Division of Housing Research, HHFA, has now announced seven research projects under Housing Act of 1949 auspices. They include studies of plumbing and sewage disposal, heating and ventilating, chimneys and flues, water vapor in wood frame walls, temperature and humidity desiderata, soil-cover in crawl spaces, rot-prevention from moisture in crawl spaces. Government agencies will conduct some studies, universities some others.

Municipal treatment plants of one sort or another provided a number of commissions last year, figures show. 665 sewage plants were built or under construction during 1949, and almost 300 communities were building industrial waste treatment plants.

A.I.A. Convention, headquartered at Mayflower Hotel in Washington, D.C., will draw largest group ever from May 9 to 12. Some contests for minor offices are expected but no major controversies. Younger, newer members are waiting to see what program and plans will offer in way of interest and advance. Proposal to elect vice-president as president-elect will be brought forth by Board; evaluation of Standard Documents and some other matters may be raised from floor by Chapter delegates.

A National Citizens Conference on Planning will take place in Washington at the conclusion of the A.I.A. Convention. From May 12 to 17, with headquarters at the Statler Hotel, delegates from a number of professional societies will engage in meetings and conducted tours.

When New York's Mayor O'Dwyer recently appointed as Chairman of City Planning Commission one Jerry Finklestein, who had no apparent qualifications for the job except the fact that he had managed the Mayor's last campaign, eyebrows were raised. However, the new Chairman has astonished everyone including Robert Moses, and pleased friends of planning, by taking a firm stand on important principles and by asking a budget for the Commission which would enable it to prepare the master plan it was supposed to have done long since. His statement arguing for effective planning for New York "in a critical stage of its development" has been applauded by many civic groups.

A number of recent articles have severely criticized current midtown New York skyscraper design. Lewis Mumford in "The New Yorker," and then William Zeckendorf, in the daily press, spoke of buildings carelessly placed in relation to future needs, and design standards that were no advance on boom methods of 20's. Frederick Guthem, summing up these and other comments in the "Herald-Tribune," commented that means of getting better and better planned buildings "eluded a precise formula last week."

U.S. Plywood announces American rights to Novapan, a wood-waste three-ply wood panel, produced in Europe since 1945, now to be made in U.S. as well.

(Continued on page 2)
Southern Standard Building Code, now applicable in 13 states and 250 municipalities, has reduced live-load requirements for floors in one-story dwellings from 40 to 30 pounds.

George Cooper Rudolph, N.Y. architect, won first prize ($1000) in Chicago Tribune Better Rooms Competition, with a two-way fireplace which allows television set to be swung either way.


Frederick L. Ackerman, 71, well-known and much-loved architect planner and housing authority, was tragically killed in New York late in March, when he collapsed and fell against a truck while crossing the street.

New house in the garden for Museum of Modern Art in New York is now under construction from design by Gregory Ain, Los Angeles architect and poet. "Woman's Home Companion" is co-sponsor for this house which is designed with a "compact but flexible plan to fit a 60' by 120' subdivision plot.

Rome Prize Fellowships have been won for '50-'51 by Joseph Amisano, of the Ketchum, Ginz & Sharp staff, in architecture, and by Dale Hawkins, Nashville, Tenn., Director of Planning in landscape architecture.

Baseboard heating has apparently caught on. Plumbing and Heat Industries Bureau reports that 28 manufacturers are now making such equipment, either of the radiation or convection type.

Calaveras Cement Co. of San Francisco has again entered the white Portland cement field, joining only three other U.S. manufacturers of this product.

P/A, at request of A.I.A.'s President Walker, has been keeping mum about an important law case in Michigan. A Circuit Court held that one Gordon Sheill, architect, was not entitled to recover fees due because his contract (standard A.I.A. form) was illegal since it contained provisions for preparation of contracts and thus constituted unlicensed practice of law. Case has been reargued, with A.I.A. assistance, and as yet no decision has been handed down.

Since two other national magazines (including A.I.A. Journal) have broken understanding not to discuss this case until decision was reached, P/A no longer feels obligated to silence Bernard Tomson is gathering data and will discuss it fully in its The Law column when some conclusions can be drawn.
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for Architect's Data File—See Section 33a 10 in Sweet's Architectural File

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BEST PRESENTATION

Dear Editor: I have just looked over a very fine article on our South District Filtration Plant which appears in your March Issue.

As Western Editor of Engineering News-Record in Chicago for 30-odd years prior to coming with the City of Chicago in 1941, I want to say that this article pleases me very much. The layout, the text, and the cuts show up in excellent style, on the fine paper you use.

Altogether, I congratulate you on putting out a decidedly desirable presentation. We have had many articles on the technical papers, but none of them, in my opinion, has come up to the excellence of this one.

W. W. DeBerard City Engineer Chicago, Ill.

WARD THE CUBE

Dear Editor: With the Secretariat building of the U.N. nearly completed the model, now on view at the Museum of Modern Art, of Mies van der Rohe's new apartment house to be put in Chicago, we are well launched on what would appear to be the last phrase of artistic negation in architecture.

In 1876, Fechner made experiments to discover the most pleasing point at which to bisect a line. He found preference for the point where the short length had the same ratio to the long length as the whole, or about 1:8:13. This is known as the Golden Section.

Fechner's problem was an attempt to determine one of the measures of art, not a work of art. Architecture of the type here under consideration has become limited essentially to the selection of two elements. Given one, the height, the aspect may choose only width and depth. Aline B. Loucheim wrote in The New York Times: "New Yorkers who see the stateliness of the Secretariat building in actuality and its apartment in model can take it and can realize that the cliché of the cake office buildings which are bowing up in their city are silly architecture at all.

The simplicity of this architecture is misleading. Cheap art as well as art must have an aesthetic complex. It is impossible in glass but a sensuous element in the art, which by itself can only go so far. Art consists of an esthetic complex which makes possible beauty or ugliness. You can create neither by a straight line or by the perfect proportions of a rectangular prism.

Modern architects with their first concern for function and new materials sought a new esthetic complex. Modern architecture to date has not evolved an esthetic complex which architects believe they can develop stylistically. On the contrary they seem to have abandoned any effort to attain an esthetic complex along the lines on which they have been working. Maybe when they have succeeded in reducing architecture to the cube which needs no determination by the architect, the art will be in a state of a tabula rasa, upon which the subconscious esthetic emotion of an architect can take hold. When we have universally accepted the architecture of the "cube" we will be psychologically able to begin once again the esthetic complex.

Roger Pryor Dodge New York, N.Y.

LAMENT FOR AWARDS

Dear Editor: With deep regret I have read the announcement of the discontinuance of the PROGRESSIVE ARCHITECTURE Annual Awards. The aims—realized—were of the utmost benefit. The needs of the program were beyond that which most of us realize and I am afraid I must sorrowfully say, are no less needed still. Department of Education and Research, etc., not withstanding. This isn't an indication of our not wanting to co-operate with the Institute. I guess it is a lament of the passing of an "institution" that was of inestimable help to our moral and confidence in what we have been trying to get done.

Richard L. Aek
Aek Associates Atlanta, Ga.

HOME HANGOVER

Dear Editor: For years and still today it is very annoying to me, month after month...
Do these people, in this day of modern conveniences actually use these primitive devices for heating? It certainly isn’t necessary with our present scientific controls, sensitive thermostats, outside anticipators, electronic devices, etc. and I can certainly find better means for preparing a meal. It seems to me that the inclusion of a fireplace in every home today is purely an unconscious sentimental hangover.

I know of one house in particular where the owner had to have two fireplaces. The chimneys were huge, with good size openings and ample flues. The openings were trimmed with imported marble mantels, the total cost of which was well over $2000. Then they had electric outlets installed inside the hearths, so they could plug in an electric cord and simulate a log fire.

In another case I recall trying to discourage the use of a fireplace — without success. The house was completed and decorated by one of the leading houses in town. The fireplace was the chosen focal point. Furniture was bold grouped around same. Then the payoff — they installed a T.V. set in the livirg room. It gives me a great deal of satisfaction to see how they suffer over the T.V. show. They’re all in each other way, backs to the set with heads turned sitting on the floor and have to move when someone passes. It’s misery but they have a fireplace and incidental it’s never been used.

I am curious to know why so many good designers include a fireplace every house they design. Can you find the answer for me?

F. JAMES SW
Massapequa, L. I., N.

I have spent too many pleasant evenings around a fireplace in good modern houses to feel that it has become anachronistic in residential design. Don’t think it is a matter of providing heat or personal comfort as much as it is a stimulant to pleasant companionship and good talk. As far as the fireplace is concerned, if I know that someone in a room, I automatically refuse an invitation for the evening. You see I’m an old-fashioned guy.

T.F.

“GUIDING STAR”

Dear Editor: A pat on the back for a grand job you are doing with your magazine. My high school student future architects, consider it the “guiding star”. The January issue masterpiece.

ANTHONY J. COCC
(Head of Fine Arts De Wappingers Central Sc
Wappingers Falls, N

TERRA COTTA EXAMPLE

Dear Editor: In your article “U.S. Architecture 1900-1950” we happened to see page 54 showing Flatiron Building with the note “Di...”
SIMPSON ACOUSTICAL TILE is factory-finished an attractive white, giving a pleasing overall appearance to the finished job . . . a finish with high light reflection without glare. BUT . . . Simpson does not stop there! Bevels, too, are painted with this same attractive color. Painted bevels add a special finished effect to a Simpson acoustical installation. This is one of the five big reasons so many architects are specifying Simpson Acoustical Tile.

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H. Burnham covered the Flatiron Building with granite.

This is entirely incorrect. The pier base at the sidewalk is granite. Limestone facing is used from the top of the pier base to the fourth floor lintel. From the fourth floor lintel to the top of the building is entirely architectural terra cotta—one of the largest installations of architectural terra cotta in the United States.

PETER C. OLSEN, President Federal Seaboard Terra Cotta Corp. Perth Amboy, N. J.

MORE ABOUT CHURCH

Dear Editor: I had already seen the three pages of the February issue of PROGRESSIVE ARCHITECTURE devoted to the little church at Stowe, Vermont, but it was only this afternoon that I discovered your P.S. on page 146.

It may be that Whittier was not entirely pleased with the painted decoration but I have never heard from him in this connection although I did see him at the site while the work was being done and also called to see him in his Burlington office. At that time he did not express himself as you have noted in your text.

However, in all fairness to the artist, André Girard, I must say that he did not come to the job to apply "his" own concepts of decoration, etc., since I directed the job from the very outset and could have stopped it at any time. So, if anyone's responsibility is involved it is mine.

While I appreciate the architect's point of view I, too, viewed this job from the point of view of an architect with over 15 years' experience in the offices of Catholic architects. The exterior painted panels may seem unusual but only because this type of work has seldom been done in this country. As for the interior I cannot, for the life of me, see how the decoration does not actually enhance the structure.

At any rate, many thanks for your article. I merely wanted to settle the question of responsibility and take whatever onus there may be away from the artist. If there is any controversy in this case it is a controversy between architects.

MAURICE LAVANOUX, Secretary Liturgical Arts Society, Inc. New York, N. Y.

NOW THEY'RE TOLD

Dear Editor: Someone should tell those young architects (Stowe, Vermont church February P/A) and I think it should be you, that all is not lost. Dramatically, that veneer of painting points up the fine direct simplicity of the structural design, and thank goodness for the photographs of that and the satisfactions of memory. Among the profession those architects will have more notice than otherwise, and more credit. The maiden that is violated is always assumed to have been more angelic than she probably was.

LAMONT H. BUTLER Pittsburgh, Pa.

WELCOMES CRITICISM

Dear Editor: A note to thank you an your associate editors for the inclusion of Goldsmith's store in the Shoe Store Critique—March P/A. It was my debt in your magazine and the competent criticism was heartily received, as I believe this is what keeps architects on their toes. Let's have more of it!

MARIO L. GADIAN San Francisco, Calif.
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Infra-red heat rays travel through space, including icy-cold air, in every direction, up, down, sideways, from warm to cold. They engender no temperature until absorbed by a surface.

A news release from Wright Patterson Air Force base says of the accompanying photograph: "In the center the 'bunkin' suit, now in use by airplane crash fire-fighters, has become too hot for its wearer and is being wet down. The aluminum foil laminate suit at the left, developed by AMC's Aero-Medical Laboratory, was found to give its wearer the greatest comfort and protection and suffered least damage during the test. The foil reflects the extreme heat and helps the wearer retain a relatively low body temperature while fighting airplane crash fires."

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Cleveland Model House

Measurable interest in contemporary design is reported from Cleveland, Ohio, where 202,000 visitors at the seventh annual Greater Cleveland Home and Flower Show this year trooped through a model house and architectural exhibit, examining details and furnishings, asking pertinent questions, and sometimes blocking traffic while they mused over home life in such surroundings. The house was designed by Cleveland Chapter, A.I.A., as a public relations activity; the architectural exhibit by Alfred W. Hams and Robert A. Little, Architects; and the furnishings by Garth Andrew's Shop, Bath, Ohio.

The general plan at right shows how the visitors circling the model house were drawn past an "Educational Exhibit of Reasonable Architecture" beginning with general panels (1) explaining the respective roles of the client, the architect, and the builders; a series of panels (2) describing the needs of an average family; and abstract models (3) analyzing the development of a site and house to comply with the needs of the client-family above. At this point, the educational exhibit was broken, to permit visitors...
to walk through the model house and the
garden.
After viewing the house, visitors
found themselves before a double booth
occupied by representatives of the
A.I.A. Chapter and of the decorator,
where the hundreds of inquiries about
this house or similar "dream homes"
were answered. As they left the enclo-
sure, they were again drawn past a
supplemental "Educational Exhibit of
Materials" where they could ex-
amine and discuss the new products
of interest to a prospective home
builder.
This notable project of the Cleveland
Chapter, A.I.A. originated in a desire
to present effectively the value of an
architect. In designing a specific ex-
ample, particular emphasis was laid on
design for livability. Dubbed "The
House That Jack Built," it was con-
sidered in terms of the needs of a family
of three, thus affording a framework
for dramatic presentation of the basic
principles of contemporary architectural
design. Advanced developments in struc-
ture, materials, and equipment also were
freely introduced. One of the perspec-
tive studies of the living room, with
fireplace at the end and a glass wall
opening on the garden, is shown below.

Educational aspects of the exhibit
of architectural function and of new
products were adroitly handled by Ar-
chitects Hams and Little, as describe
above. The general scheme of the house
and displays is indicated by the sketch
below, with the entrance and first pane
in the foreground.
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<td>Pub. C</td>
<td>3,438</td>
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The Winner!

... and still increasing its lead!

Only Progressive Architecture reaches the world's largest group of architectural specifiers.

SETS NEW WINNING PACE

from June 30 to Dec. 31, 1949

June issue will contain architectural scoop of the year—the A to Z materials story on the U.N. Secretariat Building. Every manufacturer whose product is a part of the building will want to make this an advertising tie-in must.

PROGRESSIVE

ARCHITECTURE

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May 1950
Helped Cut Costs of Ranchero Villa!


Beautiful low-cost flooring used throughout this model home is KENTILE. Chosen for its quality, durability and low cost—Kentile offers small-home builders unlimited design possibilities plus every advantage that helps make new homes more saleable on today’s competitive market. Ideal for use in every room, from the living room to bath and kitchen... Kentile provides the perfect flooring for economy-minded architects, builders, and contractors.

Specify Kentile for “On Grade” Installations

As the diagram shows, Kentile can be installed on concrete in direct contact with the earth... another saving feature for builders of the popular non-basement homes. All fillers, binders and pigments used in Kentile have high resistance to alkali in concrete. And, Kentile’s asbestos filler helps insulate against the cold and dampness of concrete floors. Kentile is highly recommended for radiant-heated floors, too. It can also be installed over double T&G wood floors, or over plywood.

Specify Kentile for Quick, Cost-Cutting Installation... Because Kentile is laid tile by tile, it can be installed faster and with less labor cost. Construction work is not held up as it can be walked on as soon as it is laid. Kentile “seats” well, will not curl from moisture or dampness.

DAVID E. KENNEDY, INC., 58 Second Avenue, Brooklyn 15, N. Y.

The Asphalt Tile of Enduring Beauty

RESILIENT FLOORING FOR OVER FIFTY YEARS... KENTILE • RUBBER TILE • KENCORK
No wonder he's worried. He's picking "fixtures". You know fixtures won't solve lighting problems—but how many other people do?

It takes more than a luminaire to solve a lighting problem. It takes expert planning in the application of this equipment to give you the BEST BUY IN LIGHTING.

This calls for the services of a qualified lighting engineer.

Whether you plan lighting, buy lighting, or install lighting, the services of a Westinghouse Lighting Engineer are available to you.
TRUSCON STEEL COMPANY
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FREE Book on Truscon Steel Windows. Write for it.

The Truscon Steel Company Manufactures a Complete Line of Steel Windows and Mechanical Operators ... Steel Joists ... Metal Lath ... Steeldeck Roofs ... Reinforcing Steel ... Industrial Steel Doors ... Cool Chute Doors ... Steel Lintels ... Concrete Reinforcing Bars ... Welded Steel Fabric.

TRUSCON Intermediate CLASSROOM WINDOWS

unusual features...

for efficient classroom lighting

This U. S. Department of Agriculture map indicates that more than 90% of America has an average of 180 or less clear days in each year. A large percentage of these days will be during class-free summer and week-end periods. In selecting a type of daylight opening for classrooms, it is imperative to use one that transmits the maximum amount of light ... while permitting controlled ventilation in either fair or inclement weather. Truscon Intermediate Classroom Windows provide these requirements, and permit selection of glass in upper fixed panel to meet exactly the varying needs of geographical location, climatic conditions, and degree of window exposure to direct solar rays. Write for free literature giving complete details.
In General Petroleum's new Los Angeles home...

Architects: Welton Becket and Wurdeman & Becket

SCOTT RECESSED FIXTURES add beauty and convenience to modern washrooms!

When Welton Becket and Wurdeman & Becket designed the washrooms for this new General Petroleum building, they followed the current trend in architecture by recessing fixtures wherever possible.

Scott helped make the job easy . . . by offering the services of thoroughly trained consultants, plus all the priceless experience and knowledge gained while servicing over 300,000 washrooms.

Do yourself and your client a real favor by taking extra care in the planning of his personal service rooms. Your reputation will benefit . . . your client will be rewarded through the added good will of washroom users. To get Scott on your team . . . just contact "Washroom Advisory Service," Scott Paper Company, Chester, Pennsylvania.

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WASHROOM ADVISORY SERVICE, Dept. D
Scott Paper Company
Chester, Pennsylvania

Please send me your 945 dimension and installation drawing.

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City__________________________Zone______State__________________________
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the difference
then you pocket it!

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up to 26 inches of vacuum, these pumps easily handle the require-
ments of any steam heating system. Provide better circulation
and control of steam ... shorten “heating up” periods.

Dunham Vacuum Pumps are extremely simple and compact
in design. The only principal moving element is the water
impeller. Flow of water through the exhauster jets creates a
high vacuum ... maintains positive pressure to discharge cond-
densate direct to boiler. There are no moving parts under
vacuum ... no close tolerance parts to slip out of adjustment.

Available as single or duplex units—in a full range of capa-
cities to meet most heating demands. Dunham Vacuum Pumps
are ready for immediate operation on delivery.

These Pumps Help Dunham Differential
Heating Cut Fuel Costs up to 40%
These pumps are the heart of the
famous Dunham Vari-Vac* Heating
System ... the precision temperature
control system that, for example, has
enabled the Millard Fillmore Hospi-
tal, Buffalo, N. Y., to save 37.8%
annually on steam consumed since
1935.

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Write today for your free
copy of File No. 4C-2-8,
giving complete facts and
figures about these cost-
saving Vacuum Pumps
and other Dunham Heat-
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ham Co. Ltd., Toronto.
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Sales Engineers and Job-
bers in All Principal Cities.
*Variable Vacuum

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DUNHAM

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Ask the men who maintain them — Auth systems for schools are dependable — trouble-free —

Why? Because Auth Clock Systems, featuring the famous Telechron self-starting synchronous movements, do not require complicated master clocks, relays, rectifiers, etc., to assure correct time. Contactless type program bells and buzzers assure long life and smooth operation.

Auth Fire Alarm Systems are approved by the Underwriters’ Laboratories whose requirements generally form the basis for local regulations. Auth Interior Telephone Systems provide the same kind of quick and reliable communication as the public telephone system. For many years the Boards of Education of the City of New York and numerous other municipalities have installed Auth systems. Dependability is the reason.

Centrally Controlled Synchronous Clock and Program Bell Systems, Motored by Telechron.

Closed Circuit, Supervised Fire Alarm Systems Approved by Underwriters’ Laboratories. Also Open Circuit Systems.

Intercommunicating Telephone Systems permitting one or a number of conversations simultaneously.

Miscellaneous Signaling Systems such as Stage to Projection Booth, Entrance Doors to Custodian, etc.

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MANUFACTURERS OF
Electrical Signaling, Communication and Protective Equipment for Housing, Hospitals, Schools, Offices, Ships and Industry.

SINCE 1892

May 1950
**Noteworthy uses of Glass**

**THIS VIEW** of the new terminal building at the South Bend, Indiana, airport, presents a spectacular scene—by day as well as at night. The whole effect is heightened by the use of more than 125 Twindow units which glaze almost the entire area of this side of the building. The built-in insulation of Twindow adds to the comfort and convenience of the patrons by eliminating cold downdrafts at windows. Besides, Twindow units afford a clear view of the airport activities. Architect: Roy A. Warden, South Bend, Ind.; Associate Architect: Vincent Fagan, South Bend, Ind.; Consulting Architect: Frank Montana, Detroit, Mich.

**CUTAWAY** shows the construction of a Twindow unit, with two panes of Pittsburgh Polished Plate Glass. The hermetically-sealed air space between the panes provides effective insulation which minimizes downdrafts, cuts heat losses through windows, reduces condensation. When three or more panes are used, insulation is even more efficient. Forty-five standard picture window sizes are available, adaptable either for wood or steel sash.

**PITTSBURGH DOORWAYS** cut corners for architects. They eliminate time-consuming calculations. There is no setting or fitting to worry about. From the twelve standard and four free-standing designs, you select the one for your job, simply by specifying the number and size needed. The frame reaches the job complete and ready for bolting into the building opening—in one "package." The massive Herculite Doors are then hung, and the work is done. Architect: Horace Cloy, Toledo, Ohio.
3) Glass Has Truly Helped to open new vistas in store front design. With large panels of Pittsburgh Plate Glass, architects have given merchants the greater benefits that come from "open vision." For this makes the entire interior a gigantic display, presenting the merchandise to the best possible advantage. In this group of two stores, Carrara Structural Glass, Herculite Doors, Pittsburgh Plate Glass and Pittco Store Front Metal were combined to create structures of immediate appeal and distinction. Architect: Myrle E. Smith, South Bend, Ind.

4) Here's an Elegant and dramatic setting in the reception room of the New York beauty salon of Michael-of-the-Waldorf. Along with other striking features are the walls of multi-paneled, beveled Pittsburgh Mirrors which pick up and reflect all the beauty, brilliance and subtlety of the furnishings and illumination. Designers: Earnshaw, Inc., New York and Philadelphia.

Design It Better with—Pittsburgh Glass

Your Sweet's Catalog File contains a complete listing and descriptions of Pittsburgh Plate Glass Company products.

Paints - Glass - Chemicals - Brushes - Plastics

Pittsburgh Plate Glass Company
For more than a quarter century G-J Door Devices have been enjoying the unqualified recommendations of leading architects in specifications for schools, commercial and public buildings, and hospitals throughout the country. Not only because of the fine quality and unvarying dependability of the products themselves, but also because the G-J line includes devices for all types of doors and their various controlling problems.

☆ A Complete Line
☆ Proved in Service
☆ Known for Distinction

Glynn-Johnson Corporation
Builders' Hardware Specialties for Over 25 Years
4422 N. Ravenswood Ave.,
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Don't worry... it's tile

Floors and walls stay good-looking... despite little heroes with big bats and sharp cleats. Genuine Clay Tile advantages are all hits! No scrubbing, waxing or polishing... defies stains, scratches, burns and scars... good for a lifetime... rich decorator colors... wide variety of patterns... low cost... fired-in colors... never needs replacement... best of all—you no longer have to talk "substitutes." Genuine Clay Tile is available now!

The Tile Council of America, Room 3401: 10 East 40th Street, New York 16, New York. Room 433: 727 West Seventh Street, Los Angeles, California.

THE MODERN STYLE IS CLAY TILE
They pinned the responsibility on us!

YES, the architect and builder on this big 120 unit Hiramar job solved one big problem right away. They pinned responsibility for performance of materials on National Gypsum by using Gold Bond Building Products all the way—Gold Bond Rock Wool Insulation, Gypsum Sheathing, Gypsum Wallboard and perforated Tape Joint System and Gold Bond Sunflex Paint.

You get two big advantages when you specify Gold Bond exclusively on your jobs. First, you know you’re getting products that are specifically engineered to work together. Second, you avoid divided responsibility when the performance of all the materials is guaranteed by one reliable Manufacturer—National Gypsum Company. So on all your jobs from now on, whether residential or commercial, specify and use Gold Bond products all the way. They’re all fully described in Sweet’s.

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BUFFALO 2, NEW YORK

Tips on cutting window costs

If You Want To Cut Maintenance Costs
...look for this Window Feature

THE NEW STREAMLINED INTEGRAL VENTILATOR BUTT
One of 7 Features of Fenestra Superiority

Above, you see the new Fenestra® Pivoted Steel Window and 4 views of the exclusive feature that slashes window maintenance... the new, streamlined integral butt which keeps vents fitting perfectly for complete weather-tightness.

1. Butts integral with jamb weathering bars—stronger, fewer parts, lower maintenance.
2. Precision machining of window bars—windows and vents of exact, uniform sizes.
3. Automatic assembly of ventilators—vents fit properly and operate easily.
4. Extended jamb bars—vents always align perfectly.
5. Strong, tight weathering sections—continuous double contact all around vent opening.
7. Strong hardware attachment—prevents breakage, affords safer locking.

COMMERCIAL PROJECTED WINDOW
Popular for efficient, economical screening or shading—vents do not interfere. Open-out vent serves as a canopy over opening, protecting interior against rain; open-in vent is a built-in windguard, shedding water outside.

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DETROIT STEEL PRODUCTS CO.
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Please send me information on types and sizes of new Fenestra Industrial Steel Windows.

Name ____________________________
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Address __________________________

May 1950
INVITATION TO ENTER. The principle of the Visual Front—to make it easy for people to see into a store—is effectively carried out in this auto showroom. Clear Plate Glass is used expansively to permit a full view from many angles.

The large window is buttressed against a mahogany Vitrolite® wall. Note that the Vitrolite extends back through the plate glass window. This carries the eye inside, creating an illusion of being inside the showroom even when outside. Vitrolite adds a wall of color that doesn’t fade—doesn’t need refinishing.

Write for our Visual Fronts book, which explains many interesting uses of glass in storefronts.

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Here's the book you've been waiting for! Full of Morgan Woodwork interior and exterior renderings by well-known architects Ted Kautzky and George D. Conner.

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Give your Ranch Type Homes character and individuality with MORGAN architect-designed WOODWORK. Here are examples of the broad scope of Morgan Woodwork styling as shown in the new Ranch Type Woodwork Book now ready for you. Order your free copy of this book today—it is filled, cover to cover, with the very newest in woodwork designs for TODAY'S American-Modern RANCH TYPE HOMES.

Architects • Builders • Dealers
You'll find in the pages of this valuable book ideas for interiors and exteriors to give your Ranch Type homes maximum beauty, durability and liveability.

MORGAN COMPANY
Manufacturers, Oshkosh, Wisconsin: Entrances • Doors • Corner Cases
Mantels • Kitchen Cabinets • Morganwalls • Trim • Windows • Stairwork

Top, Dutch Door M-110; Above: Interior Door, M-1073; Mantel M-1463; Right: Door Blinds M-310, Door M-1201. Morganwall Cabinet Installation.
5000 BRIGGS BATHROOMS
IN COLOR

world's biggest builder
knows what it takes
to sell houses

Whateve~ Levitt does... it's always BIG! When they start building houses—a city of 40,000 springs up almost overnight. When they overhear people say that they want colored bathroom fixtures—they order them by the thousand.

Five thousand, to be exact... and every single one of them Briggs Beautyware!

Knowing Levitt, there must be good reasons for this big change in contract. And knowing Briggs, there are!

First, Briggs is the only plumbing ware manufacturer whose methods of making fixtures is as modern and streamlined as Levitt's way of making houses. That's why Briggs alone can sell a complete set of colored fixtures (including brass fittings) for only 10% more than white.

Second, Briggs colored fixtures have style appeal. They look smart and expensive—without adding any expense worth mentioning to the overall cost of the house.

And last, they have the famous lightness of weight and exact dimensions of all Briggs fixtures. Installations are faster, easier, "right on the nose" every time.

Yes! Levitt & Sons know and act on a good thing when they see it. And when they saw Briggs Beautyware in color they knew homeseekers would act on it—with cash! Why not start cashing in on it yourself, today!
"You should see their faces light up when the women first walk into this bathroom. There's no doubt about it, the luxury look of Briggs Sandstone fixtures is a deciding factor in many 'one look' sale. That's what Bill Levitt says about the Exhibit Home bathroom shown here. All the other houses in this class have the same modern layout and enamel tiling plus Briggs ultra-modern Sandstone fixtures.

Whether you choose the Sandstone now being used in Levittown, or any other one of Briggs beautiful decorator colors, you will find that it adds immeasurably to the quick-sale value of all your homes.


Typical of Levitt & Sons latest full-size houses on a pint-size budget. 4000 of these $7990 homes are going up now, all equipped with television and Briggs Sandstone fixtures.
"HEY, ISN'T THAT A SMOOTH-SURFACED ASBESTOS ROOF?"

"WHAT'S MORE, THOSE FELTS ARE FIREPROOF, ROTPROOF, WEATHERPROOF!"

"YES SIREE! AND THE FELTS ARE PERFORATED TO GIVE A SMOOTHER JOB"

Yes—it's a Flexstone* Roof
Each ply is a flexible covering of stone!

- The secret of a Johns-Manville Flexstone Roof is in the felts. They're made of fireproof, rot-proof, enduring asbestos.

Flexstone Built-Up Roofs won't dry out from the sun... need no periodic coating. They're smooth-surfaced, too—permit thorough drainage... make any damage easy to locate and repair. They are engineered to each job... applied only by J-M Approved Roofers. J-M Asbestos felts are perforated to make application easier... give you a smoother job and conform better to irregularities in the roof deck.

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


Johns-Manville FLEXSTONE* Built-Up Roofs
CORRUGATED TRANSITE® • ACOUSTICAL CEILINGS
DECORATIVE FLOORS • "TRANSITE WALLS" • ETC.
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WET .... when DRY WALL CONSTRUCTION

is safer, faster, less expensive?

• If you have experienced the roar of a falling ceiling—if you have ever seen the terrific damage done—there is little we need tell you about Dry Wall Construction. You know—as we do—that Dry Wall Construction is the greatest advance in 300 years of building.

A recent survey—by a prominent builder—indicated that 54% of the home owners in his territory now prefer Dry Wall Construction for their next homes.

Mr. Carl G. Lans, Director of the Technical Service Department of the NAHB says, “Before the war, everything was lath and plaster; now it is a rare thing in residential construction. Dry wall has proved satisfactory, not only because it is much more economical, but also because it produces a true, straight wall . . . and eliminates the introduction of many gallons of moisture into the house. In addition, it is a time saver.”

For 32 years Homasote has been used for Dry Wall Construction—in millions of dollars of private homes. Since 1936 its use has been supported by intensive research costing more than $500,000.

Dry Wall Construction—with Homasote Big Sheets—offers many major advantages . . .

The average wall is covered with a single sheet; batten strips and unsightly wall joints are eliminated. Joints are made at doors and windows, as desired . . . Labor costs are minimized; many fewer handling operations; many fewer nails . . . In a single material you provide lasting insulation value and great structural strength . . . You build a quieter home, free from dampness—with dependable insurance against musty closets and mildewed walls.

Dry Wall Construction—with Homasote Big Sheets—means walls that are permanently crackproof, ideal for paper or paint, lending themselves to modern decorating effects, modern mouldings and trim.

Let us send you performance data and illustrated literature on Homasote and allied products.

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May 1950 37
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... or for decorative sculpture,

ENDURO-ASHLAR ARCHITECTURAL TERRA COTTA

meets your most exacting requirements!

Here are but two of the many ways in which more and more architects are specifying Enduro-Ashlar Architectural Terra Cotta. So remarkable is its plasticity of form, color and texture, that you can design in it without creative restraint. It can be produced in units large or small, for interiors or exteriors, in unlimited range of ceramic colors. It highlights the modern motif in architecture - for mercantile, industrial and monumental construction, and for modernization. Minimum maintenance is assured because Enduro-Ashlar Architectural Terra Cotta requires only simple soap-and-water washings to retain its original richness and beauty indefinitely.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge. Send your inquiry today.

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PLANTS AT PERTH AMBOY AND SOUTH AMBOY, N.J.
by the square foot or by the million footsteps
—there's no floor value like

NORTHERN HARD MAPLE

From kindergarten to college, time-proved Northern Hard Maple floors fight the scuffs and scars of hundreds of millions of heedless footsteps...and stay bright, smooth, cheerful, resilient with minimum maintenance.

And versatile Northern Hard Maple meets the most advanced of modern styling trends with its blond beauty!

In these cost-conscious days, may we suggest that you consider well another often-overlooked advantage of MFMA-graded Northern Hard Maple? Very important SAVINGS are assured without the slightest sacrifice of utility and endurance, by specifying MFMA Second Grade, or Second-and-Better Grade. Beauty, soundness, strength are all retained!

And for school shops, equipment rooms and such areas, still further savings are feasible with Third Grade MFMA flooring—a thoroughly sound specification.

America's leading architects and engineers will be found to concur in these conclusions.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
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Latest (1950) Editions
—Architectural 13g-7; Engineering 4j-21—for full details, dimensions standard specification data.

WRITE for special folders on second and third grades, and on list of MFMA approved finishes.
When **Speed is the Need**... Use CECO

One day you pass a new development in the making, ground is broken, home foundations are in. Then, in just a short, short time, where once there was open countryside, a whole community, spick-and-span new, "has sprung up overnight." Chances are the stores, the school, the theatre...yes, most of the light occupancy buildings...were constructed with Open-Web Steel Joists. For that is the fastest way ever to build. There's no temporary formwork necessary...nothing to take down later on. Open-Web Steel Joists are self-centering...are placed on the wall structure and right away rib lath can be laid and concrete poured to form the floor. And while all this is going on, other building
Open-Web Steel Joists

trades can be on the job doing their special work such as installing steel windows, electric wiring, plumbing and heating. So, when speed gets the call, specify CECO OPEN-WEB STEEL JOISTS. They are fabricated to exact size in the factory, come to the job tagged, ready to install...provide low cost fire resistive buildings. Ceco assures you fast service from five plants: Birmingham, Chicago, Houston, New York and Wheeling, W. Va.

CECO STEEL PRODUCTS CORPORATION
General Offices: 5601 West 26th Street, Chicago 50, Illinois
Offices, warehouses and fabricating plants in principal cities

makes the big difference
In number of products . . .

The American-Standard

The NEW DRESSLYN LAVATORY-DRESSING TABLE gives this bathroom extra glamour and utility. The Dresslyn is handsome and compact, with plenty of storage room. The genuine vitreous china lavatory has an extra deep bowl, protective splash rim and two integral soap dishes. The Dresslyn is available in two sizes and in a variety of appealing color combinations. The dressing table is available in two styles—closed front or with a knee-hole on either left or right side. The Master Pembroke Bath and the Compact Water Closet are of permanently non-absorbent genuine vitreous china . . . so durable, so easy to keep sparkling clean.

Completeness of the Line is indicated by the American-Standard Plumbing Fixtures supplied the St. Clare Hospital of Schenectady, N. Y. Autopsy Tables, Surgeons' Scrub-up Sinks and other such specialized fixtures by American-Standard were installed here. Comfortable heating was assured the hospital by the installation of Arco Radiators. In thousands of hospitals throughout the country, American-Standard products have proved to be efficient, long-lasting and economical to maintain.
in variety of types and styles
line is unsurpassed!

Whether you're designing houses, hospitals, hotels, schools or large industrial buildings, the complete American-Standard line offers the widest choice of styles, types, models and sizes of heating equipment and plumbing fixtures for your needs.

And American-Standard quality is second to none. The sound construction details of American-Standard products meet the most exacting requirements. Their good looks, efficient design, flawless performance and operating economy will win the admiration of your clients.

No line of heating equipment and plumbing fixtures is better known or better accepted than American-Standard. For this reason, when you specify American-Standard products in your plans, you are assuring yourself of satisfied clients. Ask your Heating and Plumbing Contractor for information about the complete American-Standard line. He'll gladly help you select the products best suited to your needs. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pennsylvania.

Convenience and beauty are combined in this bathroom of the Beverly-Carlton Hotel, Beverly Hills, California. The durable Master Pembroke Bath has low sides, wide bottom, for convenience and safety. Made of rigid cast iron with a thick coating of regular or acid-resisting enamel. The smart Marledge Lavatory has a deep, square bowl, splash back and non-tarnishing Chromard fittings. The genuine vitreous china Compact Water Closet features syphon vortex water action for thorough, quiet flushing.

Just the right height... for students of all sizes. These handsome wall-supported Neo-Toric Drinking Fountains in the Rosedale School of Austin, Texas, are arranged so that even the smallest tots can easily reach them. They're made of permanently non-absorbent genuine vitreous china and feature angle stream bubbler with automatic volume regulator and metal guard that permits escape of water and prevents squirting.

A dependable supply of hot water is furnished the Guest Ranch Motor Hotel of Cheyenne, Wyoming, by this Empire Gas Boiler. A good-looking boiler like this adds to the appearance of any building... the colorful jacket harmonizes with modern decorative schemes. And the Empire has all the features essential to perfect performance, including patented pin type cast iron sections, joined with gas-tight, metal-to-metal fit to assure maximum combustion efficiency.

American-Standard
First in heating... first in plumbing
Serving home and industry

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May 1950
Here's a way to give your clients at little or no extra cost!
These simple economies can offset its cost—

Many of the customary features in a home no longer have functional value when All-Year Air Conditioning is included...such things as porches, fireplaces, screens, etc. So in your preliminary planning you leave them out. This way you'll generally save enough to make up the cost of the Servel system. And clients feel they're making a marvelous exchange. For while the things that are omitted provide comfort for only portions of the year, Servel provides them with ideal comfort all year.

Tops in new-home comforts today is All-Year Air Conditioning. Year round, the air is healthfully conditioned all through the house. Year round, the humidity is carefully controlled to eliminate stickiness in summertime and the drying-out tendencies of winter. Year round, the air is filtered clean—free of dust, dirt and pollen. Bracing in summer. Cosy in winter. The flick of a finger brings instant results. And by making the decision to include Servel All-Year Air Conditioning early in the planning stages, you can give your clients this ultimate in comfort at little or no extra cost.

Recent studies indicate that the additional expense of the All-Year Air Conditioner—over and above a conventional heating plant—can be offset by eliminating some of the usual features in a house. For instance, a house designed for All-Year Air Conditioning needs no porch, no fireplace, and no attic fan. Outside doors and windows may be kept closed; in fact, in many cases the glass may be fixed which permits the use of a simple wood frame. Therefore screens are not needed. And in most parts of the country, the total of these savings will enable you to include Servel's All-Year system at little or no extra cost.

The Servel All-Year Air Conditioner can be easily adapted to any size, type, style or shape of home your client wants. Ask your local Gas Company for all the particulars or write to Servel, Inc., 4005 Morton Avenue, Evansville, Indiana.
THIS BUILDING

Since the first units of this communications laboratory were erected in 1945, performance has been watched closely. This was among the first of the parade of postwar, aluminum-clad buildings—industrial, commercial and residential. In each, aluminum was used because it contributed either to lower cost, speedier construction or more efficient operation.

Here aluminum-faced insulated wall panels have equaled or exceeded expectations; have required no maintenance whatsoever.

Alcoa engineers have contributed to the planning of every major aluminum-clad building erected in America. Our fund of aluminum knowledge, gained through sixty-two years of research and development, is available to all architects and builders.

For information on any application of aluminum, and for a forward look at aluminum's place in building's future, ask to see the book or film, "The Davenport Story". Call your near-by Alcoa Sales Office, or write ALUMINUM COMPANY OF AMERICA, 1892E Gulf Building, Pittsburgh 19, Pennsylvania.
The Crane Sunnyday Sink... porcelain enameled cast iron... in white and eight Crane colors. Single basin, double drainboard, 54” or 60”. Also available, a complete line ranging from 36” to 72”, all with Crane Dial-ese controls. Complete selection of matching wall and base cabinets. Consult your Crane Branch or Crane Wholesaler.
MODERN DOOR CONTROL BY LCN - CLOSERS CONCEALED IN HEAD FRAME

GENERAL OFFICES OF A. B. DICK COMPANY, NILES, ILLINOIS

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The Austin Company, Engineers and Builders
Walter Darwin Teague, Designer
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Patterned GLASS

May 1950 57
Gristede Bros., Inc. have 140 stores in and around New York City. Each store carries 5,000 items, twice as many as average food stores. Assemble and distribute that many items, provide special storage conditions of temperature and moisture...load and unload...handle and convey...stack and unstack—and you need a lot more than just four walls and a roof! Gristede's new warehouse—355,000 sq. ft. floor area, all heavy-duty concrete construction—is tailor-made to meet these multiple problems. Specialized know-how in design and construction, including concreting throughout with Lone Star Cement, 26,000 bbls., invests this new warehouse with the same "Quality and Service" attributes which have distinguished Gristede operations for the past 59 years.

**LONE STAR CEMENT CORPORATION**

*Progressive Architecture*
Remodeling and extension of an outmoded legitimate theater to show long-run feature movies. The exterior and tunnel-like entrance were handled in bold scale to compete with neighboring Times Square attractions, although the design is considerably simpler and worked out with fewer materials. Inside, a shimmering, restrained auditorium has been created.

Photos: Lionel Freedman-Pictor
program: To modernize and enlarge the 713-seat capacity of a shoddy old theater.
site: Mid-block location, west side of Times Square.
solution: Two major alterations were involved in the extension—removal of the old proscenium (replacing it with a plate girder), thus adding the stage area to the auditorium proper; extension of the new stage into an exit court no longer required for this purpose (see combined old and new plans). Total added seating—335. For renovation of the old walls and surfacing of the new, an ingenious aluminum-mesh curtain (a fabric formed of heart-shaped scrap-aluminum stampings from film-reel holders, threaded and clipped onto narrow, flexible metal tape and applied to wood blocking) was used as a floor-to-ceiling covering. Only foil to this satiny new surface (which, incidentally, effectively screens a multitude of mechanical outlets and unhappy excrescences of the old theater) are sculptures (by Gwen Lux) along side walls and in candelabra at rear of auditorium.

EQUIPMENT: Heating and air conditioning: existing convectors; chilled water system of conditioning; new compressor to supplement two existing ones; blowers, filters, controls. New seating; sound equipment.

Relation of old to new is indicated in section (above) and plan (below). The new reverse-curve floor, for the new seating replacing the old stage area, allowed the screen to be raised, making better sight lines for the rest of the theater and comfortable viewing from front seats. The plan further shows some of the refining of side wall lines and column shapes. Another factor in the use of the metal mesh for wall surfacing was that the architects were able to use bare cinder blocks for new wall areas and ignore old grill openings and minor breaks.

Across-page: view from gallery. The new ceiling slopes down in a graduated curve, immediately below the line of the old proscenium and so down to the screen (see section).

Above: balcony and gallery were little changed, other than having new seating, the new wall covering, and acoustical plaster surfacing of the railings. The satiny aluminum wall fabric picks up reflections from the screen; the architect comments "this tends to soften the usual effect of a rectangle of light surrounded by complete darkness. It even tends to bring the action into the theater—particularly in technicolor films."

THEATER: NEW YORK, N. Y.
The side wall sculptures by Gwen Lux symbolize Night (left) and Day (bottom of page). Smaller sculptures are used for candelabra (photo immediately below). Color scheme for entire interior is opera red (carpet; seat covering) and aluminum. At bottom left of page is a picture (H. Kaufman, photographer) of the heart-shaped aluminum film-reel stampings out of which the metal-mesh wall fabric was made. Outside dimensions of each heart are about 1 5/8" x 2 3/4". To fabricate the mesh, each heart was pierced twice horizontally across the center so that two fingers of metal were left to form a sort of slot through which flexible steel tape was threaded. The fingers were then stamped flat to anchor the pieces. These strips were laid across one another grid fashion and the intersections, grommeted.


ARCHITECTS-CRITICS (left to right): Haver; Hershey; Maston; Crain, Wilson and Morris.

Ralph Haver: U. of Southern California (B. Arch.); work in both Los Angeles and Phoenix, Ariz., offices. Corps of Engineers. Registered in Arizona on separation from service.

Don Hershey; Cornell U. (B. Arch.). Work in offices in Dayton, Ohio and Rochester, N. Y. Started own practice, 1936.

Raymond Van Alstyne (associated with Hershey on the Rochester, N. Y., project; photo not available): Teachers College, Columbia U.; Mechanics Institute, Rochester. Associated with several New York firms; own practice in New York until moving to Rochester in 1932.

Carl Louis Maston: U. of Southern California (B. Arch.). Work in Los Angeles offices; with Marine Corps during the war, opening own office immediately thereafter.


Seth Irwin Morris, Jr.: Rice Institute (B. A.). Draftsman in Houston before firm of Wilson & Morris was formed. With U. S. Navy during war; Legion of Merit. Since war, the firm has handled about $10,000,000 of design work.

In the following critique Hershey is the spokesman for the job on which he was associated with Van Alstyne. Wilson speaks for the firm of Wilson, Morris & Crain.

P/A continues on the following pages a form of critique which was instituted in the November 1949 issue. Here we present four apartment buildings critically analyzed by the architects themselves. To each of the four architectural offices we sent photographs, drawings, and descriptive information on the apartments designed by the other three. We asked for critical analysis; then we sent the comment to the architects for their rebuttal. Our own synthesis of the back-and-forth discussion results in the "critique" text on the pages that follow.

All of these apartments were designed under Section 608 of FHA's Title VI. As this issue goes to press, the fate of 608 is still in doubt although the Senate has granted it an additional $400 million, in its version of the new housing bill. But whether it continues for a longer time or dies, 608 has resulted in many hundreds of apartments over the country, which have been criticized as a stultifying influence on design, as a means for the builder to profit at public expense, as a producer of future slums.

The four projects shown here were chosen for critical study because they seemed to be among the best that thoughtful architects had been able to produce within the planning and design limitations imposed by FHA. All of the architect-critics spoke of certain elements that might have been improved if FHA regulations had not prevented. Yet we know that all of these architects argued for and won some points that might have been lost (or not raised) by less conscientious practitioners. And the comment recurs that certain minimum requirements had noticeably raised the standards of speculatively built houses.

It is the feeling of the P/A editors that these are well-designed, comfortable apartments despite the admitted compromises. No architect works without limitations and the work that he accomplishes must be judged within the framework of those limitations. We ask our readers to see if their opinions of the merit of the four groups of buildings that follow concur with those of the four designer-critics.
Country Club Apartments: Phoenix, Arizona
RALPH HAVER, ARCHITECT

Above: swimming pool (by owner) courtyard. Across page: looking down the five rows of apartments. Access is by means of walkways for ground-floor apartments; by means of balconies (both front and rear) for upstairs units. Thus, all apartments have cross-ventilation. These balconies also provide desirable shade.

Photos: Julius Shulman, except as noted
A project, to be constructed by an owner-contractor under Section 608. Approximately 100 dwelling units desired. At time project was planned, FHA could retain part ownership of mortgages on jobs costing in excess of $200,000; hence, owner specified that the entire job be broken down into independent increments, no one of which would exceed this amount, thus retaining full ownership.

Five-acre plot (less street dedications), three miles from downtown Phoenix; convenient to buses, high school and country club.

To meet the program, the project, though apparently a single unit, actually consists of five (at either side of north-south lines running down centers of court spaces). Services (such as power, gas, water, telephone, heating, and cooling) originate in the basement of the rear (south) building of each of the five increments and reach the apartments by a tunnel. Here also are located the tenant laundries and bulk-storage cubicles. Four apartment-unit types (see plans and plot key) constitute all of the buildings. Ninety-four apartments in all—30 one-bedroom; 56 two-bedroom, and 8 with three-bedrooms.


Basic plans and accommodation to site were considered “highly satisfactory.” While admiring the exterior-balcony circulation Mas-ton questioned if this constituted “an encroachment on privacy.” Hershey felt that the brick stairway enclosures would cut out light and ventilation from adjacent apartments. Haver admits that they do reduce the amount of light somewhat, but urges consideration of the fact that they appear “less hazardous than free-standing stairs with rails only.” Wilson comments on their “fine architectural effect.” As for privacy, Haver reports that he has talked with the manager and a few tenants and “much to my surprise, they didn’t seem aware that traffic might be objectionable.”
View from an upstairs balcony, looking down into the swimming-pool court. The owner contemplates constructing a second pool in the westernmost courtyard. Notice the free-standing brick enclosures around stairways—about which there was much discussion.

Maston asks if "any of the structural brick walls are exposed on the interior," going on to express the opinion that "textural richness of exterior materials offer an interesting foil to simplicity of form." Haver explains that he considered leaving structural brick walls unplastered in living and bedrooms, but "the quality of common brick available didn't make it feasible." In addition, he points out "there is no saving in leaving the plaster off because the increased cost of finishing two faces on a brick wall more than offsets the saving."
Wilson found the parking areas rather too close to the adjacent apartments and questioned whether lights of cars wouldn’t “illuminate the lower apartments.” Haver explains that the original plot plan “had car parking areas in rear courts between buildings. The owner later decided to add carports and purchased an additional 20 feet on the south, which provides space for most of the cars. The parking areas opposite from the carport are used primarily by visitors.” Enthusiastic summary comments included (Hershey): “The unprotected wading and swimming pool serves as a beacon to a new faith in free and open living without restraint,” and (Wilson): “Outstanding esthetically—and probably economically.”
Hale Manor: Rochester, New York
R. E. VAN ALSTYNE AND DON HERSHEY, ARCHITECTS

Above: view along eastern end of property. Photo: Ken Burke
Across-page: looking back into site with one of the eight-unit blocks (of which we show detailed plan) at rear. Photo: Byron Morgan

Detail across-page shows the roof scheme wherein a continuous, screened ventilation system vents into a cross-furred space, thence to the ventilator in the middle of the roof. "This is vented by gravity and is most efficient," the architects tell us.
A 608 project of one- and two-bedroom apartments for an owner-builder (Emil Muller), that could be built quickly at low cost, maintained with minimum expenditure, and take advantage of the existing site (an abandoned estate with handsome trees) without major changes. Allowed $1,800 per room, plus extra for garages, services, and landscaping. Special requirements: standard materials, locally available, to be used; project to be completed within one year; maximum land coverage—35 percent of the site.

Two-and-a-half acre, corner lot approximately a mile from downtown Rochester. From east to west, land slopes up about 12 feet in the first 200 feet, thence flattening out to the western boundary.

Four apartment-unit types, two-bedroom units interlocking (around stair halls) with one-bedroom units, make up the group. Shown is the plan of the two blocks that are aligned on a north-south axis, but it includes all four plan variants, and the key on the plot plan indicates how these are organized in other buildings. Light, air, openness of site, and a pleasing outlook were given precedence over rigorous insistence that all main living rooms face south. Basements contain storage rooms, laundries, and utility rooms.

The wish to enter all apartments from an inside vestibule conflicted with a city code requirement that prevented this unless a fire tower were built and carried three feet above the main roof; the compromise is a recessed outside entrance which has the disadvantage that this means going outside to reach basements; however, all basements are connected by tunnel, which eventually connects with garage area.


EQUIPMENT: Heating: individual, gas, hot-air units located in basements; automatic controls.

Plan details questioned included the bathroom door visible from the living room (Haver) and whether strip closets might not have been better than the big "walk-in" (Wilson). To which the architects reply: "We felt the same way about the bathroom door, although it is a barrier. However, the hall acts as a buffer, and careful placement of the arch opening helped. . . . In general, I favor strip closets but still find them more costly to build." Wilson studied the roof-venting detail and commented: "The roof system is admirable."
Two of the critics felt that a less formal plot plan might have been a preferable accommodation to the beautiful site, but Hershey tells us that they tried several only to find that the more ordered scheme seemed best from the point of view of maintaining an open park-like appearance: "A tricky layout would have been in direct opposition and made the buildings the focal point." Haeer asks: "Wouldn't a central heating system be less costly to operate and maintain than the individual unit furnaces?" The architect's reply: "No. We have figures."

Left: the inner court. To a critic's (Maston's) comment that "provision of generous amenities" seemed less well handled than other factors, such as the "goal of efficient and compact rental space," the architects remark: "In this type of project, generous amenities of living are an exception rather than the rule. The beautiful park-like site seemed to warrant an austere design." Photo: Ken Burke

Below: typical recessed entrance, which Wilson finds "pleasant in appearance than the conventional apartment hall, both inside and out." Photo: Byron Morgan

Left: the architects state that "the design and placement of the garage became a unique part of the scheme. It was treated as a motor court, with the appearance of a garden wall from the streets adjoining. All garage doors were eliminated in order to cut down maintenance, at the same time providing maximum amount of parking in a minimum space." Maston applauds: "The car parking is handled very adroitly." Photo: Byron Morgan
San Cente Apartments: Santa Monica, California
CARL LOUIS MASTON, ARCHITECT

Above: general view of project (actually a pair of row houses), across San Vincente Boulevard.

Right: detail of entrance front of the eastern block.

Maston comments: "I feel that the practical requirements of FHA as regards service facilities, storage requirements, land usage, and court size, while unavoidably arbitrary, have been of inestimable value to this area in raising the standards of apartments built by operative builders."

Photos: Julius Shulman
**Program:** To provide the maximum of income-producing space compatible with FHA land-usage requirements (45 units per acre)—in this case, 16 dwellings. Financing, insured under Section 608, allowing a maximum of $8,100 per unit.

**Site:** Level lot on a main thoroughfare, two blocks from ocean, but with no view.

**Solution:** Limiting factors, including FHA requirements, prevented anything exceptionally unorthodox. So, the architect tells us, “it seemed more feasible to avoid experimentation in favor of refining an accepted basic type of apartment. Use of the two-bedroom units was determined by the owner who felt (and was subsequently proved right) that “they yielded more rent per dollar of construction.” Straightforward alignment of a pair of apartment blocks at either side of site; storage room and carports at rear of site, reached from a public alley.

**Materials and Methods:**


"Highly commendable for its simplicity, livability and apparent economy"—Haver. "Good straightforward, common-sense planning that makes the most of the limited site"—Hershey. "Having solved similar problems with the identical parti, I cannot but admit that it's a good scheme, and done here with refinements that give it particular distinction."—Wilson. Questioned, though, were "balconies too small for use" (Haver) and the lack of "a pedestrian entrance into the garage from the front court, which would have released the passages beside the service yards for storage" (Hershey). Maston agrees that the balconies have proved rather ineffectual—"an error of judgment on my part, as I balk at using a phony medium of expression." He also says that the "suggestions offered as to more effective treatment of the garage and service area are well founded."

Right: view across main court to one of the larger, rear apartments. Below: row of back doors. Upstairs bathrooms are cantilevered to gain space and provide shelter at doorways—"an especially good gimmick," in the estimation of Wilson.

Right: living room of one of the rear apartments, looking down the main courtyard. General reaction to the group was enthusiastic: "An excellent job, with what the architect calls an orthodox plan... I am impressed with the sympathetic and understanding approach to details necessary to good living conditions, such as protection over both front and rear entrances, including lighting; careful door and window placement; bath and kitchen arrangements; second-floor closets, etc."

—Hershey. Haver was a bit critical of the tapered columns "supposedly supporting the balconies," but found the project generally a very well-integrated piece of work. Wilson comments: "This one evokes the uncommon sentiment of wishing I'd done it myself."
Describing the client's needs, Wilson points out that "these included our own, as all three members of the firm, and one employee, were members of the organizing corporation. This is a sort of co-operative apartment, all participants being veterans unable to locate any to rent ... We obtained the first 608 commitment issued by FHA in Houston since the war." The nine original tenants consisted of four architects, two lawyers, two decorators, and a stock-and-bond man.

**Program:**

Northwest corner of an esplanaded boulevard, from which a drive (behind the north building) runs back to one bank of garages; the other bank is reached from a side street. An eminently respectable neighborhood, on which restrictions had run out. Three blocks from a community center and bus line.

A group of row houses about a private court. The latter serves as a playground for small children. "We prefer parallel buildings to ones at 90-degree angles," since these avoid the intimacy of windows adjacent to each other across a corner. Between the two garage areas is a drying yard adjoining the project laundry. Projecting fins of corrugated structural glass "assist in eliminating inter-audibility reflected from the roof overhang."

**Solution:**


EQUIPMENT: Heating: gas-fired attic furnaces; controls; attic fans. Water heating: gas-unit, circulating system; 200-gallon tank.

HAVER questioned "if bringing all cars in on the side street and eliminating the north drive" was considered. "The drive at rear of the north building has proved pretty handy for wet weather and/or cumbersome unloading direct to units," says Wilson. "Access to garages entirely from side street would have made vital drying yard impossible." Finding the job "very good" in general planning, Hershey felt that doors in front of kitchen ranges (north building) must be "very annoying." "An contraire," Wilson contends. "Kitchen doors swing out. Screen, which never stands open, doesn't interfere. Thus, circulation is across merest corner of kitchen." Maston found the site planning "well conceived"; the orientation, "excellent."

Photo across-page: general view of north building. Two of the critics questioned the advisability of dropping rain water two stories from downspout stubs at street front of building. "So did the FHA," Wilson adds, "but it works well, and the catch-basin helps drain the yard."

Above: looking down into main court toward boulevard.

At right: the south building. While Maston found the buildings have a "pleasant over-all character," he felt that the mass of brick veneer at the east end of this building "relates rather awkwardly to the rest of the building." Wilson reacted: "Oh, I dunno."

Photos: Dorsey & Peters
Haver comments that "the residential character of the buildings is pleasant." But, he goes on to say "the large cantilever of the upper floor on the north building borders on being spectacular." That cantilever, Wilson points out, "is a frank solution to the third bedroom (and evasion of low ground-coverage requirements of FHA)." While Hershey questioned several details, he concludes that "this is a successful venture, and I congratulate the architects for having educated FHA to the finer things in architecture." Maston's summary impression is that "the basic units, especially in the south building, take advantage of the available land space to offer what seems to me a great amount of livability for the budget."
Mosaic for Today’s Buildings
BY EUGENE CLUTE

Contemporary architecture can gain much through the use of mosaic in a modern way, to relieve the plainness of surfaces with enrichment at focal points, increasing the effectiveness of the building. Mosaic fits into our architecture because it does not break the surface, but is an integral part of it, and it is a versatile means of expression.

The tesserae, of which mosaics are formed, lend themselves to the composition of abstract designs and other present-day forms as well as they ever served in the execution of traditional designs. Mosaic belongs to our times as much as to the days of old Byzantium or Venice, because it is, basically, very simple and flexible—a matter of arranging small pieces of marble or vitreous material in whatever way one pleases.

For many years, mosaic craftsmen have commonly been given bad designs to work from, banal in conception, poorly composed and drawn, that too often have called for a degree of naturalistic rendering contrary to the decorative nature of the medium. The better craftsmen...
welcome the liberation that comes with the opportunity to collaborate with an architect or designer to make mosaic live again.

There are, as yet, not many examples of the use of mosaic in a modern way. But there are enough such works to suggest the possibilities of this medium and there is much material for study, because the techniques employed in the best old works, when disassociated from the traditional design forms, provide the basis for a rebirth of mosaic. There are two general types of mosaic according to the nature of the material of which they are composed, namely: enamel mosaic and marble mosaic. Enamel mosaic (known as Venetian or Byzantine mosaic) is formed basically of tesserae (individual pieces) of "enamel," a vitreous material which is of the nature of glass, from which it differs in that it contains much pigment. This gives it its colors and also renders it opaque. Enamel tesserae have vibrancy due to the nature of the material and to reflections from the irregular surfaces produced when the tesserae are broken from the larger pieces of enamel. The colors, too, have a lively quality, though many of them are of great delicacy, and they are permanent; the colors in the enamel mosaics in the Byzantine Church of St. Sophia, for example, and other ancient buildings are still fresh and clear.

Gold tesserae are used extensively in combination with enamel tesserae, mainly for backgrounds. Silver tesserae are also used to some extent, usually in combination with gold tesserae. Three makers in Venice, it is said, hold the secret of making the gold tesserae, which consist of a base of glass upon which is placed gold leaf that is covered with a thin film of glass. In the best tesserae, the whole is fused without damaging the gold leaf, which being sealed in the glass, is protected permanently. Silver tesserae are made in a similar way, using silver foil.

Tesserae of pottery or other vitreous materials are used where required for the desired effect; for example, pottery supplies some of the rich, red-brown notes in the apse mosaics illustrated here. Materials of less permanence than marble or vitreous enamel should not be used in the composition of mosaics. Some artists experimenting with mosaic have introduced pieces of metal or wood in their work, but metal tarnishes, changing the color scheme, and wood decays.

Where cost is an important consideration, as in a store front, it has been found possible to use tesserae broken from domestic structural glass for the background, enlivened with a few of the imported enamel tesserae, the design being in enamel.
Marble mosaic is composed of tesserae sawn and broken from slabs of various kinds of marble, white and colored. The range of colors and tints is limited in comparison with the colors in enamel tesserae, but they are of great beauty. Marble mosaic lacks the sparkle and vibrancy of enamel mosaic, but it has a soft luminosity all its own. Light penetrates the semi-transparent surface of polished marble to a slight depth and is reflected by facets in the surface, making it luminous.

The marble of which tesserae are made is sawn into slabs of the desired thickness by means of gang saws that are without teeth, the cutting being done by sand and water fed onto the saw constantly. Next the slabs are cut into tesserae. The broken surfaces are the edges of the tesserae, the face and back being sawn surfaces. Tesserae for the Roman type of mosaic are about \( \frac{5}{8} '' \) to \( \frac{7}{8} '' \) square by \( \frac{5}{8} '' \) deep. Those for Pompeian mosaic, which is distinguished by the smaller size of the tesserae, are about \( \frac{3}{8} '' \) deep by \( \frac{1}{4} '' \) to \( \frac{1}{2} '' \) square. There is also a type of Pompeian mosaic that is made up of stones of irregular shape, not more than \( \frac{5}{8} '' \) over-all and approximately \( \frac{3}{8} '' \) thick.

Tesserae for Cosmati mosaic are broken from slabs of marble about \( \frac{3}{4} '' \) to \( \frac{7}{8} '' \) thick, with a chisel-hammer on an iron block. All edges are broken to shape by hand in this way, preventing mechanical hardness. Cosmati is distinguished from other types of mosaic by the fact that the tesserae are cut to conform to the design. It is composed of relatively large pieces generally of various geometrical forms, such as squares, oblongs, triangles, and circular pieces. The sizes of Cosmati tesserae range upwards from \( \frac{5}{8} '' \) to about \( 4 '' \) across.

Enamel mosaic is suitable for walls, ceilings, soffits of arches, etc. Marble mosaic of the Roman type or of the Pompeian type is used for floors or for other surfaces. Cosmati mosaic is most often used for borders in marble floors but there are some fine floors entirely of Cosmati mosaic.

Whether made from vitreous material or marble, mosaics are permanent and essentially architectural. They are tied into the design of the building through the simplification that is imposed by the expression of the subject in an arrangement of tesserae. This limitation tends also to a vigor of handling that is apt to be lost in a multiplicity of details when a more facile medium is employed.

Today we have facilities which make it possible to produce speedily mosaics that are fully studied and executed with proper care, through the co-ordination of the specialized abilities of various craftsmen.
Dental Clinic: Bellevue, Washington

J. L. FOLLETT, ARCHITECT

program:
A clinic—two operating rooms (one for X-ray work); a laboratory; dark room; recovery room; office and waiting room; building (minus dental equipment) to come within a $5,000 budget.

site:
Relatively flat, rural; on west side of bordering street.

solution:
With the small budget, as the architect comments, "naturally the spaces had to be small—as small as functionally practical." However, with the open side, "I hated to have it look too small." To resolve this, he extended the building by means of a semi-enclosure, for a terrace-entrance area; then walled the minimum-size (but adequate) waiting room with glass panels, which visually make the small area seem spacious. The building proper actually cost $4800; the dentist's equipment added $5,000 more.

materials and methods:
CONSTRUCTION: Concrete slab. Walls: wood frame, surfaced outside with 1" x 6" t & g Western cedar; inside with 3/8" plaster board. Floors: linoleum over wood, raised above slab on 2" x 4"'s placed 16" o.c. Roof: built-up; 15-year guarantee. Insulation: acoustical—quilt type; thermal—wool batts. Fenestration: special wood sash; crystal sheet "B" glass.

EQUIPMENT: Heating: oil-fired, hot-air; introduced to rooms at ceiling height and using the space between slab and finish floor as a return-air plenum which is served by a continuous, screened slot immediately inside the bottom of the sash. "By taking the air directly from the base of the glass sheets, a warm floor and non-fogging glass was achieved."

the architect:
Across-page: street view, showing the extensive effect of the wall screening the terrace-entrance, at left. The siding is stained rust red; cornice is burnt yellow; soffits, chalk green; and trim, burnt green. Below: terrace-entrance detail, wherein the semi-enclosed space adds to the apparent size of the building.

Photos: Dearborn-Massar
Left: view from waiting room out to terrace-entrance and rear garden. Natural-finish maple furniture has a red-and-white patterned fabric. Notice in-swinging, screened ventilation panels above fixed glass panels. These occur throughout the building.

DENTAL CLINIC: BELLEVUE, WASHINGTON

Above: the operating-room wing and (at left) an interior detail, showing the wall-to-wall fixed fenestration, with operable vent strips above.
Hotel: Fort Fairfield, Maine
ALONZO J. HARRIMAN INC., ARCHITECTS-ENGINEERS

The new Plymouth Hotel replaces one built in 1917 and destroyed by fire in 1947. Located "way down in Maine" in Aroostook County (the potato empire), it is close to the New Brunswick border. While there is some summer-tourist business, the hotel is for year-around use—commercial travelers and such local needs as banquets, clubs, etc.

Above: general street view.
Below: the lobby.

Photos: Clarence H. White
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B.R.

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proutan!

sile:

solution

materials and methods:

CONSTRUCTION: Frame: structural steel. Walls: face brick, back-up cinder block; corrugated asbestos in spandrel areas. Interior walls finished with paint. Floors: light, expanded steel joist system. Finishes: asphalt tile (ground floor); carpet on upper floors; ceramic tile in toilet rooms. Roof: expanded steel joist; built-up roofing. Insulation: 13/16" vapor barrier in walls; 2" rigid insulation in roof. Partitions: solid plaster between guest rooms; cinder block at stairwells, elevator, boiler room, and kitchen; elsewhere, wood stud surfaced with gypsum board; metal partitions in toilets.

EQUIPMENT: Heating: low-pressure steam system; oil-fired furnace; cast-iron radiators; steel piping; adjustable controls.

the architect:

Alonzo J. Harriman: U. of Maine (B. S., Mech. Eng.). Five years work in structural engineering followed by Harvard U. (M. A. Arch.). Established own practice in 1939. During the war the firm did an enormous amount of housing and industrial-plant design.
Above: detail of main desk in lobby.
Right: the main dining room, with folding partition of banquet-room area at right.

Right: the coffee shop, with big window at right looking out onto Main Street.
Below: the hotel kitchen, daylighted by continuous windows at right.
An important design factor, unfortunately not conveyed by black-and-white photographs, is the generous use of color throughout. Wall paints and furniture fabrics vary from room to room. The economical partition between rooms (a compromise with an original hope for a complete storage wall) includes built-in baggage rack, and a desk-dresser combination.
Top: view from the northwest—the direction from which the prevailing breeze derives.
Bottom: detail of western terrace, protected by 10-foot overhang, that also acts as a breeze trap.

Photos: Roger Sturtevant
program: Economic house for a veteran and his wife, designed to cope with the sometimes intensive summer heat of the area.
site: Flat property, north side of residential street.
solution: House organized within simple rectangle (cost came to less than $10 a square foot) with its end toward the street, and the western garden screened by redwood beanpole fencing. To take advantage of the prevailing northwest breeze, a 10-foot roof overhang extends along both north and west sides (on the north end forming the carport) which acts as a breeze trap. A screened slot 1'-6" high (see bedroom photo) is provided in the north wall to draw the breeze through the room.
EQUIPMENT: Heating: gas-fired furnace serving hot-air system, with space above 6'-8" hall closet and shower enclosure serving as heating and air-conditioning duct. Air conditioning: water-cooled unit installed on roof, above the furnace.
the architect: Henry Hill: U. of Calif. (A. B.); Harvard U. (M. Arch.). Prior to war, partnership with John Dinwiddie; immediately post-war, member of Mendelsohn, Dinwiddie & Hill; own practice, past two years.
End walls of the house are natural, second-hand brick; wood walls, oil-finished; front door, gray-blue; car shelter post and thin line of gravel stop, salmon red.

At left: the living-dining room with full-height doors and windows on west wall (right) and higher, alternating fixed and casement sash along east wall. Together, they create something of a venturi effect in breeze luring.

Below: northeast corner of bedroom; note screened breeze slots (one open, one closed) at top of north brick wall.

HOUSE: FRESNO, CALIFORNIA

Above: the efficient kitchen has a door out to the rear and a view through the eastern windows across the valley to the Sierras.

Right: the walls of the hallway are surfaced with striated plywood. Left-hand wall made up of storage closets, furnace room and (above them) the heating and air-conditioning plenum.
How to Choose a Comfort Cooling System

BY ROBERT H. EMERICK*

To make a reasonable choice in any case of comfort cooling the alternates available. For comfort cooling these alternates include: mechanical compression systems, absorption cycles, steam jet arrangements, designs with ice, and plain cold water from the nearest well. Let's see what we can expect from each.

Mechanical Circulation

These systems, currently dominating the market, employ the basic arrangement of compressor, condenser, evaporator, expansion valve, and air moving fan. These are illustrated by Figure 1.

For small loads, say up to 15 tons, most of the mechanical compression circuits are concealed within the finished cabinets of the familiar package coolers. These units are push-button controlled, uncomplicated in appearance, and notably flexible in their application. We can use them to supply cool air to a duct distributing system or simply allow them to discharge into the room wherein they stand. Service too, is quite simple—hardly more difficult than for a domestic refrigerator—a skilled service man can replace an entire compressor in two hours or less.

Wherever we have a load within the range of a package unit, and most retail specialty stores and professional offices are within such a range, this solution is likely to be the simplest and best. Some installations will use city water for condensing the refrigerant; however, at a rate of 1½ gallons per minute for every ton of capacity, the expense may become an item to be reckoned with. If we can't stand the cost of water then we must install a cooling tower which enables us to use the same condensing water over and over again. Air for condensing is not practical for units larger than 1½ tons, under average summer conditions.

Package units for large loads

By grouping a number of small cabinets we have a means, although not always the best one, of meeting a large load. The advantage of this plan is an obvious one: all units are not likely to break down simultaneously. On the other hand two serious disadvantages are incurred: first,

Table 1: Small Package Coolers

<table>
<thead>
<tr>
<th>Rating tons or hp</th>
<th>Width inches</th>
<th>Depth inches</th>
<th>Height inches</th>
<th>Air cfm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>38</td>
<td>20</td>
<td>40½</td>
<td>360</td>
</tr>
<tr>
<td>3</td>
<td>46</td>
<td>24</td>
<td>73</td>
<td>1200</td>
</tr>
<tr>
<td>5</td>
<td>49</td>
<td>20½</td>
<td>93½</td>
<td>2000</td>
</tr>
<tr>
<td>7½</td>
<td>73</td>
<td>38</td>
<td>73</td>
<td>3000</td>
</tr>
<tr>
<td>10</td>
<td>73</td>
<td>38</td>
<td>73</td>
<td>4000</td>
</tr>
<tr>
<td>15</td>
<td>102½</td>
<td>28</td>
<td>104</td>
<td>6000</td>
</tr>
</tbody>
</table>

* Air-cooled condenser, all others water cooled.
Table 2: Large Package Coolers With Built-In Evaporative Condensers

<table>
<thead>
<tr>
<th>Ratings tons or hp</th>
<th>Width inches</th>
<th>Depth inches</th>
<th>Height inches</th>
<th>Air handled by conditioning fan, cfm</th>
<th>Air handled by condenser fan, cfm</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>110</td>
<td>42</td>
<td>74</td>
<td>7000</td>
<td>4400</td>
</tr>
<tr>
<td>20</td>
<td>110</td>
<td>42</td>
<td>74</td>
<td>8000</td>
<td>5000</td>
</tr>
<tr>
<td>25</td>
<td>122</td>
<td>48</td>
<td>77</td>
<td>10,000</td>
<td>6000</td>
</tr>
<tr>
<td>30</td>
<td>130</td>
<td>54</td>
<td>85</td>
<td>12,000</td>
<td>7000</td>
</tr>
<tr>
<td>40</td>
<td>140</td>
<td>60</td>
<td>90</td>
<td>16,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

Table 3: Component Parts Data

<table>
<thead>
<tr>
<th></th>
<th>Rating</th>
<th>Length inches</th>
<th>Width inches</th>
<th>Height inches</th>
<th>Weight pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressors</td>
<td>15</td>
<td>82</td>
<td>36</td>
<td>49</td>
<td>2100</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>82</td>
<td>37</td>
<td>49</td>
<td>2180</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>82</td>
<td>37</td>
<td>49</td>
<td>2200</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>82</td>
<td>37</td>
<td>49</td>
<td>2240</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>82</td>
<td>37</td>
<td>49</td>
<td>2260</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>82</td>
<td>37</td>
<td>50</td>
<td>2650</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>106</td>
<td>44</td>
<td>54</td>
<td>4240</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>106</td>
<td>44</td>
<td>54</td>
<td>4700</td>
</tr>
<tr>
<td>Air Mover and Filter</td>
<td>3-8</td>
<td>95</td>
<td>44</td>
<td>29</td>
<td>2500</td>
</tr>
<tr>
<td>Units</td>
<td>8-16</td>
<td>102</td>
<td>71</td>
<td>29</td>
<td>2570</td>
</tr>
<tr>
<td></td>
<td>16-24</td>
<td>102</td>
<td>71</td>
<td>39</td>
<td>2600</td>
</tr>
<tr>
<td></td>
<td>16-33</td>
<td>102</td>
<td>71</td>
<td>49</td>
<td>4700</td>
</tr>
<tr>
<td>Cooling Towers</td>
<td>2½ hp</td>
<td>66</td>
<td>30</td>
<td>40</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>102</td>
<td>30</td>
<td>40</td>
<td>650</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>102</td>
<td>30</td>
<td>52</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>102</td>
<td>30</td>
<td>64</td>
<td>950</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>102</td>
<td>30</td>
<td>78</td>
<td>1100</td>
</tr>
</tbody>
</table>

Table 2, left: steam jet circuit.

if we can obtain equal capacity in a single unit, we are paying a premium in space for the multiple arrangement; second, the duct, damper, and control arrangements are likely to become quite complicated. Economically a multiple installation is unfavorable under most conditions.

Instead of the multiple plan we can substitute a large package unit. This type is available, from a reduced number of builders, in a single cabinet and in capacities up to 40 tons. An important feature of this package is the inclusion of an evaporative condenser in the common housing, thus providing a system all in one unit. However, the evaporative condenser requires fresh air in large volumes; we must bear its warmed bulk to the wide open spaces in even greater volumes, a feat that sometimes involves considerable duct work.

The physical dimensions of these big plants can make their location quite a problem, as emphasized by Table 2. In short, they find themselves competing with the "tailor-made," or dispersed type of central plant in which we locate the compressor in one place, the air mover unit or units in another, the cooling tower or evaporative condenser in still another.

the "tailor-made" or dispersed central plant

Figure 2 illustrates the procedure of lifting components of a system from the cabinet, for assignment to suitable areas often widely separated.

The practice enables us to set our machinery in the least essential areas and offers a way to reduce or eliminate long duct runs. This arrangement is common for very large systems since it is applicable to one building, or to several. If our load is much above 15 tons we certainly should study this possibility; the building features and the nature of its occupancy will provide a guide.

In these preliminary studies the data in Table 3, which indicate dimensions of component parts, should be quite helpful. By cutting paper templates and laying them on a drawing or sketch, we may see at once the wisdom of further investigation or abandonment of the idea.

From the investment standpoint we can expect to pay from $250 to $450 per rated ton for a dispersed central plant arrangement, depending on the situation encountered. These prices will include everything.

Operating costs, once we go beyond 15 tons capacity, begin to be affected by the demand factor that commonly appears in the rate structure for electric service. Consequently, a large comfort cooling installation, although operated but a few months in the summer, may impose on the owner a demand charge that is assessed every month throughout the year. This possibility deserves particular atten-
The steam jet picture

A dispersed central plant can be formed with somewhat less facility by using steam jets on a water tank, instead of the mechanical, motor-driven compressor. With this arrangement the condenser by necessity must be mounted contiguous to the jets but the cold water, which serves as the refrigerant, can be pumped to coils and air moving fans located anywhere.

The functioning of the steam jet system is illustrated by Figure 3. The steam jets create a vacuum above the surface of the water, and since water boils right down to 32°F if the vacuum is great enough, the water under the steam jets grows colder and colder and we can control the temperature by controlling the vacuum. The cold water is pumped to the air cooling coils wherever they are.

The appearance of a steam jet installation is illustrated by Figure 4. Here we see the jets on the tank, the condenser, and the pump for circulating the cold water. We do not see the cooling tower nor the cold water storage tank that, insulated with cork, frequently is a necessary auxiliary for a steam jet system.

The space requirements for the equipment shown in Figure 4 appear in Table 4. The dimensions of the storage tank can be whatever we wish.

Steam jet installations, complete, will cost from $150 to $300 per rated ton, the unit cost descending as the capacity increases.

Considering both space and initial cost factors, the steam jet system compares favorably with the conventional mechanical compressor installations. It is simple to operate; except for the chilled water pumps, it has no moving parts. However, its economical operation depends entirely on the availability of low cost steam, say $1 per thousand pounds or less. Where district steam service is at hand, steam is often available at this price during the summer months; however, if the system must be used at other periods of the year, a steam demand charge may upset the whole economic balance.

Table 5 shows the steam required per ton of steam jet refrigeration, at various pressures, and the quantity of condensing water needed. Obviously, the higher the pressure, the better the economy of operation. Higher pressures, however, tend to increase the rate of erosion on the steam jet nozzles; for superheated steam, nozzles of stainless steel or monel offer good resistance. Maintenance costs generally are low for there is little to wear out; this is one of the steam jet system's notable advantages.

**what about absorption systems?**

Figure 5 is a refresher diagram of the absorption circuit.

For comfort cooling, the application of the absorption principle is encountered mostly in small cabinet units of 3 to 5 tons capacity, generally fired with gas, and similar in their combustion features to the gas fired refrigerator.

Compared with mechanical compression package plants of the same size, these absorption designs are likely to have a higher purchase price, but over a period of 20 years or so their low operating costs often produce a lower over-all owning charge. This is particularly true if the local gas rate averages less than 90 cents per 1000 cubic feet, for the
first 10,000 cubic feet used each month.

Since both cooling and heating facilities are housed in the same cabinet of an absorption conditioner, a direct comparison with other forms of conditioning requires us to evaluate the over-all picture. That is, we should add the costs of a heating plant to the conventional mechanical compression arrangement and thus strike a figure for all year operation.

The advantages of the absorption cabinets are these: a probable lowest lifetime owning cost; a reduction of cabinets are these: a probable lowest non-moving parts by eliminating the compressor; a somewhat lower noise index, due to the absence of the compressor.

The disadvantages are these: in many communities service will be non-existent or haphazard; as with other systems of cooling, they require pumps and a cooling tower; their small unit capacity soon introduces the need for multiple installations.

Below are the physical dimensions of the absorption cabinets:

<table>
<thead>
<tr>
<th>Capacity in Tons</th>
<th>Width (Front)</th>
<th>Depth (Side)</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>661⁄2&quot;</td>
<td>571⁄2&quot;</td>
<td>841⁄2&quot;</td>
<td>2150 lbs.</td>
</tr>
<tr>
<td>5</td>
<td>661⁄2&quot;</td>
<td>571⁄2&quot;</td>
<td>841⁄2&quot;</td>
<td>2485 lbs.</td>
</tr>
</tbody>
</table>

Minimum room dimensions acceptable for maintenance: 7'-0" x 8'-0"; 7'-4" ceiling.

The cost of these all-year conditioning units, if charged against cooling capacity only, runs around $1100 per ton; if assessed against the heating cycle, $38 per thousand Btu. These figures show the fallacy of using anything less than a full year's service when attempting an evaluation of a bid.

**the towers and evaporative condensers**

Since one or the other of these apparatus is needed for the mechanical compression, steam jet, and absorption circuits, some idea of their sizes and weights is desirable.

Most of these units are seen on roofs; actually we can locate them everywhere, on the ground, even indoors, provided we give them enough air. In the tower the condenser water is cooled by simply spraying it into a stream of air where six or eight percent evaporates and cools the remainder. The evaporative condenser works similarly except that the cooled water falls over a coil into which the refrigerant enters as a gas and leaves as a liquid, minus its heat of evaporation. The advantage of the evaporative condenser is a physical one, as it combines the condenser and cooling tower in a single housing. It is not applicable to the package coolers which contain their own built-in condensers, and we must use towers for these.

In either case, the water is recirculated again and again and only that lost by evaporation, a rather negligible quantity in most installations, must be supplied.

Natural draft towers are the cheapest to buy; however in humid climates they are not satisfactory as the relatively small volume of air passing through them is quickly saturated and thus checks their cooling. Forced draft towers with fans and motors are essential, therefore, in such climates. Fans are standard equipment with evaporative condensers.

Table 3 presents physical facts for this group of apparatus; Figure 6 is typical of the evaporator condenser.

**comfort from ice**

Figure 7 illustrates an arrangement that cools by co-operation of the iceman.

As ice melts very fast when sprayed with warm water, we can obtain a great deal of cooling for a short period. For example, one ton of ice will absorb 288,000 Btu in melting; if our spray water melts it in an hour we have accomplished 24 tons of cooling since 12,000 Btu is the measure of a single ton in a single hour.
Churches, theaters, and similar centers of short occupancy have used the iceman system with considerable satisfaction. Installation expense is not heavy, since we can build the ice bunker of any size we wish. Ice costs vary with location but $8 per ton might be used as an average.

**The cold water way**

If we have a well handy that delivers cold water abundantly or even a chilly lake or river we can forget other schemes for summer comfort and simply pump the cold water into our cooling coils. When nature furnishes the cold water, this is the cheapest scheme of all.

**First cost is not all**

In considering a comfort cooling system a crucial question is: which one actually is best economically?

First price can be quite misleading since the economics of an installation include operating expenses, maintenance costs, amortization, even space assessments if space is available.

Here is an analysis for example, of bids received for an all year plant in a large residence of 18 rooms:

<table>
<thead>
<tr>
<th>Item</th>
<th>Lowest Bid</th>
<th>Low Bid</th>
<th>3rd Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quoted Price</td>
<td>$9532.95</td>
<td>$9649.50</td>
<td>$10,082.96</td>
</tr>
<tr>
<td>Annual Operating</td>
<td>1609.96</td>
<td>1507.95</td>
<td>1465.16</td>
</tr>
<tr>
<td>Total Owning</td>
<td>2345.99</td>
<td>422.34</td>
<td>0</td>
</tr>
<tr>
<td>Cost</td>
<td>20 Yr. Life</td>
<td>39,808.50</td>
<td>39,386.16</td>
</tr>
<tr>
<td>Extra Cost of Owning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes interest on investment @ 4½%, electricity at 5 cents per kw, estimated maintenance based on judgment and records and amortization.*

Obviously the low bid here was not the most economical bid, not by more than $2000.

Another factor of importance in evaluating bids is the item of excess capacity; we might call it a factor of safety. In one large job recently analyzed by the writer, the low bid was remarkable by its exact meeting of the specifications, there was no leeway anywhere. On the other hand, the next low bid, $500 higher, provided more than three tons of excess capacity which could be devoted at a later date, if the owner wished, to an extension of the cooled areas. In 20 years the low bid was still low, but by less than $20 so the owner decided those 3 tons were certainly worth $20 to him and placed the contract with the next to lowest bidder.

The final choice of cooling system should be made only after careful evaluation of two basic factors, the first factor being the physical characteristics of the system, the other is economics. The latter must be calculated from the bids received but for the first the chart of characteristics, Table 6 should offer some initial help.

<table>
<thead>
<tr>
<th>System</th>
<th>Especially suited</th>
<th>Less suitable</th>
<th>Condenser water cooler</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Package Coolers,</td>
<td></td>
<td></td>
<td>Tower or city water</td>
<td>Commonest of comfort</td>
</tr>
<tr>
<td>Mechanical Compression</td>
<td>(a) Homes, offices, small stores</td>
<td>(e) Large loads</td>
<td></td>
<td>coolers. Wide choice</td>
</tr>
<tr>
<td></td>
<td>(b) Loads under 15 tons</td>
<td>(b) Multiple arrangement</td>
<td></td>
<td>of manufacturers. Easy</td>
</tr>
<tr>
<td></td>
<td>(c) Space or duct arrangement</td>
<td></td>
<td></td>
<td>service</td>
</tr>
<tr>
<td>Large Package Coolers,</td>
<td>(a) Central plant duty</td>
<td>(a) Space may be unfavorable</td>
<td>May have built-in</td>
<td>Competes with tailormade</td>
</tr>
<tr>
<td>Mechanical Compression</td>
<td>(b) Loads from 15 to 40 tons</td>
<td>(b) Condenser ducts may complicate</td>
<td>evaporation condenser</td>
<td>installations</td>
</tr>
<tr>
<td></td>
<td>(c) Where owner wants a big plant</td>
<td>in installation</td>
<td>Otherwise uses tower</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(d) Where owner wants a big plant in a single housing</td>
<td>(e) Small loads</td>
<td>Tower or evaporation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(e) Where owner wants a big plant</td>
<td>(b) It units are scat-</td>
<td>condenser</td>
<td>Now serving the bulk</td>
</tr>
<tr>
<td>The Tailor-Made or Dispensed Central</td>
<td>(a) Loads above 15 tons</td>
<td>(a) Small loads</td>
<td>Tower or evapora-</td>
<td>of all installations over</td>
</tr>
<tr>
<td>Plants, Mechanical Compression</td>
<td>(b) Minimizing duct runs</td>
<td>(b) It units are scat-</td>
<td>tion condenser</td>
<td>15 tons</td>
</tr>
<tr>
<td></td>
<td>(c) Supplies scattered load requirements</td>
<td>tered supervision is</td>
<td>(c)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(d) Excellent for large buildings or multiple buildings</td>
<td>difficult</td>
<td>(e)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(e) Easily assembled with components from various manufacturers</td>
<td>(f) Economic justification needs cheap</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>Steam Jet</td>
<td>(a) Medium to large loads, above 20 tons</td>
<td>(a) Economic justification needs cheap</td>
<td>Tower</td>
<td>Many installations along district</td>
</tr>
<tr>
<td></td>
<td>(b) Cheap steam</td>
<td>(b) Headroom may be</td>
<td>steam</td>
<td>steam mains, especially for</td>
</tr>
<tr>
<td></td>
<td>(c) Tailor-made or dispersed central plants</td>
<td>(c) Large water storage tank may be</td>
<td>(c)</td>
<td>large loads</td>
</tr>
<tr>
<td>Absorption Package Cooler or Gas</td>
<td>(a) Homes, offices, small stores</td>
<td>(a) In areas where</td>
<td>Tower</td>
<td>Choice of models and</td>
</tr>
<tr>
<td>Fired</td>
<td>(b) Loads under 10 tons</td>
<td>skilled service not</td>
<td></td>
<td>makers quite limited</td>
</tr>
<tr>
<td></td>
<td>(c) Low gas rates</td>
<td>available</td>
<td>(b) Initial costs tend</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(d) Provides all-year conditioning from a single cabinet</td>
<td>(b)</td>
<td>to be relatively high</td>
<td></td>
</tr>
<tr>
<td>Ice Bunkers</td>
<td>(a) Heavy loads for short periods</td>
<td>(a) Costly for long and</td>
<td>No condenser</td>
<td>One of the early ar-</td>
</tr>
<tr>
<td></td>
<td>(b) Buildings with irregular usage</td>
<td>steady loads</td>
<td></td>
<td>rangements for comfort</td>
</tr>
<tr>
<td></td>
<td>(a) Costly for long and</td>
<td>steady loads</td>
<td></td>
<td>cooling</td>
</tr>
<tr>
<td></td>
<td>(b) Ice handling is</td>
<td>(b) Ice handling is</td>
<td></td>
<td>(c)</td>
</tr>
<tr>
<td></td>
<td>(c) Must be built to</td>
<td>sometimes messy</td>
<td></td>
<td>built to</td>
</tr>
<tr>
<td>Natural Cold Water</td>
<td>(a) Cheapest cooling where available</td>
<td>(a) Cooling range limited by temperature</td>
<td>No condenser</td>
<td>order</td>
</tr>
<tr>
<td></td>
<td>(a)</td>
<td>of water</td>
<td></td>
<td>No condenser</td>
</tr>
</tbody>
</table>

**Materials and Methods**

94 Progressive Architecture
Sun Control Methods: PART I
BY GROFF CONKLIN

This open type structural overhang, on a British school, illustrates both the merits and faults of such a sun control method. If the louvers are adjustable, the sun's heat will be successfully barred from the room during the hottest part of the day, when the sun is high. But the overhang is valueless in controlling glare when the sun's light is most uncomfortable, during the early morning and late afternoon hours.

Photo: Sidney W. Newbery

There is no doubt that we are entering an era in which the use of large expanses of glass in all types of buildings is going to become increasingly accepted practice. The advantages of window walls from the various points of daylighting, winter heating economy, and the sense of freedom and good health which the openness of a large window gives to people, are enormous. In the words of Architect Charles Goodman, of Washington, D.C., the large glass area provides the individual with a kind of "multiple spatial magnetism: open, airy, visually unrestricted space that allows the human eye the freedom and variety of focus necessary to restfulness and psychological relaxation at all ages of the human mechanism and in all its stages of health."

Along with the glass wall, so-called, trails the problem of controlling the uninhibited sun which immediately floods the rooms in buildings so provided. It is a truism that completely satisfactory control of solar radiation and sunlight inside a structure with large glass areas is impossible, since the solution requires a compromise between diametrically opposite situations. One enlarges glass areas to increase daylighting efficiency and home livability, and then shades or drapes the openings to reduce glare and achieve privacy. One orient buildings for maximum sunlight reception in winter, and then builds in heat-absorbing glass to reduce excess summer radiation—which, in turn, considerably reduces solar heating efficiencies in the winter! One builds overhangs above and at the sides of windows, carefully designed to admit maximum sun in the winter and minimum light in the summer and finds that unfortunately the sun's rays still creep in no matter how effective the overhang, and window coverings are still essential. Though the sun is our friend, without whom we could not live, it is also something of a persistent nuisance from whom we need at least a minimum amount of protection for our own comfort.

problems of sun control
That "sun control" is not a simple matter susceptible of easy solutions is made obvious when one summarizes the more important problems which are encompassed by the phrase. Here is a list of them:
1. Minimization of glare, summer as well as winter.
2. Minimization of glare and reduction of eyestrain at all hours of the day in an exposed room.
4. Maximization of solar heat entering rooms in winter.
5. Adjustment of solar heat to maximum operating efficiency of heating and cooling systems.
6. Control of condensation at windows in wintertime.
7. Insect, dirt, and dust control at openings.
8. Protection against rain, snow, and wind at openings.
9. Provision of adequate ventilation at all times.
10. Arrangements for privacy when needed.
11. Maintenance costs versus original costs of sun control devices.
13. Exterior appearance: the architectural or esthetic factor.

Every building will present a complex of many or all of these problems, and no solutions will be automatic. They will take a good deal of careful thought, particularly in view of the highly technical physics of solar radiation, optics of various glasses, and psychology of daylighting. Wise indeed was the young architect who recently said: "Whenever I have a job which requires a large-scale analysis of the effect of solar radiation and glare on livability or working efficiency I call on the technical staffs of the companies manufacturing sun control devices, or on independent consulting engineers in the fields of daylighting, heating and air conditioning, for expert advice. I early realized that the field is much too specialized for the average architect, except in the case of very simple problems. I have neither the time nor the training to be an expert in daylighting, so I use the technicians as a sort of extension of my own office whenever a problem in sun control comes up. Thank God for them—if they were not in business, I probably wouldn't be, either."

methods and devices for sun control
This special statement should not be taken to mean that every small job calls for the special attention of the experts. It does, however, underline the complexities of the question; and the following list of techniques for controlling solar heat and glare makes even more clear the fact that a solution to the problem of sun control is not one to be worked out in an afternoon.

The most important techniques for sun control are as follows:
Natural devices: building orientation, trees and shrubbery, shade of other buildings and projecting wings, geographical elements such as hills.

Around windows, outside: balconies, arcades, canopies and overhangs, arbors, eggcrate overhangs, solid horizontal and vertical fins, deep reveals, awnings of cloth or metal.

Over windows, outside: shutters, fixed or movable louvers, fixed exterior Venetian blinds, heat-absorbent storm windows or glass jalousies in addition to the regular window, Venetian screening, paint or whitewash (used mainly in greenhouses and, rarely, in factories where glare has proved an annoying problem).

The window itself: heat-absorbing glass, double glazing, glass jalousies and awnings, glass block, frosted glasses, elimination of windows entirely.

Over windows, inside: single or double cloth roller shades, slatted bamboo shades, Venetian blinds either horizontal or vertical, draperies, glass curtains, venetian screens inside casement windows.

Interiors: scientifically planned interior decoration and furnishing to reduce glare.

the windowless building

Of the above solutions or devices, only one is absolutely perfect; that is the building without any windows at all. Perhaps the time will come when—as the result of factors very different from those an architect considers in designing a building—the windowless structure will be home for all of us—probably under ground, at that. But until that time, buildings without windows are for most uses bad in every way. They tend to give their occupants a permanent feeling of claustrophobia which, in commercial and industrial structures, reduces efficiency and probably increases labor turnover.

Of course, certain types of buildings, such as storage warehouses, are naturally windowless, and certain other types, such as modern department stores, can be windowless without serious side effects. Furthermore, some manufacturing processes, particularly chemical, require minutely controlled temperatures and lighting intensities which can be provided only in windowless areas. But in the case of these manufacturing plants, the processes requiring such careful controls usually can be segregated in the interior of the building, while the offices, hallways, recreation and dining rooms and even work areas not requiring such controls can be day-lighted. In general, the windowless building in which human beings are supposed to work is a stupid and inhuman solution to the problem of sun control.

orientation

Buildings without windows cannot even be considered under usual circumstances. Consequently the sun itself must be faced and controlled by the architect from the very start of the design of the building. And this can best be done by beginning with intelligent orientation of the structure on its site, together with placement of wall openings in logical relationship to this orientation.

The purpose of orientation is to control by geographic means the entry of the sun into necessary wall openings. Practical orientation depends not only on the fixed angles of solar radiation at various hours of the day and various seasons of the year, but also on prevailing winds, site shape and contour, zoning and building code restrictions, relative humidities at various times of the year, relation to other buildings and to natural cover such as trees and shrubbery, and local microclimatic conditions such as air currents due to adjacent hills or slopes, humidities arising from nearby bodies of water, and so on.

The average number of bright days compared with cloudy or rainy days will also be a factor in specific areas, as will the question whether summer heat or winter cold will be the most serious problem. Finally, orientation and its relation to architectural treatment, engineering costs and use of extensive substructures will be affected by the type of building use, the budgetary limitations, the personal tastes or advertising requirements of the client, and the special predilections of the architect himself.

Much help on the macroclimatic aspects of building orientation can be obtained from the United States Department of Agriculture's Yearbook for 1941, which is called Climate And Man. Maps showing the distribution of clear and cloudy or rainy days for various areas in the nation are included in this book, as well as much valuable data on temperature ranges winter and summer, frost dates, rainfall and snowfall averages, number of foggy days, and lengthy reports on general weather conditions for each state. For more specific data on the weather in an indi-
traditional community, the assistance of local governmental agencies concerned with the problem should be obtained. Quite probably a good deal of original research by the architect himself will have to be undertaken if a thorough job is to be done.

In view of the decisive economic and psychological gains derived from scientific building orientation, it seems obvious that much care should be taken to assure the client the best possible location of his structure and the most effective placement of wall openings in that structure. More detailed discussions of the actual problems of building orientation can be found in "Regional Climate Analyses," a series of articles inaugurated by the Bulletin of The American Institute of Architects, September 1949, in collaboration with House Beautiful.

the best sun control is from the outside

Once a building is effectively located on its site, the problem then arises as to what device or combination of devices to control solar radiation and glare should be used at its windows and window walls. The selection of methods will depend on a wide variety of factors, of course; but as far as the relative merits of any particular device goes, technically speaking, it must be realized that none is perfect. All have their defects which must be compensated for. It is the architect's job to choose those devices which will do the job he wants done best and with the least trouble and expense.

One basic principle can, however, be applied to all solar control in buildings in any part of the country: and that is, if a solar radiation control device is to control heat effectively, it must be located outside rather than inside the window. Inside devices that are useful for eliminating glare have little or no effect on heat. Indeed, many of them have a tendency to store and reradiate the sun's heat which comes through the window glass. Drapes and roller shades may or may not reduce heat, depending on the materials from which they are made, but only by eliminating or at least drastically reducing light entering the room, thus defeating half the purpose of a well-windowed building. Shades tend to store heat and reradiate it into the rooms, no matter how they are regulated. Careful interior decoration schemes, based on colors and surfaces designed to diffuse rather than reflect light, will materially reduce glare but will have little or no effect on radiant heat from the sun.

Consequently the most effective sun control devices are those which are placed on the outside of a building, or—in special cases—as parts of the outer surface of the window itself. Most important of these exterior sun control devices are structural overhangs of various sorts, heat-absorbing glass, jalousies, awnings, exterior venetian blinds, double windows, and natural planting of trees or, perhaps, vines growing on arbors.

structural sunshades
The use of structural projections over or at the sides of windows and glass walls to serve as sun control devices is most common in buildings erected in very warm climates, as in Brazil and Tel Aviv, and more recently in the so-called "solar houses" which have large walls of glass needing protection from the sun's rays, and which seem to have originated far north in Wisconsin or Minnesota. Actually, overhangs are no more and no less efficient in the north than they are in the south. They may consist of cantilevered overhangs or balconies, open eggcrate sun deflectors, deep reveals, and vertical or horizontal fins or visors, slatted or solid. To the architect the use of these devices presents a complex problem, the answer to which must be compounded out of economics, esthetics, and technology. Structural sun control devices in general add considerably to the cost of a building. On the other hand they are architecturally attractive if well used and may be included if the client can afford them and likes their appearance.

Technically, however, their value is dubious. No structural sunshade is really efficient. It cannot, by its very nature, function perfectly for more than two or three days a year, since it is designed in accordance with some optimum angle of solar radiation. When the solar angle is nearer horizontal than that, too much sun enters; when nearer vertical, the room may become gloomy. Even semi-perfect operation can be expected for only three to four weeks a year, around the time when the sun's relation to the overhang is at its most effective.

In other words, no matter how carefully the structural sun control device is designed, other devices will be necessary for a large part of every working day on the openings in walls most exposed to the sun's rays. The experience of the Longfellow Building in Washington is proof of that. Most of the overhang-protected windows in that building have in recent years also been pro-
vided with Venetian blinds—a significant comment on the general usefulness of the cantilevered sunshade.

Perhaps the only place in the building field where the structural overhang has a high esthetic value which is commensurate with its cost is in the private residence. Here the overhang can be achieved more by extending the rafters as far out over the window area as desirable, often by means of secondary members firmly attached to the rafter itself. Though this may bring the level of daylight below the minimum required for reading fine print, it still means that the rooms so protected will be relatively cool and shaded in the summer when the sun rides high, and flooded with sunlight in the winter when it is lower in the heavens. As experience has shown, drapes, glass curtains, interior venetians or bamboo roll screens are usually installed in this type of house not entirely for sun control but also for the privacy they afford.

Similar overhangs often prove efficient and relatively inexpensive on single-story or, at most, two-story non-residential buildings, such as schools, hospitals, and commercial structures such as shopping centers.

A frequently effective type of overhang for sun protection in small buildings is the horizontal eggerate canopy or terrace arbor which can be covered with a roll-up canvas or over which greenery can be grown for summer sun protection. Obviously this sort of overhang is ill-suited to large multi-storied buildings, but its relative inexpensiveness makes it particularly suitable for the small-budget, low structure, no matter what its use.

Most structural overhangs can only be effectively worked into the design of new buildings; they frequently stick out like sore thumbs when added to old ones. All other methods of sun control discussed below, however, can be applied either to new or old structures, although even with many of them a better effect can be achieved if the devices are planned along with the building.

awnings

One of the oldest sun control devices is the canvas awning. There are still hundreds of thousands of homes and office buildings in which individual windows are shaded from the sun by adjustable awnings, usually made of a brightly striped cloth which strikes a jarring note against the quieter background of the building itself. This type of device has decreased in popularity of recent years, not only because of the fact that its original installation becomes rather costly when it is used over the wide “picture windows” and glass walls of modern structures, but also because of the comparatively short life and high maintenance and repair costs of canvases exposed to the weather. Furthermore, if cloth awnings are dismantled at the end of each warm season, the cost of doing so in commercial buildings becomes a sizable factor. There are, of course, special situations in which canvas awnings are still acceptable, particularly in view of their relatively low first cost.

Replacing the cloth awning in many parts of the country are wood or metal fixed awnings with movable slats, or metal awnings with nonadjustable surface units which can be retracted or rolled up against the wall. The first type provides effective control of the sun since the slats can be tilted to any desired angle, admitting as much light as wanted while eliminating glare and furnishing ample ventilation. The roll-up metal awning is obviously more flexible even though minute control of the sun’s rays is not as easily accomplished as with the fixed, movable-slat type. A nonretractable awning will always be a difficult element to cope with, architecturally; the retractable type does not present this problem.

Metal or wood slat awnings obviously have a much longer life than those made of canvas, which more than compensates for their original higher cost. Furthermore, they tend to reflect the sun’s heat outside the room from the upper surface and to radiate heat penetrating the material from the bottom surface, thus keeping the rooms much cooler. Canvas awnings, though fairly effective heat barriers, keep air within the room from circulating and consequently help to build up a real heat load on hot summer days.

exterior venetian blinds

Fixed exterior venetians, usually of metal but sometimes of wood, are permanently fastened over the outside surface of the window. They are quite common in the south and southwest. These devices combine good ventilation control with adequate solar heat and glare management, store protection, and burglary insurance. On the other hand, they interfere with daylighting and the view from the window, since the blind itself is fixed and cannot be pulled to the top as can interior venetians. Consequently the exterior venetian is somewhat awkward to deal with ar-

Here the old-fashioned window shutter is put to a new and attractive use, both as a sun control device and as an architectural accent. Combined with the uniquely designed roof overhang, these wood jalousies with adjustable louvers provide an inexpensive, handsome solution to the problem of controlling solar glare and heat at all times of the day.

Igor B. Palevitsky, Architect
Photo: Rada Photography
architecturally, in terms of exterior appearance, and has its disadvantages from the interior as well, since even when the slats are absolutely horizontal they are definitely visible and turn the window area into a series of lateral stripes which are damaging to a handsome view. For this reason it seems likely that this type of venetian blind, which has only recently been introduced north of the Mason-Dixon line, will be more or less limited in application in regions of more moderate temperatures to industrial and commercial buildings where exterior appearance is not of such great importance and interior views are not as essential as comfortable and airy working conditions. One important aspect of the exterior venetian is that it much more effectively bars solar radiation on hot days than the interior type because of the fact that the heat reradiated from the bottom surfaces of the slats escapes into the outer air rather than into the room. In this they have much the same value as the awning, though, since the whole installation is right next to the window rather than away from it as is the awning, some of the reradiated heat may get into the room by mere propinquity.

This problem was solved by an excellent type of exterior venetian blind which was available before the war but which now seems to be off the market. This venetian, which was held away from the window by a metal frame so that at the bottom there was up to about three feet between it and the wall surface, could be pulled up to the top of the window when it was not wanted. When in use its slats could be controlled from inside the house to direct the solar radiation away from the room. Thus every problem of solar heat and glare control could be handled by simple manipulation of the blind. It would seem logical that a retractable outside venetian blind of the awning type with adjustable slats would find a large market if it were available today.

venetian screens
One of the newer developments in sun control from the outside of the house is the venetian screen or "shading screen" as it sometimes is called. This is a screen-like product made of very narrow strips (less than 1/16") of extremely thin bronze or aluminum, spaced 16 to 20 strips per inch and held rigid by vertical reinforcement spaced 1/2" to 1" apart. The horizontal strips are permanently slanted outwards and downwards at an angle approximately 20° from the horizontal, so that they block a large part of the sun's direct radiation and provide a diffusion of light that prevents glare as well. Though it is several times more costly than regular screening, Venetian screens, by killing two birds with one stone (insect control and sun control) often turn out to be a real economy. It is true that they reduce visibility inside the room to some extent—more than ordinary screens—so that the view through them seems somewhat fuzzy. This of course is no defect in non-residential installations, and even in homes can be borne with, in view of the high degree of control of the sun's heat and glare which they provide.

trees
From many points of view the best method of controlling the sun, when it can be made use of, is practically free. Never was there a better sun-control than a tree, which needs no painting, washing, adjustment, seasonal removal or replacement, or repair. Plant it wisely, tend its growth when necessary and you have an ideal natural sunshade for low buildings. Many architects recently have been proving to their own satisfaction and that of their clients that a broad-leaved, deciduous tree provides better sun control than any type of manufactured device, particularly the structural sunshade. Such a tree affords ample shade in the summer when it is most needed, permits practically all of the winter sunlight and sun heat to enter the building through the leafless branches, and—perhaps as important as anything else—gives the building a human, natural, livable environment far pleasanter and more restful than the mechanical, chilly efficiencies of masonry, metal or painted wood.

Particularly for institutional and residential buildings sufficiently low to take advantage of natural shade, sun control should be provided by trees whenever possible. Indeed, many commercial and industrial buildings now in existence gain a high degree of sun control around the lower floors from the oaks, elms, and maples which a previous generation planted. The major difficulty with the tree as an immediate means of sun control in new buildings is that small ones do not actually control, and large ones are likely to be expensive. Even so, the cost of trees large enough to shade a low building will in all likelihood be less than the cost of efficient manufactured sun control devices.

Visible proof that nature can create the most effective of all sun control devices in the form of foliage. It is true that the architects have provided a wide roof overhang, but note that the tree completes the solar control which the overhang achieves for only about two-thirds of the window's height.

Wurster, Bernardi & Emmons, Architects
Thomas D. Church, Landscape Architect
Photo: Roger Sturtevant
The twenty-seven girder super-structure of Philadelphia's new Walnut Lane Bridge, first prestressed concrete bridge in North America, is about 70 percent completed. In addition to conducting an extensive testing program and the construction of falsework and formwork, four of 13 girders of the principal 160 foot span are in place and eight members of the two 74 foot approaches have been permanently anchored. Although periods of adverse weather have somewhat retarded the erection of this structure, several advances in construction methods have produced significant savings in time. The most dramatic development has been in the method employed to move the girders to their permanent locations. Contrary to conventional bridge construction systems where structural ribs are cast and the falsework moved to a new position, at Walnut Lane the falsework remains fixed and the girders are moved into position. Such a procedure is permissible, as all members are simply supported. Having been prestressed and the forms removed, the girders are slid along greased timber runways mounted atop the piers of the bridge. Steamboat ratchets whose ends are attached to greased base plates under the ends of the girders have also facilitated this movement. Figure 1 shows a principal girder being "launched" along the top of a pier; a workman operates a ratchet in Figure 2. All of these prestressed members are extremely flexible considering their size; Belgian engineers, advisors to the builders, had warned of intense vibrations set up during movement. On some European jobs, it was reported that laborers refused to work on or near similar girders because of the magnitude of these vibrations. However, by employing the greased base plate and timber runway method, the co-efficient of friction was reduced to one-half of one percent and practically no vibration was experienced.

Remarkable improvements were also accomplished in the method of stressing the wires. As the girders were poured, steel bolts which would later support a jig-plate were placed around each wire cavity opening. When the concrete gained strength, a steel frame was bolted to this plate. The frame supports a hydraulic jack whose piston can be forced forward or backward with equal ease, either to stretch a pair of wires or to compress the jack quickly in order to prepare it for a subsequent stretching operation. A movable plate on the rear of the frame supports the jack and allows it to be adjusted easily to receive any pair of wires within the core. All wires in one cavity could be stressed without removal of the frame from the jig plate. It has been estimated that this improvement has made the stretching process about six times faster. In Figure 3, one observes two cores of prestressed wires held in place by sandwich plates and wedges. Grout will cover these cores.

Another important advance was in the method developed to grout the stressed wires, both to protect them from corrosion and to develop bond within the girder itself. Easily accessible vent holes were strategically placed along the sides and ends of the girders, paralleling the paths of the cavities. Working from the center out, each cavity was filled with grout; as the air was vented and grout appeared at each opening, the vent hole was plugged.

A different method was devised to space the wires within the cavities. The many holes in the original spacer plates required countless threading operations. A system of perpendicular combs, which permitted wires to be laid in position rather than threaded, speeded this work by as much as eight times. Figure 4 shows a group of the original spacer plates contrasted with one spacer comb standing in vertical position.

In addition to designing this bridge in collaboration with the Engineering Department of the City of Philadelphia, The Preload Enterprises, Incorporated, New York, are also the subcontractors for the superstructure.

B.H.H.
electrical equipment, lighting

Incandescent Lamps completely new type employing unique mushroom shape and enamel finish to cast light down in one unit. "Revolutionary" shape directs two-thirds light upward, creating pleasing indirect lighting effect; soft-toned enamel finish on under-partion mellow light directed downward. Available only in 5W site. General Electric Co., Nela Park, Cleveland, Ohio.

Recycled Incandescent Fixtures: new method of handling used up to more than $2 per fixture. NE code minimum of 4 of osbester wire not required, thus permitting rubber covered wire to be run directly to fixture. Carpenterry worked eliminated by mounting ends on boxes and use of bar-hangers stapled to joists. Fixtures shipped complete, with junction boxes, bar-hangers, and all items needed for proper installation. Kirlin Co., 3455 E. Jefferson Ave., Detroit 7, Mich.

Portable Electric Plant: 400W, 60 cycle, a-c electric generating set, combined light source and fire for hours on single gallon of gasoline. For homes, trailers, small farms, stores, and shops. Available in manual or automatic starting models. D. W. Oman & Sons, Inc., 498 Royalton Ave., Minneapolis, Minn.

Weatherproof Column Light for gas stations, parking plazas, playgrounds, and other installations needing lighting intensities over wide area. Heavy steel porcelain-enamled reflector, 201/2" in diameter, with overhanging skirt to throw light downward, fully enclosed; built-in weatherproof aluminum splice box to which supplementary spots or floods can be added. Stone Mfg. Co., 489 Henry St., Elmhurst, N.J.

Trimline: new commercial series of matching fluorescent lighting fixtures, providing flexibility, simplified maintenance in offices, schools, stores, etc. Each fixture equipped with louver shielding, decorative end pieces, and plastic shielding panels running full length on both sides of unit. Waterproof 3- and 4-lamp units, with either standard or instant start lamps. Diagnosis of trouble may be handled simply by replacing individual or in continuous rows. Sylvana Electric Products, Inc., 500 Fifth Ave., New York, N.Y.

insulation

Fiberglass Textured and Perforated Acoustical Tiles: both products, naturally beveled, rated "incombustible" when tested by procedure outlined in Federal specifications. Nota reduction in time required for management to run up to 85% light weight, dimensionally stable, high thermal insulation efficiency, easy to clean and maintain. Owens-Corning Fiberglas Corp., Nicholas Blvd., Toledo, N.Y.

Furniture

Hosken Coffee Table and Serving Trays: table: 29" x 50". black, red, gray, or yellow alcloholic resistant lacquer on pressed wood, light wood edging, birch legs, Serving trays exactly half table size, same color, finish, wood edging, birch legs. Can be stacked and fits neatly onto table frame. Hosken, Inc., 103 Andover Ave., Box 50, Mass.

Stadium Chair for use in arenas, field houses, drive-in theaters, etc. Wood slats in back and seat. Seat covered in simulated leather or finished badeen finish on iron standards. Chair so constructed as to eliminate all taring and whispering. Using lightweight, 555 Ann St., N.W., Grand Rapids, Mich.

Lanexus Carpeting: unusual pebbled-effect weave, deep pile, hand-woven fabric available in any color, size, shape, hand-crafted designs of your choice. order, Nya-Watt Co., Inc., Auburn, N.Y.


sanitary equipment, water supply drainage

Deep Well Centrifugal Pumps recently improved to simplify replacement of rotor seal. Seal now contained in a single cartridge easily and quickly removable and replaceable as complete unit without removing pump from well, breaking pipe connections, or disassembling pump. Flint & Walling Mfg. Co., Inc., Kendallville, Ind.

M-VB #16 Float Valve provides unusually fast refill, putting 4 gall. water in tank in just over one minute, at pressures ranging from 50 lbs. to as high as 150 lbs. with positive valve shutoff throughout entire pressure range. Will fit most plumbing installation requirements. Scottville Mfg. Co., Waterville 14, Conn.

Act-O-Matic automatic self-cleaning shower head, incorporating especially designed spray disc that delivers shower of maximum efficiency, at least twice the washing capacity of ordinary shower heads. Chrome-plated unit, with ball joint and volume control. Various 3-speed models available. Sloan Valve Co., 4300 W. Lake St., Chicago, III.

Stainless Steel Water Heaters: made with steel tanks lined with hydraulic stone, offering maximum protection against rust, corrosion. Available in both round and tabletop models, suitable for all types of installations. May be used with embedded or other water-borne substances that eugle ordinary shower heads. Chrome-plated unit, with ball joint and volume control. Various 3-speed models available. Sloan Valve Co., 4300 W. Lake St., Chicago, III.

Colored Electric Water Heaters: made with steel tanks lined with hydraulic stone, offering maximum protection against rust, corrosion. Available in both round and tabletop models, suitable for all types of installations. May be used with embedded or other water-borne substances that eugle ordinary shower heads. Chrome-plated unit, with ball joint and volume control. Various 3-speed models available. Sloan Valve Co., 4300 W. Lake St., Chicago, III.

Package Hot Water: compact, all-steel unit combines storage cabinet, generously-sized inventory, and dressing table; cabinet finished in baked enamel, either white or onyx paint. Various sizes, styles, and colors, available in woods of your choice; with or without heated water. West-Eco. Corp., Pottstown, Pa.

Colored Electric Hot Water Heaters: made with steel tanks lined with hydraulic stone, offering maximum protection against rust, corrosion. Available in both round and tabletop models, suitable for all types of installations. May be used with embedded or other water-borne substances that eugle ordinary shower heads. Chrome-plated unit, with ball joint and volume control. Various 3-speed models available. Sloan Valve Co., 4300 W. Lake St., Chicago, III.

Specialized Equipment

Alert Alarm: inexpensive but effective burglar alarm, powered by self-contained electrical device and requiring no wiring. Unit easily attached to door or window, will sound continuous shrill alarm at slightest tampering or opening of door or window. Plastic case in ivory or walnut finish. Electrosigonic Co., 1003 Penn Ave., Pittsburgh, Pa.

Plung-In Automatic Electric Clothes Dryer; low-voltage (110v) tube-action dryer designed to be plugged into outlet in conjunction with Frigidaire's automatic clothes washer. Equipped with special timer to eliminate redialing of timer. Sales Motors Corp., Frigidaire Div., Dayton 1, Ohio.

Surface Materials

Wool Wall: vinyl wall covering available in 18 reproductions of woodgrains: prima vera in blonde, gray, tan, dark, and mahogany; walnut in blonde, dark, and gray; ash in blonde, black, and natural. Resistant to abrasion, alcohol, alkali, and general wear; flexible and pliable, it is automatically suitable for homes, offices, restaurants, and hotels. Pulpoeger Co., Plastic Div., 52 Vanderbilt Ave., New York 17, N.Y.
AIR AND TEMPERATURE CONTROL

Bulletin describing suspended and floor types of all-year-round air conditioners. Capacities, ratings, descriptions of parts, illustrations. Also price list and data bulletin for steam coils. Marlo Coil Co.:

1-17. Marlo Air Conditioning Units (Bul. 409)

1-18. Marlo Steam Coils (234a)


1-20. Hydrotherm, AIA 30-C-1, 4-p. bulletin on modern gas heating plant for residential hot water heating systems. Construction, operation, capacity range, applications to hot water heating systems, specifications, diagrammatic drawings. Hook & Ackerman, Inc.


1-22. Kewanee Square-Heat Type "R", AIA 30-C-1 (Cat. 88-8), 8-p. illus. booklet on redesigned and simplified, built, made in 8 sizes to heat 800 to 3000 sq. ft. of steam radiation with mechanical firing, or 740 to 2480 sq. ft. with hand-fired coal; additional reserve capacity for sub-zero weather. Construction, advantages, dimensions, specifications charts. Kewanee Boiler Corp.

1-23. The Herman Nelson Unit Ventilator (Bul. 2553), 16-p. illus. booklet describing ventilating unit consisting of fan and motor assembly, heating assembly, recirculating and outdoor air dampers, filter, cabinet, and outdoor air intake; especially designed for classrooms. Method of operation, cross-section views, advantages. Herman Nelson Corp.

1-24. Kitchen-Type Oil Burners (AD 772), 6-p. illus. folder illustrating kitchen cabinet type oil burner containing all necessary equipment and controls for automatic residential heating and water heating; unit also provides added counter space. Advantages, cut-away views, outline dimensions, ratings, specifications. Timken-Detroit Axle Co., Timken Silent Automatic Div.

CONSTRUCTION


Catalog illustrating structural light diffusing glass, both wired and plain. Maximum sizes and approximate weights, patterns, photos. Booklet offering typical installations of structural corrugated glass. Specifications, installation methods, details, technical data. Mississippi Glass Co.:

3-12. Specify Mississippi Glass, AIA 26a-3-5-6 (Cat. 50)

3-13. Structural Corrugated and Structuralite Glass

3-14. Built-Up Roofs and Flashings, AIA 12-B-1 (Cat. 50), 124-p. illus. catalog reviewing five main types of bonded built-up roofing construction, materials for each type, giving specifications to meet any condition. Application drawings, suggested construction details, requirements for applying bonded roofs, index, details, technical data. Rubberoid Co.

3-15. Sanymetal Toilet Compartments, AIA 35-H-6 (Cat. 87), 20-p. illus. catalog showing five types of toilet compartments and toilet room environments. Construction details, specifications, hardware, description of materials used, color chart. Other products include hospital cubicles, shower cabinets and stalls, and dressing room compartments. Sanymetal Products Co.

3-16. Symons Forming System of Wall Form Construction, 4-p. illus. folder. Describes wall-forming system utilizing panel forms, with tie rods anchored at sides and acting as spreaders, eliminating 75% of bracing required by old type of forms. Advantages, method of operation, brief descriptions of other products for concrete work. Symons Clamp & Mfg. Co.

3-17. Clear Span Tecno Smoothed Rafter, AIA 19B, 8-p. illus. booklet on advantages of clear-span trussed rafter construction for modern homes as compared with conventional roof and ceiling framing. Fabrication, assembly, description of materials used in rafter construction, typical installations. Timber Engineering Co.

DOORS AND WINDOWS

4-18. Aralam, 6-p. illus. folder presenting aluminum storm and screen window unit for all-weather service throughout year. Advantages. Alumicor Corp. of America.

Two illus. folders, one giving types, advantages, and specifications for clock spring sash balances, the other describing improved features of spiral sash balance. Caldwell Mfg. Co.:

4-19. Clock Spring Sash Balances, AIA 27A1

4-20. Introducing Spirex

4-21. Diebold (AL-2454-849), 4-p. pamphlet containing fire ratings and architect's specifications for fire-insulated vault doors and file room doors. Diebold, Inc.

Two illus. folders on improved recessed door for residences, commercial and institutional buildings; noiseless, fingertip action; steel-scissor mechanism does away with floor tracks and overhead hangers. Advantages, diagrams, installation directions. Dorflon Mfg. Corp.:

4-22. Floating Doors, AIA 27-A

4-23. The Improved Recessed Door


4-25. The New Morrison Roly-Door (Bul. D90-1-A), 4-p. pamphlet describing all-steel overhead residential garage door; design should conform to all styles of architecture. Advantages, specifications. Morrison Steel Products, Inc.

4-26. Shower Doors, Tub Enclosures, Shower Enclosures (Vol. J-XLX), 6-p. illus. brochure and two installation instruction sheets. Units constructed of Permalume (electrolytic process combining durability of Alumilite process with bright mirrorlike finish) and highest grade of glass rubber-mounted at all points of contact. Styles, sand-carved glass designs, price list. Shower Door Co. of America.

4-27. Weslock, AIA 27-B (Cat. 4902), 4-p. illus. folder presenting line of brass or bronze finished, cylindrical door locks, cabinet pulls and knobs. General specifications, shipping weights. Westwood Mfg. Co.

ELECTRICAL EQUIPMENT, LIGHTING

5-12. Lighting Up the Little Red Schoolhouse! Portfolio containing technical data sheet and photos of typical classroom fluorescent lighting installations. Day-Brite Lighting, Inc.
Roddiscraft Paneling Invites the Question...

WHO IS YOUR ARCHITECT?

There's a lot of extra value built into the home designed and supervised by an architect — things you can't see. But there are extras you can see, too.

Plywood paneling is often the hallmark of the architect-designed home. Plywood by Roddiscraft, with its beautiful figure, carefully selected for uniformity and exact matching around the room, just naturally invites the question — "Who is your architect?"

When you specify Roddiscraft hardwood plywood, you are sure of a quality product, fashioned by craftsmen — carefully made. You know that its true-cut edges and satin smooth finish will insure an installation that reflects credit on you.

Roddiscraft has prepared architect-approved details showing various methods of panel installation. Your nearest Roddiscraft warehouse has these drawings which are yours for the asking. Just drop them a line.
Now...Yoloy Pipe
CONTINUOUS WELD

for use where corrosion is a problem

For fifteen years, Yoloy steel has been manufactured as Seamless pipe, sheets, plates and structural members. Yoloy is used in the oil, mining, railroad, chemical, trucking and other industries where resistance to corrosion and abrasion are a problem and lighter weight construction is important. Now this same unique nickel-copper low-alloy steel is available as continuous weld pipe.

Yoloy continuous weld pipe has these outstanding characteristics:
1. It is easy to weld,
2. It bends and fabricates readily,
3. Its tensile strength is high,
4. It is resistant to abrasion,
5. Its resistance to shock and vibration is high,
6. It is high in corrosion resistance.

Yoloy has an atmospheric corrosion resistance from four to six times that of regular carbon steels. Its resistance to many other corrosive elements likewise is high, making Yoloy pipe particularly well adapted for use in the railroad, oil, mining and chemical process industries. Youngstown Yoloy continuous weld pipe also affords distinct advantages for use where piping is concealed in industrial plants, commercial buildings and residences.

For example, at a sewage plant, Yoloy pipe immersed in the sour sludge of a digester was found to be in good condition after nearly four years. When repairs were made to replace a mild steel tripod holding the pipe after only one year's service, it was found that the tripod had been almost entirely eaten up by the acid sludge.

Yoloy continuous weld pipe installed in brine lines from the wells at a salt plant is still in service after several years. Pipe previously used in this same line had to be replaced 3 or 4 times a year.

Other examples of the unusual service given by Yoloy pipe can be cited. For further information, write or phone the Youngstown District Sales Office nearest you.

Ample stocks of Yoloy continuous weld pipe are available for prompt shipment. Yoloy continuous weld pipe can be identified by YOTOY rolled in the wall of the pipe.
Now homes in all price ranges can have pegged oak floors

For years, pegged oak floors laid in random-widths have meant luxury and quality to style-conscious home owners. But the high cost of installation has limited their use to higher priced homes.

Now Bruce has developed the new Ranch Plank Floor that is moderate in cost because it's pegged and completely finished at the factory and is installed exactly like strip flooring. The alternate 2½" and 3½" strips give the beautiful decorative effect of a random-width plank floor. But Ranch Planks have none of the installation problems and expansion hazards of wide oak planks.

Architects and interior decorators praise the new Ranch Plank Floor for all types of homes and apartments. Owners say it's one of the most admired features of their homes.

Give your homes this plus value that lifts them out of the ordinary class. See our catalog in Sweet's 1950 File. For complete data and new booklet with color photographs of Ranch Plank Floors, write:

E. L. BRUCE CO., MEMPHIS 1, TENN.
How to save money for your clients on **ROOFING and SHEET METAL WORK**

This chart is designed as a time-saver for you, a money-saver for your clients. You can determine at a glance the suggested gauges of Monel® Roofing Sheet for principal sheet metal building applications.

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>U.S.S. GAUGE</th>
<th>THICKNESS IN INCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat Seam Roofing</td>
<td>25</td>
<td>0.021&quot;</td>
</tr>
<tr>
<td>Standing Seam Roofing, Pans (25° Wide)</td>
<td>26</td>
<td>0.018&quot;</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>0.018&quot;</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>0.025&quot;</td>
</tr>
<tr>
<td>Batten Seam Roofing, Pans (25° Wide)</td>
<td>26</td>
<td>0.018&quot;</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>0.021&quot;</td>
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<tr>
<td></td>
<td>24</td>
<td>0.018&quot;</td>
</tr>
<tr>
<td>Eaves</td>
<td>26</td>
<td>0.018&quot;</td>
</tr>
</tbody>
</table>

*Indicates width of Sheets not width of Pans.

| Thru Wall Flashings* | Flashings | 26 | 0.018" |
| Counter, Base and Cap Flashings | Counter, Base | 26 | 0.018" |
| Upper, 10" width | 25 | 0.018" |
| Lower, 10" width | 25 | 0.021" |
| Gutter Linings | 36" Girth and smaller | 25 | 0.021" min. |
| 48" Girth or larger | 22 | 0.031" |
| Molded Gutters | 26 | 0.021" |
| Hung Gutters | 26 | 0.018" |
| Gutter Expansion Joints | 26 | 0.018" |


**Among the important reasons for this are the high corrosion-resistance and mechanical properties of Monel. This dependable Nickel Alloy withstands attack by smoke, rain and chemical fumes. It endures heat and cold with less buckling and no cracking. It has the strength to withstand snow, ice and tearing winds. It takes years of flexing without showing signs of fatigue.**

**Keep Monel in mind** — not only for entire roofs — but also for drainage systems, flashings, ventilators, louvers, skylight frames, siding, expansion joints, coping, gutters and downspouts. Its initial cost is low, its maintenance expense negligible.

**When you need help**

On request, The International Nickel Company will send you detailed information on the use of Monel Roofing Sheet. There is no charge or obligation for this service. If you want samples of Monel Roofing Sheet, or profusely illustrated booklets for your clients, you need only ask for them.

The particularly useful bulletin, *Monel Roofing Sheet — Basic Application Data*, from which the above chart was adapted, contains a full review of the properties and characteristics of Monel, a discussion of installation procedures, and a sample specification writing. A copy deserves a place in your file. May we send it to you?

**MONEL . . . for the life of the building**

---

**The International Nickel Company, Inc.**

67 Wall Street, New York 5, N. Y.
2 BENT, TEE CHANNEL, 18" EACH WAY AT CORNERS

STEWART BALLEY RESIDENCE, Santa Monica, California

RICHARD J. NEUTRA ARCHITECT

May 1950
You can be sure... if it's Westinghouse

You've got to

Look inside

...to check fitness in panelboards

Good breakers don't necessarily make a good panelboard. That's why it's important to look behind the breakers... to check construction details... to search for potential sources of trouble. But when panelboards and breakers are made for each other, this problem is eliminated... as it is when you specify Westinghouse.

Westinghouse Panelboards are Westinghouse throughout! You get the well-known dependability and quality of Nofuze "De-ion" Breakers... in a panelboard designed specifically to assure their finest performance.

Dependable breakers in a skillfully designed, well-constructed panelboard—this is the kind of quality you'll want to call for in your specifications. Next time, specify Westinghouse Panelboards... and be sure!

Descriptive Bulletin 30-930 contains complete information plus typical specifications. For your copy, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.
Notice how *more* folks
notice heating *more*?

She had been impressed by the modern kitchen. He had grinned as he surveyed the spacious recreation room. But, it was when both eyed the Bryant automatic gas heating installation that they knew *this* was their house . . . a quality home throughout!

In most every part of the land, there's growing excitement about automatic gas heating. It is the blooming of an idea which Bryant planted nearly a half-century ago with installation of the first home heating truly designed to "let the pup be furnace man!"

Four modern factories now hum day and night to supply the demand for this famous equipment. Fifty distributors and thousands of dealers offer Bryant products in a selection unmatched by any other single brand.

Bet your bottom dollar that Americans want the *best* in automatic gas heating . . . the kind you give them when you specify or install equipment bearing the Bryant nameplate.

---

Bryant Heater, Dept. 212,
17825 St. Clair, Cleveland, Ohio

( ) Send me the new booklet that tells the Bryant story. ( ) Have your distributor call on me.

Name ____________________________
Company _________________________
Address __________________________
City _____________________________ State
NEW WOOD FIRE DOOR BY FOX

Combines...

PERMANENT BEAUTY + FIRE PROTECTION
AT LOW COST

MELAMINE RESIN VENEER
Provides a beautiful pre-finished laminate in natural or simulated wood finishes that resists scratches, burns, acids and water...will retain original beauty throughout the years—and never need refinishing.

PROTEXOL IMPREGNATED WOOD CORE
Gives complete safety from the spread of fire...and assures dimensional stability and freedom from damage by rot or vermin. Fox wood fire doors have been tested and approved by national fire authorities—and are available in 45, 60 and 90 minute ratings.

MELAMINE PRE-FINISHED FIREPROOFED PANELING ALSO AVAILABLE
Fox Bros. furnishes this beautiful material either in custom millwork to your specification, or as a basic material. SEND THIS COUPON for a free sample and complete information.

FOX BROS. MFG. CO.
2700 Sidney Street, St. Louis, Mo.

□ Send me a sample of your new melamine pre-finished fireproofed wood.

Name
Address
City
Zone
State
public health

The basic data for current practice has to be re-examined from time to time in all fields. This is in addition to continuing refinements in practice. What must happen at intervals is a shake-up; where current practice proves to be unrealistic in terms of the current theory it has to be revised or replaced—like the old standards of 30 cu. ft. of fresh air per person per minute which was the basis of school heating and ventilating design for so long. That one cost us a lot of money before it was replaced—several million a year on a nation-wide basis—and yet the expensive equipment was frequently not operated at all or else managed so badly that it produced objectionable rather than desirable results.

The Society of Heating and Ventilating Engineers has been carrying on sound research for years, in the field of comfort especially, but their methods have been largely empirical. Now the authors, working in the John B. Pierce Laboratory of Hygiene, at New Haven, set the stage for further developments with a penetrating analysis of the problems and a new powerful tool for investigation. The analysis benefits from a combined approach encompassing physics, physiology, and environmental hygiene and lays the basis for sound solution of the problems of air conditioning and related fields.

The new experimental techniques called “partitional calorimetry” have made it possible to determine the interchanges between the body and the environment as they occur, instead of summing up total results in a “heat trap” calorimeter. Heat transfer by various physical avenues (evaporation, radiation, convection) can be determined separately and the process of adaptation to varying proportions of heat transfer by radiation and convection can be studied. The techniques can be adapted to many problems, such as prediction of influence of certain atmospheric conditions on individuals operating at various metabolic rates.

This research does not cancel out the previous findings. Rather, it enriches the older material, rendering it more understandable and making it possible to set up and solve new problems. (The technique was used during the war for research in clothing for extreme climates.) Much of the results has already found its way into the A.S.H.V.E. Guide. A series of articles in Heating, Piping and Air Conditioning starting in October ’49 on “The Physical Side of Comfort,” brings much of this material into the current literature of the engineers.

This book gives us a broader and more detailed understanding of the physiological problems of radiant heating and cooling than we get from the “practical” engineering approach. The last chapter, “Influence of Climate and Season upon Health,” opens up possibilities for better utilization of the world’s resources. Winter heating of houses (only general since Tudor times)

(Continued on page 116)
The Baldwin Theatre in Los Angeles created a $290,000 sensation among planners and builders of modern movie houses. One feature contributing to the decor and efficient operation of this departure from prosaic theatre design is an installation of POWERSTAT Light Dimming Equipment. Four POWERSTAT units, motor-driven for convenient, remotely-located push-button operation, dim, brighten and blend house, cove, curtain and proscenium lighting—adding to the atmosphere found so pleasing by patrons. Easy to install, economical to operate, POWERSTAT Dimmers have a definite place in the scheme of today’s theatre. Lighting effects achieved through their use pay off at the boxoffice—whether used in new theatre construction or in renovation of present houses.

This booklet, full of helpful information and suggestions for modern theatre lighting, is yours for the asking. Send for your copy today—then consult your electrical contractor or illuminating engineer.

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BRISTOL, CONN.

The Superior Electric Co.
BRISTOL, CONNECTICUT

POWERSTAT VARIABLE TRANSFORMERS • VOLTBOX A-C POWER SUPPLIES • STABLINE VOLTAGE REGULATORS

technical press
(Continued from page 115)

has been a great factor in the spread of western culture. “May not vast areas in the sub-tropics,” say the authors “become the seat of mighty civilizations, as summer air conditioning meets human physiological needs with similar efficiency.”

Public Health Engineering. EARLE B. Phelps. John Wiley & Sons, 440 Fourth Ave., New York, N.Y., 1948. 655 pp., illus. $7.50

The coverage of the civil engineering field is not so broad as it was in Roman times. Even “sanitary engineering” has come to mean not the engineering of sanitary science but the limited fields of water supply and sewage disposal. The present work, which is subtitled “Textbook of the Principles of Environmental Sanitation,” broadens the view again, recognizing that nothing less than man’s whole relationship to his environment can form the basis for so all-embracing a field as public health.

The outline is disarmingly simple: Part One, The Air Contact; Part Two, The Water Contact. Yet, Part One covers weather and climate and housing, thermal environment of the human body, heating, ventilating, air conditioning, illumination and lighting, atmospheric pollution, noise, insects, and insect control. Part Two (in collaboration with Clarence J. Velz) is not quite so broad in outline but considerably more detailed in its engineering applications.

The book is written primarily for the engineer who already knows how to build in order to tell him what to build and why. It is as unified and informing a work as you will find on this broad subject for the general education of related professions—medicine, architecture, planning.

cross references

The Public Health approach is a convenient one for understanding the interrelationships of the engineering of architecture.

A recent article in Illuminating Engineering, “Heat, a Problem of Fluorescent Lighting,” October ’49, carries this explanation under the title: “This problem too frequently is overlooked by the illuminating engineer, is beyond the field of operation of the electrical engineer, and, though it is of vital interest sometimes to the air-conditioning engineer he may not be in possession of all the facts concerning it.”

An article in Heating and Ventilating for November ’49, “Estimating Heat Gain from Lights,” gives approximate data for making heating and air conditioning estimates in the early stages of project planning when actual data on lighting are not yet available.

Another application—the venting of domestic gas appliances—is best under-
PERMANENTLY FORTIFIED for Life-Time Wiring Protection

Unlike ordinary rigid steel conduit, SHERARDUCT is fortified—permanently fortified—against rust and corrosion by the Sherardizing Process of dry galvanizing. A pure zinc coating, driven into the pores of the steel, becomes an integral part of the tube itself because it's alloyed with the steel. Furthermore, SHERARDUCT will not split or peel, and although it can be bent easily, it will not crack!

SHERARDUCT is still further protected against acids and other corrosive agents by the clear "Shera-Solution" coating, baked on for added endurance. The smooth inside surface makes fishing easy.

Specify SHERARDUCT—full weight, threaded, rigid steel conduit—fortified to give wiring life-time protection.

Sold through leading electrical wholesalers. Listed by Underwriters' Laboratories, Inc.

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1328 CHAMBER OF COMMERCE BUILDING, PITTSBURGH 19, PA.
Progressive Architecture

And this reputation is well-earned. A glance below will show you the variety of products Hood offers... products that provide the answer for every flooring problem. When you specify any of these, you can be assured that the combination of Hood manufacturing skill and B. F. Goodrich's fame as "First in Rubber" means longer life, an unlimited variety of decorative patterns, comfort, quiet and vital economy through ease of maintenance... all essential qualities so important to your clients.

Write today for catalog, color charts and other details about Flooring products... "Second to none."

RUBBER TILE and OTHER FLOORING PRODUCTS

Hood Rubber Tile
Standard of quality in 23 beautiful colors.

Hood Rubber Cove Base
Jet black and 4 brilliant plain colors.

Hood Asphalt Tile
25 colors, for surface or below-grade areas.

*A NEW PRODUCT

"ARRAZIN" CARPET
Vinyl plastic carpeting, embossed broadloom effect surface, cellular rubber base.

"AIR PATH" RUBBER TILE
In 8 colors, with cellular rubber back.

A TECHNICAL PRESS

(Continued from page 116)

stood against the background of Winslow and Herrington's book. The change in ventilating theory and practice which established the adequacy of smaller quantities of fresh air (and the fact that infiltration generally supplies the need in houses) also recognized the importance of removing unwanted gases, particularly products of combustion. There isn't yet a clear-cut policy of the gas industries on this subject, however.

In a series of articles in the American Gas Journal (July through October 1949) Carl H. Dean brings the problem into focus in the hope of hastening the establishment of venting standards.

In the words of Dr. Winslow, "All planning and architecture is public health." Without conceding any of architecture's unique position, that is a pretty thought-provoking way to look at it.


This is a very full, detailed, practical work on application of radiant heating and cooling by one of the most experienced men in the business (vice-president and general manager of Sarco Mfg. Co., makers of all types of controls). The new edition adds material on various panel types, especially electric conductors and snow-melting installations. A very thorough text and reference volume. (Supplement of first edition in April 1947 P/A.)


Here at least is a group of materials that we use in combination, all in the same book. About half is wood—a very thorough handling of it, especially veneers and adhesives, plywood and laminated wood. Textiles as such are treated very briefly. They give fuller treatment as components of plastic laminates or as woven plastics. The material on plastics includes chemistry, physical and structural properties, molding methods, combinations, building boards, and sandwiches, etc.

The book is one of a technical series on building construction.

Kitchen Planning Standards. Small Homes Council, University of Illinois Bulletin C5.32, Urbana, Ill. 10 cents

A score-card method of judging existing kitchens is developed as well as criteria for planning good ones. An earlier bulletin, No. C5.31, developed the requirements for cabinet space. Analysis of 108 plans of moderate-cost houses revealed that inadequate cabinet and counter space (in most cases no

(Continued on page 120)
MENGEL means QUALITY in Hollow-Core FLUSH DOORS

1 Balanced seven-ply construction to provide controlled reaction in changing weather conditions.
2 Hardwood construction throughout—stronger, more durable, free from grain-raising, more easily and economically finished.
3 Exclusive Insulok grid core material has inherent resiliency, cannot cause warping, nor transfer grid pattern to faces.
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5 Precision key-locked dove-tail joinings of stiles and rails add strength and stability.
6 Ready to finish. Door faces are smoothly belt-sanded. Stiles are machine-planed at factory—prefit to standard book sizes.
7 Fully guaranteed. Each door must meet rigid quality control standards and constant inspection throughout manufacture.
8 Mengel Flush Doors are economical—no mouldings to paint—no corners to collect dirt. Smooth hardwood surfaces are less absorbent and less costly to finish—easier to clean and longer-lived.

Write for complete specifications. Use the coupon.

Also see—
MENGEL STABILIZED SOLID-CORE DOORS
the finest products of their type on the market.

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Gentlemen: Please send me, without obligation, full specifications on □ Mengel Hollow-Core Flush Doors; □ Mengel Stabilized Solid-Core Doors.

Name
Street
City
State
counter at all alongside the range or refrigerator) was the most general fault. But worse yet, the space itself was generally laid out so badly that the faults could not be corrected.

So it is vital to get the kitchen properly laid out in the first place, with adequate accommodations in correct sequence and compactly arranged. One measure of efficiency is the "work triangle" (refrigerator to sink to range) the sides of which should not exceed 22 feet total and traffic through which should be avoided.

CORRECTION
The italicized paragraphs which appeared in last month's TECHNICAL PRESS were all quotations from "Psychology and Scientific Research" which was published in Science, November 4, 11, and 18, 1949.
You speed construction and cut costs with Pittsburgh Steeltex Floor Lath

Pittsburgh Steeltex Floor Lath speeds construction and cuts costs because it permits you to pour your floors while continuing complete operations on the floor below. You get a stronger slab because it is properly reinforced with welded wire mesh—properly cured because the moisture is retained by waterproof backing. For further detailed reasons for specifying Steeltex, see Sweet's or write for catalog D.S. 133, Dept. PA, Pittsburgh Steel Products Co., Grant Building, Pittsburgh 30, Penna.

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For simplicity of design, sturdiness of construction and excellence of workmanship, Yeomans Drainage Pumps are the first choice of experienced architects and engineers. As for building owners, it is significant that many Yeomans Drainage Pumps are purchased to replace inferior pumps—as a sensible means to put an end to further expense for service and repairs.

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• YEOMANS BILGE PUMP—HEAVY DUTY, for handling drainage and wastes containing no solids.

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To aid architects and engineers in selection of the proper pump for any installation, Yeomans maintains competent sales and service representa-

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Please send these bulletins:
No. 3005—Yeomans Heavy Duty Bilge Pump
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Name
Firm
Address
City
Zone State

(Continued from page 120)

REVIEWS

Shortly there will be others with words, essays, color reproductions, and what not. The architect, the decorator, and the client will queue up for these. But for the man primarily responsible for the existence of good furniture, it is hard to imagine a more useful reference book. There is a series of diagrams in the back of the book labeled "easy to build" pieces for the "hobbyist."

My reaction to this—all of it—is that no piece of furniture worth having is going to be "easy to build." I know from experience that, to make mortised, spined, and dovetailed joints you don't "putter with nails and a saw." You use precision and power tools, and it's pretty nearly a fulltime job.

Then, as a footnote to each design, it says, in fine print, "a natural finish is recommended." No matter what finish is used, the sanding and sealing of a surface is a slow and laborious process for which there are no quick substitutes. Let no hobbyist be deceived by these free recommendations! Let him also "facilitate his work by examining draw-
ers in furniture at home" as Dal Fabbro suggests.

Such a loose rein in a book on modern furniture may have very interesting results. In my case a good look and several unsuccessful tugs at drawers at home were what sent me down to the workshop in the first place. However, if a study of this chapter results only in pleasure for the hobbyist then the cost of the advice is very little.

ROBERT HENRI MUTRUX

RESEARCH NEEDED

Production of New Housing: A Research Monograph on Efficiency in Production. Leo Grebler, New York Social Science Research Council, 230 Park Ave., New York 17, N. Y., 1950, 186 pp., $1.75

This is a cool, objective, and penetrating analysis of the problems of housing. The author states that he is not willing to accept the generalities that are so commonly used for criticism of the housing building industry. Then he proceeds to analyze every phase of activity involved in housing production, including technology, economics, and many common everyday building and business procedures. Each analysis is accompa-

(Continued on page 124)
Insulite* Bildrite Sheathing Offers

222% the Insulating Value of Wood Sheathing...

One layer of Insulite Sheathing equals two layers of wood sheathing.

It's 10° below zero in that laboratory "cold room." On the other side of the test panel it's 70° above zero—average room temperature. This was a test to re-create actual living conditions in an average home. We wanted to compare the insulating value of Insulite Sheathing and wood sheathing.

Here's what the laboratory reported:

Delicate instruments measured the heat flow through the materials from the "warm room" side to the "cold room" side. Insulite performed an amazing insulating job! Here are the facts:

- Insulite resisted heat loss better than twice as well as wood.
- Engineers call this the "resistance value"—and the resistance value of Insulite was 222% that of wood.
- One layer of Insulite (5/16" Bildrite Sheathing) provided more insulating value than 2 layers of wood sheathing.
- Besides double the insulating value, Bildrite also gives you double the bracing strength of wood sheathing horizontally applied. It's water-proofed throughout—every fiber protected.

That's why Insulite builds better—gives more for the money. Warmer homes in winter, cooler homes in summer. Specify Double-Duty Insulite.

Refer to Sweet's File, Architectural Section 10a/8
Fits into 10'-3 7/8" Headroom

Electric Freight Elevator Requires No Penthouse

Freight elevator service was required for the 2nd floor cafeteria and kitchen in the West Center Lean-to between newly built Hangars 3 and 4 at New York International Airport. Lean-to design set concrete roof beams 10'-3 1/2" above the second floor. Hangar steel prevented a break-through for a penthouse. At the 1st floor, water existed approximately 4 feet below the grade level. In all, a tight squeeze for an elevator installation.

But not difficult for a standard Otis Self-Supporting Freight Elevator. As illustrated, the installation stops at the underside of the roof. No penthouse is required. Guide rail connections at each floor and the roof take care of light horizontal thrusts. No overhead supports are required. The guide rail structure transfers all vertical loads to the bottom of the pit. No building reinforcing is necessary.

Otis Self-Supporting Freight Elevators have 1,500, 2,000 and 2,500 lb. lifting capacities. Any rise up to 35' 0"—sufficient for a 3 story building. Speed is 25 feet a minute. Write for booklet B-720-P or phone your Otis office. Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.
WALLS AT WORK!

It's easy-to-clean, hard-wearing, real clay

You won't actually see the sign—but where you see Suntile in an industrial interior, you'll know the walls (and floors) are hard at work.

Day-in, day-out, these tough, trouble-resistant surfaces keep busy cutting down plant overhead. Routine maintenance costs next to nothing—and long run expenses, refinishing, redecorating and repairs, cost even less! An occasional plain water washing is all the attention Suntile ever needs. This means real savings for your client.

Product processing gets valuable help from Suntile, too. That's because of Suntile's impervious surface. It washes clean, really clean. Dirt, grease, moisture, many acids or bacteria cannot penetrate Suntile's hard, fired-in finish. They stay on the surface where they can be thoroughly washed away.

And what a beautiful job Suntile does brightening up a working place! The colors stay lustrous and unfaded. Suntile's Color-Balance gives you practically unlimited color combinations to choose from, makes it easy to provide a cheerful, morale-building setting for any kind of production.

Put this versatile, real clay tile to work in the next interior you plan. Your Authorized Suntile Dealer can give you valuable help in this. He knows tile and he knows how to give you the finest installation. Every job carries his guarantee. See your classified telephone directory for his name, or write us.

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Created under the direction of Faber Birren, leading color authority. 22 attractive wall colors, 27 beautiful shades of unglazed ceramic mosaic tile, 10 unique Suntile Camargo colors. All selected to give you a wide range of effective color treatments for walls and floors. Write today for your FREE copy, or see our Sweet's Catalog. Dept. PA-5, The Cambridge Tile Mfg. Co., Cincinnati 15, Ohio.

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SUNTILE OFFERS YOU BOTH • BETTER TILE • BETTER INSTALLATION
"Man lives by platitudes; our heritage of platitudes is the storehouse of all we know; it is part of human trial and tribulation that each generation must discover them for itself," Hamilton Basso in The New Yorker February 25, 1950

The above cynical blast has within it the reverberations of truth. In fact, truth itself, when universally recognized and accepted, though not necessarily adopted, becomes a platitude. Then the problem resolves itself into whether you are bored by platitudes, accept them as self-evident and with some grace, or whether you admire them. The dome of St. Peters, through no fault of its architect, became a platitude. Its admirers, by imitation, converted it into a cliché. By inept and irreverent imitation they debased the original without creating anything good enough to be adopted by society as a platITUDE. The list of such precursors to clichés begins with the Parthenon and descends to random ashlar walls that penetrate plate glass windows.

If the Sistine Chapel or Chartres Cathedral were destroyed, society would demand their reconstruction. Undoubtedly the time will come when some art-loving philanthropist will build the Sistine Chapel in the U.S.A., full scale and with all murals accurately photographed and in place. But it wouldn't in the least bit obviate the real need for dozens of more Michelangelo's in the world. And the fact that cheap and cheesy imitations of the Parthenon and Chartres have flooded our land does not in any way absolve us of the responsibility to create buildings as great in their own right as were the buildings which are now accepted as platitudes of greatness.

We are today in a trembling world. It is possible for cynicism as to our future to outweigh our creative impulses. "Let us put sandbags around our memories and dive underground. The ruins of Hiroshima are not as interesting as Pompeii," I place no value in these attitudes. The justification for wanting to prevent total destruction of ourselves is more than just the preservation of life; it is the preservation, also, of those creative impulses which are constantly directed towards bettering life. Without these latter, let the bomb fall.

I have been wondering philosophically about Cologne Cathedral, now standing, a great white shape above the vast reaches of rubble of a quondam city. What were the justifications for its preservation over and above the preservation of the lives of the many inhabitants of this once crowded place? What is the intrinsic value of such a structure that makes for a military command to save this one building above all others in a city of many buildings? What are the self-justifications of the farm boy from Iowa, who has never seen any building larger than the county courthouse or more beautiful than the First Presbyterian Church, as he opens the bomb-bay? Why the concern over the possible destruction of Rome or Paris? Caen and Bayeux and
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reports

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(Continued from page 126)

out of school

(Continued on page 130)

Dresden were caught. Who is the art jury that blows up the bridges on the 4? To all but the Ponte Vecchio? Perhaps our objectives now should be to build our cities so well and create such merit in all structures that even the hatred of man for man cannot transcend the urge to preserve what man has created. We then save ourselves despite ourselves. Architecture, great architecture, and city building become more binding than a moral code, stronger than a peace treaty and more universal as a covenant for safety than a United Nations. It's a queer line of reasoning, but perhaps there is merit somewhere in it. Perhaps we need just such an unobtainable objective to make a stab at real design again worthwhile. Think about Cologne Cathedral rising sharp, pointed, isolated, an island out of context with its sea, no longer valid as a mere medieval monument, saved by choice from the destruction meted out to its parishioners. There seems to have been no hesitancy in bombing the slums.

Even though you may not accept such romantic idealism as an objective, there must be an objective to education. Many of us have objectives too personal to discuss here in public, but we have been talking objectives for some time—some well disguised, others clearly defined. However, there is obviously no universal objective. Some men want to build pyramids to themselves, some want power and prestige, some have service goals, others still wish to create beauty for itself. Some men have no other desire than to vegetate. Objectives are personal choices, seldom attained and usually no one else's business. But once a man decides on being trained to reach an objective—whish! it's lots of people's business!

I was doing a check list the other day to try and line up a few general goals for our school. Part of the check list has been covered to date, a very small part, and there seems to be a limitless list of subjects to discuss. In fact, the more I dive into the column, the more fun it gets—at least for me. The check list divides roughly into five parts:

1. Academic architectural education.
2. Education for apprentices, technicians, and college graduates in transition.
3. Adult education for the architectural practitioner.
4. Public architectural education, including public school children, teachers, building industrialists.
5. International education for practitioners, including UNESCO and Point Four.

(Continued on page 130)
Problem: How to add a second tier to this giant pressbox without reinforcing the whole foundation—or creating a safety hazard. Solution: Shatter-resistant Plexiglas glazings. To safeguard spectators below, the Los Angeles Coliseum Commission approved the use of Plexiglas in this application. And Plexiglas cut in half the dead weight of almost solid rows of glass panes.

In today's large-area windows, strength-without-weight makes Plexiglas invaluable. But other features suit it to many architectural needs. Easy workability means ready forming and fabrication of curved panels, partitions and ornaments. Resistance to age, weather, discoloration and breakage puts a low ceiling over maintenance costs. And a wide range of patterns and glowing colors, transparent, translucent or opaque, permits almost endless variety in architectural design.

Luminous ceilings and walls, fixed or movable partitions, lighting fixtures, store fronts and building facades—all are being constructed of Plexiglas today. For full details of this adaptable acrylic plastic, write for your copy of our new booklet, "Plexiglas for Architecture". It gives complete technical data, shows applications, suggests uses. And it's yours for the asking.


ROHM & HAAS COMPANY
WASHINGTON SQUARE, PHILADELPHIA 5, PA.
Representatives in principal foreign countries
out of school
(Continued from page 128)

I won't list here all of the items that might fit into each of the five divisions, even if I had the ability to dream them up. However, for the sake of clarity, I will enlarge briefly on the five and then in subsequent issues pick out salient points, not necessarily in any order, and detail them. It should be emphasized that there is no dividing line between any of them. Plenty of dividing lines exist that shouldn't, but education on comprehensive architecture is needed universally—even by engineers.

Academic or Collegiate Architectural Education
Critical points to consider today in collegiate architectural education are now being studied in part by a special committee set up in the A.I.A. to evaluate the architectural schools. An evaluation of the schools can supply basic data on the status quo but does not solve problems. For instance, if it were to come up with the statement that there are too many schools, who is competent to decide which ones to eliminate, why, and how? The study, however, is needed and we wish the committee well. Among a few of the to-be-solved problems are:

a. To whom to teach architecture.
   How to determine aptitudes.
b. How to teach architecture.
c. How long should an architectural education be?
d. How much should it cost?
e. How to integrate an architectural curriculum.
f. What are the boundaries of a training program and the relationships to other arts, sciences, and curricula?
g. What is architectural engineering?
h. Textbooks? How do you teach architectural history without them?
   Do you need to teach architectural history?
i. How do you teach "Design"? Do you bring the pot to the cup or the cup to the pot?
j. Terminal or Junior College Training.
k. How to teach teachers. How to pay salaries. Tenure.
l. Visual aids, libraries, overhead.
m. Relationships within a university; with professional societies; the world.
n. Placement.
o. Research.
I shan't go on with the list, which exceeds the alphabet in length once over and then is only partial. Try making your own: it's fun.

- Education for Apprentices, Technicians, Draftsmen, and College Graduates in Transition
There is a half-world of men, inductees, or trainees, in the offices for whom there is little or no formal education. A few night schools in the large cities take the problem seriously but barely scratch the surface. The employer is not interested. In-service training is unknown even in the largest offices. The need is acute and no sound solution is known.

- Architectural Education For the Practitioners
Aside from occasional speeches at A.I.A. Chapter Meetings and a few seminars at conventions, adult education is practically unknown in architecture. A few universities have held institutes or conferences on special subjects, usually to invited guests. The architectural periods serve in a quasi-educational capacity, though their lack of critical commentary, on the whole, limits their educational usefulness. Mumford, an occasional writer for a non-architectural periodical, The New Yorker, is often more instructive than some of our most flossy professional journalists. The practicing architect is assumed to be an educated man, even though he has

(Continued on page 132)
Are you a Quiz Kid on Fluorescent Lighting?

try this quiz to test yourself

Q. Is the light output of a fluorescent tube affected by ballast operation?
A. Yes. Some uncertified ballasts reduce light output by 20%! CERTIFIED BALLASTS assure rated light output.

Q. Does the ballast affect lamp life?
A. Decidedly. Improperly designed ballasts can lower lamp life by as much as 1,000 hours in a 40 watt lamp. CERTIFIED BALLASTS assure full lamp life.

Q. How can one guard against overheated ballasts?
A. Use CERTIFIED BALLASTS in well designed fixtures.

Q. Do some ballasts last longer than others?
A. Yes. A CERTIFIED BALLAST should outlast the life of the installation.

Q. Can ballasts be a source of noise?
A. Audible "humming" is often due to the ballast. CERTIFIED BALLASTS produce a minimum of noise.

Q. What ballasts are made to exacting specifications, then tested and checked by Electrical Testing Laboratories, Inc., who certify that they conform to these specifications?
A. CERTIFIED BALLASTS!

Q. Who makes CERTIFIED BALLASTS?
A. Any manufacturer who wishes to produce ballasts that meet the specifications may participate in the CERTIFIED BALLAST MANUFACTURERS program. Currently 10 leading ballast manufacturers are producing CERTIFIED BALLASTS.

BE SURE...ALWAYS SPECIFY CERTIFIED BALLASTS!

CERTIFIED BALLAST MANUFACTURERS

Makers of Certified Ballasts for Fluorescent Lighting

2116 KEITH BLDG., CLEVELAND 15, OHIO
out of school
(Continued from page 133)

It is often graduated from an architectural school.

There is a wide field of necessary endeavor for Divisions III and IV in technological progress. I expect to find, shortly, FHA-type Colonial houses in the oil deserts of Arabia and marshes of Venezuela.

As the UNESCO and Point Four programs develop, great opportunities can arise to add to our responsibilities and to our worldwide usefulness. No training is now going on for this type of service, either in the schools or offices. We are going to be very short-handed and inadequate to meet the variety of problems set before us when the time comes. This will limit our usefulness and effectiveness at a time when we should be in a position of sound leadership. Foresight in this field of education is sadly lacking.

I place no value on the above five divisions of the work to be done in and out of school during the next few years, but it is a partial answer to one reader who asked if I would not be running out of subject matter soon. Another reader asked if I might not be running out of ideas. That is, of course, more likely but it isn't apt to stop me from talking. By this time you know me well enough to know that's impossible. To the schoolmen and the practitioner: In a few weeks now several hundred eager young bearers, their sheepskins under one arm and a portfolio of projects and thesis under the other, will fare forth into the wild and wicked.

"Where, oh where, are the staid old Seniors? Safe now in the wide, wide world?" Remember, please, to mitigate their ordeal by dissuasion if you can. Look at them not as cannon fodder or as potential rivals or as whippersnappers. Their crew cuts will grow out soon enough. I have had a number of letters from young job seekers wondering what is expected of them.

I can't see how we can create architects in architectural schools unless they are immediately useful and unless they are ready for office work. Of course, they can't be very experienced, but they at least can be useful. Otherwise where do you put them? In the zoo? If neither the school nor the practicing architect wishes to take responsibility for the period of transition from one to the other, I feel that we are failing in a duty.

letters to the schoolmaster
Dear Carl Feiss: I have enjoyed reading your monthly articles on the schools. This is the first time I have known what Weatherhead wrote in his Doctor's thesis. I remember he visited our department for a very short time during his studies at Columbia. You might enjoy a little more descriptive information of what happened at one school.

Even in the early 20's, University of Kansas was not an enthusiastic supporter of the Beaux Arts Program. Joe Kellogg came here in 1922 as senior design critic. He was not submitting problems in the Beaux Arts from A.M. College in Texas, where he taught before joining the K.U. staff. We continued following the Beaux Arts only a few years after leaving Kansas. I started teaching the beginning and second-year design courses in 1923. I seem to have had at the time two objectives: (1) to eliminate copypism; (2) to study architecture in three dimensions without stylistic implications. The first step away from Beaux Arts and the Orders led to the study of lines in composition—contrast, rhythm, direction, etc. The results were not encouraging and this was done for only a semester. It was discarded for something more architectural. We then tried to design in perspective, buildings in simplified forms without ornament or style indication. The science of perspective drawing was sufficiently accurate to be relied upon to tell the
For colored concrete floors or sidewalks of tile beauty and durability specify the use of Colorundum. For interiors or exteriors of hotels, banks, stores, hospitals, show rooms, service stations and factories you get bright, colorful surfaces with a wear-resistant topping of long life—at practically the cost of an average concrete floor or sidewalk—highly decorative and modern in effect. Colors are red, brown, green, french grey and black.

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A recent Los Angeles Installation of 170,000 Square Feet

For Colored Sidewalks
Nation's leading retailers are installing Horn Colored Sidewalks for beauty and the reduction of show window glare.

Dramatic Modern Design
out of school
(Continued from page 134)

The student what the true proportions of
his design really were, especially when
he looked up or down at the building.
Consequently I wrote a book that gave
accuracy to perspective drawings. (Persp-
ective, A Practical Development of
the Basic Principles.)
Perspective drawing as a base for
the study of design soon gave way to
the use of plasticine models. Here was
architecture in the round, perspective
and all, in one. This took place in the
spring semester of 1929. You would be
interested in excerpts from a letter I
wrote to Raymond Hood, and his reply,
dated March 17, 1931. Part of my letter
to Raymond Hood read as follows:
"Having just finished reading the
leading article in Architecture on you
and your method of design study. I read
this account with a great deal of in-
terest and note that you assert, 'small-
scale models should be introduced into
the curricula of architectural schools
as the proper and essential method of
studying architectural design.'
"The above quotation has provoked
this letter, for I felt you would be in-
terested to know that this is just the
thing we are doing in our architectural
department at the University of Kan-
sas."

Raymond Hood then replied:
"I was very glad to get your letter
and know that at least one school is
stressing the importance of flexible
models. At several colleges I have seen
paper models being made, but in my
own practice I find a paper model takes
too long to make and it cannot be
changed with the freedom of plasteline.
There is only one suggestion that I
might make—instead of making model
presentation optional, make it obliga-
tory."

Your description of Prince Bauhaus,
Corbu, et al, was most entertaining and
there is much truth in your descriptions.
Your comprehensiveness of architecture
is fine.

I have been talking to the students
recently about inclusive architecture,
in much the same way, carrying the
idea into three principal aspects—in tel-
lectual, emotional, and physical—in an
attempt to find these connotations in
all architectural problems, with an in-
terrelationship that is well balanced
and filled with human content.

GEORGE M. BEAL
Head, Department of Architecture
University of Kansas
Lawrence, Kansas

I am particularly glad to get support-
ing evidence to the statement I had
made that the breakaway from the
Beaux Arts began early, in the liberal
universities of the Middle West. C.F.

Dear Mr. Feiss: Personally I think it is
good idea if someone were to "whip
the dead horse." (And another as well.)
This is: getting down to cases and
finding out just what it is that the ar-
tchitects expect of newly graduated
draftsmen. I am sure as Hell can't! It is
a good subject for your current series.
After seeing several dozen prospec-
tive employers—and having them drum a
penknell against the desk while they
tell you "it isn't just what we want"
—I find they say you probably know
nothing about the Code, then when you
quote or show familiarity with it, they
quickly bring up interior decorating.

Why don't you conduct a survey and
find out just what it is they have this
unabashed desire for in the young
Corby Wright. (He was lucky to get
to draw urinal details—and his story
is mine!) I am positive you would be
doing the young and perhaps too-eager
draftsman a great service.

EDWARD K. SCHROEDER
Chicago, Ill.

I am afraid that I am in no position
at this time to conduct a survey to find
out what it is that the architects want
of the young and eager draftsmen.
There seems to be a great deal of con-
fusion on this point in the minds of
many of the educators, as well as the
minds of the architects. You may re-
member that in my column in November,
1948, I stressed this point in discussing
the "Ordeal by Disillusion." C.F.

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ANNOUNCES...

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How far may a municipality go in limiting the minimum area upon which a residence may be constructed? This is a question which will assume increasing importance as a result of expanding activity in residential housing developments. There are a few cases in the United States which have touched upon the problem, but they by no means express uniformity in viewpoint.

Generally speaking, a municipality has the right to restrict the use of property in the exercise of its inherent police power. But such restriction must be reasonable and based upon the protection of the health, morals, and safety of the community. A zoning law may not be validly adopted where its purpose is esthetic, or artistic, or where its intent is to protect the value of large estates against the influx of persons with modest incomes.

The Appellate Division of the New York Supreme Court was called upon recently to determine the validity of a zoning ordinance which prescribed a minimum area of two acres for plots upon which residences were to be constructed. (Dillard et ano. vs. Village of North Hills). The court upheld the validity of this ordinance on the ground that it was neither unreasonable nor arbitrary.

The Village of North Hills is a residential community on Long Island in New York, containing, for the most part, homes of substantial character. The total number of property owners is 52 of whom 32 are resident property owners. The area of the Village is 1500 acres having an assessed valuation of $4,270,000.

There had not been any unusual real estate activity within the village at the time the suit was instituted. All of the property owners held at least two acres, with the exception of one who owned 1.9 acres on the outskirts of the village. He, however, had other adjoining property which was outside the incorporated village. The unincorporated area outside the village contained home developments on plots ranging from 8500 square feet to 15,000 square feet. Neighboring villages had developments on plots ranging from 12,000 square feet to one-half acre.

The plaintiffs purchased for $40,000 approximately 48 acres of land in the Village of North Hills. Two, two-acre plots were sold by the plaintiffs for the sum of $22,000. It was their desire to sub-divide the balance of their property into plots containing 10,000 square feet.

In their suit against the Village of North Hills, the plaintiffs contended (Continued on page 140)
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that the two-acre restriction was unreasonable, discriminatory, and confiscatory, and that their property could be profitably used only by sub-division into plots with a minimum area of 10,000 square feet. Such a restriction, they argued, had no substantial relation to the public health, morals, safety or welfare; its purpose being to protect the real estate values of the large estates in the Village.

The Village, on the other hand, argued that any regulation which permits persons to live in a country environment, free from congestion and noise, is a valid one in that the health of the residents of the community is benefited thereby. The Village made the further argument that the voiding of the two-acre restriction would increase the economic burden upon the then residents of the Village in that the greater density of population would call for greater municipal facilities.

The Appellate Court rejected the contentions of the plaintiffs, and in upholding the validity of the two-acre restriction, stated:

"In the light of the location and character of the Village, it was within defendant's legislative province to determine, in the absence of proof of superior public need, that the two-acre restriction is justifiable as an elastic application of police power..."

In the absence of proof that the public welfare of the residents was not enhanced by the restriction, the court determined that it would let the restriction stand.

A similar decision was reached by the Massachusetts Supreme Court in upholding a zoning law which restricted construction in the residential district to plots of at least one acre. The court in that case found that the town in question was particularly available for residential purposes because of its nearness to Boston, and was suitable for those "who desire the advantages of quiet and beauty of rural surroundings." The court further found that a one-acre restriction protected the health, safety, and welfare of the community by preventing noise, congestion, and overcrowding, and by permitting adequate air, sunshine, rest, and relaxation. In the opinion of the court these factors were sufficient to justify the ordinance and to prevent the court from substituting its judgment for that of the town legislature.

Yet many decisions in other cases pertaining to certain restrictive zoning have declared such restrictions invalid. It has been held that a zoning regulation which provided that more than 14 families could not be accommodated on an acre of land was invalid and unreasonable if applied to flats. It has also been held that a zoning ordinance regulating the density of population by limiting the use of property in a residential zone to 36 families per acre was invalid. Still other decisions have declared invalid regulations describing the minimum width of side and rear yards where no relationship was found to exist between such regulations and the health, morals, and general welfare of the community.

It should be noted that the New York Court in the Village of North Hills case has upheld a zoning restriction of greater area than any other reported judicial decision. This determination may be appealed to the highest court of New York, the Court of Appeals, and will be reported on if that court is asked to consider the appeal.

The reasonableness of any restriction upon use or size depends upon the nature, location, and characteristics of each individual community. The upholding of a one- or two-acre restriction for one community would not, of necessity, be a precedent for the validity of such an ordinance in another community.

There is an indistinct point at which an acreage restriction is no longer substantially related to health and welfare, but becomes arbitrary and unreasonable. Where this point is reached and the line drawn must be determined by the courts in each individual case. The only conclusion that can be ventured at this time is that the extent is indefinite and uncertain, to which a municipality may go in limiting acreage upon which a residence may be constructed.

To discuss a two-acre or a one-acre or even a substantially smaller acreage restriction in times of "health and welfare" is obvious sophistry. Such restriction can pragmatically be justified only on the ground of esthetics—whatever words the courts use. Until that word finds its place alongside "health and welfare," the validity of ordinances will be judged by the last phrase alone—even if its distortion beyond recognition is required to justify the results.
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May 1950 169
Harvard Dean
Is Critical of Williamsburg

Harvard Dean Praises Williamsburg Influence

The magazine *House and Garden* and Colonial Williamsburg recently held, in Williamsburg, Va., a two-week symposium of the subject of the Colonial House and Garden. The discussions covered the part Colonial houses played in their time (as well as our own) and the value of a restored segment of American architectural history. Knowing that the subject is a touchy one (H. H.飞)ravdog last year, had brought sparks from some flinty Virginia souls) those of us who could not attend were anxious for news of the comments scheduled to be made by Joseph Hudnut, Carroll Meeks, Lawrence Kocher, William Perry, and others. First news was extremely confusing, as the two headlines reproduced may indicate.

Now, however, I have at hand some direct quotes, and some of you may be interested. The very encouraging thing about the symposium seems to have been that a number of speakers said or implied that a real understanding of the small Colonial house, rather than a superficial copying, might make us see that our own housing problems might be solved in an equally simple and direct manner. For instance, Kocher said, "The small house holds the key to the origin and development of Virginia architecture." He pointed out that it was the later Georgian mansion that was copied from plan books, but that the 17th and early 18th century small houses grew more naturally from the needs and resources of the colonies and their people. Meeks said that "a culture is never alive unless we are forever creating it," and pointed to the sense of values evident in the life of the 18th century town like Williamsburg, or Litchfield, Conn., which might be extended to our own times—such things as elegance achieved without flamboyant display. Perry, of the firm (Perry, Shaw & Hepburn) which was primarily responsible for the architectural restorations, said that Colonial houses represent "emancipation, disciplined by the gentle mandate of architectural modesty, pleasing dignity, and proportion of parts." He did go on then to say, "I do not refer to that emancipation of complete freedom, uncontrolled and too often to be confused with license." VI Huddun is always quotable, but it seems to me that on this occasion he outdid himself. I hope you find the following remarks, used with the permission of *House and Garden*, which is publishing the entire talk in its May issue, as engaging and as penetrating as I do. Said the good brave Dean:

"I am never long in Williamsburg without feeling a strong impulse to appear in costume. A handsome blue satin waistcoat fancifully flowered would I am sure become me; muslin ruffles bien brodées, a pair of gold garters for my breeches' knees, white silk stockings, and my perfumed hair tied with a plum-colored ribbon. Often when I am in Williamsburg my mind seems to be bravely dressed and it would be nothing to wonder at if the spirit of Williamsburg should likewise invade my speech. Odds fish, I shall affect a little soft lisp and a pretty southern pitty-pat that I may resemble my New England patois."

"It seems to me when I look about me in Williamsburg that the buildings share my mood. They, too, desire a fancy dress and a quaintness of prattle and, more fortunate than I, are indulged most delightfully in these caprices by those high couturiers, Messrs. Perry, Shaw & Hepburn . . . ."

"What is there in the life and thought of Colonial times that gives grace and reality to Colonial architecture and which, being lacking in the life and thought of our own day, denies reality and grace to those revivals of Colonial architecture that we have raised so carefully in the modern cities of our wide continent? Could it be that there is a propriety in the form of things made by man which is not independent of time and circumstance . . . . the secret of these forms residing in the way of life to which they are relevant? . . .

The builders of Williamsburg were Colonials. They brought from England not their speech merely and their law, but their deep respect for the models and precedents of English architecture. If they turned to English books and not to the life about them for the thing to be done, the idea to be expressed, that was because they still looked towards England and cited up, not without pleasure, the thousand conventions of an English way of life; and who shall reproach them for so natural and so becoming a nostalgia?

"Were these builders then unaware of the great drama to which Virginia was prologue and prophecy?"

"Such an interpretation implies a curiously unadventurous mind in the builders of Williamsburg, an interpretation wholly inconsistent surely with the spirit of English enterprise. No doubt the men who planted English civilization along the River James were not conscious of all that was implied in their act and destiny, but they could not have been unmindful of new relationships in idea and conduct which were springing from the civilization they had left behind. They were indeed laying the foundations of a new world and knew, in part at least, their role in that mighty architecture. Whether it did not occur to them that a new art might be built, or ought to be built, upon these intuitions of new liberty and grandeur, nor were they to blame for a lack of prescience in these matters. The unity of feeling and imaging implied by such an awareness was not possible at a time when architecture was conceived, not as an art of expression, but as a fashion. The builders of Williamsburg had brought with them the habit of architecture as artifice and it remained artifice to the end of the century untouched by the impact of new ideas and the challenge of event. Architecture continued to exist, apart from the life of Virginia, walled in a clear and well-lit prison of English taste. That is why the builders of Williamsburg left in this corner of Virginia a splinter of England—and no trace of themselves . . . ."

"There are, as it happens, many people who desire a wider role for architecture than the celebration of an aristocratic era which, for good or evil, has long since taken its place in the abyss of history. We are no longer Colonials. Unless we are to leave uninhibited in our art the power and pagentry and spiritual depth of that wonderful world which surrounds us today, we must lend ourselves to progressions, unknown in Georgian times, which promise—not too confidently, I confess—a new architecture. In the meantime we should not deny ourselves the delights of Williamsburg. These will be more, not less, palatable to us if we taste them without that sauce of historical deformation and esthetic cant . . . . That is a timorous and unimaginative mind which does not penetrate below such sugar-coating."