Quality with a Capital

LONE STAR CEMENTS
FROM SOUP TO NUTS—QUALITY ALL THE WAY THROUGH

Telephone Buildings are designed with quality the sole arbiter. This new structure at West New Brighton, Staten Island, N. Y., is a case in point. Working on a schedule which ticked like a well-regulated watch, 'Incor' 24-Hour Cement was used in retaining-wall construction to permit quick back-fill. During cold weather, in frame and floor concrete, 'Incor' reduced freezing risk and cut heat-protection costs by better than 50%. In all other concrete, where time was not a factor, Lone Star Cement was used. Matching the quality of the concrete is the brick masonry, in which Lone Star Masonry Cement was used to produce clean, smooth, moisture-proof joints.

Lone Star Cements meet every construction need. Use 'Incor', where dependable high early strength reduces form, time and cold-weather costs... elsewhere, use Lone Star Cement. For mortar, use Lone Star Masonry Cement. Selective use of Lone Star Cements means maximum quality at minimum cost.


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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

APRIL 1949
"Open vision" fronts require quality glass products. "Pittsburgh" has a complete line of well-known, job-tested products to help you create fronts that are not only distinctive, but which meet the most exacting demands placed on store front materials by this popular new "open vision" trend. Architect: J. Brinton Young, Roslyn, Pa.
This teller's screen helps to point out the versatility of Pittsburgh Polished Plate Glass. Because this quality glass is flawlessly transparent, possesses maximum surface beauty and is available in various curved shapes, you can use it in just about every application where these characteristics are indicated. Architect: Harold A. Hayden, Bristol, Conn.

Pittsburgh Plate Glass Company has developed an instrument which makes it possible to "read" the exact thickness of a silver film at any point on a mirror. The remarkable instrument thus insures more uniform mirror silvering quality. This development is another practical result of "Pittsburgh's" energetic program to improve the quality and the performance of all "Pittsburgh" products.

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.

Pittsburgh Plate Glass Company
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Please send me, without obligation, your booklet entitled: "Ideas for the Use of Pittsburgh Glass in Building Design."

Name: ____________________________
Address: ____________________________
City: ____________________________ State: ________
SOIL AND WATER both corrosive—so underground steam line replacements are **BYERS WROUGHT IRON PIPE**

 spreads from a brackish swamp—are highly corrosive, so that the maintenance of the piping system has been a problem. Wrought iron has been extensively used in replacements. The illustration at left shows part of three 2000-foot runs of Byers Wrought Iron pipe recently installed between the steam plant and the Administration Building. The 6-inch supply line, the 2-inch vacuum return, and the 1 1/2-inch high pressure return, all wrought iron, are installed in a concrete tunnel with a slab top.

The ability of wrought iron to resist the severe corrosive conditions usually present in underground installations has been confirmed many times, over long periods of years. One example comes from Illinois, where a ten-inch wrought iron underground steam line was installed years ago. At last report, made after 39 years of continuous service, the line was still operating... and had required no maintenance whatsoever.

Wrought Iron’s unusual resistance to corrosion comes from its unusual composition and structure. Tiny fibers of glass-like silicate slag, threaded through the body of high-purity iron, halt and “detour” corrosive attack, and so discourage pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

The complete story of what wrought iron is, how it is made, and where it is used is condensed in a booklet, "THE ABC’S OF WROUGHT IRON". We will be happy to send you a copy.


**CORROSION COSTS YOU MORE THAN WROUGHT IRON**

BYERS

GENUINE WROUGHT IRON TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS
Architectural Record is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York, N. Y. Western Editorial Office, 2813 Channing Way, Berkeley, Calif. Thomas S. Holden, Free; Howard J. Berringer, Vice-President; and Treas.; Irving W. Hadwell, Vice-Prez.; Clarence L. Williams, Vice-Prez; Sanford D. Stockton, Jr., Secy.; Walter F. DeSax, Asst. Treasurer; Edwin H. Freid, Asst. Treasurer. Member Audit Bureau of Circulation and Associated Business Papers, Inc. Architectural Record is indexed in Reader's Guide, Art Index, Industrial Arts Index and Engineering Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, $4.50 the year, $7.50 for two years, $9 for three years; elsewhere, $6.50 the year, $11.50 for two years, $15 for three years. Single copy, $1. Circulation Manager: Marshall T. Grim. Every effort will be made to return material submitted for possible publication if accompanied by stamped, addressed envelope, but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalog, Dodge Reports & Dodge Statistical Research Service.
For complete information on Watrous Flush Valves see Sweet's Catalog.

**Fine Flush Valves for Fine Buildings**

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**THE IMPERIAL BRASS MANUFACTURING COMPANY**

1240 W. Harrison Street, Chicago 7, Illinois
THE RECORD REPORTS

Ralph Thomas Walker of New York Wins A.I.A. Presidential Race as Institute Convenes at Houston; Twenty-eight New Fellows Announced

For the first time in many a year delegates to an American Institute of Architects convention were confronted with real choices to be made for officers when the Institute convened in Houston on March 15. Politics mixed into meetings in hotel lobbies and smoke-filled rooms. Candidates were interviewed, supporters argued and persuaded, and a record vote was cast with only one qualified voter failing to cast his ballot. The self-styled Thomas Walker, New York; First Vice President, Dean of Architecture at Massachusetts Institute of Technology.

When the votes were tallied, the following results were reported by the tellers: President and Director, Ralph Thomas Walker, New York; First Vice President and Director, Glenn L. Stanton, Portland, Ore.; Second Vice President, Kenneth E. Wischemeyer, St. Louis, Mo.; Secretary and Director, Clair W. Ditchy, Detroit; Treasurer, Charles F. Cellarius, Cincinnati; Director, New England District, Harold B. Willis, Boston; Director, New York District, Arthur C. Holden, New York; Director, North Central States District, Wilbur H. Tusler, Minneapolis.

Chief among the honors bestowed at the convention was the awarding of the Institute's Gold Medal to Frank Lloyd Wright. The presentation was made by Douglas W. Orr, retiring president, at the annual dinner on the final evening. Said Mr. Orr: “Prometheus brought fire from Olympus and endured the wrath of Zeus for his daring; but his torch lit other fires and men lived more fully by their warmth. To see the beacon fires he has kindled is the greatest reward for one who has stolen fire from the gods.

Frank Lloyd Wright has kindled men's hearts. An eager generation of architects stands today as his living monument.”

To Fred Langhorst of San Francisco went the First Honor Award for Residential Architecture, for the residence of Dr. and Mrs. Alex J. Ker (Architectural Record, April, 1948, pp. 104-108). Marsh, Smith and Powell of Los Angeles received the First Honor Award for Schools for the Corona Del Mar School, and Louis Conrad Rosenberg, of Fairfield, Conn., was awarded the Fine Arts Medal.


In Ralph Thomas Walker the American Institute of Architects has a president worthy of its finest traditions. A native of Waterbury, Conn., and a graduate of the Massachusetts Institute of Technology, Mr. Walker is one of the best known and most honored members of the Institute. Gold Medalist of the Architectural League of New York in 1927, he is a past president of the New York Chapter, A.I.A., and has served as chairman of the Committee on International Congress of Architects, A.I.A., and delegate to the first Congress of International Union of Architects. He is a Fellow of the Institute, and partner in the New York architectural firm of Voorhees, Walker, Foley & Smith.

(News continued on page 10)
ANNOUNCING AN AMAZING SYSTEM OF DISTRIBUTING HEAT FROM A STANDARD G-E FURNACE

NEW!

AIR-WALL HEATING

reduces installation costs

up to 50%

THIS NEW SYSTEM provides greater comfort, complete freedom of furniture placement, and quieter operation. Best of all...it is teamed up with time-tested General Electric Automatic warm air furnaces...for either gas or oil. Not since G-E introduced the famous G-E oil-fired boiler has there been a home-heating development as important as "Air-Wall"!

REDUCES INSTALLATION COSTS AS MUCH AS HALF! By using warmer air, sent through small, prefabricated, 4-inch ducts, large, expensive, custom-built ducts are eliminated. This means big savings in both material and labor! The cost of the duct work...installed...is as much as 50% less, saving up to $200.00 on a six-room house!

GREATER COMFORT. "Air-Wall" Heating gives you two types of heat: forced warm air with all of its advantages, plus radiant heat, as the wall is warmed by the air. The amazing new G-E "Air-Wall" Register, a product of G-E research and engineering, is placed just above the baseboard in the outer walls of the rooms. It directs the air up and out in front of the wall...warms the cold surface so it radiates heat. You get better forced warm air heat as well, and the air pattern cuts down drafts which creep down outside walls and sweep across the floor.

FREEDOM OF FURNITURE PLACEMENT. You can sit directly in front of the "Air-Wall" Register and feel no draft...no uncomfortable hot blasts. In the morning, when the system automatically goes on, you feel no cold air which has been stored in the ducts.

QUICK OPERATION. Small "Air-Wall" Ducts dampen furnace noise more readily than large ducts. Even though the warm air comes out from the "Air-Wall" Register at increased speed, the design of the register decreases noise.

ALL THE ADVANTAGES. G-E "Air-Wall" Heating actually gives you the advantages of other home-heating systems...without their disadvantages. You get more uniform floor-to-ceiling temperatures and warmer floors because of the combination of the two types of heat...panel heating and warm air circulation. You can adjust the flow of heat to each room quickly and easily, without upsetting the "balance" of heat flow to other rooms.

You do more "living" and less "head-bumping" in your basement, because the "Air-Wall" Ducts are so neat and compact. Of course, you have heat that is completely automatic and warmed air that is both filtered and humidified, because the system operates with G-E Warm Air Furnaces.

BUILDERS..TAKE NOTE: G-E "Air-Wall" Heating is engineered for low cost from furnace to rooms by the same famous standards long built into the G-E furnaces themselves. It's easier to estimate a job when you are planning to use "Air-Wall." It's easier and less expensive to install—because of the standard ducts, elbows and register boxes. The system can be installed in houses with or without basements.

WHERE IS G-E "AIR-WALL" AVAILABLE? It is available RIGHT NOW through your local General Electric Heating Distributor. He is listed in your classified telephone directory.

THIS AD WILL APPEAR IN THE SUMMER AND FALL ISSUE OF SMALL HOMES GUIDE.
For economy, for comfort, for quality... **Automatic Heating Equipment**

**USE THESE EFFICIENT, LOW-COST UNITS FOR FORCED WARM AIR HEAT**

General Electric GAS-FIRED Warm Air Furnaces... come in five compact sizes, the largest of which takes up little more floor space than an average-size refrigerator. You'll like their clean, quiet operation, their quick heat, their unusually high efficiency, their filtering which cuts down dust and dirt. They are approved by the American Gas Association and the Underwriters' Laboratories, Inc., and can be installed in confined spaces. All units circulate, filter and humidify the air. Designed for use with the new G-E "Air-Wall" system of heat distribution.

General Electric OIL-FIRED Warm Air Furnaces... come in four models... all of them low-cost, compact, easily installed, quiet and long-lasting. They are designed to save you money on fuel bills because of the compressed air-oil impact method of atomization of each drop of oil. This method assures you of efficient combustion and high heat-transfer rate, and a minimum of heat loss up the chimney. All four models circulate, filter and humidify the air. Designed for use with the new G-E "Air-Wall" system of heat distribution.

**FOR STEAM OR HOT WATER HEAT, USE THESE FAMOUS G-E BOILERS**

General Electric GAS-FIRED Boilers... turn gas fuel into low-cost comfort. Three to five minutes after the flame goes on, steam is sizzling in the radiators, or hot water is pouring out its warmth. Clean, complete and efficient combustion is accomplished through the use of raised port atmospheric burners. Each burner assembly is designed for the specific type of gas that is to be used. All models are approved by the American Gas Association. Heavily insulated, with jacket construction of heavy steel, these G-E gas boilers go into your basement to stay... and to give you top performance.

General Electric OIL-FIRED Boilers... give quick comfort, at less cost. These are the compact, efficient furnaces upon which General Electric has built its heating reputation. Thousands of homeowners certify to large savings. The way the oil is burned assures you that you get the most heat from every gallon because (1) the oil is mixed with air into a frothy, bubbly foam; (2) each single bubble is then shattered into millions of particles; and (3) these particles burn completely — giving you complete combustion. These boilers are designed to prevent heat loss up the chimney during off periods... which means additional fuel savings. Five models available.

These are products of the General Electric Air Conditioning Department, headquarters for commercial refrigeration, air conditioning, and home heating.

You can put your confidence in **General Electric**

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General Electric Company, Automatic Heating Division  
Section AR449, Bloomfield, New Jersey  
I want free information on G-E "Air-Wall" Heating  
Please send booklet on G-E oil-fired furnaces  
G-E gas-fired furnaces  
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I enclose 10¢ in coin for each booklet

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ADDRESS........................................................

CITY............................. ZONE.................. STATE..................

APRIL 1949
THE RECORD REPORTS

(Continued from page 7)

Housing Picture Brighter

Despite the virtuous continuation of Washington emphasis on the housing shortage, the overall housing picture is brighter than it has been for a long, long time. At least that seems to be the consensus of groups everywhere but on Capitol Hill.

The semiannual survey of the National Association of Real Estate Boards, for example, shows fewer cities reporting a shortage of apartments than at any time since November, 1944, and a shortage of single family dwellings less prevalent than at any time since December, 1940. Only 56 per cent of the 565 cities covered in the N.A.R.E.B. survey reported a continuing shortage of used single family homes, and only 52 per cent reported a lack of new houses in that category.

Those figures are more encouraging than they appear at first glance: at the close of 1947, says N.A.R.E.B., single family houses (old and new together) were short in 97 per cent of the surveyed cities, and six months ago in 75 per cent. Likewise, undersupply of apartments now is felt in 78 per cent of the reporting cities as against 98 per cent a year ago and 87 per cent six months ago. In other words, the N.A.R.E.B. survey shows a most encouraging and consistent downward trend in the housing shortage.

Home Builders Optimistic

With a million or so new units added to the nation's housing supply in 1948, smashing all previous records for home building in this country, a general optimism prevailed at the convention of the National Association of Home Builders in Chicago late in February. It was an optimism born of a job well started, however, not of a job well done: there was much less shoulder patting than earnest study of the problems still to be solved.

Convention keynoter was Edward R. Carr of Washington, D.C., immediate past president of the Association, who gave the home builders two challenging goals for the coming year: technical ad-

N E W S F R O M C A N A D A

C.C.A. Calls for Subsidies

The Canadian Construction Association passed a number of resolutions at its recent annual meeting in Toronto (ARCHITECTURAL RECORD, March, 1949). It called for modernization of ancient, unrelated building codes, importation of skilled bricklayers and plasterers from abroad, and reconsideration by labor of any plans it might have for a fourround wage drive.

The Association also reaffirmed its belief in free enterprise and forcefully advocated adoption of a national public housing program.

Steel and reinforced concrete plant for the Visking Corporation, now under construction in Lindsay, Ontario; A. G. Facey, Architect. To cost about $1,000,000, the building will have square columns, concrete floors, brick and block walls, felt and gravel roof.

Does this appear inconsistent? Rather similar to the position taken by the politician who promises to spend more and tax less? The C.C.A. executive doesn't think so. He believes that relief of social problems, such as those posed by poor housing, is essential if capitalism is to survive. Of course, other authorities just as interested in preserving the existing economic order argue that subsidies perpetuate existing building methods, postponing the day when every wage-earner can afford a new house.

In any case, the Association sees its program as a "modest" one "in keeping with the needs and abilities of the Canadian people and the availability of labor and materials." It proposes a 10-year program involving erection of 120,000 dwelling units and says its member contractors are ready to proceed "as soon as agreement is reached among governments on the solution of land and financial problems."

Agitation for housing subsidies by many important organizations seems to be having effect at Ottawa. Prime Minister St. Laurent, who may face a general election this year, has come a long way in his thinking. Over a year ago he de-

(News continued on page 154)
FOR GREATER SATISFACTION

BUILD THE Double Duty WAY

WITH INSULITE

Insulite BILDRITE Sheathing provides greater bracing strength than wood sheathing horizontally applied. It can be put on in less time, reduces labor costs. It provides more than twice the insulating qualities of wood sheathing. That adds up to better construction, economy in cost, warmer weather-tight walls. Your clients will recognize it and like it!

Refer to Sweet's File, Architectural Section 106/9

Double Duty INSULITE

The GENUINE

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MINNESOTA & ONTARIO PAPER COMPANY
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"Insulite" is a registered trade mark, U.S. Pat. Off.
We installed Webster Baseboard Heating in 1947. After two full heating seasons we are more than pleased with the comfort and cleanliness of Webster Baseboard Heating...

Here is testimony about Webster Baseboard Heating from a nationally-known heating contractor. Wray M. Scott, is a leading Omaha, Nebraska heating contractor; he is also treasurer of the Heating Piping & Air Conditioning Contractors National Association. He makes a practice of thoroughly testing new heating developments.

In 1947, Mr. Scott had Webster Baseboard Heating installed in the living room, dining room, four bedrooms, hall and stair landing of his Omaha home. Now he is enthusiastic about Webster Baseboard Heating, and recommends it for new homes as well as for modernization.

PERFECTIONED HOT WATER HEAT

Webster Baseboard Heating is dependable, perfected hot water heating installed behind a specially-designed, attractive metal Baseboard around the exposed walls of the house. Floors and walls are warm, fuel costs are low.

Tests of room temperatures have shown less than 2 degrees variation between ceiling and floor even in sub-zero weather!

Write for your copy of "Where is the Radiator?" and booklet, "Questions and Answers about Webster Baseboard Heating". Address Department AR-4, Warren Webster & Company, Camden, New Jersey.

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(Continued from page 10)

he added, but at the same time they must see to it that the public understands the truth about housing. "There has never been so much misinformation circulated about any question than there has recently about housing," he said.

"Housing has become the great American topic of conversation," Franklin D. Richards, FHA Commissioner, told the meeting in stressing the need for continued high production of housing. With the median income of the American family just under $3000, he warned, serious consideration must be given to the vital factor of "capacity to pay." He praised the Economy House program, and explained the main points of the FHA plans for cooperative housing and yield insurance, but barely touched on the availability of mortgage money.

New NAHB officers elected during the meeting are: Rodney M. Lockwood of Detroit, president; Thomas P. Coogan of Miami, Fla., first vice president; William P. Atkinson of Oklahoma City, second vice president; Nicholas F. Molan of Cleveland, secretary; and Nathan Manilow of Chicago, treasurer.

Contractors Cheerful, Too

The construction industry should be able to execute a larger volume of work faster and more efficiently during 1949 than in any year since the end of the war, Managing Director H. E. Foreman reported to the 30th Anniversary Convention of the Associated General Contractors of America in New York last month. With the expectation of more adequate materials and equipment, more skilled workmen, more competition, and no major upsets to the national economy, Mr. Foreman said, there is every reason to anticipate this.

A.I.A. President Douglas William Orr urged that construction and architecture, and the numerous industries associated with them, collaborate in a new type of research on the advances of science. There is insufficient research under way, said Mr. Orr, to discover means and methods of coordinating the various parts of the industry. He recommended that the A.I.A. and the A.G.C. join forces on such a program.

New A.G.C. officers are: Adolph Teichert, Jr., of Sacramento, Calif., president; Walter L. Couse, Detroit, vice president.

(News continued on page 14)
Who...

Should do the worrying about how much water a roof drain should handle?

EVERYTHING FOR DRAINAGE SYSTEMS... EXCEPT THE PIPE

Zurn Engineers are paid by us to do just that for you. Zurn Engineers, professionally trained and enlightened by over 40 years of experience, know what is required to meet every drainage service condition in every type of modern building. For instance, Zurn Engineers perceived the need for a roof drain that would handle a larger volume of water at a faster rate. They studied and analyzed the time factor in seconds and minutes; the rate of flow and its force; air pressures; open area ratios; hydraulic head; resistances to flow; temperatures; building design and construction detail; rainfall statistics; and numerous other conditions. Then they set to work to design the Zurn Cloudburst Type Roof Drain—a drain that not only will accommodate cloudburst conditions but will do so at reduced construction costs, as compared with conventional methods.

Zurn Engineering is engaged continually in research to determine new and unusual drainage requirements common to the construction of modern types of buildings and climatic conditions. Zurn Engineering is continually developing drains of suitable type required to perform specific drainage functions. Thus do Zurn Engineers substantiate the statement that"Zurn Provides Better Ways, to Drain Waste and Rain Water, through Research and Engineering".

J. A. ZURN MFG. CO.
PITTSBURGH AVENUE • ERIE, PA., U. S. A.

Zurn Provides Better Ways, to Drain Waste and Rain Water, ...through Research and Engineering

Zurn Cloudburst Type Roof Drains are suitable for installation on wood, concrete, prefabricated steel deck or other roof construction. The rapid flare of the dome facilitates maximum flow of water into the drain. Large, deep sump area in drain body maintains hydraulic head on downspout to compensate for pipe entrance friction factor; allows entrained air to escape. Consequently, the cloudburst type drain carries off sudden surges of water quickly and efficiently. This type drain marks a notable advancement in roof drainage.

The complete line of Zurn Building, Plumbing, Drainage Products includes: Floor and Roof Drains for every type of installation - Grease Interceptors - Oil Interceptors - Plaster and Solids Interceptors - Swimming Pool Equipment - Backwater Valves - Wall Fixture Carriers - Wall Closet Fittings - Plumbing-Drainage Fittings - Cleanouts - Bath Traps - Hydrants - Street Washers...
In this attractive, modern plant, it's *mullions* by Alberene—because Alberene mullions match so well the shadow effect of the windows...blend so perfectly with the exterior of the building as a whole.

And...it's Alberene Stone, too, for modern-looking, durable, maintenance-free spandrels...sills...stools...trim.

Here's why—

- **Esthetically,** Alberene soapstone is *right* for giving a building—institutional or industrial—the modern touch. *Because...* its natural greenish-blue color harmonizes with any decorative pattern. *And its moisture-proof surface does not chip, scale, or split—*it always looks good!

- **Financially,** Alberene soapstone is *right* for pleasing even your most budget-minded client. *Because...* its reasonable price...its ability to be cut into thin sections...*and its outstanding durability makes it triply economical.*

**ALBERENE STONE CORPORATION**

of **VIRGINIA**

419—4th Ave., New York 16, N.Y.
This wall never will enclose anything. It never will support anything...except facts.

It was designed with the assistance of one of America’s leading architects; erected under the supervision of one of the world’s largest construction firms. They will collaborate with Alcoa in testing its performance.

We are working here to develop new methods of aluminum curtain wall construction with higher factors of strength, durability, insulation and fire resistance; and low erection and maintenance costs.

This is one of many Alcoa research projects now under way in the building field. The answers as we find them will be available to all architects and engineers.

During more than 60 years of aluminum research and development we have found the solutions to many problems of designing and building with aluminum. This information and our engineering assistance are available to you. Write or call your local Alcoa sales office or ALUMINUM COMPANY OF AMERICA, 1867 Gulf Building, Pittsburgh 19, Pennsylvania.
This NEW BROCHURE . . .

tells about the "quiet" ceiling with 100,000

"Noise Traps"

Send for your FREE copy.
Learn how Fibretone* gives you QUIET

* In this new brochure, you can read in non-technical language how noise-control brings quiet to your office, restaurant, bank, store, school, factory, or recreation center.

In simple, easy-to-understand words and pictures, the book tells the story of Johns-Manville Fibretone, the new low-cost acoustical ceiling unit. Graphic diagrams explain the ingenious Fibretone "noise traps"—small holes drilled in the sound-absorbing panels. Photographs of actual installations emphasize Fibretone’s attractive appearance.

Once you experience the benefits of Fibretone, you'll never be satisfied with an ordinary, noise-reflecting ceiling.

Send for this new Fibretone brochure . . . and see for yourself how it shows the way to a more comfortable environment, less nerve strain, increased production! Write Johns-Manville, Box 290, Dept. AR-4, New York 16, New York.

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(Continued from page 14)

ing the meeting, he outlined them in greater detail, though still in broad terms, as follows:

1. To list, review and correlate the results of completed research.
2. To list, review and correlate current research activities.
3. To disseminate information so obtained.
4. To sponsor forum discussion of research aims and results.
5. To coordinate research effort and actively sponsor elimination of needless research.
6. To foster research in relatively undeveloped areas.
7. And generally to further the application of scientific methods for the improvement of building construction practices.

What, precisely, is BRAB?

BRAB is a committee of 27 men, its membership drawn from the fields of science, architecture and engineering, building construction, research, labor, government, and material production. It is to function as a part of the National Research Council. This Council, in turn, is the research agency for the National Academy of Sciences, an independent organization. (Sponsors point out that BRAB will be completely free from political influences, considering this factor one of its primary assets as it undertakes the huge task ahead.)

The Construction Industry Advisory Council of the Chamber of Commerce of the United States has been instrumental in getting the Board established. CIAC has done a great deal more than just pay lip service to the endeavor. In fact, it has handled money-raising details to date. BRAB expects to operate with an annual stake of $100,000 over a five-year period. This arrangement does not limit its life to five years, however. The plan is for this new approach to continue indefinitely; much in the manner that the National Highway Research Council has served road building for more than two decades.

Now that the Board has held its initial meeting, it will name a full time secretary and move ahead with funds made available through contributions. Every segment of the building construction industry is being given an opportunity to participate. Grants and commissions

(Continued on page 18)
Lightweight concrete, properly designed with uniform graded pumice aggregate offers many structural advantages and actual construction savings that are worth careful consideration by architects and engineers. At Altus, Oklahoma, for example, the dead load of the structural frame for this monolithic hospital building was reduced approximately 50% by the use of pumice concrete. A saving of 45% in reinforcing steel with the same live load capacity was accomplished. In addition to these advantages, usable space efficiency was improved materially due to a smaller supporting frame made possible by the lighter load.

Plus Value!

THERMAL INSULATION

Taking full advantage of the insulating value in pumice, the designers of the Altus hospital used 8" roof and floor slabs with an insulating value approximately equal to a normal 6" slab of ordinary heavy concrete PLUS 3" of insulating material.

Plus Value!

ACOUSTIC INSULATION

Where acoustic properties are desirable, the walls of this material are finished with a rough texture, the resulting high percentage of sound absorption achieves a quietness that adds materially to the comfort of occupancy. This characteristic is especially noticeable in masonry walls and partitions.

Plus Value!

LOW SOUND TRANSMISSION

Average transmission losses of 53 decibels have been ascertained for this material. This low transmission factor greatly reduces the chance of noise in one room disturbing the quiet in other rooms.
One touch of your finger will tell you why wood windows maintain their widespread popularity. For wood is a natural insulating material. It retards transmission of heat or cold, minimizing dimensional change due to temperature variation. Ponderosa Pine's low density, smooth texture, and uniform grain provide a natural bond for all finishes. Moderate in cost, and available in modular standard sizes in a wide variety of styles, Ponderosa Pine windows are correctly proportioned and precision made for quick installation. These windows are available at cost-preservative treated in accordance with tested industry standards. Preservative treatment of your Ponderosa Pine windows gives added resistance where staining, decay, insect attack or humidity are problems.

Your copy of a helpful booklet on Ponderosa Pine windows and doors is yours for the asking.

W O O D W O R K

Ponderosa Pine Woodwork
SAR-4, 38 South Dearborn Street
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Please send me a copy of "Today's Idea House." (Please print).

Name ..................................................
Address ...........................................
City ......................................... Zone...... State ...........

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(Continued from page 16)

will be accepted, but the Board will itself spend no money on direct research; its funds will be used for the study of research and wider applications.

The true motivating force behind BRAB can be summed up in Dr. Rassewiler's statement that too many decisions in the field of construction are now being made on opinions and not on facts. Take building codes as a case for illustration. Should BRAB decide to count building regulations as one of its fields for study, it would assemble and publish what it deemed necessary as basic building standards, disseminating this as fact for whatever use industry wished to make of it. There will be no compulsion, but possibly some persuasion will come into the picture as the board distributes its facts.

How Much Public Housing?

The Senate's Banking and Currency Committee has settled on a compromise figure of 810,000 for the number of public housing units to be constructed over a six-year period. This placed the average annual rate at 135,000 units, resolving temporarily at least an argument that had waxed hot during the three weeks a subcommittee and the full committee studied housing bills. The compromise between the prominent Democratic and Republican housing bills in the Senate brought the public housing figure more nearly into line with the Republican bill in the House, and helped to effect the return to bipartisan support in the upper chamber.

Senator Taft, who repeatedly has objected to any public program reaching beyond 10 per cent of the total home building volume, joined 10 other Republicans in sponsoring the Banking Committee bill along with 11 Democrats. Taft had said he would not support any bill calling for more than 150,000 public housing units per year.

The number of public housing units to be decided upon stirred up as much controversy during committee considerations as any other single issue. Apropos of this were news accounts that Census Bureau figures were unearthed by President Truman's advisers, purporting to show four million "hidden" dwelling units made habitable since 1940 but not taken into account in making out the case for legislation to construct 1,050,000 public housing units per year.

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(Continued on page 20)
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THE RECORD REPORTS

(Continued from page 18)

public housing units in seven years as requested by the President. It was said that this "discovery" was causing some members of Congress to change their minds on the subject of housing need.

The housing agency was quick to take objection to these accounts. Raymond M. Foley, administrator of the Housing and Home Finance Agency, even filed a statement with the Senate Banking Committee denying these stories and supporting the President's proposed program.

Implications that the Census Bureau figures had been suppressed until shortly after the Administration bill was introduced in the Senate were vigorously denied by HHFA. The agency said these very Census figures were published more than a year earlier, on October 29, 1947, in Current Population Reports Series P-70, No. 1, and that the 1947 Census data were used extensively by the Joint Committee on Housing of the 80th Congress in its final majority report. This report came out on March 15, 1948. The figures also have been given wide publication, Foley's office claimed, in printings made by the agency itself.

But whether or not this tempest in itself bore directly on the Senate committee's decision, the fact remains that President Truman's requested volume of 1,050,000 public housing units for construction in seven years was pared down to 810,000 units in six years in the committee bill—a strong factor in restoring the bipartisan support that broke up during the earlier weeks of the 81st Congress.

A.I.A. Wants Local Control

The organized architects of the country, through A.I.A., approved construction of public housing for families of low income. Louis Justement of Washington, D. C., was spokesman for the Institute. He told the Senate subcommittee on housing: "We regret to see the administration of this important function (slum clearance) made subordinate to housing. Housing is only one part of urban redevelopment and should not become the controlling factor.

"If we approach urban redevelopment from the point of view of mere slum clearance, there will be a strong temptation to replace patches of blighted housing with patches of sanitary housing..."
Here are two types of Mahon Insulated Steel Walls which have been enthusiastically accepted for certain types of industrial, commercial and special purpose buildings. The "Field Constructed" Wall—which appears in the illustration below—has stiffening ribs at six inch centers on the outside of the wall . . . the inside surface of the wall is smooth, with an interlocking joint at one foot centers. Walls constructed with the "Prefabricated Panels" have stiffening ribs at one foot centers on the exterior side, while the inside surface is the same as the "Field Constructed" Wall. Pilaster effects, visible in the illustration below, are obtained by reversing standard wall plates. Where desirable, both types of wall can be furnished with exterior plates of Stainless Steel. Thermal properties are excellent—Coefficient "U" is equivalent to an 18" solid masonry wall. This type of wall construction in combination with Mahon Steel Deck Roofs costs less, provides a firesafe, permanent building which can be quickly and economically erected. Complete information and construction details appear in Sweet's Architectural and Engineering Files.

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THE RECORD REPORTS

(Continued from page 20)

without striving for improvements in the entire city pattern.”

Throughout the A.I.A. testimony ran an emphasis on the desire for less federal control and more latitude for local administration of any housing programs. Objection was raised, for example, to that section of the legislation which makes federal assistance contingent on modification of local building codes and local building practices. This part of it, said Justement, might and probably would result in the preparation by the housing administrator of certain federal standards to be followed. The A.I.A. sees in such a possibility the chance for additional sources of resentment on the part of local communities with respect to dictation by federal government, and therefore called for the section to be eliminated.

Relocation a Local Problem

Congress was urged in the Justement statement to leave to the local communities much wider freedom in solving the relocation problems for families moved away from a housing project site. Local officials know better how to cope with these situations and it costs the government less, reducing red tape at the same time.

In the planning and design of individual projects to be built under the proposed federal law, A.I.A. wants to see local housing authorities given the “widest possible latitude.”

Said Justement on this subject: “One of the legitimate complaints concerning public housing projects is that they suffer from excessive standardization and that local initiative and ingenuity is handicapped by needless red tape due to the formulation of ‘standards’ by the public housing authorities. We are firmly convinced that local authorities should be encouraged to rely on their own ingenuity in meeting their own problems in their own way. While some of the more inexperienced local authorities may make mistakes, these will be offset by the better results secured by others when freed from central controls.

‘There is no magic formula in housing and we have tried everything to gain from experimentation and the application of trial and error methods based on competitive striving for the best result. The function of the federal government

(Continued on page 24)
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in housing should be that of assisting the municipalities financially (because of their limited sources of income) and not that of needless detailed control over the planning and design of individual projects."

Odds and Ends

— A fund of $40 million to be spent by the Public Buildings Administration for planning future federal structures and acquiring land for their location has been authorized by the Senate Public Works committee. The bill also carries a fund of $30 million for repair of present structures such as post offices and court houses. Purpose of the planning is to have a building schedule in readiness if employment and construction recede markedly. PBA has brought up to date its listing of proposed post office construction, city by city, and under the Senate Public Works Committee bill would be empowered to map the federal building needs of towns and cities for the "near and distant future," and to acquire sites.

— Another survey conducted by the Associated General Contractors among member chapters has indicated that construction costs now are stabilizing or showing a tendency to decline. This is in sharp contrast to a similar AGC survey six months ago. In mid-summer of 1948 most of the contractors could see nothing ahead but rising prices and continuing material shortages. Now they report that while they expect continued high construction volume through 1949, their costs are leveling off and may go down slightly. Material supplies are improving substantially and critical shortages of skilled labor seem to be passing. In all, it is one of the more optimistic reports from a large collective segment of the industry since the end of the war.

— The worldwide shortage of skilled labor in construction is less now than immediately after World War II but it will be more serious if building programs now planned go ahead as scheduled. This comes from the International Labor Office study on recruitment and training in the construction industries. Largest pool of potential workers was found to be in Italy. ILO proposes that building mechanics be trained in two or three connected trades to make them more

(Continued on page 164)
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\[
\text{index for city A} = 110 \\
\text{index for city B} = 95 
\]

(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.
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REQUIRED READING

HOUSING FAR AND WIDE


In the Foreword to this first issue of the United Nations Bulletin on Housing, the aim of the publication is stated as “to provide information useful to policy-making officials and administrators on the one hand and to technicians on the other. The information will, as far as possible, embrace significant developments of a technological, legislative, sociological and economic character in all parts of the world.” The Bulletin, in other words, will be a sort of clearing house for developments in housing and town and country planning the world over.

This first issue promises well for the future of the publication. Included are articles on Great Britain, the Far East, Continental Europe, India, Poland and Sweden. Some of these give general pictures of the housing situation in the countries discussed; others, notably the one on India, describe concrete planning programs already in effect.

If these chapters alone made up the first issue of the Bulletin, the Economic and Social Council of the U.N., which publishes it, would deserve congratulations. But there are other articles, too: “The Current Change in Civic Hopes and Attitudes,” by Catherine Bauer; “Mass Production to Relieve Housing Shortages,” by Mieczyslaw Nowicki; “A New Building Material — Paper Honeycomb-Core ‘Sandwich’ Panels,” an extract from an HHFA bulletin; a report on the 19th Congress of the International Federation for Housing and Town Planning. And to top it all off, there is a lengthy and detailed bibliography of books, pamphlets and periodicals in various languages.

HOUSE FRAMING


Of all the interesting developments to come out of the Industry Engineered House, this manual is one of the least expected. Yet it is a perfectly logical development in view of the care with which every detail of that project was worked out.

Following an introduction by Gordon Lorimer describing the Engineered House Program, the text turns to an elementary and thoroughly diagrammed description of how to frame, sheathe and insulate. Step by step, starting with the selection of materials, the authors take the reader through the entire process, furnishing not only diagrams but tables of nail sizes, lumber dimensions, etc.

This is a book, obviously, more for the amateur builder than for the professional architect, but it certainly will prove extremely useful to the architectural student and should prove to be of interest to the graduate architect as well, particularly because of its connection with the Engineered House project. In effect, this book is one more report on the research undertaken in that project.

HEATING THE HOME


The close to a thousand pages of this new textbook on heating and air conditioning are jam-packed with practical information in capsule form. Subjects covered range from an introductory chapter on thermal physics to furnace firing and an explanation of dew point. Most of the text is arranged in question-and-answer style, with both questions and answers kept brief and held to lay terminology as much as possible. Tables, diagrams and cut-away drawings are numerous and clear.

Some idea of the scope of the volume can be gained from the following fractional list of chapter heads: Hot Air Furnaces; Hot Air Heating Systems; Steam Heating Systems; Radiators, Convector Units and Unit Heaters; Points on Piping; Radiant Heating; House Insulation; Heating Calculations; I-B-R Code; Attic Ventilation Fans; Refrigeration for Air Conditioning; Cooling with Steam.

On the whole a basic book, and intended chiefly for the mechanical engineer and the building superintendent, this new Guide is comprehensive enough to be a handy reference book for the architect, and to give him quick answers to many of his questions about house heating and air conditioning.

A ROMANTIC COMMONPLACE


Cast iron, as British Architect Sir Charles Reilly says in his foreword to this volume, is “one of the most ordinary of building materials, finding its way in half-a-dozen forms into every building, yet it is safe to say very few architects have given to it or to its manufacture more than a few moments of thought.” Sir Charles is right: architects will be little short of amazed at the romantic history of this presumably humble material and at its potentialities set forth by Messrs. Gloag and Bridgewater.

Most of the book, of course, is given over to a history of cast iron from the iron beads found in an Egyptian cemetery of 4000 B.C. to the most streamlined gas range of the 20th century. A crowded 34-page introduction summarizes the early history of iron from the groping Stone Age beginnings through the middle of the 17th century. The balance of the book is divided into five sections, each dealing with a period of from 40 to 100 years. Of these the second (“The New Material in Architecture” — 1750-1820) will be of especial interest to the architect since it traces the first use of cast iron in pipes, bridges, buildings, and so on. “The oldest cast iron pipes of which definite records exist,” say the authors here, “were laid between 1664 and 1696 in the Palace gardens of Versailles where they still supply the fountains.” And again: “The first successful use of cast iron beams as structural units in a building was in a cotton mill erected in 1801 by Messrs. Phillips & Lee in Manchester.” “The first cast iron railings recorded were those used round St. Paul’s Cathedral, which were fixed in 1714. . . . Sir Christopher Wren disapproved of them. . . . Some are still in place.”

Over 500 photographs are used with excellent effect to illustrate the multitudinous uses of cast iron through the centuries. These alone are enough to stir the imagination of the architect. Messrs. Gloag and Bridgewater have produced a book which is as interesting and stimulating as it is documentary.

(Reviews continued on page 30)
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REQUIRED READING

(Continued from page 28)

TWO BY-GONE STYLES


There is a charming nostalgia to these two small volumes from England which goes happily with the historical note of the more ambitious book reviewed just above. Unpretentious, and claiming to be no more than brief essays, they lay gentle fingers on the characteristics of the two periods.

Of the two, the first may be of slightly more interest to architect readers than the second because of the brief biographies of Regency architects appended by Mr. Reilly. Included in the group are John Nash, James Wyatt, Sir John Soane, Charles R. Cockerell, Decimus Burton, and others of like calibre. Mr. Reilly traces family background, education and accomplishments of each, thereby giving a brief over-all picture of the profession as it was a century or more ago. The careers of many of these men, of course, extended into the Victorian era, and so are discussed also by Mr. Casson. In a sense, therefore, the two volumes are but two acts of the same play.

GUIDE TO RADIANT HEATING


In contrast to most of the current literature on radiant heating, this book does not approach the subject from either a highly technical or a glamorous angle. Its purpose is to tell in easily understood terms what radiant heating is, where it is applicable and how the systems are designed and installed. And as such it is intended for use by architects, engineers, prospective home builders and contractors.

It is quite comprehensive in sections dealing with the location and installation of radiant panels, controls and the heating plant. In the design section several simple methods and a precise one are presented for determining panel areas. The book covers the field of hot water radiant heating, but does not take up electric or hot air systems. One chapter discusses the possibilities of radiant cooling.
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Architect: Jens Frederick Larson

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Beauty you can see... quality you can trust...since 1825
In planning a house an architect doesn’t balance function against beauty—he blends them. That’s why so many architects specify colorful asphalt shingles. From the practical standpoint, it’s obvious to state that a roof is an essential part of the house. Yet in many ways asphalt roofing is more practical than any other roofing material. Then add its beauty features—rich hues and tones that match or complement the over-all color scheme...simplicity and cleanness of line...depth of texture. Here’s the perfect blend of function and beauty. Adaptable in color, fire-resistant asphalt shingles are equally adaptable in design to the size, shape, or style of the house—at home with any house.

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That means satisfied clients, and easier selling . . . for to people throughout the country, American-Standard is a familiar name . . . and one to rely on. For full information about the complete line, contact your Heating and Plumbing Contractor. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pa.

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The **NEO-ANGLE** Bath. Only 4-feet square, this luxurious bath actually provides roomier bathing space, yet fits into shorter wall lengths than conventional baths. Distinctive modern shape adds pleasing touch to any bathroom.
Let's examine a typical business day in an office building. At 9, everybody UP to work... all morning, it's DOWN—UP, UP—DOWN for appointments or snacks... 12 noon, mostly DOWN... 1 o'clock, heavier UP travel... all afternoon, it's DOWN—UP, UP—DOWN again... and then at 5—swoosh! everybody DOWN... finally, just stragglers and building employees. In all, there are 6 definite patterns of elevator traffic.

Otis AUTOTRONIC Traffic-Timed ELEVATORING is the first system to match service to all 6 of today's traffic patterns. Further, it operates automatically—without constant attention and frequent adjustment by the starter. Otis Booklet B-721-F explains how AUTOTRONIC Traffic-Timed ELEVATORING increases the efficiency of new or existing groups of elevators in office buildings, hotels, hospitals and department stores. Address: Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.
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Specify it freely for its warm, bright beauty, its endurance and economy!

You don’t need to use second-choice floor materials now. Beautiful, durable, versatile, Northern Hard Maple is back in abundance, as well as Northern Hard Beech and Birch. And forest surveys are most reassuring—there's an ample supply ahead!

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MFMA Maple is hard maple at its finest, trademarked and association-supervised. Write for full data on Second and Third Grades, and for official list of approved finishes for finishing maple floors the MFMA way. For detailed catalog data see Sweet’s, Section 13/g/6 (Engineering, 4/j/22).

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April 1949
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Adding the Alloy... which helps to give TONCAN IRON the highest rust-resistance of all ferrous materials in its price class. Made from highly refined open-hearth iron, TONCAN IRON is the only metal of its type which contains two alloying elements—copper (twice as much as in copper-bearing steel), and molybdenum to bring out the full effectiveness of the copper.

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The only unusually rugged plug-in or trolley busway in 2, 3 or 4 pole construction in one compact housing.

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For more information, write for circular TEC-3, The Trumbull Electric Manufacturing Company, Plainville, Conn.

**Men Who Observe the Best Electrical Practice Make It a Practice to Use**

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Bramble Exchange, Cincinnati Suburban Telephone Company, Cincinnati, Ohio. The interesting mortar-joint pattern is effected by the use of two sizes of Insulux Glass Block, Pattern Nos. 216 and 416. Insulux is made in a variety of designs, in three sizes.

**Functional daylighting...and design:**

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For technical data and installation details, consult GLASS section of Sweet's Architectural Catalog, or write Dept. F-21, American Structural Products Company, P.O. Box 1085, Toledo 1, Ohio.
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For all base-board needs. Easy to install, permanently beautiful. Easy to clean.

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Here is a beautiful new plastic building material that provides finer results for every base-board and coving need—a “must” for any modern home.

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Increases passenger carrying capacity during down peak periods up to 30% and during up peak periods as much as 20%! Big savings for you!

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Tests show that Selectomatic drastically reduces average waiting time particularly at lower floors on down peak. Building efficiency for you!

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Automatically adjusts service to meet ever-shifting traffic concentrations under up peak, off peak and down peak. Better public relations for you!

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ONLY SELECTOMATIC GIVES YOU ALL THESE ADVANTAGES
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If you really want the best in elevators—come to Westinghouse.

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MATCH ELEVATOR SERVICE WITH DEMAND AUTOMATICALLY TYPES OF TRAFFIC CONDITIONS!

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Unmatched by any other system—only three push button settings throughout the day. Satisfied tenants for you!

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The Fleur-O-Lier Index System supplies a concise, exact formula for expressing desired illuminating characteristics. The specifier can dictate desired light distribution, degrees of shielding, brightness and method of mounting. His specification is simple and precise. It's easy to write—and easy for the purchaser to follow.

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Fleur-O-Lier fixtures are carefully examined by Electrical Testing Laboratories, Inc., and assigned a rating under the Index System. All the buyer need do is select fixtures that meet the specifier's Index System number. Then with the photometric test data and the coefficients of utilization provided with all Fleur-O-Lier fixtures, he has complete information to make an intelligent purchase of fixtures that meet the specifications and perform efficiently.

*To get complete information on this easy way to specify and buy fixtures, write for free booklet, "The Fleur-O-Lier Index System".*

This label is attached to every FLEUR-O-LIER luminaire. It certifies that a similar fixture has been examined by Electrical Testing Laboratories, Inc., and found to conform to specifications. This label is your assurance of excellence in mechanical and electrical construction and in performance. It means that Certified Ballasts and Starters are used and that the requirements of the National Electrical Code have been met.

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Manufacturers
2116 Keith Building • Cleveland 15, Ohio

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.
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This fast method results from the invention of a new group of tools, the Top-Speed Fasteners*. Protected metal sheets can now be fastened to the frame entirely from the outside. The time saved is so great that the same number of men in the same time can attach twice as much material. Such a saving factor can well be the means of keeping you within a budget.

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The record of this protected sheet steel proves Galbestos has outlasted any other roofing and siding material through the most severe industrial heat, corrosion and weather. Galbestos can be top-speed fastened. It is strong, yet light in weight and reduces the number of purlins required. Galbestos saves steel, speeds erection and virtually eliminates maintenance. Write for the facts on Galbestos.

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When you specify the Hunter Package Fan, you provide cool summer comfort for the least cost. Attractive appearance and easy, trouble-free operation will please any home owner.

Low-Cost Installation: The Package Fan requires only a simple ceiling opening, plus attic exhaust. No suction-box needed. Integral ceiling shutter, trim and switch reduce installation costs to a minimum.

Compact Design: 38” x 40”, overall. Extends only 17” above attic floor. Ideal for low attics.

Performance: Certified air delivery, with shutter: 9500 CFM. Tested by independent laboratory according to Standard Test Code of ASH&VE and PFMA. Quiet, dependable operation assured by Hunter-quality construction. Fan guaranteed for 5 years; motor, 1 year. See Sweet’s Catalog. Or mail coupon for Data File.

Pull on chain opens shutter and starts fan

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Featured part of this ® Switchboard is the safety-type ® Klampswitchfuz which combines both disconnect switch and fuse protection in one unit . . . for more perfect contact and safer maintenance. Heavily electro silver-plated, copper contacts are "squeezed" together in one locking motion that clamps fuses at the same time, for 30 to 200 amps; for more than 200 amps, ® KAMKLAMP pressure-type fuseholders are used. Access to fuses only when door is open . . . prevents contact with live parts.

Capacities: 30 to 1200 amps, 250 volts, AC or DC; and 30 to 400 amps, 575 volts, AC, in 2, 3 and 4 poles.

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*Trademark
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The secret of “Sky-Glo”’s superiority is in its exclusive Vinylite (plastic) louvers which not only reflect light but also transmit light. Thus “Sky-Glo” provides a translucent ceiling that not only affords a means of obtaining more light without annoying glare but actually offers a new experience in seeing!

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Translucent “Sky-Glo” louvers heighten the beauty of the ceiling and add a scintillating and harmonizing note to the entire decorative scheme. Add to these exclusive advantages of “Sky-Glo” all of the many conventional advantages of the louverall lighting system and you can see why the new trend in lighting is so definitely to Benjamin “Sky-Glo.”

**Reflection Factor is 19%.**

**Transmission Factor is 71%**.
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Nowhere is first quality more important to home-planners than in the bathroom. Good sanitation, practical design, beauty, durability, convenience—these are the satisfactions that go with fixtures and fittings that bear the name "Kohler".

The arrangement shown includes the Chesapeake lavatory, with roomy ledge, made of finest quality vitreous china. Intense firing gives it a lustrous, glass-hard, easy-to-clean surface. The Centra mixer-type fitting, of chromium plated brass, is capably designed, thoroughly tested for performance.

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Kohler quality is now a 76-year-old tradition. Write for further information. Kohler Co., Dept. 4-H, Kohler, Wisconsin.

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GENERAL ELECTRIC

APRIL 1949
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This means you can give your clients the spacious-looking, daylighted homes they want with the assurance of greater comfort. Extra convenience, too . . . homeowners can forget storm sash when windows are Thermopane.

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MICARTA

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 1/4" 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.

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

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 sawed, trimmed, planed and drilled.

UNITED STATES PLYWOOD CORPORATION

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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.

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Thermostatic SHOWER MIXERS

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Safer—because of their quick acting response to any change in temperature setting, pressure or temperature variations in water supply lines. Users report control within 1/2°F. Greater Comfort—shower temperature remains constant wherever set. No jumpy temperatures. More Economical—POWERS thermostatic mixers promptly deliver showers at the right temperature...no waste of time, hot or cold water.

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THE POWERS REGULATOR CO.
OFFICES IN 50 CITIES • SEE YOUR PHONE BOOK
Over 55 Years of Water Temperature Control
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1. **Bonderized Housing**—an exclusive feature that protects the structure against rust and corrosion...assures better paint adhesion...adds extra years to service life.

2. **Prestite Insulation**—another Westinghouse exclusive—is used to insulate and support bus bars and provide safe plug-in openings. Prestite has exceptional dielectric qualities, great mechanical strength...is impervious to moisture.

And here are other features which assure important service benefits:

- **Plug-ins every 12 inches on alternate side of duct.**
- **Sliding covers over plug-in openings to facilitate access...inspection.**

External springs hold outlet covers in position at any point along duct.
Simple, strong cantilever hanger...easy to align.
Rigid channel construction...top, sides and bottom.
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Booklet B-4271 contains complete facts about bus duct. Ask your Westinghouse representative for a copy, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna.

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When you specify FABRON Wall Covering...

... We jump the hurdles for you

We want to make it easy for you to specify FABRON. That is why we provide a special "Architect's Consulting Service" — cost free — to relieve you of all annoying details. From blueprints we estimate your requirements, establish costs, prepare for your approval a complete decorative schedule with samples, room by room. We are specialists in the institutional and commercial fields. More than 30 years of technical and practical experience fit us to simplify your task and carry out your ideas. Whenever desired, we can recommend reputable contractors, experienced with the installation of FABRON.

Let us show you how easy it is to specify FABRON. If you call us when a project is in the planning or pre-specification stage, we can also help you obtain a figure within your client's budget.

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2 TYPES OF NE BUILDING WIRE

Dilec Safecote (Type R) Rubber insulation covered with a flame-resistant, saturated fibrous serving. The durable colored coating is marked and measured. Free stripping. Moisture resistant. Smooth finish for easy fishing. A quality-built wire for general building purposes.

NE Thermo-plastic (Type TW) High resistance to moisture, acids, alkalies, oil and grease. Wide range of permanent colors, marked and measured. Use NE Type TW where conditions are unusually moist or hot.

2 TYPES OF GALVANIZED, FLEXIBLE-STEEL ARMOR PROTECTION

Flexsteel—Flexible Steel Conduit. Used with either Dilec Safecote or NE Thermo-plastic wires, Flexsteel provides an approved, grounded pull-in and pull-out system. Rounded channel construction makes fishing easy. A conduit system with no waste.

A.B.C. (Armored Bushed Cable) Besides the grounding provided by the “bondhook” channel construction of A.B.C. Cable, sizes 14 and 12 also have a low resistance grounding strip. Anti-short bushing protects conductors against sharp cut edges of steel. A.B.C. is furnished complete with Dilec Safecote or NE Thermo-plastic wire.

2 TYPES OF NON-METALLIC SHEATHED CABLE

Canvas-Back Loomwire—A new, small diameter cable that eliminates paper stripping. No Kraft wrappings to strip back. Has a saturated, fire-resistant cotton braided sheath. Each conductor carries full insulation to the terminal screw.

NE-o-Prene Loomwire—The first Neoprene-sheathed Loomwire to be listed by Underwriters’ Laboratories, Inc. Ideal for barns and other wet locations where rot, fungus, moisture, ammonia-laden air and drastic weather changes are destructive to other types of approved wiring. The toughest, most durable non-metallic sheathed cable available.

Sold through leading electrical wholesalers
Installed according to National Electrical Code.
FA C T S A B O U T
R E S I L I E N T F L O O R S

JASPÉ LINOLEUM—what are its advantages?

Jaspé linoleum is a type which is distinguished by the striated effect of its multi-toned graining. It has long been a popular resilient flooring for commercial use, not only because it possesses the general ability of linoleum to stand up under heavy foot traffic, but also because it has unusual design versatility. Ease of maintenance also has been a factor in favor of jaspé linoleum for commercial floors.

In comparison with standard colors of plain linoleum, jaspé patterns are slightly higher in cost. This is due to the extra processing required to produce a grained effect. Jaspé linoleum patterns, on the other hand, offer a number of advantages over plain linoleum. The varying shades in the jaspé design help to conceal footprints and make dust less noticeable. The shade variations also tend to break up the monotony of a single plain color in a large floor area.

Decorative Advantages

Jaspé linoleum makes an attractive floor in an allover design with the graining in one direction as it comes from the roll. Many unusual designs can be created simply by cutting jaspé linoleum into squares, oblongs, triangles, circles, or strips and alternating the direction of the graining. Checkerboard, basket-weave, herringbone, miter joint, and many other designs can be done subtly in this manner.

In addition to the subdued designs that can be worked out in one jaspé pattern, two or more colors can be combined for stronger designs with greater contrast.

Jaspé linoleum can be specified for schools, hospitals, commercial buildings and residences. It should not be specified for installation over concrete subfloors in direct contact with the ground since it will not withstand the effects of alkaline moisture always prevalent in this type of subfloor.

Range of Colors

Armstrong’s Jaspé Linoleum is made in seventeen colors. The colors have been styled to harmonize with all types of Armstrong’s Resilient Floors as well as with those used in interior decorating.

Where light reflectivity is an important factor, such as in floors for schools, offices, and hospitals, selection can be made from colors with reflectivity values as low as 5% or up to 45%.

Gauges and Backing

Armstrong’s Jaspé Linoleum is made in two thicknesses—Heavy Gauge (3/8”) and Standard Gauge (3/16”). It is produced in rolls six feet wide and up to ninety-nine feet in length. Heavy gauge linoleum is made on a burlap backing. The standard gauge is made with an Armofelt backing. Armofelt, an exclusive Armstrong development, is an extremely tough fiber felt made from fresh cloth fibers saturated with a clear resin. This felt backing eliminates the need for lining felt over wood subfloors.

The office area above illustrates one of the many decorative effects possible with jaspé linoleum. The alternate square design used here is ideal for both large and small areas since the jaspé squares can be cut to any desired size. These effects can be worked out in related or contrasting colors.

This hospital room is typical of the many commercial areas where jaspé linoleum can be used to an advantage as a smart, single-color flooring. Its seams are almost invisible. It is long wearing and easily maintained, and it resists indentation. It is also exceptionally comfortable underfoot.
To achieve the multi-toned coloring in Armstrong’s Jaspé Linoleum each color shade of the linoleum mix is put through three separate mixing operations and then accurately blended. Here the mix is drawn between two highly polished rolls. The upper roll is hot and turns more slowly than the lower one which is cold. Tremendous pressure compresses the particles of the mix into a dense sheet and “irons” it perfectly smooth as it is keyed to the backing. This continuous sheet undergoes a slow baking or curing process which increases its durability and resistance to indentation.

As the mix drops from the chute, it is evenly distributed over the backing to ensure uniform grainning to the edge of the linoleum. This makes the seams in a floor of Armstrong’s Jaspé Linoleum almost invisible. The precise control of the mix at this point also helps assure uniform thickness.

**Availability**

Recent advancements in Armstrong’s manufacturing facilities have stepped up the production of jaspé linoleum. Today, it is in free supply. Heavy and standard gauge jaspé linoleum is stocked in one hundred and thirty-three warehousing points throughout the country. In most cases, it can be specified for immediate installation.

**Product Improvements**

In addition to increasing production capacity, Armstrong’s recent manufacturing advancements also have improved the serviceability and appearance of the product. Better controls over the processing of raw materials coupled with newly designed manufacturing equipment have given Armstrong’s Jaspé Linoleum a smoother surface and greater resistance to oil and grease. With this improved composition and smoother surface, floor maintenance is reduced to a minimum. Armstrong’s Jaspé Linoleum also has a high resistance to indentation—75 pounds per square inch or three times greater than asphalt tile.

Improved color pigments, especially in reds and blues, make Armstrong’s Jaspé Linoleum less susceptible to fading and more resistant to alkaline soaps.

Some idea of the way Armstrong’s Jaspé Linoleum is manufactured can be obtained from the illustration above. Massive rolls operated with fine precision produce the uniform grainning and control the gauge of the material. With uniform grainning to the edge of the roll, the seams in a floor of Armstrong’s Jaspé Linoleum are almost invisible. For samples, literature, and installation specifications on Armstrong’s Jaspé Linoleum or any of Armstrong’s Resilient Floors, architects are invited to write to any Armstrong district office or directly to Armstrong Cork Company, Floor Division, 2404 State Street, Lancaster, Pennsylvania.
City National Bank
Houston, Texas
Relies on Agitair

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Air Distribution
Agitair Type R delivers 100% air distribution in any shape area from any location—with no noise, no drafts, no blank corners, no hot spots, no cold spots. Patented construction permits it to be assembled into patterns which divide the air and distribute it in any direction in proportion to the area served.

... for Perfect
Eye Appeal
Agitair Type R Diffusers blend perfectly with architectural ceiling treatments. Since most areas are square or rectangular, these square or rectangular Agitair Type R's are the natural choice to complete a carefully designed decorative effect.

Write for Complete Data

Agitair Type R Diffusers blend perfectly with architectural ceiling treatments. Since most areas are square or rectangular, these square or rectangular Agitair Type R's are the natural choice to complete a carefully designed decorative effect.

Write for Complete Data

Air diffusion beauty and efficiency is achieved with Agitair Type R in Presidents Office, City National Bank

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17 East 42nd Street  New York 17, N. Y.
AIR DIFFUSERS • AIR FILTERS • ROOF EXHAUSTERS

Architect: Alfred C. Finn
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TO catch a customer's eye and show him the merchandise at its best, a show window needs a complete, flexible lighting system—like the one above.

General Electric slimline fluorescent lamps in parabolic reflectors bring out color, texture and details of the display. They have high efficiency and provide cool lighting. The G-E incandescent lamps raise the over-all brightness of the window to draw more attention. And the G-E PAR-38 projector spot and flood lamps in movable fixtures put highlights right where the display man wants them.

Whether you're designing a show window or a complete store, an office, factory or home, be sure to specify General Electric lamps. That's the easy, sure way to specify quality. General Electric makes a lamp for every lighting need, all constantly improved by research to STAY BRIGHTER LONGER.

You can put your confidence in—

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CHOOSE THE BEST FOR YOUR DESIGN FROM THE MOST COMPLETE LAMP LINE

FLUORESCENT
Many types, sizes, colors now available.

REFLECTOR
Spot or flood lamps. Built-in reflector directs light where needed.

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Spot or flood. Rugged moulded glass permits attachment of accessory.

SILVERED BOWL
Indirect lighting at low cost. 60 to 1000 W.
Apartment in Pittsburgh built with Open-Web Joists—This colonial-style structure, the Morewood
Fifth Apartments, has 6-, 7-, and 8-room units for 36 families. Bethlehem Open-Web Steel Joists are used
throughout, in combination with concrete floor slab and plaster ceilings. Floors built in this manner help
make buildings fire-safe, for they keep fire from spreading for two hours or more, depending upon the type of
plaster used. They are also economical, shrink-proof, and sound-retardant, and in addition are immune to
attack by vermin. For complete information about Bethlehem Open-Web Joists refer to
Sweet's... Architect: Glen A. Bickerstaff, Pittsburgh. Contractor: Herman Kamin, Pittsburgh.
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.

When people like something... they talk about it.

And you'd probably hear some pleasant things if you could listen to these home-owners and business-owners in these Central States talk about their Suntile installations.

They like Suntile's beauty. Beauty that's "built-in" this real clay tile through precision manufacturing control for extra quality, form and finish. Beauty that's color-balanced for rich, harmonious blends that inspire beautiful, practical interiors.

They're pleased, too, about Suntile's ease of maintenance! The way it stays beautiful—year after year—with no more than simple soap and water cleansing.

beautiful Suntile gives these


The way it resists warping, cracking, and chipping. The way it never needs painting or redecorating.

All this means client satisfaction so important to you—the architect or builder. Satisfaction that will reflect the wisdom of your choice for years to come, and bring you new business.

Let us send you the name of an Authorized Suntile Dealer. He is carefully selected and trained and has the "know how" to make sure of better installations for you with Suntile.

See Sweet's Catalog for complete information on colors, shapes and sizes. The Cambridge Tile Manufacturing Company, Cincinnati 15, Ohio.
Announcing...

NEW AND IMPROVED

Gold Bond

ACOUSTICAL PLASTER

HERE'S the answer for finest acoustical treatment like the one shown below—and for low budget jobs as well. Gold Bond Acoustical Plaster gives maximum noise reduction—high light reflection at very little increase in cost over regular plaster. And you'll save the costs of the lime coat and decoration.

The Perlite base is the secret of this new Gold Bond Acoustical Plaster. It is light in weight and is applied with regular plastering tools. Only regular plastering skills are required, and like regular plaster, it adapts to any curved surface. This new acoustical plaster excels in high light reflection (Natural—70%). It has a noise reduction coefficient of .55. Available in four shades: Natural (oyster white); Cream; Buff; and Ivory. Can be redecorated when desired with water thinned paint with little loss of sound absorption.

Write for free illustrated booklet with complete details on Gold Bond Acoustical Plaster.

NATIONAL GYPSUM COMPANY
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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.

ST. JOSEPH'S CATHEDRAL in Buffalo, N. Y. is a good example of the adaptability of Gold Bond Acoustical Plaster. This intricate groined ceiling offered no problem, as Gold Bond works equally well over flat or irregular surfaces. Harmonizes with every type of architecture.
This GLASS-SURFACED Steel
Will Not Crack or Chip
Under MALLET Blows!

The Mallet Test—matched with the performance records of hundreds of thousands of installed units—is proof that the glass-surfaced steel tanks of Permaglas Automatic Water Heaters will not crack or chip under use conditions. They are fully guaranteed by A.O. Smith.

This built-in protection against destructive rust and corrosion, engineered for long life, is the reason "Permaglas" is the water heater that cannot rust... because glass cannot rust.

**DIAMOND-TOUGH GLASS** surface of the bottom head of a Permaglas Water Heater tank withstands repeated blows from a wooden mallet without cracking or chipping: Blurred hand and mallet show the force of impact.

**ONLY PERMAGLAS** Automatic Water Heaters provide the lasting rust protection of glass with the strength of steel. Yet this is just one of many research-developed features that make "Permaglas" first in completely satisfactory hot-water service.

Thermoelectric-type gas control, 100% automatic safe-lighting, is designed to automatically shut off all gas to the heater, should pilot flame ever be extinguished. Standard equipment. Other features, of equal sales advantage, are standard in models for all types of gas.

The coupon will bring you all the facts you want to know, promptly. Mail it today!

**Permaglas**
A SMITHway WATER HEATER*

*Also quality zinc-lined Duradad and Milwaukee Automatic Water Heaters

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Sizes for all needs, for all types of gas.

APRIL 1949
FOR SAFETY...GROUND IT!

THE ANSWER IS BRYANT

WITH THIS NEW 3-WIRE DUXPLEX POLARIZED OUTLET
rated 15 amperes 125 volts

Now, Bryant makes it easy to ground exposed metal parts of portable appliances and equipment. The new Bryant 5262 3-wire duplex polarized outlet has two current-carrying contacts and a grounding contact. It is designed for either metallic or non-metallic systems. In metallic systems, grounding is made through the yoke. For non-metallic systems, grounding is completed through the third wire which connects to a separate grounding terminal on the side of the outlet. The terminals are made with a portion that may be broken out to provide two independent circuits when desired.

Three-blade bakelite and armored caps are available for use with this outlet. The grounding blade of these caps is of special design and cannot engage the current carrying contacts and, being longer, completes grounding before the current carrying blades make contact.

Standard, parallel or tandem two-blade caps can be used with this outlet where grounding is not desired.

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THE BRYANT ELECTRIC COMPANY
Bridgeport 2, Connecticut
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SPECIFY BRYANT DEVICES FROM YOUR ELECTRICAL WHOLESALER
ADAPT THE EXPOSURE TO THE DESIGN WITH STAINED SHINGLES AND SHAKES

Stained "Grooved" Shakes:
Modular Exposures from 8" to 16"
These versatile, precision-cut shakes give you complete control of horizontal design. Use 16" shakes for exposures of 8" to 12". Use 18" shakes for exposures of 12" to 14". Specify 24" shakes for exposures of 14" to 16". Parallel edges permit tight joints which provide unbroken horizontal siding effect.

Stained Cedar Shingles:
Modular Exposures from 6" to 16"
America's traditional No. 1 cedar shingle offers a range of wall exposures from 6" to 16". Exposures greater than eight inches are achieved by double-coursing over economical low grade shingles. Excellent for roofs in combination with grooved shake walls. Available pre-stained in many colors from retail lumber dealers throughout the United States. For specifications, see Sweet's File 8b/7a.

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Modular Exposures from 8" to 16"
When design calls for rugged, luxurious, natural wood in wide weather exposure for roof or walls, there is no substitute for handsplit cedar shakes. Versatile for contrast in combination with stone, brick, timber or metals. Handsplits take the years in stride, mature and mellow with age. Handsplits, stained shingles and stained shakes are manufactured by the mills listed below.

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- Canadian Forest Products, Ltd., Vancouver, British Columbia
- The Robert McNair Shingle Co. Ltd., Vancouver, British Columbia
- Creo Company, Inc., North Tonawanda, New York
- Everett Shingle & Shake Company, Everett, Washington
- Perma-Products Company, Cleveland, Ohio
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A PRIL 1949
Honeywell Electronic Moduflow is now available. This simple and inexpensive control system, with its sensitivity and extreme dependability is now available for all types of automatic heating systems including radiant panel heating, either floor, wall or ceiling.

The three books pictured are available upon request. They give you factual information about this newest and finest Honeywell control system, in addition to zone and individual room control systems for domestic applications.

Send for your copies today and learn all about Honeywell’s newest control systems and why you’ll want to use and specify them for all their many applications.

Electronic Moduflow is the Answer

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Please send me the 3 free books on Honeywell Electronic Moduflow, Zone Control, and Individual Room Control.

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73 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY
MIND READING?

Will Rogers used to say, "All I know is what I read in the papers," but I remember Fred Ackerman went him one better in saying, "but I get a lot more from what I read between the lines." One shouldn't take all one's literature too literally. One's own critical analysis is essential to getting the most and the best out of one's professional magazines. And we'd be willing to wager that there is some, even much, worth-while information and inspiration for every architect in every issue of his professional magazine.

Different readers get different things from the same magazines, depending on age, background, needs, interests, points of view, prejudices, perception, receptivity, alertness, personal problems, and past or present condition of servitude. Then, too, what you get out of a particular issue depends on your own attitude and faculties for critical analysis — and to some extent on your ability to read between the lines.

Professional journals are edited with the prime purpose of providing architects with ideas, current ideas, newsworthy ideas, and these are presented in word, picture, plan, detail, diagram and table for your information — and for your acceptance, adoption, use, and even inspiration. The ideas presented are always subject to your own critical analysis and for you to select, adopt, adapt, or improve those which will be most useful in your own practice. And conversely — those which seem illogical, fantastic, impractical or ugly can be rejected when you have proved them so to yourself. But even in this process of negation, there is value to you in stimulating your creative imagination to solve that same problem in a better way, the way it should be, your way. If you don't agree, you at least strengthen your own logical (or intuitive) conviction and have thus benefitted.

Our plea is obviously for your thoughtful, analytical and open-minded use of the magazines that are designed to provide you with the current forward-looking thought and practice. For one of the great traditions of architecture is that the newest and best (and the worst) is available to all to adopt, adapt, and improve upon. As we have said before, current standards are most valuable only if used as springboards to new and better ones. The danger comes from accepting unthinkingly, uncritically, lazily, an idea, a form, a detail — for that way lies stagnation, monotony, and the perennial perpetration of clichés. We have seen too much of that, too many of our younger designers failing to ferret out the reason for the form they so freely borrow.

So when you go through all the pages of each issue of your professional journals, why not ask yourself what are the good points in this? what are its faults? how would I improve the former and eliminate the latter? Why was this done — just to be different or to solve that problem in a more simple, direct, efficient, or more beautiful way? Why do I like this? Why don't I like that? How and where and when can I use something like that? And you'll be surprised how much the lines — and what's between them — will mean to you. Mind reading that way?
"Island Theater," Hamilton, Bermuda

A BERMUDA THEATER WITH "FLOATING SCREEN"

Schlanger & Hoffberg, Architects; Reisner & Urbahn, Architects
THE ISLAND demanded that the theater conform to its coral-rock and pink-stucco architectural mode; the cramped lot demanded exploitation of every angular inch (not one right angle in the entire plan); and luck smiled on the enterprise, to give it quiet charm.

Entering, through a neat clean range of plexiglass floors flanked by a marble wall and by reeded wooden screens, the patron finds himself in a cultivated place. An upper, mezzanine lounge gives an open view to the entrance for those awaiting friends; both this and the lower lounge are served by toilets carefully stacked to conserve piping and water, both being premium items.

In the auditorium the effect is perhaps best of all. The screen, "floated" as seen in details on page 91, is unmasked; the patented arrangement of screen and surround gives synchronous lighting of the surround by light spilled from the picture, destroying sharp contrast, fading hard outline, varying with picture intensity. During short features, this surround is softly lighted up by bulbs from behind.

No irrelevant decoration is allowed to interfere with this pleasant dramatic effect.
The theater seats 650, including 200 in the radial mezzanine. Walls are gray in the corrugated plaster section near the screen, cream elsewhere; ceiling is sand-finished plaster painted gray-green; chairs are upholstered in blue-green, coated fabric on seats, mohair on backs. The mezzanine parapet fascia (detail at left) is hard plaster, painted gray, and angled to reflect sound downward. Downlights light house and aisles.

The loge lounge, shown below, commands a good view of main entrance and lobby and forms a convenient meeting place. A second lounge, not shown, is located directly below (see plans and section, opposite page), with patrons' facilities stacked to conserve piping.
Instead of a marquee, the theater has an open vestibule or portico, tied to the foyer by a flagstone floor which is continued as far as the auditorium doors. The plate glass entrance doors have bronze hand and kick plates, and the free-standing display case (seen at extreme left of bottom photo on this page) is also bronze. Foyer walls are green marble on the auditorium side, natural-finish oak boards opposite; vestibule walls are white marble. Across-page: plans and sections of the unique "floating screen," and a projection view showing the soft lighting of the surround used for short features.
NOT in New York and not in Hollywood but set against the Andes at Lima, Peru, is to be found the motion picture theater boasting the flattest balconies ever developed for designed seeing conditions in a theater, according to Better Theaters. Theater architect Schlanger (frequent RECORD contributor) achieved this by a combination of staggered seating and by the first use of a "reverse curve floor" in the orchestra, making the flat balconies possible. (See longitudinal section, page 95.) Meanwhile his associates, Reisner and Urbahn, helped contend with an export situation which meant that countless items had to be shipped pre-assembled. This included glass, mirrors, neon tubes pre-bent, stainless steel work, even millwork such as candy counters. Glass mosaic, liberally used in lobbies, was pasted in 2-ft. squares, and skillfully assembled by native workmen who never had handled glass mosaic before. In concrete, however, they had previous training and skill, could have produced curved stairs without the supporting posts in the design.

Seating 2000, the theater lacks features such as Continental seating, because Paramount International, working with the Peru owners, asked conformity to the New York building code.
Three-story open front makes brilliant night display. In dry Lima climate, neon lights are bent up over fascia of marquee without risk of weather damage. Wood wainscot, acoustic tile wall keep auditorium looking simple, impressive; corrugated plaster spills screen light into room without glare or interference. Draw curtain was desired by clients for an impressive effect starting and ending shows.
Lobbies and Lounges

Every one of the three levels has a complete lounge development of its own, and for all of them the architects designed all equipment, including chairs, which were manufactured in the U.S. but upholstered in Peru. As indicated in the sketch, the second-balcony lounge carries the spectacular hung lighting grid containing fluorescent lights, and has its own planting boxes as a "suspended" interior feature. (Another set of planting boxes, set on the marquee, is directly outside of the mezzanine lounge.)

Main lounge (left) is set off by four great columns faced with glass mosaic the first the local workmen had ever set, and set well. Stair at right is seen again overleaf on page 96.
"Flattest balconies ever developed for designed seeing conditions in a theater" were made possible by staggered seating carefully calculated, and by reverse-curve flatness of orchestra floor in foreground. By lowering the ceiling such flat-balcony design diminishes cubage, reduces construction cost, improves acoustics, and helps the air conditioning, an important factor in a dry climate.
Virtuosity with concrete of the Peruvian workmen was found to be so high that this curved stair to mezzanine could have been built without the supporting column designed by the architects. On the other hand it was impossible to carry out the original design, indicated in the sketch, for a stair rail of tempered glass. There was substituted the detail on next page.
Features such as the bronze handrail seen in the stair detail were made in Peru, but were cast instead of tubular. Sections were faithful to the architects' drawings though there was some difficulty in obtaining perfectly smooth finish.

In the case of furniture, display cases, attraction boxes, and other similar equipment seen in the sketch of the mezzanine lounge (above) and of the main exit (below) all was shipped prefabricated from the United States.

Although the total effect is obviously suited to a palace of amusement, with due glitter and dramatization, there is a more consistent and knowing hand displayed than in most theaters in this country. A new slogan might be, "go South!"
IN the March, 1949, issue of ARCHITECTURAL RECORD Mr. Harriman examined the effect of planning schoolhouses by various accepted methods. He compared the effect of double-loaded or single-loaded corridors in combination with single-story or two-story construction. He also compared the complete structural cost (labor and materials only) of one-story versus two-story schools providing the same ten classrooms and necessary adjuncts.

He now continues the analysis by comparing the effect on square foot structural costs of using different types of wall and roof construction.

The warning which was given in connection with the first study is repeated herewith: viz, that the figures presented are for comparative purposes only. They indicate a method of studying the effect on total costs of different methods of planning and construction, but they are not to be taken as final costs.

*Figures compiled by Philip Gatz, partner in Alonzo J. Harriman, Inc., Architects-Engineers.
AND SCHOOL COSTS

GYMNASIUM ROOF TYPES

BASIS OF COST COMPARISON

In this analysis of gymnasium roof types, it is assumed that the floor is of wood construction, to which arches of the laminated timber types can be conveniently tied, and which absorbs the outward thrust on the foundation walls. However, the cost of the floor (being equal in all cases) is not included in the cost figures per square foot. To arrive at an equitable comparison of the effect of different roof types, the costs include one end-wall and two side-walls in all cases.

General Conditions: width of span 90 ft.; length 40 ft. Wall construction, wood post and girt frame covered on the exterior with corrugated asbestos backed with 1½ in. of rigid insulation board. Surface exposed on interior. Window construction of wood.

Type "A" Roof
Construction: laminated timber arches at 4 ft. on centers, covered with 2-in. matched planking and steep-incline type of built-up roofing, topped with wide lapped mineral-surfaced strips.
Estimated cost per square foot of floor area, $3.46.

Note: Because of the continuous pitch of this type of frame, a clear headroom of 6 ft. is obtained at a point 2 ft. 6 in. inside of the bearing line of the arches. The resultant loss of floor space brings the cost of usable floor area per square foot up to $3.65.

Type "B" Roof
Construction: Rigid steel frames at 20 ft. on centers. Steel purlins with wood nailers; 2-in. matched plank roof deck; rigid insulation; covered with 15-year tar and gravel roofing. (15-year appears to involve no premium above 10-year.) Roof exposed on under side.
Estimated cost per square foot of floor area, $4.48.

Type "C" Roof
Construction: Steel flat Pratt trusses, supported on steel columns 15 ft. on centers; steel purlins with wood nailers; roof deck of 3-in. splined plank and rigid insulation covered with 15-year tar and gravel roofing. Roof exposed on under side.
Estimated cost per square foot of floor area, $4.88.

AUTHOR'S CONCLUSIONS ON GYMNASIUM ROOF TYPES

Analysis reveals that Type A is the least costly per square foot of floor area, even after deducting the 2 ft. 6 in. clearance necessary on each side, and using the higher figure of $3.65.

This saving arises from the fact that the roof is brought down to the foundation, and side-wall construction is eliminated. Type B is 23 per cent more expensive than Type A, and Type C is 34 per cent more expensive than Type A. There are, of course, certain places where the advantages of Types B and C or variations would readily warrant the additional cost.

Comparison of Types B and C indicates that Type B is less costly. It is possible to use a stock type of steel frame applicable to sundry types of building but particularly adaptable to gymnasium construction. This stock frame carries a saving in pound price of steel. There is another saving in Type B because the area of the enclosing wall is less. The pitched roof allows adequate height in the middle of the span for basketball though permitting a lower eaves height.
COST ANALYSIS OF ROOF TYPE

<table>
<thead>
<tr>
<th>ROOF TYPE</th>
<th>WALL TYPE</th>
<th>COST *</th>
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<tbody>
<tr>
<td>R-1</td>
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<tr>
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<tr>
<td></td>
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</tbody>
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*Cost per sq. ft of floor area

ROOF AND SIDE WALL TYPES

Comparison of wall types W1, W2, and W3 reveals that there is a greater percentage of structural saving in substituting single glazing for double glazing in wood sash than there is in substituting double-glazed wood sash for a combination of steel-framed glass block and steel sash. (Heating costs are not considered in this comparison.)

The large saving shown by W3 over the other two types is due to the use of a stock "storm sash" or a sash similar to "storm sash," with a stock type of rail, and attaching these to a framing member either by rebating the structural member or applying a stop directly to it.*

The analysis of wood-frame roofs R1, R2, and R3 indicates that R1 is the cheapest of them all. It also indicates that a truss roof designed to use short lengths of native lumber, and capable of being jig-assembled and nailed or bolted, can be cheaper in our area than roof construction which is based on the larger sticks of West Coast lumber at higher prices per board foot.

Roofs R1 and R2 have a ceiling applied underneath the

*Editor's Note: Millwork as a cost factor may show considerable variation according to locality.
Using the same analytical methods as Mr. Harriman, architects in other locations can easily establish dependable conclusions for their own areas.
BASIS OF COST COMPARISON

The floor area used in establishing structural costs per square foot is based on a 6-ft. section, or bay, cut transversely through a typical part of the building so as to include two classrooms, each with a 22-ft. span, and sharing an 8-ft. corridor.

The analysis ignores foundation costs (which vary considerably from job to job) and the cost of the ground floor (which would show no variation from type to type). The starting point is therefore the top level of the ground floor, and costs include side-wall and roof construction, and corridor walls.

It is assumed that in these one-story buildings the costs of heating, plumbing and electric installations within the unit considered are the same in non-fireproof types and semi-fireproof types.

**Side-Wall Types**

**Side Wall Type W1 (Steel frame sash and glass block)**
Wall below window of concrete.
Construction above concrete wall is of structural steel acting as structural support for roof and as frame for directional glass block and for metal sash below glass block panels.

**Side-Wall Type W2 (Wood frame, wood sash; double glazed)**
Wall below window of concrete.
Construction above concrete wall is wood structural frame supporting the roof. Window construction is of double, wood, fixed sash above single-glazed wood hopper vents. Glass is clear window glass.
The module of 4 ft. has been used in the side-wall units to conform to the spacing of the framing members of the roof. It also lends itself to the bond of masonry or the economical length of wood or prefabricated wall covering.

**Side-Wall Type W3 (Wood frame, wood sash, single glazed)**
Wall below window of concrete.
Construction above concrete wall is wood structural frame supporting the roof. Window construction of single, wood, fixed sash above single-glazed wood hopper vents. Glass is clear window glass.
The module of 4 ft. has been used in the side-wall units to conform to the spacing of framing members. This in turn lends itself to the bond of masonry or the economical length of wood or prefabricated wall covering.

**Roof Types**

(All the analysis is considered as bearing partitions of wood stud construction covered with gypsum board painted. Corridor ceiling of wood joist strapped and covered with gypsum board painted.)

**Roof Type R1 (non-fireproof)**
Roof construction: pitched type, light wood trusses spaced 24 in. on centers, made of native lumber and having bolted and nailed connections without the use of connectors. Ceiling strapped directly to bottom chord of truss and covered with gypsum board painted.

**Roof Type R2 (non-fireproof)**
Roof construction: flat-type, wood joists, spaced 24 in. on centers, using Douglas Fir lumber; matched wood sheathing; rigid insulation covered with 20-year tar-and-gravel roofing. Ceiling strapped directly to bottom of joist and covered with gypsum board painted.

**Roof Type R3 (non-fireproof)**
Roof construction: dihedral type, wood mill-frame construction with Douglas Fir timbers, spaced 48 in. on centers, 2-in. matched plank roof. Structure exposed on ceiling side and painted. Roof insulated with rigid insulation covered with 20-year tar and gravel roofing.

**Roof Type R4 (non-fireproof, steel joist)**
Roof construction: flat-type steel open-web joists, spaced 24 in. on centers with 2 by 4 in. wood nailing attached, to which sheathing is nailed. Rigid insulation covered with 20-year tar and gravel roofing. Ceiling strapped directly to bottom of joists covered with gypsum board.

**Roof Type R5 (semi-fireproof)**
Corridor walls: load-bearing masonry block painted.

Joists, R1 with a finished ceiling is cheaper than R3 with exposed plank ceiling. The variation of a mere 1 per cent between R2 and R3 warrants no conclusion as to their relative cost values.

Figures on R4 indicate that for a 22-ft. classroom span the use of steel-joist framing is more expensive than either a simple trussed roof or a wood timber roof. It has ceiling tile or plaster board underneath. However, if this ceiling tile or plaster board is omitted on the bar joists are left exposed, the use of steel joists is slightly less expensive than types R2 or R3. The saving per square foot of ceiling omitted is about 9 cents a square foot pushing the net cost of R4 with W1 down to $3.45.

Roof R5 is a semi-fireproof construction with a concrete slab on top. This reflects about a 25 per cent increase over the cheapest wood construction, if the same type of wall construction is used.

Walls W2 and W3 were not combined with roofs R4 or R5 because it was thought that the unity of the steel should be preserved. However, by adopting a mongrel type using wall W3 and roof R4 to cut our costs we might arrive at one of our cheapest types of construction.
HOUSES
ARCHITECTURAL RECORD'S
BUILDING TYPES STUDY NO. 148
HOME LIFE AND HOUSE ARCHITECTURE

If this piece were being written by a practicing architect, it would be no more than proper to begin with an apology for the inference that the author has some special or more exact knowledge in a field which, to varying degrees, is a major consideration in all residential work, a problem common to every architect concerned with house design. But these observations are being presented from the outside, so to speak, and against a background of many years spent in a kind of No-Man's-Land half-way between the architect and the client, where both can be heard.

Inevitably, to one in such a position, there emerges gradually a sort of composite client and composite architect, the first imbued with all the hopes and fears and inarticulate longings of his kind, the second invested with power to untangle and simplify and make order of it all, and finally to build. (In evolving these composites one naturally selects only the better materials.) This article, which will concern itself with the interaction between home life and the architecture of the home, is addressed to the architect, somewhat on the client's behalf — but also with the hope that the client may see it and gain a little something in new perspectives and behalves — but also with the hope that the client may see end result.

In the first place, the antiquity of the relationship between home life and house design should not, we think, imply that it is therefore an old story, completely assimilated, and unimportant as a subject for discussion. Not only does time work changes in the manner of living, which need to be appraised, but it is also possible for a profession to grow beyond its former boundaries, availing itself of whatever is appropriate to it in the expansion of other arts and sciences. Architecture would seem to have a special opportunity and responsibility in this respect, and as it flows beyond its old borders its relationship to old problems inevitably changes. Already the vanguard of contemporary house architects is striving to create designs which go beyond the mere satisfying of strictly functional objectives; which seem, in fact, to stem from a conviction that architecture must and should be influenced by the form and content of the family life, yet architecture can and should exert its own subtle influence on the development and serenity of that life.

Satisfaction of the owner's living requirements is obviously one of the elementary (even if pre-Sullivan) objectives of house planning. The chunky little Cape Cod cottage must have made quite an adequate economical home for a man of the sea; the down-East farmer's continuous train of buildings, beginning with the house and ending with barn, was a practical solution for a man with a practical distaste for shoveling paths in winter snows; and the perennial Southern gentleman, addicted to welcoming a score or so of guests, seems to fit naturally enough in a house which is almost extravagantly hospitable-looking.

Nonetheless, we have a feeling that except for the classic examples these typical American solutions of the house problem are not often as apt and skillful in the details of planning as they are in the contours of their moldings. In the myriads of doors (often opening inextricably into each other), in the wasteful or hit-or-miss circulation, in the murderous stairways and skill-cracking obstructions there is at least some evidence to support a contention that the builder, according to his skill, satisfied the major needs of the owner, and the owner then adapted himself to ineptitudes of others.

In more recent times, the powerful influence of home life on house architecture is nicely illustrated in the metamorphosis of the plan in so-called "traditional" houses. The client was ready, perhaps eager, to preserve the externalisms of the old buildings — even to copy the furniture — but he required the architect to reorganize the plan to conform to his modern living needs, literally a marriage of convenience, but also reassuring evidence that the force of the great alliance between life and architecture cannot ever be circumvented or suppressed.

It seems to us, then, that in old architecture as in the more recent adaptations there was something good and something not so good. There was freedom, beauty and appropriateness in the design of many of the early houses but there were not enough architects to go around and the details of planning which might have made the house an easier place in which to live often went unresolved. In the latter-day reincarnations of this work, the client has had the advantage of the architect's professional skills; but the architect has not been free to develop his design as an entity, unprejudiced by antique façades.

It seems possible, therefore, that in our contemporary modern house design, combining the services of a fairly numerous and available profession with a return to the freedom, inventiveness and reasonableness of earlier times, the client may be getting the best break he has had for some years. If he does not always recognize that fact at once, that is not remarkable. In the modern approach, which sets its design objectives by reference to...
individual family needs, preferences and even aspirations, the interaction between home "living" and the architecture of the house has plenty of room to work; and the resulting house is certainly different, as compared to popular residential types of only a decade or so ago. To the man accustomed to buying his house and furniture by simple reference to the "authenticity" of their "reproduction," it is difficult to start thinking solely in terms of himself, and his family, and how he wants to live. Difficult, and a little alarming; but with understanding, it comes.

In a degree, many of us have been conditioned to certain prominent aspects of the modern house by personal experience with apartment living. People who have never had a cellar or an attic, who have had to discard worn-out or useless possessions for lack of storage space in which to keep them, usually come to a correct evaluation of this enforced weeding-out process and prefer to continue it. The economical — often multiple — use of space in an apartment has also been useful as preparatory education.

Perhaps, as a matter of fact, it is only just to give to our friend the client a little of the credit for the happy turn of events in the architecture of the house. He has demonstrated a desire to live a simpler, more rational life in his home; he has looked to his home for an antidote to the tensions and frictions of modern life; he has developed a fondness for the outward look, and found serenity in broad vistas of sky and earth. He, too, has changed a lot since grandfather's day.

Yet, for all these healthy tendencies, this same man is today a particularly poor bet to make any progress — unaided — towards the realization of a house well-designed for him. More than ever he needs professional help. The architecture of today which takes into account the very great social and economic changes of recent years, which takes into account the biggest pattern and the least pattern of family life, and which is striving — as we shall presently see — to go even beyond functional, utilitarian objectives, this architecture can in no way be successfully attempted by the untrained layman. Therein lies a problem, unsolved but at least recognized by the profession.

Emerging out of all forces which have worked upon it, the modern house constitutes at once a more nearly common architecture — in that the small, economical house can offer comfort, convenience and even esthetic pleasure comparable to that of the large, expensive house — and at the same time a more fluently individual architecture, in that it adjusts itself more easily

Revival of the kitchen as a center of the home—recalling its ancient and honorable estate—is one rewarding by-product of the "servant problem." Today it has progressed not very much beyond the elementary matters of convenience and utility; but, depending on the individual family's way of living, it seems to offer rare possibilities of development. The plans above are an indication of how this room, used in combination with other rooms, has been rescued from obscurity and returned to the use and enjoyment of the family
to the sometimes trivial, sometimes important differences that inevitably exist between different families' ways of living. In the first we find room to hope for some kind of broad development, within the profession, which will make well-designed houses available to every income group; but our primary concern here is with the second part — the sensitive response of house architecture to the individual's home life, and the maximum development of that response.

Nor should we overlook here the converse effect — the influence of good architecture on the aspirations of the individual. As people are familiarized, through publications, with sound contemporary design expressive of a greater freedom, individuality, informality and sincerity in home life, they are better able and more inclined to orient their own thinking along similar lines. Inspired by example, they tend to project for themselves a pattern of living which in turn can take form as a good contemporary house.

The expressed aims of some of the distinguished thinkers in the architectural profession might seem a little visionary if it were not possible to look back and see what remarkable changes have taken place, not only in the house as a whole, but in every component part of its plan.

Segregation applies to children and adults alike, growing out of an understanding of individual needs and the potential functions of various parts of the house. In Stubbsin's plan, right, the children's end of the house has been developed to give them space for their work and play, with an adequate sound barrier between their rooms and the adults' living areas. But in cases where close supervision seems necessary, an arrangement like that of Howard Moise's might be considered essential. Even out of doors, segregation can yield results: for example, note that in Thiry's plan, the terraces are separate but the children's can be under constant observation from the living room, kitchen or adults' terrace.

Think, first, of the inviolate pattern of the plan as we have known it — the sitting-room to the right, the dining-room to the left, the kitchen beyond, each with its familiar air of being what it always was and always would be, forever. And upstairs, like a hayloft, the bedrooms. That spelled house; nothing different occurred to us. So deeply is that rigid pattern seared on our consciousness that people who shut their eyes and make their minds a blank are apt to find themselves following it, even today.

But many of us — perhaps more than is generally admitted — have been overtaken by a great change. Persuaded by the force of such inexorable circumstances as the dearth of domestic help, and partly by the logic of the contemporary architectural approach, we have become willing accessories to some notable changes in house planning. For example: since we do our own cooking now, and guests are a commonplace in the kitchen, why not bring the kitchen out of its ancient obscurity and make it a room — or part of a room — with social standing equal to other rooms?

No longer the exclusive domain of the servants, this most attractive complex of sounds, sights and aromas is once again returned to the family. In earlier times it was always the core of family life, the center of the

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*Top right*  
Paul Thiry, architect  
Complete plans House & Garden Nov. 1947, page 198

*Bottom left*  
Howard Moise, architect  
Complete plans ARCHITECTURAL RECORD Nov. 1947, page 107

*Bottom right*  
Hugh Stubbins, architect  
Complete plans ARCHITECTURAL RECORD March 1948, page 91

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APRIL 1949
house, and there is every indication that the exigencies and aims of contemporary living are rapidly bringing it back to a position of comparable importance.

Out of this process of reassessing the function of various rooms in the light of modern living needs has come a variety of combinations — some perhaps overdone, like the guest room-study, but others full of interesting possibilities. Bringing the dining room into the kitchen — or vice-versa, depending on where you place the emphasis — should certainly make a more interesting room than either one alone.

Some of us, depending on our way of living, like to apportion the master-bedroom space so that we get a small sitting room next it, and perhaps a secluded little garden terrace outside; a sort of sanctum sanctorum, useful at any hour of the twenty-four. More use per room, more house per dollar. And those of us with children are convinced that when their part of the house is designed specifically for their needs — not only sleeping, but their work and recreation — the whole family benefits.

Segregation of the children's rooms from other rooms may be especially desirable in cases where the adult entertainment attains fairly noisy levels, or where radio or television (relatively new sources of noise in the home) would interfere with children's sleep. However, it is possible to lean too far in this direction: children must have supervision, day and night, and it is not healthy for the child nor does it make for parental peace of mind to carry segregation to the point of ostracism.

Wherever and whatever the problem, we have become accustomed to seeing it approached on the basis that if a solution can be found which works better, more easily, gives us more pleasure and doesn't cost any more — it's worth considering.

The possibilities are by no means fully explored. Only recently Editor Stowell suggested to us that in certain homes the library might very well be combined with the dining room. A table is needed in both; books make an attractive environment for dining; and dinnertable discussions can be authoritatively resolved with a minimum of delay and lost motion. And too it can be used for evening study by youngsters or adults.

The appraisal of changing patterns in home living is not without hazards which may result in architectural expressions of somewhat less than enduring value. Specifically, it is possible to mistake a popular fad for a pattern of living. Twenty-five years ago it seemed that no home could possibly be considered complete without a sleeping porch; the population had apparently contracted some form of nocturnal claustrophobia. But it passed, and the sleeping porch virtually is no more. The cellar rumpus room, another "must" of a few years ago, also seems to have lost whatever charm it had; and it remains to be seen whether some of our present devices — such as dining-to-kitchen pass cabinets (though they were popular in the '90s) or eating bars equipped with stools — are perhaps similarly transitory and for a similar reason.

It seems accurate to make a distinction between fads, which seem motivated by no important forces, and those manners or fashions which are powerfully moved by existing conditions. Accepted fashions in entertaining — North or South — always have exerted a considerable influence on design. The situation in 18th century New England, in respect to this function, was not very dissimilar from that in the South, excepting perhaps that the greater distances to be traveled in the South caused the guest to remain for an extended visit once he arrived. But, essentially, it was an era of entertainment in the home, and the house was designed to accommodate anything from a few extra relatives to a large formal reception.

With the coming of the 20th century, all this changed. By the 1920's we had arrived at an era of night-club entertaining, hotel receptions, and a general trend towards keeping the entertainment problem out of the home. Partly, this may have been due to space restric-
tions and to the easy money that made costly outside entertainment practicable; but it was also due to the increasing "servant problem" which would not accept the added burden of catering to guests.

Of recent years, the servant problem having ceased to exist with the disappearance of the servants, the trend has been to bring our guests back again into our homes—but on a simple, informal basis which is more and more clearly reflected in the plan of the contemporary house, as certainly it should be.

There is neither space nor need here to list the accomplishments of modern house architecture along these lines; the important thing is that in a span of a relatively few years so much has taken place which only a little while ago seemed impossible of attainment in our hide-bound, conformist society. And perhaps there is reason to hope that even greater things, more difficult things, will be accomplished in a few more years.

Two of the factors essential to such progress appear to be present: first, a more mature and intelligent attitude on the part of the client, an inclination to simplify his environment and to correlate his building program with the most important needs of his family and the requirements of their way of life; and second, a growing realization on the part of architects that what has been accomplished in the way of plan, design and structure is still not generally as broad in the scope of its objectives as it can become.

The first of these should grow, as we have suggested, both by force of example and by virtue of increasing consciousness of what the client himself, through a sincere and critical selection of the elements of living most vital to him, can contribute to the success of the design.

The promise of architectural progress—not only in the development of the accepted approach to a functional solution, but also in the broadening of the concept of what all the elements of design can do for the individual—seems indicated already in the work of some leaders in the profession and in the favorable impact of that work on younger architects who must be counted upon to carry forward what has been begun.

Function, we believe, is not so limiting a term as is generally supposed. It does not necessarily restrict us to the mechanics of living, the pattern of footsteps, the height of a man’s head, the reach of a woman’s arm—important as these are and must remain. Subtler and more elusive elements are still definable as functional.

Broadsly speaking, this has been sufficiently proved by the layman’s reaction to the open plan and the breaking down of the architectural barrier between indoors and out. What is demonstrated, perhaps, is that people are still natural creatures, respondent to and dependent on certain impacts which do not greatly change, even when they are neglected for a considerable time. Upon the sum of all our senses, and upon the measure of our success in creating an environment perfectly congenial to them, depends to a considerable extent that condition which we describe as being happy. The contemporary architect, therefore, in designing a house, is beginning to turn his attention to a more serious and detailed consideration of the esthetic effect of form, color, volume, sound, light, texture and motion—everything that can be apprehended by the senses, as they are employed in combinations and in contrast to one another.

In other words, having found a reasonable approach to planning for function, in its utilitarian sense, the architect is preparing to tackle in the same factual and objective manner all those non-utilitarian elements which have, nevertheless, a powerful and important function in the home environment.

These are great objectives, worthy of the great traditions—the true traditions—of architecture. The more nearly we approach to their attainment, the more complete will be the interaction between the innumerable patterns of our familiar life and of the architecture of the house that shelters us; and the more will architecture come to our aid in new ways—through channels open, perhaps, to no other instrument.

**LEFT:**
The evolution of the master bedroom into something more like a private apartment is an interesting corollary to modern house design. Beginning with a bedroom-bath-dressing room combination, we have now progressed to an occasional adjoining sitting room which in turn not infrequently connects with a small terrace or garden. Not only does this add daytime usefulness to the space but it tends to balance the freedom and spaciousness of the rooms which are common to the whole family.

**RIGHT:**
Indoor-outdoor relationships in planning may properly be thought of as elements in designing for function; but it would be a mistake not to recognize and correctly evaluate the public’s response to the aesthetic values which this so-called “inter-penetration” of shelter and nature has created for them. It may be doubted whether any other single feature of the modern house has had a more stimulating effect on people’s imagination—a significant consideration, and perhaps one which suggests that even more emphasis could profitably be placed on the client’s sensory response to his architectural environment.
HOUSE AND LOT DESIGNED AS A RELATED WHOLE

Residence in Beverly Hills, California
THE simple horizontal line of this house, as much as its walls of double hand split shakes, keeps it in pleasant harmony with level site and background of wooded slopes. Outdoor living centers around a large sycamore tree, identifiable in all three of the pictures below, the house having been carefully disposed to preserve such existing assets and to make the larger portion of the property available for gardens. Note adjustable louvers east of breakfast porch.
The plan is arranged to meet a fairly formidable list of requirements. A 40-ft. set-back being obligatory, the garage is placed as near the front as possible to allow recreation and gardening facilities at rear. The kitchen is the control point for everyone entering or leaving the property. Acting as a screen between kitchen and dining room, the breakfast alcove also doubles as a convenient place for "set-ups" during large dinner parties, and further serves as a connecting link with outdoor facilities. The guest room forms a buffer between the children's rooms and the living areas, and the guest bath is so placed as to be generally available even though the guest room is in use. Children's rooms may be opened into each other for daytime play, and the servant's room is near by to facilitate supervision. To secure maximum sunlight and also to reduce the effect of street noises, all rooms are oriented to the south, at an angle away from the highway.

Living and dining room are planned as a single large area extensible to the outdoors—both visually and physically—by the architectural treatment. Ceilings are acoustically treated, and floors are carpet on a concrete slab. The massive chimney allows space for a terrace barbecue, seen through the dining room window, at the left.
The kitchen is designed to keep all storage facilities within easy reach of a person in a normal standing position; no cupboards, cases or drawers extend below 2 ft. 6 in. above the floor, nor over 6 ft. 0 in. above it. In the picture below, the door opens on the main entry. At right, windows dominate the sole entrance approach; breakfast alcove is out of sight around the corner. At far right, the breakfast alcove; figured glass and plywood walls of this section make a pleasant transition between kitchen and dining room.
The advantages of maximum flexibility in the planning of children's rooms are well illustrated in the three photographs at left. The two boys, being of different ages, have separate rooms affording quiet for each as required but which are capable of being converted into a large play area by means of a sliding panel door moving between two closets. The ceiling is acoustic material applied directly on backing. Consistent with the treatment in other rooms, the walls are hardwood plywood; some six types of wood are used in different parts of the house, with occasional walls painted in color for accent.
The owner of this house, a musician and music teacher, required a living room large enough for piano lessons and group singing. As the building budget was extremely limited, the dining and hall areas are made small additional parts of the living room and the architect has cleverly acquired space vertically, as seen above, and has opened the entire long side of the room with glass—all of which makes the 18 by 20 ft. area seem more spacious.
At right: view from the southwest. Projecting above the roof line, the bathroom window, cocked up at a saucy angle, gives an unexpected lift to the design. Walls, oil-finished redwood; roof, asphalt shingle. Above: the living room.
The chimney, except for the fireplace and flue, is concrete brick with a plaster hood supported on metal rods. Walls are rock lath, ceilings metal lath, with a single coat of plaster. Floor is painted concrete.

As shown in the plan and pictured at left, the entry serves multiple purposes, acting as front door, kitchen entrance (via the utility room) as well as giving access to the storage room through the door at right. The larger bedroom, occupied by the two children, can be divided by a curtain. Plans for future additions to the house include a large family sitting room, and a garage connected to the entrance by a covered way. Steel pipes laid in concrete supply radiant heat. All fixed glass is wood framed, opening vents are projected metal sash.
A STORY-AND-A-HALF HOUSE ON A NARROW LOT

Residence at Malibu Beach, California

Griswold Roetze, Architect

The beach lot on which this house is built is only 40 ft. wide by about 75 deep, requiring the architect to perform some ingenious manipulations in order to meet all the owner's needs yet not to leave the house reared up in the air like a two-story box. A story-and-a-half scheme was developed, with a glass-screened sun deck facing the ocean and a protected patio at the opposite side, between the house and the garage. All rooms facing the ocean are opened up to the view, while windows on east and west sides are held to a minimum for the sake of privacy. The house is built on wood joists supported by pilings on 13-ft. centers. Garage and storage rooms on concrete slab.
Plan requirements called for a living room large enough for a grand piano, a kitchen, study, two bedrooms and two bathrooms. The owner's room has a small roof deck facing the ocean. Exterior walls are rough board and batten; the roof is white composition.
Interior walls of the living-dining room are V-jointed redwood boards; the master bedroom, shown below at left, is finished in Philippine mahogany plywood. Drywall construction is employed throughout, with sheetrock painted in cool colors in the rooms not finished in wood.
Above: this side of the house faces a broad panorama of hills. Below: identifiable by roofs are carport, studio, bedroom, entry and living areas.
One of the owners of this house, a well-known portrait photographer, required that her studio and related workrooms comprise an integral part of the design — yet furnished with a separate entrance, and isolated from the indoor and outdoor living areas. The studio, which has its own southeasterly terrace for outdoor work, also doubles as a bedroom with bed and closets concealed by sliding Japanese paper screens. The other bedroom and bath provide the buffer between this section and the main entry and living room. Servant’s wing is at the extreme opposite end. Exterior is flush redwood siding; roof, tar and gravel. The heating system is forced warm air.

RESIDENCE IN CONTRA COSTA COUNTY, CALIFORNIA

The plan arranges itself around a large private terrace at the rear, affording a pleasant contrast to the expansive view on the opposite side.
Above: A small terrace faces the sweeping view of the Contra Costa Hills and Mt. Diablo. Beyond, a wooded hill screens the larger terrace at rear. The studio, right, opens on an outdoor work space and has north skylight, also seen in terrace view below.
Three views of the living-dining room. Right: detail of sliding glass doors opening on terrace shown at top of opposite page. At other end of room similar doors give access to dining terrace near kitchen.
PLANNED FOR THE SERVANTLESS WAY OF LIFE

Residence in Ladue, Missouri

Robert Elkington, Architect
Two factors, actually, were dominant in developing this design: the owners do their own work, and Missouri summers are hot. As a result of the first we find such features as the location of the kitchen near the bedrooms for early morning convenience, the laundry placed near the entry and telephone-equipped to minimize effect of interruptions. There is provision for small dinner parties only (the accent is on after-dinner entertaining). In consideration of the summer heat clerestory windows are provided in the living room to exhaust the pocket of hot air, and sliding doors enable porch and living room to merge into a single, cross-ventilated "breezeway" for summer use.
The living room is bright and spacious. Screened in summer, glazed in winter, the porch is here shown opened to the living room. Below, detail of bracket for sliding door track. Floors are asphalt tile on concrete base. The ceiling is of fibreboard. Cabinets flank hall opposite kitchen.

Left: folding partition opens children's room for daytime use. Guest room can be "isolation ward" in case of sickness.
MODULAR planning, prefabrication and the use of prefinished materials are all enlisted in this idea for a house aimed at meeting a building budget of seven or eight thousand dollars, in the South Florida region. Exterior and interior walls, designed on a modular principle, are of glazed ceramic tile; window units are prefinished and painted, and the wiring is shop-fabricated. The top of the masonry wall is tied together for lateral rigidity; angle clips welded to this tie provide the seat and attachment for precut rafters. Wiring and plumbing are accessible from the outside. Separation between areas is achieved by means of storage units delivered and set in place after the interior is finished.
PROJECT FOR A HOUSE IN LOCUST VALLEY, N. Y.

Peter Blake, Designer

The problem consisted of a small building for the designer's own family. The house measures only 32 ft. 6 in. square. In order to avoid the usual minimal solution, different levels of activity have been created instead of the separate, enclosed cubicles which would tend to make a small house appear smaller still. The advantage of the intersecting level solution, in establishing privacy without destroying the total space-volume, is fully exploited. Although this house is to be constructed of widely centered wood posts, its materials, in a sense, are the many different space relationships which have been developed. The entrance to the house is through a small foyer, under a low ceiling, which opens up to a very high living space. This space grows in all directions as one walks around in it and, seen from different levels and angles, presents changing structural and spatial forms. Areas of great spaciousness alternate with small-scale corners of privacy, such as the little den with its fireplace. Mr. Blake says, "The site for which I designed this little house is a small clearing in some woods near Long Island Sound. I thought of it as a small, precise, rectangular little construction of glass and solid planes, standing on a raised platform of brick, and looking as little like a natural object as I could possibly make it look." His greatest difficulty, he says, was in relating the spatial freedom represented in the design to the structural and formal discipline which he feels architecture demands. In several respects, especially in the course of detailing the house, he found these two elements in his approach conflicting. The south-east elevation (top of next page) he feels is less successful on this account than some of the others; nor is he altogether happy about the proportions of some of the interior walls. In this design, however, the whole interior space is visually present to be fully enjoyed as well as efficiently used.
The photograph of the roofless model, above, affords the best general view of the interior arrangements. Two bedrooms and bath are above the kitchen, entry and den; the work area is at a half level lower, and beneath this — at a level still lower than that of the living room — is the play and storage space. The model, made of solid brass, plexiglass and wood, is the work of Mr. Blake and Willo von Moltke.
CONFESSIONS OF A CAPE CODDER

By Royal Barry Wills, Architect

Sketches by the author

IN NEW ENGLAND the practice of architecture is so completely bound up with clients that you can’t imagine the one without the other. I suppose it’s the same elsewhere, but it couldn’t possibly be more so. Yes, an architect simply has to have them and there is no ready device for screening out all but the least bedeviled. Ideally, he should catch them young and bend them to the concepts of his rationalizing, but somehow their formative years are always behind them when caught, and at times one wonders who’s catching whom.

Perhaps the typical New England client, subgenus Bostonian, is worth taking a look at, with the understanding that such characteristics as I shall mention are not invariably present, because even among clients there are occasional “sports” who deviate from the norm.

The ladies wear tweed suits and dolmans, and hats that have that eternal look. They are ardent but very selective joiners, and never miss a worth-while lecture nor a morning musicale. Committee work comes naturally to them, and I refer to real problem jobs like the Little Wayfarers or the Lost Adolescents. Plan E, Birth Control, or any worthy cause seeking referendum space on our ballots, will find the good ladies among its stoutest workers. They are immensely durable, like their fur neckpieces, and at seventy can do ten miles a day over Boston’s bumpy sidewalks, without apparent fatigue.

Neither the male nor female believes in throwing money around. I had an affluent old client, long since gone to his reward, who will serve as a model for the men. He wore side-whiskers, a stiff collar, well-worn cutaway, and a square derby. His necktie was clean, but ancient, and sometimes slightly askew. Some of his striped trousers were frayed at the bottom, because he never threw away anything wearable. On occasion he wore Congress shoes, very frequently storm rubbers, and invariably carried an umbrella. His left hand never lost its firm grip on a green baize bag filled with books. But that didn’t mean his head was very far up in the clouds, because ’tis a fact that he personally sold apples from his one tree to neighbors at twenty-five cents a basket. By such tidy little transactions he could keep himself in pocket money and feel that nothing had been wasted.

If this picture seems fanciful, let the doubter wander over Beacon Hill almost any day in the week. Thrift does indeed permeate them.

On rare occasions, a New Englander will “dip into his capital” to build a house, but with no elation, much as a drowning man parts with a life preserver. His whole conservative self deprecates changes in the established system; permanency is the watchword. In architecture, he chooses stabilized solutions knowing full well that contemporary design, besides being foreign to his taste, will...
vary from year to year like the fashions in *Vogue*. The styles of one decade fetch a guffaw in the next, plus a very low price.

An optimist would classify the average client as fair-minded on the obstinate side. He has an idea-full wife, usually a child or two and a flock of relatives, some of whom are downright formidable. In his background there are ancestors who have willed him furniture and oddments in varied number, and to these he has added miscellaneous gear for household furnishing, easier living, sports, hobbies or gardening. In his mind there is a catalogue of these live and lifeless hostages to fortune and it fixes his demand for space. Of course none of it is ever given the heave-ho in the interest of simplification! He is almost sure to interpret the physical appearance and location of the space in terms he and his forbears have always known and not infrequently that spells Cape Cod cottage. When the jag of sleds, porch furniture, broken chairs, ladders, garden tools and cherished cultch is uppermost in his mind he thinks of a cellar, and if you cannot provide adequate storage as cheaply above ground the cellar is as good as dug. Probably the undue affection for cellars goes back three generations to the cider barrel in the cellar of the old homestead. He has a deep-seated bent for privacy and segregation, especially where the family group is still in good order and traditional forms have not dissolved into the undisciplined expression of its members' personalities, or "careers" as they are sometimes called. So we still have a demand for dining rooms even though they are unused for twenty-two hours a day. Until the recent phenomenon of the "ranch house" on the fifty foot lot there was an almost solid preference, among houses with three or more bedrooms, for upstairs sleeping quarters. It is still rare to meet up with a warm regard for the open plan and built-in furniture. If you are starting from bleak, ancestorless scratch it's one thing, but so many of us cling to Aunt Hattie's old Boston rocker or Grandpa's roll-top desk! As a rule we're too viscous, up this way, to flow easily from center to center, preferring to walk forthrightly from the privacy of one room to another. Claustrophobia must have only a fractional incidence because, short of a view worth framing, the average client feels happier behind the chaste rectangles of his small-paned windows. If he could afford one-way glass there might be greater temptation to be at one with the troubled world, sans danger of being apprehended at ease in too informal array. But our hesitating acceptance of the "picture window" as being occasionally admissible is testimony to the slow disintegration of the New England fastness. Influences to this end include modernist example and the gush-and-rave articles in popular magazines. They are certainly chipping away at the great dam of inhibitory material standing between us and perfect intellectualized harmony with the rushing present. Another century and the dam should be reduced to a permeable talus heap.

One great exception to the restrained acceptance of change has been in the mechanical division, and even the simplest Cape Codder will enshrine every last piece of labor-saving machinery that his owner can afford, even to the point where the lady of the house grows positively flabby and bored with life for lack of employment and attractive time-killing self-indulgencies that come within the family budget.

Meanwhile the architect has been making the best of it, balancing the program, the budget, and the client's tenacious proclivities for this and that. Try as he will to attune himself to the persistent hum of progress,
certain awkward facts keep intruding. The simplest and cheapest house to build is clearly going to be the most compact house. It's to be set up in a region with no discernible climate but riddled with difficult irregularities in the weather which take shape as hurricane, hail, snow or rain, directed vertically or horizontally against his package of shelter. He finds that his clients are particularly sensitive about weather. New England, for example, which heralded the birth of the Cape Codder, finds many a hot and muggy day intruding in its normally lovely summers, and raw and biting cold, with snow, is the rule in winter. Snow may pile up three feet deep on a flat roof there, and winds of one hundred miles an hour velocity not infrequently blow fine snow right through shingles which are water-tight, and rain through the putty of windowpanes. Certainly its integument must be of the best completely proven types of material that come within the budget. By this same yardstick the roof has got to be pitched in at least one direction, if it's to give the least amount of trouble in and year out. The simplest windows to install, and the ones found most generally adaptable to storm and subzero conditions, are plain double-hung sash. If there is only one chimney it comes naturally near to the center of the house, for any heating man will tell you that a furnace should be located amidships. Then, too, down drafts are much affected by side and end chimneys in this neck of the woods. It is not mere willfulness that has given the Cape Codder and its more pretentious New England cousins their present form as true regional architecture.

When I started to practice, the professional world seemed to be at peace with itself, at least as far as my horizon, and not until the early Thirties was its serenity disturbed by brawling between the Five Orders and the Pipe Columnists. My immediate impulse was to give the new thought a whirl, to check its virtues against the stridency of its protagonists. So we did a fair number of houses in the contemporary manner and still get a big kick doing them on occasion, but we never became rabid enough to wage an unholy war against the inherent desires of our clients. It didn't seem that important, especially as we could, and still can, better our costs through use of familiar materials used traditionally. We can heat and humidify them to the queen's taste, accouter them to the mechanical hilt and present them to the world through a picture window; we can build their house on a concrete slab replete with pipes and still leave them happily within the indigenous design they prefer.

Among those of us old enough to have known peace among the architects there is still an urge to retain that blessed status, and perhaps we'd even connive a little with the opposition towards its attainment. Couldn't we arrive at a set of compromises (if you can imagine a modernist compromising) and concentrate on a subtle campaign which takes cognizance of the clients' innate fear of hell fire to pull them into line?

The spirit of the age is palpably away from individual enterprise and choice and immeasurably favors planning-living as evolved by experts. Naturally the womb-tombists cannot complete and hold their master plan without being occasionally ruthless against persistent outcroppings of the old dog-eat-dog era. Of course, the whole business would be a lot easier if we could have just a little direct revelation to certify the validity of the dogma. Without it, a Messiah has tough going in New England.
It has long been an open secret that M. I. T. was seriously researching the age-old idea of using solar heat for space heating. The study has now arrived at the point of completion of the first occupied test house.

The house is basically a compromise between theory and practice. Probably nobody ever doubted that a house could be heated entirely by direct solar energy. The conflict between idea and reality has been in the size and expense of the necessary gadgetry to collect heat and store it against the rainy days. So this house does not attempt an installation large enough for 100 per cent solar heat; the approach was rather to do what seemed reasonable with the sun's energy, and supplement that with auxiliary electric heating.

The house is in the Boston area, which is considered to be about the northern limit for solar space heating. It is the latest development of M. I. T.'s Solar Energy Research Project, endowed by Dr. Godfrey L. Cabot of Boston.

This house uses water as the heat storage medium, and the necessary size of the water tank is a limiting factor, as well as the size of the heat collector plate. The tank here holds 1200 gal. The electric heat is easily added to this system by the simple means of introducing two 3.5 kw immersion-type heaters in the water storage tank.

The heat collector is of the flat-plate type (parabolic, conical and other shapes have been studied), as the flat form seems generally the most practical. It consists of a blackened metal sheet behind two sheets of glass, the assembly tilted toward the winter sun.

If we could put a heat collector perpendicular to the sun's rays somewhere outside the atmosphere, there would be about 430 Btu per hr. per sq. ft. available outside the glass. But by the time the solar radiation has passed through
the dust and water vapor of the atmosphere, some of the radiation has
been absorbed and diffused, letting a little over 300 (350 max.) Btu per hr.
per sq. ft. through. Some of the diffused radiation is still picked up by the heat
collector which accounts for some heat collection even on cloudy days.

In order that a maximum amount of heat might be collected during the peak
of the heating season without the roof being too steep, an angle of 57 degrees
with the horizontal was chosen for the tilt of the heat collector.

The optimum collector tilt for house heating depends on geometrical limita-
tions as well as the economic consideration for the solar unit. From the stand-
point of heating alone, the optimum collector tilt is that which will allow the
heating system to operate with a minimum of fuel from an auxiliary unit; or
that allowing the minimum size of stor-
age tank for an independent solar heating system. From an architectural
standpoint, roof angles greater than 45 degrees probably would not be eco-
nomically justifiable.

To get the maximum amount of collection during December and January at
Boston (Cambridge) would require an angle of about 65 degrees (sun’s rays
perpendicular to the collector at solar noon).

With an angle of 57 degrees, the rays will be perpendicular to the collector
at the middle of February and the be-
ginning of November. A variation of
plus or minus 8 degrees from the 57
degree angle makes little difference in
the heat absorbed and takes in a period
from the middle of October to the begin-
ing of March, the greater part of the
heating season.

According to directors of the pro-
gram, the tilt chosen favors solar energy
collection and appears to be within rea-
sonable architectural construction. A
convenient rule of thumb for figuring the
collector tilt for different sections of the
country is the sum of the latitude and 15
degrees. (Cambridge is 42° 22’.)

The heating system is comprised of
400 sq. ft., net, of heat collector surface
which makes up the south side of the
peaked roof, an attic storage tank, a
radiant ceiling panel, two circulating
pumps and controls. The collection and
heating unit is a closed-cycle system at
atmospheric pressure; no outside air or
water is introduced after operation has
begun.

The collector area was determined by
letting the seasonal heat loss equal the
solar input during that time, the solar
input being taken as the direct radiation
plus 5 per cent additional assumed to be
reflected from the aluminum roofing on
the overhang.

(Text continued on page 138)
The diagram, right, shows the main features of the M. I. T. solar heating system —how the heat is picked up, stored and distributed. The heat collector, detailed above, traps about 37 per cent of the solar energy hitting the glass. An opening at the bottom lets out water in case the glass gets broken. In the photo, Edmund Czapek is examining a flow meter in the attic; note the heavy insulation on a line leading to the storage tank.

Another view of the house with "sun-measuring" gadgets called pyrheliometers evident on the trellis and peak bright of the roof. They measure the intensity of solar radiation outside a collector tilted at a 57 degree angle or oriented vertically.
Whenever the temperature of the collector is 5 degrees above that of the water in the storage tank, a pump automatically circulates water from tank to roof collector and back. Whenever the temperature of the water in the collector goes below that in the tank, the flow of water is cut off and the copper tubes in the collector are pumped full of air to prevent freezing damage. For heat collection, water is pumped from the bottom of the tank and returned to the top. Since a non-reversible pump is used, diverting valves are necessary so that the flow can be reversed to take air from the top of the storage tank and fill the collector tubes when water is to be withdrawn.

A timing control in the circulation system is set so that the heat collection pump stops when all water has been removed from the collectors. Another timing control is used to provide a delay between the time the temperature of the collector goes above or below that of the water in the tank and the time the circulating pump is actuated. This is to prevent “hunting” of the system when clouds are intermittently hiding the sun.

A separate pump circulates water through the radiant heating coils to maintain an inside air temperature of 68°F. Whenever the temperature drops below 65°F, the electric auxiliary heaters operate.

**The Heat Collector and How it Works**

The heat collector units, 15 of them 3 by 9 ft. and the 16th 13½ by 9 ft., consist, first of all, of two layers of 3/8 in. window glass and a copper sheet painted flat black on the absorbing side, with air spaces between each. (See details.) Copper tubes are soldered vertically to the back of the copper sheet and conduct about 10,000 lb. of water each hour to pick up the heat absorbed by the copper sheet. The back of the collectors are insulated by aluminum reflective insulation, 4 in. of rock wool and a layer of fiber board.

Glass is quite transparent to the short wave radiation that comes from the sun. When the black copper sheet absorbs these rays and converts them into heat, it radiates longer infra-red rays which do not pass easily through glass. Thus heat is trapped by the collector. Not all of the solar radiation is transmitted through the glass; part is reflected and part absorbed. And there is also some heat lost from the collector plate to the outside. In all, the amount of usable heat picked up by the blackened copper sheet is reported to be about 37 per cent of that striking the outer glass surface.

**How Much Heat Is Obtained?**

On February 17, a good day for sunshine with an outside air temperature of 24°F, there were 340,000 Btu stored in addition to the heat required to make up the losses of the structure during the heat collection period — from 9 a.m. to 4:20 p.m.

The maximum amount of heat, at solar noon, striking the outside glass of the collector was 314 Btu per sq. ft. per hr.; with a vertical collector, the amount receivable would have been 200 Btu per sq. ft. per hr. The total heat available outside the collector on this day was 2050 Btu per sq. ft. or a total of about 820,000 Btu. Of course the amount picked up by the copper collector sheet is about 37 per cent of this value plus the reflected sunlight from the roof overhang.

During one of the best days, March 2, nearly half a million Btu were stored. This would take care of two sunless days with the outside air temperature at about 30°F.

**House Construction**

The four-room M. I. T. house is very well insulated with the walls, roof and space between the back of the radiant panel and attic having 4 in. of rock wool, a layer of aluminum reflective insulation and rigid fiber board. The floor, topped with asphalt tile, is built on wooden piles and has a layer of aluminum foil between the subflooring and the wood subfloor.

All windows on the south side of the house are triple glazed, except for one panel which serves as a sliding door and is double glazed. The remaining windows on the other sides of the house are double glazed.

The area of glass on the south side was calculated by equating the seasonal heat loss and the solar gain during that period.

The heat loss of the living areas with no curtains drawn is 287 Btu per hr. per degree temperature difference between inside and outside air. This is about 13,800 Btu per hr. with an outside air temperature of 20°F.

The water storage tank, 36 ft. long by 2½ ft. in dia., has a capacity of 1320 gal. and contains 1200 gal. (10,000 lb.). It is held by cradle supports located at each of the 2 by 10 in. attic floor joists which are 14 in. on center. The tank is well insulated by rock wool, the minimum dimensions being 4 in. and the maximum 12 in.

All of the ceiling area is used for the radiant panel. Three-quarter inch copper tubing is formed into a series of sinuous coils and spaced on 9 in. centers.

The instrument room in the house contains automatic equipment to record the intensity of solar radiation, temperature of the storage water, amount of electrical energy consumed, air temperatures at various points throughout the inside of the house and the outside air temperature.

Designers of the new M. I. T. house decline to estimate the cost of a complete solar heating system for the average New England house. The present design does not include expensive oversize equipment to provide capacity for extreme cold spells and long sunless periods. Professor Hoyt C. Hotell of the M. I. T. department of chemical engineering has stated that it cannot be presumed that solar heating will be economically feasible in a climate as cold as that of New England, but results should serve to indicate under what conditions of climate solar heating would be competitive with fuel oil, gas or coal.

The house is occupied by a student engineer, his wife and baby, so that readings of the automatic instruments will provide figures for heat loss and storage requirements under typical dwelling conditions.

The solar energy work is under the supervision of a steering committee with members from departments of architecture, building engineering and construction, mechanical engineering and chemical engineering. The construction of the house and the research directly associated with it are directed by Edmund L. Czapok, research associate in architecture. The architectural design of the M. I. T. house was done by J. Frank Haws, a student in the department of architecture.
Two years ago on these pages the writer reviewed the postwar developments in house heating and air conditioning. In that review the notable point was that beginnings were being made in certain new and advanced ideas. Since that time surprising progress has been made; in certain directions where heretofore the thinking was rather vague, ideas have assumed tangible shape in the form of new equipment. It is in connection with this new equipment and the refinements of older devices that we find the real advances since 1947.

THE FUEL SITUATION

There is basically little change in the fuel situation as compared with two years ago. Coal and oil are at the present time easily available, while manufactured gas in many regions remains restricted for new house heating applications.

Oil

Oil, scarce for several years, is now in long supply to the point where appreciable price reductions were made in some areas early this year. This is due to some extent to the mild winter in the northeastern quarter of the United States where fuel oil for house heating is highly popular, and also to increased refining and distribution facilities. Oil refinery and producing companies continue to point to large oil reserves, while conservationists of natural resources, such as Secretary of Interior Krug, view with apparently sincere alarm the depletion of our oil and deplore its use for generating heat (thermodynamically the lowest form of energy) when we should be saving this fuel for aviation gasoline and other highly important uses.

In this, coal producers of course agree and point to the vast supply of coal still underground, and it must be admitted that there is something to be said for this viewpoint. It is perhaps typical of the times that such a seemingly simple thing as deciding on what fuel to use for home heating should be mixed up with matters of national policy on a pretty high level.

On the other hand, one of the Interior Department’s division heads was quoted recently as saying that “We are in no danger of running out of oil for many, many years. . . . In any event, there are excellent prospects for new oil dis-

Much of the development work in heating equipment has been in getting more heat out of fuels, smaller and more compact heating plants, and lower installation costs. The warm air system (below, left) uses precut lengths of 4-in. stovepipe in place of rectangular ducts to cut costs. Air at 150–175 F is forced in a fan-like pattern in front of walls by the special grille shown. The compact boiler at right burns anthracite pea coal rapidly in a small combustion area to get a reported 80 per cent of the heat out of the coal. Boiler sections labeled are: (1) fan swirls combustion gases against heat transfer surfaces, (2) fly ash separator, (3) firepot and (4) domestic hot water
The necessity of utilizing floor space as much as possible in the small house has stimulated the manufacture of boilers and furnaces in space-saving, vertical forms.

It was reported recently that manufactured gas utilities are able to take new heating business in only 25 per cent of the larger cities; the same source reports that of the gas utilities that have had no postwar rate increases, 84 per cent have filed for increases.

**Synthetic Fuels**

Production of oil and gasoline from coal and oil shales has passed from the realm of speculation to that of actuality. The Bureau of Mines experimental oil-from-oil-shale plant at Rifle, Colo., is producing 50 barrels a day, and several additional retorts are being added. In Missouri the Bureau has under construction a pilot plant to produce 200 barrels of gasoline per day by hydrogenation of coal. Coal gasification underground is still being studied in Alabama, with the second project having begun early in March, and in West Virginia gasification of pulverized coal is being accomplished on a laboratory scale. Other synthetic fuel developments include the making of alcohol from agricultural residues in Peoria. The American Gas Association has developed a process for making gas from low cost oil, and oil with a residual carbon content of 13 per cent has been successfully so processed in Baltimore.

All this is not beside the point to the architect. The foregoing indicates that we are in the midst of revolutionary developments and perhaps sharp changes in fuel utilization practices, changes that will surely come about quickly in case of war, and at any rate will eventually affect house heating practice, and that we are still undergoing price changes that may substantially shift the relative status of the various fuels.

**Gas**

Gas is in a little different position. Natural gas is widely available, and the important regions where it is not are being rapidly reduced in number. Los Angeles has been connected to gas fields by a 1200-mile pipe line; work has begun on an 1800-mile line from Texas to New York City, and a number of other lines are proposed or under construction. In such cases as the two mentioned, however, it is doubtful if the consumer will benefit by lower rates; rather, he will benefit by availability.

Prefabrication has even been adapted to the chimney. The "packaged" unit shown here is supported entirely by the roof and ceiling; it requires no brick work.

**FUEL-BURNING EQUIPMENT**

**Multi-Fuel Heaters**

But the more immediate effect of the somewhat uncertain fuel situation has been that fuel-burning equipment designers have turned their talents toward producing boilers and furnaces which can be converted quickly from one fuel to another — or back again, if necessary.

For example, Midwest Research Institute has developed a unit for burning both oil and gas — the latter in mild weather, oil for peak loads. Thus the gas utility distribution line could be fully utilized for many months in the year, while the investment in the pipe lines would be minimized since oil would carry the peak loads. The switch-over from oil to-gas and back is automatic under control of an outside thermostat. Gas is burned in conventional manner, but the oil burner is built into and around the gas burner so that many parts are interchangeable.

One combination coal and oil boiler recently developed has separate combustion chambers for the two fuels. Coal firing is by hand through one end, the oil burner being at the opposite end.
Another combination boiler unit has a large combustion space suitable for oil, gas, or stoker or hand-fired coal, and is available in either steam or hot water types. A warm air furnace has been designed to accommodate hand firing, stoker, oil or gas firing. To convert from one fuel to another, unnecessary parts are removed and a conversion kit of parts required, including burner for the other fuel, is applied.

Another combination unit recently has been placed on the market, not for use with different fuels, but designed to meet different conditions. These conditions are those existing when relatively low temperature hot water is desired for radiant heating and at the same time higher temperature water is needed for domestic hot water. This unit furnishes low temperature water from a lower and outer jacket, domestic hot water from a hotter upper section supplied with a long, instantaneous coil. The boiler is available in two sizes, 81,000 and 110,000 Btu per hour for heating; both sizes furnish 3 gal. per minute of domestic service water.

**Space Saving Equipment**

At the current high cost per cubic foot of house, the necessity for saving space is acute; one way of meeting this situation, at least to a small extent, is to build the oil or gas boiler or furnace in a more vertical form so that less floor space is used than in conventional designs. One of these vertical models is an oil-fired warm air furnace with a stainless steel combustion chamber and a device that starts the burner fan briefly before the oil is ignited and allows the fan to continue for a short period after the burner is shut off, a method reported to reduce fuel consumption appreciably.

The vertical heaters are also made for gas. One of these has a 3-stage burner and 2-stage blower. All parts are accessible and removable from the front, a desirable feature if the unit is to be located in a closet.

A recently introduced, compact, cast iron boiler designed for oil burning has vertical water tubes, built-in removable hot water coil, and is available in four sizes, steam or hot water.

**Special Types**

One newly-introduced oil-fired warm air furnace, intended specifically for small homes, has the flue connection at the top, allowing the breeching to run straight to the chimney in any direction. An air-oil impact method of oil "atomization" is used. The filter frame can be placed on either side or back of the fan.

Another oil-burning warm air furnace has an unusual feature in that burner operation is continuous so that heat is always ready on demand from the thermostat. The operation at non-demand periods is, of course, at a low output, just how low depending on the weather since the output is adjustable. Some models of this unit have an economizer flue to pre-heat air to the burner.

There is also an oil-fired warm air furnace which consumes only \( \frac{3}{4} \) gal. of oil per hour at its 75,000 Btu per hour register rating. This unit has a preheater for the return air, the heat being obtained from the gases of combustion just before they leave the furnace.

A steel boiler for conversion oil burner application is so designed that all of its inside heating area is exposed to flame, making for a compact unit.

A vented gas heater for special application is intended for installation between the walls to heat two adjacent rooms, and a wall opening 28 by 51 in. is required (other models fit into a 14 by 50\( \frac{3}{4} \) in. opening). The bottom of the panel is off the floor and the air inlet is located in a hidden duct beneath the raised panels. Top louvers give a downward and outward direction to the warm air.

**Coal-Fired Equipment**

Boilers of the Anthratube type are being made by several manufacturers. The Anthratube principle, developed by Anthracite Institute, involves the burn-
The boiler above furnishes low temperature hot water for radiant heating, has a large tankless heater for instantaneous domestic hot water and incorporates an air expansion tank inside the boiler.

The hot water for radiant heating is usually made in a boiler installed as a part of the home and piping system. The water is usually heated by burning fuel in a boiler and is stored in a large tank.

The water is then circulated through a network of pipes that run throughout the home. The water is heated as it travels through the pipes and is then allowed to cool as it returns to the boiler. This process is repeated, providing a steady supply of hot water for use in the home.

The boiler may be fueled by a variety of sources, including gas, oil, and electric. The type of fuel used will depend on the needs of the home and the local resources available.

The boiler is typically located in a basement or utility room and is connected to the rest of the home through a network of pipes. The pipes are usually made of copper or other durable material and are insulated to prevent heat loss.

The boiler is controlled by a thermostat, which is typically located in a room with a central heat source. The thermostat is used to adjust the temperature of the water as needed to meet the needs of the home.

The boiler is a crucial component of any home heating system and should be regularly maintained to ensure it is operating efficiently and safely.

The boiler above is a tankless water heater that is integrated into the home's water supply system. It provides hot water on demand and is more energy efficient than traditional water heaters.

The tankless water heater is installed near the kitchen sink and is connected to the home's water supply. It heats water as it is used, eliminating the need for a large storage tank.

This type of heater is ideal for homes with limited space, as it does not require a large storage tank. It is also more energy efficient, as it heats water only as it is needed, rather than heating a large amount of water at one time.

The tankless water heater is an excellent choice for homes with limited space, as it is more energy efficient and takes up less room than a traditional water heater. It is also easier to maintain, as it does not require a large storage tank that needs to be cleaned and maintained regularly.
round ducts, but shipped open so that the package is compact—the sheets are reformed into ducts simply by closing the seam; (2), the air is introduced into the room through a register which mixes the hot (150°F to 175°F) air with room air; the air is emitted in a fan-shaped pattern along the wall, thus forming an invisible warm curtain. The air is so deflected that furniture can be placed within a foot of the register.

**Hot Water Heating**

An interesting development in hot water heating is a device for eliminating the accumulation of air in hot water radiators. It consists of two parts: one part fits into the boiler so as to take off supply water from below the top where air collects; air flows up from top of boiler into a pipe leading to the other part, a tank fitting, which provides entrance for the air into the compression tank, where it is trapped.

A new control for hot water heating systems consists of a control unit and control valve, the latter being a three way mixing valve. The valve is located near the boiler in the supply main and connected to the return. One thermostatic bulb is located in the supply main just beyond the valve, another outdoors, both connected to the control unit. If the outdoor bulb calls for more heat, the mixing valve admits more hot water from the boiler to the system; if the bulb in the main is satisfied, the valve admits more (cool) return water and less hot water to the main.

**Radiant Heating**

There has been a great deal of work done on radiant heating in the past few years—and more is planned. The American Society of Heating and Ventilating Engineers, for example, has a comprehensive program of research on this subject, some of which is started, some only projected.

All the answers are by no means known as yet, but the art is in such shape that there is little reason to go wrong on design if the designer is conservative. It is true, however, that most of the attention so far has been to design, and not to the many practical matters of concern to the architect, heating contractor, plastering contractor or masonry contractor. For this reason a large copper company has erected a building in Rome, N. Y., equipped with a number of types of copper panels in which a lengthy and complex series of tests have been under way for a year. The first results are just being reported—on being that no more than 40 Btu per hour can be expected per square foot of floor panel.

Much, perhaps most, of the past work on radiant heating has been with coils embedded in floor or ceiling, or to a lesser extent, to warm air circulated above a ceiling (floor panel heating with warm air circulating through hollow tiles is now being applied in certain localities). Far less attention has been paid, at least in this country, to use of heated pipes in dead air spaces below floors or above ceilings.

A development of the past six months has been a line of prefabricated finned coils designed for suspension between the ceiling joists or between the studs of walls. These coils are of two parallel runs of 5/8 in. copper tube with aluminum fins, and are available in 10-ft. lengths to fit 12, 16 or 24-in. joists or stud spacings.

Development of these coils as a manufactured item is significant because, generally speaking, many heating contractors are set up to erect and install and not to fabricate if it can be avoided, especially in house work. One reason for this is that estimating costs is accurate in that part of the estimate dealing with purchased items but less so where labor and field work are involved.

Consideration has been given to, and at least a few trial installations made, of "open" panel heating systems where warm air is circulated over the ceiling, which becomes a radiant panel, and is then introduced into the room. The closed system provides heating only, whereas the open system allows control of room humidity, air cleaning, and air circulation.

Experiments in Cleveland using three different systems—a warm air ceiling panel, a conventional forced air system, and an open panel system in the same room, were recently conducted. No complete report was ever made, but after the trial the owner conceded that he preferred the open system.

Electric radiant heating using buried cable was described two years ago. Since then two different approaches to electric heating have been made. The first consists of a special fabric impregnated with rubber and carbon to produce a conductive rubber. It is made in panels 4 by 4 ft., 3 by 4 ft., or in special sizes, with output of 58 or 75 Btu per sq. ft. per hr. The panels are nailed (along a 2-in. non-conducting margin) to the ceiling joists, and the panels are electrically connected through an outlet box on the back of each panel.

The second method involves panels of tempered glass with fused aluminum elements imbedded and with an aluminum reflector in back. A standard panel is 16 by 24 in.

Two types of dehumidifiers, mechanical and chemical, are now available for keeping basements dry; this one is of the first type which cools the air below dew point.
Quite a bit of publicity has been given to air sterilization lately. Here is a warm air heater which uses a chemical, in liquid form, to reduce bacterial count of air.

Pipe
Steel pipe has been particularly vulnerable to competition from copper tube because of a number of factors, including the nuisance and cost of threading, weight, friction at joint, and failure at thread. For this reason, among others, the development of a line of malleable thread, this joint will make possible a lighter weight steel pipe which, however, is not yet available. Even so, the simplification of field work, elimination of the thread, and other advantages, are notable.

Snow Melting
Since heat is required for the operation of snow melting for walks and driveways, this subject is mentioned here. Circulation of hot water, with anti-freeze liquid added, through embedded pipes for melting snow is making great headway, and the heavy snow in the east during the winter of 1947-48 considerably stimulated interest. It is desirable to start the snow-melting system as soon as snow begins to fall, and this can be done automatically by a photoelectric cell control. In a Boston suburb, a quarter mile of road is equipped for snow melting because of a 20-degree hill which formerly was impassable for periods during the winter. An oil-fired plant about the size of that for a 12-room house was installed at a cost of $3500, and with oil cost (winter of 1947-48) of $200 for the winter.

AIR CONDITIONING
Cooling
In the southwest where the dry bulb-wet bulb temperature differences are always relatively high, evaporative cooling is commonplace. Homemade devices are, however, gradually giving way to packaged units. Unfortunately such an inexpensive approach to the problem is not possible in most of the United States.

Central mechanical systems for houses are still comparatively few, but the use of unit room conditioners is growing. These include refrigerating condensing unit, fan and filter. The gas-fired year round air conditioner is a most satisfactory system where it can be used; unfortunately, the restrictions on adding new gas installations have hampered its application in many regions where it might find its richest market. Gas restrictions, however, are gradually lifting and the gas utilities are most concerned in promoting such devices (due to the good annual load factor). Thus future for this equipment appears bright.

Heat Pump
Further headway has been made with the heat pump for year round use. Considerable time and money have been spent in exploring the possibilities of use of the ground as a heat source, but it now appears that the advantages of a packaged unit which can use air as the heat source outweigh those of a system employing the ground as a heat source. The ideal load for a heat pump would be one where the winter and summer loads are equal, but since this is not attainable in the north, the question arises as to just where the dividing line falls geographically, and above which the heat pump is not suitable.

One authority defines the real market for the heat pump as the more southerly portion of the United States. Others are convinced that it is even farther north than the Mason-Dixon line. To settle this, one electric system is installing heat pumps in five houses between Tennessee and southwest Michigan and including these locations. Numerous other trial installations are being planned on a national basis by a large electrical manufacturer.

It does seem to be generally agreed that heat pumps are possible only for the higher cost homes, but just how high is also a controversial matter. With use of heavy insulation, electric heating and cooling by means of the heat pump may be expected to move more and more into the picture. It should be added that the gas-driven heat pumps are also feasible.

Air Cleaning
Air cleaning in houses is usually with throwaway filters and to a lesser extent with permanent cleanable filters which are part of a warm air system.

For especially dirty cities, such as those in the soft coal regions, very good results are being obtained with electrostatic cleaners which operate as part of the warm air or air conditioning system. The high first cost can be absorbed more easily in these localities where the cleaning of draperies, curtains, and other furnishings is quite frequent and consequently expensive.

One method of destroying bacteria in warm air ducts is the germicidal lamp, available in compact and easily installed

These photos exhibit some of the trends in convecter units. On the left is a self-contained gas heater which fits in an ordinary stud wall. The other works on hot water and steam systems and has a manual temperature control damper.
Another sterilization method is that of installing compact, ultra-violet lamp units in the ducts of a warm air heating system. It is reported that a 4- or 5-room house needs only two 15 watt units. The lamps have a life of 4000 hours. In recent years a liquid, triethylene glycol, has been used for the purpose of reducing bacterial count in the air. A unit in this category consists of a blower for use in conjunction with a warm air heater, in which the air is cleaned by passing through a filter which in turn is saturated and flushed continuously by liquid triethylene glycol circulated by a small sump pump. This liquid, for which bactericidal qualities are claimed, is also picked up in the form of vapor in small amounts and is circulated through the room.

Dr. L. P. Herrington of the John B. Pierce Laboratory of Hygiene, has mentioned an interesting possibility—that present day research has neglected the thermal treatment of air for bacterial content. He cites the old-fashioned hot air furnace with air temperatures of 400 or 500 F which was extremely efficient with respect to air disinfection. Another future possibility in air cleaning is by application of ultrasonics (high frequency sound above the range of the human ear) for coagulation and precipitation of fine gas- or liquid-borne particles.

Dehumidification

It is unfortunate, when every cubic foot of a building is needed, that many basements have a damp atmosphere. This finally has received some skilled attention and two types of dehumidifiers are now available for this specialized application.

One is a mechanical refrigeration unit which removes the moisture by chilling the air below the dewpoint. The other is of the chemical type using silica gel and is under automatic control of a humidistat.

VENTILATION

Kitchen ventilation has developed to the point where more attention is paid to removing heat, moisture and cooking odors at the point of origin rather than allowing them to permeate the whole room. An overhead type, built-in ventilator has three sections — ceiling grille and fan, ceiling housing, and outside grille. The ductwork is concealed, and the ceiling housing has a shutter that opens when the fan is turned on and closes when the fan stops.

Attic fans are undergoing refinements and are now available in models for solving special problems. In this line is a fan especially intended for basement application in houses where attic space is not available. The unit has a 1/2 hp motor and acoustically-treated fan blades. Fans are also made for attics where space is limited as in ranch type or low-pitched roof houses.

WATER HEATING

Three developments in domestic water heating are outstanding. One is a method of combating tank corrosion, the second is the table-top or desk type water heater, and the third is the use of the heat pump for year-round water heating.

The corrosion resistant tank has a magnesium alloy rod which extends into the water from the top of the tank so that any electrolytic action affects the rod instead of the tank. The table-top electric water heater provides a desk or working surface and fits in nicely in built-in kitchens. Similar units are available for gas.

Experimental work has been going on for some time, and a few months ago the first progress report was released, on use of a refrigeration unit acting as a heat pump for year-round water heating.

Since about two thirds of the heat comes from the air and one third is paid for as electrical energy, this device will place electric water heating on a competitive basis with gas. An advantage is that cooling is a by-product, so that a living room could be cooled or a basement dehumidified at no extra cost.

CONCLUSION

Developments in heating, ventilating and air conditioning of houses during the past two years have been reviewed. Some important developments are in the experimental stage; in a great many other cases, however, as described and illustrated, equipment has been made available incorporating ideas gained from past research along many lines. In a large number of cases, the new equipment is designed for specialized applications, many of which have become almost as common as the conventional cases. The architect's problem today is not how to solve the problem, but to make a selection from the many possible solutions.

A different turn in ventilating fans is a model intended for application in a basement, so it is possible to have a change of air in houses without an attic space.
COLUMNISTS and politicians who berate the building industry for its backwardness might change their tune if they could have witnessed the eager interest in cost-cutting clinics at the recent convention of the National Association of Home Builders. Hundreds of professional builders crowded the meeting rooms, many standing through the sessions, jammed in almost like subway riders at Times Square Station.

The program was hurried always, as the builders pounded questions at panel "experts" and at each other, in the effort to pin down exactly the relative economies of modular design, slab floor construction, pre-cutting, prefabrication, roof trusses, dry-wall construction, cost analysis, scheduling of operations, and so on.

The architect's role in all these matters was frequently brought up. For example, Clarke Daniel, Washington, D. C., builder, said, "It is our experience that an architect of the right temperament is a natural for building construction. He should be put to work at the very inception of the project and should stick with it until completion. One man familiar with every phase and in complete charge is the answer to lower costs. He should be on a profit-sharing basis."

It was emphatically brought out that the house plan is all important in the search for economy. And the builders present, being salesmen as well as contractors, were fully conscious of the need for good space planning. For the house cannot be made small without being well planned. Another way to put it is that, with sales as the goal in a period of increasing competition, the advantage will be with the builder whose architect can use space the best.

Advance planning of a high order was continually stressed—"You make your money before you start building, in selection of site, in studying contours lot by lot, in the design of the houses, in the scheduling of operations. You make money in the paper stage; when you get into actual materials you start losing it."

**Site Planning**

Site planning was stressed here as an economy measure, not so much as it commonly is in amenity terms. As Daniel said: "Economy in housing starts at the very beginning. Careful selection of the land is absolutely essential. The contours and the physical qualities of the land cannot be too carefully checked. In many instances test boring is essential. You must know your battlefield. Don't ever think that cheap land is essential for low-cost housing. Good land is: modest development requirements also."

Roads following contours will lead to excessive grading on individual lots; so will roads perpendicular to contours. Roads angling the contours will usually minimize bulldozing costs. Then each lot should be given individual study, to place the house for minimal grading.

**Modular Design**

Modular design is good, but must go much farther, said W. H. Scheick, Small Homes Council, University of Illinois. "We are sure that modular coordination offers great possibilities for economy in house construction. The industry engineered house is a good beginning, but not more than a beginning toward the effective use of modular coordination."

"In the research project at Illinois (Architectural Record, May, 1948), the savings in materials were not carefully measured. They were not great savings, but they were important because they were savings opposed to waste. Trusses saved lumber; joists and studs worked to even lengths; dry-wall sheets were seldom cut. These materials savings eliminated the useless waste cuttings and trimmings that clutter the non-modular job."

"Our chief interest centered on man-hour savings, which totaled more than 20 per cent, realized on this house as a result of the employment of engineered methods possible with a modular plan."

"We want everyone to remember that the man-hour savings were effected by a small-scale builder who had not used engineered methods before. No doubt large scale builders, already thoroughly familiar with these methods, could beat the best times established at Urbana. But we think there are thousands of small builders who must learn what our builder did."

"The 'big time' competition in house building today is between large-scale factory production and large-scale site production. The big operators have pioneered the principles of planning and construction employed on the industry engineered house project. They know the value of engineered plans and they are coming naturally to modular design."

"But we think there is still much building to be done by small-scale builders. These men cannot afford to have their houses planned and engineered for their own operations. They need not one industry engineered modular plan, but many to choose from."

"For this reason, the Small Homes Council is carrying vigorously on with architectural research to develop the advantages of modular design. Modular designs are adaptable to any method of...

(Continued on page 190)
NICHE-FORMING KEYS

A Buffalo architect's invention for achieving a "lathless" mechanical bond between concrete and plaster is a rubber key form called a Kif. The forms are now available for lease to contractors.

The product is intended not only to form a keyed plastering surface, but to provide anchors for suspending overhead sprinkler, water and heater pipes and ducts and for the anchoring of masonry veneers.

Nailed about 6 in. apart to the wooden forms which support the concrete when it is being poured, the rubber

Kifs leave undercut, cone-shaped cavities when they are pulled out of the hardened concrete by the removal of the forms.

The manufacturer reports savings in cost, compared with the metal lath, bush hammering, or chemical adhesive methods; in building height for each story (approximately 4 in.); in plaster; and in capital investment (since Kifs are only leased on a rental basis). Buffalo Products Inc., 315 Babcock St., Buffalo, N. Y.

INDOOR HOME INCINERATOR

An Indoor Home Incinerator (Model No. 2) in an improved model has been designed to solve the problem of rubbish disposal in homes where automatic heating equipment precludes burning it in the furnace.

The incinerator is a double-walled, cylindrical metal unit fitted with a welded steel rod inner grating, cast iron swinging top and ash clean-out door. Draft is induced through the top by means of a grate-baffle, and the resulting down-draft is said to dry the contents and aid in combustion.

All combustible refuse — including both dry and wet garbage — is dropped into the unit and collected until the incinerator is filled to its 2-bu. capacity, when the refuse is ignited from the top.

The model is 23 in. in diameter and 32 in. in height and taps to any furnace flue 6 in. or larger. Majestic Co., Huntington, Ind.

BOWSTRING ROOF TRUSSES

Custom-built American wood bow-string trusses are designed to cut building time and construction costs by eliminating posts, beams, and center bearing walls; keeping expensive brick work to a minimum; and cutting roof costs because of their low center height (only one-eighth of a span).

A parabola which is reported unsurpassed for strength by other shapes forms the top chord and permits spans up to 150 ft. Crescents and belgians, glued beams, arches and trusses also are available. American Roof Truss Co., 6844 Stony Island Ave., Chicago 49, III.

LAMINATED WOOD FURNITURE

Benply furniture for commercial and institutional use strives to combine the functionalism of contemporary design with an air of warmth and comfort.

Included in the line are wood chairs and tables and upholstered pieces. The wooden parts are made of laminated wood which is electronically bonded and molded to shape on specially built presses.

The furniture is available in veneers of maple finished in natural maple or walnut or of mahogany with bleached mahogany or cordovan mahogany finishes. Covers are offered in fabrics, plastics or imitation leathers and with spring or rubber seats. Thonet Brothers Inc., 1 Park Ave., New York 16, N. Y.

Wooden parts of furniture shown are laminated and come in maple, walnut or mahogany finishes. They are available as single chairs or settees in many coverings

(Continued on page 178)
Lighting

The Troffer That Adjusts After Installation. Shows in detail many features of Smithcraft shallow and deep troffers. Explains function of the Aligner Hanger which is designed to permit leveling and adjusting of the troffer after the installation is completed. Methods of installing the troffers in various ceiling constructions are shown. 16 pp., illus. Smithcraft Lighting Division, Chelsea 50, Mass.

Holophane Calculux. An illumination indicator designed to give the footcandle levels required for high visual performance for critical seeing tasks. The indicator is claimed to: (1) show levels for productive work, (2) show levels for sedentary work, (3) show beneficial changes in existing working conditions and (4) permit planning of future work. Holophane Co., Inc., Dept. of Applied Research, 342 Madison Ave., New York 17, N. Y.

Industrial Paints

Enamel-On Industrial Finishes. Color card of protective coatings for use on wood or metal. Designed for quick air drying, the finishes can be supplied also as mar-proof baking finishes. Specifications are included. 4 pp. Brooklyn Varnish Mfg. Co., 50 Jay St., Brooklyn 1, N. Y.

Concrete Admixture

Potlite. Discusses 14 advantages of a liquid admixture said to act as: (1) a controllable air entraining agent, (2) a wetting or dispersing agent, and (3) a promoter of cement hydration. Laboratory and field findings are also discussed. 4 pp., illus. Hopper Products, Inc., 12 E. 41st St., New York 17, N. Y.

Roofing

Rock Cork Felt Sided Roof Insulation. Advantages of rock cork roof are discussed and photographs illustrate how it is applied. Conductivity values are given. 4 pp., illus. Johns-Manville, 22 E. 40th St., New York 16, N. Y.*

* Other product information in Sweet's Line, 1949.

Prefabricated Houses

Better Homes by Better Methods. Booklet explains the construction, erection, financing and distribution of prefabricated homes. Photographs of typical houses manufactured by 34 different companies are shown. 16 pp., illus. Prefabricated Home Manufacturers' Institute, 908 20th St., N. W., Washington 6, D. C.

Structural Steel

Light Gage Steel Design Manual. This manual of basic sections and design data for light gage, cold formed steel structural members is intended to supplement the official design specification published by the American Iron and Steel Institute in 1946, and to facilitate application of the specification to ordinary design problems. Design charts and structural properties for these light gage steel members are included. Examples of practical design problems illustrate the use of tables and charts. 77 pp., illus. American Iron and Steel Institute, 350 5th Ave., New York 1, N. Y. $1.00.

New Products

New Products (1949 Edition). Compilation of information on more than a thousand new products and services. The products described are classified by industry and indexed by name and address of each producer. 80 pp. N. Y. Journal of Commerce, 63 Park Row, New York. 50 cents.

Radiant Baseboards

U. S. — Comfort Ray Radiant Baseboard. Engineering data and detail drawings on a new line of radiant baseboards designed for use with forced water heating systems. Rated heat outputs for various baseboard lengths and water temperatures are listed. Diagrams show suggested installation methods. 6 pp., illus. United States Radiator Corp., 300 Buhl Bldg., Detroit 31, Mich.*

Fire Safety Standards

Building Code Standards for the Installation of Heat Producing Appliances, Heating, Ventilating, Air Conditioning, Blower and Exhaust Systems. Information on the above subject contained in the 1943 edition of the National Board of Fire Underwriters Recommended Building Code has been reviewed, brought up to date, and is now available in a separate publication for the first time. National Board of Fire Underwriters, 85 John St., New York 7, N. Y. (Continued on page 198)
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Architects: See Sweet’s Architectural File No. 4-A-8 for details.

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The Fitzgibbons steel boilers, ranging in size from 18,200 to 36,400 sq. ft. E.D.R. were operated at capacities from normal to 145% of rating. Over the whole range of operations, the average efficiency was 78.4%. With peak efficiencies, considerably higher.

Fitzgibbons steel boilers show their quality in tests like these and by long, hard services on the job. From every Fitzgibbons steel boiler, large or small, you get quality performance, the ultimate in fuel economy, and lasting satisfaction.
FIREPROOFING STRUCTURAL STEEL WITH VERMICULITE PLASTER

By Vermiculite Institute

(Continued on page 153)
Now, you can protect your clients' homes for life against unsightly discoloration of painted surfaces due to bleeding and corrosion of roof drainage systems. Simply specify Berger Roof Drainage Products, made of Republic ENDURO Stainless Steel.

A complete Berger ENDURO Roof Drainage System is a real beauty treatment. It is free from patina type corrosion; it resists corrosive atmospheres and does not rust or tarnish. In addition, it is stronger and more attractive than old-style systems, requires little or no maintenance and costs less in the long run. It blends well with every architectural style. And, although paint is not necessary as protection, it may be applied to conform with building decoration.

Berger manufactures a complete line of ENDURO Stainless Steel Drainage Products, including conductor pipe, eaves trough and gutters, plus all necessary fittings and hangers. Any competent sheet metal worker can install them—quickly and easily.

Give your clients the lifetime service and protection they want. Specify Berger Roof Drainage Products of Republic ENDURO Stainless Steel—the metal already proved by more than twenty years' service in buildings of every type.
### SUMMARY OF FIRE TESTS

<table>
<thead>
<tr>
<th>CONSTRUCTION</th>
<th>DESCRIPTION</th>
<th>RATING</th>
<th>AUTHORITY</th>
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</thead>
<tbody>
<tr>
<td><strong>Steel Plate Floor Assembly</strong></td>
<td>2½&quot; sand concrete topping. suspended ceiling with ½&quot; vermiculite plaster over face of metal lath.</td>
<td>4 hrs.</td>
<td>Underwriters' Laboratories, Inc. Retardant Report No. 2773—(9\text{/}12\text{/}44) *</td>
</tr>
<tr>
<td><strong>Steel Plate Construction</strong></td>
<td>Minimum of 2&quot; sand concrete fill. suspended ceiling of ½&quot; vermiculite plaster over face of metal lath. Distance (x = 2\frac{1}{2}) or more.</td>
<td>4 hrs.</td>
<td>National Bureau of Standards BMS92—Table 44</td>
</tr>
<tr>
<td><strong>Cellular Steel Construction</strong></td>
<td>Minimum of 2½&quot; sand concrete fill. suspended ceiling of 1½&quot; vermiculite plaster on metal lath. Distance (x = 2\frac{1}{2}) or more.</td>
<td>4 hrs.</td>
<td>Underwriters' Laboratories, Inc. Ret. No. 2689—(12\text{/}18\text{/}39) **</td>
</tr>
<tr>
<td><strong>Steel-Joist and Light Steel Construction</strong></td>
<td>2½&quot; sand concrete fill. 1½&quot; vermiculite plaster on metal lath.</td>
<td>4 hrs.</td>
<td>National Bureau of Standards BMS92—Table 45</td>
</tr>
<tr>
<td><strong>Incombustible Construction above ceiling. 1 inch vermiculite plaster over face of metal lath. At least 2½&quot; air space between structural members and back of metal lath.</strong></td>
<td>Incombustible construction above ceiling. 1 inch vermiculite plaster over face of metal lath. At least 2½&quot; air space between structural members and back of metal lath.</td>
<td>4 hrs.</td>
<td>Underwriters' Laboratories, Inc. Ret. No. 2773—(1\text{/}20\text{/}47)</td>
</tr>
<tr>
<td><strong>Columns</strong></td>
<td>Column protected with 1½&quot; vermiculite plaster over the face of metal lath. Lath spaced 1¼&quot; from column flange. Space behind lath on flange faces filled with plaster as shown.</td>
<td>3 hrs.</td>
<td>Underwriters' Laboratories, Inc. Ret. No. 2851—(1\text{/}7\text{/}47) *</td>
</tr>
<tr>
<td><strong>Beams</strong></td>
<td>Steel &quot;I&quot; Beam supporting floor. 2½&quot; vermiculite concrete fill. suspended protection of 1½&quot; vermiculite plaster over face of metal lath.</td>
<td>4 hrs.</td>
<td>Underwriters' Laboratories, Inc. Ret. No. 2773—(9\text{/}12\text{/}44)</td>
</tr>
</tbody>
</table>

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* Obtainable from Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.
And it will be to your advantage to talk over with Michaels your metal building materials requirements. Since 1870 we have been designing and fabricating in metal the building products specified by architects and builders, and the knowledge acquired during more than three-fourths of a century is at your disposal. The products shown in The Architectural Handbook, illustrated, or special creations of architects will be carefully and faithfully executed in metal to the most exacting specifications. Whatever you need, if it's made of stainless steel, aluminum or bronze, be sure to contact Michaels first. Write for literature. The partial list at the right gives you an idea of the wide range of Michaels products.

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Welded Bronze Doors
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Name Plates
Astragals (adjustable)
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Wrought and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Cast Thresholds
Extruded Thresholds
Mi-CO Parking Meters
Museum Trophy Cases

NEWS FROM CANADA

(Continued from page 10)

declared no government of which he was a part would ever subsidize housing. Six months ago he stated housing subsidies were not needed to sustain residential construction. Now he says, "The Federal Government has not a closed mind on this question."

Thus the plea made by C.C.A., a kindred but unaffiliated group, has set the National House Builders' Association on its ear. One of its unofficial spokesmen declares, "Sure, we're against subsidies. Big general contractors want them because public housing will provide a hedge against a drop in industrial and commercial construction. But using the taxpayers' money to provide cheap rental housing would be disastrous to builders erecting houses for sale."

Canada Led in 1948 Starts

The current issue of "Housing Progress Abroad," a quarterly report published by Central Mortgage and Housing Corporation, notes that housing starts in Canada increased more rapidly in 1948 than in any of the other countries for which comparable data are available.

Starts of new units and conversions in Canada rose 17 per cent from 81,000 in 1947 to an estimated 95,000 in 1948. In the United States non-farm starts increased 10 per cent from 854,000 to an estimated 940,000 during the period. Starts in Australia rose from 50,000 to 55,000, an increase of 10 per cent. In both the United Kingdom and Sweden starts declined moderately as a result of government curtailment of the investment program.

Quebec Architects Congregate

J. C. Meadowcroft was elected president of the Quebec Association of Architects at its annual meeting, recently held in Quebec City. Other new officers are: first vice president, Pierre C. Amos; second vice president, H. Ross Wiggs; honorary treasurer, Emile Venne; honorary secretary, Maurice Payette. All are from Montreal.

Guest speaker at the annual luncheon was Mr. Gerard Morisset, Quebec director of art education and inventory director of provincial art works. He chose for his subject "The Canadian Home" and expressed the opinion that "houses of the 17th and 18th centuries were especially built for interior design"
It's New! It's Neat!

IT'S PERFECT FOR THE MODERN HOME!

THE RICHMOND RICHLEDGE

MODERN HOMES demand modern plumbing. Richmond's compact new Richledge—designed with this in mind—has all the big lavatory features yet it's only 18" x 15" overall! This low-priced wall-hung unit fits into the most modern bathroom or powder room—no matter how small the space. . . .

Features Your Customers Demand

- Raised Shelf Back—ample for toilet articles
- Punched for Center Set Fittings
- Recessed Soap Dishes
- Beaded Edge
- Deep Rectangular Bowl
- Integral Front Overflow—indicated
- Anti-Splash Rim—indicated
- High-Gloss Richmond Finish—easy to clean

Chrome legs and towel bars available.

... The RICHLEDGE will help you get those modernization jobs, as well as new installations, started now. Combining the highest quality with the lowest possible price—it is a timely addition to the Richmond line of fine vitreous china.

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Please send me complete information on the Richmond vitreous china line—including the new Richledge. No obligation, of course.

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Company: ......................................

Address: .......................................
Where Wood Needs Protection from DECAY and TERMITES

WOLMANIZED PRESSURE TREATED LUMBER

... lasts 3 to 5 times longer

<table>
<thead>
<tr>
<th>Water Tanks</th>
<th>Sills and Joists</th>
<th>Cooling Towers</th>
<th>Roof Decks</th>
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<tr>
<td>Humidified Buildings</td>
<td>Foundations</td>
<td>Floors</td>
<td>Other Moisture “Traps”</td>
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</tbody>
</table>

Here are six common conditions where WOLMANIZED Pressure-Treated Lumber provides protection from decay and termites:

1. Where excessive ground moisture, rain or thaws cause early decay failures.
2. Where wood near the ground is open to termite attacks.
3. Where wood is in contact with damp concrete or masonry.
4. Where steam and vapor from industrial processes promote wood decay.
5. Where walls, floors, ceilings are subject to condensation from refrigeration.
6. Where wood is exposed to moisture in artificially humidified buildings.

Investigations by qualified technologists prove that on installations where decay and termites ordinarily shorten lumber life, WOLMANIZED Pressure-Treated Lumber lasts Three to Five Times Longer than untreated wood. Such lasting protection is assured because penetrating, preservative solutions are forced, by vacuum-pressure treatment, deeply into the wood fibers of WOLMANIZED Lumber. And, WOLMANIZED Lumber is clean, odorless, paintable, non-corrosive, non-leaching and glueable. Only WOLMANIZED Lumber offers all these extra advantages.

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General Offices: 332 South Michigan Avenue, Chicago 4, Illinois

NEWS FROM CANADA

(Continued from page 154)

Toronto's new Bank of Montreal Building: Chapman, Oxley & Facey, Marani & Morris, Architects; K. R. Blatherwick, Associate

and comfort whereas today, they are designed mostly for exterior appearance." Seldom has a professional audience been relented more graciously.

Housing not up to City?

When it comes to knowing what to do about housing, Toronto yields to no municipality in the extent of its confusion. On one hand, it is proposed that housing commitments be increased even if this means annexing a neighboring township. On the other, it is suggested that several housing projects now operated publicly be turned over to private management.

Other cities and towns facing a similar problem may find guidance in a recent editorial in the Telegram, a Toronto daily. "Housing," the newspaper declares, "is not in essence a municipal responsibility because the present basis of municipal taxation fails to distribute a responsibility of that kind in an equitable manner."

Going on to the local issue involved, the Telegram points out that there's little reason in a system which grants partial tax exemptions to small home owners to help them carry their homes while, at the same time, it imposes taxes on them to subsidize homes for others, some of whom receive larger incomes than their tax benefactors. "Neither is there logic in the thinking of some members of the council, who contend that high taxes will drive business out of town, when they agree to tax business (Continued on page 158)
This economizer hookup contributes considerably to high boiler operating efficiency and reduces fuel costs by bringing the water as near to boiler temperature and pressure as possible before it enters the boiler. This is accomplished by extracting heat from exhaust gases with an economizer.

Water feed is controlled by any of the various types of boiler level controls. The one shown is a thermo-hydraulic generator in which the water column serves as the generator. A change in the boiler water level changes the temperature and the fluid pressure in the outer tube and operates the control valve hydraulically.

The more efficient counterflow heat transfer, used in this economizer, is preferred to the parallel flow type wherever installation is possible. Pressure relief valves are required on the economizer outlet, and a by-pass allows the boiler to be operated even though some of the tubes fail.

Consultation with accredited piping engineers and contractors is recommended when planning any major piping installation. Copies of Layout No. 40, 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.

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

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YOU CAN SPECIFY Macomer Nailable V Bar Joists from any standard steel joist loading table.

YOU GET EXCLUSIVE STRUCTURAL ADVANTAGES found only in the one steel joist of universal application to any joist job you can design.

YOU GET HOLDING STRENGTH that is far greater than any nail driven into wood nailing strips.

YOU GET THAT MACOMBER JOIST CATALOG and you’ll have ALL the facts.

**NEWS FROM CANADA**

(Continued from page 156)

...for projects which render no municipal services to them.”

The newspaper feels that housing is primarily a federal and provincial responsibility. It is convinced that gradual removal of the burden borne by municipal taxpayers should be the goal of Toronto’s housing policy. Any saving in the financial obligations incurred by the city in managing its present housing projects would be wiped out if it assumed new commitments. “Council,” the Telegram concludes, “will have to make up its mind on this elementary point — whether it proposes to reduce taxes, or undertake additional housing. It cannot achieve both at the same time.”

**Edmonton Spurns Federal Offer**

Reconstruction Minister R. H. Winters says the Dominion Government is prepared to build houses for veterans “to the limit of the available supply of labor, materials and serviced land.”

But does federal assistance bear too high a price tag? Edmonton, Alberta, a city bursting at the seams as a result of the boom in oil and uranium, thinks so. Desperate as its shelter situation is, it recently turned down a proposal from Central Mortgage and Housing Corporation for the erection of 500 low-rental houses for ex-servicemen in 1949.

The scheme would have cost the city $1,422,000 in subsidies. The initial subsidy would have been $359,500 on the basis of $719 per house for land and services. Annual subsidies would have amounted to $21,250 in taxes, or an additional $1,062,500 during the 50-year life of the project. The houses would have yielded Edmonton $72.50 each per year, or $42.50 less than the tax revenue produced by an average, privately owned dwelling.

In making their report, the city commissioners stated that “in view of the large amount of subsidization already assumed ... in constructing 1200 houses, built or being built under similar schemes, and further, since the only argument advanced is that the houses are for returned men for whom the federal government should assume full responsibility, (we) are opposed to any further municipal subsidization of this type of housing.”

Edmonton’s decision spotlights an issue on which Central Mortgage and
The aluminum that covers the cupola of the church of San Gioacchino, in Rome, stands substantially unchanged after more than half a century. The same advantages of rustproof permanence and freedom from maintenance dictate its use in industrial roofing and siding.

These two extremes also demonstrate the architectural versatility of aluminum. Its soft-white natural color is attractive, particularly with Reynolds new embossed textures. And though aluminum requires no protective painting, interesting color effects are easily achieved as in the photograph below.

Reynolds, whose historic entry into aluminum production stimulated a vast increase in tonnage, is especially concerned with the development of this modern material—as in building materials. Reynolds Lifetime Aluminum Gutters and Downspouts are an example... offering freedom from rust and from wall-stain at about half the price of other rustproof materials.

From roofing, siding, and windows to architectural shapes, Reynolds steadily extends the usefulness of aluminum in building. For descriptive literature in A.I.A. file form, please write:

REYNOLDS Lifetime ALUMINUM

NEWS FROM CANADA

(Continued from page 158)

the National House Builders’ Association have long been at loggerheads. The builders claim their operations are hamstrung by the Corporation’s refusal to increase its lending values. They suggest appraisals under the National Housing Act run so far below actual costs that buyers must resort to second and even third mortgage financing to raise the necessary down payment. In pleading for more generous treatment they say “Discourage a man from easy buying and, under present conditions of supply, you automatically encourage unsupportable demand from renters.”

Apprentices get Pre-job Training

The Dominion Department of Labor has launched a campaign to increase the number of apprentices entering the building trades. It proposes to broaden the Dominion-Provincial apprenticeship training program so as to provide class training for construction recruits before they actually go to work. At present, class training in Dominion-Provincial trade schools is given only during apprenticeship, and the only pre-apprenticeship training offered is that carried on in a limited way by technical and vocational high schools.

The new plan, which is promised a warm welcome by the provinces, is similar to the one followed in the now-completed veterans’ rehabilitation training program. It should reassure construction industry leaders who have despaired of seeing any increase in enthusiasm on the part of either contractor-employers or Canadian youths for apprenticeship training. They’ve often expressed fear that, even if building volume should decline substantially during the next few years, there still would be a shortage of skilled mechanics.

Winnepegers Help Plan City

Winnepeg is an important western center of retail and wholesale trade, meat packing, railways, manufacturing and service establishments. Alone, it has a population of 230,000. Including its suburbs, it has a population of 315,000.

As often happens, the political boundaries of the city and the municipalities surrounding it bear no relationship to the physical development of the area. When the Metropolitan Plan organiza-
No Home's too small to have Non-Rust Piping...

...not when it's possible to install Anaconda Copper Water Tubes with solder-type fittings at a price usually competitive with rustable piping.

Copper Water Tubes are fast becoming the standard for hot and cold water and forced circulation heating lines. For such piping we recommend you specify tubes no lighter than Types K and L. Type M tubes in sizes 1 1/4" to 12" are made only for waste, drain and vent lines...wherever codes permit.

Today there's no end to the uses for copper tubes in homes, in industry and on the farm. Of course 85 Red Brass Pipe is still considered the ne plus ultra. But it's reassuring to know that wherever copper tube is installed, the owner is getting outstandingly sound value for his money.

Anaconda Copper Water Tubes, together with Anaconda Fittings, both solder and flared types, are carried in stock by leading plumbing supply houses.
CEMENT PAINT...
TO BRIGHTEN AND PROTECT

For bright, protective Cement Paint...  
ATLAS WHITE CEMENT

There's a happy marriage of beauty and utility in factory-prepared portland cement paint, made with Atlas White Cement. There's bright, refreshing whiteness or color. And when applied to concrete, concrete masonry, stone, brick or hollow tile this handsome finish penetrates the pores, forming a protective coating that resists moisture, dirt and dust.

Besides its decorative utility in portland cement paint, Atlas White Cement, when used as a matrix, also brings out clearly and permanently the rich values of color pigments and aggregates used in Terrazzo, Stucco and Architectural Concrete Slabs. An infinite variety of color tones and shadings is possible.

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. Concrete made with Atlas White Cement cleans easily. Maintenance costs are low.

For further information on the uses of Atlas White Cement, see SWEET'S Catalog, Section 4B:3 and 13C:5, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

NEWS FROM CANADA

(Continued from page 160)

...resolution was formed (by cooperation of the Winnipeg Town Planning Commission and the Metropolitan Planning Committee) it wisely recognized the necessity for treating the entire urban area as a single unit. And, from the first, the Plan's executive sought to benefit from the ideas and experience of citizens who would be affected by its proposals.

Advisory committees were set up to study the various phases of planning: Thoroughfares, transit, transportation, housing, schools, recreation, the central business district, and zoning. Each committee consisted of from nine to 15 members, men and women known for their interest and ability in civic affairs whose names were submitted by official bodies or public organizations.

Zoning demonstrates the typical course taken by public participation in planning Winnipeg. The proposals dealing with this subject have been under continuous scrutiny since they were formulated three years ago. First they were studied by the citizens' advisory committee on zoning, which reported its findings to the Metropolitan Plan executive. Following this, the executive made the necessary revisions and had the proposals printed in the form of a draft zoning by-law and map. These were circulated to the public. Open meetings were then held and further discussion took place, resulting in additional suggestions for improvement. The executive acted upon these suggestions as far as it was reasonable to do so and then prepared the zoning by-law and map for formal submission to the various municipal councils.

It's expected that approval of the city of Winnipeg is only a matter of course, and once it's given the suburbs will follow the senior municipality's lead. Indeed, many are so confident the public will accept the zoning proposals that they already are using the by-law, even though it isn't officially in force!

Similar procedure has been, and is being followed in preparing the other proposals contained in the Greater Winnipeg plan. It appears to have considerable merit. The citizens know, as a result of their participation, what's being planned, and why. They're inclined to press for action on the proposals, rather than put obstacles in the way of their adoption.

"THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries
Sunday Evenings—ABC Network

FOR BEAUTY AND UTILITY
ATLAS WHITE CEMENT
FOR TERRAZZO, PAINT, SLABS, STUCCO
Bathroom beauty and long life, are but two features that keynote solid Olsonite seats. Their beauty and durability has convinced industry and home owners alike, that there is no better seat. Whenever solid Olsonite is specified—chip proof, peel proof, stain proof, fire and wear resistant, long life is assured. See your plumbing and heating distributor, jobber or contractor.
Modern living

... 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.

THE RECORD REPORTS

(Continued from page 24)

adaptable to a modernized building industry.

— The Producers' Council has a story to tell home builders and architects about savings in cost of house construction as proven at the University of Illinois. And P.C., cooperating with the National Lumber Dealers Association, is preparing to tell that story in a big way. These two organizations sponsored the Industry Engineered House studies and are now prepared to show that a 21 per cent saving in labor cost brings a 10 per cent reduction in overall cost of small homes. The Illinois experiment showed these savings resulting largely from use of roof trusses and non-load-bearing partitions. This technique allows completion of most of the house before the partitions are erected. As a result, workmen are given greater freedom of movement, plumbing installation time is cut 32 per cent and time for construction of interior walls, ceilings, partitions and floors, 38 per cent.

ON THE CALENDAR


April 11-15: 6th Western Metal Congress and Exposition, Shrine Auditorium, Los Angeles.

April 19-21: South West District Meeting, American Institute of Electrical Engineers, Baker Hotel, Dallas, Texas.

April 20-23: Spring Meeting, American Society of Civil Engineers, Oklahoma City, Okla.

May 1-27: Inaugural Exhibitions in the new building, and 26th Annual May Show of works by local artists, The Akron Art Institute, Akron, Ohio.

May 2-4: 3rd Annual National Meeting of the Forest Products Research Society, Civic Auditorium, Grand Rapids, Mich.

May 5-6: 7th Annual Anthracite Con-
RUSCO
All Metal, Self-Storing
COMBINATION SCREEN
- AND STORM SASH

Gives You YEAR 'ROUND COMFORT, CONVENIENCE, SAFETY
AND ECONOMY . . . OFFERS "MAGIC PANEL" VENTILATION . . .
SELF-STORAGE . . . PATENTED THERMOLOK" CLOSURE FRAME . . .
AND MANY OTHER YEAR 'ROUND ADVANTAGES.

One of the products of The F. C. Russell Co. . . . all of which
are self-liquidating investments in comfort, convenience, safety.

A nationwide network of competent, reliable distributors and
a staff of experienced field engineers give assurance that The
F. C. Russell Company products you specify will be installed
in accordance with your specifications. These same distributors
and field engineers are at your service to give you the benefit
of their wide experience with problems of insulation and pro­
tection for all types of windows—for homes, commercial
buildings, institutions.

Consult Sweet’s Catalog, your local Russell Distributor, or
write direct for complete details and specifications on all The
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THERMOSEAL aluminum self-storage combination window.
THERMOSEAL three-in-one combination window.

The F. C. Russell Company line of combination windows offers
a wide choice of designs to fit specific requirements . . . steel,
aluminum, wood . . . all properly treated for weather resistance.
ALUMINUM CASEMENT STORM SASH . . . RUSCO ALL-METAL,
VENETIAN-TYPE AWNINGS . . . RUSCO ALL-METAL JALOUSIES . . .
RUSCO ALL-METAL TERRACE AWNINGS . . . RUSCO ALL-METAL
DOOR CANOPY . . . CINCINNATI CUSTOM-BUILT INSECT SCREENS . . .
DUO-GLAZE INSULATION . . . THERMOPANE (with patented
adjustable closure frame for picture windows).

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"Always one step ahead
of the weather" with
RUSCO

World’s Largest Manufacturer of Combination Windows

BARBER-COLMAN
DUAL BULB OUTDOOR RESET
Hot Water Limit Control

- A new addition to the ever-growing list of Barber-Colman Controls for Hot
Water Heating Systems.
- Ideal for application to panel systems.
- Automatically varies control point in accordance with outdoor temperature
changes.
- Prevents excessive overshooting and undershooting, overcomes thermal lag
in system.
- Available in 3 ratios: 1 to 1 1/2, 1 to 1, 1 1/2 to 1.
- Write for literature — ask for Data
Sheet F-3833.

BARBER-COLMAN COMPANY
1232 ROCK ST., ROCKFORD, ILLINOIS

Block diagram illustrates application with proportioning room thermostat (Micro­
therm) on panel system; constant boiler temperature.
The Modern Bath FOR MODERN HOMES

in Traditional or Contemporary Style

Weisway quality Cabinet Showers are the practical answer to the rapidly growing demand for separate shower baths. Notice the fine "built-in" appearance of the Weisway—with in-a-wall adapter—in this recently completed Connecticut home. Precision-fabricated to be permanently leakproof, Weisway walls are available finished with high temperature baked enamel or vitreous porcelain—and the receptor is enameling iron with exclusive Foot-Grip, No-Slip floor of vitreous porcelain. Completely independent of building walls or floor, Weisways are not affected by shrinkage or settling. No matter what the architectural style of the home, Weisways are perfectly suited for use with the latest building materials and techniques. Weisway quality construction protects your reputation, assures client satisfaction through the years. Write for detailed information about available models.

Weisway CABINET SHOWERS

HENRY WEIS MFG. CO., INC., 403 WEISWAY BLDG., ELKHART, INDIANA

THE RECORD REPORTS

(Continued from page 164)

The new theater at the Great Lakes Naval Hospital provides special accommodations for 14 wheel chair or stretcher patients with their attendants, 50 crutch and 567 ambulatory patients. Crutch and wheel chair section is directly off center aisle and close to exit ramp for safety in case of fire. Crutch patients have ample leg room, plus convenient foot rests and crutch racks (designed and built by Hospital Public Works Department).

HOSPITAL CONFERENCE

Biloxi, Miss., will be the scene next month of the Southern Conference on Hospital Planning, which promises to be one of the year's most important conferences for hospital architects. Sponsored by Dixie chapters of the A.I.A., hospital agencies and state health departments.
How building designers can get an electrical layout that fits...and save time and money doing it!

1. Before your draftsmen touch pencil to paper, call, write your nearest General Electric Office; an experienced building specialist will contact you.

2. Outline to him your preliminary plans and problems; show him the type and location of all electrical loads, special conditions which must be met.

3. At his disposal are many General Electric product engineers...authorities in the fields of power distribution, lighting, motors and control.

RESULTS: You save planning time and come up with electrical plans that fit your structure...plans that embody all up-to-the-minute electrical developments...specifications that assure the building owner maximum operating economies over the years, and establish your reputation for future jobs. Try this easy, 4-step planning method on your next job...you'll find it both profitable and enjoyable to work with a General Electric building specialist. Apparatus Dept., General Electric, Schenectady, N. Y.

Using this wealth of G-E know-how, he will help you plan an integrated electrical system, around which you can easily draw up plans and specifications.

Electric Equipment for Commercial Building

GENERAL ELECTRIC

APRIL 1949
the meeting will be held at the Buena Vista Hotel, Biloxi, May 19-21. Speakers and discussion leaders will include Frank Lloyd Wright; Surgeon General Leonard A. Scheele of the U. S. Public Health Service; Dr. Thomas Parran, former Surgeon General and now Dean of the University of Pittsburgh's School of Public Health; Dr. Vane M. Hoge, Chief, Division of Hospital Facilities, USPHS; and Kay Kyser, health and hospital leader of North Carolina. The Conference will feature seminars on all phases of hospital work.

**COMPETITIONS ANNOUNCED**

**Junior Chamber of Commerce**

Prizes totaling $7000 are offered in a nation-wide competition for the design of the National Headquarters Building for the United States Junior Chamber of Commerce, to be located in Tulsa, Okla. The building will be dedicated as a memorial to the Junior Chamber of Commerce members who gave their lives in World War II.

Sponsored by Servel, Inc., of Evansville, Ind., and General Portland Cement Co., of Chicago, the competition will be conducted by Progressive Architecture. First prize will be the commission for designing the building; 33 additional prizes will be cash awards to the total of $7000. **(Continued on page 170)**

Fitting rooms like stars’ dressing rooms and novel chairs form a light touch at Lord & Taylor’s new store in Millburn, N. J. Store is reminiscent throughout of the Westchester Lord & Taylor’s presented in Architectural Record, April, 1948

New building for the Aluminum Company of America, to be erected in downtown Pittsburgh next year. Exterior wall surfaces will be a series of aluminum panels hung from structural steel frame and backed with 4 in. of formed diacrete. Harrison & Abramovitz, Architects; Altenhof & Bown and Mitchell & Ritchey, Associates
GET BETTER TILE AND BLOCK-WORK with BRIXMENT!

Tile or block-work offers very little protection against the penetration of water, unless both inside and outside head joints are completely filled with mortar.

In laying clay tile, or concrete or cinder block, even when they are used only for back-up work, especial care should be taken to secure full head joints on both the inside and the outside edges of the unit. Either of the following two methods may be used:

Method 1. Full head joints should be thrown onto both edges of the tile to be placed, or—

Method 2. A full head joint should be thrown onto one edge of the tile in place and also onto the opposite edge of the tile to be placed.

Enough mortar should be used to cause excess mortar to ooze out of the joints on both sides of the tile.

One of the reasons bricklayers prefer Brixment mortar is the way it sticks to the tile or block, as shown above. It “stays put.” The bricklayer does not have to stoop to the board for more mortar. You get a stronger, more water-resistant wall. • Brixment mortar is easier to work, saves time, effort, and money. In addition, it has higher water-retaining capacity, greater bonding quality, is more durable. It is this combination of advantages that has made Brixment the largest-selling masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY
The competition opened March 1st, and closes at midnight, May 16, 1949. Full details may be secured from Progressive Architecture, 330 W. 42nd St., New York 18, N. Y.

Spanish Housing

The Instituto Tecnico de la Construccion of Spain has announced an international competition for the design of housing for 50,000 Spanish families. The houses are to be designed for erection in groups of 500 or more in urban districts, and must be suitable without alteration for various climatic conditions. Full plans for erection, including manufacture of necessary materials, must be submitted.

Further information may be obtained until July 1, 1949, from the Institute at Ruiz de Alarcon 25, Madrid, Spain. The competition closes November 15th.

Here's what "Kewaunee Equipped" Means to Architects . . .

The list of high school and elementary school laboratories that are "Kewaunee Equipped" reads like a Blue Book of the Educational Field.

Leading Architects know that with Kewaunee Engineers on the job at every stage, from planning to final inspection, no detail is overlooked.

Every completed Kewaunee job provides top efficiency with true economy and reflects credit on the architect who specifies "Kewaunee Equipment."

Our Engineering Staff is at your service without cost or obligation.

Kewaunee Mfg. Co.

C. G. CAMPBELL, President

5046 S. Center St., Adrian, Mich. • Representatives in Principal Cities

New home office building of the General Petroleum Corp., Los Angeles, designed by Wurdeman and Becket, Architects

WORK SHEETS AVAILABLE

The American Institute of Architects recently has published a collection of "Specification Work Sheets" written by Ben H. Dyer, A.I.A., as a time- and money-saver for the private practitioner. Prepared in pad form, the work sheets make it possible to delay writing specifications until working drawings are about completed. Copies may be obtained from Institute headquarters, The Octagon, 1741 New York Ave., N.W., Washington 6, D. C., for $5.00 the set.

AT THE COLLEGES

Faculty Appointments

Two recent appointments to the faculty of the School of Architecture at Columbia University are Henry S. Churchill as an Associate in Planning, and Maxwell H. Tretter as Lecturer in Housing.

Mr. Churchill, a member of the firm of Churchill-Fulmer Associates, is vice chairman of the Committee on Urban Planning of the A.I.A. Mr. Tretter is the former executive director and counsel of the New York City Housing Authority.

New Department

The University of Utah recently has organized a new department of architecture, the curriculum of which is to center around an introduction to the principles of architecture and problems peculiar to architects in Utah and its neighboring states. According to Roger Bailey, department head, the chief aim is to "correlate architecture with the excellent climate of the intermountain region and to make use of the beautiful climate for building."

(Continued on page 172)
WORLD'S LARGEST RESIDENTIAL DEVELOPMENT USES NEW TYPE HEATING

When Fritz Burns, President of Kaiser Homes, developed his first post-war home, the Royal Jet-Flow was just coming off the production lines. It was tested and found to give heating performance equaled only by forced air units costing three times as much. Since that time over 6000 Jet-Flow heating units have been installed in Kaiser Homes alone. With its fine performance, its minimum upkeep, and high owner satisfaction it was natural that the new model Jet-Flow was selected for the 2000 1949 Model Kaiser Homes (illustrated above) now being built in Panorama City, California.

The gas-fired unit is placed near the center of the floor plan, and distributes heat in three directions from registers located 6" below ceiling level. Through the use of the jet principle heat is circulated at a velocity of 300 feet per minute to all parts of the house. Test showed a room-to-room temperature differential of less than 2°.

Walter Wurdeman and Welton Becket, Collaborating Architects

Royal Heaters, Inc., Manufacturer
1024 Westminster Ave., Alhambra, Calif.

We suggest you write for literature and specifications. Royal Jet-Flow is distributed nationally.
backdrop of the mountains." The new department is the only one of its kind between Denver and the West Coast.

**New Chapel for B. U.**

Ground was broken in February for a new chapel at Boston University, the fifth building on the University's new campus overlooking the Charles River. The chapel will occupy the center of the campus, flanked by the College of Liberal Arts and the School of Theology, and backed by the University Tower, which will house the administrative offices. Like other new buildings, it will be perpendicular Gothic in style and constructed of Indiana Limestone. Cram and Ferguson are the architects.

Measuring 100 by 50 ft., the building will have a seating capacity of 500 on the nave floor. A meditation chapel, seminar and other rooms will occupy the lower levels. Stained glass windows designed and built by Charles J. Connick for the University's Robinson Memorial Chapel in the present School of Theology building on Beacon Hill will be incorporated in the new chapel. Cost of the building is estimated at $900,000.

**Fellowship Available**

The College of Architecture and Design, University of Michigan, announces that the George G. Booth Traveling Fellowship in Architecture will be offered again this year. There will be no formal competition in design, but upon request applicants will be issued an application form to be completed and returned not later than May 15, 1949. This competition is open to all graduates of the school who have not reached their thirtieth birthday on the date mentioned above. Prospective candidates should write at once to the office of the College of Architecture and Design, 207 Architecture Building, Ann Arbor, Michigan.

**Architecture in Mexico**

The University of Houston has announced a summer course in architecture to be held at its Mexican Summer Center from June 6 to July 11. The course is open to both graduate and undergraduate students, and will include class lectures (in English) at the University of Mexico, and field trips in and around Mexico City. Director is David Red, Instructor in Architecture at the University of Houston.

Applications for registration must be completed by May 15. For further information address Joseph S. Werlin, Director, International Study Centers, University of Houston, 3801 St. Bernard St., Houston 4, Texas.

**Architectural Education Conference**

Eight prominent architects were guest speakers at a conference on Architectural Education held at the University of Illinois Feb. 21–23. Planned particularly with the current curriculum of the Illinois Department of Architecture in mind, the meetings stressed trends in architecture and architectural practise and education. Speakers were Max Abramovitz of Harrison and Abramovitz, New York City; Richard M. Bennett of Loebl, Schlossman & Bennett, Chicago; Kenneth Johnstone, chairman of the committee on education, A.I.A.; George H. Mieds, president of Albert Kuhn, Inc., Detroit; John W. Root of Holabird, Root and Burgee, Chicago; Paul Schweikher of Schweikher and

(Continued on page 174)
YES, planning beautifully distinctive interiors is a lot simpler when you call for smart, modern METLWAL! Factory-finished in rich, natural woodgrain reproductions or baked enamel finishes . . . METLWAL will not chip, crack or craze; does not reflect harsh, metallic light; is Bond-}
orized against rust and corrosion.  

METLWAL is easy to erect, too! Erection crews merely . . . (1) attach floor and ceiling channels; (2) insert studs in channels; (3) snap on panels; (4) slip on base. All panels and parts may be cut on the job with a saw. One man can handle a full-size panel. Only a few standard parts from warehouse stock. No need for plaster in new construction and for filler boards of other materials at ends or above cornice level. Write today for your copy of latest catalog A-4. See how METLWAL can help you plan beautiful interiors! Address: Martin-Parry Corp., Toledo 1, Ohio.
Elting, Roselle; and Walter A. Taylor, director of education and research of A.I.A.

OFFICE NOTES

Offices Opened, Reopened

Milton Abrams, A.I.A., has opened new offices at 235 Lincoln Rd., Miami Beach, Fla.

Sid Bersudsky and Associates, Industrial Designers, have opened new offices at 539 King St. West, Toronto, Canada.

Alex Danin, Architect, has announced the opening of an office for the practice of architecture at 1837 Victory Blvd., Staten Island 14, N. Y.

Ralph W. Hawks, Consulting Engineer, has opened an office offering to architects a complete structural engineering consulting service covering all types of building construction. His address is 549 Eighth Ave., Troy, N. Y.

L. Brooks Martin, Architect, has opened offices at 201 Varisco Bldg., Bryan, Texas.

Ruth L. Strauss, Interior Designer and Color Consultant, has established new offices at 509 Madison Ave., New York City.

Max J. Wolfson, Architect, has opened his own office at 3845 Alta Vista Terrace, Chicago 13, Ill.

New Addresses

The following new addresses have been announced:

- Burgess & Niple, Civil and Sanitary Engineers, 584 E. Broad St., Columbus 15, Ohio.
- Gordon Drake, Designer, P. O. Box 2905, Carmel, Calif.
- C. Dale Dykema, A.I.A., 15056 Gulf Blvd., Maderia Beach, St. Petersburg, Fla.
- Electrical Design Co., Inc., Engineers, 45 Branford Pl., Newark 2, N. J.
- Paul Thiry, Architect, 800 Columbia St., Seattle 4, Wash.

New Firms, Firm Changes

The name of the Brevetti Construction Company of New York City and Lynbrook, L. I., has been changed to Brevetti-Walsh, Inc., General Contractors, with offices at 101 Park Ave., New York City, and 128 Garfield Pl., Lynbrook, L. I., N. Y. Walter V. Walsh, until recently a member of John H. Eisde Company, is president and Joseph Brevetti is secretary and treasurer.

Lester Geis, Architect and Designer, has been appointed to the New York office staff of Garden City Plating & Mfg. Co. of Chicago.

Thomas F. Holifield, A.I.A., and associates, Millard P. Buck and Robert D. Caldwell, have established a new office at 1806 Hillcrest Dr., Bartlesville, Okla. Associated with them are Harold C. Potter and Otis L. Splinter, formerly with the University of Nebraska, and Dwight B. Maps, Jr., formerly with the University of Oklahoma. The firm's mailing address is Box 490, Bartlesville, Okla.
New G-E Wiring System
Offers Unlimited Possibilities
In Modern Lighting Control

Multiple Switching from Many Locations
Available at Low Installation Cost
With G-E Remote Control

Switch your garage lights ON or OFF from any room in your home—in hospi
tals, give every patient a light switch next to his bed—in industrial plants and
commercial buildings, let every night watchman have a centralized bank of
switches for all lights in his area. These are just a few of the many possibilities
that can be brought about by the new remote control system, recently announced
by the General Electric Company.

Easy to Install
Using existing methods for wiring all power circuits, the General Electric re­
 mote control system requires no new materials or techniques except in the
switching circuit itself. In this circuit a small, low-voltage relay does the actual
switching. Control of this relay can be placed practically anywhere in a building,
simply by installing lightweight wires from the relay to conveniently located
wall switches, specially developed for this purpose. “Easy as wiring a doorbell,”
is the way one observer described this circuit.
Because this new system cuts the cost of materials used in multi-switch applica­
tions, because it makes possible a large number of controls on any individual
circuit, General Electric remote control clears the way for wide use of multi­
switch control in structures of all types.

Keeps Costs Down
In residential wiring, this new system means real “dream-home” electrical con­
trol even in residences where costs must be cut to the bone. Simple applications
include the example of garage lights given above—also attic fan and cellar light con­
trols in various parts of the house. In the completely modern house, all lights and
outlets can be controlled from various locations.

Here are the essential components of the new General Electric remote control system:
the switch, the small transformer (not shown), the relay, and the lightweight No. 18 wire.
All accessories necessary for the system are manufactured by General Electric and sold
through your General Electric Construction Materials distributor.

In dormitories, institutions, and commercial buildings, General Electric remote
control can provide an effective centralized system for lighting control. Where­
ever “lights-out” regulations are in effect, a master panel of remote control switches
can be used to enforce these regulations for an entire building or a whole floor. In
commercial structures or plants, a similar system can be used to turn out lights left­
on after hours. Commercial and industrial operations can profit by the over-all
multi-switch control offered by this system.

Offers New Ideas
To everyone concerned with building and remodeling, this new system offers a
completely new range of ideas on flexibility in the use of electricity. To the
architect, it means a new era in electrical convenience in structures of all sizes and
types. To the buyer and the investor, it means increased workability and extra
value, now and in the years to come. To the electrical contractor, General Electric
remote control offers a vast, new field for his services.

To answer questions on the applications of General Electric remote control—to
explain the procedure and the materials required—the General Electric Company
has prepared an informative booklet on the subject. This booklet is a valuable
guide for everyone interested in this new system. To get your copy early, simply
fill out the coupon and mail it today.

Learn the Facts
on this important new system

Mail Coupon Now

Section D28-45
General Electric Company
Bridgeport 2, Connecticut

Please send me your new booklet on General Electric remote control.

(Name) ____________________________ (Title) ____________________________
(Company) ____________________________
(Street) ____________________________
(City) ____________________________ (State) ____________________________
(Zone) ____________________________

GENERAL ELECTRIC
APRIL 1949

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Kinsley McWhorter and Associates, Consulting Engineers, and James Berkeley Robinson, Architect, have announced the formation of the firm of McWhorter, Robinson and Moody, Engineers and Architects, for the general practice of engineering and architecture. Address: Witz Bldg., Staunton, Va.

Singleton P. Moorehead, director of the architectural department of Colonial Williamsburg, has been named advisory consultant to the Department of Architecture at Williamsburg. Mario E. Campioni, formerly production manager of the New York architectural firm of Eggers & Higgins, will succeed Mr. Moorehead as director of the architectural department.

Robert H. Orr, F.A.I.A., W. T. Strange, Jr., A.I.A., and Robert R. Inslee, A.I.A., have announced the formation of a new partnership under the firm name of Orr, Strange & Inslee, Architects, with offices at 3142 Wilshire Blvd., Los Angeles 5, Calif.

Thorvald Pederson, Architect, has announced the forming of a partnership with J. Murray Hueber, Architect, under the firm name of Pederson & Hueber, Architects, Successor to Paul Hueber. Address: 200 Syracuse-Kemper Bldg., Syracuse, N. Y.


ELECTIONS, APPOINTMENTS

William Eipel, member of the structural engineering firm of Tuck & Eipel, has been elected president of the New York Association of Consulting Engineers. Elected to serve with him were: John F. Hennessy, of Syska & Hennessy, vice president; Harry Bond, Consulting Engineer, treasurer; W. Donald Christie, Consulting Engineer, Secretary.

Hugh M. Hughes, president of the H. M. Hughes Co., Inc., General Contractors, has been elected president of the Building Trades Employers' Association of New York City.

Ludwig Mies van der Rohe, head of the department of architecture at Illinois Institute of Technology, has been elected to honorary corresponding membership in the Royal Institute of British Architects.

Ben Nash, Industrial Designer and lecturer at New York University, was elected president of the American Designers' Institute at the Institute's recent annual meeting. Other officers elected were: Henry Glass, vice president; Dan Jensen, treasurer; Ann Franke, secretary.


Bruce L. Wilson has been appointed Chief of the Engineering Mechanics Section of the National Bureau of Standards. He has been a member of the Bureau staff since 1929, working in the Engineering Mechanics Laboratory.
CONNOR
FOREST PRODUCTS SINCE 1872

"LAYTITE"
Maple and Birch
FLOORING
The World's Finest
— Bar None

Nailing Groove

Eased Edges

Write for illustrated 75th Anniversary Booklet

CONNOR LUMBER AND LAND COMPANY
Mixed Cars—Northern Hardwoods, Pine and Hemlock and Flooring
PHONE No. 3 MARSFIELD, WIS. P. O. BOX 112-R
Mills: Laona, Wisconsin and Connorville, Michigan
Behind The Mills — The Connor Timber Stands

Safe footing in every step...

TUFF-TRED
SAFETY STAIR NOSING

Building for permanence calls for TUFF-TRED Safety Stair Nosings on every step... nothing will do so much for the appearance and safety of stairs. For use on any type stair whether new or old... in office or industrial buildings, in schools or in homes. Wherever installed TUFF-TREDS prove extremely long wearing... for they're durably constructed of polished extruded aluminum with anti-slip, semi-resilient abrasive filler. Practical architects and contractors consistently specify TUFF-TREDS because of their permanent beauty, safety and economy.

You are invited to write for complete details

GOODLOE E. MOORE, INCORPORATED • DANVILLE 6, ILLINOIS
FLOOR ENAMEL

A new floor enamel with a base of Vinylite resins for all wood, concrete and metal floors is said to assure successful coating of floor areas that were formerly difficult to paint satisfactorily.

The enamel, which is applied by brush or spray, is reported to be unaffected by water, greases, oils, brine, alcohols, petroleum solvents, soaps, all alkalies and most acids. The manufacturer claims it will withstand at least twice as much dry abrasion and ten times as much scrubbing with alkaline solutions as floor enamels having any other base.

Available in black, white, and six colors, the enamel gives covering surface of approximately 500 sq. ft. per gallon, depending on porosity of the surface. Benjamin Foster Co., 4635 W. Girard Ave., Philadelphia 81, Pa.

A new floor enamel with a base of Vinylite resins for all wood, concrete, and metal floors is said to assure successful coating of floor areas that were formerly difficult to paint satisfactorily. Available in black, white, and six colors, the enamel gives covering surface of approximately 500 sq. ft. per gallon, depending on porosity of the surface. Benjamin Foster Co., 4635 W. Girard Ave., Philadelphia 81, Pa.

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For Garage Doors That Give Trouble-Free Service

... Specify RICHARDS-WILCOX 999 Garage Door Hardware

For many years, leading architects and builders have agreed that Richards-Wilcox Door Hardware is the world's finest. Now, with the new line of R-W 999 Garage Door Hardware, out-dated, troublesome swinging garage doors can be converted quickly and easily into the modern, overhead type.

Overhead garage doors hung with R-W 999 Hardware are weathertight, the easiest to operate, and they "stay put." And R-W 999 Hardware comes complete—in one convenient kit—with everything needed for installation and operation.

For further information, simply call or write the nearest Richards-Wilcox office. Ask for free folder with complete facts about R-W 999 Hardware—your surest cure for garage door grief.

ARCHITECTURAL RECORD
SPECIFY VERSATILE

Consoweld decorative laminates

good for a colorful lifetime

KITCHEN
Practical, permanent Consoweld resists cuts, scratches, heat, alkalies and acids.

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Beautiful, moisture-proof Consoweld wipes sparkling clean with a damp cloth.

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Tough Consoweld stays better-looking longer—never needs painting or resurfacing.

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Versatile Consoweld, available in sizes up to 8' x 16', offers endless imaginative adaptations.

Everyday, more and more practical, attractive Consoweld is being used in residential, commercial and industrial construction. For convenient reference to colors, patterns and ordering data see Sweets File 13i/2. Complete samples and helpful installation data available from your Consoweld Distributor, or write direct to:

Consoweld Plastics Division, Consolidated Water Power & Paper Co.
Wisconsin Rapids 15, Wisconsin

APRIL 1949

A Complete Unit for a Complete job

You're always sure you're getting the very best in efficient, economical packaged air conditioning when you specify Governair—the original patented design!

This complete unit is easy to install—requires only simple electrical, water and duct connections. Built-in Evaporative Condenser keeps water usage down to a minimum. Governair engineering assures correct coordination and balance of all functions. Generously proportioned heat transfer surfaces provide maximum performance and economy.

Choose Governair completely packaged air conditioners and you'll always do your best!

Architects • Engineers • Contractors

Would you like to know how Air Conditioning jobs can be installed for from $100.00 to $400.00 per ton less?

Write Dept. K
Governair Corporation
513 N. Blackwelder • Oklahoma City, Okla.
columns into attractive office space.

The ceiling was covered with acoustical tile, and the wiring system was said to result in practically concealed wiring without involving the labor and expense of cutting chases for conduit in the existing concrete ceiling. Wiremold raceways, the same thickness as the ceiling tile, were mounted to the concrete ceiling and painted to match the tile so that in general appearance, the ceiling shows no outlines that might be disturbing.

Shallow fluorescent fixtures were desired for the general office areas; the type chosen were the Linolite Series 11 which are only 3 in. deep. The fixtures were surface-mounted in 8 ft. sections to the ceiling tile. Due to restrictions and limitations caused by existing sprinkler lines, ducts, column spacing, etc., the fixtures were mounted in rows, 12½ ft. on centers; although ceiling is 11 ft. high, fairly good uniformity was reported maintained. Average illumination provided was said to be 35 foot-candles. Louvers provide 30° crosswise and 45° lengthwise shielding.

In other offices where hung ceilings were installed, recessed troffers (louvered shielded) were installed to produce an average of 50 foot-candles. A specially designed recessed troffer, 8 ft. long and 6 in. wide, having two 40-watt lamps in tandem, was used to light hallways. The Frink Corp., Bridge Island Plaza, Long Island City 1, N. Y.

PLASTIC PARTITION

Lightweight, translucent plastic blocks comprise a new demountable partition for offices.

Blaxolite is described as easy to erect and to dismantle and reassemble for reuse. The blocks, which weigh less than a pound each, are made of a plastic material called Styron, which is designed to resist moisture, cracking, warping, expansion and contraction.

Interlocking basswood strips are used to assemble the blocks, which measure 8 in. by 8 in. by 21⁄2 in. Armstrong Cork Canada Ltd., 6911 Decarie Blvd., Montreal, P. Q.

Above: No. 7004 Lumiline or Fluorescent Light Cabinet with Side Cabinets.

No. 215 Tumbler and Tooth Brush Holder

No. 210 Soap Holder

LONG YEARS of cooperation with architects and builders have developed Parker's ability to "package" many of their ideas into high quality, reasonable cost bathroom fixtures. The complete Parker Line of bathroom cabinets and accessories meets a strict standard of style, utility, materials and workmanship for any requirement. It will be to your advantage to see the complete line in Sweet's, or send for the new Parker Catalog: The Charles Parker Company, Meriden, Conn.

BATHROOM CABINETS AND ACCESSORIES

(Continued from page 182)
GENERAL PORTLAND CEMENT COMPANY
manufacturers of

Trinity White PORTLAND CEMENT

is pleased to announce its co-sponsorship
of a nation-wide
ARCHITECTURAL
COMPETITION

Conducted by
PROGRESSIVE ARCHITECTURE Magazine for the design of
NATIONAL HEADQUARTERS BUILDING for

UNITED STATES JUNIOR CHAMBER OF COMMERCE

which will be dedicated as a living
memorial to those of its members who
gave their lives in World War II

We hope that architects everywhere will take active
interest in this competition. The full program was
carried in the March issue of Progressive Architecture.
A copy of the program may be obtained from
that magazine or this sponsor.

Also available are two pieces of literature describing
specific uses of Trinity White Portland Cement.
These are:

1. Architectural details, data and photographs showing
the use of Architectural Concrete Units made with
Trinity White Portland Cement for the Prudential
Building, Los Angeles, California.

2. Construction details for uses
of terrazzo made with Trinity
White Portland Cement for
floors, shower stalls, stairways,
wainscots, etc.

Address: General Portland
Cement Company, 111 W.
Monroe St., Chicago 3.
**PAPER EDGER**

Protective edges of Scotch tape can be applied mechanically to blueprints, drawings, posters, and other paper materials with the Scotch Edger which uses either \( \frac{1}{2} \) or \( \frac{3}{4} \) in. tape. The edger also applies tape to reinforce paper folds and to bind single pages together in the form of a folder. An automatic self-adjustment mechanism accommodates various paper thicknesses up to \( \frac{3}{16} \) in.

White Scotch Edging Tape No. 750 has a special adhesive said to prevent oozing at the edges, thus permitting taped sheets to be filed without sticking. Minnesota Mining and Mfg. Co., 900 Fauquier Ave., St. Paul 6, Minn.

**ELECTRICAL CONTACT SWITCH**

The Sedgwick "CBN" Contact Switch is a new electrical contact switch for use in the operation of lights, buzzers, alarms, signals, indicators and other applications requiring a contact making and/or breaking device of unusually small dimensions.

Described as simple in design and rugged in construction, the device is made only as single pole, double throw, slow make and break for use on either a-c or d-c, at a maximum voltage of 250. The current rating is 2 amperes a-c, 1 ampere d-c.

Contacts are silver to silver, mounted on phosphor bronze spring arms, pre-stressed to provide ample contact pressure for the rated duty, the manufacturer reports.

Switch enclosure is of pressed steel plated with rust-resisting cadmium, and both side plates are removable for access to the interior. Sedgwick Machine Works, 90 Eighth Ave., New York, N. Y.

---

"Your insulation prevented the fire from spreading".

From a letter from Ralph M. Fishel & Co., Denver, Colo., insurance and private banking.

**BECAUSE INFRA INSULATION**

- **★ Emits Only 3% of Heat Rays**
- **★ Is Metal with a Melting Point of 1250° F**

*(Furnace Heat is Only 750° F)*

**INFRA IS A REAL FIRE STOP**

Infra's surface absorbs only 3% of heat rays—97% is rejected! Infra emits, on the opposite surface, only 3%. That is one reason why Infra is so efficient in preventing wasteful—or dangerous—heat flow. Summer or winter, Infra keeps heat in its proper place.

Infra Insulation uses 99.5% pure aluminum made in accordance with Infra's own, special emissivity specifications. The fiber partition, which creates multiple air spaces and reflective surfaces, is flame, mold, and vermin proof.

*Thermal Factors Printed on Every Infra Carton*

Infra's multiple separated aluminum sheets provide 4 reflective spaces and 4 reflective surfaces, each non-condensation-forming. Two sheets of aluminum and the accordion partition block convection currents. Infra's triangular reflective air spaces and small mass eliminate conduction as a problem.

**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 INFRA'S FREE**

- 32-Page Booklet: "Simplified Physics of Thermal Insulation",
- Handbook and text on heat transfer, condensation, vapor, mold, fire, radiant heating, etc.
- Contains master chart of all factors of all insulations, of all thicknesses, densities, weights.

**ACCORDION MULTIPLE ALUMINUM & TRIANGULAR REFLECTIVE AIR CELLS**

Infra INSULATION, INC.
10 Murray St., N. Y., N. Y.

**FOR IMPROVED SANITATION THIS SODA FOUNTAIN COMES WITH A 5-IN. FLOOR CLEARANCE**

**SODA FOUNTAINS**

One hundred per cent dry refrigeration, vacuum cold plates, and an instantaneous dry cooler that supplies large quantities of plain and carbonated water immediately are features of a new line of soda fountains.

Improved sanitation is achieved with the 5-in. floor clearance for easier cleaning, although the working height of the fountain has not been changed.

One-piece tops are of stainless steel and the covers, also stainless steel, are hermetically sealed. Construction is of all welded, heavy gauge stainless and rust-resisting steel. Stanley Knight Corp., 3434 N. Pulaski Rd., Chicago 41, III.

**SPEED FINISH FOR CONCRETE**

A special compound said to give greater smoothness while resisting the elements, spills and abrasion has been
Stainproof (acid-resistant) porcelain enamel is only one of the safety, comfort and luxury extras which have placed Briggs Beautyware 'way out in front of the field. Only Briggs makes the tub with the famous Safety-Bottom. Other features include the wide-rim seat... greater area of level bottom... integral tiling flange which provides leakage-proof edges, tub to walls. Only Briggs prices all this revolutionary designing right down to earth for every American home! Write now for new catalog featuring Briggs plumbing fixtures and Briggs brass. Briggs Manufacturing Company, 3031-d Miller Ave., Detroit 11, Michigan.

ALL Briggs bathtubs are furnished in stainproof (acid-resistant) porcelain enamel. Only steel fixtures give this extra protection and beauty at no extra cost! Note the patented Safety-Bottom, for safe tub and shower bathing.
developed as a "speed finish" for concrete walls.

The speed finish, applied with a cork float to either newly poured or old walls, is reported to meet objections to the impairment of the face of concrete walls which develops when a so-called rubbed finish is used.

A smooth, waterproof surface is given with the exterior type, which consists of a bonding coat and a finishing coat and which may also be used for interiors to meet special conditions.

Only one application is required for the regular interior finish, which is said to be smooth enough for paint to be applied directly over it without plastering.

Sand and water are mixed with the exterior bonding and finishing coats before application; the interior finish is a special powder that is mixed only with water. Irvington Form & Tank Corp., 42 Main, Irvington 24, N. Y.

**PANEL-TYPE WINDOW FAN**

For ventilating smaller areas, a 12-in., adjustable, panel-type window fan, Chelsea Type WPJ, fits into the upper panel of a standard window, permitting the raising and lowering of the upper sash.

The fan, which is adjustable from 25 to 36 in., is furnished complete with pull-chain switch and plug-in extension cord.

The fan has an air delivery of 1000 cfm, and is driven by a 1/25 hp motor operating at 1550 rpm. Chelsea Fan & Blower Co., Inc., 1206 Grove St., Irvington 11, N. J.

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**LPI TROFFER**

*the recessed fixture with “universal joints”*

---

FLEXIBILITY—Troffers' "universal joint," the Flex-A-Hanger, insures proper alignment for in-line installations and compels each Troffer unit to hug the ceiling.

VERSATILITY—Troffer luminaires can be used as individual fixtures or in continuous rows. Troffers available for 1, 2, 3, or 4 30-watt or 40-watt lamps, also for 72" and 96" Slimline lamps in 120, 200, 300 and 425 ma. Incandescent Spot-O-Lights available for "punch" lighting for merchandise and display areas.

EFFICIENCY—85% reflection factor with exclusive LPI Klasium-White enamel gives the Troffer maximum lighting efficiency.

DURABILITY—Die-formed parts and heavy gauge metal throughout.

Three Troffer styles to pick from, all adaptable to different types of ceiling construction—OPEN BOTTOM, for maximum light without decor LOUVERED BOTTOM, with ideal 35° light cut-off ALBA-LITE GLASS BOTTOM, completely enclosed in frame with continuous piano-hinged door

For detailed information send for Bulletin No. 415, or see your local LPI representative.

Lighting PRODUCTS, INC.
HIGHLAND PARK, ILLINOIS

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**STOREFRONT METALS**

A new line of Pillo Premier storefront metals includes a wide range of profiles and aids design facility by presenting a group of moldings which are interchangeable vertically and horizontally.

Highly polished and then Aluminited, the line offers moldings pierced with slots for fastening. A complete set of basic moldings is furnished in a "kit" providing a variety of patterns from which the design most appropriate for a particular store may be chosen. Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.

**ALUMINUM FASTENERS**

Exact duplicates in aluminum of nearly every kind of wood and metal screw, machine bolt, washer, nut and nail are now available.

Advantages of aluminum fasteners listed by distributors include their resistance to rust when used with wood or aluminum construction, on either inside or outside construction. It is also pointed out that they run about three times as many to the pound as steel or brass. Currently on the market are 551 types and sizes. Central Steel and Wire Co., P. O. Box 5310-A, Chicago 80, Ill.

(Continued on page 186)
The dream house of the Bob Vahlbergs sprawls comfortably on a wooded slope. It is rooted to earth by a seventy-five-foot-long slab of concrete. From its wall of glass, framing a view to the South, to the Bryant Boiler that activates its unseen radiant coils, it is as modern as tomorrow.

Architect Vahlberg has definite ideas about the things a house should have. He believes firmly in open planning to create a feeling of space; materials that are natural-looking and complementary to the setting of the house; wide expanses of glass, to capture the outdoors for indoor enjoyment; automatic heating that provides the warmth of Spring sunshine, no matter what the weather outside.

In the year or so of its existence, the house has proved these things, and more, to the Vahlbergs. It gives them everything they want for their living enjoyment... their comfort. That, in a word, is the proof. For, by and large, the components of anybody's dream house add up to just one thing: comfort.

We like to think of architects like Bob Vahlberg as men who deal in comfort, because that's a big part of our business, too. It's a kind of partnership... with creative architecture and Bryant quality heating going hand-in-hand to provide the stuff that dream houses are made of.

And we're mighty pleased that so many of these dealers in the much-sought commodity called comfort consider Bryant Automatic Heating part of their stock in trade.

"I'll let the Pup be Furnace Man"
says ROBERT PARKS, builder of the Vahlberg House, Oklahoma City

"Bob Vahlberg's house taught me a lot; not only about modern house construction, but about heating as well. I'm sold, and my family is sold. We're going to have a house like it... and others will have a Bryant, too."
TWO-COLOR PAINT

Two colors in one coat of paint taken from the same can are reported achieved with Alma Bicolor, an oil paint recently introduced in Toronto.

An exclusive formula is said to produce a two-tone dappled effect on any kind of surface with no preliminary flat coat.

Bicolor is compounded from an oil base and is reported to be an extremely durable paint. It comes in 10 color combinations. Alma Paint & Varnish Co. Ltd., London, Ont.

PLASTIC SLIDE RULE

Durable laminated plastic is used for a newly designed circular slide rule small enough to be carried easily in the pocket.

Described as giving only slightly less accuracy than far more expensive slide rules, the new rule will perform these computations: multiplication, division, finding squares or square roots, cubes or cube roots, reciprocals and proportions.


The Barcol OVERdoor

WEATHERTIGHT. Special roller crank closing action moves the entire door smoothly and evenly against the stop strips in the last few inches of its downward travel, effectively sealing the opening.

EASY WORKING. Tailored twin-torsion counterbalancing springs accurately support the weight of the door, so minimum effort is required for raising or lowering. Sticking is eliminated by the fast-freeing effect of the exclusive roller crank closing action.

Barcol OVERdoors assure satisfaction ... giving long, trouble-free service because they are strongly built, accurately assembled, and carefully installed by factory-trained men.

ADAPTABLE. The picture above shows a somewhat unusual installation, in that this garage has both a single width and a double width entrance. It is, however, an excellent illustration of the adaptability of Barcol OVERdoors. Suitable doors can be furnished for any design of building and for any size of opening.

ELECTRIC DOOR OPERATORS. Available for swinging, sliding, and overhead type doors, and for sliding gates. They offer the convenience and protection of switch control or the amazing Radio Control.

Mechanical sun aids solar house design

SOLAR HOUSE ORIENTATION

Developed to help architects and home builders figure width of roof overhang for solar houses is a new gadget called the Solarometer, which is said to depict the angle at which the sun will shine in any part of the world at any time of day.

The instrument, which is described as being extremely simple to operate, can be set for any city in the world to fit a particular problem. Then the device sends a mechanical "sun" in an arc from dawn to dusk in the proper path for that latitude. The "sun" can be halted at any hour of the day. By adjusting the "sun" on a graduated scale, the operator can observe how its rays strike the glass area of a model solar house in summer and winter.

Correct width of overhang to provide maximum shade in summer and admit maximum sun in winter is determined by adjusting a scaled and movable roof overhang on the model house.

The Solarometer is reported to offer a clearer illustration of the principle of solar window areas to prospective builders in a fraction of the time needed to prepare drawings for explanation. Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo 3, Ohio.

FLOOR LEVEL HEATING

Floor level heat by forced warm air for ranch type and basementless homes

(Continued from page 184)

(Continued on page 188)
No one has ever been able to improve on

The WHITE of MEDUSA WHITE

- Over forty-two years ago, a Medusa scientist created the first white Portland cement. Since then, many have tried but no one has been able to improve on the whiteness, or the quality of Medusa White. Medusa White has proved itself thousands and thousands of times in buildings all over the world... under all climatic conditions and in all types of construction. In every case, Medusa White because of its true white color has given complete satisfaction whether used white or tinted. There is no whiter White, no finer white than Medusa White!

For lasting beauty and weather protection, Medusa Waterproofed White is recommended. This is regular Medusa White Portland Cement with waterproofing ground in at the mill. This waterproofing material is in concrete, mortar or stucco all the way through and repels all moisture at the surface. Thus dirt cannot stain and water cannot enter, freeze, and disintegrate concrete or stucco made with Medusa Waterproofed White Portland Cement.

For sparkling white stucco, cast stone, Terrazzo and white concrete... for construction that will retain its beauty indefinitely... specify Medusa White. And for the full story about the uses of this remarkable cement, send the coupon for your copies of "A Guide to Finer Stucco" and "Medusa White Portland Cement."

"FIFTY-SEVEN YEARS OF CONCRETE PROGRESS"

MEDUSA PORTLAND CEMENT CO.
1015-4 MIDLAND BUILDING • CLEVELAND 15, OHIO

Gentlemen: Please send me a copy of the booklets, "A Guide To Finer Stucco" and "Medusa White Portland Cement."

Name ..................................................................................................................
Address ..............................................................................................................
City .............................................................. State .................................

Also made by Medusa Products Company of Canada, Ltd., Paris, Ontario
is available through application of the new R9 International Oil Furnace.

Ducts (6- or 8-in. galvanized pipe in the case of concrete floor) are run underneath the floor from the furnace to warm air outlets near outside walls in baseboard or floor.

Automatic Limit Control governs temperatures of warm air in the furnace, which is directed through outlets at the base of the unit into the ducts.

"Perimeter heating" thus is said to provide uniform heat throughout the home by compensating for heat loss at outside walls. The R9 International, which is fully automatic, requires less than 5 sq. ft. of floor space. It is 22\(\frac{1}{4}\) in. wide by 27\(\frac{1}{4}\) in. deep and 82\(\frac{3}{4}\) in. high, requiring 6 in. clearance at front, none at sides and back. International Oil Burner Co., 3800 Park Ave., St. Louis 10, Mo.

EVAPORATIVE CONDENSERS

Improvements in a line of evaporative condensers now on the market are designed to give the units greater durability and make servicing easier.

Features of the new line include Penta-Post Frame members designed to make possible multiple service and access panels in the welded frame assembly; hot-dipped galvanized steel coil assemblies for use with ammonia; hot-dipped galvanized steel coil and coil frame sections, wheels and scrolls; copper spray headers; and heavy steel coil side frames, galvanized after fabrication.

All prime surface coils, with copper tubes hydraulically expanded at 3000 psi into copper tube sheets with ferrule collars, are reported to prevent vibration failures at tube and tube sheet junction, and to safeguard compressor against scoring, since the brazing scale is loosened by hydraulic stretching and blown out of coil.

The condensers are available in a size range from 3 to 50 tons (duplexed to 100 tons). The Kennard Corp., 1819 S. Hanley Rd., St. Louis 17, Mo.

PORTABLE FOOD WARMERS

Scoty Electro-Matic portable food warmers in nine different models are designed to provide a complete counter kitchen offering the correct temperature for each food.

These portable food warmers for restaurants, cafeterias, hospitals, hotels, and other institutions feature selective thermostatic temperature control. They have electric Calrod heating units and their pan top combinations are interchangeable.

The top and body of each unit is die-stamped stainless steel, with smooth polished stainless steel finish. Pans and covers, die-stamped of one-piece solid 18 or 20 gauge stainless steel, fit standard 12 by 20 in. top openings. See Co. Inc., 5206 South 38th St., St. Louis 16, Mo.

BI-PASSING METAL DOORS

Orange Metal Bi-Passing Doors for closets are reported to save time, money and space because they eliminate the space needed for door swing and are precision built and fitted at the factory.

The doors, which require no studs, plaster or hardware, slide back and forth on ball-bearing rollers. The sliding panels, which have two felt sound-deadening pads at top, are cushioned at door jams by rubber bumpers.

(Continued from page 186)
Pittsburgh Steeltex Floor Lath
gives you both
Form and Reinforcement

The placing of floors moves swiftly, smoothly and at a big saving in time and material with Pittsburgh Steeltex Floor Lath. This combination of form and reinforcement for concrete and gypsum floors and roofs eliminates the need for slow, costly form-work.

Pittsburgh Steeltex Floor Lath is a combination of a uniformly spaced welded wire mesh laced to a waterproof cord-reinforced backing. The lacing wires are crimped to permit separation of the backing which gives you automatic imbedment from the weight of the mix. The waterproof backing holds the water in the mix so that it must evaporate slowly which gives maximum strength and assures proper curing of the slab. This also minimizes drip, prevents loss of cement and eliminates cleanup expense.

For better floors and roofs use Pittsburgh Steeltex Floor Lath—it will save you time and money. See our catalog in Sweet's or write for your copy of D.S. 133 to Pittsburgh Steel Products Company, Department AR, Pittsburgh 30, Pennsylvania.

PITTSBURGH STEEL PRODUCTS COMPANY
A Subsidiary of Pittsburgh Steel Company
Pittsburgh 30, Pa.
construction or fabrication; they indicate new possibilities with materials and equipment. We see ahead greater savings in materials and greater savings in manpower for both small and big builders when modular plans become the rule rather than the exception.”

Pre-cutting

Lack of agreement on the economies of pre-cutting made it clear that this topic has endless ramifications; also that it is not easy to realize its savings. Some said only the big-scale builder can use it effectively. Others said you can save money by pre-cutting if you are only building a single house.

David A. Bohannon, San Francisco operator, said: “Pre-cutting of parts is desirable only when the building is operating on a scale that justifies the investment of thousands of dollars. . . .

Unless each item is exactly detailed, pre-cutting had best be confined to studs, rafters, joists, blocking and bridging. Where an ordinary set of house plans consists of three or four sheets, a pre-cutting plan set comprises from 50 to 100 sheets.

“Where pre-cutting can be employed efficiently it brings major economies. Workmen become highly skilled and produce more work per day.”

“Conventional on-site construction can be streamlined in some cases. After determining those items to be pre-cut, all other items should be cut and assembled at the job site. On a large project materials can be ordered from the mill, sized to specifications, ‘banded’ and delivered by truck to the job site. This saves at least three handling steps.

“Another economizer is a small mobile cutting line that can be moved along with the progress of the project. This eliminates yard storage, loading and hauling of members which can be turned out at the site. Similarly, field painting of trim delivered by the mill as per schedule places these items in the building for finish carpenters to use in one handling operation.”

Other speakers stressed the fact that pre-cutting tends to get complicated, and that it is easy for a builder to go overboard buying power tools and trying to set up Rube Goldberg assembly lines, with sheets and sheets of instructions and “exploded” drawings. Clarke Daniel kept pounding on the fact that you can do much with just a portable electric saw and a few simple jigs. His favorite example was a little test he had run. He asked carpenters to experiment with a good old-fashioned hatchet for notching rafter ends. They could do it three times as fast as with a power saw.

So pre-cutting is no panacea. It is a prescription to be taken in measured doses, with a good mixture of common sense and a shot of imagination.

Prefabrication

There was a great deal of speech-making on this topic, but the net was small. Some of the big-name prefabricators had their chance at the microphone, and parried some prepared questions designed to make the discussions fairly lively, but nobody took it very seriously. Certainly the prefabricated house did not show any newly significant successes.

Construction Details

The cost-cutting clinics at the convention became most lively when panel (Continued on page 192)
Good Door Control Conforms to Your Design

LCN Floor Type Closers are Used Where Transom Bars are Thin

- Pictured, one entrance to the new Chicago offices and warehouse plant of John A. Roebling's Sons Co., designed by architects Skidmore, Owings & Merrill of Chicago.

Here, as in many modern entrances, large expanses of glass are used, with narrow transom bars. The doors are hung on LCN bronze offset pivots and effectively controlled by LCN No. 16 Floor Type Concealed Door Closers.

These closers are of superior design. Power is applied to the door through a lever arm (always the most effective way) operating on a slide block concealed in the bottom of the door. The door's weight rests not on the mechanism but, independent of it, on the rigid closer box. Servicing the closer need never take the door out of use for more than a few minutes.

LCN's eleven types of concealed closers and full line of exposed types fill every need for door control that is effective, economical and suited to all common kinds of swing doors. Listed in Sweet's 1949. Latest catalog 11-a, almost a manual on the subject, promptly sent on request. LCN Closers, Inc., 466 W. Superior St., Chicago 10, Ill.

OVERHEAD AND FLOOR CONCEALED AND EXPOSED TYPE DOOR CLOSERS

- LCN No. 16 Floor Closer is recommended for heavy wood or metal doors hung on offset pivots, where transom bars do not permit use of an overhead concealed closer. Block and slide concealed; lever arm visible only when door is opened. Closer mechanism easily accessible; does not carry weight of door. Top and bottom pivots included.
Roof Trusses. J. T. Lendrum, U. of I. Small Homes Council, had many a chance to touch on what was obviously his favorite topic — roof trusses for small houses. (ARCHITECTURAL RECORD, May, 1948.) Briefly, roof trusses, easily made in simple jigs, save in both material and labor. But as Lendrum pointed out, the biggest savings are not directly in roof construction, but in smooth building operations under the roof. Trusses permit quick enclosure of the building, keep it free of bearing partitions. The house becomes a comfortable open workshop where all trades can work to best advantage, materials can be stacked, operations can be done with speed and efficiency, wall boards can be handled in large sizes, partitions can be made on the floor and tilted into position.

"Thick-Edge Slabs." Another topic much discussed was a floor slab with a thick edge, floating on the ground without foundations. Nobody could describe it exactly, and obviously the term "thick-edge slab" was understood differently in many instances. However, there was much interest in it. The discussion, it was pointed out, was academic in at least one important respect — the FHA won't now pass it.

One builder pinned it down somewhat by telling how he pours his. The site is leveled and vegetation removed with a bulldozer. Then a layer of Sisalkraft is put down, then a layer of vermiculite concrete, on top of which is poured a 2-in. topping of reinforced concrete.

One concern was the action of frost, the worry being that if the house remained unheated through cold weather the frost would heave it. Carl Boester, Purdue, gave it as his opinion that if the slab were properly engineered, no harm would be done, pointing to the parallel with concrete highway construction.

Insulation of the slab got some attention. Laurence Shuman, HHFA, pointed out that it should be insulated at the edge. Nobody could describe it exactly, and obviously the term "thick-edge slab" was understood differently in many instances. However, there was much interest in it. The discussion, it was pointed out, was academic in at least one important respect — the FHA won't now pass it.

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From this point the discussion veered off to other types of floor and foundation construction. One builder reported a system of piers with concrete perimeter beams, observing that it was quite expensive, but that there was a problem of working out forming for easy pouring.

Flat vs. Pitched Roofs. One iconoclastic touch came in the general agreement that the economies of flat or shed roofs were frequently incomplete, costing an expert; of the subject matter does not present and was kept pretty busy fending off some rather pointed questions about FHA standards and "dictates." With that warning, this report will attempt to sift out the grist of the cost cutting clinics.

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Imagine a unit that brings healthful outdoor air right through the classroom walls. A ventilator that takes that air, cleanses it, warms it, floods the room with it.

You're imagining a Trane Unit Ventilator!

The unit adds beauty to classrooms, as well as health and efficiency. Never a noise to disturb concentration. No drafts to bring on colds. Just clean, healthful air, to increase alertness, to help every child make the most of his studies, to help him further enjoy the room where he spends so much of his time.

Trane engineering skill has developed smoothly-running fans that eliminate distracting noises. Kinetic Orifice coils guard the unit against freezing. Positive block-offs banish drafts. Generous filters trap dust.

Service and maintenance are easy, too. One-man panels make it easy to "get into". The standard motors can be serviced by anyone. Anodized aluminum wall boxes end streaking of outside walls. And, like every product with the magic "T-R-A-N-E" on the nameplate, it gives economical, and completely satisfactory service for a long, long time.

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Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment — Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties . . . IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO.
Go hand in hand

WHEN YOU SPECIFY

CABOT'S STAINS

- CABOT'S CREOSOTE STAINS provide a lasting finish for outside woodwork — yet cost less than 1/3 as much as good paint!

- CABOT'S CREOSOTE STAINS penetrate deeply — bring out all the natural beauty of the wood — protect for years against decay and termites.

- CABOT'S CREOSOTE STAINS are available in a wide range of attractive colors — from clear, brilliant hues to weathering grays and browns. And these colors stay fresh and bright for years.

Write Today for new Creosote Stain color card and complete information.

Samuel Cabot, Inc.
4221 Oliver Building, Boston 9, Massachusetts

New York Minneapolis Chicago

were largely illusory. While it is easy to assume that a flat roof saves money, Boester reported that tests showed this just plain ain't so. By the time you get the right timber, put in some insulation, arrange ventilation for the insulation, you have contrived to make the roof construction fairly complicated, as compared to the old-fashioned pitched roof, and you soon find it cheaper to forget the whole thing, if it is economy you are seeking.

Septic Tanks. Shuman gave a brief and preliminary report on studies by the HHFA and the U. S. Public Health Service on septic tanks. While he was not able to give many of the findings, which are still under discussion between the two bureaus, he did say that many of the old standards were not justified, and that many new ideas are being debated.

For example, there is no apparent reason why the septic tank could not be built into the basement, or at least alongside it. This might result in some savings; certainly it would save digging up sizable patches of lawn trying to find the darned thing.

He said also that new manufacturers probably would enter the field, once new standards have been set and approved. This might get to be important as home building continues, inasmuch as some 60 per cent of houses now being built are not connected to sewers.

This reminded Boester to remark that the whole subject of sanitary systems might be affected by a new water closet design now being studied, a design done on the principle of the garbage grinder. The idea would be to permit waste lines of small size, along with considerably more freedom in plumbing layout.

In the same class of untested bright ideas he mentioned two others, neither of which he would recommend right now. One was roof trusses made of gypsum board — some were made at Purdue six years ago and are still in place. The other was the use of the aluminum foil on the back of gypsum board for electric panel heating.

In winding up his own remarks, Boester gave it as his opinion that for economy in small-house construction the primary need is not, as many seem to think, new techniques, but simply good planning of the houses and good planning of the job.
for every taste...
What homeowner wouldn't exclaim over a beautiful bathroom like this? It's the Crane Drexel Group, styled to grace the finest homes.

For every taste... for every budget... CRANE

That's the beauty of a really complete line—it satisfies all individual likes. Crane can be gay, Crane can be sedate. Where "cost is nothing," Crane goes de luxe... where cost is everything, Crane gets right down to earth.

And whatever the preference in styles, there's no doubt of the preference in names... Crane is the best known name in plumbing.

The complete plumbing line includes bathroom fixtures, kitchen sinks, laundry tubs—all of them equipped with finger-tip Dial-ese controls. In heating, Crane supplies everything required for any home system... warm air, hot water, steam... coal, coke, oil, or gas.

For selections from the Crane line, see Crane Service for Architects—and be sure to check your requirements early with your Crane Branch or Crane Wholesaler.

CRANE
CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVE., CHICAGO 5, ILLINOIS
PLUMBING AND HEATING • VALVES • FITTINGS • PIPE
NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

APRIL 1949

for every budget...
It doesn't take a fat purse to enjoy America's favorite plumbing. Take this Crane Neu-Era Group, just right for modest budgets. It lacks nothing in dependable service, nor in the lasting gleam of the fixtures. Lavatory and bathtub alike are equipped with Dial-ese faucets, just as in the most commodious Crane bathrooms.

RESIDENTIAL PLUMBING
QUALITY LOCKS

from ADAMS-RITE

THE ORIGINAL
RIT-LOCK
for
SLIDING DOORS

Single assembly easily installed by simple cut-out, even in narrow stiles. No mortising. 3 types fit doors 1 1/2"—1 11/16" thickness, with a 3/4" wardrobe type. Latch and thumb button types with emergency unlocking feature adaptable to either hand. Pin tumbling cylinder in escutcheon is optional. Exterior parts solid brass. Escutcheons measure 4 1/2" x 2 1/2".

MINIMUM BACKSET DEADLOCKS
FOR STANDARD CYLINDERS
Can Be Keyed to Any Job

For narrowest extruded aluminum, structural steel and wood stiles. Series 970 Deadlocks for standard cylinders have 1 1/2" backset, 1 1/4" depth. Fifty other standard backsets to 1 1/4". Series 980 identical except for 3/4" dia. pin tumbling cylinder and 1 1/4" backset. Rugged steel and brass construction, armored bolt with 3/4" throw, bronze or aluminum face and strike. Radius, flat and bevelled faces interchangeable.

TEMPERED GLASS DOOR DEADLOCK

Takes the place of 2 locks. Has simple or double bolts and 1 or 2 cylinders. Handle operates bolts in sequence, cylinder locks handle. Designed for and can be installed in any tempered glass door top or bottom channel. 4 sizes: 1-1/2/16" High x 1-13/32" Wide.

CYLINDER SLIDING DOOR LOCK

Operates by cylinder from one or both sides. Fits all standard cylinders with adapter cams furnished. Specify when using Yale. Solid bronze face, strike & bolt. Heat treated aluminum alloy case. Use your own cylinder and trim. Also used as jimmy-proof lock.

Also—Adams-Rite Solid Brass Sliding Door Flush and Edge Pulls, Surface and Jam Bolts and Ball Latches.

ARCHITECTURAL
ENGINEERING
TECHNICAL NEWS AND RESEARCH

(Continued from page 188)

For a small additional cost the doors are coated with a sound-deadening substance in a new process called Fendixing. Of standard 6 ft. 8 in. height, the doors are available in 3-, 4-, 5-, and 6-ft. widths.

The fixed center panel of the 6-ft. door can be prepared for simple insertion of a full-length mirror at a small extra cost. Virginia Metal Products Corp., Orange, Va.

WINTER AIR CONDITIONER

An automatic oil-burning winter air conditioner of the "high-boy" type requires less than a square yard of floor space and, according to the manufacturer's tests, delivers 72,000 Btu at the bonnet and 61,200 at the register.

A vaporizing-type burner with a stainless steel combustion chamber is used. Automatic humidification, forced air circulation and filtering are also provided, and thermostatic control is standard. The cabinet is of two-tone blue baked enamel. Armstrong Furnace Co., Columbus, Ohio.

WROUGHT IRON DINETTE SETS

Two dinette sets in wrought iron with plastic-covered chair-seats have been added to the Sulterini group. One is modern in design, the other more traditional, and both are available in black, white or sage green finishes.

Both sets are given the Neva-Rust treatment which is guaranteed to prevent rust for six years, and the manufacturer believes that the modern group is the first wrought iron dinette set at a popular price. John B. Sulterini Co., Inc., 510 E. 72nd St., New York 21, N. Y.

STANDARDS

Commercial Standard for Enameled Cast-Iron Plumbing Fixtures (CS77-48). Establishes minimum standard specifications for enameled cast iron plumbing fixtures, definitions and inspection rules. Includes standard styles, types and sizes for staple enameled cast-iron plumbing fixtures; and methods of testing for both acid-resisting and regular types are described. Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Cabot's
32 attractive shades give you freedom in

Color Selection

Architect: Eleanor Raymond

Cabot's Collopakes now offer you a choice of thirty-two attractive shades including many unique shades available from no other source.

Cabot's Paints have tremendous hiding power and lasting brilliance because they are made by our patented Collopaking process. Pure pigments are broken down into particles of submicroscopic size and colloidally combined with wear-resistant oils. No fillers or adulterants are used. As a result, Cabot's Paints produce a porcelain-smooth finish which shows no brush marks...hold their color, and resist the elements for years.


New York, Minneapolis, Chicago
Why New Frigidaire Electric Water Heaters Last Years Longer

A Wonder-Working Magnesium Rod built into the tank literally adds years to the life of Frigidaire Electric Water Heaters. In both hard and soft water areas, this rod attracts corrosive elements to itself—effectively checks pitting, rust and "red water."

10-Year Protection Plan backs each Frigidaire Water Heater. Any parts proving defective during first year replaced without cost. If tank fails during first 5 years, new heater furnished (labor included first year only). If tank fails during second 5 years, new heater furnished at special price.

Many Other Important Features — Frigidaire's exclusive Radiantube Heating Unit, for instance. It's sickle-shaped to shed scale and sheathed in copper—lasts far longer than ordinary units. And it can't waste current or heat because every square inch of heating surface is in direct contact with the water. Other features include: glass wool insulation, hot water trap, drain faucet, cold water baffle, and accurate thermostat.

Specify Frigidaire For Lasting Satisfaction. All over the country, more and more builders and architects are specifying Frigidaire Water Heaters and other Frigidaire equipment. They know Frigidaire makes any home more attractive to tenants and buyers.

Complete Range of Sizes — 30 to 80 Gal. Upright or Table-Top Models

FRIGIDAIRE Makes a Good Building Better

Facts about these Frigidaire Products — yours for the asking

Check this list of Frigidaire products you want to know about—sign your name and address and mail to Frigidaire Division, Dayton (1), Ohio. (In Canada, Leaside 12, Ontario), or see your Frigidaire Dealer—find his name in Classified Telephone Directory.

Household Refrigerators

- 9 models from apartment house 6 cu. ft. to "Tandem" 14.5 cu. ft.

Electric Ranges

- 7 models from apartment house RK-3 to RK-70 which has two Twin-Unit Even-Heat ovens.

Electric Water Heaters

- 30 to 80 gals. Magnesium Rod checks corrosion and "red water."

Automatic Washer

- Live-Water action; all porcelain; one-piece, sealed, Unimatic mechanism; warranted.

Electric Ironer

- Full, 30-inch, open-end roll, Presto-Matic foot operation.

Automatic Electric Dryer

- Dries washer-load of clothes in 15 to 25 minutes automatically.

Home Freezers

- 8 cu. ft., with Meter-Miser mechanism. Others up to 26.5 cu. ft. size.

- Electric Dehumidifier
- Air Conditioners
- Water Coolers
- Commercial Refrigeration

Name

Firm Name

Street & No.

City

State
What boiler would you recommend for a $350,000 home?

This functionally modern home was recently built in Bloomsburg, Pa., by Harry L. Magee president of The Magee Carpet Company; it is one of Pennsylvania's finest show places. Berninger, Young, and O'Entremont, Architects; George A. Heath, Heating Engineer; Wm. L. Coughlin, Heating Contractor; Percy Swank, Building Contractor.

The finest, of course. That's what the architect, engineer, and contractor did when they built this magnificent home. In fact, they chose six H. B. Smith boilers—two to heat the main house, by radiant heat and by air conditioning...one to supply domestic hot water...two to warm the swimming pool built this magnificent home. In fact, they supply domestic hot water and car-washing water to the garage. No matter the size of the home your client wishes, you can recommend an H. B. Smith boiler that will give him "luxury" heating at bargain basement prices—for Smith-Mills boilers are designed and engineered to deliver maximum heat at lowest cost. True, they cost a little more to buy, but smaller fuel and maintenance bills more than make up the difference.

Which boiler will you specify on the next job where the best in heating is requested? You can't go wrong if you recommend H. B. Smith! The H. B. Smith Co., 62 Main St., Westfield, Massachusetts.

Largest boiler room in the Magee residence (there are several others) includes two No. 340 oil-fired boilers and one No. 24 Hy-Test oil-fired hot water supply unit, all H. B. Smith products.

H. B. Smith
CAST-IRON BOILERS
Offices and Representatives in Principal Cities

Air Filtration

(1) The magic of Electronics in Air Filtration; (2) American Air Filters in Industry. The first bulletin takes up the theory and practice of electronics in air filtration. A section is devoted to the manufacturer's research and development in the field. The basic line of electronic air filters is described. The second bulletin discusses what makes up industrial dust problems and how they are solved. Separate sections deal with filtered air for: industrial air conditioning, industrial ventilation, drying operations, product finishing, control of bacteria and mold spores, cooling electrical equipment and engines and compressors. 18 and 23 pp., illus. American Air Filter Co., Inc., 1st and Central Ave., Louisville 8, Ky.

Folding Tables and Benches

Schieber Folding Tables and Benches (Catalog No. 812). Pictures installations of in-the-wall and against-the-wall folding tables designed to provide lunchroom facilities in rooms primarily used for other activities in schools, churches, etc. Detail drawings and specifications are included. 8 pp., illus. Schieber Mfg. Co., 12720 Burt Rd., Detroit 23, Mich.

Circuit Breakers

Westinghouse Quicklog Loadcenter (B-3881). Describes circuit breakers of the thermal-magnetic type that provide time delay on overloads and instantaneous tripping on dangerous overloads and short circuits. Such features as flexibility, required inventory, performance and convenience of installation are discussed. 12 pp. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.*

Fans

(1) Chelsea Residential Fans (Catalog No. 863); (2) Chelsea Industrial and Commercial Fans (Catalog No. 864). Description, specifications, dimensions, and photographs of a line of fans for residential, commercial and industrial uses. The catalogs contain information on 17 types of ventilating and cooling equipment varying in output from 1,000 to 32,000 cfm. 4 and 6 pp., illus. Chelsea Fan & Blower Co., Inc., 1206 Grove St., Irvington 11, N. J.
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THERE'S PLENTY OF VERSATILE Marlite NOW!

You can specify Marlite now—and what's more your clients can get it! For Marlite production is up—there's enough made now for everyone!

That's good news to architects. For Marlite is the versatile wall and ceiling panel. For modernization or new construction, it's equally appropriate. It comes in a variety of patterns and in many stunning colors. Marlite lends itself ideally to the creation of sparkling colorful interiors and is equally at home in surroundings of quiet, warm dignity.

And it's good news for clients, too. For Marlite's plastic finish seals the original color in—keeps grime and dirt out. It cleans easily with a damp cloth. And Marlite goes up fast—over old walls or new—with a minimum of muss and bother and with practically no waste.

Is it any wonder that the news of Marlite's availability is good news to everyone who must stretch dollars now as never before? Investigate Marlite and you'll specify Marlite. See the Marsh Catalogue in Sweet's Architectural File or write for the new 12-page, full color catalogue.

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405 MAIN STREET, DOVER, OHIO

FOR CREATING BEAUTIFUL INTERIORS
Floor Maintenance

(1) How to Get Better Results in Textile Floor Maintenance; (2) Specification for Sweeping Machines. Mechanized floor maintenance applying a "dry cleaning" method (steel wool is used in the machines) is described in the first bulletin. Advantages such as reducing floor maintenance costs, making floors more durable, keeping floors brighter and preventing accidents are covered. The specification sheets include type and size of equipment, material and workmanship and general requirements. 4 and 3 pp., illus. G. H. Tennant Co., 2530 N. 2nd St., Minneapolis 11, Minn.

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:
Chance Enterprises, Engineers, 14630 Riverside Drive, Detroit 15, Mich.
Karl E. Hawkins, Architectural Designer, General Delivery, Capitola, Calif.
Hutchings and Milani, P. O. Box 485, Hamilton, Bermuda.
Thomas F. McDonough, Registered Engineer (Electrical), 530 W. Harvard Street, Glendale 4, Calif.
Charles F. Nagel, 553 South Western Avenue, Los Angeles 5, Calif.
Orr, Strange and Inslee, Architects, 3142 Wilshire Blvd., Los Angeles 5, Calif.
Norman L. Raymond, Architect, 18 Broad Street, Stamford, Conn.
Conrad Rossi, Consulting Engineer, 204 Central Park South, New York 19, N. Y.
Marvin J. Rukin, 1968 Iuka Avenue, Columbus 1, Ohio.
Charles Edwin Sampson, Registered Engineer, 2127 Park Street, Columbia, S. C.
Carl D. Schlachter, A.I.A., 20 Church Street, Montclair, New Jersey.
W. H. Stephens, Box 54, Honesdale, Pa.
Hattie Weunley, 824 S. 21st Street, Apt. 1, Birmingham 5, Alabama.
Lacey R. Whitten, 1804 Lavaca, Austin, Texas.
Detroit's Civic Center gets under way

This is the Veterans Memorial Building, first structure to take shape for Detroit's new 16-block Civic Center along the Detroit River. The L-shaped building consists of a ten-story main structure, with penthouse, and a two-story wing. Besides offices for veterans' organizations, it will include meeting rooms, a cafeteria, dining rooms and banquet room, plus a 100 ft x 65 ft ballroom. It is to be air-conditioned, and will be faced with white marble.

Like so many other enduring structures, the Veterans Memorial Building has a steel framework of Bethlehem Structural Shapes.

BETHELHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation
The new Grinnell Quartzoid Ceiling Sprinkler combines full standard protection with almost unnoticeable appearance. This new head protrudes only 1" below ceiling yet provides coverage for both ceiling and floor area. All piping is hidden above the plaster or acoustic panels. Approved by Underwriters' Laboratories.

PUZZLE: Look for the new built-in fire protection!

It's hard to spot... for the new GRINNELL QUARTZOID CEILING SPRINKLER blends perfectly with modern architectural treatments, yet it provides the same trustworthy fire protection that has typified all Grinnell Sprinklers for the better part of a century.

For the sake of preserving the beauty of your interiors, consider this new unobtrusive Grinnell Sprinkler, and consider it while your plans are still in the drafting stage! Get in touch with Grinnell, for there is a Grinnell System of Protection to meet the requirements of every type of commercial, industrial and institutional building. Grinnell engineers, long experienced in working with architects, are always ready to help you. Grinnell Company, Inc., Providence 1, R. I. Branch offices in principal cities.
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Oildraulic Elevator

It's engineered and built by the oldest and largest maker of oil hydraulic elevators.

No elevator is designed to more rigid specifications or has been tested under more severe service conditions.

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Rotary Lift Co., 1004 Kentucky, Memphis 2, Tenn.

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SPECIFICATIONS: TROFFERS SHALL BE Smithcraft OR EQUAL

there is no equal!

THERE'S A BOOKLET ENTITLED "ARCHITECTURAL TROFFERS" THAT TELLS YOU WHY

write... Smithcraft LIGHTING DIVISION, CHELSEA 50, MASS.
Ford chose Monel roofing for this permanent building

INSTALLING MONEL BATTEN PANS over wooden batten bars. The pans have pre-formed ends that provide watertight joints without solder. Monel nails and cleats are used to lock the pans and the Monel batten caps together.

DETAIL OF SPECIAL batten roof design developed by Voorhees, Walker, Foley & Smith. Seams: 23.3° a.c.

MANUFACTURERS know that rain and fog can turn smoke, fumes and other corrosive agents into deadly enemies of their own plant roofs.

That's why the Ford Motor Company decided that the permanent type of structures planned for their new Engine Research and Development Center required roofing able to provide life-of-the-building protection. Ford wanted a roofing metal that could resist the destructive effects of heat, cold, rain, snow, ice and corrosion.

So Monel* Roofing Sheet—with its low expansion rate, its high strength and toughness and its resistance to fatigue and corrosion—was chosen for the flashings and the specially-designed batten seam roof. (See photo and sketch at left for details of this design.)

DETAIL OF SPECIAL batten roof design developed by Voorhees, Walker, Foley & Smith. Seams: 23.3° a.c.

The International Nickel Company, Inc.
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The cost of using Monel proved to be comparable to that of other materials that might have been used. One of the big reasons for this was that Monel's excellent properties permitted a reduction of two full gauges in the sheet thickness used for the batten-seam roof.

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And for the louvers—to be installed in the air exhaust system after the building is completed—Monel makes possible an even greater reduction!

The possibilities for economical architectural design that Monel Roofing Sheet provides is only one of its advantages. Roofers report that this nickel-copper alloy is also easy to cut, form, seam and solder.

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At the flick of a finger...

Instant heat or instant cooling

Only Servel provides your clients with ideal indoor climate

Whether you're planning a home or a business establishment, you can provide your client with perfect indoor climate by including Servel All-Year Air Conditioning.

In summer, the Servel All-Year Air Conditioner refrigerates the air, removes sticky, wilting humidity. In winter, this same unit floods the whole building with even, draft-free warmth, adds just the right amount of moisture for comfort. In between seasons, Servel circulates draft-free air at prevailing temperatures. Year round, Servel filters out damaging dust and dirt and irritating pollens. The owner simply dials the desired climate and flips a switch for heating or cooling.

The Servel unit is economical to operate; it is backed by a 5-year warranty; it enables you to effect many construction economies. For complete facts on Servel All-Year Air Conditioning, ask your local Gas Company or write direct to Servel, Inc., 8904 Morton Avenue, Evansville 20, Indiana.

ARCHITECTURAL DESIGN COMPETITION

Servel, Inc. is co-sponsoring a nation-wide design competition in cooperation with the United States Junior Chamber of Commerce. To the architect, designer, or draftsman who submits the best plan for a National Head­quarters for the Junior Chamber of Commerce will be awarded the actual commission, valued at approximately $12,000. Thirty-three other prizes will be awarded. Deadline is Midnight, May 16, 1949. For complete contest details, address Servel, Inc., Design Contest, Evansville 20, Indiana.
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With ELECTRUNITE E.M.T., simple compression fittings eliminate tedious, dirty thread-cutting. Both couplings and box connectors are easily tightened with wrench or pliers to form strong, watertight joints.

SEE SWEET'S FILE or write us for detailed information on these Republic Steel Building Products:
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- Tancon Enameling Iron
- Electrunite E.M.T.
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- Berger Lockers, Bins, Shelving
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April 1949 209
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60% have collected house plans

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Safest and Simplest Method

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NAILOCK STEEL DIVISION

THE SANYMETAL PRODUCTS CO., INC.
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ideal for structures of any style or size or purpose
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ScotTissue Towels symbolize the right kind of washroom. Include ScotTissue Towel cabinets in your washroom planning. Send for our free booklet, filled with helpful suggestions, tested plans and diagrams (by an architect specializing in this field) for large and small washrooms, locker rooms, etc. Simply write to the Scott Washroom Advisory Service, Chester, Pa.


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by Dr. Louis Parnes, A.I.A.
for Architects and Store Designers, Department and Chain Store Administrators

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"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."

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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

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<tr>
<th>Installation Conditions</th>
<th>Years in Service</th>
<th>Tensile Strength</th>
<th>Elongation 2&quot;</th>
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<tbody>
<tr>
<td>Honolulu, T. H. Communication Cable</td>
<td>32</td>
<td>1450</td>
<td>10.7&quot;</td>
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<tr>
<td>New Haven, Conn. Substation Feeder Cable</td>
<td>30</td>
<td>1644</td>
<td>9.8&quot;</td>
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<td>New York, N. Y. Railroad Jumper Cable</td>
<td>24</td>
<td>1051</td>
<td>10.5&quot;</td>
</tr>
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