MANY TRANSLATIONS

The quick assumption made by most laymen and too many architects—that all “modern” architecture is the same, self-consciously stark and bare, expressing a new “style”—should be further dispelled by this issue of PROGRESSIVE ARCHITECTURE. As we have said editorially before, we are interested in a critical analysis of progress, not in pushing any brand of stylishness.

Milton Kirchman’s article dissecting the work of the “International” school (a school, incidentally, which no one admits belonging to) will probably displease some people. It will be a surprise to some readers and a disappointment to others to have the “anti-rational” aspects of this architecture pointed out, and its esthetic and emotional basis defined.

What we should like the issue to prove further is that this is not the only influence on a native contemporary design. For example, the two museums from Sweden typify another modern approach which has never had much relation to what was done in the Bauhaus. Highly individual, as all recent Scandinavian work has been, it does not follow the esthetic that Kirchman analyzes, in the direction, for instance, of recent Brasilian designs.

Then what “style” would include the two churches in this issue? Different from one another, they show various influences, but above all they each have a character quite different from either of the groups we have mentioned. They study structural possibilities and use them to produce an emotional impact which is contemporary, fitting—and indigenous. This is architecture of the United States emerging. Again, the lusty, frank designs for two new California airport buildings have a lack of concern with pure esthetics, and yet a very real human scale and a “come and make use of us” quality.

No one can yet speak, with any meaning, of a “modern style.” Modernism is a way of thinking in terms of today which can be translated into many architectural expressions. Some of the translations begin to read very well.

The Editors
In construction products CECO ENGINEERING
Concrete Joist Construction?

Because Today's Costs are NOT Out of Line... Because, strength and durability considered, concrete joist construction is the most economical way to build...

In these days of high costs, economy in building is important, provided strength and durability are not sacrificed. Here is where concrete joist construction comes in—since it provides rigid, strong, sound-proof buildings which are fire resistive, yet construction cost is lower. That is because the amount of concrete and, consequently, the dead load, are kept to a minimum for any span or live load. The concrete joist and monolithic top slab are formed with cores of removable Meyer steelforms, supported on skeleton centering. Once the concrete has set, the forms are removed and re-used from floor to floor and from job to job. Therefore, a nominal rental charge can be made for each use. Construction is speeded up.

WHY SPECIFY CECO?

Ceco originated the removable steelform method of concrete joist construction. The company is first in the field—actually providing more services than all competitors combined. So, when concrete joist construction fits your need, call on Ceco, the leader over all. Thirty five years of experience in the field, on the job, have given Ceco a sure grasp of all concrete joist construction problems. This fund of knowledge is yours to command, in 23 strategically located offices from coast to coast.

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See Ceco catalogs in Sweet's Architectural File or send for free descriptive literature

CECO STEEL makes the big difference
HERE'S WHY THE GAS REFRIGERATOR STAYS SILENT... LASTS LONGER

WHETHER you're building apartments or private homes, it will pay you to study the simple explanation shown above before placing any orders for new refrigerators.

The chart shows why Servel's method of operation is simpler, different... and better. There is not a single moving part in the freezing system. That means there's nothing to cause mechanical humming or clicking. The entire freezing job is done by a tiny, silent gas flame.

That explains why there's an increasing trend toward the Servel Gas Refrigerator. Today tenants and owners expect new household refrigerators to operate silently. Many architects and builders realize that it's good business to install Servel Gas Refrigerators NOW... for once the housing shortage is eased, freedom-from-noise will be an important factor in renting apartments and selling homes.

And—equally important—Servel lasts longer. Since the freezing system has no moving parts, there's nothing to wear or break down. Servel's repair and replacement bills are remarkably low. Operating costs remain low too. After years of dependable, trouble-free service, the depreciation of the Servel Gas Refrigerator—compared with a mechanical refrigerator—is much less. For complete information, consult Sweet's Catalog... or write today to Servel, Inc., Evansville 20, Indiana.
THERE ARE TWO WAYS OF CHANGING VAPOR BACK TO
LIQUID FOR RE-USE

In an electric refrigerator, the ammonia vapor is compressed back into liquid by the use of machinery. This machinery, or moving parts, includes a motor, pumps, valves, pistons, and compressors.

But in the Gas Refrigerator, the vapor is changed back to a liquid by first being passed through water. The water absorbs the ammonia. The mixture is then boiled by a tiny gas flame. The ammonia is driven off in the form of hot ammonia vapor. Cooled by passing through pipes, it condenses again into a liquid. Not a single moving part is needed.

Refrigerator
Does a jig-saw puzzle make a good heating picture?

SOME TYPES of heating equipment are like a jig-saw puzzle. Controls from manufacturer A. Oil burner from manufacturer B. Boiler from manufacturer C. Combustion chamber from manufacturer D. Then, it's left to the dealer to put the pieces together.

But jig-saw puzzle methods can't produce the most efficient heating equipment. That's why General Electric boilers and winter air conditioners:

- coordinated units
- engineered and designed by General Electric
- assembled in the G-E factory
- tested and installed as a complete, factory-designed unit

You might suppose that the more efficient, more reliable General Electric heating equipment might be out of line as to price. But it isn't. G-E heating plants are priced competitively in the better grade heating field.

For Specifications see Sweets, Section 29A-6. Call your General Electric contractor today for prices and delivery dates. He's listed in the Classified Telephone Directory. General Electric Co., Air Conditioning Dept., Section 7508, Bloomfield, N. J.

Automatic Home Heating

GENERAL ELECTRIC

OIL-FIRED

G-E Boiler for steam or hot water
G-E Warm Air Conditioner
G-E Oil Burner

GAS-FIRED

G-E Boiler for steam or hot water
G-E Warm Air Conditioner
Here's a sidewall construction method of great interest to architects!

... and the answer to a common question about sidewall application...

What do you know about double-coursing?

THESE FACTS ARE IMPORTANT TO YOU...

Unsaturated building paper is laid between Shingles and sidewall sheathing.

Outer course is laid \( \frac{1}{2} \)" lower than the under (concealed) layer, providing attractive thick appearance and heavy shadow line.

No. 1 CERTIGRADE CEDAR SHINGLES or CEDAR SHAKES for outer course.

Unstained No. 2, No. 3 or Undercoursing Grade Shingles are used for the under course. Use of these inexpensive undercoursing shingles is an important economy factor. A strip of shiplap may be used as a convenient nailing guide for both under and outer courses.

Weather exposures may be varied to achieve many desirable architectural effects. Sixteen-inch shingles or shakes may be exposed up to 12" to the weather. Eighteen-inch shingles allow exposures as great as 14" to the weather.

Cedar Shingles and Shakes may be laid with either tight or spaced joints, depending on the effect desired.

Two rust-resistant, small head 5d nails per shingle or shake for outer course, applied 2" above butt-line and \( \frac{3}{4} \)" from edges. Each under-course shingle may be stapled temporarily, or held in place with one 3d nail.

Send for free "Double-Coursing" folder which explains how to estimate quantities and compute costs — a real benefit to home designing architects.

SPECIFY CERTIGRADE SHINGLES—for your protection
NO LONGER NEEDS US

Dear Editor: I am sorry to say this old office of Harding & Seaver is about closed up, after forty years of very enjoyable and satisfactory architectural work, the kind of work that seems now to be stopped by business conditions and not by the failure of the building public to want the sort of work we do and did. You can readily gather this office is of the old school, not at all of the sort you and the other magazines are pushing so hard with doubtful success.

I do not like your magazine. I used to for years take Pencil Points, and I have folders of detached plates in my files. I took five magazines and have come down to yours, and now discontinue that. I recently asked a younger architect in Connecticut if I would do well to change to the Forum and he said it was just as bad as PROGRESSIVE ARCHITECTURE, but did admit he took both at present.

Enough said: can't you see the building public, after these war years, does not want the stuff you have been pushing? Look at yesterday's New York Times showing big new apartments in New Jersey in Georgian style, and many advertisements along the same, and only one apartment in New York City in a narrow street understandably "modern."

So far I have never had a client who asked for any "modern" design, and do not expect to, for the people I know are refined and have good taste.

HENRY M. SEAVER
Harding & Seaver
Pittsfield, Mass.

DECORATOR'S PLEA

Dear Editor: So many times in recent years friends of mine, after having leafed through a copy of PROGRESSIVE ARCHITECTURE, have commented on the utter coldness of home interiors. That meant another would-be devotee of contemporary design was lost forever.

After an architect does a perfectly wonderful design and planning job on a building, the interior furnishings belle all that the building itself implies. Whatever the reason for this apparent slip-up, certainly the interiors do no justice to the building. It is so rare indeed to see intelligent interiors, period or contemporary, in the pictures of recently built homes that I wonder if architects consider the finished result.

As a decorator and the head of the design section of the "Career Builders" placement agency, I put in a plea to architects to seek the services of an accomplished decorator who can do an intelligent job in a business-like manner from the planning stage.

FRED B. SHRALLOW
New York, N. Y.

MORE AND BIGGER GLASS

Dear Editor: We have been advised by local glass distributors that they are unable to glaze metal casement windows in which the non-structural members have been removed with DSA or DSB due to the fact that the greater percentage of their glass allotment is received pre-cut for small lights. Apparently these small lights are the result of recommendations of Metal Window Institute. We have written the Metal Window Institute, Producers' Council, and Libbey-Owens-Ford Glass Company protesting this unnecessary shortage and adherence to past architectural expression. We solicit the cooperation and help of you and PROGRESSIVE ARCHITECTURE in correcting this weird and unnecessary condition.

CHARLES GRANGER
Austin, Tex.

COVER A RELIEF

Dear Editor: Congratulations on your cover make-up. It is attractive and at the same time useful—a relief from the screwball antics of some of your extreme competitors.

CHARLES C. PLATT
New York, N. Y.

MORE AND BIGGER GLASS

Dear Editor: I have been advised by local glass distributors that they are unable to glaze metal casement windows in which the non-structural members have been removed with DSA or DSB due to the fact that the greater percentage of their glass allotment is received pre-cut for small lights. Apparently these small lights are the result of recommendations of Metal Window Institute. We have written the Metal Window Institute, Producers' Council, and Libbey-Owens-Ford Glass Company protesting this unnecessary shortage and adherence to past architectural expression. We solicit the cooperation and help of you and PROGRESSIVE ARCHITECTURE in correcting this weird and unnecessary condition.

CHARLES GRANGER
Austin, Tex.

BEHIND THE SUN FINS

Dear Editor: I have lived and practiced architecture in Brasil before the present boom. When we talk of Brazilian architecture today, we think of the charming fenestration of some recent works. But when one lives there—the story is different.

Analyze the floor plan of "Apartment House, Copacabana, Rio de Janeiro," in your April issue. The kitchen is an inside room, without exterior window or ventilation. If any, it ventilates into the living room. (Ed. Note: Onto the open service porch, as shown on plan.) Also, note the bathroom on a 2' x 4' light-well through 14 floors.

Analyze the "Public School, Niteroi." A 6-foot corridor for eight classrooms and this on the third floor 110 feet away from the only stairway.

If this is the best, how about the rest? I have lived in so-called modern hotels with inside bedrooms ventilated into a dark corridor. I have eaten in a prominent restaurant with washrooms beyond the kitchen and dishwashing and have been in an expensive office building where in case of emergency one had to change stairways in three different locations in order to reach the street from the sixth floor.

Le Corbusier left his ground-floor columns behind—everything is perched up—columns behind everything. The rest, however, is far away from being functional or sanitary. After all, the Brasilian lives for the show and would rather spend a small fortune for an ultra modern design and planning job on a building.

MARTIN DEVY DE DUBOVAY
Los Angeles, Calif.

FILLS A BIG GAP

Dear Editor: I have noted in your June issue the review of Specification for the Design and Construction of Light Gage Structural Members, which was published in April, 1946, by the American Iron and Steel Institute.

I would like to point out that this modest booklet of 39 pages constitutes a minor revolution and a major advance in the building field, and deserves therefore some attention.

The Specification accomplishes two important tasks:

1. It fills a big gap in the building codes and specifications, giving workable design standards for the otherwise complex design procedures of sheet steel structures. This has special significance for the designers and manufacturers of prefabricated steel houses. Up to the appearance of this Specification, the field of light gage sheet metal work was terra incognita for most architects, engineers, and, last but not least, building code officials.

2. It introduces the truly revolutionary concept that structural elements can be considered as safe even though the applied loads cause noticeable distortions on free edges of the steel members. This, of course, is revolutionary only to the structural steel designer, but is well known to the stress analyst of aeronautical structures. It is, indeed, an encouraging sign that this has been "officially" noticed by the building industry.

It is unfortunate that both the Building Code Requirements for New Dwelling Construction (BFM 107), recommended by the National Housing Agency in January, 1947, and the Recommended Revision of Precipitated H2O Commerical Standard CS125-15 (May 1947) by the Department of Commerce, have completely ignored the A.I.S.I. Light Gage Steel Specifications. Both of these codes are supposedly quite progressive.

I believe that the readers of your magazine should profit through the application of this latest A.I.S.I. Specification.

PAUL WEIDINGER
Washington, D. C.

NOT A SCRAPBOOK

Dear Editor: I have been a subscriber to your magazine for some time, and find it very helpful. One slip-forward is your new cover, giving a ready reference to some of the most important subjects between its covers and also the blank margin which allows for additional information one may jot down for ready reference.

(Continued on page 10)

PROGRESSIVE ARCHITECTURE
ADVANTAGES OF RAYMOND CONCRETE PILES - NO. 2

greater carrying capacity

HERE ARE FOUR IMPORTANT REASONS WHY...

1. The use of rugged equipment and heavy hammers permits driving to high carrying capacities.

2. The steel shell remains in place and prevents distortion of fresh concrete by external pressures.

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CONSULT US FOR DETAILED INFORMATION ABOUT RAYMOND METHODS AND SERVICES

SCOPE OF RAYMOND'S ACTIVITIES includes every recognized type of pile foundation - concrete, composite, precast, steel, pipe and wood. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements and borings for soil investigation.

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140 CEDAR STREET - NEW YORK 6, N. Y.
I am a designer and builder of stores, including fronts and fixtures. However, I am not limited to this field alone as I have built schools, theatres, nightclubs, restaurants, etc., in various locations in New York, Florida, and California. One outstanding store designed and built by me is the Russell McPhail chocolate store at Syracuse, New York. Another is the Lincoln candy & toy shop in the Hotel Lincoln in New York.

Now getting down to a brickbat for your magazine of which I can enumerate many, is, why don't you print a separate loose page for the listing of "Manufacturers' Literature" wanted instead of having to cut up a magazine, and having it look like a scrapbook instead of what it is intended to be (a ready reference book). This also will help the busy architect and designer who does not want to mutilate his magazine to get the information by just jotting down the items wanted and slipping same in an envelope; or better still, if it were on a card he would only have to apply a stamp and send it on to you. I have at various times in the past written for literature mentioned in your "Manufacturers' Literature" list but received only about half the items requested. I do not request literature unless I believe it will be helpful.

Fred D. Weierter
Bay Shore, N. Y.

THE LAW ADVANCES

Dear Editor: The Commonwealth of Massachusetts has recently enacted a law which will be of great interest to the building industry in general, and to prefabricators in particular. This is the former Senate 605, to be published in August as Chapter 631 of the acts of 1947.

Because we were convinced that legislation of this type would constitute a real benefit to the public and a step forward for the building industry, the Bemis Foundation made its technical services available to drafters of this law, and we may bring out in the near future a short release on all of the features of the law and their relation to the general rationalization of building controls. Meanwhile, however, we wish to direct attention to certain features of considerable immediate importance.

Under the new law, two sections (3J and 3K) are added to Chapter 143 of the General Laws of Massachusetts. Briefly, they provide that the Board of Standards in the state Department of Public Safety shall set up alternative provisions covering the use of materials and structural systems in dwellings, which shall then become acceptable throughout the state, despite the possibly differing requirements of local building codes. When the Board of Standards has satisfied itself regarding any new material or construction system, and has brought out its regulations, a local building inspector must issue a permit if the material or construction system to be used complies with these state regulations.

This makes it legally possible, we believe for the first time, for a prefabricator to have the new features of his fabrication system tested and approved by a state board, and thereafter to sell throughout a state-wide market, free of local building code restrictions and difficulties.

Burnham Kelly
Assistant Director
Bemis Foundation

OUR MAY ISSUE

Dear Editor: I would like belatedly to tell you how much I enjoyed your Retail Store issue. In my opinion, this is the best architectural magazine to come out since I have been in the business. Congratulations!

A. L. Aydelott
Dent & Aydelott
Memphis, Tenn.

The standardized chassis of Schlage locks permits the boring of all doors at once for economy of installation. Schlage standardization also simplifies the architect's specification job as it allows locks to be reversed or interchanged if plans change during construction.
THERE'S A REASON WHY HOME OWNERS APPROVE

Performance . . . appearance! Two customer demands that determine satisfaction with heat distribution systems. And these are the factors that have "sold" more and more prospective home owners on heat by convection, Tuttle & Bailey Convectors. They have found by experience that—on both counts — T&B units will meet even their most exacting requirements, better.

Here are a few of the performance statistics that have impressed home-owners, that will interest prospects in the planning stage. Start with the principle of convection heating as provided by Tuttle & Bailey Convectors. It means transference of heat by circulation . . . even, more comfortable room temperatures.

Tuttle & Bailey heating elements — constructed entirely of copper — mean faster response to thermostat control, quicker transmission of heat from fuel to rooms, fuel cost savings.

Appearance — the second important consideration in selecting heat distribution equipment — is another Tuttle & Bailey "first." Neat, trim units harmonize with the most modern home furnishings. Space-saving recessed type, exclusively designed for recessed installation, provides front panel plaster overlap feature.

These are important facts. It will pay you to keep them in mind when your customers ask advice.

ASK YOUR JOBBER TODAY

For detailed facts that will aid specifying and installing Tuttle & Bailey Convectors, send for a copy of Catalog C&R. WRITE . . .

Tuttle & Bailey, Inc., New Britain, Conn.

AUGUST, 1947
Announcement of the jury for the Jefferson National Expansion Memorial Competition reveals seven distinguished architects on the panel. They are: HERBERT HARE, Kansas City, Mo., landscape architect and city planner; FISKE KIMBALL, Philadelphia, Pa., architect, historian of Jeffersonian architecture, and director of the Philadelphia Museum of Art; LOUIS LABEAUME, St. Louis, Mo., architect, and former vice-president of the A.I.A.; CHARLES NAGEL, JR., architect, and director of the Brooklyn Museum of Art; RICHARD J. NEUTRA, Los Angeles, Calif., architect, and chairman of the California State Planning Board; ROLAND A. WANK, New York, N. Y., consulting chief architect of the T.V.A.; and WILIAM W. WURSTER, Cambridge, Mass., architect, and dean of the School of Architecture & Planning of M.I.T. The competition, awarding $40,000 to the winning design of the 42-block site, is open to architects, construction engineers, and students in those fields. Landscape architects, painters, sculptors, and laymen may take part by associating themselves with an architect. Further information is available upon request from George Howe, Professional Adviser, Old Courthouse, 415 Market St., St. Louis 2, Mo.

NEW PARTNERSHIPS, PRACTICES
ONNIE MANKKI has begun a new practice of industrial design and architecture, with offices located at 7113 Euclid Ave., Cleveland 3, Ohio.

JAMES GAMBLE ROGERS has announced that upon completion of his current work his practice will be carried on by the firm of ROGERS AND BUTLER at the present offices, 70 E. 45th St., New York 17, N. Y.

ALEXANDER S. COCHRAN has opened an architectural office at 411 N. Charles St., Baltimore 1, Md.

EDWIN A. THORNQUIST, EVERETT D. WITTE, and SHERMAN S. SMITH have formed a partnership for architecture and engineering, with offices in the Eisfeld Bldg., Burlington, Iowa.

PAUL ATCHISON, architect, has associated with CARL A. KLOVERSTROM with offices at 1254 Monaco Parkway, Denver, Colo.

NEW ADDRESSES
LEO J. BARRETT, 1740 E. 12th St., Cleveland 14, Ohio.

FREDERIC HUTCHINSON PORTER, 1009 E. Lincoln Highway, Cheyenne, Wyo.

LESLIE MARKOVICH, Pioneer Builders, Inc., 5601 W. North Ave., Milwaukee 8, Wis.


WILLIAM D. RAFFEL, industrial and architectural scale models, 55 E. 9th St., New York 3, N. Y.

HUGH STUBBINS, JR., 103 Pleasant St., Lexington, Mass.

GREGORY AIN, JOSEPH JOHNSON, and ALFRED DAY, 2404 W. 7th St., Los Angeles 5, Calif.

G. EVANS MITCHELL, B. of L. E. Bldg., Cleveland 13, Ohio.

AMERICAN HOUSES, INC., 165 W. 46th St., New York 19, N. Y.

C. BERT R. BITTER, Rm. 753, Penobscot Bldg., Detroit 26, Mich.

FOSTER AND ASKOS, 407 Scott St., Wau- sau, Wis.

LAWRENCE SINGER, 22 W. 46th St., New York 19, N. Y.

LOUIS G. MCNAMARA, 53 W. Jackson St., Chicago, Ill.
Get BETTER WORKM...NSH.P with BRIXMENT!

No. 4 OF A SERIES—
THE RIGHT WAY AND THE WRONG WAY—IN HEADER COURSES

To secure full header joints, mortar should be spread over the entire side of the header brick before it is placed in the wall.

BRIXMENT

is so workable, so plastic, that when the bricklayer pushes the brick into place, he does not have to force it home. The excess mortar "flows" readily into every part of the joint, thus providing good, full joints without requiring extra work or effort on the part of the bricklayer.

Aside from its greater plasticity, Brixment mortar has higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

A dab of mortar spotted on one corner (or both corners) of the brick cannot possibly fill the cross joint. Slushing will not fill the voids.

LOUISVILLE CEMENT CO.
Incorporated
LOUISVILLE, KY.
Milton Frederick Kirchman, architect, of New York, is the author of the thought-provoking analysis, “Logic? or Esthetics?” featured in this issue. After receiving his B.A. in English literature from New York University, Kirchman went on to study architecture at the university’s School of Architecture, and at the Institute of Fine Arts in New York, where he received his Master’s degree. He has taught at Brooklyn College and N.Y.U.’s architectural school (now defunct), and is busy with classes at Pratt Institute, Brooklyn, N. Y., and in the Division of General Education of N.Y.U. Before starting his own practice, he was engaged in hospital planning, stress analysis, and structural design.

Two new Swedish museums are presented this month. The Linkoping design is the work of Nils Ahlbom and Helge Zimdahl, architects, who are not only good friends and partners, but brothers-in-law as well. (G. Howard Smith, who sent the museum pictures to us, writes that only the most initiated can separate the work of one from the other—little wonder!) Both men graduated from the architectural school of Kungliga Tekniska Hogskolan in 1927, where Ahlbom now holds a professorship. They have been in partnership since 1932, principally designing schools, sports structures, industrial and laboratory buildings. Kurt von Schmaless, architect of the Norrkoping museum, is also a graduate of the Tekniska Hogskolan, from where he went on to study at the Academy of Arts. He was appointed city architect for Norrkoping in 1929, and his work is comprised mainly of buildings for that city.

Widely known for advanced theories on school construction, the firm of Franklin, Kump & Falk, of San Francisco, demonstrates adeptness in another field with the design of the new airport buildings for Merced and Modesto, California. (For biographical notes, see April 1945 PROGRESSIVE ARCHITECTURE.)

The projected All Saints’ Episcopal Church for Riverside, California, comes from the office of Ralph C. Flewelling &
Architects are designers—as such, they prefer to use materials that enable them to create proper decorative backgrounds for any interiors.

That's one reason why so many architects prefer Tile-Tex Asphalt Tile—because it gives them more design freedom in creating correct floors for the interiors of buildings. This is particularly true in retail stores, where modern merchandising requires floors of appropriate design.

Variety of color and size, plus the necessary decorative and functional accessories, are all available in Tile-Tex Asphalt Tile. Here's a product that helps the architect create beautiful, striking floors that help merchants sell goods.

Tile-Tex does more than give the architect design freedom. It gives his client a long-wearing durable floor—easy to clean and keep clean—resistant to stains and scars. Its smooth, tread-easy surface is comfortable to both customers and store employees.

Our experience in planning individualized floors for merchandising areas may be of some value to you at some time. We would appreciate the opportunity to help you.

THIS MONTH

(Continued from page 14)

Associates, architects, of Los Angeles, California. Ralph C. Flewelling was educated at Wesleyan University, Middletown, Connecticut, and did graduate work at Massachusetts Institute of Technology. He has been practicing architecture in Los Angeles since 1924, where he has been an active participant on numerous architectural and planning boards. A Fellow of the A.I.A., he has served as an officer of the Southern California Chapter, from which he has received honor awards.

The second proposed church structure, for the Church of the People, Seattle, Washington, is a design of Pietro Belluschi, well known Portland, Oregon, architect whose work has been presented many times in the pages of Progressve Architecture. (See August 1946 issue for biographical details.)

From Berkeley, California, comes the residential example selected this month, the work of John Ekin Dinwiddie, architect; Albert Henry Hill and the late

Ralph C. Flewelling

John Ekin Dinwiddie

Albert Henry Hill

Phillip Joseph, associates, John Ekin Dinwiddie attended the University of Michigan, did graduate work under Eliel Saarinen, and then toured Europe as holder of the Booth Traveling Fellow-
Bruce Finished Floors have saved us more than $45,000 since 1942!

Reports L. H. Mills
Leading Chicago Home Builder

Here is an outstanding record of economy and performance that speaks for itself. The use of Bruce Finished Floors in 948 units saves $45,000 and 3,792 working days! The reason—the elimination of costly, time-consuming sanding and finishing on the job.

Throughout the country, builders choose Bruce Finished Flooring because it saves them time and money...and because it gives home owners more beautiful floors with a superior, longer-lasting finish.

E. L. Bruce Co.
Memphis, Tenn.

MILLS AND SONS
and Associated Companies
REaltors – BUILDERS

E. L. Bruce Co.,
Memphis, Tenn.

Gentlemen:

As you know, we began purchasing Bruce Finished Flooring from Barr & Collins, in 1947, and have been using it exclusively in all of our housing construction. In fact, I understand that we were the first in the Chicago area to change over to this new type of hardwood flooring. Therefore, I am sure that you will be interested in the following data from our records.

(1) Since 1942, we have installed Bruce Finished Floors in a total of 948 individual houses in our projects at Racine, Wis., and Elgin, Franklin Park, Tisdale and Elmwood Park, Ill.

(2) On these four and five room units we have realized a saving in flooring costs averaging $45 to $50 per unit through the elimination of "job-on-the-job" finishing. This totals more than $45,000 on all units completed to date.

(3) In addition to the actual dollar savings mentioned above, we have gained many valuable days' working time ordinarily required for sanding and finishing. I couldn't even begin to estimate the value of this saving alone, but I think it is sufficient to point out that at an average of four days per unit, this amounts to 3,792 working days.

Of course, Bruce Finished Floors have many other advantages, but I think that the above is sufficient to tell you why Mills and Sons have been and will continue to be enthusiastic boosters for these fine floors.

Also, I want to take this opportunity to congratulate E. L. Bruce Co. on their stabilized price policy. I was surprised in looking over my lists the other day to find that the price of Bruce Finished Flooring is actually lower in many cases than that of some unfinished strip floorings.

Keep up the good work.

Sincerely yours,

Mills and Sons

President.

E. L. Mills
President.

AUGUST, 1947
THIS MONTH

(Continued from page 16)

ship. He established his own general practice in San Francisco in 1932, and proceeded to attract national attention through his work and the winning of numerous national competitions. In 1938 an association was formed with Albert Henry Hill, a graduate of the University of California who had worked for his Master's degree at Harvard under Dr. Walter Gropius and Marcel Breuer. Associated at first, Hill soon became a full partner in the firm, which continued to win competitions, notably, the House & Garden 1st prize for three consecutive years. After the war years, which Dinwiddie spent in defense and war housing and Hill in the armed services, a new partnership was formed with Eric Mendelssohn as the third member of the firm. This firm was recently disbanded, Hill and Mendelssohn forming a new partnership, and Dinwiddie reopening his own office.

"Cavity Wall Construction," the featured article in this month's Materials and Methods section, was written for us by Ben John Small. Since a biographical note on the author was printed in the August 1946 PROGRESSIVE ARCHITECTURE, he has been made an associate with Alfred Hopkins & Associates, well known New York architectural firm.

Back to Peace-Time Cleaning Efficiency

Before the war, the majority of the biggest, newest and best office buildings, schools, theaters and hotels were equipped with Spencer Central Vacuum Cleaning. The speed of perfect cleaning, low maintenance costs and all-round reliability of the system was endorsed by architects, engineers and owners everywhere.

Spencer is coming back — with rapid strides. If you are planning any building — make simple investigations and comparisons with other methods before you decide.

Spencer Data Sheets will help you. Please mention the types of buildings or industries you are interested in.

NOTICES

APPOINTMENTS

Stanford University, Stanford, Calif., has announced the appointment of VICTOR KING THOMPSON as assistant professor of art. Mr. Thompson will devote his time to the development of the curricula in pre-architecture and pre-industrial design.

WILLIAM W. WURSTER has accepted the chairmanship of the Architectural Advisory Committee of the Federal Public Housing Authority. Mr. Wurster succeeds HOWARD MYERS, who has resigned for reasons of health.

GLEN LUKENS, ceramic artist, has become affiliated with Lightolier, Inc., and will design glass and ceramics for the company's lamps and lighting fixtures.

SCHOLARSHIPS. COURSES

DALE C. BYRD of the firm of Skidmore, Owings & Merrill, has been awarded the annual Rotch Traveling Scholarship. Mr. Byrd, who holds a master's degree in architecture from Harvard, will continue his studies in France and Italy.

Review courses for the New York State Registration Examinations have been announced by the FEDERATION TECHNICAL INSTITUTE, 5 Beekman St., New York 7, N. Y. Classes cover eight fields in architectural design and construction, and begin September 22. Further information on enrollment is available upon request from the Institute.

NEW PARTNERSHIPS. PRACTICES

CORTLAND ENGINEERING Co., structural engineers, have opened an office at 5, Beekman St., New York 7, N. Y.

L. W. COOK and R. A. ZERN have formed a partnership to be known as COOK AND ZERN, consulting engineers, with offices at 607 Wabash Bldg., Pittsburgh 22, Pa.

J. LEE THORNE, ASSOCIATES, industrial designers, have begun a new practice at 1700 Sansom St., Philadelphia 3, Pa.

IRVIN MICHAELSON and WILLIAM J. FEDEL have formed an architectural partnership with offices at 905 Fox Bldg., Philadelphia 3, Pa.

A. N. MCANINCH and J. R. MAHNKE, JR., have announced the establishment of an architectural partnership at 512 Exchange Bldg., Little Rock, Ark.

HAROLD J. PERRY has opened an office for architectural practice at 16 Bloomfield Ave., Flemington, N. J.

EVANS AND DAVIS, architects-engineers, have opened an office at 405 Fulton St., Troy, N. Y.

JOHN P. O'NEILL has opened an office rendering architectural services in the planning, specification, and supervision of building construction at 625 Hutton Bldg., Spokane, Wash.
The all-welded, all-steel constructed "Delaware Belle", new Wilson Line Excursion Boat, are of Mahon Steel Deck rolled from Yoloy.

... Versatility of MAHON STEEL DECK Permits Myriad of Uses in Modern Construction

Mahon Steel Deck, rolled from high-tensile, low alloy Yoloy, was used for decks of the all-welded, all-steel constructed "Delaware Belle", of the Wilson Line, illustrated here... this is typical of numerous new applications by alert designers in which Steel Deck solved their problem of light weight construction with adequate strength and rigidity. You will find that Mahon Steel Deck, due to its basic design, with narrow, vertical-leg stiffening ribs, lends itself to a broader range of uses in modern construction. See Mahon's Insert in Sweet's File for complete information, specifications and latest construction details, or consult a Mahon representative.

THE R. C. MAHON COMPANY
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Manufacturers of Steel Deck for Roofs, Sidewalls, Ceilings, Floors, Partitions and Doors. Also Roof Sumps and Recesses, Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.

AUGUST, 1947
THE VETERANS HOSPITAL PROGRAM

The much publicized Veterans Administration new hospital program, which got off to such an auspicious start last year, threatened during this last month to blow up and hurt someone. Unfortunately, the private practicing architects (who have been giving an excellent account of themselves) were within range and in danger of becoming casualties. Capable architects were having their plans returned after review with severely critical comments; the program had stopped for what one engineer-general called a "breathing spell." What had happened? PROGRESSIVE ARCHITECTURE has been studying the situation at first hand and, digging behind the many complicating factors, is convinced that the issue resolves itself to a large and simple question: can an agency of the Government afford to sponsor good design by competent architects, or must public works continue to be unimaginative and undistinguished?

The most successful Government building programs have been those in which the issue resolves itself to a large and simple question: can an agency of the Government afford to sponsor good design by competent architects, or must public works continue to be unimaginative and undistinguished?

The most successful Government building programs have been those in which an advisory bureau has worked with a carefully selected group of private architects and engineers. The Hospital Facilities Division of the U. S. Public Health Service is an outstanding example of this advisory and consultative function on the part of a Government agency. To be cruelly blunt, the work done by the design and construction service of the Veterans Administration, before the present program was turned over to the Army's Corps of Engineers, was a depressing example of the tired lack of inspiration that has characterized so much public building's architecture. The new V. A. hospital program promised to be (and has been, up to this point) an exciting illustration of the right way to do the job. Design and construction were entrusted to the U. S. Army Corps of Engineers. Lt. Col. William E. Jeffrey (now Mr. Jeffrey), speaking to the architects last year for Brigadier General Bragdon, Assistant Chief of Engineers for Millerry Construction, promised: (a) "The Corps of Engineers proposes to do none of the design work"; (b) "We are not going to use any standard plans"; (c) "The concurrence of the Veterans Administration on preliminary designs will be secured by the Chief of Engineers. . . . With that approval the Veterans Administration then transfers whole responsibility . . . to the Chief of Engineers . . . we have not two masters to serve; only one."

The architects naturally applauded this program. Things started well. The written and graphic programs for various types of hospitals, prepared by the V. A. medical staff under General Hawley, and transmitted to the architect-engineer firms by the engineers, were excellent statements. ("The standards of planning of veterans' hospitals are probably the highest we have had yet in the history of the United States"—November 1946 PROGRESSIVE ARCHITECTURE, p. 58.) As architectural firms were chosen in various parts of the country, an unusually intelligent approach to this tough problem of selection was apparent. Younger, local firms were allied with more experienced, established architects. Progressive, forward looking designers turned up for the first time in assigned Government work. The Corps of Engineers was an admirable client; reviews were fair and rapid. Everything turned to memo, under the old dispensation, the V. A. had fumbled for several years on the design of five hospitals, now within a few months $770,000,000 worth of work was largely assigned and began to pass rapidly to the working drawing stage. Outstandingly able designs appeared. But trouble was brewing. In the arrangements that had been made, and that had been approved by General Bradley as part of his over-all house-cleaning in V. A., one factor had been bypassed and lay quietly waiting until the time came to reassert itself. That was the design and construction service in V. A. If this Civil Service group had been brought into the program as an advisory bureau, much later trouble might have been avoided. As it has turned out, pressure to allow the V. A. to do more than review preliminaries became too great for the Corps of Engineers to resist, and in February of this year the Corps practically withdrew as client (remaining as administrator) and a board of review was set up within the Veterans Administration to go over the architects' work from the medical, social service, and design points of view.

Some of the review was undoubtedly necessary; some of the comment was valid; not every architect working on the program was an amateur expert. However, inconsistency and delay appeared because of this revised arrangement, and in some instances picayune and unreasonable criticisms were offered. The architects grumbled, discussed the situation among themselves, and finally asked the A.I.A. to act. Meanwhile, the Engineer branch of the Army found the increasing interference by the Veterans' branch unbearably hampering, and about a month ago practically stopped the entire design program until the matter could be adjudicated. The various generals have held long meetings; the lower staff members have glared at one another; hospitals for veterans have waited.

Another factor that complicated the situation: costs are running higher than the original estimates. It is interesting to note that individual architects were given programs, but not budgets. Bid costs on the jobs for which drawings have been completed have run high—up to almost $1.80 a cubic foot. V. A. and the Engineers are agreed that the original $770 million program will actually cost $150 million more than that to build. What General Bragdon calls the present "breathing spell" is being used to decide whether to ask for more money from an economy-minded Congress or to reduce the program, either in number of structures or building by building.

The situation is potentially dangerous to architects and architecture, because a solution which now turned the program back to V. A. would tend to discredit the work that has been done. In future Government design, it would be possible for bureaucrats to point a finger and say, "See—the private architects did a poor job on the V. A. program. They were incompetent, slow, and extravagant. The old Government agency had to take over the job to get it done." Undoubtedly, a compromise will be reached, and the Engineers will not pull out of the program, as has been rumored. The compromise will allow the V. A. design bureau to design some of the remaining jobs that have not been assigned. Just what will happen about review of architects' work in progress is anybody's guess and General Bradley's decision to be made.

It is a situation for all architects interested in design progress to watch carefully. If a bad solution seems imminent, full support for an aggressive campaign by the A.I.A. should be indicated. A big step forward both in hospital design and in architect-Government relations had been made, and it would be too bad to shuffle backward. This sort of advance in architecture is worth fighting for.
Trane Heating and Air Conditioning
Is as Near as Your Telephone

Trane Engineered Air Conditioning—which refers to heating as well as cooling—stands for a complete line of engineered products. Each unit is developed and built by manufacturing engineers. Each is designed to work together with every other, for systems that function with the balance of matched components.

In addition, Trane product engineering extends to the drafting boards of architects, engineers, and contractors, where Trane Field Engineers cooperate in the application of Trane products and systems. Many of these field engineers are alumni of the Trane Student Class—an organization which each year trains outstanding engineering graduates in the problems of heating and air conditioning.

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The Convector-radiator—modern successor to the old-fashioned iron radiator—has been engineered by Trane for universal application to steam and hot water heating systems, and is being produced in quantity so you can now secure it from local distributors' stocks.
Scene in suture winding room where conditioned air and controlled humidity are necessary safeguards. Blocker Air Conditioning Corp., Newark, N. J., installed the system.

General view of Ethicon Suture Laboratories, designed by architects R. G. and W. M. Cary, New York. Rogers & Gons, New Brunswick, N. J., were builders.

PERFECT SETTING FOR SUTURES...

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AUGUST, 1947 29
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AUGUST, 1947
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allow counters and work areas right
up to the door itself, thereby materially
increasing "pay" space in the building.

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tion of cross traffic reduces confusion, speeds
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possible. Revolving Doors are balanced.
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air-seal, which keeps out dust and dis­
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Doors is actually less than swing doors
of comparable traffic capacity . . . and
they are far superior in economy of
maintenance and length of service.

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AUGUST, 1947 37
The PLANNING BOARD

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A big dent in the New York City housing shortage situation is being made as unit after unit of the new Stuyvesant Town Apartments is being completed. The entire project will cover 75 acres, with 35 separate buildings containing 8,759 modern apartments.

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Dynamic forms which rest on apparently fragile supports replace the entablature and column of trabeated architecture.

LOGIC?..... OR ESTHETICS?

A STUDY OF IRRATIONALISM IN SOME MODERN WORK

By MILTON FREDERICK KIRCHMAN, Architect

We want to be sure we understand each other when we speak of modern architecture as a rational expression. One aspect of modern architecture—that one which has come to be known as the "International style"—is now almost a historical movement, and can be evaluated critically. Although it is somewhat difficult to define, since its influence has spread to so many people and so many places, it has been described by numerous writers, and we know its qualities from photographs and examples around us. There are several ideas about modern architecture of this particular expression which would benefit from re-examination. One idea, which springs not from the proponents but from the opponents of modernism, is that architecture in the manner of the International style is reduced to a bare "functional" and "rational" expression.

Protagonists of the International school themselves disavow that their architecture is "functional." As a matter of fact, Le Corbusier, Mies van der Rohe, Walter Gropius, and J. J. P. Oud, all of whom we associate with the movement, have subscribed to an esthetic credo which "deliberately opposed the highly materialistic theory of 'functionalism,' a credo so unrealistic that it was never actually practiced even by those who were most articulate in its support." 1 Le Corbusier also has said that "Architecture has another meaning and other ends to pursue than

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The Editors
International style is not so much an expression of modern materials, of modern technology, or, for that matter, of a scientific outlook in general, as it is an outgrowth of esthetic principles which are anti-rational rather than rational in some of their fundamentals. Historically and stylistically, this aspect of modernism is allied to cubism, constructivism, futurism, purism, and related developments in art. In its use of geometrical forms it recalls abstract painting and sculpture. It disavows ornament because it is a non-representational style; it works with so-called pure forms. It is an architecture of space. In it, science and logic are adapted to serve the needs of expression. Expression is "felt": it is an inner compulsion. As such, the International style may be viewed as a contemporaneous phase of neo-romanticism expressed in terms of modern dynamics and technology.

I propose to point out a few of what I consider to be anti-rational elements in modern architecture, which have resulted from the influence of the International school, and let the chips fly. Only when these matters are understood, and not misinterpreted, can architecture of this school be properly evaluated.

For example, why are so many examples of architecture in the International style "anti-gravitational" in character? This architecture seeks dynamic forms. It creates the effect of forms suspended in space to acquire an intensity which is emotional rather than rational, esthetic rather than structural. In this modern work the feeling of weight is avoided. The relationship between beam and support is concealed. The pediment, entablature, and columns of classical trabeated construction are forgotten. Although a steel frame is in essence a compound trabeated form, the relationship between load and support is destroyed by sheathing columns in shiny metals which reflect light and thereby dematerialize the effect of a solid supporting substance. Gropius's Bauhaus has miracles of glass walls which stand free from the skeleton frame. By reason of scintillating reflections and deep shadows in the sun, as in much of the Brasilian work, the wall is transformed into an impressionistic play of light and shadow, of a space within a space. In many instances, the structure as a whole appears to be a floating mass resting on comparatively insubstantial sticks rather than on ponderous columns which almost shout their load-bearing activity. The anti-gravitational character of the style cannot be identified with scientifically rational construction; it does not grow out of technical needs. We cannot say that it is a function of plan. Anti-gravitation, per se, is an esthetic device.

Then too, it seems to me that architecture of the International style is deliberately "anti-symmetrical." Let us avoid the phrase, unsymmetrical. The Erechtheum is unsymmetrical; the Propylaea is unsymmetrical. But neither the Erechtheum nor the Propylaea is anti-symmetrical. The approach we are discussing is anti-symmetrical in that it avoids symmetry. Symmetry ties forms to an arbitrary logic. Symmetry produces static balance, but order and balance obtained through symmetry are not considered assets in International style. Its order and its balance are obtained by other devices.

International architecture is not illogical because it is anti-symmetrical. It is not irrational in the sense that it is not motivated by a program. To the contrary, International style is highly programmatic: it is notable for its manifestoes and intellectual excursions. A historical implication is intended in speaking of anti-rationalism in the sense used here. Perhaps it would be better to speak of it as anti-classicism rather than anti-rationalism. Let me explain: the nineteenth century experienced a conflict over the issue of classicism versus romanticism. Classicism not only reverted to Greek and Roman antiquities and to the humanistic past, but it also sought order and symmetry, definition and clarity, in style. Classicism was conceived as a rational expression as opposed to romanticism, on the other hand, which found escape in a mystical and medieval past. The International style in our own century also has a historical record of protest against arbitrary restraint identified with symmetry and, coincidentally, with classicism.

Another feature of many modern structures is the
The urge to express structure is often emotional; posts may be obtrusively evident. An anti-gravitational and non-objective attitude has influenced many modern projects.

Cantilevers have a structural use; they can also be purely esthetic devices.
The progressive approach to museum design considers the collections as living indices from which all may read and enjoy the cultures and daily life of different times instead of dead remains to be placed in a tomb. "Life" rather than "necrology" is the function to be expressed in the final design form. In place of an impressive and imposing structure, unwelcoming in appearance and hard on the feet, today's museum offers recreation as well as enlightenment; and it tends to be a friendly place, including along with the collections some of the aspects and facilities of a social center, a proper meeting place for all sensible citizens. In museum technique, the contemporary trend has been both to reduce the size of exhibits and to change them often.
It is a very special pleasure to present two museums from Sweden that express this approach admirably. It should not be overlooked that these are small-city museums, not great megalopolitan warehouses of art. For our opportunity to publish these two significant bits of architecture, we are indebted to G. Howard Smith of Stockholm who told us about them in the first place and then, in conjunction with Goran Algard, the photographer, proceeded to document the material for our use.

In Sweden, according to Mr. Smith, “the idea of the ‘living museum’ has been taking firm root during the last ten to fifteen years. . . . The National Museum in Stockholm—the national art gallery—has for many years now not only had a sizable and representative collection of the work of living painters and sculptors, but also a section containing examples of modern industrial art. At Rohsska Museet in Gothenburg, where the chief collections consist of books, printing, Chinese art and textiles, the main public-drawing attraction has been the exhibit of modern furniture and industrial art which is completely renewed every year. . . . In fulfillment of the idea of raising the museum to a real center of culture and life, however, honors in Sweden must go to the two provincial cities of Linkoping and Norrkoping.” It is these two museums which are shown on the following pages.

The differences between the two derive in the main from the distinctions between the cities where the museums occur. Linkoping, a city of less than 50,000 population, has long been the intellectual and cultural center of its province, a church center, and the seat of the provincial government. Norrkoping, on the other hand, with its 80,000 citizens (the fourth largest city in Sweden) is mainly renowned as a commercial and industrial center. Curiously enough—and an encouraging sign to those who believe art should be generally available—these two small cities are but 25 miles apart! Mr. Smith comments: “In both these places the museum has been transformed into a combined social and cultural center—‘a world of knowledge and beauty available to all,’ as a local dignitary expressed it—where not only the city’s art and historical collections may be housed, but where local art events may take place and music be heard, and where also many of the more serious group-study activities may find a meeting place.”

A number of traditional museum design problems are freshly solved in the two museums. Lighting of the main galleries is one. In Linkoping, the upper galleries are lighted from a louvered slope of the room ceiling that occurs underneath a roof skylight above. Since light enters the gallery from the slope, it is thrown onto the walls and main exhibits where it is needed. In Norrkoping, a flat glass ceiling above the main galleries borrows daylight from rows of clerestory windows in the building walls at either side above ceiling level. In both museums, ground-floor galleries are lighted by side-wall windows, quite closely spaced to cut down brightness contrast. Storage of reserve paintings is conveniently handled on sliding panel-screens that occur in walls between galleries; coatroom checking is open and immediately accessible—a pleasant contrast to the cavernous holes with bank-like window counters typical of so many traditional museums.

Perhaps the least common denominator between the two museums—and the most inspiring—is the completely human approach to the design, in plan, in choice of simple materials, in the refined but informal finished design which offers the visitor a greeting rather than a rebuff.
The MAIN ENTRANCE and the social activities section extend forward in a low pavilion. The gray marble frieze is the work of the sculptor, Ivar Johnsson. The inscription plaque reads KANN DIG SJÄLV—KNOW THYSELF.
MUSEUM AT LINKOPING, SWEDEN

NILS AHRBOM and HELGE ZIMDAHL, Architects

Built on a site with beautiful trees, this gracious structure occurs in the medieval core of a modern community. Within the angle formed by the two wings of the building, the park-like character of the neighborhood is enhanced by inclusion of a children's wading pool, with seats arranged around the perimeter—an accent on youth and life in the midst of ancient dignity. Organization of the plan into two main elements assists the informality of the scheme. The hall for concerts and lectures may be used quite independently of the main gallery areas. Wall-height windows at the entrance and at the side of the main lobby achieve continuity between the natural beauty out-of-doors and the museum proper. Due to the size of the museum, as well as to its interior organization, a trip through is never a tiresome affair; in fact, the two-part plan enables a visit to be made in easy stages without the need to pass through rooms one may wish to avoid. In the basement, in addition to storage space and museum workrooms, there are rooms for study groups, at the bottom of the main stair.
LARGE WINDOWS at the entrance frame the pool outside.

GATES close off the main gallery areas, permitting the public hall to be used independently.

The structure is a combination steel and reinforced concrete frame, with concrete floor and roof slabs; filler walls are of brick, with a soft buff-brown variety used for exterior surfacing. All public rooms are heated by a panel system installed in the ceilings; private offices have conventional radiators. Throughout, the detailing has been handled to provide a genial, unobtrusive background for the exhibits and the visitors—a dignified, beautiful environment for the cultural and social center of a community.

MUSEUM AT LINKOPING, SWEDEN

NILS AHRBOM and
HELGE ZIMDAHL
Architects
SIMPLE BACKGROUNDS emphasize the displays. View above is of ground-floor galleries.

THE MEETING HALL is used for lectures, concerts, and discussion of popular problems. The perforated natural pearwood walls assist acoustical correction. Notice the brass light fixtures with pierced borders that lessen contrast. Seats, upholstered in dark red textile, may be removed for occasional use of the room as additional exhibit space. At such times the stage is joined with the rest of the hall by temporary flooring extending over the first six seat rows.
The Norrkoping Museum is as much concerned with local history and the city's industrial interests as it is with its collection of Swedish art. In the words of Major Frank Bensow, chairman of the museum committee: "We have particularly tried to avoid making it a depository of the traditional type, aiming instead at creating a living museum, a vital and continually active cultural factor in the community." Interesting instances are inclusion of an industrial art section, the archives of the city labor unions, and generous premises for study groups and youth club activities. Eventual development of the museum contemplates an enclosed central courtyard of which the present structure will constitute one side. In downstairs galleries, lighting is from wall windows; upstairs galleries are lighted from an opaque glass ceiling that receives its light from clerestories in the walls overhead. Wedge-shaped display screens provide much added wall space as well as gain the advantage of lighting from an angle. An exceptional design element is the colorful, three-floor-high mural bordering the main stair. This mural, by Nils Wedel, includes copies of several of Wedel's best known paintings (see photo, bottom left).
UPPER LOBBY; also used for musicales. Note the opaque glass ceiling in the main gallery beyond.
The well designed smaller airport station is as rare as the proverbial dodo. With these two clean-cut structures in California, therefore, United Air Lines makes a signal contribution. Now that the start has been made, let us hope that other lines and other places will have the vision to see what a whale of a difference careful planning makes.
LOBBY. If expansion is needed, wing will be added through wall at left. Insulating tile ceiling; walls: brick or board and batten.

STATIONS IN CALIFORNIA

FRANKLIN, KUMP & FALK, Architects

1. STATION AT MODESTO

At both Modesto (these two pages) and Merced (three pages following) logical acknowledgment is made of the fact that an airport station has two fronts of equal importance—toward the field and toward the highway. They also assume that people in an air station enjoy watching things on the field and in the sky; hence, there are many and (toward the field) high windows. The other provisions for passengers and personnel are handled in a similarly straightforward way. The plans of the two buildings are almost identical; however, the owner requested that the Modesto station be made to differ in appearance from the one at Merced—to the detriment of the former, in our opinion.
HIGHWAY SIDE.

FIELD SIDE.
2. STATION AT MERCED

Although the plan is almost the same as that for the Modesto station, its expression in finished design (nearer to the architects' original concept for both buildings) seems considerably clearer, not to mention the dramatic and appropriate use of a dihedral roof. This emphasizes both fronts equally and facilitates a view of sky activities. One wonders if the over-all design might not have been yet further unified, if this roof line had been carried the full length of the building. Floor construction in both buildings is a concrete slab, within which are embedded copper coils for a radiant panel heating system. All sash are of steel.

Both Merced and Modesto are municipal airports; hence the office for the city airport manager. United Air Lines leases the plots from the cities. At present, in addition to a growing air mail and cargo business, the ports are used simply as feeder lines, with a single northbound and one southbound passenger flight each day. They are built, however, to accommodate eight to ten daily schedules each way and U.A.L. has leased sufficient land to handle this increased traffic. The ports are only about two miles from their respective cities, so eating concessions were considered unnecessary.
Inside the building, forthright use is made of just a few materials—continuous planes of brick, plywood, or gypsum board. Asphalt tile covers the floor, and the ceilings are of composition tile. The wood-framed roofs have 4 inches of wool-type insulation.
PROPOSED EPISCOPAL CHURCH, RIVERSIDE, CALIFORNIA

The distinguished design of this proposed church and parish house derives from precisely the same sort of intellectual and architectural honesty that has typified important ecclesiastical building of all times. Building materials are used imaginatively to achieve a result that is as logical in a structural sense as it is satisfying esthetically. The over-all design soars beyond mere function to produce an atmosphere of dignity and serenity appropriate for the individual exercise of worship. One could wish that more congregations were equally fortunate in finding an architect who understands both the ecclesiastical needs of the church today and the basis for developing a genuine contemporary design expression.

THE SERRATED SIDE WALLS of the nave produce a distinctive interior, with a series of triangular vertical prisms, pierced at the base by side aisles. The concept is far from purely esthetic, however; see next page for its lighting, acoustical, and structural properties.
CHIMES TOWER, a triangular reinforced brick pylon supporting the chimes above possible interruption of sound waves by adjacent building walls.

A CLOISTER forms one side of the forecourt to the parish house-auditorium.

FROM THE CLOISTER, across a planted space to auditorium entrance.

THE SHAPE of the church building is traditional, even to a cruciform plan; it is also oriented conventionally, with the altar toward the east.
RIVERSIDE, CALIFORNIA

Major determinants of the structural-esthetic design scheme were provision of proper lighting, acoustics, and resistance to earthquake shocks. The serrated side walls solve all three of these problems: windows in the forward panel of each “sawtooth” throw light toward the sanctuary over the shoulders of the worshippers; the broken wall shape helps acoustical correction; and a rigid, earthquake-resistant structural pattern derives from the resultant series of triangular forms. The spaces in the serrated walls between the window panels actually become vertical beams taking the lateral thrust and, according to the architect, distribute it over nearly twice the normal load-bearing area obtained by normal construction methods. A rigid frame is produced by monolithic roof beams and slab, terminating in triangular shaped sections spanning the area between window panel and vertical wall beam. The result: a series of vertical prisms tied at the top by the rigid roof structure and at the base by a concrete slab. Masonry portions are of reinforced brick.

RALPH C. FLEWELLING & ASSOCIATES, Architects

THE SITE is a 4-acre tract at the intersection of two streets, with the land sloping up from the more important street and the north portion of the land dropping off to a deep arroyo. Thus the church has a commanding outlook in all directions.
CHURCH OF THE PEOPLE, SEATTLE, WASHINGTON

This unusual proposed building combines the functions of worship and housing. The problem was to house a liberal independent congregation whose creed is one of world brotherhood. In addition to an auditorium for discussion and formal worship, the need was for living quarters for members of racial minorities who are students at the near-by University of Washington.

Conceived as a small international center, the project consists of two main parts—the meeting house proper, which will accommodate lectures, motion pictures, and some drama in addition to its use for worship, and a group of one-room apartments, to be made available to students from other lands for whom living accommodations appear to be somewhere between undesirable and nonexistent. To round out the program, the proposal includes a community hall and kitchen, supervisor’s apartment, lending library-reading room, and office space for various social organizations.

Arranged around a walled courtyard, the building has its public-use rooms all on the first floor; apartments occur on the second floor of the left-hand wing and on the second and third (and possibly a later fourth) floors of the connecting block at the rear. Local brick is suggested for the walls of the building, with a symbolic sculptured group above the main entrance to the church.

PIETRO BELLUSCHI
Architect
THE HIGH WALL of the courtyard with church in background.

ENTRANCE DETAIL; apartment block at rear.
ON THE STREET SIDE, the windows are few and high.

CAREFUL PLANTING gives privacy to the entrance court.

ON THE VIEW SIDE, the house is wide open; an outside door at the lower level opens into ample storage space.

HOUSE, BERKELEY, CALIFORNIA

JOHN EKIN DINWIDDIE, Architect
ALBERT HENRY HILL and
PHILLIP JOSEPH, Associates

The site is a 50-foot lot sloping away to the vast view of San Francisco Bay. The chief planning problem was to make the most of this outlook while providing privacy for a house in a built-up section. The compact scheme built in a distinctive variation of the familiar U-shaped plan is the result.

Toward the view (at the rear of the lot), the house presents an unbroken wall of windows and glazed doors, opening out to a deep, covered terrace several steps above grade. For privacy from close neighbors on the north, the wall of the house extends out the depth of the terrace to form a solid screen. Windows in rooms on the south of the house are of the high, strip variety to guarantee privacy on this side also. Wings of the house extend east toward the street, forming a sheltered entrance court.
AT THE FAR END of the terrace is the screen wall providing complete privacy from the house next door.

Among the plan refinements are the built-in study unit in a secluded corner of the living area; a pass window and work counter between the dining end of the room and the kitchen; a sit-up serving bar for children's quick meals on the south wall of the kitchen; and the extra room—maid's room, workroom, or guest room—between the kitchen and garage. To interrupt the view as little as possible, a low curb plus plant tubs are used at the edge of the terrace in place of a railing.
The combined living-dining room is unusually well arranged for the separation of the two main functions; yet the continuous fenestration provides a sense of a single large area. The fireplace wall is of concrete block and incorporates within it an elaborate mechanism for reception of radio broadcasts.

The house is of standard frame construction, with redwood exterior and plywood or painted (or papered) wallboard used for interior finishes. Floors are hardwood throughout, except in the kitchen and service area where linoleum is used. Walls are insulated with 4 inches of batt-type material. Because of the slope of the site, there is ample storage space at the lower level, reached by a door under the terrace.
Toward the dining end, the windows frame a view of the Bay; during late afternoon glare, translucent white curtains are drawn across.

THE OWNERS' BEDROOM shares the view with the main living rooms; notice the storage wall at right.
CAVITY WALL CONSTRUCTION

By BEN JOHN SMALL

THE AUTHOR of this article is an associate (in charge of specifications) in the office of Alfred Hopkins & Associates, architects. This firm has used cavity wall construction for more than a decade, in many millions of dollars of peacetime and wartime structures, from small load-bearing buildings to multiple-story units. Mr. Small adds to this experience considerable study of cavity wall principles as applied by other designers in this country and abroad.

Successful History

Why do architects tolerate wet walls when cavity walls can be designed to work well? With more than forty-five years of experience in Great Britain, Nova Scotia, and Australia to study, and with successful designs in this country that have functioned for at least half that time, it is difficult to understand why the use of cavity wall construction is not more widespread.

The articulate British construction press reports that no case of moisture penetration through properly designed and constructed cavity walls has ever been brought to the attention of their British Research Station. Martin S. Briggs, F.R.I.B.A., in the December 1946 issue of The Master Builder said, "A cavity wall, properly built, is as near waterproof as anything can be." In this country there is similar testimony. Many favorable comments will be found in Technical Bulletin No. 14 published by the Brick Manufacturers Association of New York, Inc. The Southern Brick Manufacturing Association advocates cavity wall construction, properly designed. Fred N. Severud, prominent structural engineer, states, "The twofold advantage of the cavity wall is, first, that there is enough separation between the inside and outside wall so that each can follow its natural trend, and, second, that the connections in a degree are elastic."
In 1944, the U. S. Army constructed the world's largest post office in Long Island City, New York. Its 14½ acre structure is enclosed with 14" load-bearing cavity walls. The outer wythe is 4" thick, of three shades of integrally buff-colored cement-sand concrete block, and the inner wythe of 8" thick cinder concrete blocks. It is interesting to note that this mammoth structure was ready for workable occupancy within the amazingly short period of 72 days. 390,000 concrete blocks were used. Another example may be seen at the U. S. Public Health Service 400-bed hospital at Sheepshead Bay, New York (Pencil Points, April 1944). An interesting 10" cavity wall on concrete frame structure will be used in the proposed 13-story Nurses' Residence and School at Bellevue Hospital, New York (same issue, Pencil Points).

The U. S. Government is currently constructing its first 10" cavity wall penitentiary. The flexibility of cavity wall construction is in this instance demonstrated by the architect's requirement that the inner concrete block wythe be reinforced with steel rods and poured concrete for security purposes.

Apartment houses in both England and the United States have successfully used cavity wall construction. The largest block of apartments in Europe, located at Dolphin Square, London, England, rising 9 stories high on a reinforced concrete frame, has cavity masonry walls. In this country an excellent apartment house example is found in the 7-story, Rockliffe Apartments in Montclair, New Jersey, with a 10" cavity wall on a concrete frame.

In New York City many of the largest architectural firms have cavity wall designs on their boards for an imposing variety of structures. Certainly experience with true cavity wall construction in this country has now been sufficiently broad to insure impermeable wall assembly design. The records indicate that where local penetrations of water and moisture have occurred in cavity walls they have invariably been caused by faulty design or careless construction.

In view of current uncertain building costs it would be unsafe to attempt to appraise the cost differential between cavity and solid walls with comparable bearing and heat transmission characteristics. However, a large housing project recently effected a considerable saving per apartment by accepting a cavity wall alternate bid.

Types of Assemblies

In the form of construction under discussion, all exterior walls of the structure are designed as separated double walls, an assembly sometimes referred to as "barrier" or "dual" walls. The wall then consists of an exterior shell or wythe, an interior wythe, and a continuous unencumbered vertical air space or cavity between them. The wythes are bonded together only through the medium of cavity wall anchors, which are specially designed metal ties. Anchors are provided with a twist or a V-shaped crimp, located centrally in the cavity, which functions as a drip to prevent the transmission of water or moisture from the possibly permeable exterior wythe to the interior wythe. The purpose of the cavity is to provide a moisture barrier and insulating space which can be effective only if
there is no bridge of solid material at any point across the cavity. In order to permit the escape of any moisture which may permeate the exterior wythe and enter the cavity, strategically located small "weephole" apertures, spaced at regular intervals, are provided. Such weepholes serve as drains in the exterior wythe for the expulsion of water which is usually redirected by gravity flow to the exterior by means of sloped flashings.

Exterior wythes may be of any material that is suitable. They might be brick or stucco on common brick; limestone, granite, marble, and combinations of stone and brick backup; precast concrete slabs; masonry blocks which may be stuccoed, painted, or integrally colored; or stuccoed structural clay tile. Thickness can vary in accordance with structural requirements; the wythe may be load-bearing or non-load-bearing.

The air space or cavity might be from 2" to 6" in width; the important thing to remember is that it should extend from above ground level up to and into the parapet wall. The 2" width is most commonly used. Air space sometimes has been filled with various types of insulating and other materials, such as vermiculite, mineral wool, glass wool, bituminous preparations, waterproofed cement mortar, cellular glass, and the like. These are not true cavity walls and the plugging of the cavity obviously jeopardizes the watertightness of the assembly.

Interior wythes may be of brick directly plastered (without dampproofing) or left exposed; plastered, painted, or integrally colored masonry blocks; precast or painted concrete slabs; concrete, brick, or masonry blocks faced with insulating materials and plaster. Again the thickness will vary depending on the structural requirements.

The interior wythe may be load-bearing or not, depending on the design. A typical insulation assembly for the interior might consist of 2" by 2" furring strips, fastened to the masonry on 16" centers, between which would be placed 1/4" blanket insulation, covered with a vapor seal, plasterboard, and plaster.

Needless to say, cavity wall assemblies may and should be dimensionally coordinated. Modular masonry products now becoming available adapt themselves well to cavity wall detailing.

One advantage of the cavity wall principle is that it makes possible the use of highly permeable materials such as concrete block. Smooth, gray concrete masonry units are suitable for exterior walls as well as interior, since the surface is receptive to paint. Integrally colored, perhaps specially textured concrete blocks can be used without painting. Cinder concrete blocks are particularly suitable for walls which are to have wood or metal furring, since they receive and hold nails well. Thus the lightweight, acoustical properties and comparative cheapness of such a material become available with no danger of wet walls.

One thing that may be restraining wider use of the cavity wall is a feeling that design possibilities are limited by it. Actually, great flexibility in use is possible. Either the exterior or interior wythe may be load-bearing. In the case of multistory structures the cavity wall may be a self-supporting curtain wall used with a skeleton frame. Always the principle is the same: a double wall with an unobstructed air space.

The Anchor

The exterior and interior wythes must be bonded together in order to develop lateral strength and to exert concerted action under loads. Bonding is best achieved by means of metal cavity wall anchors. (The British call them "cavity irons.") There are available an innumerable variety of anchors. In selecting the appropriate type, one need be concerned with three criteria: Is the metal noncorroding? Does it meet the strength requirements? Is transmission of water between the wythes prevented?

In answer to the first question, satisfactory anchors are made of solid copper, commercial bronze, silicon bronze, monel metal, and steel which has been galvanized, or hot dip galvanized after fabrication. A bi-metallic anchor is available consisting of a cold-drawn, high-tensile-strength alloy steel core over which copper is welded. Anchors cement-coated with Portland cement grout can also be obtained, but the slight danger of moisture transmission by capillarity may mitigate against their use. Galvanized anchors in thirty- to forty-year-old installations which were exposed by bomb damage in Great Britain showed little or no deterioration. However, since some nonferrous anchors are only slightly cheaper in cost than the other types, their use would seem to be preferable.

The determination of strength requirements is an engineering problem, and any unusual situation should be carefully checked. The most popular anchor, satisfactory for most purposes, is the commercial bronze, 3/8" diameter, drip type Z-rod, 8" in length with 2" legs. There are Z-shaped, U-shaped, and rectangular anchors, and the so-called pre-fabricated anchor which is a grid consisting of No. 10 wires, 6" apart, laid upon and paralleling each wythe, to which is welded No. 8 wires, 8" long, spaced 12" apart. In the not too distant future we shall probably see a new type of anchor precast within a masonry block which simultaneously forms the inner and outer wythe unit.

The third question—passage of moisture—is an important one. Early anchor types served as moisture bridges; some did not contain drips; others served as
perfect shelves for mortar accumulations. Subsequent designs overcame these disadvantages, particularly the Z-rod which, in addition to its drip feature, furnished a minimum horizontal area for the depositing of mortar droppings. Regardless of the type used, specifications should include a prohibition against placement of anchors which pitch toward the inner wythe.

With reference to the spacing of anchors, recommendations vary considerably. As an illustration, the New York City Administrative Building Code requires "one to every four square feet." Great Britain's Building Research Station recommends the spacing to be 3'-0" horizontally and 1'-6" vertically. The Structural Clay Products Institute recommends generally one anchor every three square feet of wall surface or where the cavity does not exceed 3" in width, not over 3'-0" horizontally nor over 1'-4" vertically, and in addition recommends placement of additional anchors within 8" of all openings, bottom of beams, joists, or slabs resting on the wall. Regardless of spacing, it is well to stagger all anchors excepting around openings.

**The Weephole**

On the assumption that water may permeate and run down the back of the exterior wythe, or that condensation may form in the air space, weepholes which function as drains should be provided at flashing levels and at all other horizontal interruptions of the cavity space. For example, at continuous shelf angles, isolated lintels, tops of foundations above grade, and the like, any water within the wall should be redirected to the exterior. If mortar joints are impermeable, it is relatively unlikely that weepholes will show activity; so much the better. Since the labor factor in weephole forming is of small consequence, their use is more than warranted. In brickwork, weepholes are spaced arbitrarily 24" to 48" apart horizontally. In concrete block masonry, the practice has been to locate weepholes every 2 or 3 units apart and every unit apart at lintels.

Weepholes may be formed in concrete block masonry in several ways, usually by inserting pencil rods, sash cord, wood lath, or pipe in the mortar joint, to be extracted when the mortar has set. Pencil rods and pipe, because of their ferrous nature, may stain masonry. Wood lath usually swells and becomes difficult to remove. Hence the use of sash cord seems to present more advantages than the others. By permitting the cord to extend generously into the cavity and project beyond the exterior face of the outer wythe for easy removal, one is assured of a clear weephole despite overlooked mortar droppings. Formation of weepholes in brickwork is effected simply by the omission of mortar from the affected vertical joint.

**Keeping the Cavity Clean**

The technique of keeping the cavity and tops of anchors clean during the course of wall construction is quite a simple one. It involves nothing more than the use of a strip of wood, 1" thick by 2" wide by several feet long, to which heavy string or wire is attached at the ends. The strip is laid upon the anchors in a manner permitting its 2" width to bridge the cavity. Before placement of a course of anchors, the strip is raised by means of the attached strings or wires, cleaned of its droppings, and then deposited on the new set of anchors.

To make doubly certain that the cavity is not bridged by mortar accumulations, it should be cleaned at flashing levels or lowest points by means of a field-improved long-handled rake provided with a 2"-wide steel or wood head. To facilitate such cleaning, the rake is inserted through temporary openings which should preferably be located at corners where walls change in direction. Inspection of cavities for cleanliness may be made through the same temporary openings or other similar openings left at frequent intervals for this purpose. Masons learn quickly how to lay up the wythes without dropping mortar in the cavity, thereby making the process of cleaning unnecessary. One cannot overemphasize the fact that the effectiveness of the cavity, insofar as impermeability is concerned, varies in direct relation to its cleanliness. Specifications should include a statement somewhat as follows: "The Contractor's attention is particularly called to the fundamental principle of cavity wall construction which depends on a cavity which is perfectly clean and clear except for anchors. Mortar droppings caused by careless workmanship may form a bridge across which water is transmitted to the inner wythe. This must be carefully avoided."

**The Mortar**

High strength, good plasticity, water retention, and bonding properties are basic mortar requirements for cavity structures.
walls. Mortar should have a compressive strength of at least 2500 psi for sufficient resistance to wind pressure. To improve the impermeability of the exterior wythe, concave joints are recommended.

For locations subjected to wind velocities in excess of 80 mph, mortar should be composed by volume of the following:

1 part Portland cement

¾ part hydrated lime

not less than 3 or more than 3-½ parts sand

For locations subjected to wind velocities less than 80 mph, the composition, by volume, should be:

face eliminate the necessity of any galvanized angles bolted to the spandrel important consideration. Metallic flashings such as monel metal, solid copper, in combination with other impervious flexible materials serve well, as do flashings of the steel reinforced fabric type.

Where continuous shelf angles are used, galvanized angles bolted to the spandrel face eliminate the necessity of any flashing material whatsoever, excepting for short lengths over the space where such angles abut each other. If an additional measure of protection is desired, galvanized angles may be given one good brush coat of mastic.

By designing so that the face of spandrel beams and columns are flush with the outer plane of the interior wythe, the need for spandrel and similar flashings is eliminated completely. This not only effects a saving in labor and materials, but maintains consistently a clear cavity at the perimeter of the structure.

To prevent the capillary rise of water into the wall from the soil adjacent to foundations, horizontal flashings, known as damp courses, should be installed a short distance above the grade line. These flashings, if metallic, could project beyond interior and exterior wall faces and easily serve as termite shields if their projections are turned down at a 45-degree angle.

Structural Properties
Comparative compressive strength of cavity and solid masonry walls has been adequately tested, always to the advantage of the cavity system. Table I shows in tabular form a test made under the auspices of the Building Materials and Structures' research project at the National Bureau of Standards. Tests on Hudson River brick cavity walls were published as BMS No. 28; tests on solid brick walls as B.M.S. No. 5. Brick, mortar, and workmanship were comparable.

The bricks averaged 3200 and 2700 lbs per sq in. in compression for the cavity and solid walls respectively, and the 1-1/6 mortar approximately 600 and 750 lbs per sq in. dry and wet cured.

Commenting on these results, the Brick Manufacturers Association, in its Technical Bulletin No. 14, states: "The New York City Building Code limits the allowable stresses on such cement lime masonry to 250 lbs per sq in. on solid sections. When the load is applied on the backing only, the 250 lb limitation would apply and this is approximately 12,000 lbs per lineal foot as compared to the 50,600 lbs per lineal foot shown in the test. In actual construction such loading would seldom exceed 4000 lbs. The 125 lb per sq in. limitation would apply if the load were placed on both front and back of wall and the gross area considered. This works out about the same, since the area is more than twice as great but the allowable load per square inch is reduced by one half."

Insulating Properties
If one were to consider heat insulation only, the most useful cavity width would be approximately ¾" to 1". In attempting to achieve such a width the risk of a clogged cavity with its resultant difficulties would be far too great. Where insulation is a critical factor, the interior surface of the inner wythe may be suitably insulated as previously described. It may be well to point out that 10" cavity wall, without applied insulat-
### Heat Transmission Coefficient "U" for Various Types of Cavity and Solid Masonry Walls

<table>
<thead>
<tr>
<th>Material</th>
<th>10&quot; Cavity</th>
<th>14&quot; Cavity</th>
<th>12&quot; Cavity</th>
<th>10&quot; Brick &amp; Tile</th>
<th>8&quot; Brick</th>
<th>12&quot; Brick</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>.300</td>
<td>.244</td>
<td>.200</td>
<td>.317</td>
<td>.420</td>
<td>.314</td>
</tr>
<tr>
<td>1/2&quot; Plaster</td>
<td>.290</td>
<td>.236</td>
<td>.194</td>
<td>.303</td>
<td>.395</td>
<td>.300</td>
</tr>
<tr>
<td>Furring, Metal</td>
<td>.225</td>
<td>.191</td>
<td>.163</td>
<td>.233</td>
<td>.284</td>
<td>.231</td>
</tr>
<tr>
<td>Lath, 3/4&quot; Plaster</td>
<td>.216</td>
<td>.184</td>
<td>.158</td>
<td>.223</td>
<td>.269</td>
<td>.222</td>
</tr>
<tr>
<td>1&quot; Plaster on 3/8&quot; Plaster Bd.</td>
<td>.168</td>
<td>.158</td>
<td>.130</td>
<td>.195</td>
<td>.231</td>
<td>.275</td>
</tr>
</tbody>
</table>

*Fig. given in A.S.H.V.E. "Guide"

**1" rigid insulating board sheathing, 3/8" plaster board, 1/2" plaster

**REMARKS:**

- Formula Used: U = l / R
- Resistance = R, ASHVE "GUIDE" 1940
- 1/4" plaster metal lath...
- 3/8" plaster board...
- 3/8" plaster board...
- 2" air space...
- 0.23
- 0.27
- 0.91
- 0.61
- 0.17

### CRACKS CAUSED BY THERMAL EXPANSION

- **Table II:** Heat Transmission coefficient "U", for various types of cavity and solid masonry walls.

- **Pitfalls:**
  - The introduction of reinforcing rods will do much to prevent cracks caused by thermal changes. Such rods should be installed in the horizontal face joints, keeping 3/4" from the face to the surface of the rod which must be completely encased in mortar.
  - The obvious causes of possible local failure have been emphasized. From the viewpoint of preventing water transmission, the problem of keeping the cavity clean and clear probably ranks highest in importance. A clogged cavity obviously negates the function of the air space as an effective water barrier.
  - An ounce of prevention, in the form of a few simple instructions to the mason coupled with adequate inspection, will do much to insure trouble-free dry walls.
  - Study of flashing details and the avoidance of spandrel and column projections into the cavity are items worthy of thoughtful analysis.

- **Actually,** these precautions come down largely to a matter of good, careful construction, together with a full understanding of the principles, the advantages, and the possible dangers in this very useful method of designing and building with masonry.
Air and Temperature Control

1-123. Thermolizer, Catalog 6-E, 31-p. illus. catalog outlining characteristics of unit heating. Construction and operating data for Thermolizers; capacities, dimensions, and weights. Automatic controls, suspension methods, wiring diagrams, and piping connections Grinnell Co., Inc.

1-119. Night Cooling of Industrial Buildings (Form 1404W), Ilg Electric Ventilating Co. Reviewed July.

1-120. Enjoy Better Living With Radiant Sunny Warmth, Institute of Boiler and Radiator Mfrs. Reviewed July.


1-121. How To Live In June All Winter (Bul. S-380-A), 8-p. illus. booklet on convvector-radiators that can be used with any steam or hot water heat system. Advantages, construction, and installation features. The Trane Co.

1-122. Tri-Flex Grilles and Registers (Bul. 47TF), AIA 30-J, Tuttle & Bailey, Inc. Reviewed July.

1-125. USAIRCO Water Coils (Bul. 67), 10-p. illus. booklet on coils for cooling and heating with water. Technical data on selection; physical data; tables for determining mean temperature differences and air friction. U. S. Air Conditioning Corp.

Doors and Windows

4-99. Clark Overhead Doors, 4-p. illus. folder on steel-reinforced overhead doors featuring unusually thin metal muntins, and no exposed hardware. Types available. Clark Door Co., Inc.


4-97. Hollow Metal Doors, Frames and Trims, 4-p. illus. pamphlet on typical door and elevator details, and typical frame details. Specifications for hollow metal work. Trussbilt, Div. of Siems Bros., Inc.

4-100. Venetian Screen, 4-p. illus. (429) folder on a window screening stamped from solid, continuous sheet metal; has 18 tiny metal slots per inch reflecting sun’s glare, keeps insects out, and provides good ventilation and visibility. Sample on back of folder. Wrap Bros.

Electrical Equipment and Lighting
5-85. Now for Smaller Homes, 4-p. illus. booklet on a new MO-4 four-pole thermal-magnetic trip multi-breaker for small houses, stores, farms, apartments, etc. Construction and operating details. Cutler-Hammer, Inc.

5-86. Surface-Attached Hololux, 4-p. illus. pamphlet on a lighting unit equipped with curved Controllegs which reduces glare; may be installed as single fixture or in continuous rows. Holophane Co., Inc.


5-81. A Miracle of Light (Form 107), Lustra Corp. of America. Reviewed July.

5-87. Are You Going to Build, Modernize, or Repair? (Form 2522), 22-p. illus. (5x7¼”) booklet on wiring plans and outlets needed in a house. Explains number needed for each room. Checklist of needs. Pass & Seymour, Inc.


Two booklets from Westinghouse Electric Corp. Reviewed July:

5-83. Farmstead Wiring (B-3874), (25 cents per copy—make check or money order payable to Westinghouse Electric Corp.).

5-84. Putting Electricity to Work On Your Farm (B-3524).


Finishers and Protectors
6-99. Magnesium Anodes for Cathodic Protection (Form DM-CP1), 13-p. illus. booklet on the use of magnesium in the form of expendable anodes to stop corrosion of underground and underwater structures. How applied, where, how many, and what kind of magnesium anode should be used. The Dow Chemical Co., Magnesium Div.

6-100. Suggestions From An Interior Decorator (F-85), 23-p. illus. consumer (11½ x 8½”) booklet giving color schemes and decorator tricks for painting the interior of a house. National Chemical & Mfg. Co.


Insulation (Thermal, Acoustic)

9-69. Ferro-Therm Steel Insulation. 14-p. illus. (4¼ x 10”) booklet on use of steel reflective insulation as a barrier for resisting the penetration of radiant heat. Stapled in place it is also fire-, insect-, and termite-resistant. Installation details, data, and specifications. American Flange & Mfg. Co., Inc.

9-70. Styrofoam (Form PI-51), 16-p. illus. booklet giving technical data on the properties of Styrofoam (foamed plastic) as a low-temperature insulation material. Applications, characteristics, physical and thermal properties. The Dow Chemical Co.

9-132. Prefabricated Insulated Pipe Units (Form 4626), The Ric-Wil Co. Reviewed July.


9-154. Zonolite Insulating Concrete Floors, AIA 37-A (Form CA-4), 4-p. illus. folder on the installation of Zonolite insulating concrete for floors covering radiant heat pipes, and on and above ground, upper story, and basement floors. Advantages, typical floor construction details, recommendations, and specifications. Universal Zonolite Insulation Co.

Traffic Equipment

10-19. Elevator Door Details (Form 667), 6-p. illus. folder on types of elevator doors available single swing and sliding, freight, and dumbwaiter. Door and safety gates. Details of each, dimensions, and features. Montgomery Elevator Co.
AIR AND TEMPERATURE CONTROL

Air Changer. An air-cooling fan of aluminum for installation in basements, attics, and kitchen floors. Noiselessly draws cool, fresh night air from outdoors when windows are open. Powered by a ball-bearing 1/4 hp motor, is 36" in size, operates at about 1 1/2 cfm per hour. Unwanted air filtration is eliminated by an automatic louvered aluminum grill. Eagle-Picher Sales Co., American Bldg., Cincinnati 1, Ohio.

Perma-Steel Awnings. All-year-round stainless steel awnings permanently spot welded and trimmed in choice of ten colors. Construction is of tubular strut type; hanger strip is permanently anchored and caulked to the building. Designed for commercial use; available in size increments of 6", length and width; assembled to measure. Perma-Steel Corp., 2025 Fenkell Ave., Detroit, Mich.

Shafco Suspended Unit Heaters. Compact suspended oil-fired unit heaters, single or multiple, for commercial and industrial buildings. Units are automatic and can be operated separately or in multiple installations. Shafco Distributing Corp., 1954 Book Bldg., Detroit 26, Mich.

DOORS AND WINDOWS

Fabrilite. A fire-resistant, vinyl plastic coated fabric being used on Modernfold accordion doors which slide along on overhead tracks. Available in a wide range of colors, standard or custom-made door widths. New Castle Products, New Castle, Ind.

Automatic Safe-T-Lock. A lock with an automatic safety latch that snaps into place, allowing the door to be opened a little way, and snaps back into position when door is closed. Can be released from inside the room; both safety latch and lock may be opened with a key. Automatic Safe-T-Lock Co., 4600 S. Kedzie Ave., Chicago 32, Ill.

ELECTRICAL EQUIPMENT AND LIGHTING


Electric Wall Switch. An electric light switch equipped with a neon light in the handle that lights up when overhead lights are out. Available in many colors. Light will last for two years; electric current for the light costs less than 2c a year. Roberts-Glo, Switch Div., 700 Jamaica Ave., Brooklyn 8, N. Y.

Superior Binding Post. A type DF30 multi-purpose electrical connector; five ways of connecting leads, provides complete insulation of post from mounting panels. Current-carrying capacity 30 amperes, can be mounted on any panel up to 1/4" thick. The Superior Electric Co., 470 Church St., Bristol, Conn.

FINISHERS AND PROTECTORS

Tuf-Seal. Varnish-type sealer penetrates sub-surfaces of wood floors and prevents drying and splintering. For gymnasiums, dance floors, and floors with unusual traffic. Gillespie Varnish Co., Dey St., Jersey City 6, N. J.

Prufcoat Aluminum. Aluminum paint made with corrosion-proof, synthetic resin vehicle and a special aluminum powder that leafs well. Keeps all moisture and corrosive agents from reaching the surface of the painted article. Prufcoat Laboratories, Inc., 63 Main St., Cambridge, Mass.

INSULATION

Infra Accordion Insulation. A reflective type insulation of triangular, reflective, non-conductive air cells enclosed in a double layer of thin aluminum foil. Has capacity to emit 1/20th of heat rays; weighs 1 oz per sq ft; 3 cu ft carton, 3 1/2' x 1 1/2' x 4', contains 1,000 sq ft of Infra. Available in 16 and 24" widths. Infra Insulation Corp., 10 Murray St., New York, N. Y.

(Continued over-page)
LOAD-BEARING STRUCTURES
Concrete Thermos Wall Forms. Portable form of aluminum alloy, consists of two 5 ft forms, a corner form, and other accessories for making cavity concrete walls. Forms can be adjusted to various thicknesses. Concrete Thermos Wall Co. of America, George Washington Bridge Plaza, Fort Lee, N. J.

Portable Welder. A self-powered arc welder available as a stationary or trailer unit; has a welding service range from 30 to 260 amperes; a heavy-duty, 4-cylinder air-cooled engine of 265 hp, rear mounted; 10 gal. capacity gas tank. Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis.

SANITARY EQUIPMENT, WATER SUPPLY & DRAINAGE
Aluminum Shower Cabinet. Made of heavy gauge lightweight aluminum; composed of five form sections which slide into interlocking flanges providing a watertight fit. Standard glass door can be added. W. R. Ames Co., 150 Hooper St., San Francisco 7, Calif.

Norge Electric Water Heater. Round upright type of electric water heater will be available in five sizes with capacities of 80, 66, 52, 40, and 30 gal. Completely insulated with 5" of glass wool. Borg-Warner Corp., Norge Div., 574 E. Woodbridge St., Detroit 26, Mich.

Heat Wrap Calrod. A heating unit for electric water heating tanks, consists of one, two or three ribbons of Calrod held tight against surface of tank by stainless steel channels; conducts heat to water and provides maximum delivery of hot water. Galvanized or monel tanks from 15 to 82 gallon size. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.

SPECIALIZED EQUIPMENT
NA-8 Home Freezer. An 8 cu ft chest-type freezer holding 280 lbs of frozen food. Measures 39 1/2" long, 17 1/2" wide, 20" deep. Equipped with four removable wire baskets, one with thermometer attached; two shelves for fast-freezing up to 35 lbs of food; a warning light for temperature increase. Interior of chest lights up automatically when lid is opened. General Electric Co., Appliance Div., 1385 Boston Ave., Bridgeport 2, Conn.

Hyatt Streamliner. A portable diamond saw for file cutting. Can be operated at 1/5 hp, has self-contained flushing system. Accurate linings to 1/4" may be cut. Hyatt Lapidary Equipment Co., East San Diego, Calif.

Pantasote. A plastic upholstery material similar to leather; said not to crack, easy to tailor. Available in variety of colors, grainings, and two-tone finishes. The Pantasote Corp. of N. J., 444 Madison Ave., New York 22, N. Y.

Fain Foldinette. A modern cabinet which opens into a complete dining set—a plastic topped, chrome edged 32" x 48" table, and two backed-benches which seat four people. Cabinet closed is 36" x 57" high, can be recessed into 4" standard wall in new construction. Sierra Wood Products, Inc., Pasadena, Calif.

Bit-In Electric Range. A compact, stainless steel, one-piece cooking unit with a separate standard-size oven that can be built into existing cabinets at any height. Cooking top has three heating units, a 5-qt-deep well cooker. Oven has an automatic temperature control, Telechron Automatic Timer, and Minute Minder. One conduit with three wires provides connection for the cooking unit, the same for the oven. A built-in griddle, extra ovens, and heating units will be available. Thermador Electrical Mfg. Co., S. Riverside Dr., Los Angeles, Calif.

TRAFFIC EQUIPMENT
Car Position Indicator. Lantern-indicator with amber floor numerals which light individually to indicate position of elevator in hoistway; illuminated arrows tell direction car is traveling. A chime sounds whenever either strip lights. Otis Elevator Co., 260 11th Ave., New York 1, N. Y.
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MORE people want MORE aluminum for MORE uses than ever
Due to the increased use of radiant heating in modern homes and buildings, much attention has been directed to the use of resilient flooring materials in these buildings. As a result, many architects have requested more information on the performance of various resilient flooring materials over heated subfloors.

In order to arrive at specific conclusions and to give the architect unbiased recommendations for flooring installations over radiant heated floors, the Armstrong Research Laboratories have been conducting a series of continuous tests. For more than three years, observations have been made of experimental radiant heated subfloors to determine the effects of varying temperatures on the hardness, composition, and indentation properties of all resilient floorings.

HOW EXPERIMENTS WERE CONDUCTED

The room used in making these tests is approximately 13' by 22' in size, having a double window at one end and a door in each side wall. Experimental concrete subfloors were built in four separate sections. Each section was designed to test various types of resilient flooring under the most extreme conditions that might be encountered on suspended, on-grade, and below-grade concrete subfloors.

Since one-inch pipe, spaced 12 inches apart, is most commonly used in radiant heating installations, this size in all-welded pipe was selected for these experimental tests. A controlled temperature, forced hot water system was used for heating. In order to direct the maximum flow of heat toward the surface of the floor, the heating coils were laid on baffles of 1" Armstrong's Temseal Insulating Sheathing cut 6" wide.

Each type of resilient floor was installed according to Armstrong's standard specifications. Twenty-seven electrical thermocouples were imbedded into the floor construction at strategic points to record temperatures. During the past three years, periodic recordings of the floor and room temperatures were made. The chart to the right illustrates a typical recording of the temperature variations over one 16-hour test period while higher than normal temperatures were being maintained.

OBSERVATIONS

During the winter months of the three years when these tests were made, the outside temperature ranged from 11° to 51°. By maintaining the water tempera-
These are the potentiometer recordings for one sixteen-hour test made during Armstrong's experiments with resilient floors installed over a radiant heated concrete subfloor. During this period, higher than normal room temperature at 115°F, the room temperature varied from 72.5°F with the window open to 90°F with it closed. The resilient floor temperature varied from 83°F to 101°F depending upon the room temperature and ventilation. A maximum resilient floor temperature of 105°F was recorded directly over the heating pipes. The temperature variance between the concrete subfloor and the resilient floor surface was about 1.5°F. It should be noted from these findings that resilient flooring materials do not decrease the heating efficiency of the system to any noticeable extent.

To determine the effect of radiant heat on the indentation properties of the various types of resilient floors, indentation tests were made before and during the period the floors were heated. Using the test loads prescribed by Federal Specifications for each type of resilient floor, it was found that the radiant heated floor temperatures did not increase indentation beyond the specified limits.

Effects of radiant heat on the adhesives used for installing resilient floors also were observed. Since the beginning of these experiments, there has been no failure of the resilient floorings or their respective adhesives.

RECOMMENDATIONS

While job size and locality may control the construction methods used for the radiant heating installation, the following recommendations are suggested to insure satisfactory resilient flooring installations.

Pipe Coils—One-inch pipe, spaced twelve inches apart and laid on insulating baffles, proved successful in these experiments. In this type of installation, the water temperatures generally vary from 100°F to 115°F F. and the general floor temperatures from 80°F to 85°F, with the areas directly above the pipes 5°F to 6°F higher. This has been found to be an ideal combination for the comfort of the room occupants and the service of the resilient flooring. In buildings where greater pipe diameters, wider spacing, or higher water temperatures are to be used, special flooring recommendations may be required. In such cases, the architect is invited to send a full description of the job to the Armstrong Cork Company for individual recommendations.

Water Temperature Limits—It has been found desirable to limit water temperatures in radiant heating systems to 120°F. Temperatures above this point are uncomfortable underfoot and, in addition, may result in excessive indentation, particularly in asphalt tile.

Grade Level or Below Grade Installations—The problem of alkaline moisture rising through the concrete is of primary importance in recommending a flooring for these subfloors. This alkali attacks the binders and adhesives of most resilient floorings. Asphalt tile is recommended for these floors since it is not harmed by moisture or alkali.

Suspended Floor Installations—With radiant heating as well as with conventional methods of heating, linoleum, Linotile, and rubber tile should be used only on suspended floors or grade-level floors with at least an 18-inch, well ventilated air space beneath them. Asphalt tile can be specified also for above grade installations.

Floor Protection—Since radiant heating normally does not create floor temperatures as hot as those resulting from the direct rays of the summer sunlight, the usually prescribed furniture rest devices are considered adequate protection against indentation for all Armstrong's floorings.

Special Flooring Problems—For help in solving a specific radiant heat flooring problem, or information of any kind on Armstrong's floors, contact any Armstrong office or write to Armstrong Cork Company, 8908 State Street, Lancaster, Pennsylvania.
What keeps the weather clement for a clam can keep your clients happy, too!

Over 90 years of successful roofing experience has demonstrated the sound value of the gravel or slag wearing surface of a Barrett Specification Roof:

1. It holds in place the heavy-poured (not mopped) top coat of coal-tar pitch — providing a doubly thick waterproof covering.

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3. It protects the roof against mechanical damage, hail and wind, wear and tear.

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The Barrett Specification* Roof, with its armored wearing surface of gravel or slag, provides comparable protection for building structures. It’s so tough and long-wearing it can be bonded against repairs and maintenance expense for as long as 20 years.

Built up of alternate layers of coal-tar pitch and felt, topped by a thick pouring of pitch to anchor the gravel or slag wearing surface, it is the toughest, longest-lasting built-up roof made. It is waterproof, fire-safe, sun-resistant, and armored against mechanical damage.

As a service to your clients, recommend Barrett Specification Roofs on the buildings you design. The Atomic Bomb Plant at Oak Ridge, Tenn., the Empire State and R.C.A. buildings in New York, and many other famous American buildings—all Barrett-roofed—confirm the soundness of your recommendation.

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NEW EVAPORATIVE CONDENSERS WITH MANY FEATURES FOR EFFICIENCY

Corrosion Minimized — Greatly improved protective treatment guards against costly corrosion. All parts exposed to moisture are of zinc-coated steel, bonderized and coated with a rubber-base enamel containing special rust-inhibiting powder.

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Made in five sizes, Worthington Series ECZ Evaporative Condensers combine practicability with heavy-duty durability to join the long list of Worthington “firsts” for efficient, low-cost refrigeration. Worthington Pump and Machinery Corp., Harrison, N.J. Specialists in air conditioning and refrigeration for more than 50 years.

Before It’s “Southern Fried” It’s “Worthington Refrigerated”

Typical of many up-to-the-minute firms supplying the nation’s food, the Jewell Poultry Company of Gainesville, Ga., makes Worthington refrigeration an important factor in its processing. Above is the main processing room, where 100,000 lbs. of chicken are prepared daily.

A part of the Jewell Company’s storage space, with cartons of chickens ready for shipment. The workers’ heavy clothing and the iced-up pipes indicate the low temperature that must be permanently maintained by Worthington equipment to prevent spoilage.

Refrigeration equipment at the Jewell Company. In the right foreground is a Worthington Freon-12 Condensing Unit. In the left rear are three Worthington Vertical Ammonia Compressors. Worthington units of these types are widely used throughout industry.

Why Integration?

You get refrigeration and air conditioning at its best when all parts of a system “pull together” smoothly. And remember that Worthington, as makers of so many “inner vitals” — compressors, condensers, turbines, pumps, valves, fittings, etc. — is better able to integrate these essential parts into a trouble-free, economical refrigeration or air conditioning system. It’s another reason why there’s more worth in Worthington. See your nearby Worthington Distributor for details.

AUGUST, 1947
**THE A.I.A. PROGRAM**


"The newly established Department of Education and Research of the American Institute of Architects takes a broad view of research for the purpose of formulating long-range policies and also a program of immediate objectives in research service to the membership." This sounds very good, but let's see how it is to be developed.

After some rather pompous classification of research under the headings of "Free Fundamental Research," "Objective Research," and "Applied Research," this high endeavor collapses into "horizontal" and "vertical" patterns suggested by "the broad view of research."

For example, the examination of a certain detail in all building types "horizontally" is suggested; or a "vertical" analysis of a building type "for a certain activity or function." This is quite a comedown from "a broad view of research for the purpose of formulating long-range policies."

It is not enough to note that "America is research-minded," or "Research has reached a new high in general popularity." A serious approach to research demands the tackling of the pressing problems.

The British have been engaged in this for some time now and their experience is worth noting. "Research now includes general sociological and economic studies aimed at formulating in the first place the needs for building in such a way that the right technical problems are presented and then further research and development for solving those problems with full regard to the human and economic aspects of the building industry." ("The Organization of Building Science Research," reviewed in December 1946 PROGRESSIVE ARCHITECTURE.)

After reviewing the research facilities of the Bureau of Standards, the American Society for Testing Materials, the Underwriters' Laboratories, etc., the Department of Education and Research of the A.I.A. concludes that it is not possible, because of lack of funds, to take an active part in research (testing) work and they resign themselves to being a "composite of listening post and reporting agency, clearing house and coordinating center, and instigator of needed activities."

If only they would be the "instigators of needed activities!" Architects are the natural coordinators of work in all fields related to construction and they should be right in the middle of any program which involves planning.

The A.I.A. Department of Education and Research could take the lead in coordinating building research. They certainly should take the lead in this leaderless field. This would not require funds, but it would require understanding of the problems needing solution and it would require leadership. Unfortunately, this first report of the Department of Education and Research of the A.I.A. indicates that the necessary leadership has not yet appeared.


These "Guides," first fruits of the newly established Department of Education and Research of the A.I.A., are good but spotty discussions of school (Continued on page 90)
"ACOUSTIMETAL" is the last word in sound conditioning! It provides maximum noise reduction and high light reflection. It's practically indestructible, and of course, it's fireproof to fit new building code specifications.

"Acoustimetal" is adaptable to remodeling as well as new building. The perforated Acoustimetal Pan, containing spacer-grid and sound absorbing Acoustipad, is quickly and simply snapped into the patented T-Bars mounted on the ceiling. Ideal for use with modern troffer type lighting. The satin-smooth baked enamel finish is smart in appearance and can be washed repeatedly and repainted again and again without loss of sound absorption. The 12" x 24" pans are quickly removable, for repair to wiring, piping, and air ducts. True, Acoustimetal costs more than ordinary inflammable sound conditioning, but the savings in maintenance more than cover the difference. For complete details, write for our new illustrated Acoustimetal folder!

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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.
REVIEWS
(Continued from page 88)

and hospital planning. Except for the material contained in the attached bibliographies, these articles would not be of much assistance to architects planning either of these types of buildings.

BRITISH EXAMPLES


The need for large-scale housing construction in a period of acute shortage of materials and labor made it imperative to adopt scientific methods for development of new types of houses. Based on performance standards established by the various study committees under the Ministry of Works, several prototype houses were constructed and evaluated. Then test runs of about 50 houses each were constructed under close scientific supervision.

Part I of this report covers the general problems—the establishment of adequate standards and the achievement of moderate costs. The effects of mechanization are investigated thoroughly, both factory prefabrication of building components and use of machinery on the site, with special emphasis on the interrelation of design and field assembly and the need for coordination of dimensions and control of dimensions in production of components. "Whether or not a 'module' is to be adopted is a purely secondary consideration."

Part II is a detailed study of the results of test runs of eight house types, all of which show substantial savings over traditional brick wall houses without sacrificing qualities of strength, heat, insulation, soundproofing, etc. It is interesting that one of the wood-framed houses is very economical despite the high cost of wood in England. This is achieved through the use of large prefabricated panels very carefully engineered so that the total amount of wood used is no more than that required in a traditional brick wall house.


A general review of public housing in England by the chief architect and housing consultant of the Ministry of Health.

The British have no intention of letting their housing go bad as so much of ours inevitably does. This paper is especially good in its site planning and regional plan aspects. The discussion, so vital a part of all papers read before the R.I.B.A., shows again the breadth of thinking of British architects on problems affecting the future of their towns and cities.

TECHNOLOGY AND DESIGN


Mr. Haskell suggests that the importance of technological change is not so much its effect on finished designs as on design method; also that the cultural surroundings brought about by technological changes form a background for young designers which is older by one generation than the background of the older men whose schooling was based so largely on visual patterns.

But "the current difficulty is that of reconciling technology with esthetics," for industrial technology produced the most effective new materials and structural forms. And yet, while the engineers were working with the essentials of man's physical environment, the architects were still concerning themselves with "pleasing the eye."

In time the architects (enough of them)
THROUGH THE YEARS...

Copper costs less

In homes large and small, hot water heating lines, hot and cold water lines and other pipe lines cost less by the year when they're copper.

The cost of a copper tube system installed very often approximates that of ordinary piping. This is because installation may be expedited with solder-type fittings. Because soft annealed copper tube is available in long lengths and may be bent around obstructions, fewer fittings are required. Because threading is eliminated and no allowance need be made for rust-clogging, copper tubes may be of relatively smaller diameter and lighter weight.

Anaconda Copper Tubes are made from specially deoxidized, 99.9\% pure copper, furnished soft in 60-foot coils, also hard and soft in 20-foot straight lengths. Types K and L Tubes, trade-marked "Anaconda," are available from wholesale distributors throughout the country.

Publications B-1 and C-2 discuss copper tubes for general plumbing, and for heating lines, respectively. Copies will be mailed on request.
came to realize that the truth and directness of “engineering” forms had superior virtues in themselves and that the virtue lies in the design method. For “architecture is forever a technological art in which technology supplies the working method which art rounds out into a complete expression.”

As we take more environmental factors into account (daylighting, artificial lighting, air conditioning, sound control) we need greater simplicity and interchangeability of component parts. Thus, judging a modern design in terms of the drawings alone may give an impression of severity although the living experience in the building may be completely free and pleasant. “The glass wall, for example, is at its best with radiant heat, and the spatial freedom given by the visual transparency is reinforced in a mysterious manner by the exhilaration of an invigorating climate.”

Modern architecture is taking on more dimension than a two-dimensional drawing can show and the architects must keep up with their expanding world if they are to continue to be architects. This paper was one of a group by the “younger” men on the subject, “Contemporary Trends in Architecture,” which are recorded in the June Journal of the A.I.A.

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BOOKS

**SPEAKING FRANKLY**

Architecture and Art for All Men.
Talbot Hamlin. Columbia University Press, 2960 Broadway, New York, N.Y., 1947. 255 pp., illus. $3.50

Talbot Hamlin’s publisher states on the dust jacket of his new book that Mr. Hamlin combines in his writing the practical experience of a working architect and the theoretical and historical knowledge of a scholar, blended with the sensitivity of the artist. Talbot Hamlin did enjoy a reputation something such as that, as author of Architecture Through the Ages. Even allowing for the publisher’s typical license to overstate, it is difficult to acknowledge this book as coming from the pen of an author who is capable of analyzing history as Mr. Hamlin has so capably done in Architecture Through the Ages, a book which is generally considered by architectural historians as one of the finest short histories of architecture so far published.

Mr. Hamlin’s publishers further add that Architecture for All Men was largely written aboard a twenty-four foot motor cruiser in the Florida inland waterway. “The subject retains its interest,” says Mr. Hamlin, “during days of stormy runs, nights of winter cold, and interludes of warm and pleasant seas. The final pages achieve their form in a country of pelican s and palm trees, of lush and unreal Spanish palaces, and also of much stimulating and very modern architecture.”

After reading such sentimental fluff on the jacket and more within this same book, one feels that perhaps there is something to be said for the professor’s customary ivory tower as an environment for contemplative literary achievement and critical analysis and synthesis. Mr. Hamlin seems to have lost the necessary critical discernment between the imitated Spanish palaces and the stimulating and very modern architecture, in his environment of pelicans and palm trees.

Since Architecture for All Men is evidently intended for the layman and not particularly for the architect, critical analysis is needed even more than if the book had been written on a more technical plane for the architect. As it is, the book is contradictory and confusing. It should make clear the meaning of architecture, and by that I mean progressive contemporaneous architecture, if it is to have real value today. Mr. Hamlin condemns eclecticism and discusses it learnedly and conclusively, yet he goes into ecstatic frenzies of praise for many buildings that are eclectic both in concept and execution.

He calls attention to the Nebraska State Capitol almost as many times as he uses
STURDY CONSTRUCTION

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- In addition to the two bars shown here, the Pittco line of Store Front Metal features a flush-type division bar for use where the architect does not want a protruding surface. It can be used with both the De Luxe and Premier lines and may be backed up with five different reinforcing members ranging in weight from light to extra heavy. The two bars shown here can be used alone or with reinforcing steel tubes. From this wide selection of sturdy supporting members, architects can easily satisfy all ordinary structural requirements for vertical bars in modern store front work. Where unusual conditions demand special supporting members, our engineers will gladly help in their design.

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Arkwright TRACING CLOTHS
AMERICA'S STANDARD FOR OVER 20 YEARS

(Continued from page 92)

the term, "as it were," and that is pretty often. He believes that the Nebraska State Capitol is the finest government building in America. Without discussing such buildings as the Fresno City Hall in detail in this review, it occurs to me that it might have been more valuable to "all men" (Mr. Hamlin's audience for this book) to call attention to the pathetic plight of government building by a grudging admission that the Nebraska State Capitol is merely one of the best of that group of bad buildings.

Because the author speaks more often of the Nebraska State Capitol than any other building, "all men" could fairly assume that it is his favorite building, and because of that it might be well to briefly analyze it here. Most critics have never considered it more than a brave attempt by the eclectic Goodhue to free himself from the eclecticism of his past and create a building without reference to past styles. Therefore, it is an epoch in Goodhue's life, but not in architecture. The result is a building of exquisite proportions when viewed as a sculptured mass, but, as an expression of its several functions, the materials used, and of the building techniques of the present day, it lacks significance as modern architecture. Goodhue created a fine proportion in his building by composition rules based on a knowledge of the Classical and Medieval periods of which he had been so fond in his earlier life. Perhaps, if he had lived longer, he would have created good architecture, but at his death, even in the Nebraska State Capitol, he had not been able to free himself from the eclectic foibles of his youth.

A study of the plan of the Capitol reveals frightful compromises to symmetry and the major and minor axes. The plan of the tower is forced to gain prominence in the mass, and the position of the elevators, one in each corner, is a compromise to gain monumentality and inexcusable to the modern architect.

He says, "... in the Nebraska Capitol the architect has integrated his construction and his effect as closely as he has integrated utility and effect." Such talk is hardly pardonable, even for one spellbound by a twenty-four foot motor cruiser and tropical palms.

Mr. Hamlin's praise for the Columbia University Library and the national Capitol in Washington is hard to understand from a man of his scholarship. He speaks of suddenly changing his pace as he walks by the imposing simplicity of the old Columbia Library. I walked by that building at least twice a day for a year and a half, and I often stopped too, but it was only to shudder at the banality of the monster.
YOU CAN'T USE DYNAMITE TO CLEAR THE DRAINAGE SYSTEM
WHEN grease FROM KITCHEN DISHES CHOKES UP THE PIPES

Wherever food is served, grease is an ever-present hazard. For when the grease from dishes, pots and pans is washed down the drains, it builds up layer upon layer on the inside of the drain lines until it eventually clogs up the pipes. When that occurs, you just can’t "blow out" the grease. Kitchen service must be interrupted and repairs must be made which are costly and inconvenient. The right time to guard against this hazard is when specifications are being written...and the right way is to install exclusive Josam Cascade Grease Interceptors. Their cost is so little compared to the permanent trouble-free service they provide!

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INSTALL THE exclusive Josam CASCADE GREASE INTERCEPTOR

An exclusive feature of Josam Grease Interceptors is the Cascade Design, based on the principle of the waterfall. Due to the tumbling of the grease-laden water over four levels, the grease is separated from the waste water with speed and completeness, regardless of temperature. The tumbling action is augmented by baffles scientifically placed with relation to each other to cause the proper degree of agitation below grease level, thus retarding the flow of water, forcing the grease to separate and rise to the top level where it can be easily removed. No cold water connections are necessary. Solids and sediment are evacuated, preventing decomposition of solids which cause odors in ordinary types of grease interceptors. Each Josam interceptor is equipped with the Josam exclusive "flow-control" which governs flow and insures over 90% grease retention efficiency. To be sure, specify Josam Cascade Grease Interceptors. A type and size for every installation. Accept no substitutes!

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Excessive heat, fumes, smoke, fog and stale air are exhausted from buildings efficiently and economically with this modern ventilating equipment. It's the first ridge type air control engineered to suit practically every industrial need. It corrects poor ventilation and provides a clean, pure, healthful atmosphere that increases efficiency and production. That's why leading architects, engineers and maintenance men recommend Plasteel Air Controls for modern industry.

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*PLASTEEL is standard gauge steel—triple-coated, weather-tested corrosion-proof and maintenance free for long hard service.

Write or Wire—complete details and ventilation guidance sent without obligation.

REVIEWS

(Continued from page 94)

The chapter on "Architecture and the Community" is one of the best in the book, and his plea for a harmonization of all the work in the community would be helpful to a general audience toward a real integration of architecture with modern life. However, the book's illustrative material is uninspiring and poorly selected.

Rather than discuss the work of Delano and Aldrich, Paul Cret, and Frank Lloyd Wright with so much enthusiasm in the same paragraph, time after time, it would have been more helpful to examine each man's work critically. Perhaps the refusal in this book to separate critical opinions of the intellect from sentimental and emotional reactions can be justified in part by the fatherly attitude of the book. That kind of thinking, though, mixed up with all the very good things of the book, does not make a very good book, but a very dull and confusing one, at least when the book is intended as an interpretation of architecture for all men.

HENRY L. KAMPHEOFNER

DRAUGHTSMANSHIP


This is one of the very few comprehensive books on architectural drafting. The author has managed to get so much useful material into compact form that experienced draftsmen will value this as a reference book while the beginning student will find it crammed with information which he will want to absorb. It is geared primarily to the beginner's needs.

The British conventions are less noticeable than one would expect, although an occasional word has a sprightly look (Automatic Alarum, Earth Point, Lintel). The author must be a very fine teacher, for the text is packed with clear examples without burdening the reader with theory. The hundreds of drawings are beautifully clear and open in an unobtrusively individual style that in itself should go far to encourage the student to develop his own abilities.

The book is innocent of an index (how could the publisher dare?) but its chapter organization is clear enough:

I. Equipment (and technique).
II. Line Drawing (with geometry, orthographic projection auxiliaries, developments).
III. Lettering (based on Roman proportions but not neglecting stencils and mechanical aids).

(Continued on page 98)
How to Install

Thermopane

REG. U. S. PAT. OFF.

1. Be sure opening is square so unit will not bind. Bed sash with high-grade glazing compound free of corrosive agents before the Thermopane is inserted.

2. Place unit on approved setting blocks located in from each corner and centered ¼ the length of the unit. Press in evenly. Allow equal clearance between edges of glass and sash.

3. Fill voids on all edges with glazing compound to prevent air infiltration and water leakage. Do not use blocks at sides or top of Thermopane.

4. Cover perimeter with glazing compound before applying face stops. To avoid point pressure, do not toenail unless sash is rabbed to receive stop.

Specially-designed L-O-F phosphor bronze clips are now available from L-O-F Distributors for installation in steel sash.

2. Insert Thermopane unit.
3. Put clip on end of putty knife.
4. Insert clip between edge of Thermopane unit and steel section until clip lug snaps into hole.
5. Fill all edge voids.
6. Face finish with glazing compound.

Because Thermopane is being used more and more in buildings of all types, you will welcome this step-by-step explanation of Thermopane installation. It requires no special skills or special tools. For more complete glazing details than illustrated below, check your Sweet’s File or write us.

IN WOOD SASH

IN STEEL SASH

STANDARD SIZES

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THERE ARE SEVERAL INTERESTING POST-SCRIPTS TO AN OBSERVATION OF SOME MONTHS AGO, wherein I told of a pleasant time spent in a bear joint with Tom Pratt of Pittsburgh, Walter Gropius of Harvard and Dessau, and several others. P.S. No. 1: the place was raided just after we left. P.S. No. 2: spies in Pratt's office report that he blanched when he read my story and muttered, "My God, is nothing sacred to that man?"

ON THIS PAGE, TOM. NOTHING. IF YOU WANT TO WORSHIP OUR SACRED COWS THE PROPER PLACE IS THE EDITORIAL PAGE. Back here we let our hair down, pull no punches, respect no persons, thumb our noses, make faces, gibe, flout, fleer, and gleek. In fact, I wonder why we worry so much about being polite. The French, those masters of diplomacy and suavity, seem now to be surpassing us in use of the direct, disrespectful statement. For instance, Techniques et Architecture says, of the U.N. design arrangement: "On avait espere un concours international, mais dans un geste magnanime, J. D. Rockefeller junior a offert le terrain et son architecte, W. Harrison."

THERE IS MUCH SAID IN THIS ISSUE ABOUT THE USE OF FORMS FOR ESTHETIC REASONS. Sometimes, of course, an odd formal is needed for reasons of function. An architect told us recently of a long meeting with a board of directors (his client in the aggregate), with the architect hotly defending a curved office partition. "I need that curved wall," he insisted. "It's the only way I can get the space that's required. It's absolutely essential. I need it."

Finally, when it was obvious they were getting nowhere, the president of the board turned to the others and said, "Look, gentlemen, let's drop the subject. He needs that curved wall." "I never felt so defeated in my life," said the architect to us. "It was as though I had been insisting that I was Napoleon, and the guard had finally said, "All right, all right, so you're Napoleon."

P.S. The entire board is completely happy with the finished job, especially the curved wall.

I RECENTLY VISITED THE UNIVERSITY OF VIRGINIA AND SAW JEFFERSON'S WORK THERE FOR THE FIRST TIME. I was charmed by the total effect of the quadrangle, and intrigued by the naïveté of the detail. By comparison, the later eclectic work on the campus is cold and mechanical. "There have been many attempts to imitate Mr. Jefferson," I was told, "but only one-sort of person can do it well—a second year student in the architectural school." Unfortunately, more attempts to imitate Mr. Jefferson appear imminent.

I'M AFRAID THAT THE QUESTION. What Is a Planner? HAS BECOME INVOLVED IN THE SORT OF DOUBLE-TALK THAT I WAS COMPLAINING ABOUT SOME MONTHS AGO. Too many people are making a distinction between planning and architecture, some for honest reasons of convictions, some for political purposes, and some in order to rationalize an existing bad situation.

From various sources I hear an argument like the following:

Town planning was led astray by the City Beautiful people. Planning involves sociology, economics, ethnology, geography, geology, politics, and various other technical matters. Traffic studies must be made. The ultimate planner is simply the coordinator. He can be an architect, or he can be a sociologist, or any professional who is one of the town planning team. An architect will be needed to make drawings, of course.

I don't believe it. Planning a city is an extension of the planning process, but the procedure, except for its scale, is no different from planning a house, or a bank, or a hospital. It requires special knowledge of many kinds. It must go through the phases of endless technical studies, but it reaches the ultimate point of physical, three-dimensional expression. I don't care whether the coordinating designer is called an architect or a planner or a commissioner—he must have the training of an architect.

Compare the argument quoted above with this comment I heard recently from a hospital administrator:

Hospital planning was led astray by an over-emphasis on "esthetics." Planning a hospital involves a knowledge of medicine, nursing, hospital administration, physical and mental therapies, psychology, and human relations. Careful circulation studies must be made. The ultimate planner is simply the coordinator. He can be an architect, a hospital consultant, an administrator, or any of the hospital planning team. An architect will be needed, of course, but only to make drawings.

You've probably seen hospitals designed by hospital administrators. I've seen several city plans recently, designed by economists. It's a funny thing, but you can't guarantee that either an operating suite or a cross-town traffic artery will be fully satisfactory unless you study materials, construction methods, scale, harmony, and all the other things that go to produce architecture, at the same time that you study costs and circulation and use.

The reason that I'm hot about this is that I've just seen a report of the Committee on Personnel Education and Standards of the American Institute of Planners. I know and respect most of the committee members; the organization is an important one. Yet they say in the report:

"... it is well to state specifically that today's planner need have no outstanding genius or talent for 'design' in the aesthetic, artistic, or engineering sense, though his planning education must provide him with some training and substantial perception in these fields."

Just as architects let "engineering" go to a new professional group in the nineteenth century, they are letting city planning slip from their grasp. I don't mean to imply that any architect could plan a town. It's too late for that sort of wishful thinking. But I do say that every town planner must be an architect.

I expect to catch hell for that statement, from several sources. For example, the schools of "planning" will object. Okay—a recent graduate of one of the best of the schools just left my office. She is, by all the A.I.P. definitions, a planner, and a good one. She is soon to visit a town where several buildings that we are considering publishing have recently been completed, and I asked her to take a look at them and tell me if they're as good as they sound. "Oh," she said, "I'm not competent to judge architecture. I'm a planner."

Maybe I'm wrong, but it sounds to me as though the meanings of words have been twisted around to justify a new offshoot of the design professions. And once again, the architects can't blame anyone but themselves. Is it incompetence, bashfulness, or just plain lethargy? Architects, arise!