HERE is a milestone in home-building progress... well-designed, attractive homes, with walls and partitions cast in a durable concrete monolith... ultra-modern conveniences, even to radiant heating... only 30 minutes from the heart of New York City... selling, and selling fast, for $11,900.

CALLAN BUILDERS, INC., of Manhasset, L.I., are building 150 of these concrete homes at Manhasset Isle, Port Washington, L.I. Through mechanized operation, using specially-designed, rugged steel forms, the frame is erected in less than 2 days—only 6 days to turn out a complete house! A crane places forms for the entire structure, complete even to screw holes for door hinges and other fittings. 'Incor'** 24-Hour Cement permits high-speed schedules and provides clean, smooth finished surfaces. Staunch 7-inch exterior walls have 3 inches of reinforced concrete on either side of a one-inch insulation panel—a thoroughly moisture-proof wall. A pleasing exterior is obtained by rustication. Exteriors are painted with permanent cement paint; wallpaper is applied directly to inside walls.

Americans have a sixth sense—the dollar-value sense. You can tell it by the way they "go" for these concrete homes. And why not? Because here is a house proof against fire, rot, sag, crack and time itself... modern construction at its soundest and best.

Out of the Trane laboratories there comes a development that changes many long-standing notions of what can and what cannot be done with equipment for conditioning air in multi-room buildings.

This development is a device which transforms an ordinary room type unit cooler into a true air conditioner.

MOISTURE CONTROL
An ordinary unit cooler is primarily a device for reducing the temperature of air. As a part of this operation, it may also remove moisture from the air. But moisture removal is a part of the air cooling process. In an ordinary unit cooler it cannot be controlled separately. The Trane development provides the missing essential—
dependent control of temperature and moisture.

It is now possible, with a single, compact room unit, to control both sensible and latent heat in recirculated and ventilation air.

UNITRANE
The new air conditioning system which Trane engineers have designed around this dual purpose room unit has been named the UNITRANE System.

The unit itself is known as UniTrane Type MC. The symbol MC means Moisture Control.

NO DUCTS!
UniTrane—the new air conditioning—requires no ducts. It is a true unit system.

Each unit introduces the amount of ventilation air for which it is set—processes it—blends it with processed room air in the desired ratio—and circulates the conditioned air throughout the room.

Each room is separately conditioned in accordance with its particular requirements. Each has its own temperature control.
**INSTALLATION SIMPLIFIED**

UniTrane uses water as a heating and cooling medium. The same simple piping circuit that supplies warm water to the units for heating in winter also supplies chilled water to the units for cooling in summer. Changeover from warm water to cold water is automatic.

**ENGINEERING SIMPLIFIED**

The UniTrane piping circuit is as simple as the piping of a straight hot water heating system for any given building. Selection and installation of units is equally simple.

*Elimination of ducts eliminates the bulk of the design and application problems.*

UniTrane is quick, clean, easy to handle for old or new buildings. Careful product engineering conserves the consulting engineer's time for producing an installation that exactly meets requirements.

**BROAD APPLICATION**

*UniTrane is for large multi-room buildings.* It is exactly what is required for hotels, hospitals, office buildings and similar structures. Each room, office or suite has its own individually controlled air conditioning the year around.

*UniTrane is for medium-sized multi-room buildings.* Since this is a true unit system, the system may be used effectively in buildings of medium size as well as in large buildings.

*The UNIT OF DESIGN is the room.* Whether there are 20, or 200, or 2000 makes no basic difference.

UniTrane is for *comparatively small multi-room buildings.* Any building that contains enough rooms to warrant a central boiler and a central source of chilled water is large enough for this *new* air conditioning.

**DESIGN AND APPLICATION DATA**

Your Trane Sales Office now has advance data on this important Trane development. Information is being placed in the hands of architects, engineers and contractors as rapidly as possible. Regular printed data is now on press.

*If you agree with Trane engineers that this new system heralds a new era in multi-room air conditioning, you will want us to reserve copies of the new data for you. We'll gladly do so on request.*

THE TRANE COMPANY, LA CROSSE, WISCONSIN. Also: TRANE COMPANY OF CANADA, LTD., TORONTO, ONTARIO.

---

*THE MOISTURE CONTROLLER.* Designed around a series of compact axial flow heat exchangers, this entirely new and different device has made possible the development of a radically improved unit air conditioner for multi-room buildings. *Patent applied for.*

*UNITRANE TYPE MC ROOM UNIT.* The unit cooler, incorporating the new Trane Moisture Control element, becomes a true room air conditioner. It handles both room air and ventilation air. It controls moisture as well as temperature. It cleanses all air.

---

**TRANE**

HEATING AND AIR CONDITIONING
Steam returns, underground piping, hot and cold water lines—as every plant engineer knows, these services face severe corrosion hazards, and only a durable pipe material can protect against early failure and expensive replacement.

In writing the mechanical specifications for an addition to Mercy Hospital, Springfield, Ohio, this maintenance threat was forestalled by extensive use of wrought iron. All the returns, all underground piping except drains, and all hot and cold water lines larger than 2½-inches, were specified "wrought iron." Byers Wrought Iron pipe, in sizes from 3-inch to 8-inch, was utilized. A portion of the installation is shown in the picture. Maguolo & Quick, successors to P. M. O'Meara & Associates were the architects. T. J. Connor Company Inc., handled the plumbing and heating work.

SELECTION METHODS
If you are contemplating new construction, or extensions or replacement of existing piping services, you'll find it profitable to check up on the performance of wrought iron. Water varies widely in its corrosive characteristics, and selection of piping material should be preceded by a careful study, which we will be glad to help you make. Steam return lines, however, are invariably corrosive... and wrought iron has been so uniformly successful in combating the attack that it should be given first consideration.

The unusual corrosion-resistance of wrought iron, which has led to its widespread and successful use, comes from the unique composition and structure of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, "detour" corrosive attack. They also anchor the initial protective scale, which shields the underlying metal.

WANT LITERATURE?
Our bulletin, "Wrought Iron for Piping Systems" discusses the conditions encountered in varied services, and suggests proven means to combat them. We will be glad to send you a copy, on request.

Vol. 104 • No. 6

December 1948

WE NEED THE FACTS ON HOUSING
An Editorial . . . by Kenneth K. Stowell

A CITY GLORIFIES ITS "OLD SWIMMING HOLE"
Municipal Bath House and Park, Austin, Texas. Dan J. Dritsoll, Architect

TRAFFIC AND PARKING IN BEVERLY HILLS
A Brief Illustrated Summary of the Comprehensive Study and Report of Harland Bartholomew and Associates, City Planners

BACHELOR'S RESIDENCE IN THE HOLLYWOOD HILLS
Residence of Mr. Richard A. Hartje, Los Angeles. Rolf Sklarek, Architect

COMPACT HOUSE IN CALIFORNIA CANYON
Rodney Walker, Architect

CONSTRUCTION OUTLOOK FOR 1949
By Thomas S. Holden and Clyde Shute

ELECTRONICS PLANT WITH PRECISE CONTROLS
Western Electric Company's Allentown, Pa., Plant. The Austin Company, Designers and Builders

BUILDING TYPES STUDY NO. 144
Recreation Buildings

THE PLANNING OF RECREATIONAL CENTERS
By F. Ellwood Allen and Weaver W. Pangburn

PROJECTS
Antonin Raymond and L. L. Rado, Architects; F. Ellwood Allen Organization, Park and Recreation Planners
1. Neighborhood Recreation Center, Summit, N. J. 115
2. The Community Center for Hickory, N. C. 118
3. A Recreation Center at Bloomington, Ill. 126

ARCHITECTURAL ENGINEERING
Technical News and Research
By John M. Morse

MUSEUM LIGHTING STUDIED IN LABORATORY
By Laurence S. Harrison

WEST COAST INNOVATIONS IN SWIMMING POOL DESIGN

PRODUCTS
for Better Building

TIME-SAVER STANDARDS
Swimming Pool Design Data

MANUFACTURERS' LITERATURE

THE RECORD REPORTS
News from the Field

CONSTRUCTION COST INDEXES

REQUIRED READING

EMPLOYMENT OPPORTUNITIES

SEMI-ANNUAL INDEX

INDEX TO ADVERTISEMENTS
Adjustable Flush Valves
Overwhelmingly Preferred

by 7 out of 8
ARCHITECTS

Based upon 288 replies from an unbiased
survey made among 500 architects se-
lected at random from the distribution
list of Sweet's Architectural Catalog File.

by 20 out of 21
PLUMBING
CONTRACTORS

Based upon 508 replies from an unbiased
survey made among 1,154 of the coun-
try's leading plumbing contractors, in-
cluding those registered at the 1947
N.A.M.P. Convention.

by 8 out of 9
FLUSH VALVE
USERS

Based upon 247 replies received in an
unbiased survey conducted among 458
hospitals, schools, hotels, office buildings,
and similar public and commercial build-
ings; lists supplied by publishers of lead-
ing trade magazines.

Seldom has a single feature of any product
received such overwhelming endorsement.
These surveys show that all those who have
anything to do with flush valve selection,
installation, or maintenance vote almost
unanimously in favor of making flush valves
adjustable.

If you have a job that needs flush valves,
be sure you get the kind that can be adjusted
to provide maximum water savings accord-
ing to the needs of each individual fixture
... the kind that is fully capable of maintain-
ening peak operating efficiency despite years
of service or changing operating conditions.

All Watrous Flush Valves are that kind. It
was Watrous who first pioneered and de-
veloped the adjustable idea, and it is one of
many contributions that make Watrous
Flush Valves today outstanding for depend-
ability and lasting economy.

THE IMPERIAL BRASS MANUFACTURING COMPANY
1240 W. Harrison Street, Chicago 7, Illinois

For complete information on
Watrous Flush Valves see
Sweet's Catalog, or write for
Catalog No. 448A. Also ask
for Bulletin 477 giving a sum-
mary of "Architects' Views
on Flush Valve Applications."

A few additional words in your specifications,
such as: "All flush valves shall have an exter-
nal adjustment for length of flush," will
bring all the above advantages.
THE RECORD REPORTS

Election Upset Turns Construction Industry's Thoughts toward Renewed Controls, Passage of Broad Housing Bill, Government Investigations

The election upset a month ago has had the construction industry worrying in terms of allocations, priorities, controls. Evaluating the place of contractors, engineers and architects in the economy that lies ahead naturally bases itself on too-fresh reminiscences of federal control following the war.

Certainly there lies ahead for construction some repetition of the regulation pattern. This seems inevitable in view of the Administration proposals during the past two years on housing and other comprehensive measures which failed to find ready reception with a Republican-controlled Congress. Now that the Democrats hold the reins undisputedly, there remains very little doubt that the Democratic policies on important construction matters will be made an early matter of business in the 81st Congress.

The stumbling blocks to the Truman proposals largely are removed now. For example, the broad Taft-Ellender-Wagner housing bill which was stymied in the House after Senate passage no longer will run against opposition in the Banking or Rules committees. The key positions will be filled by Democrats and full party support of this and other Administration policies on Capitol Hill is assured.

Who Will Lead the Fight?

The picture is not entirely clear at this time concerning the significant Committee positions in Congress beyond the knowledge that they will be filled by Democrats. Of prime interest to the housing industry are the chairmanships of the Banking and Currency groups in both chambers. Whereas Jesse M. Wolcott, Michigan Republican, successfully steered the comprehensive housing bill away from his House Banking Committee on occasions, and always guided carefully the legislation voted to the floor, that group now will be under the direction of a Democratic chairman, probably Brent Spence of Kentucky. Rep. Spence is widely recognized as an ardent champion of federal assistance in housing construction, favoring slum clearance, urban redevelopment and government participation in the building of low-cost housing for low-income families.

Over on the Senate side, Charles Tobey, New Hampshire Republican who chairmans the powerful Banking Committee, will give up that position. Sen. Robert F. Wagner of New York is in line for the job, but he has been in ill health, appearing on the Senate floor only twice during the last session. This situation means that the leadership of the Senate Banking group could go to Burnet R. Maybank of Charleston, S. C., who was up for re-election this year. Maybank is known as a liberal who was elected to finish the unexpired term of Hon. James F. Byrnes in 1941, and re-elected in 1942 and again this year.

The chairmanship of the important House Rules committee, held by Leo E. Allen of Illinois, now would go to Adolph J. Sabath, also an Illinoisan. Sabath is known to favor the asserted Administration housing policies; this is of significance because the Rules group holds the power to block any bills and hold them from House consideration, even though they have been given other committee approval. This is precisely what happened to the T-E-W measure in one instance.

Actual committee appointments will not be known until after the first of the year, but on the basis of current speculation that is the way the leadership will formulate after the caucus meetings.

Trade associations, for the most part, gloomily reviewed the election returns and feared they faced a modified repetition of the controlled economy under which industry labored and which industry as a whole fought in the immediate postwar years.

Reorganization Plans in Doubt

The surprising Democratic victory also cast the proposed reorganization of the construction activities of government in a different light. The Herbert Hoover Commission on reorganization of the executive branch was voted into being by a Republican Congress, though it is manifestly bipartisan in its establishment and operation. Now a task force of the Hoover Commission, a task force headed by Robert Moses, New York Park Commissioner, has completed its controversial plan to bring the construction functions of federal government, including civil works of the Army Engineers, into a central agency. This would be a new Department of Public Works with cabinet status.

Congress will have to decide what to do with the plan when it is presented after the first of the year along with other suggestions for changes in the Executive branch.

The Moses plan for rearranging construction activities is said to embrace three principal points. These are outlined as:

1. The creation of a Department of Public Works directed by a Secretary receiving $25,000 a year. There would be an undersecretary paid $20,000 and four assistant secretaries at $15,000 each.

2. Jurisdiction over flood control and rivers and harbors construction would be removed from the Army Corps of Engineers.

(Continued on page 10)

— Drawn for the RECORD by Alan Dunn

DECEMBER 1948
Fleur-O-Lier Manufacturers proudly present to the lighting industry—the Fleur-O-Lier Index System—a method of specifying, identifying, and classifying fluorescent luminaires—with regard to their illumination characteristics.

There’s been a long-felt need for a system of classifying fixtures—some method common to all who make, sell, specify or buy fluorescent fixtures.

This is it. It’s simple, practical and basic.

"Why hasn’t someone thought of this long ago!" say lighting engineers who have seen the Fleur-O-Lier Index System.

The Fleur-O-Lier Index System is a simple method of identifying or describing any fluorescent luminaire on the basis of its illuminating performance.

Fleur-O-Lier Manufacturers devised the index system to give the “facts of light” about each luminaire. Because this classification quickly indicates the basic illuminating performance of a fixture, it eliminates vague generalities, broad but unfounded claims and gives needed factual data.

1. It provides an exact formula which the specification writer may use to

Fleur-O-Lier Manufacturers

Fleur-O-Lier is not the name of an individual manufacturer, but of a group of fixtures made by leading manufacturers. Participation in the Fleur-O-Lier program is open to any manufacturer who complies with Fleur-O-Lier requirements.
• For SPECIFYING Lighting Fixture Performance
• For IDENTIFYING Fluorescent Lighting Fixtures

express the illuminating characteristics and performance he recommends.

2. It supplies a precise formula for fixture identification and classification that allows the buyer to know he's getting the illumination recommended.

WHO'LL USE IT?

Architects, lighting engineers, lighting consultants, lighting salesmen, contractors and utility lighting men . . . anyone who specifies or recommends lighting fixtures can use this simple, practical and fool-proof method to give an exact definition of the illuminating performance he selects for an installation.

Fixture manufacturers will use the system to indicate the performance characteristics of their fixtures.

Buyers and users will employ this method of indexing to make certain they are getting what the specifier recommends.

HOW DO I GET IT?

The Fleur-O-Lier Manufacturers have prepared a booklet which explains the Fleur-O-Lier Index System completely . . . what it is and how to apply it. It's complete with tables. Use the coupon below to send for your free copy of the new booklet.

AND HERE’S WHY YOU SHOULD INSIST ON THE FLEUR•O•LIER Label

The Fleur-O-Lier label means that the fixture was built to exacting specifications—then tested, checked and certified by Electrical Testing Laboratories, Inc. The Fleur-O-Lier label assures you of sound mechanical construction, safe and proper electrical design and materials, and tested, certified lighting performance.

To be sure of precise illumination characteristics, long trouble-free operation and complete user satisfaction—insist on the Fleur-O-Lier label.

Fleur-O-Lier Manufacturers
2116 Keith Building
Cleveland 15, Ohio

Gentlemen:
Please send me a free copy of the booklet describing the Fleur-O-Lier Fixture Index System and containing the Fleur-O-Lier Specifications and Testing Procedures.

NAME______________________________
COMPANY______________________________
STREET______________________________
CITY__________________________STATE________________
THE RECORD REPORTS

engineers and transferred into the new Department of Public Works where it would be handled primarily by officers of the Army, the Navy and the Air Corps assigned to the new department. The Army Corps has been supervising civil functions construction since 1824.

3. The grouping of all construction activities of the federal government, now distributed among dozens of separate agencies, under the Department.

If the Moses proposal is given serious consideration by Congress, chief point of tension will develop around the civil functions issue. There is already pro and con discussion of the matter in Washington, and the Hoover report has not been made public.

The New York planner is said to argue the point in a memo to Hoover which claims that some of the work now handled by the Army is not rightfully within its jurisdiction. The Moses memo is quoted in part as saying: "The Army engineers continue to control part of the rivers and harbors and flood control spheres at a time when reclamation in the broad sense, power development and other phases of engineering work involving rivers and harbors should be a part of the same program."

Opponents to any change in the present long-standing setup say a change would endanger the nation’s defense plans by taking the large construction projects out of the hands of skilled engineers now familiar with their planning, construction and administration. Moses, on the other hand, claims benefits could as easily come in this respect from the arrangement he proposes.

The memorandum states: "The argument that rivers and harbors work can only be directed by the Army engineers becomes even more absurd when it is realized that fewer than 200 Army engineers are involved and the remainder of the personnel under their control numbering over 30,000 are civilians who supply most of the detailed knowledge and continuing direction."

G.I. Mortgages Lose Ground

Agency men who are interested in G.I. building point out that the secondary market for G.I. mortgages has deteriorated since last year. No doubt this partly reflects the general credit situation. Bankers expect a rise in long-term interest rates and so are putting their money into short-term credit for the time being. They are waiting. But, say the officials, the G.I. mortgage has had harder sledding than other long-term commitments. Since the banks can't easily dispose of G.I. mortgages, they are entering into fewer of them.

One of the reasons, it is said, is the absence of standard appraisals for G.I. houses. The 1948 Housing Act called for use of FHA standards when it authorized RFC to back the market, but it did not tell FHA to do the appraising. A lender reselling to the RFC must certify that the home is up to FHA requirements, but lacks FHA’s word that his certification is accurate. Lenders don’t like that.

Veterans Administration has arranged to let its local appraisers carry the ball. They will make inspections with FHA’s rule-book in front of them. The RFC has accepted this system, taking the word of the VA appraisers.

This alone is not expected to go far in reviving building for veterans. There is still the question of interest rates. Agencies continue to discuss it without adding new ideas to the discussion. Veterans Administration would like to see the mortgage rate raised, as Congress allowed, but other agencies still oppose.

Although the RFC published regulations (Continued on page 12)

(Continued on page 154)

10

The University of Toronto's new Mechanical Building, designed by Allward and Gounlock, Architects, has a 200- by 600-ft. basement laboratory, a top-floor machine drafting room.

NEWS FROM CANADA

By John Caulfield Smith

Building Kettle Boiling

Following a leveling off during the summer, construction contract awards have resumed their upward trend. According to the authoritative MacLean Building Reports, they reached $79.7 million in September, or $3.5 million more than in the same month last year. The total for the first nine months of 1948 was $744.2 million compared with $548.2 million for the first nine months of 1947. Housing and commercial construction continued high in September, but engineering and industrial awards were down compared to the same month last year.

Housing In Seven Countries

House building activity, building material production, employment of building labor and building costs in seven countries are reviewed in the latest issue of Housing Progress Abroad, a quarterly publication of the Central Mortgage and Housing Corporation. The countries dealt with are the United States, the United Kingdom, Australia, New Zealand, South Africa, Sweden, and Canada.

The report notes that between 1939 and 1947 Canada's house-building activity increased by 62 per cent. This rate was higher than that of any of the countries under review with the exception of the United States which showed a rise of 65 per cent.

Large increases of house-building in Canada and the United States were accompanied by significant increases in the output of building materials. Between 1939 and 1947, the production of lumber in Canada rose 30 per cent, bricks 77 per cent and cement 112 per cent.

(Continued on page 154)
Far above all other things to remember when specifying insulation are these two outstanding facts: INSULITE builds — INSULITE insulates. Two things for the cost of one! Insulite (Bildrite) Sheathing provides greater bracing strength than wood sheathing, plus twice the insulating value. Specify Double-Duty Insulite for sheathing, lath or interior finish.

Refer to Sweet's File, Architectural Section 10.0.9
Under Auspices of American Society of Heating & Ventilating Engineers

Striking advances in equipment — the latest trends and practices — newest and best ways to heat, ventilate and air condition all types of commercial and public buildings, industrial plants, institutions, and homes — a wealth of useful, stimulating ideas are in store for you here. Greatest display of its kind ever held, its informative, technically staffed exhibits and demonstrations will afford unequalled opportunity to see and compare at one time hundreds of new and improved items from complete units to maintenance supplies — to discuss your specific plans, problems and requirements first-hand with engineering specialists.

No architect, consulting engineer, or contractor serving these rapidly advancing fields can afford to miss this outstanding display of progress. So plan now to attend — note the date.

THE RECORD REPORTS

(Continued from page 10)

Research Funds Asked

The housing agencies will ask the next Congress for more money to support research into housing. The actual research will, of course, be farmed out, partly to the Bureau of Standards but mostly to universities. With present appropriations, a few projects have been financed and are said to show encouraging progress. Most of those under way or planned for next year relate either to standardizing components or to metal construction. There is also work on the strength and capacities of various materials.

It is pointed out that a code standardizing plumbing equipment, promulgated several months ago, is winning acceptance. Two cities have adopted it and more than 15 expect to before the year ends. Bureau of Standards hopes to do more work on key components.

The setting of standards for key components is expected to do something to bring costs down. Numbers of models are reduced, which lets dealers carry smaller inventories. Lower inventories, in turn, mean lower overhead. Builders need worry less about types of components to be used: there are fewer types to worry about. Finally, it is cheaper to produce standard components.

Government Demand High

Evidently, key materials will remain tight even if, as some officials expect, housing volume declines next year. The Administration has been working for months on a new Lend-Lease program, said to be backed by both parties. The amount is estimated at $3 billion. It will use up steel and other major materials.

Marshall Plan shipments are shifting from food and clothing to industrial materials. Orders for industrial equipment have been steadily rising and, say the officials in that agency, will continue to. This will put more pressure on the market.

Finally and most important, the military program is just getting into stride. Appropriations made last spring are first being spent. There are orders on behalf of airplane, ordnance and other

(Continued on page 14)
SAVE THREE WAYS

on Exterior Wall Panels with Alcoa Economy Castings

LOW FIRST COST
You save right from the start with Alcoa Economy Castings for Spandrels and Wall Panels. By co-ordinating specifications and production facilities, Alcoa can now offer castings at economy prices.

FAST CONSTRUCTION
Large, light Alcoa sections go up fast—saving both handling and erection costs. And castings may be delivered to the job complete with anchor holes. This means simplified installation... saves construction time and money.

LESS MAINTENANCE
Lower maintenance costs result naturally from the use of Alcoa Aluminum. Aluminum resists corrosion... produces no colored compounds to rust-streak adjoining surfaces... and requires no painting.

Send for Free Booklet
Send for the free booklet, "Alcoa Economy Castings". You’ll find it a valuable reference with information on typical details... methods of anchoring... expansion and contraction... heat transmission... shrinkage... as well as recommendations for the writing of specifications.

Call your nearby Alcoa sales office or write AlUMINUM COMPANY OF AMERICA, 1867 Gulf Building, Pittsburgh 19, Pennsylvania.
Planning a 
Chemical Plant
Oil Refinery
Paper Mill?
... or an addition

You can now get
ASBESTONE
Asbestos-Cement Corrugated Roofing & Siding
—the lifetime roofing and siding that’s fireproof and corrosion-proof. Asbestone can’t be damaged by weather, rats, or termites. No painting. No upkeep.

Here are a few of the many prominent users:
- LONE STAR CEMENT CORP.
- CALIFORNIA OIL CO.
- CHAMPION PAPER and FIBRE CO.
- ETHYL CORPORATION
- FREEPORT SULPHUR CO.
- NEW ORLEANS PUBLIC SERVICE
- MOBILE PAPER MILL CO.
- CROSBY CHEMICALS, INC.
- STANDARD OIL OF N. J.
- UNIVERSAL ATLAS CEMENT CO.

Why we can assure you early delivery
We are concentrating on production of this single industrial product. Stocks are now ample to make some immediate shipments. Free Engineering Service, available on request, shows how Asbestone can be adapted to your needs.

THE RECORD REPORTS
(Continued from page 12)

programs, which are high now and will go higher.

All of these, taken together, reinforce the forecasts made last spring that regardless of the party to be in power, there is a strong chance that controls will be restored in 1949. It looks as if there will be greater government demand than can be supplied by mere spending of money.

Will Controls Return?
Demand for controls may come in two forms, which could create confusion. There is the prospect, first, that existing government orders will have to be handled through some system of priorities and allocations. The Army officers talk about it.

In addition, the National Security Resources Board has worked out another system of controls for use if there is war. This is a complete job covering just about everything. Under new labels it revives all of the old agencies and their rules, including a rehash of the famous L-41.

Some of the top officials feel that it should be offered at once to Congress. It would be enacted, but not put into force. Then, in the event of war, all of the controls would become effective on an order by the President. Some of the Congressional leaders are said to have recommended doing the job right away.

Debate on relatively minor curbs for instant use and others that are much broader and more detailed but would be used only in case may be simultaneous. People would have to testify about both sets, which are bound to overlap here and there.

Basing Points Modified
The Federal Trade Commission has theoretically modified its attitude to basing points. A single shipper, evidently, may use them—if the rest of the industry is doing it differently. Such a case is not known to exist; in every industry everybody or nobody prices F.O.B. basing point. The Capehart Committee almost certainly will recommend some change in law letting present pricing systems continue—unless conspiracy is proved without the fact of basing points themselves being a major element of the proof.

Probes Increasingly Likely
It now seems pretty certain that the government paths ahead include one being laid out for intensified scrutiny of the building industry and its operations on several fronts. Most evident is the

(Continued on page 16)
DOUBLE DEFLECTION

UNI-FLO GRILLES

LOOK AT THESE FEATURES

WRITE FOR THIS LITERATURE

RAPID DIFFUSION
HIGH ASPIRATION EFFICIENCY
MAXIMUM TEMPERATURE DIFFERENTIAL
MINIMUM PRESSURE DROP
REMOVABLE CORE
GUARANTEED PERFORMANCE

BARBER-COLMAN COMPANY
1232 ROCK STREET, ROCKFORD, ILLINOIS

DECEMBER 1948
STYLING CAN CHANGE WITH THE SEASONS WHEN BASED ON Oak Floors

In your houses, owners can change from winter to summer furnishings and still have harmonious rooms—provided the flooring is oak.

The mellow luster of this rich wood blends subtly with the soft, cool pastels of summer, and glows warmly amid the bolder tones of winter decor. Seasonal styling becomes far more flexible and economical when such an adaptable flooring is used.

The same adaptability to new ideas and styles lasts for the life of the home. New wallpaper or paints meet no discords from beautiful oak. The natural grain and texture form a harmonious base for whatever colors and styling may be chosen in replacing the original decor.

The most versatile floors you can suggest—and at the same time, those with the most enduring beauty—are oak.

THE RECORD REPORTS

(Continued from page 14)

stepped-up probe of discrepancies as charged in the veterans' emergency housing program. A whirlwind of controversy surrounding this subject threatens to break out into something approaching a national public scandal this winter. Failure of home builders to follow plans and specifications in constructing veterans' housing is but one of the often-cited violations involved.

There are plenty of instances of faulty postwar home construction throughout the land, but in fairness to conscientious contractors it is pointed out that these are relatively few in proportion to the total number of homes built, put under roof in the emergency program. And all officials connected with compliance operations say they have found builders, for the most part, willing and ready to rectify the wrongs.

With the opening of the 81st Congress just about a month away, more and more is going to be published about violations in home construction. There are predictions, freely made, that fraud charges will mount up to a climax some time this winter, spilling forth in a flood of publicly-aired complaints far more voluminous than any in evidence since the end of the war.

There are those who fail to realize that only a limited number of homes built, sold to veterans and occupied by veterans are subject to any type of government action, even if they are proved to be in the "shoddy" classification: only priority-built homes. Congress will be criticized for not providing more stringent applications.

One assistant to the Attorney General said the Justice Department was "shocked" in discovering what a small number of cases in all those it has investigated to date actually come under existing law for prosecution. It is feared that only the most glaring types of violation under the Housing Act can be overtaken through the regular legal channels.

Specifications Are Vague

Why is this true? Specifications vaguely drawn are said to be one of the principal reasons. There are specific cases on record where contractors followed plans but these plans did not prescribe definite materials or else they permitted use of materials that failed to satisfy the veteran-owner after the house was occupied. Yet these plans had government approval before the house was built. In many such cases priorities were given the contractor, too. Such instances leave the builder free of guilt and out-

(Continued on page 18)
Introducing...

the new Durisol

3-IN-1 Insulated Roof Plank

Combines

1. ROOF DECK
2. THERMAL INSULATION
3. ACOUSTICAL CEILING

in a single fireproof material at one installation cost

SAVES UP TO 20%
over equivalent flat roof construction!

The Durisol Insulated Roof Plank combines all the components needed for the roof deck: structural strength, thermal insulation, and cement surface...plus an unusually efficient acoustical ceiling. Construction costs are thereby reduced to a minimum.

The Durisol insulated roof deck is complete—ready for application of the built-up roofing—after two simple, high-speed operations: attaching planks to the framework, and caulking the joints. And furthermore the underside of the planks becomes the finished Durisol acoustical ceiling.

The Durisol Insulated Roof Plank is made in 3½" and 4½" thicknesses (including ¼" cement coating) 16' width with sides tongue-and-grooved, and in lengths to span up to 8'. It is incombustible and supports a live load of 40 pounds per square foot with a high safety factor.

WHAT IS DURISOL?

Durisol is made from chemically mineralized wood shavings combined with Portland cement. In addition to the Insulated Roof Plank, Durisol is also moulded into wall slabs, sheathing, hollow blocks, soffit blocks, and other forms to meet a wide range of construction needs.

Durisol is mould-proof, rot-proof, termite-proof, vermin-proof, and unaffected by moisture. Its high thermal insulating and sound absorbing properties combined with its strength, light weight, and incombustibility make Durisol an outstanding material...Durisol opens up unusual possibilities for increasing construction efficiency and reducing construction costs.

Write for full facts today! Illustrated catalog folder and special bulletin on the Durisol Insulated Roof Plank will be sent by return mail.
BURT FREE-FLOW FAN VENTILATOR

FOR ACCELERATED VENTILATION
WHENEVER YOU NEED IT
AND ADEQUATE VENTILATION
ALL THE TIME!

The Burt Free-Flow Fan Ventilator is a dual-purpose unit. With power off, it provides gravity ventilation usually adequate for normal needs. When occasional production operations create extremely high temperatures or an excess of smoke, dust, fumes, etc., its high velocity electric fan quickly exhausts the extra heat or impurities. Positive ventilation is assured at all times. Write for further information on the versatile Free-Flow Fan and other Burt ventilators. There is a type and size for every need.

SEE SWEET'S OR WRITE FOR CATALOG AND DATA SHEETS

The BURT MFG. Co.
905 S. High Street
Akron 11, Ohio, U.S.A.

VENTILATORS • LOUVERS • OIL FILTERS • SHEET METAL SPECIALTIES

THE RECORD REPORTS

(Continued from page 16)

side the jurisdiction of the compliance divisions with only a moral sense of obligation to force corrective measures. Congress has acted to tighten these provisions of the housing law since it first applied to veterans' housing after World War II; they will be a subject of considerable debate in the forthcoming session according to current signs.

The Office of the Housing Expediter recently buttressed its compliance division staff with the addition of 300 special investigators. This move, and greater concentration on veterans' housing violations by Justice Department attorneys, are expected to increase the tempo of government attention to the subject as the weeks go by. There already have been fines and jail sentences for guilty builders. These have been based on proved faulty construction of veterans' homes built with priorities under the veterans' emergency housing law, and other proved violations such as receipt of over-payments and failure to follow plans. Some 500 contractors have been brought into court. Other thousands have been given an opportunity to make restitution in one way or another — through correcting the evil on site, or by cash refunds.

But all the activity so far is said to be a bare minimum of what the government will undertake. The program definitely is an expanding one at this time and politics is expected to have little influence on its ultimate fulfillment.

Bender Probe Is Full-Scale

Another investigation spotlighting contractors is that carried on by Congressman George H. Bender's (Ohio) Procurement and Buildings subcommittee. Started informally on the basis of information sought out by the General Accounting Office on veterans' re-use housing contracts, the Bender investigation had on it the brand of a full-scale Congressional probe.

By his own assertions, Mr. Bender is out to recover about $200 million, an amount he claims Public Housing Administration "poured down the drain" in over-payments to contractors who erected the re-use housing during the veterans' emergency program. The Ohio Congressman comments: "This is another case where the Administration has given a raw deal to the veteran and to the American taxpayers generally. About $450 million of public monies were involved in this program. A special contract form was worked out under which some 200 contractors throughout the country were allowed, in addition to a

(Continued on page 20)
the men who know upholstery best choose Duran

Because Duran surpasses the exacting standards of upholstery experts, it was the natural selection of America's foremost furniture club...year-round host to the thousands of experts who visit the nation's busiest furniture center...mecca of furniture manufacturers and buyers from all over the world.

This same upholstery excellence in many rich Duran colors, elegant finishes, is available to you for superb styling on furniture, walls and panelling...for unrivalled pliancy and resistance to wear, fading and peeling...for real serviceability and client satisfaction.

Send for samples.
Better forward those drawings to Macomber now — this month — if possible.

Builders are refiguring with Macomber where on-the-site fabrication has boosted building prices sky high.

Then they discover this better, faster, more economical method wherein Roof Trusses, Purlins, Longspans, Bar Joists and Decking are delivered ready to install.

You will find our delivery schedules better than you can get most places. Macomber has 12 acres of fabricating facilities devoted 100% to Steel Building Products.

From coast to coast, there are few people in the construction business who would not rather work with Macomber products. There IS a whale of a difference when one firm fabricates ALL the steel.

So, get your jobs entered and scheduled now.

V-BAR JOISTS AND PURLINS • V-STUDS • TRUSSES • LONGSPANS • DECKING

MACOMBER INCORPORATED
CANTON, OHIO

IN MEXICO D. F.—MACOMBER DE MEXICO S.A. CEDRO 500

STANDARDIZED STEEL BUILDING PRODUCTS

THE RECORD REPORTS

(Continued from page 18)

fee which represented profit, a fixed overhead for each dwelling unit constructed which far exceeded the actual amounts they spent. . . . I have evidence that PHA officials made practically no attempt to call a halt to this disgraceful situation, taking the position that nothing in the contract prevents the contractor from making an additional profit out of the overhead allowance. This attitude deliberately ignores the language of the contract, which provides that overhead funds expended should approximate the amounts allocated. It shows a callous indifference to the plight of the homeless veterans and to the waste of public funds."

The decision to go ahead with the subcommittee probe was a direct result of the General Accounting Office action. GAO scrutinized 40 of some 450 contracts made during the program and turned up enough evidence of what it considers over-payment to justify the full-dress Congressional handling.

Materials Easier to Get

Apparently the material shortages that plagued contractors in the earlier stages of the veterans' housing program — in the construction of both permanent and temporary housing — are being eased to a great extent. The Department of Commerce October industry report showed building material production breaking all records in August; at a level of 165 on the composite index as compared with 100 as a monthly average for 1939. This was the highest point recorded in the nine and a half years the monthly report has been kept. And in all postwar computations, Commerce finds that 1947 set a new 33-year record for volume of construction materials produced.

As output of building materials makes encouraging progress, the industry is faced with confusion resulting from the Supreme Court decision last April in the now-famous Cement Case. There is strengthening opinion in Washington to clarify the law on allowable pricing methods, as a sort of short cut to clearer understanding for producers, shippers and consumers. In the opinion of most experts, Congress needs to do this to clear the air befogged by the Federal Trade Commission ruling and the subsequent Supreme Court decision upholding it.

This attitude has been expressed by Dr. Melvin T. Copeland, chairman of the Advisory Council of the Senate Trade Policies Committee, the group now struggling with the problem. He says:

(Continued on page 22)
It is in the imagination of the designer that the full merit of a material reveals itself. This is becoming apparent in the many interesting applications of asphalt shingles to contemporary design coming from architects' offices in all parts of the country.

In departing from heavy lines, heavy eaves—in eliminating the non-functional and streamlining the whole—the neat, purposeful appearance of asphalt shingles has become significant to the modern designer.

Asphalt shingles also, of course, give him the additional tool of color—with a varied enough selection from bright to subdued to neutral to permit achieving any desired effect. Asphalt Shingles definitely offer more than economy!

The submission of examples of the current use of asphalt shingles in contemporary design by practicing architects is invited—as are also comments, suggestions and questions.

ASPHALT ROOFING INDUSTRY BUREAU • 2 West 45th St., New York 19, New York

FREE! ... This booklet, "Choose Your Roof for rain... AND SHINE", 24 pages in full color. Filled with ideas on choosing and combining colors for exterior styling. From members or direct.

asphalt SHINGLES

CONSTRUCTION'S BIGGEST DOLLAR'S WORTH

SPONSORED BY 28 LEADING MANUFACTURERS OF ASPHALT SHINGLES • SIDINGS • ROLL AND BUILT-UP ROOFINGS

DECEMBER 1948
Riveted for Safety

Bowstring Trusses by

Riveting in truss fabrication means positive security and above all simplicity in the finer phases of steel construction.

The Bowstring Truss, a truly original Mesker development, provides greater strength and flexibility to meet every requirement of industrial or commercial construction, wherever clear floor space is required.

The Mesker Bowstring Truss design eliminates columns. Greater floor space and the resulting finer appearances are but another feature of Mesker design. Mesker in truss fabrication, means safety, means better and standardized construction.

Mesker Steel prefabricated products are superior in every field — a true fact you expect from one of the oldest fabricators in the country.

WRITE TODAY FOR CATALOG AND FREE DESIGN INFORMATION

GEO. L. MESKER STEEL CORP. EVANSVILLE 8, INDIANA

NEW YORK OFFICE 250 West 57th St. CHICAGO OFFICE 549 W. Washington St.

THE RECORD REPORTS

(Continued from page 20)

"If the matter were left to the Federal Trade Commission, the hope for clarification within a helpful period of time would be slim. The Commission proceeds case by case, and one member of the Commission stated, in effect, at the first hearings of the Trade Policies Committee that the law regarding delivered prices can be fully interpreted and understood only after the Commission and the Courts have examined a large number of cases and rendered their decisions. So far, however, the more cases on delivered prices dealt with by the Commission, the more confused the situation has become. What state of confusion the law might be in with a dozen, 50, or 100 more decisions is difficult to imagine.

"The time factor, furthermore, is not unimportant. The Cement Case, for example, was before the Commission and in the courts for a period of about 10 years, at a cost of millions of dollars to the government and to the companies in the industry. Proceedings in the Rigid Steel Conduit Case were started over seven years ago, and that case is now awaiting action by the Supreme Court. If the law on delivered prices cannot be settled until after numerous other industries have been subjected to that sort of treatment, we are in for a dishearteningly long period of confusion. In fact, if the law can be settled only by such long drawn out proceedings in many cases, I fear that it never will be settled. Hence the situation is one which seems clearly to call for action by Congress."

Dr. Copeland's opinion was stated after his Council had entered well into its investigations of the effect of the Supreme Court decision on the nation's economy in general, and how similar decisions might affect the pricing methods of all major businesses. The Council will formulate recommendations for the Senate Committee. The Committee, in turn, will advise Congress on the need for legislation and what form it believes new laws should take.

* * *

ON THE CALENDAR

Nov. 4-Jan. 7: "Decorative Arts Today," exhibition of ceramics, textiles, silver, glass, etc., Newark Museum, Newark, N. J.


Feb. 12-20: 1940 Home Show of St. (Continued on page 164)
HOW TO SELECT THE PROPER ACOUSTICAL MATERIAL

High acoustical efficiency is not the only important consideration in the selection of an acoustical material. Nearly all acoustical materials on the market are "efficient." Other characteristics, such as fire resistance, insulation value, moisture resistance, or appearance, may be deciding factors, depending on the requirements of the job. Each acoustical material has its own outstanding characteristics which distinguish it from other materials. Before selecting a material it is best, therefore, to look first at the special requirements of the job and then choose the material that is best adapted to meet those requirements.

EFFICIENCY. Since noise is the confused mixture of sounds at many frequencies, the acoustical efficiency of a material is measured by the percentage of sound it absorbs at average frequencies, or, the "noise reduction coefficient." Arrestone (85%) and Cushiontone (75%) are the most highly efficient of the Armstrong materials.

COST. Cost is usually determined by the method of application required and is lowest where the material can be nailed or cemented to an existing surface. In general, the Armstrong materials can be ranked as follows: lowest, Cushiontone; next Cushiontone F and Travertone; then Corkoustic; and highest, Arrestone.

FIRE RESISTANCE. Three of Armstrong's acoustical materials are rated as incombustible. Two of them Travertone and Cushiontone F, are made of mineral wool. The third, Arrestone, consists of a steel pan containing a mineral wool pad wrapped in flameproof paper. Also, Cushiontone is available on special order with a fire-retardant paint finish.

APPEARANCE. Outstanding in appearance among Armstrong's acoustical materials is Travertone, with its marble-like fissured surface. Corkoustic also has an attractive fissured surface. There are other appearance features common to all the Armstrong materials. All bevels are factory painted like the face of the material. In all perforated units holes are drilled cleanly—not punched. Unusual design arrangements are possible with the use of rectangular sizes and unperforated border units.

MOISTURE RESISTANCE. For natatoriums and other high-humidity areas, only Corkoustic is recommended. Its cork composition gives it unusually high natural resistance to moisture.

INSULATING VALUE. All of Armstrong's acoustical products, being low density materials, have considerable thermal insulation value. Corkoustic, having a thermal conductivity of only 0.19 B.T.U., is outstanding.

Three other characteristics not to be overlooked in selecting an acoustical material are light weight, light reflection value, and ease of maintenance. Armstrong's Acoustical Materials are light in weight, have high light reflection, and can be repainted without impairing acoustical efficiency. For complete data, see Sweet's File, Section 11a, or write direct to Armstrong Cork Company, Acoustical Department, 2412 Stevens Street, Lancaster, Pennsylvania.
This is the Wakefield Commodore

Shown here is the distribution curve for the Commodore No. 369, plotted by Electrical Testing Laboratories. All Commodores are Underwriters Approved.

...an Economical Incandescent Luminaire for Classrooms, Offices and Drafting Rooms

The Wakefield Commodore is being used with marked success in one of the experimental rooms of Rosedale School in Austin, Texas, where the concept of the coordinated classroom as the answer to good lighting was developed. When the elements of decoration, daylight control and seating were brought into balance, it was shown that the luminous indirect Commodore unit provides a quality and a quantity of illumination contributing remarkably to an environment in which seeing is relatively effortless.

Of particular interest is the fact that Commodores are economical to install and maintain. And they are adaptable to practically any lighting requirement since they are manufactured in a complete series for wattages from 200W to 1000W, with all hangers and reflectors uniformly styled. The white molded Plaskon reflectors are made in diameters from 15 to 26 inches, varying in wall thickness to insure uniformity of brightness throughout any installation. The hangers are aluminum, finished in satin aluminum.

For complete data on the Wakefield Commodore, write for Catalog 48A. The F. W. Wakefield Brass Company, Vermilion, Ohio.

Wakefield Over-ALL Lighting

FOR OFFICE • DRAFTING ROOM • STORE AND SCHOOL

DES. PAT. 148, 191

THE STAR

THE GRENADE IV

THE COMMODORE

THE DIPLOMAT

ARCHITECTURAL RECORD
Here's what this METLWAL user says:

"The M-P METLWAL installation in our offices certainly exceeds our expectations... We decided to purchase your partitions since the qualities we sought were so markedly embodied in them... The completeness of the erection and final appearance of modern simplicity and exceptional wood grain finish have more than justified our investment... We have received many favorable comments from visitors."

Mr. B. M. Shriner, President
French, Shriner & Urner
Boston, Mass.

French, Shriner & Urner chose METLWALS for beauty, movability, durability

METLWAL Partitions and Paneling have a lot to offer! Metlwals alone combine distinctive beauty—simple construction—easy maintenance—and rapid installation. They’re factory-finished in rich wood grain reproductions or baked enamel... will not reflect harsh, metallic light... will not chip, crack or craze... are Bonderized against rust.

METLWALS are installed in four easy steps by erection crews... (1) attach floor and ceiling channels; (2) insert studs in channels; (3) snap on panels; (4) slip on base. One man can handle a full-size panel. All parts and panels can be cut on the job. No need for plaster in new construction. No filler boards or patchwork. Only a few standard parts from warehouse stock. And Martin-Parry’s modern production facilities, in our huge new Toledo plant (one wing shown below), insure uniform panels for interchangeability... long-wearing installations that hold maintenance costs to a new low!

Write today for your copy of our latest catalog A-12, containing METLWAL specifications, drawings and installation photographs. See how METLWAL can help you plan beautiful interiors. Send for information to: Martin-Parry Corporation, Toledo 1, Ohio.

METLWALS ALL-FLUSH PANELING MOVABLE PARTITIONS

68 Years of Service

ENGINEERING AND ERECTING SERVICE AND WAREHOUSE STOCKS FROM COAST-TO-COAST
The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926-29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.;

\[
\text{index for city } A = 110 \\
\text{index for city } B = 95
\]

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

\[
\frac{110 - 95}{95} = 0.158
\]

Conversely: costs in B are approximately 14 per cent lower than in A.

\[
\frac{110 - 95}{110} = 0.136
\]

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.
TWENTY-FIVE MILES OF "85" RED BRASS PIPE
in the Lillian Wald Houses

In New York City's huge, $22,372,000 Lillian Wald Housing Development there will be 1,861 dwelling units. An estimated 6,954 persons will occupy the four eleven-story and twelve fourteen-story apartment buildings which, with their 7,695 rooms, will cost $14,450,266 to construct.

And to serve these houses with a full flow of clear water for years to come: 130,000 feet of Anaconda "85" Red Brass Pipe, \( \frac{3}{4} \)" to 6' SPS.

No more trusted material could have been chosen for this important water-carrying job. Anaconda "85" Red Brass Pipe has been in use since 1927, and had undergone ten years of testing before that. Strong, non-rusting and of uniformly fine grain structure, it has become known as the highest quality corrosion-resistant pipe obtainable at a reasonable price.
required reading

what is a window?


Since man's innate curiosity and love of sunlight and fresh air make it highly improbable that he ever will accept air conditioning and artificial lighting as a substitute for the window, the architect can look forward to many more years of supplying him with the fenestration he so stubbornly demands. Hence any architect, no matter what type of building he is designing, will find this slim volume on windows of absorbing interest.

Messrs. Baker and Funaro, having themselves felt the need for a book such as this, have made a thorough study of the subject and have come up with a reference book on window design that is complete. Everything from the characteristics of different kinds of glass to the "geometry and mechanics of the sun" is included. Everything, furthermore, is carefully diagrammed and illustrated.

To be specific, there are two pages devoted to the basic types of opening sash; 10 to hardware, accessories and sun shades; 14 to stock windows; six to installation details. All of this is information which the architect will find extremely handy to have at his fingertips. And of equal value to him will be the large section titled "63 Windows in Use," which gives photos and construction details of windows in various types of building, including a hermetically sealed office building.

art and america


"From the point of view of those who have been trained in the cultivated tradition," writes Mr. Kouwenhoven, "the emergence of a civilization from popular roots has been a phenomenon of dubious merit." This is what the author means by the conflict of the vernacular or machine design and the cultivated tradition of European influence.

The vernacular, indicating one phase of American civilization, is that from which has evolved the natural in American culture. While men of Upjohn's caliber digested the foreign tradition, some of their contemporaries were constructing roads, bridges, canals. While men put Corinthian decoration on steam turbines, others, the decorative sub-ordained to purpose, invented portable riveting machines and unconsciously developed another kind of art. It was a battle between the esthetic and the practical, there was plenty of "ginger bread," but there was also the invention of the "balloon" structure, and the mixing of lime, sand and stone for building in woodless areas.

Throughout the book in chapters entitled "Space and Chase," "Stone, Steel and Jazz," etc., the author forcefully conveys the spirit of "natural integrity." Architecture, engineering, manufacturing, model-T-ism, as well as art, literature—all are included in this comprehensive analysis of Americana. Says Mark Van Doren in his introduction: "His broadest view takes in all Western civilization since the day when democracy and machinery got married and set up their modern house . . . "

primer on architecture

An Introduction to Architectural Design. By Donald A. Fletcher, Donald A. Fletcher (Box 1027, Grand Central Station P.O., New York, N. Y.), 1947. 6 1/2 by 9 1/4 in. 212 pp., illus. $7.50.

Integration of diverse factors is an art and a necessity to be learned in the achievement of good design. It is upon this principle that Architect Fletcher presents his primer for beginning students in architecture with the purpose of anteceding and complementing books on design already in circulation. The basis of the book, acknowledgedly, is the method of work followed at the Ecole des Beaux-Arts in Paris.

A systematic project, the book is divided into three sections: Factors in Design—Eleven Exercises in Architecture; A Method of Work; and Notes on Related Topics.

At the beginning of the exercise section the requisites for the proposed sketches are specified. Mr. Fletcher emphasizes in no uncertain terms the need for the new student to discover how to create a unified design, and at the same time to pursue diligently his own inspiration. The exercises progress from gazebo to pump house, portico, club house, church façade, museum and library, hall of the fine arts, minor building for a summer music festival, church group, boat house, and railroad station. The design of each has its own particular place in the development of the embryonic architect.

In the second section Mr. Fletcher outlines a method of work starting with the preliminary analysis of the problem and carrying through to the design stage, presents a group of preliminary exercises, and winds up with five pages of "hints for the drafting room."

The final section is given over to an assortment of short topics, alphabetically arranged, including arranging a sheet, drawing and rendering, lettering, scales and styles.

facilities for camping

Camp Site Development. By Julian Harris Salomon, Girl Scouts of the United States of America (155 E. 44th St., New York 17, N. Y.), 1948. 8 by 10 1/2 in. vi + 106 pp., illus. $4.00.

Although written specifically to serve as a guide for those planning Girl Scout camping facilities, this volume will be of interest to anyone planning similar facilities for any other organization, as it contains much basic information on camp needs.

Mr. Salomon, who is Camp Consultant to the Girl Scouts, and the author of several other books on camp planning, stresses particularly the need for a topographical map of the site as the basis for an overall master plan. "Without such a plan," he warns, "it might happen, for example, that an infirmary is built in a place that ultimately proves to be the only place available for a campfire circle or a play field."

Subjects covered by Mr. Salomon includes water supply, roads and electricity; sewage and waste disposal; the administration area (camp office, infirmary, shower house, shop, etc.); dining lodge and kitchen; campers' living quarters; and aquatic facilities and equipment. Each section offers plans, diagrams and sketches as well as general information and construction details. The facilities illustrated are of all sizes, some of them fairly primitive, others quite civilized; they are suitable to all sections of the country, and they include
When you want concrete floors of tile beauty and durability specify the use of Colorundum. For hotels, banks, stores, hospitals, show rooms, service stations and factories you get bright, colorful floors with an armor plate surface of long life — at the cost of an average concrete floor. Colorundum is a dry powder, composed of powerful coloring mediums, fused aggregates, waterproofing and hardening elements plus cementitious binders.

Colorundum is used exactly as it comes from the container and permits the foolproof application of a dust-coat floated and trowelled into the topping. The non-slip, dense surface of Colorundum makes it an ideal flooring for indoors or outdoors... both on new work or resurfacing old floors. Write for further interesting information.
Art and the Heart of Thousands of Successful, High Performance Installations, Lie Baker Equipment and Baker Engineering. Baker offers one of the world's widest lines for both Freon and Ammonia applications. Next time air conditioning or refrigeration are part of your client's specifications, call your Baker distributor for expert assistance in planning, engineering, and installation. Write today for address of office nearest you.

BAKER

Installations Rank Among the Finest

At the heart of thousands of successful, high performance installations, lie Baker equipment and Baker engineering. Baker offers one of the world's widest lines for both Freon and Ammonia applications. Next time air conditioning or refrigeration are part of your client's specifications, call your Baker distributor for expert assistance in planning, engineering and installation. Write today for address of office nearest you.

BAKER

Zone balanced Engineered

AIR CONDITIONING AND REFRIGERATION

Factories at Omaha, Nebraska and South Windham, Maine . . . General Offices at South Windham, Maine

REQUIRED READING

(Continued from page 20)

every kind of facility required. In the section dealing with campers' living quarters, for instance, the accommodations range from the simple Adirondack lean-to and the canvas tent to the deluxe unit lodge, and include plans for kitchen and wash shelters.

COMMUNITY CENTERS


Despite the fact that this is not a new book (it was published just two years ago), it is a valuable source of information for the architect concerned with recreational buildings — the subject of the Record's Building Types Study this month (see pp. 110-129). It is a bibliography par excellence on the community building, not only listing a wide variety of books, pamphlets, articles and studies on the subject, but grouping them conveniently and giving a brief comment on the content and value of each. Thus the architect who is particularly interested in the various types of community centers may turn to Chapter III, where he will find the types broken down into general and miscellaneous, centers in housing developments, and centers in school buildings. Each section has general comments by Mr. Dahir and its own list of references, each discussed in turn.

Since the main theme of Mr. Dahir's compilation is the community center as a war memorial — a building which need not necessarily be limited to recreational purposes, his list includes references on the large, clinic-equipped center as well as the small village club.

ART IN THE MUSEUM

Painting and Sculpture in the Museum of Modern Art. Edited by Alfred Barr, Jr. The Museum of Modern Art (11 W. 53rd St., New York 19, N. Y.), 1948. 7½ by 10 in. 327 pp., illus. $5.00.

Once again the Museum of Modern Art has compiled a catalog of paintings and sculpture from its collection in its galleries. Arranged in 20 sections with an introduction by Alfred Barr, Jr., director of the Museum Collections, the volume contains interpretative comment as well as 380 diversified plates illustrating modern American and European primitives, Expressionism, Cubism, the Romantic tradition in the U. S., free form, traditional forms, folk sculpture, etc. Thirty nationalities are represented among the artists.
Alzak*-Processed Reflectors are the most efficient commercial lighting reflectors on the market. Less light is absorbed and lost in the reflector. Better, longer-lasting reflector surface keeps Alzak Reflectors at top efficiency even in heavy industrial atmospheres.

All-aluminum Alzak Reflectors will not spall or break, if dented. Soap and water readily clean the reflector surface to maintain lighting efficiency.

Leading fixture manufacturers of lighting make Alzak Reflectors in all standard sizes and styles. ALUMINUM COMPANY OF AMERICA, 1474 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in 55 leading cities.

Substantial savings accrue per year, per lighting standard, by installing aluminum lighting standards... they never show red rust, are resistant to traffic fumes and industrial atmospheres. Their light weight permits erection without cranes.

Here's What the ALZAK PROCESS Does...

1. Brightens aluminum reflector surfaces electrochemically to produce lighting efficiencies as high as 83%.
2. Seals the bright, high-efficiency reflecting surface with a durable, protective coating of transparent aluminum oxide.
3. The Patented Alzak Process is licensed by Alcoa only to manufacturers of carefully engineered lighting fixtures.
ENTERPRISE BURNERS CUT OPERATING COSTS 30%
AT SOLVAY LABORATORIES' STEAM PLANT!

TYPICAL EXAMPLE OF HOW THESE MODERN FLEXIBLE BURNERS SAVE INDUSTRY TIME AND MONEY

Just a year ago the Solvay Corporation, world's largest producers of industrial soda, installed two Enterprise full automatic C-P oil burners in its Brussels laboratory. For 25 years previously, the forced hot water boilers had been fired by antiquated equipment, fuel-hungry, requiring constant attention and extra labor. Now, after almost 5000 operating hours, the new Enterprise burners are cutting down operating costs by 30%, both in labor savings and through increased boiler efficiency at low output—and there has been no shutdown for maintenance or repairs. Flexibility and the maintenance of steady steam pressure—important factors in the success of this company's laboratory work—are directly attributable to these modern V-belt drive burners. As a result of this remarkable performance record, Solvay has installed seven more Enterprise Burners in other of their factories and buildings.

Perhaps your present firing system has outlived its time—is costing more in fuel and upkeep than it is worth. Why not check with your nearest Enterprise distributor for full information and recommendations for replacement? Call or write today.

Choice of Heating Experts . . . Everywhere

ENTERPRISE Burners

ENTERPRISE Burners are available in a range of capacities to meet every commercial and industrial need.

<table>
<thead>
<tr>
<th>Boiler HP</th>
<th>12 to 650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gals. per hr.</td>
<td>4 to 200</td>
</tr>
</tbody>
</table>

Enterprise V-Belt Burners are available in pump or gravity type, manual, semi-automatic and full automatic control, burn heavy or light oils and combination gas and oil.
What every Architect should know about MICARTA

MICARTA is ideal for bar tops and fronts as well as for fountain tops. It is not marred when cigarettes are snuffed out against it.

If you are uncertain, if you don’t know what Micarta will do...

Here’s a challenging offer:

Try to chip it!
Use silverware, cooking implements, the ordinary tools that would be used in a busy kitchen or pantry. Just try!

Try to dent it!
Bang heavy glasses, ash trays, cups, or even cooking pots and pans on it. Just try!

Try to stain it!
Spill alcohol on it, boiling water, nail polish, polish remover, even hydrogen peroxide up to 8 hours. Just try!

Try to score it!
Gouge it with the edge of a half dollar. You can, of course, scratch it with the point of a sharp steel penknife, but as for anything else, just try!

Try to spoil it!
Use it as an ash tray. Snuff out cigarettes against it. Walk on it. Actually boil it in water. Just try to spoil it.

MICARTA is a remarkably tough and strikingly handsome plastic laminate, available in 32 colors and finishes. It is widely used in homes, stores, shops, public buildings and institutions.

Micarta requires virtually no maintenance. It is not affected by boiling water, alcohol, detergents, household cleansers, dilute acids, condiments, and barber and beauty shop preparations.

While Micarta is highly resistant to cigarette burns, a special cigarette-proof grade is available for complete protection. Micarta is made in the following forms:

MICARTA SHEET, 1/16" thick, used by fabricators who have the requisite bonding equipment.

MICARTA PANEL, in 7/8" and 1 3/4" thicknesses. This is Micarta Sheet, bonded to special cores of mahogany-faced Weldwood Plywood.

MICARTABORD, 5/32" thick, used generally as a wall surface.

We invite you to send the coupon for a free sample. Test Micarta’s unusual properties yourself.

Made by Westinghouse. Sold for decorative purposes only by UNITED STATES PLYWOOD CORPORATION - New York 18, N.Y.

United States Plywood Corporation
55 West 44th Street, New York 18, N.Y.

I WANT TO GIVE MICARTA THE "THIRD DEGREE." Without any obligation whatever, send me, free, a sample of Micarta so I can see for myself how beautiful, tough, wear-resistant and abuse-proof Micarta really is.

NAME

TITLE

COMPANY

ADDRESS

CITY  ZONE  STATE

More and more, Micarta is being used for furniture tops in homes, hotels, and institutions. Micarta Truwood, made with genuine wood veneers, is widely used for such applications. Incidentally, Micarta can be worked by hand tools. It can be sanded, trimmed, planed, and drilled.
WHAT DO YOU REALLY KNOW ABOUT ALUMINUM SIDING?

When Kaiser Aluminum Siding is mentioned, perhaps you’re inclined to think: “Oh, yes—know all about it.”

But do you?

Granted you may know that Kaiser Aluminum Siding is made of highest grade, roll formed aluminum.

Granted you may know that it’s strong and dent-resistant... that its permanent beauty can’t be marred by splits, knots or sawing scars.

But do you know all these other facts which make Kaiser Aluminum Siding superior to any other? For instance...

**Curved surface creates tension**

Result: A weatherproof lock

**DO YOU KNOW** Kaiser Aluminum Siding has a preformed curved surface—a feature found in no other siding? This deliberately engineered feature makes it the strongest residential siding used. It produces a rigid weathertight joint and creates a tension which eliminates waves or buckles as each piece is nailed down. And it creates clean lines.

**DO YOU KNOW** that Kaiser Aluminum Siding costs no more than other fine materials? And that in many ways it saves money for builders and home owners? Its light weight speeds construction, cuts labor costs—and it requires no special tools for application. What’s more, it takes fewer nails and its non-porous surface requires less paint. Paint goes on faster, too!

**DO YOU KNOW** that with Kaiser Aluminum Siding on their homes your clients can forget about the usual maintenance problems? For Kaiser Aluminum Siding will never rot, rust, warp or crack in any climate. It’s fire resistant and can’t be damaged by rats or termites. And its surface is especially prepared to assure firm paint adherence and lasting finishes.

Want to know more? Write for additional information on Kaiser Aluminum Siding—the new material with a unique combination of advantages!

Kaiser Aluminum Siding specifications:

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>10, 12, 14 ft.</td>
<td>6&quot;</td>
<td>0.030&quot;</td>
</tr>
</tbody>
</table>

Weight: 580 lbs. per 1146 base feet (1000 sq. ft.)

Shipped in carons containing 200 base feet, weighing 106 lbs. overall.

SOLD BY PERMANENTE PRODUCTS COMPANY, KAISER BUILDING, OAKLAND 12, CALIFORNIA... WITH OFFICES IN:

Atlanta • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • Minneapolis • New York • Oakland • Philadelphia • Portland, Ore. • Salt Lake City • Seattle • Spokane • St. Louis • Wichita

ARCHITECTURAL RECORD
THE MAGIC BRAIN
OF ELECTRONIC SIGNAL CONTROL
REDUCES ROUND-TRIP TRAVEL TIME

You can now add a ‘touch’ of startling newness to your building... and at the same time speed up elevator service. How? With Otis Electronic Signal Control, the first successful application of modern electronic magic to proven signal control operation.

With Otis Electronic Signal Control, you don’t depend upon human memory to keep track of calls. All calls are registered and remembered by a greatly simplified electronic system... a magic brain that automatically stops cars at the right floors and eliminates false stops and needless travel. Cars make more trips... carry more passengers. Traffic handling is speeded... service improves... operating costs go down.

Otis Electronic Signal Control adds a ‘touch’ of advanced design to your building. Passengers no longer push a conventional landing button. They merely touch the new Otis electronic button. As if by magic, the button lights up and registers the call. No moving parts to be tampered with; no contacts to maintain.

Otis Electronic Signal Control is available for new buildings and for modernizing existing buildings. For further details call your local Otis Elevator Company office.

NO MOVING PARTS TO JAM
You simply ‘touch’ the new Otis electronic ‘touch button’. It lights up. Then, a soft-toned gong announces an approaching elevator as the overhead lantern lights up. It’s all controlled by the magic brain.

AS ALWAYS, OTIS LEADS THE WAY... THIS TIME WITH THE MAGIC OF MODERN ELECTRONICS

DECEMBER 1948
"Promotes sales, builds"

CALIFORNIA. "We have had complete enjoyment and satisfaction from the Servel unit you installed in my new auto sales agency," says W. R. Shadoff of Pomona, California. "The air is clean and fresh at all times."

Servel All-Year Air Conditioning wins praise from store owners the country over

The four stores pictured here have widely varied sales problems and are located in different parts of the country. But the owners are unanimous in their praise of the way Servel All-Year Air Conditioning has helped their business. And their statements are typical of hundreds of letters sent in by other business and professional men, testifying to the business-building benefits of this amazing year-round air conditioning system.

With a "flick of the finger," the Servel unit supplies cool, dehumidified air in summer . . . and warm, properly humidified air in winter. In between seasons, the same single unit provides independent air circulation at prevailing temperatures. Year round, it filters dust, dirt and irritating pollen from the air. Every Servel unit is covered by a 5-year factory warranty.

In a Servel-conditioned store, stocks remain fresh and new-looking . . . customers are more comfortable . . . personnel more efficient and energetic. Many merchants feel that the Servel All-Year Air Conditioning Unit will "pay for itself" in a very short time through these benefits.

Do you have clients or prospects who would benefit from the year-round comfort and business-building advantages of Servel All-Year Air Conditioning? Your local gas company will be glad to give you detailed information on specifications, installation, etc. Or, write direct to Servel, Inc., 8812 Morton Avenue, Evansville 20, Indiana.
profits,
say business men

LOUISIANA. "We have used Servel All-Year Air Conditioning for more than six years and consider the original cost repaid many times over," writes David C. Silverstein, of Silverstein's Women's Apparel, Monroe, La.

OKLAHOMA. "The Servel installation has contributed much toward the efficiency of our staff," reports Clarence R. Green, Manager of the Alfalfa Electric Cooperative, Inc., of Cherokee, Okla.

TEXAS. "I am well pleased with my Servel unit," states J.W. Hetherington, jeweler, of Texas City, Texas. "People prefer to shop where the temperature is normal and the air pure and clean."

Servel
All-Year AIR CONDITIONER
BETTER SASH COSTS LESS TO OWN

To get the most enduring windows at the lowest ultimate cost you must have stronger sash and more resistance to corrosion. In any industrial district you can see broken ventilators, weathering strips rusted off, loose and warped window frames that testify to the destructive power of wind and vibration and the corrosive action of a smoky atmosphere.

Hope's Lok'd Bar Factory Sash are built to equal the life of the best building, even under abusive conditions and their superior weather-tightness saves heat losses and gives lasting shelter in plants where bench workers need the full light of large glass areas.

Hope's design doubles the strength of ordinary light sash because the Lok'd Bar joint, made by threading the horizontal muntin thru the Bulb T vertical sash bar, has extra thickness where it is needed and is stronger in proportion to the weight of its metal. The ventilator sections, with flanges rolled in one piece, do away entirely with applied weathering strips; thus there is no crevice in which corrosion can start. Ventilators are solid welded at the corners; each is a complete unit which reinforces the sash where the void is cut for it. The flanges close on wide, tight-fitting contact surfaces, reducing wind infiltration to less than one cubic foot per minute at 25 miles per hour.

These features assure the most lasting satisfaction to the owner with important savings in the cost of repairs to his building. Hope's Lok'd Bar Steel Factory Sash are made with ventilators either pivoted on bronze cups, or projected on strong steel arms with brass guides. Write for the Lok'd Bar Catalog; it gives complete details and physical data illustrated with full scale drawings.

HOPE'S WINDOWS, INC., Jamestown, N. Y.

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS
Everybody everywhere wants a bathroom that's new as tomorrow. Here the charm of provincial design is combined with the modern conveniences offered by American-Standard Plumbing Fixtures. The roomy bath is the corner model MASTER PEMBROKE, the graceful lavatory is the COMRADE, and the low, free-standing water closet is the quiet COMPACT.

You get a real advantage when you choose American-Standard Heating Equipment and Plumbing Fixtures. For they are first in completeness of line, to meet the needs of every size of home. They lead in variety of product, to give you wide flexibility in designing and styling. And they're noted for expert engineering and construction which assures long, satisfactory service.

Whatever the job, you can't beat American-Standard as a single, reliable manufacturing source for heating equipment and plumbing fixtures. For full details, contact your Heating and Plumbing Contractor. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pennsylvania.
The feeling is mutual...

Regal simplicity in the church as a whole... regal simplicity in the Lockwood Hardware used for all its interior doors. Plain, graceful trim in cast bronze carries out the designers' original feeling without detracting from functional value.

Here again is proof that Lockwood's eye for creating fine hardware—hardware that fulfills every decorating or architectural plan—is a boon to those with vision. Here again is proof that Lockwood means more of the best in Finishing Hardware.

It's easier for you to specify the right hardware from Lockwood's catalog, "Simplified Specifications." You'll find this listed in Sweet's for 1949; or write for a free copy of your own.

Lockwood
HARDWARE MANUFACTURING COMPANY
Division, Independent Lock Company
Fitchburg, Massachusetts

St. John's Church,
Los Angeles, California.
Ross Montgomery —
William Mullay,
Architects.
You get something extra when you specify General Electric Textolite surfacing material for table, bar, and counter tops.

New beauty, yes! G-E Textolite... available in a variety of colors and patterns, imparts richness to the decor of any hotel, restaurant, bar, soda fountain, or cafeteria.

And durability plus! With rugged G-E Textolite on guard you needn't worry about wear and tear on working or serving surfaces. Because G-E Textolite actually resists scratching better than low carbon steel. Its rugged laminated construction stands up under shock. And even hot grease or boiling water won't harm it!

You can get more facts about G-E Textolite surfacing material by mailing the attached coupon. Your free copy of the booklet you'll receive shows in full color the many standard Textolite patterns. You'll also find out, in detail, why you should use this beautiful, practical plastics surfacing in hotels, restaurants, and other installations. Plastics Division, Chemical Department, General Electric Company, 1 Plastics Avenue, Pittsfield, Massachusetts.

Inn near Everglades Built with Open-Web Joists—Located on the south shore of Lake Okeechobee, close to Florida's famous everglade country, Clewiston Inn offers rest and relaxation to the vacationist. The two-story, patio-type building has 64 double guest rooms, plus eight apartments. 150 tons of Bethlehem Open-Web Joists were used in its construction. Floor structures built with open-web steel joists, concrete floor slab and plaster ceilings are fire-safe, for they keep fire from spreading for at least two hours. In addition, floors built in this way are also economical, shrink-proof, sound-retardant and vermin-proof. Architect: L. Phillips Clarke, West Palm Beach, Fla.
6 common conditions where

*WOLMANIZED PRESSURE TREATED LUMBER

protects against

DECAY and TERMITES

1. Ground moisture and rain held in joints etc., of outdoor structures.
2. Wood used in or near the ground open to attack by termites.
3. Wherever moisture is condensed because of concrete or masonry.
4. Where steam and vapor from industrial processes are prevalent.
5. Walls, floors, ceilings subject to condensation from refrigeration.
6. Wood exposed to moisture in artificially humidified buildings.

LASTS FOR DECADES

You give your clients extra value when you specify lumber whose resistance to wood-decay and termites gives it 3 to 5 times the life of ordinary wood.

Actual service records, available to you, demonstrate that "Wolmanized" pressure-treated lumber gives just such performance.

Owners quickly recognize your interest in better building when you point out the lasting protection so easily available with Wolmanized lumber.

This lumber is pressure-treated with salts that are toxic to decay fungi and termites. Wolmanized lumber is clean, odorless, paintable and non-corrosive to metals.

Best of all, the extra cost of Wolmanized lumber is always less than the cost of labor alone in replacing failing, untreated wood.

For further information and copies of actual service records, write today to American Lumber & Treating Company.

*Registered Trade Mark

AMERICAN LUMBER & TREATING COMPANY

General Offices: 332 South Michigan Ave., Chicago 4, Illinois

Boston 9 New York 17 Washington 5 Jacksonville 2, Fla. Portland 5, Ore. Los Angeles 15 San Francisco 5
141 Milk St. 420 Lexington Ave. 831 Southern Bldg. 719 Graham Bldg. 1220 S. W. Morrison St. 112 West 9th St. 604 Madison St.

DECEMBER 1948
smart new answers to the "more-capacity" problem

Specify the New Frigidaire Tandem Refrigerators and Electric Ranges

Many a kitchen needs appliances with larger capacity than home-size models—yet has neither the room nor the need for large commercial equipment. For these "in-between" households, institutions and clubs, Frigidaire now offers an ingenious solution—the new Frigidaire Tandems. As the pictures show, Frigidaire doubles up matching units to make attractive single "packages," provides needed extra capacity at low cost.

Ask your dependable Frigidaire Dealer about these new Tandems now. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. (In Canada, Leaside 12, Ontario.)

FRIGIDAIRE TWIN-7 REFRIGERATOR TANDEMS
-two Frigidaire De Luxe or Master "sevens" connected by a special joiner. Provides a total of as much as 15.4 cu. ft. of refrigerator space; 4 single, 2 double-width Quickube Ice Trays; 2 full-width Hydrators and many other famous Frigidaire features. Joiner strip is all metal, finished in matching white dulux.

FRIGIDAIRE ELECTRIC RANGE TANDEMS.
A Frigidaire de luxe 40-inch range combined with a 21-inch Frigidaire range. They have matching appointments, provide up to 3 ovens and broilers; and 8 surface cooking units (or 7 and deep well Thermizer Cooker). Here is a team that doubles capacity for electric cooking, baking, roasting—in only half again as much space!
CORNING ANNOUNCES NEW SERVICES

to help you solve any commercial lightingware problem!

Corning Glass now offers a completely balanced line of commercial lightingware for diffusion and prismatic light control from fluorescent and incandescent light sources. This lightingware is the product of extensive research and is made to high standards of quality and tolerance.

To help you use this lighting effectively, Corning now offers many new services which are available for the asking. Whether you are an architect, lighting engineer, or fixture manufacturer, be sure you have this information in your files:

1. Bulletin LS-17, "Corning Engineered Lightingware," just published, describes and shows you how to use Corning's completely balanced line of lightingware to best advantage. It is a condensed handbook that will save you valuable time.

2. Installation data sheets conforming to the standards of the Illuminating Engineering Society are available on outstanding commercial installations, schools, stores, and institutions. They help you to plan.

3. Electrical Testing Laboratory curves have now been completed for the new Corning curved lens panels, the flat lens panels, and some of the Lenslites. You will find them valuable when planning a prismatic installation.

This information was developed especially to help you. Corning is interested in seeing to it that you get it promptly. Call your nearest Corning office, or if you prefer, mail the coupon below.

LIGHTINGWARE

SALES OFFICES

New York 718 Fifth Ave.
Circle 8-2224

Chicago 1470 Merchandise Mart
Delaware 6600

San Francisco 1355 Market St.
Underhill 2727

CORNING GLASS WORKS, DEPT. AR-12, CORNING, N. Y.

Please send me the information checked:

☐ Bulletin LS-17, "Corning Engineered Lightingware"
☐ Installation data sheets  ☐ ETL curves

Name ........................................ Title ......................................

Firm .................................................................................

Address ..............................................................................

City ........................................................................ Zone ....... State .........
Bruce Blocks are designed for modern construction. Installation over concrete slab is simple and economical. The blocks are laid in mastic, without nails or splines, directly over concrete. No clips, screeds or wood subfloor are used.

A Bruce Block Floor will last the lifetime of the building in which it is installed. Thus it’s far more economical than other floors that wear out or are easily damaged and must be replaced every few years. With its cushion of mastic, this modern hardwood floor is quiet, resilient, warm and comfortable underfoot. It’s easy to keep clean and beautiful, too. The patterned design is distinctive and decorative.

Due to heavy demand, it is not anticipated that additional orders can be taken on Bruce Blocks for at least the next 6 months. Specify on jobs being planned now for future construction. For further information, write E. L. BRUCE CO., MEMPHIS, TENN., World’s Largest Maker of Hardwood Floors.
Write for this Catalog today

on the NEW
Multi-Outlet Wired Strip
that gives you a
S-P-R-E-A-D
of outlets

You'll find in this booklet:

1. How PLUG-IN STRIP fits into architectural design.
2. How easily PLUG-IN STRIP is installed.
3. A complete illustrated catalog-chart of all the parts and fittings required for any job.
4. Instructions on the use of LOPO-TRIM—the metal quarter-round for housing telephone and other low-potential wiring.

And for:
ARCHITECTS, CONTRACTORS
WHOLESALERS
A handy 16½" x 10" Catalog
Wall Chart

National Electric Products Corporation
Pittsburgh 30, Pa.
ALL THE COMFORTS OF HOME—INCLUDING TELEPHONE RACEWAYS

Neat, built-in telephone facilities make it unnecessary to have exposed telephone wiring on walls and woodwork. And they give a full measure of telephone convenience to the owner. That’s why telephone raceways are being included in the smaller as well as larger homes.

In most homes, a few pieces of pipe or electrical tubing installed within the walls during construction will carry telephone wires to conveniently located outlets. The cost is low.

For homes of any size, your Bell Telephone Company will be glad to help you plan modern telephone arrangements. Just call your Telephone Business Office and ask for “Architects and Builders Service.”

BELL TELEPHONE SYSTEM

[Diagram of house and floor plans]
The position of a brick should never be shifted after it has been laid. Shifting the brick breaks the bond and causes cracks between the brick and the mortar. If brick have been improperly spaced so that there is too little or too much space for the closure brick, and if it is therefore necessary to correct the width of the head joints, the brick and mortar should be removed from the wall, and the brick should be relaid with fresh mortar.

Brick should be laid true to the line, when originally placed. If any delay occurs before they are tapped into place, the bond will be broken and a crack will result. Realignment of a brick should never be attempted after a higher or following course has been laid.

BRIXMENT mortar’s extreme plasticity greatly encourages accurate bricklaying. Its higher water-retaining capacity also lengthens the time in which adjustments can be made, before the mortar has set. Once laid, Brixment mortar makes a stronger, more durable bond with the brick because it is ground finer and keys better into the pores of the brick. It is the combination of these advantages, plus greater speed and economy, that has made Brixment the largest-selling masonry cement on the market.
First stage of framing construction. Stran-Steel floor joists are placed in position.

Fibre-backed steel mesh is nailed directly to Stran-Steel joists.

Two-inch concrete floor has been poured and finishing operations are under way.

Accurately-sized Stran-Steel studs are now assembled into wall sections.
Construction is proceeding without a hitch on the first two blocks of the $14,000,000 Kent Village garden-type apartment project now being erected in Prince Georges County, Maryland, near Washington, D.C.

Roberts Construction Corporation, owner and builder, ascribes much of this gratifying progress to Stran-Steel framing. This precision framing is providing greater speed, economy and ease of construction than would have been possible with any other framing material.

Nailable Stran-Steel framing permits economical dry-wall construction with plasterboard. Its permanent rigidity eliminates the possibility of subsequent wall movement from warping and shrinking. And an incombustible Stran-Steel framework adds substantially to the fire-safety of the completed building.

If you're planning a building of any type—residential, commercial or industrial—it will pay you to investigate the advantages of Stran-Steel framing. Ask your local Stran-Steel dealer for full information, or write for his name and address.

GREAT LAKES STEEL CORPORATION
Stran-Steel Division • Dept. 36 • Penobscot Building • Detroit 26, Michigan

UNIT OF NATIONAL STEEL CORPORATION
Tried many insulations, satisfied only with KIMSUL®
— says leading New York builder

It's true. Many-layer KIMSUL® insulation is fast becoming the favorite of builders and architects from coast to coast. For KIMSUL automatically provides uniform insulating efficiency over every inch of covered area. Its "k" factor is 0.27. It's the only insulation with the PYROGARD® fire-resistant cover. And one of the easiest to install quickly and profitably—no need for expensive machinery.

KIMSUL comes in handy, compact rolls, compressed to 1/5 installed length. To give maximum protection at lowest cost, specify it by thickness: Commercial Thick (about 1/2 in.) for walls and floors. Standard Thick (about 1 in.) for walls, attics and floors. Double Thick (about 2 in.) for attics.

Free insulation booklet. Here's a new, illustrated manual covering the latest techniques in the field. Write us for your free copy of the KIMSUL Insulation Book. Mail your request on your business letterhead.

KIMBERLY-CLARK CORPORATION
KIMSUL Division • Neenah, Wisconsin
A typical standpipe system using a single roof tank for both fire line and domestic water supply is shown here. It is applicable to buildings not exceeding 300 feet in height.

A roof gravity tank provides the primary water supply for both standpipe and domestic supply. The standpipe fire reserve is below the hot and cold water outlets to assure water supply in case of failure in the main line. The float controlled roof tank is supplied from a centrifugal pump in the basement, or directly from the street main if pressure is sufficient.

The standpipe system has two risers, cross connected at the top and bottom of the system. This allows one riser to be shut down for repairs while the other one remains in service. The bottom connection is tied into the siamese street connection for attachment to fire department pumps.

Consultation with accredited piping engineers and contractors is recommended when planning any major piping installation. Copies of Layout No. 38, enlarged, with additional information, will be sent on request. Just mail the coupon.

A CHOICE OF OVER 500 VALVES

To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering experience, select all the valves you need from the Jenkins Catalog. It's your best assurance of lowest cost in the long run.

JENKINS VALVES

For every Industrial, Engineering, Marine, Plumbing-Heating Service . . . in Bronze, Iron, Cast Steel, and Corrosion-resisting Alloys . . . 125 to 600 lbs. pressure.

Sold Through Reliable Industrial Distributors Everywhere

JENKINS BROS., 80 White St., New York 13, N. Y.

Please send me a reprint of Piping Layout No. 38.

Name

Company

Address

DECEMBER 1948
Yes—it’s Flexstone*

Each ply is a flexible covering of stone!

• The secret of a Johns-Manville Flexstone Roof is in the felts. They’re made of fireproof, rotproof, enduring asbestos.

Flexstone Built-Up Roofs won’t dry out from the sun... need no periodic coating. They’re smooth-surfaced, too—permit thorough drainage... make any damage easy to locate and repair. They are engineered to each job... applied only by J-M Approved Roofers.

J-M asbestos felts are perforated to make application easier... give you a smoother job and conform better to irregularities in the roof deck.

Send for Flexstone brochure BU-51A. Contains complete specifications. Address: Johns-Manville, Box 290, New York 16, N.Y.


Johns-Manville FLEXSTONE Built-Up Roofs
With color-balanced Suntile, you’re sure of

- **BETTER TILE**
- **BETTER INSTALLATION**

Being sure of the tile you select is important. Being sure of its installation is equally important.

Color-balanced Suntile offers you assurance of both. Suntile’s *extra quality* in form and finish is the result of rigid manufacturing control. Suntile’s *color-balance* is a unique feature developed through years of scientific color measurement and selection. Color-balance permits harmonious blends and smart, distinctive settings for modern-day interiors.

Suntile’s *extra quality* in installation is achieved through careful selection and training of authorized Suntile dealers. These men have the *know how* to bring out all of Suntile’s inherent qualities.

For better tile—better installations, let us send you the name of an Authorized Suntile Dealer. He can show you real clay Suntile in 16 wall colors. In addition, he can show you impervious unglazed ceramic mosaic Suntile in 15 colors—and Suntile Camargos in 10 colors—both in modular sizes.

Centuries of Service
the Dependable Metals
Brass and Bronze

For richness of tone in centuries-old bells . . . for strength and endurance in industrial castings . . . for beauty and permanence in architectural use . . . cast brass and bronze are top choice of leading designers everywhere.

Those who mold the character of our modern buildings . . . architects, designers and decorators . . . know the desirable effects that can be achieved with the traditional metals. Engineers choose them for countless purposes where the important considerations are freedom from corrosion, great strength, and reliability throughout long service.

Specify brass and bronze castings . . . they are available NOW!

The Brass and Bronze Ingot Institute (formerly Non-Ferrous Ingot Metal Institute) suggests your local foundry for help with all casting problems.
NO MAINTENANCE COST!

The 103 Adlake Aluminum Windows (Series 600) in the newly-built Engineering Building* of the University of Rochester (New York) will save the university a considerable sum, over a period of years, eliminating maintenance costs. The windows will ultimately pay for themselves through this economy. Adlake windows require no painting, no maintenance other than routine washing! And they last as long as the building.

ONLY ADLAKE WINDOWS have the combination of woven-pile weather stripping and patented serrated guides that assures minimum air infiltration and absolute fingertip control.

Adlake Windows never warp, rot, rattle, stick or swell. They look lovely and operate smoothly for the life of the building.

INFORM YOUR CLIENTS about the wiping out of maintenance costs and the long, worry-free service they can expect from Adlake Aluminum Windows. For complete data, drop us a post card today at 1102 North Michigan Avenue, Elkhart, Indiana. No obligation, of course.

Adlake Aluminum Windows have these "plus" features:
- Minimum Air Infiltration
- Finger-tip Control
- No Warp, Rot, Rattle, Stick
- No Painting or Maintenance
- Ease of Installation

**THE ADAMS & WESTLAKE COMPANY**
Est. 1857 • ELKHART, INDIANA • New York • Chicago

Furnishers of Windows to the Transportation Industry for over 30 years
Comfort for All Employees—

B&G Hydro-Flo Heating

provides the right temperature for each occupational activity

It is generally recognized that the comfort conditions under which employees work have a direct bearing on efficiency. That's why a rapidly growing number of industrial plants are installing or converting to B & G Hydro-Flo Heating.

This system takes full advantage of the basic superiority of *mechanically circulated* hot water as a heating medium. It establishes ideal comfort conditions because it can be zoned to deliver automatically the exact amount of heat desired in each department. It automatically changes the rate of heating to meet changes in the weather... saves fuel by eliminating over-heating.

The advantages of Hydro-Flo Heating are not limited to new installations—existing hot water or steam heating plants can be easily converted. The simplicity of B & G Hydro-Flo equipment is assurance of dependable operation and low maintenance.

The preferred system for homes
Hundreds of thousands of B & G Hydro-Flo Systems are in successful operation today... in homes... in apartments... and in low-cost housing developments where economy of operation is essential to owners with modest incomes.

Simple, dependable equipment
The equipment of a B & G Hydro-Flo Heating System can be installed on any hot water heating boiler or used with a steam converter. Basic units consist of a B & G Circulating Pump, Flo-Control Valve, Water Heater, Monoflo Fittings.

Plus hot water for washroom or process use
The Water Heater unit of a Hydro-Flo System furnishes a virtually limitless supply of hot water, all year 'round. It is connected to the same boiler that heats the building, saving the cost of a separately-fired heater. Hot water is produced at amazingly low cost.

Bell & Gossett

Company

Dept. AU32, Morton Grove, Ill.
why have a question... when you can have

CRANE?

Why have clients wonder, "Is this the best?" When it's Crane, they know it's best! They themselves have chosen Crane in national surveys... year after year... above all other plumbing brands.

And you know it's best for them! The broad Crane line includes a style for every taste—a price for every building budget.

You can offer them Crane quality not only in bathroom fixtures, but in kitchen sinks and laundry tubs... each with the most popular development in years—Crane Dial-ese controls!

You can offer Crane quality in heating... complete systems for hot water, warm air, or steam... for coal, coke, oil, or gas.

See your copy of "Crane Service for Architects" for selections from the Crane line—or ask your Crane Branch for one. Some fixtures still are more available than others, so check your plans early with your Crane Branch or Crane Wholesaler.

ELEGANCE WITHOUT WASTE...
The spacious look of this prize-winning room belies its true dimensions. Featured is the Crane Marcia Group: Marcia Counter-Top Lavatory, Criterion Bath and Closet.

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO 5

PLUMBING AND HEATING
VALVES • FITTINGS • PIPE

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS
PUMICE CONCRETE SAVES BUILDING COSTS

This imposing fireproof structure was built with pumice concrete (including the ground floor slab) to keep dead weight at a minimum. As a result, its light steel frame and foundation economies saved many dollars in construction costs. The many other advantages of pumice concrete added measurably to the value of the building. The Prudential Life Insurance Building in Los Angeles is another outstanding example of Pumice concrete construction by these same designers.

UNIFORM GRADED PUMICE CONFORMS TO STANDARD REQUIREMENTS FOR LIGHTWEIGHT AGGREGATE IN ALL TYPES OF CONCRETE CONSTRUCTION

The weight-strength ratio of pumice concrete may be varied to meet your building requirements. Pumice mixes are designed for economical structural purposes up to 2500 psi at a weight of less than 90 pounds per cubic foot. Lightweight concrete can be designed to take full advantage of the many superiorities of pumice aggregate. Pumice concrete weighing 60 pounds per cubic foot, for example, has maximum resistance to transmitted sound and a tremendous advantage over ordinary concrete in low thermal conductivity. It cannot be equalled for these qualities and fireproof characteristics by any similar material with the same structural value. Exposed masonry walls of this material have acoustic qualities that are in great demand for hospitals, libraries, auditoriums and classrooms.

PUMICE CONCRETE MASONRY UNITS have all the structural advantages of ordinary concrete plus excellent insulation, lightweight, low sound transmission, nailability and beautiful texture.

LOAD BEARING UNITS . . . available from responsible manufacturers in all parts of the United States who process Uniform Graded Pumice aggregate. These units can be designed to fit requirements for weight/strength ratio, thermal conductivity and acoustic properties. Standard mix data for maximum use of these values is available from any member of Pumice Producers Association.

BACK-UP AND PARTITIONS . . . pumice masonry units with less structural strength have greater weight savings, more heat resistance and better sound absorbing qualities. Check up on the advantages of pumice units with your own masonry manufacturer or write direct to any member of the Pumice Producers Association.
"Let the public be served"

FACING TILE for
PUBLIC BUILDINGS

Let the public be served in buildings worthy of their purpose. Let the interiors be light and cheerful! Let these centers of community activity have dignity—utility—permanence!

With Structural Clay Facing Tile you achieve all of this. You can put infinite variety into the design and color of Libraries, Courthouses, Museums, Recreation Centers... give them interesting, attractive, efficient interiors... make them buildings people like to be in.

And, in the final accounting, Facing Tile means real economy for the public. It goes up fast and it's built to last. It's a wall and a surface finish in one! It's fireproof, extremely strong structurally, can withstand the heaviest traffic year after year and stay like new. It will not crack, scratch or decay. Maintenance costs no more than simple soap-and-water cleaning. Refinishing is never necessary.

Facing Tile is available, glazed or unglazed, in efficient modular sizes, in a wide variety of light-reflecting colors. Contact any Institute member or see Sweet's Architectural Catalog for additional data.

SEND FOR MODULAR FACING TILE HANDBOOK

Free to registered architects and engineers. Write Desk AR12 of the Institute on your letterhead. Fifty cents to others.

FACING TILE INSTITUTE
1756 K STREET, N. W. • WASHINGTON 6, D. C.

INSTITUTE MEMBERS
Belden Brick Company, Canton, Ohio
Continental Clay Products Co., Kittanning, Pennsylvania
Charleston Clay Products Co., Charleston 22, West Virginia
Hanley Company, New York 17, N. Y.
Hydraulic Press Brick Co., Indianapolis, Indiana
Mapleton Clay Products Co., Canton, Ohio

INSTITUTE MEMBERS
Metropolitan Paving Brick Co., Canton, Ohio
National Fireproofing Corp., Pittsburgh 12, Pennsylvania
Stark Brick Company, Canton, Ohio
West Virginia Brick Company, Charleston, West Virginia
SOLVED MANY POWER PROBLEMS

Behind the attractive appearance of this new Shutlbrak Switchboard is a host of features which added greatly to the safety, efficiency and operation of one company. It provided, for instance, a more compact unit with greater electrical capacity... greater operating efficiency with less maintenance... easier, faster and more positive switching with new heavy-duty Shutlbrak Switches... safer maintenance with fuses concealed behind doors that open only when switch is in "off" position... greater simplicity of maintenance due to accessibility and design... more efficient power transmission with High Efficiency Feeder Busduct carrying current from transformer station to switchboard with a minimum of voltage loss... and greater flexibility by providing for future additions when the need arises.

You'll solve these and many more power problems by including the Shutlbrak Switchboard in your new electrical system. This heavy-duty, safety-type switchboard with quick make and break switches fitted with Kamklamp (pressure type) Fuseholders is available in a full range of capacities: 30 to 1200 amps., 250 volts, AC or DC; and 600 volts AC, 2, 3 and 4 poles. Consult your nearest Representative for details.
Do you think contemporary deserve contemporary materials?

Each era has expressed its thinking in its own materials.
Steel is the distinctive material of this era.
Steel sheet formed like this is in its strongest structural shape.

This is the shape of a Robertson Q-Unit. Q is for quick. All Robertson Q-products have Speed of erection. They are modern building materials. They meet today's conditions for they reduce to a minimum the uncertainties of field erection.

A Q-Panel is fundamentally a Q-Unit engineered to meet the modern idea that walls should be hung, like curtains, now that steel framework has assumed the loadbearing function.
Q-Panel uses a steel Q-Unit plus thermal insulation plus a flat sheet of metal. A 3\(\frac{3}{4}\)" Q-Panel has a better U-factor than a 12" masonry wall. Panels come in two-foot module. Exterior surfaces can be flat or fluted or combinations of both, achieving contrasts in light and shadow. Exteriors can be metal coated steel, stainless or aluminum.

Q- Panels are a medium for modern appearance, capable of great variation. Q- Panels as raw material also serve today's construction requirements in that they arrive at the site requiring a minimum of field labor. A crew of 12 men has hung, in only one week, a wall area equal to an acre.

Perfection Stove Co., Cleveland, Ohio, was designed in aluminum Q- Panels by the George S. Rider Co.; built by George A. Rutherford Co., both of Cleveland, Ohio.
Q-Floor is steel subfloor. It is a Q-Unit engineered to be a floor in this era when floors should be living, working arteries; not merely Stone-age ledges for load carrying.

Q-Floor is engineered with a raceway crossing the steel cells in such manner that wires for any conceivable electrical service can be pulled to the exact spot where an outlet is needed. This permits an outlet on any exposed six-inch area of the entire floor. To establish an outlet an electrician merely drills a small hole. The job can be completed, literally, in minutes, without the mess of trenches. Q-Floors save an enormous amount of drafting work because outlets and partitions can be located after tenants move in. By treating floor as a facility, a Q-Floor building is provided with permanently flexible floor layouts, protected from electrical obsolescence for as long as it stands. To see Q-Floor Fittings, visit any General Electric construction materials distributor's.

Q-Floor reduces construction time 20 to 30%. Two men can lay 32 sq. ft. in half a minute. Construction is dry, noncombustible. No preset inserts required. No other floor materials offer you such flexibility of design.

Robertson Q-Panel and Q-Floors are contemporary building materials. They do everything earlier materials did and they satisfy those extra demands peculiar to today's buildings.

For general information call a Robertson representative. For literature, write

H. H. ROBERTSON CO.

2404 Farmers Bank Building
Pittsburgh 22, Pennsylvania

Offices in 30 Principal Cities
World-Wide Building Service
Now it's possible to plan ideal indoor weather for every room in any multi-story building regardless of its location, variable occupancy, or alternate exposure to sun and shade. It may be exposed longer to the sun than others . . . may get the full blast of icy winter winds. Yet the Carrier Conduit Weathermaster System permits complete control of temperature and humidity in individual rooms at any season of the year. A turn of the individual knob gives the occupants exactly the kind of weather they want.

This revolutionary year-round system supplies outside air continuously. Use of small-diameter conduit instead of bulky supply and return ducts saves rentable floor space . . . and often a story height in new buildings.

The Carrier Conduit Weathermaster System is the latest product of the engineering skill that created air conditioning . . . and has led the way to every important advance.

For years, Carrier engineers have teamed up with architects and their consulting engineers to provide the utmost in efficient and dependable air conditioning. Write for the booklet "Air Conditioning for Multi-Room Buildings." Carrier Corporation, Syracuse, New York.
Whether to enhance, a fine painting with quiet flattery or to infuse a subtle aura of modernity into your newest interior, we believe Kencork deserves your most earnest consideration. Those architects who know Kencork consider it supreme among interior building materials for its aesthetic values as well as its practical advantages.

You will admire the leafy tans and golden browns on walls and floors—the exquisite, subtle patterns—perfect backgrounds for modern furniture and fabrics. Cork is also well known as a truly practical building medium. And Kencork is all cork—with all of cork’s unique properties—baked into square and rectangular tiles of tans and browns. As a natural insulator against heat and cold, as a quiet, shock absorbing floor covering, Kencork is building an ever widening reputation among architects throughout the nation.

To many architects and builders the word Kencork is almost a synonym for luxury. Yet, often, interested customers are pleasantly surprised to learn how moderate in price a luxury like Kencork can be. See your flooring dealer for full details—or ask us for a descriptive color folder. David E. Kennedy, Inc., 71 Second Ave., Brooklyn 15, N. Y. - 350 Fifth Ave., New York 1, N. Y. - Ring Building, 1200 18th St. N. W., Washington 6, D. C. - 1211 N.R.C. Building, Cleveland 14, Ohio - Bona Allen Building, Atlanta 3, Ga. - Merchandise Mart, 222 West North Bank Drive, Chicago 54, Ill. - Kansas City Merchandise Mart Inc., 2201-5 Grand Ave., Kansas City 8, Mo. - 452 Statler Building, Boston 16, Mass. - 1440 11th St., Denver 4, Colo. - 1812 Industrial St., Los Angeles 21, California.
Since 1909 Horn Folding Bleachers and Folding Partitions have been specified by Architects for school installations from Coast to Coast. Installed as a combination these units create three gyms in one. Each installation is engineered to specifications.

**INSTALLATION**
A complete factory installation service is another Horn feature. Service is guaranteed.

**SALES**
Horn Brothers Company maintains offices in all principal cities from Coast to Coast. A collect telegram to the Fort Dodge office will bring our representative without delay.

**ENGINEERING**
The Horn Bleacher is Engineered to meet all local and state requirements. Note that wood riser boards are not required since all bracing is of steel. This insures best working conditions during all seasons. Elimination of riser boards also makes for a more comfortable seat since it is possible to have full eighteen inches foot board to seat board, and the spectator may sit with his legs under the seat the same as a chair.

FREE! Just off the press is the third edition of the 48 page booklet "MODERN SCHOOL PLANS." Send for your copy today!

LOOK for the Horn classification in your issue of SWEET'S CATALOG. Complete details are presented. Let our Engineering Department solve your seating and partition problems.

USING IN COMBINATION Horn Folding Bleachers and Folding Partitions will give schools the use of three gyms. Specify HORN in your building plans.

HORN BROTHERS COMPANY
DIVISION OF HORN INDUSTRIES
FORT DODGE, IOWA
New Ingersoll Flexibility Makes Unit Adaptable to Any Code Requirement

A choice of four stack and vent assemblies and five types of undergrounds give the Ingersoll Utility Unit the flexibility necessary to meet the most exacting code requirements. Adaptability to various designs and floor plans is provided by a choice of cabinets and types of heating plants.

The Ingersoll Utility Unit now meets 96 percent of all codes. A choice of oil or gas heating plants and other variations make the Unit adaptable to any small home, with or without basements.

Ingersoll's sales engineering force of specialists in small-home utilities is ready to consult with you at any time. Ask your Master Plumber whenever you desire the advice of these Ingersoll engineers.
Three of the largest manufacturers of motor cars have recently used Plywood for interiors and functional furniture in rebuilding offices and salesrooms.

As streamlined and beautiful as any car on the road, the new interiors are paneled and furnished in veneered Plywood, built to specification by Plywood, Inc.

Manufacturers—men who know the importance of structural strength and lasting beauty—continually turn to Plywood, Inc. for modern interiors.

Contact Your Nearest Divisional Branch:

PLYWOOD DETROIT
Detroit, Mich.

PLYWOOD DAYTON
Dayton, Ohio

SAN FRANCISCO PLYWOOD
San Francisco Cal.

PLYWOOD GRAND RAPIDS
Grand Rapids, Mich.

CLEVELAND PLYWOOD
Cleveland, Ohio

PLYWOOD LOS ANGELES
Los Angeles Cal.
New Two-Fuel Winter Air Conditioner
— for either oil or gas!

—the RICHMOND furnace with "2 hearts"

easy to stock . . . easy to install . . . easy to change-over!

For Gas:—As a Gas Winter Air Conditioner, complete unit (in two sizes) approved by A G A for all types of gas, including LP, and for installation anywhere in the United States; from Atlantic City to Denver, at sealevel or a mile high.

For Oil:—As an Oil Winter Air Conditioner, oil burners for both size furnaces listed with Underwriter Laboratories under CS-75.

Richmond gives you both oil and gas burners, the heart of the heating system, each on a mounting plate for easy, fool-proof installation or quick change-over. Switch from oil to gas (or vice versa) can be made in less than an hour.

By stocking only two furnaces (AS 12 and AS 23) you have four conditioners—saving you up to 50% on your furnace storage and inventory costs—and you are ready for either oil or gas installations. Furnace unit, only 23" wide, is shipped assembled and internally wired in one carton (Weighs less than 395 lbs.). Burner units packed separately.

Because of the easy storage, easy installation and easy change-over, this new Richmond Winter Air Conditioning unit is truly—A Unit Designed With The TRADE In Mind.

FOUR CONDITIONERS—TWO FURNACES
AS 12: Output-Gas: 72,000 Btu. Oil: 75,000 Btu.
AS 23: Output-Gas: 92,000 Btu. Oil: 105,000 Btu.
Whiter-white Richmond Enamelled steel jacket—23" wide x 47" deep.
Steel base and channels—no "grouting" needed.
*Furnace unit illustrated: #AS 23.

When we started back in 1867 Two-Fuel was either coal or wood—but . . .
"We're come a long way since then."

DECEMBER 1948
Fenestra Fireshield Swing Doors combine attractiveness with durability. Here are quality metal doors that you can recommend with confidence for many uses—for entrances, exits, stairwells, communicating doors, etc.—for apartments, stores and other commercial buildings, and factories, to mention a few.

**IMMEDIATE SHIPMENT**—standardization of types and sizes enables your building supply dealer to carry ample stocks to meet your needs for many door uses.

**WHY LOW-PRICED**—these doors are standardized in six sizes most commonly used for single swing doors. That streamlines production, means lower cost. You get a sturdy metal door for far less than many doors now on the market. Installation costs are reduced, too—swing doors come to the job complete with frames and hardware machined, fitted, ready to assemble.

**UNDERWRITERS’ LABEL**—Fenestra Fireshield Doors are also available with Underwriters’ B Label.

For full information on these doors, as well as counterweighted doors, call the nearest Fenestra office. Or write to Detroit Steel Products Company, AR-12, 2252 East Grand Blvd., Detroit 11, Mich.
WANTED
by BRAUN in California

C. F. Braun & Co., engineers and constructors at Alhambra, California, sought a fluorescent lighting fixture which would be suited to their own needs, and adaptable to other types of installations. After studying the products of various fixture manufacturers, they selected the L-I-N-O-L-I-T-E Series 22 fixture.

FOUND
at FRINK in New York

A thoroughly practical fixture; highly efficient in operation; completely adaptable for ceiling or hanger mounting, singly or in continuous runs; and with unique features (see description above) for easy, economical maintenance and installation.

P.S. Braun placed an order for 1000 units!

IN THIS ISSUE!
See the article on the unique Louver-All Ceiling manufactured by Frink for the Metropolitan Museum of Art on Pages 137 to 142.

HOW YOU CAN FIND complete lighting satisfaction. The Frink PLAN-O-LITE sample packet forcefully demonstrates the advantages of planned fluorescent lighting. It gives you 8 custom-designed PLAN-O-LITE layouts and engineering data for typical Frink installations, with photos of the results. FREE for the asking while supply lasts. Write today to Dept. 12-A.

THE FRINK CORPORATION
27-01 BRIDGE PLAZA NORTH, LONG ISLAND CITY, N. Y.
Designed in PLASTER for outstanding beauty

Architects Neild and Somdal chose plaster applied by the Werner-Barrack Plastering Company for Shreveport's new Jordan and Booth store. Plaster is economical, and enables architects to achieve commercial interiors of outstanding beauty.

United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint
A New Advancement in the
MOST MODERN WAY of FACTORY LIGHTING

more LIGHT with greater
Brightness Control!

A New Aid to Better Work, Fewer
Accidents, Happier Employees,
Through Better Seeing Conditions

Comfortable Seeing Conditions require
that adequate Brightness Control must
accompany the higher levels of illumina-
tion now being demanded by industry. The
Latest development in the solution of
this problem is Longitudinal Shielding

which is a feature now available in the
Benjamin Twin Lamp Lite-Line System.

Placed between the lamps, this shield
provides an additional 14 degree zone of
shielding at the workers' eye levels. It
minimizes glare without materially
affecting the effective illumia-
tion on vertical and
horizontal working areas.

There are many other refinements in
"Lite-Line 40" design and construction
which safeguard against energy wasting
glare. Among them are the light diffus-
ing Porcelain Enamel reflecting surfaces
and the design of the reflector contour.
These help make possible the attain-
ment and maintenance of higher
levels of illumination with greater
seeing comfort.

FREE DATA BULLETIN

BENJAMIN ELECTRIC MFG. CO., Dept.Q1, Des Plaines, Illinois
Without cost or obligation, please send Lite-Line Data Bulletin "LS"

Name__________________ Title__________________
Firm__________________
Address__________________
City__________________ State__________

DISTRIBUTED EXCLUSIVELY BY ELECTRICAL WHOLESALERS

DECEMBER 1948
MANY lumber dealers have handled Upson Products for 35 years.

Hundreds have handled Upson Products for more than 25 years. Thousands more have handled Upson Products for more than 15 years.

Practically without exception in city after city—town after town across the country, you will find that the oldest, most successful, most respected dealer in the community sells Upson Products.

Through the years, these men have built stable, profitable businesses by unwavering determination to give the customer the most his money will buy. Their never-failing loyalty to quality has made it possible for us to keep our own quality standards at the highest possible point.

Our long association with so many quality-conscious dealers is an asset we prize beyond price.

So again at Year's End, as is our custom, we wish to publicly express our warmest appreciation.

THE UPSON COMPANY

Lockport, New York
A. O. Smith is FIRST to give architects and builders a glass-lined water heater that cannot rust or corrode under any water condition.

NO SPECIAL ATTACHMENTS or accessories are necessary in the glass-fused-to-steel tank of a Permaglas Water Heater. Glass, which CANNOT rust or corrode, needs no rust protection. Conclusive tests ... and hundreds of thousands of installed Permaglas Water Heaters ... prove that this glass will not crack or break under operating conditions.

Another outstanding "Permaglas" first: a high temperature limit control is standard equipment on all "Permaglas" electric models. Other equally desirable features in models for all types of gas.

A. O. SMITH CORP. Dept. AR-1248 Water Heater Division Kankakee, Ill.

Send complete specifications on SMITHway Water Heaters:

□ Gas □ Electricity □ Both

Name
Firm
Street
City, State

A. O. SMITH Corporation • Atlanta 3 • Boston 16 • Chicago 4 • Dallas 1
Houston 2 • Los Angeles 14 • Midland 5, Texas • New York 17
Philadelphia 5 • Pittsburgh 19 • San Diego 1 • Seattle 1 • Tulsa 3
International Division: Milwaukee 1 • Licensee in Canada: John Inglis Co., Ltd.

*Manufacturers also of better zinc-lined Duraclad and Milwaukee Water Heaters

DECEMBER 1948
K&M "Century" Asbestos Corrugated
for long life without maintenance...

The "new" roof on this industrial building is actually more than 3 decades old! A cool operator installed these "Century" Asbestos Corrugated sheets on a coal tipple 33 years ago before he re-used them here.

for modern architectural effect...

Beauty in typically modern style is brought to this store with a facade of "Century" Asbestos Corrugated. This beauty will last without any painting or other expensive upkeep.

You've probably noticed that "Century" Asbestos Corrugated is growing in popularity for decorative motifs...inside and outside...for industrial plants, stores, restaurants, theaters. There's a rugged attractiveness in the simplicity of the corrugations and neutral light-gray coloring.

And perhaps it's no news to you that "Century" Asbestos Corrugated is thoroughly practical from the structural point of view. It actually toughens with age. Never needs to be painted. Can't rot, corrode, catch fire, or succumb to termites.

NEW "TOP-SIDE" FASTENERS CUT ROOFING COSTS
On top of all this, you can specify the new "TOP-SIDE" Fasteners, and cut a big slice off the cost of roof installation over steel purlin construction. Exclusive with "Century" Asbestos Corrugated, these new fasteners permit roofing to be done entirely from atop the roof...eliminating entirely the costly labor and scaffolding normally required beneath. This feature, alone, is worth looking into—write us for full details.

You've probably noticed that "Century" Asbestos Corrugated is growing in popularity for decorative motifs...inside and outside...for industrial plants, stores, restaurants, theaters. There's a rugged attractiveness in the simplicity of the corrugations and neutral light-gray coloring.

And perhaps it's no news to you that "Century" Asbestos Corrugated is thoroughly practical from the structural point of view. It actually toughens with age. Never needs to be painted. Can't rot, corrode, catch fire, or succumb to termites.
Rotary's Oildraulic is the most practical elevator for 2, 3, or 4 stories

Recent installations in these modern buildings

The Carborundum Co., Niagara Falls, N. Y.
Alexander D. Crossett, Architect

Johns-Manville Corp., Manville, N. J.
Shreve, Lamb & Harmon, Architects

Dr. Pepper Co., Dallas, Texas
Thomas, Jameson & Merrill, Architects

Kroehler Manufacturing Co., Dallas, Texas
Inge-Hayman, Architects

Logan Engineering Co., Chicago, Ill.
F. L. Charn, Architect

IT'S PUSHED UP... NOT PULLED UP!
You don't need a penthouse. You don't need a heavy shaftway structure. You don't need a special machine room.

You can simplify your plans and streamline your building designs. The Oildraulic Elevator requires no costly, unsightly penthouse because it's pushed up from below by a powerful hydraulic jack... not pulled from above. This also makes possible a lighter shaftway structure... no need for heavy load-bearing supporting columns. No special machine room is required, either, for the compact Oildraulic power unit. Other features that please building owners are smooth operation, accurate landing stops, rugged car construction, and economical service. Mail the coupon below for complete information and Architect's Preliminary layout data.

Rotary® Oildraulic® Elevators


Rotary Lift Co.
1068 Kentucky, Memphis 2, Tenn.
Send complete Architect's Data on Oildraulic Elevators to:
Name: ____________________________
Address: __________________________
City: ____________________________ State: __________________________
UNITED AIR LINES Uses

HOOD

ASPHALT TILE

From coast to coast, whenever the need is for a floor that will last... a floor that will be colorful and of pleasing design... a floor that will be economical, more and more of the country's leading architects, builders, contractors and corporations are using Hood Asphalt Tile.

Most recent in this long list of installations is the new United Air Lines building in Chicago designed and built by the Austin Company. Throughout this smart, modern new building, Hood Asphalt Tile is being used to do the job better!

See Sweet's or write today... see for yourself why the country's foremost architects, always seeking an economical, longer-lasting floor for on-ground or below-ground areas, choose Hood Asphalt Tile.

* Smooth as silk
* All 17 degrees—6B to 9H—Unvarying as the stars
* Artists prefer Koh-i-noor for all drawn work—light, heavy, thin, thick, tones, areas, shading!
* And there is economy in Koh-i-noor super-quality, no grit. Less breakage. Less time-loss.

* Your dealer has Koh-i-noor

Rubber or asphalt tile flooring
REPORT from
WRAY M. SCOTT

"...we installed Webster Baseboard Heating in our residence in 1947. The system operated the full heating season of 1947 and 1948 with absolutely no evidence of wall smudging or streaking. We are more than pleased with the comfort and cleanliness of Webster Baseboard Heating..."

Wray M. Scott, President and Treasurer of Wray M. Scott, Inc., leading Omaha, Nebraska, heating contractor, makes a practice of investigating and thoroughly testing interesting and important new developments in heating. In 1947, he arranged to install Webster Baseboard Heating in the living room, dining room, four bedrooms, hall and stair landing of his own home. We reproduce above an excerpt from Mr. Scott's letter giving in full his comments on Webster Baseboard Heating.

Mr. Scott is not alone in his experience with Webster Baseboard Heating. Hundreds of home owners have had similar satisfactory experience with this unique post-war Webster development. Leading heating contractors in many U.S. cities have found genuine perfected Webster Baseboard Heating to be a most satisfactory solution for their customers.

Leading heating contractors right now are building their 1949 business plans around Webster Baseboard Heating. Let the Webster Representative in your locality give you further details.

Webster BASEBOARD HEATING
can you teach beauty? cleanliness? confidence?

—not from books, perhaps — nor by word of mouth

—but example can do it — and environment. Consider this when you design a school.

*Marble* is permanent and this enduring quality teaches its own lessons.

Its beauty is deep-grained, inimitable

the very essence of creative environment. It will not harbor germs,

and only the simplest attention is necessary to keep it clean.

*Availability of Foreign and Domestic Marbles described in "Marble Forecast 1948-1949." Write now for your copy.*

Address Institute's Managing Director, Romer Shawhan, R. A.
Here is another typical application of Mahon Steel Deck in modern construction. The walls of the transformer station illustrated above are Mahon Prefabricated Insulated Steel Wall Panels...the roof is Mahon Steel Deck insulated and waterproofed. The inherent advantages of Mahon Steel Deck, and Mahon Insulated Steel Wall Construction, continue to gain favor with architects and builders in the industrial and commercial field. See Mahon Steel Deck and Steel Wall Inserts in Sweet's for complete information...you will find that Mahon Steel Deck, due to its basic design, lends itself to a broader range of uses in modern construction.

THE R. C. MAHON COMPANY
HOME OFFICE and PLANT, Detroit 11, Michigan - WESTERN SALES DIVISION, Chicago 4, Illinois

Representatives in all Principal Cities
Manufacturers of Steel Deck for Roofs, Sidewalls, Ceilings, Floors, Partitions and Doors. Also Roof Sumps and Recesses, Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.
Which is True Diffusion?

Honeywell Register

Conventional Register

You be the judge. It's not necessary for us to tell you that the photograph at the left is a smoke pattern cast by the Honeywell Air Diffusion Register, and that the one on the right is that disbursed by the conventional type of forced air register.

These actual unretouched photographs (except for blacking in the base and pointing up the registers) were taken under room conditions and show exactly how air is diffused from each type of register. In both cases the louvres were set for the maximum spread. Instead of disturbing air blasts with drafts and cold spots, the unique design of the Honeywell Register diffuses a gentle, even blanket of air to every corner of the room. Diffusion vanes are adjustable to provide complete coverage for every shape of room.

Remember, when you specify the Honeywell Register, installation costs are drastically cut; branch quadrants for all velocities under 800 f.p.m. are eliminated; labor and materials saved more than cover the slight initial extra cost; and one man, not two, can quickly balance the entire system. Specify the Honeywell Air Diffusion Register for both high and low wall installations. Give your clients the benefit of true diffusion. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.
WE NEED THE FACTS ON HOUSING

Prognostication does not pay! (Much— and for a while, at least.) The statisticians seem to have proved that early in November. But election statistics are in a different realm from housing statistics and are much more reliable and acceptable. And housing statistics are vitally needed by those who have the temerity to prognosticate housing needs. We need to know what we have in dwelling units— their number, size, condition and quality; their rate of obsolescence, loss, replacement and expansion, and a host of other important facts.

Because we now have guesses, estimates, samplings, spot-surveys and polls instead of undisputed statistical knowledge of the housing situation, we have no reliable guide to future housing needs and ways of meeting them. We see but a partial, vague picture— often emotionally painted— depending on the protagonist’s or prognosticator’s purposes in presenting it. True, we do know there is a tremendous need for more housing— and always the demand for better housing— and that new dwelling units are being produced now at a rate of over 900,000 per year, but such generalities are not enough to use as a basis for the building industry’s own planning or for the realistic discussion of housing legislation.

There will be housing legislation, if the political prognosticators who were right in November are right again, use their political prerogatives, and fulfill their campaign promises in the next session of Congress. Almost before the full results of the election were published, Mr. Ellender, co-author of the Taft-Ellender-Wagner bill, was quoted in the newspapers as saying he would introduce a new housing bill early in the next session of Congress. And others, too, are anxious to present their bills to expedite, subsidize, regulate or control housing.

But without reliable statistical information on the present supply and future needs of housing in relation to population and income, such legislation will lack both a realistic basis and a recurring check on accomplishment in terms of meeting needs.

Therefore one of the prime requisites for all housing legislature is the early passage of a bill to authorize and obtain a full census of all the pertinent facts about housing. And the Bureau of Census is the logical agency for collecting useful information that is accurate, authoritative and periodically obtained. The 1950 Census and each subsequent Census should include this vitally needed Census of Housing.
A rare example of municipal enterprise, Zilker Park pool is unspoiled, even has some ledges like the old swimming hole. The municipal bath house, faced with creamy Austin stone, is simple, direct; handles the heavy capacity of 5000 bathers at a time; has a special compact basket system, open-sky dressing courts, easy supervision, maintenance. Finished 1946 for $180,000.
A CITY GLORIFIES ITS "OLD SWIMMING HOLE"

Municipal Bath House and Park at Austin, Texas

Dan J. Driscoll, Architect *

When Dan Driscoll, Austin architect, first entered municipal plans to develop the fine possibilities of Barton Creek for swimming, these plans were not far along. There had been some thought of developing a facility directly on the highway, surrounded by commercial concessions. It was Driscoll's skilled campaign of persuasion that was largely responsible for the type of development seen in accompanying photographs. The site was moved away from the highway and under magnificent pecan trees; Driscoll and his associates put uncalculated extra hours into the design to produce a unique bath house which, incidentally, shows some influence of associate Nagel's attendance at Harvard. The people of Austin love their park, keep a zealous eye on it. Municipal authorities have reason to be proud. The * Chester E. Nagel, architect, shared in developing design; useful help was given also by Temple B. Mayhall, Delmar Gross (architects), J. E. Motheral (director of Public Works, City of Austin).
Below, view in women's dressing court, looking toward basket room with its ventilating shutters, all movable, which show also in the central part of the general view seen above. Parking facilities extend some distance beyond the building. The central tower is designed to create a sense of opening, rather than a dominant mass; it has a glass-block bulkhead, clear glass windows commanding the view, frosted glass above.

Bath house is situated on the north bank of a spring-fed stream at its source. The normal flow of the spring is about 60,000,000 gallons daily at a temperature of 68 degrees. A low-water dam creates the pool which is 1000 feet long. Zilker Park extends on up over a slight bluff, where a neatly kept picnic ground overlooks the river. The park is a ten-minute drive from downtown Austin and is named after Col. A. J. Zilker, the pioneer citizen who donated it.

The building is placed away from the highway, surrounded by ample parking. It is so situated as to avoid removal of the numerous giant pecan trees on the site, and to leave room, on the river side, for a porch giving a limited number of spectators a shaded view of the pool.

The building has a very high capacity, providing for a maximum of 5000 bathers by means of a unique (architect-designed) basket hanger system, hangers occupying only 7 inches front to back (page 92).

Open-sky dressing areas, both for men and women, especially characterize the building, arranged in patios where sunlight and fresh air automatically provide the major sanitation and de-odorization measures.

The bath house is entirely free of concessions which, experience has proved, can foul a pool with paper, bottles, refuse; later a pavilion is to be erected 500 feet downstream but overlooking the pool.
Requirements set by City of Austin Recreation Department

STUDY of plans and photos will reveal the aptitude with which the architect met special requirements set by the Recreation Department of the city.

1. The service office to offer a good view of the approach from the park, of entrances to public rest rooms and bathers' quarters, of bathers going to and from the pool; easy access to basket rooms.

2. Basket rooms to be arranged for easy attendance by one person during slack hours, by locking the sliding service doors and passing baskets directly over the counter to patrons and receiving them through rear windows as bathers pass to the pool.

3. Maximum number of people to be accommodated in minimal space; operation and maintenance costs to be reduced to a minimum.

4. Toilet facilities, open to all users of the park, near the entrance, to be closed off from dressing area during non-bathing hours (see plan, p. 86).

5. Provision of a limited number of private dressing rooms for both men and women.

6. Separation of swimmers from dressed public as much as possible.

7. Basket rooms and dressing areas to be extremely well ventilated and open to sunlight where possible.

8. A separate room, and ample storage for suits, towels, etc. of lifeguards and for gardener’s equipment.

9. Materials of high permanence, low absorption.

To the right of the building, as seen in the upper pictures on these two pages, Zilker Park continues onward and upward. On the upper level is a fine picnic area cooled by the river air, which is important in the Austin climate. From inside the central tower room, seen below, attendants can easily reach all checking areas, and a single attendant can manage all supervision during less active periods.
Sanitation and Public Safety

Any floor or walk surfaces were eliminated that would become slick and hazardous when wet. On concrete walks, a pea gravel finish was produced integral with the concrete. Pea gravel (maximum diameter \( \frac{3}{4} \) in.) was sprinkled over the cement topping and tamped into the wet surface. After the cement had taken its initial set, the excess was worked from the surface by means of a broom and water. With a little practice this was found easy to accomplish and gave the walks their slip-proof surface with handsome coloring.

Floors in dressing rooms were made of red shale brick, hard burned and low absorbent. The roughness due to wire cutting was sufficient to give traction.

All interior walls were given a glazed tile base and glazed tile wainscot to a height of 7 ft., with particular care given to providing glazed tile wherever the public might come in contact. All mirrors, in particular, were mounted on glazed tile, “the only surface,” says the architect, “from which the perennial lipstick can easily be removed.”

All areas were given ample numbers of floor drains. Dressing rooms also received gutter drains along walls, to permit quick washing with germicidals and a high-pressure waterhose flush. “Past experience,” says the architect, “shows that attendants will not use brooms or mops, but will use a hose, so we designed the building accordingly.”

Open-sky dressing areas are self-cleansing in large part through sunshine, self-deodorizing through free movement of air. Left (opposite page), men’s court provides most of its dressing space along benches under concrete canopies (see also photograph below) while women are given individual dressing rooms with washable curtains. Architects emphasize plentiful provision of drains and hose-flushable surfaces.
Enormous capacity was assured in basket rooms by the specially designed basket (below) providing non-wrinkling storage at 7-in. depth, and by the special catwalk (drawing, top, and larger photograph) for overflow crowds. For maximum ventilation, all outside walls were provided with steel sash above a height of 7 ft. (all sections opening), and all interior partitions with wire mesh. For additional air circulation, large fans take the hot air accumulations from under main office ceilings and force it through the basket rooms. Air motion is essential to prevent the musty odor too commonly associated with public baths.
The architects would have liked to give a more decisive S-curve to this stair leading from bath house to pool; were prevented by cost considerations. Note care with which retaining wall has been built around existing tree. Lower view gives good impression of glorified "old swimming hole" in use. Even the architects who promoted this concept have been compelled to watch their step. Some citizen telephones the minute anybody has touched a bush or a tree, so completely has this civilized version been sold to the people of Austin.
A brief illustrated summary of the comprehensive study and report of the firm of Harland Bartholomew and Associates, City Planners, shows the recommended solutions to the twin problems of —

TRAFFIC AND PARKING IN BEVERLY HILLS

Almost completely surrounded by the sprawling metropolis of Los Angeles is Beverly Hills, home of many glamorous movie stars. It has the same unglamorous problems which beset nearly all the other American cities — traffic and parking. But as a segment of a larger community, Beverly Hills is confronted by these twin headaches in a greater degree than the average independent city of 30,000 persons.

Four major highways from the Los Angeles business district and the Hollywood area pass through Beverly Hills toward the Santa Monica-Malibu Beach area — Sunset, Santa Monica, Wilshire and Olympic Boulevards. Each carries very heavy traffic, most of it not destined for Beverly Hills.

The city was originally residential. Its population of 674 in 1920 had grown to about 28,700 by 1947. Though a community of fine single-family residences, Beverly Hills is strategically located for a major shopping center, its "Triangle." Retail sales increased from $6,000,000 to $100,000,000 in the past 14 years. The retail stores are of a "quality" character, dependent almost exclusively upon automobile trade. There is 1 car for every 2 persons (the national ratio, 1 to 5).

Major Streets. Beverly Hills is primarily interested in maintaining the high character and beauty of the residential areas. The large business center here causes a certain amount of conflict as it attracts traffic and parking space has been inadequate.

The street problem is two-fold: (1) through traffic must be accommodated; (2) the residential areas must be protected from heavy traffic. The solution is to choose and suitably improve a few strategic thoroughfares for the heavy, fast, through traffic. A new channel to carry east-west traffic will be necessary. "Minor" streets must be planned to minimize through traffic movement by using traffic control devices, lights, signs, etc.

As a basis for the planning of an adequate and properly integrated street system for the future, automatic recording traffic counters were used to determine both average and peak loads and times. The street system must be able to accommodate satisfactorily the peak hour movement of vehicles — present and future.

In Beverly Hills, volumes on the major traffic arteries build up to a peak at about 8 a.m., and until 4 p.m. the volumes remain fairly uniform. After 4 p.m. a sharp increase occurs during the evening rush hours. Between 4 and 6 p.m., the streets are required to carry 30 per cent more traffic than at any other time.

In the Triangle Business District, a different condition is found. Here, traffic volumes are relatively light before 10 a.m., after which there is a rather constant traffic movement until 6 p.m. with only a slight increase during the evening rush hours. The same roadway capacity is needed all day within the Triangle Business District. The preponderant traffic movement in Beverly Hills is on the through east-west highways. (See peak flow diagram, page 98.)

The major street system for the Beverly Hills of the future was designed on the basis of a 100 per cent increase in peak hour traffic. Major thoroughfares will provide adequate and convenient through arteries. Revisions recommended include the traffic control system of lights and signs, prohibition of curb parking during rush hours, channelization of several important intersections to reduce congestion due to turning movements, elimination of left turns at a number of intersections, and installation of 4-ft. medial strips on Wilshire and Olympic Boulevards.
A new major street is recommended in the western portion of the city to facilitate the movement of north-south traffic. The proposed Santa Monica Freeway will become the dominant east-west artery. Most streets can continue to be minor residential streets to be used solely for access to the property they serve.

**Freeways: Santa Monica Freeway.** As the major solution to the problem of traffic movement in the Los Angeles metropolitan area, a system of freeways has been proposed. Studies and plans are now being made by the State Highway Department. These freeways would be limited access highways, all crossings being eliminated by separating the grades. Access would be by ramps with the places of access limited. Such streets can carry large volumes of fast-moving traffic with maximum safety. Rights-of-way 200 to 300 ft. in width are needed in most cases. Such highways should provide three lanes in each direction, with opposing traffic separated by medial strips.

A freeway through Beverly Hills is proposed by the State in the general vicinity of Santa Monica Boulevard. The necessity for this freeway is conclusively proven by studies of traffic flow. It would, of course, be desirable to locate this freeway outside of rather than within Beverly Hills. It cannot go north of Beverly Hills because of the topography. Other possible locations were carefully considered and analyzed but were found difficult or undesirable.

A location along Santa Monica is undoubtedly the most logical and desirable. It will directly serve both the industrial and the business areas and disturb the minimum amount of existing development, particularly residential. It will serve as a buffer between residential and the more intensive uses.

The Bartholomew report contains two alternate preliminary designs for this freeway, one to accommodate rapid transit, one for buses. Under these plans, the freeway would be depressed, with wide landscaped areas along each side. The possibility of covering the highway through the Triangle was considered, but the expense could not be economically justified. Furthermore, the possibilities of providing underground parking immediately south of the freeway within the business district would be more advantageous.

A convenient transit station is proposed at Canon Drive with adequate parking spaces. Only a comparatively few north and south streets are recommended to be carried across the proposed freeway which thus would be an effective barrier to traffic movements through the residential districts north and south.

A minimum number of traffic interchanges are proposed within Beverly Hills, the most difficult and expensive being at Wilshire Boulevard. This is necessary to accommodate the many turning movements.

A service drive would connect the residential streets north of the freeway. South of the freeway, a wide major
street is proposed as a distributor street serving the business district and the industrial area. Rail service to the industrial area could be continued under either plan.

The proposed freeway will afford the only satisfactory means of accommodating the large volume of east-west traffic that will be passing through the city. The freeway should accommodate about 4500 vehicular movements in each direction during the peak hour, relieving other streets. The rapid transit facilities of the freeway will assist Beverly Hills as well as the entire metropolitan area.

Parking. Beverly Hills is not alone a unique residential area, it possesses a business district of unusual distinction, stores and shops of unusually high quality serving the entire western half of the Los Angeles metropolitan area and beyond. The business of these specialty stores depends almost exclusively upon automobile trade. Adequate parking facilities are thus extremely important if this area is to maintain its present character.

The thorough parking survey, including field checks and questionnaire surveys, was conducted to determine
PROPOSED PARKING PLAN

LEGEND

- EXISTING BUILDINGS (NON-RESIDENTIAL)
- BUILDINGS TO BE REMOVED
- FUTURE BUILDABLE AREA (COMMERCIAL)
- BUFFER PARK STRIP

DECEMBER 1948
the characteristics of the use of curb and off-street parking facilities as well as the attitudes and preferences of customers and employees. Information was secured both by observation and by interviews. Questionnaires used were of three types—one for business establishments, one for employees, and a questionnaire card for general distribution.

The results of the parking survey brought out several interesting facts:

50 per cent of space-time is used by employees. Of the estimated 27,493 cars parking in the Triangle daily, 3214 cars, or slightly under 12 per cent are those of employees. This 12 per cent, however, occupies approximately 30 per cent of the space-time used, or 30 per cent of the available space-time. Employees now use space that should be devoted almost exclusively to customer parking.

71 per cent of parkers use space in the "inner" Triangle. Of the 27,493 cars parking daily, approximately 19,500, or 71 per cent, park in the portion of the Triangle between Wilshire and Santa Monica Boulevards.

55 per cent of short-time parkers are shoppers. Business calls account for 28.5 per cent, medical-dental calls, 14.5 per cent.

The parking survey disclosed considerable variation in parking space requirements for different business uses. Analysis of parking spaces required for 1000 sq. ft. of floor area showed an average need for one parking space for each 248 sq. ft. of floor area. The commonly accepted standard for parking space is that one automobile required 250 sq. ft.

The significant facts with respect to present parking space as disclosed by the survey are: (1) there is improper use of present parking space (i.e., close-in areas are used predominantly by employees to the exclusion of customer use); (2) there is improper distribution of parking space (evidenced by a growing shortage of such space on the most intensively developed streets); (3) at least 1200 curb parking spaces on residential streets have been forced into use because of insufficient available area within the business Triangle; (4) all parking space is privately owned and hence there is no assurance of its retention for parking purposes in the future.

The comprehensive parking plan proposed in the Bartholomew report has been designed to eliminate all business parking on the residential streets adjacent to the business district, provide a buffer strip of parks and park-like parking areas between the commercial development and the residential sections, provide adequate parking spaces suitably located within the business section and the buffer strips for both customers and employees to serve present and estimated future needs.

On the north of the Triangle, the proposed Santa Monica Freeway (which would be depressed and landscaped) will provide the needed buffer strip to separate commercial from residential sections. South of Wilshire, parking areas would be bordered by walls and a tree-shaded park strip to provide a definite separation between commercial and residential use.

Present and future parking requirements would be satisfied by the provision of the 13,650 parking spaces included in the plan; 1670 parking spaces would be at the curb and 11,980 spaces would be available in surface and underground facilities. No parking garages above the ground are proposed as studies of local parking habits indicated they would not be popular. It is contemplated that spaces at the curb and on the surface of the off-street facilities will be used for customer parking, while the lower level will be used for all-day parking.

An unusual feature of the parking plan is the subsurface parking structure underneath Santa Monica Boulevard and forming a part of the south boundary of the proposed Santa Monica Freeway. The vertical wall of the parking structure facing the freeway would be of grillwork construction to admit light and air to the parking floors and thus eliminate the necessity for mechanical ventilation of the structure.

Zoning. In order to maintain the integrity of the residential development, and to contain the business district within its present boundaries and under proper regulation, the Bartholomew report devotes attention to land use and zoning. A new zoning ordinance is presented. The ordinance also would regulate the intensity of commercial development by prescribing building height limits and by requiring provision of off-street parking space when new buildings are erected.

Above, left: graphic chart showing volume of traffic during peak hour. Opposite page: street plan showing sections of various streets (numbered) and alternate sections of proposed Santa Monica Freeway. Also existing and ultimate future traffic flow.
MAGNIFICENTLY situated high in the Hollywood Hills, overlooking all of Los Angeles and extending its view to the ocean beyond, this unusual small house was planned both around its setting and around its bachelor owner's liking for swimming, badminton and informal weekend entertaining. Every room in it, therefore, is oriented toward the view and the broad terrace accommodating the swimming pool and badminton court, and the walls on that side of the house are almost wholly of glass. Privacy was no problem — the owner bought the entire valley and hilltop and installed a private road to serve both his own home and those portions of the property which he intends to sell. The house is set about
Left: the main entrance porch, looking toward the service porch. To increase the apparent size of the house (only 1200 sq. ft. in area), two pergolas were added, one here, the other outside the guest bedroom.

15 ft. above the level of the road, and turns its back on it.

The plan of the house itself reveals a number of thoughtfully worked-out details. Built-in cabinets shield the living room from the entry and form a secluded nook for the couch. The fireplace serves as a dividing wall between the living and dining areas. The master bedroom, which has its own bath, is accessible directly from the main entrance; the guest room is at the opposite end of the house, with its bath so placed as to make it a convenient dressing room and shower for the pool. The forced air heating unit is installed in a closet behind the fireplace, opening to the kitchen. The garage, which topography demanded be located on a lower level, is connected with the main entrance by concrete and flagstone steps.

Construction is of wood stud and plaster, with a composition roof laid in the Bermuda manner over wood strips installed parallel to the ridge. Except for the small portion over the garage, the house is built on concrete slab directly on the ground. Exterior is white stucco with gray trim; the roof is white, reflecting the sun’s heat and emphasizing the house’s simplicity.
Colors were kept quiet for the sake of the view, but walls away from the view are occasionally accented by maps (opposite page) and wallpaper such as in master bedroom (below). Wood tacking strip for carpet is laid directly in concrete slab of foundation.
COMPACT HOUSE IN CALIFORNIA CANYON

Rodney Walker, Architect

The site of this small, all-plywood residence in California is long and narrow, fronting on a busy boulevard, and extending back to the foot of a wooded hill. The house, consequently, is placed lengthwise on the lot, shielded from the boulevard in part by the garage. Privacy will be increased further by a fence, not yet built, extending from the entrance steps at the inner corner of the garage across the front of the lot and half way up the south side.

The structural scheme (see detail on page 107) is a 3-ft. module setup with posts, braces, fireblocks, sills, headers and plates cut to size and grooved or drilled with a template before erection. No door or window frames are used; stationary glass is slipped into the grooved posts and puttied with a calking gun, eliminating vertical stops. Note the hinged ventilating boards between the ceiling beams in living room.
The single bedroom is placed at the rear of the house for maximum privacy, with its windows looking up the steep hill into the woods. One whole side is given over to a built-in wardrobe with indirect lighting above serving both it and the bedroom. A rollaway guest bed is stored in a specially designed niche in the entry closet (left), accessible also from the bedroom closet.
The typical section (above), developed by the architect for either one- or two-story houses shows the simplicity of construction and absence of any superfluous trim. The breakfast area (right, below) overlooks a small paved patio between the house and the garage.
CONSTRUCTION OUTLOOK
FOR 1949

ELECTION results dispelled the illusion that there is any
accurate method of forecasting the actions and
decisions of millions of people free to vote as they choose.
The same freedom exists with respect to buying goods
and services, to planning, altering or postponing con-
struction projects.

We, therefore, take occasion to restate the position
F. W. Dodge Corporation has invariably assumed in
presenting each November a statement on the construc-
tion outlook accompanied by construction volume
estimates for the ensuing year. In our view, such esti-
mates are not prophecies or predictions; they merely
represent our judgment, based on such information as
we assemble and appraise to be significant, as to a safe
basis upon which executives in construction industry
enterprises may make forward plans.

According to our analysis, election day found the
American economy at or near the peak of a postwar
boom. While such inflationary aspects as vastly in-
creased money income, shortages of many categories
of goods and services, and rising prices, wages and costs
of production and construction have been conspicu-
ously present, the boom has been unique in a very
important respect. It has not been accompanied by a
boom psychology. There have been no significant specu-
lative excesses in security prices, real estate or com-
modity inventories. This postwar boom has, therefore,
not generated the forces that usually cause severe
reversals. The sanity and cautious optimism of the vast
majority of people have held inflationary forces in
check while enormous production on farms and in
factories has moved rapidly in the direction of balancing
the supply of many goods and services with the enor-
mous demand.

As late as October it appeared to us and to a majority
of the 112 leading economists who participated in the
outlook survey we then conducted, that the most likely
picture in 1949 would be about this: moderate declines
in wholesale prices of commodities in general, in cost
of living, industrial production and employment: in
short, a flattening of the boom, with further progress
toward stabilization a little below 1948 levels, all with-
out the prospect of serious price deflation and the major
problems of business adjustment that always accompany
rapid price declines.

Approximate market balance, with a tendency to
lowered prices, has appeared principally in consumer
goods lines: farm products, foods, hides and leather
products, textiles and textile products. In most capital
goods lines, deferred demands and backlog orders still
prevail; this is reflected in the price trends of metals
and metal products, which continue slightly upward.

Similar mixed trends are reflected among the con-
struction materials. Lumber has been plentiful and
wholesale prices of lumber have been falling. Most other
non-metallic construction materials have been in ade-
quate supply, with competitive pricing. Building
products fabricated of metal continue in tight supply,
tending upward in price, tending to limit total con-
struction volume.

The Democratic victory points to increased rather
than decreased governmental action in economic af-
fairs. There is likelihood of early legislation in the
fields of public housing, public health, federal aid to
education, enlarged social security coverage. Federal
expenditures for such purposes, added to the already
high federal budget, to increased military expenditures,
to foreign economic aid, and, possibly, to rearmament
assistance to friendly foreign governments would tend
to create additional inflationary pressure on commodity
prices and construction costs. However, actual expendi-
tures for new social programs are not likely to be very
large in the next calendar year.

There will be battles in the 81st Congress between
forces pushing for lavish expenditures and those aiming
to hold the federal budget in bounds. Consideration will
undoubtedly be given to price control legislation. The
election result increases the probability of further wage
increases in key industries.

On the basis of our appraisal of the climate in which
the construction industry will function next year, our
1949 estimates indicate an anticipated decline in those
nonresidential building classifications which are pre-
dominantly private: commercial, manufacturing, reli-
gious, and social and recreational buildings. Bases of
these anticipated reductions are the following facts:
buying resistance is being felt in some of these lines
already, equity financing has become increasingly dif-
cult, mortgage credit has tightened, confidence of
many potential private investors has probably been
shaken in some degree by the results of the national
election.

The same factors are likely to affect the volume of
private residential building. The home builders respon-
sible for record housing production in 1948 now rather
generally realize the necessity of producing and offering
for sale houses with lower price tags than those attached
to a large proportion of the 1948 output. This will be
particularly difficult of attainment if renewed inflation-
ary forces should tend to further rises in material prices
and building wage scales. A moderate slowing down of
activity during part of the year would facilitate market
adjustment.

Needs for rental housing continue very great. Recent
and in the estimates, are more likely to decline somewhat in increase, in view of the status of authorized programs than to increase, we believe.

The acute phase of the housing shortage.

with the net effect of a moderate decline in total new houses and apartment building equal to the 1948 rate, have estimated a moderate decline in single-family houses. We have estimated a moderate decline in single-family houses and apartment building equal to the 1948 rate, with the net effect of a moderate decline in total new dwelling units. Housing production, even at the reduced rate we anticipate, would go far toward ending the acute phase of the housing shortage.

Educational buildings, hospitals and institutional buildings, and public works and utilities projects all seem likely to increase, in view of the status of authorized programs and appropriation commitments. Maintenance and repair work and farm building, which are not included in the estimates, are more likely to decline somewhat than to increase, we believe.

Estimates of 1949 building activity are presented in terms of physical volume (new floor space in square feet) in Table 1. Solely for the purpose of combining estimates of heavy engineering construction with estimates of building volume, a second table of dollar figures is added, since there is in general use no other common unit of measurement for these two major divisions of construction activity.

For translation of physical volume figures into dollar figures, an assumption about average unit costs of 1949 building projects is necessary. The figures of Table 2 assume average building costs approximating 1948 averages, an assumption involving major uncertainties. Marked change in the purchasing power of the construction dollar could alter these dollar estimates radically even if the volume estimates prove reasonably close. On the same assumption the dollar increase estimated for public works and utilities is intended to indicate a corresponding increase in physical volume of heavy engineering work.

**Table 1: Estimated Physical Volumes of Building—37 Eastern States**

(On the basis of F. W. Dodge Corporation's contract records)

<table>
<thead>
<tr>
<th></th>
<th>Estimate Year</th>
<th>Estimate Year</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1948</td>
<td>1949</td>
<td></td>
</tr>
<tr>
<td>Commercial buildings</td>
<td>104</td>
<td>95</td>
<td>-9%</td>
</tr>
<tr>
<td>Manufacturing buildings</td>
<td>109</td>
<td>93</td>
<td>-15%</td>
</tr>
<tr>
<td>Educational and science buildings</td>
<td>70</td>
<td>77</td>
<td>+10%</td>
</tr>
<tr>
<td>Hospitals and institutional buildings</td>
<td>36</td>
<td>40</td>
<td>+11%</td>
</tr>
<tr>
<td>Public buildings</td>
<td>6</td>
<td>6</td>
<td>0%</td>
</tr>
<tr>
<td>Religious buildings</td>
<td>21</td>
<td>17</td>
<td>-19%</td>
</tr>
<tr>
<td>Social and recreational buildings</td>
<td>22</td>
<td>19</td>
<td>-14%</td>
</tr>
<tr>
<td>Miscellaneous non-residential buildings</td>
<td>19</td>
<td>19</td>
<td>0%</td>
</tr>
<tr>
<td>Non-residential buildings</td>
<td>387</td>
<td>366</td>
<td>-5%</td>
</tr>
<tr>
<td>Residential buildings</td>
<td>468</td>
<td>429</td>
<td>-7%</td>
</tr>
<tr>
<td>New floor space incidental to heavy engineering projects</td>
<td>1</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Total building floor space</td>
<td>856</td>
<td>796</td>
<td>6%</td>
</tr>
</tbody>
</table>

**Table 2: Estimated Volumes of Building and Engineering Contracts**

(In accordance with 37-states contract statistics; figures in millions of dollars)

<table>
<thead>
<tr>
<th></th>
<th>Estimate Year</th>
<th>Estimate Year</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1948</td>
<td>1949</td>
<td></td>
</tr>
<tr>
<td>Non-residential building</td>
<td>$3,675</td>
<td>$3,490</td>
<td>5%</td>
</tr>
<tr>
<td>Residential building</td>
<td>3,700</td>
<td>3,440</td>
<td>7%</td>
</tr>
<tr>
<td>Total building</td>
<td>$7,375</td>
<td>$6,930</td>
<td>6%</td>
</tr>
<tr>
<td>Public works and utilities</td>
<td>2,280</td>
<td>2,500</td>
<td>+10%</td>
</tr>
<tr>
<td>Total construction</td>
<td>$9,655</td>
<td>$9,430</td>
<td>2%</td>
</tr>
</tbody>
</table>

NOTE:

These dollar figures differ from those of the over-all 48-state estimates of governmental agencies in three important particulars.

1. These figures cover 37 states; current volume in the 11 western states appears to be approximately one-third of 37-states volume.
2. These figures virtually represent work started; government over-all figures are estimates of work put in place; trends shown by contract statistics generally tend to anticipate trends shown by work-in-place figures.
3. Government over-all figures include estimated volume of low-valuation projects and projects in rural and semi-rural areas beyond the range of Dodge coverage.
THE PLANNING OF RECREATIONAL CENTERS

By F. Ellwood Allen and Weaver W. Pangburn

The modern community recreation center, as exemplified on the following pages, seems to merit the designation "community building" to an even greater degree than any other structure in the large category of buildings serving the public. Schools, churches, clubs, etc., are all to some extent specialized in that primarily they serve a certain limited age group, creed or interest. The recreation center, on the other hand, is specifically dedicated to serving a very wide range of interests and ages, and to being attractive and useful to "all of the people, all of the time."

By its very nature, therefore, the approach to the problems of designing such a building is a complex one, involving first a study of the individual community, in order to discover precisely what recreational facilities are needed; and second, the planning of a structure which shall serve these varied and often widely dissimilar activities with maximum efficiency in operation and minimum waste in initial cost and maintenance. This article will attempt to outline some of the major considerations, along these lines, with which the planner will be confronted.

The natural tendency on the part of many communities, when faced with the need for establishing some kind of central recreation facility, is to attempt to utilize their existing school plant for this purpose. In some communities the school may meet the need; but in the majority of cases it has not been designed as even a supplementary community center, and its existing facilities are not adaptable to a diversified recreation program. Ideally, a well-rounded recreation program must have a building with facilities serving the many recreational interests of the people of the community, built on a site located near the center of the community and, preferably, large enough for a variety of outdoor facilities.

For a quick, bird's eye view of the basic components of a recreation center, as well as a few approximate figures relating certain specific facilities to the community's population, we quote from a handbook of the National Recreation Association.

Following are the standards for neighborhood recreation areas and facilities, as prescribed by the National Recreation Association:

1. There should be a community recreation building or center within a half mile to a mile of every home, the distance depending on population density and ease of access.
2. Such a building, or center, should be provided for at least every 20,000 of the population.
3. It should be generally and regularly available for the recreational use of the entire community throughout the year.
4. It should provide most of the following facilities:
   - **Gymnasium**, with seats for spectators, lockers and showers, suitable for basketball, volley ball and other floor games, gymnasium classes and dances, socials, holiday celebrations and similar activities.
   - **Assembly hall or auditorium** with stage, and preferably with removable seats, for concerts, lectures, movies, dra-
matics, rallies, banquets, recreation demonstrations and community gatherings.

Room for informal reading and quiet table games, where an individual may drop in for a few minutes or spend an evening with one or more friends.

Room equipped for various types of arts and crafts activities.

Social or play room for small group parties, square dancing, play rehearsals, and other activities involving fairly small groups.

Room for table tennis, billiards, darts, shuffleboard and active table games.

Two or more club or multiple use rooms for club and committee meetings and hobby groups of all kinds.

Refreshment stand or snack bar.

Kitchen for preparing meals and simple refreshments and also for cooking and canning classes.

Office for the director.

Essential service rooms and facilities including ample storage spaces for equipment and supplies.

As a guide in making a survey of recreational facilities, whether planned or existing, the Association offers the following suggestions:

An appraisal of a city's indoor recreation resources must take into account not only the multiple use recreation buildings but all buildings that have facilities regularly available for community recreation use. The specific interests of different communities vary, but experience has shown that in general the indoor facilities required to serve these interests are similar. Local conditions or needs may make desirable special features such as a music room, pistol range, bowling alleys, dark room or library.

The following standards represent the indoor facilities that should be available for community recreation use in every city, regardless of the type of building in which they are provided:

A gymnasium for each 10,000 of the population or less.

An auditorium or assembly hall for each 20,000 or less.

A social room or play room for each 10,000 or less.

An informal reading and quiet game room for each 10,000 or less.

An indoor game room for each 10,000 or less.

A room equipped as an arts and crafts workshop for each 10,000 or less.

A club or multiple use room for each 4000 or less.

An indoor swimming pool for each 50,000 or less.

Function and Design

The nature of a community recreation building, and its use, is such that the most meticulous analysis of the recreation program and the supervisory problems entailed in keeping it moving smoothly must precede design. The program itself will spring from the needs and desires of the people of the community, who will be the users of the facilities. But the supervisory and administrative problems are of equal importance. The recreation building must mean many things to many people at the same time; its director will face a continual stream of operational problems including scheduling of facilities, distribution of supplies, supervision of activities, direc-

tion of personnel, maintenance, etc. Good recreation design must, therefore, not only provide the right facilities, but also arrange them in relation to one another so effectively that the active direction of the program can function with maximum convenience and efficiency.

Unit Planning

As in the case of an intelligently conceived, long-range school building program, the recreation center should be planned as a whole, even though lack of available funds may prohibit the complete construction of the building designed to meet all present and future needs. In such a case, rather than build an inadequate structure, it is desirable to design the building so that unit construction is practical.

In planning for unit construction, a schedule of priorities should be set up based upon the most urgent community need and the unit designed to meet that need built first. Expandability of the project should be anticipated in the original design so that as activities increase and additional funds permit, units may be added without requiring basic changes and extensive alterations.

Choice of Facilities

Great care should be taken in properly relating the choice of facilities to the particular needs of the community; the more so because these needs will not remain constant. Not only do the interests of people vary with their age, background, experience and opportunities, but many persons—unaware of their potential interests and abilities because of limited recreation experience—will find themselves using the facilities more and more as the scope of their interests and participation and the measure of their skills increase.

Selection of facilities will also be somewhat influenced

Sketch by Leavitt

DECEMBER 1948
by consideration of whether the program shall be partly or wholly self-supporting. Fortunately, in many cases the most popular facilities — such as bowling alleys, a dance floor, basketball courts, snack bars, etc. — are also the ones which may be used to provide income.

Particularly if the facility is an expensive one, the number of expected participants will considerably affect the decision on whether or not to include it in the program. A dark room for a camera club, for example, may appeal to relatively few individuals but they will be intensely interested in it and it will represent a comparatively small outlay of total funds. A gymnasium built simply for basketball, on the other hand — especially if not designed for large spectator crowds — takes a great deal of space and represents a large investment for relatively few participants.

In order not to waste money on duplication, due weight must be given to the availability of the community of such facilities as bowling alleys, movies, etc., whether of a public, semi-public or commercial nature. The only condition under which duplication might be considered is in those cases where desirable community facilities, operated at cost, might reach many more individuals than when operated commercially for profit.

One of the more popular and constructive features of any recreation center, and one which would also rate a high priority, is the crafts room. With more leisure time at their disposal, people are discovering the pleasures of developing creative skills of one sort or another. A real need for properly equipped places where they can learn something of the arts of wood-working, ceramics, metal-working, weaving, etc., has followed. Few homes have sufficient space available for a work shop, and few owners the funds necessary to equip them, but when space and tools are owned cooperatively the cost is not prohibitive.

In assigning priorities to certain facilities, it should be borne in mind that some of them offer intangible values which must not be underrated. The lounge room, for example, though it has no income-producing importance, invariably helps to make the center a success. Its informal welcome and the opportunity it affords for casual sociability are essential factors in the recreation program. A stage, with proper lighting and other equipment may seem an extravagant item; but a well-produced theatrical performance, with its hours of intimate companionship in rehearsal, its development of satisfying creative ability, its tangible evidence of accomplish-

ment and its entertainment of large audiences will often be found to make returns justifying the initial outlay.

Other units of the recreation building which will usually merit serious consideration in the initial selection of facilities are:

Club and committee rooms. Frequently the club idea, based on common interests among the members, promotes close and congenial fellowship; and invariably the efficiently run recreation program involves many committees which require places for meetings.

The library. This may be anything from an incidental collection on the shelves of the lounge to a large and fully modern service designed for constant use by the whole community. Associated with the library idea is the sound-proof room for the playing of records, a feature which has proved attractive to the young people and is accepted as worth while.

The swimming pool. Due to relatively heavy initial and operating costs of indoor pools it is not surprising to find outdoor pools more numerous. The ideal pool, however, is one designed for year-round use, and there is a definite trend in that direction at the present time.

Storage and service facilities. In the operation and administration of a community recreation building, the provision of adequate and correctly located storage and service facilities often spells the difference between a smoothly running plant and a constant headache. Among service facilities to be considered are a check room for hats and coats available to multiple use and lounge units, the room for issuing recreation equipment, and the utility repair room for the custodian, equipped with tools for the emergency repair of the building’s mechanical, electrical and sanitary equipment.

Multiple Use of Facilities

As a feature promoting economy as well as maximum use of all facilities provided, the principle of multiple use deserves special mention. The term, of course, simply implies the planning of facilities with such flexibility that a given room or floor area may be put to various uses, either at different times or at the same time.

Perhaps the best example of the multiple use facility is the gymnasium as it appears in a well-designed recreation center. By contrast with the usual school or college gymnasium, this room has to serve a far broader program than merely the playing of basketball and the use of standard gymnasium apparatus. When built on a generous scale as a combined gymnasium-auditorium
with a good stage and dressing rooms, it may serve such varied additional uses as volleyball, paddle tennis, deck tennis, shuffleboard, badminton and indoor baseball; also organized games for children, dances, banquets, lectures, concerts, hobby or garden shows, trade exhibits, movies, etc.

Some of the multiple uses above mentioned suggest the need for having kitchen facilities and adequate, ingenious storage space nearby.

The lounge, too, may be used for a number of different purposes, but it should be recognized that the multiple use idea can be carried too far for efficiency unless the basic character of the various facilities is respected and preserved. For example, trying to combine pool tables and table tennis in a room primarily intended for such quiet games as cards, chess and checkers will not work. However, these quiet games usually can be assigned to rooms used for reading without adverse affect.

The whole principal of multiple use, as a matter of fact, needs to be constantly related to the amount of money available and the degree of perfection required in any particular facility. The combined auditorium-gymnasium mentioned above could never attain the perfection or efficiency afforded by separate facilities. It would be unreasonable to expect the same satisfactory acoustics in a gymnasium as could be attained in an auditorium or concert hall designed with that special characteristic as a major requirement. Where patronage is large or funds are ample, separate units could be justified; but in the much more numerous cases where those factors are lacking provision for multiple use will offer a practical compromise.

Size and Number of Facilities

As to the size and number of required facilities, too large and too many is as bad a fault as too small and too few. Admitting the difficulty of striking a precisely correct balance between these two extremes, it will none the less be found that a careful and detailed study of the community’s interests will result in much more intelligent planning in this respect. In general, it seems wise to plan the building for something short of peak crowds — something closer to average patronage — in order to assure the most efficient use of the plant most of the time; and to find ways of utilizing any space which tends to remain idle — for example the stage or library can serve quite adequately for occasional club or committee meetings.

Standard data on dimensions of the various facilities is readily available elsewhere and will not be considered here, but the following observations, based on experience, may prove helpful.

To do certain things satisfactorily, certain minimum dimensions are necessary. If the gymnasium or its equivalent is to be right for basketball, volleyball, badminton, etc., the floor must not be less than 50 ft. wide, 75 ft. long and 20 ft. high. For competitive play, a gymnasium length of 90 ft. is desirable. Plays can be produced on makeshift and small stages but it is desirable for good results, and necessary in most productions, to have a stage 40 ft. wide by 24 ft. deep with a proscenium 24 ft. wide and at least 12 ft. high to its arch. If the interest in drama is keen and the funds permit, it is desirable to have a stage loft two and one half times the height of the proscenium opening. However, a space 10 to 12 ft. above the top of the proscenium will suffice.

The number of locker and dressing rooms, showers, and toilets depend on the capacity of the building and whether there is a playfield. If gymnasium, playfield and auditorium are included, there will be more such facilities than in just a recreation and social building. It is common to allow 8 sq. ft. of dressing room space per locker up to a load of 40, with larger allowance per locker if more of a load.

For a building serving a population of 20,000 people or less, four to six club rooms should prove sufficient. Two of these might be 12 by 16 ft., the other 20 by 30. Lockers and cupboards should be provided for storing the records and equipment of each organization. Folding partitions in the club rooms have been found to afford a very useful degree of flexibility.

Bowling alleys should be provided with adequate space for a few spectators; 110 ft. is a desirable length. Six alleys should be the minimum in any building, and eight to ten is desirable; where too few alleys are provided, the waits between turns is too long and results in public loss of interest in the facility.

If additional units of the building are to be constructed, from time to time, the facilities in all major service units such as dressing rooms, showers and lockers, heating and other utilities, must anticipate the loads to be added or be readily susceptible of enlargement.

Ease of Circulation

Ease and speed of circulation are of special importance in the recreation center. Part of the problem is to provide adequate and convenient passageways, but to do so without creating a condition which would interrupt or
interfere with the appropriate use of any of the facilities; another part is to avoid devoting too much footage to them. There is a useful parallel in hotel design: the modern hotel, with relatively narrow corridors, and small lobby space; still achieves vastly improved circulation by comparison with the older types which had poor returns from a far greater investment of total available area.

Storage Space

Adequate storage not only makes for convenience but it also reduces the service otherwise required of custodial personnel. It is a corollary of the multiple use of facilities. The gymnasium-auditorium after use for a big dinner must be cleared quickly for the next use. Hence the advantage of rolling the chairs under the stage and stowing the tables in a sizable room located for the purpose at the end of the stage, or taking both to the floor below on an elevator built under the stage. A listing of the major facilities requiring storage follows:

- Club rooms — built in closets and cabinets for supplies, records.
- Dressing rooms — permanent lockers or baskets.
- First aid room — supply closets, supply cabinets.
- Office in lobby — cabinets, shelves for supplies.
- Recreation — equipment room — shelves, closets.
- Craft room — shelves and cabinets for supplies, tools.
- Stage — property room adjacent or below.
- General service and heating room — supplies, fuel, tools.
- Each floor — closets for cleaning supplies, toilet supplies, mops, brooms, etc.
- Snack bars — shelves, closets.
- Kitchen — preserving units, cabinets, closets, shelves.

Maintenance

Maintenance is a matter of first importance in the community recreation center; the building will have hard use, yet must be kept attractive and serviceable at all times. Good design pays big dividends here.

The gymnasium floor must be built of wood, but many of the floors elsewhere may be hard surfaced or have resilient flooring. Washable materials — permitting quick and thorough cleaning — should be used for walls and floor of locker and dressing rooms. Permanent lockers should be set on concrete bases or suspended from the ceiling — never mounted on legs. The kitchen should be designed so that it can be hosed down. Exterior materials must also be selected with a view to reducing maintenance and replacement costs.

Costs

Finally, there is the always imperative question of building cost — how much building will the community get for how much money? And how much money ought the community to spend at this time? The following generalities may be found useful:

A long-range plan, involving unit construction, will inevitably permit the design of a more ambitious project than would be the case of complete and final construction of the building were to be decided upon. A short term plan is seldom justified and usually means a shortsighted plan which fails to consider increasing populations, increased public interest in the center, etc. The virtual impossibility of making substantial additions to a recreational building not originally designed with that in mind, is too obvious to architects to need further mention here.

Where unit construction is decided upon, the building committee can study preliminary plans and cost estimates, come to some decisions on whether the cost of certain units is worth the necessary immediate outlay, and thus allocate priorities with a fair knowledge of what they are doing. The campaign to raise funds for the new building will also find much useful material in this phase of the architect's work.

Another item which needs early settlement is whether the community, having provided the building, will expect the building for the most part to carry itself. Where this is the case, the committee must be sure to include the kind of facilities that will pay their way, and also work out the kind of policies on charges, rentals, etc., which will produce yet still retain the club-like atmosphere of the center.

As to operating costs — which like building costs must vary greatly — the following rule may at least serve as a guide: A building costing $500,000 would require for annual operation about 8 to 10 per cent of the initial cost. As the cost of the structure increases, operating costs diminish proportionally as the cost of the building is less.

A few of the publications on community recreation building published by the National Recreation Association, 315 Fourth Avenue, New York 10, N. Y.

Planning A Community Recreation Building. The important principles and features of a wisely planned building.

Recreation Areas — Their Design and Equipment. Containing 169 illustrations, diagrams and plans of areas and buildings, this volume is a guide to the planning of playgrounds, playfields and athletic fields.

Selected Bibliography on the Design and Equipment of Recreation Areas and Structures (MP 161).

Standards for Neighborhood Recreation Areas and Facilities. Basic principles for the provision of recreation space and standards for outdoor space and indoor facilities. Agencies concerned with recreation are discussed and methods of cooperation indicated.

Standards for Municipal Recreation Areas. A description of the various types of municipal recreation areas and a summary of the standards that have been proposed by many authorities.
NEIGHBORHOOD RECREATION CENTER, SUMMIT, N. J.

Antonin Raymond and L. L. Rado, Architects

F. Ellwood Allen Organization, Park and Recreation Planners

Recreation centers need not — often should not — be designed to serve entire communities; nor need they be in any way connected with the employee problems of industry. As in the case of the Summit Center, shown here and on the following two pages, a project of this sort may result simply from the special need of a neighborhood.

This particular center, two schemes for which were drawn, is designed to serve a locality of about 3000 population, comprising a portion of Summit. On occasions the major facilities will be used for functions involving the entire community, but the more limited participation determined the size of the plant.

The new structure will owe its existence, in large measure, to the fact that a neighborhood school, including an auditorium, gymnasium and other facilities, was sold for industrial research purposes, thus depriving the neighborhood of its principal recreational and social facility.

The plans drawn for the new center are of special in-
terest, by comparison with those shown on subsequent pages, because of the more modest size of the plant. Thinking in terms of city planning, and the application to recreational facilities of a systematic scheme similar to those developed for educational and public health facilities, the smaller of the two buildings for Summit might be considered as economically feasible for the small neighborhood planning units into which a city might be divided. The larger building is suited to a peculiar local situation. Again, in terms of a recreational center for an entire community, the larger structure might be taken as an indication of what the small town — little more than a village — might successfully undertake to provide. These generalizations do not, of course, refer to the specific facilities afforded by the Summit Center; these have been provided because they reflect major local interests which, in other localities, might be different. The larger of the two schemes, shown in perspective on page 115 and in plans on the page to the left, pro-
vides two major indoor facilities: a standard basketball court, with all the attendant multiple uses which these dimensions allow; and an eight-lane bowling alley at a lower level taking advantage of the slope of the ground. Kitchen, snack bar, clubrooms and the usual services complete the plant. It is worth noting, with reference to the small neighborhood or community, that almost all facilities are in a high degree income-producing.

The smaller alternative scheme for Summit, shown on this page, might be considered as setting something like a minimum standard for public recreation buildings, so far as facilities are concerned. The bowling alley is omitted, and the recreation hall is smaller. The emphasis is on the social aspects of recreation rather than on the athletic. The recreation hall is, however, large enough for many active games, even though not adapted to accommodating many spectators as the games themselves use all the floor area.

The project is planned for the Board of Recreation Commissioners, Summit, N. J.
THE COMMUNITY CENTER FOR HICKORY, N. C.

Antonin Raymond and L. L. Rado, Architects

F. Ellwood Allen Organization, Park and Recreation Planners

A total lack of central community or recreational facilities in this Southern manufacturing town of 19,000 persons, and a corresponding public interest in a center designed to supply these elements, formed the basis for a successful drive for funds. A local manufacturer's offer to match, dollar for dollar, whatever the town could raise brought the final total up to about $800,000.

A long-range study of the community and its environs was made which indicated its potential future population and the center has been planned to meet the future as well as present, demands upon its facilities. A 20-acre site near the center of town was purchased, within walking distance of most residents.

The ample size of the property made possible the development of an outdoor area which, as shown on the plot plan and model photograph on the facing page, matches the indoor facilities with provision for all types of outdoor recreation. The game courts for volley-ball, paddle tennis, shuffle-board, table tennis and badminton will be hard-surfaced so that when the area is cleared of game equipment it may be used for outdoor dances, roller skating or other events — an application of the multiple use principle to outdoor facilities.

The cost of maintaining this extensive plant in a relatively small community was given careful consideration. The objective decided upon has as its goal the retaining of the non-commercial, community character of the center, while reducing to the greatest possible extent the burden on the community of maintenance costs. Thus, as in other successful centers, it is planned that those facilities which will involve heavy construction or operational costs must produce income; but there will be many units and facilities free for general use, and even the income-producing facilities will be available to children at lesser rates, or, as in the case of the pool, will have certain free periods for children's use.

The community center is sponsored by the Hickory Community Foundation and the Hickory Recreation Commission.
In the design of the Hickory Community Center, architects Raymond and Rado took particular care to suppress any suggestion of institutionalism and to keep the character of the building warm, welcoming, human in scale, intimate and relaxing. The approach to the main entrance, shown in the drawing above, despite the large mass of the gymnasium, has somewhat the hospitable atmosphere of a private club, not at all the forbidding monumentality of so many “public” buildings. This aspect of the design could be a deciding factor in the popularity, and therefore the success, of the Center.
Immediately below the main lobby is the snack bar, an income-producing feature of the Center which can be expected to be well patronized by the young people. As seen in the drawing above, the bowling alleys and spectator stand is at the left; the game rooms for ping-pong, billiards and various smaller games are directly beyond. The plan of the lower level shown here does not include the pool (turn two pages), which joins the west end of the plan. Locker and shower rooms serve the swimmers and the participants in outdoor activities, with a small stairway behind the snack bar giving access to the gym.
The recreation hall, off the main lobby, has ample playing space for a regulation basket-ball court, with folding seats affording a total spectator capacity in excess of 1800. The hall is adaptable to a variety of other games and functions; as seen in the plan at right, the kitchen is conveniently adjacent for the serving of large banquets. The dining room, shown below, has a normal seating capacity of 100, and opens on a terrace balcony to the south where an additional 100 may be served.
The social atmosphere and facilities of the Center are quite as important to its success as are those of a more active recreational nature. In the home-like, informal atmosphere of the lounge, above, all the people of the community will find a common meeting place. Club rooms, exhibition rooms, amphitheater-type demonstration room, rooms for crafts and photography (on lower level floor plan), afford other opportunities for non-athletic participation.
Undeniably an expensive feature of any recreation center, a swimming pool is also one of the almost indispensable items where no similar facility is available to the community. Fortunately, it is also a facility which can produce substantial income through admission tickets to swimmers, and to spectators at aquatic events. The Hickory Community Center pool is the regulation 35 ft. wide by 75 ft. long, and provides a seating capacity of 400 in the gallery. A feature of the pool is the pivoted lower tier of glass which makes it simple, in warm weather, to open the south side of the building fronting on a broad, enclosed terrace for sunbathers. The pool has in effect all the features and advantages of an outdoor pool in summer and of a bright, warm indoor pool in inclement weather.
As shown in the plan and section above, the pool unit connects with the western wing of the main building; at the lower level, the pool is conveniently near the locker rooms, and on the first floor level is accessible to non-swimmers via a corridor from the lounge. The concrete pool building represents a basic change in structural material compared with the recreation hall wing of the Center, which is steel. This change is admirably reflected in the dramatically flowing lines of this building’s characteristically concrete architecture.

Above and at left are details of the glass south wall of the pool building, one of the most notable features of which is the pivoted sash shown open in the drawing on the opposite page. The advantage of this detail over conventional doors or sliding sash merits consideration.
A RECREATION CENTER AT BLOOMINGTON, ILL.

Antonin Raymond and L. L. Rado, Architects

F. Ellwood Allen Organization, Park and Recreation Planners

This Center, unlike the one shown on the previous eight pages, was designed primarily to serve the employees of the State Farm Insurance Companies, and the question of raising public funds did not arise. Although Bloomington is a good-sized university town, attractive recreational facilities are conspicuously deficient for the great majority of the companies' employees, many of them young women fresh from farms and villages. This dearth of facilities serving leisure interests is a principal cause of a serious employee turnover.

To meet this situation, the Companies asked the employee organization to make recommendations as to the kind of facilities that would provide for the major recreational interests of the employees. These recommendations, together with a searching, independent study by the planners, formed the basis for the design and determined what facilities would be included. Special attention is drawn to this phase of the pre-design research; the desires and preferences of the men, women, and families who were to use the Center were sought and followed. The more paternalistic approach, in which the officers of the Companies which are to pay the bill might have dictated what should go into it, would have been of much less value in securing the ultimate objectives of the project.

A property, some 33 acres in extent, was purchased at the edge of town, since a central location was in this case of less importance than an attractive site of ample size. The building will overlook a body of water which will afford swimming, boating, etc., and there is adequate space for all outdoor activities. Most employees, their families and friends — the Center will not be restricted to employees' use — will reach it by automobile, and it is planned to be extensively used on weekends.

As reflected in the plan shown here, bowling and music were two of the most widely popular interests for which facilities were needed. The recreation hall has a stage suitable for concert use. Separate from the main building is an annex for swimmers, providing dressing-rooms, showers, drying facilities, etc. For other views of the model, see the following two pages.
The photograph above shows a view of the Center as it might be seen from the hill north of the lake, looking southwest toward the entrance front and the lakeside. Only a part of the extensive property is shown in the plot plan below, but certain of the more important features are highlighted. The spacious terraces, extending to the water’s edge and ending in a boat landing, take full advantage of the lakeside site, while a gently rolling topography lends itself to an interesting layout of outdoor facilities. Note the emphasis on adequate parking, with provision in the two lots for a total of 203 cars, 70 cars being accommodated in the area north of the entrance and 133 in the main parking area west of the building. The latter parking space is nearest to the picnic grounds and sports field to the south. It is convenient also to the main building and to the bathing facilities.
At right, looking toward the main entrance, this view shows the entrance leading to the lobby, the bowling alley wing at right, the lounge and terraces at the left, the recreation hall in the center, and the bath house beyond. Note the open garden patio which serves as an outdoor lounge and reading room.

In the photographs above and at right there is clear indication that again the architects have worked towards the creation of an environment which would be as friendly and intimate as possible in a project of such considerable size.
ELECTRONICS PLANT WITH PRECISE CONTROLS

Western Electric Company’s Allentown, Pa. Plant Consolidates Advances
in Atmosphere Control, Flexibility and Lighting

The Austin Company, Designers and Builders

In electronic tube manufacture, where a bit of dust or a touch of perspiration would spoil the work, the plant designer must not merely accommodate a manufacturing operation, but also contribute to it. The concept of a “controlled conditions” factory is not new (Austin engineers say they built the first of this kind 18 years ago), but the new Allentown plant for Western Electric does represent a consolidation of engineering advances toward the most precise controls. No “house of magic,” it does embody the combined experience of Western Electric’s plant engineers with that of the Austin Company to gain not only this control but also the utmost in flexibility for an amazing variety of plant processes, all of which are subject to continual change.

The plant occupies a 50-acre landscaped site in a country location, with recreation areas, parking lot, and rail siding. Main buildings include the administration building, manufacturing building, powerhouse and gas generation building.

Flexibility. Manufacture is housed in a two-story, 375 by 450 ft. structure, with a full ground floor beneath the main floor. Clear spans of 100 ft. provide four 325-ft. aisles in the main manufacturing area. Special process departments and employee facilities are arranged around the perimeter, in a 25-ft. lean-to section where the wider range of air conditioning requirements can be met.

Within these manufacturing aisles one of the major design problems was the wiring and service lines to reach some 5000 machine locations, any of which might be changed at any time. This led to the use of a new-old idea adapted from mill construction, the “packed” wood
Main manufacturing building comprises a central manufacturing area 325 by 400 ft., with clear 100-ft. spans. Around the periphery is a 25-ft. lean-to section for special processes.

Plant occupies a 50-acre site two miles east of Allentown, Pa. Blacktop parking area has space for 600 cars. Buildings in background are administration building, plant and power-house.
Second floor engineering offices in office building (top, left) have 75-ft. clear span. Manufacturing building has 100-ft. clear span, in four 325-ft. aisles (top, right). Below, smaller view shows sealing off of the cathode coating department in the lean-to section, because of explosion hazards — louvers are closed with sheet steel. Larger photo shows air conditioning ducts and exhaust louver to main room floor. The floor consists of 3 by 6-in. timbers laid on edge, with a 1-in. strip maple flooring on top. These timbers, supported by steel beams, and spiked together with spikes reaching into the third timber, carry heavy floor loads but still permit easy connections to pipe lines. Wiring and service piping of a dozen kinds run in a maze of mains and branches just below the main floor, at the ceiling of the ground story. Connections can be dropped down vertically to any location on the lower floor, or run upward through the floor by the simple means of boring a hole.

The Building. Part of the job of atmosphere control is performed by the building itself. It was designed to seal off the interior and insulate it against solar heat. Heat of processes makes the problem of cooling far more serious than that of heating.

Walls are designed for a 12-hour lag in transmission of solar heat. They are 13½ in. thick — an 8½-in. outer brick wall, a vapor seal, 1-in. fiber glass insulation, another vapor seal, and 4 in. of glazed tile on the interior.

Windows too enter into the sealing. They are limited to a 30-in. vision strip, of two thicknesses of solar glass.

The roof is designed for a 4-hr. heat lag — a sheet of structural steel, 2 in. of fiber glass insulation, and 20-yr. bonded roofing.

Air Conditioning. To prevent relatively dust-laden outdoor air from seeping into the building through doorways, the air conditioning equipment maintains an...
Manufacturing aisles on main floor have "packed" wood flooring, 3 by 6's laid on edge, with maple surfacing; this floor can be bored easily at any point for any one of a dozen or more types of wiring or service piping. The ground floor (right above) gets these same services from above, with vertical lines dropping down from the same distribution line (shown below) that serve the main floor just above.

indoor pressure slightly higher than the outdoor pressure. And within some areas of the peripheral lean-to section pressure is kept greater or less than in adjacent areas. In the chemical treating rooms, for example, a lower pressure is maintained to prevent fume-laden exhaust from circulating to other areas. And a greater pressure is maintained in the cathode coating room, which has more rigid air purity requirements than other areas.

The amount of air needed to maintain a positive pressure relative to outdoors is indicated by a static pressure regulator, to guide the attendant in the monitor room. Outdoor temperature is automatically compared to indoor temperature by a wet and dry bulb differential controller. The instrument decides whether it is more economical to admit fresh air into the building or cool that already inside. While the temperature of air blown through the diffusers is normally controlled by an outdoor master thermostat, a manual control is provided to ease the load on the equipment in case of sudden weather changes.

All of the air conditioning equipment for the main floor is located in a huge mezzanine, which extends through the welded steel roof trusses over the central portion of the plant as one vast plenum chamber. Six identical units, evenly distributed, serve the general manufacturing area, while four similar units, located in the four corners of the mezzanine, meet the highly diverse needs of individual rooms around the perimeter. Four additional units have been located on the lower floor, which is served by an independent duct system.

All air for cooling this building and a nearby office building is chilled by water, which is cooled, at the rate of 3,720 gallons per minute, in the powerhouse. The installation is rated at 2,310 tons of ice per day. Air for heating is passed through steam coils in the air conditioning units.

Lighting. The wide range of lighting requirements is met by individual bench lamps and integral machine
Cafeteria, above, occupies one corner of main manufacturing building, kitchen in lean-to section. Cafeteria has 11,000 sq. ft. One of the four smaller air conditioning systems, on the mezzanine floor between the steel roof trusses. This is one of four that serve the special departments in the lean-to section. Six similar units, also in the truss mezzanine, serve main section lighting, supplementing semi-continuous, recessed troffer fluorescent lighting, on 12- or 13-ft. centers in the suspended metal acoustic ceiling, 18 ft. above the floor. This installation maintains a general lighting level of 45 foot-candles. The ground floor is likewise illuminated by semi-continuous fluorescent units, to a general level of 25 foot-candles.

Administration Building. The administration building, two stories and part basement, is also a steel frame structure, 75 by 225 ft. The second story has clear span, welded steel trusses 75 ft. long, on 25-ft. centers. This building, too, is completely air conditioned, with comparable lighting, acoustic treatment, and every possible provision for flexibility in the office areas.

Below, gas generating building. Left, boiler house is seen behind cooling tower, and acid neutralizing tanks where wastes are processed.
RADIANT or convection heating? This question has been debated for some time with no apparent resolution. Some heating engineers have suggested a compromise—utilizing the advantages of both systems. Generally, the choice has been determined by the requisites of each individual heating problem.

The answer proposed by our firm for several one-story houses having large areas of glass walls and concrete floor slabs is designed to take some of the advantages of a convection system such as rapid response and combine them with the “warm floor” advantage of a radiant panel in an economical system.† This was done by guiding hot air through the floor slab and releasing it to the room at the windows, forming a curtain of warm air in front of the glass.

Advantages

Such a system, by providing an additional amount of convected heat, allows more total heat output than is possible with ordinary floor radiant systems. It uses one medium of heat transfer for economy. It has the usual advantages of convection heating in fast pickup and control of air temperature, air circulation, air cleaning, and humidity control. The forced current of air across the glass tends to eliminate condensation on the glass and uncomfortable cold air drafts along the floor. The use of the slab as a carrier of the warm air puts all ductwork out of sight and eliminates cold floors.

Three houses have been designed with this new heating system. The Mercer Island house, which has been occupied since December 1947, has a plan that lent itself well to an underfloor, distributing header duct in a straight line along one side of the wings, with outlet grilles under the opposite windows and regularly spaced lateral ducts run between. Orientation or room planning requirements may not always allow such regularity.

The Bellevue house, still in the drawing stage, is for a 100 ft. sq. lot in a controlled suburban development. Planning for space and view has been integrated with planning for the heating plant: the house plan becomes a long rectangle to spread views from the rooms out over the site and to give a straight run for the heat-distributing header and short runs for the laterals.

The Lake Stevens house, with construction work started this fall, is an example of the adaptability of this system to a more spread-out and free plan. In this house the distributing header runs down the approximate center of the plan, and the branches and laterals serve the wings.

Heating Plant

Any usual utility room model of hot air furnace is acceptable. Since all hot air ductwork may be underfloor, one consideration in selection of the heating unit may be its height and the location of duct outlets, with a view to conserving room space. Another consideration would be the type of control possible for regulating bonnet temperature, air duct velocity, fan operation, etc. In the Mercer Island house, for instance, the high ceiling makes desirable a rather steady fan operation to eliminate air stratification, and the furnace unit must have a built-in temperature control to accomplish this.

A standard room thermostat is used.

Mercer Island House plan shows heating system layout for distributing hot air through laterals (such as in photo, right) under floor slab before the air is released to the rooms.

---

*Rossotti & Morse Architects, Seattle, Wash.
†Consulting engineer was Richard M. Stern, Seattle.
for house temperature control. Fuel may vary; in the first two houses, oil was used, and in the third, a heat pump connected with an old existing well was installed.

**Ducts**

The plan shown in Fig. 1 and the foregoing brief outline give some idea of the type of ducts to be expected. In addition to provisions for distributing and supplying warm air, return ducts are required to channelize or induce the flow of return air to the furnace. Generally, the more compact plan will demand less return ductwork. Underfloor return ducts may be desirable for the sake of getting them out of the way — their floor warming value would be negligible.

The material and construction of the ducts are matters about which there may be much difference of opinion, there definitely being room for still more new ideas and for improvement. Structurally, functionally, and economically, the choice of duct construction is a tough problem and some systems tried to date seem far from solving it.

The problem is to construct voids in the floor structure through which hot air may be forced without undue friction, in a manner that will warm the floor surface uniformly, and with the voids connected to a long grille or grilles in window stools — all this in a structure that is adequately strong, lasting, reasonable in cost and easy to install.

The method used in the houses described was predicated on a poured concrete slab as an inexpensive floor; thus it was necessary to make long horizontal voids in the concrete. Some sort of formwork was required; so for the laterals, stock, galvanized, 3-in. round downsputs were used 18-in. on center, buried in a 5-in. slab. Their life in the slab would not be all-important as the voids would remain. They are tough enough to stand up under ordinary concrete pouring, they are quickly placed, their cost is not excessive, the smooth metal wall gives good air passage and heat transfer.

Headers and branches, being larger and sometimes requiring insulation, present a less easily solved problem. In the Mercer Island house rectangular sections of preformed asbestos duct were used (see Fig. 4). Cutting these for lateral connections was easy, but the single-wall uninsulated type (11⅛ by 11½ in. cross-section) used for returns lacked proper resistance to deflection during pouring; and the substantial span of a thin slab over an unstructural material required steel reinforcement. For a different header in one of the other houses, poured concrete itself was formed as a duct.

**Grilles**

Hot air grilles may be continuous, cut to size from stamped steel sheets — especially applicable where horizontal air discharge and attendant very low velocity is required. Manufactured grilles set in the floor or window stool for a vertical spread up the window are being used in the Bellevue and Lake Stevens houses.

**Mercer Island House**

Construction Cost* (October 1947):

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Furnace &amp; controls</td>
<td>$485</td>
</tr>
<tr>
<td>2. Above-floor ductwork at furnace (including outside cold air duct)</td>
<td>125</td>
</tr>
<tr>
<td>3. Underfloor header &amp; return ducts material (preformed asbestos)</td>
<td>225</td>
</tr>
<tr>
<td>4. Underfloor lateral ducts (galv. downsputs)</td>
<td>45</td>
</tr>
<tr>
<td>5. Continuous grilles, supply &amp; return (stamped steel)</td>
<td>10</td>
</tr>
<tr>
<td>6. Labor on 3, 4, &amp; 5</td>
<td>160</td>
</tr>
<tr>
<td>7. Additional concrete (besides ordinary slab)</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1280</strong></td>
</tr>
</tbody>
</table>

*This compares with an estimated $3000 insulation of conventional overhead hot air. Cast for the bedrooms isn’t included. Cost savings could be effected by study of construction item No. 6, proposing, for example, poured concrete ducts (see Fig. 3).

Fig. 4: details of underfloor distribution system for Mercer Island House; Fig. 3: formed, poured concrete duct designed as substitute for preformed asbestos (Fig. 4, left); Fig. 5: section of distributing header and return duct for Bellevue residence.
MUSEUM LIGHTING STUDIED IN LABORATORY

By Laurence S. Harrison

Business Administrator, Metropolitan Museum of Art, New York City

One of the most important areas of planning for the proposed reconstruction of New York's Metropolitan Museum of Art is, of course, the application of modern lighting techniques to the exhibition of art objects. It is axiomatic that good seeing is the primary requirement in any field of visual education. To the Metropolitan Museum, the problem is not a simple one. Its ten curatorial departments represent a vast collection of many classes of material ranging from the archeologies through Medieval, Renaissance, Far and Near Eastern to Modern European and American cultures.

The determination of proper intensity levels, as well as color tonalities and angles of presentation is complicated by factors, esthetic and other, which have not as yet any quantitative weight in applied lighting calculations. Nor do they seem susceptible of the same kind of determination as do factors governing commercial or industrial installations. The chief reason for such complication is that, in the field of art appreciation as well as art creation, each individual is entitled to his own criteria.

Since the mission of any historical art museum (and there are many of the Metropolitan's character) is chiefly to preserve the products of individual expression, this fact, as a principle, cannot be denied, nor should any attempt be made to change its aspects. This is to say that common denominators of opinion as to what kind of lighting makes objects look "best" are discernible neither among laymen nor even among the experts. The reasons for this, as will appear, make the task of prescribing for the artificial lighting of museums a risky one to say the least.

LIGHTING VS. TRADITION

It is also to say that whatever is proposed must not be forced into adoption, but rather weighted carefully against curatorial or esthetic concepts on one hand and the realities of museum economy on the other. Certainly, for example, theatrical lighting or standards deemed suitable for mass selling appeal, though they may be necessary to retail merchandising, are to be used with extreme caution in showing works of art which, as historical documents, should suffer no distortion, and, as objects of

A view of the louvered ceiling in one of the test galleries. This installation gives about three times the light the Museum has at night in other galleries. Color of light is also tested. Upper view shows a test of 6500° K fluorescent lighting on paintings with predominant blues and pastel shades. This lighting is good for them, not so good for reds and greens.

DECEMBER 1948
beauty, need no distortion. As a matter of fact, one of the most critical questions to be answered is just how far may available modern lighting means be employed to dramatize art objects without distorting their appearance?

To those responsible for museum economy and for maintaining, if not increasing, public interest, these realities are uncompromising. Most of the ranking art museums of this country sadly lack either capital or operating funds or both. Most of them have long needed modernization of their lighting systems.

Consequently, with the exception of a few, individual gallery installations, in which occasionally brilliant ideas have been tried out, there is no existing example of an entire museum installation in which completely satisfactory applications of the most recent lighting techniques may be seen in this country. The museum field is, therefore, one in which an architect or an engineer, unless he adopts strictly traditional standards, simply cannot be sure, without a full-scale sample demonstration, that what he proposes to specify will be accepted. The risk of extras exceeding a contract price is, under these conditions, too high. This situation, of course, poses the question of the validity of retaining traditional concepts of museum lighting in the light of present day developments.

**ARTIFICIAL VS. DAYLIGHT**

No competent illuminating engineer will take the position that daylight, when available, is not the most desirable for human vision. But, at the latitudes of the cities in which most of our museums are located, under average weather conditions from October to May — which are the months of peak attendance — adequate daylight is not available and supplementary artificial light is required for 75 per cent of the time during public visiting hours. More important is the fact that such supplementary light is required on a highly intermittent basis. The result is actually an immeasurable lack of uniformity of both light intensities and color values on gallery walls and floor areas. For example, on a bright, sunny morning, the east wall of a top lighted gallery may remain in comparative gloom with brilliant intensity on the west wall. The reverse would occur in the afternoon. Moreover, the frequent and intermittent obscuring of sunlight by clouds and the lack of sufficient manpower to monitor adjustable skylight louver, where used at all, imposes a severe task on the adaptive processes of the public's eyesight, or, when too severe, kills the enjoyment of visitors while the condition obtains.

It is argued that these changes of light are indispensable to the aesthetic enjoyment of great paintings, tapestries, sculptures, etc., and that to maintain a rigid uniformity of lighting values in a gallery would be oppressive and monotonous. The validity of this viewpoint must be admitted if the authority of individual criteria, as stated before, is accepted. Right here, however, is the area of controversy in which certain curatorial opinion has come to grips with the already discernible trend toward fully artificial lighting in the future. The architect or illuminating engineer would do well to recognize this situation and not to discount it, because the preservation of these changes of

**Artificial skylight with light polarizing screen. Note extremely low brightness of ceiling which is a bit higher relative to that of white paper sheets pinned to backs of chairs.**

**ARCHITECTURAL RECORD**
Natural light are felt to be a fundamental requirement in gallery lighting by many curators of distinction and their associates in the field of fine arts, both here and abroad.

It is surely no offense to esthetic ideals to say that if it be too costly to serve all of the people, it becomes necessary to serve only the majority. An "experienced" curator of historical paintings, let us say, or one whose authority and connoisseurship respecting great art has become recognized, has the same attitude toward these masterpieces as had the original owners or their succeeding collectors who, through the centuries, have lavished the care upon them which people aw and admired the great aureole of a Rembrandt or an El Greco.

The two do not mix to the advantage of either. Any daylighted gallery, so situated as always to require some artificial light, will, if the latter is designed properly, look its handsomest at night.

Artificial lighting would by no means strip great works of art entirely of their esthetic qualities any more than does the mis-treatment they now get from the gloom in which the public is too often expected to view them. Perforce, a museum must use artificial light if its collections are to be seen at all, on all floors, and at all hours of the day. Most of the long-established art museums show evidence that lighting installations have, in the past, been planned with tolerance rather than enthusiasm. The result has been, in many instances, a characterless mixture of both natural and artificial light which cannot be argued for on any grounds — esthetic or practical. The two do not mix to the advantage of either. Any daylighted gallery, so situated as always to require some artificial light will, if the latter is designed properly, look its handsomest at night.

It must be said, however, that incandescent light has been and is, for museums, much too costly to operate in a system designed to achieve the foot-candle levels and shadowless diffusion of clear, sunless daylight. The practical ability of modern fluorescent lamps economically to approach daylight values, their complete reliability, length of life and versatility being at present established, it now appears fair to test the proposition as to whether the overall benefits of fully artificial lighting may not outweigh its esthetic deficiencies.

There is a strong case for it in probable evening openings. The museum of the future must recognize more broadly its obligation to the industrial and office worker who has no opportunity to visit its galleries except at the sacrifice of weekends which quite properly belong to outdoor pastime. Already certain ones are opening their doors from one to nine P.M. daily. This means, of course, that the margin of daylight hours, which now redeems the depressing inadequacy of museum artificial lighting, will be reduced to a point at which poor attendance after dinner hour can almost be guaranteed unless the lighting problem is solved.

Then there is the question of the investment and maintenance costs of skylights relative to simple roof slab construction. Counting the loss of investment income at 4 per cent in lieu of depreciation estimates, the present-day added annual cost of glass skylights installed and maintained is approximately $550 per 1000 sq. ft. of roof area.

In the case of the Metropolitan Museum, there is no point in converting existing top-lighted galleries to solid roof construction, but such conclusions as are reached would certainly govern the design of additional wings.

A LIGHTING LABORATORY

With design problems related to the foregoing in mind, the Museum's Architects, Messrs. Robert B. O'Conner and Aymar Embury II, requested the trustees of the Metropolitan Museum to authorize an experimental program. Accordingly, a testing laboratory was designed and built by the Museum using only commercial equipment and open-market material. Valuable counsel and much of the basic calculations of lighting elements were rendered by Dr. Ward Harrison and Mr. James Ketch of the General Electric Company's Nela Park Laboratory. The effective cooperation of the Museum's curators and their professional staffs has provided, in the discriminating selection of objects for test, impressive demonstrations and cues to the solutions being sought.

These galleries, located in the south wing of the Museum, are not open to the public, but are now employed by the departments of the Museum for test installations, the recording of staff and membership reactions and the ultimate writing of specifications. It should be emphasized that no attempt was made to install the "ideal" gallery but rather to make available a reasonable choice of...
systems — i.e., incandescent, fluorescent, diffuse and concentrating — with sufficient flexibility to obtain three to four levels of intensity, as well as adjustment to color values.

From the standpoint of occupancy, two distinct classes of space exist in most museums. Top-lighted, second floor galleries, directly below skylights, require either the separate or simultaneous transmission of daylight and artificial light. Such galleries are usually used for paintings, prints, water colors, drawings, rugs, tapestries or other wall mounted material.

First floor galleries must depend almost wholly on artificial light, with or without side fenestration. Here again, good seeing is burdened with tradition. Window glare is, elsewhere, one of the most bothersome problems of the illuminating engineer. In a museum, windows take up needed wall space which, as those who have tried to raise building funds fully realize, is hard to come by. Moreover, any attempt to make shadow areas around and below windows useful by artificial light is hopeless because of the window glare, and if it be so designed as to avoid artificial sources of glare as well, such an attempt must seriously dilute, if not cancel, the effect of any changes of natural light in the rest of the room. If case material is exhibited in window-lighted space, care must be exercised to avoid the annoying and obscuring specular reflections from case glass. The number of cases which may be shown and the most desirable layouts thereof, are hence limited and restricted. If cases are artificially lighted internally, there is no point to window lighting anyway, except for occasionally relieving the psychological impediment in any closed space.

The experimental galleries, designed primarily to cover the specific conditions at the Metropolitan Museum, assume the use of daylight through ceilings only. Test gallery K-29, being top-lighted, is equipped with a baffle or louved ceiling, at a height of 16 ft., consisting of 30-in. square removable sections having oblong, aluminum cells, with a shielding angle of 53°, in the center of the room, suspended below a conventional T-bar grille with clear glass lights. These latter are "blacked out" with wallboard panels, laid on top of the glass, when necessary, to create fully artificial conditions. Around the periphery of the room, extending a little over six ft. from the walls, a system of directional louvers was installed with fins parallel to and slanted 20° toward each wall in order to permit a relatively high-level concentration of light, from special, Curtis parabolae, fluorescent strips or from various forms of concentrating incandescent units, to be projected on the walls.

The chief virtues of this arrangement are: its extremely low brightness, concealment of fixtures, ability to change circuits and rearrange units without disturbing the ceiling's appearance. The behavior of this construction with daylight from above is highly satisfactory, and without doubt there are certain galleries which eventually may require adaptations of this type of louver ceiling.

Provision has also been made to test combinations of primary colors by means of adequate glass filters and rheostat controls so that wide adjustment in tonality, or color composition, of white light may be used to project on rugs, tapestries and textiles. (There is no requirement for any single color projection.)

The method of adjustment of color composition consists of an initial concentration over the wall of approximately 50 foot-candles of fluorescent light of 6300° Kelvin which carries enough blue so as to obviate the need for separate blue filters. With a tapestry in place, for example, R-40 spots with red, green, and amber filters are focussed on the object and the proper combination of tones adjusted by dimmers, until, as the curator may dictate, the proper "balance" between the colors which make up the fabric itself is secured.

When such adjustment has been completed, and the described combination of lamps switched on simultaneously, it is almost impossible to detect what color adjustment has taken place, or that any liberties at all have been taken with the "white" light on the tapestry. Until one color of the several contributing light sources has been switched off, the effect becomes brilliant without suggesting exaggeration. The scheme provides efficient means for obtaining qualities of light which can otherwise only be obtained from natural light, but under control rather than accidentally. Since an initial concentration of "seeing" light is used first, a minimum voltage of color filtered incandescent light is needed. The usual inefficiency of building up of white light by mixing primary colors is, therefore, not present.

The second test gallery, K-24, is equipped with two types of ceiling treatment as may be required for first or ground floor spaces. The height in this gallery is also 16 ft. The first form of treatment resembles in general character the indirectly lighted coffer system designed by Saarinen for the Cranbrook School at Bloomfield Hills, Michigan. In this case, the coffers, each weighing 30 lbs. and mounted together closely with about 1/2 in. separation at the spring lines, are precast of plaster with steel wire armatures for ready suspen-
sion from ordinary, angle-iron stringers secured to the ceiling. Furring steel was used for bracing. The coffers are 38 in. square and conduit wiring at each intersection, accurately centered by a wooden template, serves 30-watt, T-8, 4500° Kelvin, fluorescent lamps. These are installed along each line between coffers and around the perimeter of the assembly.

The plaster coffers have an oval section employing only two radii and curve at each corner. They are finished with high reflecting paint. Reflectors with crosses, tees, and els are of cast aluminum alloy, painted inside with a high reflecting finish. They completely hide the lamps and, in place, resemble simple mullions or ceiling sash. They may be removed, cleaned, replaced and lamps renewed without tools.

The characteristics of this particular design are such that if only those lamps are lighted which run in one direction, the entire coffer uniformly reflects their light with hardly any discernible indication over the coffer that all lamps are not energized. The switching on of the lamps running normal to the first group therefore serves only to increase the intensity of the light reflected from the coffers. At maximum value, the intensity directly below the assembly and five feet from the floor is 40 foot-candles.

An important feature of these reflecting coffers is their lateral distribution of light. One photograph shows a Renaissance tapestry hung on an adjacent wall over which there is less than 15 per cent difference in light intensity on any point over its entire surface. It is obvious that this type of ceiling has relatively high brightness. Its efficiency also depends on the number of lamps around the perimeter which deliver to the coffers a little more than half their initial output, relative to the number of lamps within the perimeter which deliver their full initial output. This ratio of "outside" to "inside" lamps varies with the size of the assembly of coffers and also with the length of the assembly, the width remaining constant.

Installed at a ceiling height of 18 ft, or more, this ceiling should prove to be a handsome and, for indirect lighting, a remarkably efficient installation for general lighting purposes. This model of 20 coffers, arranged in a 4 by 5 assembly,
having 49 lamps and 1470 lamp watts, has maintained an average of 35 foot-
candles over 576 sq. ft. of floor area during the past three months or with less
than 2.6 watts per sq. ft.

The other type of ceiling treatment consists of conventional ceiling sash of
1-1/2 in. T-bars glazed with a light-polarizing screen of Polaply plastic
sheets "sandwiched" between 3/4-in., obscure wire-glass and 3/4 in. thick, clear
picture glass. This material does not distort color. It produces maximum polariza-
tion at a 57° angle of incidence. In order to increase its inherently low trans-
mittance efficiency, in the polarizing plane, a surface of high reflectivity was
painted inside the housing within the hung ceiling above the sash. With suc-
cessive rows of simple, fluorescent strip installed about 18 in. above the glass,
this scheme takes some advantage of the interchange of reflected light between
the top surface of the glass and the painted interior and, in this manner, as
much light as possible is passed through the polarizing film at the required 35/57°
angle.

This assembly has two promising results. Its partially polarized light, fall-
ing on highly specular surfaces, helps to reduce glare, and suggests its use in
galleries showing period furniture having unusual burls or grains, intricate in-
lays or marquetry designs, below highly polished and obscuring surfaces. Its
second result is a sharp cut-off beyond 45°, so that the brightness of this type of
ceiling is phenomenally low within normal line of sight.

In order to obtain fair, comparative values between these two ceiling treat-
ments, forty-five 40-watt lamps were installed above the polarizing ceiling sash. The assembly, with 1800 lamp
watts, has also maintained approxi-
ately 35 foot-candles over 576 sq. ft.
of floor area, or with 3.1 watts per sq. ft.

The remaining features in the gallery are devoted to experimental, case and
feature lighting designed primarily for the development of means to control
source brightness as well as to reduce relative brightness of surrounds; in
other words, to subdue art objects' "competition".

CONCLUSIONS

During the few months in which this testing laboratory has been in operation,
several general conclusions have become established. The first is that response to
the color composition of light is fully as important a consideration as are the
presentation and volume of light. Another is that "seeing" in a museum gal-
ley should be pleasant and satisfying as well as educational. This is to say,
for example, that extraneous glare and brightness, if intelligently controlled,
may be stimulating rather than injurious to the visitor. Christmas tree
lights can hardly be denied to young and tender optic sys-
temes, and there is hence no incentive to
have it exposed when its performance,
in terms of good seeing, is better for
being out of normal line of sight. The
museum gallery of the future will have
no fixtures, but rather luminous surfaces
to provide seeing.

Lastly, it has also become clear that
the fluorescent lamp of 4500° Kelvin
gives, by far, the most neutral, balanced
and accurate light for color response. It
is far superior to any other production
phosphor yet developed for color match-
ing, but like a "pure" musical tone, it
needs overtones. As a diffuse back-
ground for incandescent concentration,
it seems to have outstanding properties
for gallery walls.

One specific decision has thus been
reached, based on the last-described
general conclusion. Through a series of
demonstrations and resulting study by
the Museum's Director, Francis Henry
Taylor, and the Curator of Paintings,
Charles Theodore Rousseau, Jr., a basic specifi-
cation for the artificial lighting of paint-
ings' galleries has been derived. Designs
are completed for a sample installation
employing special shielding and light
obscurng methods incorporated into
traditional ceiling sash to reproduce the
desired effects as established by test.
The new gallery is now under construc-
tion for opening to the public sometime
in the spring of 1949.

Should experience with this scheme be
found satisfactory and the design prove to
be within construction cost limits, one important step will have
been taken toward the final objective of
this program. If the ultimate results, in
glass, metal, plastics or whatever ma-
terials may be indicated, can be achieved
at a cost in money which museums can
either afford to spend or raise, then this
laboratory will have justified itself.

A special experiment with recessed lighting on a XVIIth century Dutch painting;
4500° K. fluorescent light, from the bottom and sides, emphasizes Vermeer's original
lighting of the subject and provides faithful response to the original colors
During the past few years a new approach to swimming pool structural design and procedure has developed on the West Coast through the use of pneumatically applied concrete, commonly known as gunite. This method is rapidly supplementing form-poured structures for private as well as large public swimming pools in that section of the country.

The reasons for this change are fairly obvious. Pneumatically applied concrete is, generally, much denser, heavier and stronger than form-poured concrete. As the use of forms is entirely eliminated, great savings are effected, especially with present high costs for labor and lumber. Since gunite is shot directly against grade, no over-excavation or back filling is required.

In designing a swimming pool to be constructed of gunite, it is usual practice to design the lower portion of the swimming pool wall in the form of a vertical radius curve, thus eliminating the cantilever footing usually designed for form-poured construction. This type of wall section makes possible the use of a thinner wall and considerably less reinforcing steel to obtain the same resistance to the stresses encountered.

Another great advantage is the saving in construction time. Under ordinary construction procedure, a form-poured, vertical wall swimming pool usually requires four to six months to install under ideal conditions, while a comparable gunite structure can be installed in approximately six to eight weeks.

Underwater Lighting

For underwater lighting, concentration of between one-half and one watt per sq. ft. of pool area is generally satisfactory, depending on how the lights are to be used. If for effect only, this concentration can be decreased; however, for public pools where underwater lights are used for night swimming, it is advisable to keep the wattage fairly high.

The wet niche type of light (see detail, top of page 144) affords a great number of advantages over other types in that it is more easily accessible for repairs. This is easily accomplished with the wet niche light by merely removing it from its niche, placing it on the deck of the pool and proceeding with the necessary changes.

In the case of a dry niche light, it is necessary to drain the pool below the light lens before any gasket changes can be made. Also in case of damage to the lens, the pool would have to be drained in order to make the necessary repairs. In some instances, where the equipment room is adjacent to the pool wall in which the lights are located, the entire filter equipment might be flooded because of a damaged lens or faulty gasket installation. With wet niche lighting, the unit is completely immersed in water which tends to keep the equipment cooler, thus giving longer life to the lamp.

Underwater lights are usually centered 30 in. below the water's surface, and on pools 50 ft. in width or less, the side wall lights should be staggered with reference to those on the opposite wall to provide even lighting.

Swimming Pool Chlorinating Equipment

Swimming pool chlorinators should have the following characteristics:

1. The chlorinator should be of the vacuum type because of the safety feature. In case of leaks within the machine, air from the outside is drawn in rather than allowing the gas to escape.

2. It should be of the solution-feed type because it allows complete mixing of the chlorine and water before it enters the pool.

3. A manually operated machine is usually specified because of the great saving in initial cost. A fully automatic chlorinator is not considered necessary because there generally is, and should be, an attendant present to operate the chlorine equipment and check the concentration of chlorine in the pool at all times.

In addition to the foregoing, the chlorinator specified should be of ample size not only to take care of all normal operating requirements, but also to have sufficient reserve capacity for breakpoint chlorination or extra heavy dosage when required by abnormal conditions.

All chlorinators, regardless of type, should be adequately vented so that in case of water failure or stoppage, any escaping gas will be carried to the outside so that the chlorinator can be accessible for repair.

Swimming Pool Filters

Recently, considerable attention has been focused on a new type of filter for swimming pools, using diatomaceous earth as filter media. These filters have the advantage of providing the required filter area in much less space than that occupied by the conventional, rapid, sand pressure filter. They also produce an effluent of high clarity. Various types of elements such as carborundum, wire mesh and porous plastic have been used to support the diatomaceous earth. An analysis of records kept over a two year

Gnite being applied in construction of 60 by 100 ft. swimming pool. Note copper dam expansion joint and beam (center of photo) and steel wire reinforcing
not be covered by the filter rock and they are less subject to stoppage by alkali deposits.

3. A simplified face piping arrangement is desirable for pool filter plants. More elaborate piping arrangements serve no purpose for this type of installation and greatly increase the cost. Standard screwed or flanged fittings should be used, depending upon the size of the filter plant. Coagulant and alkalinity feeders should be constructed of heavy cast iron, using brass interconnecting pipe between them and a suitable pressure differential device such as a venturi tube or an orifice plate. Proper flow-regulating valves should be installed in the interconnecting piping to prevent a too rapid feed. Gauges showing influent and effluent pressures and a sight glass to indicate backwash effluent should also be present in all filter plants. It is advisable on larger filter installations to install rate-of-flow meters so as to be able to check filter and backwash rates as well as pump capacity. Without this type of instrument, it is very difficult to keep an accurate check on the condition of the equipment. A strainer should be placed ahead of the pool circulating pump in all installations to protect the pump impeller.

4. Filter media should be composed of well rounded particles of rock and sand which are properly graded, starting with 1½ in. rock on the bottom and grading to silica sand with effective size of about ½ mm. Filter media should be free from limestone, clay and such matter.

Swimming Pool Vacuum Cleaners

In the design of vacuum cleaners, two major factors should be considered:

First, the size of pool and the pump capacity from which the vacuum cleaner will be operated.

Second, the general shape of the pool, whether it is vertical-wall, poured-concrete construction or whether it is a gunite type pool in which portions of the wall are curved.

Usually the vacuum cleaner used on vertical-wall pools should be either the three or four wheel suspension type in which the orifice of the cleaner remains at a uniform distance above the pool floor, insuring uniform suction. The two wheel type cleaner is more suitable for radius-type pools where curved sections are encountered between the pool wall and the pool floor.

Very large pools are cleaned with the tow-type vacuum cleaner, necessitating two operators, one on either side of the pool, who tow the vacuum cleaner back and forth across the pool floor.
PIPING IN MADISON SQUARE GARDEN ICE ARENA

Madison Square Garden in New York has installed a new arena floor which incorporates an unusually large, concrete-embedded piping system to freeze ice for hockey games and ice shows. The new floor, which had to be — and was — completed in the record time of four weeks, featured the application of some 3000 threadless fittings in connecting about 13 miles of concealed refrigeration piping, spaced on 4 in. centers and laid under a terrazzo floor.

Black malleable fittings were used to connect, by silver brazing, 20- and 40-ft. lengths of 1 3/4-in. standard weight, galvanized wrought iron pipe.

According to the chief engineer at the Garden, Howard Post, the original base of the arena floor was used. This base consisted of fire-resistant hollow tile, reinforced concrete slab on structural iron, and corkboard — each of these components being about 4 in. thick. With this base as a foundation, the new work involved, first of all, laying two new layers of waterproofed tar paper over three layers retained from the old floor, and overlaying the tar paper with zinc sheeting. The galvanized wrought iron pipe formed the next section.

Requirements for the fittings were as stringent as those for the pipe. The threadless fittings are designed to permit use of the full pipe wall thickness, and, consequently, the full strength of the pipe, as no metal is lost by threading. There is said to be less pressure loss due to friction and turbulence in a piping system using Flag-Flow brazed fittings than in a similar system using threaded fittings. The fittings had to withstand tremendous weights and considerable vibration, and they had to carry chromated brine for the freezing process.

Work on connecting the pipe was begun at the shop, where considerable prefabrication was done; 20- and 40-ft. lengths of pipe were joined by brazing with the threadless fittings. Even at this early stage, extensive testing of the pipe joints was undertaken in a "suds" test, where the joints were covered with soapy water, and air at 100 p.s.i. was forced through the pipe, causing air bubbles in the soap if leaks were present.

At the shop, too, the 40-ft. lengths of pipe, with their brazed fittings, underwent the first of a series of eight different handlings before they were finally laid on the arena floor.

There were some 20-ft. lengths prepared and sized on the spot at the Garden; these were used to connect gaps between 40-ft. lengths. Pipe, resting crosswise on 2-in. concrete supports which ran the length of the arena floor, was connected by the brazing technique when both the pipe and fittings were heated and silver alloy applied to complete the joint.

As soon as the first head of pipe was installed, hydrostatic pressure tests began, combined with the day-to-day exposure of pipe and fittings to ordinary stresses and strains. Lengths of pipe, 116 ft. long, were attached to each of two headers located on either side of the arena floor.

Hydrostatic pressure of 100 p.s.i. was then applied to the pipe attached to each header, as header installations were completed. With all the piping exposed as it was prior to the concrete pouring, there was sufficient opportunity for any weaknesses to show up.

Out of about 6000 joints made with the threadless fittings, only 181 were found to leak, and the majority of these were on the pipes prefabricated at the shop. According to the engineers, these were due chiefly to the eight different handlings these pipe lengths were subjected to. As these minor leaks showed up in the course of several days testing on the site, they were — with the exception of only three joints — easily repaired in short time by the reaplication of heat to the pipe and fitting. The three bad joints were replaced with new ones.

With the pipe installed on its supports, the arena floor was then ready for the next step of pouring the concrete. Some 3 1/2 in. of base concrete were poured in and around the pipe, with wire screen imbedded in this base to form a bond for the terrazzo bed or scratch coat (3 3/4 in. thick). The pipe was laid 1 3/4 in. below the finished terrazzo floor. Before the job was considered complete, however, a sealing compound was applied over the terrazzo floor as a finishing process.

The arena floor takes a 3/4 in. coating of ice for hockey, and up to 1 1/2 in. of ice for the ice-skating shows. Possibly the most critical requirements, for pipe and threadless fittings, are the extremes of temperature the installation is subjected to before, during, and after an ice show; they range from 100°F to 70°F.

Ordinarily, the average working pressure of the highly concentrated cold brine recirculated through the entire piping system is 39 p.s.i., which is not an excessive burden for the pipes and fittings, in view of the continuous hydrostatic tests of 100 p.s.i. made during the installation.

Besides the special needs of refrigeration for ice games, the arena floor — and all that is underneath the surface — has to withstand tremendous weights and strains during conventions, prize fights, exhibits, and especially during the circus.

Charles S. Leopold of Philadelphia, as consulting engineer, following discussions with Lionel Levy, architect, New York, specified the equipment for the job, which included the Flag-Flow threadless malleable fittings made by Stanley G. Flagg & Co., Inc., Philadelphia.

Pre-joined pipe lengths are laid over zinc sheets; remaining joints are brazed
PHOTOGRAPHIC MURALS

Through development of a special photographic reproduction process, enlargements for use as wall murals are now available at a surprisingly low cost, and can cover areas up to 6 ft. 8 in. by 15 ft. These Foto Murals are made by a new screenless process which is said to maintain all the quality of the original negatives.

Original Foto Murals are selected by a Subject Advisory Board consisting of the following: Julius Shulman, architectural photographer; Hubert A. Lohman, landscape photographer; Raphael S. Soriano, architect; Don Loper, American Institute of Decorators; John H. Denson, in charge of production.

The Foto Murals are produced in natural sepia or black-and-white, and can be installed like wallpaper by a competent paperhanger.

The manufacturer is building toward a library of 200 murals and is planning regular releases of six new murals every 90 days. Each mural is made up of 6 40 by 60 in. panels. Foto Murals of California, 672 S. Lafayette Park Place, Los Angeles.

MODEL PARTS

Scale-model builders will now find available Tenite plastic castings of doors, door frames, windows, shutters, etc. for use in model house building. The castings are sold separately for houses of individual design or may be bought in kits with milled plywood bricks, siding, shingles, etc. in 1/4- or 1/2-in. scale for assembling into several styles of houses. The pieces come in white, to be painted later as desired. Architectural Model Materials, 4726 N. Winchester Ave., Chicago 40, III.

LIGHT WEIGHT ROOF PLANKS

Reinforced roof planks are now being made with the light weight material Durisol which consists of chemically-treated wood shavings combined with Portland cement and molded under pressure.

The roof planks are reinforced with steel rods, cement-coated on the top side and tongue and groove on the long edges. The planks are available in 3/4 in. thicknesses (including 3/4 in. cement coating), 16 in. widths, and in various lengths up to 8 ft. The manufacturer claims that the roof plank provides in one fireproof material: (1) roof deck for built-up roofing, (2) good insulation, and (3) a sound-proof ceiling.

A new Durisol plant at Beacon, N. Y. has been roofed with 40,000 sq. ft. of the reinforced planks. Installation cost has been reported to be 75¢ per sq. ft., including unloading and hauling to the top of the roof. The material cost is 45¢ per sq. ft. (43/4 in. thickness). The Durisol plank (43/4 in. thickness) weighs only 17 lb. per sq. ft.; thus its application is expected to effect savings in steel beams or other framework. Durisol, Inc., 420 Lexington Ave., New York, N. Y.

PLASTIC PARTITION BLOCKS

Plastic partition blocks resembling glass brick, but said to weigh only one-fifth that of the glass counterpart are available for use in the home, store or business office.

The blocks are made with interlocking lips, permitting non-load bearing walls to be built without the use of adhesives or clamps. In offices and stores this permits the use of temporary wall partitions that could be quickly assembled or taken down.

The blocks are 73/4 in. square, almost 4 in. thick, and weigh slightly more than a pound each. The two faces of the blocks have facets molded into the inside surfaces so that the finished block diffuses light.

Mastic cement or wood strips placed between the blocks can be used to make a permanent wall. Temporary installations are said to require only wood framework for bracing. The new blocks are recommended for interior installations only, at the present. Tests are re-

(Continued on page 176)
three mistaken ideas about Sound Conditioning...

mistake #1
THAT SOUND CONDITIONING IS EXPENSIVE...
The fact is: The cost of Acousti-Celotex treatment in many installations hardly exceeds the cost of the usual surface that it replaces. And where a suspended ceiling may be specified, Acousti-Celotex sound conditioning can often be added for only a few cents more a square foot.

mistake #2
THAT SOUND CONDITIONING IS A LUXURY...
The fact is: Letters and figures from thousands of different applications show that, far from being a luxury, Acousti-Celotex sound conditioning is a sound investment... because it increases output, cuts down errors, and reduces employee turnover.

mistake #3
THAT THE USE OF SOUND CONDITIONING IS LIMITED TO SPECIFIC AREAS...
The fact is: More and more architects are specifying overall use of Acousti-Celotex sound conditioning for truly modern buildings—offices, hospitals, schools, banks, and other structures. Incidentally, more sound conditioning has been done with Acousti-Celotex products than with any other material.

YOU ARE INVITED to submit your acoustical problems to a trained sound technician—your nearest distributor of Acousti-Celotex products. His judgment gives you the benefit of the accumulated skill of a quarter century in sound conditioning... and experience in installing millions of square feet of Acousti-Celotex products. Write us today for the name of your nearest distributor in the United States or Canada. Sound conditioning is a sound investment.

THE CELOTEX CORPORATION, CHICAGO 3, ILLINOIS

ACOUSTI-CELOTEX
Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

DECEMBER 1948 147
Isn't this what you're looking for in a boiler?

Are you looking for the ultimate in fuel economy?
The "D" Type with its rapid circulation, quick steaming, and scientifically designed heat transfer, will provide it...

Looking for highest adaptability to firing with oil, gas, stoker or coal?
The "D" Type has that too, with its generous furnace volume and grate area...

Looking for low cost maintenance?
The "D" Type is easy to clean and service...

Looking for a boiler whose superiority is proved by thousands of installations, where selection is the result of most critical judgment? You will find the Fitzgibbons "D" Type Steel Boiler the choice of discriminating architects and engineers who want "the best in Steel Boiler Heat."

Put the "D" Type Catalog in your file—get a copy today.

Fitzgibbons Boiler Company, Inc.
101 PARK AVENUE, NEW YORK 17, N. Y.
Manufactured at: OSWEGO, N. Y.
Sales Branches in Principal Cities
Swimming Pool Design Data
For Competitive Swimming
(Based on AAU Rules)

Drawings show dimensional requirements only, for other regulations see notes.

Notes:
1. Pool Depths: 3 ft. (water depth) at the shallow end and descending to greatest depth under diving boards, not less than 10 ft., and under diving platforms, 4.3 meters (outdoor pool). For development of aquatic games, such as water polo, a minimum overall water depth of 6 ft. is recommended.
2. Pool Markings: Besides lane markings on pool bottom, it is recommended that finish distances such as 220 and 440 yds. be indicated on pool deck surface.
3. Ladders: removable or recessed ladders should be installed.
4. Gutter Drains should be provided with shut-off valves so that during competition, water may be maintained "at constant gutter level at the gutter lip."
5. High Diving Tower: the platforms must not move and shall be covered with coco matting. The back and sides of each platform must be surrounded by a hand railing, and each level shall be accessible from the ground by suitable stairs (not ladders).
6. Springboards should be made of wood and covered the whole length with coco matting.
7. Starting platform shall not exceed 2 ft. 6 in. in height from water for indoor competition and in open water not more than 3 ft. In either case it should not be less than 18 in.
Modern merchandising proves that store traffic can be stimulated and guided with cleverly contrasted lighting effects. Added foot-candles help merchandising areas attract shoppers across non-selling space. High-intensity spotlighting helps featured displays magnetize the eye. Yet the whole lighting plan must be properly blended to achieve the pleasant atmosphere that makes people like the store.

It's easy when you specify Day-Brite fixtures. Ceiling-mounted, suspended, recessed, cove, perimeter... all are optically engineered to function in perfect harmony with each other.

Day-Brite integrated store lighting can substantially increase the sales. Call your nearest Day-Brite representative or distributor.
SWIMMING POOL DESIGN DATA

For Health and Safety

(Based on Report of American Public Health Ass'n*)

Curb is shown on section only

Notes:

Deck surfaces should have a slope of about 1/4 in. per ft.

Overflow gutter should extend completely around the pool; open, roll-over or semi-recessed types of overflows should be used. Raised edges are not recommended for indoor pools. At outdoor pools where installed to facilitate cleaning, the raised edge should have dimensions shown on section to reduce danger of accidental tripping.

Outlets, Inlets: all pools should have an outlet at deepest point capable of draining pool in 4 hrs. or less. Openings of outlet grating should be at least four times the area of the discharge pipe to reduce suction currents. Where pool is wider than 20 ft., multiple outlets should be provided; where wider than 15 ft., multiple inlets should be used. When outlets are more than 5 ft. from end wall in rectangular pools with spoon-shaped contour, inlets should be placed at both ends of the pool. Outlets should be plainly marked by dark circle, unless outlet is of conspicuous coloring. At large pools with outlets near the center, inlets should be placed at specific intervals entirely around the perimeter of the pool.

Ladders or stairways should be located at one or both sides of deep end. If distance from bottom of pool to deck is more than 2 ft., a ladder or steps also should be placed at shallow end. Treads should be non-slip. Stairs, ladders or step holes should have a handrail on either side at the top leading out over deck. Stairs should not project into pool, but if used, should be recessed into the wall and deck.

* Recommended Practice for Design, Equipment and Operation of Swimming Pools and Other Public Bathing Places. Some sections of the report are being revised, but have not as yet been adopted by the Association.

DECEMBER 1948
Pittsburgh Corning Glass Blocks can be used in numerous ways to add beauty and practicality to public buildings. They admit daylight abundantly while protecting privacy and shutting off unwanted views. They have excellent insulation properties. They harmonize perfectly with any style of architecture. Fourteen attractive patterns to choose from including the new Soft-Lite Prism B Blocks which facilitate light control on sun exposures. Architects: Overend & Boucher, Wichita, Kansas.

Twindow — "Pittsburgh’s" window with built-in insulation, consists of 2 or more panes of Pittsburgh Glass separated by hermetically sealed air spaces, and enclosed in a protecting frame of stainless steel. The 2-pane unit cuts heat loss through windows nearly in half. With 3 or more panes, the insulating effectiveness is even greater. Twindow eliminates down-drafts near windows, minimizes fogging and frosting of panes. It contributes greatly to increased comfort and economy.

Every modern building has numerous places where colorful Carrara Structural Glass can add beauty and utility. In walls and partitions as shown here, washrooms...foyers...reception rooms, to name a few. The modern good looks of Carrara last indefinitely. It can be kept sparkling clean with infrequent wipings of a damp cloth. Available in 10 attractive colors. Architects: Janssen and Cocken, Pittsburgh, Pa.
Windows glazed with Pennvernon Window Glass admit abundant daylight into this modern school building. In addition, Pennvernon provides good, clear vision—has a brilliant, reflective finish on both sides of the sheet. You can depend upon Pennvernon to meet the most exacting sheet glass requirements. Architects: Long & Thorskov, Inc., Minneapolis, Minn.

Here's a new use of Solex, the heat-absorbing glass—Solex Venetian windows! They are easily handled—easily cleaned. They do not impair vision in any way. And they are water tight and air tight when closed. You'll find this new use of Solex highly practical for buildings in warmer climates. Architect: Pamarrow Turner, Miami, Florida.

We believe you will find much to interest you in our illustrated booklet of ideas concerning the use of Pittsburgh Glass in building design. Send the coupon for your free copy.

* Design it better with

Pittsburgh Glass

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Pittsburgh Plate Glass Company
2300-8 Grant Building, Pittsburgh 19, Pa.
Please send me, without obligation, your free booklet entitled "Ideas for the Use of Pittsburgh Glass in Building Design."

Name: ________________________________
Address: ________________________________
City: __________________ State: ___________

DECEMBER 1948
To put sparkle in Stucco...

**ATLAS WHITE CEMENT**

The sheer beauty of clean, crisp areas of stucco adds attractiveness and distinction to any building. And Atlas White Cement gives a pure brightness and enduring service to stucco finishes.

A matrix of Atlas White Cement not only enhances the patterns and hues of aggregates used in stucco, but it also sets off better, in contrast or blend, the color values of pigments and aggregates used in Terrazzo, Architectural Concrete Slabs and Cement Paints.

Atlas White Cement complies with Federal and ASTM specifications for portland cement. It has the same advantages for concrete and is used in the same way. Atlas White gives concrete a fresh, pleasing appearance. Cleaning is easy. Maintenance costs stay low.

For further information on the uses of Atlas White Cement, see SWEET'S CATALOG, Section 4B' 2 and 13B' 8, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

---

**NEW BANK OF CANADA BUILDING UNDER CONSTRUCTION IN MONTREAL**

Fetherstonhaugh, Durnford, Bolton & Chadwick, Architects

Increases in the United States were 47, 6 and 52 per cent, respectively.

Building costs recorded a jump in all countries. Between 1939 and 1947 prices of building materials rose as follows:

- South Africa: 103 per cent
- United States: 98 per cent
- United Kingdom: 96 per cent
- Australia: 84 per cent
- Canada: 74 per cent
- Sweden: 70 per cent
- New Zealand: 52 per cent

The United States led in increase in building labor wage rates from 1939 to 1947 with 76 per cent. The United Kingdom followed with about 70 per cent and Canada was next with 55 per cent. The remaining countries showed boosts of less than 50 per cent.

**COMPLETION TIME UNCHANGED**

The Dominion Bureau of Statistics reports that 43,571 dwelling units were completed in Canada in the first eight months of 1948. Those finished in August took an average 6.2 months to build, a figure showing practically no change from the previous two months.

**MORE HOUSES BUILT HERE**

More houses per capita are being built in Canada than in any other country in the world, with the possible exception of Sweden. D. B. Mansur, president of the Central Mortgage and Housing Corporation, recently told the Canadian Association of Real Estate Boards. At the same time he made it clear that despite accomplishments of the past few years there was still a great need for new houses. In 1946 and 1947 there were more new families formed than new houses built.

Comparison of figures issued by the Dominion Bureau of Statistics and the Bureau of Labor Statistics shows that Canada has only a slight edge on the United States. For the first eight months
There's a right way to make every steel casement installation job easier and at a saving. But it's all in knowing how. That's why Ceco has prepared a complete and concise Erection Manual for the building industry. Here's a manual containing detailed data on the installation of steel casements. Easy-to-follow directions eliminate guesswork—diagrams show the right way to do the job. Note three examples given here—How to apply a head drip—Testing the fit of ventilators—How to glaze. All the necessary steps for proper installation are covered in Ceco's Manual. It will help you cut costs, do away with window damage, avoid loss of time. Write for free copy today. If you live in one of the western states, ask for special Pacific Coast Edition.

CECO STEEL PRODUCTS CORPORATION
General Offices: 5607 West 26th Street, Chicago 50, Illinois
Offices, warehouses and fabricating plants in principal cities

HOW TO ERECT

A Before erecting, apply loose head drip by placing it on top edge of casement frame, tapping it lightly to seat in place. No screws or bolts required. Where ventilators do not extend to casement head, no head drip is necessary.

B After erecting, before glazing, test fit of each ventilator by pushing it closed. Ventilator top should touch first while bottom extends about ½" from frame. Later, when hardware is installed, underscreen operator will draw in bottom of ventilator.

C In glazing, spread steel window putty or compound over glazing rabbets. Push glass firmly into position. Slip glazing clips in place and apply face putty or compound.

ONE OF MANY TYPICAL INSTALLATIONS

Concrete Block Construction with steel fin

FREE for you!

CECO STEEL PRODUCTS CORPORATION
5607 West 26th St., CHICAGO 50, ILL.

Please send FREE Manual No. 1014 on how to install metal casements.

Name
Address
City
State

DECEMBER 1948
Michaels store fronts, push bars, kick plates and thresholds of extruded bronze, aluminum, stainless steel and other metals meet virtually every requirement. Many stock designs are available. However, Michaels is set up to faithfully reproduce in metal the most intricate creations of discriminating architects. Michaels store fronts are unusually attractive and inviting. Specially designed metal letters of harmonizing or contrasting colors add to Michaels store fronts, push bars, kick plates and thresholds of extruded bronze, aluminum, stainless steel and other metals meet virtually every requirement. Many stock designs are available. However, Michaels is set up to faithfully reproduce in metal the most intricate creations of discriminating architects. Michaels store fronts are unusually attractive and inviting. Specially designed metal letters of harmonizing or contrasting colors add to the effectiveness of these modern store fronts. Architects and builders are invited to consult us on all their requirements for ferrous and nonferrous building products. A partial list of Michaels products is shown below. If this list does not include the product you need, write us. Chances are we have it or can make it. Complete information on any or all products will be sent on request.

**MICHAELS PRODUCTS**

- Bank Screens and Partitions
- Welded Bronze Doors
- Elevator Doors
- Store Fronts
- Lettering
- Check Desks (standing and wall)
- Lamp Standards
- Marquises
- Tablets and Signs
- Name Plates

The MICHAELS ART BRONZE Co., Inc., 234 Scott St., Covington, Ky.

Member of the National Association of Ornamental Nonferrous Metals Manufacturers

---

**NEWS FROM CANADA**

(Continued from page 154)

of 1948 Canada started construction of 60,500 new dwelling units, or about 47 per each 10,000 population. During the same period, United States began building 646,000 new units or about 45 per each 10,000 population.

**Architects Among Top Earners**

Architects and engineers were in the third highest income tax paying group in 1946, according to data released by the Department of National Revenue. They averaged $5984 in that year and paid an average tax of $1685. Doctors and lawyers were first and second, respectively, with incomes of $7466 and $6528. Poorest paid professional group were nurses with $1173.

**Residential Costs Unchecked**

The cost of house construction rose 4.9 per cent in the first half of 1948 compared to 12.6 per cent in the first half of 1947. Central Mortgage and Housing Corporation reports in the current issue of Housing in Canada, a quarterly summary dealing with major shelter trends.

The over-all increase in the first half of 1948 comprised a 2.9 per cent rise in the composite index of building material wholesale prices and a 7.6 per cent rise in building labor wage rates. The cost of construction is also influenced by builders’ profits and overhead, and workers’ efficiency, but these factors are not taken into account in the combined index of materials and labor.

The report states that employment in the building industry has reached a record high, with 295,000 men engaged as of June 5, an increase of 41,000 over the corresponding period last year. At the same time, production of building materials has shown a substantial gain. Increases range from 3 per cent to over 100 per cent compared with the first half of 1947. A few items, notably in the roofing and insulating materials field, are meeting all supply demands, resulting in a cutback of production.

"Real" Shortage Non-Existen?**

Canada’s housing shortage is a local lack, rather than a national deficit, according to the Financial Post, a leading business newspaper. It produces Government statistics to show that by mid-1948 there was a house or self-contained apartment for every 4.3 persons in the country. This is the lowest figure recorded since the Dominion census was first taken. It compares with 4.4 in 1941, 1.9 in 1921, 5.2 in 1901 and 5.7 in 1881.

(Continued on page 158)
PITTSBURGH PERMAFLECTOR LIGHTING EQUIPMENT

When good lighting is a prime consideration, Pittsburgh Permaflector Equipment will give you the illuminating effects and the design patterns you require to do an outstanding job.

Low installation costs and ease of maintenance are other important features of Pittsburgh Permaflector Lighting Equipment. We would like to tell you more about these "standard" units which give you “custom” lighting results.

A PERMAFLECTOR PORTRAIT
The Board Room
Federal Reserve Bank
Pittsburgh, Pennsylvania

Pittsburgh Permaflector Universal Troffers are formed into a rectangular pattern in conjunction with the air conditioning units. The troffers are equipped with hinged Alba-lite glass-panel closures. Multiple switch control provides three levels of illumination.

Electrical Contractor: The Howard P. Foley Company.

WANT THE FULL STORY ABOUT OUR LIGHTING EQUIPMENT?
Send for your copy of Catalog 4B-F. It contains complete information, specifications and other data on the troffers used above and other Pittsburgh Permaflector Fluorescent Units and Companion Incandescent Equipment.

PITTSBURGH REFLECTOR COMPANY
OLIVER BUILDING • PITTSBURGH 22, PENNSYLVANIA
MANUFACTURERS OF FLUORESCENT & INCANDESCENT LIGHTING EQUIPMENT
Permaflector Lighting Engineers in all Principal Cities

PITTSBURGH PERMAFLECTOR LIGHTING EQUIPMENT IS DISTRIBUTED BY BETTER ELECTRICAL WHOLESALERS EVERYWHERE.
Where live steam of any pressure is available, it is possible to heat a plant advantageously by installing Wing Turbine Revolving Unit Heaters. The fan is driven by a Wing Turbine and the turbine exhaust is piped into the heater section. Electric motor and electric power are eliminated as the source of power (steam) is also the source of heat. The revolving discharge outlet distributes the heat to the working level, flowing around obstructions and to remote corners. Workers are pleased with the sensation of fresh, live, invigorating warmth. Write for descriptive bulletin or specific details.

L. J. Wing Mfg. Co. 151 W. 14th Street, New York 11, N.Y.
Factories: Newark, N. J. and Montreal, Canada

NEWs FROM CANADA

(Continued from page 156)

The Post comments, "It is true that the number of persons per family is not what it was in the early days . . . but even after all allowances are made, a house or apartment for every 4.3 persons means that throughout Canada as a whole we are getting close to the point where the housing supply can be termed normal."

Planning Progress Reported

Ontario is the only Canadian province possessing a Department of Planning and Development. The Minister is the Honorable Dana Porter. In addressing a recent conference of the Community Planning Association of Canada (Ontario Division) Mr. Porter announced that, since his Department was formed three years ago, it had approved more than 2000 subdivision plans, comprising nearly 80,000 residential building lots. He stated that 125 municipalities, within whose boundaries live three million people, are now actively engaged in planning activities.

The Community Planning Association is a citizens' organization which receives some financial assistance from the Dominion Government. It exists to promote public understanding of—and public participation in—planning. During the convention private citizens exchanged opinions with professional planners, municipal officials and representatives of the provincial government. Problems relating to stabilization of land values, rights of property owners, planning legislation and allied matters were discussed in a series of well attended study groups.

Among other distinguished speakers was Mr. Frederick P. Clark, Planning Director of the Regional Plan Association, New York. He expressed the opinion that planning limited by municipalities is outdated. "Local problems," he declared, "can only be dealt with properly within the framework of a regional plan."

No "Pork Choppers" Here

The Detroit Free Press sheds light on one reason why bricklaying in the U.S. offers emolument sweet enough to attract swarms of Canadian masons (ARCHITECTURAL RECORD, November, 1948).

The newspaper says, "Apprenticeships are non-existent in the bricklayers' union unless you have a pull or are a relative of a union pork chopper. With a fine understanding of the law of supply and demand, the union czars have a monopoly for themselves. Lots of people

(Continued on page 160)
What does it mean to you?

**ONE-PIECE BONDED** means the permanent, approved method of Stainless Steel Sink construction that guarantees leak-proof, trouble free satisfaction always.

**ONE-PIECE BONDED** means seamless construction of heavier 18 gauge metal that allows all-welded fabrication... eliminates joints, crevices and bacteria breeding seams.

**ONE-PIECE BONDED** means greater beauty. More eye-appeal... stronger buy-appeal because the smooth lustrous beauty of ELKAY stainless steel provides a finer sink without a blemish — without a distracting seam or joint.

**ONE-PIECE BONDED** means increased sanitation — quicker cleaning... easier dishwashing... it means the finest in modern sink design and craftsmanship.

NOW STOCKED IN 9 STANDARD SIZES
Available with and without base cabinets: Single Bowl models 54", 60", and 72"; Double Bowl models 66", 72", 84", 96", 108", 120".
Also custom-built for any plan.

You're always safe when you specify ELKAY Lustertone because you get one-piece bonded construction which means a better sink... means customer satisfaction forever. Only Lustertone is one-piece bonded... guaranteed to outlast the home in which it is installed.

*TRADE MARK
Consult 23a/4 Sweet's Architectural File (1949) or write for detailed information, prices or free estimates.

ELKAY MANUFACTURING CO.
1870 S. 54th Avenue · Chicago 50, Ill.
... calls for a

**Shower Cabinet**

in the bathroom

So much personal comfort and satisfaction can be obtained at so low a comparative cost that a shower cabinet has become one of the best values in making homes more desirable to owners and prospective purchasers.

A shower cabinet is a natural companion to the other fixtures in the present day bathroom, and is recognized by architects and builders as one of the strongest features for classifying a home as modern in both the higher priced and lower cost brackets.

**FIAT SHOWER CABINETS**

- make houses more saleable.
- make the menfolk happy and are a source of pride to the housewife.
- are in harmony with other modern features in the home that make for easy living.
- add an air of distinction and luxury to the bathroom even when lower priced units are installed.
- **THERE IS A FIAT SHOWER MODEL TO FIT EVERY BATHROOM** —
  - the low cost Skipper Shower with Neptune Glass Door.
  - the medium priced Cadet Shower with Zephyr Door.
  - the highest class shower cabinet ever built, the Commodore, suitable for the finest luxury installation.

A complete catalog with specifications of all Fiat Shower Cabinets is available in Sweet's Architectural File section 24b/1 and Building File section 6a/6 or write for catalog.

**Fiat Metal Manufacturing Company**

1203 Roscoe St., CHICAGO 13, ILLINOIS
LONG ISLAND CITY 1, N. Y.
LOS ANGELES 33, CALIF.

In Canada Fiat Showers are manufactured by Porcelain and Metal Products, Ltd., Orillia, Ont.

---

**NEWS FROM CANADA**

(Continued from page 158)

want bricks laid; by trimming down the labor supply and limiting the number of bricks that can be laid in one day, the bricklayer increases the demand for his services to such an extent that people will pay him $27 a day in desperation.”

The “pork chopper” dictatorship over apprentices does not seem to exist in Canada. Here anyone who wishes to learn bricklaying or any other trade simply applies to the Department of Labor in the province in which he resides. The Department then endeavors to find an employer who will sponsor him in a training course. No difficulty in placing embryo building mechanics is reported.

**NHA Lending Flourishes**

Lending operations under the National Housing Act continued at a high level during August, according to a news release from Central Mortgage and Housing Corporation. Loan approvals during the month amounted to $9,436.280 for 1,755 new dwelling units, more than double the total of $3,426,300 for 732 units in August, 1947.

During the first eight months of the year, NHA loans amounting to $67,849,620 were approved for 13,028 units as compared to $36,834,050 for 7702 units in the first eight months of 1947.

**Institute Marks Birthday**

Canada’s Institute of Professional Town Planners recently celebrated its first birthday. Formed “to promote the science and art of town and community planning,” its membership is drawn from the ranks of architects, municipal officials, engineers, university professors and persons engaged in social studies.

The Institute plans to issue a monthly news letter and a quarterly journal during the coming year. The news letter will serve to keep planners aware of items of current interest. The journal will assist them in charting development schemes for the Dominion’s fast growing cities and towns. Information concerning subscriptions may be obtained from Dr. E. G. Faludi, Secretary-Treasurer, Institute of Professional Town Planners, 24 Bloor St. E., Toronto, Ont.

**Gets Out of Nail Business**

Distribution of Nails by Central Mortgage and Housing Corporation (ARCHITECTURAL RECORD, October, 1948) ceased on November 30. The nails represented an additional supply made possible by diverting some of the tonnage of steel rod normally used in manufacturing barbed wire and fencing. The

(Continued on page 162)
For authentic information on
STERILIZERS FOR HOSPITALS
Get Scanlan-Morris Technical Data

Which will serve best — exposed autoclaves, recessed autoclaves, or recessed 2-door autoclaves (from unsterile to sterile room)?

When planning new hospitals, any estimate of the number, sizes and types of sterilizers required should, of course, be based on bed capacity, amount of surgery and obstetrics to be done, and the general layout of the building. Consideration should also be given to possible future additions to the hospital.

You will find much helpful information in the Planning and Engineering Data section of the catalog of Scanlan-Morris Sterilizers.

Scanlan-Morris sterilizing equipment is used exclusively not only in some of the largest American hospitals but also in many smaller institutions. More than 40 years' experience in manufacturing and installing sterilizers and other major hospital equipment, and in contacting superintendents, surgeons, hospital engineers and architects, qualify our Technical Sales Service Department to supply valuable data and assistance in proper planning for sterilizers. This department will gladly supply complete engineering data, suggestions and recommendations upon receipt of estimated requirements and a set of floor plans or a sketch of the proposed building. This service is available to architects without obligation.

Similar service is available also on Scanlan-Morris Surgical Lights and Scanlan-Morris Recessed Cabinets.

Mail the coupon for the latest catalogs.
measure, initiated by the Dominion Government, served to assist non-priority residential builders until their requirements could be satisfied through regular channels.

Municipal Finances Studied

At a recent provincial-municipal conference held in Toronto, delegates demanded that the Ontario Government take over the hospital, child welfare and relief costs now borne by cities and towns. Their brief states that "After full study of the effect of social services upon the municipal financial resources of this modern era, it is submitted these social services have been one of the major factors contributing to the burden on municipal taxpayers for services not properly municipal services."

It appears likely that a commission on provincial-municipal relations will be appointed to study how a more equitable distribution of taxes can be evolved to pay for the cost of social services.

The need for "a more equitable distribution" may be seen in a study recently made by Professor C. A. Curtis of Queen’s University, an international authority on the subject of taxation. Professor Curtis points out that real property provides no less than 85 per cent of municipal revenues in Ontario, the balance coming from provincial grants, fees and revenue-producing services. He estimates that in 1946 only 23 per cent of the total tax levies were expended on services to real property, whereas 31 per cent went to education, 11 per cent to public health, hospitalization and other social services. General administration and debt charges accounted for the rest.

Subsidized Housing Opposed

The main resolution passed at the recent annual convention of the Canadian Association of Real Estate Boards at Hamilton, Ontario, expressed realtors' opposition to "any subsidized housing project which requires a municipality to share in the subsidizing." A loophole would, however, permit municipalities to manage such projects if requested to do so by a senior government.

Steel Imports Curtailed

The vast re-armament program undertaken by United States is having Canadian consequences. In good neighborly fashion, the Dominion Government has announced that it is imposing a voluntary limitation on imports of iron and steel during the last quarter of this year. Imports are to be reduced to 200,000 tons, a cut of 18 per cent in the average quarterly level for last year.

The curtailment is particularly severe in the case of structural steel items. It amounts to about 35 per cent compared with 1947. Import permits are now required for all shipments from United States of angle-irons, beams, channels, columns, girders, joists, tees and zees. But however irksome it may be, the necessity for this control is well recognized by the construction industry.

Create Striking Effects...

BY USING THE NATURAL BEAUTY OF THE WOOD

There's real beauty in natural wood—a beauty that Cabot's Creosote Stains capture and enhance! Whether you want bold contrasts or soft blends, you'll find a Cabot Stain that will perfectly fit your color scheme...from brilliant hues to weathering browns and grays. And because only pure pigments are used, colors stay fresh and true.

With a content of 60%—90% creosote oil, the most effective wood preservative known, Cabot's Creosote Stains fully protect clapboards, shingles and wood siding against decay and termites. They cost 1/3 as much as good paint and are much more economical to apply!

Write today for color card and free booklet containing complete information about the advantages of Cabot's Creosote Stains.

ARCHITECT:

William Lescure, New York City

SAMUEL CABOT, INC.

2191 Oliver Building, Boston 9, Mass.
PROVIDENCE WAREHOUSE WITH 22,000 SQ. FT. FLOOR AREA
USES CHASE COPPER TUBE FOR RADIANT HEATING!


BIG jobs . . . little jobs, Chase Copper Tube has the advantages that mean fast, economical installation . . . dependability! For instance: you reduce costly, time-consuming connections because Chase Copper Tube is available in coils up to 100 feet long. Its flexibility means quick, easy hand-bending! And no fittings are needed at bends.

In floor installations, as illustrated, there's no need for accurate leveling of Chase Copper Tube. For ceilings, its light weight makes this overhead work easier . . . and its small diameter does not require extra plaster for coverage. Send for instructive, informative booklet that discusses radiant heating in theory and practice. Write Dept. AR128.
SURE CURE FOR
Garage Door Grief

The tricks of wind and weather often result in annoying grief with old-fashioned swinging garage doors. Now, with R-W 999 Garage Door Hardware, it’s easy and economical to use those same doors for the trouble-free convenience of overhead operation. They always open easily, stay “put” and close readily . . . weathertight. Garage door grief is eliminated entirely by this modern, new overhead door convenience—the R-W “nine-ninety-nine” hardware line. Conversion of ordinary doors to the overhead way with R-W 999 Hardware is simple, swift, and inexpensive. Everything needed is delivered, complete, packed to specific order in one convenient carton, ready for installation and operation.

In your plans for building or modernization, specify R-W 999 Hardware and be sure of lasting and complete satisfaction. For detailed information about R-W 999 Garage Door Hardware, simply call or write the nearest Richards-Wilcox office for free folder.

Louis, Kiel Auditorium, St. Louis, Mo.; sponsored by the Home Builders Assn. of Greater St. Louis.
Feb. 28–March 4: 1919 Spring Meeting and A.S.T.M. Committee Week, Hotel Edgewater Beach, Chicago, Ill.

COMPETITIONS ANNOUNCED
American Academy in Rome

The Association of the Alumni of the American Academy in Rome has announced its 22nd annual competition program to encourage collaborative effort among students of painting, sculpture, architecture, and landscape architecture. It is open to teams composed of students of three or more of the above-named arts.

This year’s problem is an island recreation center containing a theater, boating and club house building, bathing and casino building, restaurant, 10 shops, and several sandwich bars. Two prizes of $200 and $100 each are offered to the winning teams.

For further particulars address the American Academy in Rome, 101 Park Ave., New York 17, N.Y. The contest closes on April 1.

Princeton Fellowship

The Lowell M. Palmer Fellowship in Architecture, carrying a stipend of $700, has again been offered by Princeton University. The Fellowship is for advanced study of architecture at Princeton, and is open to holders of a Bachelor’s degree who are United States citizens who were less than 27 years old on October 1, 1949.

For complete information address the School of Architecture, Princeton University, Princeton, N. J. Applications must be made by March 25, 1949.

CHICAGO CLUB REOPENS

In response to the many requests that the Chicago Architectural Club resume its position in the field of architectural education and advancement, the directors of the Club have voted to return to active status and have leased quarters at 431 N. Clark St., Chicago. The Club was organized as a sketch club in 1885 and incorporated in 1897.

(Continued on page 166)

CLARK C. WRIGHT, A.I.A.

Clark Chittenden Wright, 68, member of the Chicago architectural firm of Carr and Wright, died on October 12 following a brief illness.

Born at Libertyville, Ill., Mr. Wright attended Beloit College, Armour Institute, and the Art Institute of Chicago. In 1915 he entered the architectural office of George C. Nimmons. He was later admitted to partnership and the firm name was changed to Nimmons, Carr & Wright. Two years ago the firm became Carr and Wright, Inc.
Actual bids demonstrate economy of
CONCRETE FRAME and FLOOR CONSTRUCTION

Competitive bidding repeatedly has shown that the use of concrete frames and floors saves on construction cost. This was demonstrated again in the above 14-story unit of the Clinton Hill Apartments in Brooklyn.

Taking advantage of the economy of continuity in concrete construction, the designers used flat slab floors of uniform thickness (without drop panels) as continuous frames and prismatic concrete columns without caps. This design eliminated most interior beams and gave architects greater freedom and flexibility in planning room layout by permitting them to place partitions of uniform height wherever needed.

Concrete frame and floor structures are firesafe, last a lifetime and cost little to maintain. That is low-annual-cost construction that protects investments. It is ideally adapted to apartments, schools, hospitals, hotels and office buildings for its economy applies equally to tall buildings or those of six stories or less.

Write for helpful free booklet, "Continuity in Concrete Building Frames." Distributed only in United States and Canada.

PORTLAND CEMENT ASSOCIATION • Dept. 12-8, 33 W. Grand Ave., Chicago 10, Ill.
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work.
BUILDING NOTES

Telephone Laboratories Addition

The second large building unit of the Bell Telephone Laboratories at Murray Hill, N. J., is now partially occupied. Designed by Voorhees, Walker, Foley & Smith, Architects, with the cooperation of the Bell Laboratories' engineers, the new unit, like the earlier one, is designed around a 6-ft. module to achieve maximum flexibility. Each module contains a window, radiator, artificial lighting and, in the laboratory areas, provision for supplying the multiplicity of services required for laboratory work such as electricity, gas, air, hydrogen, oxygen, hot and cold and distilled water, etc. There are no permanent partitions except around stair wells, elevator shafts and washrooms. Space subdivision is accomplished by movable, prefabricated panels of double steel sheets, 3 in. apart, filled with rock wool.

a new dimension in Door Locks

Schlage 5" Backset

Prevents barked knuckles

Schlage's 5" backset gives ample clearance between the knob and the door stop. It also provides a new freedom of design for architects.

New home office for Mutual Life Insurance

Mutual Life Insurance Building

Ground was broken early in October for a $9,500,000 home office building for the Mutual Life Insurance Co. Designed by Shreve, Lamb and Harmon Associates, Architects, the 25-story building is being erected on the block front from 55th to 56th Sts. on the east side of Broadway, New York.

Pan American Union Building

A four story building to be used entirely for administrative purposes is now half completed in Washington, D. C. Designed by Harrison, Hough, Livingston and Larson, Architects, of Philadelphia, the $2,400,000 complement to the present Pan American Union will be faced with the traditional black-veined Georgia marble of neighboring federal structures, and will have an identifying red-tiled, Spanish type roof. Located on a 16,330 sq. ft. site, with a 174 ft. frontage on Constitution Ave., the new building's 71,000 sq. ft. of floor space will be capable of integrating in one place the various departments that are scattered throughout the city at present.

ERRATUM

In the Universal Corporation, Dallas, page advertisement in the October issue of the Architectural Record, featuring the Herman Hospital and Herman Professional Building, Houston, the architects credited should have read Kenneth Franzheim and Hedrick & Lindsley, Associate Architects.

(News continued on page 168)
Washrooms rank as one of the four most important factors in good working conditions—according to a survey of workers from 400 plants.

In these hands...

clean, modern, carefully planned washrooms create good impressions. You’re doing your client a real service by making sure his washrooms are right.

ScotTissue Towels are a symbol of the right kind of washroom. Include ScotTissue Towel cabinets in your washroom planning. Send for our free booklet that’s filled with helpful suggestions, well-tested plans and diagrams (by an architect specializing in this field) for large and small washrooms, locker rooms, etc. Write to the Scott Washroom Advisory Service, Chester, Pa.


SCOTTISSUE TOWELS
Symbol of the right kind of washroom
Planning a NEW SCIENCE BUILDING?

Layouts of equipment and plumbing details should be completed before building construction is started, to avoid excessive installation costs. Kewaunee engineers are experienced and can offer assistance without cost or obligation.

Some of the New Science Buildings that are being equipped in 1948 and 1949 with Kewaunee Equipment are:

- University of Michigan, Ann Arbor, Michigan
- University of Illinois, Urbana, Illinois
- University of Florida, Gainesville, Florida
- University of Washington, Seattle, Washington
- University of Arizona, Tucson, Arizona
- University of West Virginia, Morgantown, W. Va.
- Drake University, Des Moines, Iowa
- Wayne University, Detroit, Michigan
- Southern Methodist University, Dallas, Texas
- Michigan State College, East Lansing, Michigan
- Calvin College, Grand Rapids, Michigan
- St. Michaels College, Winooski Park, Vermont

Here is more evidence that America's Finest Laboratories are Kewaunee Equipped. Write us about your Laboratory Problems.
In order to simplify the identification of Douglas fir plywood grades, manufacturers have adopted a new A-B-C system of grade-marking.

Plywood is manufactured in two distinct types—Exterior and Interior. Within each of these two types are several appearance grades. These grades—of either Exterior or Interior type—are determined by the appearance quality of the outer plys (face and back veneers).

Now, there are just four such qualities of veneer—A, B, C and D, in order of appearance quality. Highest in appearance quality — "A" veneer— is that formerly known as "Sound." "B" veneer is a new quality, also known as "Solid," which presents a firm, solid surface, free from open defects. “C” and “D” veneers may contain certain restricted defects which do not affect panel serviceability, and are used where appearance is not important.

*As the new A, B, C, D veneer designations are being introduced, industry grade-trademarking of panels provides for designation either by letter or by previous terminology. Thus, as listed above, grademarks on panels may read either "PlyShield A-C" or "PlyShield Sol2" (Sound Side).

GRADES OF EXTERIOR-TYPE

- EXT-DFPA • A-A (Sound 2 Sides)
- EXT-DFPA • A-B (Sound 1 Side, Solid Back)
- EXT-DFPA • PlyShield • A-C (Sound 1 Side)
- EXT-DFPA • Utility • B-C (Solid 1 Side)
- EXT-DFPA • Sheathing • C-C
- EXT-DFPA • Concrete Form • B-B (Solid 2 Sides)

GRADES OF INTERIOR-TYPE

- Interior • A-A • DFPA (Sound 2 Sides)
- Interior • A-B • DFPA (Sound 1 Side, Solid Back)
- PlyPanel • A-D • DFPA (PlyPanel Sound 1 Side)
- PlyBase • B-D • DFPA (Solid 1 Side)
- PlyScord • C-D • DFPA (Sheathing)
- PlyForm • B-B • DFPA (Solid 2 Sides)

The new U.S. Commercial Standard CS45-48 for Douglas fir plywood becomes effective November 1, 1948. The Commercial Standard booklet contains complete data on the new system of grade identification* and new grade-trademarks, and sets forth more stringent performance requirements for Exterior-type plywood. A free copy will be mailed to any point in the United States. Send the coupon below.

DOUGLAS FIR PLYWOOD ASSOCIATION
Tacoma 2, Washington

GENTLEMEN: Please send me my copy of the new U.S. Commercial Standard CS45-48, which contains new grade designations and new grade-trademarks for Douglas Fir Plywood.

NAME
Firm
Title
Street
City Zone State

DECEMBER 1948
THE RECORD REPORTS (Continued from page 168)

Bryan W. Nolan and Robb W. Moore, Architects, have established the firm of Nolan and Moore, with offices at 301 Oklahoma Natural Bldg., Oklahoma City.

The election of Charles C. Whittelsey as vice president in charge of construction activities has been announced by Ford, Bacon & Davis, Inc., Engineers and Constructors with offices in New York, Philadelphia, Chicago, and Los Angeles. Mr. Whittelsey has also been elected executive vice president of the firm's subsidiary, Ford, Bacon & Davis Construction Corp., with headquarters at Monroe, La.

ELECTIONS, APPOINTMENTS

Peter W. Eller has been elected chairman of the Board of Governors of the Building Trades Employers' Association of New York City. Mr. Eller, vice president of the Thompson Starrett Co., general contractors, will complete his fourth term as president of the B.T.E.A., December 31. As the second permanent chairman of the board since the B.T.E.A. was founded, Mr. Eller becomes the top administrative official in the multi-million dollar building industry in Metropolitan New York. A recognized authority in labor-management relations, Mr. Eller will take office January 1, 1949, succeeding Christian G. Norman who retired last month after serving as chairman for 23 years.

W. J. Goodwin, jr., of Des Moines, Iowa, was elected president of the Structural Clay Products Institute at its convention at French Lick Springs, Indiana. Mr. Goodwin, the youngest man ever to hold office in the industry, and president of the Des Moines Clay Products Co., succeeds Roy A. Shipley of Pittsburgh. Rand Rodgers, president of the Alton Brick Co., in St. Louis, replaces Joseph A. Brown, Baltimore, as vice president of the Institute, W. Gardner Long, Boston, and Joseph Cermak, Washington, D. C., will continue in office as secretary and treasurer of the Institute.

N. R. Patterson, president of the Patterson Steel Co., Tulsa, Okla., was elected president of the American Institute of Steel Construction at the Institute's annual convention early in October. Elected to serve with him were: R. D. Wood, Chicago, first vice president; John E. Jackson, Pittsburgh, treasurer. L. Abbott Post, New York City, executive vice president, and M. Harvey Smidley, New York City, secretary, were re-elected. B. E. Bushnell of Jacksonville, Fla. was named to the board of directors.

George N. Sieger, President of the S.M-S Corp., of Detroit, has been elected president of the American Welding Society for the year 1948-1949. A national authority on resistance welding, Mr.Sieger has held many offices in the Society, serving as its first vice president in 1947-1948. He is a member of the American Society for Metals, and the Society of Automotive Engineers. Herbert L. Tigges, second vice president of the American Society of Tool Engineers, has accepted an assignment as adviser and consultant to the National Securities Resources Board in connection with the work of the manufacturing division. His immediate work with the Board will pertain to the placement of "phantom" war orders in the machine tool field.

THE DURIRON COMPANY, INC.
DAYTON 1, OHIO

H₂SO₄ won't eat through THIS PIPE before 6571 A.D.!

If you install some 2" Duriron pipe, today, to handle 10% or higher concentrations of sulfuric acid, you won't get complaints because of corrosion before the 66th century. (And by that time you won't care.) It will take 4,625 years for corrosive H₂SO₄ to eat through 5/16" of Duriron. That gives you a good idea of the resistance of this high silicon iron alloy to practically all corrosives.

EVIDENCE: Here are the results of tests made on Duriron over a period of 120 days with unagitated solutions of most of the corrosives in commercial and laboratory use.

<table>
<thead>
<tr>
<th>Solution</th>
<th>Per cent of Loss</th>
<th>Depth of Corrosion in Inches, per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% Sulphuric acid</td>
<td>.007</td>
<td>.0000206</td>
</tr>
<tr>
<td>25% Sulphuric acid</td>
<td>.016</td>
<td>.0000463</td>
</tr>
<tr>
<td>10% Sulphuric acid</td>
<td>.025</td>
<td>.0000685</td>
</tr>
<tr>
<td>70% Nitric acid</td>
<td>.006</td>
<td>.0000188</td>
</tr>
<tr>
<td>10% Nitric acid</td>
<td>.000</td>
<td>.0000000</td>
</tr>
<tr>
<td>5% Hydrochloric acid</td>
<td>.0162</td>
<td>.000324</td>
</tr>
<tr>
<td>95% Acetic acid</td>
<td>.006</td>
<td>.0000188</td>
</tr>
<tr>
<td>87% Phosphoric acid</td>
<td>.006</td>
<td>.0000188</td>
</tr>
<tr>
<td>25% Phosphoric acid</td>
<td>.010</td>
<td>.0000292</td>
</tr>
<tr>
<td>7.5% Oxalic acid</td>
<td>.014</td>
<td>.0000412</td>
</tr>
<tr>
<td>9.1% Picric acid</td>
<td>.005</td>
<td>.0000137</td>
</tr>
<tr>
<td>25% Copper sulphate</td>
<td>.008</td>
<td>.000024</td>
</tr>
<tr>
<td>27% Ammonium chloride</td>
<td>.026</td>
<td>.0000977</td>
</tr>
</tbody>
</table>

For information on the application of Duriron pipe for waste acid disposal systems write for bulletin 703.

THE DURIRON COMPANY, INC.
DAYTON 1, OHIO

DURIRON
ACID PROOF
DRAIN PIPE

ARCHITECTURAL RECORD
For comfort, for health, for safety, conditioned air in the new Hartford Hospital is distributed through Anemostat air diffusers. These devices permit a high number of air changes per hour with complete freedom from drafts. They assure uniform temperature and humidity throughout the enclosure and prevent stratification or stale air pockets.

The problems encountered in air conditioning hospitals are unusually complex. Unless forced-air movement is draftlessly diffused and directed, discomfort, bacterial pollution by infected dust and explosion hazards exist. The use of Anemostat air diffusers has solved these problems in over 200 leading hospitals.

Write for full information on the use of Anemostats for heating, ventilating or cooling or ask for a consultation with an Anemostat engineer.

Coolidge, Shepley, Bullfinch and Abbott—Architects
Hollis French — Mechanical Engineer

The Anemostat Air Diffuser is distinguished by the exclusive feature of aspiration . . . the drawing of room air into the device where it is mixed, within the unit, with the supply air before it is discharged in a multiplicity of planes.

"NO AIR CONDITIONING SYSTEM IS BETTER THAN ITS AIR DISTRIBUTION"
MANUFACTURERS' LITERATURE

Lighting
Smithcraft School Lighting. Booklet discusses how the Eye-Q line of fluorescent lighting fixtures are designed to meet the basic factors of school lighting. Various models are pictured and described; special installation features are shown. 12 pp., illus. Smithcraft Lighting Division, Chelsea 50, Mass.*

Neo-Ray ML-244B Louvered Ceiling. Shows by detailed drawings basic parts of the Neo-Ray louvered ceiling, basic steps in design of a louvered ceiling, typical layouts and shop window treatments. Computed illumination values are given for various lamp heights, lamp spacing. 6 pp., illus. Neo-Ray Products, Inc., New York 10, N. Y.

AMERICAN TILE & RUBBER CO.
TRENTON, NEW JERSEY

Where appearance counts....

Amtico RUBBER FLOORS

Give the mark of distinction to lobbies and waiting rooms you design. Specify Amtico Rubber Flooring for these important "first impression" points, for with Amtico you're recommending a quality product backed by thirty years' experience.

From Bullock's new Pasadena store on the West Coast to Princeton University in the East, year after year Amtico is proving its superiority throughout the country. Whether you concentrate on large public buildings or do most of your designing for private homes, you'll find Amtico Rubber Floors adaptable to any room or decorative scheme. When you want distinguished, beautiful floors that defy wear; that keep their gleaming freshness with a minimum of care; that absorb sound and lessen fatigue, specify Amtico.

It's easy to get more information about this premium flooring—just send in the coupon.

(Am-01 Catalog)

AMERICAN TILE and RUBBER COMPANY
Perine Avenue, Trenton 2, New Jersey

Please send me samples and literature showing Amtico Rubber Flooring in full color:

NAME:

ADDRESS:

Ceilings Unlimited. This comprehensive bulletin on the Miller Troffer System of Fluorescent Lighting is divided into three main sections — How They Look, How They Work and How to Specify Them. "How They Look" presents actual installation photographs and architectural renderings of interiors showing what has been done and what can be done to achieve decorative ceiling effects. "How They Work" illustrates the four basic methods of ceiling construction employed with detailed drawings and photographs. "How to Specify Them" shows all items making up the Miller Troffer systems with installation and dimensional data included. 105 pp., illus. The Miller Co., Meriden, Conn.


Plastics
Vexolite Plastics Surfacing, Tops for Table Tops. Presents features of Texolite plastics, suitable for use on dinette table tops, sink tops, kitchen work surfaces, bar and counter tops. Method of application is explained. Several pages are devoted to showing new colors and patterns. Typical applications are pictured. 12 pp., illus. General Electric Co., Chemical Dept., Pittsfield, Mass.*

Mixing Valves
Doran Thermostatic Water Mixing Valve Catalog No. 2-41. Lists characteristics of Doran mixing valves such as available water temperatures and capacities. Doran Shower Sets are pictured. Installation features are shown in dimensioned drawings and photographs, and a price list is included. 8 pp., illus. Cunningham Mfg. Co., 4200 W. Marginal Way, Seattle 6, Wash.

Sliding Door Hardware
The Modern Sliding Door Rolls on Har-vey Hardware. Brochure contains floor plans showing various adaptations of sliding doors. Operation of sliding door hardware is explained and installation details are included. 10 pp., illus. Metal Products Corp., 309 Northwest 20th St., Miami, Fla.*

Concrete Forms
Steel Forms for Concrete. Manual intended primarily as an instruction book for those who will actually use or super-

*Other product information in Sweet's Fls, 1948.
The beautiful Terrace Plaza Hotel, Cincinnati, equipped with Fenestra® Steel Fencraft Intermediate Windows for abundant daylight and controlled fresh-air ventilation.

Architects: Skidmore, Owings & Merrill, New York City.


Why architects Skidmore, Owings & Merrill

> CHOSE FENCRAFT WINDOWS

for the new Terrace Plaza Hotel

Here is a building of distinctive beauty. Every room is a charming "package" of comfort and light. Architects Skidmore, Owings & Merrill capitalized on the grace and efficiency of Fencraft in planning this magnificent hotel.

The finer fenestration offered by Fencraft Intermediate Steel Windows is in their design. But their low cost is the result of modern manufacturing methods. Use of high-quality standard casement sections of advanced design streamlines production . . . without sacrificing variety in window types and sizes. Installation costs are minimized because the dimensions of Fencraft Windows are co-ordinated with those of collateral wall materials.

The better your materials, the better the finished job. For full information on the many types and sizes available, see Sweet's Architectural File for 1948 (section 16a-14), or mail the coupon.

Remember these Fencraft benefits whenever YOU have a job to do:

BEAUTY—in graceful lines and fine hardware.

DURABILITY—in solid, rolled-steel casement sections.

UTILITY—in easy screening and safe washing (both from inside the room), firesafety, efficient daylighting and controlled fresh-air ventilation.

ECONOMY—in low cost that helps stretch today's building dollar.

Detroit Steel Products Company, Dept. AR-12, 2252 East Grand Blvd., Detroit 11, Michigan

Please send me data on types and sizes of the new Fencraft family of Fenestra Windows.

Name:

Company:

Address:

DECEMBER 1948
vise the use of steel forms. Contains discussion of advantages claimed for Atlas Speed Forms such as economy, convenience of use and time saving. Irvington Form & Tank Corp., Irvington, N. Y.*

**Electrical Wire, Cable**

*Latex Insulated Building Wires and Cables.* Booklet gives performance characteristics, construction details and specifications for a complete line of armored cables, service entrance cables, non-metallic sheathed cables and new building wire designed specifically for wet locations. 20 pp. United States Rubber Co., Rockefeller Center, New York 20, N. Y.

**Roof Drainage**

*Stainless Steel Roof Drainage for Lasting Architectural Distinction.* Discusses features of stainless steel roof drainage equipment such as: durability, freedom from replacement, strength, abrasion resistance and riddance of "bleeding." The booklet shows details of a canopy over a garage entrance, ventilation dormer, and flashing. Also included are illustrations of standard parts and fittings and a listing of standard specifications. Another section describes tested procedures for fabrication and installation. 8 pp., illus. Armco Steel Corp., 199 Curtis St., Middletown, Ohio.*

**Heat Transfer**

*Bush Heat Transfer Products (Catalog No. 140).* Provides calculation methods and engineering data for selecting the following types of air conditioning coils: steam coils (standard), steam coils (non-freeze), direct expansion cooling coils, and water cooling coils. Ratings and performance data are given for many applications. 36 pp., illus. The Bush Mfg. Co., 179 South St., West Hartford 10, Conn.

**Thermal Insulation**

*Simplified Physics of Thermal Insulation.* Revised edition of a manual containing a discussion of heat transfer, condensation, vermin, mold, radiant heating and other topics involved in the study of insulation. A chart of thermal insulation values has been revised and broadened in scope. Advantages of aluminum reflective insulation are given. 32 pp., illus. Infral Insulation, Inc., 10 Murray St., New York, N. Y. *

**Plastics Standards**

*NEMA Standards for Laminated Thermo-Setting Decorative Sheets.* Describes standard grades, thicknesses, tolerances and various tests for resistance to wear, boiling water, high temperatures, stains, color fastness, moisture and dimensional change. The last section of the data is devoted to recommended techniques for applying decorative laminates. These new standards are the work of the Advisory Technical Committee of NEMA's Decorative Laminates Group, National Electrical Manufacturers Ass'n, 155 E. 44th St., New York 17, N. Y.

**Standards for Treated Wood**

*Manual of Standards for Treated Wood.* An engineering guide in the form of a revised manual of standards for treated wood is now available from the American Wood-Preservers' Ass'n. According to the publisher, the standards have been condensed to essential details with repetitions eliminated. Principal subjects are grouped under the titles: Preservatives, Treatments, Methods of Analysis and Recommended Practices. 150 pp. American Wood Preservers' Ass'n, 1427 Eye St., N. W., Washington 5, D. C.
Sellevision induces action at the store entrance itself. The doors swing in for ready made customers, made ready by the compelling array of attractions inside and clearly visible from the sidewalk. To obtain the full benefits of Sellevision design, complete Safety-Set Store Front Construction should be utilized.

Safety-Set is heavy gauge, steel reinforced construction in handsome stainless steel and anodized aluminum. The sash is extremely low to permit maximum visibility and it incorporates Brasco’s deeper grip to hold glass firmly and securely. Heavy-duty bars provide ample strength and support for heightened areas and larger glass loads.

In addition to classic styling and structural soundness, Safety-Set Fronts are economical to install. Our complete line includes a wide selection of standard assemblies requiring stock size millwork only. Here is beauty, utility and economy combined. For store fronts of individuality and distinction your best bet is Safety-Set.

**A COMPLETE LINE FOR EVERY DESIGN**

---

Brasco MANUFACTURING CO.  
HARVEY • (Chicago Suburb) • ILLINOIS  
Specialists in Metal Store Front Construction for more than 35 Years
ported to show that light and sound transmission properties of plastic blocks are nearly the same as for those made of glass. Columbia Proteクトosite Co., Carlstadt, New Jersey.

SLIDING DOOR UNIT

A sliding door kit, designed primarily for general home building, is said to contain all essential operating hardware and accurately machined wood frame parts. The Huttig frame, when assembled, is installed in the prime 2 by 4 in. studding, with pocket portion covered with the same material used on other wall surfaces.

The frame is manufactured for single doors only, in standard widths from 1 ft. 6 in. to 3 ft., in standard heights 6 ft. 6 in. to 7 ft., and either 1 1/2 or 1 3/4 in. widths.

The manufacturer lists three unique features: (1) the door is suspended from two solid brass hangers with ball-bearing rollers operating on an aluminum track. The patented hanger design permits floor clearance adjustments without removing the door from the track; (2) a stabilizing fixture guides the door, equidistant from each side of the pocket jams, preventing noisy play and eliminating marring of the door; (3) a slotted escutcheon plate at the lower closing edge of the door fits firmly over a rubber door guide at the bottom of the closing jamb to insure a rigid closed door. Huttig Sash & Door Co., St. Louis, Mo.

WITH FERALUN SAFETY TREADS

Workmen at the Curtiss Wright Plant, Propeller Division, Caldwell, N. J., go up and down these stairs . . . safe at every step.

Their shoe soles come to grips with non-slip Feralun Safety Stair Treads, cast iron, with wear-resistant abrasive embedded right in the walking surface.

Heavy traffic day in, day out — but Feralun Safety Treads, built to take hard use, stay non-slip . . . last and last.

And that means low maintenance . . . and high safety.

4 TYPES:

- Cast iron base
- FERALUN Bronze base
- BRONZALUN Aluminum base
- ALUMALUN Nickel bronze base
- NICALUN

3 SURFACE STYLES:

hatched . . . plain . . . fluted

Use coupon below to get our free, illustrated catalog. Also consult Sweet's File, Architectural, 13 a-8.

HARDWOOD BLOCK FLOORING

Hasko Block Flooring is said to be exceptionally strong and highly inert by being constructed of multiple plies of veneers laid cross-grained. The hardwood blocks are reported to withstand extreme temperature changes and moisture conditions; the manufacturer guarantees each block against delamination.

The flooring comes in blocks 12 in. square by 3 1/2 in. thick made of Northern Oak, and the blocks have a tongue and groove feature.

The blocks are laid with the grain of each running opposite to that of surrounding blocks. Hasko flooring can be applied directly on concrete by using a mastic; no screeds, lag screws or expansion bolts are necessary. On wood sub-floors or old wood floors, the technique of blind nailing is employed.


MINIATURE KITCHEN EQUIPMENT

A complete set of miniature plastic appliances is being made available to assist architects, builders, financial institutions and schools in planning kitchens and laundries.

Called the Applianset, the kit consists of 77 appliances, cabinets and kitchen furnishings scaled one inch to the foot and made of light, durable polystyrene. Also included are four metal walls, four windows, two doors (all in miniature), and a 16-page instruction book together with a specially sealed measuring ruler.

In use as displays and demonstration aids, an unusual feature of the Applianset is the set's “multi-purpose” which means that the installations can be used for cooking, food display, storage, garden planning, etc. The kit is marketed by the American Abrasive Metals Company, Irvington, N. J., and is available at retail through any hardware or lumber dealer.
Send for your FREE COPY

School Department, Luminall Paints
Chicago 9, Illinois

Please send me a FREE copy of "How to Decorate Classrooms in The Harmon Technique" including 10 sample room combinations printed in 16 scientific colors.

NAME

TITLE AND SCHOOL

STREET

CITY.. STATE

Every Architect Needs a Copy of
"HOW TO DECORATE CLASSROOMS IN THE HARMON TECHNIQUE"

With this booklet, just off the press, you can duplicate the painting of schoolroom walls and ceilings as recommended by Dr. D. B. Harmon. The Harmon Technique has produced remarkable educational and physical betterments in school children as shown at Rosedale (Austin, Tex.) and elsewhere.

This booklet greatly simplifies the decorating procedure of the Harmon Technique. You follow the directions in each of five steps. A chart indicates approved color combinations from which you can make your selections; 16-color printing shows you the colors and how they will look on the wall; complete formulas are given for mixing the paint colors and applying Luminall Paint.

The Harmon Technique is scheduled to be discussed editorially in several leading national magazines. Luminall paints' own advertising in the general public on the Harmon Technique will appear shortly.

Send today for your Free copy of "How to Decorate Classrooms in the Harmon Technique." Additional copies may be purchased at 25¢ each . . . or $15 per hundred copies.

SCHOOL DEPARTMENT, LUMINALL PAINTS
CHICAGO 9

LUMINALL

the light-reflective paint for interiors
set is the method of hanging wall cabinets. Each of these units is fitted with a small Alnico magnet which holds it tight against the metal walls, yet permits fast setting up and changing of any plan. General Electric Co., Bridgeport 2, Conn.

RESIDENTIAL LIFT
An exclusive feature of the new Wecolator residential inclined elevator or lift is its ability to turn corners and proceed around landings as it travels up and down stairways. The Wecolator is installed without the stairway or wall being cut or marred.

Pushbuttons at the top and bottom of the stairway are used to summon the lift, and a pushbutton located on the chair is used by a passenger to control movement of the lift. The chair may be folded against the wall when the lift is not being used. GMK Sales Associates, 514 N. LaSalle St., Chicago 10, Ill.

CONCEALED DOOR CLOSER
A new door closer is described as providing concealed control for any metal interior door up to 3 ft. 6 in. by 7 ft. by 1½ in. in size at a cost not much higher than that of an ordinary exposed closer of similar capacity.

The closing mechanism is entirely concealed within the top rail of the door. Only a slender arm is visible, attached to the frame by a recessed soft plate. A shock-absorber is standard, and a hold-open arm may be specified. Installation is said to take only a few minutes as both door and frame are previously prepared by the door fabricator. LCN Closers, Inc., 466 W. Superior St., Chicago 10, Ill.

VENTILATING STORM WINDOW
An inside storm window with open-in sill ventilator is now being manufactured. This storm sash has a frame of formed steel, and is for use with Fenestra steel casement windows as a complete window unit.

The storm windows are available either one- or two-lights wide. A rubber gasket, attached to storm window frame, is used to prevent metal-to-metal contact and to seal the whole window. Detroit Steel Products Co., 6/6 W. T. Huddle, 300 Francis Palms Bldg., Detroit 1, Mich.

AUTOMATIC STEAM COOKER
A new steam cooker is not only controlled automatically by operation of the door locking mechanism, but the cooking operation in each compartment is also controlled by the use of electric time clocks. The pressure is automatically released at the end of a predetermined period so that food need not be removed immediately to prevent overcooking.

(Continued on page 180)
For jobs in every price range -

LOW COST HOUSING

or

DELUXE APARTMENTS

Fireproof GOLD BOND Partition Systems offer best value!

WHERE COST IS A VITAL FACTOR - AMSTERDAM HOUSES had to keep down the cost of 1084 apartments. Gold Bond Solid Partitions met all requirements, provided far more living space.

WHERE QUALITY ALONE COUNTS - TUDOR PLAZA APARTMENTS. For this ultra-modern cooperative apartment building in Buffalo, Gold Bond Partition Systems met all requirements.

GOLD BOND PARTITION SYSTEMS provide greater living space at no extra cost for any job, regardless of size. These partitions, of fireproof gypsum plaster and metal lath save time, labor and space. They’re fully described in Sweet’s. Or if you’d like a 15 minute demonstration without obligation, just drop us a card.

Over 150 Gold Bond Products including gypsum lath, plaster, lime, wallboards, gypsum sheathing, rock wool insulation, metal lath products and partition systems, wall paint and acoustical materials.

NATIONAL GYPSUM COMPANY
BUFFALO 2, NEW YORK
The Van Automatic Pressure Type Steam Cooker can be furnished either in two-, three- or four-compartment sizes with standard heights, or in two- or three-compartment sizes with extra height compartments.

A red light indicates that there is steam in the pressure compartment. When the steam is exhausted, a green light indicates that the compartment door may be opened.

The automatic door lock turns off the steam before the door can be opened, if electric equipment should fail. This automatic cooker is available in boiler plate, hot galvanized; in clad metal stainless-steel-lined; and in solid stainless steel. The John Van Range Co., 401-413 Culver St., Cincinnati 2, Ohio.

**ALUMINUM LAMP POST, FLAGPOLE**

The sectional, aluminum lamp post, Literay, is approximately 8 ft. high and has provision for fitting various sized lantern collars by means of wooden adapters, 3 to 4 in. in diameter.

This lamp post comes in two sizes — 8 1/2 and 8 1/2 ft. in length with base diameters 4 and 5 in. respectively; the sections fit into a 5 ft. carton for shipment.

An aluminum flag pole, having an overall length of 21 ft. and base diameter of 1 3/8 in., is constructed of four telescopic sections, with pin stops designed for rigid, long lasting service. The pole comes complete with rope, fittings, and is topped by a brass finished eagle. Swain & Bridge, New Britain, Conn.

---

"Town and Desert", Palm Springs
H. W. Burns, Designer and Builder
Palm Springs, California

---

**WOOD-PLASTIC PANELS**

Finely divided wood is being formed into panels through the addition of a plastic resin and other binding ingredients followed by the application of heat and pressure. The material was said to have shown very little change after extensive heat and humidity tests. The plastic content of Prespine is said to improve the water resistance of the wood fibers as well as acting as a binder.

The color of Prespine is close to that of the species of wood from which it is made. It is cut and machined like wood and made into door panels for interior and exterior use, for parts of kitchen units and for other woodwork. Curtis Companies, Inc., Clinton, Iowa.

**WALL COVERING**

Timbertone is a recently introduced wall covering designed to have the visual qualities of wood paneling but to be hung like wallpaper.

These Timbertone coverings (called structural paper veneers) are designed to afford a three dimensional appearance, depth and richness of natural color, sturdiness and durability, and ease of installation. The coverings have raised (Continued on page 182)
Architect:
Stevens & Sipple,
Orlando, Florida

Simple, forceful display—
A SIDEWALK SHOWCASE

Reduce barriers to vision and you reduce barriers to sales... that's the principle of a Visual Front—such as this auto showroom. No hiding behind fancy decoration. Just plain, simple, forceful display of the entire interior.

The Visual Front idea has taken hold in a big way. Store owners have found that there's real merchandising power in displaying the whole store and its activity to passersby. That calls for glass—in large areas.

Visual Fronts are practical, too. Glass keeps its look of newness through the years, resists weather far beyond the limits of most materials. That means less re-finishing, less cleaning. Large glass areas flood interiors with daylight...serve double duty by making the entire lighted store a showcase at night.

For Visual Front ideas and information on types of glass, write for your copy of our colorful book, Libbey-Owens-Ford Glass Company, 45128 Nicholas Building, Toledo 3, Ohio.

GLASS FOR VISUAL FRONTS

See Your L-O-F Distributor

FOR TRANSPARENT AREAS—L-O-F Plate Glass, ground and polished for maximum freedom from distortion. To insulate glass areas, specify Thermopane*. Its panes are separated by sealed-in, dehydrated air. Thermopane is readily available. For doors and other areas that might be subject to impact, specify Tuf-flex* tempered plate glass.

FOR TRANSLUCENT AREAS—to bring in light and assure privacy; use Blue Ridge Patterned Glass for walls and partitions.

FOR SOLID AREAS—Colorful Vitrolite* glass facing keeps its luster, does not need refinishing and is unaffected by weather. Does not warp, swell or craze.

*®

IN CANADA, THERMOPANE IS SOLD BY PILKINGTON GLASS, LTD.

LIBBEY·OWENS·FORD
a Great Name in GLASS

DECEMBER 1948
ridges to simulate actual wood grains. Timbertone is prepared as an emulsion of fibre, cement and linseed oil. This material is then aged, cured, and finally finished with oil stains to make the covering sunfast and washable. A coat of wax applied every few years is said to maintain a depth and richness of color and to insure perfect washability.

Wood finishes include Gold Oak, Oak, and Pecky Cypress; other surface finishes are Fabriktones, Metaltones and a reproduction of hand-laid bricks. Timbertone Decorative Co., Inc., 324 Lafayette St., New York 12, N. Y.

**TRANSPARENT MIRROR**

A new large size of transparent mirror (30 by 60 in.) made of polished glass \( \frac{135}{16} \) in. thick is now available from Libbey-Owens-Ford Glass Co.

When installed in a wall between a well-lighted room and one that is darkened, the transparent mirror appears reflective to occupants in the well-lighted room; however, it is transparent to those in the dark room.

Other sizes available are: 12 by 40 in., 20 by 40 in., and 30 by 40 in. The manufacturer is also making special transparent mirror of Tuf-flex heat-tempered glass. Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo 3, Ohio.

**ELECTROSTATIC PRECIPITATORS**

Commercial electrostatic precipitators are now being built to customer specifications by Trion, Inc. for cleaning and purifying air and other gases. Specially constructed floor models, suspended cabinets and large size filters for unusual applications can be furnished on request.

Two new models have been added by the company to their "packaged" line.

Custom-built electrical precipitators are available for cleaning air, other gases.

These Trion air filters (ready to install) are designed to handle air volumes up to 4000 cfm.

All units are guaranteed by the manufacturer to remove more than 90% of the dust, smoke, soot, lint, pollen and other air-borne irritants from air streams passing through the filter—if installed according to specifications and not in excess of nominal rating. Trion, Inc., 1000 Island Ave., McKees Rocks, Pa.

**EXTRUDED METAL PRODUCTS**

Eugene Extruded Metals Corp., subsidiary of Southern California Glass Co., and manufacturers of Holobilt aluminum doors, tub and shower enclosures and sliding glass patio walls are now operating under the name of The Holobilt Co. Holobilt Co., 2445 S. Santa Fe Ave., Los Angeles 11, Calif.

**SLIDE VIEWER**

Offered as a selling aid for architects and building contractors is the Kodaslide Table Viewer which projects 2 by 2 in. photographic transparencies on a new type screen built into the viewer. It is said to be the first complete projection system for miniature color transparencies which can be used in a fully lighted room.

The new viewer is completely portable and occupies less than 10 by 12 in. of table space. It holds 75 cardboard slides or 30 double-glass slides which may be

(Continued from page 180)
Must Owners of your new houses POLICE THE THERMOSTAT?

Automatic Anthracite Stokers installed in an existing boiler or furnace and in new houses, automatic hard coal stokers deliver plenty of heat quickly . . . save up to 50% on fuel bills . . . eliminate fuel worries.

The Revolutionary Anthratube—The Anthratube saves on fuel bills . . . its proved efficiency is over 80%. This scientifically engineered boiler-burner unit, with "Whirling Heat" and other revolutionary features, produces quicker response and superior performance than units using other types of fuel.

Experts predict shortages of some fuels for 3 to 5 more years!

Not if you specify ANTHRACITE Equipment!

There are no Ifs, Ands or Buts when you specify Automatic Anthracite Heating

OWNERS of your new houses can have plenty of worry-free heat because there's plenty of hard coal and there is anthracite equipment to fit any heating requirement.

A whole winter’s supply of anthracite can be stored easily in advance. Everyone wants this kind of security and convenience. They have just that when you specify automatic anthracite equipment.

Look over the two types of domestic anthracite equipment shown here. They burn the cheaper sizes of economical hard coal . . . completely automatic from bin feed to ash removal.

Write to us for more detailed information on all types of anthracite heating equipment—domestic and commercial.

ANTHRACITE INSTITUTE
101 Park Avenue • New York 17, New York
mullions and spandrels by

ALBERENE


Regular grade Alberene's soapstone window mullions and spandrels are financially and esthetically right for your job. They're greenish-blue... harmonize with any decorative pattern. And their price will put a grin on the face of even your most budget-minded client.

For samples and further information, write or phone —

ALBERENE STONE CORPORATION of VIRGINIA
419-4th Ave., New York 16, N. Y.

Tempered spring transforms butt-hinge into one that is reported self-latching

LATCHING HINGE

An ingenious device that adds to any conventional butt-hinge the function of a latch spring has been introduced. It is described as not only self-latching, but also self-aligning.

Both leaves of the hinge are slotted to permit the insertion of a simple "cam"-like, U shaped, tempered spring made from flat spring steel stock. One end of the spring is anchored in the door jamb. The other end, the curved or "cam" side, compresses into the hinge slot. The spring then releases and latches by the manual closing of the door — 1, 2, or 3 springs are inserted in the hinge, depending upon the size of the hinge. Latching is installed like any other butt-hinge, except that a mortise, the depth of the spring insert, must be provided. No other separate latch, catch, or hook need be put on. With the addition of a pull, knob or handle, the entire door is ready for hanging. Sagging or warped doors, thus present no "out-of-alignment" latching problems, according to the manufacturer. Latching Corp., 9100 Roselawn, Detroit 4, Mich.

OVERLOAD PROTECTION

A new line of Quicklag Load Centers in basic circuit enclosures of 2, 4 or 8 is available for completely automatic protection of home wiring circuits.

(Continued on page 186)
How to Please All Your Clients...

specify WELDWOOD PLYWOOD
for commercial installations

OFFICES. Birch Weldwood combined with wallpaper. Valance is decorative and practical — it conceals drape and blind attachments, and provides space for indirect lighting fixtures at the same time.

BARS & RESTAURANTS. This beautiful Claro Walnut Weldwood bar front was made for the Cardinal Richelieu Hotel, San Francisco. Walls and columns were covered with the same paneling.

INSTITUTIONS. Mengel Flush Doors and trim of Ribbon Grain Walnut Weldwood set off the diamond-matched bleached Walnut walls and railing. Recessed panels over doors are of Stamp Claro Walnut.

HOUS. Dignity and stability are the keynotes of this luxurious installation of Figured Mahogany paneling in the Conference Room of the Long Island City Savings Bank, L. I. City, N. Y.

STORES. Window-dress the whole store! Graceful curves and smooth-flowing lines provide an eye catching background for display in this I. Miller shoe salon, New York. The wood is oak Weldwood.

BANKS. Your first impression of the Otaray Hotel lobby, Greenville, S. C., is one of richness and good taste. Guinea Wood Weldwood in a handsome treatment of walls, columns and stair-rail.

Most commercial installations present essentially the same requirements for an interior wall surface. Appearance, durability, ease of maintenance and finished cost ... these are the major questions.

And here are Weldwood's answers:

APPEARANCE. Man's old-time, all-time structural-decorative favorite . . . wood. Choose from the very finest domestic and imported hardwoods ... because only selected fitches go into Weldwood panels. Create traditional or modern interiors. You have a wide latitude for numerous effects ... because Weldwood's lustrous beauty is a perfect complement to any style.

DURABILITY. Weldwood resin-bonded panels are laminated under heat and pressure, to produce a modern form of decorative panel that will never warp, crack or delaminate, when properly installed.

EASE OF MAINTENANCE. First cost is practically last cost, when Weldwood walls are installed. These beautiful decorative panels maintain their original beauty with minimum care. Maintenance is negligible.

FINISHED COST. Because Weldwood panels combine high structural strength with great decorative beauty, you can specify many short cuts that save both material and labor. Your finished costs will look good, compared to the striking appearance of the finished job.

So look into Weldwood for all your commercial clients. Take your choice from fine woods like oak, birch, korina, maple, walnut, gum, mahogany, zebra-wood, avodire, rosewood and teak. Make everybody happy . . . store-owners, restaurants, bankers, businessmen, hotel-owners and operators of institutions. Specify Weldwood for their interior walls.

SEND FOR NEW BOOKLET ON WELDWOOD FOR COMMERCIAL INSTALLATIONS...

YOURS FOR THE ASKING

UNITED STATES PLYWOOD CORPORATION
55 West 44th Street, New York 18, N. Y.

Gentlemen:
Please send me your free booklet on commercial installations of Weldwood Plywood.

Name
Address
City _  Zone State

WELDWOOD Plywood
Weldwood Plywood and Mengel Flush Doors are products of

UNITED STATES PLYWOOD CORPORATION
New York 18, N. Y.


Weldwood® Hardwood Plywood
Douglas Fir Weldwood
Mengel Flush Doors
Douglas Fir Doors
Overhead Garage Doors
Molded Plywood
Armormold® (metal-faced plywood)
Tekwood® (paper-faced plywood)

Flexwood®
Flexmed
Weldwood® Glue® and other adhesives
Weldflex® (stirred plywood)
Decorative Micarca®
Flexwood®
Flexglass®
Firzite®

Weldwood Plywood is made in both Interior and Exterior types, the former bonded with extended urea resins and other approved bonding agents; the latter with phenol formaldehyde synthetic resin.

DECEMBER 1948
An outstanding feature of the load center is the Quicklag Circuit Breaker, with advantages listed by the manufacturer as: (1) there are no fuses to replace; (2) circuit protection cannot be changed; (3) breaker cannot be held closed against shorted or overloaded circuits; arcs are snuffed out by the De-Ion principle; its thermal magnetic action protects against unnecessary tripping and momentary overloads—time delay (thermal) protection operates on sustained overloads and instantaneous (magnetic) protection on short circuit faults.

The load center is designed to accommodate 10-, 15-, 20-, 30-, 40- and 50-ampere breaker ratings. They can be installed with fewer active circuits than the total provided for, leaving spare circuit positions. They are designed for 2-wire SN 125 V a-c or 3-wire SN 125/250 V a-c. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

**OVERHEAD DOOR HARDWARE**

The 999 Overhead Garage Door Hardware Kit is designed to simplify the installation of overhead garage doors and to provide the convenience of balanced, quiet, smooth overhead doors at a minimum of cost. Hardware in the kit can be used on any door not more than 8 ft. wide, 8 ft. high, 1 1/2 in. thick, and weighing up to 200 lb. Only 1 1/2 in. headroom is needed. All parts are constructed to attach in sequence by fitting one part to the other. Steel weatherstrips are included, and latches are part of the bottom arm bracket which fastens to the door. Richards-Wilcox Mfg. Co., Aurora, Ill.

**THIN STEEL WALL COVERING**

Ribbon steel coated with porcelain is one of the newest things in wall coverings. Marketed in lengths of 100 ft., rolled, the material is said to be applied more easily than wallpaper.

A number of advantages are listed for the new-type "wallpaper"—ease of
"Owners are Satisfied"

...with Petro oil-heat economies

Of the many requirements to be met in planning a building's oil-heating system, two in particular deserve first consideration. Will the proposed equipment handle the heating load adequately? Will it do so economically — so the owner will be satisfied?

According to Mr. Nemeny, both questions are answered affirmatively when a Petro oil burner system is installed. Like so many other architects, Mr. Nemeny identifies Petro with fuel savings, reliable operation, inexpensive upkeep. He and the owners he serves enthusiastically endorse Petro fine performance — made possible by such exclusive features as Thermal Viscosity Control and the mechanical simplicity and sturdiness reflecting Petro's 45 years' oil-heat "know-how".

Petro equipment will meet your most exacting specifications — for any building!

INDUSTRIAL MODELS: No. 5 or No. 6 fuel oil; manual, semi-automatic or automatic operation; 8 sizes to 450 bhp. Thermal Viscosity preheating.

DOMESTIC MODELS: No. 3 or lighter oils; "conversion" and combination-unit types, 7 sizes. Patented "Tubular Atomization."

FULL DATA on Petro Industrial Burners obtainable in catalog files of Sweet's, and Domestic Engineering. Details on Petro Domestic Burners available in separate catalog. Copy of either sent gladly on request.

PETROLEUM HEAT AND POWER CO. • Makers of Good Oil Burning Equipment Since 1903 • Stamford, Connecticut

DECEMBER 1948
How To Specify A Fence That’s Better in 4 Ways!

ANCHOR CHAIN LINK FENCE

1. Deep-Driven Anchors hold the fence permanently erect and in line, yet can easily be relocated.
2. Square Frame Gates remain free from sagging and warping.
3. H-Beam Line Posts are rust-free, rigid and self-draining.
4. Square Terminal Posts improve strength, durability and appearance.

ANCHOR FENCE

Anchor Fence
Nation-wide Sales and Erecting Service

(Continued from page 186)

handling, for one. The thin steel sheet is only 0.010 in. thick with a 0.006 in. layer of porcelain on each side and can be cut readily with ordinary scissors. It is claimed not to buckle or wrinkle in any of the handling processes. Its backers say it is practically impossible to chip or crack the porcelain layers.

The new material is applied to any conventional flat surface, as plaster or plywood, with glue such as that used in laying linoleum. The seams can be covered with tack-on or snap-on moldings. These can be arranged to give depth and size to the room.

When installed, the steel "wallpaper" is reported impervious to heat, acids, rust, moisture, discoloration, and destruction by rodents. Cleaning requires only washing with a wet cloth, the manufacturers say, Baltimore Porcelain Steel Corp., Baltimore 3, Md.

ALUMINUM WALL TILE

One of the prominent features of Hastings Alumitile is said to be the application of precise color control — the finish of the tile is reported so carefully regulated that a perfect match in color can be made.

The bond between the baked-on finish and aluminum is said to be so permanent that the finish will not crack until the metal itself is torn.

Alumitile is claimed not to rust and to have a finish highly resistant to normal household acids. The tile is available in a variety of shapes and in 14 colors. Metal Tile Products, Inc., Hastings, Mich.

AUTO CLOSE DOORS

An automatically closing, insulated, swinging door is now being manufactured for protection of different plant areas from heat or drafts.

The metal-clad doors are designed to be pushed aside by running an electric truck or other heavy duty transportation conveyance: truck through them and to close automatically. The doors, operating without springs or air pressure control, lift slightly and move a two-way gravity cam which operates in a fully enclosed housing bolted to the upper portion of the side and head jambs. Return of the cam by gravity closes the doors.

Because they are designed to provide fire-resistance, and to withstand hard usage, it is believed that these doors will be particularly suitable in warehouses, railroad freight stations and manufacturing industries as well as hospitals, hotels and restaurants, Jamison Cold Storage Door Co., Hagerstown, Md.

W.T. GRANT CO.’S LARGEST STORE

heated by Smith-Mills Boilers

New W. T. Grant Co.
Store in Syracuse, New York.

The W. T. Grant Co. chain sells millions of dollars worth of goods in an average postwar year! It isn’t all gravy, however — overhead costs really eat into profits in these days of high break-even points!

But Grant management knows that some operating costs — like heating — can be cut to the bone . . . by selecting equipment that costs less to operate and maintain. That’s why over 200 Grant stores have installed Smith-Mills cast-iron boilers. As a result, they’re enjoying lower fuel bills, negligible maintenance costs — and better heating, to boot!

It always makes sense to specify Smith-Mills for commercial, institutional, and industrial installations. And when profits hinge on lowered operating and maintenance costs, it makes double sense.

Boiler room of the new Grant Syracuse Store, heated by two 24 section No. 60 Smith-Mills boilers, which fired by gas, deliver a total of 12,000,000 b.t.u.'s per hour.

H. B. Smith
CAST-IRON BOILERS

H. B. SMITH CO., INC.
67 Main Street
Westfield, Mass.

Offices and Representatives in Principal Cities

ARCHITECTURAL RECORD
Ready Now
Write for Your Copy!

Featuring
LIGHT CONTROL
SYSTEMS and
APPLICATION DATA
for
- Offices
- Schools
- Public Buildings
- Service Areas
- Churches
- Radio Studios
- Museums
- Hospitals
- Factories
- Outdoors
- Special Applications
  - Cranes
  - Test Cells
  - Sub-Stations
  - Spray Booths
  - and others

56 pages of authoritative, practical
information for architects and engi-
ners available without charge.

HOLOPHANE COMPANY, Inc.
342 Madison Avenue, New York 17
Please send us your New Datalog No. D-48 without
charge.

FIRM NAME ____________________________
ADDRESS ____________________________
INDIVIDUAL __________________________

DECEMBER 1948
ZINC SERVES YOU

Galvanizing (Zinc coating) insures long-time, low-cost service. For as long as iron or steel is coated with Zinc, it cannot rust. For satisfaction, use galvanized materials. They're "Sealed-in-Zinc" against rust.

TIME proves galvanized sheets stay stronger longer. Used for roofing and siding, they give buildings the "strength of steel," the rust protection of Zinc. The "Seal of Quality" (above) is your guide to economy in buying galvanized sheets. It means they carry at least 2 oz. of Zinc per sq. ft. Galvanizing also lengthens fence life and service.

Galvanized products in the railroad industry guard bridges, cars, buildings, etc., against rust.

Strength, workability and resistance to heat as well as rust make galvanized sheets ideal for heating and air-conditioning.

Free Booklets

Fully illustrated and packed with practical information on galvanized sheets and Metallic Zinc Paint. Send for them today!

AMERICAN ZINC INSTITUTE
35 East Wacker Dr., Chicago 1, Ill. Rm. 2504
Send me without cost or obligation the illustrated booklets I have checked.

☐ Repair Manual on Galvanized Roofing and Siding.
☐ Facts about Galvanized Sheets.
☐ Use of Metallic Zinc Paint to Protect Metal Surfaces.

Name ____________________________
Address ____________________________
Town ____________________________ State ____________________________

Steel-Frame Structures

Standard Buildings by Luria. Contains data and specifications on complete line of steel-frame buildings available with clear spans of 40 to 100 ft., cape heights of 12 to 20 ft., and lengths in increments of 20 ft. These standard buildings are flexible so as to be used singly or in any desired combination. 20 pp., illus. Luria Engr. Corp., 500 Fifth Ave., New York 18, N. Y.

Aluminum Windows

Kesko Architectural Aluminum Windows. Installation details and standard types available are shown for a line of aluminum windows designed for application in one-story industrial buildings, dairies, bottling plants, etc. 6 pp., illus. Kesko Products, Inc., Bristol, Ind.

White Fir Wood

White Fir of the Western Pine Region. Lists in detail the properties and grades of the species and its uses in the general construction and industrial fields. Full page pictures of typical pieces of each grade are accompanied by text material describing the illustrated examples.

Properties and uses sections are illustrated with photographs of white fir in actual use in residences, commercial buildings, cabinets, etc.

The book is indexed and carries a list of standard manufactured sizes and an alphabetical list of uses and recommended grades. 56 pp., illus. Western Pine Assn., Yeon Bldg., Portland 4, Ore.*

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

B.B.B. Impianti Speciali, Contractors, Viale dei Mille 19, Milano, Italy.

Darden Drafting Office, 735 S. Maine Street, Santa Ana, Calif.

David G. Hammarson, Architect, 702 Court Street, Janesville, Wis.

Hedell & Decker, Architects, 2715 Oak Lawn, Dallas 4, Texas.


D. N. McIntosh, Architect & Engineer, 513 Pigott Bldg., Hamilton, Ontario.

Rudolph A. Polley, Architect, 528 B Street, Oxnard, Calif.

Dale C. Robinson, B.M.E., Granby, Conn.

ARCHITECTURAL ENGINEERING

(Continued from page 174)

ARCHITECTURAL RECORD
Practical **Metal Roofing** Specification...

...calls for an economical, corrosion-resistant metal that is good for the life of your building

Long-lasting metal roofs are now within pocketbook reach of every client! And credit goes to the newly-developed, softer-temper Monel® Roofing Sheet, now available in a lighter gauge, U.S.S. #26 (.018" thick).

You can specify this soft temper sheet for nearly every type of roof work. Its properties make it a natural choice for skylight framework, penthouse siding, through-wall flashing, cap and base flashing, gutters, cornices and downspouts, as well as for complete roofs. (Note the illustration showing an original design for base flashing expansion joints and the photo of a patented interlocking through-wall flashing.)

Keep in mind, too, that Monel Roofing Sheet is just as adaptable to private urban and rural homes as it is to public and commercial buildings exposed to corrosive atmospheres and salt air.

Monel Roofing Sheet is strong and tough. It withstands corrosion, erosion and abrasion. Yet—thanks to its soft temper—it can be readily cut, bent, formed, seamed and soldered. Naturally, this means lower fabrication cost, lower installation cost.

A further saving for your client comes from the use of a relatively thin gauge—.018". This does the same job that a heavier gauge would, but does it more economically. And in any gauge, corrosion-resistant Monel has all the properties needed for a good roof. It has a low coefficient expansion. It's rigid. Isn't subject to fatigue cracking. Is unaffected by sudden temperature changes.

Getting this across to clients may have presented problems in the past. But it shouldn't now. We've written a booklet that tells the whole story in plain language. It's called ONE METAL ROOF...FOR THE LIFE OF YOUR BUILDING and all you need do is give it to your clients. The text, although short, contains full, nontechnical data. There are sketches and diagrams...and plenty of convincing photographs. There's even a sample of Monel Roofing Sheet in every booklet!

We'll send you as many copies of ONE METAL ROOF...as you can use. They're free, of course—but the edition is limited. Write for your copies now, using the handy coupon below.

**THE INTERNATIONAL NICKEL COMPANY, INC.**

67 Wall Street, New York 5, N.Y.

---

**Monel**...for the life of your building

---

**The INTERNATIONA L NICKEL Company, Inc.**

67 Wall Street,
New York 5, N.Y.

Please send me ___ copies of ONE METAL ROOF...FOR THE LIFE OF YOUR BUILDING, written especially for distribution to clients. I understand that this does not obligate me in any way.

Name

Firm

Address

City Zone State

DECEMBER 1948
In answer to the onrushing demand for the new know-how on functional store design, "Planning Stores That Pay" reveals the simple but scientific new techniques for deriving optimum store design organically from available financial data. Object: maximum per-dollar sales per square foot.

With this book architects can demonstrate to a store administrator, in his own language and figures, the economic soundness of their "engineered" design, and thereby relieve his basic worry, and clear the way for greater freedom in the conception of decor.

For Every Store That Needs Replanning
"Planning Stores That Pay" is a huge compendium of live new case histories, rounded up from America's most dollar-minded stores and from the works of the most celebrated architects. Illustrated with 500 photographs, diagrams, tables and charts.

Here you explore every detail of a modern store and its arrangements — entrances, arcades, show windows, circulation and transportation systems, furniture and fixtures, receiving and shipping facilities, floor and department layouts, display arrangements and lighting, and all the hundreds of items that go to make up a modern merchandising machine. . . Then in an invaluable presentation of Scientific Surveys and Data you find the ultimate key to the over-all scheme of moulding store design for maximum net profit.

A Basic and Comprehensive Textbook
This basic and comprehensive new textbook is applicable to the replanning of the backlog of myriads of stores now known to be architecturally obsolete. 300 pages, 8 1/2 x 11 1/4; 80-lb. coated stock. Heavy cloth binding. Detailed Table of Contents. Comprehensive Index. $15.00
"The Last Lath"
by Alan Dunn

An album of 152 cartoons. For many years the readers of ARCHITECTURAL RECORD have laughed at the sly and intimate cartoons of Alan Dunn. "The Last Lath" is a selection of 152 of his cartoons on architecture, building and real estate. 96 pages, 8 x 10, with a black and yellow picture jacket. $2.50

"If these cartoons don’t strike you as funny, then you’ve never built a house, or even lived in one." — San Francisco Chronicle.

"If a housewarming present is puzzling you, this is the answer."
— New York Herald Tribune.

"The Restoration of Colonial Williamsburg"

The Greatest Adventure Story in the Annals of Architecture

How architects trained in Egyptian archeology forced the secrets of the sumptuous lost capital of Colonial Virginia...discovered "this incomparable monument to early American history and art"...and reconverted it into a going community!

The modern Mecca for Americans is pictured with 125 illustrations, including a portfolio of radiant photographs by F. S. Lincoln. This celebrated 104-page reprint, 9 x 12, bound in heavy cloth, is now available at the mass production price of $2.50.

Additional Titles:

ARCHITECTURAL GRAPHIC STANDARDS
by Ramsey and Sleeper $6.50

SIMPLIFIED ENGINEERING FOR ARCHITECTS AND BUILDERS
by Harry Parker 3.25

ENGINEERING CONTRACTS AND SPECIFICATIONS
by Robert W. Abbott 3.75

HANDBOOK OF BRICK MASONRY CONSTRUCTION
by John A. Mulligan 5.50

ARCHITECTURAL SPECIFICATIONS
by Harold Sleeper 12.00

ARCHITECTS AND BUILDERS HANDBOOK
by Frank Kidder and Harry Parker 8.50

BUILDING CONSTRUCTION ESTIMATING
by George H. Cooper 3.00

RADIANT HEATING
by T. Napier Adlam 6.00

THE HOUSE FOR YOU
by Catherine and Harold Sleeper 5.00

ARCHITECTURAL RECORD'S monumental 10-year collection of basic data on architectural design, engineering data, materials technology and building practice. 277 complete "Time-Saver Standards" as selected month by month for publication from the masterworks of the nation's leading authorities.

"Time-Saver Standards"

Experience shows that a single item in "Time-Saver Standards" can save hundreds of dollars in economy construction and many hours of your own valuable time. Advantages are two-edged: (1) "Time-Savers" to streamline the drudgery of the planning board and (2) "Standards" against which to check the work of designers, draftsmen, and specifications writers.

This famous reference work may pay for itself the first time you open it. Eventually it may prove to be worth a year's income or salary. That is why many architects buy extra copies and send in multiple orders. Many firms have more than 25 copies. Almost as many copies have been sold as there are architects. Yet orders still pour in at the rate of 500 a month. That is why you cannot afford to be without a copy.

The wealth of basic data on 656 pages, with 1000-plus illustrations, is quickly and easily available via the 4-page Table of Contents...and the 12-page Index with its 1700 subject entries! $12.00

Personalize each book you give with your autographed greetings on the flyleaf

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
<th>Copies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Stores That Pay</td>
<td>$15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time-Saver Standards</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Planning</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Last Lath</td>
<td>2.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restoration of Colonial Williamsburg</td>
<td>2.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other titles:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plus 2% sales tax for delivery in New York City</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I inclose $__________

Name ____________________________________________

Address __________________________________________

City ____________________________ Zone ______ State ________

DECEMBER 1948

193
THE
OWNER-BUILT
HOUSE TAKES AFTER
ITS OWNER

Some houses are merely living quarters. But the owner-built, owner-occupied house is an expression of individual taste... outstanding for its expert design and exacting construction.

House & Garden readers to a large extent are owner-builders. Their choice is the final choice in blueprints, materials... installation, equipment. Brick or stone, steam or radiant heat... their okay decides the purchase. Leading families with leading incomes, they influence the selections of others... set the building trends of the future. These people are important to you because theirs is the power of decision... the power to specify your product.

79\% of House & Garden readers live in a house
78\% own their home

House & Garden
...for the OWNER-BUILDER market
Move a General Electric Central Plant Air Conditioner right through a 30" door. Smaller sizes can go through completely assembled...larger sizes in sections. Install it exactly where you want it. It's quick and easy because this G-E equipment is compact...and because its pre-matched sections can be arranged 28 different ways!

This "building block" design applies to both the new vertical and horizontal models which cover a cooling range from .8 to 58 tons...and a heating range from 28,100 to 1,310,000 Btu's per hour. A complete line of heating coils is available.

The G-E Central Plant Air Conditioner is light in weight but rigid and sturdy due to its welded sheet-steel construction. That means it's easy to handle, inexpensive to ship.

The free booklet offered in the coupon below will give you further details...or contact your G-E air conditioning representative for full information.
Get Guaranteed Dimensional Stability

with The New Weldwood Flush Veneer Door

New Mineral Core and Precision Manufacture give Weldwood Flush Veneer Doors Extraordinary Dimensional Stability

These beautiful new wood-faced doors always measure up. They won't swell in summer . . . won't shrink in winter.

The new mineral core of the Weldwood Flush Veneer Door gives it such a degree of dimensional stability that we back it with the most sweeping guarantee ever given by any manufacturer.

Weldwood Doors are guaranteed against warpage or binding in opening due to any dimensional changes in the door.

Here indeed is a superior door. Just go over this checklist of advantages:

1. PERMANENT BONDING of veneers to core and banding with TEGO Film Waterproof Glue by hot plate process.
2. VERMIN AND DECAY PROOF mineral core resists fungus, decay and termites for the life of the structure.
3. INSULATING PROPERTIES are superior to double glazing, such as opening protected by storm door . . . when door is installed in an exterior opening with weather stripping.
4. EXCELLENT VAPOR BARRIER. TEGO Film Phenolic Glue bond provides a completely effective moisture barrier.
5. INCOMBUSTIBLE MINERAL CORE. Core has a fibrous binder with a nominal density of 20 lbs. per cubic foot. This material has a sturdiness which assures proper performance of door under the most severe conditions.

We'll be glad to rush you full specifications on this new door. Write or contact our nearest branch.

UNITED STATES PLYWOOD CORPORATION
55 West 44th Street, New York 18, N. Y.

Distributing units in Baltimore, Boston, Brooklyn, Chicago, Cincinnati, Cleveland, Detroit, Fresno, High Point, Los Angeles, Milwaukee, Newark, New York, Oakland, Philadelphia, Pittsburgh, Portland, Ore.; Rochester, San Francisco, Seattle. Also U. S.-Mengel Plywoods, Inc., distributing units in Atlanta, Dallas, Houston, Jacksonville, Louisville, New Orleans, St. Louis, Tampa.


ARCHITECTURAL RECORD
When home-owners see the name "Kohler" on plumbing fixtures, they know the answers to many important questions. The Kohler reputation for first quality assures them that besides the beauty and harmony they admire, there is the highest degree of practicality, serviceability and durability.

In the illustration Kohler fixtures are placed in relation to other facilities so that comfort and convenience combine with a well-balanced effect. The fixtures come in pure white or delicate pastel shades.

The Cosmopolitan Bench Bath has a base of non-flexing iron, cast for rugged strength and permanent rigidity, and coated with lustrous, glass-hard, easy-to-clean Kohler enamel. The efficient Triton shower fitting is shown with the Niedecken Mixer. The Gramercy lavatory, with roomy shelf, is made of highest quality vitreous china. All the fittings are of chromium-plated brass, precision-made and convenient to use. Kohler quality is a 75-year-old tradition.

Kohler Co., Dept. 7-C, Kohler, Wisconsin. Established 1873.
Steel pipe is first choice

—for giant housing developments

The colossal Parkchester development in New York is one of the great experiments in modern housing. As it commands national attention for its daring conception and modern construction, likewise the materials, products, and equipment which compose it assume national interest.

Adequate and strictly modern plumbing and heating facilities play a vital role at Parkchester. Steel pipe, of course, is the predominant medium for the transmission and distribution of these services. So it is in all forms of modern housing, right down to the cozy cottage in the suburbs!

Architects, builders, plumbers, and heating contractors know that steel pipe is durable, adaptable, serviceable and economical. That’s why, for conventional steam or hot water heating, or for the new and growing radiant panel heating...as well as plumbing supply lines, too...the overwhelming percentage of all pipe used is steel pipe.

That’s proof. Steel pipe is first choice!

The interesting story of "Pipe in American Life" sent upon request.

COMMITTEE ON STEEL PIPE RESEARCH

OF AMERICAN IRON AND STEEL INSTITUTE
350 Fifth Ave., New York, N. Y.
The New Kno-Draft Ceiling Smudge Control

Now you can control tough smudging problems. When exceptionally sooty, smoky or dusty air conditions are expected, or where rough textured, dirt-catching ceilings are employed, Kno-Draft Anti-Smudge Cones give the utmost in protection—and increase the attractiveness of the diffuser besides.

How it works

Under normal conditions, all Kno-Draft dif-fusers can be adjusted so that their specially de-signed deep shoulder rims will deflect the dis-charge air away from the ceilings and prevent smudging. However, under the abnormal con-ditions mentioned above, the use of Kno-Draft anti-smudge cones is recommended. They fur-nish the additional control which will enable you to provide the precise minimum separation of the discharge air from the ceiling that you need to inhibit smudging and, at the same time, maintain the radial air diffusion pattern you need to eliminate drafts.

What we can do to help

W. B. Connor Engineering Corp. maintains a research laboratory with a staff of trained spe-cialists and district representatives in leading cities. Their services are at the disposal of con-sulting engineers, architects, air conditioning dealers, and plant engineers. They can assist you in getting the best possible performance out of your air conditioning system by creating cus-tom-made air patterns which thoroughly mix room and supply air, eliminate drafts, and main-tain uniform temperature throughout an area.


FREE HELPFUL LITERATURE

- Bulletin K-22—Contains complete details on the new and exclusive Kno-Draft Anti-Smudge Cone.
- New Handbook on Air Diffusion—Contains all the engineering data necessary on air diffusion in general and Kno-Draft Adjustable Diffusers in particular to enable you to create "custom-made" air patterns and eliminate drafts.

W. B. Connor Engineering Corp.
Dept. S-108, 112 East 32nd Street
New York 16, New York

Please send me the free literature I have checked above.

Name

Company

Street

City... Zone... State

W. B. Connor Engineering Corp. 
Air Diffusion • Air Purification • Air Recovery 
112 East 32nd Street New York 16, N.Y.

IN CANADA: Douglas Engineering Co., Ltd., 180 Murray Street, Montreal 3, P. Q.
Here's an architect who knows how to please his clients and simplify his job of writing specifications at the same time! He's the fellow who checks over his plans, notes the rooms in which colorful, practical interiors are needed, then simply specifies Marlite plastic-finished wall and ceiling panels. To make the job complete, he specifies Marsh Mouldings and Marsh Adhesives and, in bathrooms and washrooms, Marsh Bathroom Accessories.

Genuine Marsh products offer every architect an opportunity to simplify specifications on new construction or modernization, in every type of building where beautiful, durable interiors are required. Complete information is available in SWEET'S FILE, ARCHITECTURAL, or direct from the factory.

MARSH WALL PRODUCTS, INC.
1205 Main Street * Dover, Ohio

MARLITE PLASTIC-FINISHED WALL AND CEILING PANELS

MARSH MOULDINGS

MARSH BATHROOM ACCESSORIES

MARSH ADHESIVES

MARLITE POLISH

MARSH CAULKING

for Creating Beautiful Interiors
Foyers, display rooms and offices take on new life and glowing beauty with the installation of Federal Cell-Ceil, the most modern lighting treatment. This beautiful overall ceiling louvering is easy to install. The light-weight sturdy hanging mechanism developed for Cell-Ceil not only speeds up application but provides such easy access for relamping and cleaning that continued satisfaction to the client is assured.

Wherever you specify Federal Cell-Ceil you assure those who work and live under this louvered ceiling a soft diffused light. With all direct glare reduced and bad effect of sharp shadows eliminated, uniform lighting is provided that allows better easier-on-the-eye seeing.

The Federal engineering staff will gladly advise on any installation problem. Our technical bulletin on installation techniques is also available, address Dept. CC9.

*Trade Mark "Cell-Ceil" applied for.
Lasting strength and a lifetime of good looks...

That's why to specify ALLEGHENY METAL

ALL THE LEADING FABRICATORS USE ALLEGHENY METAL

... every type of equipment you may need is available in this lustrous, lifetime-lasting stainless steel. Full information, prices, etc. are yours for the asking—either from the fabricator, or write us direct.

ADDRESS DEPT. AR-70

Everything that you want most, you get in equipment made of the time-tested stainless steel, Allegheny Metal. Stainless steel combines corrosion-resistance, great strength and hard-surfaced, long-wearing qualities to a degree actually unequaled by any other metal. That means it not only looks better and retains its bright beauty longer, but also cleans easier and reduces your maintenance and depreciation costs to a whisper.

Yes, Allegheny Metal equipment gives you maximum service life and stamina—it protects the purity and quality of products—and best of all, it saves you money in the long run.

1. Next time you buy equipment, be sure it's built of Allegheny Metal, the pioneer stainless steel—it pays!

ALLEGHENY LUDLUM STEEL CORPORATION
Pittsburgh, Pa.

Nature's Leading Producer of Stainless Steels in All Forms

ALLEGHENY METAL is stocked by all Joseph T. Ryerson & Son, Inc. warehouses
It's New! It's beautiful! It's the last word in heating comfort . . . the New Modine Convecto

It's the new way . . . the better way to heat the modern apartment, new home, school, office or hospital. Yes, Modine Convectors are functionally styled to complement modern taste in interior design. Modine gives you entirely new installation, control and maintenance features that make it one of the greatest forward steps in radiation. Call your Modine representative. He's listed in the "Where-to-Buy-It" section of your phone book. Or write direct for complete details. Modine Manufacturing Company, 1510 Dekoven Avenue, Racine, Wis.

Modern Modine Convectors are available in four distinctive cabinet styles plus a wide range of modular sizes. For recessed, free-standing or wall-hung installations.
Available

Again

TIME-SAVER
STANDARDS

Architectural Record's
ten-year collection . . .
all in one volume

IN RESPONSE to insistent demand for more copies, here, reprinted again in one volume of encyclopedic size, are virtually all the Time-Saver Standards ever published — 277 of them — exactly as they appeared originally in Architectural Record and American Architect during the past ten years — with one 12-page master index!

Just off the press, for immediate delivery to you, is this work of 656 pages, with a mailing weight of 4½ lbs., containing a complete collection of these now famous authoritative monographs on technical aspects of construction dealing with

- Architectural Design
- Materials Technology
- Engineering Data
- Building Practice

Designed for the practical guidance and every-day use of architects, engineers, specification writers and building technicians, TIME-SAVER STANDARDS will bring you a wealth of detailed information on design and building practice . . . carefully selected from the works of the nation's leading building designers and engineers.

Well-Organized 12-page Index

This wealth of data is carefully organized and painstakingly presented. It is so thoroughly indexed that there are 1,856 references and cross-references . . . occupying twelve pages of closely set print.

Experience shows that a single item in TIME-SAVER STANDARDS can well save hundreds of dollars in economy construction . . . save many hours of your valuable time. Yet you can now place this concise and well-organized planning data at your command for the nominal sum of $12.00 — provided you act now.

Order Your Copy Now

The first printing of TIME-SAVER STANDARDS last November was sold out almost before publication. Now an unanticipated flood of orders — for extra copies and multiple copies — on top of new orders indicates the second printing will soon be snapped up.

So get your copy now. Don't get caught on a long waiting list. Simply fill out the coupon at right, attach your check or money order for $12.00, and mail today. Your copy will be rushed to you without delay.

Second Printing

277 Time-Saver Standards —
656 Pages; 12-Page Master Index; Size 8½ x 11.
More than 1,000 illustrations, charts, diagrams

These telecopic outlines of only a very few of the 277 Standards give a quick idea of the detailed treatment accorded each subject.


ARCHITECTURAL RECORD Book Department
119 West 40th Street, New York 18, N. Y.

Enter my order for ——— copies of the second printing of the 656-page TIME-SAVER STANDARDS at $12.00* a copy. I enclose $——

*Add 24 cents for New York City delivery — $12.24 in all.

Name
Address
City Zone
State
NOW YOU CAN EQUIP THOSE INTERIOR METAL DOORS WITH EFFICIENT, LOW-COST LCN CLOSERS CONCEALED-IN-DOOR

This closer has actually been used and tested in the field for over two years with results more than fulfilling all expectations of the designers.

Its powerful mechanism is entirely concealed within the top rail of the door. It handles any interior metal swing door up to 3' 6" x 7' x 1\(\frac{3}{4}\)", and will operate efficiently under common conditions of internal draft and heavy traffic. It incorporates back-check and hold-open devices; yet it costs little more than an LCN exposed closer of similar capacity. Descriptive folder 304-a promptly sent on request. Address LCN Closers, Inc., 466 West Superior Street, Chicago 10, Illinois.

As both door and frame are previously blanked out by the door fabricator to template details, the LCN 304 closer is easily slipped into place and secured with machine screws. On-the-job work is reduced to a minimum; the total cost cut accordingly.
Combination Screen and Storm Sash

Your clients will enjoy these benefits the year 'round:
1. Storm sash, screens and weatherproofing in one permanently installed unit
2. Nothing to change, nothing to store
3. No seasonal refitting or repairing
4. Rainproof, draft-free, filtered-screen ventilation
5. A cleaner, more healthful and safer home
6. Up to 1/4 less fuel requirements

Patented THERMOLOK® CLOSURE FRAME
Assures permanent, weather-tight fit and perfect alignment because it automatically adjusts to expansion, contraction and settlement.

Your specification of Thermoseal Windows assures your client of all these benefits ... plus the advantage of reducing heating requirements.

Consult Sweet's Catalog File for Architects or write direct for literature.

Thermoseal Division
THE F. C. RUSSELL COMPANY
DEPARTMENT 2ARA128
CLEVELAND 1, OHIO

PROGRESS Says "DELANY FLUSH VALVES"

The American way of life is the Delany way. Cleanliness, comfort and the initiative to utilize every means to obtain them.

The picture above is indicative and combined within these beautiful and comfortable homes—the proof—a flip of a switch will heat, cool and light and in addition, every work saving device is present.

The installation of the Delany Valve and Vacuum Breaker harmonizing with all of the above completes the home. Requiring only a light finger tapping to manipulate, producing a instantaneous action with a speedy cycle of operation (6 seconds) obtaining a passive clean elimination of all waste, definitely doing away with all personal annoyances. The water economy, long lasting efficiency and freedom from break-downs of the Delany Valves and Vacuum Breakers over past counted units of domestic sanitations for the fulfillment of the American way of life.

Coyne & Delany Co.
SINCE 1879
BROOKLYN N.Y.
FLUSH VALVES · VACUUM BREAKERS · PLUMBING SPECIALTIES

In Canada: The James Robertson Company, Limited • MONTREAL • TORONTO • ST. J.
Why specify ordinary interior finishes—when FABRON offers so much more ...at comparable cost?

What other interior finish can give you the long-term durability of FABRON ... its positive protection against plaster cracks ... its easy washability ... its positive protection against fire spread— and still remain within the limited budgets that confront most institutional projects today?

As far as initial cost is concerned, FABRON is available for institutional construction at a cost that need be little—if at all—higher than that of a good quality 3-coat oil paint treatment. Even more important to the client, however, is the proven fact that FABRON outlasts several ordinary redecorations. By eliminating the inconvenience and expense of frequent redecorations, FABRON assures substantial operating economies ... begins paying for itself the very first time an ordinary finish would require re-doing.

FABRON's superiority has been demonstrated by years of service in more than 1000 hospitals ... a similar number of hotels ... countless schools, colleges, apartment houses, etc. Before specifying the interior finish for your next institutional project, be sure you have all the facts about FABRON. Mail the coupon today.

FABRON is supplied in roll form and consists of a canvas backing to which have been bonded layers of plastic, topped off by lacquer colors. It is applied as easily as wallpaper. More than 180 patterns and colors permit a decorative latitude unmatched by ordinary interior finishes. Our Advisory Department will gladly cooperate in estimating costs, establishing color schemes, etc., from blueprints. Cost free, of course.

FREDERIC BLANK & CO., INC.
230 Park Avenue, New York 17, N.Y.

DECEMBER 1948
LEADING ARCHITECTS SPECIFY TECO RAFTERS

FREE copy of "Clear Span Teco Trussed Rafters in Modern Home Planning" has been prepared for architects, designers, contractors, builders and financial institutions.

TIMBER ENGINEERING COMPANY
1319 - 18th St., N. W., Washington 6, D. C.

Gentlemen:
Please send FREE copy of AIA File 19-B, "Modern Home Planning".

Company Name .................................................................
Address .................................................................
Your Name .................................................................

A.R. 11-12-48

MILLS & PETTICORD
AND ASSOCIATES
ARCHITECTS & ENGINEERS
August 5, 1964

Timmer Engineering Company
1319 18th Street, N. W.
Washington, D. C.

Gentlemen:

We would like to take this opportunity to advise you that since, Virginia, Teco trussed rafters because of their simplicity, which means economy.

With only four basic wood members, we were able to save both material and labor, thus saving money for the Owner.

Also, the clear spans permitted flexibility of interior partitions, which are normally secured with non-permanent joints and rafters.

Very truly yours,

[Signatures]

ARCHITECTURAL RECORD
FROM specification to installation, utter simplicity marks this new Herculite Door-Frame Assembly. In ordering, all you do is specify "Herculite Door-Frame Assembly" and give the style number and size needed. There are twelve standard designs from which to choose, affording unusual versatility and adaptability to many varied requirements. And the ease with which these frames are handled appeals to all — architects, contractors, chain store executives, and retail merchants.

Using special checking gauges to assure the accuracy of all dimensions, these factory-built (no assembly is necessary on the job) units meet the highest standards of fabrication. Architectural styling has been combined with structural and mechanical engineering to produce frames that are handsome, well constructed. They are built of special shapes and of heavy extruded aluminum, heavily reinforced with structural steel. They are supplied complete with Pittco Checking Floor Hinge, moldings for transom glass, supports for sidelights, strikes for locks, sockets for bolts, and thresholds when specified.

Why not get the full story on this revolutionary door-frame? Simply fill in and return the coupon below for your free copy of our booklet. Do it now.

Only 6¼" x 6¼", the Pittco Checking Floor Hinge provides positive door speed control, a separate checking control, and a built-in hold-open feature. It is sealed in oil for life. Case and cover are drop-forged. Main working parts are hardened and ground tool steel. Bearings are anti-friction, precision-ground.

This sectional view illustrates the handsome, rugged design of the frame. Made of extra-heavy extruded aluminum, highly polished and anodized, it is heavily reinforced with steel channels and tie rods as partially shown here.

Pittsburgh Plate Glass Company
2463-8 Grant Building, Pittsburgh 19, Pa.

Without obligation on my part, please send me a copy of your free booklet on "Pittsburgh's" new factory-built Herculite Door-Frame Assembly.

Name.

Address.

City_________________________ State______________________
Infra Insulation Is
Never A Wet Blanket

Excludes Unwanted Heat, Cold or Vapor—Never Retains Them

Infra Accordion Aluminum Insulation neither absorbs, retains, nor is harmed by moisture. Fireproof, it will not swell or warp, is effective at any temperature. One carton, 2½ cubic feet of Infra, provides 1000 square feet of insulation. Infra is easy to unpack and install.

Read the following quotation from a paper by a renowned authority on Insulation, Prof. G. B. Wilkes of the Massachusetts Institute of Technology:

"Due to its light weight, the heat storage capacity is very low and consequently, a wall or roof, insulated with aluminum foil will tend to reach thermal equilibrium with the surroundings quicker than one insulated with the heavier types of insulation. Under summer conditions, with a falling temperature at night after a hot day the roofs and ceilings of a home insulated with foil will tend to cool more rapidly than if they were insulated with heavy materials.

"The reverse is also true, a foil insulated structure will tend to heat quicker than one insulated with ordinary insulation."

Thermal Factors Stamped on Every Infra Carton

Infra C Factors and Rockwool Equivalents
C.052 Heat Flow Down, equals 6” Rockwool.
C.083 Heat Flow Up, equals 3.97” Rockwool.
C.10 Lateral Heat, equals 3-1/3” Rockwool.

WRITE FOR FREE 32-Page BOOKLET:
"Simplified Physics of Thermal Insulation"

Architects and engineers use it as a handbook, and colleges as a text, on heat transfer, condensation, vapor, mold, radiant heating, etc. Contains chart of k, C, R and U factors of all insulations, of all thicknesses, weights, densities.

Address Dept. AR

MULTIPLE ACCORDION ALUMINUM & TRIANGULAR REFLECTIVE AIR CELLS

Infra INSULATION, INC.
10 Murray St., N. Y., N. Y.

The Restoration of Colonial Williamsburg

A Reprint of the December, 1935 Issue of ARCHITECTURAL RECORD

The Colonial Williamsburg Number of ARCHITECTURAL RECORD —issue of December 1935—was sold out soon after publication but the entire editorial contents have been reprinted and bound in permanent book form with blue cloth covers.

Many thousands of these Williamsburg reprints have been sold but the demand continues unabated.

104 pages, bound in cloth $2.50 per copy

ARCHITECTURAL RECORD
119 W. 40th Street, New York, N. Y.

Enclosed is $ ........... for which send ......... copies of your reprint, THE RESTORATION OF COLONIAL WILLIAMSBURG, bound in cloth, at $2.50 per copy. (Add 2% Sales Tax for New York City deliveries.)

Name: ..................................................
Address: .............................................
City and State: .............................. A.R. 12-48
Pattern in Steel

This huge concentration of steel is the framework for Florence Nightingale Hospital, in upper Manhattan. Owned by the Department of Hospitals of the City of New York, the ten-story, 331-room structure will have facilities for 307 patients, and will include research laboratories for the study and control of cancer. Its two lower stories are to be finished with granite ashlers, while facing brick with limestone trim has been chosen for the remainder of the building.

As in scores of hospitals and other impressive structures now being erected in widely scattered areas, the framework for Florence Nightingale Hospital is comprised of Bethlehem Structural Shapes.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation
There's strength and to spare in a NORTON Door Closer for controlling stout doors in whipping winds and sudden drafts. Yet NORTON closes a door gently as a dove, firmly but with finesse. That's because NORTON is built to do a heavy job easily. And that's why, for entrance or inside installations, with a NORTON it's easy up and trouble free for a long life of service.

CHENEY FLASHING is again being made by the original inventor who pioneered the art of thru-wall flashing eighteen years ago. No thru-wall flashing can operate successfully unless it has the two very important features that are found in CHENEY FLASHING — proven weep-hole drainage and the three-way bond, vertical as well as longitudinal and lateral.

Remember, the inferior two-way flashings, crimped copper and membranes, have neither the vertical bond nor do they drain moisture from the wall fast enough. Furthermore, their first cost advantage has disappeared because today Cheney Flashing is no longer a specialty — it's a standard commodity.

"Hospital Planning" features the new and unprecedented facilities demanded by revolutionary new techniques in hospitalization. It poses actual problems and shows how they were solved. Here is an exhaustive analysis of the most striking features of 51 modern hospitals — representing the work of 30 celebrated architects — culminating in hundreds of case histories of ideas proved exceptionally successful.

Illustrating the clear, simple text are 32 photographs, 11 site plans, 187 floor plans, and 38 special unit plans of rooms, wards, departments and numerous construction details. 232 pages, 9 1/2 x 11. Stiff cloth binding. Thoroughly indexed.
Meets the Exacting Requirements of Scientific Research...

In determining the best method of air diffusion for the new Searle Laboratory buildings, the architect, air conditioning engineer and company officials made the same decision that have many other builders of scientific research laboratories throughout the country. They specified low velocity, pressure displacement air diffusion through perforated ceiling distribution plates of large area.

This method of air diffusion, which is patented and exclusively manufactured by the Multi-Vent Division of the Pyle-National Company, has many important advantages over all others on the market today. Although much larger volumes of air can be delivered without excessive air motion (i.e. drafts) or friction noise, the air volume usually required to handle a given load is greatly reduced by the use of much larger diffusion temperature differences without disturbing temperature uniformity between floor and head level. Thus Multi-Vent can achieve an uncomparable uniformity of temperature and humidity, with substantial savings in the tonnage of basic air conditioning equipment, because of its low velocity, wide-spread and rapid diffusion characteristics.

Multi-Vent installations are simple, quick to balance and easy to clean. They have been applied with unexcelled results to almost any type of building, new or old, and are particularly well adapted to the lower ceilings of modern architecture.

THE G. D. SEARLE COMPANY'S Biological Laboratory Building, Skokie, Illinois, illustrated above, is the first of a series of air conditioned buildings to be constructed by this renowned pharmaceutical house in their extensive postwar expansion program. Multi-Vent panels have been specified throughout for air diffusion. Architect—Herbert Banse. Consulting Engineer—E. P. Heckel and Associates.
Invizie says:

"GRAND RAPIDS
INVIZIBLES
are easy to sell
because—"

1. Most people want windows that can be opened or closed at will, according to the seasonal or individual room requirements. Invizible Sash Balances completely satisfy this desire.

2. Most people want windows that open smoothly, quietly and with minimum effort. The enclosed mechanism of Invizible Sash Balances provides this kind of window operation at its very best.

3. Most housewives prefer windows that are easy to keep clean and neat. With Invizible Sash Balances, there are no cables, tapes or exposed tubes to catch dust or paint.

4. Most people want full view windows including multiple and corner installations with modern narrow trim. 'Invizibles' are the most practical balances for double-hung windows of every type."

---

Now Available!

COPPER ARMORED
SISALKRAFT

Strong, flexible, easy to apply! For door and window flashing, as shown, 6-10 or 12 in. Copper Armored Sisalkraft in 1 oz. weight is recommended.

PURE COPPER PROTECTION
at 1/5 the NORMAL COST!

Copper Armored Sisalkraft is pure electro deposit copper reinforced with thousands of crossed sisal fibres and bonded with two layers of special asphalt to heavy kraft paper. Uniform, lightweight, will not kink, break or tear. 100% impervious to moisture. For all concealed flashing and foundation damp-coursing. Available in 6" to 60" widths, copper weights of 1, 2 or 3 oz. per square foot.

Write for complete information.

The SISALKRAFT Co.
205 W. WACKER DRIVE DEPT. AR CHICAGO 6, ILLINOIS

STOP

that WATER
with FORMULA #640

A Clear Liquid Waterproofing
for Old or New Construction

PENETRATES deeply—one inch or more—is not a surface treatment. Brush, spray, or float on stone, cast stone, concrete, mortar, stucco, tile, brick, plaster, wood, wall board—any absorbent material.

WATERPROOFS, preserves, prevents dusting of floors, surface dirt washes away in rain.

FORMULA No. 640 is a balanced formula of seven different waxes and resins in a hydrocarbon solvent.

ACID-ALKALI proof — does not oxidize, unchanged by temperature.

PERFORMANCE — It is our opinion it will last as long as the concrete, mortar, stucco, etc., lasts.

OIL PAINT saporns on cement unless sealed first with Formula No. 640.

APPLY to either side: The pressure side, or opposite side — it is equally effective.

HYDROSTATIC PRESSURE — A foot head has been held by Formula No. 640.

CUTS WATERPROOFING COSTS
because it applies three times as fast as paint, requires no special technique. No preparation — comes ready to apply. Eliminates necessity of fnuring. Concrete floors and walls need no membranning.

KEEPs IN ALL CLIMATES — HARMLESS TO USE
GOOD COVERAGE — MODERATE PRICE

WRITE OUR ENGINEERING DEPARTMENT for office test kit, technical data, or regarding any special problem.

J. Wilbur Haynes, Engineer

OTHER PRODUCTS: Formula No. 640 Black, combines waterproofing with tenents and fungus protection; cement hardener; cement paint; floor mortar; roof coatings, etc.

HAYNES PRODUCTS CO.
4007 FARNAM STREET • OMAHA 3, NEBRASKA

---

ADVERTISED TO 134,445,040 READERSHIP IN NATIONAL MAGAZINES

BALANCE 100%
concealed in the sash... no tapes... no cables.

EASY TO INSTALL ... just drive in two fasteners...screw in one screw.

10 SIZES FIT 95% of all new and old windows... completely interchangeable.

GRAND RAPIDS SASH PULLEYS
No. 103 face plate, cone bearing type, and Nos. 175, 100, 110 saw-tooth drive type sash pulleys cover 95% of all sash pulley requirements.

GRAND RAPIDS HARDWARE COMPANY
GRAND RAPIDS 2, MICHIGAN
Quality leaders in Sash Hardware for over 50 Years
Adaptable to any firing method, the "300" Series National Heat Extractor Boiler, for steam or hot water, assures continuous heating comfort. It can be installed as a hand-fired unit and later converted to automatic firing to take advantage of changing fuel supplies. The "300" Series is particularly suited to larger homes, small apartments and commercial buildings. Radiators, convectors, unit heaters, baseboard heating units or radiant panels can be used with the "300" Series to form a complete and modern heating system.

Durable cast iron construction, multiple-flue sections, extended heating surface, extra thick insulation, special baffles (for oil and gas firing) and an attractive jacket are some of its unique features that add up to heating satisfaction.

Domestic hot water, year 'round, is another convenience of the "300" Series, offered by the easy addition of an integral tankless type or storage type National Water Heater.

For complete information on the "300" Series Heat Extractor—or the similarly designed "100" and "200" Series for smaller installations or the "400" and "500" Series for larger installations—phone our nearest office or write to us at Johnstown.
For homes, offices, churches, schools, and public buildings of all kinds, there's nothing like Corinco Cork Flooring. It's quiet. It's beautiful. It keeps its resilience for years. It's easy to install on either old or new construction, on metal, concrete or wood. It's easy to maintain—with an occasional dusting. No wonder so many far-sighted architects and contractors are giving their clients the benefits of this versatile flooring. Write our engineering office for specifications, details and layouts.
Performance values, not possible with other type windows, result from this “folding” feature of Sealuxe Browne Folding-Type Windows.

Sash members of a Browne Window fold open. Do not slide open. No need to provide tolerance for easy operation. Sash members fit accurately and permanently.

Permanent resilient wool felt weatherstripping makes an airtight and dust-proof window when closed.

Sash can be bowed open outwardly, with no opening at sides, forming flue that creates draft-free ventilation even in foul weather.

Sash can be easily set at any width opening desired; will not move under wind pressure.

Both sides of glass can be quickly cleaned from room-side; eliminates cost and hazards of outside window washing.

Sealuxe Browne Folding Type Windows are available in standard and custom-built sizes. Aluminum or bronze; Underwriters’ Model in steel.

Come in several models including the escape-proof and prowler-proof Psychiatric Model.

There is only one Browne Folding-Type Window. It is manufactured exclusively by Universal Corporation.

Write for Catalog
Use Our Service on Window Problems
See our catalog in Sweet’s Architectural File or write us direct. Our Department of Design and Engineering is qualified and eager to work with you.
SAFEGUARD
your clients’ building investment with
CZC-pressure-treated wood
(Chromated Zinc Chloride)

You can make the “vulnerable 20%” of a frame house last indefinitely by specifying wood treated with Du Pont Chromated Zinc Chloride. This means building for permanence—years of additional service for the entire structure—a minimum of replacement and maintenance costs. Wood treated with CZC (Chromated Zinc Chloride) gives 3-way protection because it:

1. RESISTS DECAY—Prevents growth of fungi which cause decay, even in buildings with high humidities.
2. REPELS TERMITES—Termites will not attack wood treated with Du Pont CZC (Chromated Zinc Chloride).
3. RETARDS FIRE—Is difficult to ignite...gives added safety to any wooden structure.

Wood treated with Du Pont CZC (Chromated Zinc Chloride) is clean, odorless, paintable and safe to handle.

Write today for full details. Address Du Pont, Grasselli Chemicals Dept., Wilmington 98, Delaware.

Specify WOOD TREATED WITH
DU PONT CZC
(Chromated Zinc Chloride)

THE “GUIDE” IS
Colorific!

Pale shades, dark shades, the “in-between” shades that are so hard to find...all are attractively presented for easy selection in the MOLETA COLOR GUIDE. 150 beautiful colors are displayed in the COLOR GUIDE. Each tint is shown on a large page (9½ x 15½) distinctly shown in finished, right-on-the-wall effect. The correct mixing formula is given on the reverse of each page.

Write for your copy of the MOLETA COLOR GUIDE—$5, delivered anywhere in the U.S.A.
MONROE, LEDERER AND TAUSIG, INC.
606 N. American St., Phila. 23, Pa.

LET ELECTRIC WATER COOLERS DO
Double Duty...

HAWS Electric Water Coolers give double duty when installed with one or more HAWS Sanitary Drinking Fountains connected to serve adjacent rooms. Large capacity cooling units provide an ample supply of cooled water.

Model HT-10 Electric Water Cooler
Model 7A Vitreous China Wall Fountain

HAWS ELECTRIC WATER COOLERS
SANITARY DRINKING FOUNTAINS
WRITE FOR LITERATURE

HAWS DRINKING FAUCET CO.
1441 FOURTH STREET (Since 1909) BERKELEY 2, CALIFORNIA
Agents and Sales Representatives in All Principal Cities
NEW EVAPORATIVE CONDENSER
SAVES MANY COSTS

Where water for use in refrigerating condensers is expensive, high in temperature or difficult to secure and dispose of, the Worthington ECZ Evaporative Condenser saves water, equipment, space and money.

Water consumption is reduced 90% or more—only enough new water is added to make up for evaporation and keep the circulated water sweet and clean. No long line losses; and pumping costs are reduced proportionately.

Equipment such as cooling towers, water service and disposal facilities is not needed, saving investment cost, maintenance cost and space.

Prime surface coils are staggered to permit air deflection and wetting of the entire surface. Smooth surface makes washing easy and helps prevent scale accumulation.

Installation of this compact unit can be made inside or outside, in basement or on roof. Two types—Freon and Ammonia. Other features: Worthington Monobloc Pump, anti-corrosion fans (at slight extra cost), receivers available for Freon unit.

Write us for new Bulletin C-1100-B28, giving complete information. Worthington Pump and Machinery Corporation, Harrison, N. J. Specialists in air conditioning and refrigeration for more than 50 years.

Higbee is Ahead On Air Conditioning, Too

One of the country's greatest department stores, considered throughout the retail business as a pace-setter, is Higbee's in Cleveland.

17 years ago, a Worthington 1,000-ton carbon dioxide refrigeration plant was installed to provide air conditioning. When it recently became necessary to enlarge the installation, the success of the original equipment suggested having Worthington provide the new machinery.

The new installation provides for 2,000 tons of Worthington centrifugal refrigeration. J. Gordon Turnbull, Inc., Consulting Engineers.

Another Modern Plant Selects Modern Air Conditioning

When North American Manufacturing Company—manufacturer of oil and gas-fired furnaces—bought its new plant in Cuyahoga Heights, Cleveland, it decided first, to install air conditioning in its offices and, second, to install the most modern air conditioning equipment.

These decisions led to the selection of a 30-ton Worthington 4-HE-6 air conditioning unit. This is the 6-cylinder W type, operating on Freon-12, with water-cooled condenser and full force-feed lubrication.

Vincent Eaton, Consulting Engineer.

Why “Balanced Air”?

Why Worthington?

The ideal air conditioning or refrigeration system consists of machinery all manufactured—not just assembled—by one company. This makes more possible a perfect balance among all interrelated machinery.

Worthington is the company that manufactures all the vital "innards"—compressors, condensers, engines, turbines, pumps. The result is a completely integrated system—for more efficient, more economical operation.

That's why there's more worth in Worthington. See your nearby Worthington distributor—in the Classified Telephone Book.
When you say "SAFETYMIX" — you get the world's leading, pressure-actuated, non-scald shower valve. Guaranteed to hold constant shower temperature against pressure fluctuations, it maintains 2°F accuracy.

SAFETYMIX STAYS SAFE
- Gives foolproof protection against sudden scalds — even with pressure fluctuations up to 85%.
- Only Safetymix has the patented Flow Control Spindle with one moving part to regulate all valve functions.

SAFETYMIX STAYS CLEAN
- Designed for self-cleaning action to prevent clogging . . . saves hot water.

SAFETYMIX STAYS PUT
- The simplest, most rugged non-scald shower valve on the market. Flow Control Spindle has but one moving part. Designed to last a lifetime. As easy to fix as a faucet. Costs no more than ordinary shower valves.

HERE ARE A FEW FAMOUS SAFETYMIX USERS

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pratt &amp; Whitney</td>
<td>Netherland Plaza</td>
</tr>
<tr>
<td>General Electric Co.</td>
<td>Ritz-Carlton</td>
</tr>
<tr>
<td>du Pont de Nemours</td>
<td>Harvard University</td>
</tr>
<tr>
<td>Ford Motor Co.</td>
<td>William &amp; Mary College</td>
</tr>
<tr>
<td>Mass. General Hospital</td>
<td>University of Chicago</td>
</tr>
<tr>
<td>Statler Hotel</td>
<td>U.S. Army &amp; Navy</td>
</tr>
<tr>
<td>Royal Canadian Air Force</td>
<td>Bell Telephone Co.</td>
</tr>
</tbody>
</table>

100,000 SAFETYMIX INSTALLATIONS CAN'T BE WRONG!

Send for bulletin and details now.

SAFETYMIX IS MADE BY THE MAKERS OF THE NEW SYMMONS "TEMPERING-CONTROLLER"

AEROFIN
FIN-TYPE COILS
For Fast, Efficient
HEATING
and COOLING
Write for Information
AEROFIN CORPORATION
S. Geddes St, Syracuse 4, N.Y.

Century Notes:
Published in the interests of better lighting
Incomparable!
the focusing range achieved by Century's
Flush Accent Light*
Cat. #396 List Price 33.00

These are the advantages this extraordinary unit offers:
1. Rotates 360° - 45° off the vertical
2. 8" depth
3. Flush ceiling plate
4. Louver included effects a cut-off of all stray light
   Flexible tabs clamp glass filters
5. Aperture 5½"
6. Uses 150 watt reflector bulbs
7. Simple lamp replacement
8. Union wired with 4 ft. greenfield
9. Underwriters' approval

Order Yours Now

Century Lighting Inc.
419 W. 55th St., New York 19 • 626 N. Robertson Blvd., Los Angeles 46

ARCHITECTURAL RECORD
FRUITFULLY

The WALKER UNDERFLOOR SYSTEM is an active servant in this new building of the National Fruit Product Company. (Note especially, in the upper illustration, that the Walker System is readily adapted to radiant heat installations.)

Architect:
ELMER E. BURRUSS,
Charlottesville, Va.

General Contractor:
A. R. WARNER & SON,
Waynesboro, Pa.

Electrical Contractor:
BAKER & ANDERSON ELECTRICAL CO.,
Winchester, Va.

Electrical Distributor:
Tri-State Electrical Supply Co., Inc.,
Hagerstown, Md.

In the heart of the apple country, the fertile Shenandoah Valley, is the new office building and the plant of the NATIONAL FRUIT PRODUCT COMPANY, Winchester, Va.

And here is another great industry now being served by the WALKER Underfloor System which provides multitude of outlets for power, light, telephone and intercommunication.

Nearly a thousand electrical outlets are furnished by the Walker System ... outlets which are available at practically any point of the entire floor area. Ready for the immediate needs of today ... and ready for changes and new needs of tomorrow.

WALKER BROTHERS
Conshohocken 35, Pa.

Write to us for our Catalogue No. 146 or consult Sweet's Architectural File for further details.
**royal jet-flow**
outperforms heating units
costing three times
as much*

M. J. BROCK says:
"We consider the Royal
Jet-Flow a remarkable devel-
opment in home heating,
giving the small home owner the type of heat
that has heretofore been available only in a
high-cost home."
M. J. BROCK
M. J. Brock & Sons

* Proved by tests conducted in America's
Finest Independent Laboratory. Royal Jet-Flow
uses jet principle and high outlet delivery
to achieve a velocity of 300 feet per minute.
Heats entire average size house with a mini-
mum differential from room to room. Royal
Jet-Flow costs only slightly more than a floor
furnace—much less than forced air.

write today for complete information

**royal heaters, inc.**
1024 WESTMINSTER AVENUE
ALHAMBRA, CALIFORNIA

---

**EMPLOYMENT OPPORTUNITIES AVAILABLE**

**Positions Open**

**WANTED:** One experienced architectural draftsman. Small office doing contemporary work. Please address education, experience, references and salary expected to P. O. Box 4122, Centenary Station, Shreveport, La.

**WANTED:** Need expert and enthusiastic assistance in a practice devoted to developing architecture which is a basic and natural expression of its purpose, place and time. Moderne mannerisms are as abhorrent as eclecticism. Work requires natural aptitude, trained skill, and a yearning to assist in architectural experimentation and growth. Absorbs much time and thought, but pays less cash than ditch-digging. Architect Paul Beidler & Col-
legues, Northen, R. D. 4, Easton, Pa.

**WANTED:** Architectural Draftsmen experienced in making working drawings and details. Please submit employment and experience record, samples of work, and monthly salary expected. Marr and Holman, Architects, 702 Stahlman Building, Nash-
ville, Tennessee.

**WANTED:** Structural Engineers and Steel Draftsmen and Detailers. Please submit employment and experience record, samples of work, and monthly salary expected. Marr and Hol-
man, Architects, 702 Stahlman Building, Nashville, Tennessee.

**WANTED:** Electrical Engineers who can design and make working drawings for interior lighting and power work for
buildings and industrial plants. Please submit employment and experience record, samples of work, and monthly salary expected. Marr and Holman, Architects, 702 Stahlman Building, Nash-
ville, Tennessee.

**WANTED:** Mechanical and Air Conditioning Engineers who
can design and make working drawings for air conditioning,
plumbing and heating for buildings and industrial plants. Please submit employment and experience record, samples of work, and monthly salary expected. Marr and Holman, Architects, 702 Stahlman Building, Nashville, Tennessee.

**Positions Sought**

**ARCHITECT:** Graduate, NCARB, registered. First-rate
contemporary designer. Publications in national magazines. Ten years experience large and small offices, own practice, teaching.
Preliminaries through working drawings schools, commercial,
public buildings, industrial, residential. Seeking partnership
connection in medium size city. Invite inquiry and investigation.
Box 381, Architectural Record, 119 W. 40th St., New York 18.

**CONSULTING ENGINEERS OFFICE:** Design of air con-
ditioning, heating & ventilating, electric, plumbing. This office
is in position to take on at this time, domestic or foreign work of
the above nature which requires immediate attention. Box 382,
Architectural Record, 119 W. 40th St., New York 18.

**ELECTRICAL DESIGNERS AND DRAFTSMEN:** Six ex-
perienced men in electrical design and drafting for residential,
office, and industrial projects. Accurate and prompt prints fur-
nished for power distribution, lighting, and control. Desire work
to do in own office. Box 383, Architectural Record, 119 W. 40th
St., New York 18.
An unusual "strip" window pattern, making use of stainless steel mullions, creates the impression of continuous fenestration on the exterior of this newly constructed office building.

LOCATION: 445 Park Ave., New York
ARCHITECTS: Kahn & Jacobs

1300 stainless steel mullions

The facade of this 22-story office building has attracted wide interest because it lacks the heavy masses of masonry conventional for a building of this size. To create the impression of lightness, structural columns between windows were faced with stainless steel mullions. Over 20 tons of the metal was used. Since the surface of the stainless steel stays permanently bright—unaffected by all kinds of weather—building maintenance costs are materially reduced. The metal is also exceptionally strong and durable. If you'd like to keep up to date on uses for stainless steel, ask to receive our monthly publication ELECTROMET REVIEW.
Seaporcel...it's practically ageless!

The Belasco Restaurant (Hollywood, California) is a new Seaporcel Porcelain Enamel job completed just recently. It’s new...it’s brilliant...

BUT...look at the “old timers” here depicted...these installations range from 7 years to 13 years in age. They are all sheathed in Seaporcel and...

STILL HAVE THAT “NEW LOOK.”

10 years young...Perry Theatre, Perryville, Pa., John Eber-ton, N. Y. Architect. Entire Tower Facade in Seaporcel.

9 years young...Cambridge High & Latin School, Cam­bridge, Mass. C. B. Greco, Boston, Arch. Decorative Towers in Seaporcel Limestone.

7 years young...County High School Pittsfield, Mass. J. R. Hampson, Pitts­field, Mass., architect. All Spandrels in Seaporcel Porcelain Metal.

13 years young...Cunard White Star Line Bldg., Boston, Arch. Kilham, Hopkins & Greeley, Boston, Captain of Seaporcel dropped over old building.

Seaporcel* Architectural Porcelain Enamel is por­celain enamel deluxe...proved color fast and durable regardless of time or weather.

Write today for catalog showing applications and current jobs.

SEAPORCEL METALS, INC.
Formerly Porcelain Metals, Inc.
28-02 Borden Avenue, Long Island City 1, N. Y.
Complete American Federation of Labor Metal Fabricating and Enameling Shop
Also manufactured on the West Coast by SEAPORCEL CORPORATION OF CALIFORNIA
represented by: DOUGLAS McFARLAND & CO.
1491 Canal Street, Long Beach, California

Seaporcel
Member Porcelain Enamel Institute, Inc.

Hollywood and Vine

Seaporcel...it’s practically ageless!

The Belasco Restaurant (Hollywood, California) is a new Seaporcel Porcelain Enamel job completed just recently. It’s new...it’s brilliant...

BUT...look at the “old timers” here depicted...these installations range from 7 years to 13 years in age. They are all sheathed in Seaporcel and...

STILL HAVE THAT “NEW LOOK.”

10 years young...Perry Theatre, Perryville, Pa., John Eber-ton, N. Y. Architect. Entire Tower Facade in Seaporcel.

9 years young...Cambridge High & Latin School, Cam­bridge, Mass. C. B. Greco, Boston, Arch. Decorative Towers in Seaporcel Limestone.

7 years young...County High School Pittsfield, Mass. J. R. Hampson, Pitts­field, Mass., architect. All Spandrels in Seaporcel Porcelain Metal.

13 years young...Cunard White Star Line Bldg., Boston, Arch. Kilham, Hopkins & Greeley, Boston, Captain of Seaporcel dropped over old building.

Seaporcel* Architectural Porcelain Enamel is por­celain enamel deluxe...proved color fast and durable regardless of time or weather.

Write today for catalog showing applications and current jobs.

SEAPORCEL METALS, INC.
Formerly Porcelain Metals, Inc.
28-02 Borden Avenue, Long Island City 1, N. Y.
Complete American Federation of Labor Metal Fabricating and Enameling Shop
Also manufactured on the West Coast by SEAPORCEL CORPORATION OF CALIFORNIA
represented by: DOUGLAS McFARLAND & CO.
1491 Canal Street, Long Beach, California

Seaporcel
Member Porcelain Enamel Institute, Inc.

Hollywood and Vine

Seaporcel...it’s practically ageless!

The Belasco Restaurant (Hollywood, California) is a new Seaporcel Porcelain Enamel job completed just recently. It’s new...it’s brilliant...

BUT...look at the “old timers” here depicted...these installations range from 7 years to 13 years in age. They are all sheathed in Seaporcel and...

STILL HAVE THAT “NEW LOOK.”

10 years young...Perry Theatre, Perryville, Pa., John Eber-ton, N. Y. Architect. Entire Tower Facade in Seaporcel.

9 years young...Cambridge High & Latin School, Cam­bridge, Mass. C. B. Greco, Boston, Arch. Decorative Towers in Seaporcel Limestone.

7 years young...County High School Pittsfield, Mass. J. R. Hampson, Pitts­field, Mass., architect. All Spandrels in Seaporcel Porcelain Metal.

13 years young...Cunard White Star Line Bldg., Boston, Arch. Kilham, Hopkins & Greeley, Boston, Captain of Seaporcel dropped over old building.

Seaporcel* Architectural Porcelain Enamel is por­celain enamel deluxe...proved color fast and durable regardless of time or weather.

Write today for catalog showing applications and current jobs.

SEAPORCEL METALS, INC.
Formerly Porcelain Metals, Inc.
28-02 Borden Avenue, Long Island City 1, N. Y.
Complete American Federation of Labor Metal Fabricating and Enameling Shop
Also manufactured on the West Coast by SEAPORCEL CORPORATION OF CALIFORNIA
represented by: DOUGLAS McFARLAND & CO.
1491 Canal Street, Long Beach, California

Seaporcel
Member Porcelain Enamel Institute, Inc.

Hollywood and Vine

Seaporcel...it’s practically ageless!

The Belasco Restaurant (Hollywood, California) is a new Seaporcel Porcelain Enamel job completed just recently. It’s new...it’s brilliant...

BUT...look at the “old timers” here depicted...these installations range from 7 years to 13 years in age. They are all sheathed in Seaporcel and...

STILL HAVE THAT “NEW LOOK.”

10 years young...Perry Theatre, Perryville, Pa., John Eber-ton, N. Y. Architect. Entire Tower Facade in Seaporcel.

9 years young...Cambridge High & Latin School, Cam­bridge, Mass. C. B. Greco, Boston, Arch. Decorative Towers in Seaporcel Limestone.

7 years young...County High School Pittsfield, Mass. J. R. Hampson, Pitts­field, Mass., architect. All Spandrels in Seaporcel Porcelain Metal.

13 years young...Cunard White Star Line Bldg., Boston, Arch. Kilham, Hopkins & Greeley, Boston, Captain of Seaporcel dropped over old building.

Seaporcel* Architectural Porcelain Enamel is por­celain enamel deluxe...proved color fast and durable regardless of time or weather.

Write today for catalog showing applications and current jobs.

SEAPORCEL METALS, INC.
Formerly Porcelain Metals, Inc.
28-02 Borden Avenue, Long Island City 1, N. Y.
Complete American Federation of Labor Metal Fabricating and Enameling Shop
Also manufactured on the West Coast by SEAPORCEL CORPORATION OF CALIFORNIA
represented by: DOUGLAS McFARLAND & CO.
1491 Canal Street, Long Beach, California
EVEN IN ZERO WEATHER
less than 3° floor-to-ceiling
temperature differential—when you install
BASE-RAY RADIANT HEATING

The amazingly even heat distribution provided by Burnham BASE-RAY® Radiant Baseboards marks a new high in heating efficiency and comfort. It's a point that never fails to get the interested ear of Mr. & Mrs. Home Owner, for it cuts down chill-provoking air currents to the vanishing point. No wonder owners of BASE-RAY installations are so enthusiastic in their praise of this practical approach to Radiant Panel Heating.

Yes, Burnham BASE-RAY Radiant Heating has been tested in thousands of homes for nearly three years. And Burnham engineers, who pioneered the development of Radiant Baseboards, have worked out installation methods for you that are simple, practical and inexpensive.

Recommend nationally advertised Burnham BASE-RAY Radiant Baseboard heating systems. They're the original—a proven product! You can be sure of results...sure of delivering complete satisfaction.

If you are not familiar with BASE-RAY, get all the facts.


Mail coupon below for Booklet which gives ratings and installation data on BASE-RAY Radiant Baseboards.

NOW! Increased Base-Ray production reduces delivery time.

Burnham Corporation
"PIONEERS OF RADIANT BASEBOARD HEATING"
IRVINGTON, N.Y., Dept. AR-128

DECEMBER 1948
WHEN THE CHIPS ARE DOWN

Terrazzo STANDS OUT

STEADFAST AND MARBLE-HARD

Traffic's wear and tear hold no terrors for Terrazzo. No matter how demanding the requirements, Terrazzo floors last as long as the building. Under the most punishing of day-in, day-out traffic, Terrazzo stands unyielding.

Available for floors, stairs, wainscots and walls, Terrazzo is as versatile as an architect's imagination. Its marble-hardness offers an easy-to-clean surface that requires no costly repairs, no costly paint jobs—and virtually no maintenance expenditures. Specify Terrazzo—and enjoy permanent service.

For Free AIA Kit—a complete reference work about TERRAZZO, the once-in-a-lifetime floor — write

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC.
1420 New York Avenue, N. W., Dept. R, Washington 5, D. C.
ONLY YORK HAS
Turbo Compressors with Stainless Steel Impeller Wheels . . .

Available on no other compressor, yet they're standard equipment on York Turbos! Wheels constructed entirely of turbine quality stainless steel, corrosion-proof . . . and erosion resistant . . . assure years of operation at initial high efficiency.

ONLY YORK HAS
Pre-Rotation Vane Control . . .

Exclusive with York, a gradual acting multi-radial vanned control, constructed of accurately machined non-ferrous materials. Ring and pinion gear movement insures smooth vane opening and closing—multiple vanes give precise adjustment of refrigerant flow down to minimum capacities . . . impart a flow pre-rotation. Result—inherent stability of operation over the widest capacity ranges.

York gives you these 2 exclusive features at no extra cost. They put the York Turbo in a class by itself!

York Corporation, York, Pennsylvania.
MR. ARCHITECT: Write for your copies---today

A treatise on rolling and folding types of

MODERN GYMNASIUM SEATING

by HAROLD R. SLEEPER, A.I.A.

has been compiled by this nationally prominent A.I.A. architect. It is a comprehensive report, prepared expressly for the Gymnasium Seating Council, showing the need for seating, flexibility, seat types, space-saving features, budgeting, general and detailed planning, space requirements, other data and specifications. Various types of seating and blueprint plans are shown.

A second folder, also by Mr. Sleeper, includes a seating capacity analysis of a national survey, by geographical areas, to aid you in planning seating needs.

Both reports have been edited and criticized by the American Institute of Architects and are available for distribution to architects. They provide you estimable help when planning present and future Gymnasium Seating Requirements. A copy of each is available to you. Write for yours today.

At left is a Universal Roll-A-Way Gymnasium stand, with inset showing chair height seating—for comfort. Our engineers will gladly assist you with your planning.

Write today for the CHROMTRIM metal mouldings catalog.

R. D. WERNER CO., Inc., 295 Fifth Ave., N. Y. 16
In Canada: R. D. WERNER COMPANY, LTD., Port Dalhousie, Ontario
Secret of the hidden stairs: Twin screens of Insulux Glass Block rise in plane surfaces from ground to roof, concealing the otherwise unsightly outside stairways of these new Chicago apartments.

Privacy is assured without a sacrifice of daylight.

American Structural Products Company is a wholly owned subsidiary of the Owens-Illinois Glass Company. It has taken over the manufacture and sale of Insulux Glass Block and other Owens-Illinois structural products. For information, address Dept. E13, P.O. Box 1035, Toledo 1, Ohio.
CONVECTORS
FOR THE OFFICE

UNIT HEATERS
FOR THE PLANT

Young Heating Equipment is the solution to the space heating problems of today's large, modern offices and multi-windowed, expansive plant interiors. Young Conectors and Unit Heaters furnish an abundance of healthful heat where it's needed. For example: Young Conectors provide a steady flow of clean, warm air...circulated by convection, augmented by radiation...with quick response to modern thermostatic controls. Likewise, Young Unit Heaters, last word in design, tested in service, deliver large quantities of heat for any industrial application. Write for free catalogs on the complete Young line of heating, cooling and air conditioning equipment and name of nearest engineering representative.

A new future for your drawings!

Now you can ask: "How will the prints be used?"

Then you can reproduce each drawing as the type of Ozalid print best suited for the job at hand.

Examples of your new versatility:

- You can reproduce your drawings on light, standard or heavy weight paper.
- You can produce "color coded" Ozalid prints—with lines in black, blue, red or sepia on a white background.
- You can save wear and tear on your drawings by producing translucent "master" copies, which can be used to produce the desired number of work prints.
- You can combine separate drawings on one work print—or on a translucent "master."
- You can produce plastic-coated work prints and translucent "masters," which are waterproof, oil-proof, resistant to wear.

Always the same simple operation—no matter what your choice. Exposure and Dry Development takes only seconds in an Ozalid machine. Your prints are delivered dry, ready for immediate use, positive copies (not negatives). Anyone can be the operator. Write for Free copy of Ozalid Streamliner booklet, containing 10 types of Ozalid Prints.

OZALID
A Division of General Aniline & Film Corp.
Johnson City, New York
Ozalid in Canada—Hughes Owens Co., Ltd., Montreal
ONLY Olsonite SEATS
Have All These Selling Features!

Lowest-Priced Seat of This Quality on the Market—and Guaranteed a Lifetime!

Olsonite Seats are far superior to ordinary wood, rubber, sheet-covered, or plastic-coated seats... and are far greater values! They won't crack, chip, peel, stain, or lose luster! Non-inflammable! No exposed metal. (Sold only through authorized plumbing and heating jobbers to Master Plumbers.) Contact your local jobber today. For full information write Olsonite Plastics Division.

Olsonite PLASTICS DIVISION
DIVISION OF SWEDISH CRUCIBLE STEEL COMPANY, DETROIT 1, MICH. (350 RUTHERFORD AVE.)

DECEMBER 1948
Announcing

HENDRICK

Bulat or

the first practicable combination of an ornamental grille and a deflecting vane grille.

Recently developed by Hendrick, and tested by Professor G. L. Tuve of the Case Institute of Technology, Cleveland, the Hendrick Bulat or* meets every requirement of architect and engineer for a grille of attractive appearance with proper air throw and spread.

Mounted just behind the ornamental grille, the deflecting grille is not noticeable, but gives the air throw and spread that may be specified by the engineer. The tests made at the Case Institute showed that the presence of the ornamental grille made "very little difference on either the air stream pattern or the throw."

The vanes of the deflecting grille are adjustable so that the air flow can be deflected to right or left, up or down, or in a combination of directions.

A wide variety of Hendrick ornamental grilles, with ample open area, are available, so that the Bulator enables the architect to combine with the air-conditioning system of a building ornamental grilles which harmonize with the decorative scheme, without appreciably affecting the air throw.

*Beauty + Ventilator

Write for full information

Photograph taken with deflecting vanes less than an inch behind grille, shows that vanes are not noticeable.

Vertical deflecting vanes, showing how the vanes may be set to produce any desired air stream pattern.

Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and Armorgrids

HENDRICK
Manufacturing Company
38 DUNAFF STREET, CARBONDALE, PA.
Sales Offices in Principal Cities

New Triple-service OASIS

WATER-COOLER SENSATION FOR OFFICES
OF EXECUTIVES, DOCTORS, DENTISTS!

1. COOL DRINKING WATER
2. 28 BIG ICE CUBES
3. REFRIGERATED STORAGE

This new addition to the extensive OASIS line is the most popular water cooler ever developed for executives, doctors, dentists, and professional men. The unit's Monel-metal lined, refrigerated compartment keeps beverages or pharmaceuticals at constant 35° to 38° F! Also holds 28-full-sized ice cubes in "Magic Touch" quick-release trays. All this in addition to properly cooled drinking water. Three important services in one space-saving unit! Write for specifications!

SPECIFY OASIS pressure and bottle-type electric drinking water coolers for every requirement!

THE EBCO MFG. CO., 401 W. TOWN ST., COLUMBUS 8, OHIO
World's Oldest and Largest Maker of Electric Drinking Water Coolers

DUNHAM RADIATOR VALVES

HAVE WHAT IT TAKES— WHERE IT TAKES IT

ON THE JOB

For Greater Efficiency — Longer Lasting Service

Packless, Spring Packed and Packed Stem. A Packless valve that is really packless—100% leak proof. All types have non-rising stem which permits quiet opening and closing and reduces wear caused by friction.

Precision built to Dunham's traditional high standards. Maintenance costs are lower because simple design permits easy disc replacements. Durable construction assures longer service than ordinary traps. Operates efficiently from 25 in. vacuum up to 15 lb. gage pressure. C. A. Dunham Co., 400 West Madison St., Chicago 6, Illinois.

DUNHAM HEATING MEANS BETTER HEATING

ARCHITECTURAL RECORD
A NEW dormitory is now being completed at Upsala College, East Orange, N. J. Among the quality features that will preserve this handsome building for generations of future students are a batten seam roof and box gutter utilizing more than 13,000 pounds of Revere copper sheet and copper strip.

Revere copper for roofs, flashings and gutter linings is the common sense choice whenever you want extra years of service. Not only is copper the most enduring of all the commonly used sheet metals when exposed to the elements, but the Revere Research Laboratories have developed design and installation data that help you provide the very finest sheet copper construction.

Whenever you are faced with a problem concerning the design or installation of copper, look first to the Revere sheet copper manual entitled "Copper and Common Sense"; and if you do not find the complete answer there, the Revere Technical Advisory Service, Architectural, will be glad to help you. The chances are that they have already had experience with a similar problem. In any case, they'll do their best to help solve yours.

There is no charge or other obligation for this service. Simply call your Revere Distributor or the Revere Office nearest to you.

REVERE COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, New York

HOLLOW METAL

5 ACRES OF ONE-FLOOR FACTORY
designed for straight line, efficient production

As specialists in the fabrication of bronze, aluminum, steel and stainless steel, we offer our services wherever hollow metal doors, interior trim, elevator enclosures, cold rolled moldings and metal specialties are required.

JAMESTOWN METAL CORPORATION
104 Blackstone Avenue
Jamestown, N.Y.

Segmental ARCHES for Spacious Beauty

The gymnasium illustrated here employs four segmental arches with a clear span of 84 feet 6 inches. This type of arch combines full utilization of space with architectural beauty at a reasonable cost. The modern wooden arch, either segmental or glued laminated, is ideal for gymnasiums, auditoriums, skating rinks, basketball pavilions, super markets and similar buildings. Consultation available through our Engineering Departments without obligation.


TIMBER STRUCTURES, INC.
P.O. Box 3782, Portland 8, Oregon • 535 Fifth Ave., New York 17, New York • P.O. Box 25, Oakland 1, California • 120 S. La Salle St., Room 1720, Chicago 3, Illinois

IMPORTANT INFORMATION ON BANK VAULTS

FREE ON REQUEST!

Here is worthwhile information every bank architect should have on file:

Brief outline of fundamentals in modern architectural techniques of bank vault design attractively presented in a well-illustrated folder... "Today's Master Architect and the Modern Bank."

Complete specifications manuals for 7½", 10", 12" and 16" bank vault entrances with the exclusive and revolutionary interlocking vestibule.

Write today for your copies. Specify manual or manuals you want.

HERRING-HALL-MARVIN SAFE COMPANY

General Offices & Factory
HAMILTON, OHIO
Announcing... A New Store Book

"Planning Stores That Pay"
by Dr. Louis Parnes, A.I.A.

Architects and Store Designers, Department and Chain Store Administrators

"The great majority of department stores today are not making the most efficient use of their space," says Dr. Louis Parnes, international authority on store planning.

"This is due to haphazard growth and bad planning... The tremendous occupancy costs, which absorb 6% or more of gross sales, can be cut down in relation to sales by good design."

In his new comprehensive study "Planning Stores that Pay," Dr. Parnes demonstrates the amazing degree to which architecture — as expressed in counter lengths, traffic flow, etc. — speeds expense have long been pouring to where every merchandising machine. Everything is calculated from the viewpoint of efficiency, and the contribution of each part of the store to the process of selling goods profitably is the criterion of its recommended design. Diagrams, charts and scale drawings, from hundreds of leading stores and from the works of America's greatest store architects, prove each point graphically.

With more than 500 illustrations, he explores every detail of the store and its arrangements — entrances, arcades, show windows, transportation systems, furniture and fixtures, receiving and shipping facilities, floor and department layouts, display arrangement and lighting, and all the hundreds of items that go to make up a modern merchandising machine. Everything is calculated from the viewpoint of efficiency, and the contribution of each part of the store to the process of selling goods profitably is the criterion of its recommended design. Diagrams, charts and scale drawings, from hundreds of leading stores and from the works of America's greatest store architects, prove each point graphically.

Why Every Department Store — Old or New — Now Needs an Architect's Service

Composite statistics of department store income and expense have long been put to invaluable use in stepping up store efficiency. Dr. Parnes shows how they also can be used as a precise basis for designs that automatically enhance sales... and reveals the enormous potential profits thus available. The first store to be thus fully engineered will have extraordinary advantages! But meanwhile every department store in the country can begin at once to plan its architectural transformation.

A Basic Textbook on Store Architecture

"Planning Stores That Pay" is a book of basic principles, but specific ideas flow from its pages in rapid succession. A single chapter has enough suggestions to launch a number of long-term projects in store layout, equipment, etc. Any department store administrator can see that it will pay him to call in private architects for immediate replanning, and that such replanning may well pay for itself a hundred times over.

Department stores have exhausted great resources of effort and ingenuity to maintain their life-line margin of profit. The fact that "Planning Stores That Pay" suddenly injects into this situation sensational new weapons for combatting competition makes this an extremely valuable, if not indispensable, book for architects and store administrators. With it they can speak each other's language, work together, and make the most of today's great opportunities.

Special Pre-Publication Price $12.00

You can save $1.00 by ordering your copy today. The regular price of "Planning Stores That Pay" will be $13.00 after December 15, 1948. But orders received in advance of this publication date will be accepted at the special pre-publication price of only $12.00. Mail the coupon at the right to acquire this brand new treatise on store planning at the special introductory price. Your copy of the book will be sent to you promptly on the day of publication.

Money-Saving Coupon

BOOK DEPARTMENT, ARCHITECTURAL RECORD
119 West 60th Street, New York 18, N. Y.


Name

Address

City... Zone... State...

DECEMBER 1948
"Specify Beauty and Utility—Not Just Doors!"

And that means Modernfold Doors. They're fabric-covered for colorful beauty, metal-framed for rigidity and strength. Their accordion-like action in opening and closing enables them to save space... effect quick, easy room division. Write us for full details.

NEW CASTLE PRODUCTS
New Castle Indiana
In Canada: Raymond Mfg. Co., Ltd., Montreal
Consult your local telephone book for the names of our Installing Distributors

What goes UP? What goes DOWN?
to meet variations in floor levels?

THE NEW ADJUSTABLE TOP

Now... where the drain has been set too high or too low... or where floor level is changed—for any reason—after the LEVELIZE drain is installed, simply raise or lower the adjustable top of the JOSAM LEVELIZE Floor Drain and presto—the new level is met, drainage is assured and the cost of adjustment is negligible. Send coupon below for literature.

Josam Mfg. Co., 302 Josam Bldg., Cleveland 13, Ohio
Please send me literature on new Levelize Floor Drain

Name

Firm

Address

City

State

Josam LEVELIZE FLOOR DRAIN

SERIES 3610—with deep set tractor grate shown
SERIES 3510—with anti-lifting grate optional

you can see that
Trinity White is the whitest white cement!

You'll get fine results with this extra white cement. It's true Portland Cement made to ASTM and Federal Specifications. If your dealer does not have it, write the office nearest you: Trinity Portland Cement Division, General Portland Cement Co., 111 West Monroe St., Chicago; Republic Bank Bldg., Dallas, 816 W. 5th St., Los Angeles.

ARCHITECTURAL RECORD
In the newest of Schrafft's 46 stores, you'll see the latest achievements in modern design. Naturally you'll see Agitair Type R Diffusers providing noiseless, draftless air distribution for complete customer comfort.

Look around—you'll find Agitair Type R's in the smartest places . . . because no other diffuser offers so many advantages. Write for Complete Data.

AIR DEVICES, INC.
17 East 42nd Street • New York 17, N. Y.
Air Diffusers • Air Filters • Roof Exhausters
Stewart Iron Picket Fence

Don’t Overlook Stewart If your plans call for Iron or Wire fencing

Stewart 3TH Chain Link Wire Fence

In addition to fence, Stewart produces many other products for the protection and beautification of residential and industrial property. If you do not have a complete file of Stewart Catalogs, we suggest you write for them.

THE STEWART IRON WORKS CO., INC.
1577 Stewart Block
CINCINNATI 1, O.
Experts in Metal Fabrications since 1886

Send for

Paddock
Swimming Pool Equipment

Fully Illustrated
Condemned Price List
Over 300 items, including...

- Filter Accessories
- Chlorinators
- Chemicals
- Pool Heaters
- Pumps and Motors
- Diving Boards
- Filters
- Coke Matting
- Ladders
- Underwater Lights
- Pool Paint
- Leaf Skimmers
- Paddock Silicite
- Complete Fittings for Recirculating Systems
- Suction Cleaners
- Cleaner Parts
- Brushes
- Brust Rebristling
- Strainers
- Chemical Feeders
- Automatic Surface Skimmer
- Automatic Water Level Controls
- Life Buoys
- Life Guard Chairs
- Life Line

Paddock Pool Equipment Co.
8400 Santa Monica Blvd., Los Angeles 46, Calif.
Send Illustrated Paddock Equipment Price List.

238
For SAFETY - COMFORT - ECONOMY

Bathers can really relax and enjoy a Powers regulated shower. No danger of scalding. No unexpected temperature changes.

ONLY ONE MOVING PART
SIMPPLICITY and durable construction insure many years of efficient carefree operation. Mixer body is made of bronze and parts subject to wear have a hard chromium finish.

For modern showers the Safety of Powers Mixers is indispensable.

Safest for use by children, the aged or infirm. Powers mixers are widely used in hospitals on hydrotherapeutic and infant baths.

Accurate within 1/2°F. Powers mixers are used by leading builders of X-Ray and color film developing units.

Back in 1923 Powers introduced the first and original pressure equalizing type water mixer. Now it offers the SAFEST thermostatic water mixer made.

TYPE H MIXER For exposed piping 1/2" pipe connections. Capacity: 6 to 10 gals. per min. at 45 lbs. pressure. Dial diam. 3/4". Mixer for Concealed Piping has 6" diam. dial.

Thermostatic SHOWER MIXERS they are SAFE against scalding caused by fluctuations in water supply lines

To assure the safety and comfort required of today's modern showers specify POWERS Type H Mixers.

Being thermostatic they give positive two-way protection against scalding or jumpy shower temperatures caused by pressure or temperature changes in water supply lines ... two dangerous variables in all shower installations.

POWERS mixers are modern, really safe and non-scald. They're economical too. They save time and there is no waste of hot or cold water while waiting for a shower at the right temperature.

Phone or write our nearest office for Circular H48

CHICAGO 14, ILL. 2720 Greenview Ave. Phone Buckingham 1-7100
NEW YORK 17, N. Y. 231 East 46th St. Phone Eldorado 5-2050
LOS ANGELES 5, CAL. 1808 West Eighth St. Phone Drexel 2394
A

Abrahams, Pol. See "Public Housing in Orleanis."
"Acoustical Design of the Theater." Article by Vern O. Knudsen and Cyril M. Harris—Nov., pp. 139-144.
Ahuntsic, P. Q. Railroad Station. See Canadian National Railways.
Alcohol plant. See "Change House" for Alcohol Plant.
Allen, F. Elwood, Organization, Park and Recreation Planners. See Raymond, Antonin.
Amstel Station, Amsterdam—BTS—Oct., pp. 128, 137.
Architects' Offices. See Offices, Architects'.
Aspin factory. See Bayer Co. Div. Factory.
Assembly plant. See Chevrolet-Flint Assembly Plant.
Austin Co., The, Denvers, and Bldrs. Western Electric Co. plant, Allentown, Pa.—Dec., pp. 130-134.
Automobile factory. See Chevrolet-Flint Assembly Plant.
Avenue Theater, Montreal, Quebec. Luke, Little and Mace, Architects.—BTS—Nov., p. 138.
B

Bank. See Citizens National Trust and Savings.
Barahona, Mario. See Solano, Gabriel.
Barnum, Phelps. See Thompson, W. Stuart.
Baseball Stadium, Cartagena, Colombia, S. A. Gabriel Solano, Jorge Gaitán, Alvaro Ortega, Edgar Burbano, Architects.—July, pp. 88-93.
Basements. See "Comparative Costs of Basements vs. Utility Rooms."
Bath house. See Municipal Bath House and Park, Austin, Tex.
Beach house for Mr. & Mrs. Welton Becket, Cal. Wurdenman & Becket, Architects.—BTS—Sept., pp. 109-111.
Becket, Mr. & Mrs. Welton, Beach house, Cal. Wurdenman & Becket, Architects.—BTS—Sept., pp. 109-111.
Box factory. See Mengel Co. Plant.
Burbano, Edgar. See Solano, Gabriel.


C

Canadian Pacific Railway. Station at Leaside, Toronto, Ont.—BTS—Oct., p. 142.
Catalano, Eduardo F. See Breuer, Marcel.
Central Station, Milan.—BTS—Oct., p. 125.
Chamberlain, Mr. & Mrs. R. W., House, Kensington, Conn. Moore & Salsbury, Architects.—BTS—Sept., pp. 97-99.
"Change House" for Alcohol Plant. See Shell Union Oil Corp.
City planning. See Superblock scheme; Beverly Hills.
Clubs. See Downtown Club, Dallas, Tex.
Coire, Carlos. See Breuer, Marcel.
Color in industrial buildings. See "Functional Color in Industrial Buildings."
Concrete Baseball Stadium. See Baseball Stadium, Cartagena, Colombia.
Connection heating. See "Radiant and Convective Heating Combined."
Crawford, Mr. & Mrs. H. Barney, House, Oklahoma City, Okla. Walter T. & Robert W. Wahlberg, Architects.—BTS—Sept., pp. 120-121.

D

Davidson, J. R., Dsmr. House for Mr. & Mrs. Rubin
Eastern Main Line Railroad Station. Lester Tichy, Archt.—BTS—Sept., pp. 143-146.


Eppenstein, James F. and Raymond Schwab, Archts.

Erected Laboratory Buildings. BTS—Oct., p. 125.

Harrell, George Foster, Archt. Downtown Club, Dallas, Tex.—BTS—July, pp. 132-133.

Harris, Cyril M. See Knudson, Vern O.


Hutton, L. Alex, Archt. Fern Creek Elementary School, Orlando, Fla.—AEC—Sept., pp. 110-115; Mr. and Mrs. Rubin Sabin, The Joseph.


Keck, William. See Keck, George Fred.


Landscaping. See "Indoor-Outdoor Planting Beds."—BTS—Sept., pp. 142-144.


Lewis, Samuel R., and Assocs. See Skidmore, Owings & Merrill.


"Radiant and Convection Heating Combined."—BTS—Aug., 1957, pp. 118-123.


Skafarek, Archt.—BTS—July, pp. 132-133.


"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

"Indoor-Outdoor Planting Beds." Article by Henry B. Aul. Landscape Archt.—Part I, July, pp. 146-148; Part II, Aug., pp. 145-144; Construction

M
March Lane Station, British Railways—BTS—Oct., pp. 129, 134, 135.
Martin, Leandre Brooks and Own house, Bryan, Tex.—BTS—Sept., pp. 112-113.
McNamara, John J. See Voorhees, Walker, Foley & Smith.
Medical Center for Ohio State University. Skidmore, Owings & Merrill, Archts.—Nov., pp. 108-112.
Mejia, Alfonso. See Solano, Gabriel.
Midland, Ont., Railroad Station. See Canadian National Railways.
Milk of Magnesia factory. See Phillips, Chas. H., Co.
Montenegro, Julio Noel. See Solano, Gabriel.
Moving Picture Theaters. See THEATERS.
Murac Air Force Base, Lake Murac, Cal. (Tourma- layer Houses)—Aug., pp. 180, 182.
Museum Lighting. See “Museum Lighting Studied in Laboratory.”
Music Shop. See Gateway to Music, Inc.
Myers, George B. Article, “Planning X-Ray Departments for Hospitals”—AE—Oct., pp. 149-152.

N
“New Architecture for the Movie Theater, A.” Innovations by Ben Schlanger, Theater Archt.—BTS—Nov., pp. 121-123.

O
Office and house combined, architect's, Miami, Fla. Igor B. Polevitzky, Archt.—July, pp. 94-96.
Office Buildings. See Shell Union Oil Corp.
Ohio State University. See Medical Center. Skidmore, Owings & Merrill, Archts.—Nov., pp. 108-117.
Orléans. See "Public Housing in Orléans.”
Ortega, Alvaro. See Solano, Gabriel.

P
Paper box factory. See Mengel Co. Plant.
Park. See Municipal Bath House and Park, Austin, Texas.
Parking. See Beverly Hills, Calif.
“Planning X-Ray Departments for Hospitals.” Article by George B. Myers—AE—Oct., pp. 149-152.
Planting Beds. See "Indoor-Outdoor Planting Beds.”
Prefabricated Railroad Station, project. Lester Tichi, Archt.—BTS—Oct., p. 129.
Santa Cruz, Carlos. See Solano, Gabriel.
Sanford, Carlos. See Solano, Gabriel.
Sanborns, A. See Libby-Owens-Ford.
Santacruz Elementary School. See Fern Creek Elementary School.
Shoe store. See C. H. Baker Shoe Store.
Showrooms. See Knoll Associates, Inc.
Showrooms and offices. See Lily of France Corset Co.
Shaw, Clyde. See Holden, Thomas.


THEATERS. BTS No. 114—Nov., pp. 120-144.

"They Are Planned for Food and for Atmosphere."—BTS—July, p. 22.


Ticket office. See Santo Fe ticket office.

Tournolayer houses. See LeTourneu, R. G., Inc.

Traffic and Parking. See Beverly Hills.

Train designs. Henry Dreyfuss, Raymond Loewy Assocs.—Oct., 140, 141.


V

Vahlgberg, Walter T. & Robert W., Archts. House for Mr. & Mrs. H. Barney Crawford, Oklahoma City, Okla.—BTS—Sept., pp. 120-121.

Valliant, Leandre. Article, "Public Housing in Or­leans."—Sept.—pp. 119-122.


W


"We Need the Facts on Housing." Editorial by Kenneth K. Stowell—Dec., p. 85.

Welch’s Restaurant, Los Angeles, Cal. L. M. Souns­ders, Dnsr.—BTS—July, pp. 120-125.

Wertheim, Ernest. See Davidsion, J. R.


Western Electric Company, Allentown, Pa.—Dec., pp. 130-134.


Wiesbaden-Biebrich Railroad Station, about 1928—BTS—Oct., p. 128.


Wright, John Lloyd, Archt. Own house, Del Mar, Cal.—Oct., pp. 100-103.


Z

Zook, Harold B. See Bisnser, Harold J.

BOOKS REVIEWED

AGE OF ADAM, THE. By James Lees-Milne—Oct., p. 28.

ANATOMY FOR INTERIOR DESIGNERS. By Francis de N. Schroeder—July, p. 28.

CAMP SITE DEVELOPMENT. By Julian Harris Salomon—Dec., pp. 28, 30.

COMMUNITY CENTERS AS LIVING WAR MEMORIALS. A SELECTED BIBLIOGRAPHY WITH INTERPRETIVE COMMENTS. Compiled by James Dohil—Dec., p. 28.

CONABURA. A SURVEY OF BIRMINGHAM AND THE BLACK COUNTRY. West Midland Group—Aug., p. 204.

EARLY CONNECTICUT MEETINGHOUSES. Being an Account of the Church Edifices Built before 1830, Based Chiefly upon Town and Parish Records. By J. Frederick Kelly—Sept., p. 28.

ELIEL SAARINEN. By Albert Christ-Janer—Nov., p. 28.

HOME AND ENVIRONMENT. By Walter Segal—Nov., p. 28.

HOUSES FOR MODERATE MEANS. By Rondal Phillips—Nov., p. 28.

INTRODUCTION TO ARCHITECTURAL DESIGN. By Donald A. Richter—Oct., p. 28.

INTRODUCTION TO COLOR. AN. By Ralph M. Evans—Sept., p. 28.

LE CORBUSIER. Edited by Stamo Papadaki, with essays by Joseph Hudnut, S. Gideon, Fernand Leger, J. L. Sert, and James Thrall Soby—Aug., p. 28.


MODERNIZING OLD HOUSES. By Henry Lionel Williams & Others—Sept., p. 28.


NEW INTERNATIONAL 1948 YEAR BOOK, THE. By Henry E. Vitzetelly, Editor-in-Chief—July, p. 28.

NEW WORLD OF SPACE. By Le Corbusier—Aug., pp. 28, 28.


PAINTING AND SCULPTURE IN THE MUSEUMS OF MODERN ART. Edited by Alfred Barr, Jr.—Dec., p. 30.


SEARCH FOR FORM: A FUNDAMENTAL APPROACH TO ART. By Eliel Saarinen—Aug., p. 28.


URBAN HOME OWNERSHIP: A SOCIO­ECONOMIC ANALYSIS WITH EMPHASIS ON PHILA­DELPHIA. By Henry McCulley Miller—Aug., pp. 30, 204.

VISION OF ENGLAND: CORKWALL. By Peggy Pound—July, p. 28.

VISION OF ENGLAND: DERBYSHIRE. By Nellie Kirkham—July, p. 28.


WINDOWS IN MODERN ARCHITECTURE. By Geoffrey Baker and Bruno Funaro—Dec., pp. 28.
INDEX TO ADVERTISEMENTS

aba Adco, Frank Electric Co. 63
a Aedens & Westlake Co. 58
Aerofin Corporation 220
a Air Devices, Inc. 137
a Albright & Johnson, College of Virginia 184
Allegany Ludlum Steel Corp. 202
aa American Company of America 13-31
a American Abrasive Matels Co. 176
a American Brass Co. 27
aa American Lumber & Treating Co. 43
aa American Radiator & Standard Sanitary Corp. 39
a American Structural Products Co. 229
aa American Telephone & Telegraph Co. 48
a American Tile & Rubber Co. 55
a American Zinc Institute 190
aa Anacoste Copper Mining Co. 27
aa Anchor Past Products, Inc. 188
aa Calotex Corporation 248
a Benjamin Electric Mfg. Co. 75
a Bethlehem Steel Company 42-211
a Bird & Son, Inc. 236
aa Blaxk, Frederici & Co. 207
Books. 192-193-204-210-212-235
aa Blue Cross Mfg. Co. 179
a Brass & Bronze Institute Institute 56-57
a Bruce, E. L. Co. 46
a Burnham Corporation 225
a Burt Mfg. Co. 18
Byers, A. M. Co. 4
aa Cabot, Samuel, Inc. 162
a Cambridge Tile Mfg. Co. 155
a Carrier Corporation 66
a Ceca Steel Products Corp. 155
a Combustion Equipment Co. 184
a Conner, W. B. Engineering Corp. 199
aa Conner Lumber & Loin Co. 224
aa Cork Insulation Co., Inc. 216
aa Corning Glass Works 45
aa Coyne & Delany Co. 206
a Crane Co. 40
a Cutler Moli Chute Co. 226
aa Day-Brite Lighting, Inc. 150
aa Detroit Steel Products Company 72-173
a Douglas Pk Plywood Association 169
a Durham, C. Co. of America 232
aa Du Pont, E. I. de Nemours & Co. 218
a Duriron, Co. 170
aa Durisol, Inc. 169
aa Dry Products Corp. 180
aa Ebco Mfg. Co. 232
aa Elkhorn MANUFACTURERS' PRE-FILED CATALOGS
Symbols "a", "b", and "c" indicate that catalogs and items as marked are available in Swift's files as follows:
a—Swift's File, Architectural, 1948
b—Swift's File, Builders, 1948
aa—Swift's File, Engineering, 1948

Manufacturers' Pre-Filed Catalogs

MANUFACTURERS PRE-FILED CATALOGS
Symbols "a", "b", and "c" indicate that catalogs and items as marked are available in Swift's files as follows:
a—Swift's File, Architectural, 1948
b—Swift's File, Builders, 1948
aa—Swift's File, Engineering, 1948


a Frink Corporation 73
a General Anilin & Film Corp. 230
a General Controls 206
a General Electric Co.—Air Conditioning 195
a General Electric Co.—Plastics 41
a General Electric Co.—Stoves 131
a General Pencil Company 230
a General Portland Cement Co. 236
a General Wire & Cable Co. 23
a Grand Rapids Hardware Co. 214
a Great Lakes Steel Corporation 50-51
a Grasselli Chemicals Department 218
a Hews Drinking Fountain Co. 218
a Haynes Products Company 214
a Hendrick Mfg. Company 227
a Herrin-Hall Marvin Safec Co. 244
a Holophane Company, Inc. 189
a Hood Rubber & Gasket, Inc. 190
a Hope’s Windows, Inc. 38
a Horn, A. C. Company 29
a Horn Brothers Company 194
a Imperial Brass Mfg. Co. 6
a Independence Rock Co. 40
a Infra Insulation Inc. 210
a Ingersoll-Union Utility Unit Division 69
a In-Sink-Extractor Mfg. Co. 190
a Intuitive Division 11
a International Heating & Ventilating Expand. 12
a International Nickel Company, Inc. 191
a Jackson & Church Co. 3rd Cover
a Jamestown Metal Corp. 234
a Jenkins Bros. 244
a Johns-Manville 54
a Keesey & Mattison Company 78
a Kennedy, David E., Inc. 67
a Kimberly-Clark Corp. 52
a Koh-I-Noor Pencil Co. 80
a Kohler Co. 197
a L.C.N. Door Closers 205
a Libbey-Owens-Ford Glass Co. 236
a Lockwood Hardware Mfg. Co. 40
a Leno Star Cement Corporation 1
a Louisville Cement Co. 49
a Macomber, Incorporated 10
a Mahon, R. C. Company 83
a Marble Institute of America, Inc. 82
a Marsh Wall Products, Inc. 200
a Martin-Perry Corp 25
a Maslen Duroleather Co. 19
a Medusa Portland Cement Co. 216
a Mengal Company 185
a Master, Geo. L. Steel Corp. 22
a Metal Tile Products Co., Inc. 178
a Michaels Art Bronze Co. 156
a Minnesota & Ontario Paper Co. 11
a Mindine Manufacturing Co. 203
a Monarch Elevator & Machine Co. 228
a Monear, Lederer & Toussaint, Inc. 218
a Netco Store Fronts 238
a National Chemical & Mfg. Co. 177
a National Electric Products Corp. 179
a National Gypsum Co. 179

a National Oak Flooring Mfrs. Assoc. 16
a National Radiator Company 215
a National Terrazzo & Mosaic Assoc. 226
a New Castle Products 236
a Noran Door Closer Mfg. Co. 212
a Ohio Chemical & Mfg. Co. 64
a Okonite Company 228
a Olsonsole Plastics Division 231
a Onine, D. W. & Sons 186
a Otis Elevator Company 35
a Owens-Illinois Glass Co. 229
aa Ozalid Products Division 230

Paddock Pool Equipment Co. 238
a Parker, Charles Company 157
a Parmenter Products Company 34
a Petroleum Heat & Power Company 127
a Pittsburgh Plats Glass Co. 215-216-219
a Pittsburgh Refractor Co. 157
a Plywood, Inc. 70
a Portland Cement Association 165
a Powers Regulator Company 239
a Purnice Producers Association 61
a National Copper Co. 233
a Ravore Copper & Brass, Inc. 164
a Reynolds Metals Co. 71
a Richards-Wilcox Mfg., Inc. 164
a Richardson Radiator Company 208
a Smith & H. N. Company 64-65
a Rotary Lift Co. 79
a Tapsell, F. C. Company 222
a Seree Company, Inc. 216
a Schleg Lock Company 166
a Scott Washroom Advisory Service 167
a Seaportal Molds, Inc. 224
a Serval, Inc. 36-37
a Silskeff Co. 214
a Sloan Valve Company 4th Cover
a Smith, A. O. Corporation 79
a Smith, H. B., Inc. 188
a Solar Light Mfg. Co. 208
a Sperrylite Company 224
a Stewart Iron Works Co., Inc. 238
a Steel-Steel Division 50-51
a Swedish Crucible Steel Co 231
a Symmons Engineering Co. 220
a Thermos Divison 206
a Timber Engineering Co. 208
a Timber Structures, Inc. 234
a Todd Shipyards Corp. 184
a Trans Mfg. Co. 23
a Trinity Portland Cement Division 236
a Union Carbide & Carbon Corp. 223
a United States Gypsum 74
a United States Plywood Corp. 33-185-196
a United States Steel Corporation Subsidiaries 154
a Universal Atlas Cement Company 154
a Universal Blender Company 228
a Universal Corporation 217
a Van Iron Company 81
a Wade Manufacturing Co. 182
a Wakefield, F. W. Brass Company 24
a Walker Brothers 221
a Webster, Warren & Co. 81
a Werner, R. D. Co., Inc. 228
a White-Winds Motorcars, Inc. 81
a Whington Pump and Machinery Corp. 219
a York Corporation 227
a Young Radiator Co. 230