Lumber, Veneers, Panel, Hardwood Flooring

When writing to Advertisers please mention this magazine.
Present Cost of Building Materials

These quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, February, 1924.

All prices San Francisco or Oakland. For country work add freight and cartage to prices given.

Bond—1 1/2% amount of contract.

Brickwork—

Common, $35.00 per 1000 laid.
Face, $75.00 per 1000 laid.
Enamel, $150.00 per 1000 laid.
Common, f. o. b. cars, $15.50, plus cartage.
Face, f. o. b. cars, $50.00 per 1000, carload lots.

Hollow Tile Fireproofing (f. o. b. cars in car-load lots.)
12x12x3 in. ................................ $ 96.00 per M
12x12x4 in. ................................ 108.00 per M
12x12x6 in. ................................ 156.00 per M
12x12x8 in. ................................ 243.75 per M
Hod carriers, $6.50 per day.
Bricklayers, $10.00 per day.
Lime—$2.25 per bbl.; carload, $2.15
Hollow Building Tile (f. o. b. cars in car-load lots.)
8x11 1/2x3 1/2 ................................ $108.00
8x11 1/2x5 1/2 ................................ $150.00

Composition Floors—24c to 50c per sq. ft. In large quantities, 24c per sq. ft.
Composition Stucco—$1.90 to $2.10 per sq. yard (applied).

Concrete Work (material at San Francisco bunkers)—
No. 3 rock .................................. $2.15 per yd.
No. 4 rock .................................. 2.30 per yd.
Niles pea gravel ............................ 3.50 per yd.
Niles gravel ................................ 2.35 per yd.
Niles top gravel ............................ 2.75 per yd.
City gravel ................................ 2.15 per yd.
River sand ................................ 1.75 per yd.
Delivered bank sand ........................ 1.00 per yd.

Sand—Del Monte ................................ $1.25 to $1.50 per ton
Fan Shell Beach (Car lots, f. o. b., Lake Majella) ................ $2.50 to $3.00 per ton
Swedish cement ........................... $2.68 per bbl.
Belgian cement ............................ 2.65 per bbl.
Cement (f. o. b. cars) .................... 3.01 per bbl.
Rebate for sacks, 10c each.

Atlas, Com’n O.P. Select, walnutt brown $7.95 per bbl.
Medusa “White” ............................ $ 9.95 per bbl.
Forms, Labors average ............... $30.00 per M

Wage—Concrete workers .................. $5.00 per day
Cement finishers ......................... 5.80 per day
Laborers ................................ 5.00 per day

Dampproofing—

Two-coat work, 25c per yard.
Membrane waterproofing—4 layers of P. B. saturated felt, $5.00 per square.
Hot coating work, $2.00 per square.
Wage—Roofers, $8.00 per day.

Electric Wiring—$6.00 to $10.00 per outlet for conduit work (including switches).
Knob and tube average $3.00 to $5.50 per outlet.
Wage—Electricians, $8.00 per day.

Elevators—

Prices vary according to capacity, speed and type.
Hot water, $2.80 per gallon.
Wage—Electricians, $8.00 per day.

N. B.—Materials and labor are plentiful at present time.

4-story bldg., $3250; direct automatic, about $3000.

Excavation—

$1.25 per yard, if sand. Teams, $10.00 per day.
Trucks, $21 to $27.50 per day.
Above figures are an average without water.
Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—

Ten-foot balcony, with stairs, $105.00 per balcony.

Glass—(Consult with manufacturers.)

21 ounce, 16c per square foot.
Plate, $1.10 per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 30c per sq. ft.
Obscure glass, 28c per square foot.
Note—Add extra for setting.
Wage—Glaziers, $8.00 per day.

Heating—

Average, $2.25 per sq. ft. of radiation, according to conditions.
Wage—Steamfitters, $9.00 per day.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.
Wage—Iron workers, bridge and structural, $9.00 per day.
Architectural iron workers, $7.00 per day.

Lumber—(Prices delivered to bldg. site)

Common, $37.00 per M (average).
Com’n O.P. (select, avg.) $42.50 per M

Flooting—

1 x 6 No. 3—Form lumber ....................... $25.00 per M
1 x 4 No. 1 flooring .......................... 68.00 per M
1 x 4 No. 2 flooring ....................... 62.00 per M
1 x 4 No. 3 flooring ...................... 48.00 per M
1 x 6 No. 2 and better flooring ........... 63.50 per M
1 1/4 x 4 and No. 2 flooring ............... 60.00 per M

Slash grain—

1 x 4 No. 2 flooring ...................... 56.00 per M
1 x 4 No. 3 flooring ...................... 59.00 per M

No. 1 cord run to

T. & G. ................................... $38.00 per 1000

Lath—

6.00 per 1000

Shingles—(Add cartage to prices quoted)

Redwood, 1 1/10 per bdle.
Redwood, No. 2 ......................... .90 per bdle.
Red Cedar .......................... 1.25 per bdle.

Building Paper—

1 ply per 1000 ft. roll ..................... $3.60
2 ply per 1000 ft. roll ..................... 8.60
3 ply per 1000 ft. roll ..................... 14.50

Sash cord con. No. 7 ......................... 1.25 per 100 ft.
Sash cord con. No. 8 ......................... 1.40 per 100 ft.
Sash cord spot No. 7 ......................... 1.90 per 100 ft.
Sash cord spot No. 8 ......................... 2.30 per 100 ft.
Sash weights cast iron ..................... 60.00 Ton

Nails, $4.25 base.

Hardwood Flooring—

4 x 3" T & G Maple .......................... $37.00 per M
1 1/2 x 3 1/2 T & G Maple .................. 116.50 per M

3/8 x 3/4" Sq. Edge Maple ................. 116.50 per M

T & G, T & G Square Edge ...........................

Clr. Qtd. Oak. ......................... $179.00 M
Sel. Qtd. Oak. .................. 242.00 M
Sel. Fl. Oak. .................. 140.00 M
Sel. Pla. Oak. .................. 124 M
Clr. Maple .......................... 81.00 M
Orion .............................. 140 M
Bagaces ............................. 90 M

Laying and Finishing 16 ft. .............. 15c ft.

Oakland & 21st Ave. ...........................
February, 1924

Wage—Floor layers $9.35 per day.

Millwork—
O. P., $100 and up per 1000. R. W., $120 and up per 1000.
Double hung box window frames, average with trim, $8.00 and up, each.
Doors, including trim (single panel), $10.50 and up, each.
Doors, including trim (five panel), $8.50 each.
Screen doors, $3.50 each.
Cases for kitchen pantries seven feet high, per lineal foot, $7.50 each.
Dining room cases, $8.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average) $16 per m.
For smaller work, average, $28.00 to $35.00 per 1000.
Wage—Carpenters, $8.00 per day.
Laborers—$5.00 per day.

Marble—(Not set), add 40c to 60c per ft. for setting.
Columbia .................................. $1.60 sq. ft.
Alaska .................................... 1.60 sq. ft.
San Saba ................................... 3.15 sq. ft.
Tennessee ................................ 2.00 sq. ft.
Verde Antique ............................. 3.75 sq. ft.
Westfield Green .......................... 3.50 sq. ft.
Wages—Marble setters, $8.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—
Two-coat work .......................... 30c per yard
Three-coat work ........................ 45c per yard
Whitewashing ............................ 5c per yard
Cold water painting ..................... 9c per yard
Turpentine, $1.20 per gal. in cases and $1.05 per gal. in tanks.
Raw Linseed oil...$1.05 per gal. in bbls.
Boiled Linseed Oil.. 1.10 per gal. in bbls.
Pioneer white and red lead, 11 ¼ c. lb. in one-ton purchases; 12 c. lb. for less than 500 lbs.
Wage—Painters, $8.00 per day.

Patent Chimneys—
6-inch ...................... $1.50 linear foot
8-inch ...................... 1.75 linear foot
10-inch ................... 2.25 linear foot
12-inch .................. 3.00 linear foot

Pipe Casings—14" (average), $7.50 each.

Plastering—(Including Lathing)
Interior, on wood lath, 65c per yard.
Interior, on metal lath, $1.25 per yard.
Exterior, on brick or concrete, $1.30 per yard.
Portland White, $1.75.
Interior on brick or terra cotta, 60c to 70c per yard.
Exterior, on metal lath, $1.85 to $2.25 per yard.
Wood lath, $7.00 a yard per 1000.
Metal studding, $1.25 to $1.50 per yard.
Suspended ceiling and walls (metal furring, lathing and plastering), $2.00 per yard.
Galv. metal lath, 33c and up per yard, according to gauge and weight.
Lime, f. o. b. S. F, warehouse, $2.50 bbl.
Lime, bulk, per ton of 2000 lbs., $19.50
Hearth wall plaster, $15.40 per ton, f. o. b. warehouse. (Rebate on sacks, 15c.)

Finishing plaster (carload lots), $19.00.
Hydrate of lime, $10.50 per ton, f. o. b. warehouse.
Wage—Plasterers, $10.00 per day.
Lathers, $8.00 per day.
Hod carriers, $7.00 per day.

Plumbing—
From $70.00 per fixture up, according to grade, quantity and runs.
Wage—Plumbers, $5.00 per day.

Reinforcing Steel—
Base price for car load lots, $3.80 per 100 lbs., f. o. b. cars on docks. Average cost to install, $25 per ton.
Wage—Housesmiths, $8.00 per day.

Roofing—
Five -ply tar and gravel, $6.00 per square for 30 squares or over.
Less than 30 squares, $6.25 per square.
Tile, $35.00 to $50.00 per square.
Redwood Shingles, $12.00 per square in place.
Cedar Shingles, $12.00 per sq. in place.
Reinf'd Pabco, 7 yr. roof, $7.50 per sq.
Reinf'd Pabco, 10 yr. roof, $10.25 per sq.
Reinf'd Pabco, 20 yr. roof, $13.50 per sq.
Recoat, with Gravel, $3.00 per square.
Wage—Roofers, $8.00 per day.

Sheet Metal—
Windows—Metal, $2.00 a square foot.
Fire doors, (average), including hardware, $2.20 per sq. ft.

Skylights—
Chopper,$1.25 a square foot (not glazed)
Galvanized iron, 35c a square foot (not glazed).
Wage—Sheet metal workers, $8.50 per day.

Stone—
Granite, average $7.50 sq. ft. in place.
Sandstone, average Blue, $4.75; Bostie, $2.80 sq. ft. in place.
Indiana Limestone, $3.00 per sq. ft. in place.
Wage—Stone cutters, $8.00 per day.
Stone setters, $8.50 per day.

Store Fronts—
Copper sash bars for store fronts, corner, center and around sides, will average 85c per lin. ft.
Note—Consult with agents.

Structural Steel—$112 per ton (erected).
This quotation is an average for comparatively small quantities.
Light truss work higher; plain beam and column work in large quantities, less.
Cost of steel for average building (erected), $108 per ton.

Steel Sash—
All makes, from S. F. stock, 26c to 34c per sq. ft.
All makes, plant shipment, 28c to 34c per sq. ft.
(Includes millions and hardware.)

Tile—White glazed, 80c per foot.
White floor, 80c per foot.
Colored floor tile, $1.00 per foot.
Promenade tile, $1.00 per sq. ft. laid.
Wage—Tile setters, $8.50 per day.
This beautiful SNOW WHITE, SANITARY SINK will not only contribute to the appearance of the Home or Apartment House, but it will make the property more rentable or salable. Architects make no mistake when they specify Petrium Snow White Sinks.

PETRIUM SANITARY SINK CO., Fifth and Page Streets, Berkeley
On display: Hoosier Store, Pacific Building, San Francisco
Sterling Furniture Co., 1049 Market St., San Francisco
Building Material Exhibit, 77 O’Farrell St., San Francisco
Oakland—Building Material & Manufacturing Exhibit, 1424 Franklin Street.

IF COLD WEATHER COMES
and you have not made adequate provision, you will have regrets. Kewanee Steel Heating Boilers are like a Savings Account. They are an insurance against that day of unusual demand, free of speculative elements and are a universally recognized asset to any building. No building, however fine, is a good building unless its heating plant is right.

A list of Kewanee Installations in your vicinity may be obtained for the asking.

Low Pressure Heating Boilers     High Pressure Power Boilers

Kewanee Boiler Company
KEWANEE, ILLINOIS
San Francisco, 216 Pine St.     Los Angeles, 420 E. Third St.

When writing to Advertisers please mention this magazine.
PERMALIGHT

FLAT MILL
WHITE

A Snow White Paint in Oil, giving equal opacity of cold water paints. Can be applied with spraying machines at a small increase of cost over water paints for use in factories, warehouses, loft buildings, laundries.

Hill, Hubbell & Co.
TECHNICAL PAINTS
SAN FRANCISCO

Los Angeles Portland Seattle New York

When writing to Advertisers please mention this magazine.
Defeating Difficulties

When there is a peculiarly "tough nut" to crack in a construction job, when it's a race against the clock, when an unforeseen problem is confronted, it's a great comfort to both architect and construction engineer to have on the job such a seasoned organization as ours to

FABRICATE AND INSTALL
STEEL BARS

GUNN, CARLE & CO.
444 Market St.      SAN FRANCISCO    Sutter 2720

Best Method for Plastering Homes

Make the home fireproof

 Specify TRUSCON 1-A METAL LATH with 1/2" grounds which is available at a cost comparable with Wood Lath.

Ask us for detailed information

TRUSCON STEEL COMPANY
Chas. Halloway, Branch Manager
709 MISSION ST.      Phone Douglas 7135      SAN FRANCISCO

When writing to Advertisers please mention this magazine.
MATCHES IN BEAUTY AND FINISH
THE FINEST FURNISHINGS

This beautiful square tube "California" Wall Bed in either walnut or mahogany finish hung on a "California" Secret Installation door is the latest in design and finish of wall bed construction. The "California" Secret Installation solves the problem of having too many doors and windows and at the same time conforms to the most modern ideas in wall decoration.

*Write for Complete Data and Specifications*

CALIFORNIA WALL BED COMPANY
714 Market Street, San Francisco
165 Thirteenth Street, Oakland
1040 S. Broadway, Los Angeles

The Ornamentation on the Vase and Plaque was
SAND BLASTED with

FAN SHELL BEACH SAND
ONE OF THE WHITE SANDS SHIPPED BY

DEL MONTE PROPERTIES COMPANY
Phone Sutter 6130
401 CROCKER BUILDING
San Francisco

When writing to Advertisers please mention this magazine.
Not a substitute for Anything!

But a vast improvement over lath and plaster for lining walls and ceilings

Pacific Five-Ply Board is really lath and plaster in the proper proportions and in convenient form. It is a wood core encased in a fireproof, moisture proof mineral cement, stronger than the best concrete.

By actual tests Pacific Five-Ply Board is far superior to either pulp wall board or plaster board in tensile strength, deflection and resistance to puncture. Will not contract or expand, bulge, warp, crack or crumble; is air tight and fire resistant.

Pacific Five-Ply Board is sawed and worked just as you would handle lumber. It comes in sheets 4 feet wide and in lengths from 6 to 16 feet. It is strong, durable, attractive in appearance, easily installed, sanitary, and economical. Send for descriptive literature.

This TRADE MARK means much to the conscientious Architect and Builder

It means a satisfied client

High-Grade Plumbing Fixtures

Holbrook, Merrill & Stetson

64 SUTTER STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
ARTSTONE, INC.
ORNAMENTAL CONCRETE
for
GARDENS AND BUILDINGS

Benches
Urns
Flower Boxes
Ferneries
Bird Baths
Pools and Fountains, etc.

Shields
Cornices
Festunes
Coppings
Building Designs in
Concrete or Plaster

Office—Show Room
2-4 VALENCIA STREET, AT MARKET
Telephone Hemlock 421
San Francisco

Partial List of Recent
ELEVATOR INSTALLATIONS

Kincannon & Perico apartment house, San Francisco, 2 Automatic Passenger. Hays Oser Estate
Co., apartment house, San Francisco, 2 Automatic Passenger. Ashley & Evers apartment house,
San Francisco; Ashley & Evers, architects, 1 Automatic Passenger. Stock & Jose apartment
house, San Francisco; Baumann & Jose, architects, 5 Automatic Passenger. Percy D. Tyler
apartment house, San Francisco, 1 Automatic Passenger. Louis Johnson apartment house, San
Francisco; H. C. Baumann, architect, 2 Automatic Passenger. A. Arata. 1 Freight Elevator.
Tidings Tabernacle and St. Catherines Home, each one Auto Passenger.

Estimates Cheerfully Given

Pacific Elevator & Equipment Company
1129-31 HOWARD STREET
SAN FRANCISCO, CALIF.

MANUFACTURERS OF A. C. & D. C. ELEVATORS—PASSENGER OR FREIGHT

When writing to Advertisers please mention this magazine.
STEEL FIREPROOF THEATRE CURTAINS

Are constructed of steel and covered with vitrified asbestos on the stage side. Any fire starting on the stage is prevented from spreading to the auditorium. They are operated by hydraulic power and comply with all fire regulations. By a slight change in construction they can be used as sound proof curtains between the gymnasium and auditorium in high school buildings.

See Sweet's Architectural Catalog and Exhibit at Architects' Samples Corporation (N. Y. C.)

ELEVATOR SUPPLIES COMPANY, INC.
Main Offices and Works: HOBOKEN, NEW JERSEY

Branch Offices

CLEVELAND
1069 Walnut Avenue

CHICAGO
111 S. Jefferson Street

SAN FRANCISCO
186 Fifth Street

LOS ANGELES
1129 S. Hope St.

PHILADELPHIA
1714 Lodlow Street

ST. LOUIS
Railway Exchange Bldg.

Wall Beds in the Hotel Canterbury
change single rooms
into two-room suites

MR. GEO. D. SMITH, managing-owner, says:

"The Hotel Canterbury is intended primarily to meet the demands of discriminating people for a residential hotel offering all the conveniences of a private home. Instead of providing accommodations furnished as sleeping quarters only, in the usual hotel way, we determined to feature rooms in which to live. Through the use of wall beds, we are able to offer all the advantages of a parlor suite at the tariff of a single room.

"We found the Marshall & Stearns wall bed is easily operated, turns out of sight behind an ordinary door, and takes up the minimum space in the dressing closet. These factors with the additional advantage of being able to quickly remove it for transient or other guests who insist on open beds, left us no choice in our selection of wall beds."

MARSHALL & STEARNS CO., San Francisco

When writing to Advertisers please mention this magazine.
Specify

**MINWAX**

Plaster Bond and Dampproofing No. 300

Applied to the inside of exterior walls. It cures tacky and remains tacky and plastic indefinitely. It forms a tenacious, perfect and lasting bond between wall and plaster.

Waterproof your buildings while they are dry

Send for booklet on products, data and specifications

**MINWAX CO., INC.**

K. M. HAYDEN
W. C. LEA
22 Battery St. 653 So. Clarence St.
San Francisco Los Angeles

---

**IMPERIAL WATERPROOFING**

Will Keep Out Moisture and Dampness

**Trade WATERX Mark**

If your building is leaking through the walls or around the windows, or if the basement walls are wet below ground—call up SUTTER 978.

**IMPERIAL WATERPROOFING** is manufactured by BROOKS & DOERR, 460 7th St., San Francisco

1002-04 Merchants National Bank Building Phone Sutter 978
SAN FRANCISCO, CAL.

---

The Electrically Controlled—Gas Fired

**McLAUGHLIN FURNACE**

burns gas within a Welded Armco Iron Combustion Chamber. The "Double Radiator" extracts 88% of B. T. U. input, reducing flue gas temperatures from 400 deg. to 300 deg. F. (Smith, Emery & Co. test).

Each of the Three Separate Burners is controlled by Magnetic Valves and always consume a constant quantity of gas.

Write for Information

**McLAUGHLIN METAL WORKS**
223 J Street, Sacramento, Calif.

San Francisco  W. P. Goa
Stockton  Willard  Fresno  Evans
Hardware Co.  Heating Co.

Chico  Hall  Metal Works

When writing to Advertisers please mention this magazine.
JOHNSON'S ROTARY CRUDE OIL BURNER
Can be installed in any BOILER or FURNACE
Gives Satisfactory Results
Simple to Operate—Automatic—Safe
Let us tell you more about this Oil Burner.

S. T. JOHNSON CO.
1337 Mission Street
San Francisco
Phone Market 2759
Agencies: SEATTLE LOS ANGELES FRESNO SAN DIEGO SACRAMENTO

SIMPLEX BURNERS

BUNTING IRON WORKS
1215 FIRST NATIONAL BANK BLDG.
SAN FRANCISCO Phone Sutter 3225
Member of the Oil Burners Manufacturers' Association of California

Specify "ROTARY"—the Oil Burner with the Revolving Grate

Produce the highest efficiency in all standard furnaces, either steam, hot water or hot air, because of the short high temperature flame.

ROTARY OIL BURNER COMPANY, Inc.
159-12th STREET, OAKLAND
PHONE OAKLAND 2994

Architects—Specify BABY RAY
Domestic Type Burner. It burns low-priced Diesel Oil with high efficiency. Especially designed for bungalows and dwellings.

POWER PLANT ENG. CO. 1933 5th Ave., Seattle
J. F. SHEA 2nd and Ankeny Sts.
Portland, Ore.

W. S. Ray Manufacturing Co. 118 New Montgomery St.
San Francisco
San Francisco Plant:
Milton and Bosworth Sts.
San Francisco

W. S. RAY MFG. CO. 2142 San Pablo Ave.
Oakland

RAY OIL BURNER CO. (of So. California) 831 Crocker St.
Los Angeles

When writing to Advertisers please mention this magazine.
CAST IRON STAIRS
AND STORE FRONTS

Bank and Office Railings, Elevator Enclosures and Fire Escapes

C. J. HILLARD & CO., Inc.
Nineteenth and Minnesota Streets
Telephone Mission 1763
SAN FRANCISCO, CALIF.

DEPENDABILITY
"Since 1858"
LINOLEUMS
WINDOW SHADES
Carpets
Draperies
Rugs
Estimates furnished
D. N. & E.
Walter & Co.
562-572 Mission Street
SAN FRANCISCO
Los Angeles Portland Seattle

Specify
COLUMBIA MARBLE
Samples and complete information relative to the use of Columbia Marble sent upon request.

COLUMBIA MARBLE CO.
413 Rialto Building, San Francisco
Telephone Sutter 1244

When writing to Advertisers please mention this magazine.
MODERN HEATING SERVICE

A steam or hot water heating system with a boiler burning gas fuel is one of the most satisfying methods of heating known today. They are convenient, dependable and healthful heating equipment for the home. The element of fire hazard is minimized, thereby insuring safety.

With such a gas-fired heating system, the home may be automatically maintained at a uniform temperature. You control the time interval and degree of heat by merely setting the thermostatic regulator.

Heating systems using gas fuel are so flexible and economical in operation that they are adapted to any style of home or building.

Our gas heating specialists have some interesting data on such installations.

PACIFIC GAS AND ELECTRIC COMPANY

P.G. and E.

"PACIFIC SERVICE"

Experience with Pacific Coast conditions, coupled with diversified experience on every sort and size of installation, whether for handling gasoline and oil or effecting economic lubrication—
Experience that will help you better serve the owner—
Experience that can be had only upon application to this house, which opened its first Pacific Coast branches in 1908.
Tell us your problem, and we will go to work—without obligation, of course.

TANKS DEPENDABLE PUMPS

When writing to Advertisers please mention this magazine.
Elevator Accessories
We manufacture and install Randall pneumatic elevator door closers and interlocks. Randall modern signal systems, hoppers and complete line of accessories for elevators.
RANDELL CONTROL AND HYDROMETRIC CORPORATION
1014 E. 9th Street 265A Minna Street
Los Angeles, Cal. San Francisco, Cal.
Phone: 825-884 Phone: Douglas 2397

Buy This BETTER Water Heater
Better because it gives Perfect Hot Water Service—instantaneous, inexhaustible and inexpensive—not just once in a while, but all the time—
Better because it is simply made—lighter because it is solidly and ruggedly built—
Better because it is made by men whose experience dates back to 1889, when the world's first successful automatic water heater—a RUUD—was built.
Every RUUD is equipped with an internal automatic thermostat, double fuel control, condensation sheds.
RUUD HEATER CO.
431 Sutter St., San Francisco
Phone Sutter 1640

HEATING-PLUMBING
COMPLETE PLUMBING AND HEATING SYSTEMS INSTALLED IN ALL CLASSES OF BUILDINGS—ALSO POWER PLANTS
GILLEY-SCHMID CO., Inc.
198 OTIS ST., SAN FRANCISCO
Tel. MARKET 965

Pittsburg
It Insures Instant Hot Water Service
PITTSBURG WATER HEATER COMPANY
478 Sutter S., San Francisco
Phone Sutter 5025

Alvaline, Cementoline and other Jones-Duncan Products
MAGNER BROTHERS PAINT MAKERS
Telephone: Market 113
414-424 Ninth St. San Francisco

THE TORMEY CO.
General Painters
Phone Franklin 5-5-9-8
1042 Larkin St., San Francisco, Cal.

Hunter & Hudson ENGINEERS
Designers of Heating, Ventilating and Wiring Systems, Mechanical and Electrical Equipment of Buildings
703 Rialto Bldg., San Francisco, Cal.

RUSSWIN BUILDERS' HARDWARE
JOOST BROS., Inc.
SAN FRANCISCO AGENTS
We Carry Complete Stock:
NO BRANCH STORE
Mazda Lamps Electric Goods
SCHOOL AND THEATRE EQUIPMENT

ROBERT TROST
General Building Contractor
We Specialize in High Grade Work and Employ Skilled Labor in every Branch of the Building Industry.

ALFRED H. VOGT
GENERAL CONTRACTOR
CONCRETE CONSTRUCTION
185 Stevenson Street, San Francisco

LAWTON & VEZEY
CONTRACTORS AND BUILDERS

THE HERMANN SAFE CO.
Manufacturers of Fire and Burglar Proof Safes, Vaults and Safe Deposit Boxes
Also Representatives for the YORK SAFE & LOCK CO. OF YORK, PA.
216-224 Fremont Street
San Francisco, Cal.

HERBERT BECKWITH
Building Construction
Formerly with ARTHUR ARLETT
Everson Building OAKLAND

JOHN M. BARTLETT
GENERAL CONTRACTOR
Office
357 - 12th ST. OAKLAND

MONSON BROS.
Building Construction
Yard
Mariposa and Bryant Streets
Phone Market 2963
251 Kearny Street, San Francisco
Telephone Douglas 6619

When writing to Advertisers please mention this magazine.
Easy-to-Wire Interchangeable Industrial Lighting Equipment

Wiring is looped through or ended under large terminal binding screws.
Does away with soldered and taped joints.
Reduces installation time to a minimum.
Completes wiring—inspection may be secured, lamp screwed in and temporary light obtained. Reflectors or other fixture parts, equipped with Ben-ox thread, may be attached without disturbing the original wiring.

Easy to Clean
By means of the Ben-ox thread, it is the work of a minute to remove reflector for cleaning.
Whenever and wherever industrial lighting is being considered it will pay to tie up with the Ben-ox thread.

Our nearest office will gladly furnish full information

BENJAMIN ELECTRIC MFG. CO.
847 W. Jackson Blvd., Chicago
247 W. 17th Street 580 Howard Street
New York San Francisco
Toronto and London
Furnaces

AGENTS FOR
FRONT RANK All Steel Warm Air Furnaces
AND THE OLD RELIABLE
THATCHER Cast Iron Warm Air Furnaces

REGISTERS — FURNACE FITTINGS — REPAIRS

Montague Range and Furnace Company
327-329 JESSIE STREET
Phone Garfield 1422
SAN FRANCISCO, CALIF.

Analyse Your Costs quickly, accurately and completely
Building Labor Calculator
Based on twenty-five years of public estimating and general contracting experience, these tables
give material quantities and labor hours in decimal constants and in convenient units, as per
100 square feet, 100 square yards and so forth, and are independent of price or wage fluctuations.
No other book like it!

For sample pages, descriptive data and free examination offer, clip this ad and write
GORDON M. TAMBLYN, 9 Sweeney Building, Denver, Colorado.

VLAARITE
FLAT OIL PAINT
FOR PLASTERED WALLS AND
ENAMEL UNDERCOATING

Vlaarite Flat White is made to meet exacting requirements and is guaranteed
to be light proof, and covers so well and solid that two coats look like three.
It will not turn grey, dries over night and sands easily.

Specify VLAARITE
PAINTS VARNISHES ENAMELS KALSOMINES

OAKLEY PAINT MANUFACTURING CO.
727 ANTONIA ST., LOS ANGELES
833 HEARST BLDG., SAN FRANCISCO

Some Uses for Asbestos Protected Metal

Robertson Process Asbestos Protected Metal (which has
all the advantages of a sheet metal roofing plus a built-up
roofing) is not only specified for the usual corrugated
roofing and siding purposes, but also for pent houses,
fencing, overhead passage ways, passenger shelters and
shipping platform canopies. Several pent houses on the
Easton Building, San Francisco, were recently covered
with this long life corrugated roofing.

H. H. ROBERTSON CO.
H. M. Holway, District Manager
1007 Hobart Bldg., San Francisco
600 Metropolitan Bldg., Los Angeles
I. M. SOMMER & CO.
ENGINEERS AND
GENERAL CONTRACTORS
Phone Hemlock 1100
901 BRYANT ST., SAN FRANCISCO

K. E. PARKER COMPANY, Inc.
GENERAL CONTRACTORS
Phone Sutter 5661
Room 515 Clunie Building, SAN FRANCISCO

R. W. LITTLEFIELD
Building Construction
357 12th Street, Room 9, Oakland, Cal.
Phone Lakeside 6750

H. H. HILP, Jr.
J. FRANK BARRETT
B AR R E T T & H I L P
CONCRETE CONSTRUCTION BUILDERS GENERAL CONTRACTORS
918 HARRISON STREET, near 5th, SAN FRANCISCO
Telephone DOUGLAS 700

CAEN STONE
A refined, elegant, interior finish.

A. KNOWLES
CONTRACTOR AND PLASTERER
442 Call-Post Building
San Francisco

STEELFORMS Signify ECONOMY, RAPIDITY, and EFFICIENCY
STEELFORM CONTRACTING COMPANY
STEELFORMS FOR CONCRETE BUILDINGS
C. B. Hopkins, C. E., Manager
681 Market Street, San Francisco
CONCRETE JOIST FLOOR CONSTRUCTION

Rhodes-Jamieson & Co.
BUILDING MATERIAL COAL AND WOOD
Main Office: Foot of Broadway, Oakland
Oakland Alameda Berkeley

M. E. VUKICEVICH
VUKICEVICH & BAGGE
GENERAL CONTRACTORS
Phone Sutter 5691
815 Bryant Street, San Francisco

When writing to Advertisers please mention this magazine.
Steel Bars FOR CONCRETE REINFORCEMENT
Tel. Douglas 3466 B A D T - F A L K & CO.
346 Call-Post Bldg., 74 New Montgomery St., San Francisco

Passenger and Freight Elevators
For Every Service
SPENCER ELEVATOR COMPANY
166-180 Seventh Street, San Francisco

PACIFIC DEPARTMENT
GLOBE INDEMNITY COMPANY
Bonds and Casualty Insurance for Contractors
FRANK M. HALL, formerly Robertson & Hall, Mgr.
444 California Street Phone Sutter 2280 SAN FRANCISCO

CARL H. PETERSON
BUILDER
PHONE DOUGLAS 1876 185 STEVENSON STREET SAN FRANCISCO

PHONE DOUGLAS 2370
R. McLERAN & CO.
GENERAL CONTRACTORS
HEARST BUILDING SAN FRANCISCO, CAL.

D. ZELINSKY & SONS
PAINTERS AND DECORATORS
165 GROVE STREET SAN FRANCISCO

I. R. KISSEL
Decorator, Painter and Paperhanger
1747 SACRAMENTO ST., Bet. Polk St. and Van Ness Ave., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
TEMPERATURE REGULATION
JOHNSON SERVICE COMPANY
Manufacturers and Installers of JOHN SON
Heat and Humidity CONTROL
For schools, residences, hospitals, banks, public buildings, also canneries
and all kinds of industrial plants—Hot water tank regulators, air and
water reducing valves.
Rialto Bldg., SAN FRANCISCO; 605 Van Nuys Bldg., LOS ANGELES

ATLAS HEATING AND VENTILATING COMPANY, INC.
ENGINEERS AND CONTRACTORS
Steam and Hot Water Heating, Coal and Gas, Pipe and Pipeless Furnaces
Sheet Metal Work Patent Chimneys—everything in heating—
Phone Douglas 378 557-567 FOURTH STREET
San Francisco

CLARENCE DRUCKER
LAWSON & DRUCKER
PLUMBING—HEATING—CONTRACTORS
TELEPHONE MARKET 275
450 HAYES STREET
SAN FRANCISCO, CAL.

H. G. NEWMAN CO.
PLUMBING HEATING
OAKLAND 3329 2004 TELEGRAPH AVENUE
OAKLAND

ALEX COLEMAN
CONTRACTING PLUMBER
706 ELLIS STREET, SAN FRANCISCO
Phone FRANKLIN 1006

WM. F. WILSON COMPANY
MODERN SANITARY APPLIANCES
Special Systems of Plumbing for Residences, Hotels, Schools, Colleges, Office Buildings, Etc.
Phone Sutter 357 328-330 Mason Street, San Francisco

W. H. PICARD
Plumbing, Heating, Ventilating and Power Plants
5856 College Avenue 5862 Keith Avenue
Phones Piedmont 9004-9005
Oakland, Calif.

HEATING
VENTILATION
PLUMBING
SHEET METAL WORK
FLOOR AND WALL TILING
SCOTT CO., INC.
243 Minna Street, San Francisco 381 11th Street, Oakland

When writing to Advertisers please mention this magazine.
from tree to consumer
Pine and Redwood Lumber
SASH DOORS AND MILL WORK
SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL
Main Office and Yards:
FIRST AND OAK STREETS, OAKLAND
Phone Oakland 1820

POPE & TALBOTT
Manufacturers, Exporters and Dealers in
Lumber, Timber, Piles, Spars, Etc.
Office, Yards and Planing Mills
859-869 THIRD STREET, SAN FRANCISCO, CAL.
Mills: Port Gamble, Port Ludlow and Utsalady, Washington

GUARANTEED
OAK AND MAPLE FLOORING
Insist on "Higgins" — It Costs No More
J. E. HIGGINS LUMBER CO.
SAN FRANCISCO
If It's Hardwood — We Have It

When writing to Advertisers please mention this magazine.
ROBERTS MFG. CO.

Lighting Fixtures
Electric Appliances
Incandescent Lamps

WILLYS FARM LIGHTING
AND POWER PLANTS

663 Mission Street  San Francisco

Genuine Hyloplate Blackboards
Best Pennsylvania Slate
Blackboards
School Furniture
Western Venetian Blinds
Lockers

C. F. WEBER & CO.
San Francisco  Reno
Los Angeles  Phoenix

BEAUTIFUL GARDEN EFFECTS for the City and Suburban Home

MacRORIE-MCLAREN CO.
Landscape Engineers
and General Nurserymen

Office
Suite 301 Phelan Bldg.
San Francisco

Nurseries at
Beresford
San Mateo Co.

ACORN
HARDWOOD FLOORS

Guarantee complete floor satisfaction by specifying

"Acorn Brand" Oak Flooring

Architects and contractors are proving this by actual practice.

Strable Hardwood Co.
HARDWOOD LUMBER
511-545 First St., Oakland, Calif.
Phone Oakland 245

When writing to Advertisers please mention this magazine.
"CALIFORNIA STUCCO"

It is a finishing plaster coat made in many beautiful colors, from a true Portland Cement base, which assures everlasting qualities.

"The Stucco which is making California Architecture famous"

For Sale by All Dealers

California Stucco Products Co.
58 Sutter St., San Francisco
1503 S. Alameda St., Los Angeles

Recent Office Buildings

STANDARD OIL
San Francisco
MATSON
NAVIGATION CO.
San Francisco
CALIFORNIA STATE LIFE INSURANCE COMPANY
Sacramento

Lindgren & Swinerton, Inc.

New Standard Oil Building
225 Bush Street
On the Sixth Floor

School Floors!

Although originally designed for factory use, Bloxonend flooring is being installed in the gymnasiums and manual training rooms of many of the country's finest schools. Bloxonend is the only end grain flooring that combines durability with lasting smoothness. Laid over concrete without embedding sleepers.

Write for Specifications

Carter Bloxonend Flooring Co.
H. M. HOLWAY, District Manager
San Francisco:
Los Angeles:
1007 Hobart Bldg. 600 Metropolitan Bldg.
Portland: Chamber of Commerce Building

When writing to Advertisers please mention this magazine.
HANSEN, ROBERTSON & ZUMWALT
General Contractors
and Managers of Construction

BUILDERS EXCHANGE
Lakeside 6730

JOHN A. PETERSON, President
B. HEINRICH, Vice-President
SAN FRANCISCO ELEVATOR CO., Inc.
ELEVATORS
Automatic, Electric, Hydraulic, Belt Power, Automatic Dumbwaiters and
Handpower Machines, Push Button Passenger Elevators a Specialty
Telephone Kearny 2443
860 FOLSOM STREET, SAN FRANCISCO

VAN EMON ELEVATOR COMPANY
PASSENGER ELEVATORS FREIGHT
1159-65 Howard Street
Market 808
San Francisco, Calif.

CYCLOPS IRON WORKS
ICE MAKING and REFRIGERATING MACHINERY, TRAVELING CRANES
Office and Works:
837-847 FOLSOM ST.
SAN FRANCISCO, CAL.
Telephone:
SUTTER 5030

GRINNELL AUTOMATIC SPRINKLER
GRINNELL COMPANY
OF THE PACIFIC
ENGINEERS AND CONTRACTORS
VALVES
PIPE and FITTINGS
453 Mission Street, San Francisco
CHEMICAL FIRE EXTINGUISHERS
and FIRE ENGINES

Fire Protection Engineering Company
ENGINEERS AND CONTRACTORS
Executive Offices and Factory
Automatic Sprinkler Systems
Automatic Fire Alarm Systems
Watchman Detector Systems
142 SANSOME STREET
San Francisco, California
Chemical Engines
Hand Fire Extinguishers
Motor Driven Fire Apparatus

CLINTON CONSTRUCTION COMPANY
of California
BUILDERS AND MANAGERS OF CONSTRUCTION
923 Folsom Street
San Francisco

RADIATOR AIR VALVES
Traps, Rapid Riser Vents, Vacuum and Condensation Pumps
They Are Absolutely Guaranteed
JAS. P. MARSH & CO., Represented by HULTING, HURST & HULTING
Monadnock Building (Telephone Sutter 5295), San Francisco, Cal.

When writing to Advertisers please mention this magazine.
Frost National Bank
San Antonio, Texas

equipped with
FRINK REFLECTORS
Including
Continuous Screen Reflectors
Polaralite Signs

Our Engineering Department is co-operating with the leading architects in laying out and designing the lighting of prominent buildings throughout the country. We hope we can be of service to you.

"Specify Frink Reflectors"

I.P. FRINK, Inc.
SAN FRANCISCO, CAL.,
24th Street and 10th Avenue,
New York

Chicago, Ill.
Menadnock Bldg.
Boston, Mass.
161 Summer St.
Detroit, Mich.
325 State St.
Cleveland, Ohio
992 The Arcade
Buffalo, N. Y.
310 Mutual Life Bldg.
St. Louis, Mo.
1415 Pine Street
Atlanta, Ga.
Seattle, Wash.
609 Seaboard Bldg.
Franklin Trust Bldg.
Cincinnati, Ohio
601 Second Nat'l. Bank Bldg.
Louisville, Ky.
415 West Main St.
Birmingham, Ala.
426 Jefferson Co.
Bank Bldg.

When writing to Advertisers please mention this magazine.
MORTENSON CONSTRUCTION CO.  
CONTRACTORS FOR STRUCTURAL STEEL AND IRON  
H. MORTENSON, President  
Office and Shops: Corner 19th and Indiana Streets  
Phone: Mission 5033  
SAN FRANCISCO, CAL.

JUDSON MANUFACTURING COMPANY  
Main Office:  
817-821 FOLSOM STREET  
Telephone Sutter 6820  
SAN FRANCISCO  

Federal Ornamental Iron & Bronze Co.  
Bank Counter Screens and Grille Work Our Specialty  
Most Modern Equipment Throughout  
Recent Contracts: BANK OF ITALY, FIRST NATIONAL BANK  
16th Street and San Bruno Avenue, San Francisco  
Phone Market 1011

HERRICK IRON WORKS  
STRUCTURAL STEEL  
Office and Works, 18th and Campbell Streets  
Oakland, Cal. Phone Lakeside 1460

Telephone Mission 58  
A. A. DEVOTO, President  
CENTRAL IRON WORKS, Inc.  
STRUCTURAL STEEL  
SAN FRANCISCO, CAL.

C. F. HOFFMAN  
L. W. FLIEGNER  
Golden Gate Iron Works  
STRUCTURAL STEEL AND ORNAMENTAL IRON CONTRACTORS  
Howard and 11th Streets  
San Francisco

SCHRADER IRON WORKS, Inc.  
STRUCTURAL STEEL CONTRACTORS  
Fire Escapes, Waterproof Trap Doors, Ornamental Iron Work  
1247-1249 HARRISON STREET  
Bet. 8th and 9th  
SAN FRANCISCO, CAL.  
Telephone Market 337

When writing to Advertisers please mention this magazine.
An Economical Drinking Fountain
— for —
Schools and Theatres

Architects write for latest Catalog
Haws Sanitary Drinking Faucet Co.
1808 Harmon Street, Berkeley,

George S. MacGruer  Robert M. Simpson  Members of Builders Exchange

MacGruer & Simpson
CONTRACTING PLASTERERS
PLAIN AND ORNAMENTAL
Cement, Stucco and Artificial Stone

Phone Garfield 512  266 Tehama Street, San Francisco

John Traynor  Charles Harcourt
OCEAN SHORE IRON WORKS
Manufacturers of
BOILERS, STEEL TANKS, STEEL PLATE SPECIALTIES
Dealers in
BOILERS, TANKS, PUMPS, ENGINES
GENERAL MACHINERY, ETC.

Office and Works:
550-558 EIGHTH STREET  Phones Market 462 and 463
SAN FRANCISCO, CAL.

OPEN HEARTH
REINFORCING STEEL BARS

Square Deformed — Immediate Shipment — Cut to required lengths
PACIFIC COAST STEEL COMPANY
Sales Office, Rialto Building  SAN FRANCISCO Phone Sutter 1564

When writing to Advertisers please mention this magazine
BUTTE ELECTRIC AND MFG. CO.
PAUL BUTTE, Owner
HIGH GRADE ELECTRICAL INSTALLATIONS
FEDERAL ELECTRIC BANK PROTECTION SYSTEMS
DOUGLAS 145 Moved to 956 Folsom Street San Francisco

Steam Heating and Power Plant Equipment
JAMES I. KRUEGER Telephone Sutter 7057
Representative
ILLINOIS ENGINEERING COMPANY
SKIDMORE VACUUM AND BOILER FEED PUMP
EUREKA BRASS WORKS
417 Market St. Suite 320 San Francisco, Calif.

ELECTRIC CONSTRUCTION CO.
CONTRACTING ELECTRICIANS
L. G. JEFFREY, Manager
616 BROADWAY Phone 213 FRESNO

POLACIC ELECTRIC CLOCK CO.
J. J. Estabrook
86 THIRD STREET SAN FRANCISCO, CALIF.

CHARLES T. PHILLIPS COMPANY
CONSULTING ENGINEERS
HEATING, VENTILATING, ELECTRIC WIRING, PLUMBING
Roberts Building, Los Angeles

PHONE KEARNY 1951
DECKER ELECTRICAL CONSTRUCTION CO.
149 NEW MONTGOMERY STREET SAN FRANCISCO

Browne-Langlais Electrical Construction Co.
Agents for ROBBINS and MYERS MOTORS, PACKARD MAZDA LAMPS
313 FIFTH STREET, SAN FRANCISCO Telephone Douglas 976

When writing to Advertisers please mention this magazine.
1828—MOTT—1923

 Architects and their clients are invited to visit our show rooms, 553-555 Mission St. San Francisco, D. H. Gulick, manager.

MOTT COMPANY
of California

DOUGLAS 2046

FELIX BUTTE

BUTTE ELEC. EQUIPMENT CO.

Trade Mark BEECO Registered

ELECTRICAL CONTRACTORS

530 FOLSOM STREET

SAN FRANCISCO

L. SIEBERT DESIGNERS AND MANUFACTURERS OF

SWITCH BOARDS · PANEL BOARDS
PROTECTIVE POWER PANELS

Drendell Electrical and Mfg. Co.

1345-47 HOWARD STREET

SAN FRANCISCO, CALIF.

MUELLER

Faucets give full value in wear and service.

The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?

THE NEWEST AND BEST THING IN FAUCETS

H. MUELLER MFG. CO.

1072-76 HOWARD STREET

SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
MILLER FOLDING IRONING BOARD
ELIMINATES WALL CABINET—IS INSTALLED IN KITCHEN CUPBOARD
NO PLASTER GROUNDS
SAVES WALL SPACE AND LABOR
CASING OR PAINTING
TIME AND MATERIAL
Exhibited by LANNOM BROS. MFG. CO.
and sold by 1362 Magnolia St., Oakland, Calif.
Send for Catalogue to 1844 Thirteenth St., Oakland

PACIFIC MANUFACTURING COMPANY
MILL WORK, SASH AND DOORS
HARDWOOD INTERIOR TRIM A SPECIALTY
MAIN OFFICE: SANTA CLARA, CALIFORNIA
SAN FRANCISCO, 177 Stevenson Street
OAKLAND, 1001 Franklin Street
LOS ANGELES, 908 Washington Building
SAN JOSE, 16 North First Street

C. F. STAUFFACHER, President
A. A. STAUFFACHER, Vice-President

THE FINK & SCHINDLER CO.
Manufacturers of INTERIOR WOODWORK AND FIXTURES
BANK, OFFICE AND STORE FITTINGS
SPECIAL FURNITURE
218-228 THIRTEENTH STREET
Bet. Mission and Howard Sts.
SAN FRANCISCO, CAL.
Telephone Market 474

LARSEN-SIEGRIST CO., Inc.
BUILDING CONSTRUCTION
807 Claus Spreckels Building
SAN FRANCISCO

ERNEST HELD, General Manager

HOME MANUFACTURING CO.
BANK, STORE AND OFFICE FITTINGS
FURNITURE AND HARDWOOD INTERIORS
CABINET WORK OF EVERY DESCRIPTION
543 and 545 BRANNAN ST. Phone Kearny 1514
San Francisco, Cal.

Mullen Manufacturing Co.
BANK, STORE AND OFFICE FIXTURES—CABINET WORK OF GUARANTEED QUALITY—CHURCH SEATING
Office and Factory:
Telephone Market 8692 64 Rausch St., Bet. 7th and 8th Sts. San Francisco

JAMES L. McLAUGHLIN
GENERAL CONTRACTOR
Phones Douglas 6645—6646 251 KEARNY STREET, SAN FRANCISCO

Dolan Wrecking & Construction Co.
(D. J. DOLAN)
Lumber, Lath, Nails, Shingles, Doors, Windows and Plumbing Supplies, New and Second Hand
Phone Market 4264 Office and Yard, 1607-1639 MARKET ST., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Fire Protection Corporation
Engineers and Contractors
FOR
Automatic
Sprinkler Systems
315 Montgomery St.  San Francisco, Cal.
Phone Sutter 2993

Phone Doug. 3123-4  Oak. 5050-I
EASYSET
STORE FRONTS
GLASS OF ALL KINDS
Mirrors Art Bevel Plate
Cobbledick-Kibbe Glass Co.
666-668 Howard St.
San Francisco, Cal.
Washington at Third St.
Oakland, Cal.

WIRING
CENTRAL ELECTRIC CO.
AND DEALERS
177-179 Minna Street, San Francisco
Phone Douglas 4832

A BETTER IRON
TONCAN METAL
United Alloy Steel Corporation
CANTON, OHIO
Black Galvanized and
Blue Annealed Sheet
WESTERN SALES OFFICES
Santa Fe Building, San Francisco
LOS ANGELES PORTLAND
528 Title Insurance Bldg.  301 Henry Building

H.RUMPF
CONTRACTING DECORATOR
CUSTOM BUILT FURNITURE
PRAPERIES AND FURNISHINGS
School and Theater Equipment
Drop Curtains, Draperies
Specializing in Furnishings for Hotels,
Lodges, Clubs, Steamships, A p a r t m e n t
Houses.
Estimates Furnished
567 Howard Street, San Francisco, Calif.

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deadening.
JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 Post Street
San Francisco

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deadening.

"B L A Z I N G" THE TRAIL
We've been doing it for many years—
giving the Sportsman Better Value for
Quality than he ever before received.
"Value at a Fair Price" in everything for
the Sportsman.

JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 Post Street
San Francisco

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deadening.

JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 Post Street
San Francisco

When writing to Advertisers please mention this magazine.
Protection Against Fire from Adjoining Buildings

If yours is a problem that has to contend with fire in adjacent buildings, we recommend for your consideration our gravity closing shutter. It is entirely self closing either through the fusing, at approximately 160 degrees, of a link on the outside of the building, or it can be closed by hand from inside the building by merely unhooking a chain which holds the automatic device in check. In either event the closing is automatic and positive. After closing, new link can be inserted and the shutter reset from inside of the building.

Send for our new Catalog No. 1 which fully describes the entire line of Wilson Steel Doors and Shutters.

The J. G. Wilson Corp.
621 N. Broadway, Los Angeles, Cal.
11 East 36th Street, New York City
Offices in All Principal Cities

---

Nonpareil Corkboard Insulation for Cold Storage Rooms

ESTIMATES FURNISHED FOR COMPLETE ERECTION

VAN FLEET FREEAR COMPANY
557 HOWARD STREET
SAN FRANCISCO

1231 BROADWAY
FRESNO

When writing to Advertisers please mention this magazine.
Look for this Trademark JK

And if it's there don't worry any more about your Valves and Fittings

Specify and insist upon having

The Kelly & Jones Co.
Valves and Fittings
Byers Genuine
Wrought Iron Pipe
Republic Steel Pipe

Complete Line of Plumbing Supplies
Large Stocks for Prompt Delivery
Catalogue on request

California Steam & Plumbing Supply Co.
671-679 Fifth Street, Corner Bluxome
SAN FRANCISCO CALIFORNIA

The Elevator Floor
whether in Office Building, Hotel or Department Store, is subjected to a great deal of wear and tear.

—SPECIFY—
INTERLOCKING RUBBER TILING

INTERLOCKING RUBBER TILING

and you've provided your client's building with a Durable, Economical, Practical material that is sure to give satisfaction. Twenty tons installed in the Standard Oil Building, San Francisco. Stock on hand for immediate delivery.

NEW YORK BELTING AND PACKING CO.
NEW YORK
San Francisco Branch 519 MISSION ST. Phone Douglas 1887
Small booklet of designs mailed on request

When writing to Advertisers please mention this magazine.
CRUSHED ROCK GRAVEL SAND
COAST ROCK AND GRAVEL CO.
500 Call Building SAN FRANCISCO Phone Sutter 3990
Plants at Niles, Fair Oaks, Oroville, Elliot, Piedra, Solo, and Marysville

The Architect who specifies OTIS ELEVATORS may do so with the assurance that the responsibility of the Otis Elevator Company extends beyond satisfactory installation. Buildings equipped with OTIS ELEVATORS enjoy the advantage of prompt service and careful inspection rendered by over a hundred Otis offices.

OTIS ELEVATOR COMPANY
2300 STOCKTON ST. SAN FRANCISCO
OFFICES IN ALL PRINCIPAL CITIES

When writing to Advertisers please mention this magazine.
The Architect & Engineer

Winning Designs for Pasadena Civic Buildings

Published in San Francisco
50 cents a copy - $2.50 a year

MARCH 1924
Materials and workmanship guaranteed forever—quality unsurpassed by any brand in the world. Your clients get the utmost value when you specify PACIFIC PLUMBING FIXTURES.

PACIFIC SANITARY MANUFACTURING CO.,
Main Office: 67 New Montgomery St., San Francisco
Factories: Richmond and San Pablo, California
Branches: Los Angeles, Portland.
Our Roof Maintenance Agreement assures that they will remain or be maintained in perfect watertight condition for 20 years.

Free yourself from the disturbance that leaky roofs create—protect your clients from the damage that leaky roofs cause—specify PABCO 20 Year Roofs.

The PARAFFINE COMPANIES, Inc
17 plants on the coast
LOS ANGELES·PORTLAND·SAN FRANCISCO·SEATTLE
Another Modern Western Hotel

Modern western hotels provide their guests with the utmost in luxurious comfort and convenience. To insure elevator service of this sort, the new Biltmore Hotel in Los Angeles was equipped by the Llewellyn Iron Works with high-speed elevators driven by Westinghouse Elevator Motors and operated by Westinghouse Variable Voltage Controls.

Westinghouse elevator equipment is installed by Llewellyn Iron Works of Los Angeles, Kaestner & Hecht of Chicago, Spencer Elevator Company of San Francisco and Atlantic Elevator Company of New York City.

Westinghouse Electric & Manufacturing Company

Main Offices and Works—East Pittsburgh, Pennsylvania
Western District Offices:
Denver
Los Angeles
San Francisco
Seattle
SEVENTY PER CENT
MORE EFFECTIVE STREET LIGHTING

The Westinghouse Bi-Lux refractor actually increases by seventy per cent the effective illumination from a street-lighting unit. This it does by bending the light and directing it to where it is needed.

A 400 candle-power lamp, for example, used with a Bi-Lux refractor throws 2000 candle-power at an angle of 22½ degrees from the curb-line up and down the street, 400 candle-power across the street and 250 candle-power over the sidewalk, and also floods nearby building fronts with light. This distribution of light illuminates the entire street evenly and without glare.

Write to the Illuminating Engineering Bureau at the nearest Westinghouse office for detailed information on the Bi-Lux refractor or any other lighting question. They are ready always to help you.

Westinghouse Electric & Manufacturing Company
George Cutter Works—South Bend, Indiana
Western District Offices:

Denver
Los Angeles
San Francisco
Seattle

Westinghouse
“Standard”

THIRTY-SIX years’ experience manufacturing and installing Electric Time Keeping Systems. Helpful engineering data cheerfully furnished architects, engineers and school boards insuring satisfactory results, and a direct factory branch office completely equipped to render immediate service.

The Standard

Electric Time Company
461 Market St., San Francisco, Cal.
Telephone Sutter 241

PRASCO PINLESS SWINGING HOSE RACK
For 50, 75, 100 ft. Underwriters Unlined Linen Hose
No pins to break, bend, or jam
Hose pays off one loop after the other
Plant Rubber & Asbestos Works
537 Brannan St. San Francisco Tel. Sutter 2100

CORROSIRON
the acid-proof drain pipe
Make your acid drain lines permanent – – –
Corrosiron drain pipe and fittings manufactured and carried in stock in San Francisco

PACIFIC FOUNDRY COMPANY
Harrison and Eighteenth Streets
SAN FRANCISCO
The Skylight Frames are made of ARMCO-Ingot Iron

During the many years ARMCO-Ingot Iron has been on the market, this iron has demonstrated its ability to withstand the constant attack of corrosion. Hundreds of installations in all parts of the world, under all degrees of climatic variations, testify to the worth of Ingot Iron.

Send post card for interesting booklet
"Economies in Building with Iron that Lasts"

The American Rolling Mill Co., Middletown, Ohio
## Index to Advertisements

(For Classified Directory and Specification Index see pages 8 to 18)

<table>
<thead>
<tr>
<th>Classifieds</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50</td>
</tr>
<tr>
<td>American Chao Company</td>
<td>24</td>
</tr>
<tr>
<td>American Face Brick Association</td>
<td>52</td>
</tr>
<tr>
<td>American Marble &amp; Mosaic Co.</td>
<td>5</td>
</tr>
<tr>
<td>American Rolling Mills Company</td>
<td>127</td>
</tr>
<tr>
<td>American Window Glass Company</td>
<td>156</td>
</tr>
<tr>
<td>Atlantic Heating &amp; Ventilating Co.</td>
<td>156</td>
</tr>
<tr>
<td>Atlantic Pacific Agencies Corp.</td>
<td>140</td>
</tr>
<tr>
<td>Atlas Portland Cement Co.</td>
<td>121</td>
</tr>
<tr>
<td>B</td>
<td>52</td>
</tr>
<tr>
<td>Babcock Company, C. B.</td>
<td>4</td>
</tr>
<tr>
<td>Bacon, Edward R., Co.</td>
<td>149</td>
</tr>
<tr>
<td>Badt-Falk &amp; Company</td>
<td>145</td>
</tr>
<tr>
<td>Barrett &amp; Hilp</td>
<td>138</td>
</tr>
<tr>
<td>Barlett, John C.</td>
<td>140</td>
</tr>
<tr>
<td>Bass-Hunter Company</td>
<td>36-37</td>
</tr>
<tr>
<td>Berkwith, Herbert</td>
<td>145</td>
</tr>
<tr>
<td>Benjamin Electric Mfg. Co.</td>
<td>143</td>
</tr>
<tr>
<td>Birchfield Boiler Company</td>
<td>134</td>
</tr>
<tr>
<td>Bonded Floors Company</td>
<td>134</td>
</tr>
<tr>
<td>Bower, S. F., &amp; Co.</td>
<td>138</td>
</tr>
<tr>
<td>Brown Disappearing Bed Company</td>
<td>140</td>
</tr>
<tr>
<td>Brown-Langlais Electri Co.</td>
<td>159</td>
</tr>
<tr>
<td>Brininstool Company, Th.</td>
<td>156</td>
</tr>
<tr>
<td>Built-In Fixture Co.</td>
<td>165</td>
</tr>
<tr>
<td>Bull-Dog Floor Clip Co.</td>
<td>17</td>
</tr>
<tr>
<td>Butte Electric and Mfg. Co.</td>
<td>141</td>
</tr>
<tr>
<td>Butte Electrical Equipment Co.</td>
<td>159</td>
</tr>
<tr>
<td>C</td>
<td>128</td>
</tr>
<tr>
<td>Cabot, Samuel Company</td>
<td>132</td>
</tr>
<tr>
<td>Cadwallader-Gibson Company</td>
<td>134</td>
</tr>
<tr>
<td>California Artistic Metal &amp; Wire Company</td>
<td>156</td>
</tr>
<tr>
<td>California Brick Company</td>
<td>157</td>
</tr>
<tr>
<td>California Common Brick Mfrs. Association</td>
<td>128</td>
</tr>
<tr>
<td>California Steam &amp; Plumbing Supply Co.</td>
<td>163</td>
</tr>
<tr>
<td>California Stucco Products Co.</td>
<td>153</td>
</tr>
<tr>
<td>California Wall Bed Company</td>
<td>136</td>
</tr>
<tr>
<td>Cannon and Company</td>
<td>25</td>
</tr>
<tr>
<td>Carter Bloxenford Flooring Co.</td>
<td>126</td>
</tr>
<tr>
<td>Casement Hardware Company</td>
<td>153</td>
</tr>
<tr>
<td>Central Electric Company</td>
<td>161</td>
</tr>
<tr>
<td>Central Iron Works</td>
<td>156</td>
</tr>
<tr>
<td>Clark, N. &amp; Sons</td>
<td>19</td>
</tr>
<tr>
<td>Clinton Construction Company</td>
<td>154</td>
</tr>
<tr>
<td>Coast Rock &amp; Gravel Company</td>
<td>172</td>
</tr>
<tr>
<td>Cobbledick-Ribki Glass Co.</td>
<td>161</td>
</tr>
<tr>
<td>Cochran, W. L., Inc.</td>
<td>16</td>
</tr>
<tr>
<td>Colman, Alex</td>
<td>158</td>
</tr>
<tr>
<td>Colvin Marble Company</td>
<td>142</td>
</tr>
<tr>
<td>Cook, H. N. Belting Co.</td>
<td>134</td>
</tr>
<tr>
<td>Cook Marble Company</td>
<td>146</td>
</tr>
<tr>
<td>Crane Company</td>
<td>148</td>
</tr>
<tr>
<td>Crittall Casement Window Co.</td>
<td>48</td>
</tr>
<tr>
<td>Cyclops Iron Works</td>
<td>154</td>
</tr>
<tr>
<td>D</td>
<td>138</td>
</tr>
<tr>
<td>Decker Electrical Co. Co.</td>
<td>138</td>
</tr>
<tr>
<td>Del Monte Properties Company</td>
<td>156</td>
</tr>
<tr>
<td>Detroit Steel Products Company</td>
<td>130</td>
</tr>
<tr>
<td>Diersen, D., Co.</td>
<td>130</td>
</tr>
<tr>
<td>Dolan Wrecking Company</td>
<td>160</td>
</tr>
<tr>
<td>Brendell Electrical &amp; Mfg. Co.</td>
<td>150</td>
</tr>
<tr>
<td>Dunham, T. A., Company</td>
<td>28</td>
</tr>
<tr>
<td>E</td>
<td>158</td>
</tr>
<tr>
<td>Electric Construction Company</td>
<td>139</td>
</tr>
<tr>
<td>Elevator Supplies Company, Inc.</td>
<td>161</td>
</tr>
<tr>
<td>Ellery Arms Company</td>
<td>161</td>
</tr>
<tr>
<td>Fairfacts Company, Inc.</td>
<td>155</td>
</tr>
</tbody>
</table>

For Information on Public Seating Consult

**WESTERN STATES SEATING COMPANY**

30 Second Street, San Francisco 2133 Kern Street, Fresno 410 Pacific Electric Bldg., Los Angeles
WE SPECIALIZE IN HIGH GRADE
CONCRETE CONSTRUCTION
LET US GIVE YOU AN ESTIMATE ON YOUR NEXT JOB
L. VANNUCCI BROS.
SAN FRANCISCO

Me Laughlin, James L. ........................................ 160
Me Lan, R. Company ........................................... 149
Medusa Cement Company ................................... 122
Michel & Pfeifer Iron Works .................................. 31
Minwax Company, Inc. ........................................ 140
Monolith Portland Cement Co. .............................. 339
Montrose Bros. .................................................. 115
Montague Range & Furnace Co. ............................ 147
Mortenson Construction Co. .................................. 159
Mott Company of California .................................. 159
Mueller, H., Manufacturing Co. ............................. 159
Mullen Manufacturing Co ..................................... 13
Musto Sons Kearcan Company ................................ 13
N
Nason, R. N. & Company ....................................... 12
National Mill & Lumber Co. ................................... 137
National Steel Fabric Co. ..................................... 126
National Tile & Sanitary Co. ................................ 23
Ne Page, McKeevey Co ......................................... 138
Newbridge Electric Company .................................. 150
Newman, H. C. ................................................... 163
New York Belting Company ................................... 163
O
Oak Flooring Bureau ........................................... 47
Oakley Paint Mfg. Co. .......................................... 147
Ocean Shore Iron Works ...................................... 157
Old Mission Portland Cement Co. ........................ 159
Otis Elevator Company ....................................... 172
P
Pacific Coast Steel Co. ....................................... 127
Pacific Electric Clock Company ............................. 158
Pacific Elevator & Equipment Co. .......................... 130
Pacific Exterminator Company .............................. 18
Pacific Foundry Company ..................................... 129
Pacific Manufacturing Company ......................... 160
Pacific Glass Company ....................................... 152
Pacific Plumbing Fixtures Company 2nd cover ........ 132
Pacific Portland Cement Co. ............................... 140
Pacific Materials Company .................................. 140
Pacific Rolling Mills ......................................... 156
Palace Hardware Company .................................... 49
Palin Iron Works .............................................. 139
Paraffine Companies .......................................... 1
Parker, K. E. Company ........................................ 148
Pelton Water Wheel Company .................................. 148
Peterson, Carl H. ................................................ 149
Petroleum Sanitary Sink Co. ................................ 164
Phillips, Charles M. Company ............................... 158
Phoenix Deck Company ....................................... 161
Picard, W. H. ..................................................... 150
Pittsburg Traction Co ......................................... 144
Pole & Tube Works ............................................ 164
Pope & Talbot ................................................... 131
Portarity, Fred ................................................... 138
Portland Cement Association ............................... 167
Potter Radiator Company ..................................... 34
Plant Rubber & Asbestos Works ............................. 4
Quandt, A. & Sons ............................................... 9
R
Ralston Iron Works ............................................. 8
Randall Control Corporation ............................... 144
Ray Manufacturing Company ............................... 141
Raymond Granite Company ................................... 42
Richmond Pressed Brick Company ........................... 26
Richards-Wilcox Mfg. Co. ................................... 32
Rhodes Jameson Company ................................... 148
Roberts Manufacturing Company .......................... 159
Robeson Company, H. H. ..................................... 147
Rumpf, H. ....................................................... 161
Roud Hester Company ........................................ 144
S
Sandusky Cement Company .................................. 123
San Francisco Cement Company ............................ 154
Santa Fe Lumber Company .................................. 151
Schrader Tram Works ......................................... 156
Schoodler Flush Valve Co. ................................... 126
Scott Company .................................................. 150
Simmonds, O. M. Company ................................... 12
Simmonds Machinery Company ............................. 34
Sloane, W. & J. ............................................... 17
Smith and Eggert Company .................................. 50
Smith Electric Company ...................................... 10
Sommer, J. M. .................................................... 148
Soule, Edward L. Company ................................... 12
Spencer Elevator Company ................................... 149
Standard Electric Time Co. ................................... 4
Standard Featherweight Co. ................................ 149
Standard Varnish Works ..................................... 9
Stanley Works .................................................... 153
Steel Form Contracting Company ........................... 148
Stewart Sales Company ....................................... 155
St. Francis Hotel ............................................... 119
St. John Robert L .............................................. 16
Stroble Hardwood Company ................................... 38-152
Sunset Lumber Company ...................................... 151
T
Tamblyn Gordon M. ........................................... 155
Toledo Scale Company ........................................ 11
Tomkins-Kiel Marble Company ............................. 63
Terry Construction Co. ....................................... 144
Tropic Potties, Inc .......................................... 21
Test Robert ...................................................... 143
Tumbull Electric Company ................................... 156
Tramson Steel Company ...................................... 135
U
United Alloys Steel Corp. .................................... 161
United Materials Company ................................... 26
United States Metal Products Co. ........................ 22
Universal Sales Company ..................................... 22
United States Rubber Company ............................ 31
Van Emon Elevator Company ................................ 154
Van Fleet Freear Company ................................... 148
Vannucal Bros. ................................................ 17
Vermont Marble Company ................................... 149
Villadson Bros. .................................................. 14
Vigil, Alfred ..................................................... 145
Vennegut Hardware Company ............................... 10
Vukichevich & Bagge .......................................... 148
W
Wadsworth, Howland and Co., Inc. ......................... 129
Walder, D. N. & E. Co. ...................................... 142
Wayne Tank & Pump Company ............................... 35
Webber, C. F. Company ....................................... 152
Webster, Warren & Company ................................ 126
West Electric Heater .......................................... 18
West Coast Porcelain Company Back Cover ............ 12
Western Asbestos Megnesia Co. ............................ 130
Western Blind & Screen Company ......................... 11
Western Iron Works ............................................ 12
Western States Seating Company ........................... 23
Westinghouse Mfg. Company ................................ 23
Whitney Window Co. .......................................... 14
Wickwire Spencer Steel Corporation ........................ 133
Wilson, W. F. Company ....................................... 15
Witt, G. E. Company ........................................... 52
Z
Zelinsky, D. & Company ...................................... 149

Metprodco Reversible and Double Hung Steel Windows
UNITED STATES METAL PRODUCTS CO.
330 Tenth St., San Francisco, Calif.
Lumber Exchange, Seattle, Wash.
Exchange Bldg., Portland, Ore.  
Bank of Italy Bldg., Los Angeles, Calif.
Pine Bldg., Spokane, Wash.
Provident Bldg., Tacoma, Wash.

March, 1924
Architects’ Specification Index

(For Key to Advertisements, see pages 6 and 7)

ASBESTOS MATERIALS
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Jones Bros. Asbestos Supply Co., Inc., 500 Second St., San Francisco.
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

ART METAL
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
California Artistic Metal & Wire Co., 349 Seventh street, San Francisco.

ARCHITECTURAL TERRA COTTA
N. Clark & Sons, 115 Naitoma St., San Francisco.
Gladding, McBean & Company, Crocker Bldg., San Francisco.
Livermore Fire Brick Works, 604 Mission Street, San Francisco.
Tropper Pottery, Inc., Glendale, Cal.

AUTOMOBILE TURNTABLES
M. E. Hammond, Pacific building, San Francisco.

BANK FIXTURES AND INTERIORS
Home Mfg. Co., 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
The Fink & Schindler Company, 218-13th St., San Francisco.

BATHROOM ACCESSORIES

BEDS & WALLS
California Wall Bed Co., 714 Market St., San Francisco.
Brown Disappearing Bed Company, 746 Phelan Building, San Francisco.

BELLING AND PACKING
New York Belting and Packing Company, 519 Mission St., San Francisco.
H. N. Cook Belting Co., 401 Howard St., San Francisco.
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

BLACKBOARDS
Stewart Sales Co., 247 Rialto Building, San Francisco.
Western States Seating Company, 39 Second Street, San Francisco.

BLINDS—VIGNET AND DIFFUSELITE
The J. L. Wilson Corporation, Call-Peet building, San Francisco, and 621 North Broadway, Los Angeles.
Western Blind & Screen Company, factory, Los Angeles; San Francisco representatives, Edward C. Dehn, Hearst Bldg., and C. F. Webber Co.

BOILERS
Birchfield Boiler Company, Tacoma, Washington. See advertisement for Coast agencies.
Kewanee Boiler Company, Factory Branch, Exposition Building, San Francisco.

Mills, San Francisco, 1000 Sixteenth Street, San Francisco.

BONDS FOR CONTRACTORS
Bird & Company of America, Kohl Bldg., San Francisco.
Globe Indemnity Co., 444 California St., San Francisco.
Fidelity & Casualty Co. of New York, Balfour Bldg., San Francisco.
Standard Accident Insurance Company, California Commercial Union Building, San Francisco.

BOXBOARD FIBRE SHIPPING CASES
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BRASS GOODS, CASTINGS, ETC.
H. Mueller Manufacturing Co., 1072-76 Howard St., San Francisco.

BRICK—FACE, COMMON, ENAMEL, GLAZED
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
N. Clark & Sons, 116 Naitoma St., San Francisco.
Richmond Pressed Brick Co., Sharon Bldg., San Francisco. Plant at Richmond, Cal.
Livermore Fire Brick Works and California Brick Co., 604 Mission St., San Francisco.
Cannon & Co., Sacramento; and 70 O’Farrell St., San Francisco.

BRICK & CEMENT COATING
Armomite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.
Min wax Co., Inc., 22 Battery St., San Francisco and 553 S. Clarence St., Los Angeles.
The Paraffine Companies, Inc., 475 Brannan St., San Francisco.
Wadsworth, Howland & Co., Inc., Jas. Hamby & Son, 1333 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.

BRICK TREATMENTS
Armomite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.

BUILT-IN FIXTURES
Built-In Fixture Company, 2600 San Pablo Ave., near Dwight Way, Berkeley, and Hoosier Store, Pacific Building, San Francisco.

BUILDERS’ HARDWARE
Joesl Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn., Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Palace Hardware Company, Agents Corbin goods, 581 Market St., San Francisco.

RALSTON IRON WORKS, INC.
ESTABLISHED 1876

Structure Steel Representing
Pauly Jail Building Co.

Office and Works
20th and Indiana Streets
SAN FRANCISCO
Phone Mission 5230
ARCHITECTS' SPECIFICATION INDEX—Continued

BUILDING MATERIALS, SUPPLIES, ETC.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.
C. H. Jenzen Co., Call Building, San Francisco.

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco.
Los Angeles, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

BURGLAR ALARMS
Smith Electric Company, 50 Natoma St., San Francisco.

CABINET MAKERS
Fink & Schneider Company, 218 13th St., San Francisco.

CABINET—WATERPROOF
Monolith Portland Cement Co., 215 W. 7th St., Los Angeles, and 506 Claus Spreckels Building, San Francisco.

CEME PRICES—WATERPROOF
Monolith Portland Cement Co., 215 W. 7th St., Los Angeles, and 506 Claus Spreckels Building, San Francisco.

Cement—STUCCO
"California" sold by California Stucco Products Company, Holbrook building, San Francisco.

Cement TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
N. Clark & Sons, 116 Natoma St., San Francisco.

California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannen & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

Tropico Potteries, Inc., Glendale, Cal.

CLOCK—ELECTRIC TIME
Standard Electric Time Co., 461 Market St., San Francisco.
Pacific Electric Clock Company, 86 Third St., San Francisco.

COLD STORAGE PLANTS
 Cyclope Iron Works, 837 Folsom St., San Francisco.

CONCRETE CONSTRUCTION
Vannucci Bros., 16th and Church Streets, San Francisco.

Villadsen Bros., Inc., 749 Monadnock Building, San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.

The General Fireproofing Company, 20 Beale Street, San Francisco.

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward E. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT

Gunn, Carle & Co., Inc., 444 Market St., San Francisco.

Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.


Pacific Coast Steel Company, Rialto Bldg., San Francisco.


Truscon Steel Co., 709 Mission St., San Francisco.

Baldt-Falk Co., Call-Pont Bldg., San Francisco.

CONDUITS
"Sherarduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS—GENERAL
Hansen, Robertson & Zumwalt, 4143 Broadway, Oakland.

Barrett & Hilt, 918 Harrison St., San Francisco.

Herbert Beckwith, Everson Bldg., Oakland.

Larsen-Sigrist Co., Inc., 507 Claus Spreckels Bldg., San Francisco.

Smith Electric Company

"Quality First"

ELECTRICAL CONSTRUCTION
CONTRACTING | WIRING | FIXTURES | MOTORS | SUPPLIES | REPAIRING
50 Natoma Street

Telephone Sutter 1378

ARCHITECTS' SPECIFICATION INDEX—Continued

R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dunwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Gen. Wagner, Park Ave., San Francisco.
Vukievich & Bagge, 815 Bryant St., San Francisco.
Robert Tröst, 26th and Howard Sts., San Francisco.
J. M. Sommer, 401 Balboa Bldg., San Francisco.
Jan. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., Folsom at 17th St., San Francisco, and Los Angeles.

CONVENIENCE OUTLET
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILES
Van Fleet-Freezer Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

CORK TILES FOR FLOORS
Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.
David E. Kennedy, Sharon Building, San Francisco, Story Building, Los Angeles.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

DAMP-PROOFING AND WATERPROOFING
"Imperial," manufactured by Brooks & Deerr, Merchants National Bank Building, San Francisco.
Minwax Co., Inc., 22 Battery St., San Francisco, and 633 S. Clarence St., Los Angeles.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Market, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

DOOR HANGERS

Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.

DRAIN PIPE AND FITTINGS

DRAIN TILE
California Brick Company, 564 Mission Street, San Francisco.

DRINKING FOUNTAINS
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 116 Fifth St.
"Chelsea" dumb waiters, sold by M. E. Hammond, Pacific building, San Francisco.

ELECTRICAL CONTRACTORS
Butte & Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 956 Folsom St., San Francisco.
Central Electric Company, 177-79 Minna St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Brown-Langlies Electrical Construction Co., 315 Fifth Street, San Francisco.
Newberry Electric Company, Alta Bldg., San Francisco.
Smith Electric Company, 50 Natoma St., San Francisco.

Dedicated Electrical Construction Company, 119 New Montgomery St., San Francisco.
Electric Construction Company, 616 Broadway, San Francisco.

ELECTRIC PLATE Warner
The Prometheus Electric Plate Warner for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL PLUGS, RECEPTICALS, ETC.
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
"Harn & H Switcher," Garnett Young & Co., 612 Howard St., San Francisco.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.


Independent Automatic Sprinkler Company

Fire Protection Engineers

208 No. San Pedro Street, Los Angeles
72 Natoma Street, San Francisco

Los Angeles, 871-164

S. F. Phone, Garfield 261

THE ARCHITECT AND ENGINEER
TOLEDO AUTOMATIC SPRINGLESS SCALES
12 OUNCES TO 20 TONS
for Factories, Warehouses, Wholesale Houses—in fact any kind of business
where accurate weight is desired.

676 MISSION ST. TOLEDO SCALE CO. SAN FRANCISCO California

ARCHITECTS' SPECIFICATION INDEX—Continued

ELECTRIC SAFETY INTERLOCKS

ELECTRIC HEATING
Wessex Electric Heaters, manufactured by W. Wesley Hicks, Rialto Building, San Francisco.

ELEVATOR PASSENGER AND FREIGHT
Pacific Elevator & Equipment Co., 1129 Howard Street, San Francisco.
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.
Van Emon Elevator Company, 1159 Howard St., San Francisco.

ELEVATOR MOTORS AND CONTROL

ELEVATOR SIGNALS, DOOR EQUIPMENT
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 184 Fifth St.
Randall Control & Hydrometric Corporation, 263A Minna St., San Francisco, and 523 Central Ave., Los Angeles.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Hunter & Hudson, Rialto Bldg., San Francisco.
Robert L. St. John, 1011 Flat Iron Bldg., San Francisco.

FAIENCE TILE
Tropic Pottery, Inc., Glendale, Cal.

FELTS
The Paraflne Companies, Inc., San Francisco.
Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 422 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATTICES
Vonneutr Hardware Co., Indianapolis, Ind., represented in San Francisco by C. H. Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeifer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.

U. S. Metal Products Co., 330-10th St., San Francisco.

The J. G. Wilson Corporation, Call-Post Building, San Francisco, and 621 North Broadway, Los Angeles.

FIRESIDE FURNITURE—AUTOMATIC
Fire Protection Engineering Co., 112 Sansome St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraflne Companies, Inc., 34 First St., San Francisco.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
The Fink & Schindler Company, 218-13th St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLAG POLES—STEEL
Pole & Tube Works, Newark, N. J., represented by H. M. Holway, 1007 Hobart Building, San Francisco, and 600 Metropolitan Building, Los Angeles.

FLOORS, BLOCK
Carter, Bloxomend Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 920 Hobart Building, San Francisco.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.
Grip-Tite floor anchors, Cheek & Gillis, 625 Calif Building, San Francisco.

FLOORING, HEAVY DUTY
Carter, Bloxomend Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

FLOORS—TILE, CORK, ETC.
Mangrum & Otter, 827 Mission St., San Francisco.

FLOOR VARNISH
Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, 55 Stevenson Street, San Francisco.
The Paraflne Companies, Inc., San Francisco.
Los Angeles, Portland and Seattle.

FLOORS—HARDWOOD
Oak Flooring Bureau, Ashland Block, Chicago, Il.
Cadwallader, Gibbons Co., 5th & Brannan St., San Francisco.
Parrott & Co., 320 California St., San Francisco.

THE PELTON WATER WHEEL CO.
Hydraulic Engineers
Light-Duty High-Head Pumps for Tank and Other Building Service
Heavy-Duty Pumps for Municipal and General Water Supply

2022 Harrison Street
San Francisco
NASON’S OPAQUE FLAT FINISH
A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.
Made in California to stand Pacific Coast climatic conditions
R. N. Nason & Co., Paint Makers
PORTLAND 151 Potrero Ave.—SAN FRANCISCO—436 Market St. SEATTLE

ARCHITECTS' SPECIFICATION INDEX—Continued

Struble Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
J. E. Higgins Lumber Company, 429 Sixth St., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco
and 653 S. Clarence St., Los Angeles.

FLOORS—MASONIC—FLOOR COVERING
Hill, Hubbell & Company, 115 Davis St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FLUE LINING
California Brick Company, 604 Mission St., San Francisco.

FLUSH VALVES
Handy Self-Cleaning Flush Valve Co., 731 Folsom St. San Francisco.
Shreuder Flush Valve Company, 1300 N. Main Street, Los Angeles, and 16 Stuart Street, San Francisco.

FUEL OIL SYSTEMS
S. T. Johnson Co., 1337 Mission St., San Francisco.
S. F. Bewser & Co., Inc., 612 Howard St., San Francisco.
Wayne Tank and Oil Co., 430 Fourth St., San Francisco.

FURNACES—WARM AIR
Mangrum & Otte, 827 Mission St., San Francisco.
Mentague Range and Furnace Co., 826 Mission St., San Francisco.
C. B. Babcock Company, 768 Mission St., San Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH
Horne Manufacturing Company, 543 Brannan St., San Francisco.
W. & J. J. Shoane, 216 Sutter St., San Francisco.
Western States Seating Co., 39 Second St., San Francisco.
H. W. Ritholtz, 567 Howard St., San Francisco.
Fink & Schindler Company, 218-19th St., San Francisco.

FURRING TIE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

GARAGE HARDWARE
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles and Seattle, Wash.

GAS HEATING
Pittsburgh Water Heater Company, 478 Sutter St., San Francisco.
Ruud Automatic Water Heater, sold by Ruud Heater Company, 431 Sutter St., San Francisco.

GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobledick-Kibbe Glass Co., 666 Howard St., San Francisco.
Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
W. F. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Potl Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
Ellery Arms Co., 583 Market St., San Francisco.

HARDWALL PLASTER
"Empire," manufactured by Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.

HARDWARE
Joost Bros., agents for Russell & Erwin Hardware, 1633 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Corbin hardware, sold by Palace Hardware Co., 583 Market St., San Francisco.
Vonnegut hardware, sold by G. H. Jensen Co., Call Bldg., San Francisco.

HEATING AND VENTILATING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmid Company, 198 Otis St., San Francisco.
Hatchey & Hatchey, Mitsu Bldg., Sacramento.
Mangrum & Otte, 827-831 Mission St., San Francisco.
Lang & Drucker, 450 Hayes St., San Francisco.
Lupen and Inglaw, 906 7th St., Sacramento.
William E. Wilson Co., 322 Mason St., San Francisco.
W. H. Pfeard, 5636 College Ave., Oakland.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.

W. S. Haines & Co., Steam Specialties, Vacuum and Vapor Systems of Heating
"Twenty-four years of satisfactory service."
(See Page 1605 of Sweet's Catalogue)
O. M. SIMMONS CO. 115 Mission St., San Francisco
Phone: Johnson 5497
Architects' Specification Index—Continued


Williams Radiator Company, 571 Mission St., San Francisco.

Warren Webster & Company, Sharon Building, San Francisco.

Heaters, Gas Grates, Radiators, Etc.

General Gas Light Company, 748 Mission St., San Francisco.


Pacific Gas Steam Radiator Company, "Gas Steam Radiator," 571 Mission Street, San Francisco.

McLaughlin Metal Works, 223 J St., Sacramento.

Hollow Building Tile (Burned Clay)

California Brick Company, 604 Mission St., San Francisco.

Hollow Tile Blocks

Cannon & Co., plant at Sacramento; 77 O'Farrell St., San Francisco.

California Brick Company, 604 Mission St., San Francisco.


Hose—Underwriters Unlined Linen—Rubber

Plant Rubber & Asbestos Works, 537-539 Brannon Street, San Francisco.

Hospital Fixtures

Mott Company of California, 553 Mission St., San Francisco.

Hospital Signal Systems

Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.

Hotels

St. Francis Hotel, Powell and Post Streets, San Francisco.

Ice Making Machinery

Corliss Iron Works, 837 Folsom St., San Francisco.

"Frigedaire," Sold by W. L. Cochran, 808 Mission St., San Francisco.

Incinerators

The Incinerote, sold by M. E. Hammond, Mezzanine, Pacific Building, San Francisco.

Industrial Lighting Equipment


Ingot Iron

"Armac" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

Inspections and Tests

Robert W. Hunt & Co., 251 Kearny St., San Francisco.

Insulation

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

Jail Equipment

Ralston Iron Works, 26th and Indiana Sts., San Francisco.

Lamp Posts, Electroliers, Etc.

J. L. Mott Iron Works, 553 Mission St., San Francisco.

Landscape Architect

Emerson Knight, 704 Market St., San Francisco.

Landscape Gardeners

MacRorie-McLaren Co., 514-516 Phelan Bldg., San Francisco.

Lathing and Plastering

Macrucker & Simpson, 226 Tehama St., San Francisco.

A. Knowles, Call-Post Bldg., San Francisco.

Lathing Material—Wire, Metal, Etc.

Pacific Materials Co., 525 Market St., San Francisco.

The General Fireproofing Company, 20 Beale Street, San Francisco.

Truscon Steel Co., 709 Mission Street, San Francisco.

Wickwire Spencer Steel Corporation, 14 TownSEND St., San Francisco.

United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fé Building, San Francisco.

Light, Heat and Power

Great Western Power Company, Stockton St., near Sutter, San Francisco.

Pacific Gas & Electric Co., Sutter St., San Francisco.

Lighting Fixtures


Roberta Mfg. Co., 663 Mission St., San Francisco.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.


Limestone, Indiana

Indiana Limestone Quarriers' Association, Box 770, Bedford, Indiana.

Linoleum

D. N. & E. Walter & Co., 562 Mission St., San Francisco.

The Paraffine Companies, factory in Oakdale; office, 34 First St., near Market, San Francisco.

W. & J. Sloane, 216 Sutter St., San Francisco.

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.
A New Reference Book

The Von Duprin Reference Book for Architects will be ready for mailing about the time this advertisement reaches you.

The Reference Book is the first complete digest of information on panic devices to be published. It shows by text and illustration just which type of Von Duprin to use on any door. It illustrates all Von Duprin models, and with each one it shows the door hardware and trim to be used with the device. Diagrams give the technical information necessary for specifying panic devices for any type of door, and charts for reinforcing hollow metal doors, giving also proper lock locations for hollow metal construction.

The Von Duprin Reference Book will be well worth your looking over. We are attempting to mail it to every practising architect in the country, but if you should, by any chance, fail to receive your copy by March twentieth, a postal request will bring it by return mail.
Fridgidaire
The Electric Refrigerator for Home, Apartment, Store, Etc.
Made by DELCO-LIGHT COMPANY, Dayton, Ohio
W. L. COCHRAN, INC., Distributor, 880 Mission St., San Francisco

ARCHITECTS’ SPECIFICATION INDEX—Continued

PAINTS, OILS, ETC.
Magner Bros., 414-424 Ninth St., San Francisco.
Ross-Hunter Paint Co., Mission near Fourth St., San Francisco and all principal Coast cities.
W. P. Fuller & Co., all principal Coast cities.
Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., San Francisco.
Oakley Paint Manufacturing Company, 727 Antonio St., Los Angeles, and Heart Building, San Francisco.

PARTITIONS—PLASTERING PARTITIONS—PLASTERING

The J. L. Wilson Corporation, Call Post Building, San Francisco, and 621 North Broadway, Los Angeles.

PLASTERING CONTRACTORS
A. Knowles, Call Bldg., San Francisco.
MacGraer & Simpson, 256 Tehama St., San Francisco.

PLASTER REINFORCEMENT
National Steel Fabric Co., A. C. Rulofson Co., Pacific Coast Sales Manager, Monadnock Building, San Francisco.

PLUMBING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmid Company, 198 Otis St., San Francisco.
Hateley & Hateley, Miltau Bldg., Sacramento.
Scott Co., Inc., 243 Minna St., San Francisco.
William F. Wilson Co., 328 Mason St., San Francisco.
Luppen & Hawley, 906 7th St., Sacramento.
W. H. Picard, 5656 College Ave., Oakland.

PLUMBING SUPPLY HOUSES
Crate Company, all principal coast cities.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.
Holbrook, Merrill & Stetson, 64 Sutter St., San Francisco.
H. Mueller Manufacturing Company, 1072-76 Howard St., San Francisco.
J. L. Mott Iron Works, D. H. Gulick, selling agent, 553 Mission St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, 334-335 Wells Fargo Building, 85 Second St., San Francisco.

POLES AND PILING
Santa Fe Lumber Co., 16 California St., San Francisco.

PUMPS—HAND OR POWER
Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 816 Folsom Street, San Francisco.
Ocean Shore Iron Works, 558 Eighth St., San Francisco.
Pelton Water Wheel Co., 2022 Harrison St., San Francisco.
S. F. Bowers & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Tank & Pump Co., 430 Fourth St., San Francisco; 830 S. Los Angeles St., Los Angeles.
Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.

REFRIGERATING STEEL
Edward L. Soule, Rialto Bldg., San Francisco.
Badt-Falk & Co., Call Bldg., San Francisco.
Jackson Iron Works, San Francisco and Oakland.
Gurney Carle & Co., Inc., 444 Market St., San Francisco.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
United Valley Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

REFLECTORS
L. P. Finke, Inc., 77 O’Farrell St., San Francisco.

REFRIGERATORS
‘Fridgidaire,” Sold by W. L. Cochran, 880 Mission St., San Francisco.

ROOF MATERIALS
‘Malhoid” and ‘Ruberoid,” also ’Fabco” ten and twenty year roofs, manufactured by the Paraffine Companies, Inc., San Francisco.
Gladding, McBean & Co., Crocker Building, San Francisco.
California Brick Company, 504 Mission Street, San Francisco.
H. H. Robertson Co., Hobart Bldg., San Francisco.
Jones Brothers Asbestos Supply Co., 508 Second St., San Francisco.
Johns-Manville Inc., of California, 500 Post St., San Francisco.
Western asbestos Magnesia Company, 25 South Park, San Francisco.

RUBBER TILING—INTERLOCKING

RUBBER TILING
Wright Rubber Products Co., represented by Clark & Gillis, 625 Call Bldg., San Francisco.
United States Rubber Co., 309 Second Street, San Francisco and 923 S. Los Angeles Street, Los Angeles, Calif.
Bonded Floors Co., Inc., 370 2nd Street, San Francisco and 263 South Los Angeles Street, Los Angeles.

RUGS & CARPETS
W. & J. Sloane, 216 Sutter St., San Francisco.

SAFETY TREADS
Pacific M. Materials Co., 525 Market St., San Francisco.

ELECTRICAL LAYOUTS AND PLANS FOR BUILDINGS, INDUSTRIAL PLANTS, ETC.

ROBERT L. ST. JOHN
Phone Douglas 5902  1011 FLAT IRON BUILDING
San Francisco, Calif.
March, 1924

ARCHITECTS' SPECIFICATION

SAFETY SWITCHES

Sanitron
Coast Rock & Gravel Co., Call Bldg., San Francisco.
Del Monte White Sand, Del Monte Properties Co., 401 Crocker Bldg., San Francisco.

SASH AND CARLE CHAINS
American Chain Co., Bridgeport, Conn. and Rialto Building, San Francisco.
Coast agents, Rawlinson & Smith, San Francisco and Los Angeles.

SAFE AND VAULTS
Hermann Safe Company, 216 Fremont St., San Francisco.

SCALES
Toledo Scale Company, 674 Mission St., San Francisco.

SCENIC PAINTING—DROP CURTAINS, ETC.
The Edwin H. Flagg Scenic Co., Los Angeles and San Francisco.

SCHOOL AND THEATER EQUIPMENT
H. Rumpf, 567 Howard St., San Francisco.

SHEATHING AND SOUND DEADENING

THE PARAFFINE Companies, Inc., 34 First St., San Francisco and principal Coast cities.

SHEET METAL WORK
Forderer Corinne Works, 269 Potrero Ave., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

SHINGLE STAINS
Bass-Hueter Paint Company, all principal Coast cities.
Cabet's Creosote Stains, sold by Pacific Bldg., Materials Co., 525 Market St., San Francisco, etc.
Fuller's Pioneer Shingle Stains, made by W. P. Fuller & Co., San Francisco.
The Paraffine Companies, San Francisco, and principal Coast Cities.

SHUTTERS—ROLLING, FIRE, STEEL, WOOD
J. G. Wilson Corp., 621 North Broadway, Los Angeles, and Call-Post Building, San Francisco.

SIGNALLING & PROTECTIVE SYSTEMS
Garnett, Young & Co., 612 Howard St., San Francisco.

SINKS—COMPOSITION

SKYLIGHTS
H. H. Roberts Co., represented on the Pacific Coast by H. H. Holway, 1007 Hobart Building, San Francisco.

STEEL FLAG POLES
Pole and Tube Works, Newark, N. J., represented on Pacific Coast by H. H. Holway, 1007 Hobart Building, San Francisco.

STEEL TANKS
Oren Ore Iron Works, 55 Eighth St., San Francisco.
Main Iron Works, 1000 Sixteenth St., San Francisco.

STEEL AND IRON—STRUCTURAL
Central Iron Works, 621 Florida St., San Francisco.
Herrick Iron Works, 18th and Campbell Sts., Oakland.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.

Mortenson Construction Co., 16th and Indiana Sts., San Francisco.

Palm Iron & Bridge Works, Sacramento.

STEEL LUMBER
The General Fireproofing Company, 20 Beale Street, San Francisco.

STEEL ROLLING DOORS

Wilson Rolling Steel Doors, the J. J. Wilson Corporation, 621 North Broadway, Los Angeles and Call-Post Building, San Francisco.

STEEL SASH
Bayley-Springfield solid steel sash, sold by Pacific Materials Co., 525 Market St., San Francisco.

“Fenestra” Solid Steel Sash, manufactured by Detroit Steel Products Co., factory sales office, 251 Kearny St., San Francisco.

Truscott Steel Company, 709 Mission St., San Francisco.

STEP AND WALK BRICK
California Brick Company, 604 Mission St., San Francisco.

STONE
Indiana Limestone Quarrymen's Association, Box 770, Bedford, Indiana.
Raymond Granite Company, Potrero Ave. and Division Street, San Francisco.

STREET LIGHTING EQUIPMENT

STUCCO, COMPOSITION
California Stucco Co., Hotbuck Building, San Francisco.

STUCCO-PLASTER REINFORCEMENT
National Steel Fabric Company, A. C. Rulofson Co., Pacific Coast Sales Managers, Monadnock Building, San Francisco.

STUDDING—FIREPROOF STEEL
The General Fireproofing Company, 20 Beale Street, San Francisco.
ARCHITECTS' SPECIFICATION INDEX—Continued

SWITCHES AND SWITCHBOARDS
Brendell Electrical & Mfg. Co., 1345 Howard St., San Francisco

TELEPHONE SYSTEMS
"Stromberg-Carlson Telephones," Garnett Young & Company, 612 Howard St., San Francisco.

THEATER AND OPERA CHAIRS
Western States Seating Co., 133 Kearny St., San Francisco.

THERMOSTATS FOR HEAT REGULATION
Johnson Service, Rialto Bldg., San Francisco.

TILES FOR FLOORS, MANTELS, ROOFS
Cannon & Co., Sacramento; and 77 O'Farrell St. San Francisco.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Livermore Fire Brick Works and California Brick Company, 604 Mission St., San Francisco.
Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.

TRAVELING CRANES
Cyclops Iron Works, 837 Folsom St., San Francisco.

VALVES—PIPES AND FITTINGS
Crane Radiator Valves, manufactured by Crane Co., 2nd and Brannan Sts., San Francisco.
Grinnell Co., 453 Mission St., San Francisco.
O. M. Simmons Co., 115 Mission St., San Francisco.
Schroeder Valve Company, 1300 N. Main Street, Los Angeles; 16 Steuart St., San Francisco.

VALVE PACKING
N. H. Cook Belting Co., 317 Howard St., San Francisco.

VARNISHES
W. Fuller Co., all principal Coast cities.

Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

VENTILATORS
H. H. Robertson Co., represented on the Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

VITREOUS CHINAWARE
Pacific Sanitary Manufacturing Company, 67 New Montgomery St., San Francisco.
West coast Porcelain Manufacturers, Wells Fargo Building, San Francisco.

WATERPROOFING (See also Dampproofing)
Media-Waterproofing, manufactured by Sandusky Cement Co., Cleveland, Ohio. Carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

WALL BEDS—SEATS, ETC. (See Beds)

WALL BUMPERS
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

WALL PAINT
The Brininstool Company, (See advertisement on third cover).

WALL PAPER AND DRAPERIES
The Tormay Co., 581 Geary St., San Francisco.
W. J. Sloan, 216-228 Sutter St., San Francisco.

WARDROBES, SCHOOL JAMES J. KAY CORPORATION, 11 East 36th St., New York and Los Angeles.

WATER SUPPLY SYSTEMS
Kunzer Water Supply System—Simonds Machinery Co., agents, 816 Folsom Street, San Francisco.

WHEELBARROWS—STEEL
Western Iron Works, Beale and Main Sts., San Francisco.

WHITE ENAMEL
"Bass-Hueter" manufactured and sold by Bass-Hueter Paint Co. All principal Coast cities.

The Paraffine Companies, Inc., 34 First St., San Francisco, Los Angeles, Portland and Seattle.

WINDOW SHADES
D. N. & F. Walter, 562 Mission street, San Francisco.

WINDOES, REVERSIBLE, CASEMENT, ETC.
Hauzer Window Co., 1362 Harrison St., San Francisco.

J. G. Wilson Corporation, 621 N. Broadway, Los Angeles; Call-Post Building, San Francisco.

Critall Casement Window Company, Detroit; Waterhouse-Wilcox Company, agents, 523 Market St., San Francisco.
The Casement Hardware Company, 241 Ponce de Leon Building, Chicago, Ill.


Universal Sales Co., 1916 Broadway, Oakland; San Francisco, Los Angeles and Portland.

Wire FENCE
Standard Fence Co., 245 Market street, San Francisco; and 310 12th street, Oakland.

GLOBE AUTOMATIC SPRINKLERS
Will protect your building and business from destruction by fire and reduce your Insurance Rate. Write for estimates.

Pacific Fire Extinguisher Company
FIRE PROTECTION ENGINEERS
424-440 Howard Street, San Francisco
Manufacturing Plant, 298 Fremont St.
A NATIONAL advertiser or a business of substantial reputation should be the first to realize the value of a distinctive building. Architectural Terra Cotta gives to a store that dignity and individuality which attracts the trade to which such a firm caters. It is an economical, colorful, distinctive and permanent advertisement, its trim, neat appearance fairly inviting the customer in. The firm of Don Lee has realized the value of distinction in the marketing of a distinctive product.

N. CLARK & SONS
MANUFACTURERS OF ARCHITECTURAL TERRA COTTA, PRESSSED BRICK, ROOFING TILE, AND KINDRED CLAY PRODUCTS

Main Office: 116 NATOMA STREET, San Francisco
Los Angeles Office, 1022 Detwiler Building, Los Angeles
Works—West Alameda
THE charm and permanence of this beautiful Beverly Hills home of Thomas H. Ince is notably increased by Los Angeles Pressed Brick Co's VARICOLOR GRANADA ROOFING TILE

The home was designed by Mr. Roy Selden Price

"The Standard of Quality in Clay Products"

L'A Pressed Brick Co
ENTIRE SIXTH FLOOR..... FROST BLDG
Second and Broadway .... Phone 875-761
LOS ANGELES

When writing to Advertisers please mention this magazine.
Cordova Roof Tile
Furnished and Laid by
Gladding, McBean & Co.
Crocker Building, San Francisco

The beautiful combinations obtained with Cordova Roof Tile are achieved by the nature of the clay and the scientific process of mixing and burning. Being a hard burned Tile, Cordova will resist the most severe climatic conditions, thus assuring permanence as well as beauty in all roofs.

Tropico Potteries, Inc.
Glendale, Los Angeles
California

When writing to Advertisers please mention this magazine.
Whitco Casement Hardware

Makes the sash self-adjusting—Cannot rattle. All hardware entirely concealed—One size fits all sash. Outside of sash easily washed from inside of room. No hinges or adjusters are required—Easy to operate. May be installed to swing to right or to left—Equally effective for transoms. No special sash or frame details are required—Easily applied to old or new sash. It is inexpensive and the price is right.

Whitco Hardware is sold only through the Hardware Trade

Manufactured by
VINCENT WHITNEY COMPANY
365 Market St., San Francisco, and Boston, Mass.

JOHN MUIR JUNIOR HIGH SCHOOL
LOS ANGELES

Another
UNIVERSAL WINDOW
INSTALLATION
AWNING TYPE

UNIVERSAL
SALES COMPANY

GENERAL SALES OFFICE, 1916 BROADWAY, OAKLAND

When writing to Advertisers please mention this magazine.
COLOR AND TEXTURE

Fire-Flashed Terra Cotta in varying shades from buff to golden brown, used with texture brick recalling these colors, presents a consistent use of materials achieving great richness of effect at a moderate cost. Let us assist you with data for specifying effectively.

NATIONAL TERRA COTTA SOCIETY
19 WEST 44th STREET
NEW YORK, N. Y.

When writing to Advertisers please mention this magazine.
This splendid arched entrance of soft-toned brick, mellowed by the shadows of the raked joints, blends admirably with the landscaping of the park. Even the lion is of brick, set by an artistic mason who cut standard sizes into shape on the spot as the work progressed. In "Architectural Details in Brickwork" you will find many examples of artistic brickwork in which only standard brick are used. The half-tone plates, issued in three series, each in an enclosed folder ready for filing, will be sent to any architect requesting them on his office stationery. Address, American Face Brick Association, 1759 Peoples Life Bldg., Chicago, Illinois.
Distinctive Residence of Mr. Simon Hornstein
1000 45th Street, Sacramento

FACE BRICK
— BY —
CANNON & COMPANY
SACRAMENTO, CALIFORNIA

EXHIBIT AT
77 O'FARRELL STREET, SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
Richmond Face Brick

used for the exterior finish of this Radio Station in Oakland.

The quality, beauty and durability of this material were factors in influencing its use.

Richmond Pressed Brick Company
Richmond, California

Los Angeles Pressed Brick Company
Los Angeles, California

United Materials Company
Northern California Distributors
Sharon Building
San Francisco

When writing to Advertisers please mention this magazine.
The Stucco Never Cracks

Stucco or cement plaster applied over Dickey Mastertile adheres permanently without peeling or cracking. That is one of the reasons why Dickey Mastertile is being widely specified by architects, not only for homes, but for load bearing and curtain walls in much of the most important construction.

Dickey Mastertile is highly fire resistant, light, amply strong and speedily erected. It builds walls with dead air spaces that insulate against temperature changes, moisture and sound. Usually no furring or other waterproofing is required, plaster being applied directly to the inside surface of the wall. It is the lowest priced of all permanent building materials.

**Dickey Mastertile**

*Builds Walls that Defy Fire, Time and Weather*

**MADE BY**

**CALIFORNIA BRICK COMPANY**

Associated with **LIVERMORE FIRE BRICK WORKS,**

**MANUFACTURERS OF DICKEY FACE BRICK**

**AND OTHER CLAY PRODUCTS**

604 Mission Street, San Francisco

Builders' Exchange, Oakland

---

When writing to Advertisers please mention this magazine.
Building to an Ideal

To design a heating system that will offer the utmost in economy of installation and of operation—

To build into it the best care and thought of men whose skill is that of the old-time craftsmen who shaped and fashioned by sheer handicraft alone—

These are the composites of the ideal always before us—an ideal which we have striven toward for more than two decades, and from which there will be no turning aside.

Sixty branch and local sales offices in the United States and Canada bring Dunham Heating Service as close to your office as your telephone. Consult your telephone directory for the address of our representative in your city. Ask him for the names of representative Pacific Coast Installations.

C. A. DUNHAM CO.

<table>
<thead>
<tr>
<th>Los Angeles</th>
<th>San Francisco</th>
<th>Seattle</th>
<th>Portland</th>
<th>Spokane</th>
</tr>
</thead>
<tbody>
<tr>
<td>119 E. Third Street</td>
<td>585 Mission Street</td>
<td>2021 L. C. Smith Building</td>
<td>410 Board of Trade Building</td>
<td>405 Sherwood Building</td>
</tr>
</tbody>
</table>

Protection Plus

The best possible protection against fire, theft and the elements will be found in Kinnear Steel Rolling Doors and they give life time service noted for perfect balance, ease of operation and quick repair without dismantling in case of damage—ideal for every class of buildings. Our Engineering Department at your service for full information.

THE KINNEAR MANUFACTURING COMPANY
601-671 Field Ave., Columbus, Ohio
535 Market Street, San Francisco
Where the Sideboard goes —
a Duplex Outlet

Whether making the breakfast toast and coffee, or an after-theatre rarebit, a woman client is always thankful for an architect's foresight in locating a Hubbell Duplex Convenience Outlet waist high, alongside the sideboard.

Hubbell Duplex Outlets provide double service without extra wiring. Their double Te-Slots take any standard cap, whether the blades be parallel or tandem. Made with shallow bodies for thin partitions.

Our fullest cooperation in advantageously locating outlets in any class of building is gladly extended.

HARVEY HUBBELL INC
ELECTRICAL WIRING DEVICES
BRIDGEPORT CONN. U.S.A

Remember it's the TeSlots, that make outlets 'Convenient'

When writing to Advertisers please mention this magazine.
FULLER PRODUCTS USED ON THE FEDERAL RESERVE BUILDING

On this splendid new San Francisco building, W. P. Fuller & Co. supplied all paint materials, including Pioneer White Lead, Linseed Oil, Silkenwhite Enamel, Concrete Floor Enamel, Factory White Enamel, Factory White Primer and Fuller Pure Colors in Oil.

W. P. FULLER & CO.
301 MISSION ST. SAN FRANCISCO

FULLER PAINTS & VARNISHES
PIONEER WHITE LEAD
Carried in Stock
Immediate Delivery
Quick Erection
100% Salvage
Fireproof

Low Cost
Permanent Investment
Easily Heated
Good Ventilation
Ask for Leaflet

Michel & Pfeffer
Iron Works
Harrison & Tenth Streets
San Francisco Calif.

Phone: Hemlock 3080

When writing to Advertisers please mention this magazine.
Make Blueprints Direct from this Folio

This unusual detail folio covers practically every elevator door installation problem. It makes complete facts instantly available in technical form for plans, specifications and detail drawings. Many architects now save time and labor by making blue prints direct from these drawings. Write Department "EE" for a complimentary copy and particulars of

"IDEAL"
Elevator Door Hardware

When writing to Advertisers please mention this magazine.
THOMAS H. INCE'S RANCH HOUSE
"DIAS DORADOS"

This attractive structure is one of seven buildings on the Thomas H. Ince Ranch at Beverly Hills, California, all of which were constructed with MONOLITH PLASTIC WATER-PROOF PORTLAND CEMENT. Roy S. Price of Beverly Hills was the architect and builder. The plastering contractor was Joe Stevens.

WATER-PROOF

This cement requires no adulterants to produce plasticity (fatness) and waterproofness. Both these important properties are ground into each particle in the process of manufacture.

We manufacture two cements— one is Monolith Portland Cement, a high grade uniform Portland. The other is Monolith Plastic Waterproof Portland Cement. Both are guaranteed to pass specifications. In ordering from your dealer be sure to specify which cement you desire.

MONOLITH PORTLAND CEMENT CO.

LOS ANGELES
A.G.Bartlett Bldg
13th floor.

SAN FRANCISCO
800 Claus Spreckels Bldg.

PORTLAND
516 Pittcock Block
Specify HANDY FLUSH VALVES
It is NON-CLOGGING
It functions perfectly with any make or kind of bowl.
Gives perfect cleansing flush — washes bowl clean.
Model A—Indirect Flush:
For residences served by one-half inch supply pipe.
Model B—Direct Flush:
For hotels, office and other buildings served with one inch or larger supply pipe.
Write for complete catalogue.
HANDY SELF-CLEANING FLUSH VALVE CO.
731 FOLSOM STREET, SAN FRANCISCO, CAL.
Demonstration in Universal Exhibits Monadnark Bldg., San Francisco

RA-DO FUMELESS GAS RADIATORS
The Ideal "Year-Round" Heating System
For The Home—New or Old
Easiest and Cheapest to Install
Lowest Operating Cost
POTTER RADIATOR CORPORATION
5954 Pasadena Ave., LOS ANGELES
393 Sutter St., SAN FRANCISCO
1700 San Pablo Ave., OAKLAND

POWER AND HEATING BOILERS
STEEL TANKS, STACKS, BREECHINGS, SHEET AND PLATE WORK
MACHINERY AND IRON CASTINGS
MAIN IRON WORKS
Main Office and Works: 7th, Daggett and 16th Sts., San Francisco, Calif.—Phone Market 752-753
Branch City Office: 420 Matson Building, 215 Market Street

PUMPING MACHINERY
"AMERICAN-MARSH"
House, Sump and Fire Pumps
FOR ALL SPECIFICATIONS
SIMONDS MACHINERY CO., 816-818-820 FOLSOM ST.,
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
How Wayne Water Softeners Cut Expenses in Buildings

Hard water deposits or scale in boilers, piping, plumbing fixtures, hot water heaters and pumps, causes continuous losses and periodic cleaning expenses that can be completely eliminated by the installation of a Wayne Water Softener.

In the boiler room a Wayne Water Softener will save one car of coal in eight, due to increased heating efficiency when boilers are free from scale.

It eliminates the use of boiler compounds and does away with the need for cleaning, because scale never forms at all where Wayne softened water is used.

It saves costly repairs and replacements of water piping and plumbing fixtures which become clogged with deposits. It improves the water for all uses.

Made in a full range of sizes to fit all requirements—types for buildings ranging from $600 up—and they cost less to buy and operate for given capacities than any other make on the market.

Architects and engineers are invited to write for copy of booklet “Water Softening and Filtration”—a complete treatise on modern water softening methods, and giving full details regarding Wayne Rapid Rate Water Softeners. The book is worthy a place in your business library.

Wayne Wins Patent Suit

For the information of the purchasers of Wayne Water Softeners or those of any other make, particularly such purchasers as those who have been threatened with suits to recover royalties, Judge Arthur J. Tittle in the United States District Court at Detroit, on November 8th, 1923, found the Gans patent No. 1,195,923 to be void. This is the patent which one of our competitors claimed to be infringed by all Zeolite Water Softener Manufacturers.
Leading Western Hospitals Spotless With Satin Egg Shell Finish

That Satin Egg Shell has stood the grilling test of hospital use is evidenced by the hospitals pictured here, on all of which it has been used. It has also been used in the Hahnemann Hospital and the Union Iron Works Hospital of San Francisco, in the Swedish Hospital of Seattle and the new Naval Hospital of San Diego.

BASS-HUETER PAINT COMPANY

When writing to Advertisers please mention this magazine.
Washable Finish for Apartments Flats and Residences

Satin Egg Shell Finish is used extensively for schools, churches, business buildings, apartments and homes as the interior finish on both walls and woodwork. The Joshua Green Building, the Georgian Hotel and the McKay Apartments of Seattle, and the Harry Grassman and La Pasada Apartments of Hollywood have also been finished with it.

BASS-HUETER PAINT COMPANY

When writing to Advertisers please mention this magazine.
Beaver Board made possible this handsome Salon in the Steamship "Senator."
One of the many ways of obtaining satisfactory results with genuine

BEAVER BOARD

STRABLE HARDWOOD COMPANY

G. H. BROWN
DISTRIBUTORS

537 FIRST STREET
OAKLAND, CALIFORNIA
Each shipment of "OLD MISSION" Portland Cement is guaranteed not only to equal but to surpass all requirements of the standard specifications for Portland Cement as adopted by the U. S. Government and by the American Society for Testing Materials. A Guarantee Certificate is mailed with the bill of lading of each car, giving number of car, date packed, and number of barrels, over the signature of the chief chemist.
ATCHISON REVOLVING DOORS
Straight or Curved Wings
ASK FOR CATALOG
PACIFIC MATERIALS CO., 525 MARKET ST., S. F.

PALACE HARDWARE CO.
Good Buildings Deserve Good Hardware
581 MARKET ST. 6063 SUTTER
"San Francisco's Leading Hardware Store"

EMPIRE HARDWALL PLASTER
MANUFACTURED BY
Pacific Portland Cement Company, Consolidated
PACIFIC BUILDING  SAN FRANCISCO  PHONE GARFIELD 4100
PORTLAND       SAN JOSE       LOS ANGELES

When writing to Advertisers please mention this magazine.
Seven Points of Worth

Consider these valuable points of service and economy. Western Venetian Blinds:

- Utilize 100% of available window area for lighting purposes.
- Permit the regulation of daylight and ventilation.
- Eliminate the intense glare of the sun, and change bright sunlight into soft, restful daylight.
- Reduce the heat from the sun.
- Serve in place of both awnings and shades, and perform a better service.
- Give from 20 to 30 years of satisfactory service at a minimum of maintenance.
- Harmonize with, and enhance the architectural beauty of business structures.

No other window equipment has these seven points of worth; nor will any other render such efficient service, for so long a time, at an equally low cost.

Write for Special Bank and Office Building Catalogs
See Swee Catalog, pages 1061 to 1083 inclusive, 17th Edition

Western Blind & Screen Company
General Offices, Los Angeles; Factories, Los Angeles and Kansas City

New York, N. Y., 35 W. 43rd St.
Atlanta, Ga., 309 Flatiron Bldg.
Kansas City, Mo., 14th & Montgall
Texas Agents: Two Republics Sales Service

523 Hicks Bldg., San Antonio

Chicago, Ill., 326 W. Madison St.
Portland, Ore., 213 Fitzpatrick Bldg.
San Francisco, Cal., 921 Hearst Bldg.
Kirby Bldg., Dallas

Western Venetian Blinds

More light~more air~less glare
When George Washington Became President

A building could have been constructed of RAYMOND GRANITE and in 1924 be giving excellent service—remaining impregnable to the elements.

RAYMOND GRANITE lasts countless lifetimes. For sheer beauty no granite compares with it.

A group of University of California Buildings in which Raymond Granite was used.
RIDGWAY FLAGSTONE is a natural stone that comes in many neutral shades of Blue, Buff and Brown. It can be had in any desired size or pattern. Its non-slip surface recommends it particularly where hard wear and exposure tends to make floors slippery. It neither chips nor splits nor changes color. Not expensive. Samples and full information on request.

TOMPKINS-KIEL MARBLE COMPANY

505 FIFTH AVENUE NEW YORK CITY

CHICAGO

SAN FRANCISCO
SYLACAUGA, ALA.
KNOXVILLE, TENN.
Saved building from total loss

Herringbone
RIGID METAL LATH

Prevented spread of flames from floor to floor until fire department arrived. The picture shows third floor of six story building at Mission and Second streets, San Francisco, after fire had swept through it. Note excellent condition of joists after removal of lath and plaster ceiling on left. Where plaster is cracked or lath is exposed water was responsible. The metal lath on this floor was subjected to the severest heat possible and proved equal to the one hour rating given it by the Fire Underwriters.

The General Fireproofing Co.
20 Beale Street
San Francisco

When writing to Advertisers please mention this magazine.
1884—1924

“The tower, in its origin, is a building for strength of defense, and faithfulness of watch,” says Ruskin.

This original purpose has long since been outgrown; nevertheless, the tower has been preserved to us through the ages as one of the best loved traditions of architecture. Viewed across a sea of roofs and volleying smoke-stacks, a city’s dominating towers are at once a challenge to the imagination and a stimulus to industry.

The towers here illustrated are built of Indiana Limestone, the one being that of the Auditorium Hotel, Chicago, erected forty years ago, the other that of the Temple Building, Chicago, recently completed. Note in the first, the expression of dignity and strength; in the other, grace and inspiration — expression made effective in both instances by the use of this natural stone.

Indiana Limestone is beautiful when simply laid, stone upon stone with no ornamentation, as in the Auditorium Tower, or when elaborately and precisely carved and fashioned into turrets and pinnacles as in the Temple Building Tower.
Rydal Mixing Valve will appeal to Architects

The Rydal mixing valve accomplishes, in two complete turns, what the ordinary mixing valve attempts to accomplish in a half turn.

Architects as well as the public condemn mixing valves on account of their quick change in temperature which has, at times, caused the user a great deal of discomfort.

With the Rydal mixer, the temperature of the water can be changed two degrees at a time.

Furnished with a movable dial plate which reads—shut, cold, warm and hot.

The concealed mixer has a regulating screw under the dial plate.

This screw controls the travel of the volume plungers.

By this screw regulation the mixer can be set to open to any point between the words Warm and Hot. Under ordinary conditions, the maximum temperature desired can thereby always be obtained.

Plungers are of different diameters, thus preventing the possibility of error in replacing.

Plungers are of the floating type, allowing seats to close off tight when the wear of the washers has been uneven.

Seats are removable and are of different diameter threads to prevent incorrect installation when replacing.

Operating stem furnished with a heavy square thread, having a large bearing surface which makes a long life thread.

Haines, Jones & Cadbury Co.
Makers of Plumbing Supplies

857-859 Folsom Street, San Francisco
Philadelphia New York; Richmond, Va.; Savannah
Jacksonville; Charlotte

When writing to Advertisers please mention this magazine.
March, 1924

Consult an Architect before Building
This advice appears in our national magazine advertising to home builders.

"The Story of Oak Floors"
from the earliest times to the present day, contains 24 pages of information and suggestions valuable to architects.

For OAK FLOORS
Suggestions in Color sent FREE

This unusual book contains plates of the new color finishes which will harmonize oak floors with walls, hangings, and drapes, and add just that needed touch of individuality to the floors of a room. Your clients in talking over the new home, will appreciate the decorative possibilities of 'weathered' finish in the living room or library, 'gray' in the dining room, and 'forest green' in the enclosed sun-porches. In re-modeling commissions, recommend

3/8" oak over the old softwood floors
just as sound and enduring as flooring used in new construction. Color finishes may be interestingly applied here, as well.

Over 70,000,000 people will see oak floors advertised this year. As many of those to whom we send this new book will consult you about the color suggestions mentioned, we will appreciate the opportunity to send you your copy.

Please mail the coupon below, today.

Oak Flooring Bureau
1036 Ashland Block, Chicago

Please send me your free, illustrated book, "The Story of Oak Floors."

Name........................................
Address........................................
Reversible Windows

With highest utility, and fine appearance, the Crittall Reversible window also offers a quality advantage at minimum cost that cannot fail to impress architects and builders.

It combines maximum light with a wide, easily adjusted ventilating range. It is ideal for offices, never out of order, and its reversibility permits windows to be washed from inside.

The services of our engineers are gladly placed at the disposal of architects for assistance in the solution of unusual window problems.

All Crittall Casements and Windows are made of Crittalloy — the Copper Bearing Steel

CRITTLALL CASEMENT WINDOW CO., Manufacturers, DETROIT
To enable architects to satisfy the most exacting demands for beauty and individuality in bathroom appointments, Crane has created many new and interesting units combining French and Italian marbles with fine porcelain. These distinctive fixtures are produced under the same watchful care and skill that assures dependable quality in Crane materials of every type. To your clients, the Crane name on fixtures and piping alone is often conclusive evidence of the hidden quality which results in lasting satisfaction.
American Sash Chain

Standardized Quality and Sizes

"Standardized Quality" means uniform material and workmanship. "Standardized Sizes" means a size, to correspond accurately with the various weights of sash in common use. These important features are not the result of haphazard estimates, but of painstaking laboratory investigation.

The American Chain Company, makers of the famous Weed Chains, builds into every foot of this sash chain, its reputation and long experience.

AMERICAN CHAIN CO., INC.
BRIDGEPORT, CONN.

Largest Manufacturers of Welded and Weldless Chains and Makers of the Famous WEED Automobile Accessories

Have you received our interesting sash chain manual? If you have not, it will pay you to write to us for a copy.

ORIGINATORS

OF

SASH CHAINS

18,000 feet of our No. 1 "Red Metal" Sash Chain used in the Matson Building, San Francisco, Cal., Bliss and Faville, Architects. Our chains have also been installed in the new Los Angeles Biltmore Hotel and the Fitzhugh Building, San Francisco.

"Giant Metal" Sash Chain. "Red Metal" Sash Chain. Steel Sash Chain.

Send for Sash Chain Catalog A1.
See Page 1253, Sweet's 18th Catalog.

THE SMITH AND EGGE MFG. COMPANY
BRIDGEPORT, CONN.

RAWLINS & SMITH

COAST AGENTS

When writing to Advertisers please mention this magazine.
A Flooring of Durability

U. S. Tile Flooring was installed in the lobby and corridors of San Francisco's latest skyscraper. As hundreds of people pass over these floors daily, a resilient, non-slippery, and attractive flooring was desired.

U. S. Tile Flooring is made in a large variety of attractive designs, veinings and color combinations. Every installation is backed by the reputation of the United States Rubber Company, the world's greatest manufacturer of rubber products.

Full information and samples upon request

United States Rubber Company

300 Second Street
SAN FRANCISCO

OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES

748 San Pedro Street
LOS ANGELES

MANUFACTURERS OF RUBBER FLOORING SINCE 1897
Operates by Natural Gravity

Note how the fresh air entering the Babcock High Efficiency Gas Furnace immediately comes in contact with the heated radiators, and becoming warmed, naturally rises to the registers. No air blast is necessary in the process. The action of the Babcock is by natural gravity. — 5 year guarantee.

Manufactured by C. B. BABCOCK COMPANY, San Francisco

C. B. BABCOCK CO.
San Francisco

PACIFIC GAS APPLIANCE CO.
Oakland

BABCOCK "HIGH EFFICIENCY" GAS FURNACE

Pump Governors
Oil-Burner Governors
Reducing Valves
Safety Valves
Oil Valves
 Blow Off Valves

Boiler Feed Valves
Vacuum Pump Governors
Vacuum Regulating Valves
Oil Pumping Sets
Little Giant Improved
Oil Burners

Duples Oil Pumps
Rotary Oil Pumps

Oil Heaters
Draft Gauges
Boiled Feed Pumps

G. E. WITT CO., Inc., Engineers
C. W. VAUGHN, President and Manager
MANUFACTURERS AND DISTRIBUTORS
862-864 Howard St. Phone Douglas 4404 San Francisco, Cal.

J. M. Fabbris, Vice-Pres.
J. A. Mackenzie, Secretary
A. F. Edwards, Pres.
J. Rubiolo, Asst. Mgr.
D. A. Bataford, Asst. Mgr.

AMERICAN MARBLE AND MOSAIC CO.

Factory:
on Water Front, South San Francisco
Near Grand Ave. and Ferry Slip
Telephone Mission 6013

Office:
25 Columbia Square, San Francisco
Near Polk St., Bel. 5th and 7th
Telephone Market 5070

When writing to Advertisers please mention this magazine.
Contents

VOL. LXXVI MARCH, 1924 Number 3

Federal Reserve Bank of San Francisco - Frontispiece
George W. Kelham, Architect

The Samarkand Hotel at Santa Barbara - 55
Frederick Jennings

A Spanish Colonial Chapel - 65
Frederick Jennings

The Steinhart Aquarium, San Francisco - 69
Irving F. Morrow

Result of Competition for Pasadena Civic Center Buildings - 77

Publicity for Architects—Good and Bad - 81

Improved Store Building Design - 85

R. L. Mills

Houses or Traps?—Safety First - 93
Bailey Willis
Professor of Geology, Stanford University

The New Architecture - 96
Henry S. Churchill

Sidewalk Protection During Building Construction - 99
S. J. T. Strauss

The Regional Survey - 100B
Carol Aronovici
City Planning Consultant

Editorial - 105

With the Architects - 109
The Samarkand Hotel at Santa Barbara

By FREDERICK JENNINGS

It remained for an Eastern friend—a tourist who had traveled 3,000 miles—to tell me about the wonders of Samarkand which in Persia means “Land of Heart’s Desire.” Samarkand is a beautiful outdoor hotel nestled in the foothills of lovely Santa Barbara and overlooking the old Spanish town and ribbon of blue sea that skirts its border. And when this traveler from the East told of the wonders of Samarkand he once again vivified that old saying about one’s ignorance of the wonders of his own country—for is it not true that many of us fail to appreciate the beauty spots under our very eyes until told of them by an inspired visitor? The Persian hotel at Santa Barbara is not necessarily Persian from an architectural point of view. To describe its type of architecture would be to class it as of Spanish and Moorish inspiration. The Linnard management, however, since taking over the property that originally was planned as a private school, has made many changes, and is still making them, which contribute an undeniable Persian atmosphere to the surroundings. An attractive entrance has been designed by Architects Marston, Van Pelt & Maybury of Pasadena and this is now under construction. Plans have been made by the same architects for an open air Persian swimming pool and for an additional wing to the “Honeymoon House” reached by a cloistered arch and insuring guests of even greater seclusion than they could find in their own home.

The main mass of buildings faces a great court in which are terraces, steps, fountains, lily pools, swan lake and hidden gardens, which latter, upon close inspection, reveal to the bewildered guest a profusion of blooming daffodils, iris, watsonia, hyacinths, tulips and other bulbs of springtime. The pure white cement finish of the hotel, with background of green rolling hills, is given the needed far Eastern atmosphere by the general use of colorful decorations, drapes and awnings. No surfaces or drapes are left neutral.

The hotel and gardens were planned by Messrs. George Austin Dennison and Charles Francis Ingerson, who are now in Europe for a
"HONEYMOON HOUSE," SAMARKAND HOTEL, SANTA BARBARA
Geo. A. Dennison and Chas. F. Ingerson, Designers

DETAIL OF CLOISTERS, SAMARKAND HOTEL, SANTA BARBARA
Geo. A. Dennison and Chas. F. Ingerson, Designers
VIEW OF HOTEL FROM SWAN POOL, SAMARKAND HOTEL, SANTA BARBARA
GEO. A. DENNISON AND CHAS. F. INGERSON, DESIGNERS
GARDEN FRONT FROM CLOISTER, SAMARKAND HOTEL.

GEO. A. DENNISON AND CHAS. F. INGERSON, DESIGNERS
BALL ROOM, SAMARKAND HOTEL, SANTA BARBARA
Geo. A. Dennison and Chas. F. Ingerson, Designers

LOUNGE ROOM, SAMARKAND HOTEL, SANTA BARBARA
Geo. A. Dennison and Chas. F. Ingerson, Designers
DINING ROOM, SAMARKAND HOTEL, SANTA BARBARA
Geo. A. Dennison and Chas. F. Ingerson, Designers

BED ROOM OF SUITE, SAMARKAND HOTEL, SANTA BARBARA
Geo. A. Dennison and Chas. F. Ingerson, Designers
period of travel and study. The manager of Samarkand is Mr. Wallace Vail, for five years associated with the Linnard interests in the management of the Fairmont and Whitcomb hotels in San Francisco.

The following paragraph from the pen of Mr. George Gilbs, novelist and artist of Philadelphia, sums up the beauties of the hotel and its environment:

"I shall never forget the moment of complete beatitude when I reached Samarkand's gardens and pools and looked down from the Tent of Omar over the City of Santa Barbara to the sea. It was the full of a lovely moon, sailing gently between mountains and ocean, as though this were its favorite course, as though there were no other place in the world worthy of its beneficence. It drenched the misty valley with radiance, and bathed the grey battlements of the hotel buildings with silver. From somewhere came the tinkle of water and out of the obscurity of the gardens below, pale flowers emerged and mingled their fragrances with those of mountains and sea. Warm lights from screened lanterns, lent to the exotic illusion, only disturbed by the distant roar of a train to remind one that he was visiting not the palace of a Shah or Sultan, but a hotel in a very vital American city."

Hawaiian Tools Similar to Egyptians'

Stone adzes used by Egyptians nearly 5,000 years ago to hew out tombs in soft limestone are almost identical in form with the stone adzes used by Hawaiians to within recent years to cut wood. Dr. Henry S. Washington, of the Carnegie Institute, who points out this similarity, says that it may support the theory that the culture which existed on the Pacific islands and in America before the time of Columbus originated in ancient Egypt about 800 B.C., and was spread westward by sailors. However, he thinks it more probable that the Hawaiians and Egyptians worked out the problem in much the same way but independently.
AMANDA A. McCARTHY MEMORIAL CHAPEL, CARTHAY CENTER, LOS ANGELES
ALFRED EICHLER, ARCHITECT    H. W. BISHOP, SUPERVISING ARCHITECT
A Spanish Colonial Chapel

Mr. Alfred Eichler, architect of the interesting chapel at Los Angeles here illustrated, writes that this edifice was built by the Carthay Center Syndicate as a memorial to Amanda Anderson McCarthy, a pioneer woman of Southern California. The architecture is a free handling of Spanish-Colonial motives. Built of hollow concrete the exterior has been given a finish of smooth white stucco with roof of hand made tile, the product of Mexican labor in Santa Monica. The tile was burned longer than usual for the purpose of securing a combination of colors characteristic of the old Spanish roof tiles made by the padres. No photographs of the interior of the chapel are shown, since it has been purposely left in a more or less incomplete state until such a time when funds will permit the carrying out of the architect's plans for decorations crudely fashioned by primitive Indian labor.
The Steinhart Aquarium, San Francisco

By IRVING F. MORROW

M R. HOBART'S is an exuberant, even somewhat whimsical temperament working with deliberation. What might be casually misconstrued as emotional conservatism is perhaps more properly to be set down as intellectual caution. From his buoyant manner of discussing the fun of studying you know that his work is entered into with a gusto and a spirit of adventure. But he shuns irresponsibility. Caution is a worthy virtue. Yet, in the case of a whimsically inclined temper, one sometimes speculates on just what might happen if it were temporarily suspended. I am sure there are times when Mr. Hobart has an impulse to kick over the traces; and on such occasions I wish he might momentarily forget that his friends are eminently respectable. But despite this vein, his architecture is pre-eminently an intellectual one. It contains no accidents, either happy or unfortunate, because he knows both what he wants and how to get it. He is probably never surprised at his executed work; (and, if all architects were rigorously truthful, it might be a shock to know how frequently this statement could not be made). Divergence in philosophy or taste may lead you to disagree with what he has done, but you can never charge him with ignorance or neglect.

The Steinhart Aquarium of the Academy of Sciences group in Golden Gate Park, San Francisco, illustrates his attitude and manner of working. In planning and composition it is respectable enough for any school "projet" not sponsored by a "riche amateur"; but it is worked out with an irreverent playfulness of spirit which must be disheartening to the serious academic mind. Such a person should approach no nearer than the road, for from that distance there is an illusion of complete propriety; while a closer inspection will arouse his suspicion that Mr. Hobart has been trying to dodge royalties to the Vignola estate on mere technicalities. The interior is conceived in a spirit more frankly baroque. Yet if the fish which swim about with unsophisticated enjoyment could have a voice, I am sure they would prefer Mr. Hobart's marine whimsicalities and polychrome to the correctness of the "best examples." So, in fact, do I. The building impresses me—particularly the interior—as wholly delightful in character. The scale and proportions of the colonnaded entrance lobby are fine. The sureness with which the large simplicity of this central portion is maintained over a wealth of miscellaneous local "business" is extremely able. All the parts radiate the gusto which went into their working out. The color is not only appropriate and suggestive, but beautiful on its own account. The lively intrusions of polychrome tile into the prevailing sea-green ground tone are most happy in effect. The building conveys an idea.

It offers food for serious thought that a first class city can allow three structures such as the Park Music Stand, the Academy of Sciences buildings, and the DeYoung Memorial Museum, to grow up into a closely associated group without a controlling authority to impose some intelligent layout. The relation need not have been a formal one, but it should at least have been recognizable.

It is also a serious reflection on our public sense of fitness that the Francis Scott Key monument should be tolerated hanging about Mr. Hobart's fore-court like a vagrant. It is an association which can be profitable to nobody concerned. The monument casts scandalized aspersions at Mr. Hobart's architecture, while this in turn disrespectfully sniggers at the former's self-righteous cast-iron mid-Victorianism.
STEINHART AQUARIUM, GOLDEN GATE PARK, SAN FRANCISCO
LEWIS P. HOBART, ARCHITECT
ENTRANCE VESTIBULE, STEINHART AQUARIUM, GOLDEN GATE PARK
LEWIS P. HOBART, ARCHITECT
PLAN, STEINHART AQUARIUM, GOLDEN GATE PARK
Lewis P. Hobart, Architect

MAIN EXHIBITION CORRIDOR, STEINHART AQUARIUM
Lewis P. Hobart, Architect
STEHART AQUARIUM, GOLDEN GATE PARK, SAN FRANCISCO
LEWIS P. HOBART, ARCHITECT
ELEVATION, PUBLIC LIBRARY BUILDING, PASADENA
Myron Hunt, Architect

FIRST FLOOR PLAN, PUBLIC LIBRARY BUILDING, PASADENA
Myron Hunt, Architect
Result of Competition for Pasadena Civic Center Buildings

The architectural competition conducted by the city of Pasadena for the best designs for a city hall, library and auditorium is now a matter of history and from all accounts was a success. The program was approved by the Southern California Chapter of the American Institute of Architects and the competitors participated by special invitation. There were nine entrants of whom three were from San Francisco—Messrs. Bakewell and Brown, architects of the San Francisco city hall, Messrs. Bliss and Faville, winners of the competition for the recently completed State building in the San Francisco Civic Center and Willis Polk & Company.

Mr. William E. Parsons acted as consulting and advisory architectural expert. The jury was composed of Mr. Stuart French, chairman of the City Planning Commission of Pasadena, Dr. George Ellery Hale, Mr. E. A. Batchelder, Architects Robert D. Farquhar and Pierpont Davis of Los Angeles. The jury found the best plan for the city hall to be that submitted by Messrs. Bakewell and Brown of San Francisco; the design of Mr. Myron Hunt of Los Angeles for the library was accepted as superior to the others submitted while the design approved by the jury for the auditorium was that offered by Mr. Edwin Bergstrom of Los Angeles and Messrs. Bennett and Haskell of Pasadena, associated.

The report of the jury follows:

To the Board of Directors of the City of Pasadena:

Gentlemen:—

In the study and analysis of the designs submitted, the three major considerations are as follows:

First—The general arrangement and composition of the various units of each plan with regard to the practical functioning and operation.

Second—The adaptation of each building to its site, particularly with reference to the mass of the facades terminating the street vistas.

Third—Architectural character and expression with special reference to the climate and environment.

THE AUDITORIUM

Design Number 24 has been given first place for its general superiority in plan and front elevation.

The seating arrangement is particularly excellent. Accessibility is well cared for and exits are well arranged and located. The majority of the seats being placed on the first floor permits a relatively small balcony and gives greater amplitude to the hall. All balcony seats face directly toward the stage. The size and proportion of the main auditorium and the simplicity with which the side walls and ceiling are treated, give promise of a beautiful room.

 Provision for additions in the form of exhibition halls, etc., are handled in an adequate manner, making it possible to combine the exhibition hall with the auditorium so that they may function together on special occasions.

The exterior of the building is especially attractive. Simple and dignified in character, the face of the building will form an effective termination of the street vista. Recognition of its northern exposure and its use of color about the second story windows is well conceived. The arrangement of the entrance steps and terraces is commended.

THE LIBRARY

Design Number 8 has been adjudged the best.

This building is unique in plan and elevation. The entrance into the forecourt creates at once an atmosphere of seclusion from the public street.

The interior offers interesting possibilities for surroundings, inviting quiet and study, peculiarly appropriate to a library.

The independent entrance from the street to the auditorium and the children's rooms and the central functioning of the various parts of the plan are well studied, particularly the relation of the circulation room, stock room and reference rooms.
ELEVATION, CIVIC AUDITORIUM, PASADENA
Edwin Bergstrom and Bennett & Haskell, Associated Architects

PLAN, CIVIC AUDITORIUM, PASADENA
Edwin Bergstrom and Bennett & Haskell, Associated Architects
ELEVATION, CITY HALL, PASADENA
Bakewell & Brown, Architects

MAIN FLOOR PLAN, CITY HALL, PASADENA
Bakewell & Brown, Architects
The division of the reference room into subordinate alcoves is commendable. Since all of the departments except the rooms for the staff are on the main floor, the building will serve well the need of practical and economical operation. 

The exterior presents unusual interest from all the various points of approach to the building, is appropriate for a southern exposure and offers a charming terminal for the street which it faces.

**THE CITY HALL**

Design Number 25 has been awarded first place.

The plan of the City Hall takes advantage of the rectangular site to give a large cloistered court which forms the garden vestibule of the building.

The masses of the building form a continuous uniform width surrounding the court; this uniform width permits a flexible disposition of partitions for the various sizes of rooms necessary for the different departments of the city government. In fact, in this respect the floor plans afford all the practical advantages of a modern office building, following one of the best known types where the building is erected around the four sides of a central court. Constructed along the simple straight-forward lines of the plan, this building should be economical as regard construction costs.

The arcades and the circulation through the garden give a perfect system of circulation and access to all departments, while the small stair towers in the four corners of the court complete this system and lend additional interest.

The author of this design presents suggestions for immediate construction and future extension of the building, including the belfry, which forms the central motif on the axis of Holly street. Further study will give opportunity to perfect the design. Generally, the mass of the facade and its simple lines will make the City Hall the dominating center of the group of civic buildings.

The jury wishes to express its opinion that the competition is well justified by the generally high standard of the designs submitted and by the excellence of those selected as the best. Judging by the quality of the designs selected, the jury believes that their authors will prove to be the type of men who will lend the fullest cooperation with the City Directors, the Planning Commission and its architectural consultants in producing a unified and entirely satisfactory group of civic buildings.

The judgments of the jury were unanimous.

* * * *

**Architect and Engineer Annual House Number**

Of exceptional interest will be the annual House Number of The Architect and Engineer, out April 20th. The number is published two months earlier this year as many owners who contemplate building have expressed a desire to inform themselves on the new work that has been done by architects before deciding upon their own plans. The spring building will start in earnest in another month so that the issue, coming out at this time, should be a valuable aid to those seeking up-to-the-minute ideas.

This year's House Number will show homes recently completed in every section of California, including San Diego, Los Angeles, Santa Barbara, Pebble Beach, Monterey, San Jose, San Francisco, Oakland, Berkeley and Sacramento. Work will be shown of architects who have acquired reputations as designers in domestic architecture. Both large and small houses will be presented and plans will be given wherever possible. More than fifty full page plates will make this issue one that no architect can afford to be without, while the layman will find the issue a big help to him in his search for something worth while in home design.

* * * *

**New Building for Oakland Elks**

Completed plans for a new building for the Oakland lodge of Elks to be erected at Broadway and Twentieth street have been approved. William C. Knowles is the architect and the plans call for a building of Gothic architecture. A part of the structure will be eight stories high and the remainder, which will provide living rooms for the members, will be 180 feet high. The estimated cost is $1,000,000.
Publicity for Architects—Good and Bad

The Publications and Public Information Committee of the American Institute of Architects has secured the publication of certain articles in the daily press as publicity matter intended to advance the standing of the profession of architecture and indirectly its practitioners. Among these articles are "The School House Beautiful;" "Snappy Styles in House Building;" "A Little Sermon on the Triangle with Particular Emphasis on the Architectural;" and "Just a Love Nest." To the credit of the profession, it can be said that most of these articles are written by non-architects.

What reaction is produced by these titles and the text of the articles? How can they promote a decent regard for the profession? While they will not appeal to all of us alike, it is the effect on the great majority that concerns us.

"The School House Beautiful"—why the "Beautiful"? Does not that designation add a ladies boudoir tone to one of the most important buildings in any community? A school house should be beautiful—it is very desirable but why not rather call it useful? To serve its purpose it must be planned for use and so designed it becomes, when properly managed, a most potent influence in any community. Its function is useful constructiveness in everything for the betterment of society.

"Snappy Styles in House Building"—how impressive this is! We look for advertisements of snappy styles in garments for flappers of both sexes. Happily these snappy styles soon disappear. A house should be a permanent construction and in a style worthy of a house. Homes are stressed enough by the present transitory condition of society without further assaulting them by snappy styles. We can at least treat the house and home decently.

"A Little Sermon on the Triangle," etc., is not a title that would cause anyone seeking architectural information to make any great effort to procure it. It is an enigmatic title suggestive of an attempt at flippant comedy.

"Just a Love Nest" does not suggest to any sane person an association with architecture or architects. Every profession has its sentimental corollary. It is right and proper that such sentiments should have their expression and when repressed or omitted the result is a mechanical and lifeless production. The sentiments that actuate a good architecture are truth, simplicity and dignity. Without these it will perish as do the snappy styles of garment—unworthy of a long existence. After reading this article and believing it, no prospective house owner would have the stomach to rush out madly to secure the services of an architect. Rather would he hunt for a decent carpenter and mason to build him a dwelling.

Fortunately, "Just a Love Nest" was not written by an architect but unfortunately it and the others mentioned were fathered by the national architectural organization. It is difficult to understand how architects can defend successfully such publicity matter (let alone permit its publication in their official San Francisco organ). The profession embraces in a vast majority of its members, men of serious purpose who can hardly be expected to enjoy the exploitation of their best efforts in a joke book style.

Publicity is far reaching in its effects. Good results are of slow growth and bad results are quickly achieved due to that very human willingness to depreciate rather than appreciate. It is a serious thing
to engender a false impression about any important thing. The best publicity is that produced by those who have a broad and intimate knowledge of the thing to be exploited. Architecture can best be promoted by architects, it cannot be done properly by comedians or humorists in a low-comedy, jazz style. If architects as a body are satisfied with such a publicity campaign nothing will be done to correct the situation. In the meantime this work proceeds with an output of weekly installments. It is inconceivable that the great body of professional architects will give a ready support to the campaign. At least it so appears to one who signs himself "on the Sideline" in the February Bulletin of the Illinois Society of Architects.

**A Questionnaire for Architects**

Architects who are members of the American Institute of Architects, have recently been supplied with a questionnaire for the purpose of obtaining their views on certain subjects of vital interest to the profession and from the answers received the Committee on Architectural Relations hopes to formulate the reflection of the attitude of the majority of the members. The following are the questions, together with an answer to each, submitted by Mr. Chas. E. Fox, a member of the Illinois Society of Architects and Institute Chapter in Chicago. Practically every member of the Institute in Chicago has requested an opportunity of signing Mr. Fox's reply, so faithfully do the questions voice their individual sentiments.

The questions and answers follow:

**Question**—What should be the attitude of architects to speculative building and speculative builders?

**Answer**—My attitude would vary with the character of the speculator and the nature of his business. To the man who puts his real money into the creation of a rent roll for the purpose of producing an attractive article for sale to investment capital, I would bring the same attitude that I do to any other client. I would decline to serve a man who is minded to create a building out of credits, bond issues, stock payments on account of work and padded or fictitious rent rolls for the purpose of unloading on a credulous buyer.

**Question**—What should be the attitude of architects to so-called group practice, or as it has been called, "hunting in packs"?

**Answer**—I must plead ignorance on this system. In thirty years experience I have not knowingly encountered this item of professional activity.

**Question**—Is it right for architects to do business on the reputation of the dead or retired, especially when they lack the inspiration and touch of the vanished hand, and need restraint, as by the voice that is stilled; and what should be the attitude of architects to this business method?

**Answer**—I believe that no business can live under whatever name it is called unless its performance measures up somewhere near its promise. I would say that doing business under a name which on its face calls for a character of work which cannot be delivered, would be more likely to destroy than to build up. If the business thrives under this arrangement, it would seem that the work which built the reputation had been done by those who remained rather than the dead hand that received the credit.

**Question**—Should architects practice on a strictly professional basis, or should they be unprofessional and yield to the embraces of the commercial elements of the building business?

**Answer**—The business of architecture in its artistic sense is a part of a larger and broader business which is largely commercial. If the
American Institute of Architects chooses to confine its activities to the artistic portion of the building business, well and good; membership in it will be quite as interesting and perhaps more interesting than if it attempts the entire scope of the work; but in that event, in my opinion, it must not expect to dominate, direct and control the business. It is my opinion that the architectural profession will either expand its activities to take in more of the commercial elements of creating buildings, or the organizations now controlling the commercial elements of the business will expand to take in a large part of the activities now conducted under the designation of architecture. I prefer that architects expand.

Question—Should the Institute base its membership requirements on notable achievement and so become a select society; or should it make character and reasonable competence its standards and become an organization having a majority voice in the profession, and truly representative of it?

Answer—I would like to see the American Institute of Architects become an organization of a majority of the good men in the profession and properly representative of it, provided it possesses a sufficiently aggressive and intelligent personnel to do so one hundred per cent.

I would rather see the Institute contract its activities and limit them to the artistic elements of the profession than to see it attempt to take the driver's seat and make a failure.

Question—What should be the attitude of the Institute toward smaller and more local architectural and related and allied organizations?

Answer—I think when the Institute assumes any attitude towards the smaller and more local organizations than that of sympathy, and helpful co-operation, it will automatically cease to be anything worth while.

* * * *

The Business of Architecture

Fine buildings have a mission aside and apart from their architectural beauty. Also commercial buildings should conform to their surroundings in matters of architecture and selection of materials entering into their construction. When a municipality demonstrates civic pride and its citizens generously set aside funds for the erection of a library, a school, or a memorial, it is but natural to suppose that public opinion would be opposed to the erection of an unsightly warehouse or some other structure of a similar nature immediately alongside. In the case of municipally built and owned buildings the design does not necessarily have to take into account the saving of space or the financial returns from tenants and so the architect is free to work out his ideas without regard to commercialism. America stands accused of being a commercial nation and the charge undoubtedly requires no proof even in the minds of its own citizens; and as a consequence it is but reasonable to suppose that its professions are tainted with the business of finance. Even the practice of architecture needs must combine with art, so much so at times as to cause us to ask whether architecture is art or business.

We in America who have studied economics in relation to construction and in conjunction with art see in the architectural profession the mere working out of a system made necessary by the requirements placed upon architects by builders, owners of real estate and leasees of buildings. In our cities building sites that are measured in inches must be utilized in terms of financial return with the value of the site as the initial figure. To this the architect must add cost
of construction and so apportion the interior as to assure the financial results estimated by the builder as necessary to make the investment a profitable one. Every new building raises a public question, according to the American Institute of Architects' committee on public information, and, it adds, "in all structures beauty and utility should be present." The committee also declares that as all buildings are seen society has a right to demand that none be ugly, that none be unsafe and that none be dangerous to health. But it is the definition of an architect to which we wish to call attention as emphasizing the point that the American Institute of Architects recognizes business training as a requirement for the successful architect. The definition follows: "An architect should have a fundamental knowledge of art as an expression of beauty, of structural requirements and of practical design and planning. The practice of architecture requires business executive ability of a high order." Further recognition of business in architecture is seen in the establishment of studentships for the study of the earning capacity of fine buildings by Mr. Alfred Bossom. By instituting these studentships, Mr. Bossom makes it possible for one English student to travel and study in the United States for a year and obtain at first hand information, which the donor himself, an Englishman, must have felt did not exist in his native country. These studentships will be awarded in a competition, and it is interesting to note that the conditions require the students to name the city or town, position of site and submit a scheme as architect to a hypothetical building company. It will be necessary to state the annual value of the site, purposes for which the site is best suited and height and other details to conform to the set rules. It might be argued that Mr. Bossom overlooks relative values of building sites as between New York and London, but investigation discloses that certain London streets have attained higher values and consequently higher buildings. Thus commercial architecture has gained a foothold in the United States and we predict that European countries will not be slow in acknowledging the merits of this branch of the profession and that great savings will result with no radical departures in design that would detract from architectural beauty.

In the rise of commercial architecture stone has met the changed conditions at every step, it has likewise maintained its supremacy in fields where other building materials have never been used and through the dictates of art cannot be used. With the advent of the steel-framed structure cut stone was found to be as adaptable to exterior use as manufactured materials and, from the extent of its use for the entire exterior of so-called skyscrapers it has merited the confidence of architects in specifying it for fine commercial buildings.

* * * *

Building Against Earthquakes

In rebuilding the cities which the earthquake destroyed, the Japanese will rely, as far as possible, on the American system of steel skeleton structures. One interesting feature of the Tokyo post-earthquake survey is the recommendation—which probably will be embodied in law—that foundations of buildings shall not be extended down to bedrock, hardpan, or other solid basis. They are to be "floated" on relative loose earth, so as to be free to move with the waves of the temblor. That practice, likewise, is not entirely new in Chicago experience, though for entirely different reasons.—Chicago Journal.
Improved Store Building Design
By R. L. MILLS

It is gratifying to note that architects are putting more character into their designs of medium cost store buildings, particularly in the outlying districts of cities where stores are necessary to take care of community demands. Oakland and Berkeley have quite a few of this improved type, the accompanying pictures being selected as typical examples.

For obvious reasons the modern store building is built either of reinforced concrete or brick. While the initial cost of concrete or brick is considerably more than frame, the ultimate cost is invariably less. Frame store buildings can be built as low as $2.00 per square foot while the better types of reinforced concrete store buildings cost $4.00 per square foot or more. While there appears from these figures to be an apparent doubling of cost such is not the case. The concrete or brick building is built much higher from the street grade to the roof line, with higher ceilings and higher fire walls, and foundations capable of carrying additional floors when business conditions warrant. Furthermore, the entire building is finished better than a frame structure, both interior and exterior.

A Class C store building has been found to attract the better class of tenant and is leased more quickly and with considerable less effort than a frame structure. The rentals, too, are much higher, as might be expected.

Insurance on a frame building is no negligible quantity, in fact the high premiums imposed by the insurance companies on buildings of flimsy construction are veritable profit eaters, the rates ranging from about $3.00 per $100 up, depending upon exposure, tenancy, etc. Insurance on concrete store buildings may be written as low as 50c
STORE BUILDING FOR F. E. ROMIE, BERKELEY
Designed by Hutchison and Mills

STORE BUILDING FOR LESLIE R. WILSON, BERKELEY
Designed by Hutchison and Mills
STORE BUILDING FOR LESLIE R. WILSON, OAKLAND
Designed by Hutchison and Mills
STORE BUILDING FOR LESLIE R. WILSON, BERKELEY
Designed by Hutchison and Mills

STORE BUILDING FOR LESLIE R. WILSON, BERKELEY
Designed by Hutchison and Mills
SECOND FLOOR PLAN

DESIGNED — BY —
HUTCHISON & MILLS
1714 WEBSTER ST OAKLAND

SECOND FLOOR PLAN, BUILDING FOR MURPHY HAMILTON, OAKLAND
DESIGNED BY HUTCHISON AND MILLS
per $100. In the former case the premium very materially lessens the returns on the property, in the latter case the insurance outlay is negligible.

The rates for fire insurance also give a measure of the risk involved in frame buildings by having the income stopped entirely by fire, a loss which insurance does not take care of.

Depreciation and deterioration are other items which must be charged against a frame building but do not figure to any extent in concrete, brick and tile construction. The frame building begins to depreciate almost as soon as it is completed and the landlord must have a greater proportionate return on his capital to offset this loss.

STORES AND APARTMENTS FOR MURPHY HAMILTON, OAKLAND
Designed by Hutchison and Mills

After all, the final test is in the salability of the property, its appearance and type of construction having much to do with its resale value.

In considering the desirability of business property as an investment the following points should be kept in mind: while the net returns from stores may not be as high as with some types of property, they are more likely to be a safer investment. The landlord who leases a store to a tenant is giving that tenant an opportunity to make money as well, which is not always the case with certain other rentals. There is nothing much safer as an investment than a good piece of well located business property. In addition to the generous returns and splendid security there is always the increase in value which comes as a natural sequence to growth.
STORE BUILDING FOR LESLIE R. WILSON, OAKLAND
Designed by Hutchison and Mills

STORE BUILDING FOR LESLIE R. WILSON, BERKELEY
Designed by Hutchison and Mills
Houses or Traps?—Safety First*

By BAILEY WILLIS
Professor of Geology, Stanford University

There is little danger in an earthquake country if you live in a house, but he who lives in a trap had better look out. It makes no difference whether he knows that it is a trap or not. Ignorance is no excuse. It is everyman's business to know for the sake of his family and of the community. This extends to a man's place of business, for your wife or mine may be caught in the wreck of a store building, whose pretentious solid front is a screen for the weak frame behind it and a menace to those who will run out of the store when the earthquake comes.

Not only is ignorance no excuse; there is no excuse for ignorance. It is well established at the cost of hundreds of millions of dollars that we live in an earthquake country and that earthquakes will produce certain disastrous effects. Engineers and architects have studied those effects and have devised means of avoiding them. Their conclusions are published in easily accessible reports. Yet the most casual observation shows that they are not considered in designing dwellings, stores, even schools, the buildings in which the larger part of our people spend most of their existence.

An earthquake movement is a sudden and very rapid to and fro motion, a vibration, which first causes a building to resist by its inertia, so that it tends to remain stationary while the ground slides forward beneath it. The immediate effect is to set up a horizontal shear, which breaks the bond on horizontal courses of brick or stone work. If this be resisted by good construction, the next effect is due to the inertia of the superstructure and roof, which lag behind as the foundations move with the earth. If the structure be not strong enough to resist the inertia which it itself opposes to the sudden movement, it will crack, break, and possibly collapse. During the continued vibration, the building is given a swaying motion, like an inverted pendulum. In this motion every part of the structure assumes a period of swinging which is peculiar to its form and to the position of its center of gravity. A light frame, supporting a heavy roof, swings with a period different from that assumed by a chimney, which is heavy at the bottom. Swinging apart and then returning, they crash against each other and the weaker is wrecked.

It has been shown that well built frame residences or stores will resist these stresses about as well as steel frame or reinforced concrete, considering the weight and size of the structures. Block construction with horizontal joints, whether of brick, tile or cement, is utterly discredited. Buildings of composite character, brick firewalls and wooden floors and partitions or any similar combination in which the parts are not intimately tied together, are invitations to destruction.

There is nothing new about these statements. They are taken from the report of the committee of engineers appointed by the American Society of Civil Engineers to investigate the results of the San Francisco earthquake and fire. But they are not heeded.

It is not enough to put these things into engineering reports. They need to be burned into the public consciousness. Shall not the holocaust of Yokohama suffice?

This suggests the other aspect of the problem, fireproofing. There

---

*Notes from a talk before the San Francisco Chapter, A. I. A., and prepared by the author for this magazine.
is no one agency which is a greater incendiary than an earthquake, as San Francisco well knows. Yet it is not the great buildings of the city that we, Americans, need so much to consider as our dwellings. The former are built fireproof, except where lax regulations and greed produce cheap Jerry building. But the building of slow-burning dwellings has yet to become general through the combined efforts of architects, engineers, and insurance men. Let no one say it is impossible. It is being done at reasonable cost with promising results and it can be carried out to success if the public once understands that it is within reach.

It is a fundamental condition of success in any effort to promote the adoption of an idea that the new method shall conform to the habits of people and to their economic circumstances. For this reason the American builder is committed to the wood frame for light construction. His first problem is to secure that frame against wrenching or breaking by earthquake, and the second is to protect it from fire. Both of these things can be done, because they have been done. A wood frame can be so wired by lacing galvanized fence wire diagonally across it in both directions at intervals of four to six inches that it will resist earthquake; and it can be so enclosed by metal lath and plaster that heat and air shall be excluded for a reasonable time. I have seen a wired frame house in Chile which went through a very severe earthquake without a crack, and the walls of metal lath and plaster which were left standing in the path of the Berkeley fire after the wood furrings and joists were burnt out are a sufficient testimony to the fire-resistant quality of that kind of construction. Where the wood frames were not exposed by the burning of the shingle roofs the walls stood unhurt, even through that conflagration.

We are also committed by custom to the shingle roof, but there is no reason why shingles of wood should be permitted. The failure of the proposal to prohibit the use of wooden shingles in Berkeley, in spite of the fact that they were a principal cause of the conflagration, is a glaring example of the weakness of public opinion when opposed by self interest with a profitable business behind it. There are excellent substitutes available for wood shingles, and the use of the latter in closely built districts should be made uneconomical through high rates of insurance.

The great advantage of a good frame building, whether of wood or steel, is that in an earthquake it acts as a unit, provided that it is thoroughly tied together in all its parts and will sway as a whole. Any structure not so tied separates into mutually destructive sections. A reinforced concrete structure can be so put together as to achieve the same result, but it is rarely done. The kind of construction which is still so common in our cities, is absolutely condemned by earthquake experience. The walls sway apart, dropping the floor beams, and the occupants are crushed in the collapse.

One could go on multiplying examples of defective design and suggesting improvements which are entirely within the range of reasonable cost, but it would be of no avail unless the men who originate the plans of buildings stand for earthquake-proof structures. There is no engineer, no architect, who can afford to plead ignorance. It is my personal opinion that none can afford to remain indifferent. I hold that we, professional men, are bound to warn our clients against the dangers inherent in practices which are all too prevalent, and that we should
do all in our power to develop public understanding of the fact that we can build safely. Let the architect's motto be "SAFETY FIRST," and let him put it over the firm name on every working drawing that he sends to his client.

* * *

The Home of Washington

THE Mt. Vernon estate was one of several owned by Augustine Washington, the father of George Washington, says the Research Department of the National Lumber Manufacturers Association. It was originally known as the Hunting Creek Estate. Lawrence, half-brother of George, succeeded to the title on the father's death. He named it Mt. Vernon, after the British admiral under whom he served in a West Indies campaign. Lawrence, in 1743-4, built the original house, between the two chimneys, part of which still stands.

On Lawrence's death the property passed to George, who took possession in 1752, and began remodeling the house in May 1758. This task was completed in September 1759. When it was done a single story or a story-and-a-half house had been made two stories-and-a-half. It measured 50 by 32 feet and contained twelve rooms. In 1773 Washington began the work of adding the two wings—one for a library and the other for a banquet hall. Each wing is 22 by 32 feet. At the same time certain alterations were made in the central portion of the house. The work dragged, on account of the Revolutionary war, but both wings were completed by 1778, and before Washington returned from the war the front portico and the colonnades connecting the house with the outbuildings in the rear, were completed.

The timbers of the framework of the mansion are of white oak, rough-hewn, and cut from trees on the plantation. Part of those in the main section of the house date from 1743, the others from the remodelings and extensions. Their ends are mortised and fastened together with wooden dowels. Much of the original flooring remains, for example that of the banquet hall, which is now about 150 years old. The siding was probably sawed from local pine at a near-by water-power mill, which was also a flour-mill, as was the custom of those simple days. The capacity of the cabinet-saws then used was so small that it took several days to produce enough siding for one house. One big sawmill today will make enough lumber in a day for twenty Mt. Vernons, from timbers to ceilings, floors, siding, etc. The lath was handsplit from red oak. Both lath and siding are in excellent condition.

The shingles are of cypress, and they have been renewed twice since Washington's death, first in 1860 and again in 1913. The present ones were obtained from North Carolina, just as the original ones were, and were split by hand, in the same manner as those of 1745, and to the same size as the originals.

Judging from some of the old wooden buildings of Europe, it is possible that the present timbers, at least, of Mt. Vernon will be intact as late as A. D. 2,750. So far Mt. Vernon is resisting the encroachments of time better than the Carlisle House, of about the same age, at nearby Alexandria. This house is of sandstone, and it has been necessary to give it a protective face of cement. The climate of America—favorable to wood—is much harder on building stone than that of Europe. The hieroglyphics on the granite obelisk in Central Park, New York, have been almost obliterated in less than half a century, though they were clear after 3,000 years in the Egyptian climate.
The New Architecture

By HENRY S. CHURCHILL in The Nation

The New Architecture is with us, inexorably forced upon us, whether we will or not, by economic law. The relentless drive of economic necessity, the governing law of modern, even if not, as some maintain, of all life has created and is creating the architecture of today in actual structural fact. Aesthetically, where that law has been accepted and expressed, we have a living art; where it has been denied and disguised, we have a dying art.

Architecture has always been a reflection of the age that produced it. The hope of Egypt, the clarity of Greece, the pomp of Rome, the faith of the Middle Ages, the license of the eighteenth century, the acquisitiveness of the twentieth are faithfully mirrored in the temples of the times, whether these temples be of Ammon or of Mammon. Nor is there any doubt that as the material side of life has developed more swiftly in the last hundred years than in all the preceding historic centuries, so the structural side of architecture, which corresponds to the material side of life, has undergone greater changes in the last generation than in any preceding period of its history.

A hundred years ago New York was a charming, if muddy, city of red-brick houses with white doorways and cast-iron balconies, spired churches, and low warehouses and wharves, situated on a rocky island. Farm-houses dotted the open spaces between the villages of Yorktown and Harlem, Manhattanville and Bloomingdale. The fateful shadow of the gridiron had not yet fallen across it. As population, wealth, and ostentation increased, there came brown-stone fronts in endless rows, and more and more massive office buildings. In 1880 the first elevated railroad trailed its blighting way out to Harlem, elongating the city, choking its cross-town expansion, relegateing the river fronts, the city's natural outlets to air and beauty, to commerce and squalor. Land in the Battery section became immensely valuable. Investors and owners, endeavoring to squeeze every drop of increment from their land, found that by building higher they could get greater returns. The height limit, however, would have remained that of convenient walking had it not been for the invention of the elevator. With its advent vertical transportation became a reality and the skyscraper a possibility. *

But limitations to the first high elevator buildings were soon discovered. It was found that the increase in thickness of the bearing walls necessary to carry great height ate up rentable floor space too rapidly to make a very great number of stories profitable, and besides cut off too much light. To take the place of these clumsy walls, cast-iron columns came into use, and various systems of long-span fire-proof floor construction. These were gradually developed to relieve the walls of practically all weight but their own. As the steel industry developed, steel columns came into use on account of their greater strength. The steel shapes were slowly standardized for lightness, convenience of design, and most of all swiftness of erection. It was found that by riveting an angle to the wall-beams it was possible to erect masonry from floor to floor independently of a masonry base, or to start it on many floors at once. The self-supporting wall thus went out of existence, as the floor-bearing wall had gone before, and the true skeleton frame came into being. Walls became simple fillers between floors, without any

*The first real skyscraper was erected in Chicago, but under analogous conditions. There high property values were artificially created by the elevated "loop," which still effectivelystrangles the city.
structural value whatever. This permitted reducing them to the least thickness compatible with their staying in place and keeping the weather out, and not only saved space, but weight and, consequently, steel.

Another change, the most recent and obvious, in the architecture of New York, has been brought about by the zoning and set-back laws. Economic dictates, of course, were behind the enactment of these laws. When the greed of property owners and speculators in exploiting the space above their lots threatened not only to become a menace to public health but to reduce rentals by cutting off light and air, it was found desirable to limit an owner's rights to do what he pleased with his own. The Rights of Private Property were invaded ostensibly for the protection of the public—and one of the most beautiful and characteristic effects of New York architecture has been the result.

With the practical modern office-building essentially a steel frame requiring, logically, an entirely new exterior expression, a fair question is: Why are our streets lined with specters of the outworn past? In a measure it is because aesthetic development must always lag behind structural changes which demand such rapid visual readjustments as are involved in the change from wall-bearing to skeleton steel construction.

A generation is a short time for the eye to get accustomed to new dynamic relationships. One of the most important of these relationships is the immensely greater strength of steel as compared to the materials formerly in use. The experience of ages had taught that so much masonry was needed to support so much weight; that a stone could reasonably span such a distance, a wood beam such another distance; that too slender a support would buckle and break, too long a lintel sag and crack. Steel and reinforced concrete have changed all those long-acustomed balances. The eye must come to new realizations of what is safe, and therefore what is comfortable, and therefore what can give pleasure.

Other changes are the elimination of shadow brought about by shallow reveals in the thin curtain-walls, and the consequent emphasis of surface as opposed to mass; and the tremendously increased importance of the silhouette under the application of the set-back laws.

These adjustments are gradually taking place. The trend of the new design may be briefly and cursorily traced by considering the Park Avenue Hotel, the World Building, the Waldorf-Astoria Hotel, any loft building in the Fifth Avenue twenties, the Plaza Hotel, the Woolworth Building, Pierre's and Sherry's, the Fisk Building, and the new Shelton Hotel on Lexington Avenue.

It should be noted that while economic pressure tends on the one hand to make buildings structurally modern, on the other it tends to hold back aesthetic progress through fear that "novelty" in appearance may hinder rentability. It is for this reason, as well as for aesthetic ones, that so many of our commercial structures are clothed in ill-fitting garments.

Although there is slow but evident progress visible in our commercial work it is nowhere visible in our public edifices, where the question of expense is not so fundamental, the desire for conspicuous waste often a ruling motive, and the dead hand of academic tradition falls most heavily. With the exception of the design for the Nebraska State Capitol, none of our recent public buildings show the slightest attempt to develop an architectural expression in accord with either the structural system or their surrounding civilization. Their steel frames are swathed in mummycloths. The absurdity of steel-framed
masonry domes! The sterility of rows of useless columns! Endless modillions and garlands taking the place of imagination and suitable invention! How can they be other than ostentatious, dreary, and monotonous?

Almost as little evidence of change is to be found in our domestic architecture. Characteristically enough, the more expensive the work, the more time expended upon it, the less the progress. The reason here is not only the comparative lack of economic pressure; there is a simple psychologic factor involved. A man's house is what he lives with, and to most men the most usual is the most livable. Anything "different" in the way of a home would make him feel as ill at ease as a purple shirt with lace ruffles. Then, too, the rich man sees a villa or a palace abroad, and because it costs more to build, and looks it, he must have it reproduced here—the Palazzo Massimi on Fifth Avenue, a Tudor mansion on Long Island, a Brittany farm house in Westchester. Of course structural methods in the domestic field have not changed so radically as they have in larger building; it is not, perhaps, so heinous an offense to build a modern brick house in imitation of an old one. However that may be, our most living—if not livable!—domestic work is to be found in the model-housing industrial villages, where rigorous elimination of waste and the need for quantity production have prevented the aping of a long-dead craftsmanship, and simple, good effects have had to be obtained by the use of machine-materials, "untouched by human hand." In the same way, the noticeable increase in restraint and "good taste" in the speculatively built apartments in New York, which has received favorable comment in many quarters, has not been at all due to an increase in good taste, but to the prohibitive cost of gimcrackery.

Economic forces will thus in time bring about a new architecture aesthetically, as they have already done structurally, replacing mass and shadow by surface and silhouette. Proportion, the basic factor of good design, will always remain the chief factor. However, good proportion and its concomitant, good "scale," are not absolute, as the academicians like to think, but depend on inter-related relationships—the size and shape of the building, the relation of its many parts to the human figure and human needs, the materials used, and the system of construction. Good classic, gothic, and steel proportions are very different things, although many architects seem to think they are interchangeable. A rhinoceros skin does not fit a giraffe, nor even a cow, though all are mammals.

When modern structural methods are followed out to their logical conclusion, the results are progressive and interesting architecture. When eclectic aestheticism is followed, when "art" is the inspiration, the result is only pretense and puerile copying. Only from a building which answers inevitably to our modern needs do we get a modern emotion, a feeling of hardness, steel, vibration, discordant beauty, an emotion satisfying to our modern spirit. It is not beauty as the Greeks understood beauty, nor emotion as the builders of Chartres understood emotion, but it is life as it is understood today.

We need fewer artists and more architects; less art and more architecture. When we finally get that, we shall not need to look either humbly or reverently toward Athens, Rome, or Paris.

Architects' Meeting—A Pleasant Time Assured

"There will be no speeches. The entire evening will be given over to entertainment."—Exchange.
Sidewalk Protection During Building Construction

A Concrete Example for Pacific Coast Contractors to Follow

By S. J. T. STRAUS

CHICAGO Beautiful has been made possible only through the desire of her citizens to build the City Incomparable. From this civic pride there has developed the Chicago Plan, with such possibilities as the lake front development, the Field Museum and the new campus of Northwestern University on Chicago Avenue. This plan calls for both public and private cooperation in providing structures both utilitarian and beautiful.

In harmony with this desire S. W. Straus & Co., mindful of the beauty of the city, have provided that their new home, even during the period of its erection, will present a pleasing appearance, in harmony with the beauty of Michigan Avenue, the country’s finest boulevard.

In keeping with this idea we have provided an ornamental barricade on the street sides of the new building, a barricade unequaled in previous Chicago building construction.

In traveling in other cities and in going about Chicago thoroughfares the writer has been particularly impressed with the unsightliness of building construction. The usual protective barricade has been an ugly affair, unpainted and awkward in construction.

When the occasion arose to consider a barricade for our 32 story building now being erected on Michigan Avenue at Jackson Boulevard, I protested against the common type of barricade, feeling that something more artistic could be provided at only a small fraction above the cost of the common type of barricade. On investigation I learned that my idea was correct, and accordingly the architects, Messrs. Graham, Anderson, Probst & White, were given instructions to provide a protective barricade that would be an artistic asset to Michigan Avenue rather than a liability.
DETAILS FOR BARRICADE, S. W. STRAUS BUILDING, CHICAGO
GRAHAM, ANDERSON, PROBST AND WHITE, ARCHITECTS
The barricade is evidence that new building construction need not be unsightly. It is a blending of former types of barricades. In times past the cover was mere protection to pedestrians, without any consideration for the public other than the prevention of accidents from falling bricks and other materials. In addition, inconvenience was caused by lumber, brick and stone piled high adjacent to the building operations, without any regard for traffic considerations.

The design was submitted to the South Park board for its consideration and suggestions. The plans were thoughtfully considered both from the standpoint of protection and civic regard for the city.

The barricade has beautiful archways, wide pathways without the interruption of disturbing wooden column. It is painted in pleasing colors, which match well with the stone facing of the building. The colors were chosen after four decorators experimented to determine the best color combination. Other cities are beginning to realize the need for barricades of ornamental design and have found that the cost of the beautifully designed barricade or canopy is only slightly greater than the cost of a bare protective barricade. It is our hope that the builders of new buildings will accept the precedent set in the ornamental barricade at the Straus building.

The margin between the cost of the usual barricade and a barricade of ornamental design is very small. The principal cost lies in the heavy timbers necessary in the construction. The slightly higher cost is more than compensated for in the added prestige, which perhaps more than any other factor, has called favorable attention to the building.

**New Slate Tile**

There has recently been perfected a process to utilize slate waste in the manufacture of a white tile suitable for use in bath rooms, toilets, laundries and vestibules. The tile can be made in a variety of sizes, either square or oblong, and in appearance and after it is treated it cannot be distinguished from the pottery tiles. The process of manufacture, although just emerging from the experimental stage, provides for the use of very thin split slates sawed to the proper dimensions and one surface polished, after which the white surface is applied. As the splitting, polishing and coating process already have been perfected, the inventors expect to begin manufacture on a quantity basis in the near future. In addition to the white tile product, the inventors also have been able to produce vari-colored tiles, including blue, variegated and other natural slate colors of red and green for decorative uses.—Stone.

**February Building in San Francisco**

Building operations in San Francisco for the month of February, 1924, totaled $3,912,166, an increase of $733,753, compared with the preceding month, and an increase of $633,490 compared with February, 1923. Following is the report compiled by the San Francisco city building department of permits for February, 1924:

<table>
<thead>
<tr>
<th>Class</th>
<th>No. Permits</th>
<th>Est. Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>1</td>
<td>$75,000</td>
</tr>
<tr>
<td>&quot;B&quot;</td>
<td>1</td>
<td>150,000</td>
</tr>
<tr>
<td>&quot;C&quot;</td>
<td>30</td>
<td>951,700</td>
</tr>
<tr>
<td>Frame</td>
<td>369</td>
<td>2,290,079</td>
</tr>
<tr>
<td>Alterations</td>
<td>393</td>
<td>445,387</td>
</tr>
</tbody>
</table>

**Total** 794 $3,912,166
City Planning and Housing
CAROL ARONOVICI, Associate Editor

The Regional Survey
By CAROL ARONOVICI
City Planning Consultant

REGIONAL planning implies a program of development, an outlook beyond political and administrative boundaries, and beyond the confines of the life of a single generation. Europe is rich with buildings that were in the building as long as it has taken to conceive and build a nation or an empire. We are still bowing our heads in humility before the stupendous Greek and Roman monuments, and Gothic churches will for many generations serve as models of religious architecture.

In the building of cities there is room for the same organized thought, the same expression of idealism, the same disregard of the present except as it will also serve the future. Regional planning merely goes one step further and looks to the family of communities instead of the individual community as the unit around which to develop social, economic and esthetic ideals.

The regional survey should therefore be a stock taking of all natural and human factors that have determined the character and development of the region and that may be utilized to advantage in the promotion of future development.

This brief article is hardly the place for an elaboration of the details to be included in a regional survey. All that can be done is to give a bold outline that would leave to the intelligence, knowledge and imagination of the reader the task of filling in the details.

The geographic location of a region is the skeleton upon which the flesh of the social organization must be built. The rivers and the mountains, the nearness of the sea with its harbors and trade winds, the natural beauty of the landscape and its capacity for development and use in the interest of man, the temperature and its variations, the winds and rain, the soil and its fertility, the fauna and flora, the mineral resources, the water supply, all are important in their own way and have their place in the development of a community and a family of communities. New York was first a gift of nature, and the work of man second. San Francisco owes more to the Golden Gate than to the stock exchange.

HISTORY

Man's relation to the natural environment makes up the most important part of human history. Pioneering is the most stimulating and inspiring element in human history. The conqueror of nations comes with a horde, the conqueror of nature is on a peaceful mission and goes alone. As the pioneer is followed by the mass of mankind, a new chapter in the history of a region is marked; and the type and character of the masses that take possession of a region will determine the character of that region. The steps in the pioneering, conquest, development and upbuilding of a community are the true history of a locality. These events are interwoven with future possibilities and no survey is complete and no program practical unless it takes account
of historic facts as they have affected the population and as they must affect the heritage of the future. Let us remember therefore that the history of the generations to come will only be worthy of the history of the generations that have gone if we take account of facts as they relate to the upbuilding or destroying of community assets and the meeting of community liabilities.

PSYCHOLOGY

Modern science has furnished us with much information regarding human psychology both as individuals and in groups. We must admit that there is much yet to be learned and discovered, but the scientific basis of study is available. Unfortunately cities or groups of cities as subjects of psychological study have not attracted the great minds in this field of modern science. The novelist is perhaps the only pioneer in this field. Zola’s “Paris” is an outstanding example of city psychology. Sinclair Lewis’s “Main Street” has made quite a stir recently in this country. But even in literature there is little of great value as community psychology from the point of view of the city or regional planning survey.

We need a new technic and a new knowledge along this line. Race psychology, group psychology, occupational psychology are the component factors of this new field of science, but until it is correlated and expanded to the more complex aspects of community life as represented by its various units, we shall only guess at the needs of the soul while we delude ourselves into mistaking the body for the whole man.

There are traditions of religion and culture, there are social habits and customs, there are desires and aspirations toward self expression through art or vice, there are sentimentalities of family or group, there are institutionalized expressions of new or antiquated ideals of public service or private benevolence, there are established methods of intercourse, there are antagonisms and hatreds due to social, religious or political antecedence all of which must be taken into account in the upbuilding of a regional program and plan. They are not only worthy of study, but they are the forces which must be utilized or destroyed in building up a mentality that will carry the plan into reality.

Perhaps we shall develop some studies that will lead to community psycho-analysis and we shall be able to interpret its repressions and dreams. We might even hope to cure our cities of some of their mental diseases and incapacities by probing into the abnormal psychology of the group mind. These fields are still open to the scientist. Let us discover our common weakness if thereby we shall build up our common strength.

ECONOMIC LIFE

A community or a region exists by virtue of its economic efficiency and enterprise. What a community produces or fails to produce with resources at hand must be known. How trade and industry have developed, how the productive and administrative labor of the people is divided, how the rewards of labor are distributed, how capital is accumulated, used and distributed, how freely money pioneers in unexpected fields of industry and commerce should be known. The economy and efficiency of production and distribution, the margin of profit and the standardization of prices are factors that limit or retard a region. A picture of economic life will reflect the economic welfare of the future, and will make possible efficient planning.

HOUSING

In selecting housing out of the long list of social facts relating to regional planning we are throwing out of perspective a subject that
belongs in its place as part of the general considerations of human welfare. It must be remembered, however, that the home is the place around which much of our social and economic efficiency revolves. One might say that the character of the home is the measure of the advance of a nation or a community.

The tendency toward the constriction of home activities due to the development of the miniature home as represented by the tenement, apartment and bungalow court is constantly reducing the sphere of the home and expanding the sphere of the street and the public place.

Regional planning with its possibilities for the rehabilitation of the home as a center of individual and family life brings new promise. A housing survey will reveal the facts of the new pathology and the new economics of home building and will give inspiration to the promotion of a higher standard of family life. The needs are obvious, the dangers are freely discussed and admitted but the remedy must come through a knowledge of all the facts.

**POPULATION**

All communities in the last analysis can be reduced to two elements: the natural environment and the human or populational factors. In the study of regional conditions the quantitative and qualitative character of the people is quite essential. Not only numbers are important, but the distribution of these numbers over the region in question, the consideration of congestion or sparseness, the extent to which population has become fixed or has drifted with the current of new avenues of travel and new opportunities for home making, all are important in showing the trend and prospects of community expansion or retardation.

The centripetal forces which attract population to the congested centers of cities are constantly being counteracted by centrifugal forces which create satellite communities either as centers of habitation or centers of production and exchange. The laws that govern these extensions of individual communities and stimulate the creation of new communities can only be known after consideration of the facts relating to the ebb and flow of population in a given region.

The social and national factors, the economic and social class distinction which are not recognised in this country but which exist nevertheless, should be studied from the point of view of populational distribution. Consciously we may not plan with class distinction in mind but economically class distinctions are unavoidable in considering the economics of community planning and development.

**CIRCULATION**

We are living in an age of travel and movement. To release the creative forces of the community we must provide for the free movement of these forces from place to place. Highways and byways, soil conditions, transportation, aerial travel, are interwoven with the fluidity of population and its products. Barriers in the way of movement of population are also barriers in the way of development of individual communities and their related groups. Given certain natural values of agriculture, industry or trade, the avenues of travel will transform these values into human assets.

The very essence of a regional concept from the planning point of view must depend upon the efficiency and extent of the fabric woven by the arteries of travel whether that be by water, on land, or in the air.
The practical size of a region is determined by the extent and convenience of the means of travel. The regional plan must find its framework in the avenues of travel.

LAW

The upbuilding of cities, towns and villages has been co-extensive with the amassing of volumes of legislation, much of which is valuable. There is, however, a class of legal regulation and restriction which in its nature is antagonistic to intercommunity cooperation and is therefore inconsistent with regional planning.

It may take a half a generation to repeal such legislation. The sooner we take account of its existence and point out its objectionable features the sooner it will be replaced by new and better methods of legal control. Half forgotten laws the shades of which hover over the forces of progress are more dangerous than the laws that affect us daily and individually. The former are likely to be remembered at the wrong time, while the latter are with us daily and will be changed frequently if they interfere with our best interests.

The regional plan requires sound legal foundations. A study of existing laws will lead to more intelligent law making and more drastic pruning of obstructive regulation and control by law.

Perhaps I have said enough to point the way toward the possibilities and advantages of the regional survey. Only the peaks of the subject have been touched. The intricacies and complexities of the physical environment and the human factors are before us. What we need is the skill, the patience, the money and the honesty of purpose that will reveal the facts as they are without regard to local pride, without regard to special and vested interests, without fear of disturbing the settled ways of people and communities, and without prejudice against individual, class or groups who may have stood in the way of progress, and without concession to the restless elements who mistake motion for advancement.

* * * *

BOOK REVIEWS

Charles M. Nichols—Studies on Building Height Limitations in large Cities, with special reference to conditions in Chicago. The Chicago Real Estate Board Library, 1923.

One of the most valuable documents recently published by a semi-public organization is this volume of studies relating to the problem and control of heights of buildings in the city of Chicago. It is one of the best documented surveys available and contains not only valuable data relating to both European and American cities, but also a program of control that would be valuable to any city in the United States when considering the limiting of building heights.

We have reached a point in this country when the relation between the capacity of the street and the capacity of the buildings must bear some intelligent mathematical relation that would distribute land values and give the city an adequate system of circulation.

The recent report of Raymond Unwin, which we shall review at another time, has shown how obviously confused and costly the present system of building is, and that a remedy must be found at an early date if our cities are to survive as efficient social entities.

The report relating to Chicago should be read by all those who believe that land sweating is the legitimate outgrowth of city development, and that control which would do away with such land sweating is an interference with private property rights.

Robert Whitten—Cranston Zoning Plan.
Many of the smaller cities through the United States are slowly coming to the realization that it is never too early to establish a zoning plan owing to the fact that zoning plans are flexible mechanisms of control that can be changed with the development and growth of the community.

Mr. Robert Whitten of Cleveland, has developed a plan for Cranston, R. I., which for simplicity and adequacy in the control in the development of small communities is quite unusual. The plan was accepted by the City Council.


The Pittsburg Committee on City Planning has been divided into a number of committees each dealing with its own subject. These committees have issued separate plans on each aspect of community needs, and six such reports have been issued recently. These reports cover the following subjects:

1. Pittsburg Playgrounds
2. A Major Street Plan for Pittsburg
3. Traffic
4. Pittsburg Parks
5. Railroads of the Pittsburg District
6. Waterways

Other pamphlets along this line are in preparation.

Zoning Ordinance and Zoning Maps of Pittsburg.

The City of Pittsburg has recently framed a zoning ordinance which follows the lines of other ordinances of this type and embodies many of the features contained in the model zoning ordinance issued by the United States Department of the Interior.

The report issued in the form of a portfolio contains some very interesting maps that should prove of value to any one interested in zoning.

Report of Commission on Housing and Regional Planning of the State of New York. Through its Bureau of Housing and Regional Planning, New York has recently issued a report on the present status of the housing emergency which contains extremely valuable data relating to the housing shortage and the reports of a number of hearings containing the speeches of prominent men who have been more or less directly connected with the inquiry regarding high rents, shortage of housing, and the general problems of the expansion of housing facilities for New York.

Those particularly interested in rents and housing shortage will find in this report information pointing toward the methods of solving the housing shortage and the methods of creating equitable relationship between owners and tenants.

Marble Bank Interiors

That the public demands beautiful surroundings in which to transact business is a fact long recognized by corporations and institutions having dealings with large numbers of customers daily. And so marble interiors, in whole or in part, have become an almost inexorable part of modern architectural designing. As the difference in cost between natural and artificial marble is so slight in comparison to the beauty and quality, architects are specifying the genuine article and the results have been found to be much more satisfactory not only from the standpoint of beauty but of permanency.
The auto laundry is a general name for various high-speed methods of washing cars which have been developed by men all over the country in the last two years.

The auto laundry method has proved so successful that it must be considered a desirable feature in every new garage. It is miles ahead of the old method of cleaning one car at a time on a wash rack.

There is no standard practice as regards the design of the auto laundry but the fundamental idea in each case is to turn out, as clean as can be, a maximum number of cars in a day with a minimum amount of labor. To accomplish this, the auto laundry is divided into departments, and the number of departments and equipment used varies according to the views of the individual builder. A five-department auto laundry would divide the operations as follows: 1, Sweeping and dusting (top and interior); 2, Soaking; 3, Washing; 4, Drying; 5, Polishing.

1. In the sweeping and dusting department, brooms, feather dusters and perhaps a vacuum cleaner are used.
2. In the soaking department, it is not unusual to have a special shower-bath arrangement which sprays the sides and the under part of the car thoroughly, softening all mud and dislodging a great deal of dirt in a very short time.
3. Then the car is pushed on to the washing department where it is hosed and sponged, and every vestige of dirt removed, soap being used where necessary.
4. In the drying department, the car is thoroughly dried with chamois.
ERNEST I. R. F. EESE, ARCHITECT
4675 HOLLYWOOD BLVD.
LOS ANGELES, CAL.

MULTIPLE DWELLING
M. C. D. KENT
1031 SANBORN AVE.
LOS ANGELES, CAL.

FIRST FLOOR PLAN...
5. In the polishing department, the glass is cleaned and the metal work polished.

The five-department auto laundry represents one extreme. The other extreme is a two-department auto laundry, in which case, in the washing department, the mud and dirt are thoroughly soaked off and the car is thoroughly hosed and sponged until all dirt is removed, while in the drying department, the car is dried, the glass is cleaned and the metal polished, and the interior of the car is swept and dusted.

**Tasks Performed By Electric Energy**

The French Government, after exhaustive research and experiment, has found that one kilowatt hour of electricity will—

- Drive a sewing machine for 20 hours;
- Clean 15 steel table knives for a year;
- Heat water for shaving one month;
- Clip 5 horses or 25 sheep;
- Light 3 cigars a day for 5 years;
- Heat a flatiron for 3 hours;
- Boil 2.37 gallons of water;
- Fry 15 chops in 15 minutes;
- Heat a curling-iron for 20 mornings;
- Incubate 250 eggs;
- Milk 20 cows;
- Separate cream from 350 gallons of milk;
- Churn 440 pounds of butter;
- Chop 1/2 ton of straw.

The cost per kilowatt hour of electricity in New York is 7 cents. The average charge in the United States is from 11 to 12 cents.

**Tests Point Way to Safer Elevators**

About three-fourths of all fatal elevator accidents are found to occur at the hoistway door, either because of the door being opened when the elevator is not there or because of the elevator starting when the door is open. These accidents can be prevented by a reliable interlock, as when such a device is used the elevator must be stopped at the floor before the door can be opened, and the door must be closed before the car can be started again. Seventy-five per cent of fatal accidents are preventable.

During the past year the Bureau of Standards has been conducting tests to determine the reliability of the various types now on the market. The devices have been given endurance tests under normal conditions, they have been tested in a corrosive atmosphere, in a dust laden atmosphere, without lubrication, and under conditions of misalignment likely to occur in practice.

The tests were conducted at the request of the City of Baltimore, and will permit city governments to base their approval of such devices on actual performance tests instead of on visual inspection alone. The results have also been made available to the manufacturers of the devices tested, and in most cases they have improved their designs in accordance with the suggestions offered.

**Plenty of Knowledge at Home**

American—“I suppose your son’s thirst after knowledge led him to travel in Europe this winter?”

Second American—“No; merely his thirst.”—Tit-Bits (London).
WHY THE ARCHITECT?

In all buildings both beauty and utility should be present. If this is to be secured it will require the services of a highly trained architect. Because of this requirement the laws regulating the qualifications or architects are growing more and more stringent. The American Institute of Architects does not consider a “competition” desirable except for certain forms of public and semi-public work. Society has the right says a statement by the A. I. A. to demand that no building be ugly; the life of the community requires that they be not wasteful of space or ill-suited to the purpose for which they are created.

Because of the great building expansion that is going on in the Northwest at the present time the foregoing facts are worthy of careful thought and consideration. Shall buildings go up that reflect the beauty of the landscape or shall any hodgepodge be constructed. There is a more ready sale for the well designed, well constructed building. But no ordinary person can give the public this kind of a building. Only those who have been trained in the field of architecture are capable. For this reason the standards of the architectural profession should be maintained at a very high point.

The success or failure of the building depends more entirely upon the architect than upon any other person. He is the disbursing officer of the client. Money is entrusted to him to be spent. He must judge wisely and well his expenditures. Wise administered duties greatly reduce the cost of buildings. The architect therefore must be selected with care. When this is done the client reaps the benefit by receiving full value for the funds expended and the public at large is benefited by more beautiful and useful buildings.

CREDIT FOR AMERICAN ARCHITECTS AND ENGINEERS

American architects, engineers and contractors are sure to find a measure of gratification and pride for American construction methods in the, as yet unconfirmed reports, from Japan. In all of the vast area affected by the series of earthquakes and the resulting fires, six buildings in Tokyo of the so-called American type remain standing, according to more or less authentic reports, says a writer in Stone. Lessons learned at the time of the San Francisco earthquake, of course, were of valuable assistance to the builders of these six structures, and it is more than probable that the new Tokyo will contain large numbers of modern structures erected with due regard to every known safe-guard against seismic disturbances.
SOMETHING NEW IN OFFICE BUILDING DESIGN

Architects in search of new ideas for their clients doubtless will manifest keen interest in the outcome of a daring departure from the conventional in office building construction made by Mr. Raymond M. Hood, associate with Mr. John M. Howells, winner of the first prize in the recent Chicago Tribune building competition. Mr. Hood has designed a thirty-story office building which is to have a facade of black brick and gold colored stone trimming, worked together to give a rich black and gold decorative effect. The building has already provoked wide discussion in professional circles because of its unique design.

Describing its unique features Mr. Hood is quoted as saying: "The radical departure from standard practice arose from a feeling that so many office buildings are monotonous if not ugly. Monotony and ugliness in office building seems to come from the fact that the windows are actually black holes and the regular spacing of these black holes makes a building look like waffles or doormats hung up to dry. The solution to this problem lay in finding a color of wall that would tie together the black holes, and make them less apparent. But, as the building progressed, we found it struck a very cheerful note. The idea for gold trimming came next and caught the fancy of us all. Precedent, at least in Europe, pointed to other periods of architecture where black had been used effectively, particularly, for example, in the Grande Place of the Hotel de Ville, Brussels. In Pompeii, also, and in France at the time of the Empire, whole rooms were done in black with only a slight relief of color.

"We felt that the old problem in office building design demanded a new solution and that just as other architects have broken away from conventional treatment in certain directions and raised the standard to higher levels, we might contribute a new plan of coloring which would make for progress."

RESULTS OF ELECTRICAL SURVEY

A questionnaire recently sent out by The Architect and Engineer shows that the popularity of the use of electricity for cooking, air heating and water heating has been increasing rapidly and that architects are giving more attention to the completeness of the electrical specification.

Architects as a general rule do not get enough percentage from the smaller jobs to give much time and attention to the electrical specification. However, if the exact quality of the material and equipment to be installed is not mentioned, the contractors usually figure on the cheapest grade in order that their figure will be the lowest so they can get the job. The result of this condition is obvious. The owner would get a one-sixteenth inch switchplate instead of three-sixteenths inch—a poor grade of wire—or a competitive switch instead of a high grade switch. As a number of the architects asked to be advised of the results of this survey we are giving here a detailed report of the returns.

QUESTIONS AND ANSWERS

1. For what percentage of your jobs do you write the electrical specifications? 89 per cent average
2. Do you specify by either the trade name or the manufacturer's name the following equipment? Convenience Outlets... Yes 78—No 8 Switches .................. Yes 81—No 2 Conduits .................. Yes 54—No 22 Ceiling Outlets and Socket Units ....... Yes 52—No 24 Lighting Fixtures.... Yes 32—No 38 Wire ......................... Yes 60—No 24
3. Do you insist that the electrical contractors use only the material and equipment you specify? Yes 72—No 18
4. Do you have any trouble securing delivery of goods as specified? Yes 26—No 58
5. Do you specify completeness of electrical equipment so as to provide wiring devices and conveniences out-

March, 1924 107
lets for using all the latest convenience appliances? Yes 78—No 12
6. Do you recommend the installation of an electric range? Yes 42—No 24 In some cases 28
7. Do you recommend the installation of an electric water heater? Yes 30—No 40 In some cases 20
8. Do you recommend the installation of electric air heaters? Yes 20—No 52 In some cases 26
9. Even though the builder of a residence or an apartment may not indicate the desire for an electric range, water heater or air heater, do you recommend the installation of proper wiring to permit later tenants or owners to use such equipment? Yes 68—No 16
10. Do you specify by name particular makes of ranges, water heaters, or air heaters? Yes 46—No 30
11. Do you provide adequate space for a washing machine in the laundry or on the porch? Yes 88—No 2
If so, do you provide a convenience outlet? Yes 88
12. Do you specify a switch (on the open side of the door) at every doorway for the convenient switch on and off of lights? Yes 78—No 8

PLASTERERS TAKE NOTICE
The American Contractor, in a recent issue, reports that a plastering machine has been perfected in New York City, and that a test was conducted recently in which 735 square yards of plaster were applied by one man in eight hours, time. When plastering mechanics are receiving from sixteen to twenty dollars a day, it would be at once apparent that the saving effected by the use of the machine is a considerable item.

PASSING OF HENRY BACON LOSS TO ARCHITECTURE
The death of Henry Bacon is a blow to American architecture and art. A man of extraordinary skill and ability, he has raised more than one monument to himself, but of these none will redound more to his glory than the Lincoln Memorial in Washington. So great were his talents that, it is related of him, he never entered a competition without winning it. But he was so modest, so unassuming, so little desirous of advertising himself that the great public knew all too little about him. Indeed, his were the simplicity and modesty of true greatness. His loss, at the age of only fifty-seven, to the profession which he honored and uplifted is beyond measuring.—The Nation.

Travel Courses in the Fine and Applied Arts
Plans for a series of travel-courses in the fine and applied arts this summer have been announced by the Institute of International Education, 522 Fifth avenue, New York. The plans provide for four over-lapping courses, with emphasis on painting and sculpture, on architecture and interior decoration, on landscape design, and on history, respectively. The purpose of the undertaking is to enable students to make a study of the great works of art, architecture, and design in Europe, under scholarly instruction and at minimum cost.

The study of important buildings and decorative compositions in Europe, the examination of drawings and models by the world's greatest designers, and the sketching or photographing of details of architecture and ornament, will be one of the courses with Professor Albert C. Phelps of the College of Architecture, Cornell University, as lecturer.

Another course will include an historical and technical study of the development of landscape design as exemplified in the Roman and Florentine villas, villas at Tivoli and Frascati, the Chateaux of the Loire, gardens in and near Paris, and many of the important gardens and estates in the British Isles.

Lectures and field-work will be in the hands of Professor Edward Lawson, first Fellow in Landscape Architecture at the American Academy in Rome, and now assistant professor of Landscape Architecture at Cornell University.

The present undertaking is a continuation of the series of courses in travel which the Institute of International Education inaugurated four years ago for the purpose of providing objective educational travel of a high order, at minimum cost, and under non-commercial auspices. Dates of sailing and other details may be secured from Irwin Smith, Times building, New York, or from the Institute of International Education, 522 Fifth avenue, New York.
With the Architects
Building Reports and Personal Mention of Interest to the Profession

Architectural Exhibition
From April 7th to the 12th an architectural exhibit will be held in the rooms of the Bohemian Club, San Francisco. At the same time there will be a showing of paintings and sculpture. The exhibit will be for the benefit of the public to stimulate interest in the arts. It will be the first time that the rooms of the Olympic Club have been thrown open for an event of this kind and from present indications there will be a splendid showing made by the architects of San Francisco and the Bay region. The committee of arrangements is composed of Messrs. Charles Bauer, Earl Bertz, Herbert Schmidt, William A. Newman, Louis M. Upton, Harris Allen, B. J. Joseph, Haig Pattigan and Frank Van Sloun.

Residence Activity At Pebble Beach
Many new country houses are being planned for Pebble Beach in Monterey county. The list includes a Spanish country house for Mrs. Maud Bourn Vincent, being designed by Architect George Washington Smith of Santa Barbara, also a house by the same architect for Mrs. Templeton Crockler of San Francisco. Architect Clarence Tantau is designing three large homes at Pebble Beach, one of which is for Mr. W. R. Alberger, vice-president of the Key Route System. Architects Johnson, Kaufmann & Coate, of Los Angeles, are preparing plans for a Pebble Beach summer residence for Mrs. Malcom McNaughton, of Pasadena.

Death of Santa Barbara Architect
Architect J. Flood Walker died Feb. 24 in a hospital at Santa Barbara after an illness of three weeks. He was born in Bingham, N. Y., in 1868. His first architectural experience was in the office of the late R. B. Young of Los Angeles. Later he went to Seattle, where for a number of years he was member of the firm of Walker & McManus. From Seattle he went east and practiced successfully in New York City, Chicago and San Antonio, Tex. About ten years ago he returned to California and for a number of years maintained offices at Santa Ana and San Diego. He went to Santa Barbara two years ago.

Berkeley Architects Busy
Architect W. H. Ratcliff, Jr. has completed plans for the first unit, consisting of a library, of a group of buildings for the Pacific School of Religion. This structure will cost $100,000 and will be faced with Indiana limestone. Mr. Ratcliff has recently awarded contracts for two residences, one for Mr. A. H. Halloran in Claremont Court, and one for Mr. M. R. Demster on Spruce street, Berkeley. Mr. Ratcliff has also completed plans for a two-story apartment house at Euclid avenue and Hilgard street, Berkeley, for Mrs. Wright, and for a country house at Carmel Highlands, Monterey county, for Mrs. Caroline Hollis.

Architect J. W. Plachek has completed working drawings for a $75,000 addition to the Masonic Temple, Berkeley. Contracts have recently been awarded by the same architect for a branch public library at Ashby and Benvenue avenues, Berkeley, to cost $21,000 and a one-story store building and warehouse on Center street, near Shattuck avenue, Berkeley, for Mr. F. L. Naylor, to cost $15,000.

Sacramento Architects Have Much Work
Architects Hemmings and Starks, of Sacramento, have more than $2,000,000 worth of work on the boards or under construction, including the $900,000 Elks building; new edifice for the Pioneer Memorial Church to be built opposite Fort Sutter, at a cost of $110,000; a department store building for Chas. P. Nathan & Son, costing $300,000; a one-story factory for the J. P. Hynes Packing Corporation; a two-story industrial building for the W. P. Fuller Company; a one-story store building in Oak Park for the Lewis Estate Company, and a one-story factory at 20th and G streets, for the Wm. A. Rapp Company.

Bank and Office Building
The directors of the Central National Bank of Oakland have commissioned Architect George W. Kelham of San Francisco to prepare the plans for the bank's new home to be erected on the site of the present building at Fourteenth street and Broadway, Oakland. The structure will be a combination bank and office building of the skyscraper type of from ten to twenty stories, the exact height to be determined later.
American Institute of Architects (Organized 1857)
San Francisco Chapter
OFFICERS FOR 1924

President ................. J. S. Fairweather
Vice-President ............ John Reid, Jr.,
Secretary-Treasurer ...... Albert J. Evers

DIRECTORS

George W. Kelham ........ Three Years
Arthur Brown ................ Three Years
William Monk................. Two Years
J. H. Bloom .................. One Year
Earle B. Bertz ............... One Year

Harris Allen ................ One Year

Oregon Chapter, Portland

President .................. Charles D. James
Vice-President .............. Folger Johnson
Secretary ................... William L. Smith
Treasurer .................... Ormond R. Bean

DIRECTORS

Wm. C. Knighton Wm. G. Purcell John V. Bennett

Southern California Chapter

President ................. Reginald D. Johnson
Vice-President ................ A. M. Edelman
Secretary .................. David J. Witmer
Treasurer .................... A. C. Zimmerman

DIRECTORS

D. C. Allison Edwin Bergstrom
C. E. Norrengren

Washington State Chapter, Seattle

President ..................... James H. Schack
First Vice-President ............. A. H. Albertson
Second Vice-President .......... Herbert A. Bell
Third Vice-President .......... George H. Keith
Secretary .................... William G. Brust
Treasurer ................... Carl Siebrand
Member Executive Committee, Sherwood D. Foed

San Francisco Architectural Club

77 O'Farrell Street

President ..................... Mark T. Jorgensen
Vice-President ............... Edgar B. Hunt
Secretary ..................... Carl R. Schmidt
Treasurer .................... Lawrence H. Keyser

DIRECTORS

William Rowe Felix Raynaud J. B. McCool

Los Angeles Architectural Club

President ....................... Jess Stanton
Vice-President ................ Sumner Spaulding
Secretary ..................... J. C. Simms
Treasurer ..................... Paul Penland

DIRECTORS

D. W. Wilkinson W. S. Davis A. C. Truesdell Jr.

California State Board of Architecture
Northern District

Phelan Building, San Francisco

President ....................... Clarence R. Ward
Secty. & Treasurer .......... Sylvan Schnittacher

233 Post Street
Edward Glass John J. Donovan James R. Miller

Southern District

Pacific Finance Bldg., Los Angeles

President .................... William J. Dodd
Secty. & Treasurer .......... A. M. Edelman
John Parkinson Myron Hunt W. H. Wheeler

THE ARCHITECT AND ENGINEER

Montana Architects Elect Officers
The Montana Association of Architects which met recently in Helena elected the following officers for the coming year:

President, W. R. Plew.
Secretary-treasurer, R. C. Huguenin.
Director for three year term, H. E. Kirkemo.

The next annual meeting will be held in August at Missoula. At this meeting the Association expects to have on exhibit for visiting architects and for the general public, drawings and plans submitted by architects throughout the state, showing the class of work being done in Montana. The Montana association also intends to publish a pamphlet on small rural schools of one and two-room capacity, for the aid of the rural school districts of the state.

Oakland Labor Temple

Plans are being completed by Architect W. J. Wilkinson of Oakland, for the proposed new labor temple to be erected by the affiliated labor organizations at 11th and Franklin streets, Oakland. A feature of the building will be a parking garage in the basement to accommodate 126 cars. Building will also contain an auditorium to seat 2000 persons, various club rooms, two stores and forty offices.

Williams and Wastell Busy

New work in the office of Architects Williams & Wastell, American Bank building, Oakland, includes this year a two-story reinforced concrete store and apartment building on East 14th street and 88th avenue, Oakland, for Mr. S. A. Mundell, and residences for Mrs. R. Lloyd in Claremont and Mrs. Edith Beasley in North Berkeley, to cost $12,500 each; also residences in North Berkeley for Measrs. Dean Ingraham, P. L. Wyche and W. M. Deming.

Joins Architectural Firm

Mr. Vern D. Hedden, head of the building inspection department of Long Beach, has resigned his position, effective April 1. The resignation has been accepted.

He will be associated with Architect Victor Siebert, formerly of Walla Walla, Wash., in the practice of architecture and as consulting specialist in building code and zone law counselling, with offices at 203 Brock building, Long Beach.

Packing Company to Build

The Alaska Packers Association will build a terminal, wharves and warehouse on the Alameda side of the inner harbor, San Francisco Bay, at a cost of $1,100,000. The plans have been prepared by Engineers Frank G. White, and Phillip Bush.
Mr. Boyd's Visit to Coast

Mr. D. Knickerbacker Boyd, a prominent Philadelphia architect, at one time secretary and then vice-president of the American Institute of Architects, and now the executive vice-president of the American Construction Council, was recently entertained by the various Coast Chapters. He was accompanied by Mrs. Boyd.

Mr. Boyd expressed his pleasure at visiting the Pacific Coast, which he had found most inspiring and complimented the Far West Institute members on the influence they were exerting in the practical aspect of their community life. He was particularly interested in the architect as a master craftsman. If the architect could not coordinate his work with the workmen on the job, he was not truly an architect, however much of an artist he might be. Mr. Boyd considered that architectural superintendence should not confine itself to the condemnation of unsatisfactory work, but should increase the workman's desire and ability to produce satisfactory results by commending the work well done, not so much as to the technical correctness of the workmanship, but rather an expression of appreciation of the workman's giving him the result he was endeavoring to produce.

Mr. Boyd believes also in co-operation and sympathy with the draftsmen, who is a co-operative worker, in obtaining what we endeavor to accomplish. The draftsmen, he thinks, should be given an opportunity to come more in contact with the workman on the job to gain the proper sympathetic feeling in regard to the co-operative undertaking.

During his stay in Los Angeles, Mr. Boyd attended sessions of the Common Brick Manufacturers' Association, for which he is consulting architect, and the Southern California Chapter, A. I. A.

The Chapter is giving considerable attention, at the present time, to the question of the business practice of an architect's office. Mr. J. E. Allison submitted a report on forms for architects' certificates. A number of forms used by various architects were presented for consideration and a report will be made at the next meeting recommending a standard form of architects' certificates.

Portland Office Building

Architects Schacht & Bergen, Yeon building, Portland, is preparing plans for a six-story class A office building to be erected on the northeast corner of Broadway and Oak streets, Portland, by Messrs. Keller & Boyd, owners of the Benson Hotel. The estimated cost is $1,000,000.

Personal

Messrs. Chas. W. Kreis & Son, architectural designers and builders, have opened an office at 1410 Sunset Boulevard, Los Angeles. Mr. Kreis was formerly with Ley Bros.

Mr. Henry Bacon, noted architect, and designer of the $2,500,000 Lincoln Memorial at Washington, D. C., died Feb. 16 in a New York City hospital.

Architect Henry Barton Watson has opened an office at 634 N. Western avenue, Los Angeles. Mr. Watson was recently director of architecture in the offices of Edwin T. Flaherty, structural engineer, where he assisted in the design of the Forum theater building.

Messrs. Carl Boller, architect, and A. J. Williams, associate, have moved their office to 340-41 Douglas building, Los Angeles.

Architects Paul F. Hartman and R. B. Sisk have formed a partnership and opened offices at 7036 Hollywood boulevard, Los Angeles. Mr. Hartman at one time practiced independently in San Diego, later becoming directing architect for the Frank Meline Company in Los Angeles.

Architect Walter Parker, formerly of San Francisco, and who recently spent a year or two in China, is now associated with Architect John J. Roth, 7060 Hollywood boulevard, Los Angeles.

Architect Joseph C. Longueville announces the opening of offices at 314 Union Bank building, Los Angeles.

Architects Meier & Bounetheau have dissolved partnership. Mr. Bounetheau and Mr. Meier will hereafter practice independently, remaining at 526 Title Insurance building, Los Angeles.

Architect John E. Kunst has moved his office from 820 Higgins building to 511-12 Roberts building, Los Angeles.

Architect F. J. Catton has opened an office at 933 S. Parkview avenue, Los Angeles. Mr. Catton was until recently in charge of the architectural department of the Los Angeles board of education, where he had supervision of all plans for the city schools.

Messrs. Ruggles & McKee, consulting architects and structural engineers of Oakland, have been retained by the Hoyt Heater Company and the Merchant Foundry Company as consulting structural engineers for the new foundry plant to be erected at enth and High streets, Oakland.

Frame Warehouse

Architect Leo J. Devlin of San Francisco has completed plans for a one-story frame warehouse for the Howard Realty Co., to be built on 2nd street, San Francisco.
Apartments and Flat Building
Architects Powers & Ahnden, 460 Montgomery street, San Francisco, have completed plans for a $40,000 apartment house to be erected on the northwest corner of Larkin and Greenwich streets, San Francisco, for Mrs. Annie Convey, also for two residence flats for Mr. Victor L. Puccinnelli, of the Italian American Bank, and Mrs. Louise C. Boronio, both buildings to cost approximately $13,000 each. Contracts have been awarded by the same architects for a four-story concrete office and display building at Brannan and Tenth streets, San Francisco, for the Richmond Sanitary Manufacturing Company.

License Law for Washington, D. C.
The members of the various Coast Chapters have been asked to assist in securing the enactment by Congress of an Architect's License Law for the District of Columbia. The District of Columbia being directly governed by the National Government, the residents of the city of Washington must look to the National Congress for this legislation. Having no personal representation in the Senate and House, they are endeavoring to interest outside architects in securing the passage of the act which has been introduced in the House of Representatives.

Small House Bureau Officers
At the annual meeting of the North Pacific Division of the Architects' Small House Service Bureau, the following officers were elected for the ensuing year:

President—Charles H. Alden, Seattle.
1st Vice-President—Ellis F. Lawrence, Portland.
2nd Vice-President—Rudolph Weaver, University of Idaho.
Secretary—Charles D. James, Portland.
Treasurer—George W. Bullard, Tacoma.
Directors—J. V. Bennes and J. W. DeYoung, Portland.

To Build Additional Stories
Architect August G. Headman, of San Francisco, has completed plans and awarded contracts totaling $80,000 for two additional stories for hotel purposes to the one-story building on University avenue, west of Shattuck, Berkeley, for Mrs. Mabel Roth. Mr. Headman has also completed plans and bids have been taken for a two-story frame club building on Parnassus avenue, San Francisco, for the Delta Sigma Delta Fraternity.

Seattle Apartment Building
Architect Harry Hudson, of Seattle, has completed plans for a $400,000, class A apartment house having twenty apartments to a floor for the Colonial Investment Company of Seattle.

Next President of A. I. A.
Mr. D. Everett Waid, F. A. I. A., of New York City, and for many years treasurer of the American Institute of Architects, who was formerly a member of the profession in Illinois has been nominated by petition for president of the American Institute of Architects by the members of the Chicago and Central Illinois Chapters. With the time prominent candidates for the presidency of the Institute as Mr. Waid of Uew York and Mr. Medary of Philadelphia, the coming convention of the Institute promises to be a most interesting one. In the past the Illinois delegations to the national conventions have been usually fortunate in picking the winner, and if history repeats itself, Mr. Waid will be the next president of the American Institute of Architects.—Monthly Bulletin, Illinois Society of Architects.

Architects Move
Mr. Lyman Farwell moved to 444 South Lorraine street, Los Angeles.
Mr. C. A. Alden moved to 236 North Catalina avenue, Los Angeles.
Mr. W. E. Peterson moved to First National Bank building, Fresno.
Mr. B. E. Remmel moved to 966 Wadsworth avenue, Oakland.
Mr. Joseph C. Longueville moved to 314 Union Bank building, Los Angeles.
Mr. Jens C. Petersen has moved from 301 to 703 People's Bank building, Sacramento.
Mr. Samuel B. Birds has moved from the Citizens National Bank building to the Frost building, Los Angeles.

Concrete Warehouses Planned
A group of reinforced concrete warehouses are planned for Mission Rock, San Francisco, construction to be in charge of MacDonald & Kahn, and Engineer F. J. Amweg. The latter is now at work on the plans which call for an expenditure in excess of $5,000,000. The San Francisco Terminals Incorporated, Harry S. Scott, manager, are behind the enterprise.

Designing Science Building
Architects John & Donalik B. Parkin-son, Title Insurance building, Los Angeles, are preparing plans for a three-story brick science building for the University of Southern California, estimated to cost $175,000.

Piedmont Residence
Plans have been completed by Architects Sidney B. & Noble Newsome for a $30,000 residence for Mrs. H. Hawley Patterson. The house will be built on Sierra avenue, Piedmont.
Money Spent for Construction in 1923

More than $3,998,000,000 was spent for building construction during 1923. Of this amount the architects controlled the planning and designing of approximately $2,574,000,000 worth of construction. During the year about $1,800,000,000 was expended for building material and equipment. Building labor received over $2,200,000,000 in wages during the year. The following table shows how the various amounts were placed. They are necessarily approximate, but they give an amount by which the expenditure for materials can reasonably be judged. The estimate given by architecture, includes the cost of the material and the cost of putting it into place.

<table>
<thead>
<tr>
<th>Material</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masonry</td>
<td>$73,721,100</td>
</tr>
<tr>
<td>Steel Material</td>
<td>83,066,100</td>
</tr>
<tr>
<td>Steel Erection</td>
<td>6,749,000</td>
</tr>
<tr>
<td>Foundations</td>
<td>34,564,000</td>
</tr>
<tr>
<td>Elevators</td>
<td>41,013,000</td>
</tr>
<tr>
<td>Carpentury</td>
<td>36,598,000</td>
</tr>
<tr>
<td>Ornamental Iron Work</td>
<td>28,418,000</td>
</tr>
<tr>
<td>Heating and Ventilating</td>
<td>32,707,300</td>
</tr>
<tr>
<td>Fireproofing</td>
<td>20,766,200</td>
</tr>
<tr>
<td>Engines and Generators</td>
<td>21,504,000</td>
</tr>
<tr>
<td>Plumbing and Drainage</td>
<td>15,374,000</td>
</tr>
<tr>
<td>Electric Wiring</td>
<td>19,728,200</td>
</tr>
<tr>
<td>Terra Cotta</td>
<td>16,613,200</td>
</tr>
<tr>
<td>Glazing, hardware, roofing, painting, lighting, etc.</td>
<td>53,373,800</td>
</tr>
<tr>
<td>Architects and Engineers fees</td>
<td>28,968,000</td>
</tr>
<tr>
<td>Electrical-lighting Fixtures in residential buildings, including Hotels</td>
<td>34,642,000</td>
</tr>
<tr>
<td>Entire Plumbing Equipment</td>
<td>173,213,000</td>
</tr>
<tr>
<td>Fireproofing</td>
<td>21,804,800</td>
</tr>
<tr>
<td>Total</td>
<td>$3,998,000,000</td>
</tr>
</tbody>
</table>

It is generally estimated that money spent for construction during 1924 will be divided as follows:

- Residential: 34% $1,400,000,000
- Public Buildings and Utilities: 20% $840,000,000
- Business: 16% $750,000,000
- Educational: 15% $630,000,000
- Industrial: 8% $335,000,000
- All other classes: 5% $210,000,000

**Approximate expenditure for the various material and equipment for average job.**

<table>
<thead>
<tr>
<th>Material</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masonry</td>
<td>36.1</td>
</tr>
<tr>
<td>Carpentury</td>
<td>29.1</td>
</tr>
<tr>
<td>Heating</td>
<td>8.7</td>
</tr>
<tr>
<td>Painting</td>
<td>6.5</td>
</tr>
<tr>
<td>Electric Work</td>
<td>6.0</td>
</tr>
<tr>
<td>Plumbing</td>
<td>6.0</td>
</tr>
<tr>
<td>Sheet Metal</td>
<td>2.5</td>
</tr>
<tr>
<td>Roofing</td>
<td>2.9</td>
</tr>
<tr>
<td>Hardware</td>
<td>1.2</td>
</tr>
</tbody>
</table>

The amount of building construction done in the Pacific Coast States during 1923 run considerably over a half billion dollars and it is estimated that the year 1924 will show an increase of over 20 per cent.

A survey of the various Chambers of Commerce of Pacific Coast cities shows that the registered architects control the planning and erection of about 47 per cent of the total amount of building. The balance is controlled by contractor, builder and designer, etc.

In the rural districts about 75 per cent of the building is planned by contractors, builders and designers. This is mainly on account of lack of fire restrictions, intricate building laws and the general class of cheaper work. In the larger cities this situation is the reverse, architects planning about 80 per cent of the construction on account of the higher type, more costly construction, and because of the many building laws, fire and insurance restrictions of which many contractors are not conversant.

University of Washington Architectural Department

The Architectural Department of the University of Washington is now entering its ninth year. The course given is similar to that in the larger universities of the country, such as Pennsylvania, Massachusetts School of Technology and Cornell.

New members recently added to the faculty are Professors Ralph W. Hammett and Arthur T. Herman, the former a graduate of the University of Minnesota, where he acted as instructor and practiced his profession for two years, subsequently receiving his master's degree at Harvard University. The latter obtained his professional training at Carnegie School of Technology, where he was the recipient of high scholastic honors. Both men are giving full time to the department. Mr. Daniel R. Huntington, former city architect of Seattle and practicing architect, is giving part time to instruction.

The aim of the department is to give the student a thorough training and the school is following the system in design work which has been developed in New York by the Beaux Arts Institute of design. Programs are sent from this organization and drawings are returned to New York for judgment, a similar method employed by other departments of architecture and it is an excellent means of giving a comparative estimate of the student's capacity.

The school is now working on a program for the design of the Montlake bridge, Seattle, for which the juniors and seniors are competing and for which a prize of $100 is being offered by Charles H. Bebb, Seattle architect. The purpose is the development of a design that will be in character and harmony with the type of architecture prevailing at the University and one that will give adequate value to the importance of its location.

Carl F. Gould, architect, Seattle, is at the head of the department and has been since its initiation. He is a Harvard graduate and was a student for five years in the Ecole Des Beaux Arts, Paris. He received numerous distinctive awards for his work while there.
Model of Tunnel Made by Engineers to Determine Lighting Needs

ONE of the most ambitious engineering projects attempted in recent years is the building of the Hudson river vehicular tunnel, which will link New York to New Jersey in the most efficient way yet devised. Traffic between the two states is at all times very heavy, and because of New Jersey’s popular resorts, week-ends and holidays bring a congestion of automobiles that is far beyond the capacity of the existing ferry services.

There will actually be two tunnels, one for east bound and one for west bound traffic. Each will be twenty-nine feet six inches in diameter, and 9,250 feet long. The roadways will be twenty feet wide and have an overhead clearance of thirteen feet six inches. The rest of the space will be required for the ventilating system, which consists of air ducts at the top and bottom of each tunnel. Fresh air under compression will be forced into the lower duct and from there into the roadway itself through air flues and expansion chambers placed at intervals of fifteen feet along each side of the tunnel. This will force the vitiated air out
through openings, also at fifteen foot intervals, into the top duct whence it will be drawn out by large fans and discharged through the caissons at the ends of the tunnels.

The tunnels are being constructed from both ends, and will meet somewhere in the middle of the river. The calculations on the work are so accurate that when the tunnels meet they will not deviate half an inch. The tunnels are built in ring sections of fourteen cast-iron plates, each plate weighing a ton and a half. The excavating is done in shields, or movable heads, which are pushed forward two and a half feet at a time by thirty hydraulic jacks. As the shield moves forward, the rings are added one by one. When completed the tunnels will have a protective covering of broken stone, and at each entrance there will be a modern pier above the tunnel as it reaches the land, in order to avoid the possibility of a ship running into the tunnel where it comes up.

One of the most difficult problems in connection with building the tunnel has been proper illumination. The Illuminating Engineering Laboratory of the Westinghouse Lamp Company recently became interested in this problem and began a series of experiments to determine the best possible lighting system. In order to study all suitable systems of illumination under approximate operating conditions, an exact model of the tunnel on a scale of one inch to one foot, and ten feet long, was constructed in the Bloomfield plant. Exact replicas of the proposed lighting units were installed in this model tunnel, furnishing an amount of light corresponding accurately to the desired illumination. The model tunnel, pictured above, is complete to the most minute detail, even the brass railing along the walk for pedestrians being provided.

It would seem at first glance that lighting the tunnels would be merely a matter of installing plenty of units, but that is not the case. It is necessary in the first place to eliminate all glare, so the units, one every twenty feet, were encased in metal boxes sunk into the concrete of the tunnel, and diffusing glass used to cover them. Next, the lights had to be so placed as to secure the greatest possible amount of reflected illumination from the walls and ceiling.

Third, and most important, it is extremely necessary that all shadows between cars be eliminated in so far as possible, as sharp shadows would cause drivers to misjudge distances, which might result in accidents. As the new tunnel is expected to relieve the traffic congestion on the west side of New York, any accidents or tie-ups in the tunnel must be rigorously guarded against, and proper illumination will be an important factor in accomplishing this.

Van Duzen River Bridge

The bridge department of the California Highway Commission has completed plans for a bridge over the Van Duzen river near Alton in Humboldt county, and bids for the construction will be opened April 7th, at Sacramento. This bridge is on the famous Redwood highway and replaces an old steel structure over the river.

The new bridge as designed by the commission's engineers will be of reinforced concrete with a total length of 734 feet and a clear roadway width of 21 feet.

It consists of three arch spans of 163 feet in length, of one 30 foot approach span at one end and seven 30 foot approach spans at the other end.

The arch piers and abutments will rest upon a gravel foundation. The trestle spans are of the reinforced concrete pile type.

After considerable study and investigation as to the most economical type of structure for this crossing this design was selected. The arches are of the barrel or single rib type with open spandrels, the superstructure being a solid slab with panel lengths of about 10 feet, supported on columns which rest on the arch rib. The crown section of the arch rib is 14 feet wide and 2 feet thick. At the springing the rib is 3 feet 3 inches thick.

The bridge has been designed for two 15 ton trucks and a uniform load varying from 70 to 130 pounds per square foot, depending upon the amount of road occupied. An impact percentage was added to the live load for all parts of the structure except the piers and abutments. A temperature variation of 85° rise or fall was provided for in the design of the arch rib.

The unit stresses used in the design are those usually employed in such structures, being 16,000 pounds per square inch for steel in tension, 650 pounds per square inch for concrete in flexure, 750 pounds per square inch for concrete in compression and flexure when temperature stresses were considered, etc.

The concrete specified is a 1:2:4 mix for all parts of the structure except the piers and abutments which are of the massive gravity type and in which a 1:3:6 mix of concrete is specified.

The total cost of the structure is estimated to be in the neighborhood of $100,000.
Field of the Contractor

Novel Plan for Financing Home Building

LET the building material men create an instrumentality for selling their commodities to home-builders on the installment plan, is the novel suggestion laid before the recent convention of the Ohio lumber retailers association by Theodore F. Laist, architectural advisor of the National Lumber Manufacturers Association. The suggestion made such a "hit" that a committee was appointed to deal with it and give authority to bring it before other associations with a view to making it a national enterprise.

Mr. Laist in effect proposes a new and seemingly economical way of financing the second mortgage, which, if it should be put into operation, would eliminate a large part of the additional cost that most present deferred-payment plans impose on home-builders who have not enough cash to make up the difference between a first-mortgage amount and the cost of the house and lot. The suggestion was offered to the lumber dealers as a means of increasing their sales, under the title, "Increasing Sales Through Financing Building Projects." The following is a digest of the paper:

"The title of my address may at first glance seem a misnomer for it is not my purpose to consider those minor schemes of merchandising and publicity by which an enterprising dealer may increase his sales, generally at the expense of another competitor. It is the total volume of trade with which we are now concerned, therefore, the problem will be considered in its broadest aspect with the thought of increasing the sum total of sales in the industry. To successfully solve this problem we can do no better than study the underlying fundamentals of selling on term payments, which have been so successfully adopted in some of the other industries, as not only to attract world wide attention but to cause resentment in other lines of trade suffering thereby.

Houses vs. Automobiles

It is seldom that the lumberman will lose an opportunity of calling attention to the funds which he believes are so willingly and so lavishly expended on automobiles and thus diverted from other channels. This fact he attributes to the wonderful merchandising and publicity methods which have been important factors in the phenomenal growth of that industry. The ease with which the purchase of an automobile may be financed may be regarded as the most important of all contributing factors. To counteract this and to encourage home building own your own home shows, model houses, and similar exhibitions are staged, the daily papers and periodicals are filled with home building pages containing illustrations of homes. The economy and comfort of home ownership are emphasized all to arouse the latent desire of home ownership, yet the sale of automobiles not only continues to increase numerically but in proportion as the sale of homes diminishes.

"My own observations have led me to believe that the average man and woman are already sold on home ownership, and that if a means were devised by which they could realize their desires the volume of new business would be so enormously increased that it could not be handled.

"Important as are your home shows, model houses, advertising, and publicity of all kinds, they all sink into insignificance compared with the importance of making it possible for the man with small capital to finance a home without being at the mercy of the loan shark and being stung by some unscrupulous speculative builder.

MAKING THE SECOND MORTGAGE "RESPECTABLE"

"We some times forget lines of merchandising other than that of the automobile in which the total sales volume has increased so enormously within recent years. Had it not been for the deferred payment plan, pianos, phonographs, washing-machines, and other costly instruments or utilitarian appliances for the home would never have found the wide distribution they have, even in the homes of those of the most humble means in which they have come to be regarded as a necessity.

"There was a time when buying on the installment plan was a practice which was not in favor with the thrifty. In fact, to buy on the installment plan was not considered quite respectable. Today it is nothing unusual for men of large means to buy on payments. There was, also, a time not so long ago when it was not considered quite the thing to live in a rented house—a man who could not own his own home was regarded as
falling short of one of the best requisites of good citizenship. In the early days of the installment business which in truth was conducted on a low plane sharp practices and all sorts of trickery were resorted to to catch the unwary and reclaim the goods after large payments had been made.

"There came a time when it was necessary to regulate the practices of the installment furniture houses by law, but the installment practice as practiced by big concerns now is fair and square, merchandising and not a cloak for trickery. Only a small percentage is added for the accommodation and in many cases the article is sold at its cash value and a percentage added for the deferred payments.

"What has been done in installment mortgage buying, and other industries may be accomplished in second mortgage loans as applied to home building. To make the second mortgage "respectable" means opening up a field for the fair minded operator, it means more than that, namely, reducing the risk and making it possible to obtain second mortgage money at a lower cost. Any machinery by which second mortgage money may be made available at low cost will start a new lot of potential home owners.

DISCOUNTING SECOND MORTGAGES

"Since the channels for discounting mortgages-building paper are restricted the amount of financing that can be done by any individual lumber merchandising concern must be limited, furthermore, not to be encouraged as such accommodations add very largely to the cost of merchandising. The speculative builder who accepts second mortgages is placed in the same unfavorable position—generally operating on limited capital he must sacrifice his second mortgage notes to be able to continue in business. His loss in financing must be made up by a correspondingly high per cent in the profits of construction. This makes the building cost unnecessarily high or as frequently happens the construction of the building is skimped.

'Too much emphasis I believe is placed upon the publicity given to automobiles as a factor in decamping homes to automobiles. The fact is that many buy automobiles because of insufficient capital to buy a home. The down payment required on an automobile is seldom enough for a down payment on a home. This is the crux of the home situation.

"Since rents bear direct relationship to building costs they will remain high if the cost of building is high. Therefore, the cost of a home must not be considered in the abstract and is not nearly as important as the amount of cash required.

"It is incomprehensible that the one industry which provides what is undeniably a necessity finds it so difficult to finance, whereas an automobile and a musical instrument—always an expense—are so easy to finance. A home is not an expense for in most cases the rent would pay the installments necessary to acquire a home. An automobile and a piano may be bought on a comparatively small down payment, notwithstanding that the depreciation is very much greater and the seller resumes a much greater risk. This may be attributed to the large amount involved in a home, in the fluctuation in building costs, and that a building, as it is usually handled, is so loaded up with expense not representing physical property. The usual payment of twenty to twenty-five per cent required by a home builder does not actually represent an investment in physical property. The middle man is the bête noir of the consumer in other lines, but in the building industry there is not only a middle man in the middle but several in the front and several in the rear, each of whom exacts his toll and in many cases a most unreasonable fee for the services rendered.

LACK OF READY CASH

"In a suburban town a group of material men and builders were discussing the reason for inactivity in home building and decided to investigate. It was found that many non-residents had purchased building lots expecting to build homes. Many of these lots had been paid for in full. The owners were careless and they had discovered for not building. In nearly every case it was found that the owners were deterred from building because of the lack of ready cash. Many stated that after figuring for several years they had abandoned all hope for the present and admitted that they had invested their cash in an automobile, but stated that before doing so they had earnestly endeavored to secure a home.

"Five hundred dollars in cash will go a long way inwards securing the ownership of an automobile but under present conditions is not sufficient for the first down payment on a home.

"Many had planned to make up the deficiency by procuring a second mortgage but had found the rates so exorbitant and the business in the hands of undesirables that they abandoned the project. They, therefore, seemed to have gravitated into the class of permanent renters instead of home owners, not from choice but because of economic conditions. In such cases, the lack of interest in homes can hardly be attributed to the automobile and its publicity.
"A similar canvass was made of those living in rented quarters in the community in question and the surrounding territory. In almost every case the condition was found parallel, although perhaps a large percentage had never considered buying a home very seriously.

"And now we come to the financing of the second mortgage, the most important of the methods by which the building of small homes may be stimulated. The financing of the first mortgage need not be stressed at this time. Large financial institutions, building and loan associations, and insurance companies are well able to handle the needs of the home builder in this respect. Let me in passing bring out this thought, that even though a first mortgage may be obtained for a very large percentage of the cost of a home, say seventy five or eighty per cent—which is sometimes possible to obtain from a private lender—it is economical to finance with a first mortgage for fifty or sixty per cent at a lower rate of interest and having a longer term of years to run, and then borrow the balance on a second mortgage for a short time, then to finance the whole amount on a first mortgage.

"Associations of material men organized for financing second mortgages are not new. The experiment is not untried and particularly within the last few years small groups of lumbermen, real estate men, and contractors have been instrumental in successfully promoting such loan companies. In most instances, however, their business has been primarily that of discounting builders' second mortgages on homes already erected. Such institutions serve a valuable purpose by enabling the builder to conduct his business on a larger scale than otherwise his capital would permit but the ultimate consumer, the home buyer, still pays the high price for his mortgage. Whether or not the builder is able to discount his note little affects the cost of the second loan. Such companies, finance the builder more than they do the home owner.

"I wish to bring to your attention a plan which appeals to me as being the best for the purpose, viz, that of stimulating small home building by reducing cost of financing to an absolute minimum, at the same time requiring a minimum cash payment on the part of the home owner.

SECOND MORTGAGE LOAN COMPANY

"A group of lumbermen, material men, general contractors, subcontractors representing the plumbing, steamfitting, painting, and electrical trades, etc., get together and organize a second mortgage loan company in which each one subscribes to the capital stock. This company will function primarily by assist-

ing those desiring to build homes by financing the second mortgage; secondary functions are providing plan service if necessary, financing the first mortgage if desired, and providing contractors.

"When an individual applies to the company for a loan those members of the group interested bid in the usual manner on the plans for the work. When the contract is awarded it is awarded in the usual way on the usual conditions but with the one difference, viz, that instead of exacting full cash payment from the owner each contractor or sub-contractor agrees to take in second mortgage notes his percentage of whatever money may be needed to bridge the gap between the first mortgage and the money the owner has on hand. These notes he accepts at par. Ordinarily he would have to peddle the notes and sell them at a large discount, the price being fixed accordingly. In this plan he deducts the notes, turns them into the loan company and receives in cash the face value of the notes less a small fee.

"The loan company, therefore, has collateral with the building as security, paper with the name of the owner and the name of the sub-contractor as additional security. Whenever the loan company needs funds it may borrow on these notes as collateral through banking channels and the loan company will guarantee these loans. I have been told by officials of large banking institutions in Chicago that they would gladly accept such paper with a guarantee of the loan company and loan by far a larger per cent than they would ordinarily on second mortgage notes, which in fact most banks will not take at any price. The reason for which is obvious because the paper of this loan company is more secure. In the first place, there is the guarantee of the loan company but above that is the fact that the second mortgage actually represents physical property and is not merely floated for the purpose of paying fees, percentages for financing, etc.

"I wonder how many home owners buying from speculative builders or others on small payments realize that after they have skimped and scraped to make a payment of perhaps twenty five per cent, that actually they have paid for no physical property. The payment made has been absorbed by fees of all kinds, discounts on notes, general expense, insurance against risks, etc., in other words, they have not paid for a single foot of lumber, a single brick, and by that I mean they have not paid for the material itself, nor the labor to place it, nor any direct overhead connected with the installation.

"Under this plan there is no necessity for exacting extortionate interest on fees.
There certainly is none on the part of the first contractor, and there is very little on the part of the guaranteeing company. Such loan companies should be local or neighborhood affairs, conducted similar to the small building and loan association.

"Now in conclusion, whether the last mentioned plan is a good one or whether other plans that have been tried offer better solutions I admit I am unable to decide, but I am so firmly convinced of the importance of financing through the channel of the second mortgage that I believe the time is ripe for an association of this kind to take some positive step in advance. I would like to see this convention take the initiative and appoint a committee to thoroughly study the problems of financing second mortgages. Furthermore, the committee should take it upon itself to see that similar action is taken at other conventions of lumbermen and builders and then arrange to meet in conference to prepare definite recommendations for a working plan. When this is accomplished any similar group may, with little expense and no difficulty, organize a second mortgage loan company.

"Out of this conference should come eventually the organization of a national institute for the purpose of standardizing practices in this field, providing field men to assist in the establishing of such companies and to exercise supervision over the individual institutions who voluntarily submit themselves to such supervision. It is not unreasonable to suppose that within a short time securities of such affiliated companies, stamped with the seal of the national institute, will be accepted as gilt edge investments. This, of course, will take some time but we do well to look into the future. Furthermore, a certificate from this organization will be a guarantee of good construction—in itself a valuable asset. "Just now, there is plenty of business but we must remember that after the immediate shortage in homes has been relieved the inevitable slump will come. It is then that a new crop of home investors of small capital may be made available. There is within reach an army of potential home buyers. It is for you to say the word that will bring them into life."

How Do You Measure Bulk Materials?
The "practical" man, long experienced in concrete work, has a tendency to think disparagingly of theoretical and too refined methods in mixing concrete. Without doubt, theory can be carried too far. The present-day tendency is toward more careful control of concrete mixing, and there is no question but that a little extra care will be well repaid. Take, for example, the matter of measuring the various ingredients in a batch of concrete. Most of the measuring is done by wheelbarrows, and yet very rarely does the man in charge know the capacity of the wheelbarrows he is using.

The Contractors' and Engineers' Monthly says that in a recent case, a concreting foreman stated that he was using a good, rich mix—1:2:4. On further questioning, it developed that he was using one bag of cement to one wheelbarrow of sand and two wheelbarrows of stone. The barrows were of the deep, steel-body type, and by actual measurement held three cubic feet. Thus, his mix was actually 1:3:6—a very much leaner mixture than he should have been using.

If measuring must be done by wheelbarrows, their capacity should be measured and a mark made to which they
should be filled. A convenient way of doing this is to use the familiar bottomless measuring box, a table for which is given below:

<table>
<thead>
<tr>
<th>Capacity in Cu. Ft.</th>
<th>Length Inches</th>
<th>Breadth Inches</th>
<th>Height Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1$\frac{1}{4}$</td>
<td>15</td>
<td>15</td>
<td>9.7%</td>
</tr>
<tr>
<td>1$\frac{1}{2}$</td>
<td>15</td>
<td>15</td>
<td>11.3%</td>
</tr>
<tr>
<td>1$\frac{3}{4}$</td>
<td>15</td>
<td>15</td>
<td>13.3%</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>18</td>
<td>10.8%</td>
</tr>
<tr>
<td>2$\frac{1}{4}$</td>
<td>18</td>
<td>18</td>
<td>13%</td>
</tr>
<tr>
<td>2$\frac{1}{2}$</td>
<td>18</td>
<td>18</td>
<td>14.8%</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

**Surety Bonds Favored**

"The American Association of State Highway Officials has appointed a committee to investigate and report on the surety and bond situation," says the Monthly Letter of the Contractors Association of Northern California, composed entirely of highway and engineering contractors. "This committee held its first hearing at New Orleans during the convention of the state officials in December, but no definite action was taken. The present rate of 1$\frac{1}{2}$ per cent can be justified only because of the losses sustained, and it is the aim of the committee to analyze and report on the reasons for such heavy losses. The committee was also instructed to report on the possible alternative of accepting personal sureties.

"The committee in session at New Orleans brought out some very interesting facts in regard to where and how these losses were sustained by the surety companies. It appears from the report brought back from the convention that the losses are largely sustained in the eastern half of the United States and that they are comparatively light in the Pacific states zone. This would indicate that the rate to be established on surety bonds should be established by zones, and that those zones with the minimum loss should be given a preferred rating.

"The Contractors Association of Northern California is in favor of the surety bond as opposed to all other forms of security, for several reasons, chief among which is the fact that contractors employing negotiable collateral would be required to purchase securities probably bearing a low rate of interest and the differential involved between the income derived from the low rate bond and the loans which the contractor would be required to negotiate for the performance of his work is so great that it must reflect itself in a higher cost of the work performed. This differential, in all probability, would amount to more than the premium on the surety bond for the work involved.

"We must not forget that to require contractors to post negotiable collateral may prove such a hardship to many reputable and reliable contractors whose capital may be absorbed in many jobs, that thereby they might be eliminated from competitive bidding. It would follow then that contracting might become a problem of financing rather than the ability of the contractor to perform."

**Checking Building Errors**

If the most scrupulous care were always observed when quoting figures much trouble would be avoided. But figures are dangerous things for the heedless to trifle with and much more dangerous for the man who always considers them as being based on fact. The Portland "Oregonian" makes timely and appropriate comment on the misleading use of figures under the caption "Cost of Building a House," as follows:

"An example of the misleading use of figures is found in the erroneous quotation of a bulletin from Dr. John M. Gries on the cost of building. One newspaper said that 'after a careful survey of building conditions all over the United States,' he found that the labor cost in a $5,000 house was only 26 per cent, and from this some papers drew the inference that a large advance in wages would affect the total only slightly and they took for granted that all of the remaining 4 per cent represented material.

"The survey did not relate to a merely typical $5,000 house, but to 'a certain house' which cost $10,500, and the division of cost was: Labor, 26 per cent; materials, 29.3 per cent; land, 19 per cent; contractor, 12.6 per cent; financing, 6.7 per cent; architect and real estate fees, 6.4 per cent.

"All of these expenditures are necessary to a well built house, if, as is usually the case, it is paid for partly with borrowed money. Then even a 50 per cent advance in wages would affect not only its 26 per cent of the total, and that is true also of cost of material.

"But we should go as far astray if we did not recognize that an advance in these items indirectly raises the others. The builder calculates on a percentage of the contract price as his profit, and if that be raised, his profit is larger. The architect is paid a percentage fee, which grows with the cost of the house. More money being needed, financing costs more and even if no borrowed money is used, the owner should charge at the house interest on its cost from the beginning of construction until the house is ready for occupancy, and the higher the cost the more interest will be chargeable."
What white pigment is to the Painter

Atlas White Portland Cement
is to the architect

Suppose the painter had to tone and shade his colors with a basic gray pigment. Would clear or true colors be possible?

In stucco, scrafitto and much other decorative architecture the same applies. Consider Atlas White the basic pigment, making possible true, clear and permanent colors. Colored sands, mineral pigments or marble chips give endless variety of possible colors.

And added to this quality is permanence, for Atlas White is a true Portland Cement, with all the strength and permanence of this material, building into stucco textures, lasting beauty.

The adaptability of this material to different types of architecture, different moods of the individual architect, makes it as real a medium for artistic expression as the pigments on a Painter’s palette—a fact which should not be overlooked when considering more utilitarian qualities of permanence and fire-safeness of Atlas White.

The Atlas Portland Cement Company gladly supplies
the architect with any information he wishes concerning the method of handling and applying Atlas White.

THE ATLAS PORTLAND CEMENT COMPANY
25 Broadway, New York, N. Y.
CHICAGO    BIRMINGHAM    INDEPENDENCE, KANS.
PHILADELPHIA    BOSTON    ST. LOUIS
OMAHA    BUFFALO    KANSAS CITY
DES MOINES    DAYTON
JACKSONVILLE, FLA.

When writing to Advertisers please mention this magazine.
When the range of commodity and labor prices is high, the land-owner will, if practicable, mark up the price of the lot, and up will go the items for land and real estate fees.

"In the cost of building as in that of anything, the price of one commodity reacts on that of another, and it is as grave an error to assume that an advance in labor or material affects either of those items alone as it is to attribute to material all that is not labor."

Some California Cost Figures

A compilation of the present average building costs in Southern California has just been completed by the valuation committee of the local chapter of the Associated General Contractors of America. The information will be used by the County Assessor as an aid in determining the correct valuation of buildings and will doubtless be of use to banking institutions' mortgage and loan departments in the appraisal of buildings. The following report was made:

Class A steel frame buildings—Cost per cubic foot; office buildings, 83 cents; hotels, 58 cents; lofts, 28 cents; warehouses, 25 cents.

Class A reinforced concrete buildings—Cost per cubic foot; office buildings, 50 cents; hotels, 55 cents; lofts, 25 cents; warehouses, 20 cents.

Class C brick buildings—Cost per cubic foot; stores or theatres on ground, rooms, apartments, etc. above, 39 cents; apartments, 35 cents; lofts, 20 cents; warehouses, 13 cents; one-story garages, per square foot, $1.75; one-story stores, per square foot, $2.25.

Frame buildings—Cost per square foot; California houses, good, $3.00; medium, $2.50; cheap, $1.75. Bungalows, special $5.00 to $6.00; good, $3.60; medium, $3.00; cheap, $2.50. Bungalows, out of town (no restrictions), good $3.75; medium, $2.75; cheap, $2.00. Residences, two-story, good, $6.00 to $8.00; medium, $4.50; cheap, $3.00. Out-buildings, good, $2.00 to $2.50; medium, $1.70; cheap, $1.00. Corrugated iron buildings, all kinds, approximately, $1.00.

The valuation committee is composed of Messrs. J. C. Bannister, P. M. Jones and Paul B. Davidson.

State Architect Honored

Mr. George B. McDougall, president of the Sacramento Y. M. C. A. and state architect, was elected president of the California State Y. M. C. A. organization for 1924 at the forty-third annual joint session of the convention and of the Northern California Old Boys' Conference, held last month in Fresno.

Mr. H. B. Douglas, architect, has moved from Paso Robles to Greenfield, Monterey county.

Brick Delegates Like California

If economic conditions had permitted, there would now be some 400 more brick plants in California as a result of the Sixth annual convention of the Common Brick Manufacturers' Association of America held in Los Angeles. According to the expressions of pleasure made by visiting delegates and their families, all would have chosen to remain permanently in California. Of the 400 brick manufacturers from all over the country who came to California to attend this convention, seventy cancelled their return reservations and will spend the balance of the winter in California.

This was the first time the Association had ever held its national convention west of Kansas City. Brick makers from Canada and twenty-nine states of the Union came in two special trains of ten coaches each, stopping first in Sacramento, then San Francisco and the Bay cities before proceeding to the convention city. More than 400 delegates, many with their wives and families, came in the caravan. Brick-making machinery manufacturers, architects and others connected with the industry accompanied the party to attend the session.

Los Angeles Architectural Exhibit

The annual architectural exhibit under the auspices of Southern California Chapter, American Institute of Architects, in Exposition Park, Los Angeles, opened February 7th and at its close the collection will be sent to San Francisco, Seattle, Portland and other Coast cities.

The major part of the subjects are photographs of single dwellings recently built in the west. With the growth in residential building, it is assured that such a popular presentation will result in a stimulus for finer architectural design in home building.

The members of the Southern California Chapter of the Institute have contributed generously to the collection, in which is found a great variety of architectural types, as well as houses of various sizes and for various uses. Combined with the work of Los Angeles architects will be found exhibits from other Chapters in the west. The Utah Chapter of the American Institute of Architects has taken advantage of the exhibition and has sent a number of photographs which may be compared with interest to the southern California work.

Northbrae Residence

Miss Julia Morgan of San Francisco, has completed plans for a $25,000 house in Northbrae, Berkeley, for Mr. Paul Phelan. There will be fifteen rooms.
Unusual Treatment; Beautiful Effects

THE very effective way in which Medusa White Cement lends itself to unique or unusual treatment is its own best recommendation to you.

The stucco, cast stone work and ornamentation for the formal garden of the Shearson residence shown above, were done in Medusa White Cement.

Architects are invited to write for literature showing the interesting possibilities of Medusa White Cement; and to consult our catalog in Sweet's.

THE SANDUSKY CEMENT CO., Dept. P, Cleveland
Medusa Stainless White Cement—Plain and Waterproofed—and Medusa Waterproofing are carried in stock and sold by leading building-supply dealers in California, Oregon and Washington.

MEDUSA WHITE CEMENT
Company Gives Roofing Material Ten Years Test Before Marketing

By W. H. LOWE

Has Fixed Sales Policy

There has been much discussion among manufacturers of building material and equipment anent their sales policy in approaching architects, owners and contractors in selling them materials. Some have not approached the owner for fear of incurring the displeasure of the architects, while other manufacturers direct their entire sales efforts toward the owner.

The Bonded Floors Company, national manufacturers, engineers and contractors of linoleum, cork and rubber tile flooring, have worked out a sales policy that undoubtedly will interest architects, builders and the general building public. It is as follows:

1. It is our desire to cooperate with architects, general contractors and owners in the sale of our products, taking into account the trade conditions existing in our field of operations.

2. Roofing materials are often sold as floor coverings by companies that deal exclusively with owners, so to adapt our business to such competition we must also have more to do with owners than is the case with companies manufacturing other strictly architectural products.

3. A resilient floor contract, like contracts for fixtures and interior decoration, is preferably not included in the general contract because the choice of color and to a large extent the arrangement of partitions are not usually settled at the time the general contract is placed. It is therefore usually made a separate contract with the owner under specifications drawn by the architect.

4. Sometimes conditions as to flooring are so thoroughly settled that complete drawings and choice of colors and specifications can be prepared in time to include them in the general contract.

5. In all cases where an architect is retained and the resilient floor is to be purchased under architect's specification direct by the owner, Bonded Floors Co., Inc. and its authorized dealers will:

(a) Give no prices to owners, but will feel free to go to owners to acquaint them as to the field of application of our materials, the responsibility of this company, and as to successful installations we have made.

(b) Will quote prices and submit formal proposals and contract only to architects.

6. In all cases where an architect is retained and the resilient floor is to be purchased under architect's specification as a part of the general contract we will:

(a) Give no prices to architects or owners but will discuss with them freely the application of our materials, etc.

(b) We will quote prices and submit formal proposals, only to general contractors who are building on the general contract.

Berkeley Rebuilding Fast

Building which represents an expenditure of $1,141,000 is now under way in the burned zones of Berkeley. According to figures from the office of the city building inspector, 68 structures are either in progress or have been completed since the fire of September 17. Most of the buildings are now in course of construction. Of the 68 buildings, 29 are apartments or flats having a total valuation of $623,000. The 39 remaining dwellings average $13,000 in valuation, making a combined expenditure of $528,000.
March, 1924

**Kennedy**

**The Standard Valve**

The test of valve quality is the length of time the valve continues to render the most efficient service without giving trouble or entailing expense. There are Kennedy Valves of the long-time kind all over the United States and Canada doing good work in every variety of valve service.

You can be sure that every Kennedy Valve you install will be permanently satisfactory in every way. The Kennedy Catalog explains the details of design and construction that assure easy operation, low repair cost, negligible attendance and unusual durability. Send for a copy and use it to help make a selection of Kennedy Valves for trial.

---

**T**

A Real Type “A” Switch in a Class “A” Box

There are two distinct types of switches—one the punched clip which is perfectly satisfactory when infrequently operated or for entrance work, and the other machine-made Type “A” Switch, quick make, quick break, which will stand up under inductive load and can be operated as many times a day as necessary without injury.

Type "A" Q. M. and Q. B. Switches should be specified for industrial plants and places where they are subject to over-loads and to severe usage.

“Circle T” Type “A” Safety Switches are made in sizes from 30—1200 Amp, to 250, 500 and 600 volt A. C. with interlocking features.

---

The Trumbull Electric Mfg. Company

595 Mission Street, San Francisco, Cal.

When writing to Advertisers please mention this magazine.
The big, new,

Standard Oil Building
in San Francisco
is heated by the

WEBSTER SYSTEM OF
STEAM HEATING

—so are many other big, famous, popular buildings in this country and elsewhere heated with Webster Systems of Steam Heating. Inquire for full particulars.

Refer to 3 Pages in Sweet’s

YOU will find in them all the immediate information you require for our three types of operators, all of which work from inside the screen.

Catalog No. 9 prepared especially for architects. Send for one.

The Casement Hardware Co.
241 Pomeroy Blvd., Chicago, Ill.
Menolith Waterproof Cement Meets Popular Approval

Twenty five years ago it was no uncommon thing for an engineer or architect to specify "Star Stettin," "Larger-dorfer" or some other brand of foreign Portland cement, steadfastly refusing to recognize any of the few American brands manufactured at that time.

The "tramps" of the sea could be observed at any port, discharging large quantities of foreign cement packed in wooden barrels, which they had taken on as ballast, considering themselves fortunate in being able to secure a stabilizer so easy to handle. Usually there was no freight charge for such transportation.

The American cement manufacturer, struggling with as crude equipment as his foreign competitor and higher labor costs, was about to develop improved machinery for making and handling his product from the quarry and through the mill, knowing his very existence depended upon quantity as well as quality production.

The present day cement mill with its gigantic crushers, conveyors, grinders, and rotary kilns bears no more resemblance to the cement mill of twenty years ago than a 1904 model automobile compares with the 1924 creation.

In the modern cement mill nothing is left to chance. Even before the quarry foreman gets his crew assembled, the chemists have sampled the rock to determine its fitness—samples are taken from the clay beds—other ingredients are sought out, put through miniature kilns, ground and a finished cement is produced—this routine goes on constantly at every plant, in order that the consumer may get what he pays for; that the contents of each sack measure up to the exacting standard adopted by American cement manufacturers.

Notwithstanding the safeguards devised to perpetuate quality and the perfection of cement machinery, there was no improvement in the cement itself, until a chemical engineer, Hans M. Olson, succeeded after fourteen years of experimenting with practically every known substance, in producing a Portland cement which diffuses to a greater extent in mixing, produces about twice as much colloidal substance which results in increased plasticity or fineness of the mortar making possible the placing of concrete without segregation of the mass concrete, thereby insuring a thoroughly mixed aggregate reaching the forms, a condition most vital to good concrete construction.

Waterproof concrete, so long sought by those engaged in the manufacture and use of cement, became, through Mr. Olson's achievement, at last, a reality. By the use of cement made under Olson

Let the Best Glass Make a Better Schoolhouse

MODERN schoolhouse design continues to indicate the progressive thought and superior wisdom of architects in providing for the health and comfort of the younger generation.

The roofs of many recently constructed schoolhouses are revelations in the way glazing is utilized to provide more air, light and sunshine.

Art classes work under the advantages of the professional studio with an abundance of good north light; young botanists culture their specimens all year 'round in well equipped greenhouses; and lunch and rest rooms are flower and sunshine filled. Good glazing makes all this possible just as "The Best Glass" makes good glazing possible.

Our improved mechanical process of drawing and blowing enables us to produce a glass uniform in thickness and flat, containing no reverse curves, and of a perfectly smooth surface and brilliant lustre unequalled by any other window glass.

The Best Glass is carefully packed in strong, well-made boxes bearing markings which signify grading to the highest quality.

Our grading is the recognized standard for the United States, and is higher than foreign standards.

The elliptical trade mark on every box of the genuine guarantees quality.

"Send for your copy of the new window glass specifications - now ready."

AMERICAN WINDOW GLASS CO.
1924---A Brick Year

You will find evidence in every community of the great awakening to the many advantages and economies of brick. Architects everywhere are today turning to brick for residence construction. Get all the facts about brick. Send today for "Distinctive Brick Homes"—a 60-page manual of home architecture containing photos and floor plans of more than 50 modern California Brick Homes. Use the coupon below.

California Common
Brick Manufacturers Association
342 Douglas Bldg., Los Angeles

Name__________________________
Address________________________
A-1__________________________

When writing to Advertisers please mention this magazine.
patents, the architect, contractor and owner could be certain that moisture would not penetrate the concrete. An immensely important problem was solved.

An enterprising group of practical men, long engaged in the manufacture of cement immediately recognized the importance of this forward step in cement improvement, took over the Olson patents and launched the product; under the name of Monolith Plastic-Waterproof Portland cement.

The Monolith mill, located at Monolith, California in the Tehachapi range, on the main lines of the Southern Pacific and Santa Fe railroads, became the sole manufacturer. So immediately successful was the sale of the waterproof plastic grade that the Monolith Portland Cement Company has been compelled from time to time to enlarge its plant, having now ready to be installed, sufficient machinery to bring the mill up to a capacity of 18,000 sacks a day. Monolith is carried in stock by most dealers on the Pacific Coast.

Have New Line of Building Materials

Messrs. Cheek and Gillis of San Francisco have recently been appointed Pacific Coast agents for Knapp Brothers Manufacturing Company, Wright Rubber Products Company, Munson Manufacturing Company and Zenitherm Company, Inc.

Knapp Brothers Manufacturing Company, manufacture a complete line of interior trim, such as metal bases, door and window casings, chair rail, metal picture moulds and bull nose corner beads. Wright Rubber Products Company, manufacture rubber floor tile. This tile is made in four grades and a large assortment of colors, including marble effects. A special feature of the Wright tile is that it comes with a patent lap and forms an interlocking arrangement which absolutely prevents any chance of the tile leaving the floor. The Wright line comprises tile, bases and wainscoting material, mouldings and stair treads with nosing attached.

Munson Manufacturing Company, manufacture a patent floor anchor for fastening sleepers to the concrete where wood floors are to be applied over the concrete. It is known as the Grip-Tite floor anchor. It provides an economical means of doing this work and does away with the necessity of embedding the sleepers in the concrete.

Zenitherm is a universal building material for both outside and inside construction. It closely resembles travetine in appearance and comes in sheets of maximum dimensions of 17 ½ x 47 ½.

Catalogs and full descriptions of these materials will be sent on application to Messrs. Cheek & Gillis, 625 Call building, San Francisco.
Structural Steel
Union League Club Building, San Francisco
Fabricated and Erected by
Western Iron Works
Structural Iron and Steel Contractors
Steel Wheelbarrows in Stock
141-147 Beale Street and 132-143 Main Street
SAN FRANCISCO
Phone Garfield 2575

DETROIT STEEL PRODUCTS CO., Detroit
251 Kearny Street, San Francisco
Pacific Coast Branch Factory at Emeryville
Phone Sutter 1250

Steel Frame, California State Building, Civic Center, San Francisco.
FABRICATED BY
THE PALM IRON AND BRIDGE WORKS (Incorporated)
Bliss & Faville, Architects
15th and R Streets, Sacramento

WESTERN ASBESTOS MAGNESIA CO.
INSULATING ENGINEERS AND CONTRACTORS
Celotex
PLASTER BASE
INSULATOR
SOUND DEADENER
ACOUSTIC CORRECTOR
Asbestos and Asphalt Slate Shingles and Roofings
Asbestos and Composition Roofings—Roof Coatings
Magnesia and Asbestos Pipe and Boiler Coverings
Cold Storage Insulation—Sectional Expansion Paving Joint
“Lинфел” Sound Deadener—Wall Board
Cork Pipe Covering, Board and Granulated Cork
21-29 South Park
Bet. 2nd and 3rd Sta.
San Francisco, Cal.
Telephone Douglas 3860

When writing to Advertisers please mention this magazine.
Distinctive Floors in the Home

Much of the charm and individuality of the sun parlor illustrated above has been achieved through the floor. Strikingly decorative, this floor of Gold-Seal Treadlite Tile plays a definite and well-planned role in the room's decoration.

In this and other Bonded Floors, such as Gold-Seal Battleship Linoleum, Gold-Seal Rubber Tile, and Gold-Seal Cork Tile, the architect has at his disposal an interesting variety of colorings and designs, which makes for an unusual latitude of decorative treatment.

But Bonded Floors have more than colorful beauty to recommend them. For they are resilient floors and thus conducive to the quiet and under-foot comfort so desirable in the home environment.

Our new booklets showing typical installations of Bonded Floors, pattern suggestions, specifications and details will be sent on request.

BONDED-FLOORS COMPANY
INCORPORATED
Division of Congoleum Company, Inc.
MANUFACTURERS - ENGINEERS - CONTRACTORS
370 2nd St.
San Francisco
New York
Newark
Boston
Jamaica
Philadelphia
Chicago
Cleveland
Detroit
The Bonded Floors Bond, issued by the U.S. Fidelity and Guarantee Company.
Builders

ARE you in the market for WIRE NAILS?
It will pay you to submit your specifications to us.
We are carrying a large warehouse stock and can quote for mill shipment.
Inquiries will receive prompt attention

EDW. L. SOULE CO.
SARIALTO BUILDING
SAN FRANCISCO

Specify "LAMAO" for Interior Trim

A Philippine hardwood that lends itself to practically any colored stain. LAMAO finishes a beautiful walnut or Oak and when finished as Mahogany, it is hard to tell it from Honduras Mahogany.

The additional expense of using LAMAO trim in the average home instead of softwoods is very nominal and it materially increases the value of the home.

Write for comparative costs and samples.

Cadwallader-Gibson Co., Inc.
5th AND BRANNAN STREETS
SAN FRANCISCO
LOS ANGELES OAKLAND SEATTLE
Lumber, Veneers, Panel, Hardwood Flooring

McCRAY REFRIGERATORS
for all Purposes

McCRAY service is of great help to architects because it covers every type of refrigerator equipment—for homes, institutions, stores.
We will gladly cooperate by suggesting models from stock or by submitting blue prints, without obligation, of built-to-order equipment.

Send now for latest catalogs for your files.

McCRAY REFRIGERATOR CO.
2463 Lake St. Kendallville, Ind.

Salesrooms in All Principal Cities
San Francisco Salesroom—765 Mission Street

Complete Steam Heating Installation
Employing Clow Gasteam Radiators in Apartments, Schools, Churches, Residences, Commercial Buildings
Perfect Heat—Automatic Control
No Odor—Normal Humidity

PACIFIC GASTEAM COMPANY
Successors to WILLIAMS RADIATOR COMPANY
571 MISSION STREET
Telephone Douglas 8230 SAN FRANCISCO
Present Cost of Building Materials

These quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, March, 1924.

All prices San Francisco or Oakland. For country work add freight and cartage to prices given.

Bond—1 1/2% amount of contract.

Brickwork—

Common, $35.00 per 1000 laid.
Face, $75.00 per 1000 laid.
Enamel, $150.00 per 1000 laid.
Common, f. o. b. cars, $15.50, plus cartage.
Face, f. o. b. cars, $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f. o. b. cars in carload lots.)
12x12x3 in. $96.00 per M
12x12x4 in. $108.00 per M
12x12x6 in. $156.00 per M
12x12x8 in. $243.75 per M

Bond—1 1/2% amount of contract.

Hollow—$179 per 1000; direct automatic, about $3000.

Exavcation—

$1.25 per yard, if sand. Teams, $10.00 per day.
Trucks, $21 to $27.50 per day.

Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—

Ten-foot balcony, with stairs, $105.00 per balcony.

Glass—(Consult with manufacturers.)

21 ounce, 16c per square foot.
Plate, $1.10 per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 30c per sq. ft.

Obscure glass, 25c per square foot.

Note—$5 extra for setting.

Wage—Glaziers, $8.00 per day.

Heating—

Average, $2.25 per sq. ft. of radiation, according to conditions.
Wage—Steamfitters, $9.00 per day.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.
Wage—Iron workers, bridge and structural, $9.00 per day.

Architectural iron workers, $7.00 per day.

Lumber—(Prices delivered to blg. site)

Common, $37.00 per M (average).
Com'ln O.P. (select, avrg.) $40.00 per M

Flooring—

1 x 6 No. 3—Firm lumber $21.00 per M
1 x 4 No. 1 flooring $35.00 per M
1 x 4 No. 2 flooring $60.00 per M
1 x 4 No. 3 flooring $80.00 per M
1 x 6 No. 2 and better flooring $90.00 per M
1 1/2 x 8 and 6 No. 2 flooring $64.00 per M

Sash grain—

1 x 4 No. 2 flooring $52.00 per M
1 x 4 No. 3 flooring $48.00 per M

No 1 common run to

T & G $36.00 per 1000
Lath $6.00 per 1000

Shingles—(Add carriage to prices quoted)

Redwood, No. 1 $1.10 per bdl.
Redwood, No. 2 $5.00 per bdl.

Building Paper—

1 ply per 1000 ft. roll $6.25
2 ply per 1000 ft. roll $9.60
3 ply per 1000 ft. roll $14.55

Sash cord com. No. 7 $1.25 per 100 ft.
Sash cord com. No. 8 $1.40 per 100 ft.
Sash cord spot No. 7 $1.90 per 100 ft.
Sash cord spot No. 8 $2.30 per 100 ft.
Sash weights cast iron $60.00 Ton
Nails, $.425 base.

Hardwood Flooring—

1 1/2" x 1 1/2" & G Maple $137 M ft.
1 1/2" x 1/4" T & G Maple $140 M ft.
3/4" x 3/4" T & G Maple

Ceiling—

Clear Maple $81.00 M

Oriel $105.00 M

Barge $90 M

Laying and Finishing 16 ft. $15.00 per M

N. B.—Materials and labor are plentiful at present time, with tendency to lower prices.
Wage— Floor layers $9.35 per day.

Millwork—
3. P., $100 and up per 1000. R. W., $120 and up per 1000. Double hung box window frames, average) with trim, $8.00 and up each. Doors, including trim (single panel), $10.50 and up each. Doors, including trim (five panel), $8.50 each.
Screen doors, $3.50 each.
Cases for kitchen pantries seven feet high, per lineal foot, $7.50 each.
Dining room cases, $8.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average) $16 per man.
For smaller work, average, $25.00 to $35.00 per 1000.
Wage—Carpenters, $8.00 per day.
Laborers—$5.00 per day.

Marble—(Not set), add 40c to 60c per ft.

for setting.

Marble ........................................... $1.60 sq. ft.

Alabama ......................................... 1.60 sq. ft.
San Saba ........................................ 3.15 sq. ft.
Tennessee ........................................ 2.00 sq. ft.

Verticle Antique ................................. 3.75 sq. ft.

Westfield Green ................................. 3.50 sq. ft.

Wages—Marble setters, $8.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—
Two-coat work ................................. 30c per yard
Three-coat work ............................... 45c per yard
Whitewashing .................................. 5c per yard

Cold water painting ........................ 9c per yard

Turpentine, $1.20 per gal. in cases and $1.05 per gal. in tanks.

Raw Linseed oil, $1.05 per gal. in bbls.

Boiled Linseed Oil, 1.10 per gal. in bbls.

Pioneer white and red lead, 11 3/4 lb. in one-ton purchases; 12 lb. for less than 500 lbs.

Wage—Painters, $8.00 per day.

Note: Accessibility and conditions cause wide variance of costs.

Patent Chimneys—
6-inch ............................................ $1.50 lineal foot
8-inch ............................................ 1.75 lineal foot
10-inch ........................................... 2.25 lineal foot
12-inch ........................................... 3.00 lineal foot

Pipe Casings—14" (average), $7.50 each.

Plastering—(Including Lathing)
Interior, on wood lath, 65c per yard.
Interior, on metal lath, $1.25 per yard.
Exterior, on brick or concrete, $1.30 per yard.

Portland White, $1.75.

Interior on brick or terra cotta, 60c to 70c per yard.
Exterior, on metal lath, $1.85 to $2.25 per yard.

Wood lath, $7.00 a yard per 1000.

Metal studding, $1.25 to $1.50 per yard.

Suspended ceiling and walls (metal furring, lathing and plastering), $2.00 per yard.

Galv. metal lath, 33c and up per yard, according to gauge and weight.

Lime, f. o. b. S. F. warehouse, $2.50 bbl.

Lime, bulk, per ton of 2000 lbs., $10.50.

Hardwall plaster, $15.40 per ton, f. o. b. warehouse. (Bide on sacks, 15c.)

Finishing plaster (carload lots), $19.00.

Hydrate of lime, $19.50 per ton, f. o. b. warehouse.

Wage—Plasterers, $10.00 per day.

Lathers, $8.00 per day.

Hod carriers, $7.00 per day.

Plumbing—
From $70.00 per fixture up, according to grade, quantity and runs.
Wage—Plumbers, $9.00 per day.

Reinforcing Steel—
Base price for car load lots, $3.80 per 100 lbs, f. o. b. cars on docks.
Average cost to install, $25 per ton.
Wage—Housesmiths, $8.00 per day.

Roofing—
Five ply tar and gravel, $6.00 per square for 30 squares or over.
Less than 30 squares, $6.25 per square.
Tile, $35.00 to $50.00 per square.
Redwood Shingles, $12.00 per square in place.

Cedar Shingles, $12.00 per sq. in place.

Reinf'd Pabco, 7 yr. roof, $7.50 per sq.

Reinf'd Pabco, 10 yr. roof, $10.25 per sq.

Reinf'd Pabco, 20 yr. roof, $13.50 per sq.

Recoat, with Gravel, $3.00 per square.
Wage—Rooffers, $8.00 per day.

Sheet Metal—
Windows—Metal, $2.00 a square foot. Fire doors, (average), including hardware, $2.30 per sq. ft.

Skylights—
Copper, $1.25 a square foot (not glazed)
Galvanized iron, 35c a square foot (not glazed).
Wage—Sheet metal workers, $8.50 per day.

Stone—
Granite, average $7.50 sq. ft. in place.
Sandstone, average Blue, $4.75; Basalt, $2.80 sq. ft. in place.
Indiana Limestone, $3.00 per sq. ft. in place.
Wage—Stone masons, $8.00 per day.

Store Fronts—
Copper sash bars for store fronts, corner, center and around sides, will average 85c per lin. ft.

Note: Consult with agents.

Structural Steel—$112 per ton (erected).

This quotation is an average for comparatively small quantities.

Light truss work higher; plain beam and column work in large quantities, less.
Cost of steel for average building (erected), $108 per ton.

Steel Sash—
All makes, from S. F. stock, 26c to 34c per sq. ft.
All makes, plant shipment, 28c to 34c per sq. ft.

(Includes millians and hardware.)

Tile—White glazed, 80c per foot.

White floor, 80c per foot.

Colored floor tile, $1.00 per foot.

Promenade tile, $1.00 per sq. ft. laid.

Wage—Tile setters, $8.50 per day.
A Great Building Heated with a Battery of Great Boilers

Nothing marks the substantial development and progress of the Pacific Coast more than such magnificent and modernly equipped buildings as the one illustrated above.

It is only fitting that KEWANEE Steel Heating Boilers and a Garbage Burning Water Heater should be selected to supply the demands of this structure.

That is what they are designed to do and you will find them serving in the highest types of building throughout the United States and other countries.

More than five hundred Government owned Post Office buildings are today heated with KEWANEE boilers.

Remember—that this boiler of today is backed by 35 years of experience in steel-boiler-building, and in many large cities in America there are hundreds of KEWANEE Steel Firebox boilers, built 30 and 35 years ago, still giving maximum service.

KEWANEE BOILER COMPANY
KEWANEE, ILLINOIS

Low Pressure Heating Boilers

High Pressure Power Boilers

San Francisco Branch Office, 216 Pine Street
Los Angeles Office, 420 E. Third Street
PERMALIGHT

FLAT MILL

WHITE

A Snow White Paint in Oil, giving equal opacity of cold water paints. Can be applied with spraying machines at a small increase of cost over water paints for use in factories, warehouses, loft buildings, laundries.

Hill, Hubbell & Co.

TECHNICAL PAINTS

SAN FRANCISCO

Los Angeles Portland Seattle New York

Why the tremendous increase in sales of

BIRCHFIELD

STEEL HEATING BOILERS

YOU

Should make it your business to find out why the leading architects and heating engineers of today call the Birchfield the

"UNEQUALLED"

Steam and Hot Water Steel Heating Boilers

LARIMER & LAUER

1824 So. Hope St.

Los Angeles, Calif.

WALTER S. LELAND

668 Howard St.

San Francisco, Calif.

BIRCHFIELD BOILER CO.

TACOMA, WASHINGTON
We’ll Get It For You!

Every once in a while we perform a valuable bit of "pinch hitting" by filling some unusual want.

Call on us when you don’t know where to find what you need; we’ll instantly put our twenty-five years’ experience into play--and get it, if it’s to be got.

GUNN, CARLE & CO.
444 Market St. SAN FRANCISCO Sutter 2720

Best Method for Plastering Homes

Make the home fireproof

Specify TRUSCON 1-A METAL LATH with \(\frac{3}{4}\)" grounds which is available at a cost comparable with Wood Lath.

Ask us for detailed information

TRUSCON STEEL COMPANY
Chas. Halloway, Branch Manager
709 MISSION ST. Phone Douglas 7135 SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Specify California Wall Beds
Your client will be another satisfied customer

Write for Complete Data and Specifications about Our New Secret Installation

CALIFORNIA WALL BED COMPANY
714 MARKET STREET, SAN FRANCISCO
165 Thirteenth Street, Oakland
1040 S. Broadway, Los Angeles

The Ornamentation on the Vase and Plaque was SAND BLASTED with

FAN SHELL BEACH SAND
ONE OF THE WHITE SANDS SHIPPED BY
DEL MONTE PROPERTIES COMPANY
Phone Sutter 6130
401 CROCKER BUILDING
San Francisco
Not a substitute for Anything!

But a vast improvement over lath and plaster for lining walls and ceilings

Pacific Five-Ply Board is really lath and plaster in the proper proportions and in convenient form. It is a wood core encased in a fireproof, moisture proof mineral cement, stronger than the best concrete.

By actual tests Pacific Five-Ply Board is far superior to either pulp wall board or plaster board in tensile strength, deflection and resistance to puncture. Will not contract or expand, bulge, warp, crack or crumble; is air tight and fire resistant.

Pacific Five-Ply Board is sawed and worked just as you would handle lumber. It comes in sheets 4 feet wide and in lengths from 6 to 16 feet. It is strong, durable, attractive in appearance, easily installed, sanitary, and economical. Send for descriptive literature.

This TRADE MARK means much to the conscientious Architect and Builder

It means a satisfied client

High-Grade Plumbing Fixtures

Holbrook, Merrill & Stetson

64 SUTTER STREET
SAN FRANCISCO
INTIMATE EXPERIENCE with Pacific Coast conditions—
EXPERIENCE with handling gasoline and oils in all businesses, under all conditions—
EXPERIENCE in helping architects and engineers everywhere—
All this experience is at your service, without obligation.
Tell us your problem.

S.F. Bowser & Company, Inc.
Pump and Tank Headquarters
FORT WAYNE, INDIANA.
Sales and Service Offices and Representatives Everywhere

612 Howard St., San Francisco
722-3 New Bank of Italy Building, Los Angeles

Phone Piedmont 2079W
DAVID NORDSTROM
GENERAL CONTRACTOR
4146 Emerald Street, Oakland

Telephone Mission 58
A. A. DEVOTO, President
CENTRAL IRON WORKS, Inc.
STRUCTURAL STEEL
Office 2050 BRYANT STREET
SAN FRANCISCO, CAL.

Steam Heating and
Power Plant Equipment
JAMES I. KRUEGER
Representative
ILLINOIS ENGINEERING COMPANY
SKIDMORE VACUUM AND BOILER FEED PUMP
EUREKA BRASS WORKS
417 Market St. Suite 320
San Francisco, Calif.

FRED PORHARTY
GENERAL CONTRACTOR
Manufacturer of Interior Woodwork and Fixtures—Bank, Office and Store Fittings
Alterations to Store Fronts a Specialty
58 OAK GROVE, BET. 5th & 6th, BRYANT & HARRISON
"SAN FRANCISCO

When writing to Advertisers, please mention this magazine.
March, 1924

Illustrating the Douglas Twins with head and foot of square tubing finished with American walnut.

**Twin Wall Beds**

The renting public is expressing a marked preference for separate beds. Evidence of this demand is reflected by the leading hotels furnishing their best suites with twin beds.

Architects will be glad to know that all Marshall & Stearns wall beds are made in twin size.

Detailed drawings of each type gladly furnished on request.

**MARSHALL & STEARNS COMPANY**

Oakland Showroom:
411 19th Street
Oakland 1236

San Francisco Showroom:
1152 Phelan Building
Douglas 348

**ES**

ES Elevator Door Closers, Positive Electric Interlocks and Roller Bearing Hangers combined on the same doors is the Ideal Installation

**ELEVATOR SUPPLIES COMPANY, INC.**

Main Office and Works: HOBOKEN, N. J.

Branch Offices

**CLEVELAND**
1019 Walnut Ave.
St. Louis
Railway Exch. Bldg.

**CHICAGO**
111 S. Jefferson St.

**PHILADELPHIA**
1714 Ludlow St.

**SAN FRANCISCO**
185 Fifth St.

**LOS ANGELES**
1120 S. Hope St.

When writing to Advertisers please mention this magazine.
Specify

**MINWAX**

Plaster Bond and Dampproofing No. 300

Applied to the inside of exterior walls. It cures tacky and remains tacky and plastic indefinitely.

It forms a tenacious, perfect and lasting bond between wall and plaster.

Waterproof your buildings while they are dry

Send for Booklet on Products, Data and Specifications

**MINWAX CO., INC.**

K. M. HAYDEN  W. C. LEA
22 Battery St.  653 So. Clarence St.
San Francisco  Los Angeles

---

**Electric Heat**

In a pleasing and effective way.

No costly flue construction.

Write for complete data and wiring specifications for fireplaces.

**STRAIGHT & RICHARDS, Newark, N. J.**

**ATLANTIC PACIFIC AGENCIES CORP.**

Rialto Bldg. · Western Distributors · San Francisco

**GLOLOG ELECTRIC FIREPLACE HEAT**

---

**Gunita Facing**—

**Gunita Lining**—

For Concrete, Brick, Tile, Steel, Frame Structures and Fireproofing of Steel Members.

For Reservoirs, Dams, Canals, Tunnels, Walls and Subways and Harbor Construction.

Estimates and Bids Furnished

**Cement Gun Construction Company**

CONTRACTING AND ENGINEERING

1408 Hobart Building  Phone Sutter 3988
San Francisco

---

**Save Space**—

Add Beauty and Comfort to the Home or Apartment.

[Picture shows one of our latest type disappearing twin beds]

**Brown Disappearing Bed Co.**

Display and Salesrooms:
746 Phelan Bldg., San Francisco
Telephone Garfield 6652

---

When writing to Advertisers please mention this magazine.
JOHNSON'S ROTARY CRUDE OIL BURNER

Can be installed in any BOILER or FURNACE
Gives Satisfactory Results
Simple to Operate—Automatic—Safe
Let us tell you more about this Oil Burner.

S. T. JOHNSON CO.
1337 Mission Street
San Francisco
Phone Market 2759

BURNER IN OPERATION

SIMPLEX BURNERS


BUNTING IRON WORKS
1215 FIRST NATIONAL BANK BLDG.
SAN FRANCISCO Phone Sutter 3225
Factory Berkeley
Member of the Oil Furnaces Manufacturers' Association of California

Steam Heating and Ventilating

For Commercial and Public Buildings
Furnace Heating for the Home
Mangrum & Otter, Inc.
827-831 Mission Street
San Francisco, Cal.
Phone Kearny 3155

Architects—Specify BABY RAY

Domestic Type Burner. It burns low-priced Diesel Oil with high efficiency. Especially designed for bungalows and dwellings.

POWER PLANT ENG. CO.
1933 5th Ave., Seattle
J. F. SHEA
2nd and Ankeny Sts.
Portland, Ore.

W. S. Ray Manufacturing Co.
118 New Montgomery St.
San Francisco
Milton and Bosworth Sts.
San Francisco

W. S. RAY MFG. CO.
2442 San Pablo Ave.
Oakland

RAY OIL BURNER CO.
(of So. California)
831 Cracker St.
Los Angeles

When writing to Advertisers please mention this magazine.
MARBLE
Finished and Installed
VERMONT MARBLE COMPANY
244 Brannan St., San Francisco
Phone Kearny 3470
East End 11th St. Bridge, Tacoma

Cast Iron Stairs
and Store Fronts
C. J. HILLARD & CO., Inc.
Nineteenth and Minnesota Streets
Telephone Mission 1763
SAN FRANCISCO, CALIF.

DEPENDABILITY
"Since 1858"
LINOLEUMS
WINDOW SHADES
Carpets
Draperies
Rugs
Estimates furnished
D. N. & E.
Walter & Co.
562-572 Mission Street
SAN FRANCISCO
Los Angeles Portland Seattle

Specify
COLUMBIA MARBLE
"A California Product"
from the Columbia Marble Company’s quarries in Tuolumne County, California.

For Information Apply
THE COLUMBIA MARBLE CO.
413 Rialto Bldg. Phone Sutter 1244
OR ANY DEALER

When writing to Advertisers please mention this magazine.
You Cannot do Better than Ben-ox

For Commercial Lighting a Ben-ox Basic Element is fastened to the outlet box and wired.

Basic Element Fastened to Outlet Box and Wired

The brass shell canopy is held in place by a supporting wire and gives you a unit like this

Commercial Unit

For industrial lighting a cast flange is wired like the basic element above and fastened to the outlet box like this

Industrial Unit

On either of these completely wired units you can get inspection and approval. If you want light immediately screw in a keyless socket element, or a pull

Keyless Socket Element Pull Socket Element

socket element, for local control, and put up a lamp.

By means of the Ben-ox thread you can at any time attach the appropriate reflector, shade holder for glassware, or connector for a pendant style, to suit any lighting requirement.

Adaptable to any standard ceiling outlet box.

Easily wired, doing away with soldered and taped connections.

Unusually good looking and sturdy.

Gives you a better job with a saving of time and material in the original installation.

In addition to this, you have the advantage of greater utility and flexibility, providing for immediate and future lighting requirements no matter what subsequent changes may be made, keyless or pull socket control of light, taking down the reflector or other equipment for cleaning or during redecorating, without disturbing the original wiring.

Wherever commercial or industrial lighting is considered, it will pay to investigate Ben-ox.

Our nearest office will be glad to give you full information

BENJAMIN ELECTRIC MFG. CO.

847 W. Jackson Blvd., Chicago
247 W. 17th Street
New York
500 Howard Street
San Francisco

Makers of Things More Useful
Elevator Accessories

We manufacture and install Randall pneumatic elevator door closers and interlocks, Randall modern signal systems, hangers and complete line of accessories for elevators.

RANDALL CONTROL AND HYDROMETRIC CORPORATION
1014 E. 9th Street  265A Minna Street
Los Angeles, Cal.  San Francisco, Cal.
Phone: 325-884  Phone: Douglas 2397

Buy This BETTER Water Heater

Better because it gives Perfect Hot Water Service—instantaneous, inexhaustible and inexpensive—not just once in a while, but all the time—
Better because it is simply made—B etter because it is solidly and ruggedly built—
Better because it is made by men whose experience dates back to 1889, when the world’s first successful automatic water heater—a RUUD—was built.
Every RUUD is equipped with an internal automatic thermostat, double fuel control, condensation shields.
RUUD HEATER CO.
431 Sutter St., San Francisco
Phone Sutter 1640

HEATING-PLUMBING

COMPLETE PLUMBING AND HEATING SYSTEMS INSTALLED IN ALL CLASSES OF BUILDINGS—ALSO POWER PLANTS

GILLEY-SCHMID CO., Inc.
198 OTIS ST., SAN FRANCISCO
Tel. MARKET 965

The latest and Best ideas in hot water science are embodied in the Pittsburg

It insures superior hot water service.

PITTSBURG WATER HEATER COMPANY
478 Sutter St., San Francisco
Phone Sutter 5025

Alvaline, Cementoline and other
Jones-Duncan Products

MAGNER BROTHERS
PAINT MAKERS

Telephone: Market 113
414-424 Ninth St.  San Francisco

THE TORMEY CO.

General Painters

Phone Franklin
5-5-9-8

1042 Larkin St., San Francisco, Cal.

Phone Sutter 1414

Hunter & Hudson ENGINEERS

Designers of Heating, Ventilating and Wiring Systems, Mechanical and Electrical Equipment of Buildings

703 Rialto Bldg., San Francisco, Cal.

RUSSWIN
BUILDERS’ HARDWARE
JOOST BROS., Inc.
SAN FRANCISCO AGENTS

We Carry Complete Stock:
Fishing Tackle—Guns—Mechanics’ Tools—
Paints—Crockery and Glassware—Stoves—
Household Goods. Telephone Market 891.
NO BRANCH STORE
Mazda Lamps  Electric Goods

When writing to Advertisers please mention this magazine.
OF EXCEPTIONAL INTEREST

Architect and Engineer

Annual House Number

OUT APRIL 20th, 1924

Showing a diversity of original designs in large and small homes in San Diego, Los Angeles, Santa Barbara, Pebble Beach, San Jose, San Francisco, Oakland, Berkeley and Sacramento

More than 50 full page plates of photographs and plans

PRICE $1.00

ORDER YOUR EXTRA COPIES NOW

---

It does not get hard—

Palmetto Twist Packing

It makes an ideal packing for Radiator Valves—may be unstranded to fit any size valve

H. N. COOK BELTING COMPANY

401-433 HOWARD ST. SAN FRANCISCO

When writing to Advertisers please mention this magazine.
March, 1924

Furnaces

AGENTS FOR
FRONT RANK All Steel Warm Air Furnaces
AND THE OLD RELIABLE
THATCHER Cast Iron Warm Air Furnaces

REGISTERS — FURNACE FITTINGS — REPAIRS

Montague Range and Furnace Company
327-329 JESSIE STREET Phone Garfield 1422
826-830 MISSION STREET
SAN FRANCISCO, CALIF.

Another Solar-Lite Installation
The Solar-Lite unit will be used throughout the new Fitzhugh Building, San Francisco. Reid Bros., Architects.
The Solar Lite is chosen by most architects because of its diffusion and quality of light. Some of the recent installations include Standard Oil Building, Oakland Bank of Savings.

D. DIERSSEN COMPANY
20 Second Street San Francisco
WESTERN DISTRIBUTORS

Specify
VLAARITE ENAMEL
The highest quality finish, it is possible to produce —
Free Working, Good Body, Fine Finish

OAKLEY PAINT MANUFACTURING CO.
727 ANTONIA ST., LOS ANGELES 833 HEARST BLDG., SAN FRANCISCO
PAINTS VARNISHES ENAMELS KALSOMINES

Some Uses for Asbestos Protected Metal
Robertson Process Asbestos Protected Metal (which has all the advantages of a sheet metal roofing plus a built-up roofing) is not only specified for the usual corrugated roofing and siding purposes, but also for pent houses, fencing, overhead passage ways, passenger shelters and shipping platform canopies. Several pent houses on the Boston Building, San Francisco, were recently covered with this long life corrugated roofing.

H. H. ROBERTSON CO.
H. M. Holway, District Manager
1007 Hobart Bldg., San Francisco 600 Metropolitan Bldg., Los Angeles
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. M. SOMMER &amp; CO.</td>
<td>Engineers and Concretists, Phone Hemlock 1100, 901 Bryant St., San Francisco</td>
</tr>
<tr>
<td>K. E. PARKER COMPANY, Inc.</td>
<td>General Contractors, Phone Sutter 5661, Room 515 Clunie Building, San Francisco</td>
</tr>
<tr>
<td>R. W. LITTLEFIELD</td>
<td>Building Construction, 357 12th Street, Room 9, Oakland, Cal., Phone Lakeside 6750</td>
</tr>
<tr>
<td>H. H. HILP, Jr. &amp; J. FRANK BARRETT</td>
<td>Barrett &amp; HILP, Concrete Construction, Builders, General Contractors, 918 Harrison Street, near 5th, San Francisco, Telephone Douglas 700</td>
</tr>
<tr>
<td>CAEN STONE</td>
<td>A refined, elegant, interior finish, 442 Call-Post Building, San Francisco</td>
</tr>
<tr>
<td>STEELFORMS CONTRACTING COMPANY</td>
<td>Steelforms Signify Economy, Rapidity, and Efficiency, C. B. Hopkins, Manager, 681 Market Street, San Francisco, Concret Joist Floor Construction</td>
</tr>
<tr>
<td>Rhodes-Jamieson &amp; Co.</td>
<td>Building Material, Coal and Wood, Main Office: Foot of Broadway, Oakland, Oakland, Alameda, Berkeley</td>
</tr>
<tr>
<td>M. E. VUKICEVICH</td>
<td>Spencer B. BAGGE, VUKICEVICH &amp; BAGGE, General Contractors, Phone Sutter 5691, 815 Bryant Street, San Francisco</td>
</tr>
</tbody>
</table>

When writing to Advertisers please mention this magazine.
Steel Bars
FOR CONCRETE REINFORCEMENT
Cut to Length, Fabricated, Installed
BAD T - FALK & CO.
Tel. Douglas 3466
346 Call-Post Bldg., 74 New Montgomery St., San Francisco

Passenger and Freight Elevators
For Every Service
SPENCER ELEVATOR COMPANY
166-180 Seventh Street
San Francisco

PACIFIC DEPARTMENT
GLOBE INDEMNITY COMPANY
Bonds and Casualty Insurance for Contractors
FRANK M. HALL, formerly Robertson & Hall, Mgr.
444 California Street
Phone Sutter 2280
SAN FRANCISCO

CARL H. PETERSON
BUILDER
PHONE DOUGLAS 1876
185 STEVENSON STREET
SAN FRANCISCO

PHONE DOUGLAS 2378
R. McLERAN & CO.
GENERAL CONTRACTORS
HEARST BUILDING
SAN FRANCISCO, CAL.

D. ZELINSKY & SONS
PAINTERS AND DECORATORS
165 GROVE STREET
SAN FRANCISCO

I. R. KISSEL
Decorator, Painter and Paperhanger
1747 SACRAMENTO ST., Bet. Polk St. and Van Ness Ave., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
TEMPERATURE REGULATION
JOHNSON SERVICE COMPANY
Manufacturers and Installers of JOHNSON Heat Humidity
CONTROL
For schools, residences, hospitals, banks, public buildings, also canneries
and all kinds of industrial plants—Hot water tank regulators, air and
water reducing valves.
Rialto Bldg., SAN FRANCISCO; 605 Van Nuys Bldg., LOS ANGELES

ATLAS HEATING AND VENTILATING COMPANY, INC.
ENGINEERS AND CONTRACTORS
Steam and Hot Water Heating. Coal and Gas, Pipe and Pipeless Furnaces
Sheet Metal Work
Patent Chimneys
everything in heating—
Phone Douglas 378 557-567 FOURTH STREET
San Francisco

CLARENCE DRUCKER
LAWSON & DRUCKER
PLUMBING—HEATING—CONTRACTORS
TELEPHONE MARKET 275
450 HAYES STREET
SAN FRANCISCO, CAL.

H. G. NEWMAN CO.
PLUMBING HEATING
OAKLAND 3329 2004 TELEGRAPH AVENUE
OAKLAND

ALEX COLEMAN
CONTRACTING PLUMBER
706 ELLIS STREET, SAN FRANCISCO
Phone FRANKLIN 1006

WM. F. WILSON COMPANY
MODERN SANITARY APPLIANCES
Special Systems of Plumbing for Residences, Hotels, Schools, Colleges, Office Buildings, Etc.
Phone Sutter 357 328-330 Mason Street, San Francisco

W. H. PICARD
Plumbing, Heating, Ventilating and Power Plants
5656 College Avenue 381 11th Street, Oakland
5662 Keith Avenue Phones Piedmont 9004-9005

HEATING
VENTILATION
PLUMBING
FLOOR AND WALL TILING
SCOTT CO., Inc.
213 Minna Street, San Francisco 381 11th Street, Oakland
SHEET METAL WORK

When writing to Advertisers please mention this magazine.
March, 1924

Yards:
Tracy - Brentwood
Patterson - Newman
California

Phones:
Kearny 2073 - 2074

SANTA FE LUMBER CO.
A. J. RUSSELL, Mgr.

Wholesale and Retail
LUMBER

POLES AND PILING
OIL RIG AND SHIP TIMBERS
SAGINAW SPECIAL SHINGLES

16 California Street
San Francisco, Calif.

from tree to consumer

Pine and Redwood Lumber

SASH DOORS AND MILL WORK

SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL — PHONE OAKLAND 1820
FIRST AND OAK STREETS, OAKLAND

SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL — PHONE OAKLAND 1820
FIRST AND OAK STREETS, OAKLAND

POPE & TALBOT
Manufacturers, Exporters and Dealers in
Lumber, Timber, Piles, Spars, Etc.

Office, Yards and Planing Mills
859-869 THIRD STREET, SAN FRANCISCO, CAL.

Mills: Port Gamble, Port Ludlow and Utsalady, Washington

GUARANTEED
OAK AND MAPLE FLOORING

Insist on "Higgins" — It Costs No More

J. E. HIGGINS LUMBER CO.
SAN FRANCISCO

If It's Hardwood — We Have It

When writing to Advertisers please mention this magazine.
ROBERTS MFG. CO.

Lighting Fixtures
Electric Appliances
Incandescent Lamps

WILLYS FARM LIGHTING
AND POWER PLANTS

663 Mission Street  San Francisco

Genuine Hylolite Blackboards
Best Pennsylvania Slate Blackboards
School Furniture
Western Venetian Blinds
Lockers

C. F. WEBER & CO.
San Francisco
Los Angeles
Reno
Phoenix

BEAUTIFUL GARDEN EFFECTS for the City and Suburban Home

MacRORIE-McCLAREN CO.
Landscape Engineers
and General Nurserymen

Office
Suite 301 Phelan Bldg.
San Francisco

Nurseries at
Beresford
San Mateo Co.

ACORN
HARDWOOD FLOORS

Guarantee complete floor satisfaction by specifying

“Acorn Brand”
Oak Flooring

Architects and contractors are proving this by actual practice.

Strable Hardwood Co.
HARDWOOD LUMBER
511-545 First St., Oakland, Calif.
Phone Oakland 245

When writing to Advertisers please mention this magazine.
Clinton
Electrically welded Wire Fabric

The Ideal Mesh Reinforcement for Concrete

Immediate Shipment from Stock
San Francisco
Los Angeles
Seattle

Wickwire Spencer Steel Corporation
SAN FRANCISCO
144 Townsend St.
Douglas 1421

LOS ANGELES
316 E. Market St.
Pico 4851

Recent Office Buildings

STANDARD OIL
SAN FRANCISCO

MATSON NAVIGATION CO.
SAN FRANCISCO

CALIFORNIA STATE LIFE INSURANCE COMPANY
SACRAMENTO

Lindgren & Swinerton, Inc.
New Standard Oil Building
225 Bush Street
On the Sixth Floor

“CALIFORNIA STUCCO”

It is a finishing plaster coat made in many beautiful colors, from a true Portland Cement base, which assures everlasting qualities.

“The Stucco which is making California Architecture famous”

For Sale by All Dealers

California Stucco Products Co.
58 Sutter St., SAN FRANCISCO
1503 S. ALAMEDA ST., LOS ANGELES

Smooth Floors!

Bloxonend Flooring is made up of uniform blocks of Southern Pine anchored endwise onto long baseboards, presenting an end-grain surface to wear that stays smooth and is durable — even under the heaviest service. Laid over concrete without embedded sleepers.

Write for Specifications

Carter Bloxonend Flooring Co.
H. M. HOLWAY, District Manager
San Francisco: Los Angeles:
1007 Hobart Bldg. 600 Metropolitan Bldg.
Portland: Chamber of Commerce Building

Bloxonend Lays Smooth—Stays Smooth

When writing to Advertisers please mention this magazine.
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Phone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HANSEN, ROBERTSON &amp; ZUMWALT</td>
<td>Builders Exchange, Lakeside 8750</td>
<td>Pied. 984</td>
<td>General Contractors and Managers of Construction</td>
</tr>
<tr>
<td>SAN FRANCISCO ELEVATOR CO., Inc.</td>
<td>860 Folsom Street, San Francisco</td>
<td>Kearny 2443</td>
<td>ELEVATORS: Automatic, Electric, Hydraulic, Belt Power, Automatic Dumbwaiters and Handpower Machines, Push Button Elevators a Specialty</td>
</tr>
<tr>
<td>VAN EMON ELEVATOR COMPANY</td>
<td>1159-65 Howard Street, Market 808</td>
<td>San Francisco, Calif.</td>
<td>PASSENGER ELEVATORS and FREIGHT ELEVATORS</td>
</tr>
<tr>
<td>CYCLOPS IRON WORKS</td>
<td>837-847 Folsom St.</td>
<td>Sutter 3030</td>
<td>ICE MAKING and REFRIGERATING MACHINERY, TRAVELING CRANES</td>
</tr>
<tr>
<td>GRINNELL AUTOMATIC SPRINKLER COMPANY</td>
<td>453 Mission Street, San Francisco</td>
<td>Mission 8220</td>
<td>CHEMICAL FIRE EXTINGUISHERS and FIRE ENGINES</td>
</tr>
<tr>
<td>GRINNELL AUTOMATIC SPRINKLER COMPANY</td>
<td>142 Sansome Street, San Francisco, California</td>
<td></td>
<td>VALVES PIPE and FITTINGS</td>
</tr>
<tr>
<td>Fire Protection Engineering Company</td>
<td>142 Sansome Street, San Francisco, California</td>
<td>Sutter 5295</td>
<td>Chemical Engines Hand Fire Extinguishers Motor Driven Fire Apparatus</td>
</tr>
<tr>
<td>CLINTON CONSTRUCTION COMPANY</td>
<td>923 Folsom Street</td>
<td></td>
<td>Builders and Managers of Construction</td>
</tr>
<tr>
<td>RADIATOR AIR VALVES</td>
<td></td>
<td></td>
<td>Traps, Rapid Riser Vents, Vacuum and Condensation Pumps</td>
</tr>
</tbody>
</table>

When writing to Advertisers please mention this magazine.
March, 1924

FAIRFACTS China Fixtures outwear fixtures made of tile. Fairfacts Fixtures are non-porous and non-absorbent. They are unmatched in dignity and grace of line.
Write for catalog, F. Details and specifications also appear in Sweet's Architectural Catalog.
THE FAIRFACTS COMPANY, Inc.
Manufacturers
234-236 West 14th Street, New York City
Dept. E.

(look for this Trade Mark)

Fairfacts Fixtures
INSTALLED IN YOUR BATHROOM WALLS

DAVID E. KENNEDY
Incorporated
Established 1889

Cork Tile Floors
Everlastic Tile Floors
Rubber-Marble Floors
Interlocking Rubber Tile
Kencor Bulletin Boards

San Francisco
Sharon Bldg.

Los Angeles
Story Bldg.

For unfailing efficiency—
S P E C I F Y
Hauser Casement Windows

Suitable for Hotels,
Apartment Houses,
Schools and Residences. Durable
and Economical. ::

Hauser Window Company
Factory, Office and Show Rooms
1362 Harrison Street
Phone Hemlock 1062
San Francisco

Blackboards
First Grade Natural Slate
Green or Black Composition Board
School Furniture and Supplies
Estimates Given for Complete Installations
STEWART SALES CO.
247 Rialto Building, San Francisco, Cal.

BRASS TACKS!
Why Wade Through Thousands of Pages?
"Building Labor Calculator"

Gets down to brass tack—covers everything
in building estimating (material quantities and
labor hours) in tables you can read at a glance.
Not for your library but for your pocket—in
the office—on the job. Quick, accurate and
complete.
For test pages, descriptive folder and free
examination offer clip this ad and write:—
GORDON M. TAMBLYN, General Contractor,
No. 9, Sweeney Bldg., Denver, Colo.

Carey
BUILT-UP ROOFING
Pipe and Boiler Coverings
Asbestos Roofing
Elastite Expansion Joints
Carey Fibre Roof Coating
Asphalt Slate Shingles
JONES BROTHERS ASBESTOS SUPPLY COMPANY, INC.
500 Second Street, San Francisco
Telephone Douglas 7630

STANLEY
Ball-Bearing BUTTS

When writing to Advertisers please mention this magazine.
H. Mortenson, President
Mortenson Construction Co.
Structural Steel Fabricators
Office and Shops
19th and Indiana Streets
Phone Mission 3633
San Francisco, Cal.

Judson Manufacturing Company
Main Office:
817-821 Folsom Street
Telephone Sutter 6820
San Francisco
Works:
Oakland—Emeryville
California
Telephone Piedmont 229

Federal Ornamental Iron & Bronze Co.
Bank Counter Screens and Grille Work Our Specialty
Most Modern Equipment Throughout
Recent Contracts: Bank of Italy, First National Bank
16th Street and San Bruno Avenue, San Francisco
Phone Market 1011

Herrick Iron Works
Structural Steel
Office and Works, 18th and Campbell Streets
Oakland, Cal. Phone Lakeside 1460

Beam, Angle, Channels, and Universal Mill Plates for immediate shipment from stock
Pacific Rolling Mill Co.
Suppliers of Fabricated Structural Steel
Forgings, Bolts, Rivets, Frogs, Switches, Cast Iron Castings
General Office and Works: 17th and Mississippi Sts., San Francisco—Telephone Market 215

C. F. Hoffman
L. W. Fliegner
Golden Gate Iron Works
Structural Steel and Ornamental Iron Contractors
Howard and 11th Streets
San Francisco

Schrader Iron Works, Inc.
Structural Steel Contractors
Fire Escapes, Waterproof Trap Doors, Ornamental Iron Work
1247-1249 Harrison Street
Bet. 8th and 9th
San Francisco, Cal.
Telephone Market 337

When writing to Advertisers please mention this magazine.
An Economical Drinking Fountain
— for —
Schools and Theatres
Architects write for latest Catalog
Haws Sanitary Drinking Faucet Co.
1808 Harmon Street, Berkeley,

George S. MacGruer
Robert M. Simpson

MacGruer & Simpson
CONTRACTING PLASTERERS
PLAIN AND ORNAMENTAL
Cement, Stucco and Artificial Stone
Phone Garfield 512
266 Tehama Street, San Francisco

JOHN TRAYNOR
CHARLES HARCOURT
OCEAN SHORE IRON WORKS
Manufacturers of
BOILERS, STEEL TANKS, STEEL PLATE SPECIALTIES
Dealers in
BOILERS, TANKS, PUMPS, ENGINES
GENERAL MACHINERY, ETC.
Office and Works:
550-558 EIGHTH STREET
Phones Market 462 and 463
SAN FRANCISCO, CAL.

PACIFIC COAST STEEL COMPANY
OPEN HEARTH
STEEL BARS — STRUCTURAL SHAPES
BOLT AND RIVET STOCK
REINFORCING STEEL
Sales Office:
RIALTO BUILDING
Phone SUTTER 1564
Plant:
SOUTH SAN FRANCISCO
The Architect and Engineer

**Butte Electric and Mfg. Co.**

Paul Butte, Owner

High Grade Electrical Installations

Federal Electrical Bank Protection Systems

Douglas 145

956 Folsom Street

San Francisco

San Francisco, Cal.
Oakland, Cal.
Los Angeles, Cal.

Ne Page, McKenny Co.

Electrical Engineers and Contractors

Phone Sutter 2369

589 Howard St., San Francisco, Cal.

To Be "Low Bidder" Not Always Our Aim

"Quality and Service Always"

Our nation-wide organization and large experience in this field assure you always of fair estimates and absolute satisfaction.

F. E. Newbery Electric Co.

Alta Building, 381 Bush Street, San Francisco

Phone Sutter 6361

**Electric Construction Co.**

Contracting Electricians

L. G. Jeffrey, Manager

616 Broadway

Fresno

Pacifc Electric Clock Co.

J. J. Estabrook


86 Third Street

San Francisco, Calif.

Charles T. Phillips Company

Consulting Engineers

Heating, Ventilating, Electrical Wiring, Plumbing

Roberts Building, Los Angeles

Phone Kearny 1954

Decker Electrical Construction Co.

149 New Montgomery Street

San Francisco

Browne-Langlais Electrical Construction Co.

Agents for

Robbins and Myers Motors, Packard Mazda Lamps

313 Fifth Street, San Francisco

Telephone Douglas 976

When writing to Advertisers please mention this magazine.
1828—MOTT—1923

Architects and their clients are invited to visit our show rooms, 553-555 Mission St. San Francisco, D. H. Gulick, manager.

MOTT COMPANY
of California

DOUGLAS 2046

FELIX BUTTE

BUTTE ELEC. EQUIPMENT CO.

Trade Mark BEECO Registered

ELECTRICAL CONTRACTORS

530 FOLSOM STREET

SAN FRANCISCO

L. SIEBERT    DESIGNERS AND MANUFACTURERS OF

J. GENSLER

SWITCH BOARDS • PANEL BOARDS

PROTECTIVE POWER PANELS

Drendell Electrical and Mfg. Co.

1760 HOWARD STREET

SAN FRANCISCO, CALIF.

DEmcO

PHONES
MARKET 1753
1754

MUELLER

Faucets give full value in wear and service.

The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?

THE NEWEST AND BEST THING IN FAUCETS

H. MUELLER MFG. CO.

1072-76 HOWARD STREET
SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
MILLER FOLDING IRONING BOARD
ELIMINATES WALL CABINET—IS INSTALLED IN KITCHEN CUPBOARD
NO PLASTER GROUNDS
SAVES WALL SPACE AND LABOR
CASING OR PAINTING
TIME AND MATERIAL
Exhibited LANNOM BROS. MFG. CO
and sold by 325 Magnolia St., Oakland, Calif.
Send for W. N. MILLER
Catalogue to 844 Thirteenth St., Oakland

PACIFIC MANUFACTURING COMPANY
MILL WORK, SASH AND DOORS
HARDWOOD INTERIOR TRIM A SPECIALTY
MAIN OFFICE: SANTA CLARA, CALIFORNIA
SAN FRANCISCO, 177 Stevenson Street
OAKLAND, 1001 Franklin Street
LOS ANGELES, 908 Washington Building
SAN JOSE, 15 North First Street

C. F. STAUFFACHER, President
A. A. STAUFFACHER, Vice-President
THE FINK & SCHINDLER CO.
Manufacturers of INTERIOR WOODWORK AND FIXTURES
BANK, OFFICE AND STORE FITTINGS
SPECIAL FURNITURE
218-228 THIRTEENTH STREET
San Francisco, Cal.
Telephone Market 474

LARSEN-SIEGRIST CO., Inc.
BUILDING CONSTRUCTION
807 Claus Spreckels Building
SAN FRANCISCO

ERNEST HELD, General Manager
HOME MANUFACTURING CO.
BANK, STORE AND OFFICE FITTINGS
FURNITURE AND HARDWOOD INTERIORS
CABINET WORK OF EVERY DESCRIPTION
543 and 545 BRANNAN ST. Phone Kearny 1514
San Francisco, Cal.

Mullen Manufacturing Co.
BANK, STORE AND OFFICE FIXTURES—CABINET WORK OF
GUARANTEED QUALITY—CHURCH SEATING
Office and Factory: Telephone Market 8692
64 Rausch St., Bet. 7th and 8th Sts. San Francisco

JAMES L. McLAUGHLIN
GENERAL CONTRACTOR
Phones Douglas 6645—6646 251 KEARNY STREET, SAN FRANCISCO

Dolan Wrecking & Construction Co.
(D. J. DOLAN)
Lumber, Lath, Nails, Shingles, Doors, Windows
and Plumbing Supplies, New and Second Hand
Phone Market 4264 Office and Yard, 1607-1639 MARKET ST., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Fire Protection Corporation
Engineers and Contractors
FOR
Automatic
Sprinkler Systems

315 Montgomery St.  San Francisco, Cal.
Phone Sutter 2993

Phone Douglas 3123-4  Oak. 5050-1

EASYSET
STORE FRONTS
GLASS OF ALL KINDS
Mirrors Art Bevel Plate
Cobbledick-Kibbe Glass Co.
666-668 Howard St.
San Francisco, Cal.
WASHINGTON AT THIRD ST.
OAKLAND, CAL.

WIRING
CENTRAL ELECTRIC CO.

177-179 Minna Street, San Francisco
Phone Douglas 4832

United Alloy Steel Corporation
CANTON, OHIO
Black Galvanized and
Blue Annealed Sheet
Western Representatives:
ANDREW CARRIGAN CO.
Rialto Bldg., San Francisco
Equitable Bank Bldg.  New Artic Hotel
Los Angeles  Seattle

H. RUMPF
CONTRACTING DECORATOR
CUSTOM BUILT FURNITURE
PRAPERIES AND FURNISHINGS

School and Theater Equipment
Drop Curtains, Draperies
Specializing in Furnishings for Hotels,
Lodges, Clubs, Steamships, Apartment
Houses.
Estimates Furnished
567 Howard Street, San Francisco, Calif.

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos
Prepared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deadening.

JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 Post Street
San Francisco

"BLAZING" THE TRAIL
We've been doing it for many years—
giving the Sportsman Better Value for
Quality than he ever before received.
"Value at a Fair Price" in everything for
the Sportsman.

JOHNS-MANVILLE, Inc. of California

COVERS THE CONTINENT

The Ellery Arms Company
563-65 MARKET ST.
SAN FRANCISCO, CAL.
SEND FOR CATALOG
The Sign of Quality

When writing to Advertisers please mention this magazine.
Horrocks and Imperial Desks
Marble Chairs
Brown Morse Filing Cabinets
In All Standard Finishes
PHONE KEARNY 512

Phonix Desk Company
E. W. Prentice

Nonpareil Corkboard Insulation for Cold Storage Rooms

ESTIMATES FURNISHED FOR COMPLETE ERECTION

VAN FLEET FREEAR COMPANY
557 HOWARD STREET 1231 BROADWAY
SAN FRANCISCO FRESNO

When writing to Advertisers please mention this magazine.
California Steam and Plumbing Supply Co.
671-679 FIFTH STREET
TELEPHONE SUTTER 737
SAN FRANCISCO, CALIF.

PACIFIC COAST BRANCH OF
THE KELLY & JONES CO.
VALVES AND FITTINGS
Full Line of Plumbing Supplies
COMPLETE STOCK
Wrought Steel Pipe
AND

The Elevator Floor
whether in Office Building, Hotel or Department Store, is subjected to a
great deal of wear and tear.

SPECIFY—
INTERLOCKING RUBBER TILING

and you’ve provided your client’s building with a Durable, Economical, Practical
material that is sure to give satisfaction. Twenty tons
installed in the Standard Oil Building, San Francisco.
Stock on hand for immediate delivery.

NEW YORK BELTING AND PACKING CO.
NEW YORK
San Francisco Branch 519 MISSION ST. Phone Douglas 1837
Small booklet of designs mailed on request

When writing to Advertisers please mention this magazine.
This beautiful SNOW WHITE, SANITARY SINK will not only contribute to the appearance of the Home or Apartment House, but it will make the property more rentable or salable. Architects make no mistake when they specify Petrium Snow White Sinks.

PETRIUM SANITARY SINK CO., Fifth and Page Streets, Berkeley
On display; Hoosier Store, Pacific Building, San Francisco
Sterling Furniture Co., 1049 Market St., San Francisco
Building Material Exhibit, 77 O'Farrell St., San Francisco
Oakland—Building Material & Manufacturing Exhibit, 1424 Franklin Street.

A Name that Means Something More than a Pump—
BYRON JACKSON

Just as in history the names of great men rise above the mass, so the name of Byron Jackson has become synonymous among pumps with dominating achievement.

For many years this company has been a national leader in pioneering the way to better pumps. Many of the pumps created by our engineers have become standards of attainment for producers in various countries. Whenever the need develops for an improved pump Byron Jackson produces it.

Builders of all accepted types of pumps, standard and special.

Byron Jackson Pump Mfg. Co., Inc.
Wherever water is to be lifted
Sharon Building, San Francisco
Salt Lake City, Los Angeles, Visalia, Portland, Ore.

Recent Installations of Steel Tubular Flag Poles

Alameda County Title and Insurance Company Building, Oakland, 35' roof pole, Charles W. McCall, Architect.
U. S. Government, Fort Mason, San Francisco, 75' ground set pole.
Sugar Pine Lumber Company, Fresno, 57/8' ground set pole.

We manufacture steel tubular flag poles exclusively for every condition of setting.

Specify our Poles. We supply everything but the flag.
A pole book with specification data and scale drawings is yours for the asking.

THE POLE & TUBE WORKS
Newark, N. J.
Pacific Coast Representative:
H. M. HOLWAY
HOBART BUILDING, SAN FRANCISCO
The Kitchen sells the house

A Los Angeles builder declares that in selling his houses he always shows the woman the kitchen first—and last. All of his kitchens are equipped with

**PEERLESS**

*Built-in Furniture*

If you are planning homes, write now for complete technical information on PEERLESS installations. More than 30 different units!

**BUILT-IN FIXTURE COMPANY**

2608 SAN PABLO AVE., BERKELEY, CALIF.

**AGENTS**

<table>
<thead>
<tr>
<th>THE HOOSIER STORE</th>
<th>PEERLESS BUILT-IN FIXTURE CO.</th>
<th>CRESS &amp; CO.</th>
<th>JOHN BREUNER CO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Building</td>
<td>Metropolitan Building</td>
<td>Portland</td>
<td>Sacramento</td>
</tr>
<tr>
<td>San Francisco</td>
<td>Los Angeles</td>
<td>W. E. ZERWECK</td>
<td></td>
</tr>
<tr>
<td>1424 Franklin Street</td>
<td></td>
<td>Stockton</td>
<td>H. G. SHIRLEY</td>
</tr>
<tr>
<td>Oakland</td>
<td></td>
<td></td>
<td>Fresno</td>
</tr>
</tbody>
</table>

When writing to Advertisers please mention this magazine.
Davis Gold Medal Solid Hardwood Doors

No. 30E Solid French Door 15 lights, Philippine Satinwood—Solid Stiles and Rails—1 1/4" thick—Width 3'0", 3'6"—Height 6'8".

No. 70 Solid Front Door—Siamese Teak or Philippine Satinwood—Solid Stiles and Rails—1 1/4" thick—Width 3'0", 3'6"—Height 6'8".

No. 90 Solid Front or Store Door—Siamese Teak or Philippine Satinwood—Solid Stiles and Rails—1 1/4" thick—Width 3'0"—Height 7'0".

Above doors also furnished in veneered GUM or other hardwoods.

Specify

DAVIS GOLD MEDAL SOLID HARDWOOD DOORS

Send for Illustrated Catalog and Price List on

GUM Doors and Trim and other Hardwoods

DAVIS HARDWOOD COMPANY
BAY AND MASON STREETS
SAN FRANCISCO

Manufacturers and Dealers in Hardwood Lumber, Doors, Mouldings and Trim.

Buffets and special cabinet work in GUM or other hardwoods carried in stock and made to order.

When writing to Advertisers please mention this magazine.
Portland Cement Stucco Is Quality Stucco

The high recognition accorded Portland Cement Stucco by the architectural and engineering professions is due primarily to its dependability. The reason for this dependability is the fact that its most important ingredient—Portland Cement—is standardized.

Not only has Portland Cement Stucco superior strength and durability; applied in accordance with the most advanced specifications, it assures structures of distinction and beauty.

Our new booklet, "Portland Cement Stucco," gives all details of good practice. From these you can write your own specifications.

This booklet is yours for the asking. It is a practical "how-to-do-it" book for the superintendent and foreman, as well as a reference book for the architect, engineer and contractor. Here are a few of the things it contains:

- Typical Construction Details with Sketches.
- Varieties of Surface Finish and How Obtained.
- Notes on Coloring Pigments.
- Proportioning Mixtures.
- Use of Hydrated Lime.
- Back Plastered Work.

Send today for "Portland Cement Stucco." It is a booklet you will want to keep. Address our nearest District Office.

PORTLAND CEMENT ASSOCIATION
A National Organization to Improve and Extend the Uses of Concrete

When writing to Advertisers please mention this magazine.
CRUSHED ROCK
GRAVEL
SAND

For Building and Road Construction

COAST ROCK AND GRAVEL CO.
500 Call Building  SAN FRANCISCO  Phone Sutter 3990
Plants at Niles, Fair Oaks, Oroville, Elliot, Piedra, Solo, and Marysville

The Architect who specifies OTIS ELEVATORS may do so with the assurance that the responsibility of the Otis Elevator Company extends beyond satisfactory installation. Buildings equipped with OTIS ELEVATORS enjoy the advantage of prompt service and careful inspection rendered by over a hundred Otis offices.

OTIS ELEVATOR COMPANY
2300 STOCKTON ST.  SAN FRANCISCO
OFFICES IN ALL PRINCIPAL CITIES

When writing to Advertisers please mention this magazine.
The ARCHITECT & ENGINEER

APRIL 1924

Annual House Number

Published in San Francisco
50 cents a copy - $2.50 a year
Visit Our Showrooms

Complete plumbing fixture displays are maintained for your convenience in conveniently located showrooms at Los Angeles, San Francisco and Portland.

Our displays will give you practical ideas of the adaptability of modern Pacific designs for your varied specification work.
No constant necessity of inspecting and repairing. No costly damage to property.

Our Roof Maintenance Agreement assures that every Pabco 20 Year Roof is off your mind and your client’s mind for at least 20 years.
VARIABLE VOLTAGE CONTROL
Installed in The State Life Insurance Building, Sacramento

In order to obtain the best possible elevator service for this building, three Spencer-Westinghouse elevators with variable voltage control and gearless traction drive were installed. These elevators, traveling thirteen floors, are capable of a speed of 600 feet per minute.

Some of the reasons for the selection of elevators with Westinghouse variable voltage control are:
Alternating-current power could be used without the sacrifice of economy or performance; amazing smoothness of starting and stopping; speed and accuracy of making landings; higher rates of accelerating; quiet operation.

Variable voltage control for elevators, introduced by Westinghouse Electric and Manufacturing Company, is sold and installed by
Keesler & Hecht Co., Chicago, Ill.
Llewelyn Iron Works, Los Angeles, Cal.
Spencer Elevator Co., San Francisco, Cal.

Westinghouse Electric & Manufacturing Co.
Main Offices and Works—East Pittsburgh, Pa.
Western District Offices:
Denver    Los Angeles    San Francisco    Seattle
April, 1924

Have you your copy?

Our new publication, "Ornamental Brackets, Newels and Lanterns," prepared expressly for architects, has just been completed. This book, which comes under A. I. A. classification 31-f-23, contains photographs, dimensional drawings and brief descriptions of distinctive lighting fixtures for entrances and facades of public buildings; gateways of residences and private grounds; and passage ways of bridges and viaducts.

To obtain your copy, fill in the coupon and mail it to our nearest office.

Westinghouse Electric & Manufacturing Co.
George Cutter Works, South Bend, Indiana
Western District Offices:
Denver  Los Angeles  San Francisco  Seattle

Westinghouse

Westinghouse Electric & Manufacturing Co.
Please send, without obligation to me, a copy of your publication C. 1674—"Ornamental Brackets, Newels and Lanterns."

Name .......................................................... 
Street ......................................................... 
City ............................................................ 
State ........................................................ 

When writing to Advertisers please mention this magazine.
"Standard"

Thirty-six years' experience manufacturing and installing Electric Time Keeping Systems. Helpful engineering data cheerfully furnished architects, engineers and school boards insuring satisfactory results, and a direct factory branch office completely equipped to render immediate service.

The Standard Electric Time Company
461 Market St., San Francisco, Cal.
Telephone Sutter 241

Prasco Pinless Swinging Hose Rack
For 50, 75, 100 ft. Underwriters Unlined Linen Hose
No pins to break, bend, or jam
Hose pays off one loop after the other
Plant Rubber & Asbestos Works
537 Brannan St., San Francisco
Tel. Sutter 2100

Jaeger Concrete Mixers
577
sold in California during 1923
Edward R. Bacon Company
Folsom at 17th St., San Francisco
Oakland Fresno Los Angeles Sacramento

Corrosiron
the acid-proof drain pipe
Make your acid drain lines permanent
Corrosiron drain pipe and fittings manufactured and carried in stock in San Francisco

PACIFIC FOUNDRY COMPANY
Harrison and Eighteenth Streets
SAN FRANCISCO

The Architect and Engineer April, 1924 Vol. LXXVII, No. 1. Published monthly—$2.50 a year. 627 Foxcroft Building, San Francisco, California. Entered as second-class matter, November 2, 1905, at the Post Office at San Francisco, California, under the act of March 3, 1879.
This pipe is made of ARMCO-Ingot Iron

This huge pipe, 72 inches in diameter, is just one section of the many discharge pipes in the Calumet Drainage Project, Chicago, Illinois. Day and night, year in and year out, it is exposed to all kinds of destructive corrosives.

Consequently, the engineers chose ARMCO-Ingot Iron, — the commercially pure iron — which has an unusually long service life record and is used wherever corrosion is a serious problem.

Where to order ARMCO-Ingot Iron sheets: Armco Warehouse, Tenth and Bryant Sts., San Francisco ; California Cornice Works, Los Angeles; A. M. Castle Co. of Washington, Seattle; Spokane Sheet Metal Supply Co., Spokane.

Write for booklet:
"Economies in Building with Iron that Lasts"

THE AMERICAN ROLLING MILL CO.
MIDDLETOWN, OHIO

When writing to Advertisers please mention this magazine.
Index to Advertisements

(For Classified Directory and Specification Index see pages 8 to 18)

A

American Chain Company .......... 50
American Fire Brick Association . 25
American Marble & Mosaic Co. . 54
American Window Glass Company . 5
American Window Glass Company . 158
Atlantic Heating & Ventilating Co . 150
Atlantic Pacific Agencies Corp. . 54
Atlas Portland Cement Co .......... 143

B

Babcock Company, C. B. ............ 52
Bacon, Edward R., Co. ............ 4
Badt-Falk & Company .............. 149
Barrett & Hill ..................... 148
Barlett, John M. ................... 145
Bass-Hueter Company ............... 3b
Beckwith, Herbert ................. 145
Bell, B. B., Co. ................... 133
Bendible Boiler Company ........... 134
Bonded Floors Company ............ 125
Bowser, S. F., & Company ......... 138
Brown Disappearing Bed Company . 34
Brown-Langlais Electric Co. ....... 158
Brininstool Company, The ......... 3d Cover
Bull-Dog Floor Clip Co ............. 171
Bunting Iron Works ................. 143
Butte Electric and Mfg. Co. ...... 158
Butte Electrical Equipment Co. ... 159
Brunswick-Balke-Collender Co. ... 24

C

Cabinet, Samuel Company .......... 135
Cadwallader-Gibson Company ..... 132
California Artistic Metal & Wire Company ... 162
California Brick Company ......... 22
California Common Brick Mfrs. Association . 155
California Steam & Plumbing Supply Co. . 163
California Stucco Products Co . 164
California Wall Bed Company .... 136
Carter Blossomd Flooring Co. .... 147
Casement Hardware Company .... 126
Cement Gun Construction Co. ...... 40
Central Electric Company ......... 161
Central Iron Works ............... 154
Check & Gillis ..................... 134
Clark, N. & Sons ............ 19
Clinton Construction Company . 154
Coast Rock & Gravel Company .... 172
Cobledick-Kibbe Glass Co. ....... 161
Coffman, W. J., Inc. .............. 161
Colman, Alex ..................... 150
Columbia Marble Company .......... 142
Cook Marble Company .............. 12
Copper & Brass Research Association . 164
Cranes Company ................... 49
Crittall Casement Window Co. ... 48

D

Davis Hardwood Lumber Co. ....... 129
Decker Electrical Con., Co. ..... 158
Del Monte Properties Company . 156
Detroit Steel Products Company . 130
Dolton Wrecking Company ......... 160
Dreadnought Electrical & Mfg. Co . 158
Durham, C. A., Company .......... 28

E

Electric Construction Company .... 158
Elevator Supplies Company, Inc ... 139
Ellery Arms Company .............. 161

F

Fairfaxer Company, Inc. .......... 27
Federal Ornamental Iron Works . 158

Fidelity & Casualty Company .... 161
Fink & Schindler Company ....... 160
Fire Protection Corporation ...... 161
Fire Protection Engineering Co. . 154
Flagg, Edwin H., Co. ............ 145
Fuller & Gr pope .................. 36
Fuller, W. P., & Company ......... 30

G

Garnett Young & Company .......... 14
General Fire Proofing Co. ......... 44
Gildey Schimid Company .......... 144
Gladding, McBean & Company ..... 21
Globe Indemnity Company ......... 149
Golden Gate Iron Works .......... 156
Grinnell Company of California .. 151
Gunn-Carle Company ............... 163

Haines, Jones & Cadbury Co ....... 46
Hammond, M. E. .................. 144
Hans 1 Self Cleansing Flush Valve Co. . 34
Hanssen, Robertson & Zun walt .... 154
Harvey H ubbell Company ......... 29
Hausser Window Company ......... 126
Hays Social Dining Faucet Co. .... 152
Hermann Safe Company ............ 145
Herrick Iron Works ............... 156
Higgins Lumber Company .......... 151
Hillard, C. J. Company .......... 142
Hill, Hubbell & Company ......... 131
Holbrook, Merrill & Stelson .... 132
Home Manufacturing Company . 14
Hunt & Company, Robt. W. ....... 134
Hunter & Hudson .................. 141

Imperial Waterproofing Co. ... 161
Indiana Limestone Company ...... 45
Independent Automatic Sprinkler Co. ... 10
Johns-Manville, Inc. ............. 161
Johnson Service Company ......... 26
Johnson, S. T. Company .......... 141
Jones Bros., Ashestos Company . 155
Joor Bros. ....................... 144
Judson Manufacturing Company . 156
Kennedy Valve Company .......... 123
Kewanee Boiler Company .......... 132
Kinnear Manufacturing Co. ....... 26
Kissell, I. R. ..................... 149
Knowles, A. ...................... 148
Krueger, James J. ................. 160

K

Lawrence, Ira A. Company ...... 160
Lemm, M. B. Company ............. 160
Lennom Brothers .................. 159
Larsen, Siegrist Co., Inc. ........ 160
Lawson & Drucker ................. 154
Lawton & Vezey ................... 145
Lindgren, Swinerton Inc. ......... 153
Littlefield, R. W. Company ...... 148
Livermore Fire Brick Works ...... 22
Los Angeles Pressed Brick Co. ... 20

M

MacGowan & Simpson ............... 157
Mac Kie & McLean Company ....... 152
Magnus Bros. ..................... 144
Main Iron Works .................. 34
Mangrum & Otter, Inc. .......... 141
Marshall & Stearns ............... 139
Mc Cray Refrigerator Company ... 127
Mc Laughlin, James L. .......... 160

For Information on Public Seating Consult

WESTERN STATES SEATING COMPANY

39 Second Street, San Francisco
2133 Kern Street, Fresno
410 Pacific Electric Bldg., Los Angeles
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 | W. L., 10  1/2 | E. W., 10  1/2 |
ARCHITECTS’ SPECIFICATION INDEX—Continued

BUILDING MATERIALS, SUPPLIES, ETC.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.
C. H. Jensen Co., Call Building, San Francisco.

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

BURGLAR ALARMS
Smith Electric Company, 50 Natoma St., San Francisco.

CABINET MAKERS
Fink & Schindler Company, 218 13th St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.

CEMENT
Moduna Stucco White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, San Francisco, and principal Coast Cities.
Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.
Monolith Portland Cement Company, 763 Market St., San Francisco and Los Angeles.

CEMENT EXTERIOR WATERPROOF PAINT
Armortite, sold by W. F. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Bay State Brick and Cement Coating, sold by James Hamby, 229-233 Clay St., San Francisco.

CEMENT GUN CONSTRUCTION
Cement Gun Construction Co., HOBart Building, San Francisco.

CEMENT—WATERPROOF
Monolith Portland Cement Co., 215 W. 7th St., Los Angeles, and 800 Claus Spreckels Building, San Francisco.

CEMENT STUCCO
“California” sold by California Stucco Products Company, 340 Dore St., San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
N. Clark & Sons, 116 Natoma St., San Francisco.

California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

Tropic Pottery, Inc., Glendale, Cal.
United Material Co., Sharon Bldg., San Francisco.

CLOCKS—ELECTRIC TIME
Standard Electric Time Co., 461 Market St., San Francisco.
Pacific Electric Clock Company, 86 Third St., San Francisco.

CONCRETE CONSTRUCTION
Vannucci Bros., 16th and Church Streets, San Francisco.
Villardon Bros., Inc., 749 Monadnock Building, San Francisco.

COMPOSITION FLOORS
“Linotol” plastic flooring, Hill, Hubbell & Co., 115 Davis St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Cable & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward K. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Gunn, Cable & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Triangle Mesh Fabric, Sales agents, Pacific Materials Co., 325 Market St., San Francisco.
Truese Steel Co., 709 Mission St., San Francisco.
Hadt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
“Sherarduct,” Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Hansen, Robertson & Zumwalt, 4145 Broadway, Oakland.
Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen Siegrist Co., Inc., 807 Claus Spreckles Bldg., San Francisco.

Smith Electric Company

"Quality First"

ELECTRICAL CONSTRUCTION
CONTRACTING . WIRING . FIXTURES . MOTORS . SUPPLIES . REPAIRING

50 Natoma Street

Telephone: Sutter 1378

ARCHITECTS' SPECIFICATION INDEX—Continued

R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.

Dinwiddie Construction Co., Crocker Bldg., San Francisco.

John M. Bartlett, 357 Twelfth St., Oakland.

Clinton Construction Company, 923 Folsom St., San Francisco.

Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, Park Ave., San Francisco.

Vukiccvich & Bagge, 615 Bryant St., San Francisco.

Robert Trotter, 26th and Howard Sts., San Francisco.

L. M. Sommer, 401 Balboa Bldg., San Francisco.

Jas. L. McLaughlin, 251 Kearny St., San Francisco.

Alfred H. Vogt, 185 Stevenson St., San Francisco.

Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS' EQUIPMENT

Edward R. Bacon Co., Folsom at 17th St., San Francisco, and Los Angeles.

CONVENIENCE OUTLETS

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 429 S. Spring St., Los Angeles.


CORK TILE FOR FLOORS

Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.

David E. Kennedy, Sharon Building, San Francisco, Story Building, Los Angeles.

CRUSHED ROCK

Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

DAMP-PROOFING AND WATERPROOFING


"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.

Minax Co., Inc., 22 Battery St., San Francisco, and 653 S. Clarence St., Los Angeles.


"Pabco" Damp-Prooﬁng Compound, sold by the Parafine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

Western Asbestos Magnesia Company, 25 South Park, San Francisco.

The General Fireproofing Company, 20 Beale Street, San Francisco.

DOOR HANGERS


Stanley Works, New Britain, Conn... Monadnock Bldg., San Francisco.

DRAIN PIPE AND FITTINGS


DRAIN TILE

California Brick Company, 604 Mission Street, San Francisco.

DRINKING FOUNTAINS


Crane Company, San Francisco, Oakland, and Los Angeles.

Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.

Haines, Jones & Cadby Co., 827 Folsom St., San Francisco.

DUMB WAITERS

Speno Elevator Company, 166-7th St., San Francisco.

San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

Elevator Supplies Co., Inc., Hoboken, N.J.; San Francisco office, 186 Fifth St.

"Chelsea" dumb waiters, sold by M. E. Hannan, East Pacific Building, San Francisco.

ELECTRICAL CONTRACTORS

Butte Electrical Equipment Company, 550 Folsom St., San Francisco.

Butte Electric & Manufacturing Co., 956 Folsom St., San Francisco.

Central Electric Company, 177-79 Minna St., San Francisco.

Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

Brown-Langlais Electrical Construction Co., 315 Fifth Street, San Francisco.

Newberry Electric Company, Alta Bldg., San Francisco.

Smith Electric Company, 50 Natoma St., San Francisco.

Decker Electrical Construction Company, 149 New Montgomery St., San Francisco.

Electric Construction Company, 616 Broadway, Fresno.

ELECTRIC PLATE WARMER

The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL PLUGS, RECEPTACLS, ETC.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT

"H & H Switches," Garnett Young & Co., 612 Howard St., San Francisco.

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.


Los Angeles, 871-164

S. F. Phone, Garfield 204

Independent Automatic Sprinkler Company

Fire Protection Engineers

208 So. San Pedro Street, Los Angeles

72 Natoma Street, San Francisco
TOLEDO AUTOMATIC SPRINGLESS SCALES
12 OUNCES TO 20 TONS
for Factories, Warehouses, Wholesale Houses—in fact any kind of business where accurate weight is desired

676 MISSION ST.
Phone Sutter 250
TOLEDO SCALE CO.
SAN FRANCISCO
California

ARCHITECTS’ SPECIFICATION INDEX—Continued

ELEVATOR SAFETY INTERLOCKS

ELECTRIC HEATING
“Gleogor” manufactured by Strait & Richards, Inc., Newark, N. J., represented by Atlantic Hunter & Hudson Corporation, 284 Rialtto Building, San Francisco.
Western Electric Heaters, manufactured by W. Wesley Hicks, Rialtto Building, San Francisco.

ELEVATORS—PASSENGER AND FREIGHT
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.
Van Emem Elevator Company, 1159 Howard St., San Francisco.

ELEVATOR MOTORS AND CONTROL

ELEVATOR SIGNALS, DOOR EQUIPMENT
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 186 Fifth St.
Randall Control & Hydrometric Corporation, 265A Minna St., San Francisco, and 523 Central Bldg., Los Angeles.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL

FAIENCE TILE
Tropico Pottery, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 56th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXTINGUISHERS
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by C. H. Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIREPLACE—ELECTRIC
“Gleogor,” manufactured by Strait & Richards, Inc., represented by Atlantic Pacific Agencies Corp., Rialtto Building, San Francisco.

TOLEDO AUTOMATIC SPRINGLESS SCALES
12 OUNCES TO 20 TONS
for Factories, Warehouses, Wholesale Houses—in fact any kind of business where accurate weight is desired

676 MISSION ST.
Phone Sutter 250
TOLEDO SCALE CO.
SAN FRANCISCO
California

ARCHITECTS’ SPECIFICATION INDEX—Continued

ELEVATOR SAFETY INTERLOCKS

ELECTRIC HEATING
“Gleogor” manufactured by Strait & Richards, Inc., Newark, N. J., represented by Atlantic Hunter & Hudson Corporation, 284 Rialtto Building, San Francisco.
Western Electric Heaters, manufactured by W. Wesley Hicks, Rialtto Building, San Francisco.

ELEVATORS—PASSENGER AND FREIGHT
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.
Van Emem Elevator Company, 1159 Howard St., San Francisco.

ELEVATOR MOTORS AND CONTROL

ELEVATOR SIGNALS, DOOR EQUIPMENT
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 186 Fifth St.
Randall Control & Hydrometric Corporation, 265A Minna St., San Francisco, and 523 Central Bldg., Los Angeles.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL

FAIENCE TILE
Tropico Pottery, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 56th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXTINGUISHERS
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by C. H. Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIREPLACE—ELECTRIC
“Gleogor,” manufactured by Strait & Richards, Inc., represented by Atlantic Pacific Agencies Corp., Rialtto Building, San Francisco.

THE PELTON WATER WHEEL CO.

Hydraulic Engineers
Light-Duty High-Head Pumps for Tank and Other Building Service
Heavy-Duty Pumps for Municipal and General Water Supply

2022 Harrison Street
San Francisco
### Architects' Specification Index—Continued

<table>
<thead>
<tr>
<th>ARCHITECTS</th>
<th>SPECIFICATION INDEX—Continued</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minwax Co., Inc., 22 Battery St., San Francisco and 655 S. Clarence St., Los Angeles.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLOORS—MASTIC—FLOOR COVERING</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FLUE LINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Brick Company, 604 Mission St., San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLUSH VALVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handy Self-Cleaning Flush Valve Co., 731 Polk St., San Francisco. Shrader Flash Valve Company, 1300 N. Main Street, Los Angeles and 16 Steuart Street, San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FUEL OIL SYSTEMS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FURNACES—WARM AIR</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>FERRING TILE (Burned Clay)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Brick Company, 604 Mission St., San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GARAGE HARDWARE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GAS HEATING</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GLASS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GRADING, WRECKING, ETC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dolan Wrecking &amp; Construction Co., 1607 Market St., San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRANITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond Granite Co., Potrero Ave., and Division St., San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRAVEL AND SAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coast Rock &amp; Gravel Co., Call-Post Bldg., San Francisco. Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GYMNASTIUM EQUIPMENT—LOCKERS, ETC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellery Arms Co., 583 Market St., San Francisco.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HARDWALL PLASTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Empire,&quot; manufactured by Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HARDWARE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>HEATING AND VENTILATING CONTRACTORS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>HEATING AND VENTILATING EQUIPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. S. Haines &amp; Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.</td>
</tr>
</tbody>
</table>

---

**W. S. Haines & Co., Steam Specialties, Vacuum and Vapor Systems of Heating**

"Twenty-four years of satisfactory service."

(See Page 1069 of Sweet's Catalogue)

**O. M. SIMMONS CO.**

115 Mission St., San Francisco

Phone: Douglas 5497

---

**NASON'S OPAQUE FLAT FINISH**

A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.

Made in California to stand Pacific Coast climatic conditions

**PORTLAND**

R. N. Nason & Co., Paint Makers

151 Potrero Ave.—SAN FRANCISCO—438 Market St.

**SEATTLE**

---
ARCHITECTS’ SPECIFICATION INDEX—Continued

C. A. Dunham, Chicago, Illinois; 585 Mission Street, San Francisco, and 112 E. 3rd Street, Los Angeles.


Warren Webster & Company, Sharon Building, San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.

General Gas Light Company, 788 Mission St., San Francisco.

Rado Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco.

Humphrey Radiantfire, sold by Rudd-Heater Company, 51 Sutter St., San Francisco.


HOLLOW BUILDING TILE (Burned Clay)

California Brick Company, 604 Mission St., San Francisco.

HOLLOW TIE BLOCKS

Cannen & Co., plant at Sacramento; 77 O’Farrell St., San Francisco.

California Brick Company, 604 Mission St., San Francisco.


HOSE—UNDERWRITERS UNLINED LINEN—RUBBER

Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

HOSPITAL FIXTURES

Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS

Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.

HOTELS

St. Francis Hotel, Powell and Post Streets, San Francisco.

ICE MAKING MACHINERY

“Frigedaire,” sold by W. L. Cochran, 880 Mission St., San Francisco.

INCINERATORS

The Incinerator, sold by M. E. Hammond, Mezzanine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT


INGOT IRON

“Armco” brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS

Robert W. Hunt & Co., 251 Kearny St., San Francisco.

INSULATION

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

JAIL EQUIPMENT

Ralston Iron Works, 20th and Indiana Sts., San Francisco.

LAMP POSTS, ELECTROLIERS, ETC.

J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT

Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS

MacRorie-McLaren Co., 514-516 Phelan Bldg., San Francisco.

LATING AND PLASTERING

MaeGruer & Simpson, 226 Tehama St., San Francisco.

LATING MATERIAL—WIRE, METAL, ETC.

Pacific Materials Co., 525 Market St., San Francisco.

The General Fireproofing Company, 20 Beale Street, San Francisco.

Truscon Steel Co., 709 Mission Street, San Francisco.

Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.

United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

LIGHTING FIXTURES


Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.


LIMESTONE, INDIANA

Indiana Limestone Quarrymen’s Association, Box 770, Bedford, Indiana.

LINOUEM

D. N. & E. Walter & Co., 562 Mission St., San Francisco.

The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.

W. & J. Sloane, 216 Sutter St., San Francisco.

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

Bonded Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.

LINOTILE

Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

LOGS—ELECTRIC


LUMBER

Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.


RAY COOK MARBLE CO.

IMPORTED AND DOMESTIC MARBLES

For Building Construction

Factory and Office, foot of Powell St., Oakland Phone Piedmont 1009
ARCHITECTS' SPECIFICATION INDEX—Continued

Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Francisco.
J. E. Higgins Lumber Company, 423 Sixth St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.

LUMBER—HARDWOOD
Dallas Hardwood Co., Bay and Mission Streets, San Francisco.

MANTELS—WOOD, TILE, ETC.
Mangeum & Otter, 827-831 Mission St., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branch, San Francisco, Portland and Tacoma.
Tomkins-Kiel Marble Company, 555 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

METAL DOORS AND WINDOWS
Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.
U. S. Metal Products Co., 330 Tenth St., San Francisco.
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
Michel & Pfeffer, Harrison and Tenth Streets, San Francisco.

METAL FURNITURE
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

METAL STORE FRONTS
Cobbledick-Kibbe Glass Company, 666-8 Howard street, San Francisco, and Washington at Third St., Oakland.

METAL TRIM

MILL WORK
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.
The Fink & Schindler Company, 218-13th St., San Francisco.

OIL BURNERS
S. T. Johnson Co., 1337 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.

OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Howser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 430 Fourth St., San Francisco; 530 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.

PANEL BOARDS

PANIC DOORS
Vonnegut hardware, sold by C. H. Jensen Co., Call Bldg., San Francisco.

PAINT FOR CEMENT AND STUCCO
Wadsworth, Howland & Co., Inc., Jas. Hambly & Son, 1333 E. 7th St., Los Angeles, and 225 Clay St., San Francisco.

PAINT FOR STEEL STRUCTURES, BRIDGES
The Paraffine Companies, Inc., 34 First St., San Francisco.
Hill, Hubbell & Company, 115 Davis St., San Francisco.

PAINTING, DECORATING, ETC.
I. R. Kiesel, 1747 Sacramento St., San Francisco.
D. Zelinsky & Sons, San Francisco and Los Angeles.
The Torney Co., 681 Geary St., San Francisco.
A. Quandt & Son, 374 Guerrero St., San Francisco.
Being Sure

The owner of a large building may get along all right without Von Duprin latches, if fortune favors him, and he never has a fire or a panic in his building.

But—if he does have a fire or a panic in the building, the presence of Von Duprin latches on the exit doors will be a priceless asset, perhaps saving the lives of a number of the inmates.

There is only one way to be absolutely sure that the building housing large numbers of people is safe—and that way is to equip all exit doors with Von Duprin latches.

Complete details in “Sweet’s,” or ask us for the new Von Duprin Reference Book, No. 24-L.
ARCHITECTS' SPECIFICATION INDEX—Continued

S. T. Johnson Co., 1337 Mission St., San Francisco.
STEEL AND IRON—STRUCTURAL
Central Iron Works, 621 Florida St., San Francisco.
Herrick Iron Works, 18th and Campbell Sts., Oakland.
Michel & Pfeffer Iron Works, 1415 Harrison Street, San Francisco.
Mortenson Construction Co., 19th and Indiana Sts., San Francisco.
Pacific Coast Steel Co., Riato Building, San Francisco.
Pacific Rolling Mills, 17th and Mississipi Sts., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Kalaton Iron Works, 20th and Indiana streets, San Francisco.
Schneider Iron Works, Inc., 1247 Harrison St., San Francisco.
Western Iron Works, 141 Beale St., San Francisco.

STEEL LUMBER
The General Fireproofing Company, 20 Beale Street, San Francisco.

STEEL ROLLING DOORS
Kinnear Rolling Steel Doors, sold by Pacific Building Materials Co., Underwood Bldg., San Francisco.

STEEL SASH
Bayley-Springfield solid steel sash, sold by Pacific Materials Co., 525 Market St., San Francisco.

“Fenestra” Solid Steel Sash, manufactured by Detroit Steel Products Co., factory sales office, 251 Kearny St., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison Street, San Francisco.
Truscon Steel Company, 709 Mission St., San Francisco.

STEP AND WALK BRICK
California Brick Company, 604 Mission St., San Francisco.

STONE
Indiana Limestone Quarrymen’s Association, Box 775, Bedford, Indiana.
Raymond Granite Company, Potrero Ave. and Division Street, San Francisco.

STREET LIGHTING EQUIPMENT

STUCCO, COMPOSITION
California Stucco Co., 310 Dore St., San Francisco.

STUCCO-PLASTER REINFORCEMENT
National Steel Fabric Company, Monadnock Building, San Francisco.

STUDDING—FIREPROOF STEEL
The General Fireproofing Company, 20 Beale Street, San Francisco.

LINOLEUMS
WINDOW SHADES
CARPETs
FURNITURE
GLOBE AUTOMATIC SPRINKLERS
Will protect your building and business from destruction by fire and reduce your Insurance Rate. Write for estimates.

Pacific Fire Extinguisher Company
FIRE PROTECTION ENGINEERS
424-440 Howard Street, San Francisco
Manufacturing Plant, 298 Fremont St.
RAMONA ROOFING TILE

*Beauty* • *Versatility* • *Permanence*

To the casual and critical eye alike, the inherent beauty of Ramona Tile makes instant appeal. Made as they are in an exceptionally wide variation of colors and laid by master hands, the individual tastes of the architect or owner may readily be satisfied. Moreover, like the roofs of old Spain, the life of such a roof as that shown above cannot be measured in years.

N·CLARK & SON
MANUFACTURERS OF ARCHITECTURAL TERRA COTTA and FACE BRICK
112-116 NATOMA STREET
SAN FRANCISCO
NESTLING
picturesquely under the big live oaks of Menlo Park, California, stands the home of Mr. Robert S. Moore, pictured above.

This beautiful residence owes much of its charm and enduring worth to its roof of

VARICOLOR
GRANADA
ROOFING TILE

Mr. Aiken Farr
as the architect

'Vel Standard of Quality in Clay Products'

L.A. Pressed Brick Co
ENTIRE SIXTH FLOOR..... FROST BLDG
Second and Broadway .... Phone 875-701

LOS ANGELES

When writing to Advertisers please mention this magazine.
CORDOVA ROOF TILE
FURNISHED AND LAID BY
GLADDING, McBEAN & CO.
CROCKER BUILDING, SAN FRANCISCO

CORDOVA — the most widely used roof tile today — is one of the oldest forms of terra cotta tile known. The harmonious rose overtone color combinations obtained with this tile are achieved by the nature of the clay and the scientific process of mixing and burning.

TROPICO POTTERIES, INC.
GLENDALE, LOS ANGELES
CALIFORNIA
The Economical Way to Back Face Brick

DICKEY MASTERTILE is coming into more and more general use for backing Face Brick.

Its advantages are important. Dickey Mastertile is amply strong but light, sometimes permitting less bulky foundations. Each 8-inch tile takes the place of six brick in the wall, saving mortar and labor and permitting speedier erection.

The dead air spaces in Dickey Mastertile wall construction afford efficient insulation against temperature changes, moisture and sound. Usually it is possible to dispense with furring or other waterproofing, the plaster being applied directly to the inside of the wall.

All these advantages afford such substantial economies that the architect, by backing with Dickey Mastertile, can often satisfy his well founded preference for Face Brick and still meet the owner’s limitation on expenditure.

NOTE: Dickey Mastertile is hard-burned and by actual crushing test 25% stronger than standard requirements for hollow building tile. The name “Dickey Mastertile” is stamped on each piece for your guidance.

DICKEY MASTERTILE
Builds Walls that Defy Fire, Time and Weather
MADE BY
CALIFORNIA BRICK COMPANY
Associated with LIVERMORE FIRE BRICK WORKS,
MANUFACTURERS OF DICKEY FACE BRICK
AND OTHER CLAY PRODUCTS
601 Mission Street, San Francisco Builders’ Exchange, Oakland
COLOR IN CLASSIC DESIGN

Polychrome treatment of decorative detail lent the final touch of perfection to the matchless conceptions of form in Hellenic architecture.

Colored Terra Cotta used with stone in the same way offers the splendid possibility of giving to the modern adaptation a corresponding virility and meaning.

NOTE: From the Standard Specifications of this Society prepared with the assistance of the National Bureau of Standards and Structural Service Committee, A.I.A., you can specify polychrome Terra Cotta economically and with every assurance of its lasting durability. For copies address:

NATIONAL TERRA COTTA SOCIETY
19 WEST 44th STREET NEW YORK, N. Y.

When writing to Advertisers please mention this magazine.
The Test of Time Shows Conclusively

Whale-Bone-ite Toilet Seats’ Superiority in Efficient Sanitary Service

There is a Positive Saving in Maintenance Expense

Universally Used  First Cost—Last Cost

Hinges are attached to metal plate embedded in core
(See construction cut)

Handsome Appearance  Easiest Cleaned

Sold by all leading plumbers and jobbers everywhere

If you cannot secure locally ask
E. C. Whalen, Security Bldg., Los Angeles
W. J. Driscoll, Monadnock Bldg., San Francisco
S. D. Cochrane, Hose Bldg., Seattle

Made by The Brunswick-Balke-Collender Co.
THE stone and terra cotta trim bring out well the rich, dark field of brickwork, embellished as it is by delicate diamond traceries and pilaster effects. If you do not have "Architectural Details in Brickwork," ask for the portfolio. The halftone plates, issued in three series, each in a folder ready for filing, will be sent to any architect requesting them on his office stationery. The plates show many examples of the beautiful effects that can be economically obtained through the use of standard sized face brick.

Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Illinois.
The Johnson Thermostat on the wall of the home is as significant of genuine genteelessness today as the oil painting on the wall. The resident qualities which it expresses, and the resident qualifications which it denotes are commendable indexes: while the health, comfort, convenience and extreme fuel economy which the Johnson Pneumatic System of Temperature Regulation so successfully contributes make it indispensible in homes that are to be considered strictly first-class, most modernly complete and of faultless construction.

And the same applies to fine business buildings, too.

JOHNSON SERVICE COMPANY
Factory and Main Office Milwaukee, Wisconsin

SAN FRANCISCO BRANCH
417 RIALTO BUILDING
FRANK W. HOOK, Manager

When writing to Advertisers please mention this magazine.
HOUS OF MR. H. W. HAMMOND, SAN FRANCISCO
Meyer & Johnson, Architects
Fred. Johns, Masonry Contractor

THIS Beautiful Home is given an added touch of refinement and suggestion of permanency by the use of

Rich mond Red Rug Brick

Rich mond Press ed Brick Company
Rich mond, California

Los Angeles Pressed Brick Company
Los Angeles, California

United Materials Company
Sharon Building
San Francisco

When writing to Advertisers please mention this magazine.
Building to an Ideal

To design a heating system that will offer the utmost in economy of installation and of operation—

To build into it the best care and thought of men whose skill is that of the old-time craftsmen who shaped and fashioned by sheer handwork alone—

To distribute and to service all of the products it manufactures on the basis of exact fitness for the work they must perform, so as to insure maximum efficiency of operation and lowest possible depreciation through their years of use.

These are the composites of the ideal always before us—an ideal which we have striven toward for more than two decades, and from which there will be no turning aside.

Sixty branch and local sales offices in the United States and Canada bring Dunham Heating Service as close to your office as your telephone. Consult your telephone directory for the address of our representative in your city. Ask him for the names of representative Pacific Coast installations.

C. A. DUNHAM CO.

Los Angeles  San Francisco  Seattle  Portland  Spokane
119 E. Third Street  585 Mission Street  201 L. C. Smith Building  410 Board of Trade Building  405 Sherwood Building

Greatest Economy in Operation, Space, Repair

KINNEAR Steel Rolling Doors work easily and quickly which saves valuable time every day, whether run by hand, mechanically, or by motor. Accidental damage to a few sills can be easily repaired by the replacing of new ones. Compact in construction, traveling only in a vertical plane, they make possible the greatest saving in floor space. Made to fit the building.

Write today for illustrated catalog. Our Engineering Department is at your service for unusual problems—our branch offices insure perfect installations.

The KINNEAR MFG. COMPANY
66 and 71 Field Avenue
Columbus, Ohio
315 Market Street,
San Francisco,
Cal.
The usefulness of Hubbell Duplex Convenience Outlets is appreciated by any client.

For the duplex outlet makes the use of electric appliances and portable lamps convenient.

Hubbell Convenience Outlets are made in both single and duplex types; side or top-wired.

We would be glad to cooperate with any architect regarding the most advantageous locations for Convenience Outlets in any class of building.

HARVEY HUBBELL, INC.
ELECTRICAL WIRING DEVICES
BRIDGEPORT, CONN., U.S.A.

Remember it's the TeSlots, that make outlets 'Convenient'

When writing to Advertisers please mention this magazine.
TWENTY-SIX TONS OF PIONEER WHITE LEAD

Used on the Biltmore Hotel

That Pioneer White Lead was specified and used on this magnificent hotel is merely another instance which emphasizes the high esteem in which this product is held by prominent architects.

THE patented vacuum cleaning device shown above is just one reason why Pioneer White Lead is always whiter than other Old Dutch Process White Leads. This device is an exclusive Fuller feature, and insures even the finest particles of impurities being removed.
Residence of Captain F. Olson, Jackson and Spruce Streets, San Francisco
C. O. Clausen, Architect

Ornamental and Miscellaneous Iron Work
STEEL SASH    WIRE WORK

Michel & Pfeffer
Iron Works
HARRISON AND TENTH STREETS
SAN FRANCISCO, CALIF.

PHONE HEMLOCK 3080
Fuller & Goepp
Manufacturers of
Art and Leaded Glass MIRRORS
Dealers in
SANIONYX
A VITREOUS MARBLE
for all building purposes
Everything in Building Glass
32 Page Street, San Francisco
Market 498
Jackson at 11th, Oakland
Lakeside 7272

OUR OAKLAND PLANT

Whitco Hardware is sold only through retail dealers in builders’ hardware. If your hardware man cannot supply you, send us his name and we will see that your needs are taken care of.

When writing to Advertisers please mention this magazine.
WHEN an architect specifies a certain product to be used in the home which he designs for his own family, it is convincing proof of his confidence in that product. The beautiful home illustrated was planned by Architect Will H. Toepke for his own use. The S. A. Born Building Company were the general contractors. Dietlin & Cordes, did the Plastering. Monolith Plastic Waterproof Portland Cement was used for cellar foundation and exterior plastering.

For dry walls, beautiful walls, enduring walls, specify Monolith Plastic Waterproof Portland Cement.

Write for Booklet.

MONOLITH PORTLAND CEMENT CO.

LOS ANGELES  SAN FRANCISCO  PORTLAND
A.G.Bartlett Bldg  800 Claus Spreckels  516 Pittock Block
13th floor.  Bldg.

MONOLITH  PLASTIC WATERPROOF PORTLAND CEMENT
Specify HANDY FLUSH VALVES

It is NON-CLOGGING

It functions perfectly with any make or kind of bowl.
Gives perfect cleansing flush — washes bowl clean.

Model A—Indirect Flush:
For residences served by one-half inch supply pipe.

Model B—Direct Flush:
For hotels, office and other buildings served with one inch or larger supply pipe.

HANDY SELF-CLEANING FLUSH VALVE CO.
731 FOLSOM STREET, SAN FRANCISCO, CAL.
Demonstration in Universal Exhibits Monadnock Bldg., San Francisco

ALL CAST IRON—3 Sizes (3, 5, and 7 Sections)
RA-DO FUMELESS GAS RADIATORS
The Ideal “Year-Round” Heating System
For The Home—New or Old
Easiest and Cheapest to Install
Lowest Operating Cost
POTTER RADIATOR CORPORATION
5954 Pasadena Ave., LOS ANGELES
393 Sutter St., SAN FRANCISCO
1700 San Pablo Ave., OAKLAND

POWER AND HEATING BOILERS
STEEL TANKS, STACKS, BREECHINGS, SHEET AND PLATE WORK
MACHINERY AND IRON CASTINGS
MAIN IRON WORKS
Main Office and Works: 7th, Daggett and 16th Sts., San Francisco, Calif. — Phone Market 752-753
Branch City Office: 420 Matson Building, 215 Market Street

PUMPING MACHINERY
“AMERICAN-MARSH”
House, Sump and Fire Pumps
FOR ALL SPECIFICATIONS
SIMONDS MACHINERY CO., 816-818-820 FOLSOM ST, SAN FRANCISCO
PHONE KEARNY 1457

When writing to Advertisers please mention this magazine.
Wayne Wins Suit

For the information of the purchasers of Wayne Water Softeners or those of any other make, particularly such purchasers as those who have been threatened with suits to recover royalties, Judge Arthur J. Tuttle in the United States District Court at Detroit on November 8, 1923, found the Gans patent No. 1,195,923 to be void. This is the patent which one of our competitors claimed to be infringed by all zeolite water softener manufacturers.

Sure Way
To Stop Plumbing Repair Expenses
In Public Buildings

It is a well established fact that Wayne Rapid Rate Water Softeners absolutely prevent the formation of hard water deposit or scale in piping, boiler tubes, plumbing fixtures, water heaters and pumps.

These deposits are caused by lime and magnesia. The Wayne Softener removes the lime and magnesia from the water—and does it at the regular pressure of the supply.

No storage tanks are required. The Wayne is easy to install. Its savings more than pay the operation costs plus a handsome dividend on the investment.

The Wayne Softener is today the safest, surest and most economical means of assuring soft water supply—and of so eliminating the repair and upkeep expenses that hard water causes.

Authoritative Book Free
Write for copy of our book “Water Softening and Filtration.” It is a complete treatise on the subject, carefully written and worthy a place in your office library. Gives facts and figures that you want to know.

Wayne Tank & Pump Company
862 Canal St., Fort Wayne, Ind.

Foreign Offices:
Toronto, Canada; London, England; Paris, France

An International Organization with Sales and Service Offices Everywhere
Satin Egg Shell Finish Used in 17-Story Tribune Tower

When the Tribune Publishing Company of Oakland recently added to its building an extension soaring seventeen stories high, the matter of a wall finish was given careful consideration. After testing many materials, Bass-Hueter Satin Eggshell Finish was selected for use on the walls throughout the fourteen floors devoted to office space. This durable finish was applied direct to the new walls, without the use of size or sealer. The second coat was stippled.

Hospitals, Apartments, etc., Use Washable Finish

Satin Eggshell Finish has been used for finishing the walls and woodwork of some of the finest buildings in the West. It is used extensively in hospitals, apartments, hotels, schools, public buildings and wherever a sanitary, washable paint is required.

Our nearest branch will gladly send you a folder giving complete information on Satin Eggshell Finish as well as a list of buildings on which it has been used.

BASS-HUETER PAINT COMPANY

When writing to Advertisers please mention this magazine.
The superiority of china for bathroom fixtures

FAIRFACTS FIXTURES are made of snow-white china. They should be put in the walls at the time the house is built or remodeled.

FAIRFACTS FIXTURES are made of china because it is the only material that will not become stained, checked or dingy. They may be cleaned simply by wiping with a damp cloth. There is a wide variety to meet with every need—soap holders, towel bars, shelves, safety wall grips, sponge holders, paper holders and tooth-brush holders, tumbler holders, electric radiators and combination of wide variety. FAIRFACTS FIXTURES are installed by tile contractors—the only trade that does this work and should be included in the tile contract.

For the convenience of tile contractors, all FAIRFACTS CHINA FIXTURES, where possible, bear standard bases and may be installed in tile sidewalls with a minimum of cutting. Send for catalog F. Details and specifications also appear in Sweet’s Architectural Catalog.

The Fairfacts Company
Incorporated
Represented by
CALIFORNIA POTTERY COMPANY
San Francisco: Mills Building, Phone Kearny 87
Oakland: E. 12th and Park Sts., Phone Fruitvale 588
Fresno: H. and Monterey Sts., Phone 4189

FAIRFACTS
Representative In Los Angeles
WM. E. GRAHAM
365 Kerckhoff Building
Phone: Metropolitan 3173

Fairfacts Fixtures
BUILT IN YOUR BATHROOM WALLS®
In planning this home, the contractor and the owner specified “ACORN” Oak Leaf Oak Flooring.

The contractor was influenced by long and satisfactory experience with “ACORN” Oak Leaf Flooring. — The owner depended on the reputation of the manufacturer and distributor.

Strable Hardwood Company
DISTRIBUTORS
STRABLEWOOD QUALITY HARDWOODS
537 FIRST STREET
OAKLAND, CALIFORNIA
Our "Quality Police"

Our "Quality Police" (our Testing and Inspection Staff) are on duty night and day.
They prevent the minutest deviation from

Old Mission
Super Standards

Our Wet Process assures Supreme Uniformity.
Yet Old Mission Portland Cement costs no more than ordinary Portland Cements.

Old Mission
Portland Cement Company

Main Office: STANDARD OIL BUILDING, San Francisco
Plant: SAN JUAN, California

CAPACITY:

8000 SACKS DAILY

When writing to Advertisers please mention this magazine.
ATCHISON
REVOLVING DOORS
Straight or Curved Wings
ASK FOR CATALOG
PACIFIC MATERIALS CO., 525 MARKET ST., S. F.

Gunité Facing—For Concrete, Brick, Tile, Steel, Frame Structures and Fireproofing of Steel Members.

Gunité Lining—For Reservoirs, Dams, Canals, Tunnels, Walls and Subways and Harbor Construction.

Estimates and Bids Furnished

Cement Gun Construction Company
CONTRACTING AND ENGINEERING
1408 Hobart Building Phone Sutter 3988 San Francisco

EMPIRE
HARDWALL PLASTER

MANUFACTURED BY
Pacific Portland Cement Company, Consolidated
PACIFIC BUILDING SAN FRANCISCO PHONE GARFIELD 4100
PORTLAND SAN JOSE LOS ANGELES

When writing to Advertisers please mention this magazine.
Daylight without Glare

**Western Venetian Blinds** overcome the difficulties of daylight control. They provide an ideal light—daylight without glare.

Bright sunlight which glares through improperly shaded windows is eliminated. Daylight is reflected and diffused; softened and subdued. All available window area, especially the upper portion of windows which has the greatest lighting value, is used to best advantage. This is accomplished by the ingenious arrangement of adjustable slats of which this modern window equipment is made.

Further, Western Venetian Blinds, because of their handsome appearance, harmonize perfectly with the interior and exterior of any modern business structure.

Write for Special Bank and Office Building Catalogs

Western Blind & Screen Company
General Offices, Los Angeles; Factories, Los Angeles and Kansas City

New York, N. Y., 25 W. 43rd St.  Chicago, Ill., 325 W. Madison St.
Atlanta, Ga., 309 Flatiron Bldg.  Portland, Ore., 213 Fitzpatrick Bldg.
Kansas City, Mo., 14th & Montgall  San Francisco, Cal., 921 Hearst Bldg.

Texas Agents: Two Republics Sales Service 523 Hicks Bldg., San Antonio

Kirby Bldg., Dallas

MORE LIGHT ~ MORE AIR ~ LESS GLARE
The Oxen of Stone

RAYMOND GRANITE is the strongest, most durable stone yielded by the earth.

Granite as a building material has been employed for the temples, cathedrals, palaces and other costly structures of the past.

Our finest public buildings of today are made of RAYMOND GRANITE.

RAyMOND GRANITE COMPANY
GRANITE - STONE
INCORPORATED
CONTRACTORS
BUILDING - MEMORIAL
3 POTRERO AVE. SAN FRANCISCO
1350 PALMETTO STREET LOS ANGELES
Whenever purity of color is wanted or exquisite detail in carving is essential, Cream White Lens, America’s Caen Stone, is worthy of your consideration.

Indicative of its artistic values is the fact that Mr. B. S. Goodhue used over 3,800 cubic feet of it in the walls of The National Academy of Sciences building in Washington, D. C.

A sample or color plate is yours for the asking.

American Cream White Lens

American Cream White Lens altar with Pink Tennessee Marble steps and base.
in Holy Name Church, Philadelphia, Pa.
Maginnis & Walsh, Architects.
J. Hegerty, Marble Contractor.

Tompkins-Kiel Marble Company

505 Fifth Avenue
New York City

Chicago
San Francisco
Sylacauga, Ala.
Knoxville, Tenn.
Fire-and-Sound-Proofed by Herringbone

The annoyance of sound-transmitting walls, the fire-danger of wood-plaster partitions, can be completely removed by GF solid partition construction—Herringbone Rigid Metal Lath on GF Steel Channels.

The light, rigid, two-inch plaster wall formed by Herringbone on GF Steel Channels has been proven an effective barrier to the most penetrating sound.

Fire-and-sound-proof, non-cracking, sanitary, economical of space and construction, Herringbone on GF Channels forms the ideal partition for apartments, hotels, hospitals and office buildings.

Architects and builders who economically construct the best specify

GF Herringbone Rigid Metal Lath

Other GF Materials

- Self-Centering – A combined form, lath and reinforcement.
- Trussit – A reinforcement for solid partitions.
- GF Expanded Metal – A concrete reinforcement.
- GF Steel Tile – For concrete floors.
- GF Steel Lumber – Used in place of wood joists and studs.
- GF Steel Channels – Studding for solid partitions.
- GF Peds – Spot grounds for attaching trim to concrete and plaster.
- GF Waterproofings – For concrete and masonry.

Write for illustrated literature

THE GENERAL FIREPROOFING CO.

20 Beale Street
SAN FRANCISCO

Builders Exchange
OAKLAND

1920 Atlantic Street
LOS ANGELES
Matching New Stone With Old

The Milwaukee Art Institute Building is an excellent illustration of the possibilities of remodeling and enlarging an old building to meet modern requirements.

After twenty years' service as an office building for a lumber company, the structure was purchased by the Institute and remodeled. Without changing the style of architecture, a story was added, the old cornice moved up and reset over a new fluted frieze to increase its height. The Gray Indiana Limestone in the old building was perfectly matched for the added second story and the entire front cleaned down with bristle brushes, soap powder and water.

The remodeled building shows all of the decorative details of the old front with the added second story in complete harmony.

The Builder who selects Indiana Limestone is afforded an unlimited supply of material, assuring a building for which stone of the same color and quality will be available many years hence, in the event additions to the original structure are required. This is not possible with the product of smaller stone industries.

INDIANA LIMESTONE QUARRYMAN'S ASS'N, BOX 770, BEDFORD, IND.
Service Bureaus in New York and Chicago.

BUILD THE NATION SECURELY WITH

THE NATION'S BUILDING STONE
Rydal Mixing Valve will appeal to Architects

THE Rydal mixing valve accomplishes, in two complete turns, what the ordinary mixing valve attempts to accomplish in a half turn.

Architects as well as the public condemn mixing valves on account of their quick change in temperature which has, at times, caused the user a great deal of discomfort.

With the Rydal mixer, the temperature of the water can be changed two degrees at a time.

Furnished with a movable dial plate which reads—shut, cold, warm and hot.

The concealed mixer has a regulating screw under the dial plate.

This screw controls the travel of the volume plungers.

By this screw regulation the mixer can be set to open to any point between the words Warm and Hot. Under ordinary conditions, the maximum temperature desired can thereby always be obtained.

Plungers are of different diameters, thus preventing the possibility of error in replacing.

Plungers are of the floating type, allowing seats to close off tight when the wear of the washers has been uneven.

Seats are removable and are of different diameter threads to prevent incorrect installation when replacing.

Operating stem furnished with a heavy square thread, having a large bearing surface which makes a long life thread.

Haines, Jones & Cadbury Co.
MAKERS OF PLUMBING SUPPLIES
857-859 FOLSOM STREET, SAN FRANCISCO
PHILADELPHIA—NEW YORK—RICHMOND, VA.—SAVANNAH
JACKSONVILLE—CHARLOTTE
April, 1924

How these elegant apartments—idle for months—were quickly rented

*Oak Flooring turned a loss into a profit*

These new modern apartments, in a high-class residential district of St. Louis, were a failure. Why? Because people wouldn't live on the cold hard terrazzo floors with which they were equipped. Every expedient had been tried to make the rooms livable, including carpets which shrunk after being cleaned for the new tenant, and often had to be replaced because of objectional color.

At last, oak flooring was laid throughout, over the terrazzo, adding that essential element of comfort that people demand.

Now, with permanent oak floors, easily kept bright and clean, healthful under foot, beautiful with the warmth of Nature's own coloring, empty profit-consuming apartments are being quickly rented.

We will be glad to give you the benefit of our experience in solving your floor problems. Write for your copy of our new 24 page book, "The Story of Oak Floors," with plates of the new color finishes, and other suggestions of interest to architects and their clients.

*Oak Flooring Bureau*

1056 Ashland Block, Chicago
For Casements and Windows Specify CRITTLALLOY—the Copper-Bearing Steel

The building of Crittall casements, windows and French doors has back of it the authority and knowledge of generations in leadership of this craft. Built by hand, in various designs, their beauty, grace and enduring utility is enhanced by workmanship that has come down as a tradition with this name.
To satisfied users of Crane products is due the tireless growth of the pioneer shop of 1855 to the present system of plants, branches and offices in 145 cities at home and abroad, all supplying quality materials for every plumbing need.

If the Crane name today has a grateful meaning for architects, builders, plumbing contractors and all those for whom they build, it is because Crane engineers and designers are able to draw upon these years of informing experience to guide them in creating better and more effective valves, fittings and fixtures of every sort for both domestic and industrial use.

In sanitary and heating materials for the home, Crane provides for the wants of small dwellings as carefully as for the requirements of great town and country houses, hotels, apartments and clubs.
AMERICAN SASH CHAIN—Runs Smoothly

Its links are flat and consequently run over the pulley as smoothly and freely as a strap—without a kink.

Here is a clear illustration of the simplicity of American Sash Chain and its fixtures which further facilitate the smooth, easy running of this quality chain. Made in sizes to fit 60, 80, 100, 120 and 250 lb. double hung sash. "Every installation sells another."

AMERICAN CHAIN CO., Inc.
BRIDGEPORT, CONNECTICUT

In Canada: Dominion Chain Co., Ltd., Niagara Falls, Ontario
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco
Largest Manufacturers of Welded and Weldless Chains and Makers of the Famous WEED Automobile Accessories

It makes stucco walls absolutely damp-proof

BAY STATE Brick and Cement Coating is the ideal finish for walls of stucco or concrete. Driving rain cannot work through a Bay State coated house. For Bay State Coating creeps into the porous concrete and seals it—permanently.

Bay State Brick and Cement Coating is made by a secret formula. This super-coating comes in a complete range of tints and in pure rich white. Send for samples and color-chart.

WADSWORTH, HOWLAND & CO., Inc.
Brooklyn BOSTON Jacksonville
Pacific Coast Distributors:
JAMES HAMBLY & SON
San Francisco, Cal.
"U.S. T I L E FLOORING"

A Flooring of Durability
that is attractive and resilient

"U. S. Rubber Tile Flooring" was specified by the architect, George W. Kelham, and the United States Government for the new Federal Reserve Bank Building in San Francisco. 120,000 square feet was installed in the lobbies, corridors and floors of the working rooms. "U. S. Tile Flooring" is made in a large variety of attractive designs, veinings and color combinations. Every installation is backed by the reputation of the United States Rubber Company, the world's greatest manufacturer of rubber products.

Full information and samples upon request

United States Rubber Company

San Francisco  Los Angeles  Sacramento  Fresno

Spokane  Seattle  Portland  Salt Lake City

MANUFACTURERS OF RUBBER  FLOORING SINCE 1897
Heated by a Babcock Furnace

THis Santa Barbara home is kept comfortably warm by the cleanest, most convenient system—the gas-fired, electrically controlled Babcock Furnace. Operated by thermostat or by push button from any part of the home, this furnace gives abundant warmth without drudgery. It is economical. It is designed with extensive radiating surface which warms but does not dry or "cook" the air. It is staunchly made with rolled seams in the radiators and a cast-iron burner pot, and lack of condensation at the joints prevents the possibility of leaks and fumes. More than 5 thousand furnaces now installed have given perfect satisfaction, many of them for 6 or 7 years, not only on the Pacific Coast, but in the most exacting climates of the East and Middle West. Made by the C. B. Babcock Company, San Francisco. Every furnace carries a 5-year guarantee.

C. B. Babcock Co.
San Francisco

Beacon Light Co.
Los Angeles

Pacific Gas Appliance Co.
Oakland

Southern California Gas Co.
Los Angeles

BABCOCK High Efficiency GAS FURNACE
"Warmth at the Turn of a Switch"

When writing to Advertisers please mention this magazine.
## Contents

**VOL. LXXVII  APRIL, 1924  Number 1**

**Cover Picture—House of George Washington Smith, Architect**

**Garden Gate, House of Dr. W. H. Roberts, Pasadena  Frontispiece**

*Myron Hunt, Architect*

**On the Importance of Ordinary Houses**  55

*Irving F. Morrow, Architect*

**Roof Tile for Residences**  103

*Clifford C. Pyle*

**The Price of Brickwork**  107

*George S. Summerell, Secretary California Common Brick Manufacturers Association*

**Gardens, Hidden or Revealed**  109

*Emerson Knight, Landscape Architect*

**A Plea for Fireproof Homes**  114

*Howard Frost*

**Editorial**  116-117

*Good Work in Residence Design—Garages for Office Buildings—Hotel Guest Rooms Poorly Lighted—Cost of Brickwork in California.*

**With the Architects**  118

**Field of the Contractor**  120

**Heating the Modern Home**  120

*C. B. Babcock*

**Book Reviews**  122

---

*Published Monthly by THE ARCHITECT and ENGINEER Inc.*

626-628 Ferry Building, San Francisco

*Wilburiff  Frederick Jones  Irenhorwood*  

*President  Vice-President  Secretary*
Pump Governors
Oil-Burner Governors
Reducing Valves
Safety Valves
Oil Valves
Blow Off Valves
Boiler Feed Valves
Vacuum Pump Governors
Vacuum Regulating Valves
Oil Pumping Sets
Little Giant Improved Oil Burners
Duplex Oil Pumps
Rotary Oil Pumps
Oil Heaters
Draft Gauges
Boiled Feed Pumps

G. E. WITT CO., Inc., Engineers
C. W. VAUGHN, President and Manager
MANUFACTURERS AND DISTRIBUTORS
862-864 Howard St. Phone Douglas 4404 San Francisco, Cal.

J. M. Fabbris, Vice-Pres.
J. A. Mackenzie, Secretary
A. F. Edwards, Pres.
J. Rubiolo, Asst. Mgr.
D. A. Batsford, Asst. Mgr.

AMERICAN MARBLE AND MOSAIC CO.

Factory:
on Water Front, South San Francisco
Near Grand Ave. and Ferry Slip
Telephone Mission 6043

Office:
25 Columbia Square, San Francisco
Near Folsom St., Bet. 6th and 7th
Telephone Market 5070

Save Space—
Add Beauty and Comfort to the Home or Apartment.

[Brown Disappearing Bed Co.
Display and Salesrooms:
746 PheLAN BLDG., SAN FRANCISCO
TELEPHONE Garfield 6652]

The Most Pleasing & Effective Form of Fireplace Heat
No costly flue construction, dampers or ash pit doors—merely substitute false work to receive the mantel and wire fireplace for GLOLOG. Even distribution of heat—An attractive room furnishing.

Write for complete data and wiring specifications for fireplaces.

STRAIT & RICHARDS, INC., Newark, N. J.
ATLANTIC PACIFIC AGENCIES CORP.
Rialto Bldg. • Western Distributors • SAN FRANCISCO

When writing to Advertisers please mention this magazine.
GARDEN GATE, HOUSE OF DR. W. H. ROBERTS, PASADENA, CALIFORNIA
MYRON HUNT, ARCHITECT

MYRON HUNT AND H. C. CHAMBERS

Frontispiece
The Architect and Engineer
April, 1924
On the Importance of Ordinary Houses

By IRVING F. MORROW

AN OUTSIDER basing judgment on the usual exhibitions of professional and student work could not be blamed for concluding that architecture is confined to the useless, the impractical, and the expensive. Here, among war memorials, cathedrals, national capitol, museums, ambassadorial palaces, slight room is found for any intimation that the art should or can have any direct and important relation to people. City planning, much in the public eye, suffers from the same grandiose aloofness. It is commonly presented as a matter of vistaed and colonnaded civic centers, lawns on which nobody dares trespass and buildings at which nobody looks but tourists. The professional journals do somewhat better. They publish frequent houses and annual house numbers. Yet here too, size and richness are apt to be stressed with an insistence which leads the layman to assume that architecture doesn't come under fifty thousand dollars.

And the architect continues to deplore public apathy toward his art.

But why, in fact, should people show interest in things which are without bearing on their lives? Those brought up on domestic jazz, comic supplements and Snappy Stories have naturally no interest in music, painting, and literature. Where constant association has made builders' bungalows seem normal, there can be no appreciation of architecture. Tastes and interests derive from frequent contacts, and no influence is more pervasive than that of the home. The architectural surroundings (including furnishings) of the majority of people are as unfit for human consumption as are their music, pictures, and reading matter.

Eugenists repeat like a slogan that it is every person's right to be well born. Architects must acquire an equal conviction of every person's right to be well housed. And by well housed I do not mean elaborately housed. Nor do I refer to perfection of purely physical aspects like adequate light, ventilation, plumbing, and the rest. Despite an unwarranted prevalence of slum conditions—any amount is unwarranted—it is probably safe to say that the majority of people are housed with
passable sanitation and convenience. As for elaborateness, I believe that one of the most prevalent fallacies of current moderate sized housing is a tendency to wasteful over-complication. Houses contain too many parts. People who live in the simplest manner, and entertain most infrequently and informally, or not at all, demand in their homes an imitation of the differentiation proper to formal and expensive modes of life. Each separate function, no matter how casual, is conceived in terms of a separate apartment, so that floor area is wasted in unnecessary rooms and unnecessarily independent circulation. Why, for instance, should ordinary people be inconvenienced by passing through the dining-room from the kitchen to the front door? Or why, for that matter, should ordinary people require a separate room for the purpose of eating? The persistence of such traditions is doubtless due in part to deficient imagination—a failure to project the conditions of actual living into the plans and to realize where duplication of use would be entirely legitimate under the circumstances. And inertia is not insuperable, after all. More serious is the fact that self-esteem is involved. Since most of us order our whole lives for the neighbors, I suppose there is slight hope of inducing people with an income of two or three thousand dollars a year to accept houses which do not aspire to imply fifty or over.

When I say, then, that it is every person's right to be well housed, I am not speaking sociologically. Not that this aspect is undeserving of attention. Indeed, it is one which the architect must consider even more fully than at present if he is to justify his fondly assumed title of recorder of his civilization. But I am looking now more particularly from the angle of an artist and humanist. From this point of view neither social status nor creature comfort is important. A person is not well housed until his surroundings—building and furnishings—are reasonably human in character and appropriate to his real manner of life. Such an ideal must be consummated in the case of an effective majority of the population before there can be real hope of a public appreciation of architecture.
It sounds easy. But figure what it means. Architects—not the novices and the second-raters, but our best architectural minds—must transfer their predominant interest from grandiose detachment to the humble service of ordinary people. For in the last analysis they are dependent upon ordinary people. There are not enough national capitols and war memorials to go around. And even if there were, the difficulty would not be solved, for people are peculiarly resentful of anything which transcends their limitations. The man at the drawing-board may be able and inspired, but the man in the street has an effective veto on architectural expression. If he has small taste and no ideas he will be puzzled or enraged, according as he is what the psychologists call introvert or extravert, by architecture which displays ideas and taste. And of things which puzzle or enrage him he will have none. This applies not only to his own house, be it noted, but to other buildings erected in his own name. He makes his desires (limitations) only less effective in the public buildings—city halls, schools, memorials, etc.,—for which he helps pay, and the semi-public ones—banks, theatres, hotels, etc.,—which rely upon his patronage. Of all artists the architect is peculiarly at the mercy of other people. Painters may paint and store their pictures in the garret, and musicians and writers may fill all the desk drawers with manuscripts, but few architects could buy land and build buildings nobody wants. Drawings are poor substitutes; for an architect with a genuine builder’s instinct the real interest comes when the structure begins to assume concrete form. The architect gets a chance to build only what somebody will take, As long as the public does not want good architecture, his is a losing game.

So it all comes back to this: if the architect is to be permitted to express himself like a self-respecting artist, he must have a receptive public; and the most effective place to attempt the attrition of the public’s prejudice, ignorance, and indifference, is in its home. To do this, able and high-spirited men must be prepared to labor without recognition and to suffer indignity with humility. They must lavish affection where
it will go unobserved. They must submit to instruction in design from people who don't know much about art, etc., etc. They must ignore misunderstanding. They must use devious diplomacy to circumvent the petty whims of ignoramuses. In the face of these and other provocations they must calmly pursue the disinterested cause of art. It would almost seem as if the only man temperamentally qualified for the job died some nineteen hundred years ago.

In this matter of building houses the architect's business is not

confined to decorative details. It goes down to fundamentals. It goes deeper than purely architectural fundamentals; it goes to the fundamentals of living. The architect must teach people how to live. Of what use is it to design rational houses if people don't know how to use them? Most people exact and enjoy stupid or meretricious houses because they live stupidly or meretriciously. An architect cannot design a vital dwelling without a vivid conception of the manner of life to go on within it. A house is not a vessel to be filled arbitrarily with any life that happens along, as a kitchen utensil may be used as a promis-
cuous container. Its fundamental arrangement presumes, indeed is the outcome of, a consistently imagined use, which is to say, scheme of life. A gusto for life as an adventure will tolerate no less than an adventurous imaginative flight for a dwelling. I repeat that I am not speaking of embellishments, but of the core. The working out may be as austere as California Mission or as florid as Louis Quelconque; if the vivifying yeast of a flair for life as an adventure does not animate the essentials, it is no proper place for human dwelling. The architect must conceive himself—and contrive to be recognized—not as a mere draftsman for ignoramuses and dilettanti, but as an orderer of essential things, a creator. If such a state of affairs can be consummated there will be no further complaint that people are apathetic toward good architecture—they will demand it. To bring it about will require a long and hisheartening education in which the architect must welcome his share of the toil and the disillusionment. It means ardent application to fields from which the "big" architects tend to turn in contempt—workers' bungalows and moderate sized houses. Here is the strategic point for attack
on indifference to architecture (and art) in general. And after all, it requires more ingenuity to do something vital with a five thousand dollar house than with a fifty thousand dollar one.

Meanwhile the real estate spec—I mean the realtor—is assiduously at work. His rows of successful bungalows, flats, and apartments are from the human point of view appalling. There is little in current experience calculated to engender so mean a view of human intelligence as the real estate ventures which are successful. I say this with no air of superiority, but with all humility, and even contrition, for I have consented to do them. And indeed how could it be otherwise? Being calculated for anybody's occupancy, they are proper for nobody's. Even that is an understatement. They are not built to live in at all, but to make profit out of. And any effective utility they may possess is confined to this major purpose.

Students of abnormal psychology may be interested in puzzling out why these buildings thrive. I suppose their chief claim on the public is the one quality which must hopelessly discredit them with the sensitive and the cultivated: namely, their frantic striving for effect. They claw the air in their indecent eagerness. But, since the average man's life is a striving for effect, his architecture may at least be credited with the merit of expressing him. One thing is certain. These blatant trivialities are the chief obstacle to the development of a rational and healthy public taste in building. People who can tolerate them are verily already in a parlous state; those who enjoy them must be mourned as among the aesthetically and intellectually damned.

But they also present another problem worthy of psychological investigation, entirely beyond the popularity of their hopeless aesthetic ineptitude. Why should there be so many people buying houses made
simply to sell, that some people devote their entire activity merely to building houses to be sold? It is anybody's privilege to build his own house just as he wants it (provided he knows how he wants it). No man can believe that any builder's house has been designed specifically to satisfy his personal tastes and requirements. No man not gifted with a most fatuous mentality can believe that it is as well built as he would himself construct it. And no man not similarly endowed can believe that the real estate operator has arranged prices with any uncertainty as to his own profit. Only the lapses in construction remain covered (at least until after the sale) and the profit is not itemized in the bill. The only advantages the speculator has over the average man are, (1) his experience in building; (2) the slight edge on material and construction costs due to mass production; (3) the absence of a proper architect's fee; (4) his freedom from conscientious scruples. It is highly ques-

![Photo of Mr. H. W. Buckingham's house](image)

**HOUSE OF MR. H. W. BUCKINGHAM, PASADENA**

J. H. Woodworth & Sons, Architects

...tionable if the additional cost to the average man conducting his own building operations, due to his disadvantage on all these four items combined, could more than exceed the sum added on by an enterprising speculator as his own profit. In other words, for the trouble of undertaking and attending to the work, a man might have his house designed as he wants it and better built. Why should he continue to pay profits to the speculator? I have not, of course, yet told the complete story. There remains a fifth advantage possessed by the speculator; an abundance of easy and cheap credit. And this financial advantage is perhaps his crucial one. If the average man were able to get the money, the builder's occupation might be gone. Perhaps, if we go back far enough, the approach to a healthy public attitude toward architecture (and life) may be found to be along an economic road.

*Photographs of Mr. George Washington Smith's work by S. Walter Collinge.*
SECOND FLOOR PLAN

FIRST FLOOR PLAN, HOUSE OF MR. IRVING WRIGHT

George Washington Smith, Architect

(See pages 62-63-64)
SECOND FLOOR PLAN

FIRST FLOOR PLAN, HOUSE AT SAN DIEGO
W. H. Wheeler, Architect
HOUSE OF MR. CHARLES BOLDT, BEVERLY HILLS
ELMER GREY,
ARCHITECT
HOUSE OF DR. A. L. MACLEISH, LOS ANGELES
JOHNSON, KAUFMANN & COATE. ARCHITECTS
HOUSE OF MR. A. K. MACOMBER, PEBBLE BEACH
LEWIS P. HOBART, ARCHITECT
SECOND FLOOR PLAN

UPPER PART OF LIVING ROOM

FIRST FLOOR PLAN, HOUSE OF MR. P. T. BURTIS

Dean & Dean, Architects

(See pages 72-73)
SECOND FLOOR PLAN

FIRST FLOOR PLAN, HOUSE AT CORRALITOS
Fowler Mallett, Designer

(See pages 76-77)
HOUSE OF DR. W. HUMES ROBERTS, PASADENA, CALIFORNIA
MYRON HUNT, ARCHITECT  MYRON HUNT & H. C. CHAMBERS
PLANS, HOUSE OF MR. E. ALLEN TEST, PEBBLE BEACH
Miller & Warnecke, Architects

(See page 83)

PLAN OF BUNGALOW IN BURLINGAME, CALIFORNIA
H. C. Bauman, Architect

(See page 87)
SECOND FLOOR PLAN

FIRST FLOOR PLAN, HOUSE OF MR. JOHN BRICKELL, SAN FRANCISCO
Earle B. Berts, Architect

(See page 88)
HOUSE OF MR. H. A. C. McPHAIL, LOS ANGELES
RUOFF AND MUNSON, ARCHITECTS
HOUSE OF MR. JOHN BRICKELL, SAN FRANCISCO
EARLE B. HERTZ, ARCHITECT
HOUSE OF MR. HAMILTON WEEKS, PIEDMONT
W. H. Weeks, Architect

(See Plan, Page 92)
HOUSE IN BERKELEY, CALIFORNIA
W. H. Ratcliff, Jr., Architect

(See Plan, Page 93)

HOUSE OF MR. A. L. HART, SAN JOSE, CALIFORNIA
Binder & Curtis, Architects
FIRST FLOOR PLAN, HOUSE OF MR. W. H. WEEKS, PIEDMONT
W. H. Weeks, Architect

(See page 90)
(See Plan, Page 93)

COURT, HOUSE OF COLONEL JOHN HUDSON POOLE, PEBBLE BEACH
LEWIS P. HOBART, ARCHITECT
HOUSE OF MRS. ALMA WAGNER, LOS ANGELES
ARTHUR S. HEINEMAN, ARCHITECT
HOUSE OF MR. N. T. BRACKEN, OAKLAND, CALIFORNIA
C. W. McALL AND C. T. DAVIS, ASSOCIATE ARCHITECTS
HOUSE OF MR. BERNARD SILVERSTEIN, OAKLAND
MORROW AND GARREN, ARCHITECTS
HOUSE OF MR. W.M. A. POWELL, BERKELEY
MORROW AND GARREN, ARCHITECTS
HOUSE OF MR. CHARLES LUX LEWIS, SAN FRANCISCO
JOHN K. BRANNER, ARCHITECT
HOUSE OF CAPTAIN EDWARD McCauley, JR., HILLSBOROUGH
JOHN K. BRANNER, ARCHITECT
Roof Tile for Residences*
By CLIFFORD C. PYLE

The selection of a roofing material for the home is a problem that has confronted mankind since the very beginning of civilization. We do not need a great deal of imagination to picture in our minds these ancient roofs.

We know that man first lived in homes cut or dug in the earth, with a natural dirt roof, and later, as he became more intelligent, he timbered the walls and the roof of his home or dug-out with a kind of revetment made of poles interwoven with smaller sticks and grass. This revetment was quite wonderful and it really did keep the large pieces of dirt that often came down from falling on his head. But it did not keep the water out during the rainy season. Frequently the whole roof of his house caved in and this taught him to build more substantially.

We even find him hewing homes in solid rocks. These homes and roofs were, of course, by far superior to the dirt roofed dug-outs. But even these rock roofed houses did not keep out the water; there were always cracks and fissures through which it poured.

He next tried building on the surface of the earth, using for the walls sticks, grass and leaves plastered over with mud. The roofs of these houses were built by laying across the walls long poles on which were fitted bunches of grass. This also was plastered heavily with mud. The flat mud roof did not shed water and someone conceived the idea of tilting the roof so that the water ran off instead of running through.

In time it was discovered that certain muds dried very hard in the sun, and if worked into definite shapes were easy to use for building. Crude chunks were modeled and fashioned for the walls, and later the

---

*Illustrations accompanying this article are of houses roofed with terra cotta tile.
more artistic races went further and shaped thin pieces of this mud for the roof. It was probably several centuries later that these same races discovered, quite by accident, that when these pieces were placed in a hot fire for some time they became as hard as stone. Throughout the entire old world fragments of these early modeled and shaped bits of clay have been found. An astonishing thing is that the oldest known type of these modeled fragments is the most common shape of terra cotta roof tile used on our modern buildings today.

We have pieces of these old tile three and four thousand years old; some from Asia Minor and some even older than these from China. The Chinese are considered by some to be the originators of roof tile and other terra cotta art objects, and it is highly probable that they really were.

However, to the Chinese and the Greeks, especially to the latter,

![Image](image_url)

**HOUSE OF MR. GEORGE COOK, PEBBLE BEACH, CALIFORNIA**

Pierpont and Walter S. Davis, Architects

is due the credit of bringing this wonderful art to a plane never before attained by any of the older and less civilized races. Enough of these tile have been found in different parts of Europe to show that they were in the early centuries used on all types of buildings, indicating the adaptability of roof tile to all styles of architecture. Some of the terra cotta roofs of Europe are intact today after centuries of exposure to the most severe climatic conditions. Even the oldest of these roofs are beautiful, and it is partly because in those days the roof was planned with and as part of the house and surrounding grounds, it should be so planned today. The roof is the last thing that goes on the house—the finishing touch to a beautiful picture, the artistic accent. It should be a bright but harmonious spot made up of a variety of pleasing, blended tones, and by all means not a painted, uniform, hard, ugly surface. Usually the beautiful terra cotta tile roofs will be found on houses with walls of light or neutral tones of color. The walls of a house upon which roof tile will be placed should be or suggest the com-
plimentary color of the glowing rose colored roof. Where the house is surrounded by large and spacious grounds, covered with green trees and grass, nature has supplied this complimentary or cooler color and the roof will look more brilliant and more beautiful than it would without the large expanse of green.

If the building is to be of brick, great care should be taken in the selection of the color; light and neutral tones should be chosen. Natural clay offers a very wide range of color, and there could be no possible excuse for placing a bright red roof on a common red brick building. The color of the tile would become lifeless and the real effect of the roof lost.

Cement is often used for walls, the natural color harmonizing well with the beautiful rose toned terra cotta roof-tile. If stucco or similar material is used, light greenish greys and creams will be the most satis-

factory tones. The better values can be obtained by adding a very small amount of green to the light greys, just enough to cool the color. Some of the most successful tile roofs will be found on these cooler toned stucco houses.

The better grades of roof tile are burned at a very high temperature in an open kiln and they are known as natural kiln-run tile. There is a wide though harmonious variation in color due to the fact that the modern kilns are equipped with air pressure or gas burners, and the flames hit some of the tile, very nearly hit others, and some they do not touch. They are more beautiful in color than the old world tile, harder burned, not so porous and naturally more durable. The only thing in which the old world tile seemed to surpass the new machine-made tile was in a feeling of hand-madeness, a feeling that it seemed only human hands could impart to tile. But now we are glad to know that this human touch has been attained by the better terra cotta roof tile manufacturer.
HOUSE OF MALCOLM Menaughten, La Canada, California
Reginald D. Johnson, Architect

Gate Lodge, Ben R. Meyer Estate, Beverly Hills
Johnson, Kaufmann & Coate, Architects
The Price of Brickwork

It costs today in California approximately 3c. to lay a brick in a wall

By GEORGE S. SUMMERELL, Secretary
California Common Brick Manufacturers Association

There is perhaps no subject in the building industry about which there has in the past been more misinformation and less exactness than in the matter of the cost of brickwork. The need for more definite information regarding the cost of brick, as compared with other types of construction, has been more keenly felt since the war with the greatly increased demand for brick construction.

One of the prime factors that lead to the organization last year of the California Common Brick Manufacturers Association was the desire on the part of the brick industry to provide a clearing house through which the varying costs of brickwork in the different parts of the state could be studied. The brick manufacturers sought to make available to the building industry, accurate, helpful, comparative information regarding this ancient building material.

The building trades and professions will be vitally interested in the results of a statewide survey of the cost of brickwork that is still being made by this organization. The progress of this investigation has already disclosed some very significant facts regarding the cost of laying brick in the wall.

There are today in California something less than thirty manufacturers of common brick. The cost of common run-of-kiln brick ranges from $14 to $18 and upward. The figure of $15.50 has been found to fairly represent the average cost throughout the state for a thousand common brick.

The item of labor in the cost of brickwork is the one about which there has been least definiteness. During the readjustment period immediately following the war, the bricklayer was sometimes facetiously pictured as donning his silk shirt at nine in the morning, riding to the job in his Rolls Royce and laying a hundred or two of brick before going down to dress for dinner. This same comic-paper exaggeration was similarly applied to all skilled labor, just as it was to our swivel-chair officers, our ship-yard workers, our dollar-a-year men and our profiteers. It was probably no truer of the bricklayer than of any of the rest.

Today in California the bricklayer is averaging about $10 a day. He is laying considerably better than a thousand brick in eight hours. In San Francisco the bricklayer receives $11 a day; in Los Angeles, $10; in other parts of the state, less. One man will lay 900 brick a day on an 8-inch curtain wall where reinforcing rods are used. On a 13-inch wall where there are no reinforcing rods to contend with, one man will lay 1500 brick per day. These figures are being duplicated and exceeded every day on scores of jobs throughout the state.

To the cost of brick and labor must be added a charge for mortar. One yard of mortar is required for 1200 brick, two sacks of cement being required for every thousand laid up. The cost of mortar in laying a thousand brick may fairly be figured at $3.75.

Reducing the foregoing figures to a cost per thousand basis, we have brick at $15.50, labor at $15.49 and mortar at $3.75, making a total of $34.74 for a thousand brick in the wall—less than 3½ cents apiece. These figures represent the highest cost among the scores of jobs that came under observation in this survey. In approximately half of the cases the average cost per brick in the wall was 3 cents. In many cases, even in Los Angeles, the cost runs as low as 2.8 cents per laid brick.
The figures presented are from official sources and are of unquestioned accuracy. No effort was spared to arrive at conclusions which would represent the true situation. The figures given above are from Los Angeles and San Francisco, where costs are appreciably higher than elsewhere in the state.

In San Francisco, figures obtained by the survey show that brickwork there is costing $30 a thousand or only 3 cents a brick in the wall. This amount includes brick, mortar, labor and scaffolding. In San Francisco the cost per cubic foot of brickwork is still more favorable because the brick used is slightly larger in size than that obtainable elsewhere. In using San Francisco brick, the mason figures 6 bricks for each square foot of 4-inch wall, 12 bricks for each square foot of 8-inch wall, 18 per square foot of 13-inch wall and 24 per square foot of 17-inch wall.

To represent the true situation in the Los Angeles region, a typical case may be cited. The H. M. Baruch Construction Company of that city recently completed the erection of the De Luxe Laundry building at Slauson avenue, near Hoover street. On this work 271,000 common brick were used at a total cost in the wall of $3,643.00, less than 3½ cents per laid brick.

Every day in Los Angeles contracts are being let for brickwork at $28 a thousand. Some contractors report that they have frequently during recent months lost important jobs because their $28 estimates were underbid. Construction at these prices is, of course, largely on warehouses and garage buildings presenting large unbroken walls with few openings.

From the beginning of time builders have agreed on the virtues of brick, its beauty, its permanence, its flexibility and its many indispensable advantages in sound construction. In California it is coming to be regarded as uniquely suited to the conditions of life and climate. The public, as well as the building professions, are learning that brick in the wall at three cents apiece costs no more than other building materials, less desirable and less enduring.

* * * *

Putting the Geysers to Work

A works in Iceland linked up its factory with water pipes direct from the hot springs, and after using the hot water in the color processes and for heating the factory and the workmen's homes, conducted it through underground pipes laid in fields, which as a result yielded three times as much produce as neighboring fields not so equipped. Although from time immemorial the Icelanders have been familiar with geysers, only recently have their industrial uses been seriously considered. A project now is on foot to supply Reykjavik with hot water for heating, bathing and washing purposes from one of the neighboring hot springs.

* * * *

A British View of High Buildings

A member of the London County Council has recorded the opinion that "skyscrapers will be cursed by generations to come."

The Philadelphia "Public Ledger" says—"The Briton overlooks the fact that civilization is looking and climbing upward. Traffic will be lifted above the street level. For all who are denied light and air by the erection of new high buildings there are many who are given a range of vision and a supply of ozone they never knew before. The earliest denunciation of tall buildings sounds prehistoric now. The width of streets has as much to do with the problem as the height of buildings."

108 THE ARCHITECT AND ENGINEER
Gardens, Hidden and Revealed
By EMERSON KNIGHT, Landscape Architect

MEN or women with breadth of vision, keenness of imagination and refinement of feeling,—those indeed who have ideals and daring dreams which they are steadily moulding into realities, cherish gardens in their thought.

I firmly believe that almost everyone has some garden plot in his mind even though it may be diminutive or greatly in need of weeding, nourishment and the refreshment or rejuvenation that stimulates clean new growth. The contemplation of beauty in Nature and the elements, the subtler, finer phases of human contact, the doing of kind deeds, an appreciation of the creative arts, the fascination for worthy books that inspire—such as the biographies of souls born to heroic solitude or poetry of the loftier vein,—these will all tend to promote the gardens in our minds.

My conviction is that if we realize gardens of delight within, we cannot help sharing their beauty and gladness with our fellow men. We would invite congenial spirits into our gardens of fancy, where grace is lent by sun and shadow on retired nooks, the play of fountains or the placidity of pools. It is natural for man to give freely of his best. Thus, if we emanate the fragrance, color and sweetness of our inner gardens, we shall find ourselves capable of creating more visible modes of growth, because all that we touch with our hands and hearts will reflect our impulse.

The architect builds the garden of his conception in forms and textures of stone and wood, of brick and tile, of wrought iron and bronze; and when his workmanship, expressing nobility of scale, is married to
LITTLE BROOK FARM, ESTATE OF MAX M. COHN, LOS GATOS
EMERSON KNIGHT, LANDSCAPE ARCHITECT
Norman La Plant, Sculptor.

LITTLE BROOK FARM, ESTATE OF MAX M. COHN, LOS GATOS
EMERSON KNIGHT, LANDSCAPE ARCHITECT
CANADA VISTA, ESTATE OF MRS. MERLE B. MOON, SARATOGA
Emerson Knight, Landscape Architect
true taste in the Hellenic virtues of breadth, centrality, with blitheness and repose,—the result will revive our esthetic natures in quiet pleasure.

The sculptor unfolds the character of a tree in masculine form or the blossoming innocence of a rare budding flower in a girl or woman—such is the magic of his feeling hand. The painter, through his reverence for nature, recreates the color pageant of hillsides, the wistful charm of lakes, the depths of cool forests, the vast glow of the desert, the symphony of the sea or the lone watches of sentinel trees on bleak and rugged coasts. He fashions with his hands, the garden of his thoughts.

The composer of music reveals warm tone pictures, charged with soul stirring elements while his close brother, the musician, interprets and renders his works in rebirth, sometimes with an added light, a newer meaning. The singer, in union with both, vibrates with human feeling through chanting hymns of worship, liberating folk songs or singing the classics.

Dancing has a charm as compelling as it is illusive. In its pure Attic examples it often discloses the recurrence of flower and tree forms, rare combinations of rhythmic movement, colorfulness, light and shade—that may express the natural abandon and rich imagination which are blended in this living art. The drama reproduces the heroic moments or those salted by the saving sense of humor in lives great or humble that have been or might be. We are edified both in tragedy and comedy because of the fecundity and sincerity of the author or the keen histri-onic ability of the actor who creates a great role.

The poet, with thought woven into an exquisite fabric of words, words that are mediums of perfume and color on the printed page, unveils for us delicate traceries of harmony, vistas of pure beauty, deep emotional moods, and proves the glory of his own soul's garden.

The landscape architect is aware of a close kinship with all of his brothers in art for whom he has sympathy and devotion. He feels that instinctively he has made the qualities of these brothers a veritable part of his own being. He sings for them and works hand in hand with them. With living plant forms, rich in color, texture and fragrance he creates pictures. As time passes, these should increase in loveliness, in significance of order and balance, in harmony of color, and unity of composition. So, in designing gardens the landscape architect hopes to transplant the dreams of his mind to the earth's surface, wheresoever men have homes, recreation or civic aspirations. When we gain an understanding of his aims, we may realize the nobility of a profession that should mean as much for the happiness and well being of the people, as any creative art.

* * * *

Fireplaces in the Home

No home should be built without a fireplace if it be possible to place one therein. An open blazing fire is a comfort and a pleasant thing to look upon; but the greatest benefit that it bestows is that of ventilation.

A house without a fireplace has but little chance for ventilation, as the general tendency of the occupants is to keep the windows closed; speaking of winter conditions, as it stands to reason, the ordinary house is sufficiently open and ventilated in the summer time. In the winter much illness results from our houses being closed up too much of the time.

In the Colonial days of our history nearly every room in the house was equipped with a fireplace; in fact, the fireplace was the only means of heating in those days. As a result every room in the house was well ventilated.—Washington State Architect.
A Plea for Fireproof Homes

By HOWARD FROST

THE necessity of building our homes of fire resisting materials becomes more apparent every day as we read in the newspapers of the ravages of the fire demon. The average annual loss for the last forty-eight years is one hundred and seventy-one million dollars! This in itself is enormous, but more appalling is the fact that the annual loss is steadily increasing, the loss for 1922 being one hundred and ninety-six million dollars above the average. In 1918 the loss by fire was equal to the value of all homes built during that year. There is no doubt but that a large proportion of this enormous waste could have been eliminated had the owners, whose buildings were laid low by the ravages of fire, stopped to consider the all around value of fire proof, permanent building material.

According to expert authorities, there is no longer any need of building homes of flimsy construction. The cost of fireproof materials is now so low that the average home builder can afford to build for permanence. Hollow building tile, for example, has proved its fire resisting qualities time and again. When it became known that steel beams could not withstand the heat generated at an ordinary fire, hollow tile was called upon to act in this capacity. That it stood the test was shown in hundreds of large conflagrations, where the floors and walls were totally demolished, but the tile protected steel was untouched. Its fire resisting property paved the way to a larger usage. Here was a material that effectively protected steel beams; why could it not be used to protect the entire building? And so the hollow building tile, based on an unquestionable reputation, began to be utilized in the construction of partitions, floors, walls and foundations. Today it is universally used in the construction of homes, schools, factories, warehouses, hospitals, office, club buildings, in which it successfully fulfills every requirement of a permanent material at minimum cost and depreciation.

We have been asked why it is that hollow tile can withstand a higher temperature than any other building material. It is simply the quality of clay, burned in the making at a temperature exceeding any it is ever subjected to in an ordinary fire. The use of burned clay is not new as it was used in ancient times by various tribes who made crude bricks from clay and burned them in the sun, but it remained for modern times to perfect a way of burning the clay at so high a temperature that the action of an ordinary fire could not affect it. At the temperature developed in a burning building, steel will twist and bend, surface clay bricks will crumble, glass will melt and concrete disintegrate, but hollow tile, having gone through a higher temperature in the making, can easily withstand the heat.

Insurance statistics show that the origin of over seventy-five per cent of residential fires start in the basement. Where the first floor is constructed of combustible material it is difficult to confine the fire, which soon eats its way into the room above causing a material damage. By using hollow tile in the floor construction, the basement fire is easily confined to its point of origin and the minimum of loss is sustained.

The fire proofing quality is not the only outstanding feature of hollow building tile. The voids in the tile when constructed into a wall, floor or partition, enable several layers of dead air to separate the interior of the wall from the outside. It is a known fact that dead air is the best insulator to the transmission of heat and cold, so that the wall of hollow tile will keep the home cooler in summer and warmer in winter.
and dry at all times. Tests have determined that a hollow tile home maintained an interior temperature averaging 12 degrees below the outside readings during the two hottest months of the year, while the winter following showed a 10 per cent saving in coal.

Hollow tile walls can be stuccoed or veneered with brick. Stucco applied to hollow tile will not pull, chip or crack, as the small absorption of the tile draws in the cement mixture and aided by the deep scoring, results in a perfect bond. In addition, hollow tile walls do not sag, shrink or bulge. The home built of this material, at a cost of but 5 per cent above frame construction, will stand forever, free from the expense of painting and repairing, cooler in summer and warmer in winter, dry and sanitary, vermin proof and fireproof.

* * *

Homes

THERE are in these United States two distinct ideals of home. Developing in New England and in the old South, these ideals have been carried across the continent, mingling as they married and adapting themselves to conditions met with in pioneer life.

Here in California where all ideals meet and wage war and expand or go down to oblivion, we have a fine view of the conflict and opportunity to see the evolution which comes from a survival of the fittest to survive.

To the New Englander home is a place to which one retires to gain rest and strength for daily duties; to the Southerner, home is the place to which one brings all that is best in one's world.

From his home, as his citadel, the New Englander has gone forth, and still goes to conquer the wilderness or the world for himself and for humanity.

In California we have no traditions—excepting those we brought with us or our immediate forebears did. And yet the making of homes is at present our main business. From the New Englander we learn to organize the community in which we live, that our homes may be surrounded with quiet and peace and the state preserved.

From our glimpses of the old Southern home which we catch here and there in a great movie pageant or in our art studies, we gain a vision of a focus for all our desires to make others happy and to share our native hospitality with our little world of friends.

These two ideals working within our efforts to make homes, determine the arrangement and size of the rooms—the placing of the furniture, the hours of work and play. Combined in the hearts of Californians the inherited instincts for home are drawn from north, south and the trying pioneer life of the west and are evolving a generous and efficient home life in California.—California Southland.

* * *

Better Homes Campaign in May

THE third national campaign for Better Homes in America will be conducted this year from May 11 to 18. Secretary of Commerce, Herbert Hoover, is president of the central organization.

The aims of the campaign for Better Homes in America are to show the advantages of thrift for home ownership, to overcome the shortage of homes in this country, estimated at 800,000; to strengthen home life and make it attractive, to encourage homemakers, to improve the home environment, to stimulate sensible purchasing for home improvement, and to mobilize community pride for a common object—pride of home.
NO greater contribution could be made to assure the stability of the Nation, and the advancement of its ideals, than to make it a Nation of home-owning families. All the instrumentalities, which have been devised to contribute toward this end, are deserving of encouragement.

—Calvin Coolidge.

GOOD WORK IN HOME DESIGNING

It is a fine compliment to California architects when we say that in the twenty years of continuous publication, this magazine has never had so much good material from which to make a selection for its Annual House Number. It has been no easy task to choose from so many excellent pictures the necessarily limited number for publication in the current issue. Enough material has been held over to make another House Number equally as interesting as this one, and these pictures will be shown later on in the year. Several of the regular departments have been omitted or reduced in size this month to permit of a more liberal showing of houses. Architects seeking new ideas in home design will find in this month's presentation material that is somewhat better than the average.

GARAGES FOR OFFICE BUILDINGS

That the time is at hand when architects who plan large office buildings and department stores must provide automobile parking accommodations for tenants and shoppers, no one will question if he will take a look around him in the down-town sections of our big cities. Traffic congestion has become so acute that every day, it would seem, the parking sections are placed further and further away from the business centers. Business men must walk blocks from their parked machines to their offices and shoppers have the same difficulty reaching the department stores. There is already talk of several large public garages in the down-town sections of San Francisco and Los Angeles to take care of business men's machines, but to place these buildings where they will be a real accommodation means the utilization of valuable land that is now occupied by office buildings bringing in a good income. It is questionable if owners will be able to derive sufficient revenue from parking fees to make a proposition of this kind pay.

A plan that seems most feasible and which architects have already commenced to adopt, is to provide parking space in the basements of the big office buildings, this to be used exclusively by the tenants whose rent is proportioned to take care of the expense of maintaining the garage. Speaking of this new method for relieving the situation, Mr. A. A. Brown, construction engineer of the Matson building on lower Market street, San Francisco, says:
"The Matson is the first large building in San Francisco to provide space in the basement for the parking of tenants' automobiles. The difficulty of finding parking space has made this feature a very attractive one to the tenants, who can now drive into the basement, park their cars and take the elevators from the basement to the floors upon which their offices are located. A room with telephone connection adjoins the garage and is fitted out as lounging quarters for chauffeurs. There is space in the basement to park forty automobiles."

**HOTEL GUEST ROOMS POORLY LIGHTED**

At last some one has come forward with a vigorous criticism of lighting fixtures and their placement in hotel guest rooms. Joseph Cummings Chase, in an article on "Arranging Bed Room Furniture," in Hotel Management, does not mince his words when he proclaims the lighting equipment of the average small hotel guest room "an abomination and a crime." Mr. Chase goes on to say, and with considerable truth, too:

"Consisting as it usually does, of a single electric light bulb suspended from the center of the ceiling, it is fit for only one purpose—to furnish illumination for a poker game in which all the players sit around a table in the center of the room and wear their hats well down over their eyes!"

It should be realized that no room with a single light can appear home-like. If a center light from the ceiling must be used, it should be properly shaded, and there should be additional wall or floor plugs for connecting a table lamp or a high standing floor lamp. The improvement in the appearance of a room by the addition of these extra lights can be appreciated by those who have had experience trying to be comfortable in some of our hotel guest rooms. The expense of having extra plugs installed when building or renovating is really trivial, if one considers the greatly increased attractiveness of the room and the guest's comfort, and this fact should be kept in mind by architects who have occasion to supervise these improvements. The plugs should, if possible, provide for a lamp at either side of the bureau, one at the desk or writing table, and one at the head of the bed. The closet or wardrobe should likewise be illuminated.

**COST OF BRICKWORK IN CALIFORNIA**

On another page of this issue appears an article which the editor is glad to have an opportunity to publish. It shows that the average cost of brickwork in California is approximately 3 cents each for every brick placed in the wall, instead of 5 cents per brick, as was erroneously reported in a previous issue of this magazine. This information, and the discussion accompanying it, coming from authoritative sources, will be received with wide interest by the building industry and trades.

**"THERE IS NO PROGRESS IN BUILDING"**

At a dinner given last month by the New York Chapter of the American Institute of Architects at which members from Central New York, Connecticut, Philadelphia and New Jersey and a number of bankers, real estate and insurance men were the guests, Dr. Charles V. Paterno, in an interesting talk on "Speculative Building," declared that "there is no progress in building." Dr. Paterno, well-known as the builder of twelve-story apartment structures on Riverside Drive, went on to say that we laid bricks just as was done 500 years ago and that we plaster and paint in the same old fashions. He looked forward to the time when plastering and bricklaying will be done by machinery.

The experience and high standing of the speaker place his re-

(Concluded on page 122)
With the Architects
Building Reports and Personal Mention of Interest to the Profession

Passing of Theodore A. Eisen
Architect Theodore A. Eisen, dean of the profession in California, died March 8th at his home at Twenty-seventh and Figueroa streets, Los Angeles, of heart disease, aged 72 years. Mr. Eisen was one of the original members of Southern California Chapter, American Institute of Architects, of which he was past president.

Mr. Eisen was born in Cincinnati, Ohio, and in 1854 his parents came to California via the Isthmus of Panama and settled at San Francisco. His early architectural experience was in that city. He went to Los Angeles in 1885 to aid in designing the Los Angeles county court house and the Los Angeles orphan asylum in Boyle Heights. At that time he was associated with the late Wm. Curlett in the practice of architecture. For a number of years he practiced independently, and later his son, Percy A. Eisen, now a member of the firm of Walker & Eisen, was associated in the business.

Moves to Eugene, Oregon
Architect T. N. Gerow, formerly of Mann and Gerow of Hutchinson, Kansas, and a member of the Kansas Chapter, A. I. A., has moved to Eugene, Oregon, where he has opened an office for the practice of architecture in Room 221, Castle Theater building. Mr. Gerow has been a subscriber to The Architect and Engineer for a number of years. He would be pleased to receive catalogues and other literature from the building trades.

Enters Business for Himself
Mr. Joseph J. Rankin, formerly associated with Architect W. C. Hayes, First National Bank building, San Francisco, has opened an office for the practice of his profession in the Mechanics Institute building, 57 Post street, and is busy on plans for a large country house at Lake Tahoe for Mr. Walter S. Holler and for a house in St. Francis Wood, San Francisco, for Mr. H. S. Haines. Both houses will represent a total expenditure of $35,000.

Engineers’ License Law
California should have an Engineers’ license law. It is not too early to start the campaign.

Death of Edward G. Garden
News was received in San Francisco the latter part of March announcing the sudden death in Cleveland, Ohio, of Architect Edward G. Garden, Mr. Garden was at one time a member of the firm of Moran, Russell & Garden of St. Louis. Soon after the San Francisco fire, Mr. Garden moved to San Francisco and entered into architectural practice. During the war he was head of the drafting department of the Standard Oil Company in Richmond. After the war he again entered private practice and about two years ago Mr. Garden moved with his family to Cleveland, where he was engaged in architectural practice until his death.

Courses in Architecture
Of special interest are the courses in architecture that will be given this year at the summer session of the Carnegie Institute of Technology, in Pittsburgh. According to an announcement, the Department of Architecture in the College of Fine Arts, will give intensive six weeks’ courses from June 16 to July 26 in Design, Outdoor Sketching, Descriptive Geometry, Shades and Shadows, and Perspective.

Partnership Formed
Messrs. John M. Mac Lachlan, C. E., and C. P. R. Short announce a partnership for the practice of architecture and structural engineering with offices at 403 Canon Drive, Beverly Hills. Building material and supply houses are invited to send catalogues and trade literature. Mr. Mac Lachlan recently moved to Beverly Hills from Santa Monica.

Locates in Portland
Architect Raymond W. Hatch, who has practiced architecture for ten years in Pendleton, Ore., has decided to move to Portland again where he previously lived. He planned the McLaughlin Union high school in Milton-Freewater, said to be one of the most up-to-date schools in Oregon.

City Architect Moves
Architect John Reid, Jr., announces the removal of his office from the First National Bank building, San Francisco, to 50 Sansome street.
Architects Change Addresses

The following architects, all subscribers to The Architect and Engineer, have announced the removal of their offices to new addresses:

Edwin D. Martin from 5 North La Salle street, Chicago, to 2015 Chemoya avenue, Los Angeles.

George Birnbaum from 333 San Fernando building, to 726 H. W. Hellman building, Los Angeles.

Henry L. Gogerty from 239 East Broadway to 413 Marine Bank building, Long Beach.

William M. Clarke from 4072 West 7th street to 1522 Vista street, Los Angeles.

Johnston Bros. from Kingsburg to 209 Horii building, 1007 South Grand avenue, Los Angeles.

William J. Wilkinson from the American Bank building to 220 Howard avenue, Oakland.

Dean & Dean from the Library building to 1406 California State Life building, Sacramento.

C. E. Perry, Jr., from 211 Virginia street, Vallejo, to 2033 West 7th street, Los Angeles.

The May Architect and Engineer

It will doubtless be of interest to architects throughout the Coast to know that in May this magazine will publish some twenty or more full page plates of work in the office of Messrs. Lawrence & Holford of Portland, Oregon. Most of the pictures will consist of finely executed delineations by various members of the staff, including Hollis Johnston, Robert W. Turner, Louis C. Rosembarg and Truman Phillips. Another feature of the May Number will be a selection of photographs and drawings from the Architectural Exhibit held during the current month at the Bohemian Club, San Francisco.

Engagement Announced

Cards received by friends of Mr. Jas. Vollmar, San Francisco and Oakland architect, announce his engagement to Miss Ruth Elizabeth Cox, daughter of Mrs. Elizabeth Cox of Ocean View Drive, Oakland. The wedding is to take place the coming summer. Mr. Vollmar's recent architectural work has been in the office of Architect C. W. Mc Call of Oakland.

Going to Japan

Mr. P. A. Palmer, who has been connected with the building construction industry in San Francisco and the Bay section for a number of years, is to become construction manager for a company engaged in rebuilding the devastated sections of Japan. Mr. Palmer will be accompanied by Architect Willis C. Lowe, it is reported.

Personal

Architects Davies & Baume, 1010 Farmers & Merchants Bank building, Long Beach, have opened district drafting and supervising headquarters at 124 San Vicente boulevard, Santa Monica. Working drawings and all construction details for erecting the $3,500,000 Shoreham hotel-apartment building at Ocean avenue and San Vicente boulevard, Santa Monica, will be made in the Santa Monica office.

Architect Harry K. Vaughn has opened offices at 736 South Flower street, Los Angeles. Mr. Vaughn was formerly with Architect Carleton M. Winslow.

Messrs. Cramer, Bartlett & Wise, architectural engineers, have moved their offices from 430 Chapman building to 1918 W. Seventh street, Los Angeles.

Mr. George A. Christensen, until recently in charge of contracts and specifications for the Los Angeles harbor department, has been appointed chief building inspector in charge of the Long Beach building department under Mr. R. D. Van Aistine, city engineer and director of the public service department. Mr. Christensen assumed his new duties April 1, succeeding Mr. Vern D. Hedden, who will take up the practice of architecture.

Architect H. L. Gogerty has moved his business office and drafting department to 413 Marine Bank building, Long Beach.

Klamath River Bridge

The California Highway Commission will soon be ready to let a contract for the construction of a large concrete arch bridge over the Klamath river in Del Norte county, near the Oregon line. This bridge will cost perhaps $500,000 and will be one of the largest concrete arch bridges in the country. The magnitude of the structure, together with the difficulties involved in its construction, have called for the highest type of engineering skill in its design. It is to be known as the Douglas Memorial Bridge in honor of the late State Assemblyman Dr. G. H. Douglas of Crescent City, who worked for several years to secure an appropriation from the State for its construction. The bridge will consist of five 210-foot reinforced concrete open spandrel arches with concrete approaches at each end. These long fixed spans require enormous piers and the foundation material is such as to require the use of more than a thousand extra large wooden piles to support the piers and abutments.

Seattle Engineers Want Convention

A drive to obtain the national convention of the American Society of Engineers in 1926 for Seattle was launched by the Seattle section at a recent meeting. The Portland section of the society is cooperating to secure the convention for Seattle.
To meet the conditions of modern life, ideal household heat must be flexible, available at a moment's notice, day or night. It must be housewide, uniform, and clean—and acquired at no greater effort than the pressure of a button. Moreover, the fuel supply must automatically replenish itself, require neither storage space nor payment in advance, and be economical to burn. Such heat is furnished by gas.

There are several reasons why the logical heating system for the modern home is the gas-fired, electrically controlled warm air furnace. It carries a minimum fire hazard; it is most convenient to operate; it is clean; and it burns the least wasteful fuel known to mankind.

In the variable climate of the Pacific Coast, where heat is required intermittently, the convenience of the gas furnace is especially apparent. Warmth that can be turned on or off as needed not only insures a uniformly pleasant temperature in changeable weather, but results in economy in many households where solid fuel furnaces would be left burning unnecessary hours to avoid the trouble and delay of starting them again.

Thousands of installations of this type of furnace from Vancouver to San Diego
give testimony of its adaptability to Coast conditions. More than 3000 gas-fired furnaces of our manufacture alone are in use in California homes.

In giving householders the efficient and convenient heat of gas there are certain problems that confront the manufacturer of warm air furnaces. One of the most important is that of keeping the heated air wholesome. To achieve this result it is imperative that the air does not at any time come in contact with the products of combustion. This is accomplished in our furnace by enclosing the burner in a sealed cast iron pot and by the use of copper bearing steel radiators of 24 gauge, having sealed joints. The accompanying diagram shows the "air travel" from intake to floor registers. It also shows the flue which carries any fumes or unburnt particles outside the house, insuring safety to the occupants.

Economy of operation is another important consideration, and in the case of our furnace, is effected by the adoption of an unusually long fire travel, which provides for the heating of large quantities of air at one time—a more economical process than heating smaller amounts more intensively. This method has the added advantage of retaining the moisture in the air and is an aid in keeping it wholesome. A recent invention, the Babcock Alternating Valve, permits further economy by confining the gas flow to only one-half of the burner when less heat is desired, decreasing the consumption accordingly. Which ever half of the burner is operating burns with full efficiency, and obviates the waste involved in a lowered flame. An automatic arrangement causes the burner segments to alternate in suspension, resulting in uniform wear on each.

A third factor of concern to the manufacturer of gas furnaces is the durability of his product. To insure a long life, the gas furnace must be guarded against leaks. A method we have found successful in eliminating this danger is to give the furnace a stack temperature high enough to prevent condensation, thus avoiding corrosion, the cause of leaks. Sealed joints are an additional safeguard. With these three manufacturing problems satisfactorily disposed of, and with the obvious advantages of gas in the way of convenience, cleanliness, and labor-saving efficiency, it is inevitable that the gas-fired, electrically controlled warm air furnace will eventually become the universal means of heating modern homes.

$1,500,000 Hotel Addition

A fifteen-story Class A addition will be built to the Hotel Clift, Geary and Jones streets, San Francisco, from plans by Architects Shultze and Weaver, New York and Los Angeles. The addition will provide 200 more rooms and baths. Construction will start in May.

THE BABCOCK HIGH EFFICIENCY GAS FURNACE

<table>
<thead>
<tr>
<th>No.</th>
<th>Diameter (sq. ft.)</th>
<th>Height (ft.)</th>
<th>Insulating Surface</th>
<th>Fire Travel (ft.)</th>
<th>Heating Capacity (cu. ft.)</th>
<th>Heating Capacity (rooms)</th>
<th>Gas Consumption (Natural)</th>
<th>Gas Consumption (Manuf'D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>39 in.</td>
<td>29 in.</td>
<td>24 sq. ft.</td>
<td>11 ft.</td>
<td>7,000</td>
<td>4</td>
<td>45 cu. ft.</td>
<td>75 cu. ft.</td>
</tr>
<tr>
<td>50</td>
<td>29×40 in.</td>
<td>54 in.</td>
<td>52 sq. ft.</td>
<td>28 ft.</td>
<td>10,000 to 15,000 to</td>
<td>5-7</td>
<td>76 cu. ft.</td>
<td>125 cu. ft.</td>
</tr>
<tr>
<td>80</td>
<td>33×48 in.</td>
<td>54 in.</td>
<td>63 sq. ft.</td>
<td>38 ft.</td>
<td>15,000 to 20,000 to</td>
<td>8-10</td>
<td>96 cu. ft.</td>
<td>175 cu. ft.</td>
</tr>
<tr>
<td>118</td>
<td>42 in.</td>
<td>63 in.</td>
<td>58 sq. ft.</td>
<td>32 ft.</td>
<td>20,000 to 25,000 to</td>
<td>10-12</td>
<td>115 cu. ft.</td>
<td>225 cu. ft.</td>
</tr>
<tr>
<td>223</td>
<td>54 in.</td>
<td>63 in.</td>
<td>75 sq. ft.</td>
<td>40 ft.</td>
<td>30,000 to 50,000 to</td>
<td>15-20</td>
<td>200 cu. ft.</td>
<td>350 cu. ft.</td>
</tr>
</tbody>
</table>

METHODS OF OPERATION—Three types of control are possible with the Babcock: Manual—turned on and off at the furnace. Remote—operated by a Thermostatic—automatic switch from the house. Regulation of heat.
BOOK REVIEWS
Edited by
CHARLES PETER WEEKS


The author of this book is well known as an authority on plumbing. The subjects considered in the volume range from the connections of fixtures and all other detail work to all classes of private and public buildings. There are seventy full page plates showing all kinds of modern plumbing work. Valuable descriptive matter accompanies each plate. The book should prove an indispensable addition to every architect’s library for it fully informs him on all matters pertaining to modern plumbing; in fact, it gives you the last word in up-to-the-minute plumbing equipment.

“Small House Designs”—134 pages, containing sixty designs of houses costing about $5,000 each. Collected from a competition conducted by the Community Arts Association of Santa Barbara. Price $5.00 prepaid. Sales Agent, H. S. Elliott, 25 Pacific avenue, Piedmont.

This book contains a collection of charming small houses. It will serve as a source of inspiration to all those interested in this particular problem. The designs for the Spanish type of house will be found very useful to local designers, as character has not been lost—a difficult thing to maintain in so small a building. The English half-timber type is also appropriate for this size house, and examples illustrated in this book are very interesting. The Colonial example represented will be found useful to our Eastern brethren.

THE ARCHITECT AND ENGINEER

Taggart’s Plumbing Questions and Answers—Published by the U. P. C. Book Company, Inc., 239 West 39th street, New York, N. Y. Price $1.50.

This book is written by a practical man, member of the American Society of Civil Engineers, and Plumbing Instructor in the New York City schools. Much of the fundamental information contained in the book is of general interest to architects, estimators, inspectors and the plumbing trade. Emphasis is laid upon the practice of New York City.

“THERE IS NO PROGRESS IN BUILDING”
(Concluded from page 117) marks above mere Utopian longings and advances made in labor-saving devices within our own time cause us to wonder if his dream might soon become a reality. The recent war, says a writer in Stone, has given rise to much discussion of the possibilities of waging wars with machinery, gases, air bombs and devices that would tend to eliminate the organization of vast armies, but military experts express the opinion that while such instruments of destruction might be perfected, yet they would require man power to operate them, while there are some who insist that no war will ever be won without the fighting man in the front ranks. And so we view the hopes of Dr. Paterno; even when machinery is used there must be the directing hand.
The valve choice from every point of view

Whether exceptional durability, attractive appearance, or low cost is the determining factor in your valve selections, you will find Kennedy Valves an amply satisfactory choice.

The durability of Kennedy Valves and their ability to meet every operating requirement have been fully demonstrated in almost half a century of service. Careful design that provides for long and easy curves, and equally careful workmanship that assures none but perfectly finished valves, make for the attractive appearance that characterizes Kennedy Valves. And a trial order will quickly demonstrate Kennedy reasonable prices.

Send for the Kennedy catalogue to help you make a selection for your next job.

THE KENNEDY VALVE MFG. CO.
Branches and Supply Depots: New York, 65 John St.; San Francisco, 23-25 Minna St.;
Boston, 47 India St.; Chicago, 228 N. Jefferson St.
Sales Offices: Salt Lake City, El Paso, Seattle

A Real Safe Switch

Too little attention is often paid to the materials and construction of enclosed switches. The illustration shows the construction of "CIRCLE T" Type A sweated and pinned switches built to stand overloads and abuse. All parts are made of hard drawn copper, machined exact size and are distinctly different from the punched or built-up style of switches. In addition, the switches are positive, quick make and quick break, have ground contacts and close inspection is made on the assembly.

The iron boxes have an attractive appearance. A special feature is the interlocking attachment whereby the door cannot be opened while the switch is in contact or the door closed while switch is opened. The door, however, can be unlocked without disrupting the service when inspection or a test is desired.

See our bulletin No. 5 for specifications and details. It's yours for the asking.

THE TRUMBULL ELECTRIC MFG. COMPANY
595 MISSION STREET, SAN FRANCISCO, CAL.

Factory and General Offices
PLAINVILLE, CONNECTICUT
Branches in New York, Chicago, Boston, Philadelphia
The Architect and Engineer

Building Labor Conditions Better

Building labor conditions throughout the country are considered generally favorable at present, according to a national survey of conditions in the building crafts just completed by S. W. Straus & Co. Current conditions are epitomized as follows:

1. Wages generally well stabilized with slight upward tendencies in larger cities where prospective building operations are large.

2. General employment at peak wages with especially pressing demands for bricklayers and plasterers.

3. Possible shortage of common labor with the development of activities now indicated by unprecedented volume of building permits.

4. Possibility of ensuing difficulties through jurisdictional dispute between Carpenters Union and Sheet Metal workers over installation of metal trim work.

5. Successful and significant co-operation of building trades, unions and contractors in establishing building trades apprenticeship schools to help relieve labor shortage.

"One of the factors in promulgating the generally favorable tone now prevailing the situation," the survey states, "has been the unusual amount of employment throughout the building crafts during the winter months. These conditions were partly due to mild weather in some sections of the country, but it is noted that efforts to increase the volume of construction in the so-called off-seasons have been successful.

"Minneapolis, San Francisco, Baltimore, Philadelphia, Cleveland and Denver are among the principal cities where the 1923 wage scales are expected to be continued through 1924," says the survey. "In Cincinnati, St. Louis, Pittsburgh, Nashville, Kansas City, Youngstown, St. Paul, New Orleans, Houston and Sioux City increases either have been granted or are pending. A fairly ample present supply of building labor is reported in San Francisco, Los Angeles, Philadelphia, Kansas City, Atlanta, Minneapolis, Oklahoma City, New Orleans and Baltimore.

"In Los Angeles, Bricklayers’ bonuses have been eliminated and the $10.00 a day wage scale is the minimum. Employers are opposing demands of a large group of workers for slight wage increases."

Alexander Eiffel Dead

Alexander Eiffel is dead at 91. He was the engineer who created the Eiffel Tower in Paris, France, and was one of the very few modern men who lived thirty years after his greatest achievement and did not see it eclipsed. The tower stands 984 feet high, the tallest structure ever erected by man.
Your client's flooring investment? Of course, you desire to safeguard it and to protect him from repair expense.

As you well know, a flooring specification, however carefully it is prepared, cannot in itself prevent substitution of inferior materials or faulty workmanship. Nor is the customary one-year guarantee sufficient protection against defective materials and careless workmanship, which do not generally become apparent in a single year.

There is one absolutely sure way—one certain means by which you can afford your client the fullest protection: Require the contractor to furnish a five-year guaranty and to back that guaranty with a surety bond.

As the largest concern in the country specializing in the installation of resilient floors, we are vitally interested in the service rendered by all floors of this type.

Our flooring engineers will gladly give you the benefit of their wide experience in the solution of any troublesome flooring problem. Write us for specifications or information on floors for any purpose.

BONDED FLOORS COMPANY
MANUFACTURERS
370 Second St.
San Francisco

ENGINEERS
Boston
Philadelphia
Newark
Los Angeles

CONTRACTORS
263 S. Los Angeles St.
Los Angeles

New York
Chicago
Detroit
San Francisco
Los Angeles

Jamaica
Pittsburgh
Kansas City

(Distributors in other principal cities)
The big, new, Standard Oil Building in San Francisco is heated by the WEBSTER SYSTEM OF STEAM HEATING—so are many other big, famous, popular buildings in this country and elsewhere heated with Webster Systems of Steam Heating. Inquire for full particulars.

Win-Dor
Casement Window Operators

3 Pages About Them in Sweet's

CATALOG No. 9 contains everything that's in Sweet's to which has been added additional material of particular interest to architects. Booklet No. 10 is for the laity, and is largely an argument for casements. It may help you with your clients. To both pieces you are most welcome.

The Casement Hardware Co.
241 Polkure Bldg., Chicago, Ill.

Even Primitive Man
Reinforced His Home
He knew and practiced the principle of reinforcing, for he embedded twigs in the clay of which he built his home.

National Steel Fabric Style P 214 is a galvanized wire fabric combined base and reinforcement for "back-plastered" interior plaster and exterior stucco. It is applied either direct to sheathing or insulation.

In National Steel Fabric Style P 214, reinforcement, sheathing, building paper, furring strips, and lath are all combined into one material which is installed in large sheets, by one man, in one operation.

Write for catalog and sample.

NATIONAL STEEL FABRIC CO.
(Subsidiary of Pittsburgh Steel Co.)
564 Market St.
San Francisco, Calif.

HEUTER RESIDENCE, SAN FRANCISCO
Louis M. Upton, Architect

HAUSER
Reversible Windows
used in this palatial home because of their refined appearance, efficiency and durability
Made the same today as 10 years ago

HAUSER WINDOW CO.
1370 Harrison Street, San Francisco
TELEPHONE HEMLOCK 1062
Fixture Firm Expands
The Home Manufacturing Company, Inc., has moved into its new home at 552 Brannan street, San Francisco, and Mr. Ernest Held, manager, deserves to be congratulated for ranking this concern with the leading manufactories of its kind in California. Beginning with a comparatively small plant in 1895 the company has expanded until last year larger quarters seemed imperative. A new building, designed to fill the needs of the company for some time to come, was erected almost opposite the old plant on Brannan street, and new equipment and machinery have been installed, making the factory one of the most up-to-date of its kind in San Francisco. The company manufactures bank, store and office fittings, hardwood interiors and cabinet work in all its branches. Special furniture, church interiors and show cases are lines in which this company has achieved an enviable reputation.

The A B C's of Electricity
So completely has electrical energy become a part of the current of life and of civilization that the world, in seeking information relating to the nomenclature of electricity, finds that:
The unit of electrical current is the ampere.
The unit of electrical pressure which causes the current to flow through a conductor is a volt.
One ampere of current at one volt pressure equals one watt of power.
A kilowatt is one thousand watts.
A kilowatt-hour is one thousand watts for one hour.
A horsepower is 746 watts.
A horsepower hour is 746 watts for one hour.
Ten 100-watt lamps burning for one hour consume one kilowatt hour of current.
Forty 25-watt lamps burning for one hour consume one kilowatt hour of current.

Wall Bed Company
A new company manufacturing and selling wall beds has recently opened offices in San Francisco. The company's main sales department is in Los Angeles where its beds have been manufactured and sold with success for some time. The Brown Disappearing Bed Company will maintain a service department, giving complete co-operation in the practical and technical work of installing Brown disappearing and Brown detachable disappearing beds. Blueprints are furnished architects and builders as a further aid in preparing their plans. Brown beds, according to the manufacturers, suggest beauty, durability, practicability and sanitation. They are also valuable space savers.

Thirteen Other Reasons

1. Our improved mechanical process of drawing and blowing gives our glass greater tensile strength and higher modulus of rupture than any other window glass, plate glass, or rolled glass.
2. Our latest improvements in our blowing machines enable us to produce absolutely perfect cylinders, which make it possible to secure the best flattening ever obtained.
3. Our new method of flattening gives our glass a perfectly smooth surface, and a brilliant polish, unequalled by any other window glass.
4. Our glass has less wave than any other class, and consequently shows less distortion.
5. Our glass is flat; its contains no reverse curves.
6. Our glass is uniform in thickness.
7. Our glass is perfectly annealed and therefore does not break as easily as poorly annealed glass.
8. Our glass is washed and thoroughly cleaned in an acid bath, which prevents discoloration and permits ready detection of defects.
9. Our glass cuts perfectly on both sides.
10. Our glass is graded to the highest standard of quality.
11. Our grading is the recognized standard for the United States, and is higher than the foreign standards.
12. Our glass does not break in shipment, on account of the uniformity of flatness, well made boxes, great care in packing, and skillful loading.
13. Our entire process is conducted on scientific principles.

Pacific Coast Distributor
L. H. BUTCHER COMPANY
Los Angeles San Francisco
Portland Seattle

AMERICAN WINDOW GLASS CO.

14 Reasons
Why you should Specify
The BEST Glass

NUMBER ONE
Our melting furnaces are the largest in the world and produce perfectly melted glass.
Another

UNIVERSAL WINDOW
FULL REVERSIBLE CASEMENT INSTALLMENT

INFORMATION ABOUT THE DONOVAN AWNING TYPE STEEL WINDOW
MAY BE SECURED FROM THE TRUSCAN STEEL CO., YOUNGSTOWN, OHIO

UNIVERSAL
SALES COMPANY

GENERAL SALES OFFICE, 1916 BROADWAY, OAKLAND

SAN FRANCISCO  LOS ANGELES  SACRAMENTO  RENO, NEV.  PORTLAND, ORE  SALT LAKE CITY, UTAH
NEW ORLEANS, LA.  FORT WORTH, TEXAS  PITTSBURGH, PENN.  DENVER, COLO.  CHATTANOOGA, TENN.
CLEVELAND, OHIO  KANSAS CITY, MO.  ATLANTA, GA.  WASHINGTON, D. C.
No. 150—Seven-Foot Buffet

Made Throughout of Seasoned Philippine Satinwood or Beautiful Southern Red GUM

Quantity production makes it possible to sell this magnificent buffet at a low price. No hardware—unglazed. Special Sizes and Patterns made to order.

Cabinet work, mouldings, etc., furnished in the various Philippine Hardwoods or Beautiful Southern Red GUM.

Our No. 100 Door shown on the left is a Solid Front Door made of genuine Siamese Teak or Philippine Satinwood. 1 3/8" thick—Height 6'8"—Width 3'0" or 3'6".

Specify

DAVIS GOLD MEDAL SOLID HARDWOOD DOORS

Send for Complete Catalogue

DAVIS HARDWOOD COMPANY
BAY AND MASON STREETS
SAN FRANCISCO
MANUFACTURERS AND DEALERS IN HARDWOOD LUMBER, DOORS, MOULDINGS AND TRIM

When writing to Advertisers please mention this magazine.
Woodson Bridge over Sacramento River, near Corning, Cal.

Structural Steel
Fabricated by
WESTERN IRON WORKS
Structural Iron and Steel Contractors
111-117 Beale Street
San Francisco

DETROIT STEEL PRODUCTS CO., Detroit
251 Kearny Street, San Francisco Phone Sutter 1250
Pacific Coast Branch Factory at Emeryville

Steel Frame, California State Building, Civic Center, San Francisco.
FABRICATED BY
THE PALM IRON AND BRIDGE WORKS (Incorporated)
15th and R Streets, Sacramento

WESTERN ASBESTOS MAGNESIA CO.
INSULATING ENGINEERS AND CONTRACTORS

Asbestos and Asphalt Slate Shingles and Roofings
Asbestos and Composition Roofings—Roof Coatings
Magnesia and Asbestos Pipe and Boiler Coverings
Cold Storage Insulation—Sectional Expansion Paving Joint
"Linofelt" Sound Deadener—Wall Board
Cork Pipe Covering, Board and Granulated Cork

CELOTEX
INSULATING LUMBER
PLASTER BASE
INSULATOR
SOUND DEADENER
ACOUSTIC CORRECTOR
21-29 South Park
Bet. 2nd and 3rd Sts.
San Francisco, Cal.

Telephone Douglas 3860

When writing to Advertisers please mention this magazine.
MORE important still, Medusa Waterproofed Non-Staining White Cement will stay white—whether used in stucco, in mortar, in building trim, or in lawn and garden furniture and landscaping work.

It keeps dry, too: water never can strike into the surface of Medusa Waterproofed White Cement.

Whenever your work calls for those two qualities—a white that will not stain nor discolor, and a surface finish that will repel moisture permanently—you can safely specify Medusa Waterproofed White Cement as a product that will back you to the limit.

Medusa Specifications are given in Sweet's; more detailed information in the Medusa Book, which we will gladly send.

THE SANDUSKY CEMENT COMPANY
The Engineers Building Cleveland

Manufacturers of Medusa Non-Staining White Cement (Plain or Waterproofed); Medusa Waterproofing Powder or Purd, Medusa Gray Cement (Plain or Waterproofed).

MEDUSA
WHITE CEMENT
Builders

ARE you in the market for WIRE NAILS?
It will pay you to submit your specifications to us.
We are carrying a large warehouse stock and can quote for mill shipment.
Inquiries will receive prompt attention

EDW. L. SOULE' CO.
RIALTO BUILDING
SAN FRANCISCO

Rich Interiors
“at subnormal costs”
that increase the value of the Residence much beyond the price paid for the material. That is the HAPPY RESULT when you specify

Bataan  Lamao
Bagac  Orion

Our own trademarked importations. Ask our Data Bureau for details.

Cadwallader-Gibson Co., Inc.
5th and Brannan Streets
San Francisco
Oakland - Seattle - Los Angeles

McCray Refrigerators for all Purposes

McCray service is of great help to architects because it covers every type of refrigerator equipment for homes, institutions, stores.
We will gladly cooperate by suggesting models from stock or by submitting blue prints, without obligation, of built-to-order equipment.

Send now for latest catalog for your files.
McCray Refrigerator Co., 2163 Lake St., Kendalville, Ind.
Salesrooms in All Principal Cities
San Francisco Salesroom—765 Mission Street

Complete Steam Heating Installation

Employing Clew Gassteam Radiators
in Apartments, Schools, Churches, Residences, Commercial Buildings
Perfect Heat—Automatic Control
No Odor—Normal Humidity

PACIFIC GASTEAM COMPANY
Successors to
WILLIAMS RADIATOR COMPANY
571 MISSION STREET
Telephone Douglas 8230
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Present Cost of Building Materials

These quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, April, 1924.

All prices San Francisco or Oakland. For country work add freight and cartage to prices given.

Bond—1½% amount of contract.

**Brickwork—**
Common, $35.00 per 1000 laid.
Face, $75.00 per 1000 laid.
Enamel, $150.00 per 1000 laid.
Common, f. o. b. cars, $15.50, plus cartage.
Face, f. o. b. cars, $50.00 per 1000, carload lots.

**HOLLOW TILE FIREPROOFING** (f. o. b. cars in carload lots.)

<table>
<thead>
<tr>
<th>Size</th>
<th>Price per M</th>
</tr>
</thead>
<tbody>
<tr>
<td>12x12x3</td>
<td>$96.00</td>
</tr>
<tr>
<td>12x12x4</td>
<td>$108.00</td>
</tr>
<tr>
<td>12x12x6</td>
<td>$156.00</td>
</tr>
<tr>
<td>12x12x8</td>
<td>$243.75</td>
</tr>
</tbody>
</table>

Hod carriers, $6.50 per day.
Bricklayers, $10.00 per day.
Laborers, $2.25 per bdl.; carload, $2.15.

**HOLLOW BUILDING TILE** (f. o. b. cars in carload lots.)

<table>
<thead>
<tr>
<th>Size</th>
<th>Price per M</th>
</tr>
</thead>
<tbody>
<tr>
<td>6x11x21/2</td>
<td>$108.00</td>
</tr>
<tr>
<td>6x12x21/2</td>
<td>$88.00</td>
</tr>
</tbody>
</table>

Composition Floors—22c to 50c per sq. ft.
In large quantities, 22c per sq. ft.
Composition Stucco—$1.90 to $2.10 per sq. yard (applied).

**Concrete Work (material at San Francisco bunkers)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Price per yd</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 3 rock</td>
<td>$2.25</td>
</tr>
<tr>
<td>No. 4 rock</td>
<td>$2.30</td>
</tr>
<tr>
<td>Niles pea gravel</td>
<td>$3.50</td>
</tr>
<tr>
<td>Niles gravel</td>
<td>$2.35</td>
</tr>
<tr>
<td>Niles top gravel</td>
<td>$2.75</td>
</tr>
<tr>
<td>City gravel</td>
<td>$2.15</td>
</tr>
<tr>
<td>River sand</td>
<td>$1.75</td>
</tr>
<tr>
<td>Delivered bank sand</td>
<td>$1.00</td>
</tr>
</tbody>
</table>

**SAND**

<table>
<thead>
<tr>
<th>Description</th>
<th>Price per ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Del Monte</td>
<td>$1.25 to $1.50</td>
</tr>
<tr>
<td>Fan Shell Beach (Car lots, f. o. b. Lake Majella)</td>
<td>$2.50 to $3.00</td>
</tr>
<tr>
<td>Swedish cement</td>
<td>$2.65 per bbl.</td>
</tr>
<tr>
<td>Belgian cement</td>
<td>$2.65 per bbl.</td>
</tr>
<tr>
<td>Cement (f. o. b. cars)</td>
<td>$3.01 per bbl.</td>
</tr>
</tbody>
</table>

Rebate for sacks, 10c each.
Atlas “White” | $9.75 per bbl.
Medusa “White” | $9.95 per bbl.
Forms, Labors average...$27.00 per M

**Wage—**
Concrete workers...$5.00 per day
Cement finishers...8.50 per day
Laborers...5.00 per day

**Dampproofing—**
Two-coat work, 25c per yard.
Membrane waterproofing—4 layers of P. B. saturated felt, $5.00 per square. Hot coating work, $2.00 per square.
Wage—Roofers, $8.00 per day.

**Electric Wiring—** $5.50 to $10.00 per outlet for conduit work (including switches).

**Knob and tube average** $8.00 to $5.50 per outlet.
Wage—Electricians, $3.00 per day.

**Elevators—**
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in

<table>
<thead>
<tr>
<th>Description</th>
<th>Price per sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-story bldg.</td>
<td>$3250, direct automatic, about $3000.</td>
</tr>
</tbody>
</table>

**Excavation—**
$1.25 per yard, if sand. Teams, $10.00 per day.
Trucks, $21 to $25.50 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

**Fire Escapes—**
Ten-foot balcony, with stairs, $105.00 per balcony.

**Glass—** (Consult with manufacturers.)
21 ounce, 16c per square foot.
Plate, $1.10 per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 30c per sq. ft.
Obscure glass, 25c per square foot.
Note—Add extra for setting.
Wage—Glaziers, $8.00 per day.

**Heating—**
Average, $2.25 per sq. ft. of radiation, according to conditions.
Wage—Steamfitters, $9.00 per day.

**Iron—** Cost of ornamental iron, cast iron, etc., depends on designs.
Wage—Iron workers, bridge and structural, $9.00 per day.
Architectural iron workers, $7.00 per day.

**Lumber—** (Prices delivered to bldg. site)
Common, $35.50 per M (average).
Comm’n O.P. (select, avrg....$38.00 per M

**Flooding—**
1 x 6 No. 3—Form lumber ....$23.00 per M
1 x 4 No. 1 flooring .......$26.00 per M
1 x 4 No. 2 flooring .......$20.00 per M
1 x 4 No. 3 flooring .......$19.00 per M
1 x 6 No. 2 and better flooring. .......$20.00 per M
1 1/2 x 4 and 6 No. 2 flooring .......$30.00 per M

**Slash grain—**
1 x 4 No. 2 flooring .......$1.00 per M
1 x 4 No. 3 flooring .......$1.25 per M

**No. 1 common run to**
T. & G. .......$38.00 per 1000
Lath .......5.00 per 1000

**Shingles—** (Add cartage to prices quoted)
Redwood, No. 1 .......$1.19 per bdl.
Redwood, No. 2 .......$1.90 per bdl.
Red Cedar .......1.25 per bdl.

**Building Paper—**
1 ply per 1000 ft. roll ...$6.25
2 ply per 1000 ft. roll ...$9.60
3 ply per 1000 ft. roll ...$22.00

**Sash cord com. No. 7 ...1.25 per 100 ft.
Sash cord com. No. 8 ...1.40 per 100 ft.
Sash cord spot No. 7 ...1.90 per 100 ft.
Sash cord spot No. 8 ...2.30 per 100 ft.
Sash weights cast iron...60.00 Ton

**Nails, $.425 base.**

**Hardwood Flooring—**

<table>
<thead>
<tr>
<th>Description</th>
<th>Price per M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 3½ T &amp; G Maple</td>
<td>$137 M ft.</td>
</tr>
<tr>
<td>1 x 3½ T &amp; G Maple</td>
<td>$140 M ft.</td>
</tr>
<tr>
<td>¾ x 3½ Sq. Edge Maple</td>
<td>$116 M ft.</td>
</tr>
</tbody>
</table>

**Cir. Qt. Oak** .......$179 M $124.00 per M $156 M
**Sel. Qt. Oak** .......135 M 92.50 114 M
**Sel. Pia. Oak** .......124 M 80.00 97 M
**Clear Maple** .......135 M 81.00
**Orion** .......140 M 100.00
**Bagge** .......130 M 90.00
**Laying and Finishing 16 ft. 15 ft.** 18 ft.

**N. B.—** Materials and labor are plentiful at present time, with tendency to lower prices.
Wage—Floor layers $9.35 per day.

Millwork—
J. r., $100 and up per 1000. R. W., $120 and up per 1000.
Doors, including trim (single panel), $10.50 and up, each.
Doors, including trim (five panel), $8.50 each.
Screen doors, $3.50 each.
Cases for kitchen pantries seven feet high, per lineal foot, $7.50 each.
Dining room cases, $8.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average), $16 per m.
For smaller work, average, $28.00 to $36.00 per 1000.
Wage—Carpenters, $8.00 per day.
Laborers—$5.00 per day.

Marble—(Not set), add 40c to 60c per ft. for setting.
Columbia .................................. $1.60 sq. ft.
Alaska ................................ 1.50 sq. ft.
San Saba ................................ 3.15 sq. ft.
Tennessee ................................ 2.00 sq. ft.
Verde Antique ............................ 3.75 sq. ft.
Westfield Green .......................... 3.50 sq. ft.
Wages—Marble setters, $8.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—
Two-coat work ......................... 30c per yard
Three-coat work ...................... 45c per yard
Whitewashing ............................ 5c per yard
Cold water painting ............... 9c per yard
Turpentine, $1.20 gal. in cases and $1.05 per gal. in tanks.
Raw Linseed oil $1.05 per gal. in bbls.
Boiled Linseed Oil 1.10 per gal. in bbls.
Pioneer white and red lead, 11½c lb. in one-ton purchases; 12c lb. for less than 500 lbs.
Wage—Painters, $8.00 per day.

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—
6-inch ................... $1.50 lineal foot
8-inch ................... 1.75 lineal foot
10-inch .................. 2.25 lineal foot
12-inch .................. 3.00 lineal foot

Pipe Casings—14" (average), $7.50 each.

Plastering—(Including Lathing)
Interior, on wood lath, 65c per yard.
Interior, on metal lath, $1.25 per yard.
Exterior, on brick or concrete, $1.30 per yard.
Portland White, $1.75.
Interior on brick or terra cotta, 60c to 70c per yard.
Exterior, on metal lath, $1.85 to $2.25 per yard.
Wood lath, $5.50 a yard per 100.
Metal studding, $1.25 to $1.50 per yard.
Suspended ceiling and walls (metal furring, lathing and plastering), $2.00 per yard.
Galv. metal lath, 32c and up per yard, according to gauge and weight.
Lime, f. o. b. S. F. warehouse, $2.50 bbl.
Lime, bulk, per ton of 2000 lbs., $19.50
Hardwall plaster, $15.40 per ton, f. o. b. warehouse. ( Rebate on sacks, 15c.)
Finishing plaster (carload lots), $19.00.
Hydrate of lime, $19.50 per ton, f. o. b. warehouse.
Wage—Plasterers, $10.00 per day.
Lathers, $8.00 per day.
Hod carriers, $7.00 per day.

Plumbing—
From $70.00 per fixture up, according to grade, quantity and runs.
Wage—Plumbers, $9.00 per day.

Reinforcing Steel—
Base price for car load lots, $3.80 per 100 lbs., f. o. b. cars on docks.
Average cost to install, $25 per ton.
Wage—Housesmiths, $8.00 per day.

Roofing—
Five-ply tar and gravel, $6.00 per square for 300 squares or over.
Less than 30 squares, $6.25 per square.
Tile, $35.00 to $50.00 per square.
Redwood Shingles, $12.00 per square in place.
Cedar Shingles, $12.00 per sq. in. place.
Reinf'd Pabco, 7 yr. roof, $7.50 per sq.
Reinf'd Pabco, 10 yr. roof, $10.25 per sq.
Reinf'd Pabco, 20 yr. roof, $13.50 per sq.
Recoat, with Gravel, $3.00 per square.
Wage—Roofers, $8.00 per day.

Sheet Metal—
Windows—Metal, $2.00 a square foot.
Fire doors, (average), including hardware, $2.30 per sq. ft.

Skylights—
Copper, $1.25 a square foot (not glazed)
Galvanized iron, 95c a square foot (not glazed).
Wage—Sheet metal workers, $8.50 per day.

Stone—
Granite, average $7.50 sq. ft. in place.
Sandstone, average Blue, $4.75; Bosie, $2.80 sq. ft. in place.
Indiana Limestone, $3.00 per sq. ft. in place.
Wage—Stone cutters, $8.00 per day.
Stone setters, $8.50 per day.

Store Fronts—
Copper sash bars for store fronts, corner, center and around sides, will average 8c per lin. ft.
Note—Consult with agents.

Structural Steel—$112 per ton (erected).
This quotation is an average for comparatively small quantities.
Light truss work higher; plain beam and column work in large quantities, less.
Cost of steel for average building (erected), $108 per ton.

Steel Sash—
All makes, from S. F. stock, 26c to 34c per sq. ft.
All makes, plant shipment, 25c to 34c per sq. ft.
(Includes millings and hardware.)

Tile—White glazed, 80c per foot.
White floor, 80c per foot.
Colored floor tile, $1.00 per foot.
PROMENADE tile, $1.00 per sq. ft. laid.
Wage—Tilesetters, $3.50 per day.
Architects and Engineers —

Watch this space for information concerning the new 4000 series Kewanee oil burning boilers. This series incorporates every essential feature in an efficient oil burning boiler.

Here is a problem. Figure it out both from a practical and scientific standpoint. Given a boiler with 979 square feet of effective heating surface. How much steam space should it have to prevent priming? How much disengaging area for the liberation of steam under heavy firing? How about the water circulation? How much furnace volume to properly mix and burn the required amount of fuel oil? The relative dimensions of a firebox to effectively preheat the air, atomize and vaporize the oil and mix the elements of combustion? What is the best method of breaking up the hot gasses and applying them to the heating surface?

This is a real problem. Watch this space and see if you have the answer.

If you have not received your data on this new series, write the San Francisco Branch.

Kewanee Boiler Company
Kewanee, Illinois

Low Pressure Heating Boilers       High Pressure Power Boilers
San Francisco Branch Office, 216 Pine Street
Los Angeles Office, 420 E. Third Street

When writing to Advertisers please mention this magazine.
PERMALIGHT

FLAT MILL WHITE

A Snow White Paint in Oil, giving equal opacity of cold water paints. Can be applied with spraying machines at a small increase of cost over water paints for use in factories, warehouses, loft buildings, laundries.

Hill, Hubbell & Co.
TECHNICAL PAINTS
SAN FRANCISCO

Los Angeles Portland Seattle New York

When writing to Advertisers please mention this magazine.
Accidents and subsequent damage suits caused by elevator doors failing to close are prevented for all time when R-W IDEAL Door Closers and Checks are installed.

R-W IDEAL Elevator Door Hardware

No "Gates Ajar"

The present day demand for speed in elevator operation makes provision for safety doubly important. Doors hung on R-W IDEAL Elevator Door Hardware not only operate speedily and silently, but when equipped with R-W IDEAL Door Closers and Checks they cannot possibly be left open by careless or over-hurried operators.

Write for a complete folio of elevator door installations, from which actual blueprints can easily be made. We send it to architects on request, together with Catalog X-21, which fully describes R-W IDEAL Elevator Door Hardware.

Dominican College Conservatory of Music
San Rafael, Cal.

M. M. Bruce, Architect
San Francisco

Deadened with Cabot’s Quilt
Make Your Floors and Partitions Sound-proof by lining them with the standard deadener

CABOT’S “QUILT”

Cabot’s Quilt has made more buildings really sound-proof than all other deadening methods combined. Musical schools are the hardest buildings to deaden, and the N. E. Conservatory of Music, Canadian Conservatory of Music, N. Y. Institute of Musical Art, and many others show that Quilt is perfect. Sound-proof, rot-proof, vermin-proof and fire-retarding. Quilt is the only deadener that breaks up and absorbs the sound-waves. It is a thick, elastic cushion of dead-air spaces.

Send for Samples, Circulars and full information


Cabot’s Creosote Stains, Stucco and Brick Stains, “Quilt,” Mortar Colors, Dampproofing, Waterproofing, Conservo Wood Preservative, etc.

Pacific Materials Co., San Francisco
Continental Building Specialties, Inc., Los Angeles
Theo. F. Snyder, San Diego, Cal.

S. W. R. Dally, Seattle
Creed & Co., Portland

When writing to Advertisers please mention this magazine.
Specify California Wall Beds
Your client will be another satisfied customer

Write for Complete Data and Specifications about Our New Secret Installation

CALIFORNIA WALL BED COMPANY
714 MARKET STREET, SAN FRANCISCO

165 Thirteenth Street, Oakland
1040 S. Broadway, Los Angeles

The Ornamentation on the Vase and Plaque was SAND BLASTED with

FAN SHELL BEACH SAND
ONE OF THE WHITE SANDS SHIPPED BY

DEL MONTE PROPERTIES COMPANY

Phone Sutter 6130
401 CROCKER BUILDING
San Francisco
Not a substitute for Anything!

But a vast improvement over lath and plaster for lining walls and ceilings

Pacific Five-Ply Board is really lath and plaster in the proper proportions and in convenient form. It is a wood core encased in a fireproof, moisture proof mineral cement, stronger than the best concrete.

By actual tests Pacific Five-Ply Board is far superior to either pulp wall board or plaster board in tensile strength, deflection and resistance to puncture. Will not contract or expand, bulge, warp, crack or crumble; is air tight and fire resistant.

Pacific Five-Ply Board is sawed and worked just as you would handle lumber. It comes in sheets 4 feet wide and in lengths from 6 to 16 feet. It is strong, durable, attractive in appearance, easily installed, sanitary, and economical. Send for descriptive literature.

This TRADE MARK means much to the conscientious Architect and Builder

It means a satisfied client

High-Grade Plumbing Fixtures

Holbrook, Merrill & Stetson

64 SUTTER STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
This beautiful SNOW WHITE, SANITARY SINK will not only contribute to the appearance of the Home or Apartment House, but it will make the property more rentable or salable. Architects make no mistake when they specify Petrium Snow White Sinks.

PETRIUM SANITARY SINK CO., Fifth and Page Streets, Berkeley
On display: Hoover Store, Pacific Building, San Francisco
Sterling Furniture Co., 1049 Market St., San Francisco
Building Material Exhibit, 77 O'Farrell St., San Francisco
Oakland—Building Material & Manufacturing Exhibit, 1424 Franklin Street.

THE VALUE OF EXPERIENCE

Experience with Pacific Coast conditions, coupled with diversified experience on every sort and size of installation, whether for handling gasoline and oil or effecting economic lubrication—

Experience that will help you better serve the owner—

Such experience can be had upon application to this house, which opened its first Pacific Coast branches in 1908.

Tell us your problem, and we will work with you—without obligation to you or your client.
Here is a 5-room bungalow designed to give the convenience of 7 rooms, yet the two extra rooms—sun room and guest bedroom—cost nothing to build or furnish.

The sun room is an unusual feature for a 5-room bungalow. This room has been added to the house by installing an AD-A-ROOM Bed (wall bed) in a room that would ordinarily be available only as a bedroom at night.

The AD-A-ROOM Bed in the living room adds the third bedroom to this five-room home and serves as an ideal guest bedroom.

An AD-A-ROOM Bed in your home gives you an extra bedroom without the cost of building and furnishing a room.

MARSHALL & STEARNS COMPANY
Manufacturers of AD-A-ROOM BEDS (Wall Beds)
1152 PHELAN BLDG.
SAN FRANCISCO

M Products

Elevator Door Closers, Positive Electric Interlocks and Roller Bearing Hangers combined on the same doors is the Ideal Installation

ELEVATOR SUPPLIES COMPANY INC.
Main Office and Works: HOBOKEN, N. J.
Branch Offices:
Cleveland
1039 Walnut Ave.
St. Louis
Railway Exch. Bldg.
Chicago
111 S. Jefferson St.
Philadelphia
1714 Ludlow St.
San Francisco
186 Fifth St.
Los Angeles
1120 S. Hope St.
Oakland
A New Product

Ideal Rib Lath

In preparing for the building industry a new Y.P.S. product—Ideal Rib Lath—an ideal combination of several important advantages, especially desired in a rib lath has been secured: (1) sufficient strength and rigidity for floor loads; (2) provision for wider spacing of supports; (3) a mesh that requires a minimum of plaster but gives a strong key; (4) a lath easy to handle, easy to erect, and easy to plaster.

Ideal Rib Lath is an expanded metal lath with longitudinal ribs at 4-inch intervals. Alternate ribs are \( \frac{3}{8} \)-inches deep while between these are shallower reversed ribs \( \frac{5}{16} \)-inches deep. Both ribs on the outside edges of the lath are shallow, so that either nesting of two outside ribs or overlapping two outside edges produces an unusually combined rib stiffness without leaving a hump along the line of lappage.

How Ideal Rib Lath Excels

1. Exceptional plaster-saving qualities due to peculiar mesh of strands.
2. Unusual combined mesh and rib stiffness.
3. Straight, parallel, outside edges.
4. Outside ribs that may be either nested or lapped.
5. No unnecessary lappage waste.
6. Easy to handle, erect and plaster because sheets are stiff both laterally and longitudinally.
7. Shipped in compact, tight bundles—reaches the job in perfect condition.
8. Free from sharp, protruding edges that cut workmen's hands.

Ideal Rib Lath is available through all Y.P.S. agents and dealers. Write now for samples and complete description of this latest Y.P.S. product.

THE YOUNGSTOWN PRESSED STEEL CO.
Main Office and Factories: WARREN, OHIO

District Offices:

NEW YORK—50 East 42nd St. MINNEAPOLIS—125 S. Ninth St. DETROIT—413 Ford Bldg.
CHICAGO—McCormick Bldg. PHILADELPHIA—Finance Bldg. LOS ANGELES—1655 Bay St.

The outside ribs of Ideal Rib Lath may be either nested or lapped without leaving a hump which would cause plaster cracks.

Note the excellent key that forms on the back of Ideal Rib Lath. No mortar is wasted in excess key or by dropping through the lath.
JOHNSON'S ROTARY CRUDE OIL BURNER
Can be installed in any BOILER or FURNACE
Gives Satisfactory Results
Simple to Operate—Automatic—Safe
Let us tell you more about this Oil Burner.

S. T. JOHNSON CO.
1337 Mission Street
San Francisco
Phone Market 2759

Agencies: SEATTLE LOS ANGELES FRESNO SAN DIEGO SACRAMENTO

SIMPLEX BURNERS

BUNTING IRON WORKS
1215 FIRST NATIONAL BANK BLDG.
SAN FRANCISCO Phone Sutter 3225
Member of the Oil Burners Manufacturers' Association of California

Steam Heating and Ventilating
For Commercial and Public Buildings
Furnace Heating for the Home
Mangrum & Otter, Inc.
827-831 Mission Street
San Francisco, Cal.
Phone Kearny 3155

Architects—Specify BABY RAY
Domestic Type Burner. It burns low-priced Diesel Oil with high efficiency. Especially designed for bungalows and dwellings.

POWER PLANT ENG-CO. W. S. Ray Manufacturing Co.
1933 5th Ave., Seattle 2442 San Pablo Ave.
J. F. SHEA Oakland
2nd and Ankeny Sts. W. S. RAY MFG. CO.
Portland, Ore. 2442 San Pablo Ave.,
Milton and Bosworth Sts. Oakland
San Francisco

RAY OIL BURNER CO.
(ot So. California) W. S. RAY MFG. CO.
831 Crocker St. 2442 San Pablo Ave.
Los Angeles Oakland

When writing to Advertisers please mention this magazine.
MARBLE BATHS

have been in use since the days of old. They are rich in attractiveness, easy to keep clean, and they never wear out. They can be installed in old buildings as well as new, and the cost, reckoned by years of service, is extremely low.

VERMONT MARBLE COMPANY
San Francisco																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										(166,260),(392,307)
Cast Stone for Beauty
as Well as Permanence

BECAUSE it permits of varied textures and colors, because of its low absorption, because of the plasticity of the original material, and in the final analysis, for the reason that it is more economical, Cast Stone is becoming more and more widely used.

The entire facing of the structure pictured above is of Cast Stone—made of Atlas White Portland Cement.

Atlas White Portland Cement is the ideal material for Cast Stone, for it is a true Portland Cement. It meets all the requirements of the standard specifications adopted by the American Society for Testing Materials, and approved by the United States Government.

It is of a pure whiteness that permits of an endless variety of colorings and textures.

It is durable and wholly weather-proof—permanent, beautiful and economical!

"The Standard by which all other makes are measured"

THE ATLAS PORTLAND CEMENT COMPANY
25 BROADWAY, NEW YORK, N. Y.

CHICAGO    BIRMINGHAM    INDEPENDENCE, KANS.
PHILADELPHIA   BOSTON    DES MOINES    DAYTON
OMAHA       BUFFALO   ST. LOUIS   JACKSONVILLE, FLA.
KANSAS CITY
Elevator Accessories
We manufacture and install Randall pneumatic elevator door closers and interlocks, Randall modern signal systems, hangers and complete line of accessories for elevators.

RAN D AL L C ON T R OL AND HYDROMETRIC CORPORATION
1014 E. 9th Street 265A Minna Street
Los Angeles, Cal. San Francisco, Cal.
Phone: 825-884 Phone: Douglas 2397

Alvaline, Cementoline and other
Jones-Duncan Products
MAGNER BROTHERS PAINT MAKERS
Telephone: Market 113
414-424 Ninth St. San Francisco

Buy This BETTER Water Heater
Better because it gives Perfect Hot Water Service—instantaneous, inexhaustible and inexpensive—not just once in a while, but all the time.
Better because it is simply made—better because it is solidly and ruggedly built—better because it is made by men whose experience dates back to 1839, when the world’s first successful automatic water heater—a RUUD—was built.
Every RUUD is equipped with an internal automatic thermostat, double fuel control, condensation shields.
RUUD HEATER CO.
431 Sutter St. San Francisco
Phone Sutter 1640

Jewett Refrigerators
Chelsea Dumb Waiters
Automobile Turntables
Electric Plate Warmers

M. E. HAMMOND
PACIFIC BUILDING SAN FRANCISCO

HEATING-PLUMBING
COMPLETE PLUMBING AND HEATING SYSTEMS INSTALLED IN ALL CLASSES OF BUILDINGS—ALSO POWER PLANTS

GILLEY-SCHMID CO., Inc.
198 OTIS ST., SAN FRANCISCO
Tel. MARKET 965

Phone Sutter 1414

Hunter & Hudson ENGINEERS
Designers of Heating, Ventilating and Wiring Systems, Mechanical and Electrical Equipment of Buildings
703 Rialto Bldg., San Francisco, Cal.

RUSSWIN
BUILDERS' HARDWARE
JOOST BROS., Inc.
SAN FRANCISCO AGENTS

We Carry Complete Stock:

NO BRANCH STORE
Mazda Lamps Electric Goods

The latest and Best ideas in hot water science are embodied in the
Pittsburg
It insures superior hot water service.

PITTSBURG WATER HEATER COMPANY
478 Sutter St., San Francisco
Phone Sutter 5025

When writing to Advertisers please mention this magazine.
SCHOOL AND THEATRE EQUIPMENT

FLAGG

STUDIOS SAN FRANCISCO
LOS ANGELES
DESIGNERS AND MANUFACTURERS
Drop Curtains, Automatic Hoists
Stage Hardware, Scenery "Hitch Your Desires to Our Experience"

ROBERT TROST
General Building Contractor
We Specialize in High Grade Work and Employ Skilled Labor in every Branch of the Building Industry.
26th and Howard Streets
SAN FRANCISCO
PHONE MISSION 2209

ALFRED H. VOGT
GENERAL CONTRACTOR CONCRETE CONSTRUCTION
185 Stevenson Street, San Francisco
Phone Sutter 1533

LAWTON & VEZEY
CONTRACTORS AND BUILDERS
EVERSON BUILDING OAKLAND, CALIFORNIA

THE HERMANN SAFE CO.
Manufacturers of Fire and Burglar Proof Safes, Vaults and Safe Deposit Boxes
Also Representatives for the YORK SAFE & LOCK CO. OF YORK, PA.
216-224 Fremont Street
San Francisco, Cal.

HERBERT BECKWITH
Building Construction
Formerly with ARTHUR ARLETT Everson Building OAKLAND

JOHN M. BARTLETT
GENERAL CONTRACTOR
Office Phone Lakeside 6750
357 - 12th ST. OAKLAND Res. Phone Berkeley 6884W

MONSON BROS.
Building Construction
Yard Phone Market 2963
Mariposa and Bryant Streets 251 Kearny Street, San Francisco
Phone Market 2963 Telephone Douglas 6619

When writing to Advertisers please mention this magazine.
EXPANSION

Continued growth, due to an aggressive policy, close attention to details and painstaking efforts to please, explains why our new factory, (shown in the above illustration) with its splendid equipment, became necessary. Architects are invited to visit the plant and familiarize themselves with its facilities for producing high grade material.

HOME MANUFACTURING CO., Inc.

ERNEST HELD, MANAGER

Established 1895

BANK, STORE AND OFFICE FIXTURES

552 BRANNAN STREET

SAN FRANCISCO, CALIF.

Telephone Kearny 1514

When writing to Advertisers please mention this magazine.
What our Flag Pole Service Means to You

No need for you to design or make finished drawings. You describe the conditions for any particular flag pole project. We prepare drawings in detail and submit to you complete installation sketch and quote cost. The tracing is yours without obligation whatsoever.

We are Steel Pole Specialists

A pole book with specification data and scale drawings is yours for the asking.

THE POLE & TUBE WORKS
Newark, N. J.
Pacific Coast Representative:
H. M. HOLWAY
Hobart Building San Francisco

Specify

Brick and Cement Coating for Exterior Brick and Plastered Walls

A permanent coating that is absolutely waterproof and positively will not flake, peel or craze.

Waterproof your buildings while they are dry

Send for Booklet on Products, Data and Specifications

MINWAX CO., INC.

K. M. HAYDEN W. C. LEA
22 Battery St. 653 So. Clarence St.
San Francisco Los Angeles

ROBERTSON
Adaptable Skylights

No tar or creosote

Lasts a Lifetime!

Bloxonend floors subjected to continual trucking for the past seven years are as smooth and substantial today as when laid—no upkeep costs. Lays like ordinary dressed and matched flooring but with a smoother surface and one that stays smooth.

Write for Specifications

Carter Bloxonend Flooring Co.
H. M. HOLWAY, District Manager
San Francisco: Los Angeles:
1007 Hobart Bldg. 600 Metropolitan Bldg.
Portland: Chamber of Commerce Building

BLOXONEND
Lays Smooth—Stays Smooth

Features

Standard Trim—Galvanized Steel
Standard Bars—Black Painted
Steel Bar Spacings—16%" to 24%"
Pitch—3" in 12" to 8" in 12". Same adaptable bars will cover various widths of curbs.

Send for Typical Details of Construction.

H. H. ROBERTSON CO.
H. M. HOLWAY, District Manager
1007 Hobart Building, San Francisco
600 Metropolitan Building, Los Angeles

When writing to Advertisers please mention this magazine.
Steel Bars FOR CONCRETE REINFORCEMENT Cut to Length, Fabricated, Installed
Tel. Douglas 2466 B A D T - F A L K & C O.
346 Cal-Post Bldg., 74 New Montgomery St., San Francisco

Passenger and Freight Elevators
For Every Service
SPENCER ELEVATOR COMPANY
166-180 Seventh Street San Francisco

PACIFIC DEPARTMENT
GLOBE INDEMNITY COMPANY
Bonds and Casualty Insurance for Contractors
FRANK M. HALL, formerly Robertson & Hall, Mgr.
444 California Street Phone Sutter 2280 SAN FRANCISCO

CARL H. PETERSON BUILDER
PHONE DOUGLAS 1876 185 STEVENSON STREET SAN FRANCISCO

PHONE DOUGLAS 2370
R. McLERAN & CO.
GENERAL CONTRACTORS
HEARST BUILDING SAN FRANCISCO, CAL.

D. ZELINSKY & SONS
PAINTERS AND DECORATORS
165 GROVE STREET SAN FRANCISCO

I. R. KISSEL
Decorator, Painter and Paperhanger
1747 SACRAMENTO ST., Bet. Polk St. and Van Ness Ave., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlas Heating and Ventilating Co.</td>
<td>557-567 Fourth Street</td>
<td>Steam and Hot Water Heating, Coal and Gas, Pipe and Pipeless Furnaces,</td>
</tr>
<tr>
<td></td>
<td>San Francisco</td>
<td>Sheet Metal Work, Patent Chimneys</td>
</tr>
<tr>
<td>CLARENCE DRUCKER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAWSON &amp; DRUCKER</td>
<td>450 Hayes Street</td>
<td>PLUMBING—HEATING—CONTRACTORS</td>
</tr>
<tr>
<td></td>
<td>San Francisco, CA</td>
<td></td>
</tr>
<tr>
<td>H. G. Newman Co.</td>
<td>2004 Telegraph Avenue</td>
<td>PLUMBING HEATING</td>
</tr>
<tr>
<td></td>
<td>Oakland</td>
<td></td>
</tr>
<tr>
<td>ALEX COLEMAN</td>
<td>706 Ellis Street, San Francisco</td>
<td>CONTRACTING PLUMBER</td>
</tr>
<tr>
<td></td>
<td>Phone FRANKLIN 1006</td>
<td></td>
</tr>
<tr>
<td>W. F. Wilson Company</td>
<td>328-330 Mason Street, San Francisco</td>
<td>MODERN SANITARY APPLIANCES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Special Systems of Plumbing for Residences, Hotels, Schools, Colleges,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Office Buildings, Etc.</td>
</tr>
<tr>
<td>W. H. Picard</td>
<td>5656 College Avenue</td>
<td>PLUMBING, Heating, Ventilating and Power Plants</td>
</tr>
<tr>
<td></td>
<td>5662 Keith Avenue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phones Piedmont 9004-9005</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oakland, Calif.</td>
<td></td>
</tr>
<tr>
<td>Heating</td>
<td></td>
<td>FLOOR AND WALL TILING</td>
</tr>
<tr>
<td>Ventilation</td>
<td></td>
<td>SCOTT CO., INC.</td>
</tr>
<tr>
<td></td>
<td>243 Minna Street, San Francisco</td>
<td></td>
</tr>
<tr>
<td></td>
<td>381 11th Street, Oakland</td>
<td></td>
</tr>
<tr>
<td>FLOWERING EUCALYPTUS</td>
<td>2628 Shattuck Ave.</td>
<td>The Flaming Gum Tree of Australia (Eucalyptus Fascifolia)</td>
</tr>
<tr>
<td></td>
<td>Berkeley, Calif.</td>
<td>A mass of flame-colored bloom through the summer months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LIMITED SUPPLY OF SMALL TREES FOR SALE FOR FALL AND SPRING PLANTING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When writing to Advertisers please mention this magazine.
SANTA FE LUMBER CO.
A. J. RUSSELL, Mgr.

Wholesale and Retail
LUMBER

POLES AND PILING
OIL RIG AND SHIP TIMBERS
SAGINAW SPECIAL SHINGLES

16 California Street
San Francisco, Calif.

Pine and Redwood Lumber
SASH DOORS AND MILL WORK

SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL — PHONE OAKLAND 1820
FIRST AND OAK STREETS, OAKLAND

POPE & TALBOT
Manufacturers, Exporters and Dealers in
Lumber, Timber, Piles, Spars, Etc.

Office, Yards and Planing Mills
859-869 THIRD STREET, SAN FRANCISCO, CAL.

GUARANTEED
OAK AND MAPLE FLOORING
Insist on “Higgins” — It Costs No More

J. E. HIGGINS LUMBER CO.
SAN FRANCISCO

If It’s Hardwood — We Have It

When writing to Advertisers please mention this magazine.
ROBERTS MFG. CO.

Lighting Fixtures
Electric Appliances
Incandescent Lamps

WILLYS FARM LIGHTING AND POWER PLANTS

663 Mission Street  San Francisco

Genuine Hyloplate Blackboards
Best Pennsylvania Slate
Blackboards
School Furniture
Western Venetian Blinds
Lockers

C. F. WEBER & CO.
San Francisco  Reno
Los Angeles  Phoenix

BEAUTIFUL GARDENS
for the City and Suburban Home

MacRORIE-McLAREN CO.
Landscape Engineers and General Nurserymen

Office  Nurseries at
Suite 301 Phelan Bldg.  Beresford
San Francisco  San Mateo Co.

MODEL No. 6-A

SANITARY
This drinking fountain ideal for Playgrounds, Schools and Public Buildings

Haws Sanitary Drinking Faucet Co.
1808 Harmon St.  Berkeley, Calif.

When writing to Advertisers please mention this magazine.
Clinton

Electrically welded Wire Fabric

The Ideal Mesh Reinforcement for Concrete

Immediate Shipment from Stock
San Francisco
Los Angeles
Seattle

Wickwire Spencer Steel Corporation
SAN FRANCISCO
144 Townsend St.
Douglas 1421

LOS ANGELES
316 E. Market St.
Pico 4851

Recent Office Buildings

STANDARD OIL
SAN FRANCISCO

MATSON
NAVIGATION CO.
SAN FRANCISCO

CALIFORNIA STATE
LIFE INSURANCE
COMPANY
SACRAMENTO

Lindgren & Swinerton, Inc.
New Standard Oil Building
225 Bush Street
On the Sixth Floor

Specify

VLAARITE ENAMEL
The highest quality finish, it is possible to produce —
Free Working, Good Body, Fine Finish

OAKLEY PAINT MANUFACTURING CO.
727 ANTONIA ST., LOS ANGELES
833 HEARST BLDG., SAN FRANCISCO
PAINTS VARNISHES ENAMELS KALSOMINES

Furnaces

AGENTS FOR
FRONT RANK All Steel Warm Air Furnaces
AND THE OLD RELIABLE
THATCHER Cast Iron Warm Air Furnaces

REGISTERS — FURNACE FITTINGS — REPAIRS

Montague Range and Furnace Company
327-329 JESSIE STREET Phone Garfield 1422
SAN FRANCISCO, CALIF.
826-830 MISSION STREET

When writing to Advertisers please mention this magazine.
A Plea for Better Building

"I fear that we are running wild and overlooking a basic principle, which is that beauty to be real and lasting in architecture must be based on utility and reason. Certainly there is little of either in many of the poorly-built small houses of today. I would like to make an earnest plea, particularly to the speculative builders, to 'Stop—Look and Listen' before rushing on in the mad effort to outdo one another in creating something strikingly different."

SUMNER P. HUNT
former president of the Southern California Chapter of the American Institute of Architects, in the Los Angeles Times of January 1, 1924.

For permanence, for utility, for beauty and for safety, brick has no peer among building materials. When brick is used the human element is practically eliminated. With brick used, shoddy construction is impossible.

Dept. A-1

California Common Brick Manufacturers Association
342 Douglas Bldg., Los Angeles, Calif.
H. MORTENSON, President
MORTENSON CONSTRUCTION CO.
STRUCTURAL STEEL FABRICATORS

Office and Shops
19th AND INDIANA STREETS
Phone Mission 3033
SAN FRANCISCO, CAL.

JUDSON MANUFACTURING COMPANY
Main Office:
817-821 FOLSOM STREET
Telephone Sutter 6820
SAN FRANCISCO

Structural Steel and Iron Work

Federal Ornamental Iron & Bronze Co.
Bank Counter Screens and Grille Work Our Specialty
Most Modern Equipment Throughout
Recent Contracts: BANK OF ITALY, FIRST NATIONAL BANK
16th Street and San Bruno Avenue, San Francisco
Phone Market 1011

HERRICK IRON WORKS
STRUCTURAL STEEL
Office and Works, 18th and Campbell Streets
Oakland, Cal. Phone Lakeside 1460

Beam, Angle, Channels, and Universal Mill Plates for immediate shipment from stock

PACIFIC ROLLING MILL CO.
Suppliers of FABRICATED STRUCTURAL STEEL
Forgings, Bolts, Rivets, Frogs, Switches, Cast Iron Castings
General Office and Works: 17th and Mississippi Sts., San Francisco — Telephone Market 215

C. F. HOFFMAN
L. W. FLIEGNER

Golden Gate Iron Works
STRUCTURAL STEEL AND ORNAMENTAL IRON CONTRACTORS
Howard and 11th Streets

SCHRADER IRON WORKS, Inc.
STRUCTURAL STEEL CONTRACTORS
Fire Escapes, Waterproof Trap Doors, Ornamental Iron Work
1247-1249 HARRISON STREET
Bet. 8th and 9th
SAN FRANCISCO, CAL.
Telephone Market 337

When writing to Advertisers please mention this magazine.
Guarantee complete floor satisfaction by specifying

"Acorn Brand" Oak Flooring

Architects and contractors are proving this by actual practice.

STRABLE HARDWOOD CO.
HARDWOOD LUMBER
511-515 First St., Oakland, Calif.

George S. MacGruer \ Robert M. Simpson \ Members of Builders Exchange

MacGruer & Simpson
CONTRACTING PLASTERERS
PLAIN AND ORNAMENTAL
Cement, Stucco and Artificial Stone

Phone Garfield 512 266 Tehama Street, San Francisco

JOHN TRAYNOR \ CHARLES HARCOURT

OCEAN SHORE IRON WORKS
Manufacturers of
BOILERS, STEEL TANKS, STEEL PLATE SPECIALTIES
Dealers in
BOILERS, TANKS, PUMPS, ENGINES
GENERAL MACHINERY, ETC.

Office and Works: 550-558 EIGHTH STREET
Phones Market 462 and 463
SAN FRANCISCO, CAL.

PACIFIC COAST STEEL COMPANY
OPEN HEARTH
STEEL BARS — STRUCTURAL SHAPE
BOLT AND RIVET STOCK
REINFORCING STEEL

Sales Office: RIALTO BUILDING Phone SUTTER 1364
Plant: SOUTH SAN FRANCISCO

When writing to Advertisers please mention this magazine
THE "PARMCO"

Vertical and Horizontal Casement Windows


Exhibited in Sharon Building Exhibit

PACIFIC ROLLED METALS CO.

715 Harrison Street  San Francisco

Manufacturers of ‘PARMCO’ Ventilators, Puttyless Skylights, Rolled Mouldings, and General Sheet Metal Work.
1828—MOTT—1923

Architects and their clients are invited to visit our show rooms, 553-555 Mission St.
San Francisco, D. H. Gulick, manager.

MOTT COMPANY
of California

DOUGLAS 2046                          FELIX BUTTE

BUTTE ELEC. EQUIPMENT CO.
Trade Mark BEECO Registered
ELECTRICAL CONTRACTORS
530 FOLSOM STREET  SAN FRANCISCO

L. SIEBERT                          J. GENSLER
DESIGNERS AND MANUFACTURERS OF
SWITCH BOARDS · PANEL BOARDS
PROTECTIVE POWER PANELS
Drendell Electrical and Mfg. Co.
1760 HOWARD STREET  SAN FRANCISCO, CALIF.

MUELLER

Faucets give full value in wear and service.
The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?

THE NEWEST AND BEST THING IN FAUCETS
H. MUELLER MFG. CO.
1072-76 HOWARD STREET  SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
MILLER FOLDING IRONING BOARD
ELIMINATES WALL CABINET—IS INSTALLED IN KITCHEN CUPBOARD
NO PLASTER GROUNDS
SAVES WALL SPACE AND LABOR
CASING OR PAINTING
Exhibited LANNOM BROS. MFG. CO.
and sold by 362 Magnolia St., Oakland, Calif.
Send for W. N. MILLER
Catalogue to 844 Thirteenth St., Oakland

PACIFIC MANUFACTURING COMPANY
MILL WORK, SASH AND DOORS
HARDWOOD INTERIOR TRIM A SPECIALTY
MAIN OFFICE: SANTA CLARA, CALIFORNIA
SAN FRANCISCO, 177 Stevenson Street
LOS ANGELES, 908 Washington Building
OAKLAND, 1001 Franklin Street
SAN JOSE, 16 North First Street

C. F. STAUFFACHER, President
A. A. STAUFFACHER, Vice-President
THE FINK & SCHINDLER CO.
Manufacturers of INTERIOR WOODWORK AND FIXTURES
BANK, OFFICE AND STORE FITTINGS
SPECIAL FURNITURE
218-228 THIRTEENTH STREET
Bet. Mission and Howard Sts.
SAN FRANCISCO, CAL.
Telephone Market 474

LARSEN-SIEGRIST CO., Inc.
BUILDING CONSTRUCTION
807 Claus Spreckels Building
SAN FRANCISCO

Steam Heating and Power Plant Equipment
JAMES I. KRUEGER Telephone Sutter 7057
Representative
ILLINOIS ENGINEERING COMPANY
SKIDMORE VACUUM AND BOILER FEED PUMP
EUREKA BRASS WORKS
417 Market St. Suite 320 San Francisco, Calif.

Mullen Manufacturing Co.
BANK, STORE AND OFFICE FIXTURES—CABINET WORK OF GUARANTEED QUALITY—CHURCH SEATING
Office and Factory:
Telephone Market 8692 64 Rausch St., Bet. 7th and 8th Sts, San Francisco

JAMES L. McLAUGHLIN
GENERAL CONTRACTOR
Phones Douglas 6645—6646 251 KEARNY STREET, SAN FRANCISCO

Dolan Wrecking & Construction Co.
(D. J. DOLAN)
Lumber, Lath, Nails, Shingles, Doors, Windows
and Plumbing Supplies, New and Second Hand
Phone Market 4264 Office and Yard, 1607-1639 MARKET ST., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Fire Protection Corporation
Engineers and Contractors
FOR
Automatic
Sprinkler Systems
315 Montgomery St.  San Francisco, Cal.
Phone Sutter 2993

EASYSET
STORE FRONTS
GLASS OF ALL KINDS
Mirrors Art Bevel Plate
Cobbledick-Kibbe Glass Co.
666-668 Howard St.
San Francisco, Cal.
WASHINGTON AT THIRD ST.
OAKLAND, CAL.

WIRING
CENTRAL ELECTRIC
AND DEALERS
177-179 Minna Street, San Francisco
Phone Douglas 4822

H. RUMPFF
CONTRACTING DECORATOR
CUSTOM BUILT FURNITURE
PROPERTIES AND FURNISHINGS
School and Theater Equipment
Drop Curtains, Draperies
Specializing in Furnishings for Hotels,
Lodges, Clubs, Steamships, Apartment
Houses.
Estimates Furnished
567 Howard Street, San Francisco, Cal.

JOHNS-MANVILLE, Inc. of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair Ins-
ulating and Sound-Deadening.
JOHNS-MANVILLE, Inc. of California
DISPLAY ROOM
500 Post Street
San Francisco

JOHNS-MANVILLE, Inc. of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair Ins-
ulating and Sound-Deadening.
JOHNS-MANVILLE, Inc. of California
DISPLAY ROOM
500 Post Street
San Francisco

THE FIDELITY AND
CASUALTY COMPANY
of New York
CASUALTY INSURANCE
and SURETY BONDS
California Office
Balfour Building  San Francisco
Assets, $27,000,000; Surplus, $7,000,000

"BLAZING" THE TRAIL
We've been doing it for many years—
giving the Sportsman Better Value for
Quality than he ever before received.
"Value at a Fair Price" in everything for
the Sportsman.

When writing to Advertisers please mention this magazine.
Horrocks and Imperial Desks
Marble Chairs
Brown Morse Filing Cabinets
In All Standard Finishes
PHONE KEARNY 512

Nonpareil Corkboard Insulation
for Cold Storage Rooms

ESTIMATES FURNISHED FOR COMPLETE ERECTION

VAN FLEET FREEAR COMPANY
557 HOWARD STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
California Steam and Plumbing Supply Co.
671-679 FIFTH STREET
SAN FRANCISCO, CALIF.

PACIFIC COAST BRANCH OF
THE KELLY & JONES CO.
VALVES AND FITTINGS
Full Line of Plumbing Supplies

COMPLETE STOCK
Wrought Steel Pipe
AND
Byers’ Genuine Wrought
Iron Pipe—Pipe Tools, Etc.

The Elevator Floor
whether in Office Building, Hotel or
Department Store, is subjected to a
great deal of wear and tear.
—SPECIFY—
INTERLOCKING
RUBBER TILING

INTERLOCKING RUBBER TILING

material that is sure to give satisfaction. Twenty tons
installed in the Standard Oil Building, San Francisco.
Stock on hand for immediate delivery.

NEW YORK BELTING AND PACKING CO.
NEW YORK
San Francisco Branch 519 MISSION ST. Phone Douglas 1837
Small booklet of designs mailed on request

When writing to Advertisers please mention this magazine.
Merit Wins

This beautiful new apartment house in Long Beach, California, the Cooper Arms, is another building equipped throughout with

Schroeder Valves
Manufactured by
Schroeder Flush Valve Co.
Los Angeles Chicago San Francisco

IMPERIAL WATERPROOFING
Will Keep Out Moisture and Dampness
Trade WATERX Mark

If your building is leaking through the walls or around the windows, or if the Basement walls are wet below ground—call up SUTTER 978.

IMPERIAL WATERPROOFING is manufactured by BROOKS & DOERR, 460 7th St., San Francisco

1002-04 Merchants National Bank Building
Phone Sutter 978
SAN FRANCISCO, CAL.

COPPER FLASHINGS
A Handbook

Complete data on the use of Copper as a Flashing Material with standard specifications for Sheet Copper work.

A limited edition now off the press

Free To Architects

COPPER & BRASS
RESEARCH ASSOCIATION
25 BROADWAY NEW YORK

"CALIFORNIA STUCCO"

It is a finishing plaster coat made in many beautiful colors, from a true Portland Cement base, which assures everlasting qualities.

"The Stucco which is making California Architecture famous"

For Sale by All Dealers

California Stucco Products Co.
340 DORE ST., SAN FRANCISCO
1503 S. ALAMEDA ST., LOS ANGELES

When writing to Advertisers please mention this magazine.
**We FIT RIGHT**
into your plan of operation.
Wide experience--over a quarter century plus on jobs of infinite variety--has made this an adaptable organization. We can readily fit into your plan and you can prudently turn to us to **FABRICATE @ INSTALL STEEL BARS**

**GUNN, CARLE & CO.**
444 Market St. SAN FRANCISCO Sutter 2720
STOCKS AT WAREHOUSE, 10TH AND BRYANT STREETS

---

**Best Method for Plastering Homes**
Fireproof, crackproof and economical in every way.

Specify **TRUSCON 1-A METAL LATH** with 3/8" grounds which is available at a cost comparable with Wood Lath.

Ask us for detailed information

**TRUSCON STEEL COMPANY**
Chas. Halloway, Branch Manager
709 MISSION ST. Phone Douglas 7135 SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Illustrating one of the many beautiful effects that may be obtained through the use of

PABCO SHINGLES

Strip and Units

Their beautiful colors and proven durability make them preferred. They give universal satisfaction.

In Tylo Red — Indian Red — Sage Green — Blue Black.

The PARAFFINE COMPANIES, Inc.

17 Plants on the Coast

Los Angeles  San Francisco  Portland  Seattle

When writing to Advertisers please mention this magazine.
Achievement

One hundred years ago an English bricklayer invented a new building material. He called it Portland cement. Today the whole world is using it, in the form of Concrete, to “build for permanence.”

Think of the giant achievements of this all-important material—especially within the last twenty years.

Under the hurrying feet of multitudes, under the pounding tread of traffic, in teeming marts, and on countless farms, it is solidly serving the basic needs of our modern civilization.

Travel north from the great Galveston Sea Wall to the towering grain elevators of Minnesota. Travel west from the subways and skyscrapers of New York to the huge docks of the Pacific. Throughout the land you will see the monuments to permanence reared by Concrete.

You will see Concrete bridges, viaducts, dams, silos, manufacturing plants and office buildings.

You will see firesafe Concrete hospitals, schools, theaters, hotels, apartment buildings and homes.

You will see also a steadily increasing system of Concrete streets and roads, linking more closely together towns, cities and rural districts.

In considering these achievements of Concrete, the Cement Industry recognizes deep indebtedness to architects, engineers, builders and contractors.

The Industry recognizes also that its usefulness will continue to be measured by the value of the service it renders to those who use Concrete or have it used for them.

In this spirit, eighty-five separate cement manufacturing companies in the United States, Canada, Mexico, Cuba and South America maintain this association to improve and extend the uses of Concrete.

PORTLAND CEMENT ASSOCIATION
A National Organization to Improve and Extend the Uses of Concrete
CRUSHED ROCK GRAVEL SAND

COAST ROCK AND GRAVEL CO.
500 Call Building SAN FRANCISCO Phone Sutter 3990
Plants at Niles, Fair Oaks, Oroville, Elliot, Piedra, Solo, and Marysville

The Architect who specifies OTIS ELEVATORS may do so with the assurance that the responsibility of the Otis Elevator Company extends beyond satisfactory installation. Buildings equipped with OTIS ELEVATORS enjoy the advantage of prompt service and careful inspection rendered by over a hundred Otis offices.

OTIS ELEVATOR COMPANY
2300 STOCKTON ST. SAN FRANCISCO
OFFICES IN ALL PRINCIPAL CITIES

When writing to Advertisers please mention this magazine.
The Architect & Engineer

MAY 1924

The San Francisco Architectural Exhibit

Published in San Francisco
50 cents a copy - $2.50 a year
Do You Know
that the world's highest quality plumbing fixtures are made right here on the Coast?

PACIFIC
PLUMBING FIXTURES
PACIFIC SANITARY MANUFACTURING CO.
Main Office: 7 New Montgomery St., San Francisco
Factories: Richmond and San Pablo, California
Branches: Los Angeles, Portland
Specify PABCO 20 year roofs
No Leaks
No Roof Troubles

THE PARAFFINE COMPANIES, INC.
LOS ANGELES SAN FRANCISCO PORTLAND SEATTLE
17 plants on the coast
The Johnson System of Temperature Regulation functions faithfully in its impressive annual fuel saving and correct temperature control down through all the years the building it occupies stands. Its performance and perfection are as permanent as the structure's very foundation itself. The annual fuel saving it so endurably provides makes its cost insignificant; while its value in a building, likewise in a home, increases with each year to beyond any measure of price.

The Johnson System is best because made of metal throughout.

JOHNSON SERVICE COMPANY
Factory and Main Office Milwaukee, Wisconsin

SAN FRANCISCO BRANCH
417 RIALTO BUILDING
FRANK W. HOOK, Manager

When writing to Advertisers please mention this magazine.
Look me over—
I am one of the new 4000 Series KEWANEE BOILERS especially designed to burn oil.

I am a Kewanee No. 4160 and only one of this series which has been especially designed to burn oil in combination with any type of oil burner and my designers have been just as exacting in this feature—every essential without non-essentials.

Atomization, vaporization, pre-heating and proper mixing of the oil vapor and air have all been considered in my design.

I am of the strongest and most durable construction known in steam boiler design. My efficiency is unsurpassed by any type of heating boiler for I have incorporated in me all the vital essentials without a single non-essential. I am complete, ready to deliver dry steam at the nozzle without the necessity of headers and equalizers.

Figure me out for yourself. The rating they have given me is 11,000 sq. ft. of direct cast iron radiation and I can handle it with your piping and peak load thrown in.

I carry 1000 gallons of water and with the water line 4 inches above the tubes I have a disengaging area of 60.6 sq. ft. with 40.3 cubic feet of steam space. My circulation is free in all directions. I have 979 square feet of effective heating surface.

I have 111 cubic feet of furnace volume exclusive of ash pit, permitting the installation of any type of standard oil burner or special furnace lining.

YOU KNOW the KEWANEE BOILER and we are sure you will be interested in this new series.

KEWANEE BOILER COMPANY
KEWANEE, ILLINOIS

Low Pressure Heating Boilers
San Francisco Branch Office:
Postal Telegraph Building

High Pressure Power Boilers
Los Angeles Office:
420 E. Third Street
"Standard"

THIRTY-SIX years' experience manufacturing and installing Electric Time Keeping Systems. Helpful engineering data cheerfully furnished architects, engineers and school boards insuring satisfactory results, and a direct factory branch office completely equipped to render immediate service.

The Standard Electric Time Company
461 Market St., San Francisco, Cal.
Telephone Sutter 241

PRASCO PINLESS SWINGING HOSE RACK
For 50, 75, 100 ft. Underwriters Unlined Linen Hose
No pins to break, bend, or jam
Hose pays off one loop after the other
Plant Rubber & Asbestos Works
537 Brannan St. San Francisco Tel. Sutter 2100

Broncho Jr. TRAILER
As good as the best--Better than the rest

LANSING COMPANY
348 Brannan St. San Francisco
Branches from Coast to Coast

YES! this is the Jaeger Trailer Concrete Mixer--attach it to your machine. Speed determines profit. Here you get it. A quick mix and maximum speed from job to job. Write for Catalog.

EDWARD R. BACON COMPANY
CONSTRUCTION & EQUIPMENT
Folsom at 17th St., San Francisco
Oakland Fresno Los Angeles Sacramento
May, 1924

16,000 sq. yds. ARMCO-Ingot Iron Herringbone Lath used in walls, ceilings, and partitions. General Fireproofing Co., Youngstown, Ohio, Manufacturers.

A Federal Bank Building and ARMCO-Ingot Iron

Into such a magnificent structure as the Federal Reserve Bank of San Francisco has gone such materials as insure permanency.

It is significant that ARMCO-Ingot Iron lath was used. Ingot Iron Herringbone lath is a corrosion-resistant metal that has proved its worth under varying climatic conditions and especially so where buildings are exposed to salt sea air.

The design of the lath keys the plaster solidly and prevents cracks and falling plaster.

Where to order ARMCO-Ingot Iron sheets: Armco Warehouse, Tenth and Bryant Sts., San Francisco; California Cornice Works, Los Angeles; A. M. Castle Co. of Washington, Seattle; Spokane Sheet Metal Supply Co., Spokane.

ARMCO
INGOT IRON

The American Rolling Mill Co., Middletown, Ohio

When writing to Advertisers please mention this magazine.
## Index to Advertisements
(For Classified Directory and Specification Index see pages 8 to 18)

| A               | 56                          |
| American Chain Company | 25                          |
| American Face Brick Association | 25                          |
| American Marble & Mosaic Co. | 52                          |
| American Rolling Mill Co. | 22                          |
| Arkansas Oak Flooring Co. | 142                         |
| Atlas Heating & Ventilating Co. | 150                         |
| Atlantic Pacific Agencies Corp. | 137                         |
| Atlas Portland Cement Co. | 37                          |
| B               | 52                          |
| Babcock Company, C. D. | 4                           |
| Badi-Falk & Company | 149                         |
| Barre & Hilp. | 145                         |
| Bartlett, John M. | 145                         |
| Bass-Heister Company | 170                         |
| Beckwith, Herbert | 145                         |
| Birchard Wrecker Company | 133                         |
| Bonded Floors Company | 135                         |
| Bowser, S. F. & Company | 135                         |
| Brown Disappearing Bed Company | 178                         |
| Brown-Langlais Electric Co. | 158                         |
| Brininstool Company, The | 3d Cover                     |
| Built-In Fixture Co. | 31                          |
| Built-Dog Floor Clip Co. | 18                          |
| Butler Iron Works | 141                         |
| Butte Electric and Mfg. Co. | 158                         |
| Butte Electrical Equipment Co. | 159                         |
| Brunswick-Balke-Collender | 24                          |
| Byron Jackson Pump Mfg. Co. | 161                         |
| C               | 48                          |
| Cabot, Samuel Company | 48                          |
| Cadwalader-Gibson Company | 132                         |
| California Artistic Metal & Wire Company | 156                     |
| California Brick Company | 22                          |
| Calif. Common Brick Mfgs. Ass'n | 135                       |
| California Steam & Plumbing Supply Co. | 163                       |
| California Stove Products Co. | 164                         |
| California Wall Bed Company | 79                          |
| Cannon and Co. | 27                          |
| Carter Buxtoncell Flooring Co. | 147                         |
| Case Mt. Hardware Company | 165                         |
| Cement Gun Construction Co. | 36                          |
| Central Electric Company | 168                         |
| Central Iron Works | 151                         |
| Cheek & Gillis | 134                         |
| Clark, N. & Sons | 19                          |
| Clinton Construction Company | 154                         |
| Coast Rock & gravel Company | 172                         |
| Cobbledick-Kibbe Glass Co. | 161                         |
| Cochran, W. L., Inc. | 16                          |
| Colman, Alex | 150                         |
| Columbia Marble Company | 142                         |
| Cook, H. N. Belting Co. | 146                         |
| Cook Marble Company | 13                          |
| Crane Company | 49                          |
| Crittall Casement Window Co. | 47                          |
| D               | 123                         |
| Davis Hardwood Lumber Co. | 123                         |
| Del Monte Properties Company | 136                         |
| Detroit Steel Products Company | 168                         |
| Drendell Electrical & Mfg. Co. | 169                         |
| Dunham, C. A., Co. | 28                          |
| Electric Construction Company | 158                         |
| Elevator Supplies Company, Inc. | 139-140                   |
| Ellery Arms Company | 161                         |

| F               | 153                         |
| Fairfacts Company, Inc. | 153                         |
| Federal Ornamental Iron Works | 153                         |
| Fairbanks Morse Co. | 153                         |
| Fidelity & Casualty Company | 166                         |
| Fink & Schneider Company | 160                         |
| Fire Protection Corporation | 164                         |
| Fire Protection Engineering Co. | 151                         |
| Flagg, Edwin H. Co. | 145                         |
| Fuller & Goepp | 17                          |
| Fuller, W. P. & Company | 30                          |
| G               | 158                         |
| Garnett Young & Company | 158                         |
| General Electric Co. | 39                          |
| General Fire Proofing Co. | 44                          |
| Gilley Schmidt Company | 144                         |
| Gladding, McBean & Company | 20                         |
| Globe Indemnity Company | 149                         |
| Golden Gate Iron Works | 156                         |
| Grinnell Company of California | 154                         |
| Gunn-Carfe Company | 169                         |
| H               | 16                          |
| *Janes. Jones & Cadbury Co. | 16                          |
| Hand Self Cleansing Flush Valve Co. | 34                         |
| Hansen, Robertson & Zumwalt | 154                         |
| Harvey Hubbard Company | 32                          |
| Hauser Window Company | 165                         |
| Havens Sanitary Drinking Faucet Co. | 158                     |
| Hermann Safe Company | 145                         |
| Herrick Iron Works | 156                         |
| Higgins Lumber Company | 151                         |
| Hillard, C. J. Company | 142                         |
| Hillis Hubbard & Company | 131                         |
| Hackaday Co. | 29                          |
| Holbrook, Merrill & Stetson | 48                          |
| Home Manufacturing Company | 150                         |
| Hunt & Company, Robt., W. | 136                         |
| Hunter & Hudson | 144                         |
| I               | 43                          |
| Indiana Limestone Company | 43                          |
| Independent Automatic Sprinkler Co. | 10                         |
| Johns-Manville, Inc. | 161                         |
| Johnson Service Co. | 141                         |
| Johnson, S. T. Company | 141                         |
| Jones Bros, Asbestos Company | 171                         |
| Joost Bros. | 144                         |
| Hudson Manufacturing Company | 156                         |
| K               | 155                         |
| Kennedy, David E. | 155                         |
| Kennedy Valve Company | 151                         |
| Kewance Boiler Company | 3                           |
| Kinnear Manufacturing Co. | 28                          |
| Kissell, H. R. | 119                         |
| Knowles, A. | 148                         |
| Krueger, James L. | 160                         |
| L               | 4                          |
| Lansin Company | 4                           |
| Lannom Brothers | 160                         |
| Larsen, Siegrist Co., Inc. | 160                         |
| Lawson & Drucker. | 159                         |
| Lawton & Vezez | 145                         |
| Lindgren, Swinerton, Inc. | 165                         |
| Littlefield, R. W. | 118                         |
| Livermore Fire Brick Works. | 135                         |
| Los Angeles Pressed Brick Company | 20                         |
| M               | 137                         |
| Mac Gruer & Simpson | 137                         |
| Mac Krolle & Mc Laran Company | 132                         |
| Magner Bros. | 141                         |

For Information on Public Seating Consult

WESTERN STATES SEATING COMPANY

39 Second Street, San Francisco

2133 Kern Street, Fresno

410 Pacific Electric Bldg., Los Angeles
WE SPECIALIZE IN HIGH GRADE

CONCRETE CONSTRUCTION
LET US GIVE YOU AN ESTIMATE ON YOUR NEXT JOB

VANNucci BROS.

16th AND CHURCH STREET

SAN FRANCISCO

Main Iron Works .................................. 34
Mangrum & Otter, Inc. ......................... 14
Marshall & Stearn ......................... 125
Mc Cray Refrigerator Company .......... 132
Mc Laughlin, James L .................... 134
Mc Lernan, R. Company .............. 145
Michel & Pfeiffer, Works ........... 140
Minwax Company, Inc. .............. 147
Montgomery Portland Cement Co. .... 145
Montague Range & Furnace Co. ...... 153
Mortensen Construction Co. .......... 156
Mott Company of California .......... 159
Mueller, H., Manufacturing Co. ...... 165
Mullen Manufacturing Co. .......... 166
March-Williams Const. Co. .......... 149
Musto Sons Kearman Company .......... 14
N
Nason, R. N. & Company .............. 112
National Mfg. Lubber Co. .......... 167
National Terra Cotta Society ........ 23
Ne Page, McKeesney Co. ........... 154
Newberry Electric Company ......... 158
Newman, H. G. .......................... 150
New York Beltling Company ......... 165
Oakley Paint Mfg. Co. .............. 133
Ocean Shore Iron Works .......... 137
Old Mission Portland Cement Co. .... 35
Otis Elevator Company .............. 172
P
Pacific Coast Steel Co. .............. 157
Pacific Electric Clock Company .... 155
Pacific Electric EXtinguisher Co. .... 155
Pacific Foundry Company .......... 164
Pacific Manufacturing Company .... 169
Pacific Gas Steam Company ......... 132
Pacific Plumbing Fixtures Company .... 2nd cover
Pacific Portland Cement Co. ....... 36
Pacific Materials Company .......... 154
Pacific Rolling Mills ............. 156
Pacific Rolled Metals Co. .......... 153
Palm Iron Works ...................... 163
Paraffine Companies ............. 1
Parker, K. E. Company ............. 118
Patton Water Vessel Company .... 149
Peterson, Carl H. ...................... 146
Petroleum Sanitary Sink Co. ...... 136
Phillips, Charles T. Co. .......... 154
Phoenix Desk Company ............. 164
Pierard, W. H. ......................... 158
Pittsburg Water Heater Company .... 150
Pole & Tube Works ................. 147
Pope & Talbot ......................... 151
Portland Cement Association ....... 51
Potter Radiator Company .......... 34
Plant Rubber & Asbestos Works ..... 4
Quandt, A. & Sons ..................... 9
R
Ralph Iron Works ..................... 8
Randall Control Corporation .... 144
Ray Manufacturing Company .... 141
Raymond Grafton Company .......... 42
Richmond Pressed Brick Co. ........ 26
Richards-Wilcox Mfg. Co. ...... 118
Rhodes Janney Company .......... 148
Roberts Manufacturing Company .... 152
Roberson Company, H. H. ........ 147
Rumpf, H. ................................ 61
Rud Heater Company .............. 144
S
Sandusky Cement Company .......... 137
Santa Fe Lumber Company .......... 151
Schrader Iron Works .............. 156
Schrader Flush Valve Co. .......... 164
Scott Company .......................... 150
Simmonds, O. M. Company ........... 12
Simonds Machinery Company ........ 34
Sloan, W. & J. ..................... 18
Smith, Egge Mfg. Co. .......... 146
Smith Electric Company ............. 10
Sommer, L. M. ..................... 144
Soule, Edward L. Co. .......... 132
Spencer Electric Co. .............. 155
Spencer Elevator Company .......... 149
Standard Electric Time Co. ....... 14
Standard Fence Company .......... 14
Standard Gypsum Co. ............. 11
Standard Varnish Works .......... 14
Stanley Works ......................... 141
Steel Form Contracting Company .... 148
Stewart Sales Company .......... 153
St. Francis Hotel .................... 130
St. John Roberts L. .................. 16
Strable Hardwood Company ....... 38
Sunset Lumber Company .......... 151
T
Tamblyn Gordon M. ................. 155
Toledo Scale Company .......... 11
Tomkins-Kiel Marble Company .... 142
Tonern Company ...................... 151
Tropic Pottery, Inc. .............. 21
Trost Robert ......................... 145
Tunkhannock Electric Mfg. Co. .... 121
Truscan Steel Company .......... 169
U
United Alloy Steel Corp. .......... 161
United Materials Company ....... 26
United States Metal Products Co. ... 7
United States Rubber Company .... 167
V
Van Emon Elevator Company ....... 154
Van Fleet Freear Company .......... 167
Vannucci Bros. Co. .............. 165
Vermont Marble Company ....... 14
Villadsen Bros. ...................... 13
Vogt, Alfred ......................... 142
Vonnegut Hardware Company ....... 45
Vukelich & Barge ...................... 148
W
Wadsworth, Howland and Co., Inc. .... 50
Walter, D. N. & E. Co. .......... 149
Wayne Tank & Pump Company .... 166
Whisper, C. F. Company .......... 175
Whistler, Warren & Company ...... 165
West Electric Heater .............. 155
West Coast Porcelain Company ..... Back Cover
Western Asbestos Magnesia Co. .... 168
Western Blind & Screen Company ........ 14
Western Iron Works .............. 168
Western States Sealing Company .... 6
Whitney Vincent Company ....... 166
Wicks & Whitney Steel Corporation 152
Wilson, W. F. Company .......... 150
Witt, G. E. Company .............. 52
Z
Ze'insky, D. & Company .......... 149

Metprodoc Reversible and Double Hung Steel Windows

UNITED STATES METAL PRODUCTS CO.

330 Tenth St., San Francisco, Calif.
Lumber Exchange, Seattle, Wash.
Exchange Bldg., Portland, Ore.
Bank of Italy Bldg., Los Angeles, Calif.
Pauelsen Bldg., Spokane, Wash.
Provident Bldg., Tacoma, Wash.
Architects’ Specification Index
(For Key to Advertisements, see pages 6 and 7)

ASBESTOS MATERIALS
Johns-Manville Inc., of California, 500 Post street, San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Jones Bros. Asbestos Supply Co., Inc., 500 Second St., San Francisco.
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

ART METAL
Federal Ornamental Iron and Bronze Co., 16th St. and San Bruno Ave., San Francisco.
Michel & Pfeiffer Iron Works, 1415 Harrison street, San Francisco.
California Artistic Metal & Wire Co., 349 Seventh street, San Francisco.

ARCHITECTURAL TERRA COTTA
N. Clark & Sons, 116 Natoma St., San Francisco.
Gladding, McBean & Company, Crocker Bldg., San Francisco.
Livermore Fire Brick Works, 604 Mission Street, San Francisco.
Tropico Pottery Inc., Glendale, Cal.

BATHROOM ACCESSORIES

BEDS—WALL
California Wall Bed Co., 714 Market St., San Francisco.
Brown Disappearing Bed Company, 716 Phelan Building, San Francisco.

BLACKBOARDS
Stewart Sales Co., 247 Rialto Building, San Francisco.
"Permarock" Sold by Western States Seating Company, 39 Second Street, San Francisco.

BLINDS—VENETIAN AND DIFFUSELITE
Western Blind & Screen Company, factory, Los Angeles; San Francisco representatives, Edward C. Dehn, Hearst Bldg., and C. F. Webber Co.

BOILERS
Birchfield Boiler Company, Tacoma, Washington. See advertisement for Coast agencies.
Kewanee Boiler Company, Factory Branch, Postal Telegraph Bldg., San Francisco.
Kewanee Water Supply System, Simonds Machinery Co., 816 Folsom St., San Francisco.

Main Iron Works, 1000 Sixteenth Street, San Francisco.

BONDS FOR CONTRACTORS
Bonding Company of America, Kohl Bldg., San Francisco.
Globe Indemnity Co., 444 California St., San Francisco.
Fidelity & Casualty Co. of New York, Balfour Bldg., San Francisco.
Standard Accident Insurance Company, California Commercial Union Building, San Francisco.

BRASS GOODS, CASTINGS, ETC.
H. Mueller Manufacturing Co., 1072-76 Howard St., San Francisco.

BRICK—FACE, COMMON, ENAMEL, GLAZED
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
N. Clark & Sons, 116 Natoma St., San Francisco.
Richmond Pressed Brick Co., Sharon Bldg., San Francisco, Plant at Richmond, Cal.
Livermore Fire Brick Works and California Brick Co., 604 Mission St., San Francisco.
Cannon & Co., Sacramento; and 77 O'Farrell St., San Francisco.

BRICK & CEMENT COATING
Armorite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.
The Paraffine Companies, Inc., 475 Brannan St., San Francisco.
Wadsworth, Howland & Co., Inc., Jas. Hambly & Son, 1233 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.

BRICK STAINS
Armorlite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.

BUILT-IN FIXTURES
Built-In Fixture Company, 2608 San Pablo Ave., near Dwight Way, Berkeley, and Heaster Store, Pacific Building, San Francisco.

BUILDERS’ HARDWARE
Joon Bros., agents for Russell & Erwin Hardware, 1853 Market St., San Francisco.
The Stanley Works, New Britain, Conn., Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Palace Hardware Company, Agents Corbin goods, 581 Market St., San Francisco.

RALSTON IRON WORKS, INC.
ESTABLISHED 1876
Office and Works
20th and Indiana Streets
SAN FRANCISCO
Phone Mission 3230
Structural Steel
Representing
Pauly Jail Building Co.
ARCHITECTS' SPECIFICATION INDEX—Continued

BUILDING MATERIALS, SUPPLIES, ETC.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.

BURGLAR ALARMS
Smith Electric Company, 50 Natoma St., San Francisco.

CEMENT
Medusa Stainless White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon, and Washington.
Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.
Monolith Portland Cement Company, 703 Market St., San Francisco and Los Angeles.

CEMENT—WATERPROOF
Monolith Portland Cement Co., 215 W. 7th St., Los Angeles, and 800 Claus Spreckels Building, San Francisco.

CEMENT EXTERIOR WATERPROOF PAINT
Armorite, sold by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Bay State Brick and Cement Coating, sold by James Hamblin, 229-233 Clay St., San Francisco.

CEMENT GUN CONSTRUCTION
Cement Gun Construction Co., Hobart Building, San Francisco.

CEMENT STUCCO
"California" sold by California Stucco Products Company, 340 Dore St., San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
N. Clark & Sons, 116 Natoma St., San Francisco.
California Brick Co., and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

Tropico Pottery, Inc., Glendale, Cal.

CLOCKS—ELECTRIC TIME
Standard Electric Time Co., 461 Market St., San Francisco.

Pacific Electric Clock Company, 86 Third St., San Francisco.

CONCRETE CONSTRUCTION
Vannucci Bros., 18th and Church Streets, San Francisco.
Villadsen Bros., Inc., 749 Monadnock Building, San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward R. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.

Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badd-Falk Co., Cal-Post Bldg., San Francisco.

CONDUTS

CONTRACTORS, GENERAL
Hansen, Robertson & Zumwalt, 4145 Broadway, Oakland.
Bartlett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegrist Co., Inc., 807 Claus Spreckels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.
Murch-Williams Construction Co., Fox-Oakland Building, Oakland, Calif.
K. E. Parker Co., Inc., Glanville Bldg., San Francisco.

Dinwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, Park Ave., San Francisco.

Satinette White Enamel
Flatline Cabinet Finish
Elastica Interior and Elastica Exterior
Standard Varnish Works
55 Stevenson Street
San Francisco
Smith Electric Company
"Quality First"

ELECTRICAL CONSTRUCTION
CONTRACTING, WIRING, FIXTURES, MOTORS, SUPPLIES, REPAIRING

50 Natoma Street
Telephone Sutter 1378

ARCHITECTS' SPECIFICATION INDEX—Continued

Vukicevich & Bagge, 815 Bryant St., San Francisco.
Robert Trost, 26th and Howard St., San Francisco.
L. M. Sommer, 401 Balboa Bldg., San Francisco.
Jua L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 810 at 17th St., San Francisco, and Los Angeles.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 512 Howard St.

CORK TILE
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.
David E. Kennedy, Sharon building, Los Angeles, and Story building, Los Angeles.
Bonded Floors Company, 370 Second St., San Francisco; 263 No. Los Angeles, St., Los Angeles.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

DAMP-PROOFING AND WATERPROOFING
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Minwax Co., Inc., 22 Battery St., San Francisco, and 652 S. Clarence St., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

DOOR HANGERS

DRAIN PIPE AND FITTINGS

DRINKING FOUNTAINS
Cran Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.
Elevator Supplies Co., Inc., Hoboken, N. J.; San Francisco office, 186 Fifth St.
"Chelsea" dumb waiters, sold by M. E. Hammond, Pacific building, San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 936 Folsom St., San Francisco.
Central Electric Company, 177-79 Minna St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Brown-Langbias Electrical Construction Co., 315 Fifth Street, San Francisco.
Newberry Electric Company, Alta Bldg., San Francisco.
Smith Electric Company, 50 Natoma St., San Francisco.
Spencer Electric Co., 320 12th Street, Oakland, Calif.
Decker Electrical Construction Company, 149 New Montgomery St., San Francisco.
Electric Construction Company, 616 Broadway, Fresno.
Ne Page, McKenny Co., 589 Howard St., San Francisco, Oakland, Los Angeles and Seattle.

ELECTRIC PLATE WARMER
The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL PLUGS, RECEPTACLES, ETC.
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

ELECTRIC SAFETY INTERLOCKS

ELECTRIC HEATING
"Glozes" manufactured by Strait & Richards, Inc., Newark, N. J., represented by Atlantic Pacific Agencies Corporation, 204 Rialto Building, San Francisco.
West Electric Heaters, manufactured by W. Wesley Hicks, Rialto Building, San Francisco.
TOLEDO AUTOMATIC SPRINGLESS SCALES
12 OUNCES TO 20 TONS
for Factories, Warehouses, Wholesale Houses—in fact any kind of business
where accurate weight is desired
676 MISSION ST.
Phone Sutter 250

TOLEDO SCALE CO.
SAN FRANCISCO
California

ARCHITECTS' SPECIFICATION INDEX—Continued

ELEVATORS—PAASSENGER and FREIGHT
Otis Elevator Company, Stockton and North
Point, San Francisco.
Spencer Elevator Company, 166-7th St., San
Francisco.
San Francisco Elevator Co., 860 Folsom St., San
Francisco.
Van Emon Elevator Company, 1139 Howard St., San
Francisco.

ELEVATOR SIGNALS, DOOR EQUIPMENT
Electric Suppliers Co., Inc., Hoboken, N.J.;
San Francisco office, 186 Fifth St.
Randall Control & Hydraulic Corporation,
262A Minna St., San Francisco, and 523 Central
Bldg., Los Angeles.
Richards-Wilcox Mfg. Co., 525 Market St., San
Francisco.

ENGINEERS—CONSULTING, ELECTRICAL,
MECHANICAL.
Robert L. St. John, 1101 Flatiron Building, San
Francisco.
Hunter & Hudson, Rialto Bldg., San Francisco.
Charles T. Phillips Company, Bank of Italy
Bldg., San Francisco, and Roberts Bldg., Los
Angeles.

FAIENCE TILE
Tropic Pottery, Inc., Glendale, Calif.
Michel & Pfeffer Iron Works, Harrison and
Tenth Streets, San Francisco.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Fran-
cisco and 62nd and Lowell Sts., Oakland.

FIRE EXIT LATTICES
Vennegut Hardware Co., Indianapolis, Ind., rep-
presented in San Francisco by C. H. Jensen
Co., Cal Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison
St., San Francisco.
Pyle Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Biele St., San Fran-
cisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Bran-
nan Street, San Francisco.

FIREPLACE—ELECTRIC
"Glelog," manufactured by Strait & Richards,
Inc., represented by Atlantic Pacific Agencies
Corp., Rialto Building, San Francisco.

FIRE PROOF DOORS
U. S. Metal Products Co., 330-10th St., San
Francisco.
Kinnear Mfg. Co., represented in San Francisco
by Pacific Materials Co., Underwood Bldg.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Corp., of California, 315 Mont-
gomery St., San Francisco.
Fire Protection Engineering Co., 142 Sansome St., San Francisco.

Grinnell Company of the Pacific, 453 Mission
St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma
St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St.,
San Francisco.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 552 Brannan
St., San Francisco.
The Funk & Schindler Company, 216-13th St.,
San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San
Francisco.

FLAG POLES—STEEL
Pole & Tube Works, Newark, N. J., represented by
H. M. Holway, Hobart Bldg., San Francisco,
and 600 Metropolitan Bldg., Los Angeles.

FLOORS, BLOCK
Carter, Bloxom & Flooring Co., Kansas, Mo.,
represented on Pacific Coast by H. M. Holway,
Hobart Building, San Francisco.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St.,
San Francisco, and 600 Metropolitan Bldg.,
Los Angeles.

Grip-Tite floor anchors, Check & Gillis, 625 Call
Building, San Francisco.

FLOORING, HEAVY DUTY
Carter, Bloxom & Flooring Co., Kansas, Mo.,
represented on Pacific Coast by H. M. Holway,
Hobart Building, San Francisco.

FLOORS—HARDWOOD
Cadwallader, Gibson Co., 5th & Brannan St.,
San Francisco.
Stable Hardwood Company, 511 First St., Oak-
land.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
J. E. Higgins Lumber Company, 423 Sixth St.,
San Francisco.
"Perfection" Brand Oak Flooring, Arkansas Oak
Flooring Co., Pine Bluff, Arkansas.

FLOOR TREATMENT—HARDWOOD, COMPO-
SION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco
and 635 S. Clarence St., Los Angeles.

FLUSH VALVES
Handy Self-Cleaning Flush Valve Co., 731 Fols-
som St., San Francisco.
Shroeder Flush Valve Company, 1300 N. Main
Street, Los Angeles and 16 Steuart Street,
San Francisco.

FURNACES—WARM AIR
Mangrum & Otter, 827 Mission St., San Fran-
cisco.
Montague Range and Furnace Co., 926 Mission
St., San Francisco.
C. B. Babcock Company, 768 Mission St., San
Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH,
Home Manufacturing Company, 543 Brannan
St., San Francisco.

THE PELTON WATER WHEEL CO.
Hydraulic Engineers
Light-Duty High-Head Pumps for Tank and Other Building Service
Heavy-Duty Pumps for Municipal and General Water Supply

2197 19th Street
San Francisco
NASON'S OPAQUE FLAT FINISH A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.
Made in California to stand Pacific Coast climatic conditions

R. N. Nason & Co., Paint Makers
PORTLAND 151 Potrero Ave., SAN FRANCISCO—426 Market St.  SEATTLE

ARCHITECTS' SPECIFICATION INDEX—Continued

W. & J. Soane, 216 Sutter St., San Francisco.
Western States Seating Co., 39 Second St., San Francisco.
H. Rumph, 567 Howard St., San Francisco.
Fink & Schindler Company, 218-19th St., San Francisco.

GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
Fuller & Goep, 32 Page St., San Francisco.
W. & P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
Ellery Arms Co., 583 Market St., San Francisco.

HARDWARE
Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Vonnegut hardware, sold by G. H. Jensen Co., Call Bldg., San Francisco.

HEATING AND VENTILATING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gilles-Schmidt Company, 198 Otis St., San Francisco.
Hatley & Hatley, Mitau Bldg., Sacramento.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Lawson & Drucker, 450 Hayes St., San Francisco.
Luken and Hawley, 906 7th St., Sacramento.
William E. Wilson Co., 325 Mason St., San Francisco.
W. H. Picard, 5656 College Ave., Oakland.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.
Williams Radiator Company, 371 Mission St., San Francisco.
Warren Webster & Company, Sharon Building, San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
General Gas Light Company, 768 Mission St., San Francisco.
Ruf-De Fameless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco.
Humphrey Radiantfire, sold by Rudd Heating Company, 431 Sutter St., San Francisco.
Pacific Gas Steam Radiator Company, "Gas Steam Radiators," 571 Mission Street, San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.
Cannon & Co., plant at Sacramento; 77 O'Rearrell St., San Francisco.

HOSE—UNDERWROTHES UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 573-579 Brannan Street, San Francisco.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garrett Young & Co., 612 Howard St., San Francisco.

HOTELS
St. Francis Hotel, Powell and Post Streets, San Francisco.

ICE MAKING MACHINERY
"Friedeiner," Sold by W. L. Cochran, 888 Mission St., San Francisco.

INCENTRATORS
The Incinerite, sold by M. E. Hammond, Meza-mine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

HEATING AND VENTILATING EQUIPMENT
W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.
Williams Radiator Company, 371 Mission St., San Francisco.
Warren Webster & Company, Sharon Building, San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
General Gas Light Company, 768 Mission St., San Francisco.
Ruf-De Fameless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco.
Humphrey Radiantfire, sold by Rudd Heating Company, 431 Sutter St., San Francisco.
Pacific Gas Steam Radiator Company, "Gas Steam Radiators," 571 Mission Street, San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.
Cannon & Co., plant at Sacramento; 77 O'Rearrell St., San Francisco.

HOSE—UNDERWROTHES UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 573-579 Brannan Street, San Francisco.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garrett Young & Co., 612 Howard St., San Francisco.

HOTELS
St. Francis Hotel, Powell and Post Streets, San Francisco.

ICE MAKING MACHINERY
"Friedeiner," Sold by W. L. Cochran, 888 Mission St., San Francisco.

INCENTRATORS
The Incinerite, sold by M. E. Hammond, Meza-mine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.
ARCHITECTS' SPECIFICATION INDEX—Continued

INDUSTRIAL PLANTS

RAY COOK MARBLE CO.
IMPORTED AND DOMESTIC MARBLES
For Building Construction

Factory and Office, foot of Powell St., Oakland

Phone Piedmont 1009
OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 425 Brannan St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 430 Fourth St., San Francisco; 830 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeiffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.

PANEL BOARDS

PAINTS, OILS, ETC.
Magner Bros., 414-424 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
Hill, Hubbell & Co., Los Angeles, Oakland, Portland, Seattle and 115 Davis St., San Francisco.
W. F. Fuller & Co., all principal Coast cities.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Oakley Paint Manufacturing Company, 727 Antonia St., Los Angeles, and Hearst Building, San Francisco.

PLASTER

PLASTERING CONTRACTORS
A. Knowles, Call Bldg., San Francisco.
MacGruer & Simpson, 266 Tehama St., San Francisco.

PLASTER REINFORCEMENT
National Steel Fabric Co., Pittsburgh and 564 Market St., San Francisco.

PLUMBING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmidt Company, 196 Otis St., San Francisco.
Hateley & Hateley, Mitaug Bldg., Sacramento.
Scott Co., Inc., 243 Minna St., San Francisco.
Wm. F. Wilson Co., 328 Mason St., San Francisco.
Luppini & Hawley, 906 7th St., Sacramento.
W. H. Picard, 5650 College Ave., Oakland.

PLUMBING SUPPLY HOUSES
Crane Company, all principal coast cities.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.
Holbrook, Merrill & Stetson, 84 Sutter St., San Francisco.
H. Mueller Manufacturing Company, 1072-76 Howard St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, 334-355 Wells Fargo Building, 55 Second St., San Francisco.

PUMPS—HAND OR POWER
Fairbanks, Morse & Company, Harrison and Spear Streets, San Francisco, California.
Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 816 Folsom Street, San Francisco.
Ocean Shore Iron Works, 558 Eighth St., San Francisco.
Pelton Water Wheel Co., 2022 Harrison St., San Francisco.
S. F. Bowser & Co., Inc., 425 Brannan St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Tank & Pump Co., 430 Fourth St., San Francisco; 830 S. Los Angeles St., Los Angeles.
Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.

REINFORCING STEEL
Edward L. Seule, Rialto Bldg., San Francisco.
Badt-Falk & Co., Call Bldg., San Francisco.
Judeon Iron Works, San Francisco and Oakland.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
United Alloy Steel Corporation, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

STANDARD GYPSUM CO.
Manufacturers of
HARDWALL, FINISHING and CASTING PLASTER
305 Sharon Building, San Francisco
345 East Madison Street, Portland
403 Lowman Building, Seattle
Better Than Ever

The Von Duprin latch of several years ago was a remarkably well designed and carefully made device.

It was, in fact, so well made that no Von Duprin device, anywhere, has ever failed to operate in an emergency.

Not content, however, with the practical perfection of the device at that time, we have since made improvements and refinements which put the Von Duprin of today in a class of complete superiority to that of a few years ago.

That you may have full information about the latest developments of the device we will, beginning next month, publish a series of advertisements in this magazine giving detailed information about the most interesting improvements embodied in the Von Duprin latches now in production.

If you wish this information all at once, ask us for Catalog 24-L.

For general specification information, see “Sweet’s,” pages 1415-1419.

San Francisco Office, Call-Post Building

Vonnegut Hardware Co.
Indianapolis, Ind.
Frigidaire
The Electric Refrigerator for Home, Apartment, Store, Etc.
Made by DELCO-LIGHT COMPANY, Dayton, Ohio
W. L. COCHRAN, INC., Distributor, 880 Mission St., San Francisco

ARCHITECTS' SPECIFICATION INDEX—Continued

REFLECTORS

REFRIGERATORS
"Frigidaire," Sold by W. L. Cenicar, 880 Mission St., San Francisco.
McClary Refrigerator Co., Kendallville, Ind.; 765 Mission St., San Francisco.

ROOF MATERIALS
"Malthoid" and "Ruberoid," also "Pabco" ten and twenty year roofs, manufactured by the Paraffine Companies, Inc., San Francisco.
Gladding, McBean & Co., Crocker Building, San Francisco.
California Brick Company, 604 Mission Street, San Francisco.
H. H. Robertson Co., Hobart Bldg., San Francisco.
Jones Brothers Asbestos Supply Co., 500 Second St., San Francisco.
Johns-Manville Inc., of California, 500 Post St., San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

RUBBER TILING—INTERLOCKING

RUBBER TILING
Wright Rubber Products Co., represented by Cheek & Gillis, 625 Call Bldg., San Francisco.
United States Rubber Co., 300 Second Street, San Francisco and 923 S. Los Angeles Street, Los Angeles, Calif.
Bonded Floors Co. Inc., 370 2nd Street San Francisco and 262 South Los Angeles Street, Los Angeles.

RUGS & CARPETS
W. & J. Steane, 216 Sutter St., San Francisco.

SAFETY TREADS
Pacific Materials Co., 522 Market St., San Francisco.

SAFETY SWITCHES

SASH AND CABLE CHAINS
American Chain Co., Bridgeport, Conn. and Pacific Building, San Francisco.
Smith & Egge Mfg. Co., Bridgeport, Conn.
Coast agents, Rawlins & Smith, San Francisco and Los Angeles.

SAFES AND VAULTS
Herrman Safe Company, 216 Fremont St., San Francisco.

SCALES
Toledo Scale Company, 676 Mission St., San Francisco.
Fairbanks, Morse & Company, Harrison and Spear Streets, San Francisco, California.

SECURITY PAINTING—DROP CURTAIN, ETC.
The Edwin H. Flagg Scenic Co., Los Angeles and San Francisco.

SCHOOL AND THEATER EQUIPMENT
H. Rumpf, 567 Howard St., San Francisco.

SHEATHING AND SOUND DEADENING
Western Asbestos Magnesia Co., 25 So. Park, San Francisco, Calif.

SHEET METAL WORK
The Pacific Rolled Metals Company, 715 Harrison Street, San Francisco.

SHINGLE STAINS
"Superior Shingle Stain," Manufactured by Bass-Head Paint Company, all principal Coast cities.

SIGNALLING & PROTECTIVE SYSTEMS
Garnett, Young & Co., 612 Howard St., San Francisco.

SINKS—COMPOSITION

SKYLIGHTS
H. H. Roberts Co., represented on the Pacific Coast by H. L. Holway, Hobart Building, San Francisco.

STEEL FLAG POLES
Pole and Tube Works, Newark, N. J., represented on Pacific Coast by H. M. Holway, Hobart Building, San Francisco.

STEEL TANKS
Ocean Shore Iron Works, 15 Eighth St., San Francisco.
Main Iron Works, 1000 Sixteenth St., San Francisco.

STEEL AND IRON—STRUCTURAL
Central Iron Works, 621 Florida St., San Francisco.
Herrick Iron Works, 18th and Campbell Sts., Oakland.
Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
Mortenson Construction Co., 19th and Indiana Sts., San Francisco.
Pacific Coast Steel Co., Rialto Building, San Francisco.
Pacitic Rolling Mills, 17th and Mississippi Sts., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Ralston Iron Works, 29th and Indiana streets, San Francisco.
Schroder Iron Works, Inc., 1247 Harrison St., San Francisco.
Western Iron Works, 141 Beale St., San Francisco.

STEEL LUMBER
The General Fireproofing Company, 20 Beale Street, San Francisco.
May, 1924

West Suburban Hospital

Ideal in Name and Service

The silent operation of IDEAL Elevator Door Hardware makes it ideal for hospitals, hotels, apartments, office buildings and all other structures in which quietness is essential. This desirable feature, plus safe, speedy action and the assurance of lifetime service, led to the installation of IDEAL equipment in the new West Suburban Hospital at Oak Park, Illinois.

Write today to Department X for a copy of catalog describing IDEAL Elevator Door Hardware.

Richards-Wilcox Mfg. Co.
AURORA, ILLINOIS, U.S.A.

San Francisco Office: 525 Market St.

GLASS

Fuller & Goepp
Manufacturers of
Art and Leaded Glass MIRRORS

Dealers in

for all building purposes

Everything in Building Glass

32 Page Street, San Francisco Market 498
Jackson at 11th, Oakland Lakeside 7272

When writing to Advertisers please mention this magazine.
BULL DOG FLOOR CLIPS

The use of this clip to anchor wood floors to concrete is cheap insurance against floor buckle and dry rot. Write for samples and special information.

BULL DOG FLOOR CLIP SALES CO.
77 O'Farrell St., San Francisco
600 Metropolitan Bldg., Los Angeles

L. T. KELLEY, General Manager

ARCHITECTS' SPECIFICATION INDEX—Continued

STEEL ROLLING DOORS

STEEL SASH
Bayley-Springfield solid steel sash, sold by Pacific Materials Co., 225 Market St., San Francisco.

"Fenestra" Solid Steel Sash, manufactured by Detroit Steel Products Co., factory sales office, 251 Kearny St., San Francisco.

Michel & Pfeiffer Iron Works, 1415 Harrison st., San Francisco.

Transean Steel Company, 709 Mission St., San Francisco.

STONE
Indiana Limestone Quarrymen's Association, 770 Bed ford, Indiana.
Raymond Granite Company, Potrero Ave. and Division Street, San Francisco.

STREET LIGHTING EQUIPMENT

STUCCO, COMPOSITION
California Stucco Co., 340 Dore St., San Francisco.

STUCCO-PLASTER REINFORCEMENT
National Steel Fabric Company, Monadnock Building, San Francisco.

STUDDING—FIREPROOF STEEL
The General Fireproofing Company, 20 Beale Street, San Francisco

SWITCHES AND SWITCHBOARDS
Brendelli Electrical & Mfg. Co., 1345 Howard St., San Francisco


THEATER AND OPERA CHAIRS

Western States Seating Co., 133 Kearny St., San Francisco.

THERMOSTATS FOR HEAT REGULATION
Thermostats for Heat Regulation, Johnson Service, Milwaukee, Wisconsin; Rialto Bldg., San Francisco.

TOILET—SEATS

VALVES—PIPES AND FITTINGS
Crane Radiator Valves, manufactured by Crane Co., Second and Brannan Sts., San Francisco.

Grinnell Co., 433 Mission St., San Francisco.


Schroeder Valve Company, 1300 N. Main Street, Los Angeles; 16 Stewart St., San Francisco.

VALVE PACKING
N. H. Cook Bellings Co., 317 Howard St., San Francisco

VARNISHES

W. P. Fuller Co., all principal Coast cities.


Standard Varnish Works, 55 Stevenson St., San Francisco.

The Paradise Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

Hill, Hubbell & Co., Los Angeles, Oakland, Portland Seattle and 115 Davis St., San Francisco.

VENTILATORS
H. B. Robertson Co., represented on the Pacific Coast by H. H. Holway, Hobarl Building, San Francisco.

VITREOUS CHINAWARE
Pacific Sanitary Manufacturing Company, 67 New Montgomery St., San Francisco.

West Coast Porcelain Manufacturers, Wells Fargo Building, San Francisco.

WATERPROOFING (See Dampproofing)

WALL BEDS—SEATS, ETC. (See Beds)

WATER HEATERS
Pittsburg Water Heter Company, 478 Sutler St., San Francisco.

Rund Automatic Water Heater, sold by Rund Heter Company, 431 Sutler St., San Francisco.

WATER SUPPLY SYSTEMS
Kewanee Water Supply System—Simonds Machinery Co., agents, 816 Folsom Street, San Francisco.

WIND SHADERS
W. & J. Sloane, 216 Sutter street, San Francisco.

D. N. &. E. Walter, 562 Mission street, San Francisco.

WINDO W REVERSIBLE, CASEMENT, ETC.
Hauser Window Co., 1302 Harrison St., San Francisco.

Critall Casement Window Company, Detroit; Waterhouse-Wilcox Company, agents, 523 Market St., San Francisco.

The Casement Hardware Company, 241 Pelouze Building, Chicago, Ill.

Vincent Whitney Company, 536 Market Street, San Francisco.

Universal Sales Co., 1916 Broadway, Oakland; San Francisco, Los Angeles and Portland.

Henry Hope's & Sons Steel Casement Windows, represented by B. H. Bell & Co., 692 Sutter Street, San Francisco, and 2302 W. 7th Street, Los Angeles.

The Pacific Rolled Metals Company, 713 Harrison Street, San Francisco.

W. 3 J. SLOANE
216-228 SUTTER STREET
SAN FRANCISCO
P hone: GARFIELD 2838

LINOLEUMS
WINDOW SHADES
CARPETS
FURNITURE
Beauty and Character

THE skillful use of Architectural Terra Cotta as exemplified in this building, goes far in adding beauty and character at an exceedingly reasonable cost. Repetition of ornament, carefully handled, enhances rather than detracts from architectural merit. The treatment of the end wall on the right wing is of interest.

The Architectural Terra Cotta on this building, as well as that on the Administration Building for the Oregon Agricultural College, is from the kilns of

N. CLARK & SONS

ALSO MANUFACTURERS OF
PRESSED BRICK, ROOFING TILE, AND KINDRED CLAY PRODUCTS

Main Office: 116 NATOMA STREET, San Francisco
Los Angeles Office, 1022 Detwiler Building, Los Angeles
Works—West Alameda

When writing to Advertisers please mention this magazine.
Here is a picture of Los Angeles Pressed Brick Company's Display Room on the Sixth Floor of the Frost Building.

The fact that this company manufactures 48 varieties of face brick indicates to some extent the comprehensive scope of its service—

—a service which surpasses that of any other one plant of its kind in the United States.

"The Standard of Quality in Clay Products"

L'A'Pressed Brick Co

ENTIRE SIXTH FLOOR...... FROST BLDG
Second and Broadway ...... TRinity 5761

LOS ANGELES

FACE BRICK - HOLLOW TILE - ROOFING TILE - TERRA COTTA - ETC.
Cordova Roof Tile

Furnished and Laid by

Gladding, McBean & Co.

Crocker Building, San Francisco

The harmonious rose overtone color combinations obtained with Cordova Roof Tile are achieved by the nature of the clay and scientific process of mixing. Burned to a high temperature, the tile are impervious to water and not subject to destruction by the elements, thus assuring permanence as well as beauty in a roof.

Tropico Pottery, Inc.
Glendale, Los Angeles
California
PACIFIC GAS & ELECTRIC CO. BUILDING
another great structure to have walls of Face Brick backed with Dickey Mastertile, thus saving weight, time, mortar and labor.

Dickey Mastertile
Builds Walls that Defy Fire, Time and Weather

MADE BY
CALIFORNIA BRICK COMPANY
Associated with LIVERMORE FIRE BRICK WORKS, MANUFACTURERS OF Dickey FACE BRICK AND OTHER CLAY PRODUCTS

604 Mission Street, San Francisco
Builders’ Exchange, Oakland

When writing to Advertisers please mention this magazine.
CONSISTENT IN RELATION

Related successfully to stone ashlar in its effect the main entrance feature of this important church demonstrates the possibility of highly consistent results in the use of Terra Cotta for the ornamental enrichment of buildings in the Gothic style.

Note: From the Standard Specifications of this Society prepared with the assistance of the National Bureau of Standards and Structural Service Committee, A. I. A., you can specify Terra Cotta economically and with every assurance of its lasting durability. For copies address:

NATIONAL TERRA COTTA SOCIETY
19 WEST 44th STREET
NEW YORK, N. Y.

When writing to Advertisers please mention this magazine.
Whale-Bone-Ite Toilet Seats

THE LOS ANGELES BILTMORE
Equipped with No. 18-59, No. 23-9, and No. 21-9 Ebony

Schultz & Weaver, Architects, New York City
Pacific Pipe and Supply Co., Jobbers, Los Angeles
Thomas Haverty, Plumber, Los Angeles

Whale-Bone-Ite also fully equips the Providence Biltmore and Seville, Havana, Cuba

No amount of scrubbing wears through.
No shoe heel penetrates covering.
Easiest cleaned.
Always presents quality appearance.

It is not what you pay, it is the value you get for the amount spent

E. C. Whalen - - - - Security Bldg., Los Angeles
W. J. Driscoll - - - - Monadnock Bldg., San Francisco
S. D. Cochrane - - - - Hoge Bldg., Seattle

Sales Representatives:

THE BRUNSWICK-BALKE-COLLENDER CO
623 S. WABASH AVE., CHICAGO
A CHARMING brick composition in which the plastic nature of brick construction is evident. The projecting coping of the gable, resting on corbeled shoulders, the round window, and the chimney tops, show how easily brick fit into the architect's design. In "Architectural Details in Brickwork" you will find many other examples of artistic brickwork in which only standard brick are used. The halftone plates, issued in three series, each in an enclosed folder ready for filing, will be sent to any architect requesting them on his office stationery. Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Illinois.
DOES THIS LOOK LIKE A FRAME HOUSE?

YOU will be surprised to learn that this house is frame and one of that vintage when fret work and turned gingerbread were all the vogue. The house was moved several blocks to its present location and given a FACIAL of Brick and art stone. VENEERED in other words.

This is not an expensive treatment and we will be glad to have you consult with us if you have a similar problem.

RICHMOND RED RUG BRICK

Manufactured by

RICHMOND PRESSED BRICK COMPANY

United Materials Co., Sharon Bldg.
San Francisco

Los Angeles Pressed Brick Co.
Los Angeles

When writing to Advertisers please mention this magazine.
NEW OFFICES AND WAREHOUSE OF CRANE CO., SACRAMENTO

faced with

CANNON FACE BRICK

This is one of the most distinctive commercial buildings recently built in Sacramento. The party walls are of Interlocking Tile, also made by this company.

CANNON & CO.

Manufacturers of Face Brick, Floor Tile and Interlocking Tile
FORUM BLDG., SACRAMENTO, CALIF.
EXHIBIT AT 77 O'FARRELL STREET, SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Building to an Ideal

To design a heating system that will offer the utmost in economy of installation and of operation—

To build into it the best care and thought of men whose skill is that of the old-time craftsmen who shaped and fashioned by sheer handiwork alone—

To distribute and to service all of the products it manufactures on the basis of exact fitness for the work they must perform, so as to insure maximum efficiency of operation and lowest possible depreciation through their years of use—

These are the composites of the ideal always before us—an ideal which we have striven toward for more than two decades, and from which there will be no turning aside.

Sixty branch and local sales offices in the United States and Canada bring Dunham Heating Service as close to your office as your telephone. Consult your telephone directory for the address of our representative in your city. Ask him for the names of representative Pacific Coast installations.

C. A. DUNHAM CO.

Los Angeles
119 E. Third Street

San Francisco
585 Mission Street

Seattle
2021 L. C. Smith Building

Portland
410 Board of Trade Building

Spokane
406 Sherwood Building

THE KINNEAR ROLLING DOOR

The Door that fits Your Building

The Kinnear Rolling Door is built individually to meet the requirements of the building. It is the modern industrial door— for all types of buildings. It gives protection against fire and burglary.

For endurance, perfect performance and the utmost economy—leading architects use Kinnear Steel Rolling Doors. Our Engineering Department at your service. Ask for illustrated catalog.

1 N. Steinhein & Co., Phila.
2 Rosenbaum Elevator Co.
3 Steel and Tube Co. of America
4 Chicago N. Sh. & Millw. R. R.
5 Cudahy Packing Co.

KINNEAR

Columbus, Ohio

San Francisco, 525 Market St.
May, 1924

HOCKADAY PAINTS

are stain-proof and washable

We want to assure architects that when we make a statement as above, meaning just exactly what it says—we have every proof in our hands necessary to back it up to the limit. We have everything to lose and nothing to gain by misrepresentation and for this very vital reason we are careful to give out information about Hockaday that every architect can rely on because the proofs are at his call whenever he wants them. When we say Hockaday paint in service has withstood washing and scrubbing for as long as 12 years, we can furnish the evidence.

Further, the close co-operation and really very unique service we offer to architects is designed to be a sincere help to eliminate any worries and troubles which may be connected with a painting job. We will appreciate requests from architects for complete information covering the various interesting phases of this service.

Write for our big illustrated "Paint Mileage" Book.
Free to you if request is received on your letterhead.

Hockaday is a different paint. It comes in two parts—Body and Reducer.

THE HOCKADAY COMPANY
1823-1829 Carroll Avenue
Chicago

HOCKADAY

THE WASHABLE PAINT FOR ALL INTERIORS
TWENTY-SIX TONS OF
PIONEER
WHITE LEAD
Used on the Biltmore Hotel

THAT Pioneer White Lead was specified and used on this magnificent hotel is merely another instance which emphasizes the high esteem in which this product is held by prominent architects.

W. P. FULLER & CO.
301 MISSION ST.  SAN FRANCISCO

FULLER
PAINTS VARNISHES
PIONEER WHITE LEAD
The woman looks first at the kitchen. She will find there beauty, convenience quality, if you specify

When writing to Advertisers please mention this magazine.
The usefulness of Hubbell Duplex Convenience Outlets is appreciated by any client.

For the duplex outlet makes the use of electric appliances and portable lamps convenient.

Hubbell Convenience Outlet are made in both single and duplex types; side or top-wired.

We would be glad to cooperate with any architect regarding the most advantageous locations for Convenience Outlets in any class of building.

Remember it's the Te-Slots, that make outlets "Convenient"
LARGE quantities of Monolith Plastic Waterproof Portland Cement were used in constructing this fine building.

The Fresno Bee Building was designed by Leonard F. Starks and built by Geo. D. Hudnut, Inc., of Sacramento. Frank Hart, of Fresno was the plastering contractor.

We manufacture two cements— one is Monolith Portland Cement, a high grade uniform Portland. The other is Monolith Plastic-Waterproof Portland Cement. Both are guaranteed to pass specifications. In ordering from your dealer be sure to specify which cement you desire.

MONOLITH PORTLAND CEMENT CO.

LOS ANGELES
A.G.Bartlett Bldg
13th floor.

SAN FRANCISCO
800 Claus Spreckels Bldg.

PORTLAND
516 Pittock Block
Specify HANDY FLUSH VALVES
It is NON-CLOGGING
It functions perfectly with any make or kind of bowl.
Gives perfect cleansing flush — washes bowl clean.
Model A — Indirect Flush:
For residences served by one-half inch supply pipe.
Write for complete catalogue.
HANDY SELF-CLEANING FLUSH VALVE CO.
731 FOLSOM STREET, SAN FRANCISCO, CAL.
Demonstration in Universal Exhibits Monadnock Bldg., San Francisco

RA-DO FUMLESS RADIATORS
The Ideal “Year-Round” Heating System
For The Home—New or Old
Easiest and Cheapest to Install
Lowest Operating Cost
POTTER RADIATOR CORPORATION
5954 Pasadena Ave., LOS ANGELES
393 Sutter St., SAN FRANCISCO
1700 San Pablo Ave., OAKLAND

POWER AND HEATING BOILERS
STEEL TANKS, STACKS, BREECHINGS, SHEET AND PLATE WORK
MACHINERY AND IRON CASTINGS
MAIN IRON WORKS
Main Office and Works: 7th, Daggett and 16th Sts., San Francisco, Calif. — Phone Market 752-753
Branch City Office: 420 Matson Building, 215 Market Street

PUMPING MACHINERY
"AMERICAN-MARSH"
House, Sump and Fire Pumps
FOR ALL SPECIFICATIONS
SIMONDS MACHINERY CO., 816-818-820 FOLSOM ST.
PHONE KEARNY 1457, SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Our "Quality Police"

Our "Quality Police" (our Testing and Inspection Staff) are on duty night and day.
They prevent the minutest deviation from

Old Mission
Super Standards

Our Wet Process assures Supreme Uniformity.
Yet Old Mission Portland Cement costs no more than ordinary Portland Cements.

Old Mission
Portland Cement Company
Main Office: STANDARD OIL BUILDING, San Francisco
Plant: SAN JUAN, California
CAPACITY:

8000 SACKS DAILY

When writing to Advertisers please mention this magazine.
ATCHISON
REVOLVING DOORS
Straight or Curved Wings
ASK FOR CATALOG
PACIFIC MATERIALS CO., 525 MARKET ST., S. F.

Gnite Facing—For Concrete, Brick, Tile, Steel, Frame Structures and Fireproofing of Steel Members.

Gnite Lining—For Reservoirs, Dams, Canals, Tunnels, Walls and Subways and Harbor Construction.

Estimates and Bids Furnished

Cement Gun Construction Company
CONTRACTING AND ENGINEERING
1408 Hobart Building Phone Sutter 3988 San Francisco

EMPIRE
HARDWALL PLASTER

MANUFACTURED BY
Pacific Portland Cement Company, Consolidated
PACIFIC BUILDING SAN FRANCISCO PHONE GARFIELD 4100
PORTLAND SAN JOSE LOS ANGELES

When writing to Advertisers please mention this magazine.
YEARS OF ACTUAL USE
Is the Guarantee Behind Stucco Made With
ATLAS WHITE PORTLAND CEMENT

GUARANTEES are meaningless in the building world, except the one guarantee of actual test. A building is not like ordinary merchandise that can be returned if unsatisfactory. The creation of the architect will be on public view for all to see.

Portland Cement Stucco has stood the test of time for fifty years—and when properly handled, instead of showing signs of disintegration is actually stronger today than the day it was first applied.

Stucco made with ATLAS White Portland Cement is as permanent as concrete because it is concrete—for ATLAS White is a true Portland Cement, having all the strength, permanence and varieties of possible handling that Portland Cement has—and in addition is pure white in color.

ATLAS White Portland Cement will not corrode metal lath, needs no rock dash finish to protect its surface, and affords a wide variety of permanent textural finishes possible with no other product.

If you have not received the new Atlas Portfolio showing actual reproductions of stucco textures a request will bring you a copy.

THE ATLAS PORTLAND CEMENT COMPANY
25 Broadway, New York, N. Y.

CHICAGO BIRMINGHAM INDEPENDENCE, KANS.
PHILADELPHIA BOSTON ST. LOUIS DES MOINES DAYTON
OMAHA BUFFALO KANSAS CITY JACKSONVILLE, FLA.
This building is floored throughout with "WOLVERINE" Maple Flooring

Department store owners have found, from experience, that "WOLVERINE" Maple Flooring is economical, sanitary and satisfying in every respect.

STRABLE HARDWOOD COMPANY
DISTRIBUTORS
STRABLEWOOD QUALITY HARDWOODS
537 FIRST STREET, OAKLAND, CALIFORNIA

When writing to Advertisers please mention this magazine.
Attention is now being directed — through publicity and exhibits — to complete house-wiring and quality wiring devices installed by dependable and experienced contractors.

The booklet — "The Home of a Hundred Comforts" which thousands of prospective home builders have sent for, is available to architects upon request. Address Section AE-5, Merchandise Department, General Electric Company, Bridgeport, Connecticut.

HER EYE IS ALWAYS ON COMFORT

Architects are today directing the client's attention to the need for more outlets and switches and insisting upon greater completeness in the whole wiring scheme.

They are carefully planning complete convenience wiring so that the client will be able to use all the electrical conveniences which she now has or expects to have, and in the most convenient manner.

The more extensive use of electricity in the home calls for dependable devices. G-E Reliable Wiring Devices, nationally known as the standard of excellence are the assurance of constant, dependable electrical service.

There is a G-E Wiring Device for every requirement in every class of building.

Merchandise Department
General Electric Company
Bridgeport, Connecticut

G-E Reliable Wiring Devices
A GENERAL ELECTRIC PRODUCT

When writing to Advertisers please mention this magazine.
Protect Your Property

A PROTECTION fence is a necessity around the well-managed plant—for economy, for discipline, for orderliness.

Without a protection fence, losses from petty pilfering are certain, grounds quickly become ugly and unkempt, there is constant danger of incendiary fire, accident, and interference with yard operations.

The PAGE non-climbable wire link fence, made of steel or rust-resisting ARMCO Ingot Iron, with the Super-heavy Zinc Coat, has been adopted as the standard of fence design by hundreds of leading factories.

PAGE PROTECTION FENCE

Michel & Pfeffer Iron Works
HARRISON and TENTH STREETS
SAN FRANCISCO CALIF.
Daylight without Glare

WESTERN VENETIAN BLINDS overcome the difficulties of daylight control. They provide an ideal light—daylight without glare.

Bright sunlight which glares through improperly shaded windows is eliminated. Daylight is reflected and diffused; softened and subdued. All available window area, especially the upper portion of windows which has the greatest lighting value, is used to best advantage. This is accomplished by the ingenious arrangement of adjustable slats of which this modern window equipment is made.

Further, Western Venetian Blinds, because of their handsome appearance, harmonize perfectly with the interior and exterior of any modern business structure.

Western Blind & Screen Company
General Office, Los Angeles; Factories, Los Angeles and Kansas City

Western Venetian Blinds
MORE LIGHT—MORE AIR—LESS GLARE
Ages of Experience

Granite has been used for ages and has been found to last the longest of all stones.

HEARST MINING BUILDING
UNIVERSITY OF CALIFORNIA
John Galen Howard, Architect

RAYMOND GRANITE
is the finest type of granite quarried.
It is the stone everlasting.
Madre Veined Alabama

It is the irregular regularity of the veining in Madre Veined Alabama that gives it its peculiar charm. Its often bizarre black veinings on a cream white background, when laid in match panels are unique in domestic marbles. It has been classed as America's Povanazzo marble, so nearly does it simulate that beautiful material. We would be glad to send you a picture of this interesting marble in its natural colors, showing the beauty of its matched veinings, if you will write us today.

TOMPKINS-KIEL MARBLE COMPANY

505 FIFTH AVENUE
NEW YORK CITY

CHICAGO
SAN FRANCISCO
SYLACAUQA, ALA.
KNOXVILLE, TENN.
Fire-and-Sound-Proofed by Herringbone

THE annoyance of sound-transmitting walls, the fire-danger of wood-plaster partitions, can be completely removed by GF solid partition construction—Herringbone Rigid Metal Lath on GF Steel Channels.

The light, rigid, two-inch plaster wall formed by Herringbone on GF Steel Channels has been proven an effective barrier to the most penetrating sound.

Fire-and-sound-proof, non-cracking, sanitary, economical of space and construction, Herringbone on GF Channels forms the ideal partition for apartments, hotels, hospitals and office buildings.

Architects and builders who economically construct the best specify

Other GF Materials
Self-Centering—A combined form, lath and reinforcement.
Trussit—A reinforcement for solid partitions.
GF Expanded Metal—A concrete reinforcement.
GF Steel Tile—For concrete floors.
GF Steel Lumber—Used in place of wood joists and studs.
GF Steel Channels—Studding for solid partitions.
GF Peds—Spot grounds for attaching trim to concrete and plaster.
GF Waterproofings—For concrete and masonry.

Write for illustrated literature

Herringbone
Rigid Metal Lath

THE GENERAL FIREPROOFING CO.

20 Beale Street
SAN FRANCISCO

Builders Exchange
OAKLAND

1920 Atlantic Street
LOS ANGELES
$50,000 Prize Design for Tribune Tower to be Created in Indiana Limestone

ON its seventy-fifth birthday anniversary in June, 1922, The Chicago Tribune resolved to provide a new and beautiful home worthy of this great newspaper, which had advanced from a room over a grocery to a gigantic publishing plant.

It announced the greatest architectural contest of history. One hundred thousand dollars in prizes were offered to architects. The competition was open to the world. The architectural ideas of twenty-three countries were drawn into the contest and two hundred sixty designs were received.

The design submitted by John Mead Howells and Raymond M. Hood, Associate Architects, New York City, was given first prize of $50,000 by the Jury of Award.

Dr. Emerson Swift, University of Chicago, stated: "The Tribune Tower is an epoch making building. It represents the highest development of the office building type in the world. It is the building of the decade and perhaps of the century."

The owners' high resolve "to adorn with a monument of enduring beauty this city in which the Tribune has prospered so amazingly" is evidenced in their selection of Indiana Limestone for its construction.

Our handsomely illustrated booklets on Indiana Limestone will be sent free upon request.

INDIANA LIMESTONE QUARRYMEN'S ASSOCIATION
Box 770, Bedford, Indiana
Service Bureaus in New York and Chicago

Build The Nation Securely With

INDIANA LIMESTONE

The Nation's Building Stone
Rydal Mixing Valve will appeal to Architects

The Rydal mixing valve accomplishes, in two complete turns, what the ordinary mixing valve attempts to accomplish in a half turn.

Architects as well as the public condemn mixing valves on account of their quick change in temperature which has, at times, caused the user a great deal of discomfort.

With the Rydal mixer, the temperature of the water can be changed two degrees at a time.

Furnished with a movable dial plate which reads—shut, cold, warm and hot.

The concealed mixer has a regulating screw under the dial plate.

This screw controls the travel of the volume plungers.

By this screw regulation the mixer can be set to open to any point between the words Warm and Hot. Under ordinary conditions, the maximum temperature desired can thereby always be obtained.

Plungers are of different diameters, thus preventing the possibility of error in replacing.

Plungers are of the floating type, allowing seats to close off tight when the wear of the washers has been uneven.

Seats are removable and are of different diameter threads to prevent incorrect installation when replacing.

Operating stem furnished with a heavy square thread, having a large bearing surface which makes a long life thread.
CRITTALL
Reversible Windows

A Typical School Installation of Crittall Reversible Windows

Crittall Reversible Windows give maximum light, ventilation and weathertightness. Their reversibility permits cleaning of the exterior from inside. Their smooth, easy operation, with easily adjusted ventilation, makes them ideal for schools and other public buildings.

They are permanent and fireproof.

All Crittall Casements and Windows are made of Crittalloy—the Copper Bearing Steel

CRITTALL CASEMENT WINDOW COMPANY - Manufacturers
DETROIT, MICHIGAN

When writing to Advertisers please mention this magazine.
Cabot's
Waterproof
Stucco
Stains

The Only Artistic Waterproof Colorings for Cement Work being Stains, they are transparent and they sink into the pores of the cement, giving soft, velvety coloring or effects without gloss and without spoiling the texture of the surface as coatings do. They are not "painty" and are cheaper, easier and quicker to apply, go farther, wear better and are infinitely handsomer than any paint or coating. They cannot crack, peel or chalk, like coatings, because they are stains, not coatings.

Send for Samples, Circulars and full information


Cabot's Creosote Stains, Stucco and Brick Stains, "Quilt," Mortar Colors, Dampproofing, Waterproofing, Conservo Wood Preservative, etc.

Pacific Materials Co., San Francisco
Waterhouse-Wilcox-Pacific Co., Los Angeles
Theo. F. Snyder, San Diego, Cal.

S. W. R. Delly, Seattle

This TRADE MARK means much to the conscientious Architect and Builder

It means a satisfied client

High-Grade
Plumbing Fixtures

Holbrook, Merrill & Stetson

64 SUTTER STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
The introduction of charming color and line in bathroom appointments is a significant recent development in American homes. In the commode lavatory shown here, the top is of imported "fleur de peche" marble. The 18th century Italian cabinet is finished in soft green, black, rose and gold. The fittings are in gold plate. Behind the panels are wide shelves. The Tarnia tub—which can be set in a recess, in the open or in either a right or left corner—is encased in the same golden brown tiles of the walls.

Crane plumbing and heating materials include a very wide range of fixtures and fittings which meet the needs and individual desires of any home owner, yet are within the easy buying reach of all. These plumbing and heating materials are on display at Crane Branches in all principal cities of the country. Fixtures of unusual design, like this commode lavatory, are executed to order, and are shown only at our National Exhibit Rooms. Crane products are always sold through contractors.
AMERICAN SASH CHAIN—
Runs Smoothly

Its links are flat and consequently run over the pulley as smoothly and freely as a strap—without a kink.

Here is a clear illustration of the simplicity of American Sash Chain and its fixtures which further facilitate the smooth, easy running of this quality chain. Made in sizes to fit 60, 80, 100, 120 and 250 lb. double hung sash.

"Every installation sells another."

AMERICAN CHAIN CO., Inc.
BRIDGEPORT, CONNECTICUT

In Canada: Dominion Chain Co., Ltd., Niagara Falls, Ontario
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco
Largest Manufacturers of Welded and Weldless Chains
and Makers of the Famous WEED Automobile Accessories

It makes stucco walls absolutely damp-proof

BAY STATE Brick and Cement Coating is the ideal finish for walls of stucco or concrete. Driving rain cannot work through a Bay State coated house. For Bay State Brick and Cement Coating creeps into the porous concrete and seals it—permanently.

Bay State Brick and Cement Coating is made by a secret formula. This super-coating comes in a complete range of tints and in pure rich white. Send for samples and color-chart.

Our new booklet No. 25 shows many beautiful Bay State coated homes. It’s free, write today.

WADSWORTH, HOWLAND & CO., Inc.
Brooklyn

BOSTON

JAMES HAMBLY & SON
Jacksonville

San Francisco, Cal.

BAY STATE
Brick & Cement Coating
Concrete and Progress

Not only in the shifting skylines of New York and San Francisco, but throughout all this broad land of ours, we see in the making a new and greater American Architecture.

In the development and steady advancement of modern architecture, concrete is naturally playing a conspicuous part.

Concrete means the economic and structural requirements of the twentieth century, and its wide range of adaptability in form and color gives the architect and the sculptor practically unlimited opportunity to express their ideals of beauty.

The booklets, shown above, contain a wealth of practical information on concrete. The list is as follows: “Concrete Data for Architects and Engineers,” “Portland Cement Stucco,” “A Manual of Concrete Masonry Construction,” “Concrete School Houses,” “Concrete Hotel, Apartment and Office Buildings,” “Mercantile and Industrial Buildings of Concrete.”

Let the nearest office listed below know which booklets you want. They will be sent without obligation.

PORTLAND CEMENT ASSOCIATION
A National Organization to Improve and Extend the Uses of Concrete

Our Booklets are sent free only in the United States, Canada and Cuba
Why There Are No Fumes with the Babcock High Efficiency Gas Furnace

Note that during its journey from intake to floor registers the air in the Babcock Furnace is protected from the burning gas by a sealed cast iron burner pot and by radiator tubes with rolled seams. The warm air cannot come in contact with the products of combustion. This is guaranteed!

Babcock Furnaces are made and guaranteed for 5 years by the C. B. Babcock Company, San Francisco.

C. B. BABCOCK COMPANY
San Francisco

BEACON LIGHT CO.
Los Angeles

Pump Governors Oil-Burner Governors Reducing Valves Safety Valves Oil Valves Blow Off Valves Boiler Feed Valves Vacuum Pump Governors Oil Pumping Sets Little Giant Improved Oil Burners Duplex Oil Pumps Rotary Oil Pumps Oil Heaters Draft Gauges Boiled Feed Pumps

G. E. WITT CO., Inc., Engineers
C. W. VAUGHN, President and Manager
MANUFACTURERS AND DISTRIBUTORS
862-864 Howard St. Phone Douglas 4404 San Francisco, Cal.

J. A. MacKenzie, Secretary D. A. Bataford, Asst. Mgr.

AMERICAN MARBLE AND MOSAIC CO.

Factory: on Water Front, South San Francisco
Near Grand Ave. and Ferry Slip
Telephone Mission 6043

Office: 22 Columbia Square, San Francisco
Near Folsom St., Bet. 6th and 7th
Telephone Market 5070

When writing to Advertisers please mention this magazine.
Contents

VOL. LXXVII  MAY, 1924  Number 2

SAINT DOMINIC'S CHURCH, SAN FRANCISCO - Frontispiece
Color sketch by Beezer Bros.

A FEW THOUGHTS SUGGESTED BY THE RECENT ARCHITECTURAL EXHIBITION IN SAN FRANCISCO - 55
B. J. S. Cahill,
Architect

DELINEATIONS OF SOME RECENT WORK OF ELLIS F. LAWRENCE AND
WM. G. HOLFORD, ARCHITECTS - 110

PEOPLE WITHOUT HOMES - 110
Siegfried Goezze

RIGHT OF ARCHITECT TO WAIVE OR CHANGE TERMS OF BUILDING CONTRACT - 112
Leslie Childs

EFFLORESCENCE—ITS CAUSE AND REMEDY - 113
COMPLETE ELECTRICAL SPECIFICATIONS - 115
Willis E. Huyson,
Architect

SAN FRANCISCO ART ASSOCIATION'S 47TH ANNUAL EXHIBITION - 117
Ray Bonton

THREE PER CENT FOR LIGHTING FIXTURES - 110
EDITORIAL - 120
WITH THE ARCHITECTS - 123

Published Monthly by
THE ARCHITECT and ENGINEER Inc.
636-637 Foxcroft Building. San Francisco
W. H. Murchison, Frederick Jones, President
Vice-President
Secretarv
"U.S. Tile Flooring"

A Flooring of Durability
that is attractive and resilient

"U.S. Rubber Tile Flooring" was specified by the architect, George W. Kelham, and the United States Government for the new Federal Reserve Bank Building in San Francisco. 120,000 square feet was installed in the lobbies, corridors and floors of the working rooms. "U.S. Tile Flooring" is made in a large variety of attractive designs, veinings and color combinations. Every installation is backed by the reputation of the United States Rubber Company, the world's greatest manufacturer of rubber products.

Full information and samples upon request

United States Rubber Company

San Francisco
Los Angeles
Sacramento
Fresno

Offices in Principal Cities of the United States

Spokane
Seattle
Portland
Salt Lake City

Manufacturers of Rubber Flooring since 1897

Trade Mark
A Few Thoughts Suggested by the Recent Architectural Exhibition

By B. J. S. CAHILL, Architect

The exhibition of architectural designs held recently at the San Francisco Bohemian Club, and herewith illustrated in part, suggests several things to the writer quite apart from the pictures and plans, which, of course, speak for themselves.

In the first place it is a long time since we have had an exhibition of this kind and we are led to suspect that there must be an inverse relation between work to be done in the office and work to be shown to the public. When the profession is very busy it has not the time, apparently, nor the need to show its wares.

On the other hand, it appears that much of the time-taking energy consumed in a formal exhibition could easily be avoided and the whole business so simplified that our architects could show their work semi-annually or even monthly. This, of course, professionally speaking, would be all to the good. Then why not discard this pomp and circumstance, the programs and the printing, the Persian rugs and potted palms, etc.? With these impediments out of the road, exhibitions being easier, could be organized oftener. Besides, this mania for setting an exhibition with so much expensive elegance does not necessarily argue distinction in the management; it is not the best bait for attendance; nor does it guarantee the excellence of the things exhibited. Indeed one could easily argue that this inordinate desire for style is a failing rather than a virtue, the foible of a climbing community, still in the road making stage of its development, and anxious above all to be thought very much “arrived” and “classy” and all that sort of thing.

Furthermore, the elaborate “Exhibition” resulting in the framed picture implies a very serious confusion in the mind between the utterly different purpose of the picture made by the artist, an end in itself, and the picture made by the architect, which is merely a means to an end, the actual building.

The frequent but informal architectural exhibition, for which earnest plea is here made, has many advantages over the formal but in-
frequent exhibition. In the first place the things exhibited would more naturally be the honest-to-goodness work done by our architects from day to day and not merely dolled up occasional drawings made expressly to show technique and often as not rendered by specialists and outside experts. These drawings would not show the same cleverness and artistry, but they would reveal other things far more important. There is no valid reason why the profession should be reluctant to show itself in shirt sleeves, as it were. Since it is proposed that only actual buildings be represented no one need be shamefaced about parading his plans when the actual building stands naked and unashamed for all the world to see and criticize any time. The very fact that a building well known to the public, rather than some unrealized project, can be seen in its inner structure, growth and development under the architect's hand is

The public is deplorably ignorant of the architect's relation to any building that he plans. Much worse than that, the public continues to look on the architect as an artistic but expensive chap who gets the owner's ideas in the main, puts on the fancy touches, but of course, in the long run is quite supplanted and superceded by the builder, the man who is really responsible for the solid structural and valuable part of the building. The public does not and cannot realize that the architect is the real and absolute builder of the building, that he is responsible for every quirk and turn in it; that every cubic inch of it has filtered through his mind as it were; and that to the very end he exerts his will on every piece of material used by the mechanics on the job from the bottom of the footings to the top of the flag-pole. There are several reasons why the public has never grasped this fact, one of them, un-
doubtedly, is this very practice of formal exhibitions of highly artistic and non-technical drawings and renderings made, apparently, in rivalry and competition with the work of artists. After walking through the luxuriously furnished and trick-lighted salons in which architects display drawings that never serve any useful purpose whatever in their actual work, it is small wonder that the visiting public takes the exhibiting architect precisely at his own valuation: one who makes pretty pictures for the most part and occasionally vast and grandiose public structures too remote from one's ordinary affairs to excite intimate interest.

Most of our architects will agree to the fact that some few years ago the profession had not only lost much of its prestige, but actually seemed on the downward road to extinction. The general impression was gaining ground that, in any building operation, the architect was not the captain of the enterprise, not the man to be most highly trusted and most highly paid. This notion was fostered by the banks who noted that financially the architect's position seemed to be of no importance; and by the builders, furtively and the building and engineering organizations openly, who naturally saw much advantage to themselves if they could shift the architect's position from above to below, so that he took orders from the construction company instead of giving them. It must be realized that the warfare here hinted at was in the main a silent and underground one. An actual example will illustrate the situation which is doubtless typical of hundreds of others.

Some six years ago a construction engineer who had a practical builder for a partner, also an office and draftsmen, made formal appointment with the writer. Having seated himself rather suggestively at my own desk he produced a pad and pencil, and delivered himself very

**STUDY FOR "MIGRATION"
Maynard Dixon**
Entrance To Pacific Heights School
John Reid Jr. Architect
ELEVATION, PACIFIC HEIGHTS SCHOOL. SAN FRANCISCO
JOHN REID, JR.,
CITY ARCHITECT
TOWER, COLLEGE OF NOTRE DAME, BELMONT
JOHN J. DONOVAN, ARCHITECT
much about as follows: "Now here is the situation in the building game, as it is, not theoretically but actually." He then began drawing one of those family tree sort of charts so dear to the efficiency experts. "Here," he said, "is the Owner (making a large round blob at the top of the center of the pad) and here (making a short vertical line and another big blob right under the first one) is the Construction Engineer." Below this he drew another short vertical line and then a long horizontal one right across the sheet as though drawing a pair of scales. Then at equal distances from the center two more short vertical lines and two more black blobs representing the Architect on one side and the Superintendent on the other. It was all very clear and simple.

At the time I recall a depressing sense of dismay at what our profession was coming to. But not being very busy, I fell in with the proposition foreshadowed by this conversation, which, of course, led to an agreement to furnish plans for "The Construction Engineer" meantime helping him to land the contract.

All the needs of the Owner, in this case were passed down to the architect through the Construction Engineer, while all the ideas actually incorporated in the building were passed up to the Owner, also through the Construction Engineer, but ultimately from the Architect.

The Owners were not slow to perceive through what real agency their desires were realized and a few years later before building an extension much larger than the first unit, went first of all to the architect. Being persuaded, however, that much trouble would be saved in the process they also engaged a general contractor on a cost plus flat fee basis.

In the actual construction it was again found that not only were all the details furnished by the architect, but that he also and he alone knew enough about these details to interpret them to the sub contractors; to catch their mistakes when in time or to prescribe the remedy when too late. In other words it still seemed simpler also safer to deal directly with the real AUTHOR of the plans than to work in a roundabout way through the general contractors and their various deputies and subordinates.

And when finally, a couple of years later on, these same Owners got ready for a third extension, after mature deliberation, and a careful retrospect of their former experiences they came to a conclusion, quite interesting from a professional view point. With an acquired working practical knowledge of the art of building they decided to deal directly with the architect this time, not only in putting their wants into plans and specifications, but going still further and translating them into bricks and mortar. Meantime the original Construction Engineer who had conceived the architect as a sort of "side show" had made so little headway with his theory that he is now literally back on the farm. The general contractors who handled the second unit and incidentally had taken most of the fees, were eliminated and the entire responsibility centered on the architect who made the plans and saw they were properly carried out by means of a score of direct agreements and commitments commonly but quite erroneously known as SUB contracts. Let it be most emphatically understood that in the foregoing statement there is not the slightest criticism implied as to the Contracting Engineer or the General Contractor. But it is quite definitely intimated that neither of these, as we all thought some few years ago, is going to usurp the functions of the architect. On the contrary, it is the architect, according to the very latest and also the very earliest definition
ST. ELIZABETH’S SCHOOL, OAKLAND, CALIFORNIA
JOHN J. DONOVAN, ARCHITECT
ST. ELIZABETH'S SCHOOL, OAKLAND, CALIFORNIA
JOHN J. DONOVAN, ARCHITECT
ST. ELIZABETH'S SCHOOL
OAKLAND, CALIFORNIA

ST. ELIZABETH'S SCHOOL, OAKLAND, CALIFORNIA
JOHN J. DONOVAN, ARCHITECT
GENERAL PLAN, BERKELEY HIGH SCHOOL
WILLIAM C. HAYES, ARCHITECT
PACIFIC SCHOOL OF RELIGION, BERKELEY
Walter H. Ratcliff, Architect

GENERAL PLAN, PACIFIC SCHOOL OF RELIGION
Walter H. Ratcliff, Architect
DORMITORY QUADRANGLE, PACIFIC SCHOOL OF RELIGION
Walter H. Ratcliff, Architect

TRINITY CHURCH, RENO, NEVADA
Chas. K. Sumner, Architect
INTERIOR. BANK OF ITALY, SAN FRANCISCO
BLISS & FAVILLE,
ARCHITECTS
ST. DOMINIC'S CHURCH, SAN FRANCISCO
BEEZER BROTHERS, ARCHITECTS
INTERIOR, ST. DOMINIC'S CHURCH, SAN FRANCISCO
BEEZER BROTHERS, ARCHITECTS
STEPHENS UNION BUILDING, UNIVERSITY OF CALIFORNIA
JOHN GALEN HOWARD,
ARCHITECT
SKETCH FOR FIRST CONGREGATIONAL CHURCH, OAKLAND
John Galen Howard & Associates, Architects

FIRST FLOOR PLAN, FIRST CONGREGATIONAL CHURCH
John Galen Howard & Associates, Architects
LOBBY LOGGIA. BANKERS COUNTRY CLUB, SANTA BARBARA, CALIFORNIA
WM. MOOSER, ALBERT SCHROEPFER AND WM. MOOSER, JR., ARCHITECTS
LOBBY, BANKERS COUNTRY CLUB, SANTA BARBARA, CALIFORNIA
WM. MOOSER, ALBERT SCHROEPFER AND WM. MOOSER, JR., ARCHITECTS
CROSS WINGS APARTMENTS, SAN FRANCISCO
HENRY H. GUTTERSON, ARCHITECT
RESIDENCE OF MR. W. C. VAN ANTWERP, BURLINGAME
BAKEWELL AND BROWN.
ARCHITECTS
HUNTINGTON APARTMENTS, SAN FRANCISCO
WEEKS AND DAY, ARCHITECTS
PROPOSED CATHEDRAL, SACRAMENTO
WEEKS AND DAY, ARCHITECTS
ENTRANCE, BLACKSTONE APARTMENTS, OAKLAND
E. GEOFFREY BANGS, Architect
RESIDENCE OF MR. G. A. Mattern, CLAREMONT
LOUIS M. UPTON, ARCHITECT
NURSES HOME, MT. ZION HOSPITAL, SAN FRANCISCO
S. SCHNITTACHER AND S. L. HYMAN, ARCHITECTS
VAULT FOR MORRIS HYMAN ESTATE, SAN FRANCISCO
SAMUEL L. HYMAN AND A. APPLETON, ARCHITECTS
LOBBY, CLOISTER APARTMENTS, SAN FRANCISCO
HENRY C. SMITH, ARCHITECT
HOUSE AT PEBBLE BEACH
Lewis F. Hobart, Architect

ENTRANCE DETAIL, RESIDENCE OF H. H. ASHLEY, SAN FRANCISCO
Ashley and Evers, Architects
LIVING ROOM, RESIDENCE OF MR. N. C. JACCO, PIEDMONT
Ashley and Evers, Architects

OFFICE BUILDING FOR MARIN MUNICIPAL WATER DISTRICT, SAN RAFAEL.
J. W. Dolliver, Architect
STUDY OF A BANK BUILDING, OAKLAND
McCALL, DAVIS & BLAINE, ARCHITECTS
who is supplanting the Construction Engineer and the General Contractor.

What is outlined here has been happening all over the country, and it is only fair to give credit to the most prominent pioneer in this very significant modern rehabilitation of the architect in his correct capacity of "the chief builder" for the original Greek word means just this, no more, no less, so that the qualifying phrase "Director" or "Manager of Construction" added to the word architect, is redundant and unnecessary. We might as well talk of a Doctor or "Director of Healing." But the tautology of the phrase can well be forgiven since it serves to correct a false impression as to what an architect really is. The late Daniel H. Burnham of Chicago used to insist on the architect's correct position as the "chief builder," and for this the profession owes Burnham an everlasting debt of gratitude.

It is then with the idea of fortifying and entrenching the architect in his new found strength and authority, that so much importance has been given here to the value of exhibitions which shall aim to show the architects as the real makers of buildings in all their many complexities rather than merely the makers of buildings in their superficial aspect as pictures.
PLAN, RESIDENCE OF MR. WILL H. TOEPKE
WILL H. TOEPKE, ARCHITECT
SKETCH FOR OFFICE BUILDING
WM. A. NEWMAN, ARCHITECT
Delineations of Some Recent Work of

ELLIS F. LAWRENCE

AND

WILLIAM G. HOLFORD, Architects

PORTLAND, OREGON

May, 1924

St. Michael and All Angels
Episcopal Church
(Bishop Seabury Memorial)
People Without Homes*

By SIEGFRIED GOETZE
Civic Architect and Housing Specialist

The subject of housing is closely related to City Planning. It is largely dependent upon the policy of city planning and its relation to transportation, street planning, and methods of subdivision.

Good housing is one of the ultimate and chief aims of city planning. The solution of the problem of housing for the masses of the population will determine, or largely influence, the future of the city, its health, its civic spirit and political aspect. The leadership of a community among the cities of the nation, finally depends for its establishment and maintenance upon the human material raised under the best housing conditions, which science and technique can produce. Will Los Angeles establish new standards in housing?

If the onrush of an ever-increasing population and the wholesale demand for small homes is not met by foresight and provision in wise planning for the future, we will have over-crowding and low standards. The social and political structure of Los Angeles will consequently be seriously affected and the health of the future generation will be disastrously undermined.

New industrial enterprises are springing up in Los Angeles on the east side and in the south towards the harbor where thousands now need,—and perhaps hundreds of thousands of workers will hereafter need—homes for which they cannot pay more than $20 to $30 a month. An average of $25 a month corresponds to an investment of $3000 at 10 per cent which, considering land values, would not be sufficient to build satisfactory quarters for a workingman's family with children. Large masses of labor necessary for the upbuilding of a large industrial community MUST BE PROPERLY HOUSED. It is necessary, therefore, that we give our most earnest thoughts and active endeavors to this problem.

Lack of space, parks and playgrounds, crowding on the land and in the rooms; the absence of light, sunshine and privacy and the resulting unhappiness in home life, are all threatening indications of improper conditions in this fast growing city. If housing in Los Angeles is not to be a repetition of the intolerable situation existing in older cities, a comprehensive system of housing must be at once adopted and effectually carried out to insure better conditions worthy of the highest American standards. The housing of the masses has been given little public attention except by the unscrupulous speculator who has found a large and profitable field by exploiting the most pressing needs of the people.

It is well to prove that housing in small homes is practicable and advisable and that savings will result to the families occupying them. Good housing, furthermore, is from a HYGIENIC point of view, of very great importance. Still we feel that there are stronger reasons than these underlying our desire to strive towards the better individual home.

We feel that rows of tenement houses create a tendency towards moral deterioration. There are people who have become so accustomed to the narrow city and its crowded quarters that they have become indifferent to any other life and are unable to rise above it. We have reason to become apprehensive of such people. They are members of a perishing generation. They remind one of old people who no longer care for exercise which is a sign that their end is near.

*Paper read before the Municipal League of Los Angeles.
Families whose children play in dark halls and courts will perish. There are families without number living such lives in our large cities, and even here in our midst. A family whose home does not invite a daily reunion at the table, carries a morbid explosive which will surely drive them apart, for each one will seek his hours of comfort and pleasure outside of the family. Streets which, through their long monotonous rows, invite one to seek recreation and peace in the outside world, make strangers and individuals of people, resulting in the lack of civic consciousness.

The streets of the homeless, the quarters of the crowds, become serious causes of civic deterioration and crime. And today we feel stronger than ever that we must be a PEOPLE; we dare not be a MOB. The higher the house grows and the more congested the crowd, the more indifferent one gets towards one another. Nowhere one lives so alone as in a tenement house. The closer the people live together, the farther they grow from each other until finally all community life ceases to exist. One has only to look into the living quarters of a metropolitan community and the conditions are most distressing. Increased immorality and infant mortality, the lack of decent home life resulting in the final breaking up of the home—all these are bringing us face to face with a problem which Los Angeles MUST solve.

In each family which moves into the narrows of the city, the anxious question arises: “Will you belong to the very few whom the rushing stream of the city will not engulf?”

Let us all help to give the home-sick people of our community: Garden Homes to Live In; economically planned and well built, pleasing in appearance, with all reasonable comfort, and with a California garden as the outdoor living room.

To the child: a place in the sun and grounds to play in.
To the mother: that degree of relief from household cares made possible through an efficient arrangement of the house plan and the greater use of the products of science in household appliances, thus decreasing her labor and increasing the pleasure and interest in the home.

To the father, returning from his daily toil: a cheerful home which, with its restfulness, will increase his industrial efficiency.

To Los Angeles, the preservation of the fair name of a “home city.”

And to the Nation: good citizenship!

* * *

Offices Use More Steam Than Stores

Cleveland offices annually consume 2300 more pounds of steam for each 1000 cubic feet of space than stores use, according to C. H. Day of the Illuminating Company of Cleveland, in a talk before the Cleveland Association of Building Owners and Managers.

Mr. Day submitted the following figures showing the consumption of steam in office buildings and stores per 1000 cubic feet of space per annum:

<table>
<thead>
<tr>
<th>Office Buildings</th>
<th>Stores</th>
</tr>
</thead>
<tbody>
<tr>
<td>12,000 pounds maximum.</td>
<td>10,900 pounds maximum.</td>
</tr>
<tr>
<td>4,000 pounds minimum.</td>
<td>1,600 pounds minimum.</td>
</tr>
<tr>
<td>7,000 pounds average.</td>
<td>4,700 pounds average.</td>
</tr>
</tbody>
</table>

* * *

Architects Should Support Architectural Clubs

No city should be without its architectural club, which the practicing architects of the community should support freely with their money, their time and their interest.—Ellis F. Lawrence.
Right of Architect to Waive or Change Terms of Building Contract

BY LESLIE CHILDS

The question of the powers of an architect, in respect to changing the terms or specifications of a building contract during the progress of the work, is one of interest and importance to architects, and builders in general. And, while the subject has been the cause of considerable litigation, it cannot be covered by the statement of a hard and fast rule, because each case of this kind has necessarily been decided in the light of the particular facts involved.

However, generally speaking, in the absence of a clear grant of authority, an architect has no right to permit deviations from the contract. He is bound to see that the work is completed in accordance with the terms of specifications set out, and his acceptance of a different class of work than is specified in the contract will not bind the owner.

The application of this rule of law is illustrated in an interesting and instructive manner in the Washington case of Hurley et al Vs. Kiona-Benton School District, 215 Pac. 21. The facts and circumstances out of which the action arose were, briefly stated as follows:

The Kiona-Benton School District No. 27, entered into a contract with Hurley and Leichnitz whereby the latter were to do certain work upon a school building under construction. Upon the completion of the work it was not satisfactory to the school district, and demand was made upon the contractors to complete the work according to the contract.

Despite this, it seems, the architect in charge issued a final certificate in which he certified that the contract had been completed, and that the contractors were entitled to a balance due of $2,114. The school district declined to honor this certificate and the contractors instituted the instant action in an effort to enforce payment.

In defense of this action, the school district claimed that the architect had issued the final certificate without the exercise of judgment; that the contract had not been performed according to its terms, and that the workmanship was defective; in conclusion the school district asked for damages by reason of the failure of the contractors to perform properly.

Upon the trial of the cause it was shown that the contractors had failed to install certain plumbing, and cover certain pipes of the heating plant. In addition they had, it appears, substituted a second-hand boiler worth $150 instead of installing a new boiler that would have cost $900.

As an excuse for not complying strictly with the contract in these matters, the contractors contended that, under the architect’s construction of the contract, they were relieved from the performance of this work. The contention being further that the issuance of the final certificate by the architect constituted an acceptance of the work by the school district.

The trial of the cause in the lower court resulted in a judgment of $722 in favor of the school district as damages for the failure of the contractors to perform according to the terms of the contract. From this judgment an appeal was taken to the Supreme Court of Washington, where in passing upon the power of the architect to permit deviations in the contract, it quoted from the provisions of the contract, in respect to the duties of the architect, in part, as follows:

"The architects shall have charge of the work for the owner, and their duties shall consist in giving on demand such interpretations, either in language, writing or by drawings as in their judgment the nature
of the work may require, having particular care that any and all work done and materials used be combined and done as hereinafter described and specified. ""

Following the above quotation from the contract, relative to the architect's duties, the court directed its attention to the question of the right of the architect, under this limitation, to change or waive the stipulations under which the work was to be done. In this connection it was, among other things, said:

"Under the contract the architect was without authority to change the contract. His duties in that respect were limited to interpretations of the contract."

"The contract in this case is clear, plain, and unambiguous, and cannot be varied or explained by parole evidence. Neither did the architect have authority to excuse appellants (the contractors) from the performance of any part of the contract and the issuance of a final certificate by the architect certifying that the provisions of the contract had been complied with when in fact it was known by all parties connected with this transaction, including the architect himself, that the work provided in the contract had not been performed on the part of the appellants, constituted fraud, and was not binding upon either party to the contract, and the respondent (school district) is entitled to damages for failure of appellants to complete the work according to the contract."

In conclusion the Washington Supreme Court affirmed the judgment against the contractors rendered in the lower court. Holding, as outlined in the opinion, that under this contract the architect had no power to change the terms of the contract, which allowed the furnishing of work and materials different than were specified in the contract, and that his issuance of a final certificate under these conditions did not bind the school district.

Efflorescence: Its Cause and Remedy

All masonry materials—stone, brick and concrete—are subject to possible efflorescence. Its occurrence is more common in the materials which are of a more or less absorptive nature. Thus, common brick frequently exhibits it, and likewise the more porous stones.

Efflorescence is caused by the depositing of soluble salts on the wall surface after the water of solution has evaporated. These soluble salts may exist in the mortar used in laying up the stone or brick, or they may exist in the brick or stone.

The action which causes efflorescence is—water from rain or drainage off window sills or eaves, soaks into the masonry walls and dissolves some of the soluble salts either of the mortar or the masonry material itself. After the rain has ceased, the water is drawn to the surface and evaporates, leaving the dissolved salts in the form of whitish crystals on the surface of the wall. This is the familiar "efflorescence," and it will be noticed that the presence of efflorescence is most common under window sills, roof copings, and other points where there is the greatest amount of water to soak into the wall.

The question then presents itself—"Why doesn't the white deposit dissolve and wash off in the next rain"? The reason is that upon exposure to the air these salts change their nature, absorbing carbon dioxide from the air and becoming carbonates, and hence largely insoluble in water.
From the explanation of the action of efflorescence, it will be apparent that the presence or absence of efflorescence is mainly due to local conditions such as the amount of absorption of the masonry material, the degree of exposure to rain-water, drippings and drainage, rather than to any factor inherent in the mortar or masonry material.

Since the absorption and evaporation of surface water is the primary cause for efflorescence, anything which will eliminate this absorption will aid in preventing efflorescence. The application of one of the colorless waterproofing compounds to the surface of the wall will eliminate absorption, and hence be of help. Among these materials might be mentioned sodium silicate (water-glass) and magnesium fluosilicate as surface application to concrete and stucco surfaces.

For efflorescence already existent, the only remedies, says an Atlas White publication, are brushing with a stiff fibre brush or wire brush, or the removal by scrubbing with an acid wash consisting of 1 part of commercial muriatic acid and from 4 to 10 parts of water, depending upon the amount of efflorescence present. After the white deposit is removed with the acid wash, the acid is thoroughly rinsed off. The deposits may recur and require additional acid washes, but the amount of deposit should be less each time, due to the dissolving out of all the soluble salts, and hence the deposit should disappear after a time.

* * * *

Stucco to Imitate Travertine

An effective imitation of Travertine stone is produced with Portland cement stucco as follows, according to a correspondent of Concrete:

The scratch and second coats of stucco are put on as for other stucco work, using mixes and methods recommended by the American Concrete Institute.

Before applying the third coat, the second coat is sprinkled to "kill" part of the suction. The finish coat is then applied and while it is still in the plastic condition the surface is stippled with a sponge or very coarse brush to pull up an irregular texture on the surface of the mortar. The coat is then lightly troweled, smoothing down the higher portions of the top coat to a plain surface, but still leaving some of the irregular indentations caused by the previous application of the sponge or brush used for stippling.

It goes without saying that the mechanic has to use considerable good judgment in regard to the location, spacing and arrangement of his stippled areas or instead of getting a Travertine stone effect he will get a job that is highly artificial and unpleasant in appearance.

Nearly all plaster contractors, however, have men in their organization who have some artistic sense and a degree of real craftsmanship, who do this type of work, once they understand the effect sought.

* * * *

Favor Holding a Competition

The voters of Alameda county manifested their disapproval of the proposed $5,000,000 bond issue for a new county court house at the recent primary election. This means that Oakland will have to get along with the present antiquated structure until another election is called. Meantime an attempt will be made to persuade the Supervisors to approve of a competition for building plans. It is believed there is sufficient talent in the Bay Region to bring out some splendid designs in the event of an architectural competition being held.
Complete Electrical Specifications
By WILLIS E. HUSON, Architect

It would indeed be a great boon if we could pay our attorney six to ten per cent, based on any amount we thought proper, and get from him his regular services, and in addition have him advise us as to the proper preparation of our meals, the hanging of our curtains, how to adjust the electric piano, and about anything else we desired to know.

The architect is expected to perform as varied duties and in many cases be a walking encyclopedia. He must be able to write contracts, have knowledge of building laws, know construction, be familiar with hundreds of building materials, fabrics, finishes, paints, etc. He must know engineering, heating, ventilating, plumbing and electric work. In many instances he is expected to perform the duties of promoter and financier. The usual percentage received for architectural service is not adequate to compensate for such intensive and varied duties. As a result of the insufficient fee, certain branches of the work that are covered with building and insurance codes, are more or less allowed to take care of themselves. This is especially true of electrical work.

Electrical work is technical to the extent that it requires considerable knowledge and experience to properly lay out and specify a job of any importance. Electrical specifications are divided, in general, into two classes, those extensive enough to warrant the employment of an electrical engineer and those that do not. It is of the latter that shall be considered here.

The ideal electrical layout, should consist of complete indication of all wiring outlets of various types, each of which should have the wattage indicated. To indicate that an outlet should have the capacity of three lamps, does not mean anything, as this could just as well mean three lamps of four watts, or three lamps of 150 watts. It is also advisable to figure out the number of watts required to light the various rooms. The failure to do this usually results in too much light in some rooms and too little in others. It is desirable to indicate exactly how switches are to control the various lights, otherwise some one has to guess, and guessing rarely helps any job. The position of meters and panel boards should be studied out with relation to the main feeds and the exact location shown.

The age of electrical appliances is here to stay, and it is fair to assume that their usage in the next few years will be increased greatly. It should be the duty of the architect to provide for the increased use of electrical devices by providing floor, wall and power plugs, at convenient points for present and future use. This feature is usually taken into consideration by the average architect, and be even more so, did not the price element enter so strongly into the average job.

If the cost warrants, wiring for an electric range should be specified. In fact, the use of this type of stove is increasing so rapidly that it seems eventually it will replace most other types. Even though the owner of the residence or apartment may not immediately use electric heat for cooking, wiring should be done when the house is built, as the cost is so much less than afterwards.

The average electrical specification for small work leaves much to the imagination and gives the contractor too much guessing latitude. The contractor rarely guesses at anything but the cheapest. It is important to specify exactly the electrical requirements, such as kind and size of wire, push plates, switches, plugs, etc. Unless the grade of wire is specified a cheap wire will go into the job; it is true that the copper
of all grades of wire is practically the same, but the insulation differs greatly. The same is true of push plates and plug plates; if the quality is not specified the job is sure to be supplied with "competitive plates" of thin stamped metal and poor finish. The mechanism of switches varies greatly and if a satisfactory type is desired it should be specified, other sluggish, defective switches will result. It is also desirable to specify kinds of conduit, outlet boxes, etc. There are many varieties of outlet boxes and the type and grade should be specified to procure the best results.

In specifying types and grades of electrical devices it is better to mention manufacturer's name and catalog number. It is insufficient to mention name only, as the same concern manufactures many different grades and the cheapest grade will be selected by the contractor unless a better one is definitely specified. By exactly specifying catalog numbers it obviates long winded governmental specifications as to quality.

It is desirable for bidders to know where the service leads are to come in and the kind of current and whether it is to be brought into the building overhead or underground.

Wiring for telephones should be indicated and specified. This is also true of the humble bell circuits, which, if not designed and specified properly, will always be a source of trouble.

If the above suggestions were carried out, it would result in less confusion, a better job, and the contractor who really wants to give the owner value received, would not be forced to guess, or bother the architect, who as a rule has scant patience with bidders asking too many questions. Intelligent and concise specifications, complete in every respect, can be written, at little more work than the present haphazard one, that will result in improvement in electrical work on small jobs.

* * *

Portland Makes Convenience Outlets Compulsory

In the 1924 Electrical Code published by the Department of Public Works of the City of Portland appears the following clause:

"Approved receptacles for attachment plugs, connected directly to the circuit wires by not smaller than No. 14 wire shall be provided in parlors, living rooms, dining rooms and kitchens. A light outlet shall be so placed as to illuminate the front of every furnace or heating boiler. These requirements apply to all buildings which are to be wired for electric light."

In a footnote it is explained that it is the purpose of the above rule to prevent so far as is possible unlawful and dangerous extensions of flexible cord in order to obtain outlets that are nearly always needed.

This is a new step in municipal regulation and marks official recognition of modern conditions in the home. Electric appliances are in such general use that there is hardly a family that does not use its electrical outlets for purposes other than lighting. The Portland code frankly recognizes this fact and specifies that proper provision shall be made to care for portable lamps and for labor-saving devices. So far as we have been able to learn, this is the first instance in which convenience outlets have been compulsory in a city code.—Journal of Electricity.

* * *

Berkeley Favors Wooden Shingle

The voters of Berkeley have reversed themselves by voting in favor of the wooden shingle. Advocates of fire-proof roofing materials declare it will take another serious fire to convince the people that the wooden shingle is hazardous.
Art Association’s 47th Annual Exhibition
By RAY BOYNTON

The 47th annual exhibition of the San Francisco Art Association, now being held at the Palace of Fine Arts, San Francisco, is likely to be a surprise to most of the followers of the art exhibitions in the transbay section—the exhibition brings together 352 pieces of painting, sculpture and graphic art. It reveals the presence of 131 artists in the vicinity of San Francisco and among them a lot of new names.

It is quite the best in years and that with a number of the regular exhibitors absent. It is refreshing in promising work and in its colorfulness. Color is quite frankly accepted as a medium of expression. This gives it a note of exuberance and youthfulness, but for all that there is less of the effort to be startling and original than might be expected. The Exhibition is surprising, too, in the small minority of the merely able sophisticated painting, empty of all content except skill, which so often usurps exhibition honors; and the staged model with stage properties is almost absent.

There is a lack of ripe mature expression, but no lack of seriousness; there is much that commends itself for its honesty and candor. The real test is for maturity to come without bringing compromise and disillusion. The sad thing is that so little is offered to encourage that youthful enthusiasm to ripen naturally here.

To say that it is youthful and enthusiastic is to say that it is modern in spirit and that it has variety. But what does the term modern signify? According to formula, it means seeing blue, we will say, where some one else has seen brown; seeing everything in geo-
metric shapes or in obvious distortions or in rigid simplifications. It may mean all of these characteristics or none of them—they are only the small change of the schools. But by all of these means men have arrived at a clearer understanding of form and its consistent organization in design. But by none of these characteristics is a work of art defined. By stripping form of its meticulous qualities of representation, by organizing and defining its volumes and spaces and rhythms in color, men have laid hold of some of the elements of organic design.

Modernism is not a sudden madness in spite of what the pundits say. It is a continuous thing and a part of the process of realism. Our own phase of it has been going on for the last fifty years and for the last hundred years it has been preparing in various steps. What is happening today is, in a large way, an attempted recovery of the authority of great design in a realism that has been exploiting technical resources in facile representation since the Renaissance. Facile emotionalism exploiting technical resources to their limit; facile representation without the restraint of great design; that is the poverty to which the Renaissance tradition had sunk long before our time.

It has been remarked lately that some of the lesser figures of the Renaissance, who realized without experimenting, were more and more coming to attention and that this is perhaps a natural reaction from a period in which we had done much experimenting with little realization. This is offered as an indication that we are coming again into a classical period. It may be so. Certainly "schools" seem to be less potent and the excuse for a work is not that it is a successful exposition of a formula but that it has realized something richly in its full expression.

Cezanne certainly had much to do with that release from the tyranny of schools, although he seemed to have let loose a curse of them on the land—cubism, futurism, synchronism, and whatnot—yet they were short lived enough and only cleared the air more fully for realization. Witness his own work which took hold of the experimenting of the Impressionists with light and color out of doors and shaped it toward the realization of a fundamental organic design. He could say of his own work, "I see these planes, these movements of form, these volumes; I note the color of each and put it down; bye and bye they become rocks and trees"—which argues that art is not so much a matter of formula as of purity of intention, and the confining of passion within a severe formal scheme. Men who put their feet within that charmed circle arrive at their own classical period regardless of their surroundings.

Painters, it seems to me, think too exclusively in paint. It would be a discipline and a liberation for them to think sometimes in more restrained mediums—in pottery, for instance and textiles and frescoes and stained glass and carving. Walls are not nobly decorated by anything but noble design, no matter how much facile representation is spread over them in paint. The same is true of windows and pottery. Too many of our artists aim to be something less or something more than Sargent and think they are in the real stream of art. But Sargent never produced a great piece of design or a bit of color that was charged with emotion.

Sculptors are already learning to look to the restraint of materials and instead of elaborating the facile technique of modeling in clay they think their problems out directly in stone or wood, again like true craftsmen; for the artist was one time craftsman first and then artist.
May, 1924

If one or two men in a generation add something to the intellectual breadth of art the world is fortunate in new growth that follows. The problems of art are revised in contemporary terms and with these revaluations the stream of creative effort goes on, coming to terms with its objective world. It is this effort to see its environment in contemporary terms that makes the present exhibition worthy.

Three Per Cent Lighting Fixtures

dealers in lighting equipment are participating in a campaign addressed to architects, contractors and home-owners, urging an allowance of 3 per cent of the construction cost of dwellings for lighting fixtures, says a writer in the Improvement Bulletin.

Too often the item of lighting fixtures is not taken into consideration at all at the time the building is planned and the cost estimates are prepared, with the natural result that the cost of lighting fixtures comes out of the surplus, if there is any, after everything else has been paid for.

Usually there are unexpected costs, either because of alterations in the original plans, or of unexpected contingencies arising in the course of the work, with the result that the owners of completed buildings quite commonly say:

"We have already spent so much money on the building that we will have to get along with cheap lighting fixtures. Perhaps we can replace them with better fixtures some time in the future."

Men engaged in the lighting industry say that the average cost of lighting installation in the average house has been 1 per cent of the construction cost.

Allotments for plumbing and heating installation are usually quite carefully figured out at the time the plans are made, with allotments provided therefor of from 5 to 15 per cent of the total cost of construction.

It is a mistake to equip homes that have attractive interior finish and beautiful furnishings with cheap and uninteresting fixtures, out of harmony with the architect's design. The lighting fixtures should enhance the beauty of the home—not detract from it. Cheap lighting fixtures in an otherwise attractive home are comparable to a bargain counter necklace worn with a costly evening gown.

Sometimes the owner compromises on a few good pieces in the living room and dining room, with cheap fixtures elsewhere throughout the house. The result is absurdly incongruous.

The movement for a 3 per cent allowance for lighting fixtures started in Detroit. The National Association of Lighting Equipment Dealers embarked upon a campaign to arouse architects and owners to the importance of selecting fixtures in harmony with the home, and to set aside a definite sum for that purpose. The 3 per cent idea preached by dealers has been slowly spreading until now it has achieved national recognition.

Bill Forbids Spraying Machines

A bill before the New York State Legislature proposes forbidding the use of spraying machines in the application of white wash, paint and varnish. Its manifest purpose is to exclude the use of important labor-saving machines in connection with painting, varnishing, etc.; ostensibly on the ground that paint spraying machines are prejudicial to the health of workmen.
THE

Architect and Engineer

Incorporated

Founded 1895 by E. M. C. WHITNEY

W. J. L. Kierulf - President and Manager
Frederk W. Jones - Vice-Pres. and Editor
G. H. Oyer - Advertising Manager
L. B. Pennoed - Secretary
T. C. Kierulf - Attorney

Associate Editors
Irving F. Morrow - Architectural Critic
Chas. H. Cheney - City Planning
Carol Aronovici - and Housing
Chas. Peter Weeks - Book Reviews
Emerson Knight - Landscape Architecture
Wilbur D. Cook - Inspection and Tests
O. F. Shelley, C. E. - Fireproof Construction
Jno. B. Leonard - Reinforced Concrete
T. Ronneberg, C. E. - Structural Steel
W. H. Lowe - Roots and Roofing
Fredk N. Woods, Jr. - Rock and Gravel
Chas. Felix Butte - Electrical Construction
J. W. Friese - School Equipment
Edgar N. Kierulf, R. S. M. - Foreign Correspondent

Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1888

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75¢ additional; to all foreign points $1 additional.

Vol. LXXXVII MAY, 24 No. 2

ARCHITECTURE is like language; it is a matter of development and tradition. New words are coined to meet new needs and to express new ideas. These words may be inadequate or misunderstood in the earliest phases of their use. It is just so with architecture; new forms may be devised, they cannot always be found in the earliest stages of such a development as we are going through, but I have the greatest confidence that they will be found and that solutions which will be presented will remain as examples of intelligent adaptation to conditions and that the result will have a beauty of its own.

Cass Gilbert.

VALUE OF ARCHITECTURAL EXHIBITS

The recent Architectural Exhibit in the Bohemian Club rooms in San Francisco has been the means of reviving interest in such events and it is earnestly hoped that the exhibition will be made an annual affair. While the material shown at this year's exhibit was nothing extraordinary, as a whole, there nevertheless were some very creditable displays. Had the exhibition been properly advertised and talked about in advance of the opening date, more time undoubtedly would have been spent by contributors in the preparation of their exhibits, and there would have been a much larger attendance by the public. Some of the displays unfortunately showed evidence of too hurried selection. Future exhibitions should include only the more recent work of the exhibitors since it is the architecture of today that we are most interested in.

The idea of holding an Annual Exhibition has many good features. It stimulates interest in the Arts and encourages better work. It offers the public a splendid opportunity to better acquaint itself with what the architectural profession is doing and at the same time helps to educate the layman more intelligently to appreciate good architecture. The public is always glad to take in something that is free and if the exhibition were well advertised in the newspapers there would be no difficulty drawing a crowd. And if one out of every ten visitors is converted into a keener appreciation of good architecture the exhibition will have accomplished its purpose. By all means make it an Annual and besides the Institute Chapter, invite the Architectural Club, Water Color and Sketch Clubs to participate.

NEED OF FIREPROOF CONSTRUCTION

The need for fireproof construction in cities is being more widely recognized every day. The recent Berkeley disaster brought the lesson more closely home than anything in late years. Fire will continue to destroy property so long as inflammable building materials are used, and until permanent fireproof buildings and homes are erected, the toll of human lives and property will be exacted annually in increasing amounts.

Fire losses in the United States in 1922 totaled more than $521,-
000,000. This is a loss of a million and a quarter dollars a day. About 65 per cent of these losses occurred in residences. More than 15,000 people lost their lives by fire, and many more thousands were injured. Of those killed or injured in fires, 83 per cent were women and children.

The total building operations recorded in the United States in 1922 were a little less than $5,000,000,000; so that in that year 10 per cent of all new building was entirely consumed by fire. At that rate, every ten years an entire year's construction goes up in smoke.

The modern architect, if he is to survive the dangers which threaten his profession, must learn the lesson of cooperation. He must realize the functions and the rights of all the elements in the building industry. He should lead in reforms, but he has too long played the role of dictator. His isolation has been especially marked in his failure to fraternize with the craftsmen who erect his buildings, and who of all the men in the industry, can be most useful in carrying out his standards of construction and of design.

Ellis F. Lawrence, A.I.A.

To Standardize Specifications

Since Secretary Hoover made the discovery that wastages in six basic industries average 49 per cent of all the time, effort, labor and material put into them, there has been a general movement to standardize other materials such as roofing, brick, tile, magazine paper, etc.

The latest subject to come to the attention of the Bureau of Simplification, we hear, is the question of specifications for buildings. According to Mr. Sullivan Jones, State Architect for New York, 73 per cent of the families of New York State cannot afford to live in houses, let alone purchase them, at the present cost of construction. Commenting further on the subject Mr. Jones is quoted as saying:

"There is a tremendous need for unifying practice in the matter of writing specifications. All of us write specifications, and all of us who try to read specifications realize what a mess most of them are and how difficult it is to extract the information from them which they contain.

"There is a very simple formula which you can all work on. A specification really consists of three parts. The first part can be expressed by the word 'Where.' Let us say distribution. The second by the word 'What' (the material). The third by the word 'How' (the application).

"Where? What? How?

"The what and the how can be standardized. The 'Where' is all that we really need to write into the specification. Those are the paragraphs which apply the standards to the particular job. If they were done, or if the attempt were made, we would soon find out where our standards were lacking.

"That involves another question, which is the question of relating specifications to the drawings. There is a tremendous amount of confusion there. They are redundant. They are in conflict. With the standard specification you could take a good deal of information off your drawings.

"One architect for whom I have the highest admiration as a practitioner indicates no materials whatsoever on his drawings."

ARCHITECT NO LONGER TO BLAME

[Journal of Electricity]

One of the difficulties in the way of more complete home electrification has been the lack of adequate wiring at the time a home was built. Many fine homes, to be occupied by those who could well afford the most extensive application of electrical equipment and who would have enjoyed its use, have been constructed with provision only for the most elementary use of electricity. In many cases this use has been confined to lighting only and there are many cases of record where even a limited number of auxiliary outlets was not provided.

Inasmuch as the architect generally is credited with the writing of all specifications for buildings of his design and supervision, it has been felt that the lack of wiring provision has been due to his indifference. However, in a recent survey made by The Architect and Engineer, it was shown that architects are now rather keenly alive to
the importance of electricity in the home. Eighty-one per cent of the questionnaires returned indicated that even though the builder of a residence or apartment building did not indicate a desire for an electric range, water heater or air heaters, the architect recommended the installation of proper wiring to permit later tenants or owners to use such equipment. This is surely a long step ahead in the provision of electrical comfort in modern homes and such initiative on the part of the architects should be met with the hearty co-operation of the electrical industry.

An architect, with a real vision of his great profession, should give personal attention to the progress of his men. He too seldom realizes that the men in his employ, who are to be the future architects of his community, are permanently influenced by his own standards of ethics, design and construction.

Passing of Distinguished Architect
The death of Architect Bertram Grosvenor Goodhue occurred suddenly at his home in New York City, April 23, of heart disease. Mr. Goodhue was stricken as he entered his home after attending a theater and died before medical aid could be secured. Mr. Goodhue only recently visited the Pacific Coast. He had a winter home at Montecito, near Santa Barbara, where a number of beautiful homes are monuments to bungalovia.

Mr. Goodhue was born in Pomfret, Conn., in 1869 and was educated at Russell's Collegiate and Commercial Institute at New Haven and at Trinity College. From 1891 until 1905 he was a member of the architectural firm of Cram, Goodhue & Ferguson of Boston, Mass. Since that time he had practiced under his own name.

One of Mr. Goodhue's last commissions was the designing of the central public library building to be erected at Normal Hill Center in Los Angeles at a cost of $1,500,000. Carleton M. Winslow of Los Angeles was associated with him on this commission. Working plans for this building are now being completed in Mr. Winslow's office in Los Angeles.

Mr. Goodhue is perhaps best known on the Pacific Coast as the creator of the architectural scheme of the Panama-California exposition at San Diego in 1915. The buildings of the California quadrangle were designed by him. Mr. Winslow came to the Pacific Coast at that time as the representative of Mr. Goodhue while the exposition buildings were being erected.
Competition for Masonic Temple
A competition has just been concluded at Portland, Oregon, and announcement of the winner is expected shortly; the program calling for a Masonic Temple design to cost $750,000. A special committee composed of Messrs. E. V. MacNaughton, A. H. T. Williams and Robert Gordon was appointed by the Masonic Officers of Portland to take charge of the program and this committee appointed Mr. Chas. D. James of Portland its architectural advisor. The following architects submitted designs: Messrs. Knighton & Howell, Morris Whitehouse, Sutton & Whitney, Lawrence, Holfoil & Bean, J. V. Bennes and Edward A. Miller. The winner of the competition will be given the usual fee for preparing the plans and superintending construction of the building, besides a special prize of $1000.

Architect Sues for Fee
Architect Frederick S. Harrison of Sacramento has filed suit in the Superior Court in that city against the Herald School District, formerly known as the Alabama School District, to recover $340.08 he says is due on a contract by which he supervised the construction of a school building in 1922. By the terms of the contract, Mr. Harrison says the trustees of the district agreed to pay him 6% per cent of the total cost of the building for his services, which amounted to $700.08. He says only $360 was paid to him.

Is Entitled to the Honor
Architect Edwin Bergstrom of Los Angeles has recovered from several days confinement to his home by illness. Mr. Bergstrom is the choice of the Pacific Coast Chapters, American Institute of Architects, for election to the vice-presidency of the Institute at its annual meeting this month. Mr. Bergstrom has done splendid work in helping to promote the interests of the Institute in Southern California and is deserving of the honor which his fellows wish to confer upon him.

Architectural Exhibition
The members of Washington State Chapter, A. I. A., will hold an architectural exhibition in the galleries of the Seattle Fine Arts Society during the month of June.

Dean and Dean Busy
Architects Dean & Dean of Sacramento have new work on the boards or under construction as follows: Two-story $16,000 residence in Sacramento for William Hart; Municipal swimming pool at Lincoln, Placer county; a two-room school house at Ryer Island; alterations to cost $75,000 to the Roman Catholic cathedral, Sacramento; one-story and basement reinforced concrete store building at Woodland to cost $15,000; two-story brick and stucco Parochial school at 9th & F streets, for St. Joseph's Parochial school to cost $70,000; a one-story masonry construction bank building at Yuba City for the Producer's Bank; a one-story concrete school building at East Nicola to cost $22,000; a one-story brick store building at 12th and K streets, Sacramento, to cost $50,000.

Who's Who in Architecture
The American Federation of Arts, 1741 New York avenue, N. W., Washington, D. C., proposes to publish a "Who's Who in Architecture" as the leading feature of volume 21 of the American Art Manual. This directory will correspond to the Who's Who in Art, a directory of painters, sculptors, illustrators and etchers, which appeared in alternate volume of the Art Annual for some years. Architects who desire to be listed are advised to communicate at once with the association.

Six-Story Apartments
Architect Edward E. Young, 2002 California street, San Francisco, has completed plan and bids have been taken for a six-story Class C reinforced concrete apartment house, having four stores and thirty-three apartments, to be erected on the north east corner of Sutter and Hyde streets, San Francisco. The building is expected to cost in the neighborhood of $100,000.

Most Beautiful Building
The Seattle Fine Arts Society will award annually a tablet to the owner of the most beautiful building erected in the city beginning at the close of the current year 1924, and covering the twelve months from January 1st. The architect or architects designing the building will be given a certificate of honor by the Society.
Personal
Architects Marston, Van Pelt & Maybury of Pasadena have opened supplementary offices at room 422 Union Oil building, Los Angeles. The firm will retain their present offices and drafting department at 25 Euclid avenue, Pasadena.

Architects Losekann and Clowdsey of Stockton have dissolved partnership and both Joseph Losekann and John Upton Clowdsey will practice the profession independently under their own names. Mr. Losekann will retain offices in the Elks building and Mr. Clowdsey has moved to 309 Exchange building.

Mr. Chas. A. Lee, engineer of the San Francisco water board, has been engaged by the Los Angeles public service commission as consulting expert in the matter of certain legal complications arising from water rights along the Owens Valley project.

Architect Edward L. Mayberry of Los Angeles is enjoying a three weeks’ business trip to New York City, in connection with a large Los Angeles building project. While East Mr. Mayberry will pay his school, the Massachusetts Institute of Technology, a visit.

Architect Ernest Irving Freese is now located at Highland Park, with office at 5566 Pasadena avenue, Los Angeles.

Architect Harwood Hewitt has moved his offices from Van Nuys building to room 515 Harris building, 110 W. Tenth street, Los Angeles.

Mr. Stephen Child, landscape architect and consultant in city planning, has opened an office in the Merchants Exchange building, San Francisco. Mr. Child also maintains an office in the Maryland building, Washington, D. C.

Mr. L. F. Mulqueen, architectural designer, has moved from the Roberts building to 425 Pacific Finance building, Los Angeles.

Architects Walker and Eisen of Los Angeles have moved their offices to larger quarters in the Great Republic Life building, Eighth and Spring streets, occupying very nearly the entire seventh floor.

Architects Charles W. Mc Call, Charles T. Davis and Wythe and Logan have moved their offices from the Central Bank building, Oakland, to the new Alameda County Title Insurance building, at Fourteenth and Franklin streets. Other architects who have moved into this building are Messrs. C. W. Dickey, Miller and Warnecke and W. R. Yelland.

It is announced that Architect Edwin L. Snyder has opened offices for the practice of his profession at 2809 S street, Sacramento. Catalogs and samples from material men would be appreciated.

Construction Courses
At the request of the Los Angeles Chamber of Commerce, the Southern California Chapter of the American Institute of Architects, the Associated General Contractors of America, the Builders’ Exchange and numerous manufacturers of building products, a course in building materials, construction of cement, tile and brick work and road work has been established at Roosevelt high school in Los Angeles.

This is said to be the only course of its kind taught in a high school in the United States. Mr. Thomas Fellows is the instructor.

Architect’s Widow Excused
Mrs. Kate A. Lenzen was yesterday excused from sitting with the jury that will head the $50,000 damage suit brought by James J. Collins, building inspector, against George W. Shorten for injuries incurred in a fall caused, it is alleged, by faulty building construction, when it was learned that her husband, Theodore W. Lenzen, architect, had planned the structure. With goal-natured laughter on both sides in Superior Judge Shortall’s court, the attorneys decided that a good wife would refuse to condemn any enterprise that her husband had any connection with.—San Jose Mercury.

Ten-Story Apartment House
Plans have been completed by Architect Frederick W. Quandt, Humboldt Bank building, San Francisco, for the construction of the 10-story and basement Class A residence apartment house on Broadway between Octavia and Laguna street, San Francisco, for the Broadway Community Apartments, Incorporated. There will be one large apartment to a floor. Building will cost $175,000.

Four-Story Building
Plans have been prepared by Walter Stephens, 251 Kearny street, San Francisco, and the contract has been awarded to J. L. McLaughlin of the same address for a four-story basement and mezzanine reinforced concrete loft building at Mission and Julia streets, San Francisco. Structure is to cost approximately $175,000. It will be equipped with automatic fire sprinklers.

Power Plant for Shanghai, China
Plans have been completed by Architects Bakewell & Brown of San Francisco for a Class A power plant to be built at Shanghai, China, by the Federal Telegraph Company. The structural work for the building was designed by Engineer C. H. Snyder. Construction of the building is to start this summer, all materials to be purchased in the United States.
Who Made the First Paper?

Who made the first sheet of paper? The credit for this achievement, according to The American Forestry Association, is due to a scholarly eunuch named Ts'ai-lun of China, a member of the court of the Han dynasty, in the year 75 A.D. For his achievement, Ts'ai-lun was, forty years later, raised to the rank of marquis. It appears that Ts'ai-lun, believing that old bamboo tablets and stucco had outlived their usefulness, set for himself the task of making new writing materials. After thirty years he produced the first hand sheet of paper, and it was made from the bark of a mulberry tree.

Prior to Ts'ai-lun's day, leaves of trees and various barks used in crude form had served the Egyptians, Romans, and other nations as paper. Ts'ai-lun, however, did not use the crude inner bark of the tree as the final material on which to make his records. He did use the bark, but merely as a raw material from which he produced a finished sheet of paper by a series of processes which, crude as they may seem today, were the forebears of paper manufacture today.

For eight centuries after Ts'ai-lun's discovery, China monopolized the art of paper making. She managed to keep the process secret until it was captured by the Arabs, who improved upon it by forsaking the mulberry tree and using linen or cotton rags instead. Thus wood, as a raw material for paper making passed into oblivion until the dawn of the nineteenth century. Even up to 1860, rags were the principal material used in paper making.

Most books on paper making date the first wood pulp process from 1840, but The American Forestry Association cites evidence to show that it was forty years earlier. A small little volume, dedicated to George the Third, was printed in London in 1880. The writer of the book was one Mathias Koops. Most of the pages of the book are made from straw, but the appendix appears quite different, and as to it, Koop says:

"The following lines are printed on paper made from wood alone, the produce of this country, without any intermixture of rags, waste paper, bark, straw, or any other vegetable substances."

What wood Koop used, or what process he employed, is not known, but it is now historically conceded that he made paper from wood pulp, forty years before the ground wood process was officially discovered.

Special Architects' Representatives
Messrs. G. A. Roth and E. H. Cowan, formerly associated with the Califaft Insulation Company, 216 Pine street, have been appointed special architects' representatives in San Francisco and the Bay District in promoting the sales of all Johns-Manville materials. This will be good news to architects who from time to time require special and prompt information regarding the uses and application of various Johns-Manville products, including asbestos roofing, deadening felts and acoustical corrections. Both Mr. Roth and Mr. Cowan are well known to the San Francisco architectural profession and their affiliation with the Johns-Manville interests will be welcomed.

BOOK REVIEWS
Edited by CHARLES PETER WEEKS


The cement producers insist that they are merely an average group of normal competitive business concerns which have supplied the market with a dependable product at a fair price and with only moderate profits to themselves. Strong in this conviction, a group of eastern producers of cement asked Dr. Willis and Professor Byers to make a careful analysis of cement prices and the economic processes by which they are determined.

The result is a valuable collection of data bearing not only upon the cement industry and the determination of cement prices, but also upon the meaning of uniformity and stability in prices; the relation of the latter to combination and competition in price-making; the tests or criteria of fair prices, normal prices, competitive prices; and finally, the amount, rate, and reasonableness of the profits which eastern cement producers have realized in recent years.

As was said by Judge Knox in his recent finding against the Cement Manufacturers Protective Association: "There is, I take it, no need to find that the prices at which defendants sold cement during the period over which the Association has functioned, were excessive. Indeed, as compared with the rise in the prices of other basic commodities, it is possible to assert that the quotations on cement advanced less than the others."

The book is not a partisan plea for the cement industry. It is a collection of fundamental data, accompanied by a scholarly analysis of their meaning, and in the authors' words, "the final expressions of opinion presented are those which have been independently reached by the writers." The disinterested reader will not swallow these opinions without critical examination.
THE ARCHITECT AND ENGINEER

Honor Awards for Architectural Work in Los Angeles

T HE honor awards for architectural work of exceptional merit executed during the year 1923 in and around Los Angeles were presented at the April meeting of the Southern California Chapter of the American Institute of Architects. The custom of giving recognition to particularly meritorious work in architecture and allied arts was inaugurated by the Southern California Chapter for the purpose of encouraging an appreciation of these arts. Since the Charter recognizes that to properly execute an architectural project requires the cooperation of the owner, architect and contractor, certificates of appreciation are presented to the owners and contractors as well as the architects of the works judged to possess great merit. The jury was composed of Architects Ernest Coxhead and John Galen Howard of San Francisco and Mr. William Parsons of Chicago.

Following are the awards by groups and sections:

GROUP I—DWELLINGS. SINGLE

**Section A—Single detached dwellings, 6 rooms and under—**

Residence of Mrs. Lynn Holm, 220 Witmer street, Los Angeles; Witmer & Watson, architects; T. C. Young, contractor.

Residence of George S. Hunt, 2280 Parkview, Linda Vista; Marston, Van Pelt & Maybury, architects; John H. Simpson, contractor.

Residence of F. H. Case, Ellendale and Hill Dr.; Eagle Rock; Harbin F. Hunter, architect; Birch O'Neal, contractor.

**Section B—Single detached dwellings 7 to 12 rooms—**

Residence of Mrs. Carleton M. Winslow, 11 Laughlin Park, Los Angeles; Carleton M. Winslow, architect; Harold E. Phillips, contractor.

Residence of Mrs. F. E. Leupp, 620 S. Hill street, Pasadena; Johnson, Kaufmann & Conte, architects; Hansen & Son, contractors.

Residence of Mrs. M. L. B. Walker, 1453 E. California street, Pasadena; E. W. Neff, architect; A. Carpenter & Son, contractors.

**Section C—Single detached dwellings, 13 rooms and over—**

Residence of Mrs. Reznah D. Johnson, 1511 Lombardy road, Pasadena; Johnson, Kaufmann & Conte, architects; John Mayer, contractor.

Residence of Mrs. J. C. Strong, Los Tunas road, Santa Barbara; Johnson, Kaufmann & Conte, architects; Snook & Kenyon, Santa Barbara, contractors.


**GROUP II—MULTIPLE DWELLINGS**

**Section A—Multiple dwellings, individual kitchen, 4 apartments and under—**

Witmer Bros. Company, owner; Witmer & Watson, architects; A. E. Westberg and John A. Gierling, contractors.

Residence at 102 N. Baring, 1901 Hollywood, owner; A. Carpenter & Son, contractors. Not presented at the meeting.

**Section F—Multiple dwellings, club type, country—**

Ojai Valley Country Club, Edward Drummond Libby, owner; A. Carpenter & Son, contractors. Not presented at the meeting.

**GROUP III—COMMERCIAL BUILDINGS**

**Section A—Mercantile buildings, 4 stories and under—**

Thorp building, 7th and Parkview, Los Angeles (owned by Spencer Thorp); Morson, Walls & Clements, architects; Robert Millsap, contractor.

Munin Shop, 6336 Hollywood boulevard, Hollywood; Morson Hunt and H. C. Chambers, architects; Macdonald & Kahn, contractors.

**Section C—Industrial buildings—**


**Section D—Industrial buildings not included in Sections "A," "B," or "C"—**

Store and office building, 25 S. Euclid avenue, Pasadena; Marston, Van Pelt & Maybury, architects; W. A. Taylor, contractor.

Home Commercial & Savings Bank, 945 Fair Oaks street, Pasadena; Edwin Bergstrom, architect; Wm. A. Larkins, contractor.

No award in Sec. H buildings, 5 stories and over.

**GROUP IV—SEMI-PUBLIC AND CULTURAL BUILDINGS**

**Section C—Hospitals, Detention Homes, Etc.**

West Wing, Pasadena Hospital, Congress and Fairmont streets, Pasadena (owned by the Pasadena Hospital Association); Myron Hunt and H. C. Chambers, architects; Wm. Crowell, contractor.

No awards in Secs. A, C, or D, cultural buildings.

**GROUP V—SCHOOL WORK**

(Built by civic taxes or bonds)

**Section A—High schools—**

George Washington Junior High School, Raymond and Dakota streets, Pasadena (owned by city of Pasadena); Allison & Allison, architects; Anton Johnson & Co., contractors.

No awards in Secs. C, G, or H buildings.

**Section B—Intermediate schools and under, 8 class rooms and under—**

Junipero Serra Grammar School, Pasadena (owned by city of Pasadena); Cyril Bennett, architect; H. E. Tabor, contractor.

No awards in Sec. G, 6 class rooms and over.

No awards in Group VI, public work, Group VII, monuments; Group VIII, group planning; Group IX, city or community planning; Group X, landscape work; Group XI, any of the fine arts as distinguished from architecture.

For craftsmanship in metal work, R. B. Bell and Norman Bishop.

Santa Barbara's Best Examples of Architecture

The ten most notable examples of architecture, five most notable examples of landscape gardening and five most notable small houses approximating $5000 in cost in Santa Barbara and its environs, have been designated by a jury selected by the architects of Santa Barbara and appointed by the president of the city planning commission. The members of the jury were: Architects Elmer Grey, David C. Allison and Pierpont Davis of Los Angeles, and Messrs. Fernand Langen and William H. Conklin, art connoisseur, of Santa Barbara.

As the ten most notable examples of architecture in Santa Barbara and vicinity, the jury names the following (in alphabetical order, no priority having been attempted):

2. Daily News building, city hall plaza; George Washington Smith and Mr. Maybury, architects.
3. Greenwater residence, 84 Sycamore Canyon road; Bertram G. Goodhue, architect.
Mrs. Kathryn Emery residence, 5 Pomer Lane; Soule, Murphy & Hastings, architects. J. W. Gillespie residence, 29 Para Grande Lane; Bertram Goodhue, architect. J. F. Jefferson residence, Ridge road; Reginald Johnson, architect. Miller residence, 197 Hot Springs avenue; George Washington Smith, architect. Old Santa Barbara Mission. El Paseo buildings, 21-23 East de la Guerra street; James Osborne Craig, architect. Major J. H. Peske residence, 913 San Andreas street; Myron Hunt, architect. Honorably mention was given to the following: Carrillo building, State and Carrillo streets; Marston, Van Pelt & Maybury, architects. Jos. G. Coleman, Jr., residence, 55 San Leonado Lane; Reginald Johnson, architect. Bertram Goodhue residence, East alley road; Bertram Goodhue, architect. W. S. Gring residence, Spring road; James Osborne Craig, architect. Craig Heberton residence, 40 Middle road; George Washington Smith, architect. W. E. Hodges residence, 2113 Santa Barbara street; Soule, Murphy & Hastings, architects. Bernard Hoffman residence, 2420 Garden street; James Osborne Craig, architect. C. Y. Parker residence, 1600 Patera road; Floyd E. Brenton, architect. George Washington Smith residence, 17 Mesa road; George Washington Smith, architect. Paseo de la Falsa, 318 State street; Mrs. James Osborne Craig, designer. Granada Development, Nopal and Anapamu streets; Kirkbuhl and Schauf, architects. As the five most notable examples of gardens, the jury unanimously selected the following in alphabetical order: Henry Dater garden, 84 Sycamore Canyon road (Bertram Goodhue). J. W. Gillespie garden, Para Grande Lane (Bertram Goodhue). Craig Heberton garden, 40 Middle road. David Jones garden, Aliston road (Adler, C. C.). George Owen Knapp, upper garden, Sycamore Canyon road (Chas. D. Adams, landscape consulting architect for planning only; Carleton M. Winslow, architect). As the five most notable examples of small houses, the jury selected the following: E. S. Hyde, beach cottage, Montecito; Carleton M. Winslow, architect. Dr. R. M. Culler house, 2014 State street; Soule, Murphy & Hastings, architects. William H. Parker house, 2016 State street; Soule, Murphy & Hastings, architects. Bernard Hoffman’s guest cottage, Mission Canyon; James Osborne Craig, architect. John Frederick Murphy house, 27 Moreno road; John Frederick Murphy, architect.

Construction Again Deferred

The period of construction, without government permit or supervision of temporary structures in the area of Japan, affected by the earthquake, has been extended for six months. Shortly after the disaster the government prohibited permanent construction for a period of three years pending completion of new city plans and building regulations, and at the same time removed all limitations on temporary structures for a period of six months. The present decision simply extends this latter period for another six months because of the urgent necessity for temporary shelters and the inability of the government to agree on definite relief and construction measures prior to the dissolution of the diet.

Weeks & Day Busy

New work in the office of Messrs. Weeks & Day of San Francisco includes a five-story reinforced concrete store and office building at San Jose for the Saint Claire Realty Company, cost $400,000; a reinforced concrete theatre at Palo Alto to cost $200,000; a twelve-story steel frame hotel on Ocean View avenue, Long Beach, to cost $1,500,000 and a large residence in St. Francis Wood for Mr. Cahill.

Masonic Temple

Architects Tuttle & Tuttle of Oakland have completed drawings for a two-story brick store and lodge building for the Ukiah Masonic Temple Association, estimated to cost $45,000. The same architects have completed drawings for a hollow tile church at Burlingame for the First M. E. Society, which is to cost $70,000.

Plumbing Supply Building

Architect, W. O. Lewis, Bacon Block, Oakland, is preparing drawings for a one and two-story concrete wholesale plumbing supply house for P. E. O’Hair & Company, San Francisco. The building will be erected on Bryant street west of 7th, San Francisco.

Fresno School

Architects Swartz & Ryland, Rowell building, Fresno, are preparing plans for a $60,000 two-story school building for the Fresno City School District. They are also preparing plans for a 6 class room frame school to cost $35,000 at Riverdale, Fresno county.

Berkeley Residence

Plans have been completed by Architect W. H. Ratcliff, Jr., for a $18,000 frame residence to be built in Claremont Court, Berkeley, for Mr. J. Sub Johnson. Mr. Ratcliff has recently let a contract for a two-story frame apartment house for Mr. Joseph Davis on Arch street, Berkeley, at an approximate cost of $40,000.

Will Spend Summer Abroad

Architect Arthur Brown, Jr., and Mrs. Brown, departed from San Francisco the latter part of April and sailed from New York May 3 on the Olympic for Europe. Mr. Brown will serve on the jury of architecture at the International Exhibition of Fine Arts.

Los Angeles Hotel

The Davenport Hotel Corporation will spend $4,000,000 in building and equipping a new hotel, theatre and store building on Hollywood boulevard, Los Angeles, from plans by Architects Curlett & Beelman of Los Angeles.

May, 1924
Cost of Building Doubles in Last Ten Years

BUILDING costs in the United States, in the midst of what economists have agreed is the country's greatest construction boom, have doubled in the last ten years, according to a recent announcement by the National Industrial Conference Board. The board summarized the results of a study it has been making into the national building situation. A noteworthy development by the study is that costs of labor and of materials stand at exactly the same increased levels, for the first time since 1920.

While in New York City the building crafts receive high wages, the study shows that last month they were the highest in the country in only 10 out of 25 trades. Graphic charts accompanying the board's statement reveal the nationwide character of rising costs, not alone in wages, but in all materials entering into building. Other cities reporting uniformly high wages are Chicago, Cleveland, Pittsburgh, St. Louis and Houston, Texas.

The conference board's investigation covered the leading American cities, and took in all the crafts and the leading elements in building material. Wage figures were based on government and other reports annually in May from 1914 to 1920, and monthly since August of that year.

The general trend of building costs, taken as a whole, as shown by the National Industrial Conference Board's survey, is a tendency downward for materials, and a rising tendency in wages. There was nothing adduced in the survey to indicate appreciable reductions in building costs in the near future. conditions in the United States as a whole being considered.

Making a Record

Mr. George K. Beddoe, associated for fifteen years with the Indiana Limestone Quarrymen's Association of Bedford, Ind., where he gained a reputation among architects throughout the United States for his extensive operations as a cut stone contractor, is said to be making a record in his new position of vice-president and general manager of the Bonded Floors Company, Inc., of Philadelphia.

This position Mr. Beddoe assumed on the first of the year. Since then the company has seen a material increase in its advertising budget, with a corresponding boom in business, and a broadening of policy enabling contractors and retail stores to act as agents and distributors of Bonded Floors, enjoying practically the same privileges as branch offices of the company.

Simplification of Metal Lath

As a result of surveys made in 1922 of sizes and types of metal laths by the Associated Metal Lath Manufacturers, and a conference under the auspices of the Division of Simplified Practice, Department of Commerce, at which manufacturers, architects, builders and builders supply representatives and labor union officials were present, an official publication is about to be issued by the Government Printer covering the simplification of this product. More than 80 per cent of all groups concerned have adopted the simplification recommended reducing from 125 varieties to 24 flat expanded, ½ inch expanded and flat rib expanded metal lath, and have been putting the reductions into force for some time.

The recommendations officially adopted were as follows:

Section I.—Flat Expanded Metal Lath. Weight in pounds per sq. yd. of Painted Special Sheets galvanized

<table>
<thead>
<tr>
<th>Gauge of sheet (U. S. Standard)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section II.—½ inch Rib Expanded Metal Lath. Weight in pounds per sq. yd. of Painted steel Special metals

<table>
<thead>
<tr>
<th>Gauge of sheet (U. S. Standard)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section III.—Flat Rib Expanded Metal Lath. Weight in pounds per sq. yd. of Painted steel Special metals

<table>
<thead>
<tr>
<th>Gauge of sheet (U. S. Standard)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section IV.—Sheet Lath—Painted steel sheet lath is to weigh not less than 4.5 pounds per square yard, with corresponding minimum weights in this type of lath made from special metals or from sheets galvanized before fabrication.

Section V.—Expanded and Sheets. Metal lath in all types and weights galvanized after fabrication is to be eliminated.

Section VI.—The industry is to make every effort to direct practice to a consolidation of the pairs of bracketed sizes, Sections I and IV in a single weight to replace each pair: this is to be made effective, if possible, at the 1924 conference.

Section VII.—All types of lath are to be specified and sold by weight per square yard.
May, 1924

American Institute of Architects
(ORGANIZED 1857)
San Francisco Chapter
OFFICERS FOR 1924

President ................... J. S. Fairweather
Vice-President ............... John Reid, Jr.,
Secretary-Treasurer ......... Albert J. Evers
Directors
George W. Kelham .......... Three Years
Arthur Brown ................ Three Years
William Moore .............. Three Years
J. H. Bloome ................ Two Years
Earle B. Bertz .............. One Year
Harris Allen ................ One Year

Oregon Chapter, Portland
President .................... Charles D. James
Vice-President ............. Folger Johnson
Secretary ................... William L. Smith
Treasurer ................... Ormond R. Bean
Directors
Wm. C. Knighton Wm. G. Purcell John V. Bennet

Southern California Chapter
President .................... Reginald D. Johnson
Vice-President ............. A. M. Edelman
Secretary ................... David J. Wittmer
Treasurer ................... A. C. Zimmerman
Directors
D. C. Allinon Edwin Bergstrom
C. F. Norrenberg

Washington State Chapter, Seattle
President .................... James H. Schack
First Vice-President ........ A. H. Albertson
Second Vice-President ...... Herbert A. Bell
Third Vice-President ...... George H. Keith
Secretary ................... William G. Brust
Treasurer ................... Carl Siebrand
Member Executive Committee, Sherwood D. Foid

San Francisco Architectural Club
77 O'farrell Street
President .................... Mark T. Jorgensen
Vice-President ............. Edgar B. Hurt
Secretary ................... Carl R. Schmidt
Treasurer ................... Lawrence H. Keyser
William Rowe Felix Raynaud J. B. McCool

Los Angeles Architectural Club
President ..................... Jess Stanley
Vice-President .............. Frank Spaulding
Secretary ................... J. C. Simms
Treasurer ................... Paul Penland
Directors
D. Wilkinson W. S. Davis C. A. Truesdell, Jr.

California State Board of Architecture
Northern District
Phelan Building, San Francisco
President ..................... Clarence R. Ward
Secty. & Treasurer ............ Sylvain Schnettacher
Edward Glass John J. Donovan James R. Miller

Southern District
Pacific Finance Bldg., Los Angeles
President ..................... William J. Dodd
Secty. & Treasurer ............ A. M. Edelman
John Parkinson Myron Hunt W. H. Wheeler

Section VIII.—Manufacturers accepting this recommendation and who so desire, may stamp or tag their product "Made in accordance with U. S. Department of Commerce Simplified Practice Recommendation No. 3."

The action of the makers and users of metal baths forms one of an important group connected with the construction industry who have adopted simplification since Secretary of Commerce Hoover organized the movement for a reduction of excess variety as a measure of increased efficiency, lower costs, more stability of labor, and better service. Among the other groups were makers of rough face brick, smooth face brick, hollow building tile, prepared roofing, range boilers and a number of household articles. Savings of millions of dollars have been effected by simplifications, and more than a hundred other industries are planning similar action.

The Relation of Terra Cotta to the Fine Arts

It is significant that of the five greater arts—architecture, sculpture, painting, music and poetry—terra cotta has a definite place in the first three. The architectural beauty of terra cotta is undisputed. Its adaptability to modeled design is well known. Its color harmonies present limitless opportunities.

Sensing the trend toward color in the development of our national architecture, the Terra Cotta Service Bureau, 128 North Wells street, Chicago, has added to its staff one of the foremost of American colorists, Mr. Thomas A. O'Shaughnessy, and offers his services as a consulting specialist in color, as its additional contribution to the development of a distinctly American architecture.

The Bureau will be pleased to furnish to any architect, upon request and without charge, color criticisms by Mr. O'Shaughnessy, covering any desired building project, and to collaborate in the development of architectural color plans for both exterior and interior treatments in terra cotta. Requests for such co-operation should be addressed to the Bureau, and such requests will receive Mr. O'Shaughnessy's personal attention in the order of their priority.

Distinctive Floors

"Distinctive Floors," is the name of a new booklet just published by the Bonded Floors Company, Incorporated. It illustrates this concern's gold seal brand of treadlite tile and describes the method of laying them for various purposes. In addition to gold seal and Treadlite tile, the Bonded Floors company installs floors of seal rubber tile, a resilient floor of new live rubber, in many beautifully colored marble effects, gold seal battlehip linoleum and natural cork tile. The San Francisco offices of the Bonded Floors Company are at 370 Second street.
Schirmer-Bugbee Company Busy

The office of Schirmer-Bugbee Company in Oakland is busy on plans for a $50,000 commercial garage to be erected on San Pablo, Oakland; a warehouse on 22nd Street, Oakland to cost $100,000; a two-story frame apartment house on Glenview Avenue for Mr. Weck; a three-story frame apartment house on Excelsior Avenue for Mrs. K. L. Lemmon; a two-story English type residence in Lakeshore Highlands for Mr. F. L. Saylor and a two-story frame and stucco residence in Piedmont for Mrs. C. F. Bryan.

Oakland Office Building

Contract has been awarded to the H. H. Winner Company, Sharon building, San Francisco, to design and build a five-story Class C brick store and office building, containing nine stores and one hundred and twenty offices, 13th and Franklin streets, Oakland, to cost $100,000. The owner is Mr. Carl Raentsch who is also going to build a $100,000 moving picture theatre on Telegraph Avenue near Channing Way, Berkeley.

Hotel Alterations

Plans have been completed by Architects Hemmings & Starks of Sacramento for a one-story and basement steel and concrete addition to the Hotel Sacramento, estimated to cost $80,000. The addition will provide lounge room, tea room, banquet hall, coffee shop and approximately sixty new bath and shower rooms.

Athletic Stadium

Messrs. Willis Polk & Company and C. F. Master, E. Geoffrey Bangs, Thos. F. Chase and Lester W. Hard, Associates, have been commissioned to prepare plans for the new Athletic Stadium in Golden Gate Park, San Francisco. The funds are to be available from a $200,000 appropriation by the supervisors.

Resumes Architectural Practice

Mr. Creston H. Jensen announces that he has sold his interest in the C. H. Jensen Company to Mr. Don A. Pancoast, and will be associated with Mr. Evan W. Evans in the practice of architecture under the name of Creston H. Jensen, architect, and Evan W. Evans, associated, 74 New Montgomery street, San Francisco.

Move to Larger Quarters

S. F. Bowser & Company have moved their San Francisco office from 612 Howard Street to larger and more convenient quarters at Ritch and Brannan streets. Increased demands for tanks and pumps for gasoline and lubricating oil necessitates the expansion. The San Francisco plant will market products in Montana, Idaho, Utah, Oregon, Washington and California.

Residence Beautification

Mr. Emerson Knight, landscape architect, 9 Geary street, San Francisco, has completed designs and construction of a stone wall and stone stairway, wrought iron gate and tile stepping stones for the residence garden of Mr. C. E. Persons, 53 Sunshine Avenue in Sausalito.

Twelve-Story Office Building

The Sun Realty Company is to build another skyscraper in Los Angeles, plans having been completed by Architects Curlett and Beelman of that city. The building is to be twelve-stories and basement and will cost $1,350,000.

San Leandro Theatre

Architects Reid Bros. of San Francisco have completed plans for $100,000 reinforced concrete moving picture theatre to be built on the site of the Odd Fellows Hall at San Leandro for Mr. J. Hoorwitz of Hayward.
Mav, 1924

REAL SAFETY

was provided by the architect and electrical contractor who specified Circle T Type A Switches for the recent addition to the California Institute of Technology in Pasadena.

This switch will stand the hardest usage and can be operated as many times as necessary without injury. Ask for Bulletin No. 5 which gives complete specifications and prices.

THE TRUMBULL ELECTRIC MFG. COMPANY
595 MISSION STREET, SAN FRANCISCO, CAL.

Factory and General Offices
PLAINVILLE, CONNECTICUT

Branches in New York,
Chicago, Boston, Philadelphia

Kennedy

a double safeguard

The selection of Kennedy Valves for your valve installations will safeguard both your client's equipment and your own reputation.

Kennedy Valves are built to give lasting satisfaction, and they do give lasting satisfaction—a fact proven by almost half a century of service in every conceivable operating condition.

In your interests and those of your clients, it will pay you to try out the advantages of Kennedy Valves. Write for catalogue describing the big Kennedy line of 600 different types and sizes to help you make a selection for trial.

THE KENNEDY VALVE MFG. CO.

Branches and Supply Depots: New York, 55 John St.; San Francisco, 23-25 Minna St.; Boston, 47 India St.; Chicago, 228 N. Jefferson St.
Sales Offices: Salt Lake City, El Paso, Seattle

When writing to Advertisers please mention this magazine.
The Aesthetic Maximum in Interior Trims at Minimum Cost is represented in our Bataan and other trademarked brands from our own Luzon Timber Supply and Mills. Ask our Architectural Bureau for Data and Specimens.

Cadwallader-Gibson Co., Inc.
Exclusive Importers
5th and Brannan Streets
San Francisco
Oakland - Seattle - Los Angeles

McCRAY REFRIGERATORS for all purposes

McCRAY service is of great help to architects because it covers every type of refrigerator equipment—for homes, institutions, stores. We will gladly cooperate by suggesting models from stock or by submitting blueprints, without obligation, of built-to-order equipment.

Send now for latest catalogs for your files.
McCray Refrigerator Co., 2463 Lake St., Kendallville, Ind.
Salesrooms in All Principal Cities
San Francisco Salesroom—765 Mission Street

Complete Steam Heating Installation
Employing Clow Gasteam Radiators in Apartments, Schools, Churches, Residences, Commercial Buildings
Perfect Heat—Automatic Control
No Odor—Normal Humidity

PACIFIC GASTEAM COMPANY
Successors to WILLIAMS RADIATOR COMPANY
571 MISSION STREET
Telephone Douglas 8230 SAN FRANCISCO

When writing to Advertisers please mention this magazine.
# Present Cost of Building Materials

These quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, May, 1924.

All prices San Francisco or Oakland. For country work add freight and cartage to prices given.

<table>
<thead>
<tr>
<th>Bond</th>
<th>$108.00</th>
<th>$9.60</th>
<th>$1.40</th>
<th>$1.75</th>
<th>$2.75</th>
<th>$124</th>
<th>$135</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brickwork</td>
<td>Common, $35.00 per 1000 laid.</td>
<td>Face, $75.00 per 1000 laid.</td>
<td>Enamel, $150.00 per 1000 laid.</td>
<td>Common, f. o. b. cars, $15.50, plus cartage.</td>
<td>Face, f. o. b. cars, $50.00 per 1900, carload lots.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HOLLOW TILE FIREFPROOFING (f. o. b. cars in carload lots.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12x12x3 in.</td>
<td>$96.00 per M</td>
<td>12x12x4 in.</td>
<td>$108.00 per M</td>
<td>12x12x6 in.</td>
<td>$156.00 per M</td>
<td>12x12x8 in.</td>
</tr>
<tr>
<td></td>
<td>Haul carriers, $6.50 per day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bricklayers, $10.00 per day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lime—$2.25 per bbl.; carload, $2.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HOLLOW BUILDING TILE f. o. b. cars in carload lots.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8x11x½ in.</td>
<td>$108.00</td>
<td>8x11x6/5 in.</td>
<td>$8.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composition Floors—22c to 50c per sq. ft. In large quantities, 22c per sq. ft.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composition Stucco—$1.90 to $2.10 per sq. yard (applied).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Work (material at San Francisco bunkers)</td>
<td>No. 3 rock</td>
<td>$2.25 per yd.</td>
<td>No. 4 rock</td>
<td>$2.30 per yd.</td>
<td>Niles pea gravel</td>
<td>$3.50 per yd.</td>
<td>Niles gravel</td>
</tr>
<tr>
<td>SAND</td>
<td>Del Monte</td>
<td>$1.35 to $1.50 per ton</td>
<td>Fan Shell Beach (Car lots, f. o. b. Lake Majella)...</td>
<td>$2.50 to $3.00 per ton</td>
<td>Swedish cement</td>
<td>$2.68 per bbl.</td>
<td>Belgian cement</td>
</tr>
<tr>
<td></td>
<td>Atlas “White”</td>
<td>$9.75 per bbl.</td>
<td>Medusa “White”</td>
<td>$9.95 per bbl.</td>
<td>Forms, Labors average</td>
<td>$27.00 per M</td>
<td>Wage—Concrete workers</td>
</tr>
<tr>
<td>Damproofing—Two-coat work, 25c per yard. Membrane waterproofing—4 layers of P. E. saturated felt, $5.00 per square. Hot coating work, $2.00 per square.</td>
<td>Wage—Roofers, $8.00 per day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric Wiring—$5.00 to $10.00 per outlet for conduit work (including switches).</td>
<td>Knob and tube average $2.50 to $5.00 per outlet.</td>
<td>Wage—Electricians, $8.00 per day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elevators—Prices vary according to capacity, speed and type. Consult elevator companies, Average cost of installing an automatic elevator in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N. B.—Materials and labor are plentiful at present time, with tendency to lower prices.
May, 1924

Wage—Floor layers $9.35 per day.

Millwork—

O. P., $100 per 1000. R. W., $120 per 1000.

Double hung box window frames, averaged, $3.50 and up, each.

Doors, including trim (single panel), $10.50 and up, each.

Doors, including trim (five panel), $8.50 each.

Screen doors, $3.50 each.

Cases for kitchen pantries seven feet high, per lineal foot, $7.50 each.

Dining room cases, $8.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average) $16 per m.

For smaller work, average, $28.00 to $35.00 per 1000.

Wage—Carpenters, $8.00 per day.

Laborers—$5.00 per day.

Marble—(Not set), add 40c to 60c per ft. for setting.

Columbia ................................ $1.50 sq. ft.
Alaska ...................................... 1.50 sq. ft.
San Saba ................................... 3.15 sq. ft.
Tennessee .................................. 1.90 sq. ft.
Verde Antique ................................ 3.50 sq. ft.
Westfield Green .............................. 3.50 sq. ft.

Wages—Marble setters, $8.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—

Two-coat work ................................ 30c per yard
Three-coat work ............................. 45c per yard

Whitewashing ................................ 5c per yard

Cold water painting .......................... 9c per yard

Turpentine, $1.25 per gal. in cases and
$1.10 per gal. in tanks.

Raw Linseed Oil ................................ $1.05 per gal. in bbls.

Boiled Linseed Oil ............................ 1.10 per gal. in bbls.

Pioneer white and red lead, 13 ½ lb. in
one-ton purchases; 14 ½c lb. for less
than 500 lbs.

Wage—Painters, $8.00 per day.

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch ........................................ $1.50 lineal foot
8-inch ......................................... 1.75 lineal foot
10-inch ........................................ 2.25 lineal foot
12-inch ........................................ 3.00 lineal foot

Pipe Casings—14” (average), $7.50 each.

Plastering—(Including Lathing)

Interior, on wood lath, 60c per yard.

Interior, on metal lath, $1.25 per yard.

Exterior, on brick or concrete, $1.50 per yard.

Portland White, $1.75.

Interior on brick or terra cotta, 60c to
70c per yard.

Exterior, on metal lath, $1.75 to $2.00
per yard.

Wood lath, $5.00 a yard per 100.

Metal studding, $1.25 to $1.50 per yard.

Suspended ceiling and walls (metal
furring, lathing and plastering),
$2.00 per yard.

Galv. metal lath, 33c and up per yard,
according to gauge and weight.

Lime, f. o. b. S. F. warehouse, $2.50 bbl.
Lime, bulk, per ton of 2000 lbs., $19.50

Hardwall plaster, $15.40 per ton, f. o. b.
warehouse. (Rebate on sacks, 15c.)

Finishing plaster (carload lots), $19.00.

Hydrate of lime, $19.50 per ton, f. o. b.
warehouse.

Wage—Plasterers, $10.00 per day.

Lathers, $8.00 per day.

Hod carriers, $7.00 per day.

Plumbing—

From $70.00 per fixture up, according to
grade, quantity and runs.

Wage— Plumbers, $9.00 per day.

Reinforcing Steel—

Base price for car load lots, $3.80 per
100 lbs., f. o. b. cars on docks.

Average cost to install, $2.50 per ton.

Wage—Housesmiths, $3.00 per day.

Roofing—

Five-ply tar and gravel, $6.00 per
square for 30 squares or over.

Less than 30 squares, $6.25 per square.

Tile, $35.00 to $50.00 per square.

Redwood Shingles, $12.00 per square in
place.

Cedar Shingles, $12.00 per sq. in place.

Rein’d Pabco, 7 yr. roof, $7.50 per
Rein’d Pabco, 10 yr. roof, $10.25 per
Rein’d Pabco, 20 yr. roof, $13.50 per
Recoat, with Gravel, $3.00 per square.

Wage—Roofers, $8.00 per day.

Sheet Metal—

Windows—Metal, $2.00 a square foot.

Fire doors, (average), including hard-
ware, $2.30 per sq. ft.

Skylights—

Copper $.125 a square foot (not glazed)
Galvanized iron, $35 per a square foot (not
glazed).

Wage—Sheet metal workers, $8.50 per
day.

Stone—

Granite, average $7.50 sq. ft. in place.

Sandstone, average Blue, $4.75; Bosie,
$2.80 sq. ft. in place.

Indiana Limestone, $3.00 per sq. ft. in
place.

Wage—Stone cutters, $8.00 per day.

Stone setters, $8.50 per day.

Store Fronts—

Copper sash bars for store fronts, corner,
center and around sides, will average $85c per lin. ft.

Note—Consult with agents.

Structural Steel—$112 per ton (erected).

This quotation is an average for com-
paratively small quantities.

Light truss work higher; plain beam
and column work in large quantities, less.

Cost of steel for average building
(erected), $108 per ton.

Steel Sash—

All makes, from S. F. stock, 26c to 34c
per sq. ft.

All makes, plant shipment, 28c to 34c
per sq. ft.

(Includes millings and hardware.)

Tile—White glazed, 50c per foot.

White floor, 80c per foot.

Colored floor tile, $1.00 per foot.

Promenade tile, $1.00 per sq. ft. laid
Wage—Tiles setters, $8.50 per day.
No. 150—Seven-Foot Buffet

Made Throughout of Seasoned Philippine Satinwood or Beautiful Southern Red GUM

Quantity production makes it possible to sell this magnificent buffet at a low price. No hardware—unglazed. Special Sizes and Patterns made to order.

Cabinet work, mouldings, etc., furnished in the various Philippine Hardwoods or Beautiful Southern Red GUM.

Our No. 100 Door shown on the left is a Solid Front Door made of genuine Siamese Teak or Philippine Satinwood. 1\(\frac{3}{4}\)" thick—Height 6'8"—Width 3'0" or 3'3".

Specify

DAVIS GOLD MEDAL SOLID HARDWOOD DOORS

Send for Complete Catalogue

DAVIS HARDWOOD COMPANY

BAY AND MASON STREETS

SAN FRANCISCO

MANUFACTURERS AND DEALERS IN HARDWOOD LUMBER, DOORS, MOULDINGS AND TRIM

When writing to Advertisers please mention this magazine.
PERMA-LIGHT
FINE INTERIOR FINISHES

Eggshell Enamel
Gloss Enamel
Undercoating
Gloss Wall Finish
Flat Wall Finish

Made in one quality only and equal in texture, finish, opacity and durability to anything on the market at any price.

Hill, Hubbell & Co.
TECHNICAL PAINTS
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Photographs show San Jose Hospital, San Jose, California. Binder & Curtis, Architects. Gold-Seal Battleship Linoleum, one of the several types of Bonded Floors, has been laid in corridors, rooms, and wards.

The Modern Hospital and Its Floors

A modern hospital throughout is San Jose Hospital, San Jose, California. It is logical, therefore, that the resilient floors of the Bonded Floors Company were the choice for corridors, wards and private rooms.

In selecting Bonded Floors, architects secure not only the highest type of materials, but also the complete flooring service of Bonded Floors Company, an organization of flooring engineers whose wide experience has given them a vast fund of dependable information on the subject of floors.

Moreover, as Bonded Floors Company installs practically all types of resilient floors, impartial advice is assured in the matter of selection. Bonded Floors are available in such a wide variety of colors and designs as to make it possible to select floors that will harmonize with any plan of interior decoration or finishing.

A folder, “Hospital Floors,” showing typical installations, pattern suggestions and other interesting material will be sent on request.

Every floor laid according to Bonded Floors specifications is backed by a Surety Bond issued by the U. S. Fidelity and Guaranty Company. The bond insures freedom from repair expense due to defects in materials or workmanship.

BONDED FLOORS COMPANY
INCORPORATED
Division of Congoleum Company, Inc.
Manufacturers - Engineers - Contractors
San Francisco - Los Angeles
New York - Cleveland - Detroit
Philadelphia - Chicago - Kansas City
(Distributors in other principal cities)
THK
ARCHITECT
AXD
ENGINEER
DEL
MONTE
WHITE
SAND—BEACH

WASHED IN FRESH WATER
DRIED BY STEAM
CLEAN BONE DRY

DEL MONTE PROPERTIES COMPANY
Phone Sutter 6130  401 CROCKER BUILDING  San Francisco

When writing to Advertisers please mention this magazine.
WHEN your plans call for non-staining effects in cement work, you can specify "Medusa White" with entire confidence—for Medusa White Cement will not only be white when applied, but it will not stain or discolor with time.

And Medusa White Cement is a product of wide and varied uses. You naturally think of it in connection with stucco, non-staining mortar, and its other more important applications. But "Medusa White" serves other fields equally well. For example:

Art and cast stone; cement plaster; concrete block facing; cement brick; cement mantels; floor tiles; lawn and garden furniture; lamp standards; swimming pools; shower baths; traffic markers; terrazzo tile; table tops and counters, etc.

For applications where permanent resistance to dampness is an advantage, we furnish at slight additional cost, Medusa Waterproofed White Cement, containing the correct amount of Medusa Integral Waterproofing added at the mill and thoroughly ground in, during process of manufacture.

Specifications are given in detail in interesting Booklets which we shall be glad to send, and in Sweet's, pages 349-351 and 102-103.

THE SANDUSKY CEMENT CO., Dept. P, Cleveland
Medusa Stainless White Cement—Plain and Waterproofed—and Medusa Waterproofing are carried in stock and sold by leading building-supply dealers in California, Oregon and Washington.
THE TRUTH about Brick Costs

The average cost of brickwork in California today is approximately 3c per laid brick. On certain types of intricate work this figure mounts to 3 1/2c; on large unbroken wall work it drops to 2 1/2c.

These figures are the result of a recent state-wide survey of the cost of brickwork. The figures include the cost of brick, mortar, labor and scaffolding.

Architects throughout the state are today turning to brick as a medium for expressing the new California architecture. They are favoring brick not only because it makes beautiful, safe, permanent buildings—they are now finding it economical in first cost.

342 Douglas Building
Los Angeles
California Common Brick Manufacturers Association
811 Sharon Building
San Francisco

THE VALUE OF EXPERIENCE

Experience with Pacific Coast conditions, coupled with diversified experience on every sort and size of installation, whether for handling gasoline and oil or effecting economic lubrication—

Experience that will help you better serve the owner—

Such experience can be had upon application to this house, which opened its first Pacific Coast branches in 1908.

Tell us your problem, and we will work with you—without obligation to you or your client.
7 Rooms built in 5

Here is a 5-room bungalow designed to give the convenience of 7 rooms, yet the two extra rooms—sun room and guest bedroom—cost nothing to build or furnish.

The sun room is an unusual feature for a 5-room bungalow. This room has been added to the house by installing an AD-A-ROOM Bed (wall bed) in a room that would ordinarily be available only as a bedroom at night.

The AD-A-ROOM Bed in the living room adds the third bedroom to this five-room home and serves as an ideal guest bedroom.

An AD-A-ROOM Bed in your home gives you an extra bedroom without the cost of building and furnishing a room.

MARSHALL & STEARNS COMPANY
Manufacturers of AD-A-ROOM BEDS (Wall Beds)
1152 PHelan Bldg.
SAN FRANCISCO

411 19TH STREET
OAKLAND

ES
PRODUCTS
ES Elevator Door Closers, Positive Electric Interlocks and Roller Bearing Hangers
combined on the same doors is the Ideal Installation

ELEVATOR SUPPLIES COMPANY, INC.
Main Office and Works:
HOBOKEN, N. J.
Branch Offices:
CLEVELAND
1019 Walnut Ave.
St. Louis
Railway Exch. Bldg.
CHICAGO
111 S. Jefferson St.

PHILADELPHIA
1714 Ludlow St.
SAN FRANCISCO
156 Fifth St.
LOS ANGELES
1120 S. Hope St.

MARSHALL & STEARNS COMPANY
Manufacturers of AD-A-ROOM BEDS (Wall Beds)
1152 PHelan Bldg.
SAN FRANCISCO

411 19TH STREET
OAKLAND
We beg to announce that we own

Patent No. 916,607

covering Flush Construction of
Elevator Hatchways

If necessary to protect our rights
we will prosecute infringements

ELEVATOR SUPPLIES COMPANY, INC.

HOBOKEN, NEW JERSEY

SAN FRANCISCO
186 FIFTH STREET

HOBOKEN, NEW JERSEY

LOS ANGELES
1120 SOUTH HOPE STREET

THE NATIONAL
BLUE PRINT COMPANY

ANNOUNCES THAT INCREASED BUSINESS
HAS NECESSITATED THE REMOVAL OF
ITS PLANT TO LARGER QUARTERS,
WHERE ALL DEPARTMENTS WILL BE
ENLARGED AND FACILITIES WILL BE IMPROVED
FOR THE BENEFIT OF ITS CLIENTELE.

THE NEW LOCATION IS
THIRD FLOOR, 54 KEARNY STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
JOHNSON'S ROTARY CRUDE OIL BURNER
Can be installed in any BOILER or FURNACE
Gives Satisfactory Results
Simple to Operate—Automatic—Safe
Let us tell you more about this Oil Burner.

S. T. JOHNSON CO.
1337 Mission Street
San Francisco
Phone Market 2759

Agencies: SEATTLE LOS ANGELES FRESNO SAN DIEGO SACRAMENTO

BURNER IN OPERATION

SIMPLEX BURNERS

BUNTING IRON WORKS
1215 FIRST NATIONAL BANK BLDG.
SAN FRANCISCO Phone Sutter 3225
Member of the Oil Burners Manufacturers' Association of California

Steam Heating and Ventilating
For Commercial and Public Buildings
Furnace Heating for the Home

Mangrum & Otter, Inc.
827-831 Mission Street
San Francisco, Cal.
Phone Kearny 3155

Architects—Specify BABY RAY
Domestic Type Burner. It burns low-priced Diesel Oil with high efficiency. Especially designed for bungalows and dwellings.

W. S. Ray Manufacturing Co.
118 New Montgomery St.
San Francisco
Plant:
Milton and Bosworth Sts.
San Francisco

When writing to Advertisers please mention this magazine.
MARBLE
Finished and Installed
EXTERIOR
INTERIOR
VERMONT MARBLE COMPANY
244 Brannan St., San Francisco
Phone Kearny 3470
East End 11th St. Bridge, Tacoma

Cast Iron Stairs and Store Fronts
Bank and Office Railings, Elevator Enclosures and Fire Escapes

C. J. HILLARD & CO., Inc.
Nineteenth and Minnesota Streets
Telephone Mission 1763
SAN FRANCISCO, CALIF.

DEPENDABILITY
"Since 1858"
LINOLEUMS
Window Shades
Carpets Draperies Rugs
Estimates furnished
D. N. & E.
Walter & Co.
562-572 Mission Street
SAN FRANCISCO
Los Angeles Portland Seattle

Specify
COLUMBIA MARBLE
"A California Product" from the Columbia Marble Company's quarries in Tuolumne County, California.

FOR INFORMATION APPLY
THE COLUMBIA MARBLE CO.
413 Rialto Bldg. Phone Sutter 1244
OR ANY DEALER

When writing to Advertisers please mention this magazine.
**Reason No. 2—**

Our improved mechanical process of drawing and blowing gives our glass greater tensile strength and higher modulus of rupture than any other window glass, plate glass, or rolled glass.

**Thirteen Other Reasons**

1. Our melting furnaces are the largest in the world and produce perfectly melted glass.
2. Our latest improvements in our blowing machines enable us to produce absolutely perfect cylinders, which make it possible to secure the best flattening ever obtained.
3. Our new method of flattening gives our glass a perfectly smooth surface, and a brilliant polish, unequalled by any other window glass.
4. Our glass has less wave than any other glass, and consequently shows less distortion.
5. Our glass is flat; it contains no reverse curves.
6. Our glass is uniform in thickness.
7. Our glass is perfectly annealed and therefore does not break as easily as poorly annealed glass.
8. Our glass is washed and thoroughly cleaned in an acid bath, which prevents discoloration and permits ready detection of defects.
9. Our entire process is conducted on scientific principles.
10. Our glass is perfectly matched.
11. Our glass is graded to the highest standard of quality.
12. Our grading is the recognized standard for the United States, and is higher than the foreign standards.
13. Our glass does not break in shipment, on account of the uniformity of flatness, well made boxes, great care in packing, and skillful loading.
14. Send for Your Copy of New Window Glass Specifications — Now Ready

**Architects Now Specify**

**"PERFECTION"**

Brand Oak Flooring

Architects, contractors and builders have found over a long period of years that greatest satisfaction has come from ‘Perfection’ Brand Oak Flooring. Their specifications more often call for ‘Perfection’ than any other one brand.

You can build a greater volume of business on ‘Perfection.’ All stock is uniformly graded, and perfectly matched. Two large mills enable us to assure you prompt delivery.

Our national advertising campaign in the leading home lovers magazines is creating bigger interest in the superiority of ‘Perfection’ Brand. Write for full information.

ARKANSAS OAK FLOORING CO.

Pine Bluff, Arkansas

When writing to Advertisers please mention this magazine.
Elevator Accessories
We manufacture and install Randall pneumatic elevator door closers and interlocks, Randall modern signal systems, hangers and complete line of accessories for elevators.
RANDELL CONTROL AND HYDROMETRIC CORPORATION
1014 E. 9th Street 265A Minna Street
Los Angeles, Cal. San Francisco, Cal.
Phone: 825-884 Phone: Douglas 2927

Buy This BETTER Water Heater
Better because it gives Perfect Hot Water Service—instantaneous, inexhaustible and inexpensive—not just once in a while, but all the time—
Better because it is simply made—
Better because it is solidly and ruggedly built—
Better because it is made by men whose experience dates back to 1899, when the world's first successful automatic water heater—a RUUD—was built.
Every RUUD is equipped with an internal automatic thermostat, double fuel control, condensation shield.
RUUD HEATER CO.
245 Mason St. San Francisco Phone Franklin 2626

HEATING-PLUMBING
COMPLETE PLUMBING AND HEATING SYSTEMS INSTALLED IN ALL CLASSES OF BUILDINGS—ALSO POWER PLANTS
GILLEY-SCHMID CO., Inc.
198 OTIS ST., SAN FRANCISCO
Tel. MARKET 965

Alvaline, Cementoline
and other
Jones-Duncan Products
MAGNER BROTHERS
PAINT MAKERS
Telephone: Market 113
414-424 Ninth St. San Francisco

I. M. SOMMER & CO.
::: ENGINEERS AND :::: GENERAL CONTRACTORS
CONCRETE CONSTRUCTION
901 BRYANT ST.
Phone Sutter 1414 San Francisco

Hunter & Hudson ENGINEERS
Designers of Heating, Ventilating and Wiring Systems, Mechanical and Electrical Equipment of Buildings
703 Rialto Bldg., San Francisco, Cal.

Russwin BUILDERS' HARDWARE
JOOST BROS., Inc.
SAN FRANCISCO AGENTS
We Carry Complete Stock:
Fishing Tackle—Gun—Mechanics' Tools—
Paints—Crockery and Glassware—Stoves—
Household Goods. Telephone Market 891.
NO BRANCH STORE
Mazda Lamps Electric Goods

The latest and Best ideas in hot water science are embodied in the
Pittsburgh
It insures superior hot water service.
PITTSBURG WATER HEATER COMPANY
478 Sutter St., San Francisco Phone Sutter 5025

When writing to Advertisers please mention this magazine.
SCHOOL AND THEATRE EQUIPMENT

FLAGG

SCHOOLS AND STUDIOS SAN FRANCISCO
LOS ANGELES

DESIGNERS AND MANUFACTURERS
Drop Curtains, Automatic Hoists
Stage Hardware, Scenery

"Hitch Your Desires to Our Experience"

ROBERT TROST
General Building Contractor

ROBERT TROST
General Building Contractor
26th and Howard Streets
SAN FRANCISCO

ALFRED H. VOGT
GENERAL CONTRACTOR CONCRETE CONSTRUCTION
185 Stevenson Street, San Francisco

LAWTON & VEZEY
CONTRACTORS AND BUILDERS
EVerson BUILDING OAKLAND, CALIFORNIA

THE HERMANN SAFE CO.
Manufacturers of Fire and Burglar Proof Safes, Vaults and Safe Deposit Boxes
Also Representatives for the
YORK SAFE & LOCK CO. OF YORK, PA.
216-224 Fremont Street
San Francisco, Cal.

HERBERT BECKWITH
Building Construction

JOHN M. BARTLETT
GENERAL CONTRACTOR

MONSON BROS.
Building Construction

When writing to Advertisers please mention this magazine.
ORIGINATORS

OF

SASH CHAINS

18,000 feet of our No. 1 “Red Metal” Sash Chain used in the Matson Building, San Francisco, Cal., Bliss and Faville, Architects. Our chains have also been installed in the new Los Angeles Biltmore Hotel and the Fitzhugh Building, San Francisco.

“Giant Metal” Sash Chain. “Red Metal” Sash Chain. Steel Sash Chain.

SEND FOR SASH CHAIN CATALOG AL.
SEE PAGE 1253, SWEET’S 18th CATALOG.

THE SMITH AND EGGE MFG. COMPANY

BRIDGEPORT, CONN.

RAWLINS & SMITH

COAST AGENTS

MATSON BUILDING
San Francisco, Cal.
Bliss and Faville, Archt’s

It does not get hard—

Palmetto Twist Packing

It makes an ideal packing for Radiator Valves—may be unstranded to fit any size valve

H. N. COOK BELTING COMPANY

401-433 HOWARD ST. SAN FRANCISCO

When writing to Advertisers please mention this magazine.
STEEL POLES
Worthy of the Flag

STANDARDIZED Steel Tubular Poles for setting on or through Roofs, Domes, Cupolas, etc.

Standardized Steel Tubular Poles and Main & Top Masts for ground setting to 200 ft. high.

Sections are properly proportioned for appearance and transportability at lowest rates. All Joints are constructed to be and remain permanently weathertight.

At your service, without obligation, are our 20 years experience on Poles and their installation.

Write for Catalogue today. Give full details for installation sketch & proposal.

The Pole and Tube Works, Inc.
Newark, N. J.
Exclusive Pole Specialists

Pacific Coast Representative
H. M. Holway, Hobart Bldg.,
San Francisco

Specify

MINWAX

Protective Products for Every Structural Purpose

Used by the leading architects, engineers and contractors for:

Concrete Floor Finish
Plaster Stains
Damp-Proofing—Waterproofing
Brick and Cement Coatings
Penetrative and Preservative Treatment for Wood Floors

Send for Booklet on Products, Data and Specifications

MINWAX CO., INC.
K. M. HAYDEN      W. C. LEA
22 Battery St.    653 So. Clarence St.
San Francisco     Los Angeles

ROBERTSON
Asbestos Protected Metal

Lasts a Lifetime!

Bloxonend floors subjected to continual trucking for the past seven years are as smooth and substantial today as when laid—no upkeep costs. Lays like ordinary dressed and matched flooring but with a smoother surface and one that stays smooth.

Write for Specifications

Carter Bloxonend Flooring Co.
H. M. HOLWAY, District Manager
San Francisco: Los Angeles
1007 Hobart Bldg. 600 Metropolitan Bldg.
Portland: Chamber of Commerce Building

ROBERTSON PRODUCTS
Corrugated A P M Roofing
Corrugated A P M Siding
Puttyless Skylights — All Trim.
Improved Ventilators — All Metals.

REDUCED PRICES
Increased Warehouse Stocks
Specialized Erection Force

Specify Asbestos Protected Metal

H. H. ROBERTSON CO.
H. M. HOLWAY, District Manager
907 Hobart Building, San Francisco
600 Metropolitan Building, Los Angeles

When writing to Advertisers please mention this magazine.
K. E. PARKER COMPANY, Inc.
GENERAL CONTRACTORS
Phone Sutter 5661
Room 515 Clunie Building, SAN FRANCISCO

R. W. LITTLEFIELD
Building Construction
357 12th Street, Room 9, Oakland, Cal.
Phone Lakeside 6750

H. H. HILP, Jr.
J. FRANK BARRETT
BARRETT & HILP
CONCRETE CONSTRUCTION BUILDERS GENERAL CONTRACTORS
918 HARRISON STREET, near 5th, SAN FRANCISCO
Telephone DOUGLAS 700

CAEN STONE
A refined, elegant, interior finish.

A. KNOWLES
CONTRACTOR AND PLASTERER
442 Call-Post Building
San Francisco

STEELFORMS Signify ECONOMY, RAPIDITY, and EFFICIENCY
STEELFORM CONTRACTING COMPANY
STEELFORMS FOR CONCRETE BUILDINGS
C. B. Hopkins, C. E., Manager
681 Market Street, San Francisco
CONCRETE JOIST FLOOR CONSTRUCTION

Rhodes-Jamieson & Co.
BUILDING MATERIAL COAL AND WOOD
Main Office: Foot of Broadway, Oakland
Oakland Alameda Berkeley

M. E. VUKICEVICH
VUKICEVICH & BAGGE
GENERAL CONTRACTORS
Phone Sutter 5691
815 Bryant Street, San Francisco

When writing to Advertisers please mention this magazine.
May, 1924

Passenger and Freight Elevators
For Every Service
SPENCER ELEVATOR COMPANY
166-180 Seventh Street
San Francisco

432 Bryant St.,
SAN FRANCISCO
Douglas 2676

Standard Fence Co.
WIRE AND IRON WORKS
DESIGNERS—BUILDERS
HOME AND ESTATE FENCE
AVIARY and TENNIS COURT FENCE

60th and Lowell Sts.
OAKLAND
Tel. Piedmont 646

WIRE GRILL WORK—WIRE SCREEN
FLEXIBLE WIRE CONVEYOR BELT
WIRE SPECIALTIES

1922 Santa Fe Avenue, Los Angeles, Cal. Phone 67188

Steel Bars
FOR CONCRETE REINFORCEMENT
Cut to Length, Fabricated, Installed
Tel. Douglas 3466  B A D T - F A L K & CO.
346 Call-Post Bldg., 74 New Montgomery St.,
San Francisco

PACIFIC DEPARTMENT
GLOBE INDEMNITY COMPANY
Bonds and Casualty Insurance for Contractors
FRANK M. HALL, formerly Robertson & Hall, Mgr.
444 California Street  Phone Sutter 2280
SAN FRANCISCO

CARL H. PETERSON
BUILDER
PHONE DOUGLAS 1876 185 STEVENSON STREET
SAN FRANCISCO

PHONE DOUGLAS 2370

R. McLERAN & CO.
GENERAL CONTRACTORS
HEARST BUILDING
SAN FRANCISCO, CAL.

D. ZELINSKY & SONS
PAINTERS AND DECORATORS
165 GROVE STREET
SAN FRANCISCO

I. R. KISSEL
Decorator, Painter and Paperhanger
1747 SACRAMENTO ST., Bet. Polk St. and Van Ness Ave., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
ATLAS HEATING AND VENTILATING COMPANY, INC.
ENGINEERS AND CONTRACTORS
Steam and Hot Water Heating, Coal and Gas, Pipe and Pipeless Furnaces
Sheet Metal Work
Patent Chimneys
everything in heating

557-567 FOURTH STREET
San Francisco

CLARENCE DRUCKER
LAWMSON & DRUCKER
PLUMBING—HEATING—CONTRACTORS
450 HAYES STREET
SAN FRANCISCO, CAL.

H. G. NEWMAN CO.
PLUMBING HEATING
OAKLAND 3329
2004 TELEGRAPH AVENUE
OAKLAND

ALEX COLEMAN
CONTRACTING PLUMBER
706 ELLIS STREET, SAN FRANCISCO
Phone FRANKLIN 1006

WM. F. WILSON COMPANY
MODERN SANITARY APPLIANCES
Special Systems of Plumbing for Residences, Hotels, Schools, Colleges, Office Buildings, Etc.
Phone Sutter 357
328-330 Mason Street, San Francisco

W. H. PICARD
Plumbing, Heating, Ventilating and Power Plants
5656 College Avenue
5662 Keith Avenue
Phones Piedmont 9004-9005
Oakland, Calif.

HEATING
VENTILATION

PLUMBING

FLOOR AND WALL TILING
SCOTT CO., INC.
243 Minna Street, San Francisco
381 11th Street, Oakland

HOME MANUFACTURING CO., INC.
BANK, STORE AND OFFICE FIXTURES
FURNITURE AND HARDWOOD INTERIORS
CABINET WORK IN ALL BRANCHES
552 BRANNAN ST.
Phone Kearny 1514
San Francisco, Cal.

When writing to Advertisers please mention this magazine.
SANTA FE LUMBER CO.
A. J. RUSSELL, Mgr.

Wholesale and Retail
LUMBER

POLES AND PILING
OIL RIG AND SHIP TIMBERS
SAGINAW SPECIAL SHINGLES
16 California Street

Phones:
Kearny 2073 - 2074

from tree to consumer
Pine and Redwood Lumber
SASH DOORS AND MILL WORK
SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL — PHONE OAKLAND 1820
FIRST AND OAK STREETS, OAKLAND
SAN JOSE
STOCKTON
SACRAMENTO
FRESNO

POPE & TALBOT
Manufacturers, Exporters and Dealers in
Lumber, Timber, Piles, Spars, Etc.

Office, Yards and Planing Mills
859-869 THIRD STREET, SAN FRANCISCO, CAL.

Mills: Port Gamble, Port Ludlow and Utsalady, Washington

GUARANTEED
OAK AND MAPLE FLOORING

Insist on "Higgins" — It Costs No More

J. E. HIGGINS LUMBER CO.
SAN FRANCISCO

If It's Hardwood — We Have It

When writing to Advertisers please mention this magazine.
Sanitary Drinking Fountains

for PUBLIC BUILDINGS and PLAYGROUNDS

MODEL NO. 9
HAWS SANITARY DRINKING FAUCET COMPANY
1808 HARMON STREET, BERKELEY, CAL.

THE "PARMCO"
Vertical and Horizontal Casement Windows

Exhibited in Sharon Building Exhibit
PACIFIC ROLLED METALS CO.
715 Harrison Street San Francisco
Manufacturers of 'PARMCO' Ventilators, Puttyless Skylights, Underwriters Fire Doors, Rolled Mouldings, and General Sheet Metal Work.

Specify

VLAARITE ENAMEL
The highest quality finish, it is possible to produce —
Free Working, Good Body, Fine Finish

OAKLEY PAINT MANUFACTURING CO.
727 ANTONIA ST., LOS ANGELES 833 HEARST BLDG., SAN FRANCISCO
PAINTS VARNISHES ENAMELS KALSOMINES

Furnaces

AGENTS FOR
FRONT RANK All Steel Warm Air Furnaces
AND THE OLD RELIABLE
THATCHER Cast Iron Warm Air Furnaces

REGISTERS — FURNACE FITTINGS — REPAIRS

Montague Range and Furnace Company
327-329 JESSIE STREET Phone Garfield 1422 826-830 MISSION STREET
SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
Blackboards
First Grade Natural Slate
Green or Black Composition Board
School Furniture and Supplies

Estimates Given for Complete Installations

STEWART SALES CO.
247 Rialto Building, San Francisco, Cal.

BRASS TACKS!
Why Wade Through Thousands of Pages?
"Building Labor Calculator"

Get down to brass tacks—covers everything in building estimating (material quantities and labor hours) in tables you can read at a glance. Not for your library but for your pocket—in the office—on the job. Quick, accurate and complete.

For test pages, descriptive folder and free examination offer clip this ad and write:

GORDON M. TAMBLYN, General Contractor,
No. 9, Sweeney Bldg., Denver, Colo.

FAIRFACTS China Fixtures outwear fixtures made of tile. Fairfacts Fixtures are non-porous and non-absorbent. They are unmatched in dignity and grace of line. Write for catalog, F. Details and specifications also appear in Sweet's Architectural Catalog.

THE FAIRFACTS COMPANY, Inc.
Manufacturers
234-236 West 14th Street, New York City
Dept. E.

BLACKBOARDS INSTALLED IN YOUR BATHROOM WALLS

DAVID E. KENNEDY
Incorporated
Established 1899

CORK TILE FLOORS
EVERLASTIC TILE FLOORS
RUBBER-MARBLE FLOORS
INTERLOCKING RUBBER TILE
KENCOR BULLETIN BOARDS

San Francisco
Los Angeles
Sharon Bldg.
Story Bldg.

JOHN A. PETERSON, President
B. HEINRICH, Vice-President

SAN FRANCISCO ELEVATOR CO., Inc.
ELEVATORS
Automatic, Electric, Hydraulic, Belt Power, Automatic Dumbwaiters and Handpower Machines, Push Button Passenger Elevators a Specialty
Telephone Kearny 2443
860 FOLSOM STREET, SAN FRANCISCO

SCALES—PUMPS—ELECTRIC MOTORS—OIL ENGINES
MACHINERY AND SUPPLIES
FAIRBANKS MORSE & CO.
SPEAR AND HARRISON STS., SAN FRANCISCO

GLOBE AUTOMATIC SPRINKLERS
Will protect your building and business from destruction by fire and reduce your Insurance Rate. Write for estimates.
Pacific Fire Extinguisher Company
FIRE PROTECTION ENGINEERS
424-440 Howard Street, San Francisco
Manufacturing Plant, 298 Fremont St.

WESIX ELECTRIC HEATING SYSTEMS
FOR HOTELS, APARTMENTS, PUBLIC BUILDINGS, RESIDENCES
W. WESLEY HICKS, Manufacturer
Rialto Building
Tel. Doug. 1187
San Francisco

When writing to Advertisers please mention this magazine.
H. MORTENSON, President
MORTENSON CONSTRUCTION CO.
STRUCTURAL STEEL FABRICATORS
Office and Shops
19th AND INDIANA STREETS
Phone Mission 5033
SAN FRANCISCO, CAL.

JUDSON MANUFACTURING COMPANY
Main Office:
817-821 FOLSOM STREET
Telephone Sutter 6820
SAN FRANCISCO
Works:
OAKLAND—EMERYVILLE
CALIFORNIA
Telephone Piedmont 229

Federal Ornamental Iron & Bronze Co.
Bank Counter Screens and Grille Work Our Specialty
Most Modern Equipment Throughout
Recent Contracts: BANK OF ITALY, FIRST NATIONAL BANK
16th Street and San Bruno Avenue, San Francisco
Phone Market 1011

HERRICK IRON WORKS
STRUCTURAL STEEL
Office and Works, 18th and Campbell Streets
Oakland, Cal. Phone Lakeside 1460

Beam, Angle, Channels, and Universal Mill Plates for immediate shipment from stock
PACIFIC ROLLING MILL CO.
Suppliers of FABRICATED STRUCTURAL STEEL
Forgings, Bolts, Rivets, Fogs, Switches, Cast Iron Castings
General Office and Works: 17th and Mississippi Sts., San Francisco—Telephone Market 215

C. F. HOFFMAN
Golden Gate Iron Works
STRUCTURAL STEEL AND ORNAMENTAL IRON CONTRACTORS
Howard and 11th Streets
San Francisco

L. W. FLIEGNER
SCHRADER IRON WORKS, Inc.
STRUCTURAL STEEL CONTRACTORS
Fire Escapes, Waterproof Trap Doors, Ornamental Iron Work
1247-1249 HARRISON STREET
San Francisco, Cal. Telephone Market 337

When writing to Advertisers please mention this magazine.
The Most Pleasing & Effective Form of Fireplace Heat

No costly flue construction, dampers or ash pit doors—merely substitute false work to receive the mantel and wire fireplace for GLOLOG. Even distribution of heat—An attractive room furnishing.

Write for complete data and wiring specifications for fireplaces.

STRAIT & RICHARDS, INC., Newark, N. J.
ATLANTIC PACIFIC AGENCIES CORP.
RIALTO BLDG. • Western Distributors • SAN FRANCISCO

George S. MacGruer { Members of Builders Exchange
Robert M. Simpson

MacGruer & Simpson
CONTRACTING PLASTERERS
PLAIN AND ORNAMENTAL
Cement, Stucco and Artificial Stone
Phone Garfield 512 266 Tehama Street, San Francisco

JOHN TRAYNOR
CHARLES HARCOURT
OCEAN SHORE IRON WORKS
Manufacturers of
BOILERS, STEEL TANKS, STEEL PLATE SPECIALTIES
Dealers in
BOILERS, TANKS, PUMPS, ENGINES
GENERAL MACHINERY, ETC.
Office and Works: Phones Market 462 and 463
550-558 EIGHTH STREET
SAN FRANCISCO, CAL.

PACIFIC COAST STEEL COMPANY
OPEN HEARTH
STEEL BARS—STRUCTURAL SHAPES
BOLT AND RIVET STOCK
REINFORCING STEEL
Sales Office: Phone SUTTER 1564
RIALTO BUILDING
Plant: SOUTH SAN FRANCISCO

When writing to Advertisers please mention this magazine
BUTTE ELECTRIC AND MFG. CO.

PAUL BUTTE, Owner
HIGH GRADE ELECTRICAL INSTALLATIONS
FEDERAL ELECTRIC BANK PROTECTION SYSTEMS
DOUGLAS 145 956 Folsom Street San Francisco

San Francisco, Cal. Oakland, Cal. Los Angeles, Cal.

NE PAGE, McKENNY CO.
Electrical Engineers and Contractors
Phone Sutter 2369 589 Howard St., San Francisco, Cal.

PACIFIC ELECTRIC CLOCK CO.
J. J. Estabrook

86 THIRD STREET
SAN FRANCISCO, CALIF.

ELECTRIC CONSTRUCTION CO.
CONTRACTING ELECTRICIANS
L. G. JEFFREY, Manager

616 BROADWAY FRESNO
Phone 213

To Be "Low Bidder" Not Always Our Aim
"QUALITY AND SERVICE ALWAYS"
Our nation-wide organization and large experience in this field assure you always of fair estimates and absolute satisfaction. Electrical Appliances

F. E. NEWBERY ELECTRIC CO.
Alta Building, 381 Bush Street, San Francisco
Phone Sutter 6161

SPENCER ELECTRIC COMPANY
320 12th Street, Oakland

FIXTURES "EFFICIENT ELECTRIC SERVICE" WIRING
Telephones Oakland 492-3233

SILENT CALL SIGNAL SYSTEMS

Chicago HOSPITAL
GARNETT YOUNG AND COMPANY
Pacific Coast Sales Engineers
612 Howard St., San Francisco
Los Angeles

Browne-Langlais Electrical Construction Co.
Agents for ROBBINS and MYERS MOTORS, PACKARD MAZDA LAMPS
313 FIFTH STREET, SAN FRANCISCO
Telephone Douglas 976

When writing to Advertisers please mention this magazine.
Architects and their clients are invited to visit our show rooms, 553-555 Mission St. San Francisco, D. H. Gulick, manager.

MOTT COMPANY
of California

DOUGLAS 2046

FELIX BUTTE

BUTTE ELEC. EQUIPMENT CO.

Trade Mark BEECO Registered

ELECTRICAL CONTRACTORS

530 FOLSOM STREET

SAN FRANCISCO

L. SIEBERT DESIGNERS AND MANUFACTURERS OF

SWITCH BOARDS · PANEL BOARDS
PROTECTIVE POWER PANELS

Drendel Electrical and Mfg. Co.

1760 HOWARD STREET

SAN FRANCISCO,
CALIF.

PHONES
MARKET 1753
1734

MUELLER

Faucets give full value in wear and service.

The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?

THE NEWEST AND BEST THING IN FAUCETS

H. MUELLER MFG. CO.

1072-76 HOWARD STREET
SAN FRANCISCO, CALIF.
MILLER FOLDING IRONING BOARD
ELIMINATES WALL CABINET—IS INSTALLED IN KITCHEN CUPBOARD
PLASTER GROUNDS SAVES WALL SPACE AND LABOR CASEING OR PAINTING TIME AND MATERIAL
Exhibited by LANNOM BROS., MFG. CO. and sold by W. N. MILLER
Send for Catalogue to 1362 Magnolia St., Oakland, Calif.

PACIFIC MANUFACTURING COMPANY
MILL WORK, SASH AND DOORS
HARDWOOD INTERIOR TRIM A SPECIALTY
MAIN OFFICE: SANTA CLARA, CALIFORNIA
SAN FRANCISCO, 177 Stevenson Street
OAKLAND, 1001 Franklin Street
LOUIS ANGELES, 908 Washington Building
SAN JOSE, 16 North First Street

C. F. STAUFFACHER, President
A. A. STAUFFACHER, Vice-President
THE FINK & SCHINDLER CO.
Manufacturers of INTERIOR WOODWORK AND FIXTURES
BANK, OFFICE AND STORE FITTINGS
SPECIAL FURNITURE
218-228 THIRTEENTH STREET
Bet. Mission and Howard Sts.
SAN FRANCISCO, CAL.
Telephone Market 474

LARSEN-SIEGRIST CO., Inc.
BUILDING CONSTRUCTION
807 Claus Spreckels Building
SAN FRANCISCO

Steam Heating
and Power Plant Equipment
JAMES I. KRUEGER Telephone Sutter 7057
Representative
ILLINOIS ENGINEERING COMPANY
SKIDMORE VACUUM AND BOILER FEED PUMP
EUREKA BRASS WORKS
417 Market St. Suite 320
San Francisco, Calif.

Mullen Manufacturing Co.
BANK, STORE AND OFFICE FIXTURES—CABINET WORK OF GUARANTEED QUALITY—CHURCH SEATING
Office and Factory:
Telephone Market 8692 64 Rausch St., Bet. 7th and 8th Sts. San Francisco

JAMES L. McLAUGHLIN
GENERAL CONTRACTOR
Phones Douglas 6645—6646 251 KEARNY STREET, SAN FRANCISCO

Dolan Wrecking & Construction Co.
(D. J. DOLAN)
Lumber, Lath, Nails, Shingles, Doors, Windows and Plumbing Supplies, New and Second Hand
Phone Market 4254 Office and Yard, 1607-1639 MARKET ST., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Fire Protection Corporation
Engineers and Contractors
FOR
Automatic Sprinkler Systems
315 Montgomery St.    San Francisco, Cal.
Phone Sutter 2993

EASYSET
STORE FRONTS
GLASS OF ALL KINDS
Mirrors Art Bevel Plate
Cobbledick-Kibbe Glass Co.
666-668 HOWARD ST.
SAN FRANCISCO, CAL.
WASHINGTON AT THIRD ST.
OAKLAND, CAL.

WIRING
CONTRACTORS
CENTRAL ELECTRIC
AND DEALERS
177-179 Minna Street, San Francisco
Phone Douglas 4832

United Alloy Steel Corporation
CANTON, OHIO
Black Galvanized and
Blue Annealed Sheet
Western Representatives:
ANDREW CARRIGAN CO.
Rialto Bldg., San Francisco
Equitable Bank Bldg.    New Artic Hotel
Los Angeles    Seattle

H.RUMPFF
CONTRACTING DECORATOR
CUSTOM BUILT FURNITURE
PRAPATIES AND FURNISHINGS
School and Theater Equipment
Drop Curtains, Draperies
Specializing in Furnishings for Hotels,
Lodges, Clubs, Steamships, Apartment
Houses.
Estimates Furnished
567 HOWARD STREET, SAN FRANCISCO, CALIF.

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair Ins-
ulating and Sound-Deaden-
ing.
JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 POST STREET
San Francisco

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS

JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 POST STREET
San Francisco

"BLAZING" THE TRAIL
We've been doing it for many years—
giving the Sportsman Better Value for
Quality than he ever before received.
"Value at a Fair Price" in everything for
the Sportsman.

The Ellery Arms
Company
583-95 MARKET ST
SAN FRANCISCO, CAL.
SEND FOR CATALOG

When writing to Advertisers please mention this magazine.
Horrocks and Imperial Desks
Marble Chairs
Brown Morse Filing Cabinets
In All Standard Finishes
PHONE KEARNY 512

Phoenix Desk Company
E. W. Prentice

Nonpareil
Corkboard Insulation
for Cold Storage Rooms

ESTIMATES FURNISHED FOR
COMPLETE ERECTION

VAN FLEET FREEAR COMPANY
557 HOWARD STREET
SAN FRANCISCO

1231 BROADWAY
FRESNO
The Elevator Floor

whether in Office Building, Hotel or Department Store, is subjected to a

great deal of wear and tear.

—SPECIFY—

INTERLOCKING

RUBBER TILING

and you’ve provided your client’s building with a Durable, Economical, Practical

material that is sure to give satisfaction. Twenty tons installed in the Standard Oil Building, San Francisco.

Stock on hand for immediate delivery.

NEW YORK BELTING AND PACKING CO.
NEW YORK

San Francisco Branch 519 MISSION ST. Phone Douglas 1837
Small booklet of designs mailed on request
**Chosen Again**

The new Ritz Hotel in Los Angeles, designed by Curlett & Beelman, Architects, is equipped throughout with

**Schroeder Valves**

Manufactured by

Schroeder Flush Valve Co.
1300-02 N. Main Street, Los Angeles
16 Stewart Street, San Francisco

---

**Corrosiron**

the acid-proof drain pipe

Make your acid drain lines permanent.

Corrosiron drain pipe and fittings manufactured and carried in stock in San Francisco.

**PACIFIC FOUNDRY COMPANY**

Harrison and Eighteenth Streets
SAN FRANCISCO

---

**“CALIFORNIA STUCCO”**

It is a finishing plaster coat made in many beautiful colors, from a true Portland Cement base, which assures everlasting qualities.

“The Stucco which is making California Architecture famous”

For Sale by All Dealers

California Stucco Products Co.
340 DORE ST., SAN FRANCISCO
1503 S. ALAMEDA ST., LOS ANGELES

---

When writing to Advertisers please mention this magazine.
The big, new,
Standard Oil Building
in San Francisco
is heated by the
WEBSTER SYSTEM OF
STEAM HEATING

—so are many other big, famous, popular buildings in this country and elsewhere heated with Webster Systems of Steam Heating. Inquire for full particulars.

Warren Webster & Company
Home Office: Camden, N.J.
San Francisco: Sharon Bldg.
Los Angeles: 306 Crocker St.

3 Pages About Them in Sweet’s
CATALOG No. 9 contains everything that’s in Sweet’s to which has been added additional material of particular interest to architects.
Booklet No. 10 is for the laity, and is largely an argument for casements. It may help you with your clients. To both pieces you are most welcome.

The Casement Hardware Co
241 Pelouze Bldg., Chicago, Ill.

Recent Office Buildings

STANDARD OIL
SAN FRANCISCO

MATSON
NAVIGATION CO.
SAN FRANCISCO

CALIFORNIA STATE
LIFE INSURANCE
COMPANY
SACRAMENTO

Lindgren & Swinerton, Inc.
New Standard Oil Building
225 Bush Street
On the Sixth Floor

When writing to Advertisers please mention this magazine.
Hard Water is the Hidden But Prolific Source of Waste in Public Buildings

Hard water wastes coal by clogging up steam pipes and boiler tubes—and reducing heating efficiency.

Even so little as 1-16 of an inch of boiler scale wastes one whole car of coal out of every eight.

Hard water also clogs water pipes, water pumps and heaters. Many need replacing every 5 to 10 years simply because of hard water scale.

This whole train of needless waste and expense is caused by the lime and magnesia which hard water contains.

How the Wayne Softener Stops Hard Water Losses

The one and only function of the Wayne rapid-rate Water Softener is to take lime and magnesia out of the hard water as it flows through the softener at the regular pressure of your supply.

It uses no chemicals to do this. The softening action is entirely automatic.

Lime and magnesia are taken out, the water is soft. Soft water cannot clog pipes, or tubes—because it contains nothing that can form scale.

The installation cost is only $600 up, depending on size, and operating expenses very low.

Write for special booklet—which gives important facts you should have in your library.

Wayne Tank & Pump Co., 862 Canal St. Ft. Wayne, Indiana

S. A. Born Building Co., designers and builders of the above beautiful residence, found service, simplicity and economy, coupled with beauty of design, could best be obtained with WHITCO Casement Hardware. That is why they STANDARDIZE ON WHITCO.

Makes the Sash self-adjusting.
No Hinges or Adjusters Required.
It is Non-Rattling.
All Hardware Entirely Concealed.
No Special Sash or Frame Detail Required.
One Size Hardware Fits all Sash.
Outside of Sash, Easily Washed from Inside of Room.

For Sale By All Hardware Dealers

Manufactured by

Wayne Tank & Pump Co., 372 Santa Clara Ave.
San Francisco

Residence of W. S. Larson

Wayne Hardware

S. A. Born Building Co., designers and builders of the above beautiful residence, found service, simplicity and economy, coupled with beauty of design, could best be obtained with WHITCO Casement Hardware. That is why they STANDARDIZE ON WHITCO.

Makes the Sash self-adjusting.
No Hinges or Adjusters Required.
It is Non-Rattling.
All Hardware Entirely Concealed.
No Special Sash or Frame Detail Required.
One Size Hardware Fits all Sash.
Outside of Sash, Easily Washed from Inside of Room.

For Sale By All Hardware Dealers

Manufactured by

Of THE ARCHITECT AND ENGINEER, published monthly at San Francisco, California, for April 1st, 1924.

State of California, City and County of San Francisco.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared W. J. L. Kierulf, who, having been duly sworn according to law, deposes and says that he is the business manager and publisher of THE ARCHITECT AND ENGINEER, Inc., and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 433, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of Post Office Address
Publisher, The Architect and Engineer, Inc., 627 Foxcroft Bldg., San Francisco.

Editor, Fred'k, W. Jones, 627 Foxcroft Bldg., San Francisco.

Business Manager, W. J. L. Kierulf, 627 Foxcroft Bldg., San Francisco.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning 1 per cent or more of the total amount of stock.)

W. J. L. Kierulf, 627 Foxcroft Bldg., San Francisco.

Fred'k, W. Jones, 627 Foxcroft Bldg., San Francisco.

L. B. Penhorwood, 627 Foxcroft Bldg., San Francisco.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is: (This information is required from daily publications only.)

W. J. L. KIERULFF, Business Manager.

Sworn to and subscribed before me this 26th day of March, 1924.

MARY D. F. HUDSON,

Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires December 22nd, 1924.

Not a substitute for Anything!

But a vast improvement over lath and plaster for lining walls and ceilings

Pacific Five-Ply Board is really lath and plaster in the proper proportions and in convenient form. It is a wood core encased in a fireproof, moisture proof mineral cement, stronger than the best concrete.

By actual tests Pacific Five-Ply Board is far superior to either pulp wall board or plaster board in tensile strength, deflection and resistance to puncture. Will not contract or expand, bulge, warp, crack or crumble; is air tight and fire resistant.

Pacific Five-Ply Board is sawed and worked just as you would handle lumber. It comes in sheets 4 feet wide and in lengths from 6 to 16 feet. It is strong, durable, attractive in appearance, easily installed, sanitary, and economical. Send for descriptive literature.

Manufactured by
NATIONAL MILL & LUMBER CO.
318 Market St. San Francisco
Structural Steel
Fabricated by
WESTERN IRON WORKS
Structural Iron and Steel Contractors
141-147 Beale Street
San Francisco

Woodson Bridge over Sacramento River, near Corning, Cal.

Fenestra
SOLID STEEL WINDOWS

DETOUR STEEL PRODUCTS CO., Detroit
251 Kearny Street, San Francisco
Pacific Coast Branch Factory at Emeryville

Phone Sutter 1250

Steel Frame, California State Building, Civic Center, San Francisco.
FABRICATED BY
THE PALM IRON AND BRIDGE WORKS (Incorporated)
15th and R Streets, Sacramento

Bliss & Faville, Architects

WESTERN ASBESTOS MAGNESIA CO.
INSULATING ENGINEERS AND CONTRACTORS

USE
CELOTEX
INSULATING LUMBER
FOR
PLASTER BASE
STUCCO BASE
INSULATOR
SOUND DEADENER
ACOUSTIC CORRECTOR

Asbestos and Asphalt Slate Shingles and Roofings
Asbestos Built-Up Roofings—Roof Coatings
Magnesia and Asbestos Pipe and Boiler Coverings
Cold Storage Insulation
Cork Pipe Covering, Board and Granulated Cork

SECTIONAL EXPANSION PAVING JOINT
21-29 South Park
Ret, 2nd and 3rd Sta.
San Francisco, Cal.
Telephone Douglas 3860

When writing to Advertisers please mention this magazine.
A Sense of Security
— you don't pay for it

When you entrust to us the job of FABRICATING and INSTALLING STEEL BARS you have the comfort of knowing that you are dealing with an organization which has put in a score of years gaining experience to do your job aright. You don't pay an extra farthing for that; indeed, you benefit by the economies learned in that experience.

GUNN, CARLE & CO.

Make the home fireproof

Best Method for Plastering Homes
Fireproof, crackproof and economical in every way.

This method has reinforced plaster \( \frac{3}{8} \)" thick and the additional economy of saving \( \frac{3}{4} \)" floor space.

Specify TRUSCON 1-A METAL LATH with \( \frac{3}{8} \)" grounds which is available at a cost comparable with Wood Lath.

Ask us for detailed information

TRUSCON STEEL COMPANY
Chas. Halloway, Branch Manager
709 MISSION ST. Phone Douglas 7135 SAN FRANCISCO
Satin Egg Shell Finish Used in 17-Story Tribune Tower

When the Tribune Publishing Company of Oakland recently added to its building an extension soaring seventeen stories high, the matter of a wall finish was given careful consideration. After testing many materials, Bass-Hueter Satin Eggshell Finish was selected for use on the walls throughout the fourteen floors devoted to office space. This durable finish was applied direct to the new walls, without the use of size or sealer. The second coat was stippled.

Hospitals, Apartments, etc., Use Washable Finish

Satin Eggshell Finish has been used for finishing the walls and woodwork of some of the finest buildings in the West. It is used extensively in hospitals, apartments, hotels, schools, public buildings and wherever a sanitary, washable paint is required.

Our nearest branch will gladly send you a folder giving complete information on Satin Eggshell Finish as well as a list of buildings on which it has been used.

Bass-Hueter Paint Company

When writing to Advertisers please mention this magazine.
This beautiful SNOW WHITE, SANITARY SINK will not only contribute to the appearance of the Home or Apartment House, but it will make the property more rentable or salable. Architects make no mistake when they specify Petrium Snow White Sinks.

PETRIUM SANITARY SINK CO., Fifth and Page Streets, Berkeley
On display: Hoosier Store, Pacific Building, San Francisco
Sterling Furniture Co., 1049 Market St., San Francisco
Building Material Exhibit, 77 O'Farrell St., San Francisco
Oakland—Building Material & Manufacturing Exhibit, 1421 Franklin Street.

Save Space—
Add Beauty and Comfort to the Home or Apartment.
(Picture shows one of our latest type disappearing twin beds)
Brown Disappearing Bed Co.
Display and Salesrooms
746 Phelan Bldg., San Francisco
Telephone Garfield 6652

Carey BUILT-UP ROOFING
Pipe and Boiler Coverings
Asbestos Roofing
Elastite Expansion Joints
Carey Fibre Roof Coating
Asphaltate Shingles
JONES BROTHERS ASPRISIO SUPPLY COMPANY, INC.
500 Second Street, San Francisco
Telephone Douglas 7659

STANLEY Ball-Bearing BUTTS

When writing to Advertisers please mention this magazine.
CRUSHED ROCK GRAVEL SAND

For Building and Road Construction

COAST ROCK AND GRAVEL CO.
500 Call Building SAN FRANCISCO Phone Sutter 3990
Plants at Niles, Fair Oaks, Oroville, Elliot, Piedra, Solo, and Marysville

The Architect who specifies OTIS ELEVATORS may do so with the assurance that the responsibility of the Otis Elevator Company extends beyond satisfactory installation. Buildings equipped with OTIS ELEVATORS enjoy the advantage of prompt service and careful inspection rendered by over a hundred Otis offices.

OTIS ELEVATOR COMPANY
2300 STOCKTON ST. SAN FRANCISCO
OFFICES IN ALL PRINCIPAL CITIES

When writing to Advertisers please mention this magazine.
By Specifying Pacific Plumbing Fixtures You Secure

The highest quality in plumbing fixtures obtainable.

Modern, beautiful designs of guaranteed quality.

Quick deliveries of regular and special fixtures, because our plants are located here on the Coast.
Gone is that bothersome roof bogie. Specify PABCO 20 year roofs. And you will be entirely relieved of all roof responsibilities. Our 20 Year Roof Maintenance Agreement assures that they will remain or be maintained by us for 20 years.

THE PARAFFINE COMPANIES, INC.
LOS ANGELES  SAN FRANCISCO  PORTLAND  SEATTLE
17 plants on the coast
THE ideal type of modern floor covering is the endorsement of prominent architects who have investigated the possibilities of "U. S." Tile. Every requisite for perfect floor service is embodied in this product — durability, comfort, resilience, quietness, ease of cleaning, and beauty of design and color.

Have you full information and samples of "U. S." Tile in your files?

United States Rubber Company
1790 Broadway New York City
San Francisco Los Angeles
Sacramento Fresno Spokane Seattle
Portland Salt Lake City

When writing to Advertisers please mention this magazine.
The Perfect Blackboard
DOLLAR FOR DOLLAR VALUE

Assure your clients of enduring satisfaction by specifying

PERMAROC
It will not crack, buckle, warp or shrink. Writing surface is unexcelled.

AN ATTRACTIVE SAMPLE IS NOW READY FOR ARCHITECTS AND WILL BE MAILED UPON REQUEST

DISTRIBUTED BY
WESTERN STATES SEATING CO.
39 SECOND STREET       SAN FRANCISCO
F. W. WENTWORTH & CO.    BARKER BROS., Inc.
SAN FRANCISCO        LOS ANGELES
H. S. CROCKER CO.
SACRAMENTO

When writing to Advertisers please mention this magazine.
The Johnson Thermostat on the wall is a surface indication of beneath the surface substantiality of and in the home. The Johnson Pneumatic System of Temperature Regulation has attained such signal distinction. Saving upwards from 35 per cent on fuel per year, contributing untold comforts and conveniences by automatically turning on and off each radiator as rooms' temperatures require: and performing such valued service without failure or fault: are the principal reasons for the foregoing. Likewise, obviously are sufficient reasons why every home today, to be conclusively complete and correct, must include The Johnson System of Temperature Regulation.

Office Buildings; too, gain the foregoing advantages when equipped with the Johnson System of Temperature Control

JOHNSON SERVICE COMPANY
Factory and Main Office Milwaukee, Wisconsin

SAN FRANCISCO BRANCH
417 RIALTO BUILDING
FRANK W. HOOK, Manager
GRAND APARTMENT, DAYTON, OHIO
H. C. Smith, Architect
A. A. Smith, Sheet Metal Contractor.
ARMCO-Ingot Iron sheet metal work throughout. Three and one-half tons used in cornice alone.

Architects have a reason for specifying ARMCO-Ingot Iron

The criterion of present day building requirements is expressed almost universally by one word—Permanency. The permanency of long-lasting ARMCO-Ingot Iron is its strongest recommendation to the architectural profession. This feature is responsible for the ever widening popularity of Ingot Iron.

Send post card for interesting booklet
"Economies in Building with Iron that Lasts"

ARMCO INGOT IRON
The American Rolling Mill Co., Middletown, Ohio

When writing to Advertisers please mention this magazine.
## Index to Advertisements

(For Classified Directory and Specification Index see pages 8 to 18)

<table>
<thead>
<tr>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alhambra Stucco Co.</td>
</tr>
<tr>
<td>American Chain Co.</td>
</tr>
<tr>
<td>American Fire Brick Association</td>
</tr>
<tr>
<td>American Marble &amp; Mosaic Co.</td>
</tr>
<tr>
<td>American Rolling Mill Co.</td>
</tr>
<tr>
<td>American Window Glass Co.</td>
</tr>
<tr>
<td>Arkansas Oak Flooring Co.</td>
</tr>
<tr>
<td>Atlantic Heating &amp; Ventilating Co.</td>
</tr>
<tr>
<td>Atlantic Pacific Agencies Corp.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babcock Company, C. B.</td>
</tr>
<tr>
<td>Bacon, Edward R., Co.</td>
</tr>
<tr>
<td>Badt-Falk &amp; Company</td>
</tr>
<tr>
<td>Bartlett, John M.</td>
</tr>
<tr>
<td>Bass-Heuter Company</td>
</tr>
<tr>
<td>Beckwith, Herbert</td>
</tr>
<tr>
<td>Birchfield Boiler Company</td>
</tr>
<tr>
<td>Bonded Floors Company</td>
</tr>
<tr>
<td>Bowser, S. F. &amp; Co.</td>
</tr>
<tr>
<td>Brooks and Deere</td>
</tr>
<tr>
<td>Brown Disappearing Bed Company</td>
</tr>
<tr>
<td>Brown-Langlais Electric Co.</td>
</tr>
<tr>
<td>Brownwood Tool Company</td>
</tr>
<tr>
<td>Bull-Dog Floor Clip Co.</td>
</tr>
<tr>
<td>Bunting Iron Works</td>
</tr>
<tr>
<td>Butte Electric and Mfg. Co.</td>
</tr>
<tr>
<td>Butte Electrical Equipment Co.</td>
</tr>
<tr>
<td>Brunswick-Balke-Collender</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabot, Samuel Company</td>
</tr>
<tr>
<td>Cadwallader-Gibson Company</td>
</tr>
<tr>
<td>California Artistic Metal &amp; Wire Company</td>
</tr>
<tr>
<td>California Brick Company</td>
</tr>
<tr>
<td>Calit, Common Brick Mfr., Assn.</td>
</tr>
<tr>
<td>California Steam &amp; Plumbing Supply Co.</td>
</tr>
<tr>
<td>California Stucco Products Co.</td>
</tr>
<tr>
<td>California Wall Bed Company</td>
</tr>
<tr>
<td>Carter Bloxomend Flooring Co.</td>
</tr>
<tr>
<td>Case Gate Hardware Company</td>
</tr>
<tr>
<td>Cement Gun Construction Co.</td>
</tr>
<tr>
<td>Central Electric Company</td>
</tr>
<tr>
<td>Central Iron Works</td>
</tr>
<tr>
<td>Cheek &amp; Gillis</td>
</tr>
<tr>
<td>Clark, N. &amp; Sons</td>
</tr>
<tr>
<td>Clinton Construction Company</td>
</tr>
<tr>
<td>Coast Rock &amp; Gravel Company</td>
</tr>
<tr>
<td>Cobblefield-Kibbs Glass Co.</td>
</tr>
<tr>
<td>Cochran, W. L., Inc.</td>
</tr>
<tr>
<td>Coleman, Alex</td>
</tr>
<tr>
<td>Columbia Marble Company</td>
</tr>
<tr>
<td>Cook Marble Company</td>
</tr>
<tr>
<td>Crane Company</td>
</tr>
<tr>
<td>Crittall Casement Window Co.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis Hardwood Lumber Co.</td>
</tr>
<tr>
<td>Del Monte Properties Company</td>
</tr>
<tr>
<td>Detroit Steel Products Company</td>
</tr>
<tr>
<td>Dreidell Electric &amp; Mfg. Co.</td>
</tr>
<tr>
<td>Dunham, C. A., Mfg. Co.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Construction Company</td>
</tr>
<tr>
<td>Elevator Supplies Company, Inc.</td>
</tr>
<tr>
<td>Ellery Arms Company</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairbanks Morse Co.</td>
</tr>
<tr>
<td>Federal Ornamental Iron Works</td>
</tr>
<tr>
<td>Fairbanks Morse Co.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fidelity &amp; Casualty Company</td>
</tr>
<tr>
<td>Fink &amp; Schumacher Company</td>
</tr>
<tr>
<td>Fire Protection Corporation</td>
</tr>
<tr>
<td>Fire Protection Engineering Co.</td>
</tr>
<tr>
<td>Flagg, Edwin H., Company</td>
</tr>
<tr>
<td>Fuller &amp; Company</td>
</tr>
<tr>
<td>Fuller, W. P., &amp; Company</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garnett Young &amp; Company</td>
</tr>
<tr>
<td>General Electric Co.</td>
</tr>
<tr>
<td>General Fireproofing Co.</td>
</tr>
<tr>
<td>Gilley Schmidt Company</td>
</tr>
<tr>
<td>Gladding, McBean &amp; Company</td>
</tr>
<tr>
<td>Globe Indemnity Company</td>
</tr>
<tr>
<td>Golden Gate Iron Works</td>
</tr>
<tr>
<td>Grinnell Company</td>
</tr>
<tr>
<td>Gunn-Clark Company</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haines, Jones &amp; Cadbury Co.</td>
</tr>
<tr>
<td>Hammond, E. C.</td>
</tr>
<tr>
<td>Handy Self Cleansing Flush Valve Co.</td>
</tr>
<tr>
<td>Hansen, Robertson &amp; Zumwalt</td>
</tr>
<tr>
<td>Harver Hubbard Company</td>
</tr>
<tr>
<td>Hauser Window Company</td>
</tr>
<tr>
<td>Haw's Sanitary Drinking Faucet Co.</td>
</tr>
<tr>
<td>Herman Safe Company</td>
</tr>
<tr>
<td>Herrick Iron Works</td>
</tr>
<tr>
<td>Higgins Lumber Company</td>
</tr>
<tr>
<td>Hillard Company</td>
</tr>
<tr>
<td>Hill, Hubbell &amp; Company</td>
</tr>
<tr>
<td>Horkaday Co.</td>
</tr>
<tr>
<td>Holbrooke, Merrick &amp; Stetson</td>
</tr>
<tr>
<td>Home Manufacturing Company</td>
</tr>
<tr>
<td>Hunt &amp; Company, Robt. W.</td>
</tr>
<tr>
<td>Hunter &amp; Hudson</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana Limestone Company</td>
</tr>
<tr>
<td>Independent Automatic Sprinkler Co.</td>
</tr>
<tr>
<td>Johns-Manville, Inc.</td>
</tr>
<tr>
<td>Johnson Service Co.</td>
</tr>
<tr>
<td>Johnson Service Co.</td>
</tr>
<tr>
<td>Johnson, S. Company</td>
</tr>
<tr>
<td>Jones Bros., Asbestos Company</td>
</tr>
<tr>
<td>Josst Bros.</td>
</tr>
<tr>
<td>Judson Manufacturing Company</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kennedy Valve Company</td>
</tr>
<tr>
<td>Keenan Boiler Company</td>
</tr>
<tr>
<td>Kinney Manufacturing Co.</td>
</tr>
<tr>
<td>Kissell, R. F.</td>
</tr>
<tr>
<td>Knowles, A.</td>
</tr>
<tr>
<td>Kraeger, James L.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lansing Company</td>
</tr>
<tr>
<td>Lannom Brothers</td>
</tr>
<tr>
<td>Larsen, Siegrist Co., Inc.</td>
</tr>
<tr>
<td>Lawson &amp; Drucker</td>
</tr>
<tr>
<td>Lawton &amp; Vesey</td>
</tr>
<tr>
<td>Lindgren, Swinerton, Inc.</td>
</tr>
<tr>
<td>Littlefield, R. W.</td>
</tr>
<tr>
<td>Livermore Fire Brick Works</td>
</tr>
<tr>
<td>Los Angeles Pressed Brick Company</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac Gruer &amp; Simpson</td>
</tr>
<tr>
<td>Mac Rarle &amp; Mc Larren Company</td>
</tr>
<tr>
<td>Magner Brothers</td>
</tr>
<tr>
<td>Main Iron Works</td>
</tr>
<tr>
<td>Mangrum &amp; Ott, Inc.</td>
</tr>
</tbody>
</table>

---

For Information on Public Seating Consult

WESTERN STATES SEATING COMPANY

39 Second Street, San Francisco
2133 Kern Street, Fresno
440 Pacific Electric Bldg., Los Angeles
### Architects' Specification Index

(For Key to Advertisements, see pages 6 and 7)

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Companies</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Western Asbestos Magnesia Company, 25 South Park, San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jone Bros. Asbestos Supply Co., Inc., 500 Second St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant Rubber &amp; Asbestos Works, 37-539 Brainnan Street, San Francisco.</td>
<td></td>
</tr>
<tr>
<td>Art Metal</td>
<td>Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>California Artistic Metal &amp; Wire Co., 349 Seventh street, San Francisco.</td>
<td></td>
</tr>
<tr>
<td>Architectural Terra Cotta</td>
<td>N. Clark &amp; Sons, 116 Natoma St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gladding, McBean &amp; Company, Crocker Bldg., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Livermore Fire Brick Works, 604 Mission Street, San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tropico Pottery, Inc., Glendale, Cal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>represented by California Pottery Co., Mills Bldg., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Wm. E. Graham, Kerckhoff Bldg., Los Angeles.</td>
<td></td>
</tr>
<tr>
<td>Beds—Wall</td>
<td>California Wall Bed Co., 714 Market St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brown Disappearing Bed Company, 746 Phelan Building, San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Los Angeles and Reno, Nevada.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stewart Sales Co., 247 Rialto Building, San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Permarock” Sold by Western States Seating Company, 39 Second Street, San Francisco.</td>
<td></td>
</tr>
<tr>
<td>Blinds—Venetian and Diffuselite</td>
<td>Western Blind &amp; Screen Company, factory, Los Angeles; San Francisco representatives, Edward C. Dehn, Hearst Bldg., and C. F. Webber Co.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See advertisement for Coast agencies.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kewanee Boiler Company, Factory Branch, Postal Telegraph Bldg., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kewanee Water Supply System, Simonds Machinery Co., 816 Folsom St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main Iron Works, 1000 Sixteenth Street, San Francisco.</td>
<td></td>
</tr>
<tr>
<td>Bonding Materials</td>
<td>Boeding Company of America, Kohl Bldg., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Globe Indemnity Co., 444 California St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fidelity &amp; Casualty Co. of New York, Balfour Bldg., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Accident Insurance Company, California Commercial Union Building, San Francisco.</td>
<td></td>
</tr>
<tr>
<td>Brick—Face, Common, Enamel, Glazed</td>
<td>Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. Clark &amp; Sons, 116 Natoma St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Richmond Pressed Brick Co., Sharon Bldg., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant at Richmond, Cal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Livermore Fire Brick Works and California Brick Co., 604 Mission St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cannon &amp; Co., Sacramento; and 77 O'Farrell St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td>Brick &amp; Cement Coating</td>
<td>Armorite and Concrete, manufactured by W. P. Fuller &amp; Co., all principal Coast cities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Paraffine Companies, Inc., 475 Brainnan St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wadsworth, Howland &amp; Co., Inc., Jas. Humby &amp; Son, 1333 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Armorite and Concrete, manufactured by W. P. Fuller &amp; Co., all principal Coast cities.</td>
<td></td>
</tr>
<tr>
<td>Built-in Fixtures</td>
<td>Built-in Fixture Company, 2608 San Pablo Ave., near Dwight Way, Berkeley, and Hoosier Store, Pacific Building, San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sold by leading hardware dealers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joost Bros., agents for Huessel &amp; Erwin Hardware, 1053 Market St., San Francisco.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Stanley Works, New Britain, Conn., Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Palace Hardware Company, Agents Corbin goods, 581 Market St., San Francisco.</td>
<td></td>
</tr>
</tbody>
</table>

**RALSTON IRON WORKS, INC.**

ESTABLISHED 1876

**Structural Steel**

Representing Pauly Jail Building Co.
ARCHITECTS' SPECIFICATION INDEX—Continued

BUILDING MATERIALS, SUPPLIES, ETC.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.

BURGLAR ALARMS
Smith Electric Company, 50 Natoma St., San Francisco.

CEMENT
Medusa Stainless White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
Pacific Portland Cement Co., Pacific Building, San Francisco; Portland, San Jose and Los Angeles.
Monolith Portland Cement Company, 703 Market St., San Francisco and Los Angeles.

CEMENT—WATERPROOF
Monolith Portland Cement Co., 215 W. 7th St., Los Angeles, and 300 Claus Spreckels Building, San Francisco.

CEMENT EXTERIOR WATERPROOF PAINT
Armourite, sold by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Bay State Brick and Cement Coating, sold by James Hambly, 229-233 Clay St., San Francisco.

CEMENT GUN CONSTRUCTION
Cement Gun Construction Co., Hobart Building, San Francisco.

CEMENT STUCCO
"California" sold by California Stucco Products Company, 310 Dore St., San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 531 Kearny St., San Francisco.

CLAY PRODUCTS
N. Clark & Sons, 116 Natoma St., San Francisco.
California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropico Pottery, Inc., Glendale, Cal.

CLOCKS—ELECTRIC TIME
Standard Electric Time Co., 461 Market St., San Francisco.
Pacific Electric Clock Company, 86 Third St., San Francisco.

CONCRETE CONSTRUCTION
Vannucci Bros., 16th and Church Streets, San Francisco.
Villaussen Bros., Inc., 417 Market Street, San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

CONCRETE MIXERS
Foste and Jaeger mixers sold by Edward R. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
"Sherparduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Hansen, Robertson & Zumwalt, 4145 Broadway, Oakland.
Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegriest Co., Inc., 807 Claus Spreckels Bldg., San Francisco.
R. W. Littlefield, 357 12th St., Oakland.
Murch-Williams Construction Co., Fox-Oakland Building, Oakland, Calif.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dinwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, Park Ave., San Francisco.

SATINETTE WHITE ENAMEL
FLATLINE CABINET FINISH
ELASTICA INTERIOR AND ELASTICA EXTERIOR
Standard Varnish Works
35 STEVENSON STREET
SAN FRANCISCO
Smith Electric Company

"Quality First"

ELECTRICAL CONSTRUCTION
CONTRACTING . WIRING . FIXTURES . MOTORS . SUPPLIES . REPAIRING

50 Natoma Street
Telephone Sutter 1378

ARCHITECTS' SPECIFICATION INDEX—Continued

Vukicевич & Bagge, 815 Bryant St., San Francisco.
Robert Trotz, 26th and Howard Sts., San Francisco.
L. M. Sommer, 401 Balboa Blvd., San Francisco.
Jay L. McLaughlin, 231 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., Folsom at 17th St., San Francisco, and Los Angeles.
Lansing Company, 338 Brannan Street, San Francisco.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Company, 537 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.
Bonden Floors Company, 370 Second St., San Francisco; 263 So. Los Angeles, St., Los Angeles.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Blvd., San Francisco.

DAMP-PROOFING AND WATERPROOFING
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Minwax Co., Inc., 22 Battery St., San Francisco, and 653 S. Clarence St., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.

DOOR LOCKS

DOOR HANGERS

DRAIN PIPE AND FITTINGS
Corroboron* Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.

Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 160-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.
Elevator Supply Co., Inc., Hoboken, N. J.; San Francisco office, 156 Fifth St.
"Chelseas" dumb waiters, sold by M. E. Hammond, Pacific building, San Francisco.

ELECTRICAL CONTRACTORS
Butte Electric Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 956 Folsom St., San Francisco.
Central Electric Company, 177-79 Minna St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Brown-Langlais Electrical Construction Co., 315 Fifth Street, San Francisco.
Newberry Electric Company, Alta Bldg., San Francisco.
Smith Electric Company, 50 Natoma St., San Francisco.
Spencer Electric Co., 320 12th Street, Oakland, Calif.
Decker Electrical Construction Company, 148 New Montgomery St., San Francisco.
Electric Construction Company, 616 Broadway, Francisco.
Ne Page, McKenny Co., 589 Howard St., San Francisco, Oakland, Los Angeles and Seattle.

ELECTRIC PLATE WARMER
The Phoenix Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL PLUGS, RECEPTACLES, ETC.
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

ELECTRIC SAFETY INTERLOCKS

ELECTRIC HEATING
"Golog" manufactured by Strait & Richards, Inc., Newark, N. J., represented by Atlantic Pacific Agencies Corporation, 204 Rialto Building, San Francisco.
Wesly Electric Heaters, manufactured by W. Wesley Hicks, Rialto Building, San Francisco.

Independent Automatic Sprinkler Company
Fire Protection Engineers

208 So. San Pedro Street, Los Angeles

S. F. Phone, Garfield 204

72 Natoma Street, San Francisco
NASON’S

OPAQUE FLAT FINISH

A VALUABLE OIL PAINT
FOR WALLS, CEILINGS, ETC.

Made in California to stand Pacific Coast climatic conditions

R. N. Nason & Co., Paint Makers

PORTLAND
151 Potrero Ave.—SAN FRANCISCO—436 Market St.

SEATTLE

ARCHITECTS’ SPECIFICATION INDEX—Continued

W. & J. Sloan, 216 Sutter St., San Francisco.
Western States Seating Co., 39 Second St., San Francisco.
H. Rumph, 567 Howard St., San Francisco.
Fink & Schindler Company, 218-19th St., San Francisco.

GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobleigh-Kibbee Glass Co., 666 Howard St., San Francisco.
Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
W. P. Fuller & Company, all principal Coast cities.

GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASiUM EQUIPMENT—LOCKERS, ETC.
Ellery Arna Co., 593 Market St., San Francisco.

HARDWARE
J. J. Brown, agents for Russell & Erwin Hardware, 1653 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Vonnegut hardware, sold by C. H. Jensen Co., Call Bldg., San Francisco.

HEATING AND VENTILATING CONTRACTORS
Alex Coleman, 206 Ellis St., San Francisco.
Giley-Schmid Company, 195 Oti St., San Francisco.
Hateley & Hateley, Mitau Bldg., Sacramento.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Lupen and Hawley, 906 7th St., Sacramento.
William F. Wilson Co., 328 Mason St., San Francisco.
W. H. Pickard, 5650 College Ave., Oakland.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
W. S. Haines & Co.’s steam specialties. O. M. Simmons Co., 115 Mission St., San Francisco.
Williams Radiator Company, 571 Mission St., San Francisco.
Warren Webster & Company, Sharon Building, San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
General Gas Light Company, 768 Mission St., San Francisco.
Belo Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco.
Humphrey Radiantaire, sold by Rudd Heater Company, 431 Sutter St., San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.
Cannon & Co., plant at Sacramento; 77 O’Farrell St., San Francisco.

HOSE—UNDERWRITERS UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

HOSPITAL FIXTURES
Meit Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.

HOTELS
St. Francis Hotel, Powell and Post Streets, San Francisco.

ICE MAKING MACHINERY
“Frigidaire,” Sold by W. L. Cochran, 880 Mission St., San Francisco.

INCINERATORS
The Incinerator, sold by M. E. Hammond, Mezzanine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT

INGOT IRON
“Armco,” brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.
ARCHITECTS’ SPECIFICATION INDEX—Continued

INSULATION
Western Asbestos Magnesia Co., 25 South Park, San Francisco.

LAMP POSTS, ELECTROLYTHS, ETC.
J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT
Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS

LATHING MATERIAL—WIRE, METAL, ETC.
Pacific Materials Co., 525 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco.
Tucson Steel Co., 700 Mission Street, San Francisco.
Wickwire Spencer Steel Corporation, 144 Townsend St., San Francisco.
Youngstown Pressed Steel Co., Warren, Ohio.

LIGHTING FIXTURES
Harvey Hubbard, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St., San Francisco.

LIMESTONE, INDIANA
Indiana Limestone Quarrymen’s Association, Box 770, Bedford, Indiana.

LINGOLEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 3d First St., near Market, San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.
Bonded Floor Co., 370 Second St., San Francisco; 263 So. Los Angeles St., Los Angeles.

LINOLETILE
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

LOCKS

LOGS—ELECTRIC

LUMBER
Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.

Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Francisco.
J. E. Higgins Lumber Company, 423 Sixth St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.

LUMBER—HARDWOOD
Davis Hardwood Co., Bay and Mission Streets, San Francisco.

MANTELS—WOOD, TILE, ETC.
Mangrum & Otter, 827-831 Mission St., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.

Columbia Marble Co., 413 Rialto Bldg., San Francisco.

METAL DOORS AND WINDOWS
Pacific Rolled Metal Company, 715 Harrison St., San Francisco.
Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.
U. S. Metal Products Co., 330 Tenth St., San Francisco.
Michel & Pfeffer, Harrison and Tenth Streets, San Francisco.

METAL STORE FRONTS

METAL TRIM
Youngstown Pressed Steel Co., Warren, Ohio.

MILL WORK
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.

OIL BURNERS
S. T. Johnson Co., 1207 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.
ARCHITECTS’ SPECIFICATION INDEX—Continued

OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 425 Brannan St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 430 Fourth St., San Francisco; 930 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.

PANEL BOARDS

PANIC DOORS
Vonnegut hardware, sold by C. H. Jensen Co., Call Bldg., San Francisco.

PAINTING, DECORATING, ETC.
I. R. Kinsel, 1747 Sacramento St., San Francisco.
D. Zelinek & Sons, San Francisco and Los Angeles.
The Turney Co., 681 Geary St., San Francisco.
A. Quandt & Son, 374 Guerrero St., San Francisco.

PAINTS, OILS, ETC.
Magner Iron, 414-424 Ninth St., San Francisco.
Bass-Hunter Paint Co., San Francisco and all principal Coast cities.
Hill, Hubbell & Co., Los Angeles, Oakland, Portland, Seattle and 115 Davis St., San Francisco.
W. P. Fuller & Co., all principal Coast cities.
The Paraffine Companies, Inc., San Francisco.
Oakley Paint Manufacturing Company, 727 Antonia St., Los Angeles, and Hearst Building, San Francisco.

PLASTER

PLASTERING CONTRACTORS
A. Knowles, Call Bldg., San Francisco.
MacGruer & Simpson, 266 Tehama St., San Francisco.

PLASTER REINFORCEMENT
National Steel Fabric Co., Pittsburgh and 561 Market St., San Francisco.

PLUMBING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gillet-Schindl Company, 198 Otis St., San Francisco.
Hans & Hastele, Mitau Bldg., Sacramento.
Scott Co., Inc., 243 Minna St., San Francisco.
Wm. F. Wilson Co., 328 Mason St., San Francisco.
Ludwig & Hawley, 906 7th St., Sacramento.
W. H. Pfeier, 5636 College Ave., Oakland.

PLUMBING SUPPLY HOUSES
Crane Company, all principal coast cities.
Holmes, Jones & Cadbury Co., 857 Folsom St., San Francisco.
Holbrook, Merritt & Stetsen, 64 Sutter St., San Francisco.

PUMPS—HAND OR POWER
Fairbanks, Morse & Company, Harrison and Spear Streets, San Francisco, California.
Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 816 Folsom Street, San Francisco.
Ocean Shore Iron Works, 555 Eighth St., San Francisco.
Pellin, Wells Wheel Co., 2022 Harrison St., San Francisco.
S. F. Bowser & Co., Inc., 425 Brannan St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Waples Tank & Pump Co., 430 Fourth St., San Francisco; 830 S. Los Angeles St., Los Angeles.

REINFORCING STEEL
Edward L. Soule, Rialto Bldg., San Francisco.
Badt-Palk & Co., Call Bldg., San Francisco.
Judge Iron Works, San Francisco and Oakland.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.

UNITED ALLOY STEEL CORPORATION, Canton, Ohio; Western Sales Office, Santa Fe Building, San Francisco.

STANDARD GYPSUM CO.
Manufacturers of HARDWALL, FINISHING and CASTING PLASTER
303 Sharon Building, San Francisco
345 East Madison Street, Portland
Self-Releasing Fire Exit Latches.

For Correct Application

A frequent source of trouble in the older types of panic bolts was the incorrect application of the devices, interfering with the quick and complete withdrawal of the latch bolt.

In the new model Von Duprin latches, this trouble is entirely eliminated by the template on the back of the mechanism case cap ("A" in the illustration).

This template insures the correct position of the cap, and as a consequence, the correct operation of the mechanism and the latch bolts.

Every detail of the new model Von Duprin latches is designed with the idea of correct application, easy operation and long life.

This is the first of a series of announcements showing recent improvements in Von Duprin devices.

Von Duprin Self-Releasing Fire Exit Latches are approved by the National Board of Fire Underwriters, as well as by numerous other approval bodies.

Vonnegut Hardware Co.
Indianapolis, Indiana.
Manufacturers
C. H. Jensen Co., Call-Post Building, San Francisco
Telephone Garfield 6887

Von Duprin devices are made better than is necessary for every day service: they are made to work perfectly under emergency demands—to save lives!
The Electric Refrigerator for Home, Apartment, Store, Etc.
Made By DELCO-LIGHT COMPANY, Dayton, Ohio
W. L. COCHRAN, INC., Distributor, 880 Mission St., San Francisco

ARCHITECTS' SPECIFICATION INDEX—Continued

REFLECTORS

REFRIGERATORS

ROOF MATERIALS

Goddings, McBean & Co., Crocker Building, San Francisco.

California Brick Company, 604 Mission Street, San Francisco.

H. H. Robertson Co., Hobart Bldg., San Francisco.

Jones Brothers Asbestos Supply Co., 500 Second St., San Francisco.

Johns-Manville, Inc., of California, 500 Post St., San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

RUBBER TILING—INTERLOCKING

RUBBER TILING
Wright Rubber Products Co., represented by Cheek & Gillis, 625 Call Bldg., San Francisco.

United States Rubber Co., 390 Second Street, San Francisco and 923 S. Los Angeles Street, Los Angeles, Calif.

Bonded Floors Co., Inc., 370 2nd Street, San Francisco and 263 South Los Angeles Street, Los Angeles.

RUGS & CARPETs
W. & J. Sloane, 216 Sutter St., San Francisco.

SAFETY TREADS
Pacific Materials Co., 525 Market St., San Francisco.

SAFETY SWITCHES

SASH AND CAME CHAINS
American Chain Co., Bridgeport, Conn. and Pacific Building, San Francisco.


SAFES AND VAULTS
Hermann Safe Company, 216 Fremont St., San Francisco.

SCALES
Toledo Scale Company, 676 Mission St., San Francisco.

Fairbanks, Morse & Company, Harrison and Sansome Streets, San Francisco, California.

SCENIC PAINTING—DROP CURTAINS, ETC.
The Edwin H. Flagg Scenic Co., Los Angeles and San Francisco.

SCHOOL AND THEATER EQUIPMENT
H. Rumpf, 567 Howard St., San Francisco.

SHEET METAL WORK
The Pacific Rolled Metals Company, 715 Harrison Street, San Francisco.

SHINGLING STAINS


SIGNALLING & PROTECTIVE SYSTEMS
Garnett, Young & Co., 612 Howard St., San Francisco.

SKYLIGHTS
H. H. Robertson Co., represented on the Pacific Coast by H. L. Holway, Hobart Building, San Francisco.

STEEL FLAG POLES
Pole and Tube Works, Newark, N. J., represented on Pacific Coast by H. M. Holway, Hobart Building, San Francisco.

STEEL TANKS
Ocean Shore Iron Works, 55 Eighth St., San Francisco.

Main Iron Works, 1000 Sixteenth St., San Francisco.

STEEL AND IRON—STRUCTURAL
Central Iron Works, 621 Florida St., San Francisco.

Herrick Iron Works, 18th and Campbell Sts., Oakland.

Michel & Pfeffer Iron Works, 1413 Harrison street, San Francisco.


Mortonson Construction Co., 19th and Indiana Sts., San Francisco.

Pacific Coast Steel Co., Rialto Building, San Francisco.

Pacific Rolling Mills, 17th and Mississippi Sts., San Francisco.

Palmer Iron & Bridge Works, Sacramento.

Ralston Iron Works, 20th and Indiana streets, San Francisco.

Schroeder Iron Works, Inc., 1247 Harrison St., San Francisco.

Western Iron Works, 141 Beale St., San Francisco.

STEEL LUMBER
The General Fireproofing Company, 20 Beale Street, San Francisco.

CHAS. E. PARCELLS
COMMERCIAL LIGHTING FIXTURES
Distributor for PERFECTLITE
Perféctilles produce absolutely no shadows on ceiling

SHARON BUILDING, 55 NEW MONTGOMERY STREET, SAN FRANCISCO

Telephone Garfield 4980
This "Hunk of Plaster"

was rescued from oblivion recently during the remodeling of the Hubbell Building, Des Moines, Iowa. As a hunk of plaster it had no value—but as a PROOF of the lasting qualities of Hockaday Paint it was worth its weight in gold.

The walls, of which it originally was a part, have for over ten years been covered with Hockaday paint. These walls have been washed, scrubbed and cleaned enough times to "erase" any ordinary paint, still the smooth surface, the life was there. There wasn't a sign of lime burn and the paint looked good for many years more.

That's Hockaday Paint folks, honest, dependable, covering more surface better, quantity for quality, and establishing the prestige for good judgment in paint of every one who specifies or uses it.

Write for our big illustrated "Paint Mileage" Book. Free to you if request is received on your letterhead.

Hockaday is a different paint. It comes in two parts—Body and Reducer. For complete specifications see page 1352, Sweet's Catalog.

THE HOCKADAY COMPANY
1823-1829 CARROLL AVE., CHICAGO

California Hockaday Company
San Francisco
29-31 Belvedere Street

Hockaday Company
of Los Angeles
217 Douglas Bldg.

Seattle Hockaday Company
Seattle
Hoge Building

HOCKADAY
THE WASHABLE PAINT FOR ALL INTERIORS
BULL DOG FLOOR CLIPS

The use of this clip to anchor wood floors to concrete in cheap insurance against floor buckle and dry rot. Write for samples and special information.

BULL DOG FLOOR CLIP SALES CO.
77 O'Farrell St., San Francisco
600 Metropolitan Bldg., Los Angeles
L. T. KELLEY, General Manager

ARCHITECTS' SPECIFICATION INDEX—Continued

STEEL ROLLING DOORS

STEEL SASH
Bayley-Springfield solid steel sash, sold by Pacific Materials Co., 555 Market St., San Francisco.

"Fenestra" Solid Steel Sash, manufactured by Detroit Steel Products Co., factory sales office, 251 Kearny St., San Francisco.

Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.

Truscon Steel Company, 799 Mission St., San Francisco.

STONE
Indiana Limestone Quarrymen's Association, Box 770, Bedford, Indiana.

Raymond Granite Company, Potrero Ave. and Division Street, San Francisco.

STREET LIGHTING EQUIPMENT

STUCCO, COMPOSITION
California Stucco Co., 340 Dore St., San Francisco.

STUCCO-PLASTER REINFORCEMENT
National Steel Fabric Company, Monadnock Building, San Francisco.

STUDDING—FIREPROOF STEEL
The General Fireproofing Company, 20 Beale Street, San Francisco.

SWITCHES AND SWITCHBOARDS


THEATER AND OPERA CHAIRS

Western States Seating Co., 133 Kearny St., San Francisco.

THERMOSTATS FOR HEAT REGULATION
Thermostats for Heat Regulation, Johnson Service, Milwaukee, Wisconsin; Rialto Bldg., San Francisco.

TOILET—SEATS

VALVES—PIPES AND FITTINGS
Crane Radiator Valves, manufactured by Crane Co., Second and Brannan Sta., San Francisco.

Grinnell Co., 453 Mission St., San Francisco.


Schroeder Valve Company, 1300 N. Main Street, Los Angeles; 16 Stueart St., San Francisco.

VALVE PACKING
N. H. Cook Belting Co., 317 Howard St., San Francisco.

VARNISHES
Heuter's Superior Varnishes, manufactured by Bass-Heuter Paint Company, San Francisco, and all principal Coast cities.

W. H. Fuller Co., all principal Coast cities.


Standard Varnish Works, 55 Stevenson St., San Francisco.

The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

Hill, Hubbell & Co., Los Angeles, Oakland, Portland Seattle and 715 Davis St., San Francisco.

VENTILATORS
H. Robertson Co., represented on the Pacific Coast by H. M. Holway, Hobart Building, San Francisco.

VITREOUS CHINAWARE
Pacific Sanitary Manufacturing Company, 67 New Montgomery St., San Francisco.

West Coast Porcelain Manufacturera, Wells Fargo Building, San Francisco.

WATERPROOFING (See Dampproofing)
WALL BEDS—SEATS, ETC. (See Beds)

WATER HEATERS
Pittsburg Water Heater Company, 478 Sutter St., San Francisco.

Rudd Automatic Water Heater, sold by Rudd Heater Company, 431 Sutter St., San Francisco.

WATER SUPPLY SYSTEMS
Kewanee Water Supply System—Simonds Mach inery Co., agents, 816 Folsom Street, San Francisco.

WINDOW SHADES

D. N. & E. Walter, 562 Mission street, San Francisco.

WINDOWS, REVERSIBLE, CASEMENT, ETC.
Hauser Window Co., 1362 Harrison St., San Francisco.

Crittall Casement Window Company, Detroit, Michigan.

The Casement Hardware Company, 211 Pelouze Building, Chicago, Ill.

Vintner Window Company, 356 Market Street, San Francisco.

Universal Sales Co., 1916 Broadway, Oakland; San Francisco, Los Angeles and Portland.

Henry Hope's & Sons Steel Casement Windows, represented by R. B. Bell & Co., 693 Sutter Street, San Francisco, and 2302 W. 7th Street, Los Angeles.

The Pacific Rolled Metals Company, 715 Harri son Street, San Francisco.

W. S. J. SLOANE
216-228 SUTTER STREET
SAN FRANCISCO
Phone: GARFIELD 2838

LINOLEUMS
WINDOW SHADES
CARPETS
FURNITURE
MEDIEVAL charm on the roof of this beautiful example of Old Spanish Architecture is obtained by the use of versatile Romona Tile, its harmonious color variation and the method of laying with uneven courses and lines, producing perfectly the illusion of great age. Time and the elements will only serve to enhance the beauty of such a roof. Constant commendation from architects and owners and the increasing demand for Ramona Tile are the best evidences of the service rendered by this company.

N. CLARK & SONS
MANUFACTURERS OF
ARCHITECTURAL TERRA COTTA, PRESSED BRICK AND KINDRED CLAY PRODUCTS
Main Office: 116 NATOMA STREET, San Francisco
Los Angeles Office, 1022 Detwiler Building, Los Angeles
Works—West Alameda

When writing to Advertisers please mention this magazine.
THIS HANDSOME residence of Mr. D. E. Llewellyn, on Muirfield Road in Los Angeles, is one of the many charming Southern California homes . . . roofed with . . .

Los Angeles Pressed Brick Company's

VARICOLOR
GRANADA
Roofing Tile

Birch O'Neal Company
Designers and Builders

"The Standard of Quality in Clay Products"

L.A. Pressed Brick Co
ENTIRE SIXTH FLOOR..... FROST BLDG
Second and Broadway ....... Trinity 5761
LOS ANGELES
CORDOVA ROOF TILE
FURNISHED AND LAID BY

GLADDING, McBEAN & CO.
CROCKER BUILDING, SAN FRANCISCO

IN the example shown, Cordova Tile gives this roof a very beautiful and distinct appearance, which lifts the building above the usual type of home.

TROPICO POTTERIES, INC.
GLENDALE, LOS ANGELES
CALIFORNIA
Lauriston Farm, Menlo Park, Cal.  
Architect, Colonel Shastey  
built of  
Dickey Mastertile

Built to defy time and weather, these homes attain to the old world ideal, since they will be structurally sound when generations yet unborn occupy them.

DICKEY MASTERTILE

MADE BY  
CALIFORNIA BRICK COMPANY  
Associated with LIVERMORE FIRE BRICK WORKS,  
MANUFACTURERS OF DICKEY FACE BRICK  
AND OTHER CLAY PRODUCTS  
804 Mission Street, San Francisco  
Builders' Exchange, Oakland

When writing to Advertisers please mention this magazine.
SATISFACTION IN USE

Employment of Terra Cotta in this recent example of San Francisco architecture testifies to years of satisfactory experience in its use for important California buildings.

NOTE: From the Standard Specifications of this Society prepared with the assistance of the National Bureau of Standards and Structural Service Committee, A. I. A., you can specify polychrome Terra Cotta economically and with every assurance of its lasting durability. For copies address:

National Terra Cotta Society
19 West 44th Street
New York, N. Y.

When writing to Advertisers please mention this magazine.
HUBBELL
PULL CHAIN EXTENDERS

No. 7009

for Kitchen Lighting Fixtures

A new "safety device" which your clients will appreciate.

Prevents the receptacle chain from chafing the glass fixture bowl and from jarring and breaking the lamp filament. Quickly and easily attached.

Specify Hubbell No. 7009.

HARVEY HUBBELL, INC.
ELECTRICAL WIRING DEVICES
BRIDGEPORT, CONN., U.S.A.

When writing to Advertisers please mention this magazine.
The fitness of face brick for this spacious church interior, serving at once the demands of structural durability and adornment, is here admirably shown. Brick lends itself here to the construction of arch and dome and at the same time affords a material suited to the finest interior decorative effects. In "Architectural Details in Brickwork," you will find many other examples of artistic brickwork. The halftone plates, issued in three series, each in an enclosed folder ready for filing, will be sent to any architect requesting them on his office stationery.

Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Illinois.
10 Reasons Why Leading Architects Select Whale-Bone-Ite Toilet Seats

ARCHITECTS select Whale-Bone-Ite Toilet Seats because they don't wear out. No amount of scrubbing wears through the heavy, impervious, vulcanized covering. No shoe heel will scratch it. It cannot split, crack or warp. It is non-inflammable. It never needs painting or varnishing. Its beautiful, glossy finish is permanent. So Whale-Bone-Ite Toilet Seats are practically indestructible.

Here are 10 guaranteed features:

- Non-Warping
- Permanent Durability
- One-Piece Construction
- Acid Proof
- Sanitary
- No Exposed Metal
- Non-Inflammable
- Lifelong Finish
- Easiest Cleaned
- Comfortable

Whale-Bone-Ite Toilet Seats are made of a laminated core covered with a thick coat of hard composition applied under hydraulic pressure. Then vulcanized, finished and polished. The finish is permanent. Never needs renewing. Easy to keep clean. Will not absorb moisture or odors, and is proof against acids. Comes in 2 colors, ebony and mahogany. As Whale-Bone-Ite is practically indestructible, and does not need refinishing, the first cost is the last cost.

If your plumber or jobber can't supply Whale-Bone-Ite Toilet Seats, write to Whale-Bone-Ite Division of

The Brunswick-Balke-Collender Co.
623 SOUTH WABASH AVE., CHICAGO

Pacific Coast Representatives:
E. C. WHALEN, Security Building, Los Angeles
W. J. DRISCOLL, Monadnock Building, San Francisco
S. D. COCHRANE, Hoge Building, Seattle

These Famous Hotels use Whale-Bone-Ite Toilet Seats

RITZ-CARLTON Atlantic City
STATLER HOTELS in Buffalo, Cleveland, St. Louis, Detroit
DEAKE, LA SALLE Chicago
MORRISON, SHERMAN Chicago
SHERIDAN PLAZA Chicago
GIBSON, SINTON Cincinnati
CLEVELAND, HOLLENDEN Cleveland
DEHLER Columbus
SEVILLE HOTEL Havana, Cuba
TYLER HOTEL Louisville
PENNSYLVANIA New York City
McALPIN, EMORY New York City
WALDORF ASTORIA New York City
PLAZA, ALBERTON New York City
BELLEVUE-STRATFORD Philadelphia
BILTMORE Providence
FORT PITT, WILLIAM PENN Pittsburgh
KING ALBERT HOTEL Toronto, Canada
AMBASSADOR HOTEL Los Angeles, Calif.
WILLARD, RALEIGH Washington, D. C.
Etc., etc.
BUILDING FOR JAMES WALKER, RICHMOND
J. T. Narbitt, Architect

BEAUTY AND DURABILITY—
THE EXTERIOR OF THIS APARTMENT HOUSE IS VENEERED WITH

Richmond Rug Face Brick

Manufactured by
RICHMOND PRESSED BRICK CO.
UNITED MATERIALS COMPANY
SHARON BUILDING S\ SAN FRANCISCO
Distributors for Northern California

When writing to Advertisers please mention this magazine.
A RECOMMENDATION for Suspended Ceiling Construction

The detailed diagram above is a graphic presentation of recommended ceiling construction with Youngstown Box Channel and Mahoning Expanded Metal Lath.

YOUNGSTOWN Box Channel solves one of the biggest problems in this type of construction. It is a furring channel that will not turn over during erection or buckle when plaster is applied. The reason lies in the flanges, which have been given a greater percentage of metal than the web. Thus, Youngstown Box Channel is far stronger and more rigid than other furring channel of the same weight. The wide flanges of Youngstown Box Channel insure absolute stability against overturning, so that erection is accomplished more rapidly and economically. And when erected as shown above, lateral sagging of Youngstown Box Channel cannot occur, a smooth, even, rigid plastering base being the result.

While weighing approximately 27½ pounds per thousand feet, the same as 3/16-gauge Furring Channel, Youngstown Box Channel is at least 20% stiffer and stronger.

For suspended ceilings remember the advantages of Youngstown Box Channel and Mahoning Expanded Metal Lath.

THE YOUNGSTOWN PRESSED STEEL COMPANY
Warren, Ohio
June, 1924

Coast Representatives
J. E. Dwan
616 S. Utah St., Los Angeles
Waterhouse-Wilcox Co.
523 Market St., San Francisco
F. T. Crowe & Co.
508 Westlake Ave. N., Seattle
McCrae-Craven Co.
45 Fourth St., Portland

Main Banking Room — Bank of Italy San Francisco
Bliss and Faville, Architects

CRITTALL
Steel Casements

For years the builders of Crittall Casements and Windows have been leaders in their field. To deliver our products as promised is considered important. We therefore make no commitments which we are unable to fulfill. That is another reason why architects and builders have no hesitancy in specifying Crittall Steel Casements, Windows and Doors.

ALL CRITTALL CASEMENTS AND WINDOWS ARE MADE OF CRITTALLOY—THE COPPER-BEARING STEEL

CRITTALL CASEMENT WINDOW CO., Manufacturers, DETROIT
Twenty-six tons of Pioneer White Lead

Used on the Biltmore Hotel

That Pioneer White Lead was specified and used on this magnificent hotel is merely another instance which emphasizes the high esteem in which this product is held by prominent architects.

W. P. Fuller & Co.
301 Mission St. San Francisco

Fuller Paints since 1849
Varnishes

Pioneer White Lead
Kewanee Boiler

Steel + Rivets = Strength

Upon examination you will find this new 4000 series Kewanee Boiler (especially designed to burn oil) the most efficient heating unit on the market.

Steel Riveted boiler plate construction assures safety and reduces insurance rates to a minimum. Built for either 15 lbs. or 100 lbs. working pressure. Its efficiency is unsurpassed by any type of heating boiler.

This type boiler recently installed in San Joaquin Light & Power Building, Fresno, California.

Kewanee Boilers last as long as the fine buildings they heat. Be sure and specify Kewanee.

Write for complete data on this new series.
It will interest you.

Kewanee Boiler Company

Steel Heating Boilers
Power Boilers

San Francisco Branch Office:
Postal Telegraph Building

KEWANEE, ILLINOIS

Steel Tanks
Water Heating
Garbage Burners

Los Angeles:
420 E. Third St.

KEWANEE BOILERS COST NO MORE THAN ORDINARY BOILERS

When writing to Advertisers please mention this magazine.
California Steel Windows

Steel Sash as Office Partitions

When writing to Advertisers please mention this magazine.
PERMANENCE and beauty are qualities particularly desired in a school building. That's why the outer walls of the new High School at Selma, California, were plastered with MONOLITH PLASTIC WATERPROOF PORTLAND CEMENT. Because MONOLITH is waterproof Clear through, it gives powerful protection to the building.

The architect of the Selma High School was Norman F. Marsh of Los Angeles. Alcester & Kerr of Los Angeles were the contractors.

For dry walls, enduring walls, beautiful walls, Specify Monolith Plastic Waterproof Portland Cement.

We manufacture two cements—one is Monolith Portland Cement, a high grade uniform Portland. The other is Monolith Plastic Waterproof Portland Cement. Both are guaranteed to pass specifications. In ordering from your dealer be sure to specify which cement you desire.

Write for Booklet.

MONOLITH PORTLAND CEMENT CO.
LOS ANGELES  SAN FRANCISCO  PORTLAND
A.G. Bartlett Bldg  800 Claus Spreckels Bldg  516 Pittock Block
Specify HANDY FLUSH VALVES
It is NON-CLOGGING
It functions perfectly with any make or kind of bowl.
Gives perfect cleansing flush — washes bowl clean.

Model A — Indirect Flush:
For residences served by one-half inch supply pipe.

Model B — Direct Flush:
For hotels, office and other buildings served with one inch or larger supply pipe.

Write for complete catalogue.

HANDY SELF-CLEANING FLUSH VALVE CO.
731 FOLSOM STREET, SAN FRANCISCO, CAL.
Demonstration in Universal Exhibits Monadnock Bldg., San Francisco

ALL CAST IRON—3 Sizes (3, 5, and 7 Sections)
RA-DO FUMELESS RADIATORS
The Ideal “Year-Round” Heating System
For The Home—New or Old
Easiest and Cheapest to Install
Lowest Operating Cost

POTTER RADIATOR CORPORATION
5954 Pasadena Ave., LOS ANGELES
393 Sutter St., SAN FRANCISCO
1700 San Pablo Ave., OAKLAND

POWER AND HEATING
BOILERS
STEEL TANKS, STACKS, BREECHINGS, SHEET AND PLATE WORK
MACHINERY AND IRON CASTINGS

MAIN IRON WORKS
Main Office and Works: 7th, Daggett and 16th Sts., San Francisco, Calif. — Phone Market 752-753
Branch City Office: 420 Matson Building, 215 Market Street

PUMPING MACHINERY
“AMERICAN-MARSH”
House, Sump and Fire Pumps

FOR ALL SPECIFICATIONS
SIMONDS MACHINERY CO., 816-818-820 FOLSOM ST,
PHONE KEARNY 1457, SAN FRANCISCO

When writing to Advertisers please mention this magazine.
CLEAN HEALTHY HEAT
For the Residence or Apartment
NO DIRT--NO WORK

Electric Heat assures Clean Floors, Clean Curtains,
Clean Mantel and Healthy Air

With the GLOLOG ELECTRIC FIREPLACE HEATER
you do not require costly flue construction, dampers
and ash pit doors.

Merely a false work to receive the mantel piece is sub-
stituted. The saving is much more than the actual cost
of the log.

AN ATTRACTIVE ROOM FURNISHING
AS WELL AS AN EFFECTIVE HEATER

GLOLOG is made of hard burned fire clay and its
heating element is the best known resistance wire,
coiled in the back crevices. An even radiation of
heat—reaches every part of the room.

Architects and Contractors should provide in their plans and
specifications proper wiring to fireplaces—A. C. or D. C.

Write for complete data and wiring Specifications

GLOLOG ELECTRIC FIREPLACE HEAT

STRAIT & RICHARDS, INC., NEWARK, N. J.
ATLANTIC-PACIFIC AGENCIES CORP.

When writing to Advertisers please mention this magazine.
Satin Egg Shell Finish Used in 17-Story Tribune Tower

When the Tribune Publishing Company of Oakland recently added to its building an extension soaring seventeen stories high, the matter of a wall finish was given careful consideration. After testing many materials, Bass-Hueter Satin Eggshell Finish was selected for use on the walls throughout the fourteen floors devoted to office space. This durable finish was applied direct to the new walls, without the use of size or sealer. The second coat was stippled.

Hospitals, Apartments, etc., Use Washable Finish

Satin Eggshell Finish has been used for finishing the walls and woodwork of some of the finest buildings in the West. It is used extensively in hospitals, apartments, hotels, schools, public buildings and wherever a sanitary, washable paint is required.

Our nearest branch will gladly send you a folder giving complete information on Satin Eggshell Finish as well as a list of buildings on which it has been used.

Bass-Hueter Paint Company

PASADENA
HOLLYWOOD
SANTA ANA
LONG BEACH
BUENOS AIRES, R. A.

SAN FRANCISCO
LOS ANGELES
SEATTLE

FRESNO
TACOMA
OAKLAND
PORTLAND
HONOLULU, T. H

When writing to Advertisers please mention this magazine.
Important notice

SO many cases of the substitution of inferior fixtures in place of Fairfacts Bathroom Fixtures have been brought to our attention by architects and home owners that we are taking the important step of giving an unconditional guarantee with every Fairfacts Fixture which will be a positive means of identification. We will guarantee that these fixtures will neither craze, crack nor discolor.

Fairfacts Fixtures are all protected under patent and trade-mark registrations. We propose to prosecute all infringers.

Architects have told us that this guarantee will be greatly appreciated as the bad quality of inferior fixtures often reflects on them. There is no difficulty in being sure that Fairfacts Fixtures are installed when you see the yellow and red Fairfacts label pasted on each fixture. We should be glad to have brought to our attention any case of trade-mark imitation or substitution.

Yours very truly,

S. D. Baker,
President
THE FAIRFACTS CO., Inc.

FAIRFACTS
Representative in Los Angeles
WM. E. GRAHAM
505 Kerckhoff Building
Phone: Metropolitan 3173
The Fairfacts Company
Incorporated
Represented by
CALIFORNIA POTTERY COMPANY
San Francisco: Mills Building, Phone Kearny 87
Oakland: E. 12th and Park Sts., Phone Fruitvale 388
Fresno: H. and Monterey Sts., Phone 4189

[Trade Mark]

Fairfacts Fixtures

When writing to Advertisers please mention this magazine.
The Floors Next Door —

WHEN visitors admire the gleaming hardwood floors in either of these new Oakland residences, they may be told "The floors next door are just as beautiful." For Acorn brand Oak Leaf Oak Flooring was used in both the Breuner and the Warrack homes which stand side by side on Craig Avenue.

This hardwood flooring, that is guaranteed uniform in grading, milling and dimensions, costs no more than ordinary hardwood. But it results in satisfied customers for the architect or builder. He has only to point to the oak leaf trademark on every bundle as his and our guarantee of quality.

STRABLE HARDWOOD COMPANY

G. H. BROWN
Distributors
511-545 FIRST STREET
TELEPHONE OAKLAND 245
OAKLAND, CALIFORNIA

When writing to Advertisers please mention this magazine.
The Flavor of a Name

The Old Missions of California stand for Leadership, Enduring Strength and Never-failing Dependability.

These traditions are embodied in

Old Mission
Portland Cement

Our Wet Process assures Maximum Uniformity — at no extra cost to you.

Guarantee Certificate with each carload.

Old Mission
Portland Cement Company
Main Office: STANDARD OIL BUILDING, San Francisco
Plant: SAN JUAN, California
CAPACITY:

8000 SACKS DAILY

When writing to Advertisers please mention this magazine.
ATCHISON
REVOLVING DOORS
Straight or Curved Wings
ASK FOR CATALOG
PACIFIC MATERIALS CO., 525 MARKET ST., S. F.

Now is the Time!

Model No. 10X—54"

to equip the school house with our combination two to four head sanitary drinking fountain. Schools close this month and reopen August and September. Repairs and new installations will be in order for the next two months.

Specify and Install a Haws Fixture

HAWS SANITARY DRINKING FAUCET CO., 1808 HARMON STREET BERKELEY, CALIF.

EMPER HARDWALL PLASTER

MANUFACTURED BY
Pacific Portland Cement Company, Consolidated
PACIFIC BUILDING SAN FRANCISCO PHONE GARFIELD 4100
PORTLAND SAN JOSE LOS ANGELES

When writing to Advertisers please mention this magazine.
Interior of New California Bank, California Bank Building, Los Angeles, Calif.
Architects: Curlett and Beelman

Scientific “Daylighting”

SUNLIGHT streaming through an unshaded window causes an almost unbearable glare. Ordinary window equipment does little to regulate the candlepower of the sun; its function being to either admit or exclude sunlight.

On the other hand, Western Venetian Blinds perform a real service of scientific daylighting. By means of an ingenious arrangement of easily adjustable slats, direct light rays cannot enter but are reflected and diffused, and thus bright sunlight is transformed into soft restful daylight.

Moreover, this modern window equipment renders an equally efficient service in regulation of ventilation.

Because of greater service Western Venetian Blinds have been specified by prominent architects as equipment for many of the principal banks, office buildings, schools, etc., of America.

Write for Special Bank and Office Building Catalogs

Western Blind & Screen Company
General Offices, Los Angeles; Factories, Los Angeles and Kansas City
New York, N. Y., 25 W. 43rd St.
Atlanta, Ga., 300 Flatiron Bldg.
Kansas City, Mo., 14th & Monogall
San Francisco, Cal., 921 Hearst Bldg.
Chicago, Ill., 336 W. Madison St.
Portland, Ore., 611 Firestone Bldg.
Texas Agents: Two Republic Sales Service
523 Hicks Bldg., San Antonio
Kirby Bldg., Dallas

MORE LIGHT—MORE AIR—LESS GLARE
Clothing Steel Giants

When the framework of a great skyscraper has been joined, the huge skeleton must have its steel bones covered with a stone even more permanent than steel.

Then does----

RAYMOND GRANITE

----do its part.

It is the stone of protection.
Pink Kasota fountain before the Cooper Branch Free Library, Camden, New Jersey.
Jos. H. Bass, Sculptor.

Pink Kasota

A stone of unusual qualities. It can be used for exteriors or interiors; can be polished or carved; is durable, beautiful and cheap. Samples on request.

TOMPKINS-KIEL MARBLE COMPANY

505 FIFTH AVENUE
NEW YORK CITY

CHICAGO
SAN FRANCISCO
SYLACAOA, ALA.
KNOXVILLE, TENN.
Fire-and-Sound-Proofed by Herringbone

The annoyance of sound-transmitting walls, the fire-danger of wood-plaster partitions, can be completely removed by GF solid partition construction—Herringbone Rigid Metal Lath on GF Steel Channels.

The light, rigid, two-inch plaster wall formed by Herringbone on GF Steel Channels has been proven an effective barrier to the most penetrating sound.

Fire-and-sound-proof, non-cracking, sanitary, economical of space and construction, Herringbone on GF Channels forms the ideal partition for apartments, hotels, hospitals and office buildings.

Architects and builders who economically construct the best specify

Other GF Materials
Self-Centering—A combined form, lath and reinforcement.
Trussit—A reinforcement for solid partitions.
GF Expanded Metal—A concrete reinforcement.
GF Steel Tile—For concrete floors.
GF Steel Lumber—Used in place of wood joists and studs.
GF Steel Channels—Studding for solid partitions.
GF Peds—Spot grounds for attaching trim to concrete and plaster.
GF Waterproofings—For concrete and masonry.

Write for illustrated literature

GF Herringbone
Rigid Metal Lath

The General Fireproofing Co.

20 Beale Street
San Francisco

Builders Exchange
Oakland

1920 Atlantic Street
Los Angeles
NINETY-TWO years ago a church built of logs was erected at North Water and Clark Streets, Chicago. Eight years later it was placed on a scow, towed across the river and set up at Clark and Washington Streets. For years it served as the central home of the Methodist following. The power and strength of this Faith is now strikingly symbolized in the magnificent new twenty-two story Temple built on the site of its primitive home.

Rising in the heart of a great city, the Temple Building, according to the plans and desires of its builders, should last and be beautiful for generations, both as the fitting climax to a long period of growth and an inspiration for the present and future.

Indiana Limestone was chosen for its exterior as the material which would make possible in the most effective way the realization of such vision on the part of builders and architects. For Indiana Limestone is a natural stone that will last for generations without deterioration. And in addition, it is extremely beautiful both in unbroken wall surfaces and in detail work, where it has proven readily adaptable to the most graceful and delicate carving.

Our handsomely illustrated booklets on Indiana Limestone will be sent free upon request.

Indiana Limestone Quarrymen's Association
Box 770, Bedford, Indiana
Service Bureaus in New York and Chicago

Build the Nation Securely with

Indiana Limestone
The Nation's Building Stone
Rydal Mixing Valve will appeal to Architects

The Rydal mixing valve accomplishes, in two complete turns, what the ordinary mixing valve attempts to accomplish in a half turn.

Architects as well as the public condemn mixing valves on account of their quick change in temperature which has, at times, caused the user a great deal of discomfort.

With the Rydal mixer, the temperature of the water can be changed two degrees at a time.

Furnished with a movable dial plate which reads—shut, cold, warm and hot.

The concealed mixer has a regulating screw under the dial plate.

This screw controls the travel of the volume plungers.

By this screw regulation the mixer can be set to open to any point between the words Warm and Hot. Under ordinary conditions, the maximum temperature desired can thereby always be obtained.

Plungers are of different diameters, thus preventing the possibility of error in replacing.

Plungers are of the floating type, allowing seats to close off tight when the wear of the washers has been uneven.

Seats are removable and are of different diameter threads to prevent incorrect installation when replacing.

Operating stem furnished with a heavy square thread, having a large bearing surface which makes a long life thread.

Haines, Jones & Cadbury Co.
Makers of Plumbing Supplies
857-859 Folsom Street, San Francisco
Philadelphia-New York-Richmond, Va.-Savannah
Jacksonville-Charlottesville

When writing to Advertisers please mention this magazine.
WHEN THE PLAN IS UNROLLED

It's the little things that count.

Going over the plans, home builders note with keen appreciation the architect's provision for their comfort and convenience, as indicated by the wiring symbols. Architects are performing a valuable service for their clients through up-to-date knowledge of modern wiring. Their liberal provision for convenience outlets and switches in every room has increased the worth of many a property quite out of proportion to the small additional cost of complete wiring.

The more extensive use of electricity in the modern home emphasizes the need for dependability in the wiring devices.

G-E Reliable Wiring Devices, nationally known as the standard of excellence, are the assurance of dependable electrical service. G-E Wiring Devices can be furnished for every requirement in every class of building.

Merchandise Department
General Electric Company
Bridgeport, Connecticut
Make Your Floors and Partitions Sound-proof by lining them with the standard deadener

CABOT'S "QUILT"

Cabot's Quilt has made more buildings really sound-proof than all other deadening methods combined. Musical schools are the hardest buildings to deaden, and the N. E. Conservatory of Music, Canadian Conservatory of Music, N. Y. Institute of Musical Art, and many others show that Quilt is perfect. Sound-proof, rot-proof, vermin-proof and fire-retarding. Quilt is the only deadener that breaks up and absorbs the sound-waves. It is a thick, elastic cushion of dead-air spaces.

Send for Samples, Circulars and full information


Cabot's Creosote Stains, Stucco and Brick Stains, "Quilt," Mortar Colors, Damp-proofing, Waterproofing, Conservo Wood Preservative, etc.

Pacific Materials Co., San Francisco
Centennial Building Specialties, Inc., Los Angeles
Theo. F. Snyder, San Diego, Cal.

S. W. R. Dally, Seattle
Cress & Co., Portland

This TRADE MARK means much to the conscientious Architect and Builder

It means a satisfied client

High-Grade Plumbing Fixtures

Holbrook, Merrill & Stetson

64 SUTTER STREET
SAN FRANCISCO
Crane service keeps one definite idea always in view—to supply to home owners complete sanitary and heating systems which, both in type and cost, best satisfy their individual needs and resources.

To this end, three big tasks are mastered. Fixtures for kitchen, laundry and bathroom are produced in a wide variety of styles and prices. All embody comfort, convenience, and beauty with enduring finish. Valves, fittings and piping are provided, which in design and quality are worthy of the Crane appointments they supplement. Branches and offices are maintained in 145 cities for the convenience of architects and owners and for the prompt solution of their problems in heating and sanitation. Warehouses at shipping centers throughout the country insure delivery of complete systems by a single dependable supply source.
The convenience of Babcock heat

Turned on or off as needed, at the touch of a button, the heat from the Babcock Furnace is not only an appreciated convenience in the homes you build, but a source of economy as well. Designed by gas engineers, the Babcock is durable and efficient.

5 year guarantee

C. B. Babcock Company, San Francisco Pacific Gas Appliance Co., Oakland
Beacon Light Co., Los Angeles Southern Calif. Gas Co. Los Angeles

Babcock High Efficiency Gas Furnace
MADE BY C. B. BABCOCK COMPANY, SAN FRANCISCO

Pump Governors
Oil-Burner Governors
Reducing Valves
Safety Valves
Oil Valves
Blow Off Valves

Boiler Feed Valves
Vacuum Pump Governors
Vacuum Regulating Valves
Oil Pumping Sets
Little Giant Improved Oil Burners

Duplex Oil Pumps
Rotary Oil Pumps
Oil Heaters
Draft Gauges
Boiled Feed Pumps

G. E. WITT Co., Inc., Engineers
C. W. VAUGHN, President and Manager
MANUFACTURERS AND DISTRIBUTORS
862-864 Howard St. Phone Douglas 4404 San Francisco, Cal.

J. M. Fabbris, Vice-Pres.
J. A. Mackenzie, Secretary
A. F. Edwards, Pres.
J. Rubiolo, Asst. Mgr.
D. A. Batsford, Asst. Mgr.

AMERICAN MARBLE AND MOSAIC CO.

Factory:
on Water Front, South San Francisco
Near Grand Ave. and Ferry Slip
Telephone Mission 6013

Office:
22, Columbia Square, San Francisco
Near Folsom St., Ht. 6th and 7th
Telephone Market 5070

When writing to Advertisers please mention this magazine.
### Contents

**Vol. LXXVII**  
**June, 1921**  
**Number 3**

- **Cover Sketch by Ernest Irving Freese**  
- **Detail of Ojai Valley Country Club, Santa Barbara - Frontispiece**  
  - Wallace Neff, Architect
- **The Ojai Valley Country Club House**  
  - 53
- **Hotel in Pueblo Architecture**  
  - 55
  - Trost & Trost, Architects
- **House Planning by the Compass**  
  - 61
  - Ernest Irving Freese, Architect
- **A Small House at Frascati**  
  - 77
  - R. H. Bickel
- **Ray Frederick Coyle, Artist**  
  - 81
- **A Tribute by Irving F. Morrow**
- **The Japanese Earthquake and Its Effect Upon Buildings**  
  - 83
  - H. M. Hadley, C. E.
- **Architecture as a Profession**  
  - 91
  - Wm. L. Steele, F.A.I.A.
- **Reinforced Concrete Architecture These Past Twenty Years**  
  - 95
  - Albert Kahn, Architect
- **City Planning and Housing**  
  - 103
  - Carol Aronovici, City Planning Consultant
- **Books on Italian Architecture**  
  - 109
- **Despoliation**  
  - 112
  - Viola Irene Cooper
- **Editorial**  
  - 114
- **Book Reviews**  
  - 116
- **With the Architects**  
  - 118
- **The Engineer**  
  - 122

---

*Published Monthly by THE ARCHITECT and ENGINEER Inc.*  
636-642 Stockton Building, San Francisco  
W. L. Keruiff, Frederick W. Jones, L. Brenhorwood  
President, Vice-President, Secretary
DETAIL OF OJAI VALLEY COUNTRY CLUB
WALLACE NEFF, PASADENA, ARCHITECT

Awarded Certificate of Honor by Southern California Chapter, A. I. A.
The Ojai Valley Country Club House

The Ojai Valley Country Club, situated in the picturesque Ojai Valley, near Ventura, was recently adjudged the most adaptable and artistic club house built in Southern California in 1923. The Southern California Chapter of the American Institute of Architects has awarded a Certificate of Honor to Architect Wallace Neff of Pasadena for his distinguished work in designing this building.

The Ojai club house, an unusually pure example of early California Spanish architecture, is situated on a knoll commanding a sweeping view of the beautiful little Ojai Valley, a spot famed for its beauty through the state. The building is low and rambling, after the manner of the old Spanish haciendas, and is sheltered by stately live oaks. Flagstone terraces, white-washed walls and red tiled roof accomplish a combination of color and texture in faithful keeping with the setting and design. The architect is said to have succeeded to a most unusual degree in adapting his scheme to the environment.

Among the many artistic details of the exterior, seen in the view herewith, are the shuttered door in the boulder-like stairway side, the wrought-iron window grating and odd lamp beside it, of the same metal, and the gracefully curving lines of the facade.

In the accompanying floor plan it will be seen that careful consideration has been given convenience and the special requirements of a country clubhouse in laying out the interior arrangement. The dining room and the men’s grille are well placed with regard to both privacy and availability to kitchen. The main lounge has a large fire-place with sloping chimney-breast running to the open roof, and a covered porch adjoining. The rugged walls of the rooms are finished a neutral shade. Heavy, rough-hewn ceiling beams, iron-bound are given the appearance of extreme age. Warm Spanish colors in the rugs and hangings tastefully placed, relieve the dulness of walls and ceilings.

Mr. Neff was given additional and unusual distinction when he was awarded a second Certificate of Honor for his design of the residence of Mrs. M. L. H. Walker in Pasadena.
A Hotel in Pueblo Architecture

In designing the new Hotel Franciscan at Albuquerque the architects, Messrs. Trost & Trost of El Paso, Texas, have successfully carried out a type of architecture preeminently typical of New Mexico's early days, for both Pueblo and Spanish influences are very much in evidence. That Messrs. Trost & Trost have achieved something distinctly unique is admitted by critics who have viewed the hostelry and as this was the end sought by the designers, they naturally are gratified with the success attained.

Both the architecture and the furnishings of the hotel are distinctive and original—away from the stereotyped office building style all too frequently adopted by the designers of our big hostleries in the metropolitan cities. The interior decorating has been carried out in keeping with the architecture, with carved beams, murals of early New Mexico, historical scenes and Indian motif stenciled borders predominating. In the Hotel Franciscan the tourist finds something more to interest him than a mere place to eat and sleep. The influence of the early settlers—the Pueblo builders—is felt in the sun-baked concrete walls, and in the colorful paintings in the lobby and mezzanine. The walls are a soft brown while the floors are a dull red tile. The center of the lobby has skylights decorated in Indian characters framed with native borders and broken circles typical of the race. The principal colors are soft blue fading into amethyst, dull red fading into orange and turquoise green.

The hotel is six stories high, occupies a plot of ground 100 by 142 feet and contains 143 guest rooms, all with outside exposure.
HOTEL FRANCISCAN, ALBUQUERQUE
TROST AND TROST, ARCHITECTS
INTERIORS, HOTEL FRANCISCAN, ALBUQUERQUE
TROST AND TROST, ARCHITECTS
INTERIORS, HOTEL FRANCISCAN, ALBUQUERQUE
TROST AND TROST, ARCHITECTS
HOUSE AT BRENTWOOD PARK, LOS ANGELES
ERNEST IRVING FREESE, ARCHITECT
House Planning by the Compass

BY ERNEST IRVING FRESE, Architect

A CURSORY examination of house plans reveals a common defect; namely, that very few houses are planned with a conscientious regard for the proper aspect of their various rooms.

It becomes startlingly evident that the majority of them are given no study whatsoever in relation to the points of the compass. A curious want of thought exists in regard to this matter, even among architects! Yet it should be set down, forthwith, as one of the vital principles of house planning, that all of the main rooms must be so placed as to have the best aspect for light and warmth, in consideration of the purpose they are to serve and the time of day they are to be most in use.

It is interesting to observe that this principle was fully recognized by the ancient Romans in the planning of their dwellings. Vitruvius Polio, an architect of Fano, Italy, writing at the time of Caesar, discourses as follows:

"One part of the world is under the sun's course, another is distant from it, and another, between the two, is temperate. Since, therefore, from the position of the heaven in respect to the earth, from the inclination of the zodiac and from the sun's course, the earth varies in temperature in different parts, so that the form of buildings must be varied according to the temperature of the place and the various aspects of the heavens. In the north, it seems proper that they should face the warmer aspects. Those under the sun's course in southern countries where the heat is oppressive, should be turned toward the north and east. Thus the injury which nature would effect, is evaded by means of art. So in other parts, due allowance is to be made, having regard to their position, in respect to the heavens."

Vitruvius then describes in detail how the various rooms of a Roman dwelling should be planned, as follows:

"Spring and autumn dining-rooms should be toward the east, for then, if the windows be closed until the sun has passed the meridian, they are cool at the time they are wanted for use. Winter dining-rooms and baths are to face the winter west, because the afternoon light is wanted in them; and not less so because the setting sun casts its rays upon them, and by its heat warms the aspect toward the evening hours. Summer dining-rooms should be toward the north, because that aspect, unlike others, is not heated during the summer solstice, but on account of being turned away from the course of the sun, is always cool, and affords health and refreshment. Picture-rooms should have the same aspect, as well as rooms for embroidery and painting, that the colors used therein, by the equability of the light, may preserve their brilliancy. Bed-rooms and book-rooms should be toward the east, for their purposes require the morning light. In book-rooms the books are, in this aspect, preserved from decay; while those that are toward the south and west are injured by the worm and by the damp, which the moist winds generate and nourish and, spreading the damp, make the books to mould . . . The cellar should be lighted from the north, for if it have any opening through which the heat of the sun can penetrate, the wine affected by the heat becomes vapid."

Our mode of life differs considerably from that of the ancients. Moreover, we are not entirely dependent upon the sun to furnish heat for our dwellings. So that a house with three dining-rooms would be
PLANS, HOUSE AT BRENTWOOD PARK, LOS ANGELES
ERNEST IRVING FRESE, ARCHITECT
more or less of a curiosity nowadays. And likewise the wine cellar! However, the vital principle, that led Vitruvius to formulate the above hard and fast rules, remains unchanged. And it is this principle, rather than the plan of a Roman dwelling, that should be adhered to. It should not be violated even for the sake of getting an especially fine view from the windows. Sunlight is vastly more important from the standpoint of health and cheerfulness than any amount of scenery. In other words, aspect should not be sacrificed for prospect.

Let us, then, get down to details and consider what is the most favorable aspect for the various rooms of the house, always bearing in mind the fact that, in our temperate clime, the sun, in its journey across the heavens, follows an arc appreciably tilted toward the south so that at high noon the shadows point northward.

The morning-room, or breakfast-room is occupied at the coldest part of the day, at a time when neither the house nor its inmates have become thoroughly warmed. Therefore, this room should invariably have an aspect toward the morning sun, either east or southeast. The level light of early morn streaming in through the windows dissipates the morning grouch and implants good cheer in its stead.

In many houses, however, the breakfast-room is omitted, all meals being served in the dining-room. For the latter, an eastern aspect would then be desirable, so as to let the morning sun into the room at breakfast time. At other times of the day, direct sunlight into the dining-room is usually objectionable. In winter, artificial heat will have warmed the room for the mid-day and evening meals, so that the heat of the sun is not needed. And, in summer time, the direct rays of the western sun intruding into the room while people are seated around the table and cannot shift their places, is far from agreeable, both in respect to light and heat. However, there are times in late autumn and early spring when this room, with only an eastern aspect, is hardly warm enough for comfort, yet it is not cold enough to require artificial heat at the mid-day meal. At these times, a southern aspect would effect just the right balance. For the southern sun, at the time of the mid-day meal, is high enough overhead so as not to project its rays directly across the room into the faces of those seated about the dining table. Thus the room is suffused with warmth, yet the light is such as to cause no undue discomfort to the eyes. So we find that, all things considered, the dining-room should have both an eastern and southern aspect, but never a western one. In case a breakfast-room is a part of the plan, then the southern aspect alone, for the dining-room, would fulfill all conditions.

In the living-room we can afford to have direct sunlight at all times of the day. For this is the one room in the house in which people can move about freely and choose their positions. So that here an abundance of sunlight is permissible, even desirable. The living-room should have at least two aspects toward the sun, either south and east, or south and west, preferably the latter.

Now comes the kitchen. Unquestionably, this room should always look toward the north. For, in winter, ample warmth will be supplied by the constant fire, and in summer the aspect should obviously be the coolest possible. Moreover, the equable north light is highly desirable in the performance of the various kitchen duties. Perhaps just a peep of the early rising sun would not be amiss in the kitchen to cheer up the cook before the fires are started. But it should be no more than a
HOUSE AT ST. ANDREWS PLACE, LOS ANGELES
ERNEST IRVING FRIESE, ARCHITECT
peep. Seldom should the southern or western sun be given access to the kitchen.

If there is to be a nursery in the house, this should invariably have a southern exposure, whatever be the preferable character of the outlook in other directions. In this case an abundance of warmth and sunshine outweighs all other considerations.

Sunlight, in sleeping-rooms, should be considered a prime necessity. Being in use only at night is all the more reason why these rooms should receive the full benefit of clarifying sunshine. An eastern aspect is undoubtedly the best for bed-rooms, because this aspect allows of the sun entering them as soon as the occupants of the night have arisen. A western exposure is objectionable because in that case the sun cannot enter until afternoon, wherefore the room becomes unduly heated toward the evening hours so as not to be conducive to refreshing sleep. Wherever possible, sleeping-rooms should be contrived to have two exposures, so as to allow of a cross circulation of air through the opened windows. In that case, the two most favorable exposures would seem to be directly east and directly south, although any two exposures occurring eastwardly between the north and south points of the compass would fulfill all requirements as to sunlight and circulation.

Finally, the point that I wish to emphasize is exactly this:—No two plans can be perfectly suited to one particular set of conditions. Every plan is a new problem, the successful solution of which, although it often appears hopeless, can be arrived at only through persistent and serious study of its own peculiar conditions and requirements. And this proves beyond a doubt the utter folly of planning a house without regard for the points of the compass. No matter how convenient or "compact" a plan may be, it is nevertheless a failure if it does not conform to this essential principle of proper aspect.
HOUSE AT OCEAN PARK, CALIFORNIA
ERNEST IRVING FRESESE. ARCHITECT
ERNEST IRVING FREESE - ARCHITECT
LOS ANGELES, CALIFORNIA
HOUSE AT 828 N. GARDNER ST., LOS ANGELES
ERNEST IRVING FREESSE, ARCHITECT
June, 1924

DINIO ROQUE

I. L. BERNARD

BED HOUSE AT 736 N. MILTON AVENUE, LOS ANGELES

ERNEST IRVING FREESE, ARCHITECT
HOUSE AT 859 N. STANLEY AVENUE, LOS ANGELES
ERNEST IRVING FRESEE, ARCHITECT
HOUSE AT 742 N. MILTON AVENUE, LOS ANGELES
ERNEST IRVING FRESE, ARCHITECT
A MEXICAN DOBE

DESIGN NO. 18

ERNEST IRVING FRESE, ARCHITECT
A "Wee House"

Ernest Irving Reese, Architect

4675 Hollywood Blvd.
Los Angeles, Cal.
BUNGALOW IN BERKELEY HILLS, BERKELEY, CAL.
E. S. Riddell, Architect. Fowler Mallett, Builder
This house was the center of the Berkeley conflagration last October.

Longest Tunnel

The longest tunnel in the world, capable of supplying 600,000,000 gallons of water daily to New York City, was opened February 9, when officials announced the entry into service of the Shandaken tube, reaching a distance of 18 miles through the heart of the Catskill mountains. A finished cross section of the tunnel is 10 feet 3 inches wide and 11 feet 6 inches high.
COTTAGE IN VILLA TORLONIA, FRASCATI
PHOTOGRAPH BY R. H. BICKEL
TO the traveler who has been in Rome the recollection of a trip to Frascati on the slopes of the Alban Mountains is sure to excite a pleasing remembrance, for this delightful suburb commands a superb view of the Eternal City and the rolling campagna, and has ever been a favorite spot both for the Romans and the tourists. Not so high as Albano, nor as far as Tivoli, Frascati is situated at the happy mean. Aside from its site the town owes its pre-eminence to two factors—the group of Renaissance villas which rise in its background and the splendid wine produced from its vineyards. One goes to see the villas and comes away with a more distinct impression of the wine; no doubt a glass of the wine enables one to admire the villas from a rosier point of view (not that the villas need such an inducement) but in the end the subtle quality of the rare vintage dims the splendor the Renaissance artists created and one returns with deep regret that the delicate quality of the wine prevents it from being transported without loss of fragrance.

But there are other interests, too. In the garden of the Villa Torlonia is a “Villina” of the type that we Americans are continually describing to ourselves in terms of “why cannot we have something like that at home?” etc. It is a simple design, quite classic in detail and restraint, modest in proportions but in no wise cramped. The material is of the usual type of this region—tufa blocks with brick chain courses stuccoed over and toned down to a warm gray color. The plan, redone...
COTTAGE IN VILLA TORLONIA, FRASCATI
COTTAGE IN VILLA TORLONIA, FRASCATI
in modern times, is purely an economical arrangement of space, "a l'Italienne," and is shown as a matter of record. Kitchen and service requirements are taken care of on the lower floor. The most interesting feature of the building is the outside stair leading to the main entrance. This motive, so often cramped and unsuccessfully done in the small house, is here well adapted and creates the impression of correct scale, easy access, and a relief from the usual austerity of classical lines. The flower pots on either side, in which palms are planted, complete the composition. The trees in the foreground are plane-trees.

According to the present occupants this building must be attributed to Annibale Caro, a poet of the 17th Century.

**New Method of Settling Wage**

An experiment in the settlement of wage disputes is being tried out in the electrical trade in New Orleans, which is based on the purchasing value of a dollar now as compared to 1914, since that year is generally accepted as being normal. Both the contractors and journeymen agreed that the average number of days worked in that trade is 300, therefore with a rate of $1 per day in 1914 the average yearly income of each worker was $1,200. The value of the dollar, however, began to depreciate in 1915 until now its only worth 63.8 cents. It was found that although the hourly wage rate had increased to 90 cents the workers' real wages had decreased, and a new scale of $1.05 was determined upon to equalize the difference.
Ray Frederick Coyle, Artist

A Tribute
By IRVING F. MORROW, Architect

It is rarely that an architectural journal feels impelled to notice the passing of artists in other fields, but no one interested in art as a living reality can ignore the untimely death of Ray Frederick Coyle. Indeed, it is impossible to put him down as the practitioner of any particular art. His interests and activities ranged freely over literature, dramatic production, book illustration, mural painting, furniture design, textile design, architectural design, and the interior decoration which was his nominal calling. I omit sculpture and music only because I know no instance of his dealing with these subjects; it is more than probable that he moved congenially among them as well. But he was neither specialist nor closted artist. Wherever his mind was intrigued, there also was his hand impressed; so that his conceptions always manifested that invigorating contact with reality which is the result of the actual manipulation of materials. In a word, he was not only artist, but craftsman. In an age when even artists specialize, not only in particular arts, but in their particular phases, his ample vigor and curiosity recall the spirit of the more spacious minds of the Renaissance, when one phase of a subject, or even one subject, was too narrow a confinement for a healthy intelligence, and living itself tended to become one great and complex art. One had only to know him casually to feel that all of these manifold activities were real and integral parts of an exuberant life, and that he approached the great adventure of living with gusto and an open mind.
ENTRANCE DETAIL, HOUSE OF MR. R. C. WARNER, PIEDMONT
C. W. McCALL AND CHARLES T. DAVIS, ARCHITECTS
The Japanese Earthquake and its Effect upon Buildings*

By H. M. HADLEY, District Engineer,
Portland Cement Association, Seattle, Wash.

On September 1, 1923, occurred the great earthquake and ensuing fires which almost entirely destroyed the city of Yokohama and about half of the city of Tokyo, Japan. This catastrophe was one of the greatest recorded in human history. One estimate places the loss of life at 80,000 with 140,000 classed as missing, and property valued at from four to five billion dollars destroyed. This earthquake was the first in Japan to severely test modern building construction and shortly after its occurrence the writer was sent there by the Portland Cement Association to make a thorough examination of the consequences of the disaster. About two months were spent in the earthquake district, examining buildings of all characters, securing photographs, etc.

The height of construction of buildings is limited by law to one hundred feet and these observations are applicable to buildings of that height or less. Both from the standing undamaged buildings and from the failures, the following major features of earthquake proof construction are to be learned:

1. Firm and unyielding foundations must be obtained.
2. Buildings must possess adequate lateral rigidity and strength to move bodily with their foundations.
3. Skeleton construction carried to the limits common in American practice is inadequate to withstand earthquakes of the severity of this one.

*Much of the information contained in this article was embodied in a lecture by Mr. Hadley before the Alumni Association, Department of Agriculture, University of California, Berkeley, May 27, 1924.
At the Seismological Institute at Tokyo, the most severe shock had a horizontal double amplitude of four inches and occurred in 1.5 seconds. This is equivalent to a force equal to 1/11th of the weight of a structure. Greater motion, approximately six inches, was recorded, but this motion was slower and the most severe dynamic effect was produced by the first named shock. In this earthquake as in the great majority of those recorded in the past, the vertical motion was relatively insignificant. The observatory is situated on the high, firmer ground in Tokyo. The earthquake effects were pronouncedly more severe in the low-lying ground on which the great majority of the modern buildings stood.

Reviewing the behavior of modern buildings, the following summary can be made:

The use of structural steel for large buildings was comparatively recent. In Tokyo there were sixteen buildings of this type completed or under construction when the earthquake occurred. Six of these stood absolutely undamaged while ten sustained more or less damage.

Under the quick earthquake motion, a momentary deflection of the structural steel columns occurs and the horizontal load is thrown upon the masonry construction in the walls, partitions, elevator enclosures, etc. If this masonry possesses adequate power of resistance, no damage ensues, the buildings being carried as blocks or units with their foundations. When, however, the masonry construction does not possess adequate strength, it is shattered and broken. From this point on, the resistance is furnished by the structural steel alone, and except in one instance, no serious damage to the structural steel frame occurred.

The structural frame of a building is erected, however, not for its own sake, but to provide definite conditions of occupancy and a building
which has sustained the shattering of its exterior walls and interior partitions cannot be regarded as wholly satisfactory even if the frame itself be undamaged. The common characteristic of the six undamaged steel frame buildings was their use of reinforced concrete wall construction. Steel frame mill buildings outside of the fire districts with walls and roof of galvanized iron swayed freely and sustained no damage, but they were the only type of steel building which could sway without causing damage.

Hundreds of reinforced concrete buildings of various sizes, many up to the full one hundred feet height existed in the earthquake districts. Their performance in general was highly satisfactory. A survey of 592 reinforced concrete buildings in Tokyo, made by the Tokyo Building Department, showed 462, or 78 per cent of the total, undamaged. There were eight entire collapses and eleven partial collapses, the remaining buildings being classified as 42 greatly damaged and 69 partially damaged. Except certain buildings destroyed by fire, the failures throughout the earthquake district were in practically all instances due to inadequate foundations or lack of lateral rigidity. The factory buildings where skeleton construction had been carried to extreme lengths and where the walls were largely of glass were particularly vulnerable. The requirement of lateral strength does not necessitate a very extensive use of solid wall construction, but sufficient must be incorporated in the buildings to make the structure an unyielding whole.

Those brick buildings which escaped without damage were built with heavy exterior and division walls, sufficient to make the structure a solid unit.

Complete destruction of wooden buildings naturally resulted from
PATENT OFFICE EXHIBITION BUILDING, TOKYO
Reinforced concrete. Foundation failure. Side walls settled approximately two feet.

INDUSTRIAL BANK OF JAPAN, TOKYO
Structural steel frame and reinforced concrete wall construction. Undamaged.
CASCADE BREWERY, TSURUMI, OF REINFORCED CONCRETE. UNDAMAGED.

REINFORCED CONCRETE FLOUR MILL UNDER CONSTRUCTION.
First story columns slightly damaged.
LAMP FACTORY BUILDING, KAWASAKI, OF WOOD CONSTRUCTION. UNDAMAGED.

NICHI NICHI BUILDING, TOKYO, OF REINFORCED CONCRETE. UNDAMAGED.
SMALL BURNED OUT, REINFORCED CONCRETE BUILDING, TOKYO. UNDAMAGED.

BRICK BUILDINGS, TOKYO. MARUNOUCHI DISTRICT. UNDAMAGED.
MITSUI BUSSAN GROUP OF BUILDINGS, TOKYO

Reinforced concrete office building in center burned out, but undamaged by earthquake. Building at right of reinforced concrete escaped damage by earthquake and fire. Contained three million dollars worth of silk. Building at left, wooden interior, reinforced concrete bearing walls, brick veneer, escaped damage from earthquake and fire.

the great conflagration which swept Tokyo and Yokohama. Outside of the fire zones their behavior, where adequately braced and stiffened, was excellent. The combination of great strength with light weight which is the inherent quality of wood, is most excellent in structures subjected to earthquakes. Here again, however, the buildings which showed themselves most satisfactory were those which possessed the greatest amount of rigidity, and numerous failures of course, occurred in wooden building inadequately braced and stiffened.

The accompanying photographs show typical buildings of various materials and illustrate the points made in the above discussion.

* * * *

Elevators Are a City's Greatest Carriers

NEW YORK'S heaviest passenger traffic moves vertically. According to Mr. Charles Brady, Superintendent of Buildings for the Borough of Manhattan, the daily passenger list of the city's elevators, averaging more than 9,000,000, is greater than the combined number carried by street railways, subways and elevated lines.

Up and down, hour after hour throughout the days of the week, the little steel cars flit from floor to floor, swallowing up throngs only to disgorge them almost immediately. Throughout the city there are more than 12,000 of them, only a few hundred less than all the cars on all the horizontal lines of transportation. Covering almost 50,000 miles daily, they move in shaftways that have been estimated to aggregate more than the mileage of all the subway and elevated lines.
Architecture as a Profession
By WILLIAM L. STEELE, F.A.I.A.

ARCHITECTURE has cradled and sheltered the human race from the dawn of civilization until now. From the caves and mud huts of primitive man to that elaborate product of art, ingenuity and mechanical skill, the modern home, architecture claims the entire list. Architecture made bricks in Chaldea, piled up the pyramids of Egypt, built on the shores of the Aegean those marble temples which made beauty no longer elusive and fugitive, but permanent and eternal. Architecture ransacked the East for the treasures which housed sumptuous Rome, architecture followed the new impulse of Christianity and produced St. Sophia and the great churches of the East. Architecture was in the blood of the Crusaders, and Oriental splendor came back with them to make Venice gorgeous. Architecture became religious—nay, was religion itself—when it produced those most poetic of all human endeavors, the Gothic cathedrals. Human history is architecture. Wherever civilization has raised its head there are buildings. They form the most truthful and intimate record of human life that we know. It is all there. The Egyptian fear of immortality, the Greek willingness to live in the joyful present, the Roman brutality and arrogance, the Byzantine uncouthness awakening to beauty, the Western theology and fervent faith demonstrating its intricate reasoning.

Architecture defied Time and built for the ages. Monuments sacred to the memory of some plaything of a potentate have passed from their personal significance, and belong to architecture forever. Men revere the work of the unknown architect though they may have forgotten who he was or who afforded him creative opportunity. Men pass, but their works live after them and nothing else material can rival the permanence of that which architecture has wrought. Not only do we read the character of the men of old from their buildings, but what they did still has power to inspire us. The divine fire that coursed in the veins of him who wrought the Parthenon, after two thousand years, still thrills the lover of beauty and calls him away from money changing and trafficking to the pursuit of ‘the things that are lovely and of good report.’

* * * * *

We should not expect our architects to be economists, statesmen, or ‘boosters,’ any more than we expect these things of our clergy, our lawyers, or our doctors. But neither should the architects be any less qualified in any line of human interest than those whom architects aspire to call professional brethren. The fact is that the battle is on, in all the professions, between commercialism and professionalism. For the moment our commercialized fellow practitioners seem to be having the best of it. They are getting a lot of jobs and seem to be making money. But all hope for the future is bound up in a close-knit fellowship between the professionally minded in all the professions. Not a blind, partisan, trades-union alliance. No, not at all. But a fellowship between men of understanding minds, broad culture, ideals held in common. If you of other callings can recognize the need of beauty and spirituality in civilization, and are willing to make sacrifices to recall some of those lost values into our lives, you will find no field of richer promise than the great, bountiful spread of human endeavor wherein men become Godlike through the joyful exercise of their creative faculties. To
design, to paint, to carve, to weave, to build—all these things mean work, transfigured; work, changed and glorified; work a primeval curse—and lo! it has become our greatest blessing.

* * * * *

Painting Specifications

"The architects' specifications tell us what work is to be done, how it is to be finished, and usually what kind of materials are to be used. They sometimes tell us just what brand must be employed on the work.

"The specifications are presumed to be complete, explaining just what the painter has to do," says Mr. Ashmun Kelly in "Building Age." "But the specifications are not always full and complete in details, hence the painter should carefully read them, and ascertain whether there are any things to do that are not specified on the plans.

"For instance, there may be storm doors, storm sash, panel backs, and boxes for inside blinds, hall and window seats, dressers, bathroom and storeroom accessories, and perhaps other features, work he must do, without a hint of them on the plans or in the specifications.

"Will you be paid for the work? Probably not. The owner may be honest enough to recompense you, but it is not at all certain that he will. Be on the sure side; ask questions, look over the specifications of other mechanics on the work. The plasterer's work will be on walls and ceilings, and his measurements should be useful to you. There are various ways of finishing woodwork, hence be sure to know exactly what form of finish is specified. For instance, the hardwood finish may be done in several quite different ways, some inexpensive as to labor, while others may be quite expensive.

"You can water-stain, shellac and wax a job, a very cheap form of finish, or fill, stain, varnish with several coats, rub and polish, and so on, work requiring much time and skill. By estimating wrong on such work you stand to lose money. And there is the glass; ascertain whether you are to furnish it or not, or only to set and glaze it.

"Ascertain also what kind or quality of materials you are to furnish, how many coats of this and that, and be sure to find out whether woodwork is to be primed before or after putting up. Are picture mouldings to be painted? Are they to be given the last coat of paint or stain before or after the paper is hung?

"Any whitewashing in cellar? How about the radiators? Who is to finish them? Are any walls to be painted? If so, how many coats? What kind of paint? Are the walls and ceilings to be kalsomined, or decorated in water colors? What is the character of the decorations?

"Are shingles to be stained? If so, are they to be dipped or coated on the roof or both? What brand of stain? How many colors of stain to be applied? How many coats of stain? Are they to be blended on the roofs?

"Then there is the matter of varnish—what brands or kinds are to be used? How many coats, on different parts of work?

"Such hints as we have given should be enough to indicate the method to be followed in reading plans and specifications, and making estimates thereon.

"Take nothing for granted, be positive in what you know or understand about the matter. In which case your chances for coming out right will not depend upon whether you have or have not been circumspect in studying plans and specifications. And bid high enough.
"We should not omit calling attention also to the character and condition of the work that is to be done. The woodwork or walls may be either smooth and in good shape for finishing, or may be rough and require considerable work making them fit. This is a matter of labor. Then a poor surface will take more material, this being a matter of cost. Look over the pine woodwork and note how the knots abound, whether many or few, large or small.

"See how much putty work will be necessary to stop holes and make a solid job. Then see about how much work will be required in furnishing and rigging scaffolding. This item is very important. It will make considerable difference in the cost of doing a job. It has to be put up and—don't forget—it has to be taken down. It may occur that you can use scaffolding that has been used by other workmen, and has not been removed. Sometimes much work can be done in this manner. On public work, such as churches and other high buildings, considerable scaffolding is usually required. Make this a separate item.

"A workman can do more work on or very near the ground as a rule than he can do on certain forms of scaffolding. He must be careful about falling, and some men are naturally timid.

"As a general thing all exterior work requires more time than a corresponding amount of interior work. This is particularly true of roof work when ladders or staging have to be employed. It is important to look up these details when estimating on painting work."

* * * *

Converting Old Buildings into Modern Garages

Old theatre buildings, armories, and the like seem to be giving way to the garage. About a year ago, in Seattle, the old Grand Theater building was remodeled into a five-story Motoramp garage. Across the street from the new Olympic Hotel, now under construction in that city, is a building which has been known for many years as the Arena. This was constructed in November, 1915, and was used during the winter months as an ice palace and during the summer for conventions, festivals and exhibitions. It is 119 feet wide and 240 feet long, and has a seating capacity of about 7000 people.

With the urgent necessity for providing parking and storage space for thousands of cars belonging to tenants in what is known as the Metropolitan Center, and with the idea of caring for the cars of guests of the new Olympic Hotel, it was decided to turn the Arena into a three and a half story, 450 car garage, with a possibility of two more floors being added at some future time.

Construction work has already begun on these alterations, and it is expected that the building will be ready for occupancy within a few months. This is another example of the trend of the times which calls for the conversion of obsolete types of buildings into modern commercial successes.

* * * *

The Witchery of Candles

Candles possess a witchery of their own and are singularly lovely upon a well-appointed table. They should be very tall—well above eye-level—and their flaming beauty should never be hidden by shades. Choose tall, slender candlesticks of simple design, and plain, tapering candles.
Reinforced Concrete Architecture These Past Twenty Years*

By ALBERT KAHN
Architect, Detroit

MUCH has been done in the field of reinforced concrete in a comparatively short time, both in points of engineering and architectural expression. Unexpected results have been attained, progress has been constant and consistent, but much still remains to be done and undreamed of possibilities will be realities within the lifetime of many of us.

Naturally, the early history is full of experiments. That such systems as were exploited at the outset by metal lath, wire fence and cable manufacturers did not result in more failures is inexplicable and miraculous. When we recall the numerous structures erected at the time with floors of 20 feet and 30 feet spans of cinder concrete, reinforced with cables stretched from wall to wall, the structural design mere guess work, we can only marvel at the protection of a kind Providence and hope that the interior partitions in these buildings may never be removed. Many indeed were the fools who rushed in where angels feared to tread. But fools, men with vision, are necessary in the progress of mankind and were needed in the development of reinforced concrete. Of course there were failures, serious ones, but upon these failures were built the successes that followed.

We recall, as with all things new, the serious opposition encountered at the outset, not only from laymen who could not comprehend how a wet mixture of sand, stone and Portland cement with a certain number of steel rods placed about could carry its own dead weight, much less heavy live loads, but even more from engineers and architects. Indeed, the chief difficulty was to overcome the resistance and inertia of these professional men who had feelings of doubt and clung tenaciously to the forms of construction with which they were more familiar.

Then there was the opposition of the clay tile industry, which with the introduction and development of the new construction, feared ruin for itself. Who does not recall the trade journals with glaring accounts of concrete failures and articles predicting the direst happenings?

The structural steel interests were no less strenuous in their vilification. They, also, feared heavy inroads upon their product. We well know how ridiculous these onsloughts, now that it has proved that there is need for all, indeed more need than ever for all.

Even the lumber interests combated the advancement of the new construction, but they now find that their material is required in greater quantities than ever. The lumber necessary for form work being no small factor in this increased demand.

A very serious obstacle to the development of reinforced concrete was no doubt the over-enthusiasm of its early devotees who, believing it a panacea, undertook to use it for any and every problem. We have since learned that isolated columns and beams are cheaper and quicker of erection in structural steel fire-proofed, and that long span trusses high up are as a rule more costly and more difficult to construct in reinforced concrete than in structural steel. Some ill-advised undertakings naturally had a retarding effect upon the progress of the art but they

---

*Abstracted from a paper presented as part of Symposium on Progress of Concrete Construction in 20 years at the 26th Annual Convention, American Concrete Institute, Chicago, February 27, 1924. Illustrations by courtesy of Concrete, Detroit.
Picture shows connecting bridges between Warehouse and Administration Building.
Note Cantilever Balconies in Craneway for direct transfer of goods from cars to warehouse.
U. S. ARMY SUPPLY BASE, BROOKLYN, N. Y.
CASS GILBERT, ARCHITECT
were necessary to determine the limitations of the new construction. Today the practical engineer or architect quickly decides which best serves its specific purpose and does not hesitate to use the different materials in combination, to the end of producing the best result, most economically.

Another hindrance was the lack of authentic data on reinforced concrete. Everybody devised his own method of computation and needless to say no two agreed. As to the methods of constructing form work and when to strike forms were mere guess work and many a mishap caused by the lack of definite knowledge or information. Out of this chaos there developed a few men who by means of tests and experiments contributed their ideas and results of tests for safe formulae and methods. Monier, Coignet, Considere and Hennebique gave reinforced concrete its real start. Its present highly developed state in this country, however, is due in the largest measure to engineers connected with commercial institutions who possessed the courage and initiative to design and build structures in the more practical methods conceived by them. They were the real pioneers, did the real work, made the mistakes and suffered the consequences. Their errors and resultant losses
formed the foundations upon which the theory and practice of reinforced concrete was really established.

Chief among the objections to reinforced concrete was its dead weight and consequent size of the columns. Thereupon were developed the hooped column and the various types of hollow floors.

The introduction of the flat slab system created great consternation in the minds of architects and engineers. How was it to be calculated? It stood up, but how and why? Methods of computation had to be revised and the dependence upon tests was increased. Whatever the extravagant claims made for this by its first advocate, it is one of the most important contributions of America.

History is still in the making. There will be further developments in practice, building laws will be revised to take fuller advantage of the potentialities of reinforced concrete, concrete design will grow lighter, more elastic and more economical. Greater knowledge of the subject, better materials, more perfect control and the concerted efforts of the American Concrete Institute will help to bring this about.

Now what of the future for reinforced concrete? I am convinced that we have only made a fair start and that its development both structural and artistic will exceed any present expectation. Furthermore I believe that concrete in its most direct form will grow in use for exterior facings. Gradually we shall accustom ourselves to form marks; we shall not only accept them but take advantage thereof; we shall eliminate cement washing and rubbing even pointing and gain an artistic effect through the play of light and shade and emphasis of the monolithic mass which it really is. Furthermore we shall accustom ourselves to weather stains and make a virtue thereof, just as the grime of London only adds interest to its architecture. We shall pay more attention to design in mass, in interesting outlines and less to minor details. The way has been shown in a number of existing works. Others will carry on and continue to develop the new material.

* * * *

Story of Cement in the Movies

"The Story of Portland Cement" is the latest addition to the series of industrial motion picture films released by the Department of the Interior, through the Bureau of Mines. This film, which is one reel in length, has been prepared, in co-operation with the Portland Cement Association, in commemoration of the 100th anniversary of the invention of Portland cement in 1824. The film depicts vividly the quarries of the raw cement rock, one especially striking scene being the setting off by electrical means of a huge dynamite blast. The loading of the loose cement rock into cars by steam shovels is shown. The pulverizing of the cement rock in giant crushers and the transporting of the crushed material on belt conveyors are depicted. Methods of wet and dry grinding of the crushed cement rock are shown. Views are given of the drying of the ground material in kilns for the purpose of driving off water and carbon dioxide. Laboratory testing methods by which the manufacture of Portland cement is at all times kept under careful chemical control are shown.
BUILDINGS FOR GLADDING McBEAN & CO., OAKLAND
Lewis P. Hobart, Architect
City Planning and Housing
CAROL ARONOVICI, Associate Editor

Status of Zoning in California
By FRANK D. STRINGHAM
Berkeley, California

It must be admitted that the decision of the District Court of Appeals of the Second Appellate District of California in the case of Miller vs. Board of Public Works of Los Angeles, (Dec. 21, 1923) holding an ordinance invalid which prohibited the erection of a residence designed for more than two families, and the decision of the Supreme Court of Missouri in the case of State vs. McKelvey (Oct. 6, 1923) holding zoning ordinance of St. Louis void, will operate to retard certain zoning activities. To be sure, the former is not a decision of the highest Court of California, and the latter decision is by a divided court, there being four prevailing and three dissenting opinions. There is comfort in what Justice White says in his written dissent, to-wit:

"The great weight of authority, both federal and state, is to the effect that a reasonable zoning ordinance is constitutional, and the determination of what is reasonable varies with the changing conditions incident to modern development and civilization." Further on in his opinion he says:

"Standards of living are much higher than they used to be and are growing higher and more exacting with the material improvement of peoples' condition. It has not been so very long since people lived over their stables, allowed chickens to roost in the rafters of their dwelling, and pigs to make themselves comfortable under the floor. Such was not known to be unsanitary."

I do not believe that these decisions will long remain unchallenged. The judicially made law on this subject is going through a transitional period. The courts are finding it difficult to resist the force of public opinion which seems to favor reasonable zoning regulations wherever they are tried.

The experience of Berkeley is more or less typical. Berkeley first adopted a zoning ordinance in 1916. This ordinance defined 27 different uses of classifications, but did not attempt to actually zone any part of the city. The Council acted only upon petition, and formed some 8 or 10 isolated single-family and two-family districts before the present comprehensive zone ordinance with 8 classifications was adopted in 1920. All of the 27 classifications except five were then repealed, and even today a large portion of the city is zoned into single-family residence districts under the old ordinance.

The comprehensive zone ordinance, (666 N. S.) divided the whole city primarily into three use classifications—residence, business and manufacturing. It was based upon the New York plan, but went further and subdivided the business and factory zones so that there was ultimately a total of eight classifications. This was done in order to distinguish between obnoxious factories, such as soap works, reduction works, etc., and textile factories, and also to provide separate classifica-
tions for churches, oil service stations, dyeing and cleaning works, garages, hospitals and public buildings.

Many public meetings were held for the discussion of the proposed ordinance and it was adopted subject to a favorable advisory vote of the people. During its four years operation in Berkeley no attempt has been made to repeal it. It would seem that a large majority of people believe in zoning and are satisfied that it affords the kind of protection that they want. Before that law was passed a public garage, an oil station, a hospital, a grocery store or a cleaning and dyeing establishment could locate where it pleased, and sometimes one establishment would practically ruin a whole block for residential purposes, or even for retail business. The following examples illustrate how it operates; rulings made since July 1, 1923:

1. An application to locate an oil service station on Claremont avenue and Prince street was denied on the ground that it was not needed and would unnecessarily injure residential property.

2. An application to locate an undertaking establishment in an old house on University avenue was denied because it was becoming a high class retail business district. The undertaker found a better location on Milvia street and was satisfied with the decision.

3. A petition to locate a Baptist Mission school for Oriental orphans in a residence district adjoining a factory zone was granted. An old house bought for the purpose was repaired and repainted, and proved to be a benefit to the district.

4. A petition to change the use of a building from a creamery to a public garage was denied.

5. A petition to permit the building of a Masonic temple in a business district was granted.

The adoption of the zoning law of New York City in July, 1916, is the most important event in the history of zoning, and it is remarkable that our largest city should have been the first to attempt anything so revolutionary.

It did not attempt the higher classifications of some of our western cities, but it went further than some ordinances in that it limited the height of buildings and the area of the lot to be occupied. New York very wisely did not risk defeat by inviting adverse decisions in the courts. It has fared well in other particulars.

Mr. E. M. Bassett, attorney for New York City in zoning cases, wrote on March 21, 1923, as follows:

"In this city there has not been a single court decision against the zoning, and it is generally considered that this is due to the Board of Appeals passing on about 150 border-line cases a year."

In our small cities we cannot afford to have a Board of Appeals, and the City Council has to pass upon these matters with the advice of an unpaid City Planning Commission. In Berkeley the Planning Commission has functioned continuously for more than eight years without compensation, and in a manner very much to its credit—thus rendering a great public service.

When Mr. Locke, secretary of the League of California Municipalities, was preparing the program for the annual convention last year at Coronado, he sent out a questionnaire to all cities asking what subjects they wished to have discussed. Zoning received the highest number of votes. This shows the interest manifested in this very important subject. People are finding out that it affords the protection they have
long been looking for. Before zoning they had to rely on building restrictions in deeds.

The greatest difficulties in zoning are presented by the so-called border line cases and by non-conforming uses. The latter are called exceptions and arise from the fact that cities must be taken as we find them. A zoning ordinance cannot legally be made retroactive except as to certain obnoxious businesses, and it is therefore wise to zone as soon as possible and before more of these exceptions are created.

Many examples could be given of the economic loss caused by want of zoning. In Berkeley one entire block in a residential section is blighted by the existence of a stable yard. Twenty-five per cent of the land within the city limits of St. Louis was a few years ago unoccupied, while thousands of people built homes outside of the city limits to get away from apartment houses, garages and other undesirable structures. Mr. Lawson Purdy, assessor of New York City, has pointed out how unrestricted building in that city has taken millions of dollars from the assessment rolls.

It is interesting to note that cities in Denmark and Sweden have followed the example of New York, and that Japan has been studying our zoning laws. It seems to me only reasonable that when thousands of people have to live close to one another, as they do in our cities, that they should be regulated in the use of their property so as not to cause discomfort and annoyance to their neighbors.

As I have intimated at the outset, there has been a great deal of discussion about the legality of zoning, and there are many conflicting decisions on this subject. It is significant, however, that over 200 cities have zoning laws and that there is an ever increasing demand for their enactment in other cities. In Berkeley the Council room is frequently crowded with petitioners or protestants seeking protection. Do you believe that the courts can long withstand the force of public opinion? There is as much chance of repealing the eighteenth amendment as there is of repealing the zoning resolution of New York for example.

The single family residence will be the last class of structure to be protected by the courts. For that reason single or double-family residence districts should be created only where the property owners are almost unanimously in favor of such classification. The chief struggle should be made against the improper locations of the store, the factory, the public garage and the apartment house.

There is a class of people who resist every attempt at government regulation upon the theory that it interferes with their personal liberty. This theory is an excellent one so long as your neighbor is considerate, but if he builds an apartment house where none is needed in order to profit by overlooking his neighbor’s open gardens, and actually damaging their property, liberty becomes a one-sided affair.

These zone laws have come into being on account of the very rapid and haphazard growth of our cities. In 1876 a famous decision was made by the Supreme Court of the United States, Munn vs. Illinois. It upheld a state law limiting the charges that might be made for the storage of grain in terminal warehouses. Such a decision today would excite no comment. At that time it marked a notable extension of the so-called “police power” of the states. It came as a result of a strong public opinion against the exaction of excessive charges by private concerns. The statute limiting the charges conflicted with previous notions
of personal liberty, but it was allowed to stand. Thus do the courts respond to public demand for the correction of abuses.

In spite of some adverse decisions and of the claim that one should be permitted to use his property as he wishes, I am of the opinion that reasonable zoning regulations will be generally sustained and that they have come to stay. There may be some reactions, some mistakes, some misapplications, but the general principle is right, and within constitutional limitations, one should be compelled to so use his own property as not to injure another.

* * *

Declares Zoning Protection of Property Rights

COMMENTING on the defeat in the courts of the first attack on the new zoning ordinance of Chicago, in which an injunction was sought to prevent the city officials interfering with the building of an apartment house in a single residence district, Mr. Halbert P. Gillette is quoted as saying:

"The limitation of use of certain city areas, or zones, is the result of no mere desire to meddle. It is undertaken as a protection of property values and of rights which property owners believe they are entitled to enjoy. Every person has seen some district of comfortable and pleasant homes spoiled by the invasion of a factory, garage or other objectionable establishment. Residents have left and their places have been taken by others whose financial means permitted no better location; old residents who could not leave have had to put up with changed and undesirable surroundings; property values have fallen, and the whole district has remained for years nondescript—neither industrial nor residential. If the lands ultimately bring higher prices for industrial than they did for residential use, the houses, which usually are worth much more than the lands, are practically a total loss. Further, there is the period of change, sometimes very long, during which instead of an increase there is often a large reduction in most of the land values. These losses are measurable more or less accurately in terms of money, but the hardship of being forced to give up one's chosen home is not so measurable. Practically it is eviction. The intrusion of stores and apartment buildings is very little less serious than the intrusion of industry. The residents will be slower to give up their homes, but their ultimate removal is inevitable. A single family house is ruined for most people when an apartment is built beside it.

"The case of a retail store area invaded by industry is of the same character in all but two ways—sentiment and personal attachment are not involved; and instead of the prospect of an ultimate increase in land value there is the prospect of a permanent reduction. One might think that under this last condition such changes would not take place, but the fact is that the poorer use repeatedly has driven out the better. An individual sees a chance for profit—often temporary—in converting his property to an industrial service. The retail store or office adjoining it is immediately depressed and in time is given up as no longer suitable for its old purpose. It, too, is then turned over to industry, and the evil influence is extended. Thus the change is continued, and rarely is it checked except by heroic measures."
Luther Burbank and Santa Rosa's Testimonial

No one in this country has contributed more towards the technique of plant breeding and the rise in the standard as well as the widening of the scope of plant culture than Luther Burbank.

Working within a comparatively small community and using two small areas of five and fifteen acres each in Santa Rosa and Sebastopol respectively, Luther Burbank has done a great and unusual creative work for which the world owes him the gratitude due the leader in practical idealism.

The citizens of Santa Rosa have for some years been endeavoring to give Mr. Burbank a testimonial that would be consistent with the service that he has rendered to the world and to his community.

One of the Jewish merchants of the community conceived the idea of developing for Santa Rosa a park that would be a fitting tribute and memorial to the flower wizard and that would bear his name.

The community readily accepted the suggestion and secured a tract of land of 39 acres on the city boundary and a plan of development for the Burbank Creations Park was prepared under the direction of Dr. Carol Aronovici, city planning consultant.

The park plans contain creations gardens in which Mr. Burbank's work will be exemplified, a recreational park, an outdoor theatre, and a set of buildings containing an auditorium, laboratory, lecture hall, library and museum for horticultural materials.

In the rear of the auditorium it is proposed to place an outdoor stadium connected with the auditorium stage so that both seating facilities may be used at the same time.

Roger Noble Burnham, the sculptor, modeled a group representing the hand of God holding the earth to be moulded by man.
Japan Potential Market for American Roofing Materials

THERE are probabilities that the Japanese earthquake will cause a large increase in the sale of American roofing materials to Japan, says Assistant Trade Commissioner Paul P. Steindorf who has recently returned from Tokyo. Formerly the use of foreign roofing was confined to the modern business and industrial buildings in the larger cities, Mr. Steindorf states, practically all native style houses having either tile or thatched roofs. The earthquake proved conclusively that such roofs were entirely too heavy for the light frame construction of Japanese houses. There were numerous instances where houses with tile or thatched roofs collapsed while similar structures having lighter roofs escaped with slight damage.

At the present time permanent construction in the cities of Tokyo and Yokohama is prohibited pending the formation by the Government of new building regulations and city plans. It is probable that these new building regulations will provide for lighter roofs. In any case the earthquake has created a desire on the part of private builders for such roofs in order to reduce the possibility of collapse.

Permanent reconstruction will require the replacement of 350,000 houses in the cities of Tokyo and Yokohama while the surrounding area will require another 150,000 buildings. In addition there are possibilities of sales throughout Japan since there is no assurance that the disaster of September 1, will not be repeated in another section.

The important considerations for a roofing on the Japanese market are lightness, fire resistance, cheapness and conformity with Japanese taste and requirements. Many types of American roofing materials answer the requirements. Cheapness, of course, refers to the price laid down in Japan. This will eliminate certain types which are subject to heavy transportation costs or handling charges or which are liable to excessive breakage in transit. However, allowing for transportation there are still many kinds of roofing which are cheap enough to compete with Japanese tile. Conformity with Japanese taste and requirements accounts for the practical monopoly of the market by Japanese tiles in the past. The Japanese are very conservative in many ways and are also very artistic. For these reasons they will cling to their present picturesque and time honored construction so far as possible. The fact that several types of American roofing are, from the Japanese viewpoint, unsightly and not adapted to Japanese type construction will eliminate them from use in permanent construction. For example, the greater part of the temporary structures erected in the damaged area since the earthquake have galvanized iron roofs. These roofs are cheap, durable, light and entirely practicable but they do not comply with the Japanese sense of the artistic and there will be, therefore, a tendency to replace them with more sightly roofs when permanent rebuilding commences. The same objection applies to certain types of prepared tar and asphalt roofs although there are others that conform to Japanese taste. Probably the best types are fire proof or fire resistant shingles.
Books on Italian Architecture

The following books on Italian Architecture may be found in the Public Library at Los Angeles, and are published here for the convenience of architects and designers interested in this school:

**General:**

Brown, J. W.—Italian architecture. N. Y., Scribner, 1906. 720.945:3
La Dalmazia monumentale. Milano, Alferi & Lacroix, 1917. R720.945:9
Eberlein, H. D.—Details of the architecture of Tuscany. 105 pl. N. Y., Helburn, 1923. fR729.3: E16

Fletcher, Banister.—A history of architecture. 6th ed. Lond., Batsford, 1921. pp. 129-199; 251-269; 497-521; 551-617. R720.9:162a
Freeman, E. A.—Sketches from the subject and neighborhoods of Venice. Lond., Macmillan, 1887. 720.945:7

Lowell, Guy.—Smaller Italian villas and farmhouses. N. Y., Arch. Book Pub. Co., 1916. fR728.84:2

Ogetti, Ugo.—*** I monumenti Italiani e la guerra. Milano, Alferi & Lacroix, 1917. R720.945:8
Perrier & Fontaine.—Choix des plus célèbres maisons de plaisance de Rome et de ses environs. Paris, de l'impr. de P. Didat L'Aine, 1869. fR728.84:1


Specchi, Alessandro—Il primo libro del nuovo teatro dell'architettura prospettiva di Roma moderna. Roma, 1699. R728.8:3

Strack, Heinrich.—Brick architecture of the middle ages and the renaissance in Italy. N. Y., Helburn, c1910. R724.45:6
Street, G. E.—Brick and marble in the middle ages. Lond., Murray, 1874. R723.55:1

Vedute di Firenze. Gerini, 1744.

Ecclesiastical:
Beltrami, Luca.—La Certosa di Pavia. Milan, Demarchi, n. d. R726.745:1
Dehli, Arne.—Norman monuments of Palermo and environs. Lond., Batsford, c.1892. R726:14

Documenti per la storia dell'augusta ducale basilica di San Marco in Venezia. Venice, 1886. R726.645:6
Il duomo di Milano.—Como, Tipografia Provinciale, 1871. R726.645:11
Knight, H. G.—Ecclesiastical architecture of Italy from the time of Constantine to the 15th century. Lond., Bohn, 1844. 2 vols. R726:12

Molinier, C. L. M. E.—Le trésor de la basilique de Saint Marc a' Venise. Venise, F. Ongania, 1888. R726.645:4
Nesfield, W. E.—Specimens of mediaeval architecture *** in France and Italy. Lond., Day & Son, 1862. pl. 90-100. R726:3
Norton, C. E.—Historical studies of church-building in the middle ages—Venice, Siena, Florence. N. Y., Harpers, 1902. 726:3
Ongania, Ferdinando, ed.—La basilica di San Marco in Venezia. Venice, 1886. R726.645:2
(Same. Eng. translation by W. Scott and F. H. Rosenberg.) Plates only. 1881. 5 vols. in 12. R726.345:2-1

Contains:
1. Boito, Camillo, ed. La basilica di San Marco in Venezia. vols. 1 and 2. R726.645:2-1
2. Dettagli del pavimento ed ornamenti in Mosaico *** della basilica di San Marco. vol. 4. R726.345:2-1
3. Jacobi, C.—Dettagli di altari monumenti scultura *** della basilica di San Marco. vol. 5. R726.345:2-1
4. Kreutz, J.—Mosaici non compresa *** della basilica di San Marco. vol. 3. R726.345:2-1

Supplements:
2. Scott, W.—A glance at the historical documents relating to the church of Saint Mark in Venice. R726.645:6

Interiors, Decoration and Furniture:
Adams, Edward.—The polychromatic ornament of Italy. N. Y., Wiley & Putnam, n. d. R729.4:5
Artistic crafts of Italy. Rome, Pub. by Ministry of agriculture, industry and commerce. 1913. vol. 3. R748:8
Bode, William, von.—Italian renaissance furniture *** tr. by M. E. Herrick. N. Y., Helburn, c.1921. 749 B666
Clifford, C. R.—Period furnishings. N. Y., Clifford & Lawton, 1914. Frontispiece, p. 70, 24-55. R749.03:2a
Cruttwell, M.—Luca and Andrea della Robbia and their successors. Lond., Dent, 1902. R739.954 R63
Ewald, Ernst.—Farbigke Dekorationen alter und neuer Zeit. Berlin, Wasmuth, 1887. Tafel, 6-8, 10, 12, 19, 23, 31, 32, 35, 37, 38, 42, 43, 44, 46, 49, 55-56, 58, 61, 63, 66, 77. R729:4:11
Examples of Greek and Pompeian decorative work. R729:12
Gruner, Lewis.—Descriptions of the plates of fresco decorations and stuccoes of churches and palaces in Italy. Lond., Thomas McLean, 1854. vols. 1, 2. R729.4:8
Holme, Charles.—Peasant art in Italy. Lond., Studio, 1913. R709.5:10
Hunter, G. L.—Italian furniture and interiors. N. Y., Helburn, 1917-1918. 2 vols. fR749.95
Laborde, Alejandro.—Descripción de un pavimento en mosaico descubierto en la antigua Itálica. Paris, 1806. SR729.7:1
Schottmüller, Frida.—Furniture and interior decoration of the Italian renaissance. N. Y., Brentano's, 1921. R749.945 S375
Tosi, F. M. & Becchio, A.—Altars, tabernacles and sepulchral monuments of the 14th and 15th centuries existing in Rome. Lagny, Giroux, 1843. R734.5:2
Vatican, its history—its treasures. N. Y., Letters & arts pub. co., 1914. R708.51 V345
Waring, T. B.—The arts connected with architecture in central Italy from the 13th to the 15th century. Lond., Brooks, 1858. R729:14

Ironwork:
Door and window grilles in bronze and iron. Boston, Amer. Arch. & Building News Co., 1902. plates 54, 77, 79. fR721.92 F375
1 ferramenti artistici. Milano, Hoepli, n. d. R739:22
Ferrari, Giulio.—Il ferro, nell'arte italiana. N. Y., E. Weyhe, n. d. fR721.92 F375
Labarta, Luis.—Hierros artísticos. Barcelona, F. Seix, 1901. vol. 1. plates 39, 53, 54, 98. vol. 2. plates 11, 27, 37, 42, 46, 52, 55. R739:21
Oreficeria artistica: (Albo di cento tavole con ducgento ** officine d'oreficeria italiane e foristiere.) Milano, Hoepli, n. d. fR739:11
Wyatt, M. D.—Metal work and its artistic design. Lond., Day & Son, 1852. pp. XVI; 1-7; (plates, see list of plates. R739:4

Gardens:
Ady, J. C.—Italian gardens of the renaissance. N. Y., Scribners, 1914. 712:20
Triggs, H. I.—The art of garden design in Italy. Lond., Longmans, Green & Co., 1906. R710:43
Wharton, E. N.—Italian villas and their gardens. N. Y., Century, c1904. 712:4

* * *

"The zoning ordinance is the community's means of protecting itself from damage by the individual who regards only his own interest. It is as reasonable as the law against reckless driving. There can be honest differences on the subject, but the man who simply for his own profit tries to break through a zoning law against the wishes of all his neighbors deserves the maximum of public reprobation."
Despoliation

By VIOLA IRENE COOPER

THERE are certain persons to whom buildings, as such, are like people, standing for something to them, as one's friend stands for an ideal, or your enemy for the thing you despise. Like people, they may have a good deal of character, or they may have little; they may be distinct and superb, or they may be, like the simple countryman you know, plain and rambling and human.

Many times you will pass them unobservingly. Their faces are devoid of appeal. No line of subtle beauty stirs your heart or brings to life some gentle memory, no graven front to bid you pause with breath suspended! Other buildings you come to look upon with interest, and, often, as you watch them through a long acquaintance, you find some tendril from your heart going forth to twine itself about them.

Then, one day, comes the realization of all that the companionship means to you. You put forth your hand; you find it taken in a sudden, friendly grasp; your heart misses a beat, and you stand before the building you have grown to love, unable to speak because you have no common language.

From that moment you go out of your way to refresh yourself with the vision of a building—the one YOU love—standing tall and oblique against the sky, feeling that in it surely lie courage, and hope, and success. You watch the clouds as they bank themselves behind it. You search in the window markings for some long since forgotten story and then your fancy toys with the floors of the building, searching for new designs, a new play of symmetry. You watch for the
building’s moods; you note each change of countenance, the ever-shifting drama of light, and shade, and color.

As the days go by, you find yourself depending upon the building for your strength, your moral strength, and as a musician turns to his harp, you find your eyes lifting to the lines of the building when you are weary. It is the one permanent thing on which you may count.

But the destinies of buildings, like the destinies of people, are controlled by an invisible hierarchy, and one day a change is begun in the building you like. An addition is being made, and atop the bricks and stone so nobly reared against the sky, a sign is being placed to flash its nightly message across the sky in a thousand twinkling lights. Day by day you watch the workmen creep about the iron framework, high on top the building. Counting them, you find they are ten in number. In your imagination you stand them one above the other until you find they would reach to the top of the sign—this superstructure upon a structure, fifty feet and more in height. You dwell upon the time it will take to complete the work. Your heart grows heavy. An addition is being made to the building, but something is also being torn down. The calm, steady message of the building you have grown to love is being taken away and in the sign across the building’s roof a quicker way to advertise is being found. The building which stood for so much to you, through a long association, winning you to it gradually, and winning, in turn, your loyalty to the firm which stood behind it, can be what it was no longer. It is but a ruined shrine, a pedestal of the bizarre, the blatant.

The change has come about gradually, but at last the men have finished their work. Your steps take you past the same building day by day, and in the evening, when the first twilight comes on, you see the glittering lights of the advertisement flickering faintly: the attention of a million is being drawn to that which before had won the heart of but one! A million, but do they see what you saw, do they, too, feel loyalty, and comradeship, a deep, abiding faith? Their attention is caught and held but a moment. The sign has flashed its message. Your steps drag heavily. In the glare of the light above, the solidity beneath is lost, gone is the feeling of permanence, gone the sense of devotion to the men, the architects and the owners, who had made the building possible, a loyalty that was to have endured so long as stone remained on stone, standing forth in rugged simplicity.

You turn away your face. You can endure the sight no longer. The lights on the building have gone. The stars have paled from the sky. In the east the dawn is breaking. Before you stands a gigantic form and across its broad expanse of roof stretches a hideous, gaping sign. Can you look upon the sight? Ah, no! A truer friendship than this was yours, and now your steps must know another route.

A friend has been despoiled.

* * * * *

Brick Gains in Public Favor

"Statistics show that in the last nine years the use of face brick for building purposes has increased 70 per cent," Douglas F. Stevens told delegates attending the thirty-eighth annual convention of the National Brick Manufacturers’ Association held recently in Cincinnati, Ohio. "A brick building, five years after its construction, is worth more than when new," he said, "because it takes that long for the brick and mortar to become thoroughly unified."
THE ARCHITECT AND ENGINEER
Incorporated
Founded 1905 by E. M. C. WHITNEY
W. J. L. Kierulf - President and Manager
Fred'k W. Jones - Vice-Pres. and Editor
G. H. Oyer - Advertising Manager
L. B. Penhorwood - Secretary
T. C. Kierulf - Attorney
Associate Editors
Irving F. Morrow - Architectural Critic
Chas. H. Cheney - City Planning
Carol Aronovici - and Housing
Chas Peter Weeks - Book Reviews
Emerson Knight - Landscape Architecture
Wm. B. Geater - Inspection and Tests
O. P. Shelley, C. E. - Fireproof Construction
F. W. Fitzpatrick - Reinforced Concrete
Jno. B. Leonard - Structural Steel
T. Ronneberg, C. E. - Roofs and Roofing
Fred'k N. Woods, Jr. - Rock and Gravel
Chas. Felix Butte - Electrical Construction
J. W. Fricke - School Equipment
Edgar N. Kierulf, R. S. M. - Foreign Correspondence

Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by
The Architect and Engineer, Inc.

PUBLICATION OFFICE:
427-429 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States $5.00 per annum; to Canada $7.50 additional; to all Foreign points $1 additional.

Vol. LXXVII JUNE, '24 No. 3

PROGRESS in the fine art of architecture can be attained only by every architect freely giving for the use and benefit of the profession all the details of his experience and technical developments so that there may be a continual advancement, it being, of course, a common duty that any man owes to his profession.

THEODORE ROOSEVELT.

PLANNING A BETTER COUNTRY

A score of years have passed since the movement for better planning began to develop the civic consciousness of our cities. The Washington and New Orleans plans were the only heritage along the lines of city planning left to us by the past generations and both plans were the work of two foreigners—L'Enfant and Bonnevelle. The Washington plan was creative through the initiative of the federal government and was inspired by George Washington, whose vision as a city builder was no less worthy than his leadership as a statesman and soldier.

After more than a hundred years the American government is again making itself the sponsor of good city planning and city building. This time it is the United States Department of the Interior that is assuming responsibility for the efficiency, adequacy and attractiveness of the new American urbanism and Mr. Herbert Hoover is the leader.

This new Bureau of Housing and City Planning of the Department of the Interior has a useful, but difficult task to perform. Let us hope that this new function of the government will extend its service to all fields of city planning and the interrelation between cities.

Regional planning is a new phase of this important work. The planning of the United States for recreation, transportation, highways and orientation, park reservations and the conservation, exploitation and distribution of natural resources, are all part of the problem of regional and national planning.

Instead of planning for cities the vision now widens towards the planning of a country and its people.

C. A.

SPANISH ARCHITECTURE: GOOD—BAD

The following communication signed "G. Helpus" and published in the Safety Valve department of the San Francisco Chronicle, needs to be answered by the profession. It is an injustice to those who have found success in their efforts to popularize Spanish architecture.

Editor The Chronicle—Sir: San Francisco has a competent art committee composed of Messrs. Howard, Cummings, Brown, Van Sloan, Bliss, Hobart, Polk, Kelham, Meyer, Reid, Randolph and Walters.

May we ask them to use their influence to discourage the adoption in San Francisco of the decadent architecture of Southern California which the natives call "Spanish"?

Particular reference is made to rough-troweled interior walls, called "jazzed," blistered exterior walls which resemble
poison-oak infection in an advanced stage and beautifully carved Spanish capitals supporting a barbaric pile of mud.

Like all fads, the Spanish type is now being fearfully overdone, distorted and exaggerated. Especially is this true in regard to colors. Some of the color schemes and combed effects adopted by speculative builders for the outside finish of small homes, both in Northern and Southern California, are little short of atrocious.

In competent hands and with the proper setting, there is no architecture more beautiful or appropriate for sunny California than the Spanish, but done by inexperienced designers this type of architecture becomes an abomination.

MARKETING MIXED CONCRETE

Will the next step in the direction of sub-contracting be the marketing of mixed concrete? The Cement and Engineering News of recent date brings up this very plausible question. Will it prove more economical to mix concrete in a large products plant and deliver it where needed? This is a problem that will come up in the near future.

The Cement and Engineering News has the following to say on the subject:

"Ready mixed concrete is a commodity which many of our larger concrete products plants ought to be in a position to supply. Although a few attempts in that direction have been made, we are not aware that any manufacturer has yet established a profitable business of this kind. Yet we have faith that the secret of successful marketing mixed concrete will soon be discovered somewhere, after which many will participate in a new and lucrative branch of the business.

"The city products factory, with its modern concrete mixing equipment, is the logical dispenser of mixed concrete for a wide variety of purposes. Concrete proportioned and mixed in the factory under the influence of routine methods of operation capable of almost laboratory precision, can be controlled much more easily and definitely inspected. Mixing is not interfered with by bad weather, nor is the mixture subject to inaccuracies often due to variation of grading or moisture in aggregate supply.

"Concrete can be mixed in the products plant to meet any specification and for any purpose. A few plants have excess mixing capacity, but additional mixing machinery could be installed easily enough to take advantage of possible demands for foundations, floors, walks, paving and other purposes. The mixed concrete can be trucked long distances over city streets or good country roads, and by this method materials are not piled up to congest thoroughfares or suffer damage by bad weather.

"Every city concrete products manufacturer should keep his ear to the ground so far as this mixed concrete business is concerned. We believe it is going to be developed and if so, the logical people to handle this business are those now operating substantial concrete products factories."

A SLUM FOR CONTINUED PROSPERITY?

The major sorrows of the construction industry have been caused by alternating boom and depression periods. In times of depression, a contractor can not get work unless he handles his profit shamefully. In periods of abnormal activity, the shortage of labor, excessive wages, bonuses, and inefficiency makes his bids look like an astrologer’s guess.

Today the industry ought to be entering on a period of comparative stability following the year or more of abnormal building. A consistent demand exists; there is plenty of money available; the supply of mechanics has been greatly
increased; and contractors' organizations generally are in better shape to handle a fair volume of work.

The course of the industry during the next few months, declares a writer in the American Contractor, depends on the changes in construction costs. If costs are lowered, building will go steadily ahead. If they are raised much further, there can be no doubt about a genuine slump hitting the industry again.

ARCHITECTURE touches and influences life in many ways, some of which are obvious and familiar to all, while others appear only with thoughtful and searching reflection. The architect is, of course, a builder and something of an engineer, plumber, business manager, etc., as everyone's knowledge of the more obvious phases of the building business will tell him. In other and less obvious directions equally or even more important, his labor touches and vitally affects the work of the physician, educator, minister, as well as the lives of every one of us who live in buildings. For the materials of buildings, in competent hands, may be made to assume forms which instantly affect the mind, producing moods of tranquility or restlessness, joy or depression, and so on, and this not only on minds specially trained in the analysis of impression, but in some degree and subconsciously upon all.

Horace G. Simpson, Architect.

Traveling Scholarship Award for Architectural Student

A European traveling scholarship will be awarded to the student of architecture whose drawings were regarded as the best of those submitted in the recent exhibition held by the American Institute of Architects in Washington. This announcement was authorized by Professor William Emerson, temporary chairman of the American Institute of Architects Committee on Education, by which the award will be made.

The scholarship award will take the form of free membership in the group of practising architects and students of architecture, organized for travel and study under the auspices of the Institute of International Education. The leader of the group will be Professor Albert C. Phelps of the Cornell University College of Architecture. Members will sail from New York on July 5th for a trip which will enable them to study many of the most important buildings, decorative compositions, and works of landscape design in Europe.
It would be well for every architect and every student of architecture to have a copy of this book, for though he may not design in Gothic style, the underlying principle of movement, composition, direction, mass, and scale, as exemplified here, must be an inspiration to him working in any style.

_The Sociological Basis of Town Planning_,” is unsatisfactory in its treatment and without the clear outline that the subject demands and warrants.

Engineers dealing with specific problems will find the volume suggestive and interesting although not wholly focused on the details regarding such problems.

—C. A.


The name, “Bungalows, Camps and Mountain Houses,” is an appealing one to Californians and we had hoped to find in this book something really worth while. The bungalow designs, as a whole, are disappointing. Two-story houses are classed as bungalows. The real California bungalow seldom exceeds a single story; the closer to the ground the more ideal the design. The section devoted to camps, lodges and log cabins contains several interesting plans. The bungalows in Porto Rico are fairly good. Mr. Schermerhorn’s article on “Planning a Bungalow” contains many practical suggestions. In view of the fact that this is the third edition of this book, revised and enlarged, it is disappointing that it has not been brought a little more up-to-date.

American Institute of Architects
(ORGANIZED 1857)
San Francisco Chapter
OFFICERS FOR 1924
President ................. J. S. Fairweather
Vice-President ............. John Reih, Jr.,
Secretary-Treasurer ....... Albert J. Evers
Directors
George W. Kelham .... Three Years
Arthur Brown .......... Three Years
William Moore .......... Two Years
J. H. Brown ........... Two Years
Earle B. Bertz ........ One Year
Harris Allen .......... One Year

Oregon Chapter, Portland
President .................. Charles D. James
Vice-President .......... Folger Johnson
Secretary ................. William L. Smith
Treasurer ................ Ormond R. Bean
Directors
Wm. C. Knighton Wm. G. Purcell John V. Bennefs

Southern California Chapter
President ................. Reginaldo D. Johnson
Vice-President .......... A. M. Edelman
Secretary ................ David J. Witmer
Treasurer ................ A. C. Zimmerman
Directors
D. C. Allison Edwin Bergstrom
C. E. Norrenberg

Washington State Chapter, Seattle
President .................. James H. Schack
First Vice-President .... A. H. Albertson
Second Vice-President .... Herbert A. Bell
Third Vice-President .... George H. Keith
Secretary ................ William G. Brust
Treasurer ................ Carl Stebbins
Member Executive Committee, Sherwood D. Ford

San Francisco Architectural Club
77 O’Farrell Street
President ................. Marcus T. Jorgensen
Vice-President .......... Edgar B. Hurst
Secretary ................ Carl R. Schmidt
Treasurer ................ Lawrence H. Keyser
Directors
William Rowe Felix Raynaud J. B. McCool

Los Angeles Architectural Club
President ................. Jess Stanton
Vice-President .......... Sumner Spaulding
Secretary ................ J. C. Simms
Treasurer ................ Paul Penland
Directors
D. Wilkinson W. S. Davis C. A. Truesdell, Jr.

California State Board of Architecture
Northern District
Phelan Building, San Francisco
President .................. Clarence R. Ward
Secy. & Treas. .......... Sylvain Schnaittacher
233 Post Street
Edward Glass John J. Donovan James R. Miller

Southern District
Pacific Finance Bldg., Los Angeles
President ................. William J. Dodd
Secy. & Treasurer .......... A. M. Edelman
John Parkinson Myron Hunt W. H. Wheeler
With the Architects
Building Reports and Personal Mention of Interest to the Profession

Return from Institute Convention
The Pacific Coast delegates who attended the annual convention of the American Institute of Architects at Washington in May, have returned and will make a report to their respective chapters at the June meetings. Mr. W. B. Faville of San Francisco was re-elected president of the Institute for the third time, and Mr. Ellis F. Lawrence of Portland, Oregon, was elected first vice-president. With these two elections and that of Mr. Edwin Bergstrom of Los Angeles to membership on the board of directors, the Pacific Coast received fine recognition. Mr. Abraham Garfield of Cleveland was elected second vice-president.

Winner of Portland Competition
Architects Sutton & Whitney of Portland, Oregon, have been declared the winners of the recent competition for a Masonic Temple to cost $750,000. The design of this firm was awarded first prize by the jury which was composed of Architects Frank S. Baille of Portland, George Grove of Tacoma and Chas. Peter Weeks of San Francisco. The architectural advisor was Mr. Chas. B. James. Second prize was awarded to Whitehouse, Knighton & Howell and third prize to Lawrence, Holford & Dean.

Opens San Francisco Office
Mr. Benjamin Schreyer, a New York architect, has recently established offices at 105 Montgomery street, San Francisco. Mr. Schreyer has been retained as consultant architect for the Los Altos and Belmont Country Club properties. Although in California but a short time, he has already designed several very beautiful homes here and has plans for others under way. Mr. Schreyer is credited with having designed some of the magnificent residences in Kew Gardens and Great Neck, rendezvous of the New York wealthy.

Berkeley Residences
Architects Williams & Wastell, American Bank building, Oakland, have completed plans for two $15,000 residences in North Berkeley, one for Mrs. W. A. Beasley and the other for Mrs. R. Lloyd. Construction of both houses has been started.

Architect Claussen Busy
Although Architect C. O. Claussen has work in his office amounting to several hundred thousand dollars, he was able to get away the first of the month to attend the annual Shrine gathering at Kansas City. While East Mr. Claussen inquired into building conditions in the larger cities and he has returned to the Coast convinced that the building outlook in California is as good, if not better, than in the East. Mr. Claussen is building two apartment houses for himself in San Francisco in addition to a five-story reinforced concrete store and loft building on Market street near Eighth for a client; two mortuaries, one in the Mission district and the other in the Richmond district; an apartment house on McAllister street, one at Guerrero and Liberty streets and a new hotel at Quincy, Plumas county, the latter to cost $120,000.

Architects Granted Licenses
Certificates to practice architecture in California were granted during April to the following persons, all addresses, except otherwise noted, being in Los Angeles:

A. Godfrey Bailey, 410 Hill street building; Chas. R. Selkirk, 800 American Bank building; Raymond Ewald, 800 American Bank building; John D. Atkinson, 1800 S. Pasadena avenue, South Pasadena; George Guppy, 405 S. 5th street, Alhambra; Watson Vernon, 638 Roberts building; Edward P. Finegan, 1417 Acacia street.

Two Apartment Houses
Plans have been prepared by Architect Richard R. Irvine, Call building, San Francisco, for two apartment houses, one to be located on Filbert street, west of Van Ness avenue, San Francisco, for Mr. Ben Liebman and to cost $45,000, and the other on the west side of Franklin street, south of Francisco, for Mr. C. Giugni to cost $55,000.

Berkeley Residence
Architect W. H. Ratcliff, Jr., of Berkeley has completed plans for a frame and stucco residence for Mr. Arthur K. Sibley, manager of the Alumni Association of the University of California. Mr. Sibley was formerly connected with the Journal of Electricity in San Francisco.
New Homes at Pebble Beach

With many new residences in course of completion and plans drawn for several others, Pebble Beach, overlooking Carmel Bay on the Monterey Peninsula, is experiencing the greatest boom of its history. The new homes now being built or planned are all designed with a view to harmonizing with the scenic beauties of the Peninsula, and with a view to making the entire Pebble Beach colony architecturally the most distinctive of its kind in California. Spanish type architecture has been adopted in practically all the plans; brilliantly colored tile roofs, plaster walls and loggias, patios, characteristic of this type of architecture, blending with the beautiful combination of sea and landscape in which the colony is situated.

Latest among the home builders attracted to Pebble Beach is Mr. Gerald Cudahy of Chicago and Los Angeles, who has secured property and plans an elaborate establishment which will include in its equipment a private polo field. The adjoining property, owned by Mr. and Mrs. Harry Hunt of Burlingame and Coronado, will be embellished this summer with an attractive villa, plans for which have been made by Architect Clarence Tantau of San Francisco.

Plans are also being made for residences in the section of Pebble Beach for Mr. and Mrs. Harold Ward Law, San Francisco; Mr. Raymond Armsby, Burlingame, and Mr. and Mrs. Francis McMouras, Monterey.

The Arthur Rose Vincent home, being built on the rocky point in the Seventeen Mile Drive near the Chas. W. Clark villa, will be an example of Spanish architecture similar to the Clark place. Plans were made by Architect George Washington Smith of Santa Barbara.

Plans for the Chas. Templeton Crocker home at Pebble Beach have been completed by George Washington Smith and building will start soon after the Crocker's return from Europe in the early fall.

Alhambra Architects Busy

Architects J. W. Smart and T. M. Carson of Alhambra, have just completed arrangements for the erection of a theatre building on Valley boulevard, Alhambra, to seat 1500 persons. Messrs. W. G. Kellow, Los Angeles, and Theo. Nagel of Chicago, are the owners. The building will cost in the neighborhood of $100,000 and has been leased to Messrs. Bard, Kellow & Bershon of Los Angeles and San Francisco, for a term of 15 years.

This is part of a large building development scheme by Messrs. Kellow and Nagel who have every confidence in the future of Alhambra. Immediately to the south of the new theatre the same owners are completing a store and apartment building, and plans are now in process of completion for a continuation of this building 150 feet on Garfield avenue, the whole scheme involving an outlay of $400,000.

Messrs. Smart and Carson are the architects for all the improvement.

Design Many Apartments

Messrs. Baumann and Jose, 251 Kearny street, San Francisco, have more than $1,000,000 worth of apartment house work under way or on the boards. Most of the buildings range in cost from $50,000 to $100,000 each. The list includes three frame and stucco apartment houses on Union street, west of Pierce, San Francisco, for Mr. Emil Nelson; a three-story frame and brick veneer apartment house at Steiner and Hayes streets, for Mr. J. Feigin; a three-story frame and stucco apartment house at Filbert and Baker streets for Messrs. Maas & Sauer; and a $60,000 apartment house at Sacramento and Steiner streets for Mr. G. Mertzback; a two-story apartment house on 2nd avenue, south of Geary for Mr. B. Rubin; a three-story apartment house on the southwest corner of 14th avenue and Anza street, for Mr. Fred Anderson and a three-story apartment house on the northeast corner of Chestnut and Gough streets, San Francisco, for Messrs. Stock and Jose.

Winners of Small Home Competition

Winners in the McGrath & Selover small homes architectural competition at Long Beach have been announced as follows: First prize, $500, C. W. Lemon, 3811 E. 4th street, Long Beach; second prize, $250, Kenneth S. Wing, 430 Rhea street, with the W. Horace Austin offices; third prize, $100, R. A. Sites, 427 Cedar avenue, Long Beach. Six smaller prizes were awarded as follows: $25, Miss Dorothy Witcher of the Harvey Lochridge office; $25, Lyle Wheeler of the W. Horace Austin offices; $25, Harold E. Burket; $25, Arne Sorvig of the Harvey Lochridge office; $25, Frank Wynkoop; $25, L. N. Nygaard of the Harvey Lochridge office. Mentions were: Lyle R. Wheeler, Ben H. O'Conner. There were 58 competitors.

Portland Bank Building

Architect A. E. Doyle of Portland, Oregon, is preparing plans for the new $300,000 home of the Bank of California, to be erected on the northeast corner of Sixth and Stark streets, Portland.

Designs for the building call for a three-story fireproof structure with terra cotta exterior and tile roof. The interior finish will be in marble and bronze.
Talk on Earth Stresses

Prof. Bailey Willis, of Stanford University, gave his talk on "Earthquakes—Their Causes and How to Build to Resist Earth Shocks," at the May meeting of Southern California Chapter, American Institute of Architects. Prof. Willis made a special trip from Palo Alto to address the Chapter in Los Angeles and his remarks were similar to his talk before the San Francisco Chapter published in this magazine for March. Prof. Willis presented stereopticon views of the damage done by the recent earthquake in Tokyo, and also views of the ruins in Chile caused by a very severe quake in that country a few years ago.


President Johnson announced that members to serve on the Small House Committee had been appointed as follows: Architects Sumner Hunt, J. E. Stanton, Donald Parkinson, C. E. Noerenberg and A. C. Zimmerman. The purpose of the committee will be to encourage better architecture in residence construction.

From a Former San Franciscan

San Francisco architects will be interested to learn of the success of a former practitioner, Mr. Chas. Edward Hodges, at one time resident architect of Stanford University and later associated with the late W. Garden Mitchell. In a letter to The Architect and Engineer, renewing his subscription, Mr. Hodges writes:

"The last year has found me designing some of the largest New York schools, and more recently associated with a New York millionaire, who is cutting up his estate of 400 acres on Long Island. Being very high class property, all the work is of the best."

"My eldest son is now a professor at New York University, and another son graduates at Columbia University Department of Law this semester."

"Your magazine is the best published and it is a strong link in my past business career."

Architects Elect Officers

The following officers have been elected by the Washington State Society of Architects for 1924: Harry H. James, president; William J. Jones, first vice-president; Julius A. Zittel, second vice-president; T. F. Doan, third vice president; Watson Vernon, fourth vice-president; Emil Guentler, secretary-treasurer; Edgar Blair, trustee.

Personal

Mr. John K. Branner is another San Francisco architect to join this summer's pilgrimage to Europe.

Architect C. W. Dickey of Oakland will spend part of the summer abroad. Mr. Dickey is now in the East.

Architect Llewellyn A. Parker has moved his office from the Pacific Electric building to suite 1105 Kerckhoff building, Los Angeles.

Architect Frederick Soper has moved his office from the Kerckhoff building to suite 1133 Central building, Los Angeles.

Architect Richard M. Bates, Jr., has established an office for the practice of architecture at 1101 Brack-Shops building, Los Angeles, and will appreciate catalogs and samples of building materials and appliances. Mr. Bates is recently from New York City, where he specialized in bank buildings and banking rooms and in school house design.

Architect Kirby T. Snyder has moved his office from Los Angeles to 218 Citizens Bank building, Santa Monica, where he will practice his profession.

John B. Leonard, C. E., has moved from the Mechanics Institute building to 381 Bush street, San Francisco.

Architect John S. Siebert, 1363 Fifth street, San Diego, has moved to the Pacific building, 524 F street, San Diego.

Architect Cyril Bennett, who is associated with the firm of Bennett, Haskill and Bergstrom in the design for the proposed new municipal auditorium at Pasadena, is enjoying a three month's trip abroad.

Mr. Chas. W. Gompertz, a director of the San Francisco Builders' Exchange, is in the East on a combined business and pleasure trip. While away Mr. Gompertz will investigate all phases of the building industry. He will be absent two months.

Masonic Temple and Church

Plans have been completed by Architects Tuttle & Tuttle, 357 12th street, Oakland, for a $50,000 Masonic Temple at Ukiah and for a new church in woodland and one in Burlingame. Bids have been taken for all three buildings.

Addition to Country Club

Plans have been completed by Architect Thos. J. Kent, associated with Mr. Lewis P. Hobart, Crocker building, San Francisco, for a one-story frame and stucco addition to the Burlingame Country Club.

To Design Club House

Architect W. L. Woollett of Los Angeles has been commissioned to prepare plans for a $250,000 country club building fifteen miles from San Diego for the Minnewana Ranch Club.
Oakland Master Plumber Elected Head of State Body

Mr. Harry G. Newman, well-known East Bay master plumber, who has been identified with the plumbing business in Oakland for the past fourteen years, was elected president of the State Association of Master Plumbers of California at the annual convention held in Pasadena, May 19th to 21st. Mr. Newman was further honored by being elected delegate to the National Association Convention of Master Plumbers to be held at West Baden, Indiana, the latter part of June. Other officers elected were: Chas. M. Swinerton of Los Angeles, first vice-president; Chas. R. Hutton of Los Angeles, treasurer; John L. F. Firman of San Francisco, secretary; Wm. P. Goss of San Francisco, Ralph Francis of Sacramento and Frederick Hyde of Fresno, members of the executive board. Mr. Hyde was elected to fill the vacancy caused by the death of W. H. Cox of Fresno.

Mr. Newman states that the association is in splendid condition, not only from the standpoint of membership, but financially. A resolution was passed by the convention providing for the employment of two field agents to take charge of the educational work among members of the association. This work will consist of periodical visits to the business offices of members for the purpose of assisting them in the promotion of sales and in explaining more efficient methods of handling their business. The idea is to give the members more service, keeping in mind the maxim, "He profits most who serves best."

Business relations between the jobbers and master plumbers were discussed and the question of trade agreement was referred to the National Association, with a request that a legal opinion be obtained. The convention went on record as favoring segregated contracts on all public work. A resolution was adopted providing for the establishment of an insurance benefit fund, each member carrying a policy for $3000 payable upon death.

Mr. Newman is now attending the National Convention at West Baden. He will be absent until the early part of July. Mr. Newman is a director of the Rotary Club in Oakland, member of the Chamber of Commerce, Merchants Exchange and Sanitation Development League of Northern California. Among the contracts which his firm has successfully performed in Oakland is the plumbing in the Roosevelt High school, the plumbing and heating in the Women's Faculty club in Berkeley and the plumbing in the new Centerville High school, Alameda county.

Awarded Scholarship

A one-year scholarship has been awarded Mr. George W. Travis, draftsman in the employ of Architects Bakewell & Brown of San Francisco, by Harvard University.

The scholarship is one of the three offered in a contest to draftsmen for the most accurate and speedy work. Travis' work was a preliminary sketch of a concert pavilion which he completed in seven days.

School Architects Named

The Berkeley Board of Education has appointed Mr. James W. Plachek as architect for the new Cragmont school, and Mr. W. H. Ratcliff, Jr., as architect for the new Hillside school.

It is estimated each building will cost $150,000. The commissions are contingent that the proposed bond issue is carried in November.

Oakland Office Building

Plans have been completed by the H. H. Winner Company, Sharon building, San Francisco, for a seven-story Class C office building to be erected at 13th and Franklin streets, Oakland, for Mr. Carl Kaentsch. The building will cost in the neighborhood of $200,000.

Develops Planting Scheme

Emerson Knight, landscape architect, 9 Geary street, San Francisco, has developed a planting scheme and supervised plantings for the frontage and entrance of Burlingame Gate, a new subdivision being opened by Allen & Company at the northern part of Burlingame.

Addition to Department Store

Architects Wyckoff & White, San Jose, have completed plans for a $60,000 addition to the Chas. Ford Company's Mercantile store at Watsonville. The same firm of architects are completing plans for a new mercantile building at Salinas to cost $100,000.

Closes Office

The Buttonuth Manufacturing Company of Los Angeles, which has been operating in Northern California through its San Francisco connections, has closed its office in the First National Bank building.

Bungalow Court at Capitola

Architects Wolfe & Higgins have completed drawings for a bungalow court containing 46 houses of 3 rooms each for the Roth Realty Company of San Jose. The project will cost in the neighborhood of $150,000.
With the Engineers

The Engineer in Public Service

By IRVING MARTIN
Member California Railroad Commission

While I am not an engineer, it has been my privilege for the past nine years to be very intimately associated in an official and working capacity with civil engineers. For four years a member of the State Water Commission, and following that service for five years a member of the State Railroad Commission, I have had wide and unusual opportunities for observing the civil engineer at work. Not being one of the profession but a co-worker with them, I feel that I am in a better position to form a more correct judgment of their ability and worth and value than I could were I a member of the engineering profession.

As a member of the State Water Commission I desire to state that the decisions of the commissioners, of whom there were three at the time of my membership on the commission, were in nearly every instance practically based upon the result of the investigations, analysis, and report of the particular engineer who would be assigned to make an investigation upon an application for a permit to appropriate water. The engineer would gather all available data that might have bearing upon the application and would report thereon to the commission. Upon the facts and the data as found and reported on by the engineer the commission would, to a large extent, base its judgment. Therefore, you can readily see what an important factor the engineer was in the functioning of the commission.

The same conditions also apply to the Railroad Commission, but the work there is larger and of far reaching importance to the people of the state. I desire to briefly review or follow through, as it were, the course of an application before the Railroad Commission in a rate proceeding. The application would be assigned to one of the five commissioners and he in turn would take the matter up with the particular department concerned — gas and electric or hydraulic, as the case might be. The department head would assign an engineer or engineers on the application and they would proceed to make a careful, thorough examination and a detailed report. Largely as a result of this engineering report the commission would arrive at what it deemed a proper rate base and on this base the rate would be fixed. In the case of large utilities, such as the Pacific Gas and Electric Company, the Southern California Edison Company, the Great Western Power Company, or the Western States Gas and Electric Company, the rate would mean a matter of millions to the rate payers of the utility. Therefore, you can see how very important is the work of the engineer in connection with the Railroad Commission.

Not always and not necessarily, but generally speaking, it is the engineer through his investigations that practically fixes the rates of the California utilities. The commissioners outline policies, establish principles, and follow legal interpretations and court decisions, but the practical part of the work is that of the engineer. And I want to say this: Speaking of the engineers as a class, as I have found them in my association with them in official work, they have trained minds, have absolute, unswerving honesty, and are devoid of all favoritism or prejudices. They go straight to the heart of a matter and right to the bottom of it for the facts. They hew straight to the line and let the chips fall where they may. Their minds work along trained, scientific channels and ravel straight to the goal.

The general public owes far more than it realizes to the efficiency, the honesty, the industry and enthusiasm of the engineer in public service.

Registration for Engineers

At the recent meeting of the Minnesota Surveyors and Engineers' Society, Mr. M. E. Chamberlin, member of the state board of registration of Minnesota, stated there are now 424 registered practicing engineers in that state. He called attention to the need of correcting the public impression that the code of professional ethics of engineers is similar to labor union regulations.

"Twenty-nine states and the Dominion of Canada have legalized registration for architects, engineers and surveyors," said Mr. Chamberlin. "The registration boards of twelve states have agreed to reciprocal registration. The architectural and engineering councils of the state boards are now working on a uniform registration bill. Regardless of the strength and perfection of registration laws, however, the practitioners must furnish the motive power to make the grade to a higher
professional standing."

"To reach the plane of equality, before the public, with the other learned professions, we must take three distinct steps," Mr. Chamberlin named these as being "worthiness," "co-operation" and "publicity."

**Ethics for Engineers**

Should engineers submit competitive bids for services or furnish with their bids bonds guaranteeing satisfactory service? Or is some instruction work? These are questions of ethics which are considered in practice case No. 45 submitted by the national practice committee of the American Association of Engineers to the board of directors for approval. Following is the committee's statement on case No. 45:

Several instances have recently been reported of cities inviting engineers, by letter or advertisement:

(a) To submit competitive bids or sealed proposals for furnishing specified engineering services;

(b) To furnish, with their bids, bonds for the satisfactory performance of their services;

(c) To furnish, with their bids, a guarantee that the cost of construction will not exceed their estimates.

Q. 1.—Are any principles of good professional conduct violated by engineers tendering their services under the terms outlined?

Answer 1. (a)—For engineers to submit competitive bids or sealed proposals for furnishing specified engineering services is not consistent with the highest professional standards. Competition between engineers for professional work should be minimized; it should be condemned, if at all, only in those cases where professional qualifications are clearly the paramount consideration and the question of relative fees is not a deciding factor. To make professional work a matter of money competition not only lowers the standards of the profession but is detrimental to the interests of the public. It may be viewed as a violation of the "Specific Principles of Good Professional Conduct." Part 4, Clause 8.

(b) and (c)—The requirement for engineers to furnish bonds for the satisfactory performance of their services or to furnish a guarantee that the cost of construction will not exceed their estimate, should not be tolerated. Such requirements are incompatible with a sound and conscientious professional attitude of the engineer toward his client and his work, and unavoidably conflict with proper discharge of the engineer's obligations to his clients. The public should be educated to a proper conception of the professional attitude which gives its best in service or expert advice without influence or prejudice by fear of penalty or hope of reward.

Q. 2.—Formulate principles to cover the proper conduct of engineers with regard to such conditions.

Answer 2.—The following statement of principle covers the proper conduct of the engineer with regard to the conditions above discussed:

He should maintain the professional attitude in negotiations for his services, and should decline to submit competitive bids for professional services, to furnish bonds for satisfactory performance, or to guarantee estimates.

It is recommended that this statement of principle be inserted in the place of the cancelled Clause 8 of Part 1 of the "Specific Principles of Good Professional Conduct."

**World's Largest Brick Plant**

The Los Angeles Pressed Brick Company is erecting an addition to its tile plant on Date street which will cost, including equipment, about $225,000. President Howard Frost says this addition will make the company's plant the largest in the world in point of production and the most efficient in operation. The building program includes a Harrop tunnel railway kiln to cost $100,000, with a capacity of 50 tons of burned tile per day; a specially constructed dryer which will reduce the drying time from 36 to 4 hours, and an aerial tramway to cost $30,000. The new kiln will reduce the burning time of roofing tile from 240 to 60 hours and effect a saving of 70 per cent in fuel, 25 per cent in labor for loading and 40 per cent in labor for removing tile from the kiln cars. The dryer is the first of its kind installed in the west. It will be 81 feet long and will have four tracks. Two Westype steel buildings to house the addition to the plant are being erected by the Union Iron Works. The new unit will be in operation by July 1.

**New Heater**

A new electric heater, known as the Solar Glow, suitable for use as a room heater and as an auxiliary heater in extremely cold climates has been recently placed on the market by the Westinghouse Electric and Manufacturing Company. The heater is a combination of both the convection and radiation type, for, in addition to heating through the utilization of air currents, radiation is effected from a buffed copper reflector placed around the heating element. This combines the uniform heating ability of the convection heater with the cheerfulness of the radiant type.

The Solar Glow heater has a cast iron frame, faced with statuary bronze. It is finished on the sides and back in antique bronze so that it may be placed in any part of the room as well as inside a fireplace.
Building Material Exhibit Has Auspicious Opening

ARCHITECTS will find a great deal to interest them at the exhibit of building materials in the main floor of the Sharon building, San Francisco. Contractors, too, will find here a very complete assortment of equipment and machinery. Formal opening of the exhibit took place May 6th, with Mr. Frank O'Kane, the manager, presiding at the banquet table and surrounded by several hundred guests. Mr. O'Kane pointed out the advantages offered in a display of building material products under one roof and urged the architects and contractors to bring their clients to the exhibit where they might select materials or equipment that would suit their purpose. Mr. William Gray acted personally as toast-master and opened the banquet with a Scotch prayer. Acting Mayor Ralph McLeran, introduced by Mr. Gray as the “new mayor of San Francisco,” was the principal speaker of the evening. Mr. McLeran urged cooperation of the construction interests in the maintenance of a building material exhibit and complimented Mr. O'Kane and Mr. F. K. Clifford for their progressiveness. Mr. McLeran also commented upon the progress of the city officials with regard to construction to be undertaken under the $12,000,000 school bond issue and the $2,000,000 relief home plant.

Architect Walter O'Brien, of O'Brien Bros., Inc., and Architect William Mooser spoke on the advantages of an exhibit from the architects' point of view. Mr. O. K. Brown of the Built-In Fixture Company of Berkeley, one of the largest exhibitors in the Sharon Exhibit, spoke on the value of a material exhibit from the manufacturers' point of view. Mr. Brown advocated the organization of an Exhibitors' Club which, he thought, would tend to create better fellowship among the exhibitors and create a feeling of “one for all and all for one.”


Wall Bed Company Expands

Owing to the large volume of building now being done on the Pacific Coast and the keen competition among all the building material and equipment manufacturers, the merchandising of building materials and equipment has become a scientific business problem and considerable thought must be given to the sales policy and the manner in which the successful firm products are presented to the buying public.

In line with the policy of national organizations such as Crane Company, Standard Sanitary Manufacturing Company and the Ruud Heater Company to have showrooms for the convenience of the general public, the California Wall Bed Company of San Francisco has acquired lease of a most desirable store on Sutter street, between Grant and Stockton, and alterations are now being made which will make this one of the finest and most complete exhibits of wall beds on the Pacific Coast. All the latest types of installations will be shown together with the many designs and styles of California wall beds. Architects, contractors and builders are invited to call and inspect at their leisure and to send their clients to these show rooms with the assurance that they will receive every courtesy and consideration.

The California Wall Bed Company also has show rooms at 165 13th street, Oakland, and at 1040 South Broadway, Los Angeles.

Excessive Fuel Consumption

A recent folder published by the C. A. Dunham Company is entitled "Excessive Fuel Consumption," and is intended to impart valuable information to those interested in solving problems and troubles that have to do with excessive fuel consumption from the angles of installation, dirty boiler or piping system, foaming or priming, and improperly designed chimney. It also suggests practical methods by which these troubles can be corrected.
A Built-In Dishwasher of Interest to Architects

By G. H. OYER

There have been many electrical appliances and labor saving devices placed on the market in the last few years. Some have been useful while others have become actual necessities, for example, washing machines and vacuum cleaners. The writer recently witnessed a demonstration of an article which promises some day to be used in every home. It is sure to appeal to the women folks because it is primarily intended to lighten their labor. The architect and contractor, too, will be interested, because of its built-in and space saving features that make it desirable in both apartment house and home.

The appliance is known as the Fassio Dish Washer, more aptly termed by its manufacturers, “The Magician of the Kitchen.” The dish washer is composed of a standard sink of twelve inch depth with motor and centrifugal pump attached. This is set up on a strong angle iron stand. The cabinet and drain boards, of either tile or composition, are installed like any ordinary sink and when completed look the same. There are but three outlets in this sink and when not in use as a dish washer can be used like an ordinary sink. The dishes are placed in a special rack so that the water reaches every part of the surface. A flexible shaft is attached to the motor on which can be used a stiff revolving brush to scour pots and pans, a mixer to beat eggs or a buffer to polish silverware. With a small attachment which is furnished it also can be used to freeze ice cream. Another special attachment permits the washing of linen or lingerie in the sink.

The manufacturers have experimented with this machine for eleven years and have finally placed it on the market with a minimum of parts and at a very low price. Electric power does it all and the writer confidently believes that some day this dish washer will rank with the washing machine and vacuum cleaner. A complete exhibit has recently been installed in the Sharon Building Material Exhibit, 55 New Montgomery street, San Francisco, where architects and their clients are welcome.

An Economical and Efficient Electric Air Heater

The use of electrical appliances and equipment on the Pacific Coast is becoming very popular due to the low combination rates for electricity now in effect. The manufacturers of electric ranges, air heaters and water heaters are consequently establishing branch offices or appointing distributors in this territory. One of the latest to complete arrangements to market their product on the Pacific Coast are the manufacturers of Glogol—an electric air heater. This product should interest architects for it is an ornament to the room as well as an efficient air heater.

The “Glogol” does not require a flue or vent, which is interesting as well as economical. It means that costly flue construction, dampers and ash pit doors are eliminated—and merely a false work to receive the chimney piece (mantel) is substituted. This saving is much above the initial cost of the log and if provided for when plans are drawn, the wiring cost is practically nil.

The “Glogol” is made of hard burned fire clay with the color burned in. The heating element is the best known resistance wire, coiled in the bark crevices. It is unbreakable under ordinary usage and should last a life time.

“Glogol” is made by Strait & Richards, Inc., of Newark, N. J., and distributed on the Pacific Coast by the Atlantic-Pacific Agencies Corporation.

New House Plan Book

The new House Plan Book issued by the Portland Cement Association illustrates and describes forty different designs intended to be constructed of concrete block with Portland cement stucco.

WESIX ELECTRIC HEATING SYSTEMS

FOR HOTELS, APARTMENTS, PUBLIC BUILDINGS, RESIDENCES

W. WESLEY HICKS, Manufacturer

Rialto Building           Tel. Doug. 1187
San Francisco
Facts About Ready Roofing

By J. I. HOLDER*

Engineering Department, The Paraffine Companies, Inc.

There is a fast growing tendency, consistent and compelling, toward the use of prepared, or ready roofings in built-up roof construction. Why? Isn’t asphalt saturated felt good enough, at least to form the underlying structure for the cap sheet and the surfacing material, if any? Many of the best architects and engineers say, “No.” The answer is based on long experience and sound reasoning.

Felt for built-up roofing purposes is made and used chiefly in two standard weights, ten pounds to the hundred square feet. Here on the Pacific Coast it is almost exclusively confined to a saturant of asphalt. Practically no coal tar saturated felt is used here.

Prepared, or ready roofing is really an asphalt saturated felt with a coating or layer of asphaltum on both sides. The standard weights are known as light, medium and heavy, weighing approximately thirty-five, forty-five and fifty-five pounds respectively per one hundred and eight square feet, which is sufficient material to cover one hundred square feet, the extra eight square feet being allowed for a two inch lap.

Asphalt saturated felt is not weather-proof in itself. A bitumen of some nature must be used with it in built-up roof construction. Asphalt is usually employed. If you have observed workmen using the mop you will notice that the mop comes out of the bucket “loaded” with asphalt, and is then spread over a given area. The good mopper obtains a fairly even distribution; but even the good mopper now and then misses spots, or tries to cover too much area, resulting in “dry” or “lean” places. A roof is no stronger than its weakest part. These “dry” or “lean” spots may be few and far between, or they may be numerous, but they are usually there. Now what happens? The asphalt saturated felt dries out at these “sore” places, and leaks soon occur here and there unless the roof surface is given periodical treatment, and even such treatment doesn’t always effect a cure, particularly if the roofing has been applied over boards. Roof boards have a habit of shrinking. When shrinkage takes place the “sore” spots in the roof are frequently dry and brittle, and cracks occur in the roofing. All this takes place from the under side of the roofing. The roof frequently looks good on top, but beneath it is all too often a spotted “shell.”

This condition is obviated by the use of prepared or ready roofing, which is waterproof in itself. The coating on both sides of the felt core, or center, resists moisture and keeps the sheet from drying out. There may be “lean” moppings, but the heat of the mop as it passes over the sheet softens the coatings sufficiently to fuse or bond the sheets together.

Further, prepared roofing lays smoother and can be mopped more easily than felt, the latter having more tendency to wrinkle and buckle, causing bulges and pockets in the roofing when completed. Prepared or ready roofing has the tensile strength to expand and successfully bridge the open spaces which occur be-

---

*Mr. Holder was formerly secretary-treasurer of the National Association of Roofing Contractors, now known as United Roofing Contractors’ Association. He is considered one of the nation’s leading authorities on roofs.

---

HOTEL
St Francis
SAN FRANCISCO

FOURTEEN stories of comfort, convenience and economy for the guest in the center of the shopping, theatrical and financial districts.

Write for "California Ideal Tour"

MANAGEMENT
THOS. J. COLEMAN
After careful investigation of the SCHLAGE Button Lock, a leading builder and contractor declared emphatically—

"This item is without doubt the greatest improvement in modern building equipment of late years, and fills a long-felt want—we intend using them on three buildings we have on the boards at the present time."

Sold by leading hardware dealers.
Catalog on request.

THE SCHLAGE COMPANY, MFRS.
AMERICAN BANK BLDG., SAN FRANCISCO

specify

（SCHLAGE）
BUTTON-LOCK
PATENTED

now
the
modern lock

to lock
just press the
button
in the knob
to unlock
just turn the
knob
between the roof boards, due to shrinkage or settlement. Felt has a hard time performing this function, even when properly mopped with asphalt between the layers.

In short, prepared or ready roofing being more fool proof against careless workmanship, more adaptable to roof deck surfaces, more inherently permanent in its construction, and one-hundred per cent more waterproof than saturated felt for built up roof construction, the building world may look forward to the "passing of felt" as something which has served its purpose, but, as is the case with all things, is being supplanted by something better.

RECENT TRADE PUBLICATIONS

Panic Door Device Catalog
A valuable illustrated trade catalog intended for the guidance of architects and others who may have occasion to use panic door devices, has just been published by the Vonnegut Hardware Company of Indianapolis, Ind. This company manufactures the well known Von Duprin self releasing fire exit latches which have the approval of the Underwriters Laboratories of the National Board of Fire Underwriters, and which have long since demonstrated their worth. With such horrible catastrophes as the Iroquois theater fire, the burning of the Lakeview school and the Rhodes Opera house fire at Boyerton, Penn., still fresh in the minds of the public, the prevention of a repetition of these holocausts is made possible by the use of the Von Duprin fire exit latches. The manufacturers of the device are prepared to prove that no Von Duprin fixture anywhere has ever failed to operate in an emergency. The catalog just published gives pictures of many prominent buildings that have been equipped with these self releasing devices, together with illustrations of the different models manufactured to answer the particular needs of the building in which they are to be installed. The C. H. Jensen Company, New Call building, is the San Francisco and Northern California representative of the Vonnegut Hardware Company.

Unique Brochure
The Atlas Portland Cement Company has recently published a brochure which is unique in that it contains many pages of half tone photographic reproductions of the cover pages of various periodicals, (technical and trade), in which Atlas advertising appears or will appear during the current year. A fine likeness of The Architect and Engineer cover is shown on the same page with reproductions of other leading architectural journals which carry Atlas advertising. It is a nice compliment to the publications and at the same time it gives the public a pictured impression of the extent of this company's publicity work. The message of Atlas is carried through the medium of these publications to every architect, builder and owner from one end of the continent to the other.


This is a revision of earlier booklets issued by the American Rolling Mill Co., entitled "Mechanics of Correspondence," and "Principles of Good Correspondence," and to which has been added an entirely new section "Essential English." The book has been carefully written, giving as it does the results of five years intensive research. It is a valuable asset to any business or professional man's library. Mr. Sherman Perry, correspondence adviser of the Rolling Mill Company, writes that his company is not in the publishing business, nor is the book a money-making venture. The nominal charge of $1.25 a copy is made on account of the heavy cost of publication.

Steel Casements
A new catalog has been announced by the Detroit Steel Products Company, Detroit, Michigan, containing illustrations and descriptive matter of a new line of domestic casement windows (all steel) to be sold under the trade name Fenestra.

These new casements are available in numerous types and sizes, and are recommended particularly for homes and apartment buildings. Copies may be had by architects, contractors, investment builders, etc., upon application to the manufacturers. A model of the new casement may be seen in the San Francisco office of the Detroit Steel Products Company, 251 Kearny street.

Handy Folder on Built-In Fixtures
The Built-In Fixture Co., 2608 San Pablo avenue, Berkeley, has issued a handy file folder for use of architects and builders. The book contains detailed data sheets to supplement information in the company's catalogue. The sheets give a working knowledge of Peerless Built-In furniture in such a way as to enable the designer to plan a kitchen having in mind the exact working drawings of the product. Copies will be furnished on request.

Distinctive Houses of Indiana Limestone. Vol. 12, Series B.
A very handsome book, beautifully printed on heavy coated paper stock. Half tones and tint blocks bring out the detail of many buildings constructed of
Cooperating with the Architect

Co-operation with the architect is an important feature of Bonded Floors Company service. You have at your aid, in the Bonded Floors organization, specialists in the design and installation of resilient floors.

You have at your disposal a variety of materials, colorings and designs which makes it possible to select floors that fit any type of interior and decorative scheme.

Proof of the enduring quality of Bonded Floors, and the care and skill employed in their installation, is attested by the Guaranty Bond which accompanies every one of these floors laid according to our specifications.

Descriptive literature showing typical installations, pattern suggestions and other interesting material will be sent on request.

BONDED FLOORS COMPANY
INeORPORATED
Division of Congoleum Company, Inc.
Manufacturers - Engineers - Contractors
San Francisco - Los Angeles
New York - Boston - Cleveland - Detroit
Philadelphia - Chicago - Kansas City
(Distributors in other principal cities)
limestone. This is not a technical book but it is sure to appeal to architects interested in fine house designs. It is better than the average book listed as manufacturer's literature. It may be had free on application to the Indiana Limestone Quarrymen's Association, Bedford, Indiana.

New Westinghouse Lighting Publication for Architects

A publication of great value to architects in drawing up plans for ornamental exterior lighting is being distributed by the Westinghouse Electric and Manufacturing Company. The publication, which is known as Number C 1674, is entitled, "Ornamental Brackets, Newels and Lanterns." As it has been issued primarily for use in architects' offices, the filing classification of the American Institute of Architects has been inscribed on the cover of the book to facilitate its use as an office reference.

A great number and variety of exterior lighting units, artistically designed for use in the illumination of entrance and facades of public buildings, the gateways of residences and private grounds, and the passage-ways of bridges and viaducts, are included in this comprehensive publication. With the requirements of the architect particularly in mind, an excess of descriptive matter has been dispensed with, yet each unit is so adequately presented that its adaptability for a particular installation can be readily determined. For every type of fixture included in the booklet, a clear photograph and a dimensional drawing are provided, together with a very brief description. Views of actual installations of many of the units are also contained.

These paragraphs from the foreword to the publication indicate the purpose for which it is issued:

"Modern lighting science has made it possible for the architect or illuminating engineer to retain the decorative motifs of the early centuries in combination with the most efficient equipment for distributing light.

"Effectiveness in a lighting unit is a happy combination of lamp, glassware and light control. Efficiency need not be sacrificed to secure an artistic luminaire; in fact, the more ornate designs usually permit the inclusion of scientific equipment as readily as the simpler types.

"The George Cutter Works of the Westinghouse Electric and Manufacturing Company has, for more than thirty years, striven to combine artistry of design with utility of light distribution."

This booklet will be mailed free on request to the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Penn., or any District Office.

S. A. Born Building Co., designers and builders of the above beautiful residence, found service, simplicity and economy, coupled with beauty of design, could best be obtained with WHITCO Casement Hardware. That is why they STANDARDIZE ON WHITCO.

Makes the Sash self-adjusting.
No Hinges or Adjusters Required.
It is Non-Rattling.
All Hardware Entirely Concealed.
No Special Sash or Frame Detail Required.
One Size Hardware Fits all Sash.
Outside of Sash Easily Washed from Inside of Room.

For Sale By All Hardware Dealers

Manufactured by

VINCENT WHITNEY COMPANY
MANUFACTURERS OF HARDWARE SPECIALTIES

San Francisco Boston, Mass.
White when the dealer delivers it to the site—
White when the builder uses it according to
your specifications—
White when the completed structure is deliv-
ered over to the owner, and—
White so long as it remains in service!

Medusa Waterproofed White (Non-Staining) Portland
Cement will retain its whiteness indefinitely, without
discoloration or staining. In addition, it is absolutely
moisture-repellent.

You can safely specify and recommend "Medusa Waterproofed White"
for every purpose requiring a non-staining, portland cement. Full
particulars and general specifications are given in our Catalogue in
"Spec's," pages 193 and 194. More detailed information in the
Medusa Book, which we will gladly send.

THE SANDUSKY CEMENT COMPANY, Dept. P, Cleveland
Medusa Stainless White Cement—plain and water-
proofed—and Medusa Waterproofing, are carried in
stock and sold by leading building-supply dealers in
California, Oregon and Washington.

MEDUSA
WHITE CEMENT
THK ARCHITECT AND ENGINEER

Are you in the market for WIRE NAILS?
It will pay you to submit your specifications to us.
We are carrying a large warehouse stock and can quote for mill shipment.
Inquiries will receive prompt attention

EDW. L. SOULE CO.
RITALTO BUILDING
SAN FRANCISCO

THREE-FOLD VIRTUES
Richness of Mahogany Finish.
Toughness of the hardest Maple and great reasonableness of cost are all combined in our Trademarked
Orion
Samples, Data, etc. gladly furnished upon request
Cadwallader-Gibson Co., Inc.
5th and Brannan Streets
San Francisco
Oakland
Los Angeles
The new Huntington Apartments (opposite Fairmont Hotel) are trimmed with Orion

MCCRAY REFRIGERATORS
for all purposes

McCray service is of great help to architects because it covers every type of refrigerator equipment—for homes, institutions, stores.
We will gladly cooperate by suggesting models from stock or by submitting blue prints, without obligation, of built-to-order equipment.

Send now for latest catalogs for your files.
McCray Refrigerator Co., 2163 Lake St., Kendallville, Ind.
Salesrooms in All Principal Cities
San Francisco Salesroom—765 Mission Street

Complete Steam Heating Installation
Employing Clow Gasteam Radiators
in Apartments, Schools, Churches, Residences, Commercial Buildings
Perfect Heat—Automatic Control
No Odor—Normal Humidity

PACIFIC GASTEAM COMPANY
Successors to WILLIAMS RADIATOR COMPANY
571 MISSION STREET
Telephone Douglas 8230
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Another

UNIVERSAL WINDOW
FULL REVERSIBLE CASEMENT INSTALLMENT

INFORMATION ABOUT THE DONOVAN AWNING TYPE STEEL WINDOW
MAY BE SECURED FROM THE TRUSCAN STEEL CO., YOUNGSTOWN, OHIO

UNIVERSAL
SALES COMPANY
GENERAL SALES OFFICE, 1916 BROADWAY, OAKLAND

SAN FRANCISCO  LOS ANGELES  SACRAMENTO  BEND, ORE.  PORTLAND  ORE.  SALT LAKE CITY, UTAH
NEW ORLEANS, LA.  FORT WORTH, TEXAS  PITTSBURGH, PENN.  DENVER, COLO.  CHATTANOOGA, TENN.
CLEVELAND, OHIO  KANSAS CITY, MO.  ATLANTA, GA.  WASHINGTON, D.C.
SERVICE
TESTING
INSPECTION
CONSULTATION
PRODUCTION
Structural and Engineering Materials

ROBERT W. HUNT CO.
ENGINEERS
Chemical and Physical Testing Laboratories

PERMA-LIGHT
FINE INTERIOR FINISHES
Eggshell Enamel
Gloss Enamel
Undercoating
Gloss Wall Finish
Flat Wall Finish

Made in one quality only
and equal in texture, finish,
opacity and durability to
anything on the market at
any price.

Hill, Hubbell & Co.
TECHNICAL PAINTS
SAN FRANCISCO
LOS ANGELES PORTLAND SEATTLE

Wright Rubber Products Co.
Rubber Tile, Base, Stair Treads, Wainscoting.

Send for Illustrated Catalog
Cheek & Gillis
625 Call Bldg.
San Francisco, Cal.

BULL NOSE
CORNER BEAD

POSSesses all the qualifications a good
Corner Bead should have—strength (it’s
cut from 26 gauge stock), rigidity, careful gal-
vanizing. Moreover, it is absolutely straight
and true. Try it—you’ll like it. Samples or
prices? Why, sure!

CHEEK & GILLIS
74 New Montgomery St. San Francisco

STEAM AND HOT WATER
STEEL HEATING BOILERS

Will solve your heating problem
for not only next winter but for all
time. Built in 30 sizes a Birchfield
is an economical investment for any
building.

They will not break or crack and
will reduce your fuel bill in a
marked degree.

Larimer & Lauer, 1824 So. Hope St.
Los Angeles, California
Walter S. Leland, 660 Howard St.
San Francisco, California
Guy L. Banta, 811 Lewis Building;
Portland, Oregon

BIRCHFIELD BOILER CO.
TACOMA, WASH.

When writing to Advertisers please mention this magazine.
UNIVERSAL SERVICE SWITCHES

Combination of main entrance switch and branch connections enclosed in a compact steel box externally operated. So arranged that the meter and box can be mounted as one unit. Made in 30 Amp.—for plug fuses only—ten different styles. For use in residences, flats and apartment houses.—Specify Circle T Universal Switch. See bulletin No 5 for complete data.

THE TRUMBULL ELECTRIC MFG. COMPANY

595 MISSION STREET, SAN FRANCISCO, CAL.

The right valve for every service

No matter what your valve requirements may be, you are quite sure to find an exactly suitable selection in the big Kennedy line of 600 different types and sizes.

For radiator service, for example, the Kennedy Valve patterns include straightway, angle, and offset corner, with or without unions, right or left hand, and with wheel or lock shield and key on operating stem.

For every other service there is a similar wide selection. And no matter what Kennedy Valve you choose, you can be sure of satisfactory service based on half a century of valve-building experience.

Send for the Kennedy Catalogue to help make a selection for trial.

THE KENNEDY VALVE MFG. Co.

Branches and Supply Depots: New York, 95 John St.; San Francisco, 23-25 Minna St.; Boston, 47 India St.; Chicago, 228 N. Jefferson St.
Sales Offices: Salt Lake City, El Paso, Seattle

When writing to Advertisers please mention this magazine.
THIS SECRET INSTALLATION

adds Beauty as well as Comfort to the home or apartment. The "California" Secret Installation solves the problem of having too many doors and windows and at the same time conforms to the most modern idea in wall decorations.

This exclusive installation together with the complete "California" line of wall beds will be displayed after June 1st in our new quarters at 359 Sutter Street, where architects and contractors are always welcome and where their clients may with comfort inspect the most complete and up-to-date line of wall beds on the market.

Write for Complete Data and Specifications

CALIFORNIA WALL BED COMPANY

359 Sutter Street, San Francisco

165 Thirteenth Street, Oakland

1040 S. Broadway, Los Angeles

GLASS

Fuller & Goepp

Manufacturers of

Art and Leaded Glass MIRRORS

Dealers in

SANI ORITE

A VITREOUS MARBLE

for all building purposes

Everything in Building Glass

32 Page Street, San Francisco

Market 498

Jackson at 11th, Oakland

Lakeside 7272

OUR OAKLAND PLANT

When writing to Advertisers please mention this magazine.
June, 1924

East and West

Standardize on AMERICAN SASH CHAIN

East and West may vary somewhat in the design and scheme of their buildings, but they enjoy one feature in common—American Sash Chain.

There has been no guesswork in arriving at the relative strength of the several sizes of Smooth Running American Sash Chain. When we state that No. 100 is made for 100 pound double hung sash, we mean that painstaking laboratory investigation has proved it so.

The subject is covered thoroughly but concisely in our manual. May we send it to you?

American Chain Co., INC.
Bridgeport, Conn.

District Sales Offices:
Boston Chicago New York Philadelphia
Pittsburgh San Francisco
Largest Mfrs. of Welded and Weldless Chains and Makers of the Famous Weed Auto. Accessories

KINNEAR ROLLING DOORS

Protection Plus—
The best possible protection against fire, theft and the elements will be found in Kinnear Steel Rolling Doors and they give life time service noted for perfect balance, ease of operation and quick repair without dismantling in case of damage—ideal for every class of buildings.

Our Engineering Department at your service for full information.

THE KINNEAR MANUFACTURING COMPANY
601-671 Field Ave., Columbus, Ohio
525 Market Street, San Francisco

Oregon-Washington Railroad Freight Depot.

When writing to Advertisers please mention this magazine.
INTIMATE EXPERIENCE with Pacific Coast conditions—
EXPERIENCE with handling gasoline and oils in all businesses, under all conditions—
EXPERIENCE in helping architects and engineers everywhere—
All this experience is at your service, without obligation.
Tell us your problem.

S.F. Bowser & Company, Inc.
Pump and Tank Headquarters
Fort Wayne, Indiana.
Sales and Service Offices and Representatives Everywhere

Factory and Office:
425 Brannan Street, San Francisco
722-3 New Bank of Italy Building, Los Angeles

"Nothing But Brick Will Do"

EVERY architect is familiar with building situations where there is no alternative to the use of brick. The character and requirements of the building to be erected may eliminate consideration of all other building materials—the environment may call for brick—a constant fire hazard may require brick—abnormal wall loads, shocks and stresses may demand brick—the need for rapid erection may make brick indispensible—the likelihood of making alterations or cutting new wall openings—Precisely these same features that make brick so essential in some structures, give it its pre-eminence in all types of building. The ability of brick to meet extraordinary requirements make brick the safest building material for any purpose.

For beautiful enduring walls common brick has no equal. For downright economy and absolute freedom from upkeep brick stands alone.

Send 50c for "Distinctive Brick Houses"—

California
Common Brick Manufacturers Association
Los Angeles, Calif.

When writing to Advertisers please mention this magazine.
7 Rooms built in 5

Here is a 5-room bungalow designed to give the convenience of 7 rooms, yet the two extra rooms—sun room and guest bedroom—cost nothing to build or furnish.

The sun room is an unusual feature for a 5-room bungalow. This room has been added to the house by installing an AD-A-ROOM Bed (wall bed) in a room that would ordinarily be available only as a bedroom at night.

The AD-A-ROOM Bed in the living room adds the third bedroom to this five-room home and serves as an ideal guest bedroom.

An AD-A-ROOM Bed in your home gives you an extra bedroom without the cost of building and furnishing a room.

MARSHALL & STEARNS COMPANY

Manufacturers of AD-A-ROOM BEDS (Wall Beds)

1152 PHELAN BLDG.
SAN FRANCISCO

411 19TH STREET
OAKLAND

Wayne Rapid-Rate Water Softeners Economical to Buy and to Operate

Simplicity is the keynote of the Wayne rapid-rate Water Softener. Only 3 plumbing connections are necessary—to supply main, to service lines and to the drain.

No chemicals are used to soften the water. The softening action is a natural attribute of the Wayne processed mineral—which has the natural quality of removing lime and magnesia from the hard water as it flows through the Softener at the regular supply pressure.

Costs are Very Low and the Savings Quickly Pay for It

Wayne rapid-rate Industrial Water Softeners range in price from $600 up, according to capacities. Any plumber can make the installation in a few hours. Operating costs are the very minimum.

Wayne Softened Water eliminates boiler-room expense caused by hard water scale in boilers, water pipes and heaters.

It saves coal; saves repair and replacement bills.

Complete information on request. Write today for the facts which prove that the Wayne is America's most satisfactory Water Softening System.

The Bellerive Apartments, Kansas City, use a Wayne Rapid-Rate Water Softener to free them from the expense which hard water causes.

Wayne Tank & Pump Company, 862 Canat Street, Ft. Wayne, Indiana

Foreign Offices: Toronto, Ontario, Canada
In London: Wayne Tank and Pump Co., Ltd.
In Paris: Wayne Tank and Pump Co., S. A.
An International Organization with Sales and Service Offices Everywhere

Reg. U.S. Trade Mark

Water Softeners for Household and Industrial Purposes
ES Products

Elevator Door Closers, Positive Electric Interlocks and Roller Bearing Hangers combined on the same doors is the Ideal Installation

Elevator Supplies Company, Inc.
Main Office and Works: HOBOKEN, N. J.

Branch Offices:
CLEVELAND
1819 Walnut Ave.
ST. LOUIS
Railway Exch. Bldg.
CHICAGO
111 S. Jefferson St.

PHILADELPHIA
1714 Ludlow St.
SAN FRANCISCO
186 Fifth St.
LOS ANGELES
1120 S. Hope St.

Horrocks and Imperial Desks :: Marble Chairs
Brown Morse Filing Cabinets
In All Standard Finishes

PHONE KEARNY 512
SAN FRANCISCO

Phoenix Desk Company

When writing to Advertisers please mention this magazine.
JOHNSON'S ROTARY CRUDE OIL BURNER
Can be installed in any BOILER or FURNACE
Gives Satisfactory Results
Simple to Operate—Automatic—Safe
Let us tell you more about this Oil Burner.

S. T. JOHNSON CO.
1337 Mission Street
San Francisco
Phone Market 2759

940 Arlington Street
Oakland
Phone Piedmont 2815

Agencies: SEATTLE LOS ANGELES FRESNO SAN DIEGO SACRAMENTO

SIMPLEX BURNERS

BUNTING IRON WORKS
1215 FIRST NATIONAL BANK BLDG.
SAN FRANCISCO Phone Sutter 3225

Member of the Oil Burners Manufacturers' Association of California

Steam Heating and Ventilating
For Commercial and Public Buildings
Furnace Heating for the Home

Mangrum & Otter, Inc.
827-831 Mission Street
San Francisco, Cal.
Phone Kearny 3155

Architects—Specify BABY RAY
Domestic Type Burner. It burns low-priced Diesel Oil with high efficiency. Especially designed for bungalows and dwellings.

POWER PLANT ENG-CO.
1933 5th Ave., Seattle
J. F. SHEA
2nd and Ankeny Sts.
Portland, Ore.

W. S. Ray Manufacturing Co.
118 New Montgomery St.
San Francisco

Plant:
Milton and Bosworth Sts.
San Francisco

W. S. RAY MFG. CO.
2442 San Pablo Ave.
Oakland

RAY OIL BURNER CO.
(of So. California)
831 Crocker St.
Los Angeles

When writing to Advertisers please mention this magazine.
DEPENDABILITY
"Since 1858"
LINOLEUMS
WINDOW SHADES
Carpets
Draperies
Rugs
Estimates furnished
D. N. & E.
Walter & Co.
562-572 Mission Street
SAN FRANCISCO
Los Angeles  Portland  Seattle

Cast Iron Stairs
and Store Fronts

Bank and Office
Railings, Elevator
Enclosures and
Fire Escapes

C. J. HILLARD & CO., Inc.
Nineteenth and Minnesota Streets
Telephone Mission 1763
SAN FRANCISCO, CALIF.

Specify
COLUMBIA MARBLE
"A California Product" from the Columbia Marble Company's quarries in Tuolumne County, California.

FOR INFORMATION APPLY
THE COLUMBIA MARBLE CO.
413 Ralco Bldg.  .  .  Phone Sutter 1244
OR ANY DEALER

When writing to Advertisers please mention this magazine.
Reason No. 3—
Our latest improvements in our blowing machines enable us to produce absolutely perfect cylinders, which make it possible to secure the best flattening ever obtained.

**Thirteen Other Reasons**

1. Our melting furnaces are the largest in the world and produce perfectly melted glass.
2. Our improved mechanical process of drawing and blowing gives our glass greater tensile strength and higher modulus of rupture than any other window glass, plate glass, or rolled glass.
3. Our new method of flattening gives our glass a perfectly smooth surface, and a brilliant polish, unequalled by any other window glass.
4. Our glass is flat; it contains no reverse curves.
5. Our glass is uniform in thickness.
6. Our glass is perfectly annealed and therefore does not break as easily as poorly annealed glass.
7. Our glass is washed and thoroughly cleaned in an acid bath, which prevents discoloration and permits ready detection of defects.
8. Our glass cuts perfectly on both sides.
9. Our glass is graded to the highest standard of quality.
10. Our grading is the recognized standard for the United States, and is higher than the foreign standards.
11. Our glass does not break in shipment, on account of the uniformity of flatness, well made boxes, great care in packing, and skillful loading.
12. Our entire process is conducted on scientific principles.

Send for Your Copy of New Window Glass Specifications — Now Ready

Pacific Coast Distributor

L. H. BUTCHER COMPANY
Los Angeles  San Francisco
Portland  Seattle

ARKANSAS OAK FLOORING CO.
Pine Bluff, Arkansas

When writing to Advertisers please mention this magazine.
Elevator Accessories
We manufacture and install Randall pneumatic elevator door closers and interlocks. Randall modern signal systems, hangers and complete line of accessories for elevators.
RAN D A L L E R C O N T R O L A N D H Y D R O M E T R I C C O R P O R A T I O N
1014 E. 9th Street 255A Minna Street Los Angeles, Cal. San Francisco, Cal.
Phone: 825-884 Phone: Douglas 2397

Buy This BETTER Water Heater
Better because it gives Perfect Hot Water Service—instantaneous, inexhaustible and inexpensive—not just once in a while, but all the time—Better because it is simply made—Better because it is solidly and ruggedly built—Better because it is made by men whose experience dates back to 1899, when the world's first successful automatic water heater—a RUUD—was built. Every RUUD is equipped with an internal automatic thermostat, double fuel control, condensation shields.
RUUD HEATER CO. 245 Mason St. San Francisco Phone Franklin 2026

Blackboards
First Grade Natural Slate
Green or Black Composition Board
School Furniture and Supplies
Estimates Given for Complete Installations
STEWARD SALES CO. 247 Rialto Building, San Francisco, Cal.

HEATING-PLUMBING
COMPLETE PLUMBING AND HEATING SYSTEMS INSTALLED IN ALL CLASSES OF BUILDINGS—ALSO POWER PLANTS
GILLEY-SCHMID CO., Inc. 198 OTIS ST., SAN FRANCISCO
Tel. MARKET 965

Hunter & Hudson ENGINEERS
Designers of Heating, Ventilating and Wiring Systems, Mechanical and Electrical Equipment of Buildings
703 Rialto Bldg., San Francisco, Cal.

RUSSWIN
BUILDERS' HARDWARE J O O S T BROS., Inc. SAN FRANCISCO AGENTS
We Carry Complete Stock:
NO BRANCH STORE
Mazda Lamps Electric Goods

When writing to Advertisers please mention this magazine.
Alhambra Stucco

Is manufactured solely of Portland cement, oxide colors and washed white sharp sand.

It does not contain any animal or vegetable matter or lime. The oxide colors become locked in the flint-like water repellent surface, insuring durability. Exceptionally attractive texture is obtained because of the superior working quality.

Alhambra Stucco is made in over forty beautiful colors and shades in a plant especially equipped for the purpose of building stucco for a discriminating clientele.

Specify Alhambra for your next job.

Alhambra Stucco Co.

430 Eleventh Street, San Francisco
Telephone Market 7100

Portland cement for permanence
YEARS OF ACTUAL USE
Is the Guarantee Behind Stucco Made With
Atlas White Portland Cement

Guarantees are meaningless in the building world, except the one guarantee of actual test. A building is not like ordinary merchandise that can be returned if unsatisfactory. The creation of the architect will be on public view for all to see.

Portland Cement Stucco has stood the test of time for fifty years—and when properly handled, instead of showing signs of disintegration is actually stronger today than the day it was first applied.

Stucco made with Atlas White Portland Cement is as permanent as concrete because it is concrete—for Atlas White is a true Portland Cement, having all the strength, permanence and varieties of possible handling that Portland Cement has—and in addition is pure white in color.

Atlas White Portland Cement will not corrode metal lath, needs no rock dash finish to protect its surface, and affords a wide variety of permanent textural finishes possible with no other product.

If you have not received the new Atlas Portfolio showing actual reproductions of stucco textures a request will bring you a copy.

The Atlas Portland Cement Company
25 Broadway, New York, N.Y.
SCHOOL AND THEATRE EQUIPMENT

FLAGG

ROBERT TROST
General Building Contractor
We Specialize in High Grade Work and Employ Skilled Labor in every Branch of the Building Industry.

ALFRED H. VOGT
GENERAL CONTRACTOR CONCRETE CONSTRUCTION
185 Stevenson Street, San Francisco

LAWTON & VEZEY
CONTRACTORS AND BUILDERS
EVERSON BUILDING OAKLAND, CALIFORNIA

THE HERMANN SAFE CO.
Manufacturers of Fire and Burglar Proof Safes, Vaults and Safe Deposit Boxes
Also Representatives for the YORK SAFE & LOCK CO. OF YORK, PA.
216-224 Fremont Street San Francisco, Cal.

HERBERT BECKWITH
Building Construction Everson Building OAKLAND
Formerly with ARTHUR ARLETT
Res. Tel. Merritt 3600

JOHN M. BARTLETT
GENERAL CONTRACTOR
Office Phone Lakeside 6750
357 - 12th ST. OAKLAND Res. Phone Berkeley 6884W

MONSON BROS.
Building Construction
Yard Phone Market 2963
Mariposa and Bryant Streets 251 Kearny Street, San Francisco

When writing to Advertisers please mention this magazine.
The Spirit Level Test

The use of the R-W 743-IL Door Controller and Check makes it imperative that the car be level with the floor before the doors can be opened. This eliminates the "step up" and "step down" evil, and prevents accidents and subsequent damage suits.

Write today to Department X for catalog describing R-W IDEAL Door Controllers and Checks, as well as silent, smooth-running hangers for all types of elevator doors.

Richards Wilcox Mfg. Co.
Aurora, Illinois, U.S.A.
San Francisco Office: 525 Market St.

A finishing touch of beauty — and protection

It is remarkable the way Bay State Brick and Cement Coating transforms drab stucco and concrete. Dull weathered walls take on a beauty that is striking. But more than that, Bay State Coating creeps into the porous cement and permanently seals it. Bay State Brick and Cement Coating comes in a complete range of tints and in a pure rich white. Let us send you free samples and color-chart.

Our new booklet No. 25 shows many actual photographs of beautiful Bay State coated homes. Write for samples and booklet today.

Wadsworth, Howland & Co., Inc.
Brooklyn BOSTON Jacksonville
JAMES HAMILY & SON
Pacific Coast Dist. San Francisco, Cal.
STEEL POLES
In Keeping with the Beauty of "Old Glory"

These two 80 foot poles at the State Capitol, Jackson, Miss., are of our continuous taper welded type; perfectly smooth exterior and thereby particularly applicable to monumental projects. An artcraft product, over one hundred of which we have made to individual requirements.

Write for catalog and price list on our Steel Tubular Poles.

The Pole and Tube Works, Inc.
Newark, N. J.
Exclusive Pole Specialists
Pacific Coast Representative
H. M. Holway,
Hobart Bldg.,
San Francisco

Specify

Trade MINWAX MARK

FLAT FINISH
A WOOD FINISH and Preservative

This material produces a thoroughly waterproof surface, is penetrative in character, adapted for use on all kinds of wood, for exterior or interior work. Manufactured in seven standard colors.

Write for Booklet on Product, Data and Specifications

MINWAX CO., INC.
K. M. HAYDEN W. C. LEA
22 Battery St. 653 So. Clarence St.
San Francisco Los Angeles

Permanent Construction
IN QUICK TIME

Any architect, engineer or contractor who is called upon to provide a permanent building within a short space of time will find the answer to his problem in Robertson Building Products and Robertson Engineering Service. Robertson Engineers will go over your building plans, estimate your requirements for a complete building covering of Robertson Process Asbestos Protected Metal—including roofing, siding, and every detail of building trim. We can deliver these materials from our local warehouse stocks.

Wood Block Flooring
Bloxonend, made of Southern Pine with the tough end grain up, is the only block flooring designed to lay smooth and stay smooth under heavy service. Comes in 8 ft. lengths. No tar or creosote.

Visit the new Westinghouse Electric & Mfg. Co. factory building in Emeryville, and see the 39,800 sq. ft. Bloxonend installation.

Carter Bloxonend Flooring Co.
H. M. HOLWAY, District Manager
San Francisco: Los Angeles: 907 Hobart Bldg. 600 Metropolitan Bldg.
Portland: Chamber of Commerce Building

BLOXONEND Lays Smooth—Stays Smooth

Write for booklet describing in detail the various uses of Robertson Process Asbestos Protected Metal.

H. H. Robertson Co.
H. M. HOLWAY, District Manager
907 HOBART BUILDING San Francisco

When writing to Advertisers please mention this magazine.
TELEPHONE LAKESIDE 1075
MURCH-WILLIAMS CONSTRUCTION CO.
CONCRETE CONSTRUCTION       GENERAL CONTRACTORS
Fox-Oakland Building          Oakland, California

K. E. PARKER COMPANY, Inc.
GENERAL CONTRACTORS
Phone Sutter 5661             Room 515 Clunie Building, SAN FRANCISCO

R. W. LITTLEFIELD
Building Construction
357 12th Street, Room 9, Oakland, Cal.           Phone Lakeside 6750

H. H. HILP, Jr.                              J. FRANK BARRETT
BARRETT & HILP
CONCRETE CONSTRUCTION         BUILDERS          GENERAL CONTRACTORS
918 HARRISON STREET, near 5th, SAN FRANCISCO   Telephone DOUGLAS 700

CAEN STONE
A refined, elegant, interior finish.

A. KNOWLES
CONTRACTOR AND PLASTERER
442 Call-Post Building         San Francisco

ECONOMY, RAPIDITY, EFFICIENCY
STEELFORM CONTRACTING COMPANY
STEELFORMS FOR
CONCRETE BUILDINGS
C. B. Hopkins, C. E., Manager
681 Market Street, San Francisco

Rhodes-Jamieson & Co.
BUILDING MATERIAL COAL AND WOOD
Main Office: Foot of Broadway, Oakland
Oakland Alameda Berkeley

M. E. VUKICEVICH                  SPENCER B. BAGGE
VUKICEVICH & BAGGE
GENERAL CONTRACTORS
Phone Sutter 5691               815 Bryant Street, San Francisco

When writing to Advertisers please mention this magazine.
Passenger and Freight Elevators
For Every Service
SPENCER ELEVATOR COMPANY
166-180 Seventh Street
San Francisco

Standard Fence Co.
WIRE AND IRON WORKS
432 Bryant St.
San Francisco
Douglas 2676

Steel Bars
FOR CONCRETE REINFORCEMENT
Cut to Length, Fabricated, Installed
346 Call-Post Bldg.,
74 New Montgomery St.,
San Francisco

PACIFIC DEPARTMENT
GLOBE INDEMNITY COMPANY
Bonds and Casualty Insurance for Contractors
FRANK M. HALL, formerly Robertson & Hall, Mgr.
444 California Street
Phone Sutter 2280
San Francisco

CARL H. PETERSON
BUILDER
PHONE DOUGLAS 1876
185 STEVENSON STREET
San Francisco

R. McLERAN & CO.
GENERAL CONTRACTORS
HEARST BUILDING
San Francisco, Cal.

D. ZELENSKY & SONS
PAINTERS AND DECORATORS
165 GROVE STREET
San Francisco

I. R. KISSEL
Decorator, Painter and Paperhanger
1747 SACRAMENTO ST., Bet. Polk St. and Van Ness Ave., SAN FRANCISCO

When writing to Advertisers please mention this magazine.
ATLAS HEATING AND VENTILATING COMPANY, INC.
ENGINEERS AND CONTRACTORS
Steam and Hot Water Heating, Coal and Gas, Pipe and Pipeless Furnaces
Sheet Metal Work
Patent Chimneys
everything in heating
Phone Douglas 378 537-567 FOURTH STREET
San Francisco

CLARENCE DRUCKER
HERMAN LAWSON
LAWSON & DRUCKER
PLUMBING—HEATING—CONTRACTORS
450 HAYES STREET
TELEPHONE MARKET 275
SAN FRANCISCO, CAL.

H. G. NEWMAN CO.
PLUMBING HEATING
2004 TELEGRAPH AVENUE
OAKLAND

ALEX COLEMAN
CONTRACTING PLUMBER
706 ELLIS STREET, SAN FRANCISCO
Phone FRANKLIN 1006

WM. F. WILSON COMPANY
MODERN SANITARY APPLIANCES
Special Systems of Plumbing for Residences, Hotels, Schools, Colleges, Office Buildings, Etc.
Phone Sutter 357 328-330 Mason Street, San Francisco

W. H. PICARD
Plumbing, Heating, Ventilating and Power Plants
5656 College Avenue
5662 Keith Avenue
Phones Piedmont 9004-9005 Oakland, Calif.

FLOOR AND WALL TILING
SCOTT CO., INC.
243 Minna Street, San Francisco
381 11th Street, Oakland

ERNEST HELD, Manager
HOME MANUFACTURING CO., INC.
BANK, STORE AND OFFICE FIXTURES
FURNITURE AND HARDWOOD INTERIORS
CABINET WORK IN ALL BRANCHES
532 BRANNAN ST.
Phone Kearny 1514
San Francisco, Cal.

When writing to Advertisers please mention this magazine.
SANTA FE LUMBER CO.
A. J. RUSSELL, Mgr.
Wholesale and Retail
SANTA FE LUMBER
POLES AND PILING
OIL RIG AND SHIP TIMBERS
SAGINAW SPECIAL SHINGLES
16 California Street
San Francisco, Calif.

from tree to consumer
Pine and Redwood Lumber
SASH DOORS AND MILL WORK
SUNSET LUMBER COMPANY
MANUFACTURERS — WHOLESALE AND RETAIL — PHONE OAKLAND 1820
FIRST AND OAK STREETS, OAKLAND
SAN JOSE
STOCKTON
SACRAMENTO
FRESNO

POPE & TALBOT
Manufacturers, Exporters and Dealers in
Lumber, Timber, Piles, Spars, Etc.
Office, Yards and Planing Mills
859-869 THIRD STREET, SAN FRANCISCO, CAL.
Mills: Port Gamble, Port Ludlow and Utsalady, Washington

GUARANTEED
OAK AND MAPLE FLOORING
Insist on “Higgins” — It Costs No More
J. E. HIGGINS LUMBER CO.
SAN FRANCISCO
If It’s Hardwood — We Have It

When writing to Advertisers please mention this magazine.
Broncho Jr. TRAILER

As good as the best--
Better than the rest

LANSING COMPANY
348 Brannan St. San Francisco
Branches from Coast to Coast

BEAUTIFUL GARDENS
for the City and Suburban Home

MacRORIE-McLAREN CO.
Landscape Engineers and General Nurserymen

Office Nurseries at
Suite 301 Phelan Bldg. Beresford
San Francisco San Mateo Co.

Genuine Hyloplate Blackboards
Best Pennsylvania Slate Blackboards
School Furniture
Western Venetian Blinds
Lockers

C. F. WEBER & CO.
San Francisco Reno Phoenix
Los Angeles

ROBERTS MFG. CO.
Lighting Fixtures
Electric Appliances
Incandescent Lamps

WILLY'S FARM LIGHTING AND POWER PLANTS

663 Mission Street San Francisco

When writing to Advertisers please mention this magazine.
ORIGINATORS OF SASH CHAINS
Made in
"GIANT METAL" "RED METAL" and STEEL
Sash Chain Catalog A1 on Request,
See Page 1253, Sweet's Catalog.
THE SMITH AND EGGE MFG. COMPANY
BRIDGEPORT, CONN.
RAWLINS & SMITH
618 American Bank Bldg., Los Angeles
COAST AGENTS

Of Vital Importance to YOU
Because Your Client will want IT
THE FASSIO DISHWASHER is BUILT-IN and no other sink is required. It can be used as an ordinary sink when not in use as a dishwasher. Special attachments wash pots and pans, beat eggs, polish silverware, freeze ice cream and wash linen and delicate material. Electricity does it all.
Write for specifications and prices so you can install one in your next home or apartment house.
THE FASSIO COMPANY
55 New Montgomery St. San Francisco, Calif.

Specify
VLAARITE ENAMEL
The highest quality finish, it is possible to produce —
Free Working, Good Body, Fine Finish
OAKLEY PAINT MANUFACTURING CO.
727 ANTONIA ST., LOS ANGELES
PAINTS VARNISHES ENAMELS KALSOMINES
833 HEARST BLDG., SAN FRANCISCO

Furnaces
AGENTS FOR
FRONT RANK All Steel Warm Air Furnaces
AND THE OLD RELIABLE
THATCHER Cast Iron Warm Air Furnaces
REGISTERS — FURNACE FITTINGS — REPAIRS
Montague Range and Furnace Company
327-329 JESSIE STREET Phone Garfield 1422
SAN FRANCISCO, CALIF.
826-830 MISSION STREET

When writing to Advertisers please mention this magazine.
HANSEN, ROBERTSON & ZUMWALT
General Contractors
and Managers of Construction
4145 BROADWAY
Oakland, California
Phone Pied. 984

CHARLES T. PHILLIPS COMPANY
CONSULTING ENGINEERS
HEATING, VENTILATING, ELECTRIC WIRING, PLUMBING
Roberts Building, Los Angeles

VAN EMON ELEVATOR COMPANY
PASSENGER ELEVATORS FREIGHT
1159-65 Howard Street
Market 808
San Francisco, Calif.

CENTRAL IRON WORKS, Inc.
STRUCTURAL STEEL
Office 2050 BRYANT STREET
SAN FRANCISCO, CAL.

GRINNELL AUTOMATIC SPRINKLER
GRINNELL COMPANY
OF THE PACIFIC
VALVES
453 Mission Street, San Francisco
ENGINEERS AND CONTRACTORS
CHEMICAL FIRE EXTINGUISHERS
PIPE and FITTINGS
and FIRE ENGINES
142 SANSOME STREET
San Francisco, California

Fire Protection Engineering Company
ENGINEERS AND CONTRACTORS
Automatic Sprinkler Systems
Automatic Fire Alarm Systems
Watchman Detector Systems
Executive Offices and Factory
Chemical Engines
Hand Fire Extinguishers
Motor Driven Fire Apparatus
142 SANSOME STREET
San Francisco, California

CLINTON CONSTRUCTION COMPANY
BUILDERS AND MANAGERS OF CONSTRUCTION
923 Folsom Street
San Francisco

THE TORMEY COMPANY
GENERAL PAINTERS & DECORATORS
971 HOWARD STREET
SAN FRANCISCO

When writing to Advertisers please mention this magazine.
READING PIPE
GENUINE WROUGHT IRON
MARK LALLY COMPANY
REPUBLIC SUPPLY CO.
SAN FRANCISCO
Stocks Carried By
REPUBLIC SUPPLY COMPANY
PACIFIC PIPE & SUPPLY CO.
LOS ANGELES

RAY COOK MARBLE CO.
IMPORTED AND DOMESTIC MARBLES
For Building Construction
Factory and Office, foot of Powell St., Oakland
Phone Piedmont 1009

CHAS. E. PARCELLS
COMMERCIAL LIGHTING FIXTURES
Distributors for PERFECTLITE
SHARON BUILDING, 55 NEW MONTGOMERY STREET, SAN FRANCISCO
Perfektlites produce absolutely no shadows on ceiling

I. M. SOMMER & CO.
ENGINEERS AND
CONTRACTORS
Phone Hemlock 1100
501 BRYANT ST., SAN FRANCISCO

B. HEINRICH, Vice-President
SAN FRANCISCO ELEVATOR CO., Inc.
ELEVATORS
Automatic, Electric, Hydraulic, Belt Power, Automatic Dumbwaiters and
Handpower Machines, Push Button Passenger Elevators a Specialty
Telephone Kearny 2443
860 FOLSOM STREET, SAN FRANCISCO

JOHN A. PETERSON, President

SCALES -- PUMPS -- ELECTRIC MOTORS -- OIL ENGINES
MACHINERY AND SUPPLIES
FAIRBANKS MORSE & CO.
SPEAR AND HARRISON STS., SAN FRANCISCO

GLOBE AUTOMATIC SPRINKLERS
Will protect your building and business from destruction by
fire and reduce your Insurance Rate. Write for estimates.
Pacific Fire Extinguisher Company
FIRE PROTECTION ENGINEERS
424-440 Howard Street, San Francisco
Manufacturing Plant, 298 Fremont St.

JAMES L. McLAUGHLIN
GENERAL CONTRACTOR
Phones Douglas 6645—6646
251 KEARNY STREET, SAN FRANCISCO

When writing to Advertisers please mention this magazine.
MORTENSON CONSTRUCTION CO.
STRUCTURAL STEEL FABRICATORS
Office and Shops
19th AND INDIANA STREETS
Phone Mission 5033
SAN FRANCISCO, CAL.

JUDSON MANUFACTURING COMPANY
Main Office:
817-821 FOLSOM STREET
Telephone Sutter 6826
SAN FRANCISCO

Federal Ornamental Iron & Bronze Co.
Bank Counter Screens and Grille Work Our Specialty
Most Modern Equipment Throughout
Recent Contracts: BANK OF ITALY, FIRST NATIONAL BANK
16th Street and San Bruno Avenue, San Francisco
Phone Market 1011

HERRICK IRON WORKS
STRUCTURAL STEEL
Office and Works, 18th and Campbell Streets
Oakland, Cal. Phone Lakeside 1460

Beam, Angle, Channels, and Universal Mill Plates for immediate shipment from stock
PACIFIC ROLLING MILL CO.
Suppliers of FABRICATED STRUCTURAL STEEL
Forgings, Bolts, Rivets, Frogs, Switches, Cast Iron Castings
General Office and Works: 17th and Mississippi Sts., San Francisco — Telephone Market 215

C. F. HOFFMAN
L. W. FLIEGNER
Golden Gate Iron Works
STRUCTURAL STEEL AND ORNAMENTAL IRON CONTRACTORS
Howard and 11th Streets
San Francisco

SCHRADER IRON WORKS, Inc.
STRUCTURAL STEEL CONTRACTORS
Fire Escapes, Waterproof Trap Doors, Ornamental Iron Work
1247-1249 HARRISON STREET
Bet. 8th and 9th
SCHRADE IRON WORKS, Inc.
San Francisco, Calif.
Telephone Market 387

When writing to Advertisers please mention this magazine.
Myron Hunt,  
Architect

AMBASSADOR HOTEL, LOS ANGELES
Floors and Roof Reinforced Throughout with
CLINTON ELECTRICALLY WELDED FABRIC
SAN FRANCISCO  WICKWIRE SPENCER STEEL CORP.  LOS ANGELES

George S. MacGruer  
Robert M. Simpson  
Members of Builders Exchange

MacGruer & Simpson
CONTRACTING PLASTERERS
PLAIN AND ORNAMENTAL
Cement, Stucco and Artificial Stone
Phone Garfield 512  266 Tehama Street, San Francisco

JOHN TRAYNOR
CHARLES HARcourt

OCEAN SHORE IRON WORKS
Manufacturers of
BOILERS, STEEL TANKS, STEEL PLATE SPECIALTIES
Dealers in
BOILERS, TANKS, PUMPS, ENGINES
GENERAL MACHINERY, ETC.
Office and Works:  
550-558 EIGHTH STREET
Phones Market 462 and 463  SAN FRANCISCO, CAL.

PACIFIC COAST STEEL COMPANY
OPEN HEARTH
STEEL BARS — STRUCTURAL SHAPES
BOLT AND RIVET STOCK
REINFORCING STEEL
Sales Office:  
RIALTO BUILDING  Phone SUTTER 1564
Plant:  
SOUTH SAN FRANCISCO

When writing to Advertisers please mention this magazine.
BUTTE ELECTRIC AND MFG. CO.
PAUL BUTTE, Owner
HIGH GRADE ELECTRICAL INSTALLATIONS
FEDERAL ELECTRIC BANK PROTECTION SYSTEMS
DOUGLAS 145
956 Folsom Street
San Francisco
San Francisco, Cal.
Oakland, Cal.
Los Angeles, Cal.
Ne PAGE, McKENNY CO.
Electrical Engineers and Contractors
Phone Sutter 2369
589 Howard St., San Francisco, Cal.

PACIFIC ELECTRIC CLOCK CO.
J. J. Estabrook
Manufacturers and distributors of Electric Clock Systems and Time Keeping
Devices for Schools, Public and Private Buildings. Plans and Specifications
prepared by competent engineers without charge.
86 THIRD STREET
SAN FRANCISCO, CALIF.

ELECTRIC CONSTRUCTION CO.
CONTRACTING ELECTRICIANS
L. G. JEFFREY, Manager
Phone 213
616 BROADWAY
FRESNO

To Be “Low Bidder’’ Not Always Our Aim
“QUALITY AND SERVICE ALWAYS”
Our nation-wide organization and large experience in this field assure you
always of fair estimates and absolute satisfaction.
Electrical Appliances
F. E. NEWBERY ELECTRIC CO.
Alta Building, 381 Bush Street, San Francisco
Phone Sutter 6361

SPENCER ELECTRIC COMPANY
320 12th Street, Oakland
FIXTURES "EFFICIENT ELECTRIC SERVICE" WIRING
Telephones Oakland 492-3233

SILENT CALL
Chicago SIGNAL SYSTEMS
HOSPITAL
GARNETT YOUNG AND COMPANY
Pacific Coast Sales Engineers
612 Howard St., San Francisco
Los Angeles
Seattle
Portland

Browne-Langlais Electrical Construction Co.
Agents for
ROBBINS and MYERS MOTORS. PACKARD MAZDA LAMPS
315 FIFTH STREET, SAN FRANCISCO
Telephone Douglas 976

When writing to Advertisers please mention this magazine.
1828—MOTT—1923

Architects and their clients are invited to visit our show rooms, 553-555 Mission St. San Francisco, D. H. Gulick, manager.

MOTT COMPANY of California

DOUGLAS 2046  FELIX BUTTE

BUTTE ELEC. EQUIPMENT CO.
Trade Mark BEECO Registered
ELECTRICAL CONTRACTORS
530 FOLSOM STREET  SAN FRANCISCO

L. SIEBERT  DESIGNERS AND MANUFACTURERS OF  J. GENSLER
SWITCH BOARDS · PANEL BOARDS PROTECTIVE POWER PANELS
Drendell Electrical and Mfg. Co.
1760 HOWARD STREET  SAN FRANCISCO, CALIF.

MUELLER
Faucets give full value in wear and service.
The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?
THE NEWEST AND BEST THING IN FAUCETS
H. MUELLER MFG. CO.
1072-76 HOWARD STREET  SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.
MILLER FOLDING IRONING BOARD
ELIMINATES WALL CABINET—IS INSTALLED IN KITCHEN CUPBOARD
NO PLASTER GROUNDS SAVES WALL SPACE AND LABOR ON CASING OR PAINTING
Exhibited by LANNOM BROS. MFG. CO
and sold by 362 Magnolia St., Oakland, Calif.
Send for W. N. MILLER Catalogue to 364 Thirteenth St., Oakland

PACIFIC MANUFACTURING COMPANY
MILL WORK, SASH AND DOORS
HARDWOOD INTERIOR TRIM A SPECIALTY
MAIN OFFICE: SANTA CLARA, CALIFORNIA
SAN FRANCISCO, 177 Stevenson Street
OAKLAND, 1001 Franklin Street
LOS ANGELES, 908 Washington Building
SAN JOSE, 16 North First Street

C. F. STAUFFACHER, President
A. A. STAUFFACHER, Vice-President
THE FINK & SCHINDLER CO.
Manufacturers of INTERIOR WOODWORK AND FIXTURES
BANK, OFFICE AND STORE FITTINGS
SPECIAL FURNITURE
218-228 THIRTEENTH STREET
BET. MISSION AND HOWARD STS.
SAN FRANCISCO, CAL.
Telephone Market 474

LARSEN-SIEGRIST CO., Inc.
BUILDING CONSTRUCTION
807 CLAUS SPRECKELS BUILDING
SAN FRANCISCO

Steam Heating and Power Plant Equipment
JAMES I. KRUEGER Telephone Sutter 7057
Representative
ILLINOIS ENGINEERING COMPANY
SKIDMORE VACUUM AND BOILER FEED PUMP
EUREKA BRASS WORKS
417 Market St. Suite 320
San Francisco, Calif.

Mullen Manufacturing Co.
BANK, STORE AND OFFICE FIXTURES—CABINET WORK OF GUARANTEED QUALITY—CHURCH SEATING
Telephone Market 8692
Office and Factory:
64 Rausch St., BET. 7th and 8th STS, SAN FRANCISCO

PHONE KEARNY 1924
DECKER ELECTRICAL CONSTRUCTION CO.
149 NEW MONTGOMERY STREET
SAN FRANCISCO

FLOWERING EUCALYPTUS
The Flaming Gum Tree of Australia (Eucalyptus Ficifolio)
A mass of flame-colored bloom through the summer months
LIMITED SUPPLY OF SMALL TREES FOR SALE FOR FALL AND SPRING PLANTING
A. K. Wallis
Telephone Berkeley 671-N
2628 Shattuck Ave.
Berkeley, Calif.

When writing to Advertisers please mention this magazine.
Fire Protection Corporation
Engineers and Contractors
FOR
Automatic Sprinkler Systems
315 Montgomery St. San Francisco, Cal.
Phone Sutter 2993

LIBBEY OWENS
FLAT DRAWN WINDOW GLASS
EXCELLED ONLY BY PLATE GLASS
Cobbledick-Kibbe Glass Co.
DISTRIBUTORS
SAN FRANCISCO OAKLAND

WIRING
CENTRAL ELECTRIC
2ND DEALERS
177-179 Minna Street, San Francisco
Phone Douglas 4832

H. RUMPF
CONTRACTING DECORATOR
CUSTOM BUILT FURNITURE
DRAPERIES AND FURNISHINGS
School and Theater Equipment
Drop Curtains, Draperies
Specializing in Furnishings for Hotels,
Lodges, Clubs, Steamships, Apartment
Houses.
Estimates Furnished
567 HOWARD STREET, SAN FRANCISCO, CALIF.

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deaden-
ing.
JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 POST STREET
San Francisco

"BLAZING" THE TRAIL
We've been doing it for many years—
giving the Sportsman Better Value for
Quality than he ever before received.
"Value at a Fair Price" in everything for
the Sportsman.

JOHNS-MANVILLE, Inc.
of California
SERVICE TO ARCHITECTS
Architectural Acoustics and Sound-Proofing,
"Colorblende" Asbestos Shingles, Asbestos Pre-
pared Roofings, Asbestos Built-up Roofings,
Mastic Industrial Flooring, Keystone Hair In-
sulating and Sound-Deaden-
ing.
JOHNS-MANVILLE, Inc.
of California
DISPLAY ROOM
500 POST STREET
San Francisco

When writing to Advertisers please mention this magazine.
Gnite Facing—For Concrete, Brick, Tile, Steel, Frame Structures and Fireproofing of Steel Members.

Gnite Lining—For Reservoirs, Dams, Canals, Tunnels, Walls and Subways and Harbor Construction.

Estimates and Bids Furnished

Cement Gun Construction Company

CONTRACTING AND ENGINEERING

1402 Hobart Building

Phone Garfield 5547

San Francisco

Save Space—Add Beauty and Comfort to the Home or Apartment.

[Picture shows one of our latest type disappearing twin beds]

Brown Disappearing Bed Co.

Display and Salesrooms:

745 Phelan Bldg., San Francisco

Telephone Garfield 6652

Jewett Refrigerators

Chelsea Dumb Waiters

Automobile Turntables

Electric Plate Warmers

M. E. HAMMOND

PACIFIC BUILDING

SAN FRANCISCO

Carey

BUILT-UP ROOFING

Pipe and Boiler Coverings

Asbestos Roofing

Elastite Expansion Joints

Carey Fibre Roof Coating

Asphalt Shingles

JONES BROTHERS ASBESTOS SUPPLY COMPANY, INC.

500 Second Street, San Francisco

Telephone Douglas 7630

BRASS TACKS!

Why Wade Through Thousands of Pages?

"Building Labor Calculator"

Gets down to brass tacks—covers everything in building estimating (material quantities and labor-hours) in tables you can read at a glance. Not for your library but for your pocket—in the office—on the job. Quick, accurate and complete.

For test pages, descriptive folder and free examination offer clip this ad and write—

GORDON M. TAMBLYN, General Contractor

No. 9, Sweeney Bldg., Denver, Colo.
The Elevator Floor
whether in Office Building, Hotel or Department Store, is subjected to a great deal of wear and tear.

SPECIFY
INTERLOCKING RUBBER TILING

and you've provided your client's building with a Durable, Economical, Practical material that is sure to give satisfaction. Twenty tons installed in the Standard Oil Building, San Francisco. Stock on hand for immediate delivery.

NEW YORK BELTING AND PACKING CO.
NEW YORK
San Francisco Branch 519 MISSION ST. Phone Douglas 1837
Small booklet of designs mailed on request

When writing to Advertisers please mention this magazine.
Chosen Again

THE new Ritz Hotel in Los Angeles, designed by Curlett & Beelman, Architects, is equipped throughout with

Schroeder Valves
Manufactured by Schroeder Flush Valve Co.
1300-02 N. Main Street, Los Angeles
16 Stuart Street, San Francisco

THE "PARMCO"
Vertical and Horizontal Casement Windows
Economical, Substantial Rolled Sheet Metal Sash and Frame. Reversible for cleaning.
PACIFIC ROLLED METALS CO.
715 Harrison Street
San Francisco
"PARMCO" Ventilators, Puttyless Skylights, Underwriters Fire Doors.

REMILLARD BRICK CO.
Est. 1869
Manufacturers
COMMON BRICK
332 Phelan Building
San Francisco, Calif.
Plants: San Jose, Pleasanton

CORROSIRON
the acid-proof drain pipe

Make your acid drain lines permanent -:- -:-
Corrosiron drain pipe and fittings manufactured and carried in stock in San Francisco

PACIFIC FOUNDRY COMPANY
Harrison and Eighteenth Streets
SAN FRANCISCO

"CALIFORNIA STUCCO"

It is a finishing plaster coat made in many beautiful colors, from a true Portland Cement base, which assures everlasting qualities.

"The Stucco which is making California Architecture famous"

For Sale by All Dealers

California Stucco Products Co.
340 DORE ST., SAN FRANCISCO
1501 S. ALAMEDA ST., LOS ANGELES

When writing to Advertisers please mention this magazine.
The big, new,
Standard Oil Building
in San Francisco
is heated by the
WEBSTER SYSTEM OF
STEAM HEATING
—so are many other big, famous,
popular buildings in this country
and elsewhere heated with Webster
Systems of Steam Heating. Inquire
for full particulars.

Warren Webster & Company
HOME OFFICE: CAMDEN, N.J.
SAN FRANCISCO: SHARON BLDG.
LOS ANGELES: 306 CROCKER ST.

Casement Window Operators
Simple!
—No gears.
—No set screws.
—Self locking.
—Operates from inside screens.
—Made in 3 types and numerous
finishes for cottage to mansion.
—For details see 3 pages in Sweet's
or send for Special Architects
Catalog No. 9.

The Casement Hardware Co
241 Pelouze Bldg., Chicago, Ill.

Recent
Office Buildings

STANDARD OIL
SAN FRANCISCO
MATSON
NAVIGATION CO.
SAN FRANCISCO
CALIFORNIA STATE
LIFE INSURANCE
COMPANY
SACRAMENTO

Lindgren & Swinerton, Inc.
New Standard Oil Building
225 Bush Street
On the Sixth Floor

When writing to Advertisers please mention this magazine.
"Standard"

THIRTY-SIX years' experience manufacturing and installing Electric Time Keeping Systems. Helpful engineering data cheerfully furnished architects, engineers and school boards insuring satisfactory results, and a direct factory branch office completely equipped to render immediate service.

The Standard Electric Time Company
461 Market St., San Francisco, Cal.
Telephone Sutter 241

CLIMAX ROTARY Refrigeration Unit
Provides simple, dependable, economical and sanitary refrigeration for all purposes.
Every Hotel, Candy Store, Butcher Shop, etc., should own a Climax Refrigeration Unit.
Write for Literature

EDWARD R. BACON COMPANY
CONSTRUCTION & SERVICE EQUIPMENT
Folsom at 17th St., San Francisco
Oakland Fresno Los Angeles Sacramento

PRASCO PINLESS SWINGING HOSE RACK
For 50, 75, 100 ft. Underwriters Uniined Linen Hose
No pins to break, bend, or jam
Hose pays off one loop after the other

Plant Rubber & Asbestos Works
537 Brannan St. San Francisco Tel. Sutter 2100

IMPERIAL WATERPROOFING
Will Keep Out Moisture and Dampness
Trade WATERX Mark
If your building is leaking through the walls or around the windows, or if the Basement walls are wet below ground—call up SUTTER 978.

IMPERIAL WATERPROOFING is manufactured by BROOKS & DOERR, 460 7th St., San Francisco
1002-04 Merchants National Bank Building
Phone Sutter 978
SAN FRANCISCO, CAL.
Not a substitute for Anything!

But a vast improvement over lath and plaster for lining walls and ceilings

Pacific Five-Ply Board is really lath and plaster in the proper proportions and in convenient form. It is a wood core encased in a fireproof, moisture proof mineral cement, stronger than the best concrete.

By actual tests Pacific Five-Ply Board is far superior to either pulp wall board or plaster board in tensile strength, deflection and resistance to puncture. Will not contract or expand, bulge, warp, crack or crumble; is air tight and fire resistant.

Pacific Five-Ply Board is sawed and worked just as you would handle lumber. It comes in sheets 4 feet wide and in lengths from 6 to 16 feet. It is strong, durable, attractive in appearance, easily installed, sanitary, and economical. Send for descriptive literature.
Structural Steel
Union League Club Building, San Francisco
Fabricated and Erected by
Western Iron Works
Structural Iron and Steel Contractors
Steel Wheelbarrows in Stock
141-147 Beale Street and 132-143 Main Street
SAN FRANCISCO
Phone Garfield 2375

Fenestra
SOLID STEEL WINDOWS

DETROIT STEEL PRODUCTS CO., Detroit
251 Kearny Street, San Francisco
Pacific Coast Branch Factory at Emeryville
Phone Sutter 1250

Steel Frame, California State Building, Civic Center, San Francisco.
FABRICATED BY
THE PALM IRON AND BRIDGE WORKS (Incorporated)
15th and R Streets, Sacramento

Bliss & Faville, Architects

WESTERN ASBESTOS MAGNESIA CO.
INSULATING ENGINEERS AND CONTRACTORS

USE

CELOTTEX

INSULATING LUMBER

FOR

PLASTER BASE
STUCCO BASE
INSULATOR
SOUND DEADENER
ACOUSTIC CORRECTOR

Asbestos and Asphalt Slate Shingles and Roofings
Asbestos Built-Up Roofings—Roof Coatings
Magnesia and Asbestos Pipe and Boiler Coverings
Cold Storage Insulation
Cork Pipe Covering, Board and Granulated Cork

SECTIONAL EXPANSION PAVING JOINT

21-29 South Park
Bt, 2nd and 3rd Sts.
San Francisco, Cal.
Telephone Douglas 3860

When writing to Advertisers please mention this magazine.
The Portals of the Past

Symbolic of things that endure
The threshold across which the way
to new achievement lies

For us, our record of past performance—
the unheralded carry-through day-by-day
—we are content to let serve as an index
of our capability to meet the tests of new responsibilities in the

FABRICATION & INSTALLATION OF
STEEL BARS

GUNN, CARLE & COMPANY
444 Market St. SAN FRANCISCO Sutter 2720
STOCKS AT WAREHOUSE, 10TH AND BRYANT STREETS

Make the home fireproof

Best Method for Plastering Homes
Fireproof, crackproof and economical in every way.

This method has reinforced plaster \( \frac{1}{2} \)" thick and the additional economy of saving \( \frac{1}{4} \)" floor space.

Specify TRUSCON 1-A METAL LATH
with \( \frac{1}{4} \)" grounds which is available at a cost comparable with Wood Lath.

Ask us for detailed information

TRUSCON STEEL COMPANY
Chas. Halloway, Branch Manager
709 MISSION ST. Phone Douglas 7135 SAN FRANCISCO

When writing to Advertisers please mention this magazine.
Building to an Ideal

To design a heating system that will offer the utmost in economy of installation and of operation—
To build into it the best care and thought of men whose skill is that of the old-time craftsmen who shaped and fashioned by sheer handiwork alone—

To distribute and to service all of the products it manufactures on the basis of exact fitness for the work they must perform, so as to insure maximum efficiency of operation and lowest possible depreciation through their years of use—
These are the composites of the ideal always before us—an ideal which we have striven toward for more than two decades, and from which there will be no turning aside.

Sixty branch and local sales offices in the United States and Canada bring Dunham Heating Service as close to your office as your telephone. Consult your telephone directory for the address of our representative in your city. Ask him for the names of representative Pacific Coast installations.

C. A. DUNHAM CO.

Los Angeles
San Francisco
Seattle
Portland
Spokane
119 E. Third Street
585 Mission Street
2021 L. C. Smith Building
410 Board of Trade Building
405 Sherwood Building

Spanish Homes
At Santa Barbara and Pebble Beach

An Issue of
Exceptional Interest to Pacific Coast Architects

Showing the Work of
Geo. Washington Smith, Architect
Criticism by Irving F. Morrow

July Architect and Engineer

When writing to Advertisers please mention this magazine.
Concrete and Progress

Not only in the shifting sky-lines of New York and San Francisco, but throughout all this broad land of ours, we see in the making a new and greater American Architecture.

In the development and steady advancement of modern architecture, concrete is naturally playing a conspicuous part.

Concrete means the economic and structural requirements of the twentieth century, and its wide range of adaptability in form and color gives the architect and the sculptor practically unlimited opportunity to express their ideals of beauty.

The booklets, shown above, contain a wealth of practical information on concrete. The list is as follows: "Concrete Data for Architects and Engineers," "Portland Cement Stucco," "A Manual of Concrete Masonry Construction," "Concrete School Houses," "Concrete Hotel, Apartment and Office Buildings," "Mercantile and Industrial Buildings of Concrete."

Let the nearest office listed below know which booklets you want. They will be sent without obligation.

PORTLAND CEMENT ASSOCIATION
A National Organization to Improve and Extend the Uses of Concrete

Atlanta
Birmingham
Boston
Charlotte, N. C.
Chicago
Dallas
Denver
Des Moines
Detroit
Helena
Indianapolis
Jacksonville
Kansas City
Los Angeles
Memphis
Milwaukee
Minneapolis
New Orleans
New York
Oklahoma City
Parkerburg
Philadelphia
Pittsburgh
Portland, Ore.
Salt Lake City
San Francisco
Seattle
St. Louis
Vancouver, B. C.
Washington, D. C.

Our Booklets are sent free only in the United States, Canada and Cuba.
The Architect who specifies Otis Elevators may do so with the assurance that the responsibility of the Otis Elevator Company extends beyond satisfactory installation. Buildings equipped with Otis Elevators enjoy the advantage of prompt service and careful inspection rendered by over a hundred Otis offices.

OTIS ELEVATOR COMPANY
2300 Stockton St. San Francisco
Offices in All Principal Cities

When writing to Advertisers please mention this magazine.