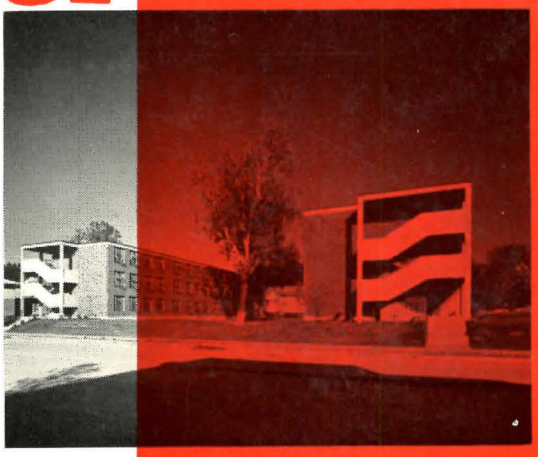
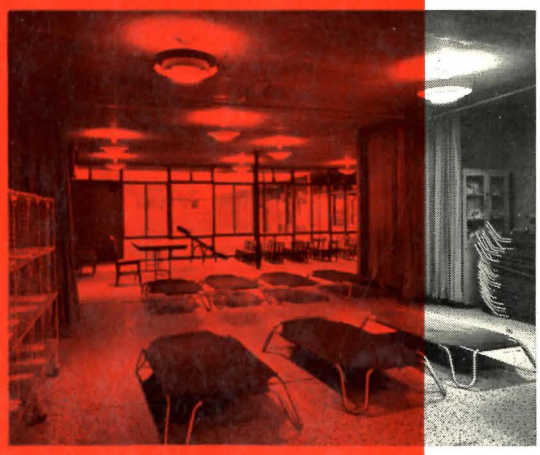
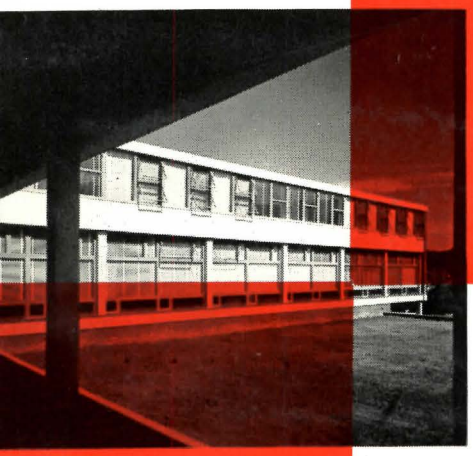
Progressive Architecture







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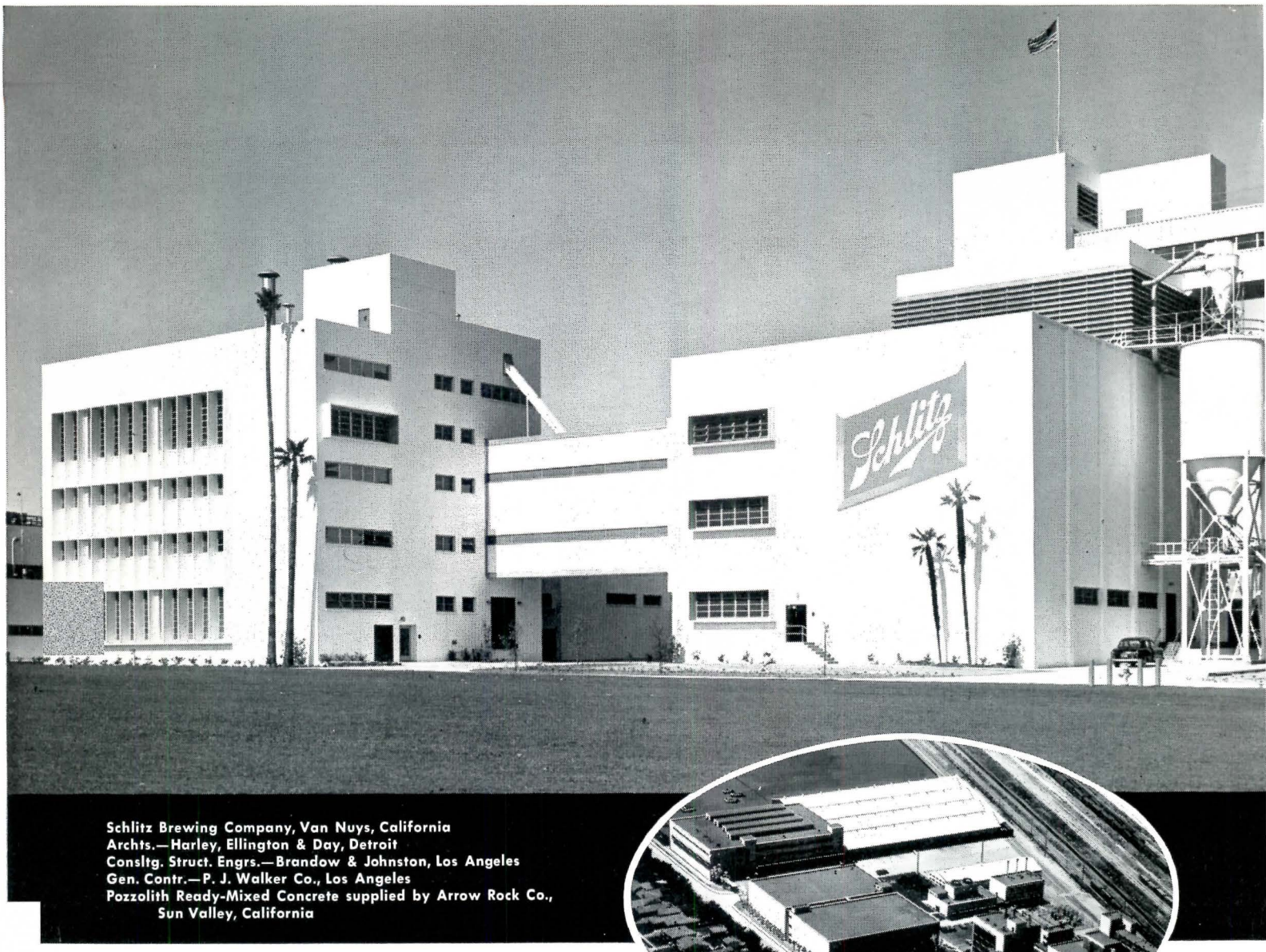

Schlitz Brewing Company, Van Nuys, California
Archts.—Harley, Ellington & Day, Detroit
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Gen. Contr.—P. J. Walker Co., Los Angeles
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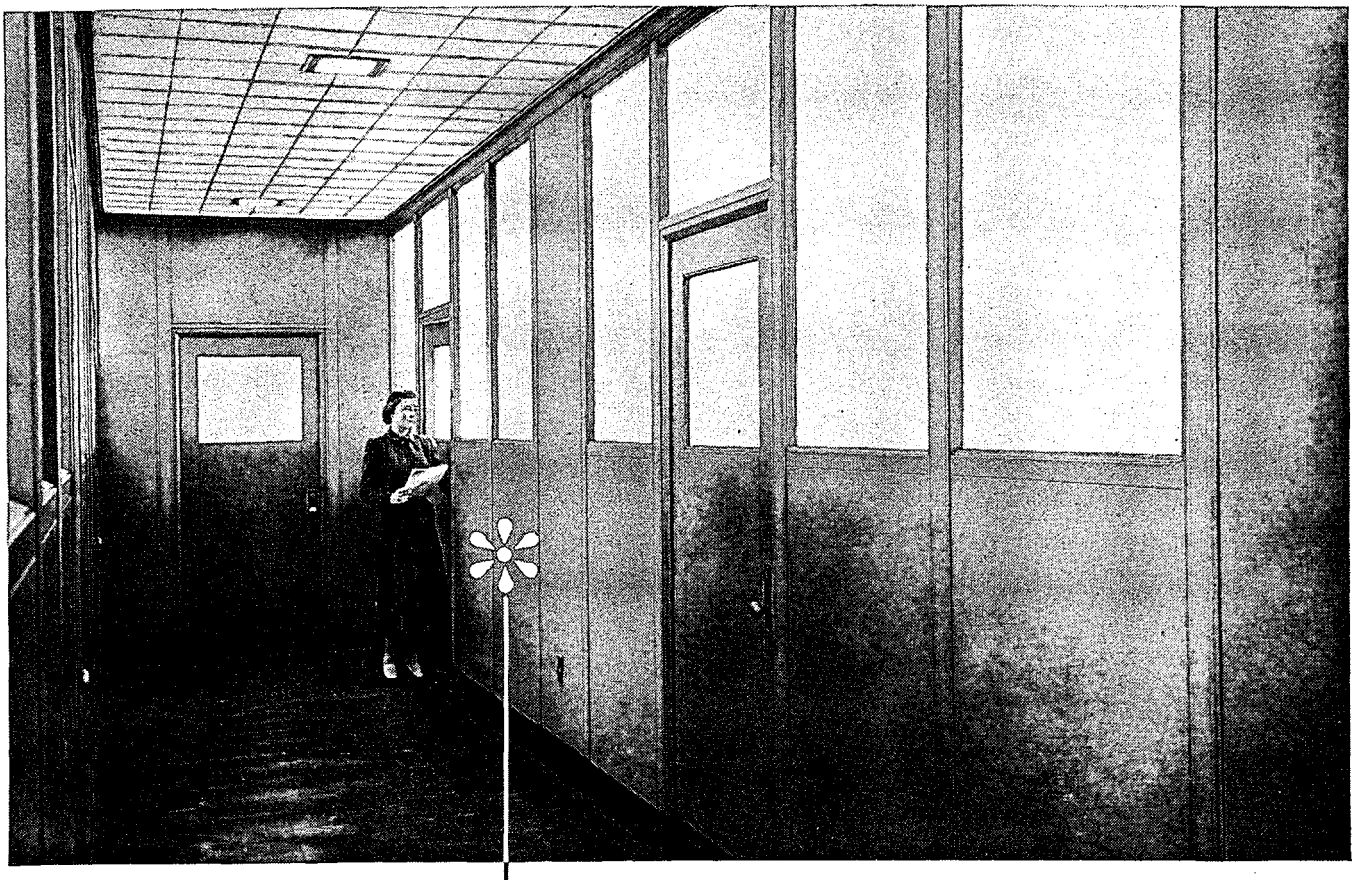
*American Concrete Institute, Committee 613, 1944 Report, Page 655
Bureau of Reclamation's current Concrete Manual, Page 130



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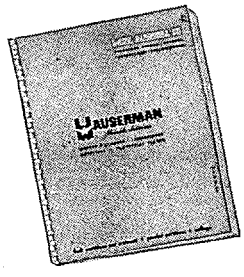

Free Data Manual 55

New 100-page guide for architects contains complete technical details, stock sizes and specifications on *all* types of Hauserman *Movable* Interiors. If you do not already have this new data manual, send for your copy today!

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p/a newsletter

April 1955

"Designing for the Community" will be theme of 87th annual AIA convention to be held in Minneapolis, June 21-24, announces AIA President Clair W. Ditchy. Program will emphasize the architect's role in development of metropolitan areas and his responsibility in community planning. Other highlights of convention will be presentation of the Gold Medal, exhibition of outstanding American architecture, and announcement of Honor Awards Competition winners.

Bills introduced into New York State Legislature would eliminate necessity for licensed architectural or engineering services on buildings costing up to $20,000 and/or up to 30,000 cu ft volume. In addition, two bills which would permit practice of engineering (and architecture) by corporations are backed by influential contractors. N. Y. architects and engineers are planning to fight proposed revisions.

NBC-TV's popular program "Home" is promoting and sponsoring a builder house designed by Jones & Emmons of Los Angeles. Similar in design to an Eichler-built house which won a Citation in P/A's 1955 Design Awards Program, the house will be built by a selected group of builders in cities across the country and locally promoted by NBC affiliates. . . . Four builder houses, designed by promising young architects for each of the four major regions of the country, will be featured in contest and promotional activity cosponsored by Hotpoint Company and "Living for Young Homemakers" magazine. "Living-Conditioned" homes will make use of latest concepts of lighting, acoustics, building materials, and climate conditioning for moderate-priced houses.

A significant break with the past occurred recently when all annual awards of Church Architectural Guild of America went to buildings of contemporary design. Jury, composed of three architects and two clergymen, commented that selection was not influenced by "any preconceived style as representing church architecture."

Photographer Alex Langley is winner of AIA's 1954 Architectural Journalism Award for best picture published in a professional architectural magazine. Winning photo, made for P/A and published in June 1954 issue, page 108, was of Tropicana night club in Havana, Cuba; Max Borges, Jr., Architect.

Skidmore, Owings & Merrill and Harry Bertoia won Gold-Medal Awards in New York Architectural League's annual exhibition, for architecture and "gold screen" of Fifth Avenue Branch of Manufacturer's Trust Company. Engineering award went to E. H. Praeger of Madigan-Hyland for Pier 57, New York.

National Institute of Arts and Letters elected Pietro Belluschi, Dean of MIT's School of Architecture, to lifetime membership. . . . "Early Victorian Architecture in Britain" by Henry-Russell Hitchcock won Society of Architectural Historians' annual book-award medal. . . . Speakers for series on "The Artist in Our Time" at The Institute of Contemporary Art, Boston, will be: James Johnson Sweeney, Director of Solomon R. Guggenheim Museum—April 5; Rene d'Harnoncourt, Director of Museum of Modern Art, New York—April 26; and Frank Lloyd Wright—May 3.

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newsletter

Frederick Gutheim Washington Perspective

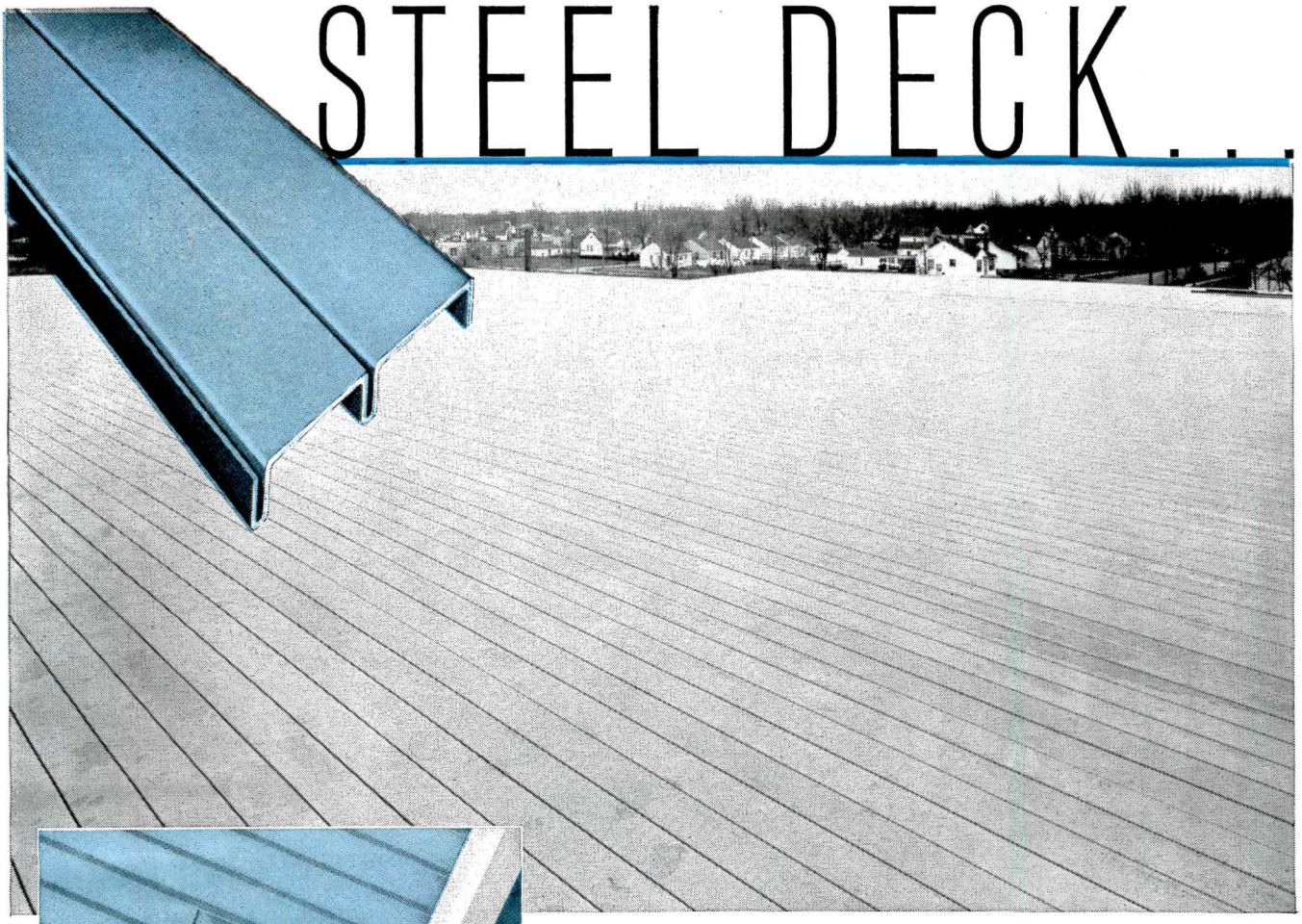
Architects might do well to know the six men recently installed as regional administrators of the Housing and Home Finance Agency. They will be responsible for the urban-renewal program by which HHFA hopes to make aging cities face their problems of disintegration and do something about it, besides scream for more public housing. They will also direct the college housing, community facilities, and other programs of the HHFA's Office of the Administrator. They are being given larger co-ordinating responsibilities over HHFA's constituent agency programs, those of the Federal Housing Administration and the Public Housing Authority. Co-operation of these agencies is needed in the urban-renewal program which replaces the more limited urban-redevelopment activity. The Administration regards this as the chief way HHFA programs can be co-ordinated within communities to secure larger municipal benefits of planning: halting the march of blight, the decentralization of downtown centers, the strangulation of traffic; and replacing the King Canute of public housing and redevelopment with an army of dyke and canal builders more likely to hold back the sea of urban decay.

Administrative decentralization of a program like this, essentially a local program, is all to the good. But there are attendant problems. Like two bodies which can't occupy the same space, two officials can't exercise the same power. Where did the powers of the new regional administrators come from? Some were created by the 1954 housing program which launched new activities and redirected old ones. But they have also come from HHFA officials in charge of special programs, who formerly made in Washington decisions that are now being taken in regional offices. The Washington officials continue to be influential, of course, but they no longer direct. They must function as staff officers to HHFA Administrator Albert Cole. A man like Urban Renewal Administrator James Follin is no longer in the line of command and what *has been* "delegated" to him is not the responsibility to act, but to advise. Cole has willingly accepted such guidance in the past, as every good administrator must. But the new reorganization means he will now face conflicting advice—from his own immediate staff, on the one hand, and from his regional administrators, on the other. As time wears on, the regional administrators will become centers of their own power structure: it becomes increasingly difficult to turn down their recommendations without souring local programs. Administrators talk to members of Congress not about generalities but in the specifics of local programs, about local deals with regional administrators which constituents demand that they support. In time, also, the "final approval" in Washington tends to become a rubber-stamp operation, except when the issues raised are so momentous that the delays involved in more thorough review and reconsideration are thought justified. Thus, the piling up of one little precedent after another—the dripping of water that wears away the stone of central authority in Washington.

But the greatest power of the new regional offices is their power to initiate projects, to develop them in final form, to handle all details—including the approval of architects (or often, in the case of such new programs, their recommendation). By such participation, the regional office joins the locality in interest, and the two conspire to assail the Washington headquarters. Warfare of this sort is the normal state of large scale organizations, the tension that holds the structure together and influences its operations. Therefore, while there may be interest in new architectural commissions, and the new role of HHFA regional administrators in dispensing them, the issue of importance is how the new power structure of HHFA changes the ground rules which determine the survival of architectural plans for urban-renewal and large-scale housing operations.

On the whole, it is difficult to see anything but good in the present arrangements. Housing design has suffered from ordinariness, timidity, dullness, institutionalism. Boring—or brutal—project design has been blamed on overstandardization, poor selection of architects, and many other things. But past efforts to overcome it have foundered on the lack of bureaucratic incentive to develop anything better—and the penalization of innovation. Regionalization, of course, does not automatically turn lackluster officials into enthusiastic speculators and promoters. But it does allow progressive forces in local communities to come to the fore sufficiently to incubate a new idea in housing, and to allow it to win friends and thereby gain a better chance for survival in a cold and hostile world. To architects jaded by past experiences in public housing, probably the best thing about the urban-renewal program is that it requires such enterprise and vitality to win out—and it tries to reward it.

STEEL DECK . . .



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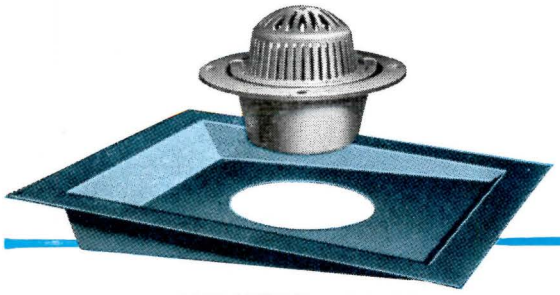

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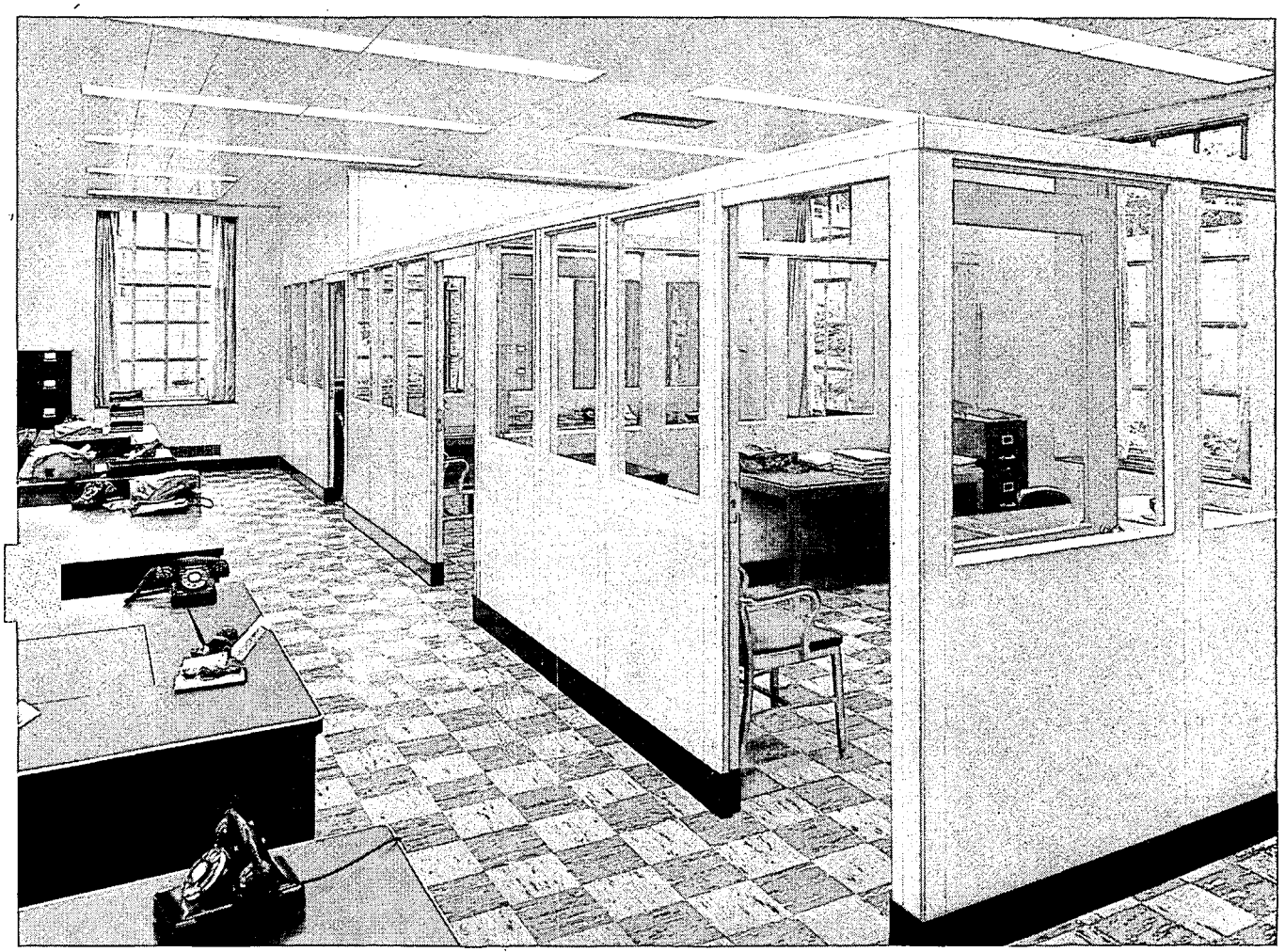

Firemen's Mutual Insurance Company, Providence, R. I. Cram & Ferguson, Architects Gilbane Building Co., Inc., Builders

Mills Movable Walls provide space control, insure efficiency at Firemen's Mutual

Firemen's Mutual Insurance Company was founded in 1854. It is only natural that this organization with more than a century of know-how and experience back of it would provide for *constant* efficiency in the lay-out of space in its new headquarters. All of the building's interior walls are Mills Movable Metal Walls.

Mills Walls promote efficiency — both present and future. They enable you to get maximum productivity through the most effective use of space. When changes in space requirements make new layouts advisable, these walls can be taken down, moved and re-erected quickly and easily, with a minimum of labor and at very low cost. Changes can usually be completely made overnight or during a week end.

As modern and attractive as they are efficient, Mills Walls combine this complete flexibility with distinctive architectural design and structural stability. They are thoroughly insulated and sound-proofed and provide easily accessible lay-in raceways for electrical wiring and controls.

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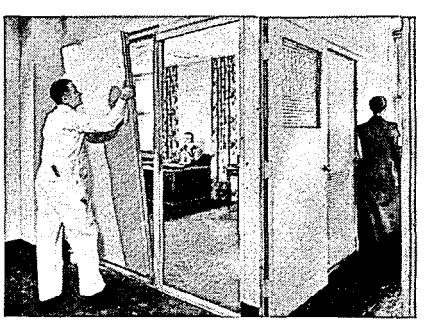

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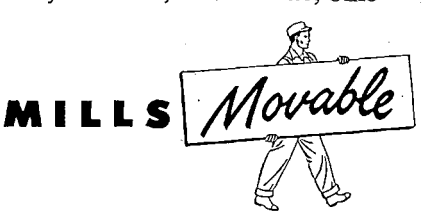
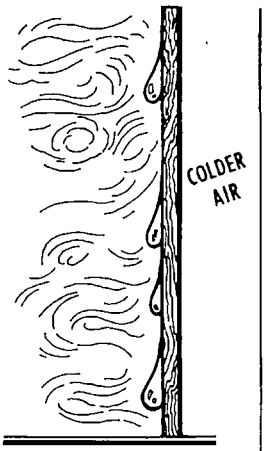


PROGRESSIVE ARCHITECTURE

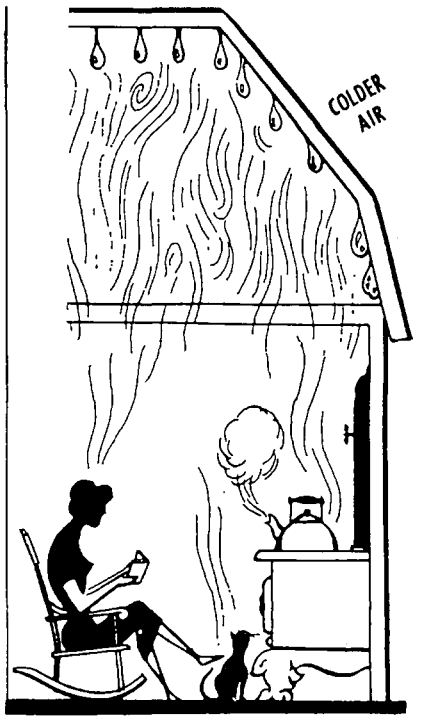
April 1955

How to Reduce CONDENSATION!

Prevent Damage to Wood, Plaster, Paint, etc.



Condensation forms when temperature of contacting air is reduced below dew-point by a cold surface.



Condensation forms when the capacity of an air space at a given temperature is too small for the amount of vapor present. →

As air becomes colder, it can hold less vapor in suspension. The degree of saturation increases until a dew-point is reached and condensation occurs.

Heat flows from warm to cold by conduction. A material which is in contact with air colder than itself on one side and air warmer than itself on the other side, will *continuously* extract heat from the warmer air by conduction and lose it to the colder air. As the contacting warmer air becomes cooler by this action, the amount of vapor it can hold in suspension without condensing becomes smaller.

The denser and bulkier the material, the more heat it can extract before attaining room temperature, if it *ever* does. The scientific construction of multiple layers of accordion aluminum, fiber and air spaces minimizes condensation formation on or within this type of insulation, when installed in building spaces.

THE REASON CONDENSATION IS MINIMIZED

Since the sheet of aluminum adjacent to the warm, inner air of a building weighs only about ¼ oz. per sq. ft., it does not need to extract much heat from that air to attain and remain at room temperature. Since the emissivity of the aluminum surface is only 3%, little heat is lost by radiation and this further enables the aluminum to remain at about room temperature and not extract much heat from that warmer air.

Since the other sheets of aluminum and fiber retard heat flow by inner as well as outer convection, and since conduction is slight through the preponderant low density air spaces, the sheet's other surface faces a space which is only a *little* colder than the aluminum itself. But because warmth flows to cold in conduction, the aluminum will *give off a slight* amount of *heat* to the colder space, thereby slightly *increasing* the vapor retaining capacity of that space. The successive reflective spaces and sheets of aluminum and fiber behave similarly. Since each aluminum surface is slightly warmer than the air it faces on its cold side, there is no extraction of heat *(The reverse is true.)*

CONTINUOUS VAPOR BARRIER

When multiple accordion aluminum is used, fortuitous vapor and water (like rain) which intrude into building spaces will, as the vapor pressure develops therein, gradually flow out as vapor through exterior walls and roofs because vapor flows from areas of greater to less density. Since the vapor cannot back up through the continuous, almost impervious aluminum, it will flow out because exterior walls and roofs have substantial permeability in comparison with the aluminum, far greater than the required 5:1 ratio.

Of great importance is the use of a continuous metallic vapor barrier of zero water vapor permeability, without "breaks" every few feet, to retard the outward flow of vapor which originates inside the house. Infiltration under the flat stapled flanges of multiple accordion aluminum is slight.

To obtain MAXIMUM, *uniform-depth* protection against heat loss and condensation formation, it is necessary to use the new edge-to-edge multiple aluminum*, each sheet of which stretches from joist to joist, and also all through the flanges for further vapor protection as well as permanent attachment of each sheet.

The U. S. Bureau of Standards has prepared a helpful and informative booklet, "Moisture Condensation in Building Walls," which discusses causes and cures. Use the coupon to get a free copy from us.

*Patent applied for.

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Type 4-S under 7½¢ sq. ft.

INFRA INSULATION, INC., 525 Bway., New York, N. Y.

Infra Insulation, Inc., 525 Broadway, N. Y., N. Y., Dept. P-4

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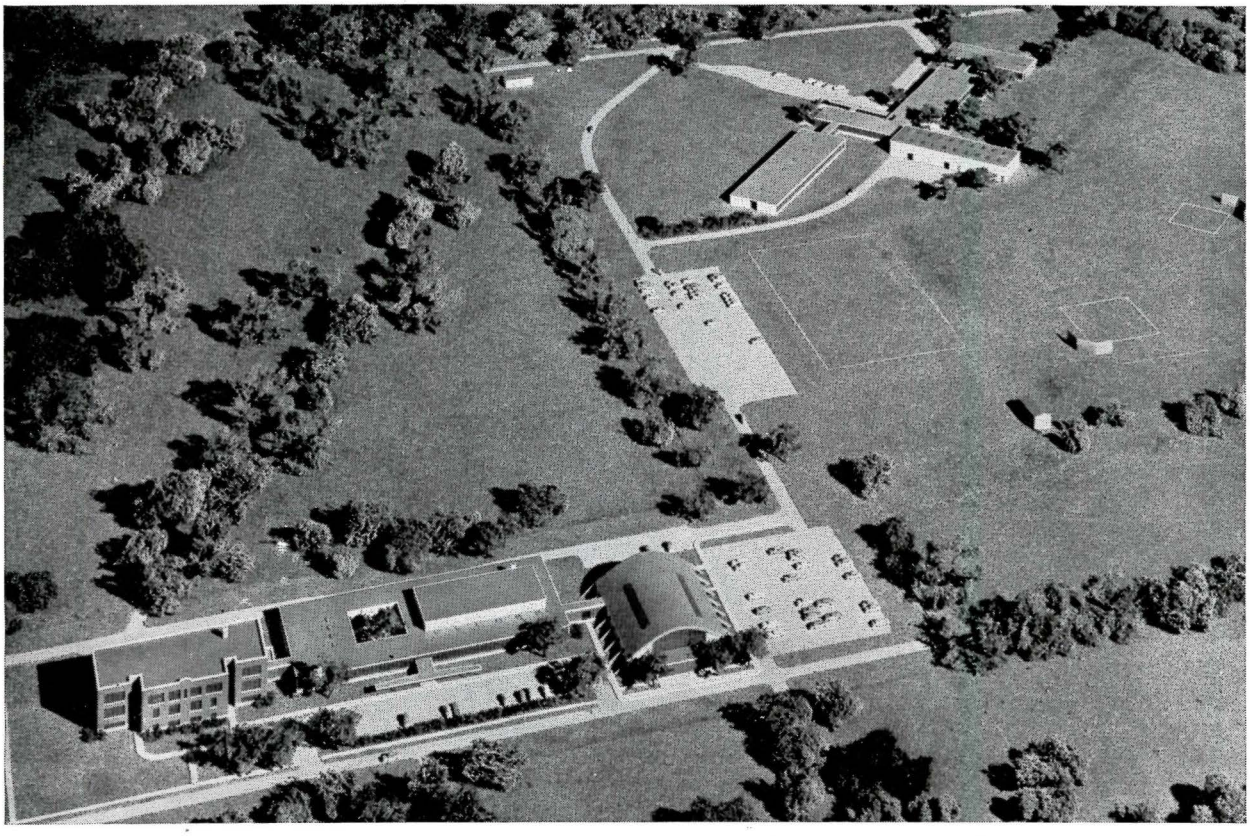
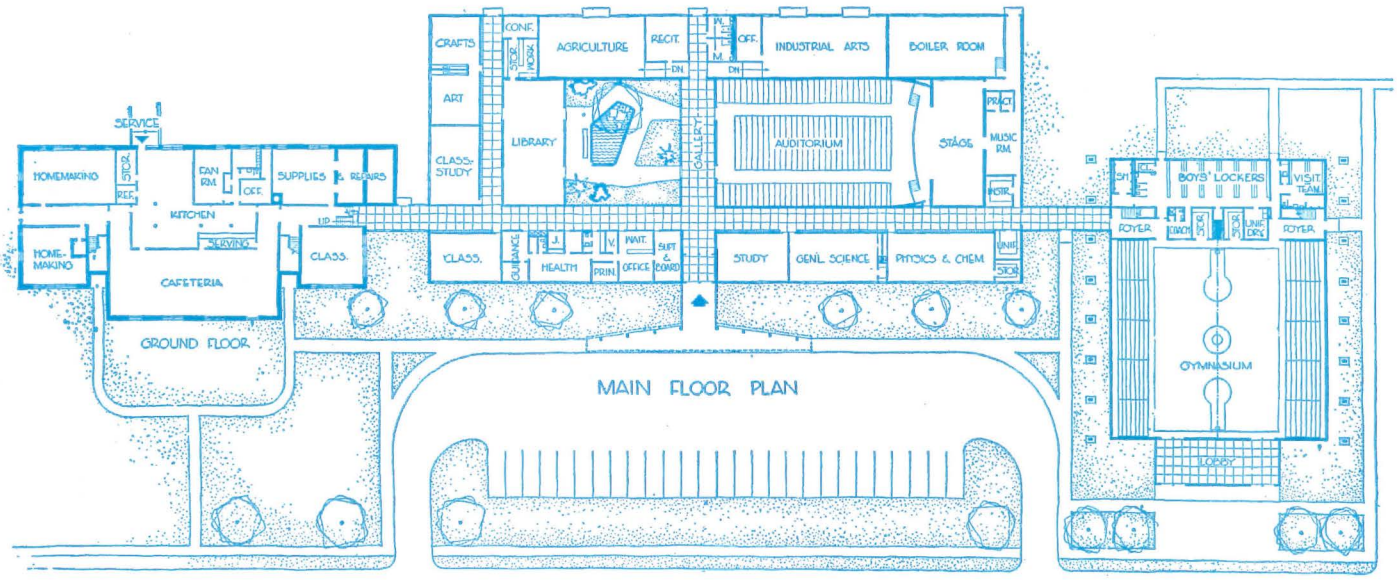
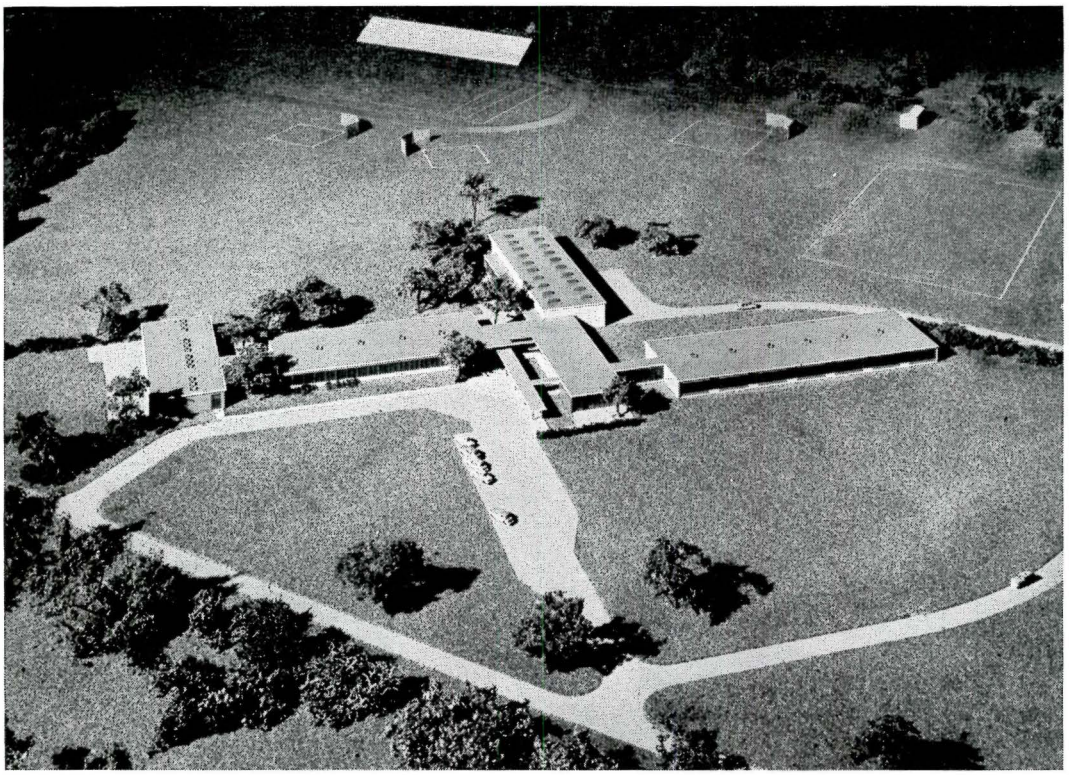
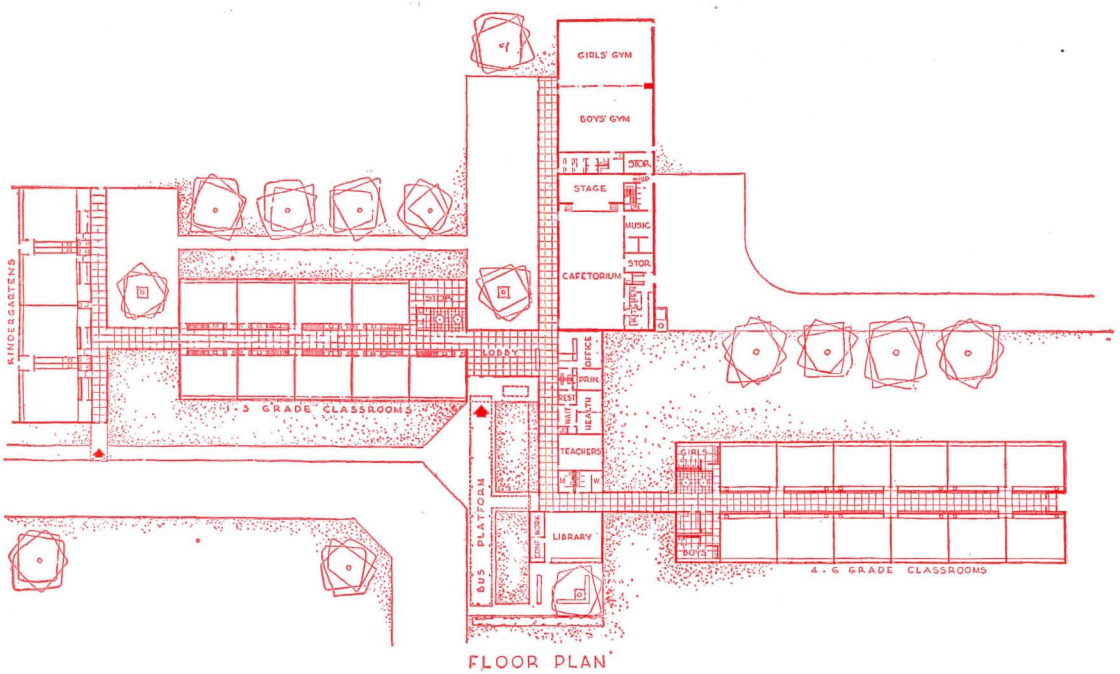
elementary school and high school addition





Preliminary plans for new elementary and high school facilities have been approved by the Frankfort-Schuyler Central School District in New York State. The firm of Urbahn, Brayton & Burrows, New York, are the architects for the project. The program calls for expansion of the existing high school (*foreground photo above*), new athletic facilities, and a new elementary school (*background of photo above and page 10*). The high school, located on a long and narrow site, will serve 600 students, the elementary school, also serving 600 pupils, will occupy 30 acres directly adjacent. The existing high school building will be used for recitation rooms and cafeteria. Its new wing houses administration, library, shops, and special classrooms grouped around a central court and auditorium. This simple horizontal structure forms the link between the existing three-story brick building and the parabolic shell of the new gymnasium. This structure will become the dominant sculptural form complementing the existing high school.





FLOOR PLAN

The new elementary school, featuring a more open plan, has five basic elements. Kindergarten rooms have a separate entrance, and face south onto their own playground. Grades 1-3 and grades 4-6 are in wings separated by an administration unit. The fifth element houses a combination cafeteria-auditorium, a kitchen and gymnasium, and provides the service entrance for the entire building. The basic structure for both buildings will be steel frame with structural mullions 8′-0″ o.c. Glazed brick panels and porcelain enamel spandrels will provide a playful color accent within the module. Service roads, parking space, athletic fields, and the two building complexes have been well related and treated as one unit by the architects.

Model: Theodore Conrad
Model photos: Louis Checkman

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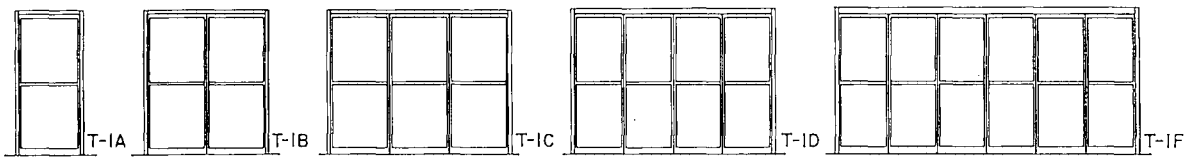
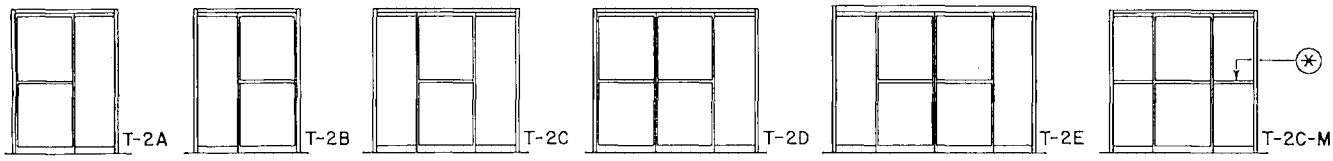
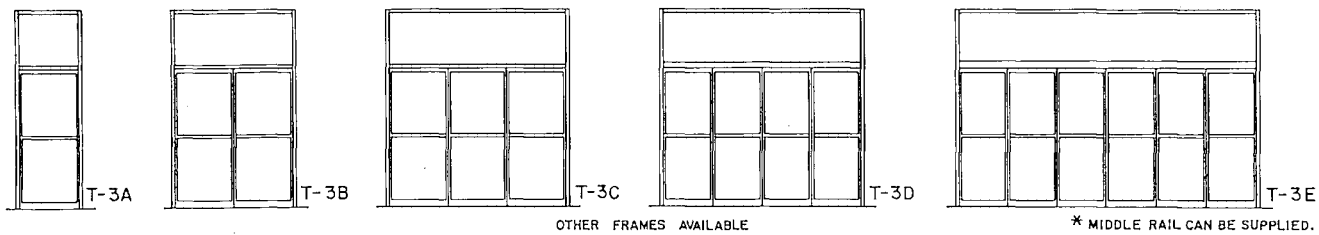


SERIES T-2 FRAMES WITH SIDELIGHTS



SERIES T-3 FRAMES WITH TRANSOMS



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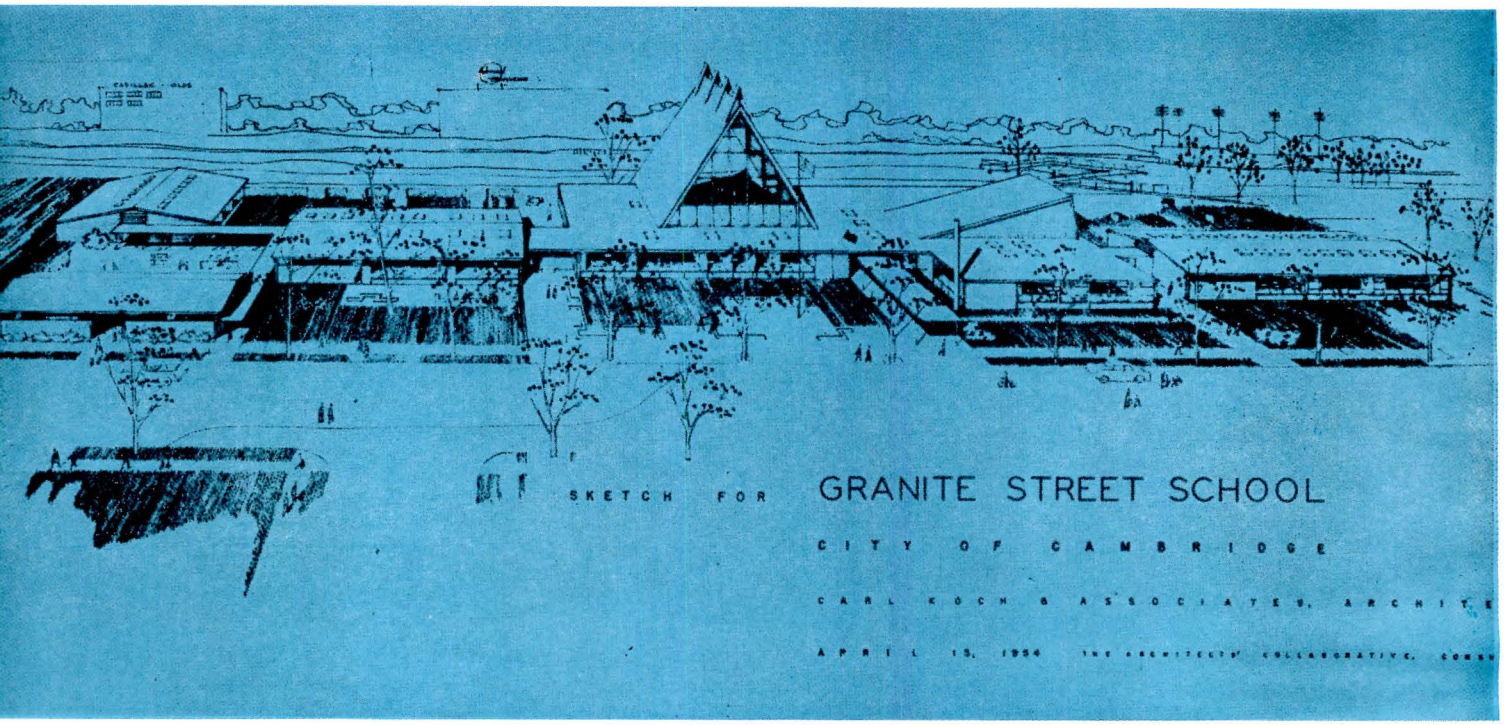


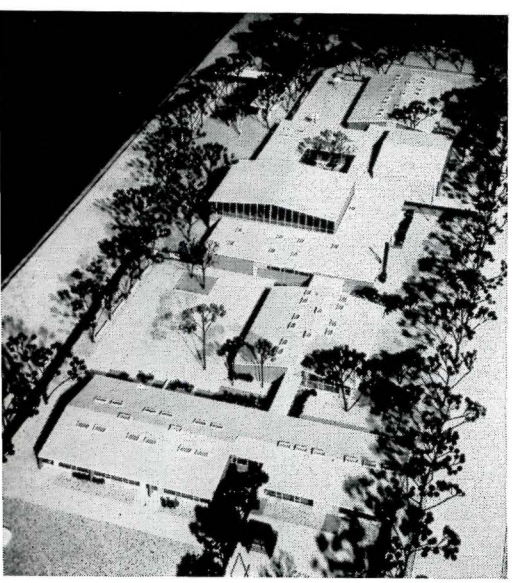
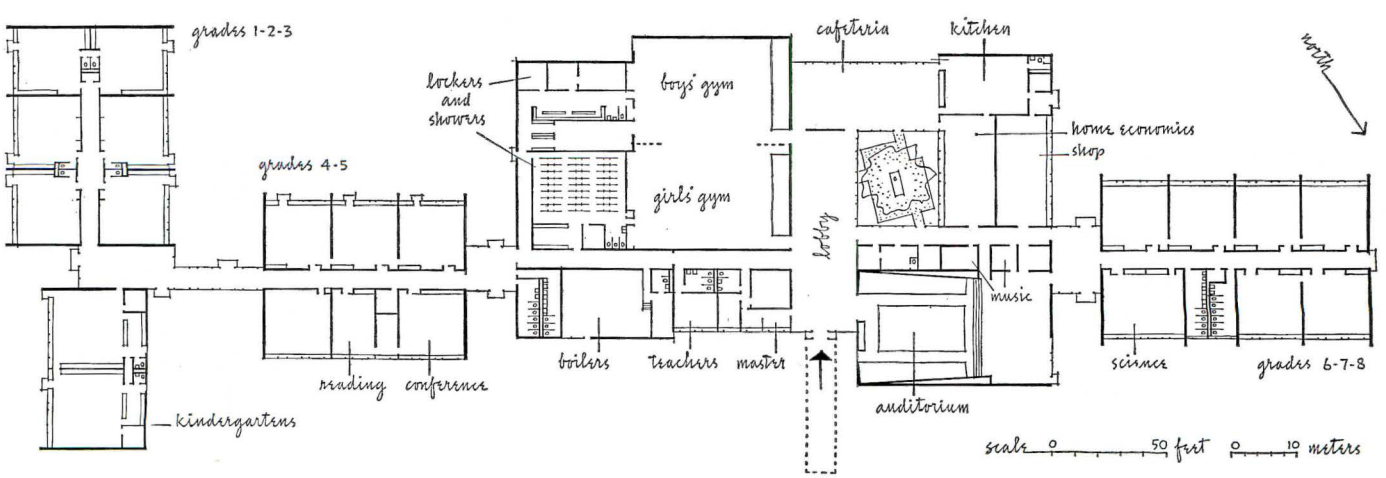
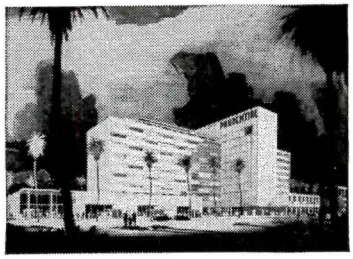


Photo: Fred Stone

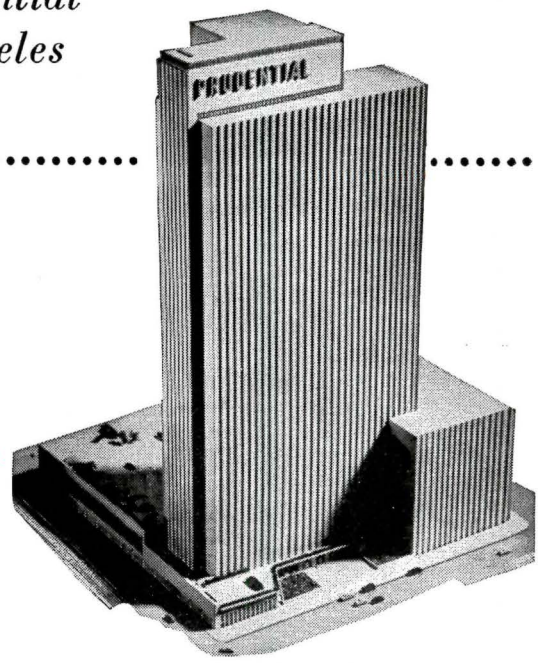
elementary school

Since Cambridge, Massachusetts intends to make full use of this school's facilities for adult groups and community functions, the scheme features a central unit containing assembly rooms suitable for either school or adult use. Classroom wings, each serving one of four different age groups, extend from this central core. Carl Koch & Associates, Cambridge architects, proposed the original scheme, shown in sketch form (*above*). The Architects Collaborative, acting as consulting architects on the project, and the City Authorities suggested a revision of the triangular roof over the gymnasium. The adopted scheme, shown in the model (*left*) and plan (*below*), introduces a courtyard into the center block and relocates the auditorium and two kindergarten rooms. Due to the narrow site and the need for economy, corridors are double loaded. Bilateral lighting will be achieved by means of skylights. Nisso T. Aladjem and Fred Severud are the structural engineers for the building; J. M. McCusker, Associates, the mechanical engineers; and Bolt, Beranek & Newman the acoustical engineers.





• *FIRST in the Prudential Building... Los Angeles*



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General Contractor: George A. Fuller Co.
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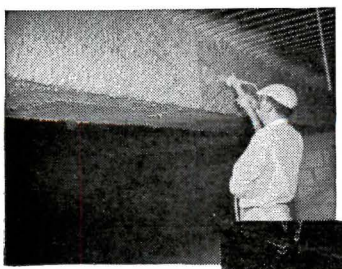
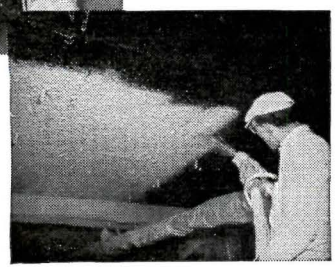


Brown coat application of Zonolite Plaster machine-applied to beams for 4-hr. fire rating.



Scratch coat of plaster machine-applied direct to metal lath.

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Take the Prudential story, for example. In 1948, Prudential used Zonolite in its Los Angeles building (illus. top left). By using Zonolite vermiculite Plaster instead of poured concrete for fireproofing steel, the weight per running foot was reduced from 225 pounds to 25! Cost per running foot was cut from $4.70 to $3.00. Zonolite saved weight; saved money, too. And *earned the highest attainable fire rating!*

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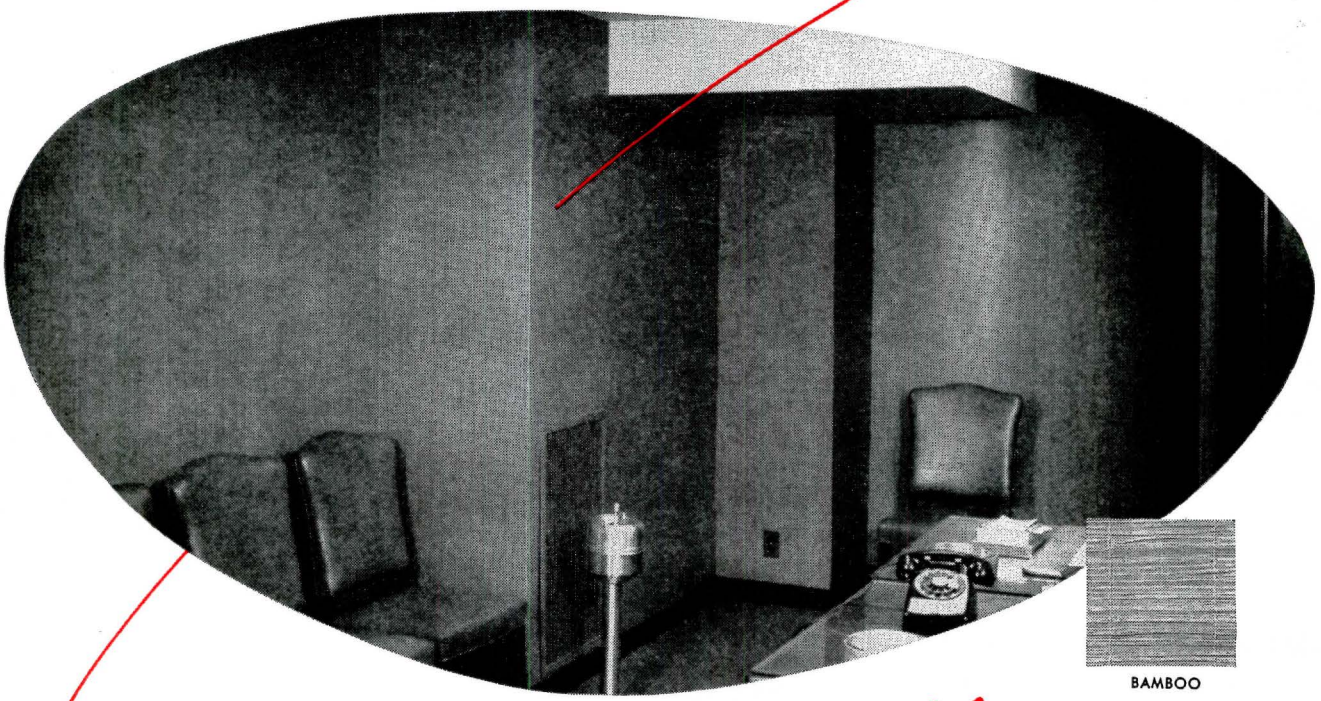
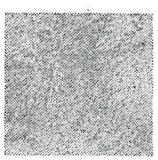
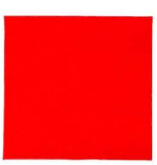


BAMBOO

MAHOGANY



LEATHERGRAIN



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tragic mistake

Dear Editor: I wish I had the optimism to believe that Fritz Gutheim's excellent article on the bridge-over-the-Potomac controversy is going to do much good. The engineers have received their orders and only a thoroughly aroused public opinion may now have some effect. But as far as I can see no one is aroused, not even the National Capital Planning Commission.

A tragic mistake is about to be made, and only a miracle can save it from happening. The miracle could take the form of permission by the Roosevelt Island trustees to allow a low bridge to intersect it at a point further enough north not to interfere visually with the Lincoln Memorial or the Mall.

After the last joint meeting with the National Capital Planning Commission, I called the Octagon and urged the AIA to do what it could in the way of protest; but the legal and technical machinery for accomplishing the misdeed is already in motion—and no letters to Congressmen will do much good. Perhaps the Secretary of the Interior can put a few hardships in the way of its execution if he wishes to do so; Fritz's article should at least be brought to his attention.

PIETRO BELLUSCHI, Dean
School of Architecture and Planning
Massachusetts Institute of Technology
Cambridge, Mass.

once more: Style and Materials

Dear Editor: Milton Kirchman in his reply *(February 1955 P/A)* to "Style and Materials" *(October 1954 P/A)* states that my article "simply confuses the way." This is, of course, a severe indictment for a writer, because even if many readers got a clear picture of the issue (the article was part of an assignment for an advanced student, who seemed to get something positive from the ideas presented), it is the author's fault if he is misunderstood. May I then, briefly, reply to the main points of his objections:

Reciprocal Style, as I named the desirable design of future architecture, is not merely "an interplay of structure and design." All architecture, worth the name, has had to be at all times just that. Reciprocal Style, as I understand it, should be architectural design, deriving its esthetic effect from materials and forms composed by the architect in a creative process analogous to that of the painter and sculptor. It is the characteristic of art (in contrast to decoration) that form and content are one; meaning, that the idea of the artist communicates through the perfectly chosen medium of material and form. In architecture of the type I called Reciprocal, in order to escape the hackneyed word "organic," *the idea of the building*, which is its purpose, communicates through the perfectly chosen medium of material and form.

The reason I found it necessary to build a whole article around this statement is the abundance of buildings lacking this characteristic of good architecture, and the increasingly commercial concept of building that encourages and rationalizes this lack of concern with reciprocal style relationships. Perhaps three prominent, contemporary examples, dealing with the three style concepts: structural, applied, and reciprocal, in my article will clarify the issue:

Structural Style in 20th Century architecture gives to exterior form no other connotation than that of the enclosing shell. Materials and mass are exclusively dependent on economy and enclosed space without compositional appeal to esthetic sensibilities. Example: Chrysler Building Annex, New York.

Applied Style in 20th Century architecture conceives of structure as space envelope, based on economy and utility, in the same way as does Structural Style. But the esthetic impact of architecture on the human senses is taken into account and met by applied visual effects, unrelated to the architectural character of the structure. Example: New York Telephone Company Building.

Reciprocal Style, defined earlier, and restated here, as equilibrium (or harmony), fitness (or contemporaneousness), and permanence (or material value) expressed in the composed architectural form. Example: Lever House, New York.

I am sure that Kirchman will agree with me that the main trends in architecture, apart from the publicized multimillion dollar buildings, tend toward one or the other of the style extremes—inherited from the past—especially in dwellings. See, for instance, the public housing projects in their abysmal "functionality" as one group, and the "gimmick" Florida house types as the other.

A few other points in Kirchman's letter can be clarified briefly:

I never intended to be "intrinsically opposed" to Frank Lloyd Wright's definition of architecture as spirit; but am most emphatically against the dualism that Alberti most decidedly dreamt of, when he divided architecture into design and structure by proposing, for instance, nine basic geometrical figures in all for churches (see *De Re Aedificatoria, Book VII*).

I am not alone in considering Meso-

(Continued on page 16)

(Continued from page 15)

potamian and Egyptian structures as not architecture, in our interpretation of inner space and outer form as related to the function of human shelter. Not only were cell and wall independent of each other: mass or walls were determined by tradition and ritual alone.

It astonishes me that Kirchman, who is well read and an astute thinker, denies a "collective ideal" in Rome, specifically during the Golden Age of the Antonines. The Roman State as the supreme ideal, to which all individuality is subservient, and the *Pax Romana* as the worldwide implementation of this ideal, have never been equalled in collective power—not even by the Medieval Church.

And finally—after careful reconsideration of my "historical division," which Kirchman feels should be restated—I can only admit to incompleteness, which is the sad fate of all surveys limited by magazine space. The placement of the Structural and Applied Style periods in historical context seems still to hold.

SIBYL MOHOLY-NAGY

one of the best

Dear Editor: I just wanta put in a word! As a student, with a lot of questions, I want to let you know that Mrs. Moholy-Nagy's article on "Style and Materials" was one of the best I've read, in or out of school. . . . The article had more positive ideas on design than is usual—and such articles are of great value. More like it will help. DICK L. REAGAN
Texas Technological College
Lubbock, Texas

column enclosures

Dear Editor: Enjoyed the MATERIALS AND METHODS pages on porcelain-enamel resumé in October 1954 P/A.

Brought back memories of when we used porcelain-enamel enclosures to house structural columns of the two Chase Bank branches in Rockefeller Center, in 1938.

L. ANDREW REINHARD
New York, N. Y.

Columbia alumni

Dear Editor: Since many of our members are subscribers to P/A, we feel certain that we can contact many of them through your publication. We are revising our alumni mailing list and request that the Columbia Architecture Alumni who have changed addresses, or who have not been receiving mail from the university, send latest address to: A. HAUSMAN, Membership Committee, 211 E. 48 St., New York, N. Y.

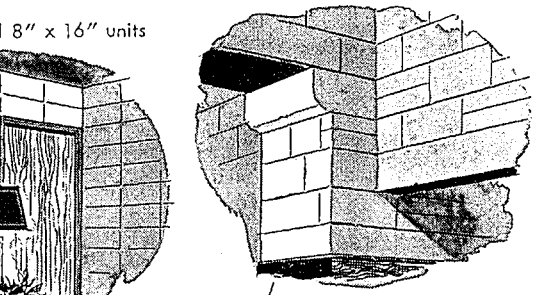
STANLEY R. ROSENBERG, Chairman
Public Relations Committee
Alumni Association
School of Architecture
Columbia University
New York, N. Y.

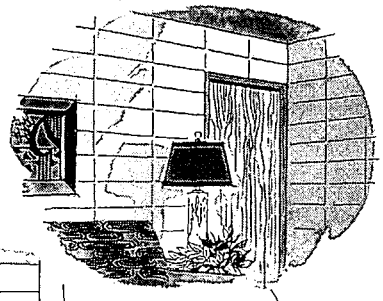
(Continued on page 21)

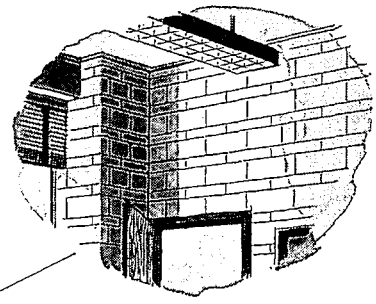
Coursed Ashler variation with 4" & 8" units

Horizontally stacked 8" x 16" units

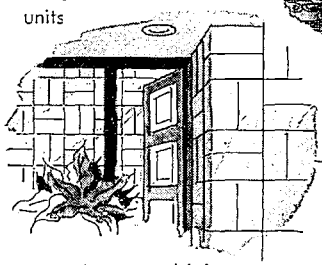
4" x 16" and 8" x 16" courses



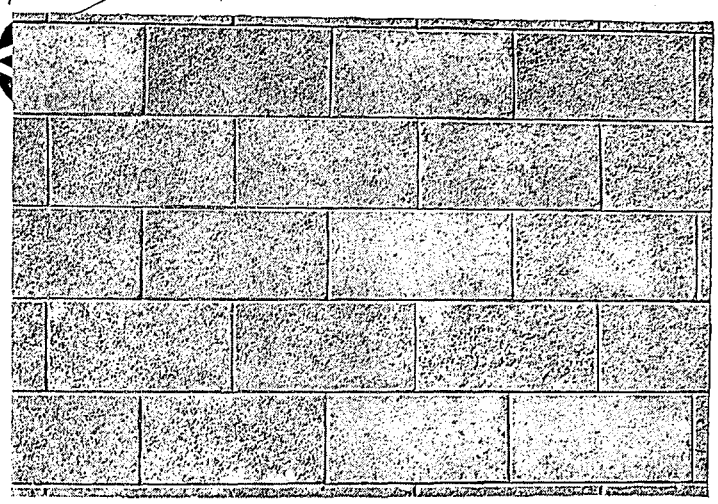




Basket-weave using 8" x 16" units

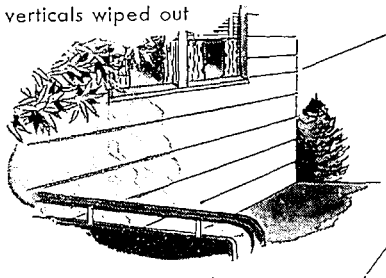


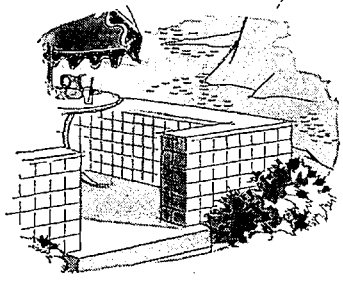
Theme and Variations



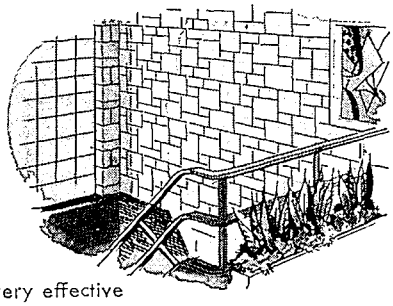
THE FAMILIAR THEME—8" x 16" FACE UNITS IN RUNNING BOND

Tooled horizontal joints; verticals wiped out





Here 8" x 8" units are stacked



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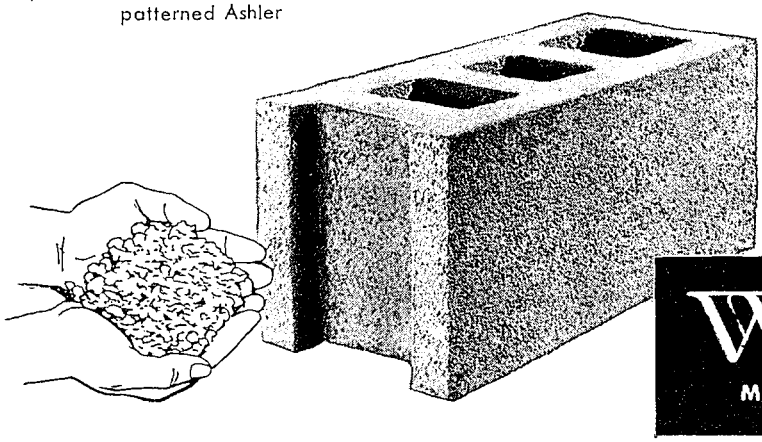

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Because it's completely finished at the factory, Bruce Fireside Plank costs no more installed than a comparable grade of plain strip flooring. There are no on-the-job finishing costs and builders save 3 to 5 days' working time per house.

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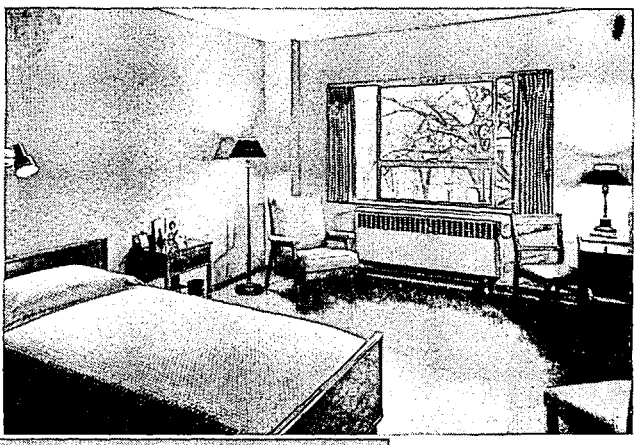
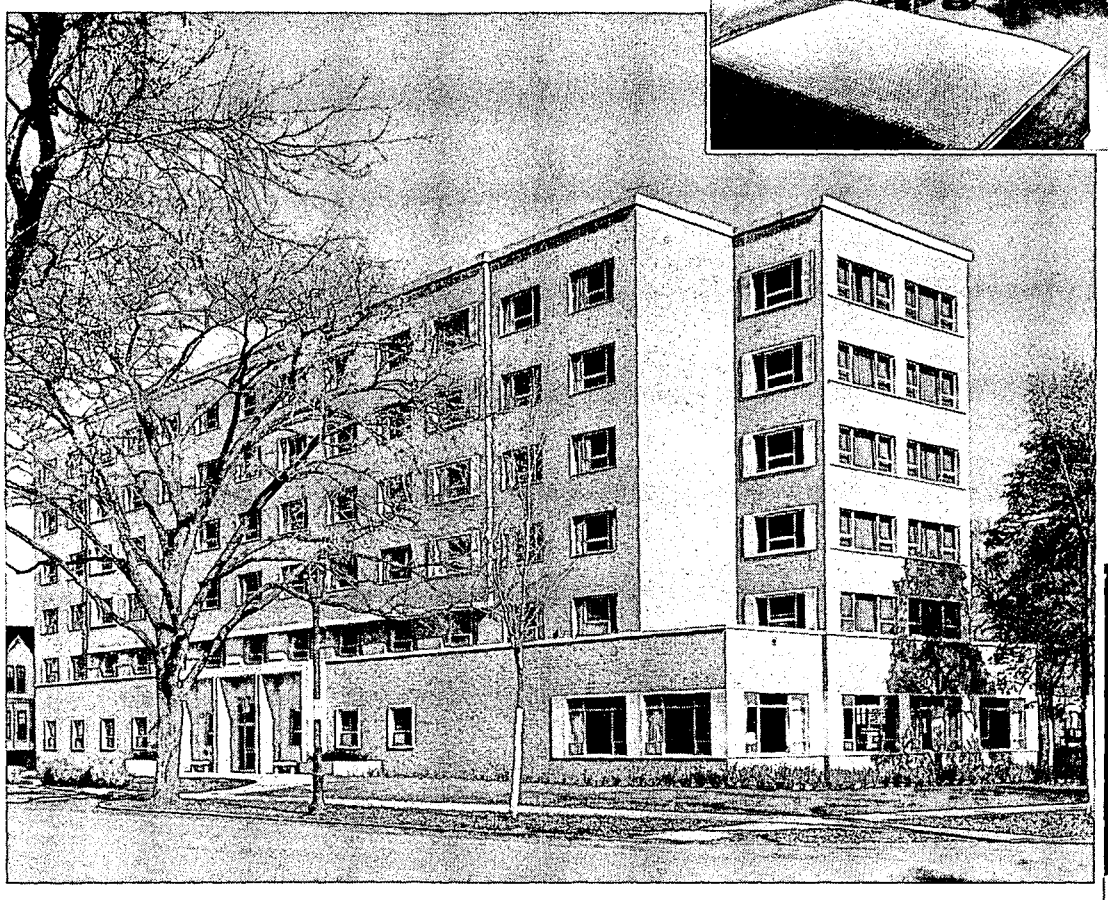
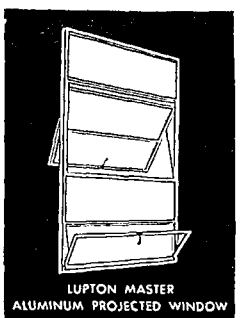




James C. King
Home for Men,
Evanston, Illinois.
Architects: Holabird,
Root & Burgee, Chicago.
Contractor: Carroll
Construction Company,
Chicago. Photo:
Hedrich-Blessing, Chicago.
Windows:
Lupton Master
Aluminum Projected.



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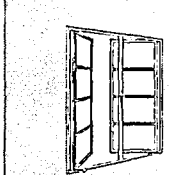
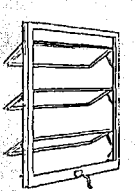
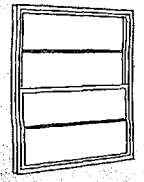


LUPTON CASEMENT
ALUMINUM OR STEEL



LUPTON ALUMINUM
AWNING WINDOW



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(Continued from page 16)

nothingness in boxes

Dear Editor: Much is said and written in your magazine concerning Boxes and International Architecture; this seems to be all you publish, at any rate. Very little is said concerning growth of an Architecture which will truly reflect the greatness of America.

The Box-House has exerted great pressures upon education and you, in order to sell copies, have become part of this movement which was at best a Germanic economic expression. Check and see if this was not so! Do we not have anything to contribute ourselves? Where does the young architect turn when he desires inspiration? The older men have all turned to Europe and regularly return to bask in its eternal light. Or, if things are too warm there, they bring those who can 'guile this gullible nation of immigrants into believing that only Europe has the mental capacity to solve the architectural needs of what should be the greatest force for development of ideas ever to exist.

The fair in Chicago at the turn of the century began the flood of malcontents to this nation's shores and schools. The Bauhaus accelerated this tide and the sops who educate bow low to this god of nothingness. Indeed, if one speaks of love for his land, he is thought queer by his fellow professionals. If we speak of an American Culture, we are condemned as isolationists. And yet the only way we can hope for a truly American expression is if we do adopt an "isolation," as distinct from the *ism*.

The recent selection of architects for the Air Force Academy very strongly substantiates the contention and pet peeve of mine. The Foothills of the Rockies, a tremendous example of nature's handiwork, is soon to be resplendent with box after box punctuated with cute little circles, another Brandais or Mexico City University. Is there a true "American" in the design group which will set the policy? The majority of them have spent their entire lives under European domination. Can we expect an American group of buildings? I think not.

Perhaps you are not in agreement with the thoughts which I am expressing, but if you have interest in an *American* Architecture, you will use all the facilities at your command to further the growth of *our* Architecture.

To this point, I have said little which would lead one to believe that I have any respect for your publication at all. This is not entirely true. You have vigorously demanded a higher standard of education for architects—with one qualification—it would seem that you would replace Beaux Artism with Internationalism. Why not try *Americanism?*

We speak of moving ahead and educating the "public." I have found that the

(Continued on page 22)

(Continued from page 21)

"Public" will buy anything that is placed before it: it's the funny-minded architects who have to be educated. If the profession wants and demands an American approach to the solution of our Architectural problems, the "Public" shall have it. If the profession is indifferent, Box-minded, lazy, unwilling to crusade for America, then we shall have more of what we are now getting. Internationalism is death living on decay. A well-known internationalist once told me, "It is better to have cities because one can get fresh oranges." (You would be surprised at who it was. Imagine such a statement in this era of frozen foods and refrigerated transportation.) Yet this is the kind of man who is praised and lauded by your magazine; whose example your editorials would have us fawn over; Medieval minds in Medieval men, expressing Medieval thoughts.

The architect has lost his place in the Art of Building and is seemingly indifferent to his position. He is interested in his *own* welfare. He should exercise caution or perhaps he will exterminate himself.

BERNARD N. CAHLANDER
Boulder, Colo.

P.S. Please have my subscription renewed.

never a specialist

Dear Editor: To practice what one preaches is a most difficult attainment for many individuals, but apparently it comes second nature to Alden B. Dow. His statement *(page 81, February, 1955 P/A)*, "Never consider yourself a specialist in any particular kind of building; for as sure as you do, your thinking will be reduced to a formula, and this, by its very nature, means sterility," has been proved many times by excellence of design in the wide variety of building types he has planned. From this work it might well be inferred that each individual building incorporates some elements of architectural design and construction derived from his experience on other buildings of different types. There appears to be no reason to believe that his residences are not better designs because he has planned schools, churches, and other structures, than if his entire practice had been devoted to this one phase.

It is unfortunate that this passage, quoted above, cannot be printed, framed, and hung in numerous Board Rooms throughout the country for the benefit of Building Committee Members who believe that if an architect has "done" a certain type of building, that makes him a "specialist"—just like Chick Sales.

JOSEPH WILLARD WELLS
Norfolk, Va.

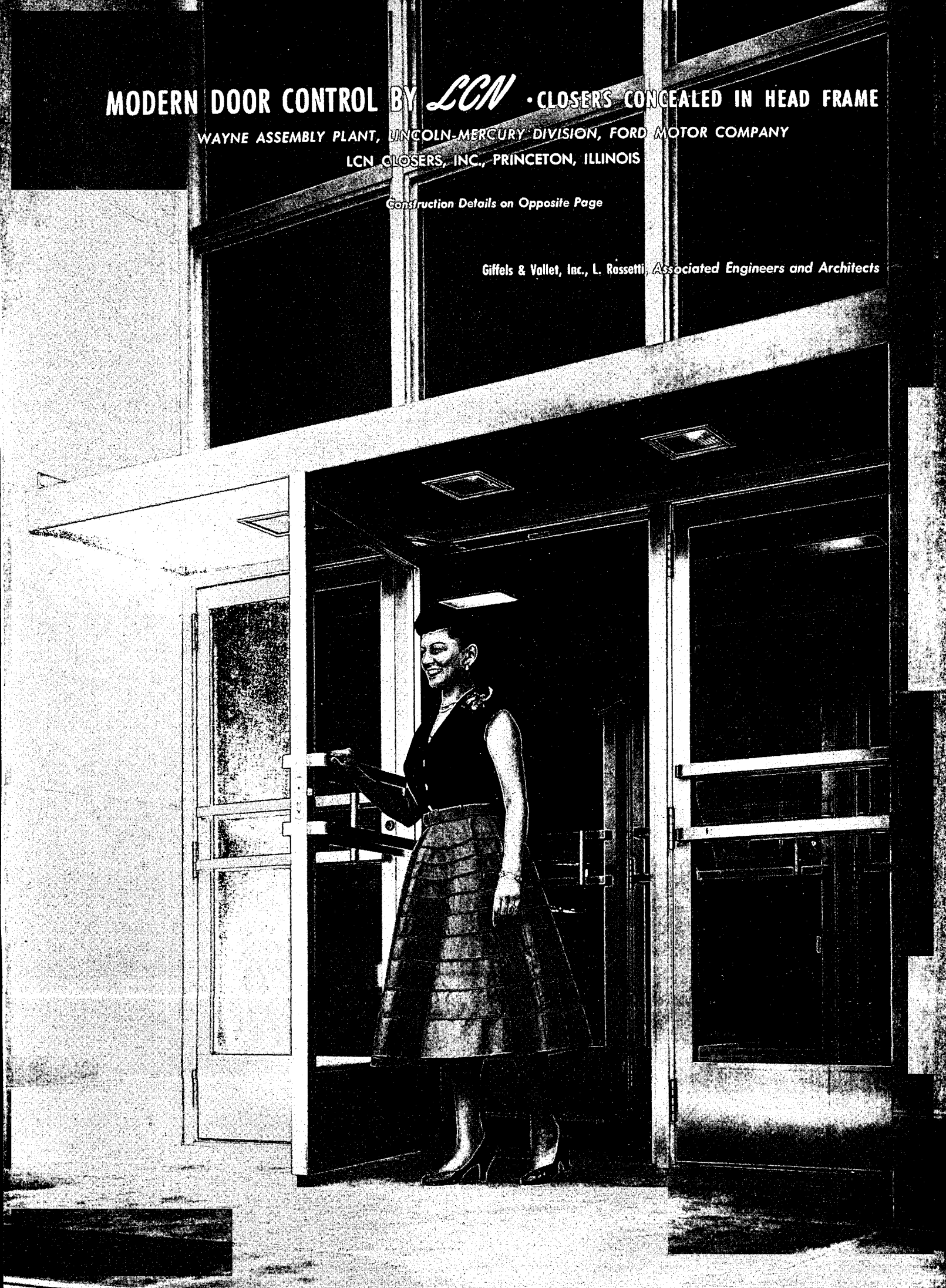
MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN HEAD FRAME

WAYNE ASSEMBLY PLANT, LINCOLN-MERCURY DIVISION, FORD MOTOR COMPANY

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

Giffels & Vallet, Inc., L. Rossetti, *Associated Engineers and Architects*



A more important question than ever . . .

WHICH RESILIENT FLOOR OVER CONCRETE?

There are at least two reasons why it is now more important than ever for architects to be aware of the problems involved in specifying resilient floors for installation over concrete. First, the use of concrete in direct contact with the ground has vastly increased during the past decade. Second, the resilient flooring industry has developed new types of floors and improved others, especially to provide resistance against the harmful effects of alkaline moisture, so that many more installations are involved.

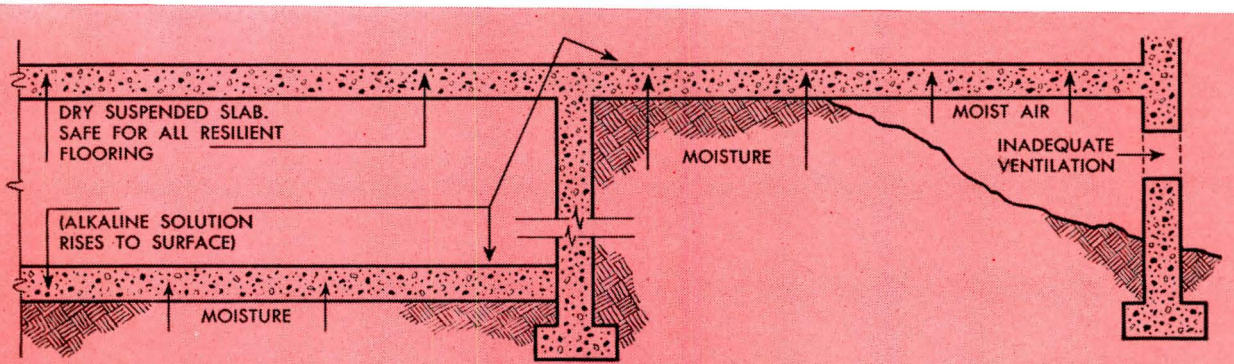
It is important to understand the "moisture problem." As most architects know, alkaline salts are present in concrete under any conditions. Their presence does not, however, affect resilient floors to any serious extent unless moisture is present, as it invariably is when the subfloor is in contact with the ground. Since the degree of moisture present is the main factor determining the seriousness of the alkaline condition, the distinction between "suspended," "grade-level," and "below-grade" subfloors is of prime importance. The moisture conditions in these three categories are illustrated in the drawing below.

Suspended Subfloors On adequately ventilated and dried suspended concrete subfloors, all the same types of resilient floors that are suitable for installation over wood subfloors may unhesitatingly be specified. However, the importance of allowing adequate time to permit suspended concrete subfloors to dry thoroughly cannot be overemphasized. Wherever possible, concrete should be permitted to dry out for several months. Every effort should be made to provide heat and good ventilation. In every case, suspended concrete should be tested for moisture before installation of resilient flooring. (See illustration on opposite page.)

Below-Grade Subfloors Improvements in the formulation of resilient flooring materials themselves as well as recent adhesive developments now provide a much wider range of flooring suitable for basement installation than was available just a few years ago. Asphalt tile was long the only resilient flooring which could safely be specified for basement use, and it remains an excellent low-cost floor for this purpose. Armstrong Excelon Tile, a vinyl-asbestos material, is a recent development providing a floor of superior durability and appearance which is greaseproof and fully resistant to basement alkaline conditions.

The use of a special adhesive, Armstrong No. S-104 Chemical-Set Waterproof Cement, now makes possible the installation of Armstrong Rubber Tile and Armstrong Custom Corlon Tile over below-grade concrete slabs. Several years of laboratory tests, and trials under actual conditions, have proved that such installations will give satisfactory service for the normal lifetime of the tile.

On-Grade Subfloors Armstrong Rubber Tile and Custom Corlon Tile may now safely be specified under normal on-grade conditions over concrete with a new one-part, factory-mixed adhesive, Armstrong No. S-225 On-Grade Cement.



This drawing shows how moisture from the ground or from an inadequately ventilated air space below penetrates the concrete slab, bringing alkali to the surface in solution. This solution attacks the oil binders of most resilient flooring materials, causing a chemical change. Linoleum and all other resilient flooring materials may be used on dry suspended floors. On below-grade floors which contain ground moisture, asphalt tile or vinyl-plastic-asbestos tile (Excelon) are normally installed. In addition, rubber tile and Custom Corlon Tile may be installed below grade with a special adhesive. Cork tile may be installed over certain on-grade concrete subfloors. (See "On Grade" above.)

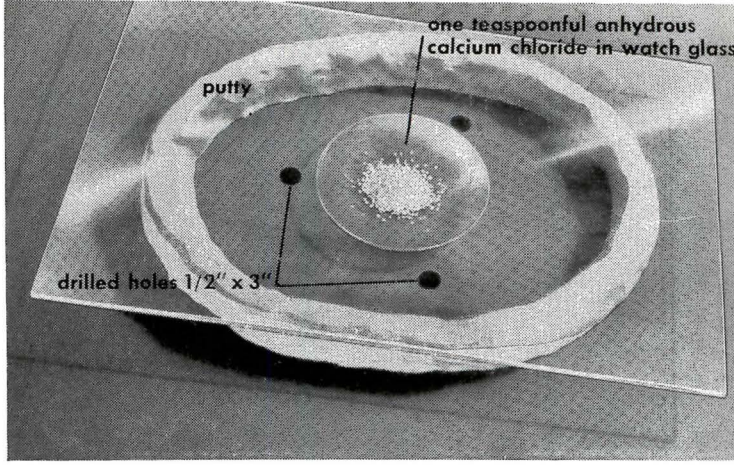
Armstrong Cork Tile may also be installed with No. S-225 if the surface of the slab is at least 12 inches above grade, the ground slopes away from the building, and the slab is well cured and visibly dry. Asphalt tile and Excelon Tile are installed on grade with Armstrong No. S-160 Emulsion.

Wet Floor May Appear Dry It is never safe to assume that a concrete slab will always be dry because it has appeared dry for several years. Rapid evaporation at the surface will make a concrete floor appear free from moisture but when a resilient flooring is cemented to this surface, evaporation is prevented or slowed down and the alkaline solution collects under the flooring material.

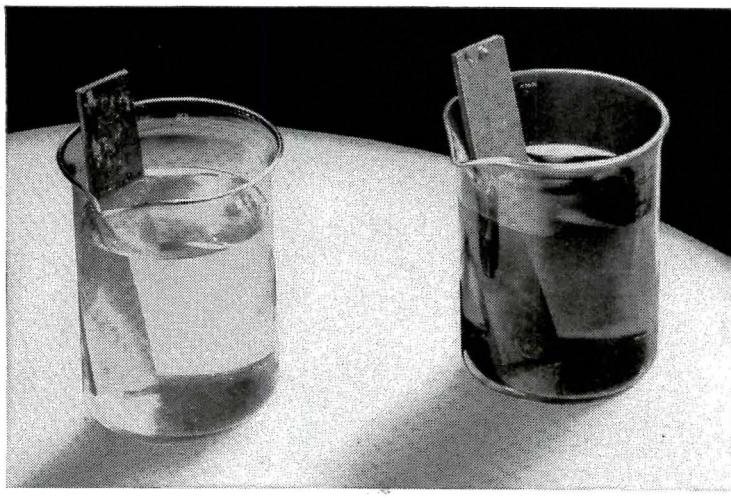
There have been many attempts to find ways to waterproof concrete slabs to make on- and below-grade use of all types of flooring materials possible. To date, the only method which has been proved to work satisfactorily is the membrane method. Specifications for such construction are beyond the appropriate scope of Armstrong recommendations. Even when resilient floorings approved for use without membraning are specified, it is advantageous to include a membrane in slab floors when possible. In any case, it is highly desirable, when concrete slabs are in direct contact with the ground, that the slab be placed on a well-drained base.

Regional Conditions While alkali and moisture present difficulties everywhere, there are a few sections of the country where the aggregates used in compounding concrete contain excessive amounts of alkaline salts. As the subsoil moisture seeps through such concrete subfloors, it dissolves the alkaline salts within the concrete, carrying them to the surface. These salts accumulate underneath the tile or are deposited on the edges of the tile as the moisture evaporates. The alkaline deposits build up over a period of time and may gradually force the tiles up from the subfloor or permanently adhere to the surface edges of the tile unless removed promptly. Generally this condition is of a temporary nature and will gradually be eliminated as the continuous passage of moisture dissipates the alkaline salts within the subfloor. An experienced local floor contractor is the best source of useful advice where these special circumstances are encountered.

Another important factor in considering the correct choice of a resilient tile for installation over concrete is the alkali resistance of the pigments used in its manufacture. The Armstrong Laboratories have worked on this problem for years and have developed specifications for alkali-resistant pigments for all the flooring materials recommended for use over concrete in direct contact with the ground. These pigments prevent fading and "color bleeding" of the tile.

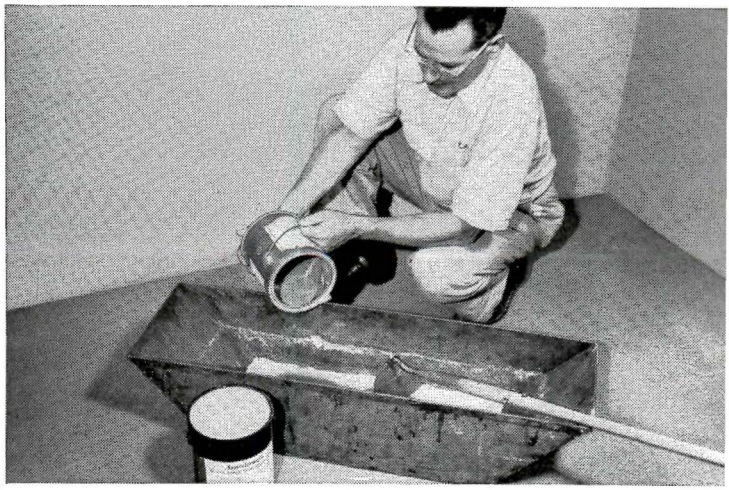


This moisture test should always be made on newly poured suspended concrete floors of all types before the installation of materials that are affected by alkaline solutions. If floor is too moist, calcium chloride is partly dissolved in 24 hours.



Immersion for 2 hours in a 2% solution of sodium hydroxide determines color permanency of pigments in tiles specified for use over below-grade concrete. Beaker at right shows bleeding of colors from pigments that are not alkali resistant.

Use of a special adhesive, Armstrong No. S-104 Chemical-Set Waterproof Cement, permits the installation of rubber tile and Custom Corlon Tile over below-grade concrete slabs. A two-part adhesive that sets through chemical action, it is mixed on the job and each area installed within a critical time period.



ARMSTRONG CORK COMPANY makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer architects impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection.

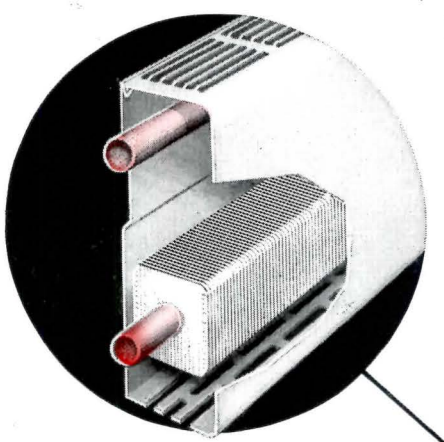
Armstrong sales representatives throughout the country will be glad to consult with architects and make specific recommendations for individual jobs. Your Armstrong representative has a wide variety of experience and training in resilient flooring and can also call upon the Armstrong Research and Development Center for assistance with special problems.

For helpful information on any flooring question, just call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pa.

a new major advancement...

Nesbitt

SERIES HOT WATER



Nesbitt Wind-o-line comes in attractive wall-hung enclosure or recessed in storage cabinets of The Nesbitt Package

Nesbitt Syncretizers and Wind-o-line may now be combined in a forced hot water heating and ventilating system in which the *Wind-o-line tubing becomes the supply and return main* to the Syncretizer in a series of classrooms—thus saving on construction, equipment, and installation costs.

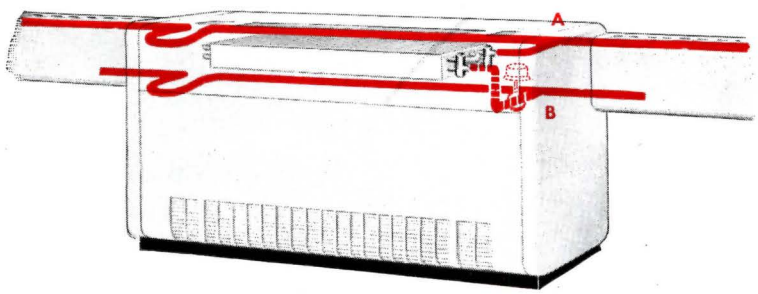
In this series system the water temperature at all times is related to the outdoor temperature, thus improving the individual room temperature control provided by the Syncretizer, and the protection against cold surfaces furnished by the Wind-o-line.

Telephone, wire, or write today for more information:

school mechanical system costs **reduced**

classroom comfort and protection **increased**

WIND·O·LINE SYSTEM



Packaged piping reduces installation cost. (a) Crossover return tubing, expansion loop, and air vent fitting come pre-assembled and connected to the heating element. (b) Crossover supply tubing, expansion loop, and balancing valve are furnished installed, leaving a minimum of piping at the site.

IF YOU are interested in school construction costs, it will pay you to study how this latest Nesbitt development meets today's needs and gives more for the school-building dollar.

In forced hot water applications Nesbitt Syncretizer heating and ventilating units with Wind-o-line radiation may be installed in series-loop circuits, in which the copper tubing of the Wind-o-line system serves as the only required supply and return piping for multiple-classroom groupings or entire wings.

COSTS REDUCED *Savings in equipment:* Smaller pipes and pumps are required because the Nesbitt System is designed to provide the needed heating capacity with water quantities of from one half to one third those required in conventional systems. Saves on both first cost and operating cost.

Savings in construction: Wind-o-line supplies Syncretizers, eliminating costly pipe trenches, mains, runouts and pipe covering in much of the building. Other piping is simplified.

Savings in installation: Mains and piping are smaller, shorter, simpler. Packaged piping within the Nesbitt Syncretizer unit ventilator reduces installation labor at the site. See above.

COMFORT INCREASED *Variable water temperature control:* Relating the available heat directly to outdoor temperatures improves the control of individual room temperature by the Syncretizer.

Improved cold surface protection: Because the system water temperature increases as outside temperature falls, Wind-o-line protection against cold window downdraft and bodily heat loss is continuously related to actual needs.

Off-time temperature maintenance: Without additional investment in equipment, the Nesbitt System maintains safe basic building temperatures during overnight, holiday, week-end shutdowns.

at no extra cost to you:

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upgraded

new hardtop sunboard

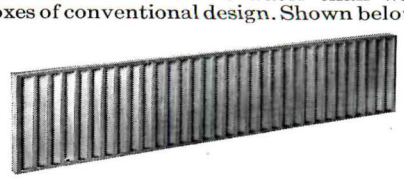
Durable laminated plastic, resists cracking, chipping, and abrasion. Easy to clean. Available in five decorative colors.

new attractive colors

Nesbitt Syncretizers, Storage Cabinets, Wind-o-line, and Sill-line Radiation are now available in six harmonious colors.

new shallow wall box

A new Nesbitt air intake ($2\frac{1}{8}$" deep) is suitable for either prefab panel or masonry walls. Its vertical louvres provide better elimination of air-borne water than wall boxes of conventional design. Shown below.



Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa. — Sold also by American Blower Corporation

Weldwood Movable Partitions to be used in new Ford Central Staff Office Building

Ford Motor Company orders *over 6 miles* of Weldwood Movable Partitions — the *only* partitions that combine the beauty of real wood with low-cost *movability*.

Early next year in Dearborn, Michigan, a magnificent new administration building will be completed to house the complex nerve centers of a modern industrial giant. Designed by architects Skidmore, Owings and Merrill, it will take full advantage of the latest advances in office planning and technology. Naturally it will have movable office partitions.

Weldwood Movable Partitions throughout the building provide 4 advantages:

1. The beauty of fine hardwood paneling adds warmth and dignity that are important factors in employee morale. The handsome wood paneled look complements any decorating scheme.

2. New offices overnight. Weldwood's unique metal key construction locks panels together firmly, yet allows rearrangement by the regular maintenance crew.

3. No painting—no redecorating. Occasional cleaning and waxing is the only maintenance needed! Weldwood hardwoods, such as Weldwood Korina® being used for the Ford installation, look like new indefinitely.

4. Fire resistant Weldrok® panel core is a sound barrier. It's *twice as effective* as a 2 x 4 stud partition with metal lath and plaster on both sides.

SEND THE COUPON for more details or call any of the 82 United States Plywood or U. S.-Mengel Plywoods showrooms in principal cities.

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UNITED STATES PLYWOOD CORP= 1955 MAR 9 PM 3 23

ATTN PARTITION DEPT NYK=

CONFIRMING TELEPHONE CONVERSATION HAVE RECEIVED ORDER FROM FORD MOTOR COMPANY FOR APPROXIMATELY 33.000 LINEAR FEET OF WELDWOOD MOVABLE PARTITIONS. WILL BE INSTALLED IN NEW FORD CENTRAL STAFF BUILDING NOW UNDER CONSTRUCTION. DETAILS WILL FOLLOW=

I G JAMES PRESIDENT DETROIT PARTITION CO=

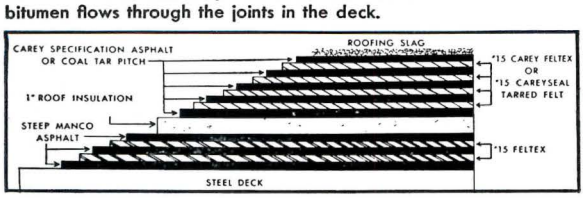
THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Most important development

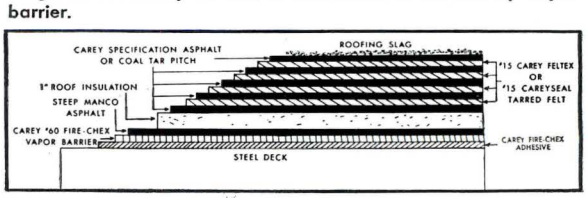
FIRE-CHEX

At the Carey Research Laboratories, this fire test of a conventional-vapor seal, with insulation and built-up roofing over steel deck, showed the dripping of asphalt from the vapor seal igniting as 1800° of heat builds up under the roof construction and melted bitumen flows through the joints in the deck.

Fire test of conventional-type built-up roof with new *Fire-Chex 1-ply Vapor Barrier* over the steel deck (see diagram). Here you'll note a *complete* absence of any dripping material and only slight burning of gases. Practically no fuel is contributed to the fire by vapor barrier.



Cross-section view of conventional-type 2-ply asphalt vapor barrier, insulation and roof.



Cross-section view of Fire-Chex type 1-ply asbestos-plastic vapor barrier, insulation and roof.

in fire-safety for buildings . . .

VAPOR BARRIER

for built-up roofs

Perfected after years of research and testing—now ready to help you plan buildings with a new all-time high in fire safety!

Carey

Quick Facts About

Fire-Chex Vapor Barrier

MATERIAL REQUIRED FOR ONE SQUARE OF ROOF AREA

1 roll Fire-Chex Vapor Barrier—
weight approximately 60 lbs. per 114 square feet:
size 38 feet long, 36 inches wide
1 gallon Fire-Chex Adhesive

Specify Fire-Chex asbestos-plastic vapor barrier for built-up roofs. Remove all doubt about fire-safety. Fire-Chex vapor barrier does not release excessive combustible gases and melting asphalt.

In Carey Fire-Chex, you have a vapor barrier that does not contribute to fire or cause it to spread. Even when installed over a standard steel deck that becomes red hot in a fire, Fire-Chex remains intact. Does not release melting asphalt and excessive gases.

The cost of Fire-Chex is just a few cents more per square of roof area than the conventional asphalt vapor barrier. Mail the coupon below for specifications, the services of a Carey Industrial Sales Engineer, and, if you wish, a private showing of our film demonstrating the unprecedented fire-safety that Fire-Chex Vapor Barrier brings to built-up roofs of all types.

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- ☐ *Please send specifications and details of new Fire-Chex Vapor Barrier.*
- ☐ *Please have Carey Industrial Sales Engineer call.*
- ☐ *Arrange for showing of your film on Fire-Chex Vapor Barrier*

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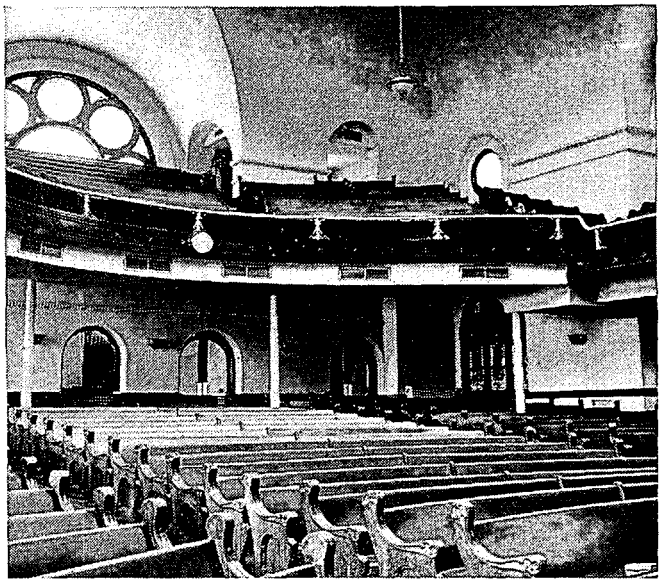
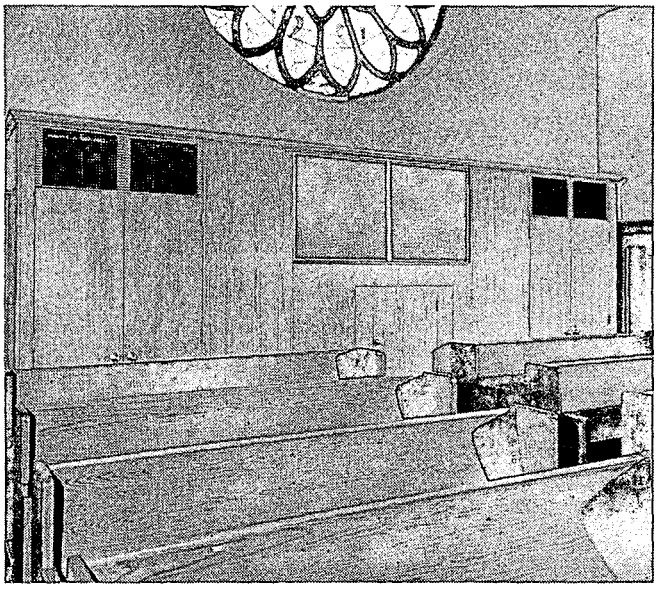
Which is
the best way
to air condition
a CHURCH?



Carrier Duct System in First Baptist Church, Charlotte, N. C., has balcony-suspended outlets which spread a low blanket of conditioned air over congregation. Undisturbed upper air in dome acts as insulation, permitted use of smaller equipment.

Carrier Fan-coil Units are located around perimeter walls and at pew ends along center aisles in The Cathedral of the Sacred Heart, Dallas. This unique air distribution method made it possible to cut size of the air conditioning system from 125 to 83 tons.



Carrier Self-contained Units air condition beautiful old St. Paul's at Grosse Pointe Farms, Mich. Two 7½-ton Weathermakers are located in the choir loft, two are built into confessional booth cabinetwork. Church estimates $15,000 saving.

Carrier is the quickest way to the right answer

JUST—1—2 AND THE JOB IS THROUGH!

Carrier has *all* the ways to air condition *any* job—and all Carrier equipment is engineered to the *same* uniform standard. So short-cut hours of selection by (1) using the Carrier line as your shopping guide and then (2) comparing values. Get in touch with your Carrier dealer or distributor. He's listed in the Classified Telephone Directory. Or write to us directly. Carrier Corporation, Syracuse, New York.

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Look at the company behind your doors!

WHEN you specify or buy Mengel Doors, you get a *Guarantee backed by the world's largest manufacturer of hardwood products.** Mengel has "been here" for seventy-eight years, and builds all its products to the high standards required by a company which expects to be here *another* seventy-eight years.

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Door Department
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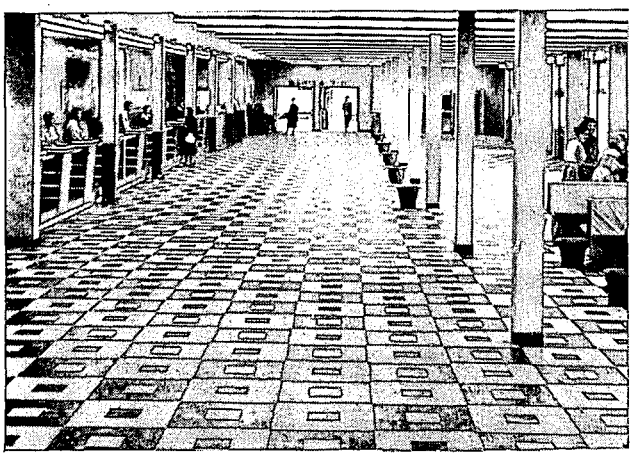
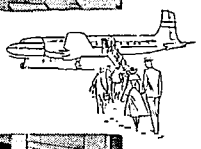
* Mengel products include nationally-advertised Mengel Permanized Furniture, Mengel Kitchen Cabinets and Mengel Wall Closets.

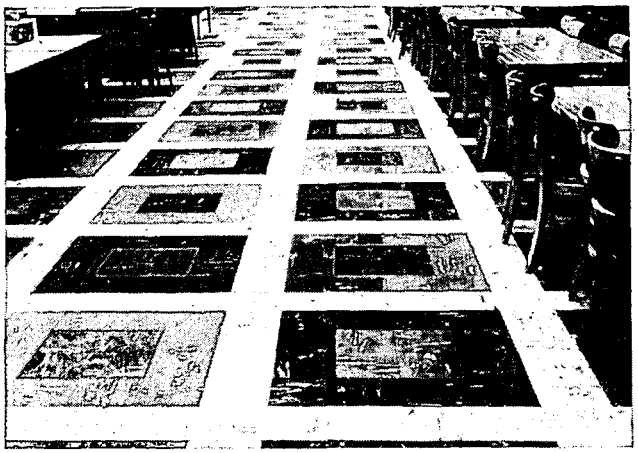
Under the **Toughest** traffic and service conditions...



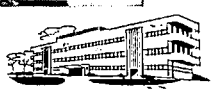
More than a million people use the Miami Terminal of Eastern Air Lines each year. After several years of service, Terraflex has proved its durability . . . looks colorfully new . . . and has cut maintenance time and cost.



Heavy traffic in this Budd Company R.D.C. diesel-powered passenger car has little effect on the durable J-M Terraflex floor. A damp-mopping, whenever necessary, will restore it to its first-day color beauty.



Despite constant exposure to heavy traffic, spilled food, grease, and liquids, the Terraflex floor in the cafeteria of the Sperry Gyroscope Company at Lake Success, L. I. shows no sign of wear—looks as fresh and colorful as the day it was installed.



Johns-Manville TERRAFLEX®

Vinyl-Asbestos Tile Floor

provides beauty, color and wear with minimum care.

In addition to their inviting appearance, the floors in the busy cafeteria, the railroad car and the major air-passenger terminal, shown here, have one other important common characteristic. Each is a Johns-Manville Terraflex Tile floor . . . selected to meet stringent requirements for heavy-traffic floor service with the lowest possible maintenance cost.

Made of vinyl and asbestos J-M Terraflex is exceptionally tough and resistant to wear . . . defies grease, oil, strong soaps and mild acids.

Terraflex can reduce maintenance costs one half. In actual use, tests showed Terraflex maintenance expense to be approximately 50% less than the next most economically maintained resilient flooring. Its nonporous surface requires no hard scrubbing, damp mopping usually keeps it clean and bright . . . frequent waxing is eliminated. Through years of economical service Terraflex pays for itself.

Available in a range of 15 marbleized colors, J-M Terraflex vinyl-asbestos tile is ideal for restaurants, public areas, schools, hospitals—wherever reliable floor service, long-wearing beauty and long-time economy must be combined.

For complete information about Terraflex vinyl-asbestos floor tile, write Johns-Manville, Box 158, New York 16, N. Y.

See "MEET THE PRESS" Sundays on TV, sponsored by Johns-Manville. Consult your newspaper for time and station.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville

NEW! The "butter" that holds a ton per tile!

The easy-to-use clay tile adhesive that saves time,

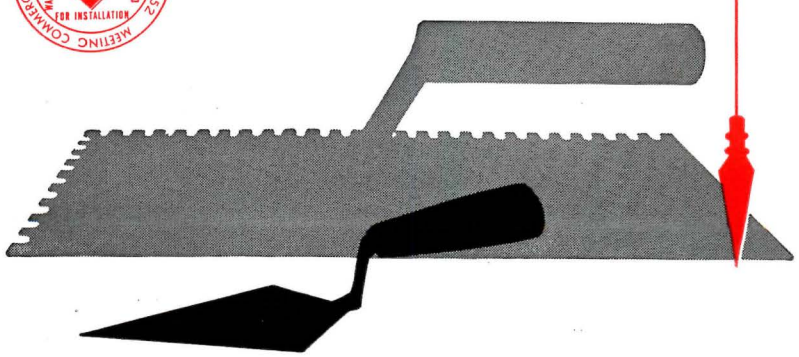
cuts costs up to 20% and more!

CTA 11

Here's the new, clean, quick way to set clay wall tile—the modern way to get luxury-tile results while cutting costs in the bargain.

It's CTA 11, the easy-spreading adhesive that is ready to go to work right out of the can. No premixing. A trowel is the only tool needed. And once this "butter" takes its grip on a tile, a full ton of stress can't remove it!

Now, you can specify a beautiful, lifetime clay tile installation on virtually ANY plumb surface—plaster, metal, cement block or dry wall—for new installations or remodeling jobs. CTA 11 is resilient and durable, too . . . resists cracks, moisture and settling. Architects, builders and tile contractors can start cutting costs by specifying and using CTA 11 now. For details on CTA 11—and its companion adhesive for tiling floors, CTA 12—write 3M, Dept. 154, 417 Piquette Avenue, Detroit 2, Mich.

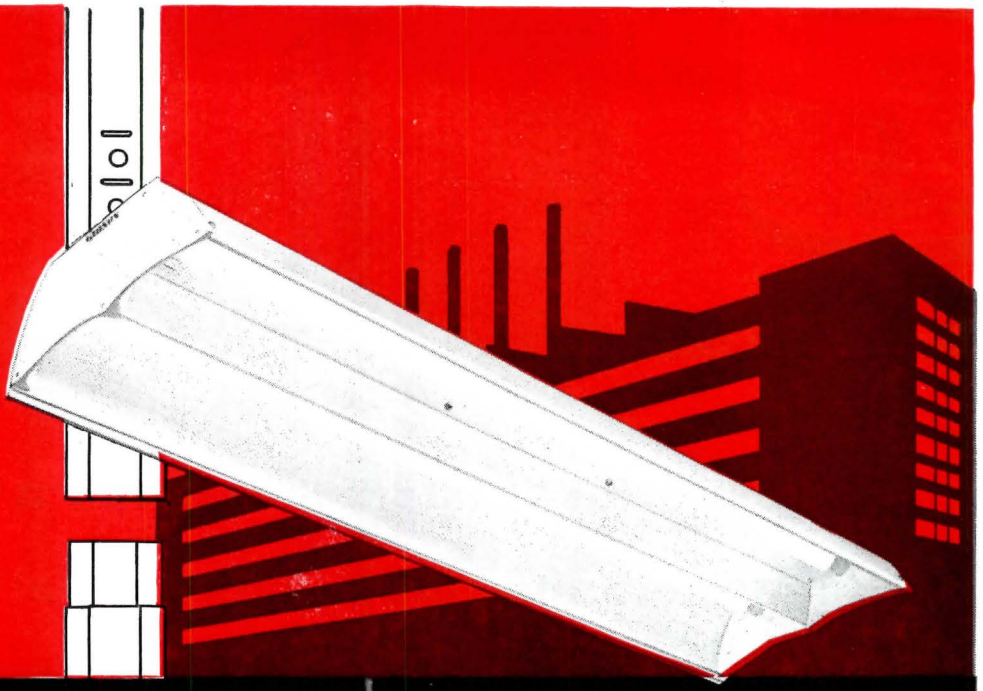


MINNESOTA MINING AND MANUFACTURING COMPANY *ADHESIVES AND COATINGS DIVISION*

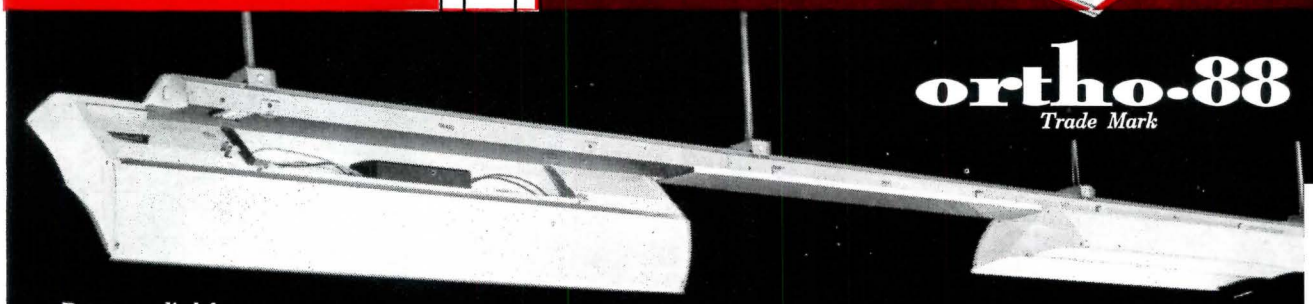
417 PIQUETTE AVE., DETROIT 2, MICH. • GENERAL SALES OFFICES: ST PAUL 6, MINN. • EXPORT: 99 PARK AVE., N. Y. 16, N. Y. • CANADA: P. O. BOX 757, LONDON, ONT.

MAKERS OF "SCOTCH" REG. U. S. PAT. OFF. BRAND PRESSURE-SENSITIVE ADHESIVE TAPES • "SCOTCH" REG. U. S. PAT. OFF. BRAND SOUND-RECORDING TAPE • "SCOTCHLITE" REG. U. S. PAT. OFF. BRAND REFLECTIVE SHEETINGS • "3M" ABRASIVE PAPER AND CLOTH • "3M" ADHESIVES AND COATINGS • "3M" ROOFING GRANULES • "3M" CHEMICALS

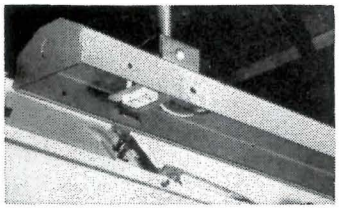
never before an industrial with these unparalleled advantages



ortho-88
Trade Mark



Patent applied for



Write Today . . . for brochure giving complete details of the remarkable new Ortho-88. In addition to installation and mounting data, it illustrates several examples of how Ortho-88 versatility can work for you. Catalog pages giving complete engineering data are included.

Here's what *advance design* can do for you . . .

Save up to 50% on installation costs: The Uni-Race (shown above) is part of your Ortho-88. It is a rigid, lightweight, open channel-way containing a fixed power source (receptacle) for each fixture. Sections, 20-24 ft. long, are assembled and wired on the floor and hung as a unit. Fixtures, mounted without tools in minimum time, fall into perfect alignment automatically. The whole operation is accomplished easier, faster and more accurately with savings in time and materials up to 50%.

Save on materials: The amount of conduit required is reduced substantially. Receptacles, chain suspension accessories, cord and plug, etc. are completely eliminated.

Unheard-of flexibility for you: Fixtures may be mounted on the Uni-Race in continuous rows, or spaced at intervals of 4′, 8′ or 12′. They can be moved about, or additions made, as conditions demand without further electrical work and without interrupting service. Repairs, or replacements are made by changing fixtures without disturbing other fixtures on the circuit.

GIBSON *Manufacturing Co.*

1919 Piedmont Circle, N.E., Atlanta, Georgia

America is paying more for quality.
Quality materials, new ideas are in demand.
Gold Seal gives you the most complete line of quality,
smooth-surface floors for schools, hospitals, churches,
stores, offices and homes. Only Gold Seal
gives you an ideal floor for every problem
... every budget ... every decorative taste.

here's your guide to...

GOLD SEAL®
FLOORS AND WALLS
CONGOLEUM-NAIRN INC., KEARNY, N. J.

Gold Seal Inlaid Linoleum (illustrated above) ... commercial gauge, 6′ wide by-the-yard. The *only* inlaid linoleum in America made by a natural oxidation process for greater resilience, greater durability! So tough and durable, installations *over thirty years old* are still giving great service. Easy to clean and keep clean. Resists dirt, grime, ordinary greases, oils. Cuts maintenance costs. Resilient ... springs back under foot ... resists permanent indentation. Flexible. Smart ... in a wide range of patterns. Special design treatments can be easily created to direct traffic flow ... separate areas ... add a luxury look. 35 patterns. Burlap back. Guaranteed.*

More about Gold Seal Inlaid Linoleum —▸

Gold Seal Inlaid Linoleum Tile, *commercial gauge,* makes it easy to create smart decorative effects in commercial and institutional areas. Gives you all the benefits of the finest inlaid linoleum: resilience, durability, maintenance. Guaranteed.*

Gold Seal Inlaid Linoleum, *standard gauge,* meets the trend to smooth-surface flooring all through the house. Perfect, resilient, "basic" floors. Easy to clean. Long wearing. Smart patterns . . . including the most wanted linoleum in 4 consumer surveys . . . "Jackstraw"®! Guaranteed.*

Commercial gauge linoleum. Newark, New Jersey, City Councilmen's Office.

For low maintenance, long wear, smart patterns

Specify Gold Seal Inlaid Linoleum

Today's finest inlaid linoleum! More resilient! Quiet! Comfortable!
Easier to clean and keep clean! Resists dirt! Grease! Scuffing!
More economical! More durable! Cuts maintenance costs!
Smarter! Suggests hundreds of fresh design ideas!

SPECIFICATIONS:

Installation: Commercial gauge over suspended subfloors: over wood with lining felt, over concrete direct. Standard gauge with exclusive SuperFlex back, direct to suspended wood and concrete sub-floors.

Commercial gauge (⅛") Fed. Specs. LLL-L-367 and LLL-L-351-b, 6′ wide by-the-yard and 9″ x 9″ tile, burlap back. Patterns: 20 Veltone®, 4 Plain, 6 Battleship, 5 Jaspe.

Standard gauge—Fed. Specs. LLL-F-471, 6′ wide by-the-yard, 81 patterns; 9″ x 9″ tile, 36 patterns.

Gold Seal Static Conductive Linoleum is the only non-sparking linoleum that completely dissipates static electricity. Reduces hazard of explosion due to discharge of static electricity in areas where combustible gases are present. By far the most economical flooring protection against fatal anesthesia explosions. Gives you all the benefits of the finest inlaid linoleum: resilience, ease of maintenance, durability. **Specifications:** ⅛" gauge. Burlap back. 6′ wide by-the-yard. Fed. Specs. LLL-L-367. Guaranteed.*

Static Conductive Linoleum. Surgical Room. Chilton Memorial Hospital, Pompton Plains, New Jersey.

Gold Seal Ranchtile® Linoleum is an exclusive floor specially developed and proved for concrete slab on-grade installations . . . even with radiant heat. Easier to maintain and more soil-resistant than any other resilient tile . . . it's the perfect "basic" floor to use throughout on-grade homes. Resilient. Quiet. Comfortable. Long-wearing. **Specifications:** 9 beautiful, colorful, textured patterns in 9″ x 9″ tile. Standard gauge. Fed. Specs. LLL-F-471. Guaranteed* for homes, schools, motels.

Ranchtile Linoleum.

For a perfect all-purpose tile... on, above or below grade

Specify Gold Seal Vinylbest Til

Resilient! Unusually durable! Fire-resistant! Goes anywhere!
Combines best features of other tiles! As moisture-resistant
as asphalt tile! As acid- and alkali-resistant as vinyl!
As rich in color as rubber tile! Stays bright and beautiful!

Amazing Vinylbest Tile takes practically any kind of abuse in its stride. It's as moisture-resistant as asphalt . . . as well as flexible, easily installed, resilient, beautiful, durable. More grease-resistant than so-called "grease-proof" brittle tile, it's a perfect, economical choice for restaurants, kitchens, cafeterias. Guaranteed.*

Specifications: Install Vinylbest on, above or below grade . . . over wood or concrete . . . with or without radiant heat. Use new Gold Seal "Three-Twenty" adhesive. 9″ x 9″ tiles. 14 patterns in 1/16″ gauge. 13 patterns in 1/8″ gauge. Unique foam marbleization. Fed. Specs. L-T-751.

Vinylbest Tile. Home Economics Class Room, Kearny High School, Kearny, New Jersey.

Gold Seal Vinyl Inlaids for floors, walls and countertops! So grease- and alkali-resistant . . . so easy to clean and keep clean . . . they've started a trend to light, glamorous floor colors all-through-the-house. Exclusive Bermuda Hues. Also marbleized colors. **Specifications:** *VinylFlor*, 6′ wide, standard gauge. Install above-grade over concrete or wood. *VinylTile*, 9″ x 9″ standard gauge. Install on or above grade . . . over concrete or wood . . . even over radiant heating. *VinylTop* for beautiful, resilient, seamless, stain-resistant countertops in 17 patterns, 30″, 36″, 42″ wide. Guaranteed.*

Floors and walls: "Bermuda Hues" VinylTile. Counters, cabinet facings: "Bermuda Hues" VinylTop.

For a million dollar look and luxurious quiet

Specify New Gold Seal Cork Til

...even on-grade. *A new, improved cork tile with superior soil resistance!*

Smoother surface finish! Easier to clean and keep clean!

Richer, warmer cork color! A natural insulator!

Quiet! Comfortable underfoot!

New Gold Seal Cork Tile is made by a revolutionary process that gives it unsurpassed resistance to soiling. Minimizes characteristic burnt odor found in other cork tiles. Special factory finish gives it an extra smooth, highly polished surface. A natural insulator. Warm in winter. Cool in summer. Luxuriously sound-absorbent. Long wearing. Easier to install. Guaranteed.*

Specifications: 1/8" and 3/16" gauges. 6" x 6", 6" x 12", 9" x 9", and 12" x 12" die-cut tile. For on or above-grade. Beveled edges. Factory finish. Packed all light or random: light-medium-dark. Guaranteed for installation over on-grade concrete (even over radiant heating) with use of amazing new Gold Seal "Three-Twenty" adhesive.

On the floor: Random Patterns, Gold Seal Cork Tile.

On the wall: Light Pattern.

Gold Seal Asphalt Tile solves budget problems. Lowest initial cost in the industry for good-looking, moisture-resistant, durable flooring. Install where grease is not a problem . . . on, above or below grade. 27 handsome, marbleized patterns. **Specifications:** 9" x 9" and 18" x 24" tiles. 1/8" and 3/16" gauges. Fed. Specs. SS-T-306B. Guaranteed.*

***You and clients are assured of quality by the Gold Seal Guarantee ...satisfaction or your money back.**

Rubber Tile. Federal Savings and Loan, North Arlington, New Jersey.

Gold Seal Rubber Tile is today's prestige tile . . . beautiful, comfortable, impressive! The perfect flooring for dramatic custom designs . . . it gives you the greatest resilience as well as the clearest colors in the industry. Luxuriously quiet. Long wearing. 21 marbleized patterns. **Specifications:** 6" x 6" and 9" x 9" tiles. 1/8" gauge. Also in standard (.080") gauge for homes and light traffic areas. Install over suspended wood or concrete subfloors and over on-grade concrete . . . with or without radiant heat . . . Use Gold Seal "Three-Twenty" adhesive. Fed. Specs. ZZ-T-301A. Guaranteed.*

For home or business . . . you get the finest choice of all in

GOLD SEAL®

FLOORS AND WALLS

CONGOLEUM-NAIRN INC., KEARNY, N. J.

Sinclair Oil's New Chicago Headquarters —Completely Sound Conditioned with Acousti-Celotex Tile

Sinclair Oil Building, 155 North Wacker Drive, Chicago
Owner: John W. Galbreath & Co., Inc.
Architect: Holabird & Root & Burgee
Builder: Turner Construction Company
Acoustical Contractor: James L. Lyon Co.

Lighting and air conditioning also included in integrated* system

John W. Galbreath & Co., Inc. has gone all-out for employee efficiency and comfort in this outstanding new Chicago office building. Throughout the 200,000 square feet of the building, Acousti-Celotex Mineral Tile traps machine clatter and voice chatter, reduces routine noise in general and private offices and corridors. For the *Sinclair Oil* Company and other tenants, this means that errors will be reduced, over-time lessened, productivity increased.

Low in Cost — Easily Maintained — Acousti-Celotex Tile provides economical sound-conditioning. No special maintenance is required. Beauty and cleanliness add to the advantages of highly effective sound-absorption. Acousti-Celotex Tile can be washed *repeatedly*, painted *repeatedly* without loss of sound absorbing efficiency.

*Acousti-Celotex incombustible Perforated Mineral Tile is installed on the Celotex Acousti-Line® Metal Suspension Ceiling, where Tile, light fixtures and air diffusers become interchangeable parts of the ceiling. When a new layout is desired, units can be quickly relocated . . . economically!

TRADE MARK

ACOUSTI-CELOTEX
REGISTERED U. S. PAT. OFF.
Sound Conditioning

Products for Every Sound Conditioning Problem

FOR FULL DETAILS on the complete line of Acousti-Celotex products, please write to The Celotex Corporation, Dept. C-45 120 S. La Salle Street, Chicago 3, Illinois.

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS. IN CANADA: DOMINION SOUND EQUIPMENTS, LTD., MONTREAL, QUEBEC

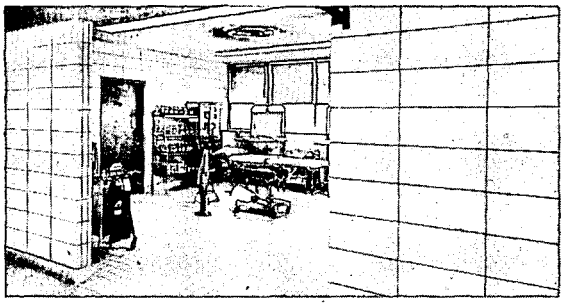
Why don't you solve interior design problems with Architectural Terra Cotta?

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Ceramic Veneer and Architectural Terra Cotta.

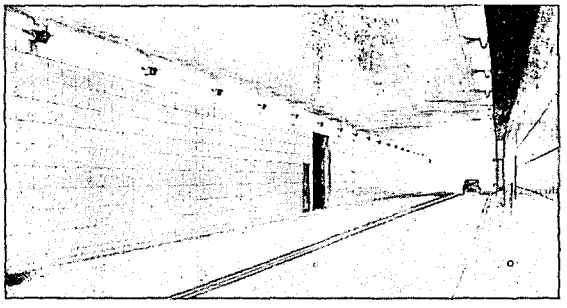
FEDERAL SEABOARD
TERRA COTTA CORPORATION
10 East 40th Street, New York 16, N. Y.
PLANT AT PERTH AMBOY, NEW JERSEY

F S T C

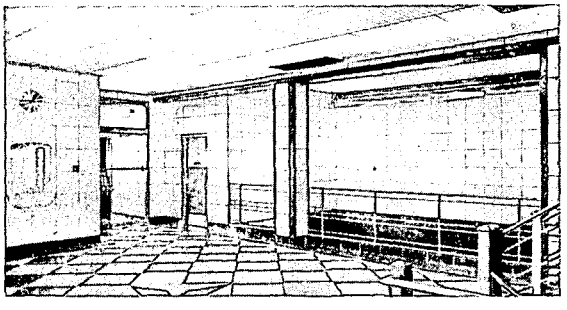
FOR UTMOST CLEANLINESS



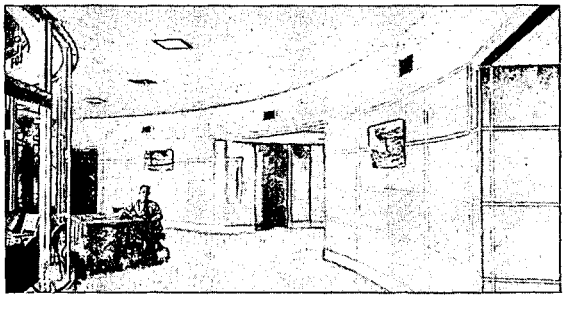
AND EASE OF MAINTENANCE



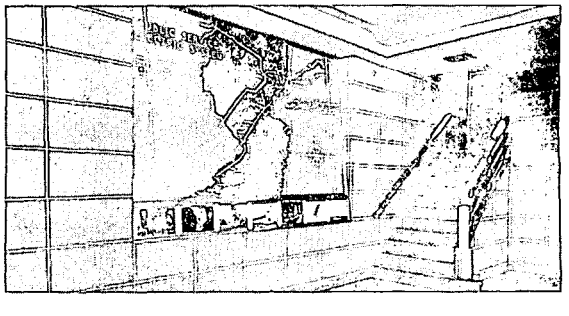
COMBINED WITH VERSATILITY



AND IMPRESSIVE APPEARANCE



...ALL REASONABLY PRICED



stone

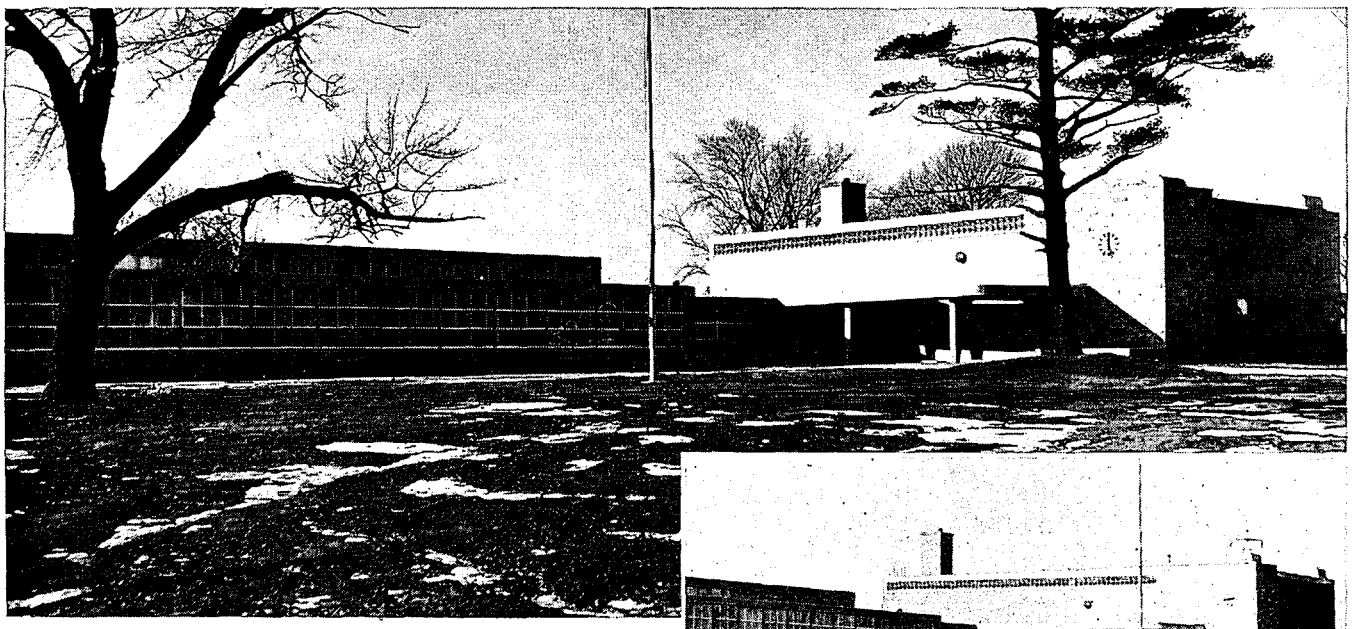
Technical Building, Northwestern University.
Holabird, Root & Burgee, Architects.
Photos: Hedrich-Blessing.

PROVIDES A CULTURAL BRIDGE WITH THE PAST

The culture of a community is a living thing, finding its best expression through a medium that affords continuity with the past. Such a medium is STONE. It is beautiful, permanent, flexible and economical.

For additional information about STONE, *its variety, characteristics, availability or uses, write the Building* STONE *Institute, 2115 Martindale Avenue, Indianapolis, Indiana.*

BUILDING stone INSTITUTE



Southport Elementary School located in southeast part of city. ▲

Wilson Elementary School located in northwest part of city. ▶

Architect: Lawrence Monberg & Associates, Kenosha, Wis.
Heating Contractor: Knab Company, Milwaukee, Wis.

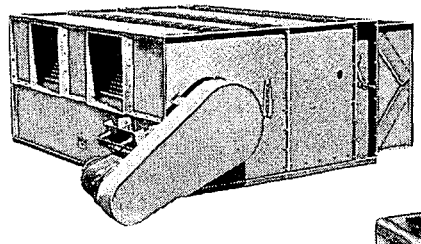
(y of Kenosha Builds Twin Schools to Cut Costs... Young Heated and Ventilated

Considerable savings in architectural and equipment costs were made in Kenosha, Wisconsin, through construction of identical elementary schools in opposite sections of the city.

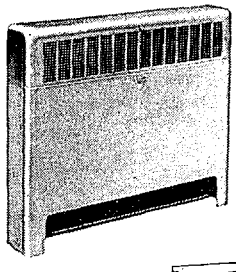
Completely modern in design and construction, these new schools are provided with *"YAC"*-30 Young Horizontal type Air Conditioning Units equipped with filters and steam heating coils which filter and temper the ventilation air, and heat the gymnasium area.

Because of the schools basementless construction, Young Cabinet Unit Heaters are mounted horizontally in crawl spaces under kindergarten room floors to maintain warm floors for the small children. And Young Convectors are used for efficient heating of meeting rooms, offices and lavatories.

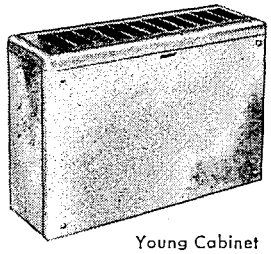
For complete information on Young Heating and Cooling products, see your nearest Young representative listed in the yellow pages of your telephone directory, or write the Young Radiator Company, Dept. 245-D, Racine, Wisconsin.



Young YAC-30 Horizontal Type Air Conditioning Unit



Young Free-Standing Convector



Young Cabinet Type Unit Heater

SEND FOR FREE CATALOGS

Young RADIATOR COMPANY

RACINE, WISCONSIN

Creative HEAT TRANSFER ENGINEERS FOR INDUSTRY

Heat Transfer Products for Automotive, Aviation and Industrial Applications. Heating, Cooling, Air Conditioning Products for Home and Industry.

Executive Office: Racine, Wisconsin, Plants at Racine, Wisconsin, Mattoon, Illinois

Young Radiator Company
Dept. 245-D, Racine, Wisconsin

Please send me Catalog giving detailed information data for Young "YAC" Units ☐, Convectors ☐, Cabinet Unit Heaters ☐.

Name.....

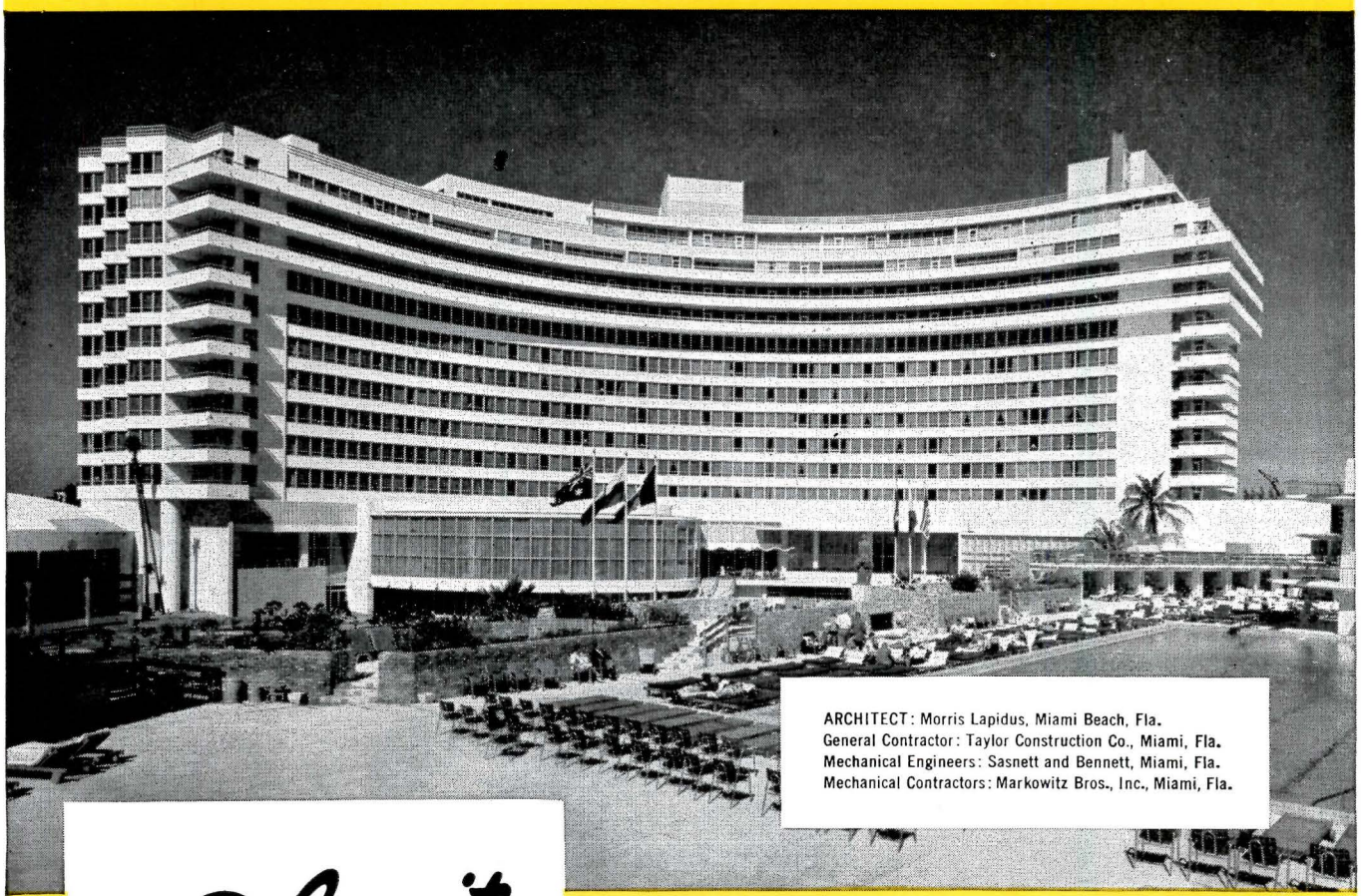
Company.....

Address.....

City.....State.....

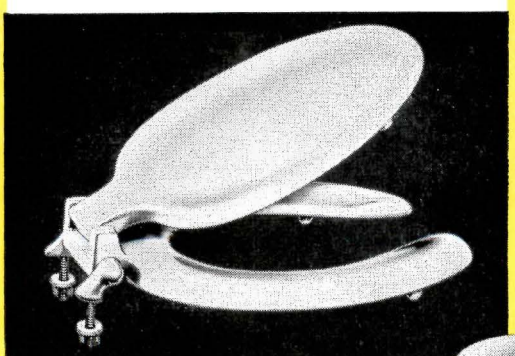
Throughout one of the World's newest and most luxurious hotels

The Fontainebleau MIAMI BEACH, FLORIDA



ARCHITECT: Morris Lapidus, Miami Beach, Fla.
General Contractor: Taylor Construction Co., Miami, Fla.
Mechanical Engineers: Sasnett and Bennett, Miami, Fla.
Mechanical Contractors: Markowitz Bros., Inc., Miami, Fla.

SOLID Olsonite SEATS



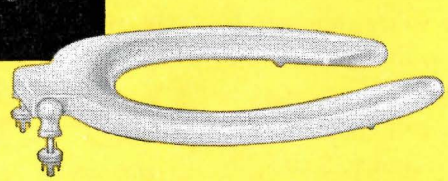
Olsonite model No. 56 Solid color seats were installed throughout the Fontainebleau Hotel.

For every deluxe and standard bathroom throughout Miami Beach's new Fontainebleau Hotel—one of the world's most fabulous—Solid Olsonite Seats were specified and installed.

Olsonite No. 56 open front seats with cover were specified in a variety of plain colors to match the pottery of the colorfully appointed bathrooms. Like all Olsonite seats, these plain color models are solid one-piece construction. There's no sheet covering or applied finish of any kind to crack, chip or peel.

Selection of Olsonite for the Fontainebleau is another indication of Olsonite's ever increasing popularity. Equally popular for hotels are Olsonite *white seats* both with and without cover. Unlike ordinary white seats, they will not fade or discolor even after years of use.

For a complete catalog of all Olsonite models, please write on your letterhead.

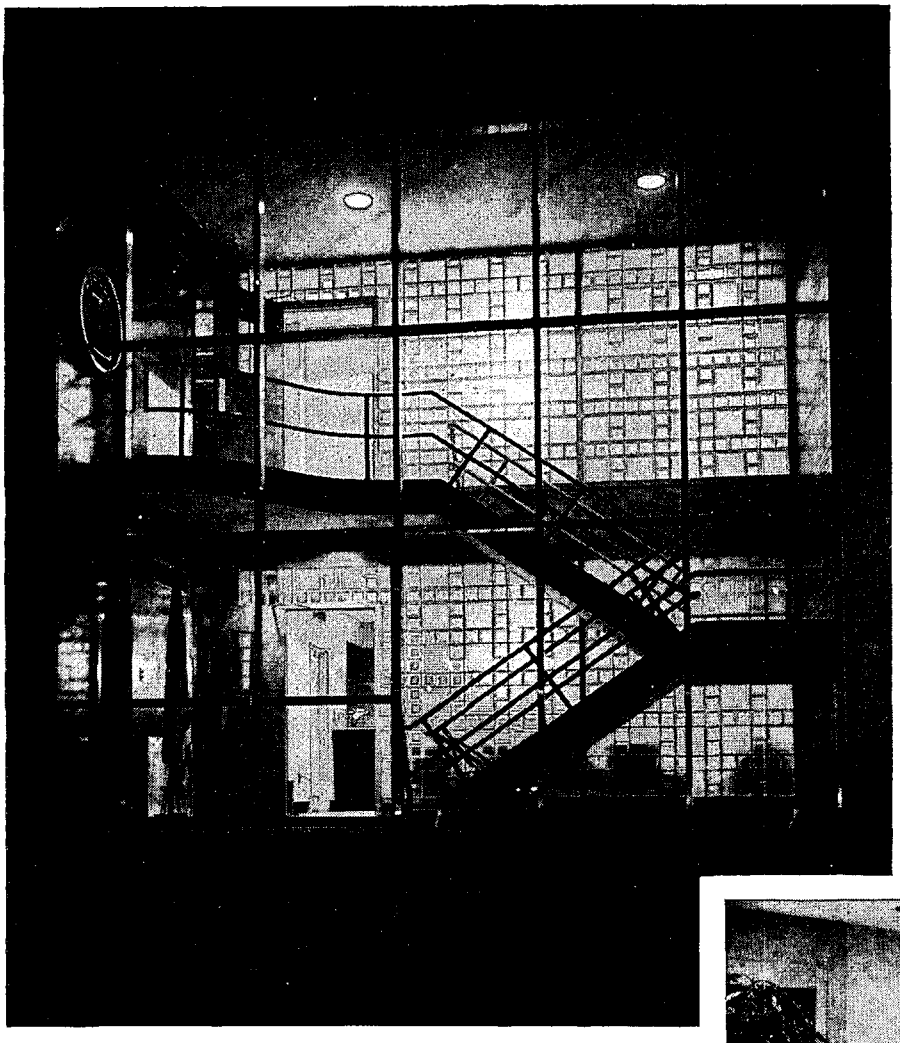


Olsonite models 5 and 10 (both with and without concealed check hinge) are also ideal for hotel installations.

A-3-55

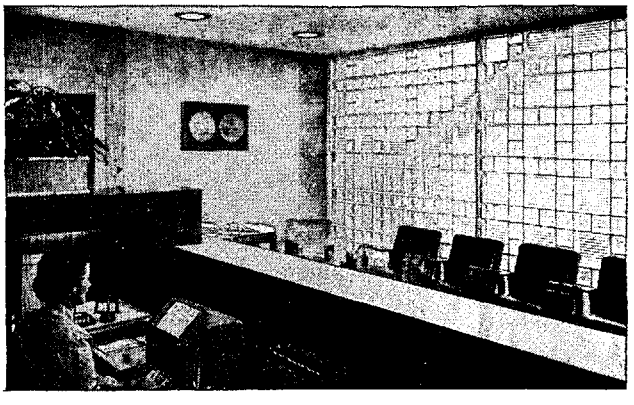
SWEDISH CRUCIBLE STEEL CO. *(Plastics Division)* 8561 Butler Avenue, Detroit 11, Michigan

THE New Look IN FOUNDRY OFFICES



skilled
design
and
PC
Glass Blocks
make
the
difference

George M. Ewing Company
Architects & Engineers, Philadelphia, Pa.



THE Lebanon Steel Foundry is still operated by the two men who founded it 43 years ago. Yet they are quick to adopt the newest and best production methods, anxious to keep the company young in spirit, modern in appearance.

The new office building shown here proves this.

A 2-story panel of PC Glass Blocks acts as a backdrop for the striking lobby entrance. 12-inch decorative blocks are surrounded with 6-inch blocks. The result is an interesting pattern and texture, a softly glowing wall of light to accent this handsome building.

PC Glass Blocks are literally a "raw material" in the hands of the architect. When used with skill, they combine good taste with breathtaking appearance. Structurally, PC Glass Blocks are a proven product—and your imagination is the only limit to their usefulness.

See our catalog in Sweet's or write for more information to Pittsburgh Corning Corporation, Dept. No. AC-45. One Gateway Center, Pittsburgh 22, Pa.

PC Glass Blocks

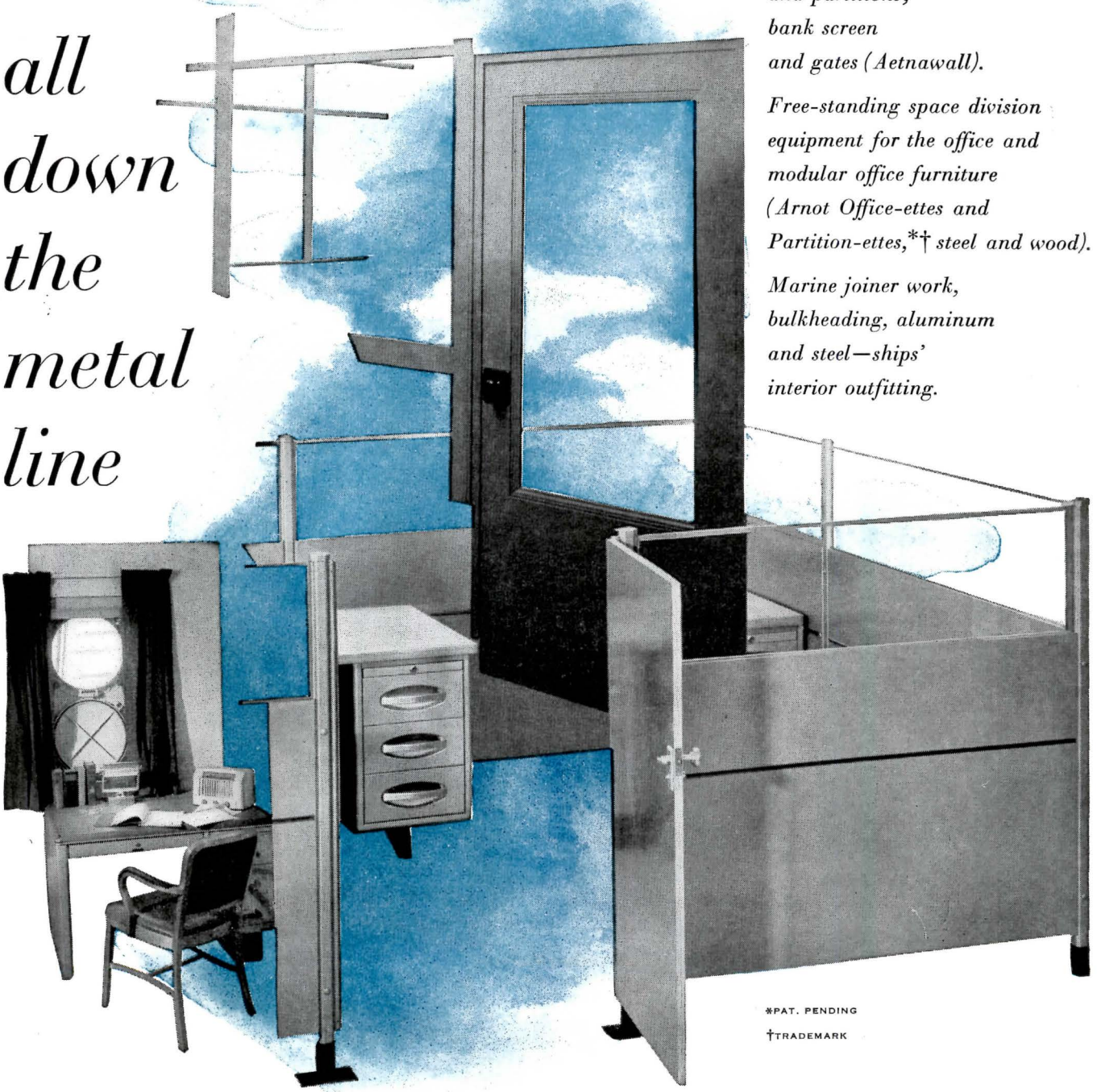
® PITTSBURGH PC CORNING

ALSO SKYTROL® AND FOAMGLAS®
In Canada: 57 Bloor St. W., Toronto, Ontario

stay with

AETNA

all down the metal line



Doors, door frames and trim; elevator enclosures; convector enclosures.

Movable walls and partitions; bank screen and gates (Aetnawall).

Free-standing space division equipment for the office and modular office furniture (Arnot Office-ettes and Partition-ettes,† steel and wood).*

Marine joiner work, bulkheading, aluminum and steel—ships' interior outfitting.

*PAT. PENDING

†TRADEMARK

Plants:

Pottsville, Pa.; Jamestown, N.Y.; Burbank, Calif. (Kahr Bearing Division); Brooklyn, N.Y.

AETNA STEEL PRODUCTS CORPORATION

Executive Offices: 730 Fifth Avenue, New York, New York

SMART

AS MATICO CONFETTI®

PAT. PEND

TILE FLOORING!

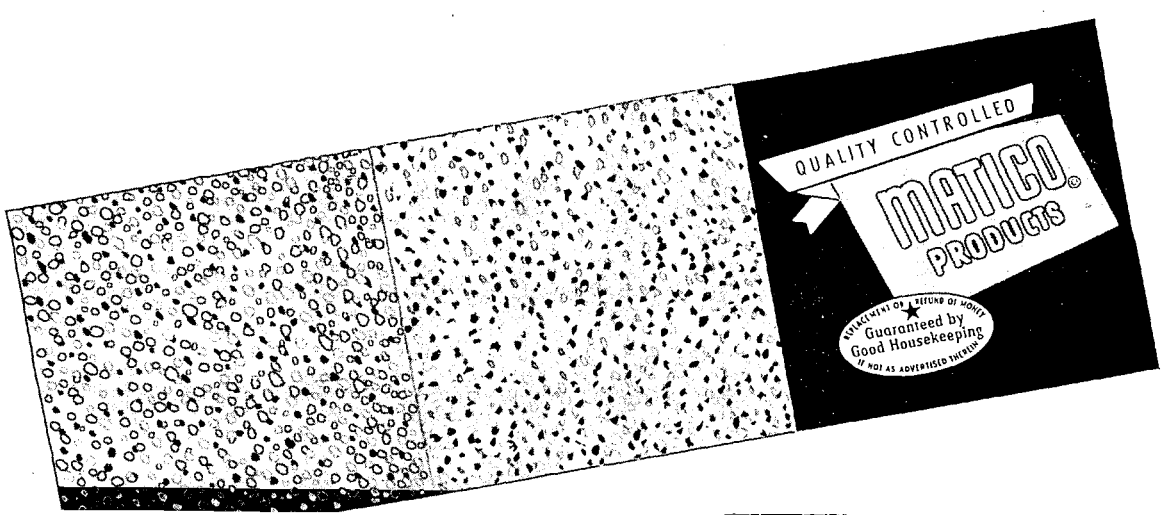
The smartest new style in tile is sure to please your most discriminating clients!

Throughout the country, decorators, homeowners and builders are cheering the smart new style of MATICO Confetti Tile Flooring. Available in 10 beautiful colors, Confetti goes perfectly with any decor or style of architecture . . . is reinforced with polystyrene plastic for greater durability and resiliency. Confetti costs no more than regular asphalt tile . . . yet offers all the outstanding advantages that have made asphalt tile desirable for so many installations. Be sure to consider Confetti for your next project . . . you can specify it for use on, above or below grade.

MASTIC TILE CORPORATION OF AMERICA

Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

Mfrs. of: Confetti • Aristoflex • Parquetry • Maticork • Asphalt Tile • Cork Tile • Plastic Wall Tile



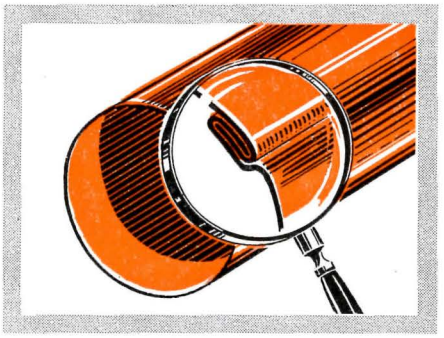
5A 249

Chase®

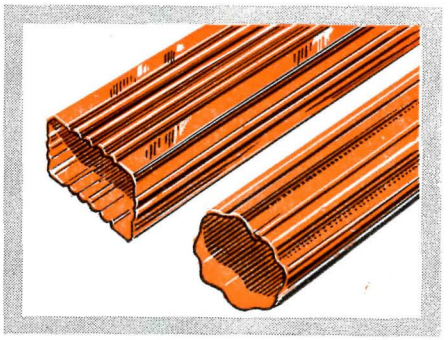
ives you 7 reasons why copper means a better home!

It won't rust and resists corrosion—**Copper**'s resistance to the elements is traditional—even in areas where atmospheric conditions destroy other metals. Its performance is proved over centuries of experience.

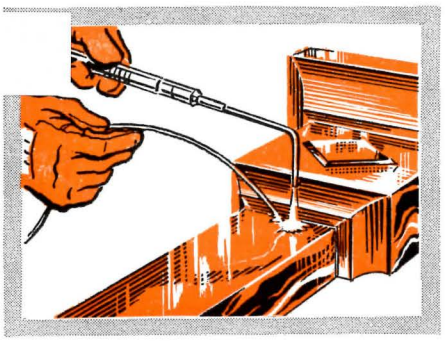
It's full weight—Look for the die-stamped Chase Trade Mark and Weight Stamp—your assurance that Chase **Copper** Roofing Products have stability and permanence.



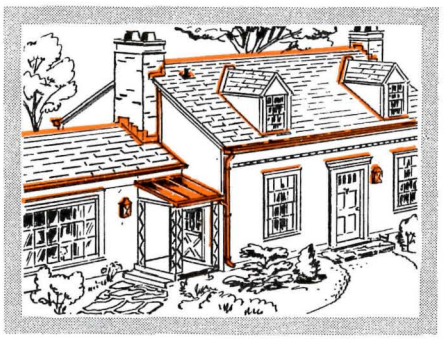
Seams are adequate—Chase **Copper** Leaders are formed from full-width strips, to assure strong, expansion-proof seams.



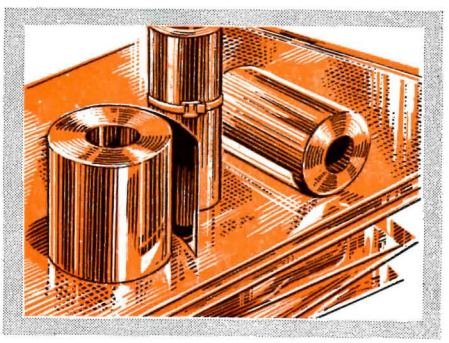
Corrugations are deep and generous—Chase **Copper** Downspouts have full-depth corrugations, ample for temperature ranges in *any* climate.



It can be soldered . . . with ease and economy—Long-lasting, water-tight joints are assured when standard soldering techniques are applied to Chase **Copper** Roofing Products.



It's architecturally harmonious—Modern or traditional design both benefit from **Copper's** rich appearance—a metal protected and beautified by nature itself.



It's economical—The ratio of *first-cost* to *years of service* is at a bare minimum, when **Copper** is used. And, the relationship of copper to overall building costs is as reasonable as it ever was in the past.

Chase®

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

For maximum life and performance, specify Chase full weight copper leaders, gutters and roofing accessories.

The Nation's Headquarters for Brass & Copper

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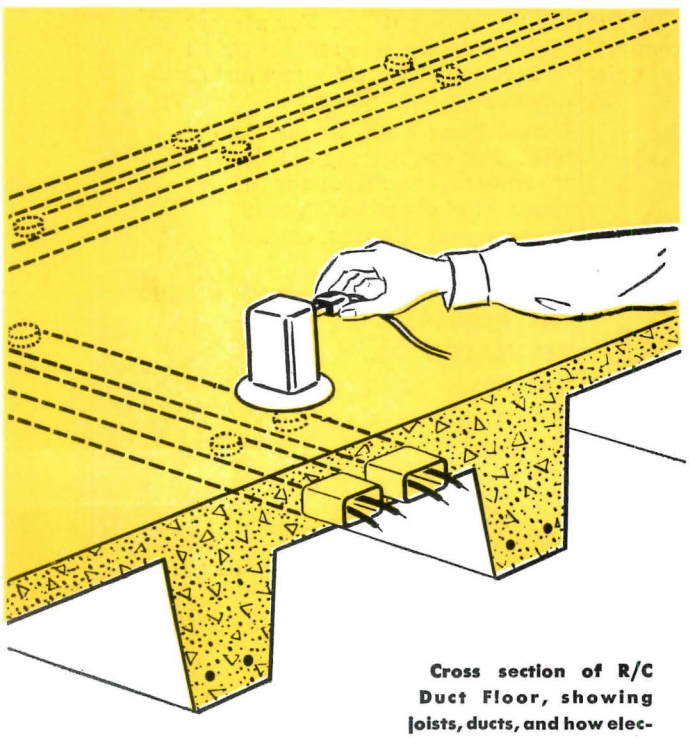
Atlanta	Cincinnati	Grand Rapids†	Milwaukee	Philadelphia	San Francisco
Baltimore	Cleveland	Houston	Minneapolis	Pittsburgh	Seattle
Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte†	Denver	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

HERE'S 100%
ELECTRICAL FLEXIBILITY...
at a new low cost!

standard ducts can be buried in structural concrete—no fill needed



Cross section of R/C Duct Floor, showing joists, ducts, and how electrical outlet is attached.

R/C Duct Floors provide you with a complete network of underfloor electrical outlets for power, light, telephone, and intercom systems...*at low cost!*

R/C Duct Floors consist of electrical distribution ducts set in standard reinforced concrete joist floors. No fill is needed as the ducts are buried in the structural slab of the floor. As a result, electrified R/C Duct Floors can be constructed at a cost that is appreciably less than the cost of cellular steel flooring.

The underfloor ducts, which can be run at any desired spacing, have blank risers every two feet of their length. Electrical outlets can be connected to these risers in a matter of minutes to serve each desk without ripping up or drilling through floors or ducts. This provides 100% electrical flexibility for future change and growth.

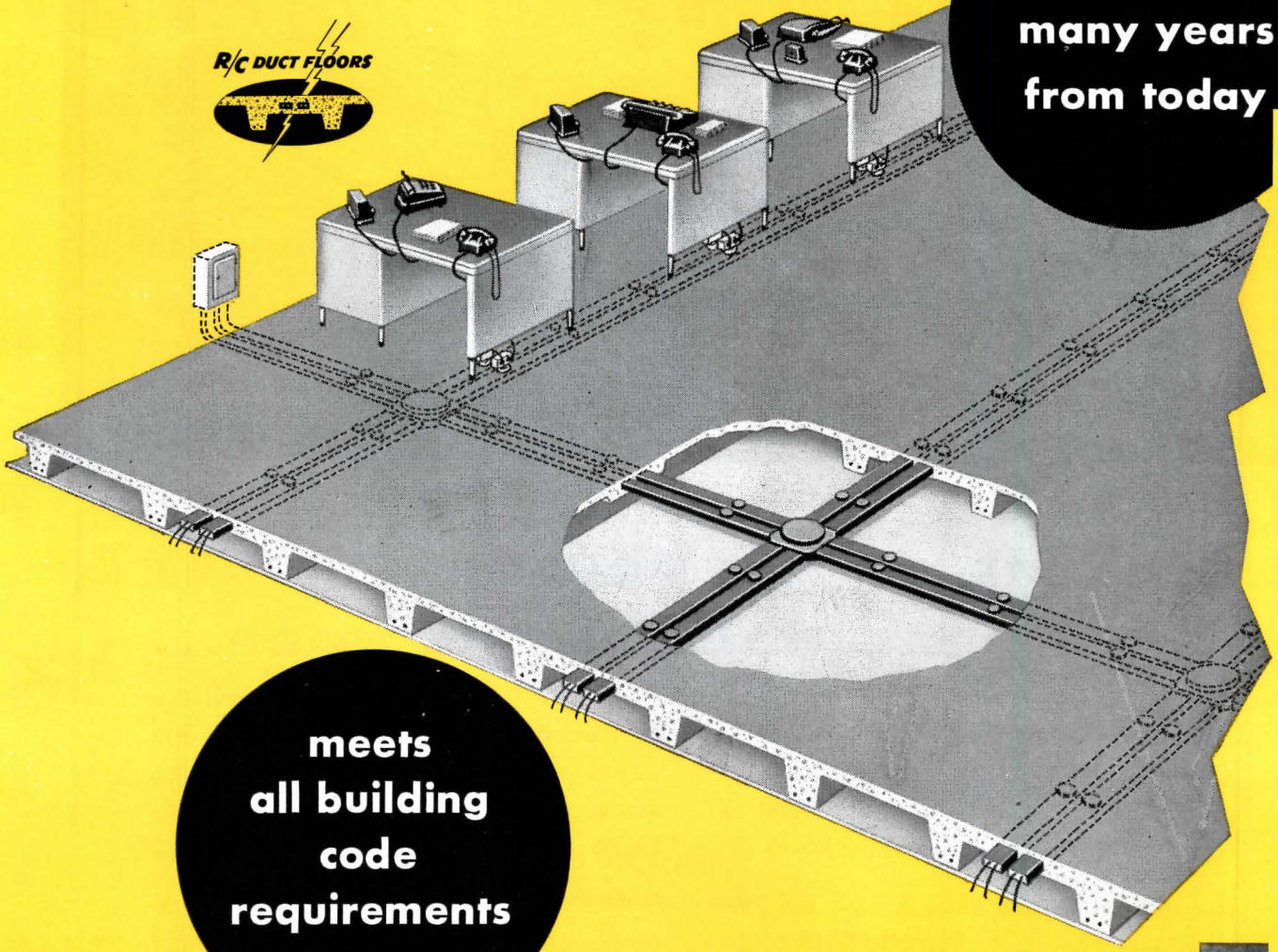
Recent tests made at Underwriters' Laboratories prove that R/C Duct Floors, with the ducts in the structural slab, have a fire rating which meets all building code requirements.

Before you design your next building, investigate R/C Duct Floors. They can be built with standard forms and ducts, and require no special engineering. And, compare the cost of R/C Duct Floors with cellular steel type construction!

R/C DUCT FLOORS
(Electrified concrete joist floors)

ELECTRICAL OUTLETS

wherever you need them



today, or many years from today

meets all building code requirements

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38 South Dearborn St., Chicago 3, Ill.

Gentlemen:

Please send me a copy of your new bulletin on R/C Duct Floors.

Name_____

Address_____

City_____ Zone____ State_____

CONCRETE REINFORCING STEEL INSTITUTE
CRSI
FOUNDED 1924

CONCRETE REINFORCING STEEL INSTITUTE

BE SURE OF THE ROOFER AS WELL AS THE ROOF...

In built-up roofing specifications, you don't gamble on unknown materials or untried application methods. It's just as important to be sure of the roofer who does the job.

Ruberoid Approved Roofers have the job-tested know-how that insures the finest application from start to finish. This means a roofing job that is good to start with and stays good . . . the kind of job that eliminates worry about costly mistakes.

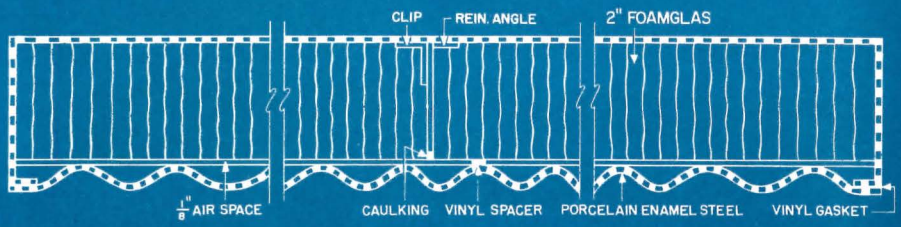
Ruberoid makes all types of built-up roofs to meet every building specification. The wide experience of Ruberoid Approved Roofers means you get the best advice on materials and application no matter what the specifications may be.

Your Ruberoid Built-Up Roofing Specification Book is your best guide to the proper type of roofing. (If you don't have a copy, write today for this handy, easy-to-use reference manual.) And don't gamble on your roofer. Choose a Ruberoid Approved Roofer and be sure. He's your assurance of the finest job possible.

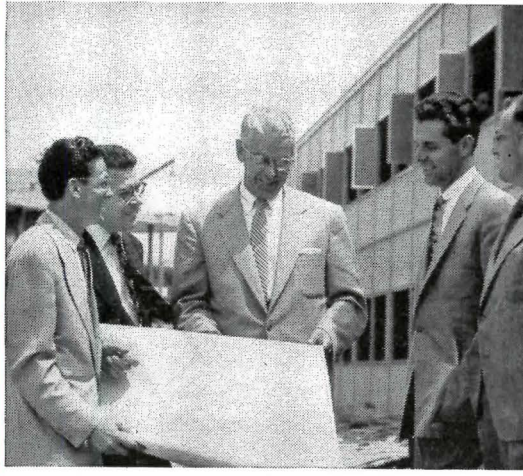
see our catalog in S or write for copy

The RUBEROID Co.

ASPHALT AND ASBESTOS BUILDING MATERIALS

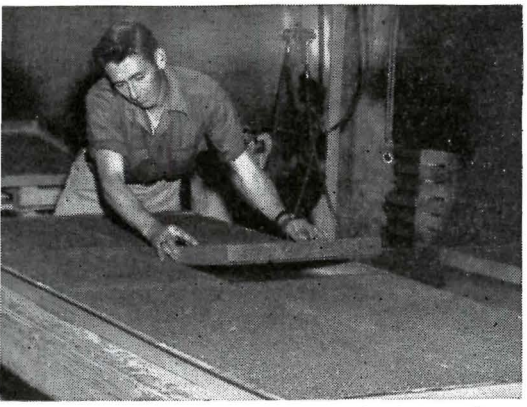


Architect: Vincent G. Kling, A. I. A., Philadelphia, Pa. • *Consultant:* I. M. Pei, New York, N. Y. *General Contractor:* Turner Construction Co., New York, N. Y. • *Panel Manufacturer:* Ingram-Richardson Mfg. Co., Beaver Falls, Pa. • *Roofer:* Wm. C. Kulzer Co., Philadelphia, Pa.

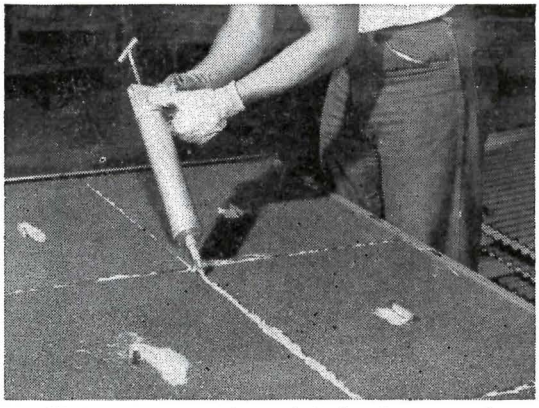


The architect, members of his staff and RCA's representative check progress at the job site during erection of the five Cherry Hill buildings. The owner and the architect report: "We overcame design problems plaguing grid-panel pioneers by insulating the porcelain enamel panels with 2" FOAMGLAS.

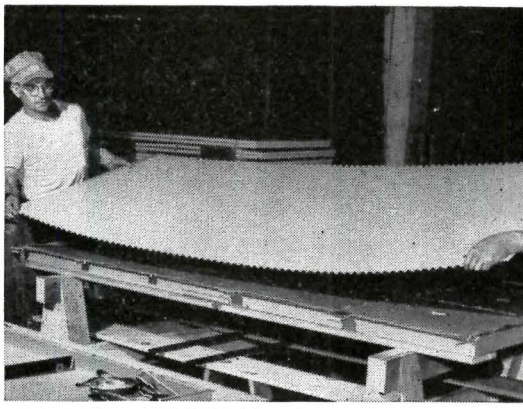
Unique porcelain enamel-cellular glass sandwich developed for RCA's Cherry Hill curtain walls



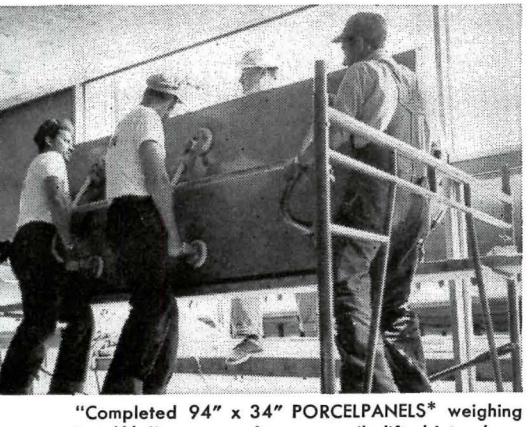
"We avoided any moisture problem by providing a 1/8" air space between the insulation and the outer porcelain enamel skin (detail above).



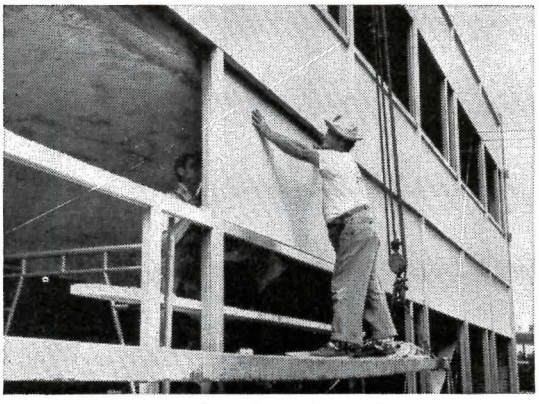
"Moisture can accumulate only in the air space and runs down moisture-proof FOAMGLAS to a weep strip. Caulking seals joints.



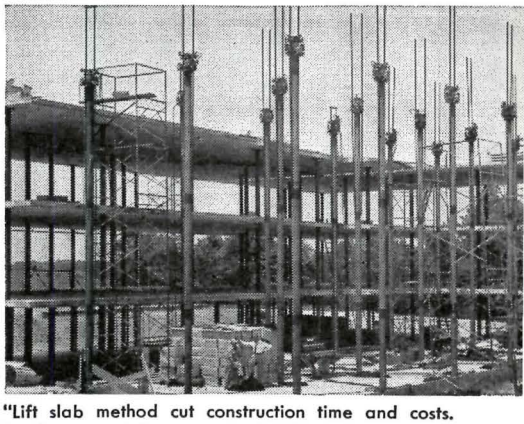
"High rigidity of FOAMGLAS and vertical corrugations of outer skin prevent 'oil-canning' or dimpling.



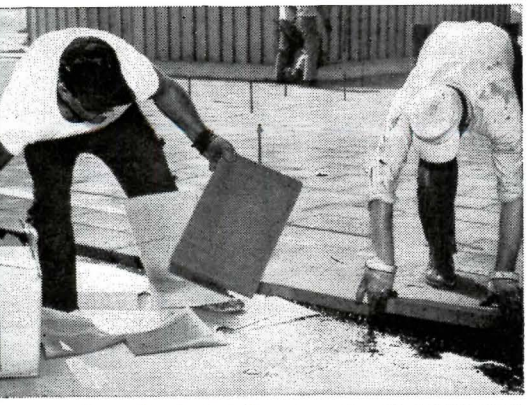
"Completed 94" x 34" PORCELPANELS* weighing just 6½ lbs. per sq. ft. were easily lifted into place.
* ® Ingram-Richardson Mfg. Co.



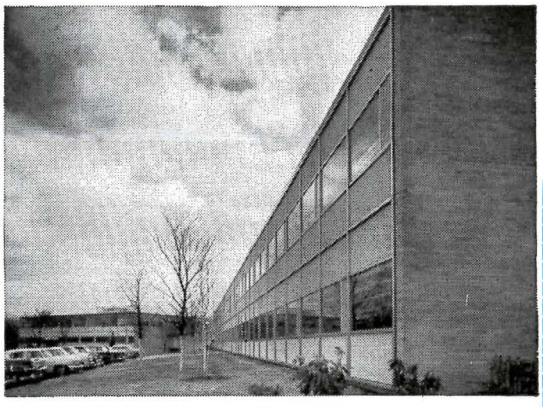
"Our unique panels combine ultra-modern appearance and high insulating efficiency (U factor 0.15)... cost just $4.50 per sq. ft. erected in place.



"Lift slab method cut construction time and costs. Roofing materials were raised right on the top slab.



"We also insulated most roofs with FOAMGLAS. Its high strength permits heavy foot traffic, minimizing need for catwalks.



"FOAMGLAS gives our Cherry Hill buildings added protection, too, because it's fireproof."

Use coupon today for a copy of our brand new booklet on latest curtain wall designs which utilize . . .

FOAMGLAS®

the cellular, stay-dry insulation

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☐ Please send me the brand new booklet on FOAMGLAS *insulation for thin wall* and sandwich panel construction.
☐ Send engineer to discuss a special insulating problem.

Name_____

Company_____ Title_____

Address_____

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many times...

beauty is a matter of

glass

Think how many things you see through glass!

Your children at play outdoors. Your garden. Something in a store window or showcase.

Even the slightest distortion can spoil something beautiful.

Most distortion you see through glass is caused by a lack of parallelism of the two surfaces. So the Libbey·Owens·Ford Glass Company set out to make the most *parallel* glass in America. It is called Parallel-O-Plate Glass. It is *twin-ground* for maximum parallelism.

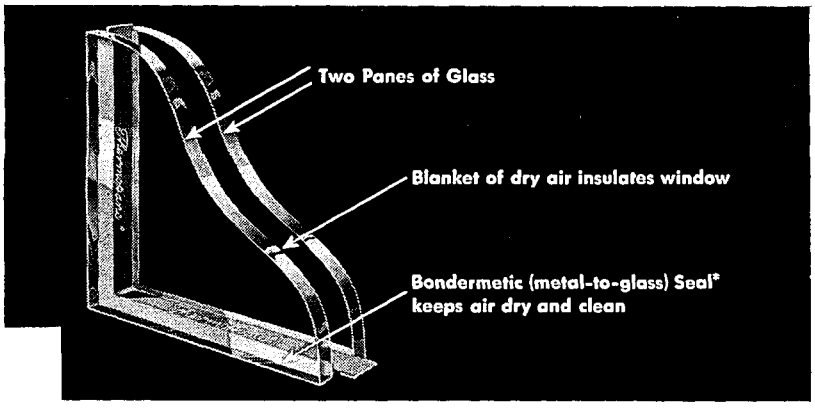
It is the *first and only* twin-ground plate glass ever made in America. For your picture windows, your store windows, your office, your mirrors . . . don't settle for anything else.

Get Parallel-O-Plate now from Libbey·Owens·Ford Distributors or Dealers. You will find their names listed under "Glass" in the yellow pages of phone books. For further information, write to Dept. 8345, Libbey·Owens·Ford Glass Company, 608 Madison Ave., Toledo 3, Ohio. *®

L·O·F Parallel-O-Plate Glass

Finest plate glass made in America... only by **LIBBEY·OWENS·FORD**

a Great Name in Glass



Parallel-O-Plate is doubly important for *Thermopane* insulating glass because there are two panes to look through.

Looking In

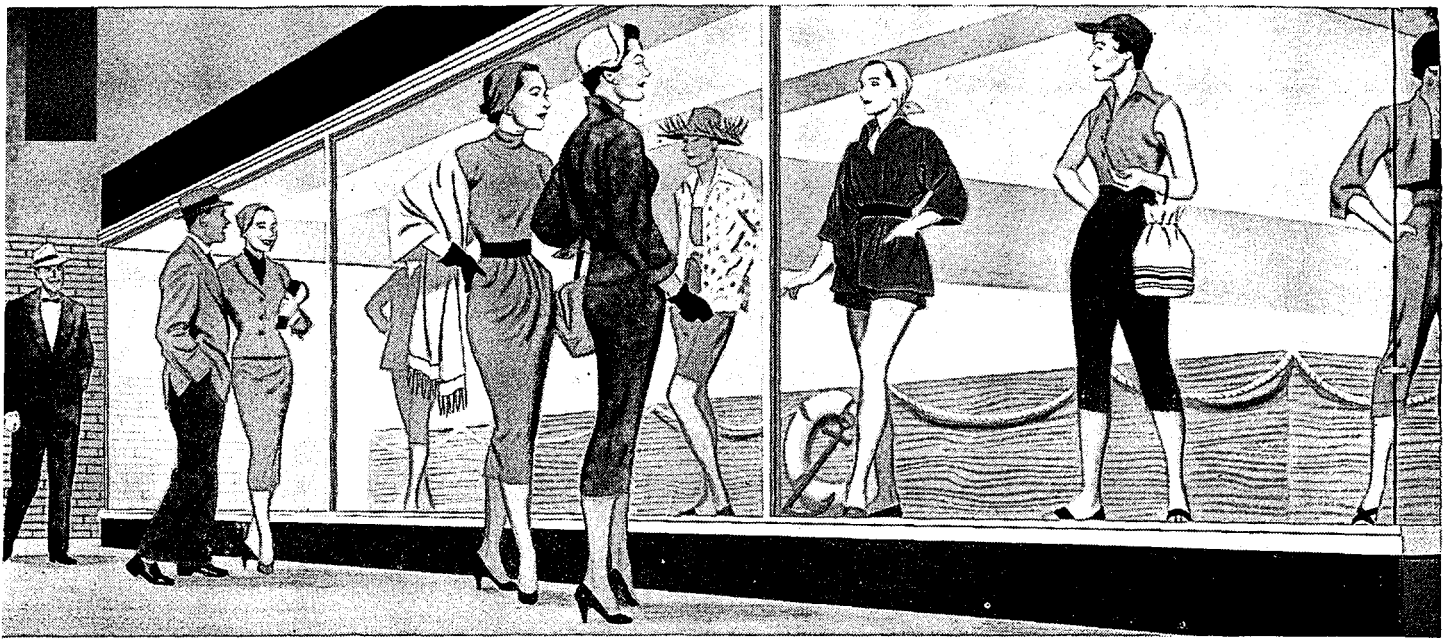
through the Parallel-O-Plate Glass in a storefront, you hardly know the glass is there.

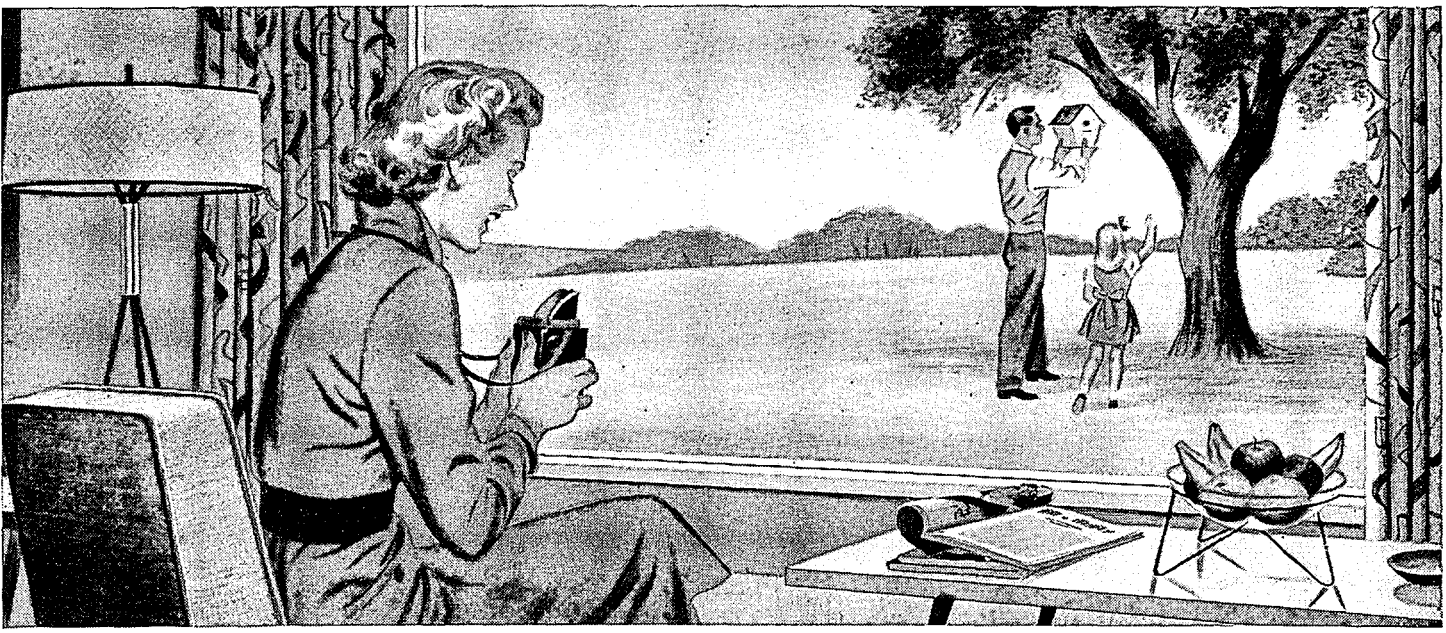
Looking Out

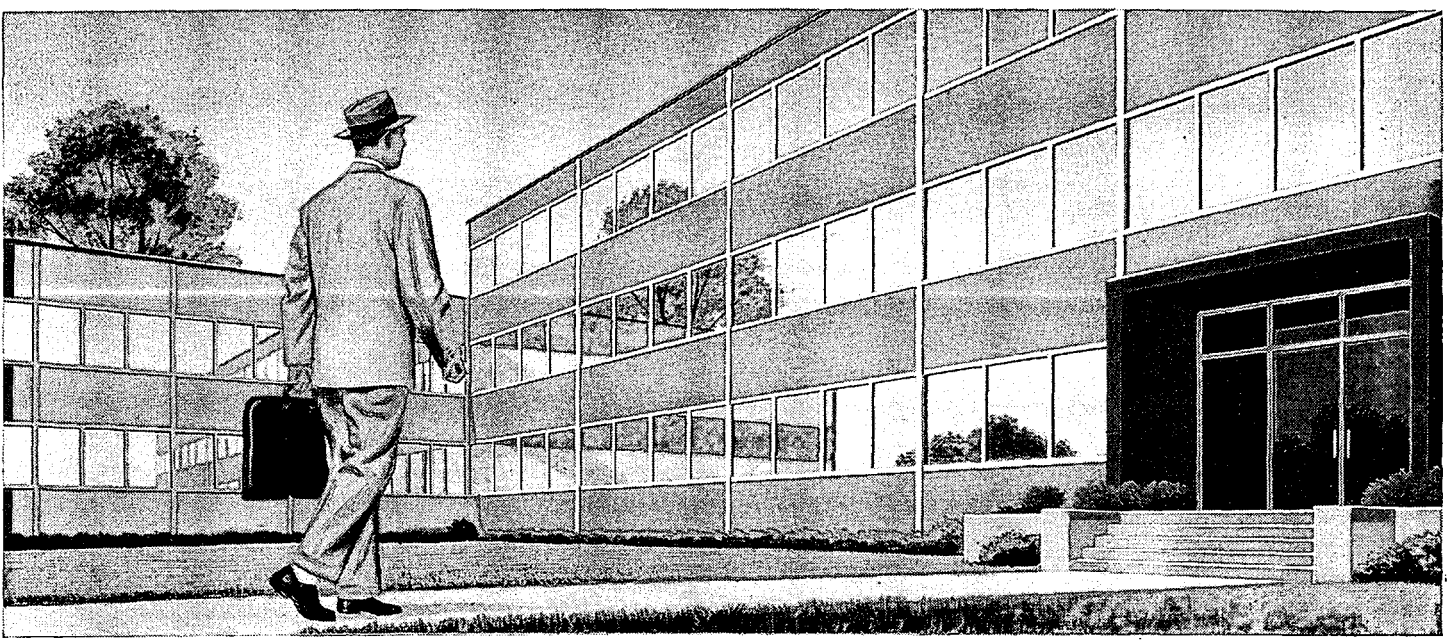
of your picture window of Parallel-O-Plate *Thermopane you see the scene as it *is*.**

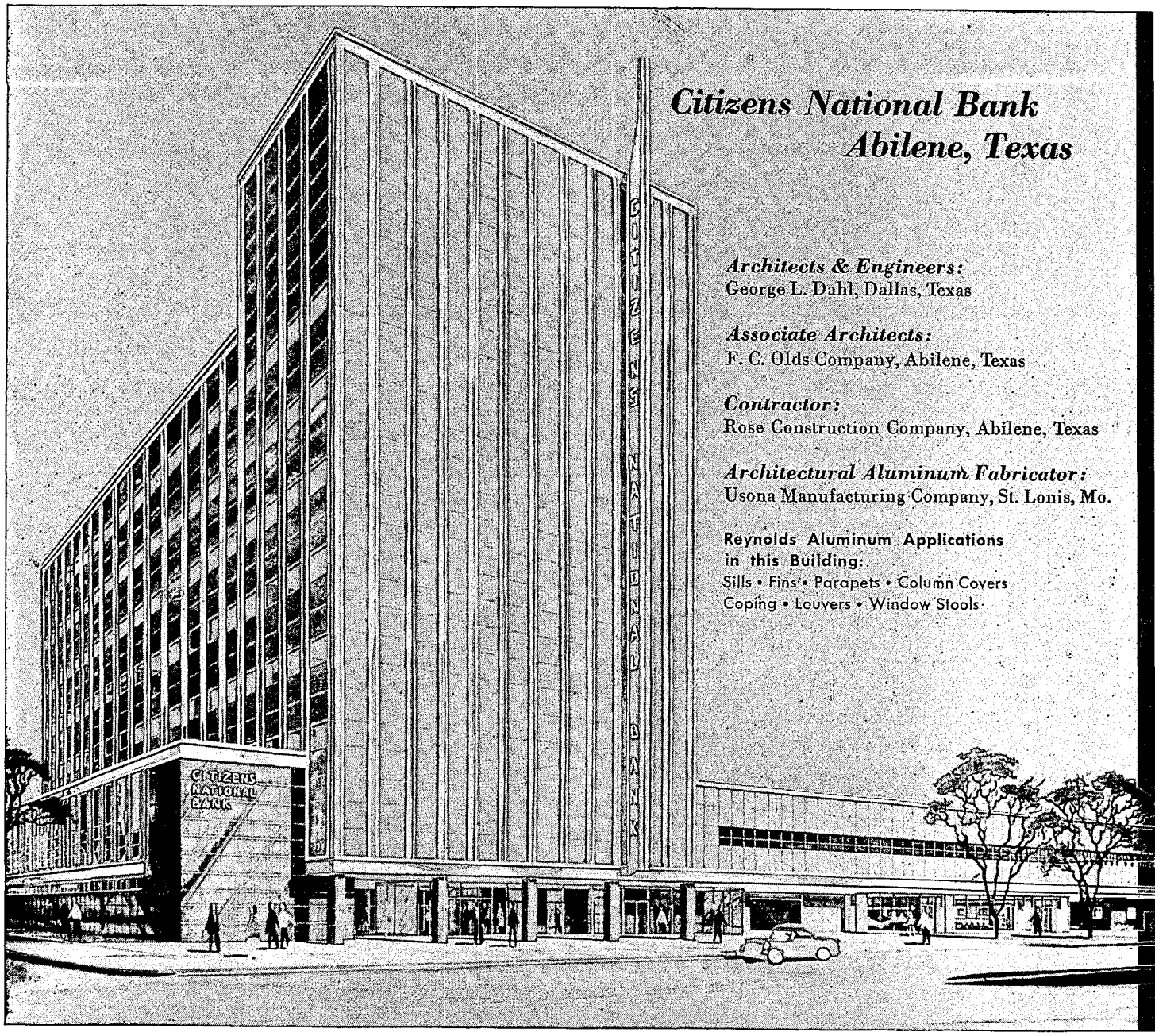
Looking At

windows of Parallel-O-Plate Glass you see how much its truer reflections mean to exterior appearance.









Citizens National Bank
Abilene, Texas

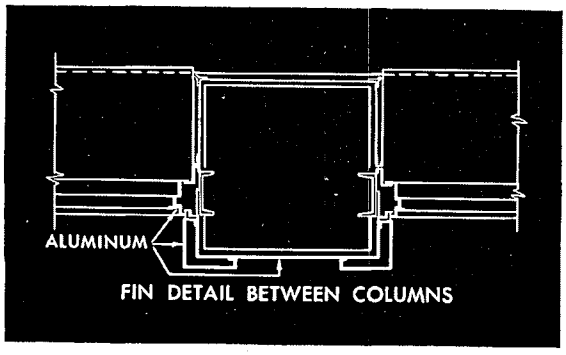
Architects & Engineers:
George L. Dahl, Dallas, Texas

Associate Architects:
F. C. Olds Company, Abilene, Texas

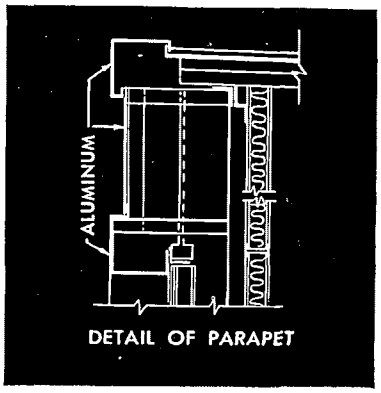
Contractor:
Rose Construction Company, Abilene, Texas

Architectural Aluminum Fabricator:
Usona Manufacturing Company, St. Louis, Mo.

Reynolds Aluminum Applications in this Building:
Sills • Fins • Parapets • Column Covers
Coping • Louvers • Window Stools



FIN DETAIL BETWEEN COLUMNS



DETAIL OF PARAPET

SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network.

REYNOLDS

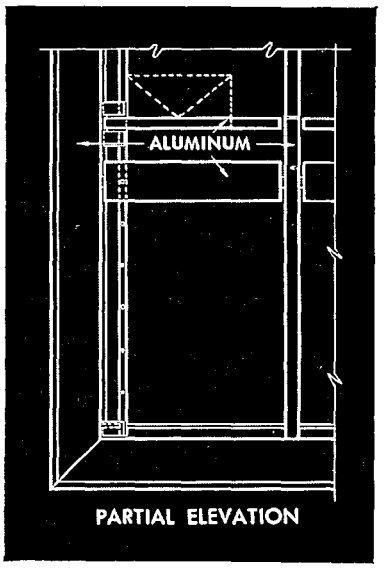
Dallas Public Library
Dallas, Texas

Architects & Engineers:
George L. Dahl, Dallas, Texas

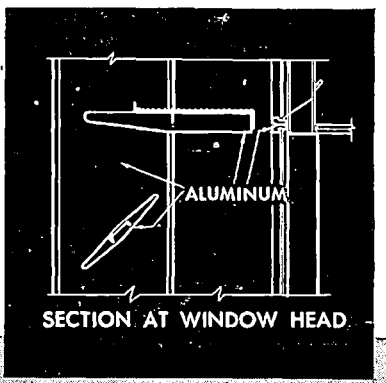
Contractor:
Robert E. McKee, El Paso, Texas

Architectural Aluminum Fabricator:
Usona Manufacturing Company, St. Louis, Mo.

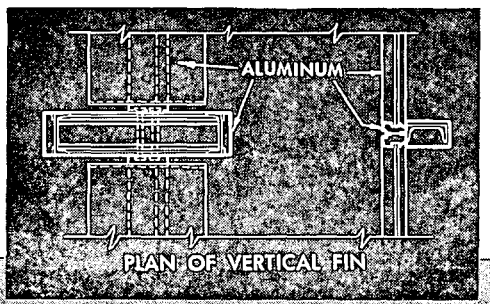
Reynolds Aluminum Applications in this Building:
Copings • Facade Surround and Soffit • Vertical Fins
Cat Walks • Ladder • Sills • Head Jambs • Column Covers
Gravel Stop and Facia • Doors and Frames • Grilles • Louvers



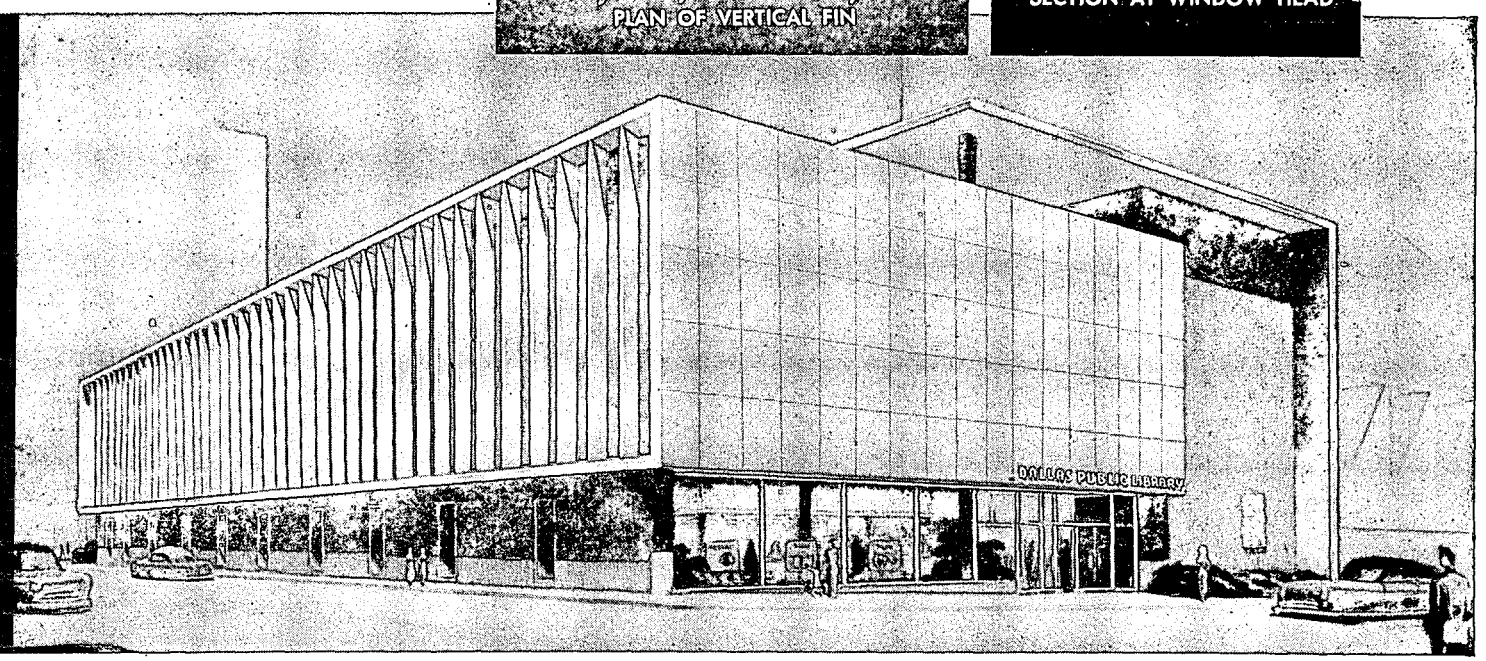
PARTIAL ELEVATION



SECTION AT WINDOW HEAD



PLAN OF VERTICAL FIN



REYNOLDS ALUMINUM SERVICE TO ARCHITECTS

Reynolds Architect Service Representatives offer specialized assistance on aluminum design problems, on applications of standard aluminum mill products, and on the use of commercially fabricated aluminum building products. They can help to coordinate varied aluminum requirements for procurement efficiency and economy. Please address inquiries to...Architect Service, **Reynolds Metals Company**, Louisville 1, Ky.

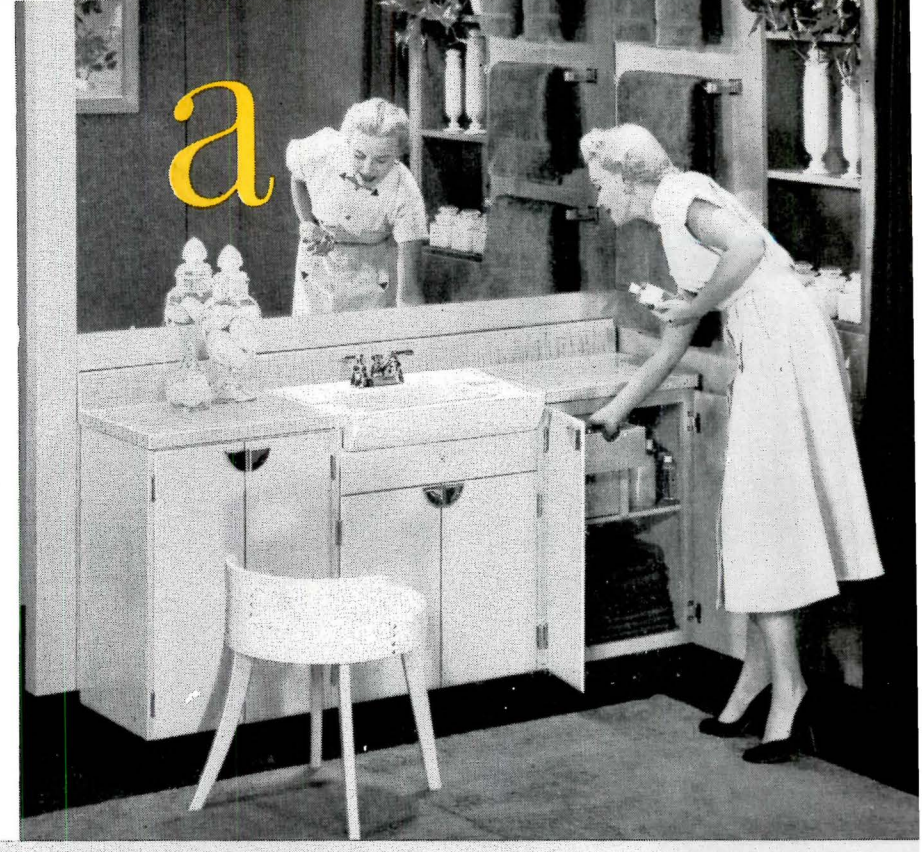
ALUMINUM

a

That custom look. The New Dresslyn Lavatory Dressing Table is a ready-built unit with smart, tailor-made appearance, offering the architect new possibilities in effective bathroom design. Special features are a genuine vitreous china bowl, scratch resistant Micarta top, generous storage space. Available in a wide range of sizes, cabinet styles and colors.

b

Wall to wall comfort. Heatrim baseboard panels house a copper tube to which aluminum fins have been permanently bonded. These finned tubes carry the hot water from room to room, heating the entire house quickly, evenly, efficiently. Heatrim panels hug the wall, increase usable wall space, and thus contribute to greater freedom of interior design.



Picture studies in function and

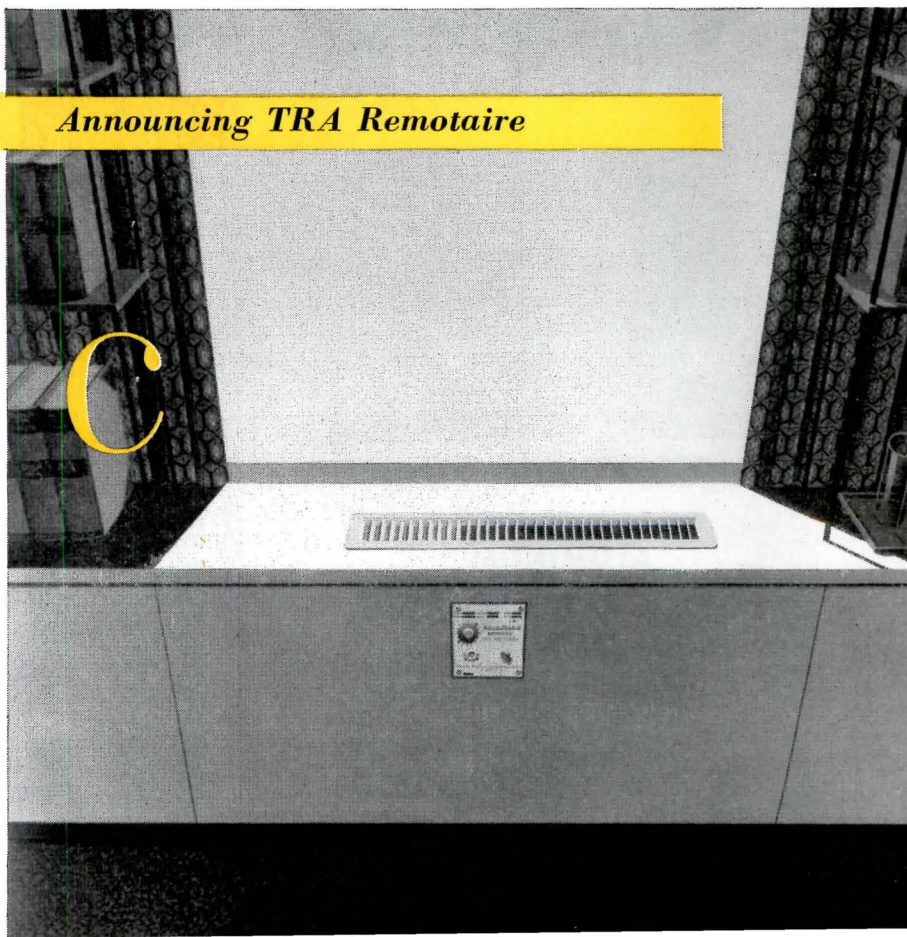
c

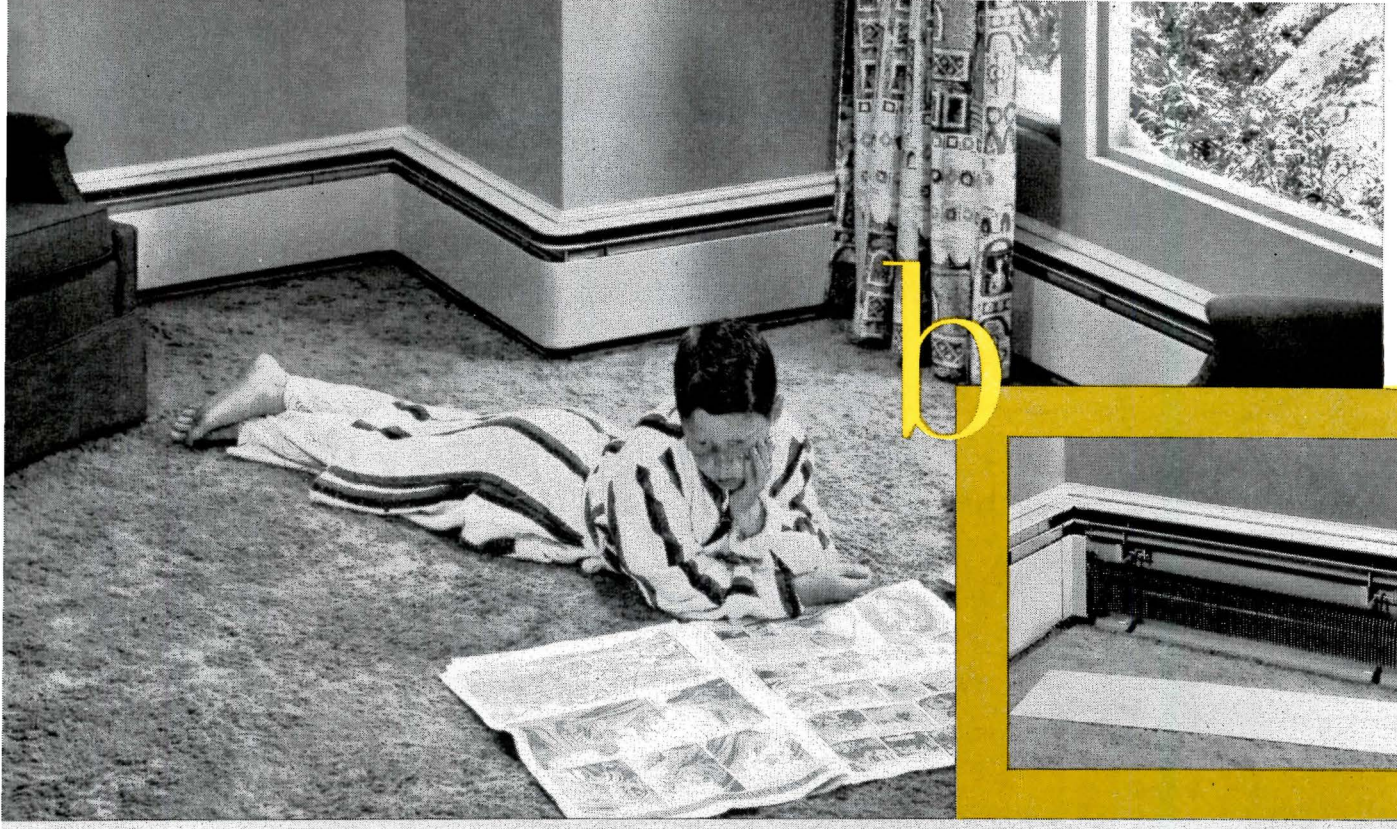
Complete System. Remotaire Room Conditioners are available in several sizes and types to meet all requirements in multi-room installations. Central plant Remotaire Systems use one simple circuit to carry hot water in winter, chilled water in summer. And American-Standard provides water chillers and boilers to give you a complete Remotaire heating-cooling system from one dependable source.

d

Compact efficiency. The gas-fired Empire Boiler is designed for homes and small commercial buildings where either steam or hot water systems are used. This boiler, like the famous oil-fired Arcoliner, is made from durable cast iron. It is of modern compact design for utility room as well as basement installation . . . provides steady, clean heat with efficient fuel consumption.

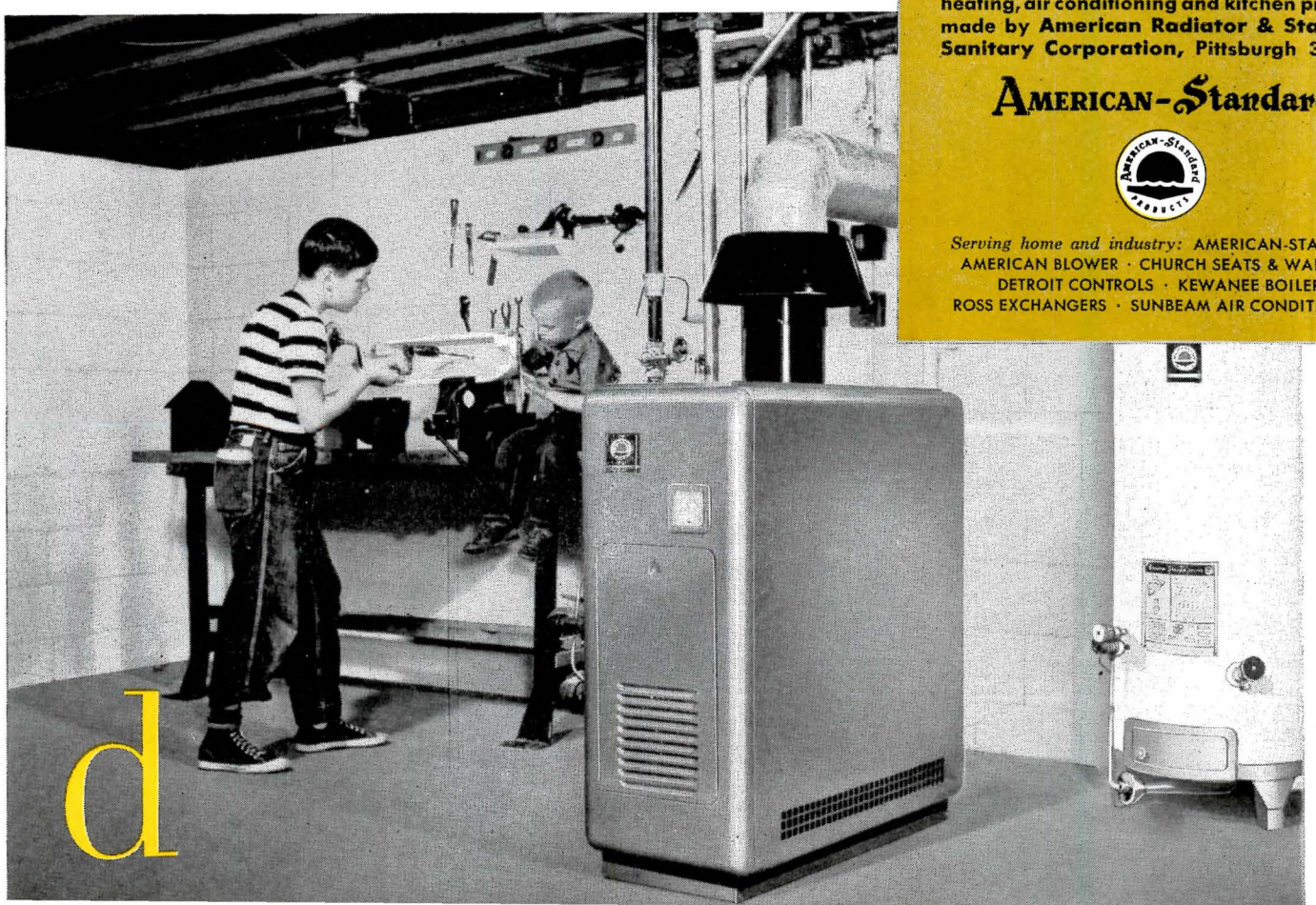
Announcing TRA Remotaire





b

design by American-Standard

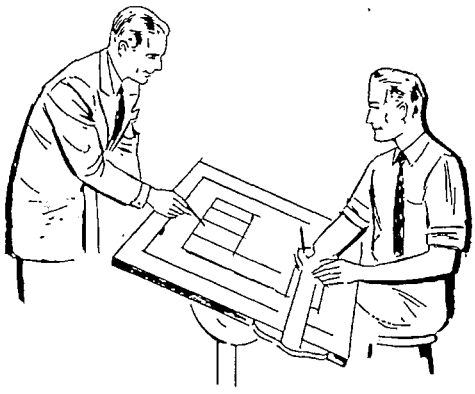


d

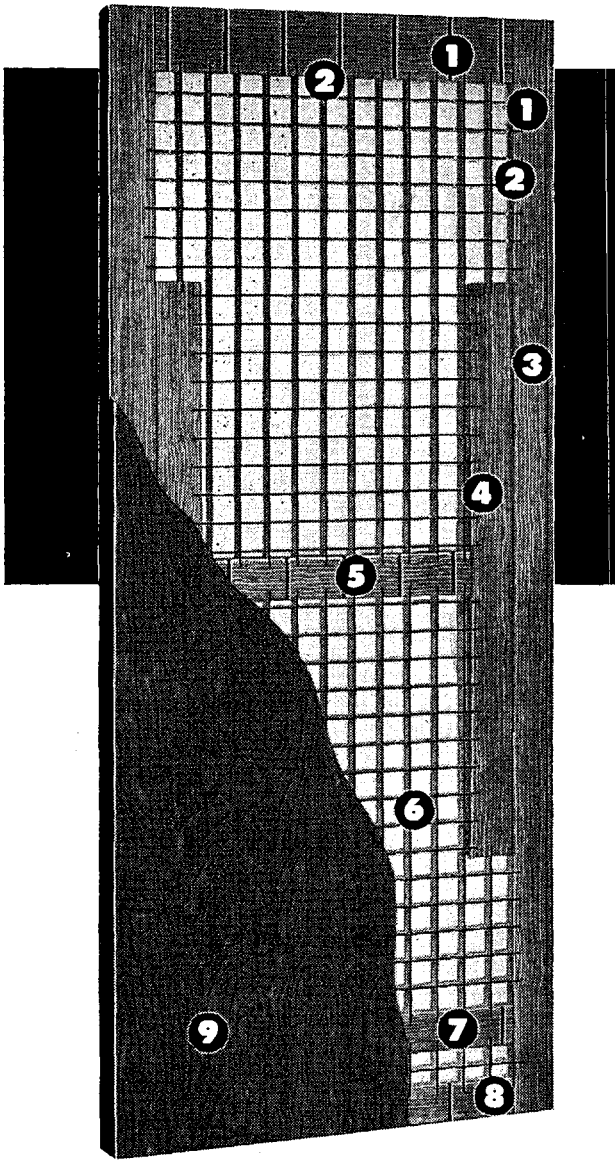
These are just a few of the many plumbing, heating, air conditioning and kitchen products made by **American Radiator & Standard Sanitary Corporation**, Pittsburgh 30, Pa.

AMERICAN-Standard

Serving home and industry: AMERICAN-STANDARD
AMERICAN BLOWER · CHURCH SEATS & WALL TILE
DETROIT CONTROLS · KEWANEE BOILERS
ROSS EXCHANGERS · SUNBEAM AIR CONDITIONERS



for dimensional stability, strength, light weight and life-time service always specify . . .



PAINE REZO T. M. REGISTERED

INSTITUTIONAL

all-wood grid core

FLUSH DOORS

America's Finest

Only REZO offers all these features:

1 One rail is 5" wide and can be used as either top or bottom of the door. Stiles are 3" (nom.).

2 All-wood gridwork is locked into the stiles and rails for greater strength.

3 Matching vertical edge strips can be furnished and finish not less than ½" wide after trimming.

4 Lock area is 6¾" wide and 21" from either end and varies in length proportionate to door height.

5 3" rail for special hardware is 41" from bottom of door to top of rail unless otherwise specified.

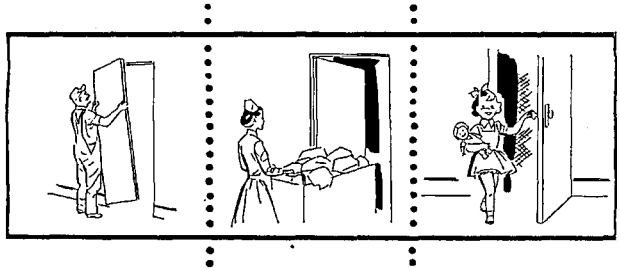
6 Heavy duty 2" x 2" air cell all-wood gridwork interlocked for strength and durability.

7 3" rail for kick plate located 10" from bottom of door to top of rail unless otherwise specified.

8 Vent grooves in top and bottom rails help keep moisture content in balance — prevent warpage.

9 Hand-matched hardwood face veneers, 3 ply, of any commercial species. Sanded to cabinetmaker's finish.

Cost? Less expensive than solid core doors — and better! For full details, see Sweet's Catalog or write:



Light Weight — easy, one man installation

Resists Abuse — for life-time service

Convenient — easy to open and close

PAINE

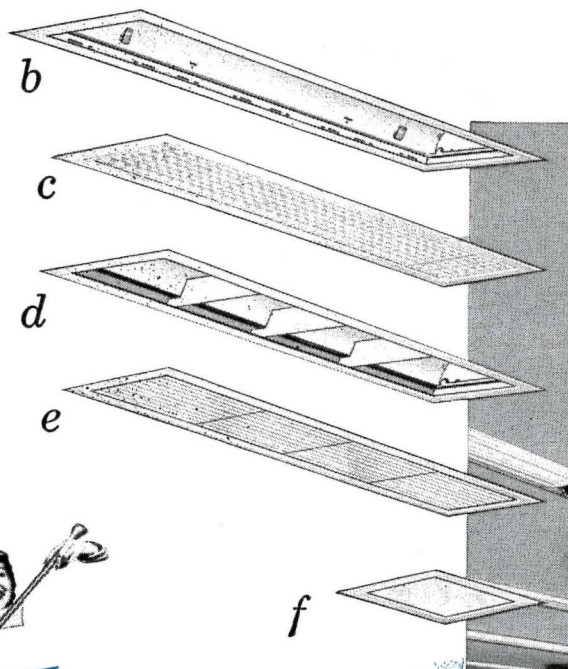
LUMBER COMPANY, LTD.

ESTABLISHED 1853 • OSHKOSH, WIS.

Variety is the spice of light...

with BENJAMIN Leader Line Trofferlites!

Sold Exclusively through Electrical Distributors



Variety like this adds spice to your installations . . . helps you achieve the exact architectural arrangement you had in mind!

Yes, in lighting too, variety adds spice! It adds that touch of extra flavor which makes your installation more distinctive-looking . . . sets it apart from run-of-the-mill lighting jobs.

Benjamin Trofferlites help you achieve that different, modern look because they offer a wide variety of designs, styles and arrangements, some of which are shown here. With this one versatile line of fluorescent units, there is a combination to help you get the architectural and lighting results you planned.

In selling areas, offices, reception rooms and similar commercial locations, these trim, clean-cut units enhance the atmosphere you want to create. Because they appear to be a part of the ceiling, it is easy to fit Trofferlites into most any architectural scheme you have in mind. The "Variety of Light" table at right gives you some idea of the range of the Trofferlite line. For complete Trofferlite "spice of light" facts, send for bulletin AD 6315. Write Benjamin Electric Mfg. Co., Leader Div., Dept. PA, Des Plaines, Ill.

Variety too, because TROFFERLITES bring you

the right Quality of light . . .	*. . . the right Quantity of light!*
a. **HOLOPHANE CONTROLENS*** for extra beauty plus controlled light intensity.	12″ width regular reflector.
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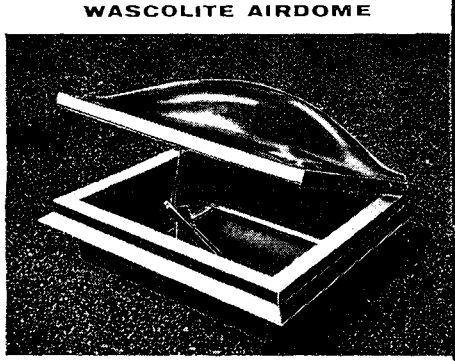

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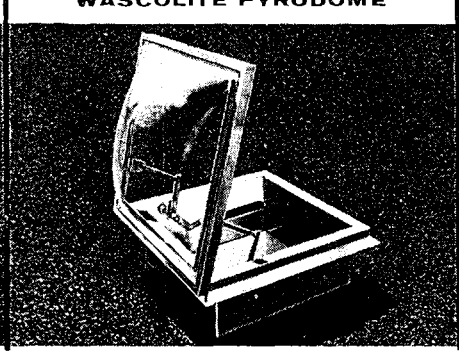

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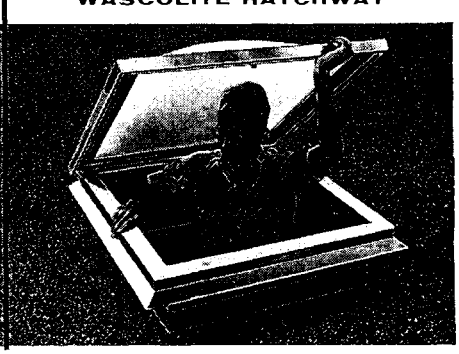

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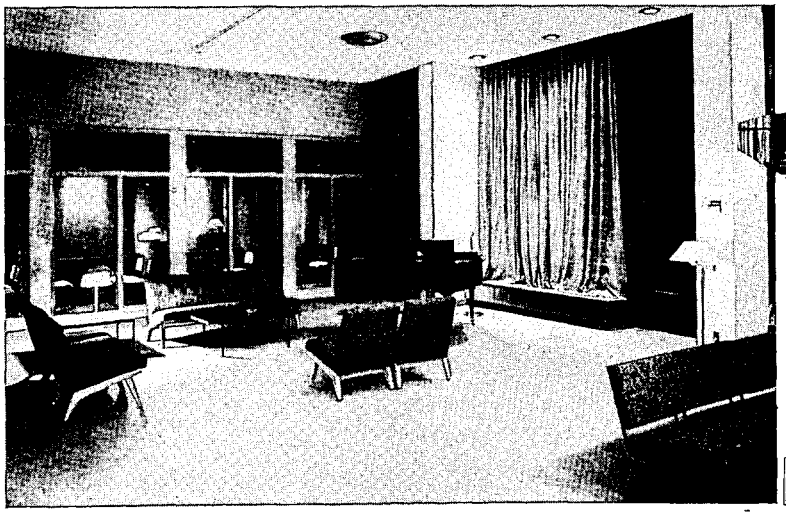

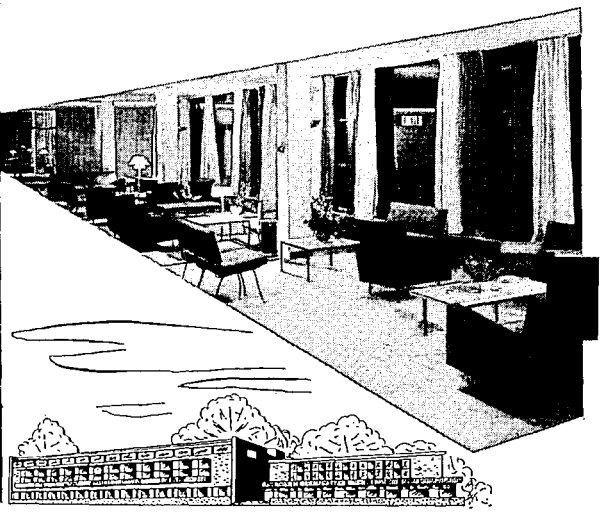

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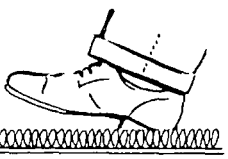

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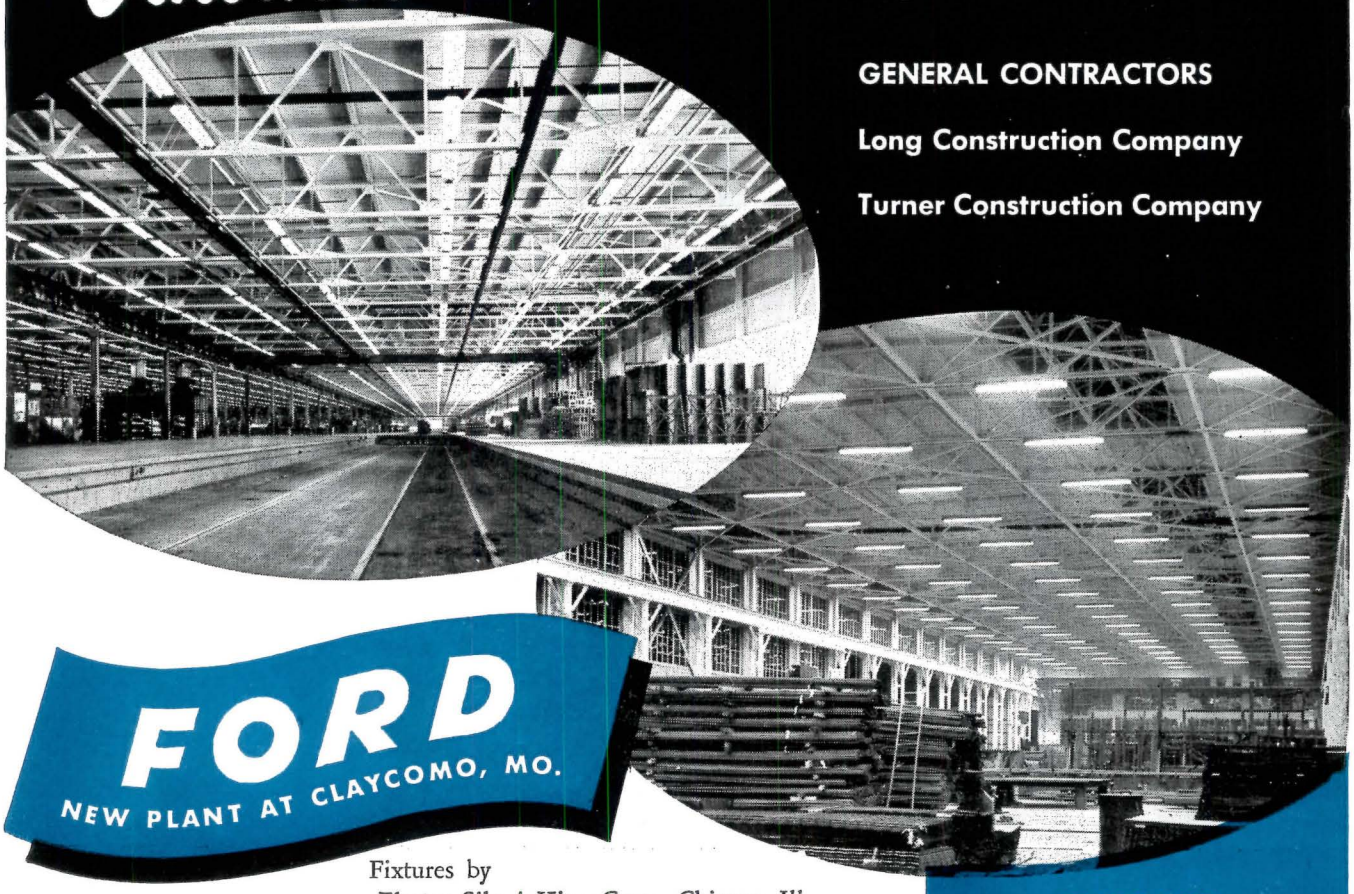

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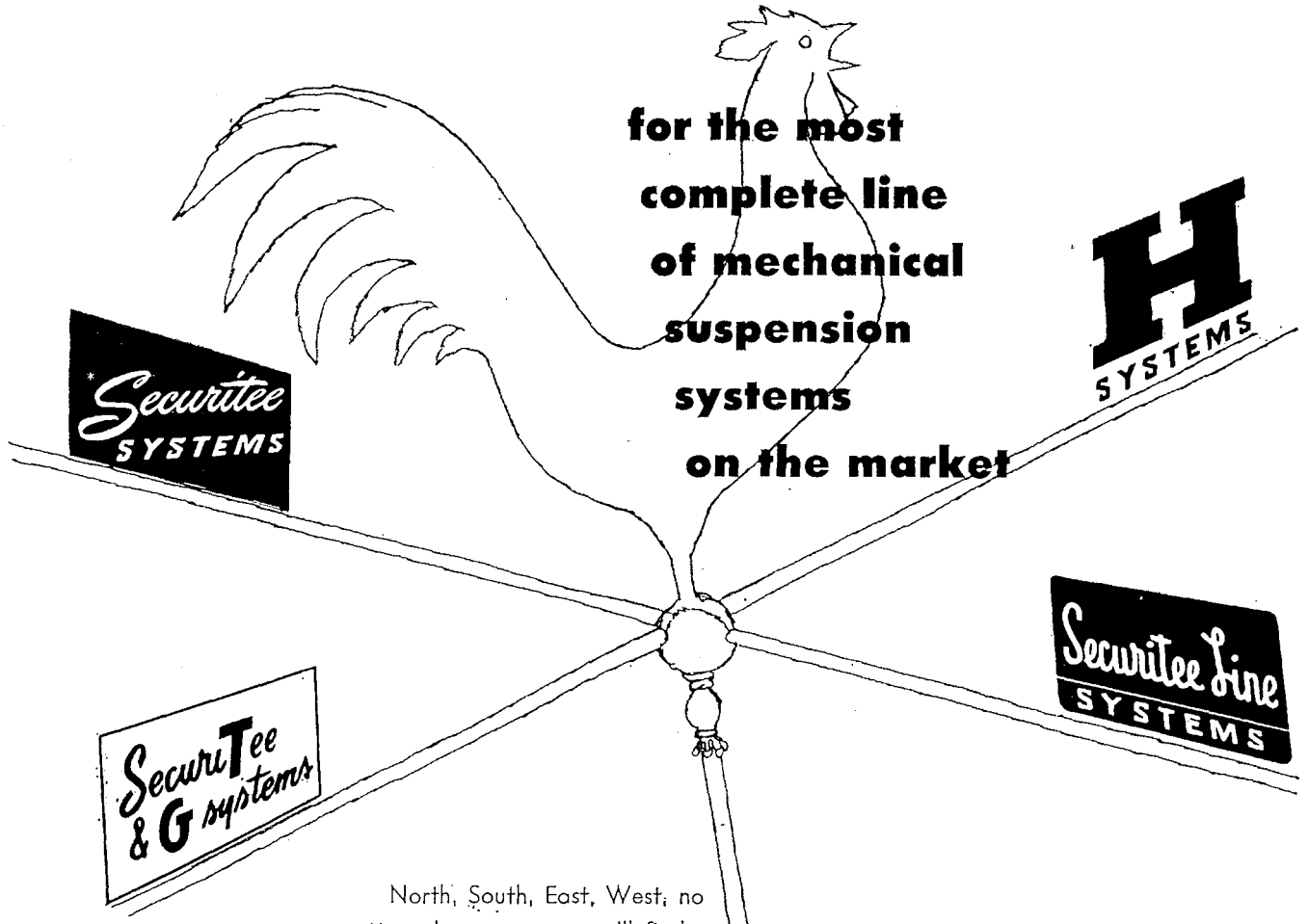

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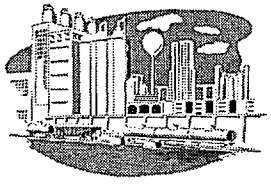
Corrosive  *fan installations can be permanent*

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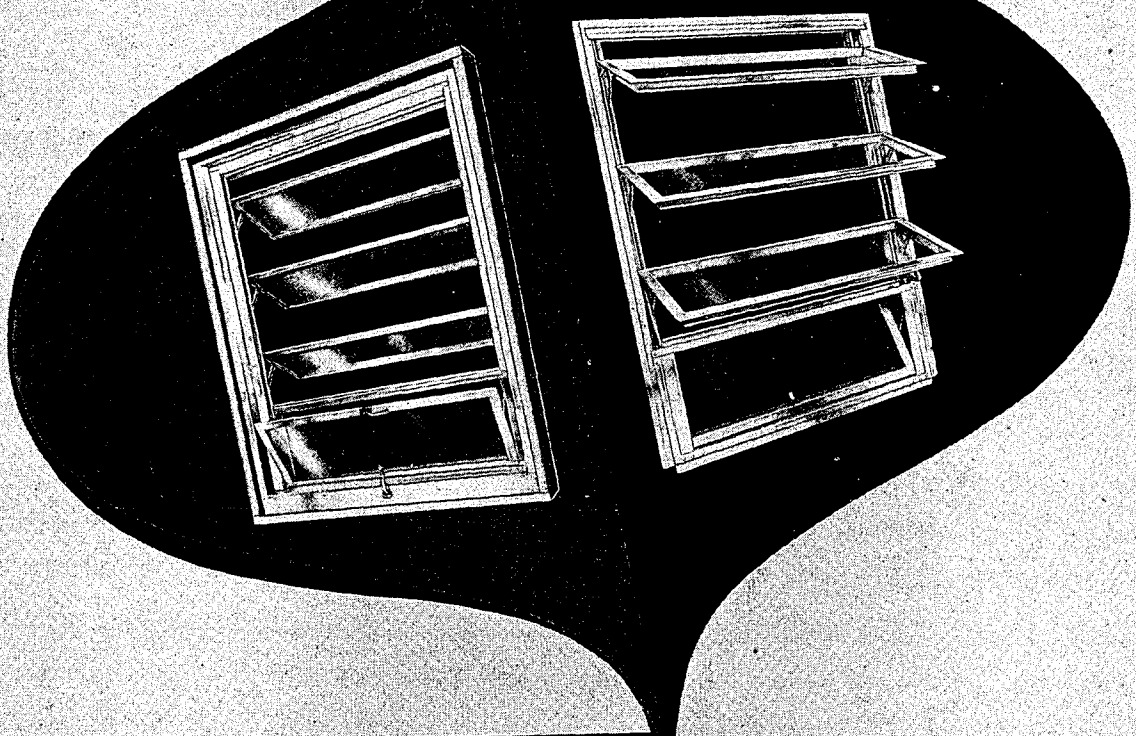

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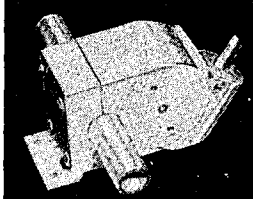
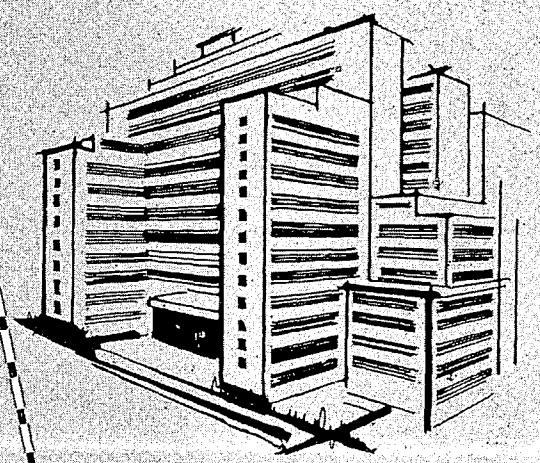


Dimensions of Heavy Compound Operator are 5¼" x 3" x 2"



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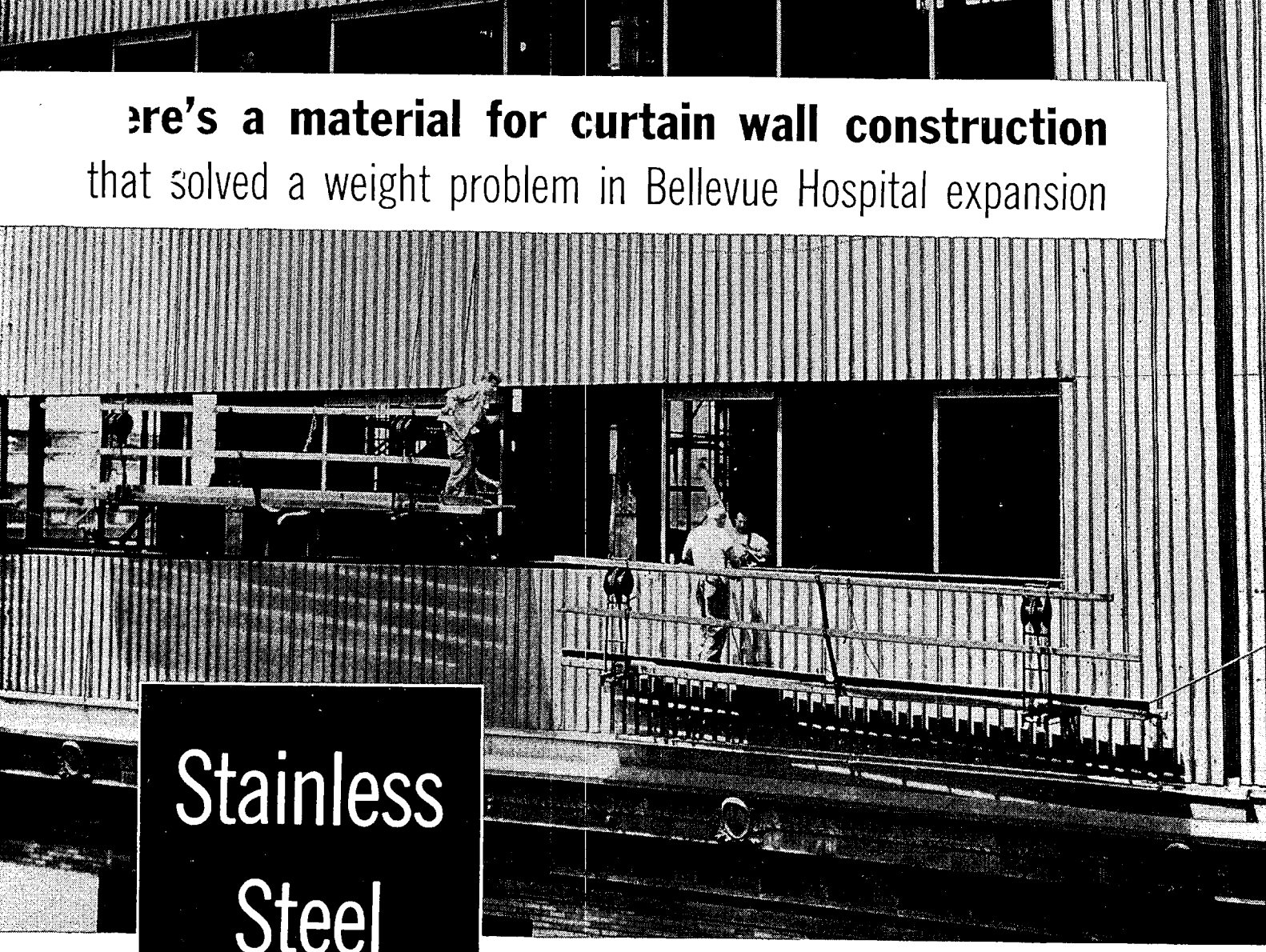

Newly installed Stainless Steel panels on the Bellevue Hospital addition. Architects and engineers: Fellheimer & Wagner. General contractors: Buhl Construction Company. Design and construction under the supervision of the New York City Department of Public Works. Stainless Steel panels fabricated by H. H. Robertson Company.

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William Hurd Hillyer **$ details**

P/A introduces a new monthly column, adding to the personal comment of Gutheim, Tomson, Small, Feiss, and Creighton a commentary on the financial scene as it affects architects and architecture. Implementing this magazine's belief that the business side of architecture is important, if good design is to be realized, William Hurd Hillyer brings to us a wide experience and a deep background of knowledge in this field. His career as banker, economist, and writer on legal and economic affairs, plus his interest in building and design, should make his monthly comments of interest and value to our readers.

Architecture and economics have always walked hand in hand, as evidenced by the prudent house-planner in the parable, who sat down and counted the cost before beginning to build. Today, when public and private building are alike dominated by various forms of credit, the foreseeing architect is increasingly concerned with such factors as money supply, interest rates, industrial activity, and spendable income. An over-all view of the economic site is necessary for the benefit of himself and his clients. This department will endeavor to plot such a view from the architect's standpoint month by month, after seeking the best informed banking and official opinion.

Unfettered optimism has been called the occupational neurosis of business forecasters. This malady (if it may be so termed) seemingly overtook such prophets *en masse* on New Year's Day, 1955. Emergency treatment, quickly administered by the SEC, sent stocks plummeting and in subsequent weeks the threat of huge Government bond issues stiffened the money mart. Since then, a note of caution has crept into the seasonal chorus.

Among the factors that have influenced this tone of restraint are international uncertainties plus:

Federal Reserve warnings that inflationary pressures are being generated within the business world and that tight money is talked about;

Pre-notice by large lenders of a constriction in the mortgage market if the 1954 rate of "housing starts" is projected through the current year;

Unsold municipal bonds piling up on dealers' shelves, while top-size issues for public construction loom in the near future;

A more than seasonal spurt of commercial and industrial failures which followed the turn of the year (though these fall far below comparable prewar figures);

A realization that the volume of home mortgage debt has passed the $75 billion mark—nearly double the 1949 figures—and is climbing yet more sharply in '55.

Furthermore, an odd phenomenon of money lending has escaped general notice. Groups of banks are "warehousing" FHA-VA home mortgages for the benefit of at least one giant insurance company to the tune of nearly $400 millions. That is to say, the banks are making these loans and "carrying" them for account of the insurance institution, which agrees to pick them up within a specified period. In plain language the insurance companies, those huge reservoirs of investment capital, are actually borrowing from the banks. A respected authority in the New York financial district sees this contra-natural procedure as indicative of a possible lending exhaustion at primary sources. However, in the absence of actual mortgage-money scarcity the loan warehousing deals may be interpreted in a different way, at least from the architect's angle. The fact that so great an institution is going to such lengths in order to assume a steady supply of home-mortgage funds argues a firm conviction in responsible quarters that residential construction can and must be maintained at generally high levels.

On balance, the favorable factors still outweigh the unfavorable. The chief danger is that a fluctuating stock market and a nervous foreign situation may turn too many boomsters into doomsters. This peril is evidenced by the marked differences of opinion in economic ranks; some observers seeing only recession and unemployment. For stabilized guidance we note the following high spots on the positive side:

Industrial output in key areas, specifically coal, power, cars, crude oil, lumber paperboard and meat, is well ahead of last year. Total industrial production is rising;

Steel order cancellations — a sensitive economic indicator—"have seldom been lower," say producers;

Civilian labor force, nearly 65 millions strong, averages some 700,000 more than in 1953;

Interest and discount are coming down for short-time Federal funds, following January's upward swing;

Inventories are being reduced at a $5-billion annual rate;

Life insurance companies' assets, having increased by nearly $6 billions during '54, are still mounting in '55's first quarter, thus assuring a continuation of heavy lending programs;

"*Ample funds on hand*," avers a competent mortgage authority, speaking from Boston;

Disposable personal income and retail sales continue at all-time high level;

Population is rising at an estimated rate of 10,000 a day, with some 5,000 coming into the house-seeking youth group. Of these, say telephone authorities, more are leaving home earlier than formerly to set up their own establishment;

Check transactions in 25 large cities nationwide (totaling a trillion dollars in 1954) are still increasing—an indication of sustained business activity;

Corporate dividends are being handed to millions of stockholders on a most liberal scale and working capital is increasing, despite somewhat lower reported profits, due partly to heavy taxes and in part to substantial reserve write-offs;

Banks are finding way to augment their depositors' balances (without inflation or borrowing) through new techniques of speeding check collections.

The net conclusion, assuming full peacetime conditions, is that we shall have a continuance of good business through 1955, though not at so hectic a pace as in '54. There will doubtless be a slowdown, but not a dropoff. Bankers see no deflationary horizons. On the contrary, New York's largest trust company warns against "controlled inflation" as a mere "nostrum of cheap money." A panel of the American Industrial Bankers Association voices similar opinions: "Good—but no boom. Consumer buying, personal incomes, new housing starts and auto production" will show "some increase." The country's third biggest bank sums up the situation by looking for "a continued, though moderate improvement."

response
to a suggested program of action for the AIA

Four months ago (December, 1954) a Suggested Program of Action for the AIA was published in these pages, sponsored and signed by 51 architects. The background for the suggestion of an integrated program for the profession, to be carried out through AIA, was that two survey reports had become available: the final Report of the AIA's Commission on Education and Registration (*The Architect at Mid-Century*), a remarkably thorough analysis of the profession; and the Report of the Committee on Organization, set up by the Institute a year before. Both of these reports carried recommendations; neither pretended to present a completely rounded *program* for the architects in the United States. In an attempt to be constructively helpful, the Suggested Program published in these pages tried to correlate organized professional activity under four main headings, drawing on both of the survey reports, the current activities of the AIA, and other suggestions from many sources. What has been the reception of this suggestion of organized planning for an organization of planners?

Spontaneous response from the profession at large was favorable. "A sound document for discussion," was a typical reaction. And discussion has resulted! At this writing, reports from individuals indicate that at least one Chapter—Minneapolis, host to the next Convention—has discussed and endorsed the entire Program, and a number of others, debating the proposals, are considering taking some of them to the Convention as resolutions.

Official response from the Institute was quite different. Although AIA *policy* at present agrees with eight or nine of the 19 proposals published, disagrees sharply with a number of others (mail-ballot elections, outside professional study of Institute functioning, revision of Fellowship standards, etc.), and has not been determined on others, nevertheless the official reply from AIA said, "We are pleased to see that your thinking concurs in large measure with the decisions of the Board and that wherein any differences occur, those differences do not seem to us to be of particular moment." Replies from individual officers repeated this reaction, even more sharply. One wrote that the Suggested Program would "bestir and possibly befuddle the membership of the AIA on matters which are being handled most conscientiously and expeditiously by those properly charged with so doing."

The other official reaction: "We . . . regret the use of your magazine as the medium of conveying the proposed deliberations and actions . . ." drew many responses from those who thought that "open discussion" was necessary and that "the actions and aims of the AIA should be brought to the attention of all our profession who are not members." One expressed it as appreciation that "you have taken this means of publishing such a program so as to require wider attention from the architectural profession than if it were retained wholly within Institute publications."

Unfortunately, neither the official AIA response nor any of the individual letters from Board members discussed (pro *or* con) the specific proposals that had been made. On the other hand, letters from individual members, from Chapter officers, and from national Committee members did go into great detail on the 19 points. For the suggestions under the heading *To Improve Output From The Practicing Profession*, there has been nothing but approval in the letters received. It was pointed out by several correspondents that the Committee on Organization, headed by James Hunter, Colorado, with three other sponsors of the Suggested Program as members, is working on means of "advanced professional education." There was agreement on the suggestion that the Committee on Research, the Architectural Foundation, and the various schools and individuals concerned with advanced research get together and devise an integrated program. There was strong support for the proposal to restudy standards of Fellowship in the AIA. Few dissented from the suggestion for a Commission to study office practice methods and legal documents, those who did disagree feeling that the present committee study of the subject is all that is needed.

The suggestion on AIA publications—that a conference be called on the subject, including AIA committee members and staff, with representatives of the national commercial architectural magazines, to make recommendations to the membership—was unanimously favored by those who wrote to us on the subject. AIA Board action in the meantime has been to recommend that "the matter be turned over to the Executive Director and the proposed Director of Publications, if one shall have been employed," for a report to the Board.

The items under the heading *To Improve Movement From School Through Apprenticeship To Practice* are also on the agenda of the Education Committee, it was pointed out by a number of correspondents. The point was also made that

it will take a strongly implemented program, much propaganda within the profession, and the co-operation of the schools to convince the younger men that action is really underway. One "apprentice" writes: "No office in which I have worked takes the time to train the young men passing through." A busy architect comments: "The aims are fine, but I'm not an educational institution." And a schoolman adds: "This is the responsibility of the profession."

The items under the heading *To Improve Functioning And Widen Membership of AIA* proved to be the most controversial. Mail-ballot election of officers is seriously opposed by many for divers reasons: "This could result in a popularity contest"; or, very frankly, "The present system is stacked in favor of the small Chapters, as it should be"; or again, "Only the active people who are familiar with the issues should vote." On the other side, there is strong support for the feeling that ". . . in a group as small and cohesive as ours, it is ridiculous not to let each member have his individual vote." Whatever the attitude of the respondents, P/A has not so far had a letter objecting to a poll of the membership on the subject "with advantages and disadvantages clearly stated," as proposed in the Suggested Program. "I disagree on this point, but I do believe the members should be polled," is a frequent comment.

On strengthening the regional AIA structure, support was strong in letters to P/A. The Board, acting on proposals from its own Committee on Organization, has disapproved limiting Regional Directors' terms to two years; has decided that regional conventions "be allowed to continue to develop naturally"; and has disapproved *requiring* Directors to visit each Chapter yearly and write concise reports. "We haven't seen a Regional Director out here for many years," wrote one Chapter officer. Likewise Committee members—and Chairmen—approved the proposal to strengthen further the Committee structure. "Here (in committee work) is where the most active members are drawn into Institute national affairs," wrote one Chairman, "and here is where the AIA structure is most weak. Your proposals do not go far enough, in my opinion."

The suggestion that a study be made of "the functioning and structure of the AIA," by outside consultants, also appeared to be controversial. "I go along with all but this," says a letter on one side. "I don't see how any outsiders can tell us what the professional needs in his own organization." On the other hand, there were many comments such as: "With the dues we're paying, and the size of the Institute's budget, I think it's imperative to have a business study made."

On the matter of judiciary and disciplinary action, the Board has adopted the recommendations of its Committee on Organization, as by-law changes to be presented at the Convention. There is a feeling evident in letters received that this is not enough. One new, young member writes, "Either the AIA believes these things or it doesn't. It's insulting to the public to have 'mandatory rules' against free sketches, building contracting, self-laudatory advertising, competing on a fee basis, and so on, and then pay no attention to them."

The need for drawing more young men into the Institute seems to be generally recognized. The report on this subject by a Committee of the New York Chapter, drawn on for the proposal in the Suggested Program, has now become the activity program of that Chapter for the year. Approval of the proposal to study this subject on a national basis, and develop a membership campaign on the results, appeared in many letters received.

The final heading titled *To Improve Public Understanding And Acceptance Of The Architect* also met with general approval. (There were some negative replies. "I don't believe in public relations activity" seems to be still an attitude of some professionals.) Carrying out the proposals in the Suggested Program will probably depend on approval of an increased budget, and support from delegates at the next Convention.

It is apparent that publication of the Suggested Program has stimulated thinking about and discussion of many important points of professional activity . Those items on which the Board has already taken action should receive stronger support and greater understanding as a result. For those on which no action, or negative action has been taken, resolutions and discussion at the Convention will result.

There is ample evidence, then, in the letters received on the Suggested Program that there would be support for such an *integrated program of activity*. This potential support seems to indicate a realization of the need so well expressed in the final report of the Commission on Education and Registration, that "architecture and the profession have reached a stage where the *laissez-faire* attitude has become obsolete, and standards must be raised by co-operative effort to entirely new levels."

Bernard Tomson it's the law

Seven years ago P/A published its first article written by me, in which the AIA standard contract forms were discussed. I thought it would be useful to summarize, in the form of questions, each of my articles which relate to the AIA documents published since that time. Then I wish to propose two additional soul-searching questions which each reader (and I) should ask himself: (1) What, if anything has been done along the lines suggested? (2) What, if anything, should have been done? B. T.

February 1948

Do the AIA standard forms adequately protect the architect as to compensation? Should the forms provide for a retainer fee, periodic payments during the preparation of preliminary studies and working drawings, and, where the architect's compensation is based upon costs, should they provide that the architect's estimates are to be binding for the purpose of determining the amount of payments until actual costs are finally determined?

February 1949

Should the contract between owner and architect incorporate a specific provision (more effective than the one now provided in the standard AIA form) to protect the architect from the consequence of his misjudging the cost of a proposed structure when making an early estimate?

March 1949

A proper arbitration clause in any standard document should be formulated so that it is legally effective, comprehensive enough to cover all possible future disputes, and sufficiently detailed to afford a guide to the procedures and rules which should be followed. Do the arbitration clauses used in the standard AIA forms meet these prerequisites?

April 1949

Would the needs of the architectural profession best be served by (1) a simple short form of architect-owner contract which could be used without significant alterations, (2) a separate comprehensive set of terms and conditions and general rules which could be incorporated by reference, and (3) a brochure in simple lay language which will indicate to the client the probable extent of his commitment?

June 1949

The law is continuously changing and it is necessary that legal documents keep up with these changes. Should the AIA undertake a comprehensive revision of its contract documents and should the local chapters of the AIA revise them to conform to local needs?

January 1950

Should the contract between owner and architect include a formula for the payment to the architect in the event that the owner abandons the project and does not proceed with construction?

June 1950

Should the owner-architect agreement of the AIA be amended to strike out any reference to the drafting of contracts by the architect, on the ground that such service may be the practice of law and thus illegal?

March 1951

Under the decisions of some courts, an architect's fee which is based upon costs may be jeopardized if the owner abandons the work before construction, even if working drawings and specifications have been completed. Should the AIA contract form provide that, in the event the project is not completed, the architect's estimate of cost shall be conclusive in determining payments to the architect?

April 1951

In the agreement between owner and contractor, should it be stated that the architect's decisions are final, binding, and conclusive, if that is the parties' intention? Should the contract also provide for the method by which a new arbiter of disputes between owner and contractor will be selected in the event the architect originally designated cannot act because of death, discharge, or resignation?

February 1951

Should the contract between owner and architect specifically provide for a basis upon which the architect's fee can be computed in the event the project is abandoned during the preliminary stage of the architect's services?

February 1952

The United States Supreme Court has held that a contract between the government and a contractor may legally provide for the final and conclusive arbitration of all questions of fact and law by the government contracting officer. The Court did not distinguish between government and private contracts. Should the contract between owner and contractor provide that an architect's decision on any question of law or fact which arose be final and conclusive?

September 1953

Do the AIA "General Terms and Conditions" clearly and adequately provide for the architect's supervision of the contractor? Are the provisions of the "General Conditions" which pertain to the payment of the contractor and subcontractor satisfactory from either the owner's or the architect's point of view? In other fields when large amounts of money are expended, it is routine to require regular audits.

November 1953

Should Articles 24 and 32 of the AIA "General Conditions" be amended to require the contractor to submit the requisitions of his subcontractors with his application for payment, to eliminate the optional aspect of the furnishing of proofs, and to require the contractor to furnish the owner a complete release of all liens and receipts in full for all labor and materials furnished on the project? Should a clause be added subjecting the contractor's books and records to audit?

February 1954

A suitable performance bond is an effective aid in assuring proper performance on the part of the contractor. Should the agreement between owner and contractor provide that the bond be written by a broker or agent which the owner chooses?

June 1954

Should those AIA "General Conditions," which relate to the status of the architect as arbiter between owner and contractor, be reconsidered with particular respect to the ethical and legal considerations involved?

August 1954

The Courts have found it necessary to construe Articles 39 and 40 of the AIA "General Conditions" in order to determine what disputes are arbitrable thereunder. Do these and other decisions call for the amendment of the arbitration clause contained in the AIA owner-architect agreement?

professional responsibilities

*"Insofar as a profession merits its claims to special capacity, it must assume the responsibility of leadership in the attainment of social goals, particularly those for which its capacity bestows special insight."**

*"By whatever skills are needed, [the architect] must lead in design for living, and aid in keeping social life sane. He must make his contribution, or offer it, however limited its acceptance at times."***

The sense of professional responsibility—leadership in the areas of activity where the architect's unique endowments and training give him "special insight" —has increased noticeably in the design professions in recent years. This feeling that one has something very special to offer his fellow man—and that in offering it he is justifying his "professional" status —need not result in a sense of superiority or smugness, but rather in a devotion and even a humility. Each person taking a creative and productive part in the life of a community owes it to that community to make his fullest possible contribution, and to struggle against whatever restraints and misunderstandings may stand in the way of his offering.

Among architects in the United States, this *responsibility* to do the best of which one is capable was at one time neglected, at another perhaps exaggerated. It is not easy to steer the straight way between the attitude that "my job is to give the client what he wants," and the other extreme of feeling that "I know best what the client should have." In between lies the responsible approach of sympathetic understanding of needs, prejudices, and true desires, along with the ability to show each client what is possible, what is workable, what is beautiful.

In its *Architect and His Community* studies, P/A has sought out and documented the work of architects in small towns and large across the country, who have felt this responsibility and acted on it. In carrying it out they have become leaders in their communities, people to whom other citizens—leaders in other fields, as well as the man in the street—look for progressive guidance and advice on problems of "design for living." It is not always an easy role. For many architects who have seen further ahead than the community in general, and sometimes even than their colleagues, it has resulted in assuming a position that often seemed arbitrary, often has been isolated. For many, it has meant an abrupt change in method and direction of practice, in order to demonstrate what can be accomplished physically, by actual buildings, toward "keeping social life sane." The case history of A. L. Aydelott in this issue is such a story, of the shift that was necessary in order to build up a demonstrable accomplishment of progressive architecture, "however limited its acceptance at times."

The architect practicing in a wider area than his own community has the same responsibility, and somewhat the same problems. It would have been easy, for instance, for an architect assigned the problem of developing a campus plan and designing new buildings for Drake University in Iowa to continue the traditional collegiate architecture. The Saarinens, however, saw the greater responsibility, and in implementing the master plan begun by the late Eliel Saarinen, Eero and his associates are producing structures which will unquestionably influence college architecture in other places, in a manner much more valuable to society than the work of those who take the easy, less responsible road of matching and repeating the existing campus style.

Examples could be multiplied, but the instances chosen in this issue to demonstrate successful realization of professional responsibility seem to us to make the point. Ultimately, of course, this responsibility becomes profession-wide; the individual can do his part in demonstrating possibilities of a saner environment, but the total profession in an organized sense can do infinitely more.

* The Architect at Mid-Century. *Report of the Commission for the Survey of Education and Registration of the American Institute of Architects, Volume I, page 69.*
** Ibid, *Volume II, page 253 (Reinhold, 1954).*

CHIA-YI JEN ALFRED L. AYDELOTT

the architect and his community

Before 1940, the office of Architect Alfred L. Aydelott was not distinguished for its progressive architecture. But in that year, as he himself puts it, "we were commissioned to design a small hospital, which evolved from Christopher Wren to a straightforward, clean expression of what could reasonably be expected in a hospital. The thrill," he continues, "of substituting thought for copybook art and solving problems with a straight face made such an impression that I determined never again to approach the design of a building through the archives of ancient architecture."

At the age of 12, Aydelott recalls admiring renderings hanging in the office of the architect father of his best friend. And occasionally he was allowed to go along on inspection trips. He found he liked the travel and was impressed by the responsibility of directing construction. "I decided that being an architect was pure fun, and I would like to be one."

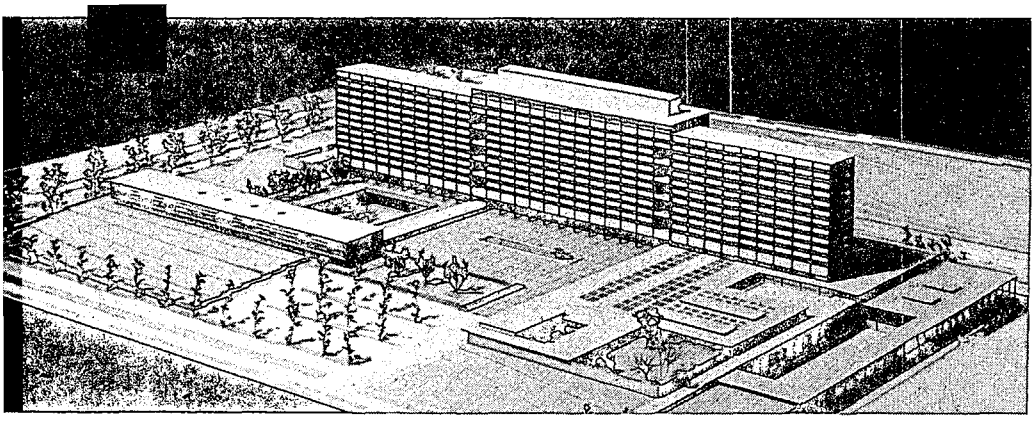
Aydelott's education consisted of work with an architect while he was in high school, "serving as pencil sharpener and errand boy"; then the University of Illinois; then such work as was available to draftsmen in the depression years. At that time, he was imbued with a love for the 18th-Century work of Tidewater Virginia and Charleston, South Carolina, and spent vacations making sketches and measured drawings of old houses.

Soon, he established a partnership with another young architect and "designed and participated in the design of houses for wealthy people" who were susceptible to such terms as "Williamsburg Colonial" and "French Provincial." Some of these, he comments, "came off quite well and made me popular with antique dealers and ladies' clubs."

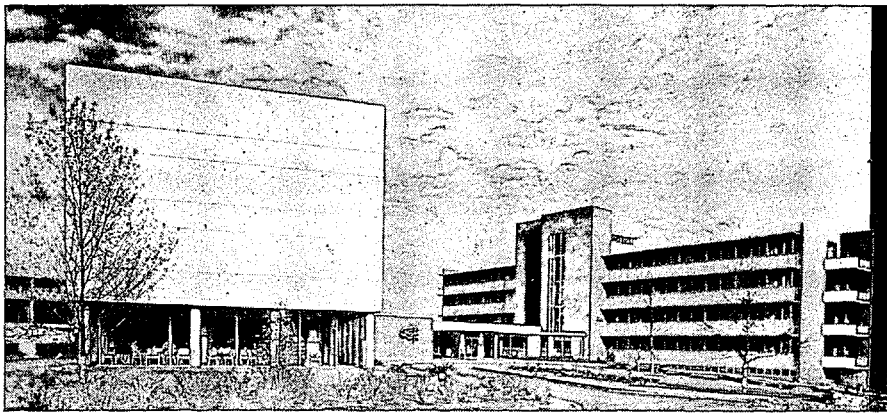
Before long, however, Aydelott began to think more deeply about architecture. Describing his feelings, he says: "I started to notice that on all of the buildings that we were designing, some conscious effort had to be made to camouflage the parts in the interest of style . . . Our professional aim up to this time was to produce a more highly refined cornice, window, door, and roof relationship than our colleagues."

About at this point, the hospital commission arrived and his first uncompromising building was produced. "I came to grips with *reality* in building," he comments, "and fortified myself with material supporting the principles of architecture keyed to the industrial revolution. The more I read and observed, the more obvious it became that in order to serve the purpose of his professional training, any architect would have to assume, as part of his responsibility, an insistence on maintaining his integrity in performing his professional functions." After a period with the Marine Corps, in which Aydelott enlisted, he returned to his partnership; but "it became apparent that our courses would be most effective if we charted them separately, and I founded my own firm in 1949."

Now, Aydelott is able to report that "the period spent in architecture with my own group, has approached the promise of 'pure fun' envisaged in my youth." He confesses to concern whence the next commission will come. But when slack periods occur, he says "we bolster ourselves with the assurance that we are destined to carry on in a work to which



General Hospital, Lima, Peru, a vast project for which the Aydelott firm and Edward D. Stone, New York, are Associated Architects.



The Bristol Memorial Hospital actually spans the Tennessee-Virginia State lines, to take advantage of Hill-Burton Act funds from both states. On later pages we present the new nurses' school and residence. Photo: Lionel Freedman

Alfred L. Aydelott & Associates: Memphis, Tennessee

we are completely dedicated and that more opportunities will offer themselves."

Aydelott feels confident that, as time goes on, the AIA will take a more positive stand on the architect's place in the community as a *contributor* to the common good. "The effective result of this position," he argues, "will mean that the Institute will have to focus its efforts more and more on good design education, both within and without the profession. . . . When there is no concerted support for good architecture, the struggle of those who maintain professional integrity is intensified."

In office conduct, Aydelott has tried to provide a "workshop" for young architects who have worked there, encouraging a maximum of participation—encompassing all the questions that arise in executing work—by everyone who has a part in the production of a building. "There is nothing," he feels, "that buoys the spirit of anyone so much as the feeling that he has a place in the scheme of things; that his place is vital. . . . Every man who has spent a period of time in my drafting room knows that he can lay proper claim to an equal measure of credit with his fellows."

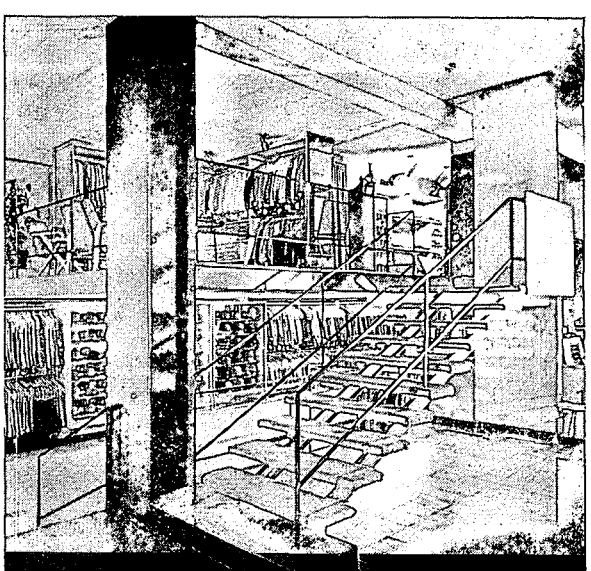
He would like to give this equal credit to the following (both past and present members of his staff): Associates B. I. Brown, Chia-Yi Jen, Maurice Wood, and Robert Sawyer; and staff members Francis Mah, William Metcalf, Robert M. Smith, John Millard, Herbert Paseur, Eldred Brunson, Jr.; G. Lee Everidge, David Morgan, James Biggs, Leigh Williams, James Pratt, Eugene Strong, and James St. John.

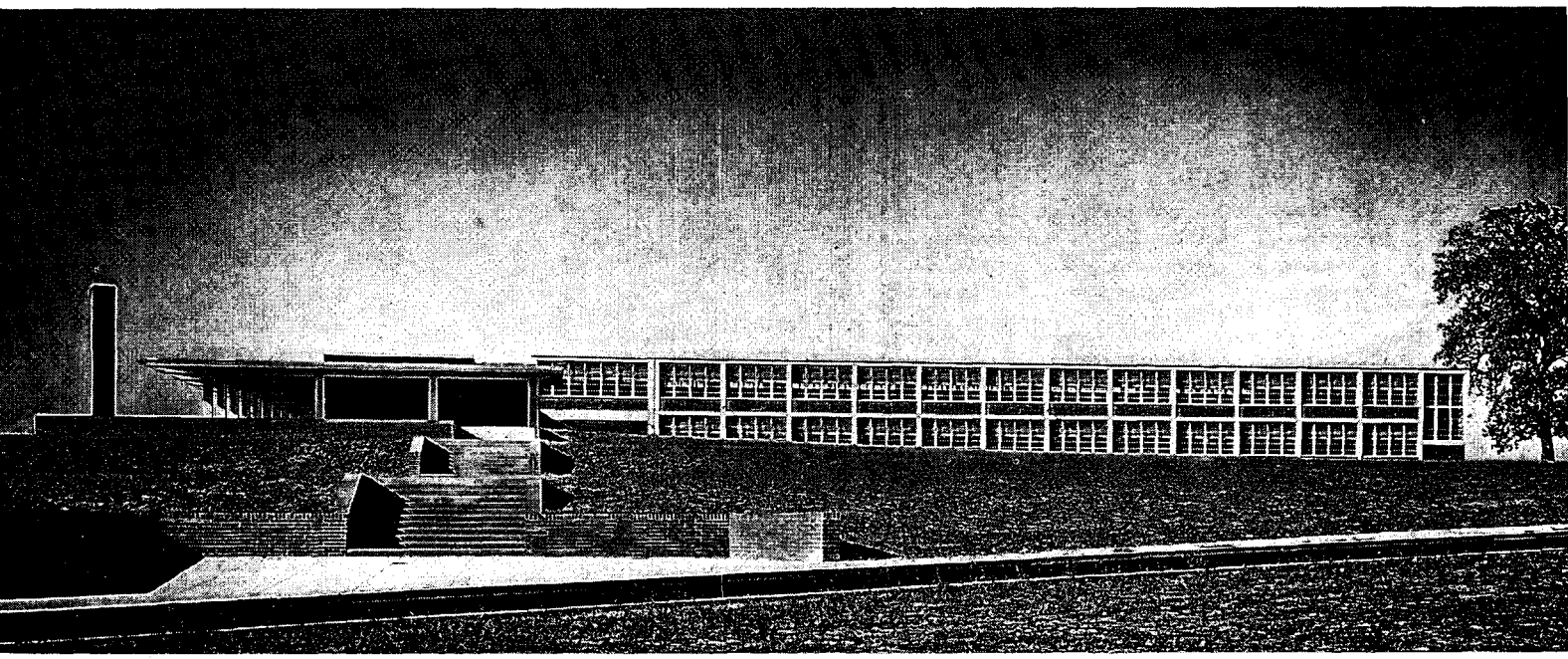
Memphis was a fairly obvious location for Aydelott to choose, as it is a sort of second home for him. It is the town "where my grandfather raised a large family . . . and where several of my aunts and cousins still live." He finds the geographical location of Memphis, in a central location with reference to the Mississippi River Valley, felicitous for his practice. "Our transportation facilities are such that I have had no difficulty handling work as far east as Bristol, Virginia; south, in Tampa, Florida; north, as far as Hillsboro, Illinois; and west, to the Arkansas-Texas line. At this moment, we are under consideration for work abroad by the State Department, for projects in Ecuador by the Ecuadorian Government; and by a small college in the Midwest, none of which disturbs us in considering the distance involved."

As to soliciting new work, Aydelott tells us that "while I have no reticence about asking a building committee or a prospective builder for consideration, I make no 'brief-case tours' soliciting work. I used to do that and found myself in the awful predicament, when I was successful, of having the same relationship with clients as the corner groceryman has with his customers. Architects, in my opinion could do nothing that would elevate the profession more than to agree to stop soliciting work altogether."

Otherwise, outside of the pleas he makes for the architect among friends "and in speeches to the groups that ask me, I have focused attention on what the office is doing by conducting an exhibition of our work, and giving an occasional party in the office where guests are exposed to good modern painting, sculpture, and architecture."

In remodeling the Remine Gobble men's clothing store, Bristol, Tennessee, 25% more floor area was provided by lowering the existing ground-floor level and developing a mezzanine above. Photo: Joseph W. Molitor



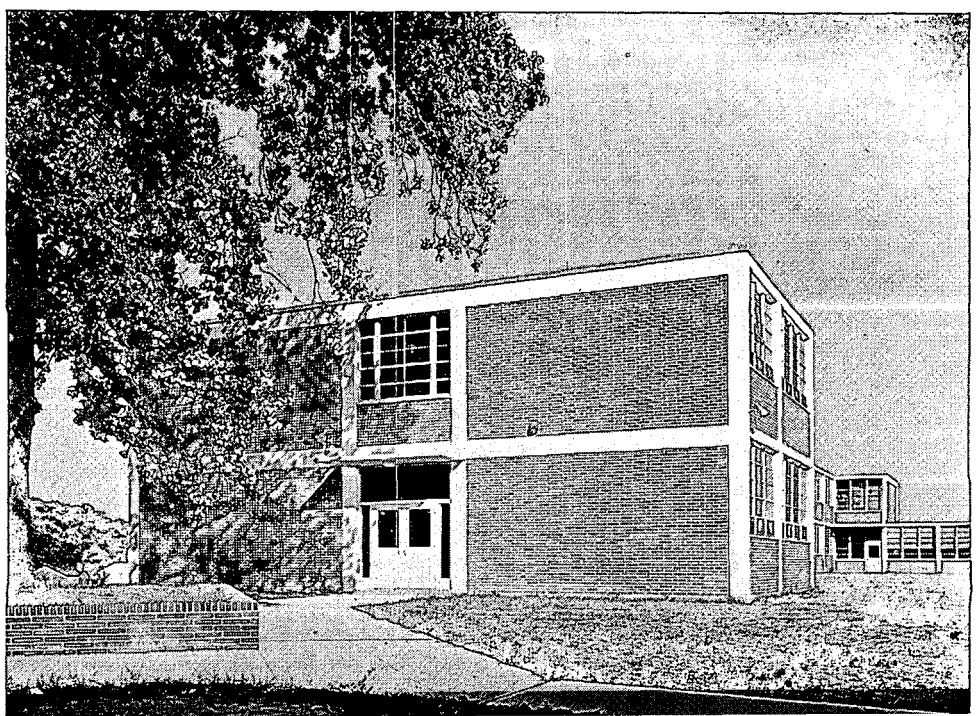


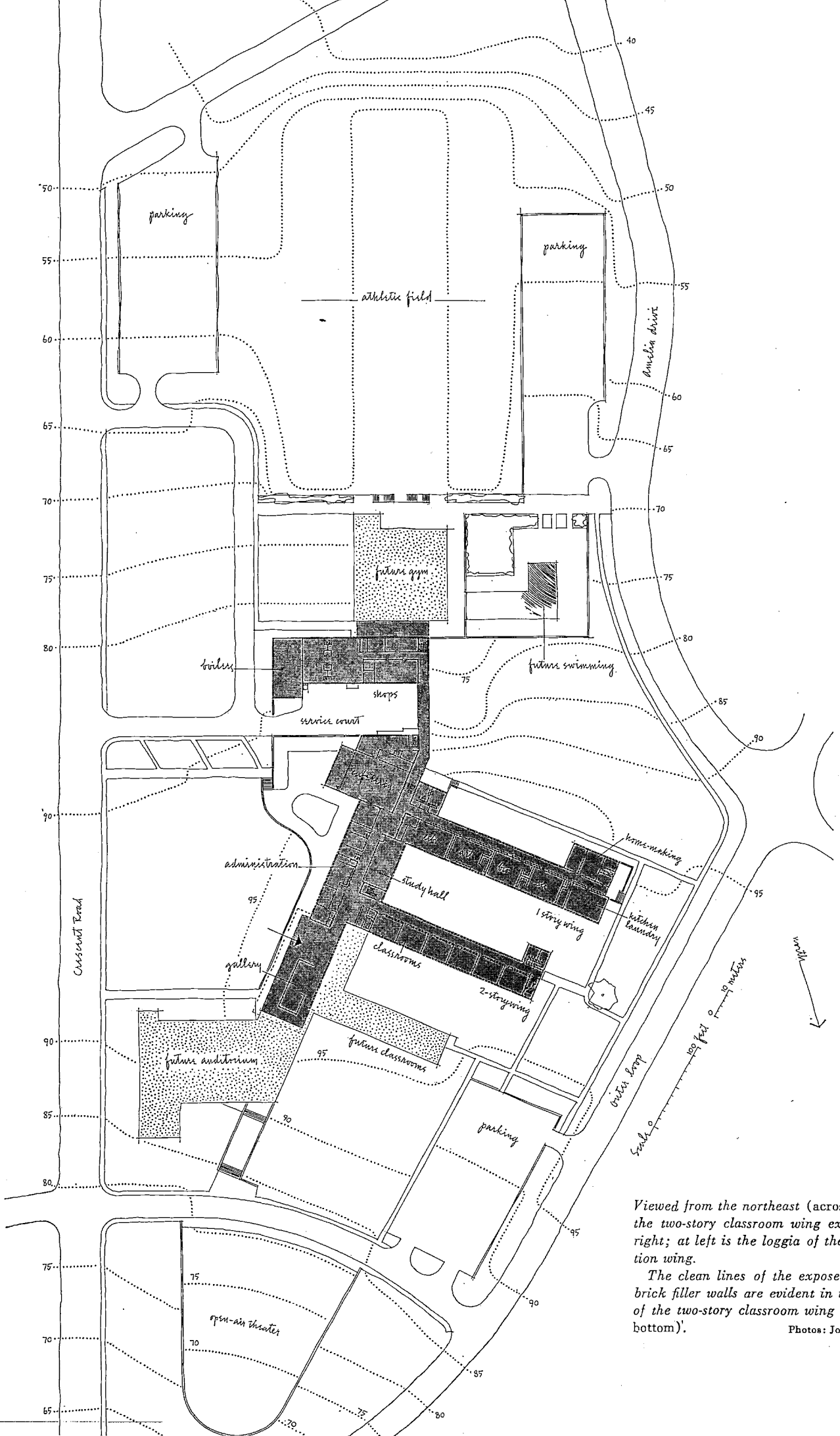
high school

The first stage of a high-school building that will eventually accommodate 1000 students, this initial installation provides for 400. The site is described as "an island centered in a high-class residential neighborhood." Initially, we are told, there was some apprehension about having in this location a modern, institutional building that might "ruin" the Colonial character of the section. However, the architect reports, "the building has been well received, even by those who live across the street!"

In addition to what now exists, as indicated in the plot plan, there will be a third classroom wing, an auditorium, and a gymnasium. The classroom wings, in the main, are single-loaded pavilions, with exterior walls of the rooms facing north. Bilateral daylighting is introduced through fixed-glass strips that occur above the lockers, along the inner walls of south-facing corridors. The home-making suite has windows on the south and west.

Both concrete and structural steel are used in the building framing, with exterior walls of brick and concrete block; floors and roofs are also of concrete, with steel bar joists (usually exposed) employed across certain wide-span areas. Interior walls are painted concrete block, while flooring is asphalt tile. Sash are of steel, with ¼-in. "A" glazing. Convectors occur in classrooms, while corridors are heated from finned-tube radiators. B. I. Brown and Maurice Wood were the particular Associates involved. Harmon Construction Company, General Contractor.

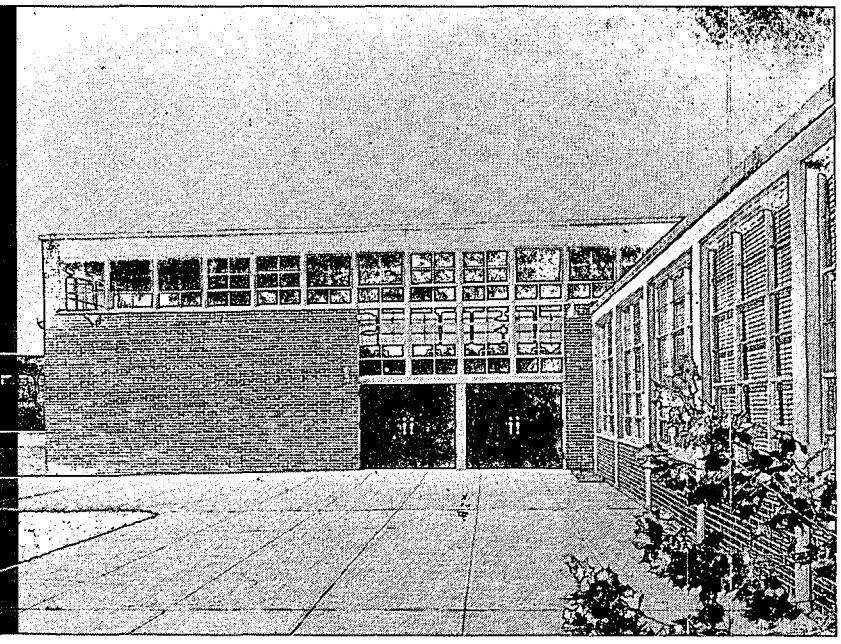




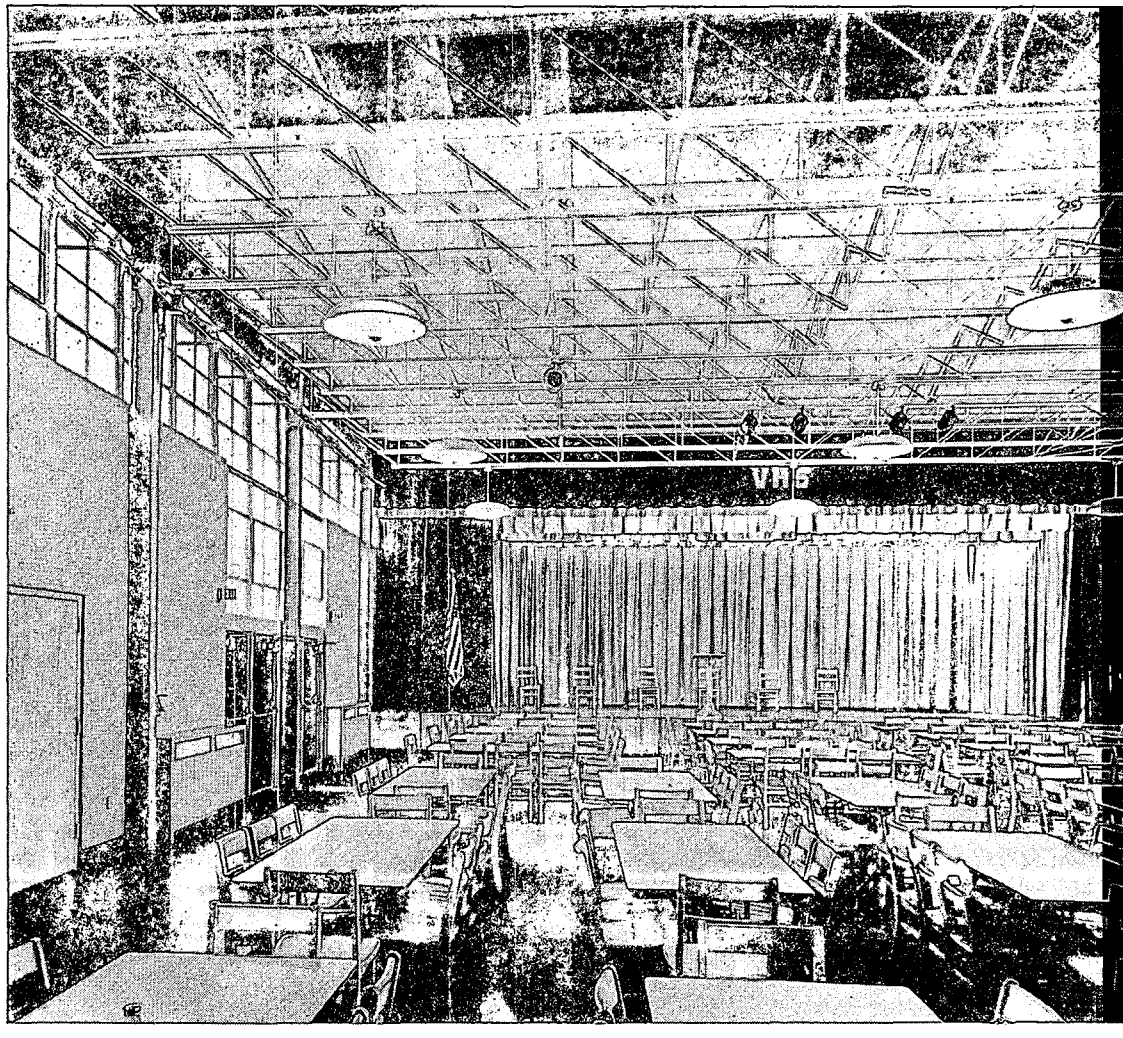
Viewed from the northeast (acrosspage, top), *the two-story classroom wing extends to the right; at left is the loggia of the administration wing.*

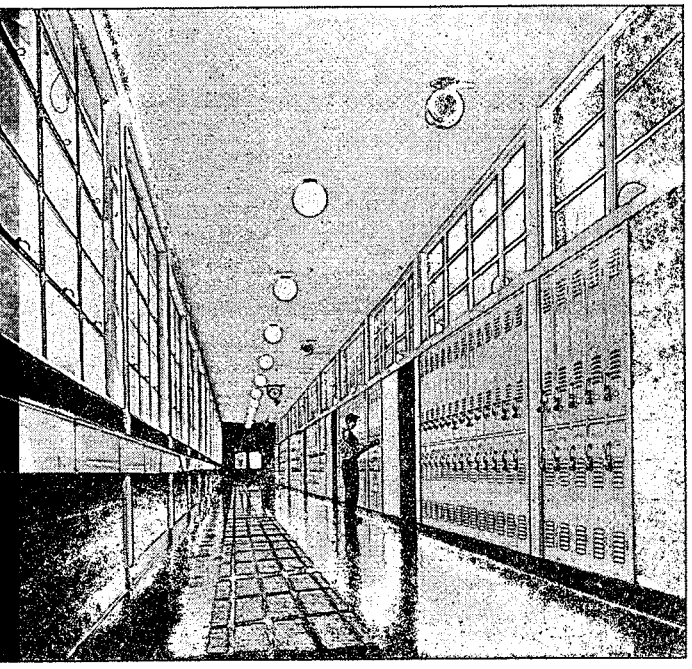
The clean lines of the exposed frame and brick filler walls are evident in the west end of the two-story classroom wing (acrosspage, bottom)'.

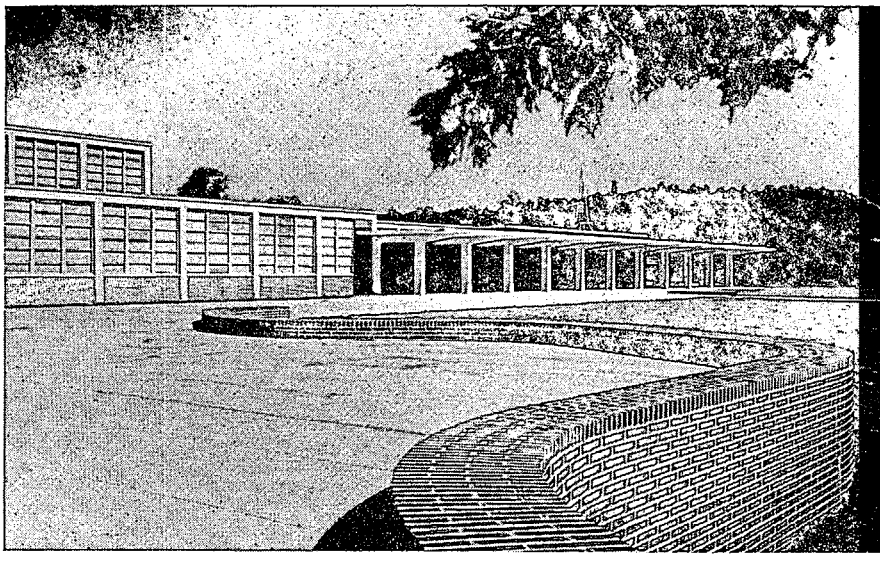
Photos: Joseph W. Molitor

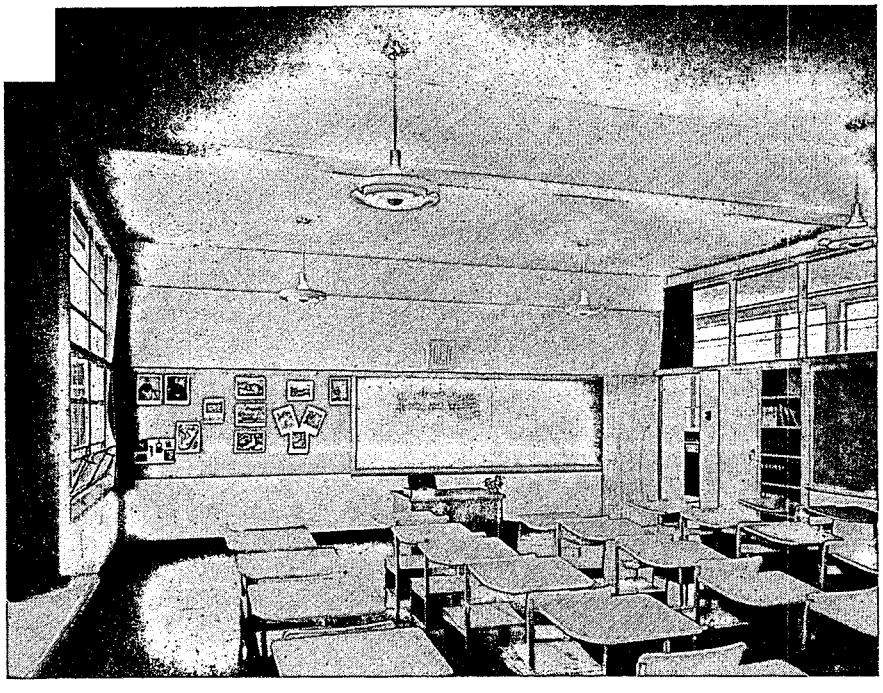


In the steel-framed cafeteria unit (temporarily used also as auditorium), gypsum roof decking is used above the exposed, open-web joists. Exterior walls (as elsewhere) are concrete block inside, brick outside. The fascia strip is of asbestos cement.



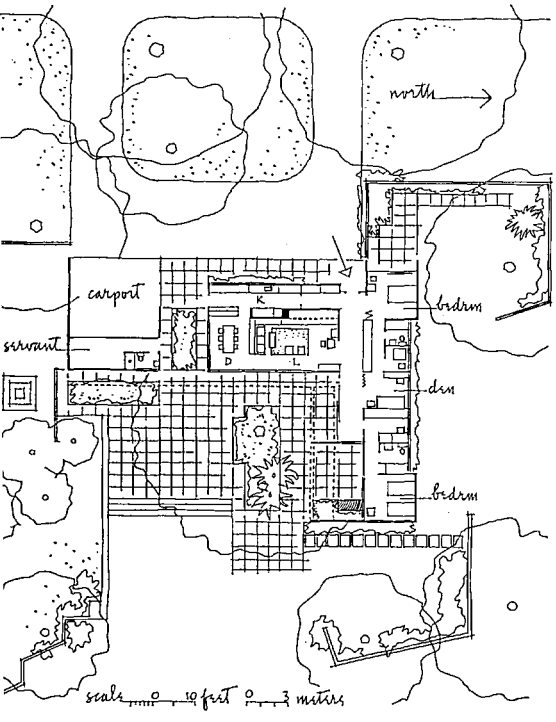






Sun-flooded corridors of the two-story classroom wing (top) *provide cross light to the classrooms* (left) *by means of window strips above coat lockers. The large deep windows in the north walls of classrooms have operable ventilating panels in both top and bottom sash.*

A serpentine retaining wall and the loggia of the administration block form a bold architectural pattern against the natural countryside (above).



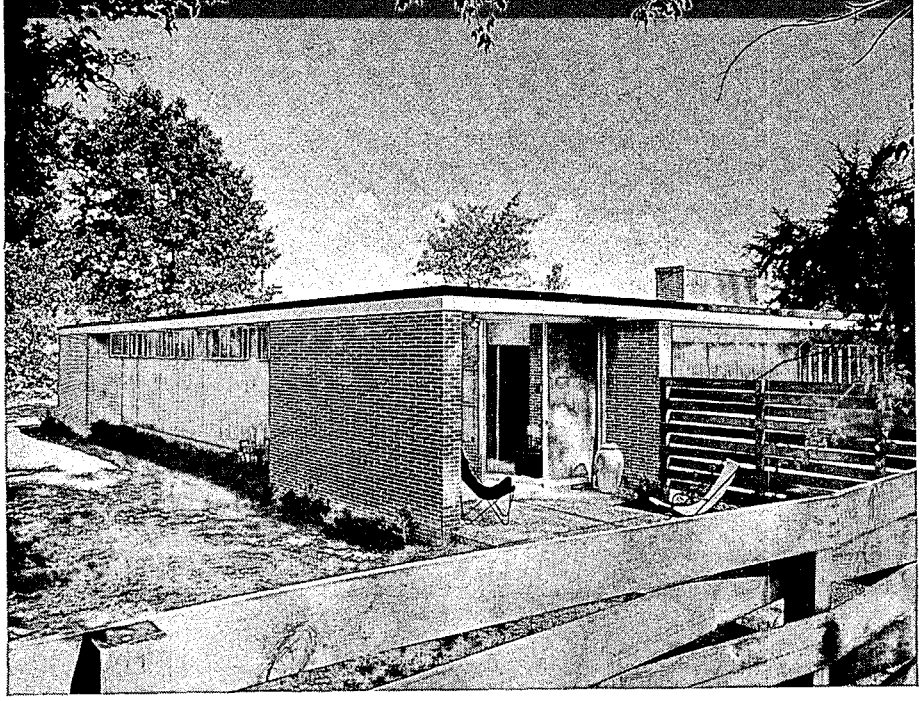
house

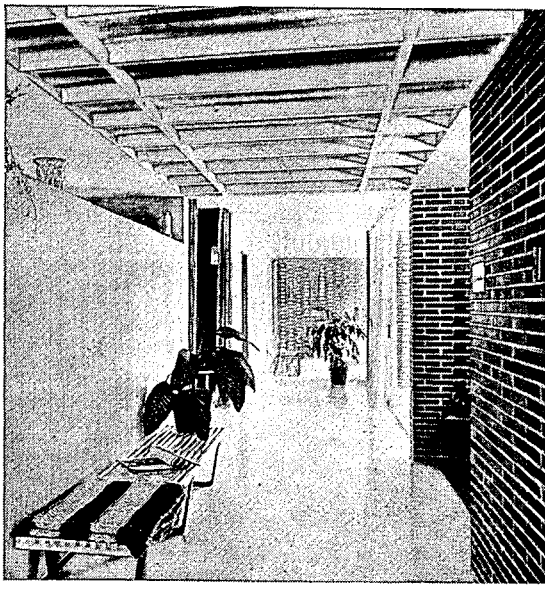
Aydelott is particularly pleased with this house, designed for a couple who have grown children and several grandchildren. The architect feels that it is significant that a family that had always been accustomed to traditional surroundings would choose to live in a completely modern house.

The man of the house travels for a shoe company and, when at home, has to get out reports (hence, the small den). His chief hobby is gardening. His wife enjoys sewing and is an amateur painter.

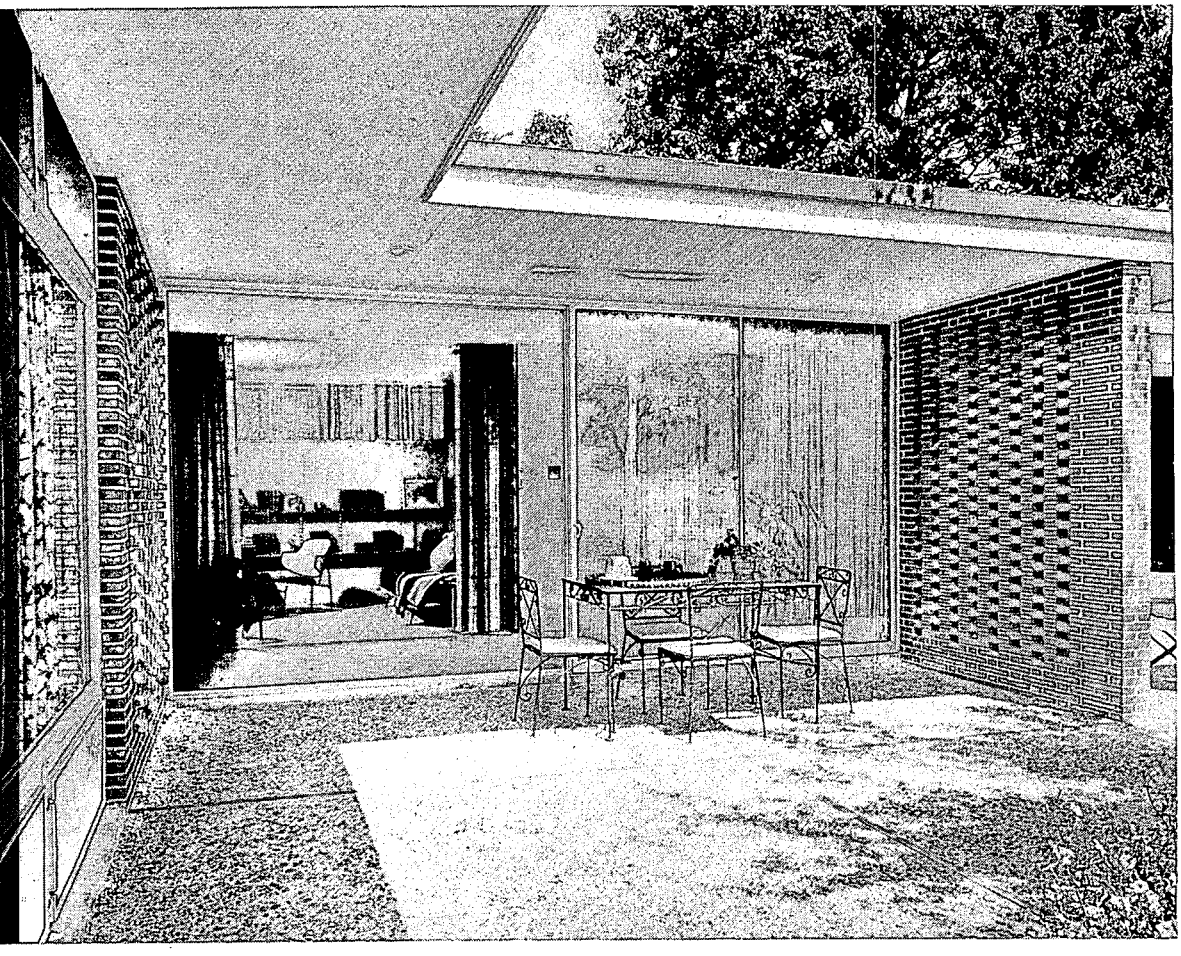
Except for the one enclosed bedroom, most of the scheme is open and consists of a series of inter-related spaces. Even the storage wardrobe between the main passage and the bedroom wing stops short of the ceiling. Thus, the house, though actually small, gains a remarkable sense of spaciousness.

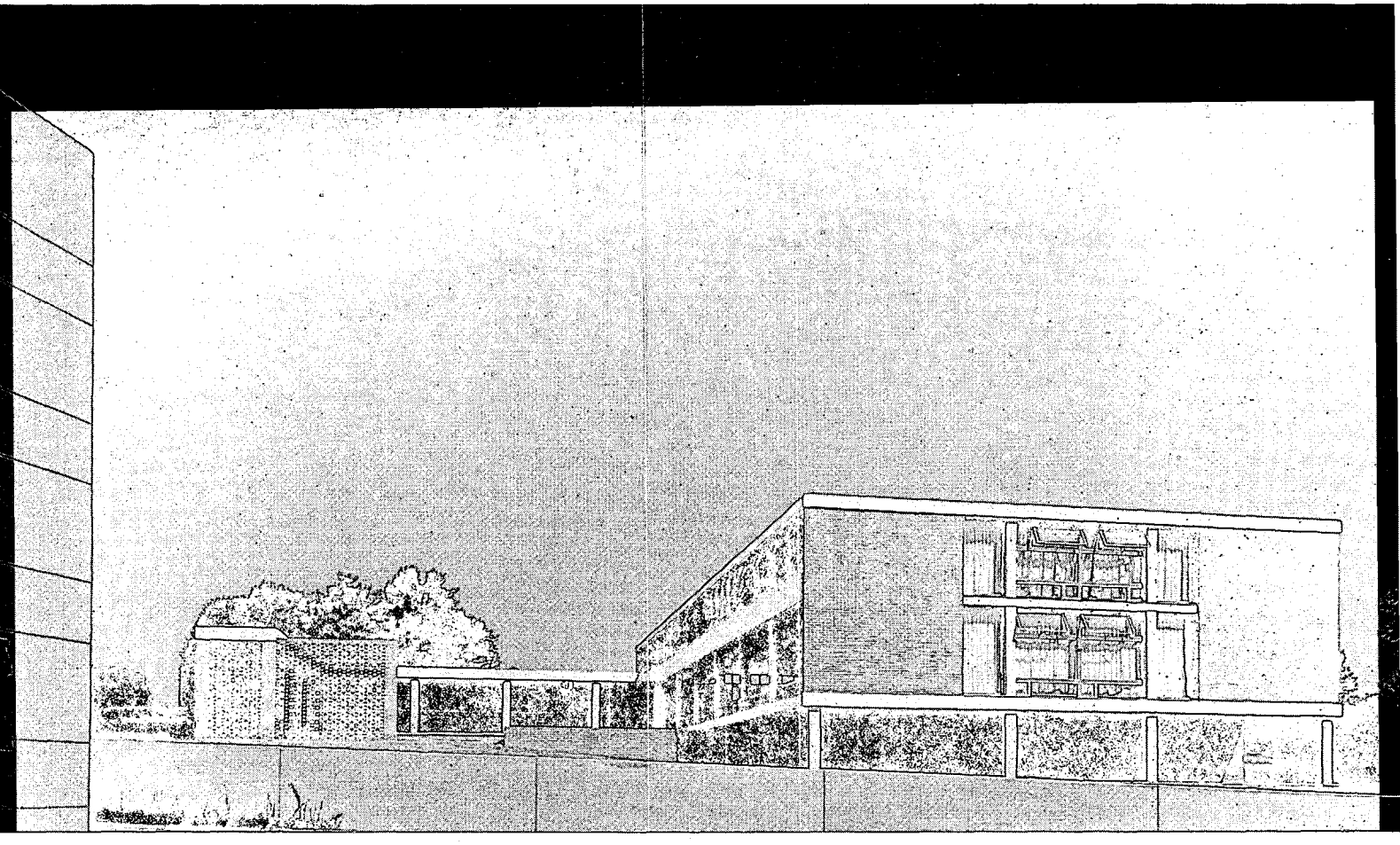
Wood framed, the house has walls of brick, with occasional areas surfaced with Western red-cedar siding. The concrete floor slab contains the copper coils for a radiant-heating system. Sash are steel casement or intermediate projected type, using ¼-in. plate glass.

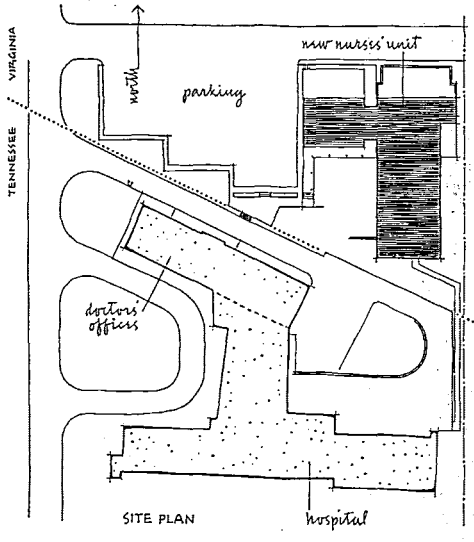




In addition to the space sense that is fully developed—note especially the photo (right) *looking from main entrance back to pierced-brick wall beside master bedroom—the textures and contrasts of cedar, brick (both solid and "see through") and interspersed areas of planting are happily exploited. Brick wall extensions at several points provide outdoor extensions of rooms or define use areas.*







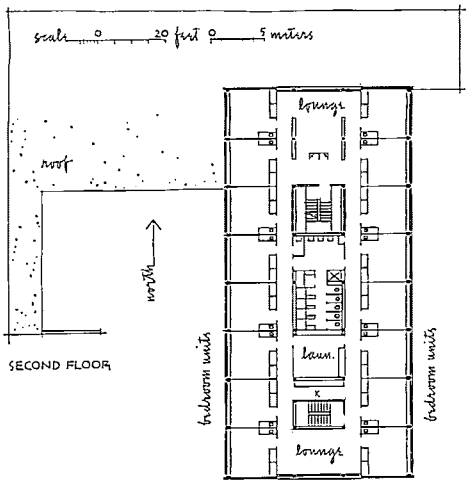
nurses' home and school

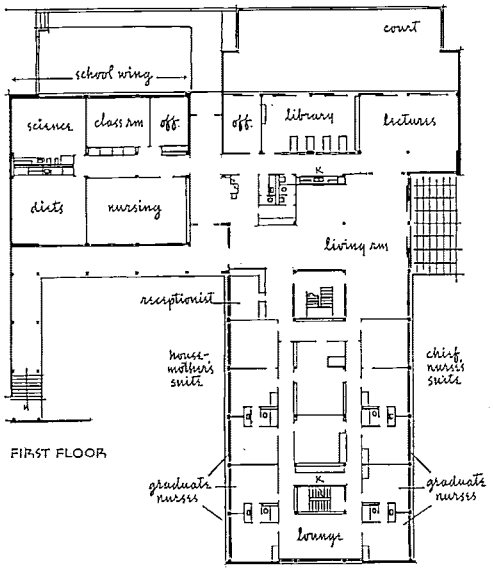
A few years ago, Bristol, Tennessee-Virginia (the population is about equally divided between the two states), built a new hospital and doctors' office building as a War Memorial. The Aydelott firm designed both units. This nurses' home and training school is the third and final unit of the health center, which is built across the two state lines. The decision to locate *on* the state line was made for several reasons—to satisfy all factions; to enhance fund-raising potentials; and to take full advantage of the Hill-Burton Act that makes each state independent in dispersal of funds. As it worked out, the hospital and doctors' building were financed through a Tennessee grant, while the nurses' home and school were financed under the Virginia agency.

The problem was to provide living and instructional accommodations for 32 student nurses and 6 graduate nurses, plus living suites for the House Mother and Chief Nurse. When the school requires additional facilities, a third floor may be added to the building. One of the architect's main wishes, naturally, was to tie the new building in architecturally with the earlier units.

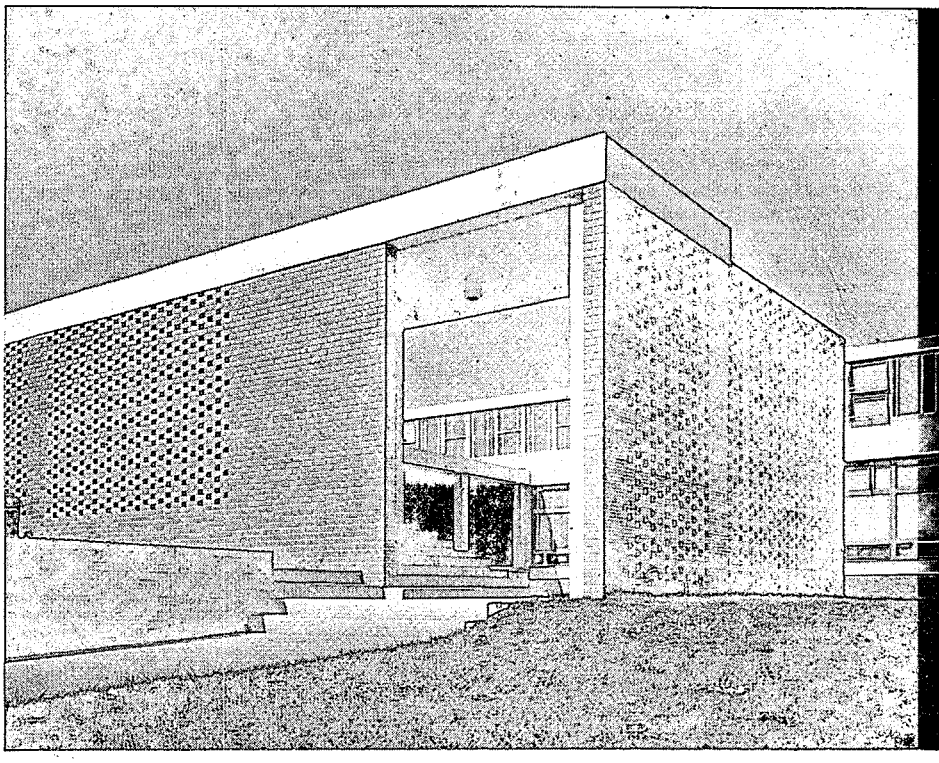
The classrooms and library are located in the north portion of the first floor, while the *supervisory* suites and rooms for graduate nurses occupy the south-extending wing of this same floor. Student nurses' rooms line the east and west walls of the upper floor, with lounges at the ends. Toilets, laundry, kitchens, and stair halls form a central core.

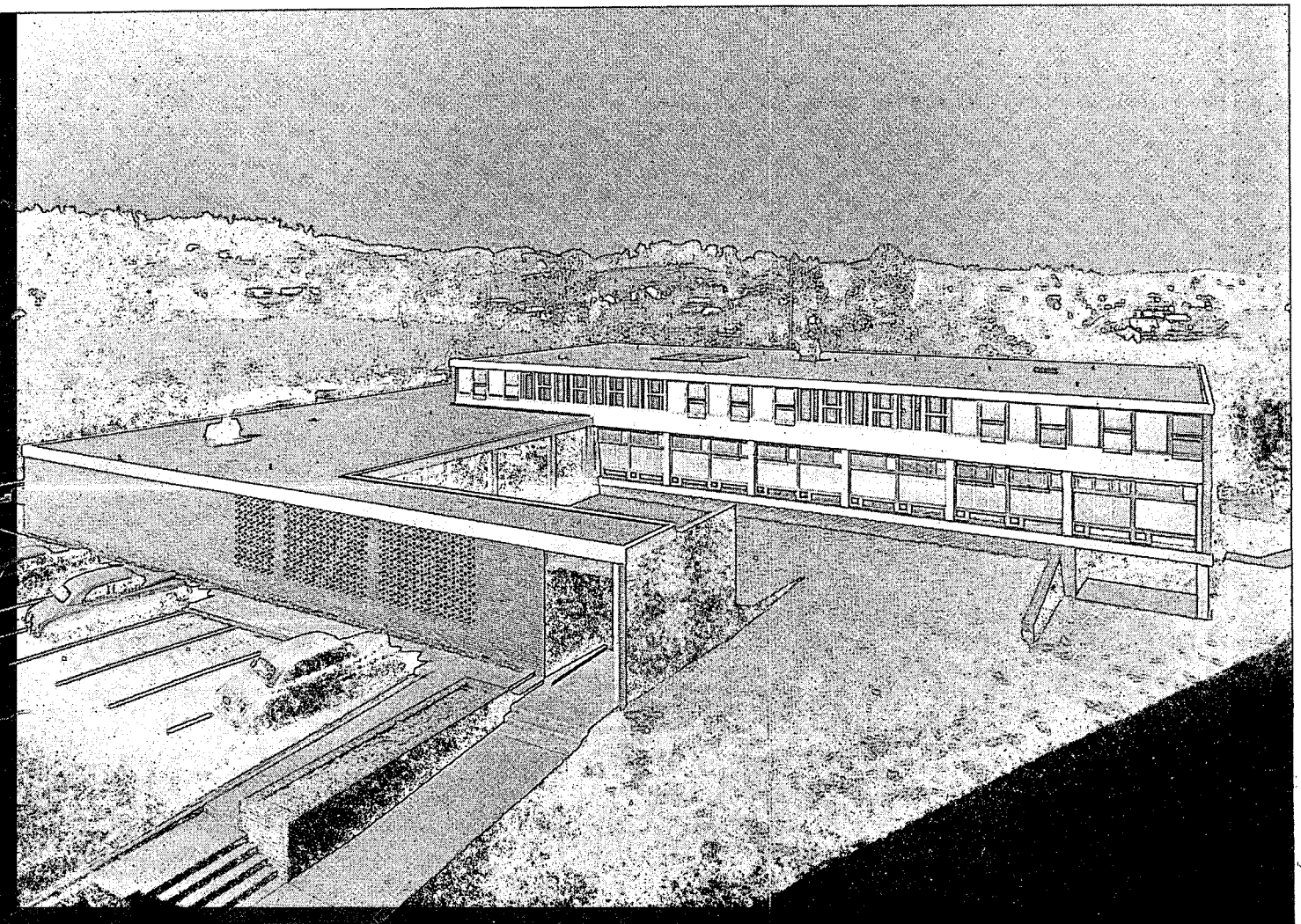
The Associates active on this job were B. I. Brown and Chia-Yi Jen.

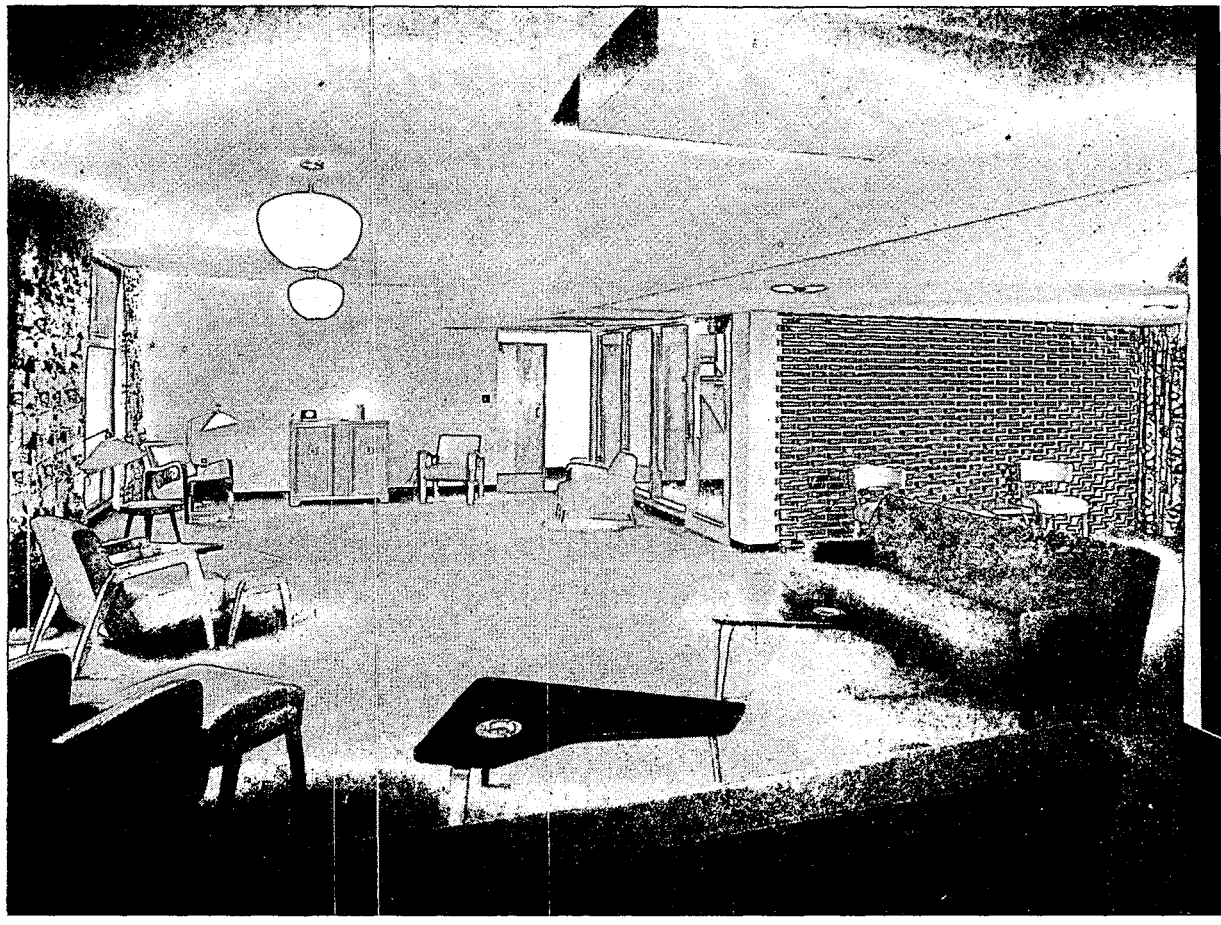


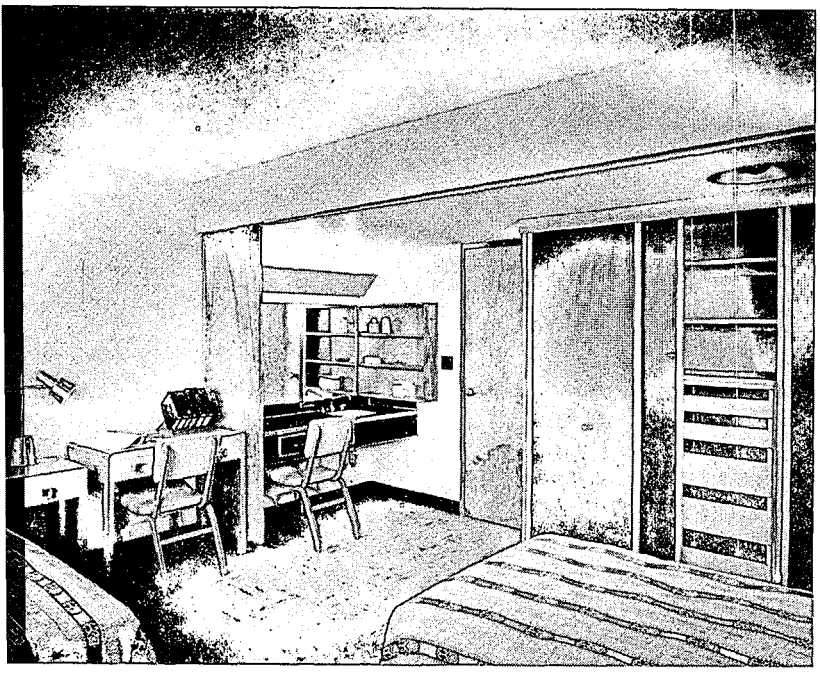


Foundations, frame, floors, and roof are concrete; walls are brick and concrete block. Floor surfaces: asphalt tile; vinyl tile; carpeting; ceramic tile. Partitions: concrete block; brick; metal. Steel sash are fitted with "A" glass; sliding doors, with ¼-in. plate. The heating system combines baseboard and radiant elements. At the south end of the residence wing is a small basement (mechanical-storage-laundry space) bordered by a columned loggia.





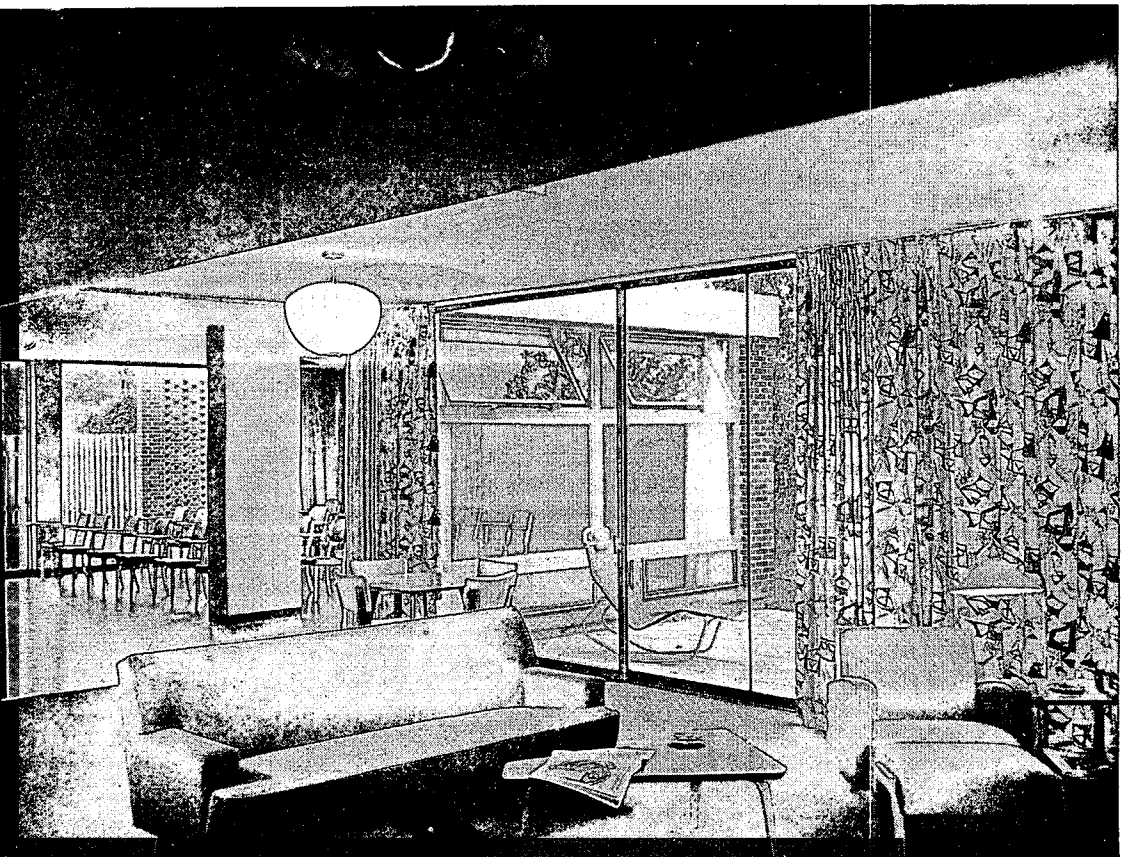


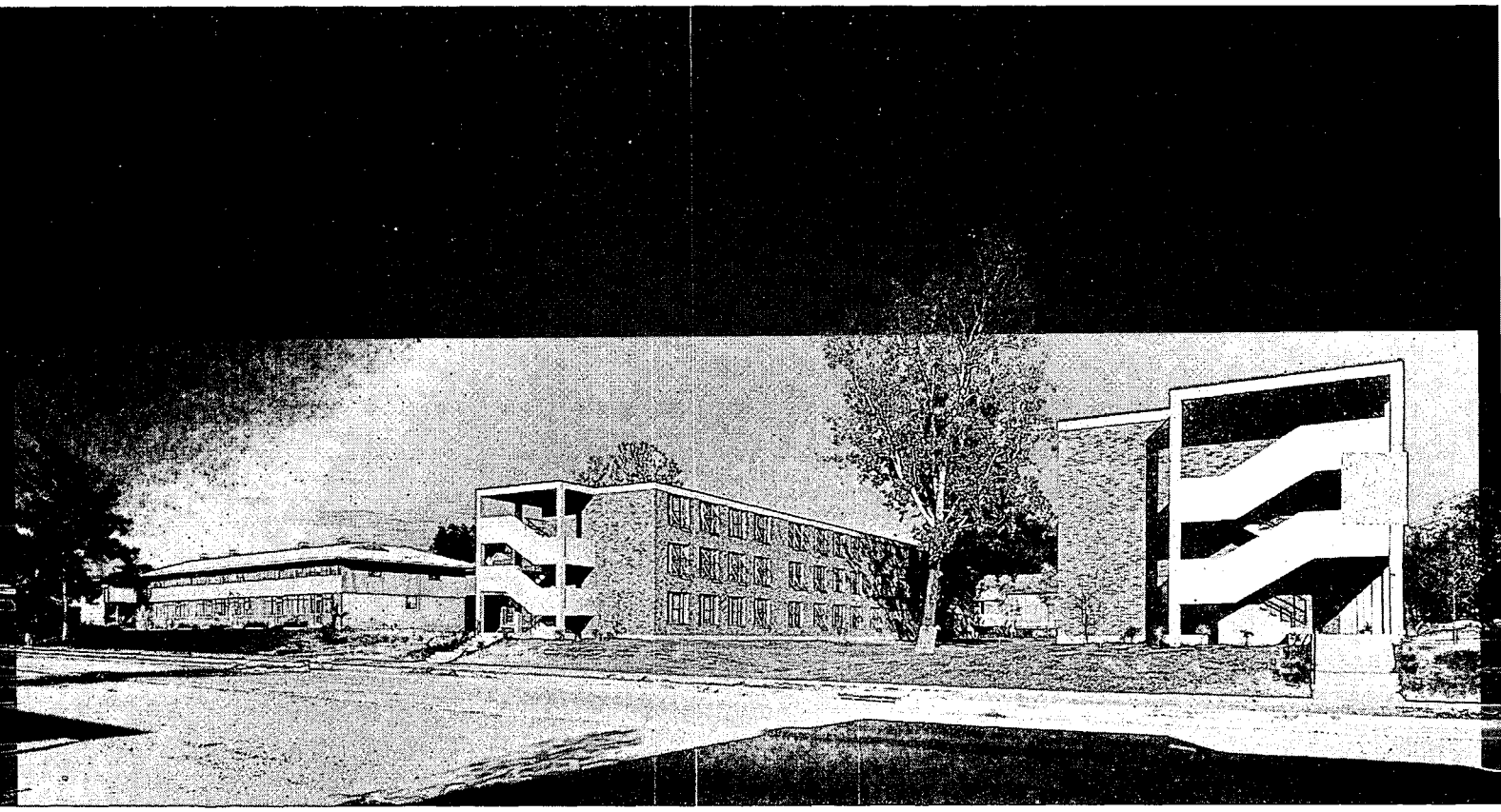


The main living room on the first floor (above) *is fully carpeted. To the right of the textured, brick end wall of the stairwell enclosure is the receptionist's desk and main entrance.*

Two student nurses share each of the 16 rooms on the second floor (left). *A curtain track makes it possible to close off the storage-dressing end of the room from the sleeping space.*

The asphalt-tile-floored lecture hall (above) *opens off the north end of the living room* (below). *Outdoors, within the angle formed where these two rooms meet, is a secluded lounging terrace* (right). *By opening sliding glass doors, this terrace becomes an outdoor extension of the living room itself. Note the outswinging sash units alternating with panels of fixed glass in upstairs rooms.*



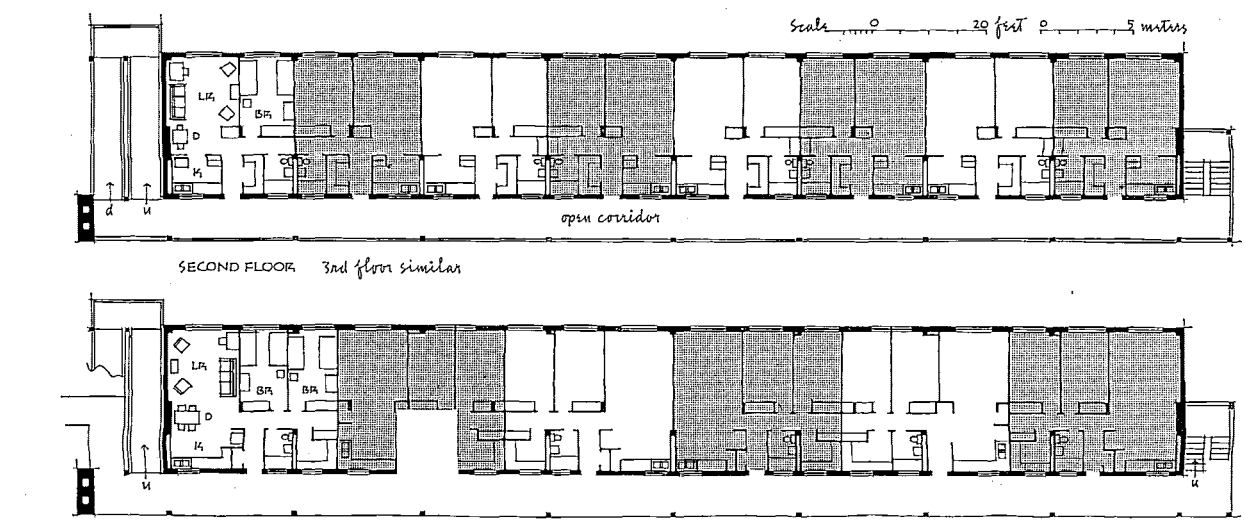


public housing project

Four of these remarkable apartment buildings form part of a Memphis public-housing project, which otherwise consists of 47 two-story blocks of row houses containing 352 dwelling units. In all, there are 88 apartments, each building having 6 two-bedroom units (first floor) and 16 one-bedroom apartments (8 on each upper floor). In no apartment is it necessary to cross one room to reach another.

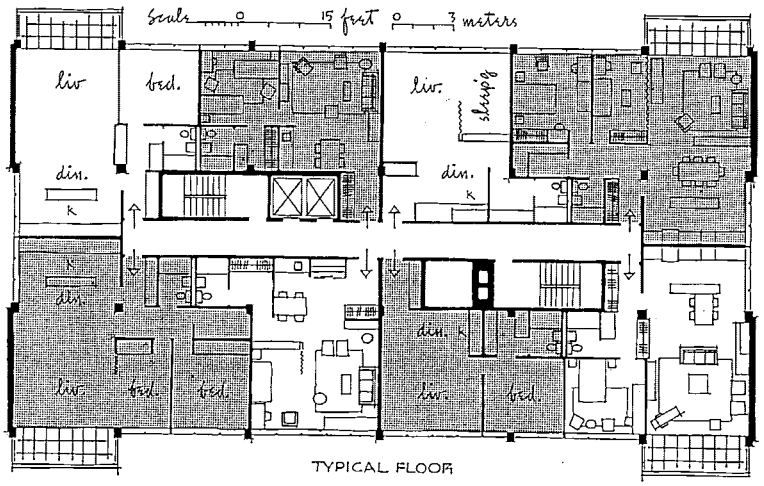
The architects are especially pleased with the outside corridor access and the ramp at one end of the building. Among other things, the in-line apartment arrangement simplified placement of two-bedroom units beneath one-bedroom floors; reduced both unit costs (compared with use of interior space) and site-improvement costs, such as sidewalks, stoops, roads, etc.

The U-shaped end ramp provides easy access to all floors and is a special boon to third-floor tenants. It also facilitates maneuvering bicycles, perambulators, furniture, etc. And the aged find it requires less exertion and is less hazardous than stairs. In fact, the chief reason that a ramp was not provided at the other end of the building was that it cost about 19 percent more than stairs.

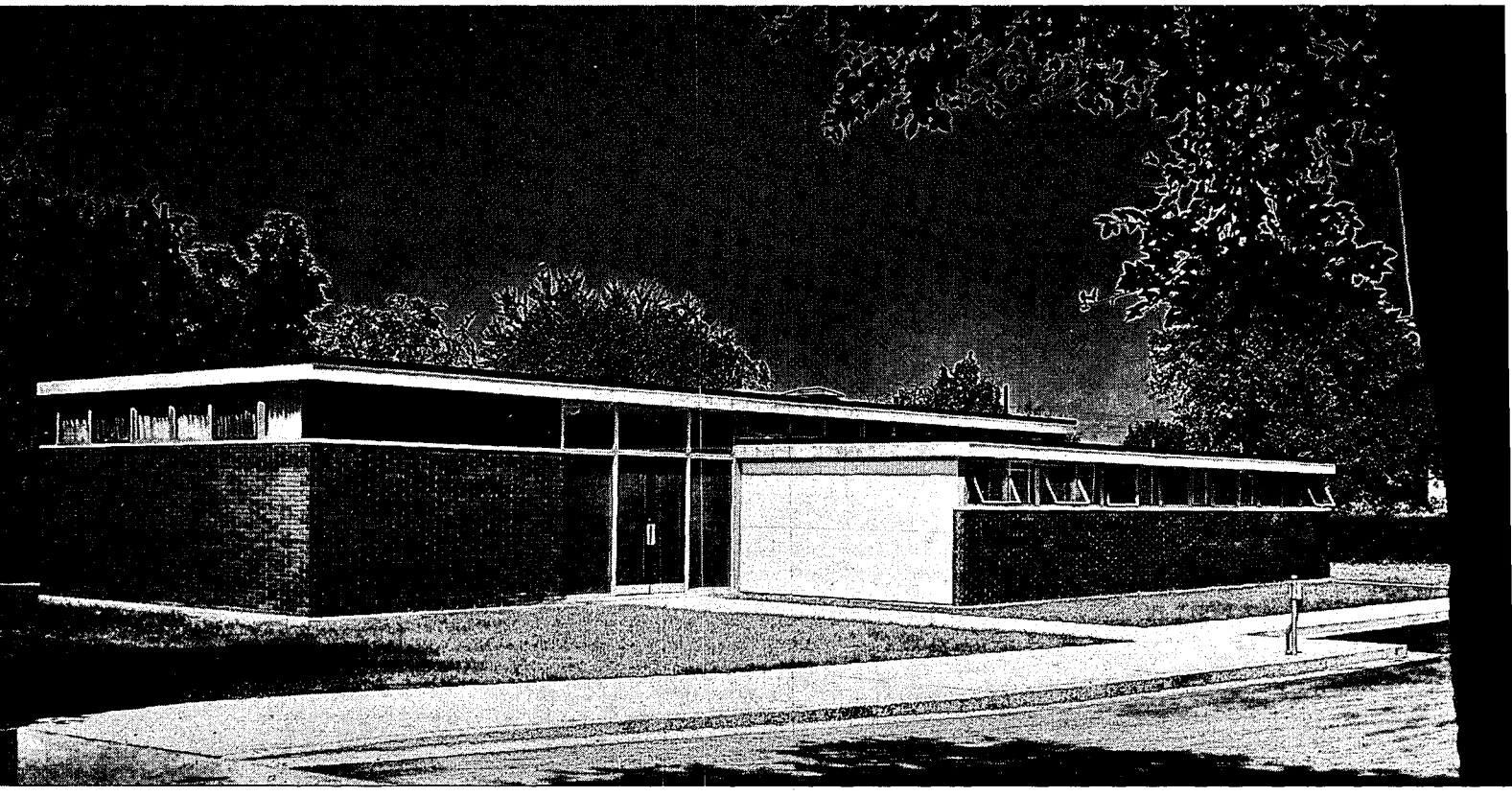


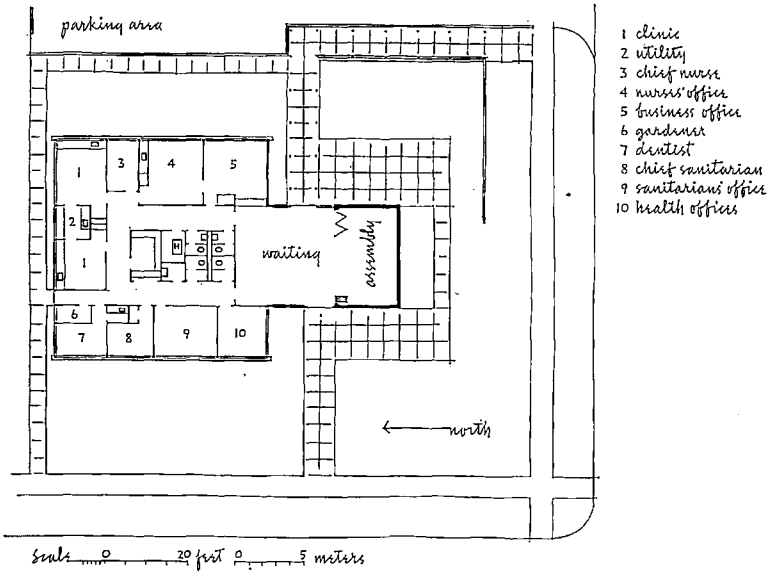
apartment house

This apartment building for Memphis is now well along in working drawings. On each of the typical floors, there are eight apartments of varying size, with each of the four corner units having a balcony extension beyond the window wall of the living room. On the setback penthouse floor (*not shown*) are 2 one-bedroom apartments and 2 two-bedroom units, each of which is bordered by its own private roof terrace. As on the typical floors, the staggered placement of the building's two stairways results in an asymetrical floor plan.



TYPICAL FLOOR



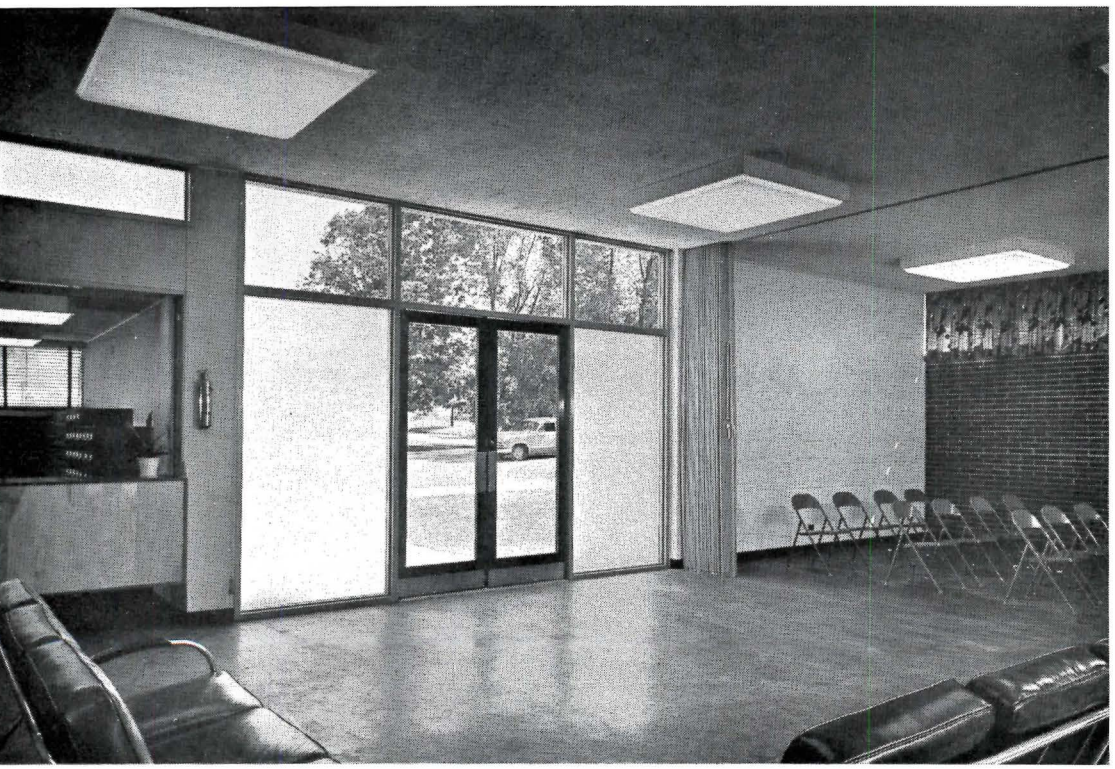


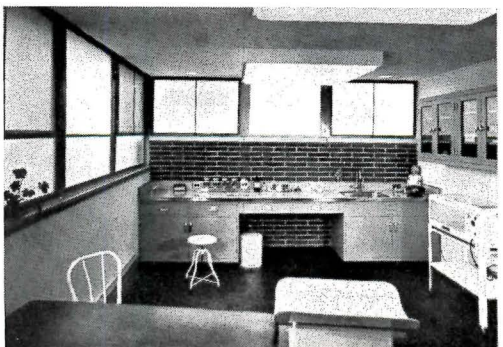
health center

Perhaps the two most notable elements of the Carter County Health Center, in Elizabethton, Tennessee, are the unusual plan and the sprightly use of color. The highly efficient layout places the utilities in the center of the plan, while offices and clinics line the perimeter. Main entrances to the waiting room occur both on the street front (*color photo*) and facing an offstreet parking area at the rear (*top*). Believing that bright color would provide "an inviting and cheerful symbol of public health," the architects introduced walls of red brick; white trim; black panels of stone on east and west walls of the assembly room; black metal fascia; and areas of insulated-metal wall panels in yellow. Wood joists were used to supplement the steel-column-and-beam structural system.

Interior walls are either brick or concrete block; flooring is terrazzo; ceilings are acoustical tile. (*For window sections see* ARCHITECT'S DETAILS.) Plastic skydomes light interior spaces. The heating system combines radiant floor coils and baseboard units. Total cost, including equipment and fees, was $75,000; Chia-Yi Jen was the principal Associate on the job.

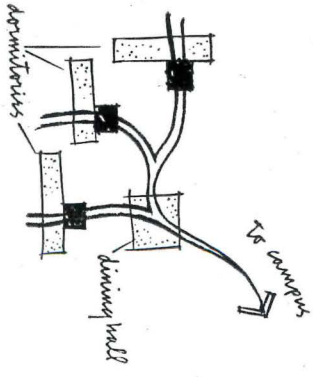

CARTER COUNTY
HEALTH CENTER





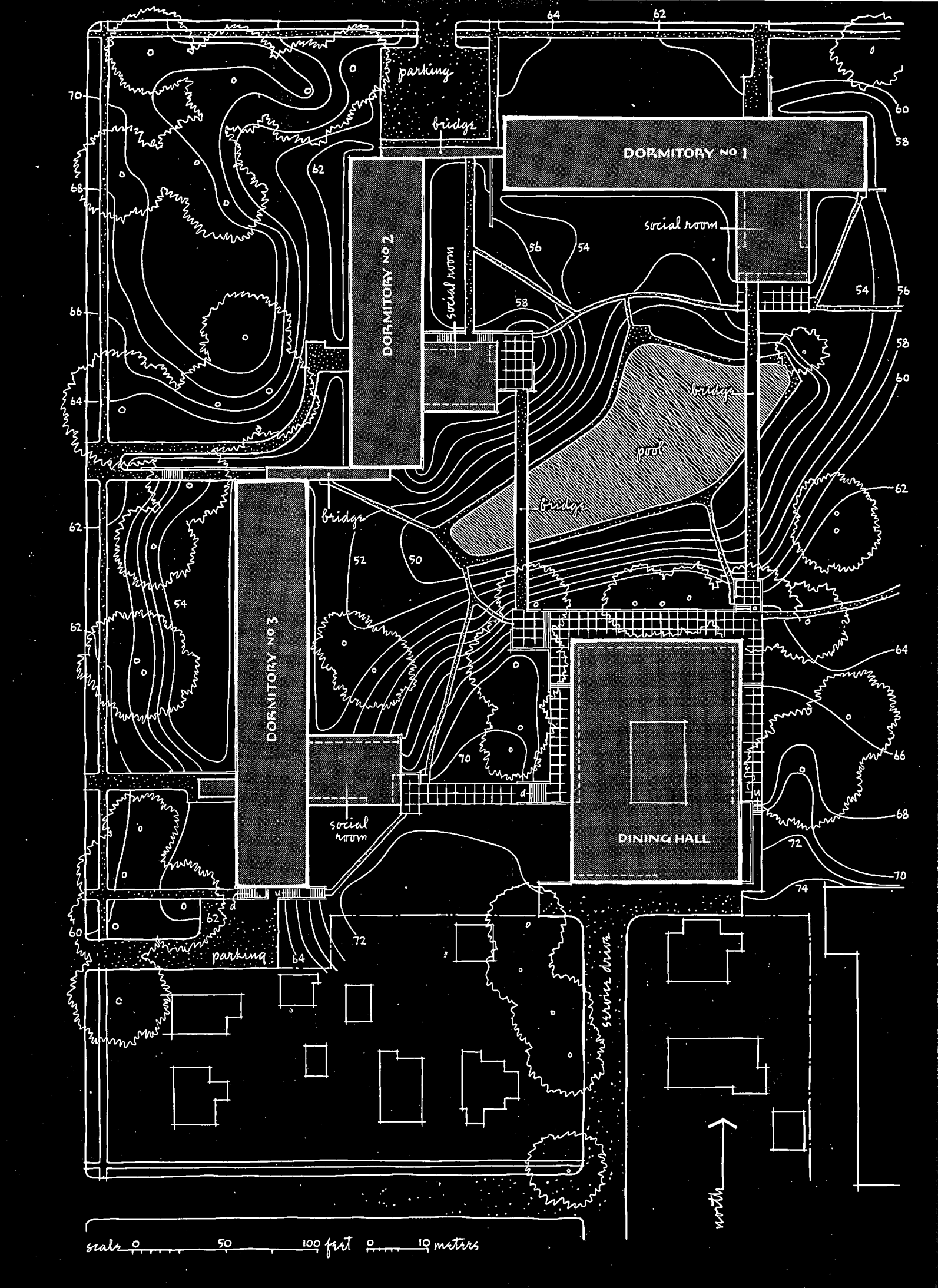
Drake University

dormitories and dining hall

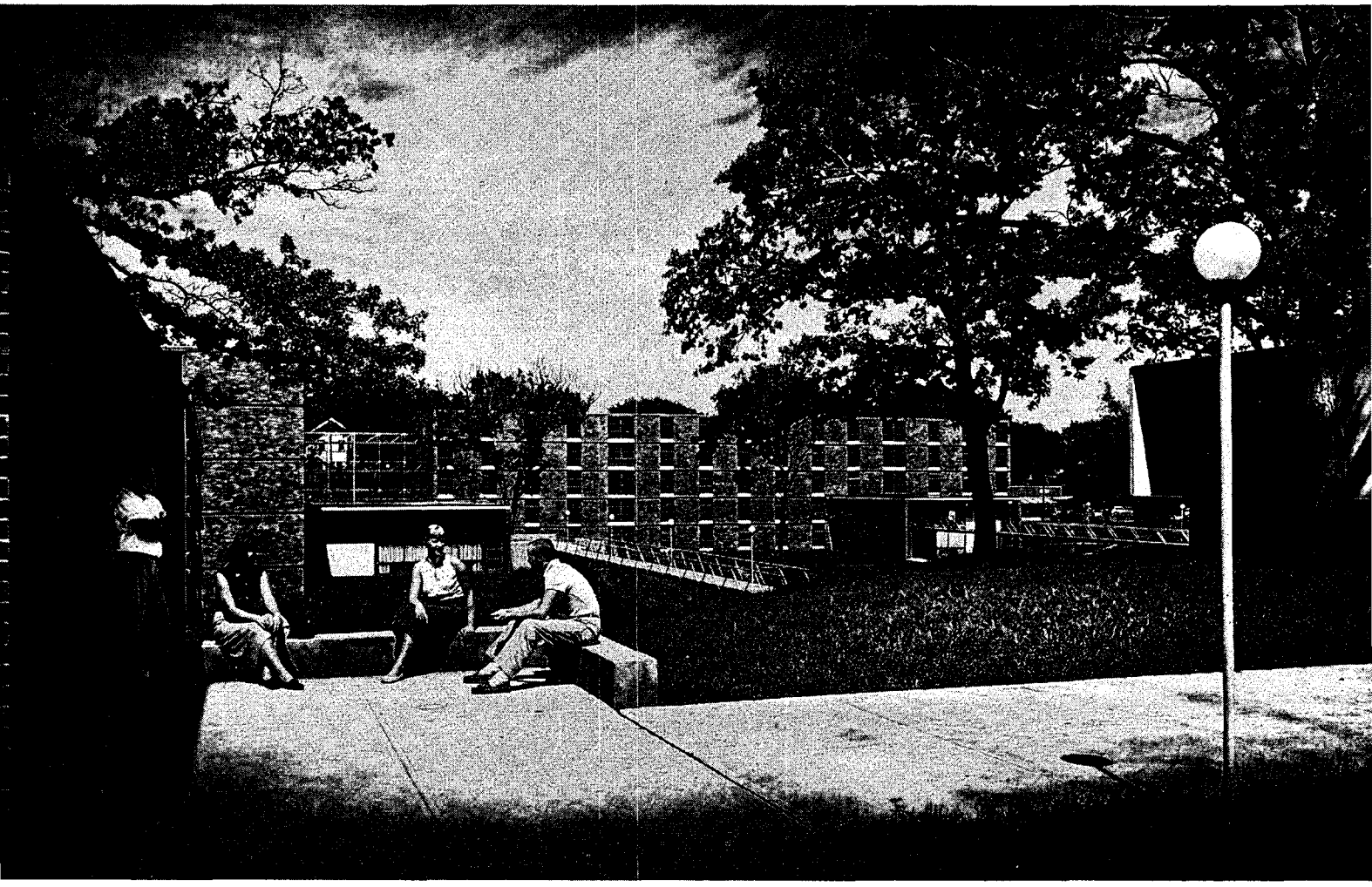


location	Des Moines, Iowa
architects	Eero Saarinen & Associates
associated architects	Brooks-Borg
structural engineer	Fred N. Severud
general contractor	The Weitz Company, Inc.

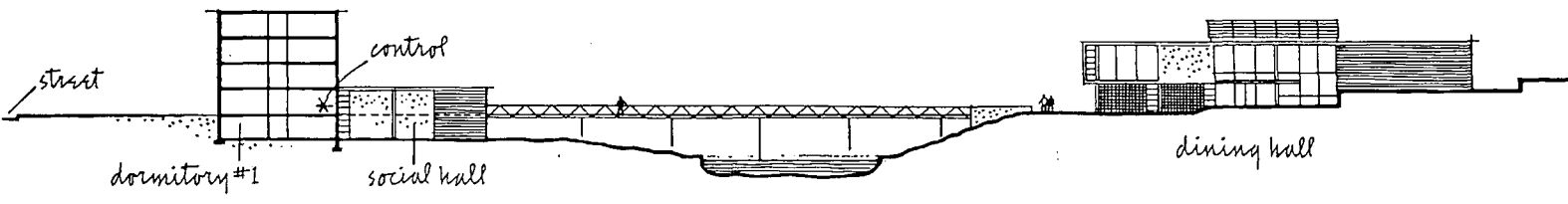
Social rooms in Drake University's new dormitories (solid squares in sketch left) *are in the direct line of traffic between dormitories and dining hall. The dining hall, in turn, points in the direction of the campus center. Social rooms are two stories high. A balcony along one wall connects at one end with the central control desk, at the other end with the bridge or walkway* (as in Social Room #3 shown in photo above) *leading to the restaurant. Each social room is framed as a separate structure, clearly designating a function different from that of the dormitories. The structural frame is steel with concrete floor and roof slabs. Radiant-heating coils are imbedded in the concrete slab under the finished brick floor and hung above the wood-slat ceiling.* Photos: Reynolds, Photography Inc.

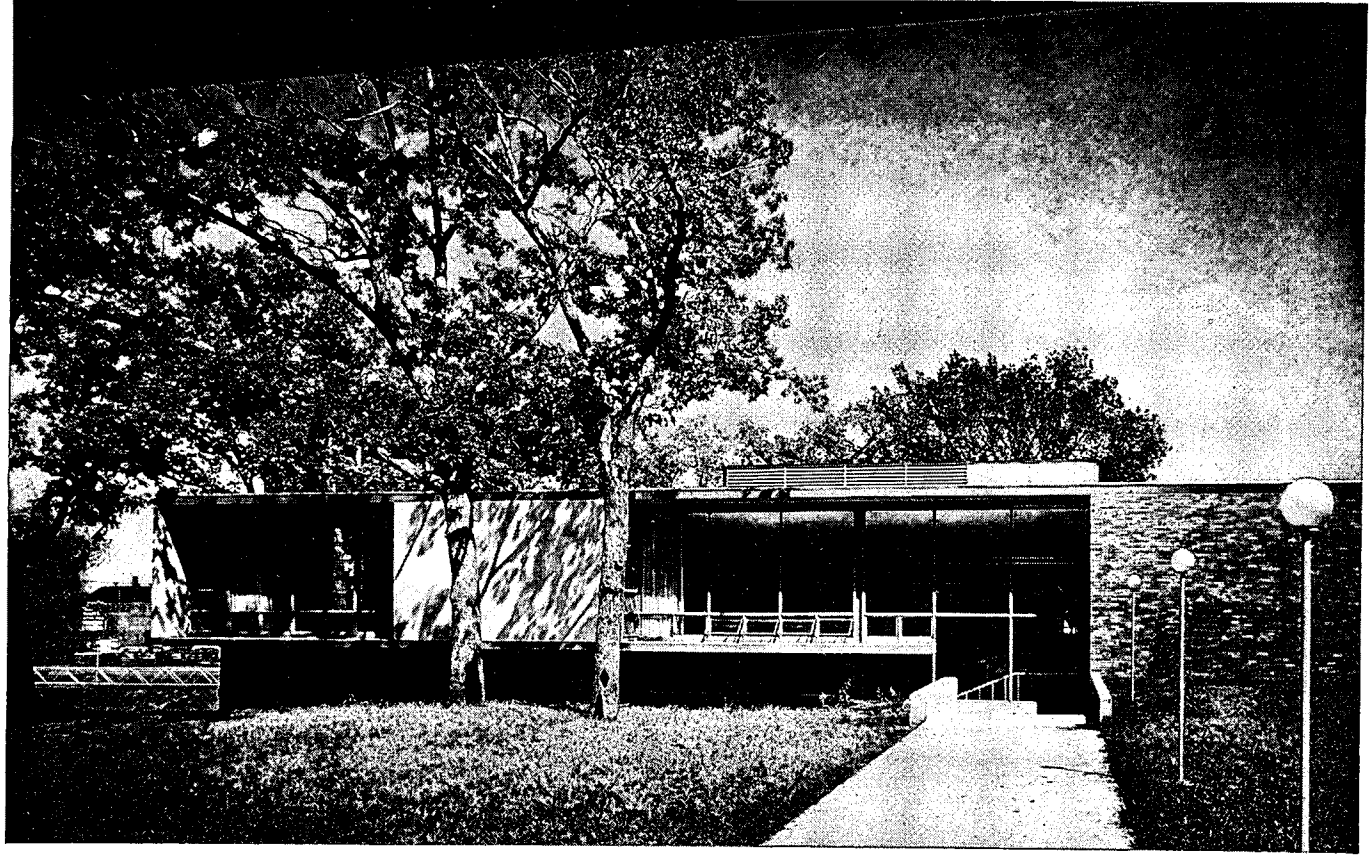

DORMITORY NO 1
DORMITORY NO 2
DORMITORY NO 3
DINING HALL
social room
social room
social room
bridge
bridge
bridge
pool
parking
parking
service drive
north
scale 0 50 100 feet 0 10 metres

Drake University



P/A's November 1950 issue presented Science and Pharmacy buildings, the initial stages of a long-range planning program for development of the Drake University campus. We are now happy to present the second group of completed buildings—three dormitories and a dining hall—which carry out the objectives of the master plan developed by the late Eliel Saarinen. Following the outlines of his father's planning, Eero Saarinen, with Joseph N. Lacy as partner-in-charge of this project, has evolved a distinguished building complex; a unit in itself, yet in total co-ordination with the other parts of the campus. To preserve the natural charm of the site, and to save many of the fine trees, small foot bridges have been introduced to span the ravine, and to facilitate circulation to and from the campus. Aside from the esthetic advantages and convenience of this solution, the bridges permitted an additional story on the dormitory buildings. Since the bridges have made the second story the main circulation level (*see sketch below*) students' rooms are located both above and below this floor, thereby minimizing excessive stair climbing. Logically, the central control desk is also situated on this level, at the *junction of* the dormitory and the social room.

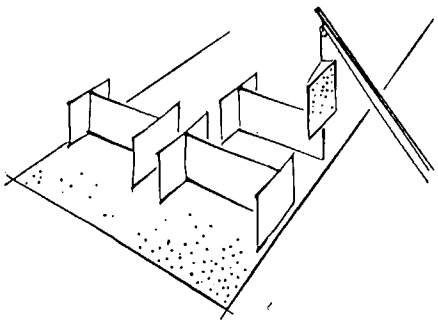




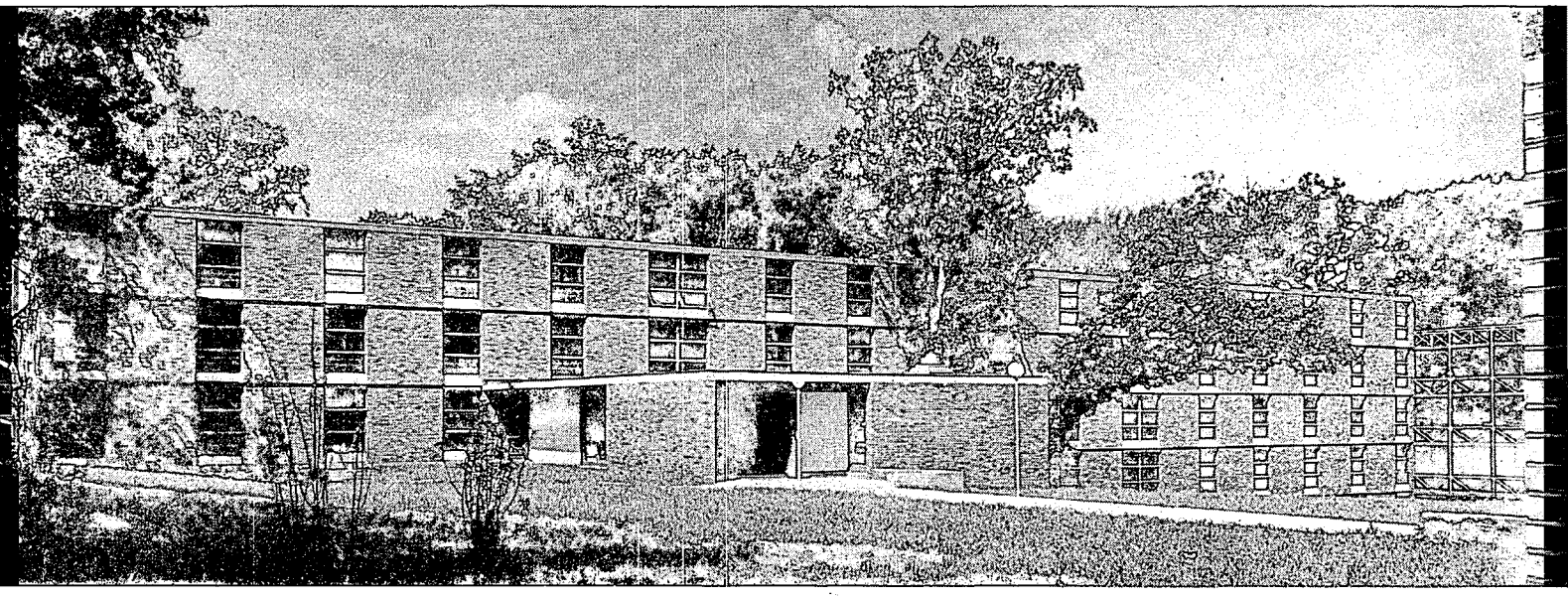
Dining hall (above) *serves not only the three dormitories but also the entire campus. Walk in foreground shows direct connection with Dormitory #3. The dining hall is a two-story structure housing individual dining rooms and a snack bar on the lower level. The Main Dining Room is upstairs.*

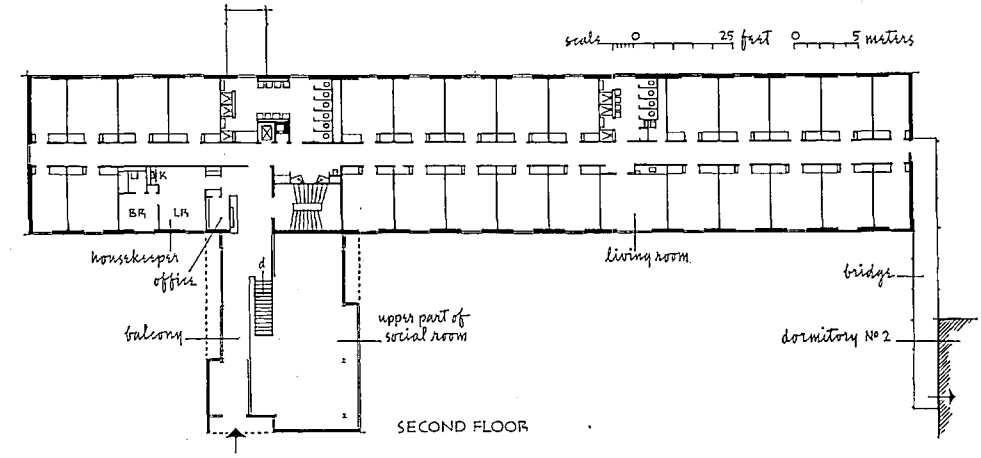
Dormitory #1 (below), *seen from restaurant, has direct bridge connection with balcony of social room. Regular grid pattern of dormitory building is a clear expression of the tilt-up slab construction employed.*

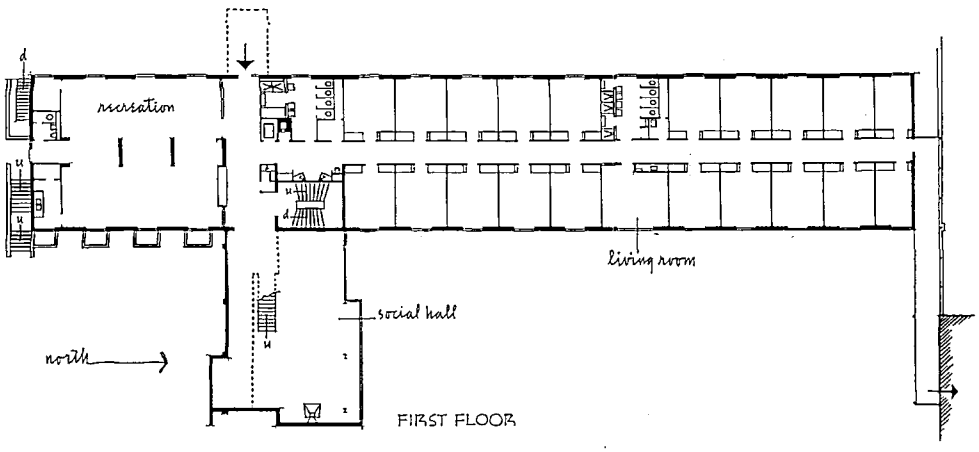
Drake University

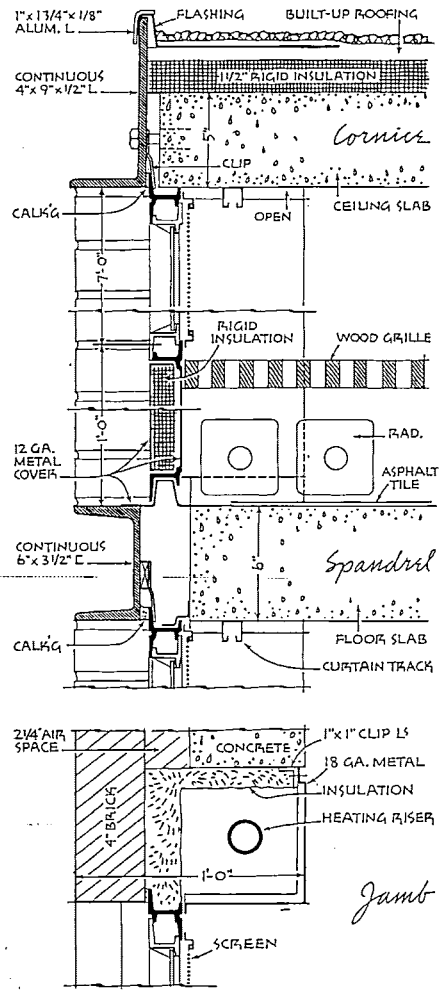


The dormitory buildings are of tilt-up slab construction—a method implied by the regular spacing of students' rooms. Concrete wall panels, poured on the ground, are hoisted upright to brace each other in the form of an H (*see sketch left*). These H sections serve as finished interior partitions and are used structurally to support the floor slabs above. To provide a clean surface, the wall panels at the exterior of the buildings are faced with brick (*section right*). Horizontal steel channels at all floor-levels are not structural, but serve to prevent what might have been a vertical effect from the brick panels. All three dormitory buildings are interconnected by multilevel bridges. These afford direct access from one building to the stairway of an adjoining building. This eliminated the necessity for secondary stairs otherwise required by safety regulations.

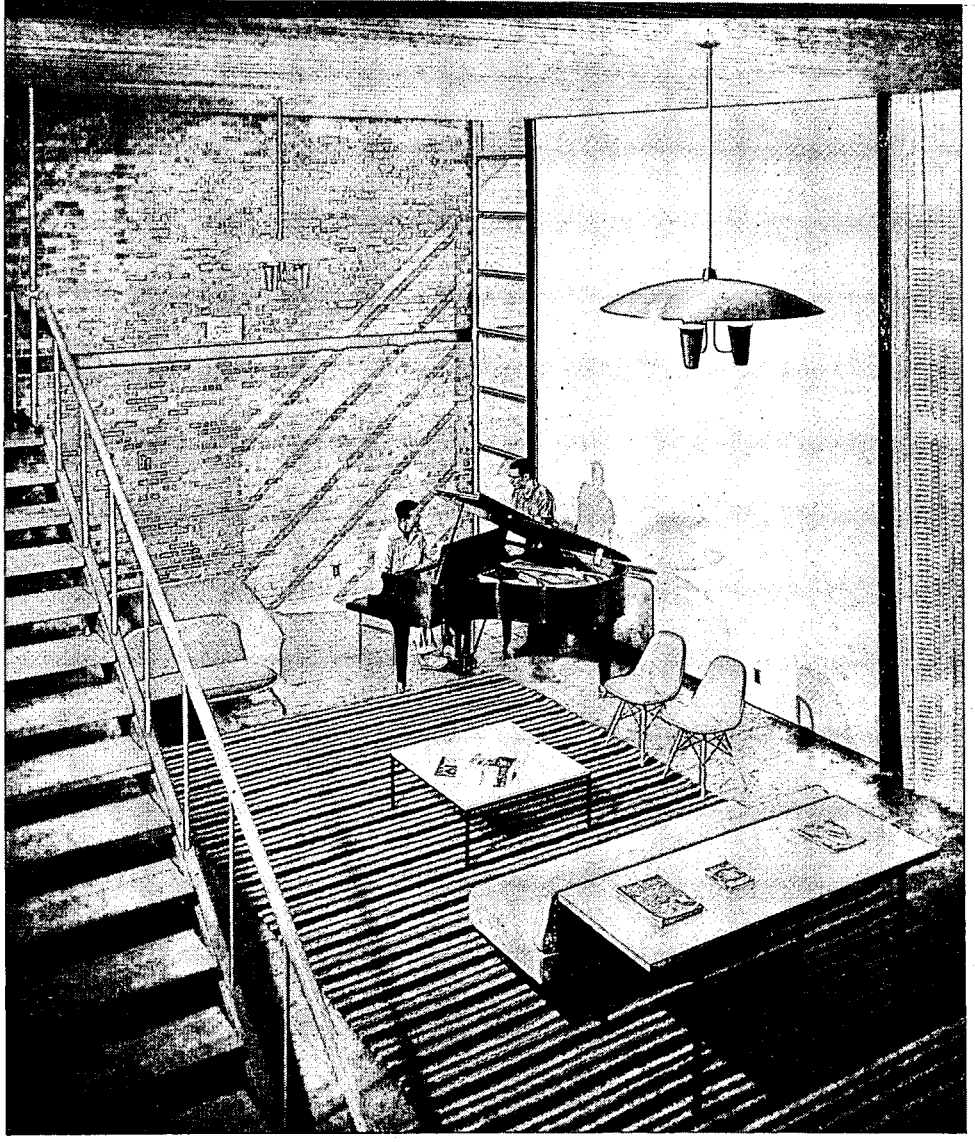


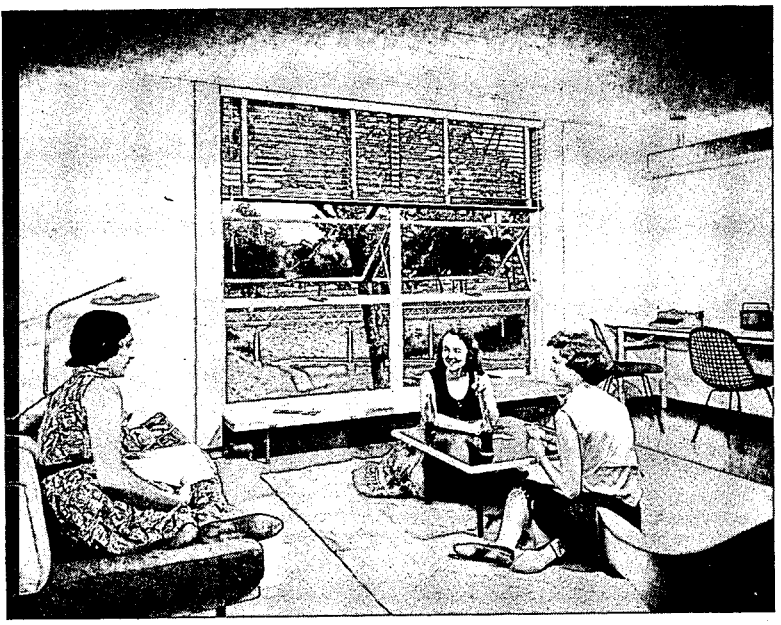


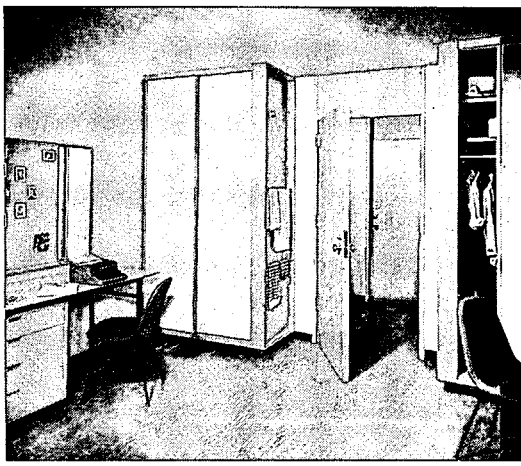


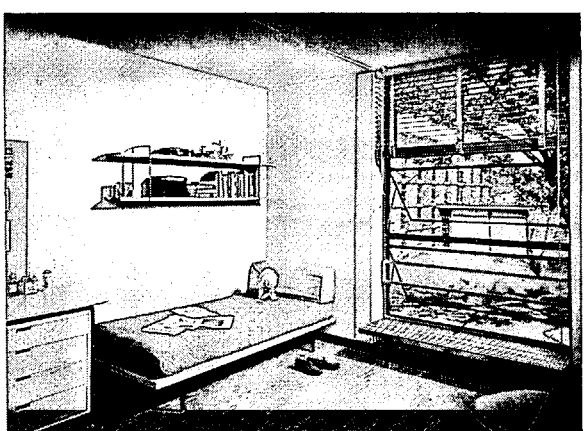


TYPICAL WALL SECTION



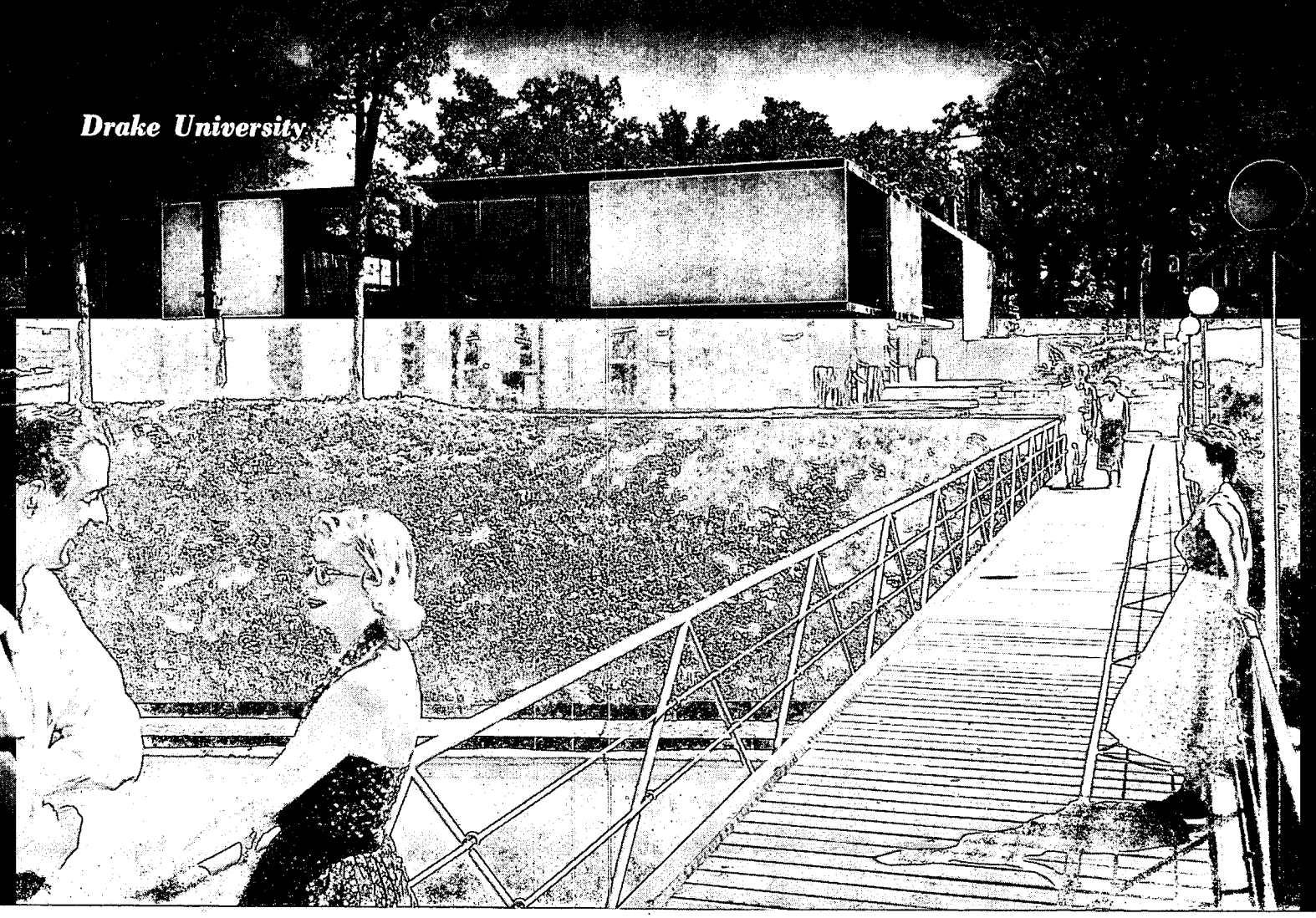


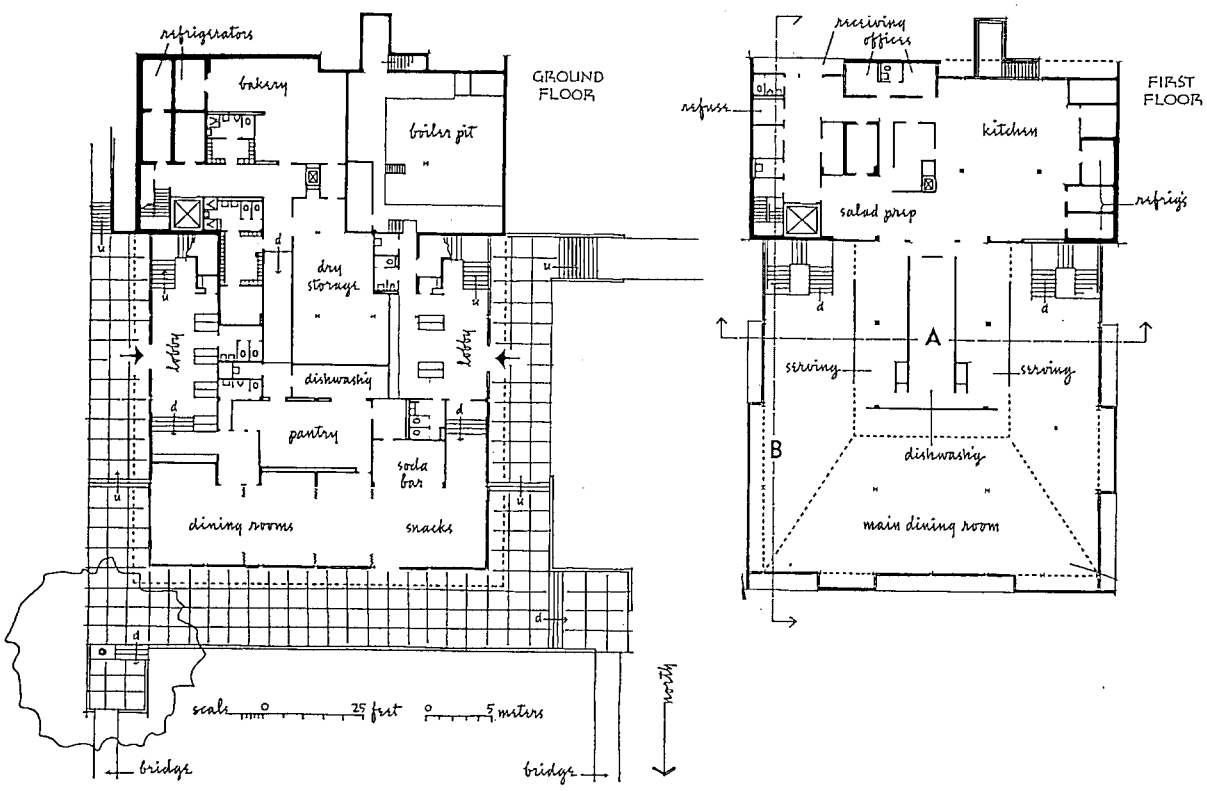




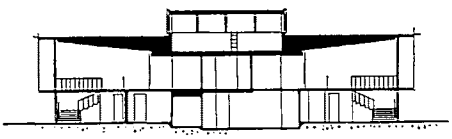
Social rooms (photo top right) *are separately framed two-story structures attached to each dormitory building. A smaller living room* (above), *also used as a general work area, is within easy reach of all the students living on a floor. Individual rooms, the majority accommodating two students* (photos right), *are pleasantly furnished and well arranged for work and recreation. The bed serves as a couch during the day, and a combination dresser-desk provides a large work surface. Awning-type windows supply proper air circulation within the rooms, and eliminate the need for ventilating louvers opening onto the corridor.*

Drake University

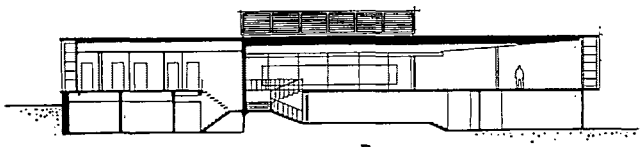




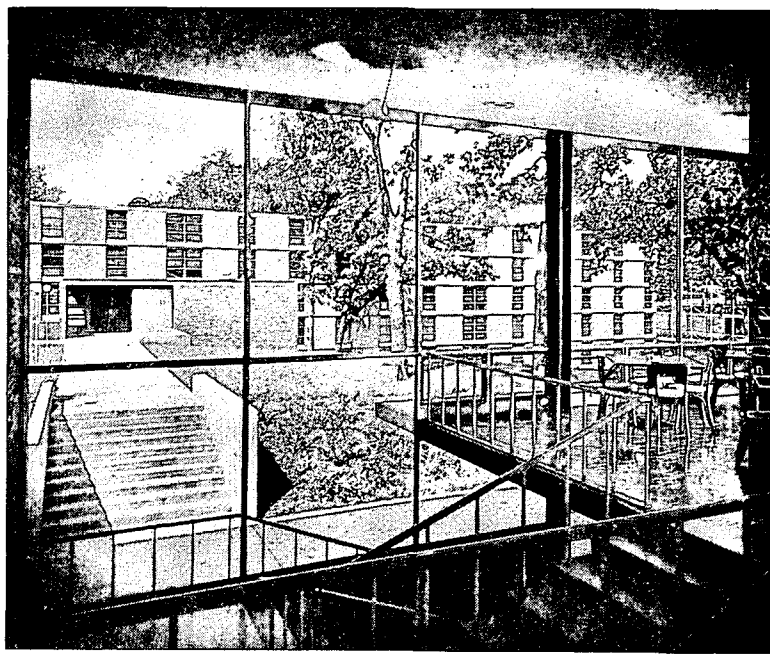
The dining hall is a two-story structure placed at the highest point of the site. Entrances from the east and west lead into spacious foyers. From here steps go down to a snack bar and to a series of small dining rooms. The Main Dining Room has been located upstairs to take advantage of the views. Serving area, with fan room directly above, is in the center of the building. The dining hall is built of steel and concrete, similar in construction to the social rooms. Steel columns are set 4′-3″ behind the face of the building. On the upper story, windows have been recessed to the column line for purposes of sun and weather control, while solid panels occur at the face of the building. Awning-type windows have been set into the returns of these recesses. On the lower floor, brick has been stacked to imply a nonstructural wall.

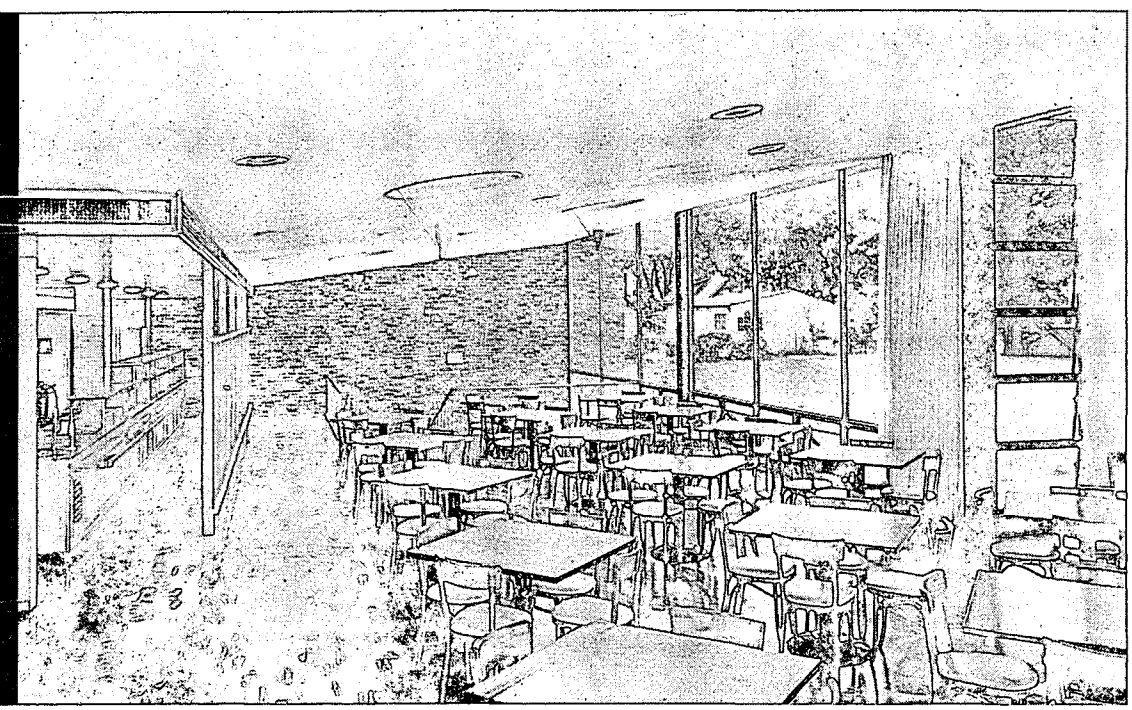


section A

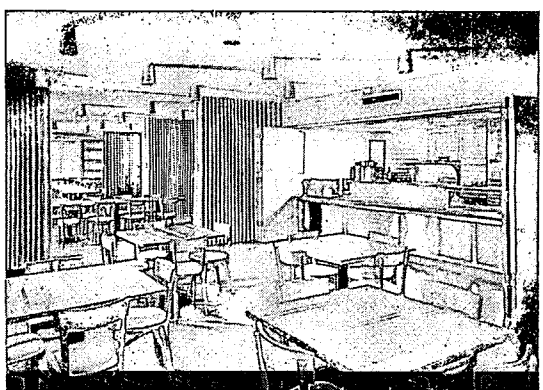


section B





Main Dining Room (above) *employs self-service system. Ceiling slopes towards center of building, emphasizing outward view and allowing space for fan room above. Interior finishes are acoustical plaster, asphalt tile, and brick. Table tops are white-plastic, walnut, and maple. Chair seats are covered with durable white-plastic fabric. Areas for snack bar and private dining room* (right) *may be varied in size by the use of accordion doors.*



Drake University

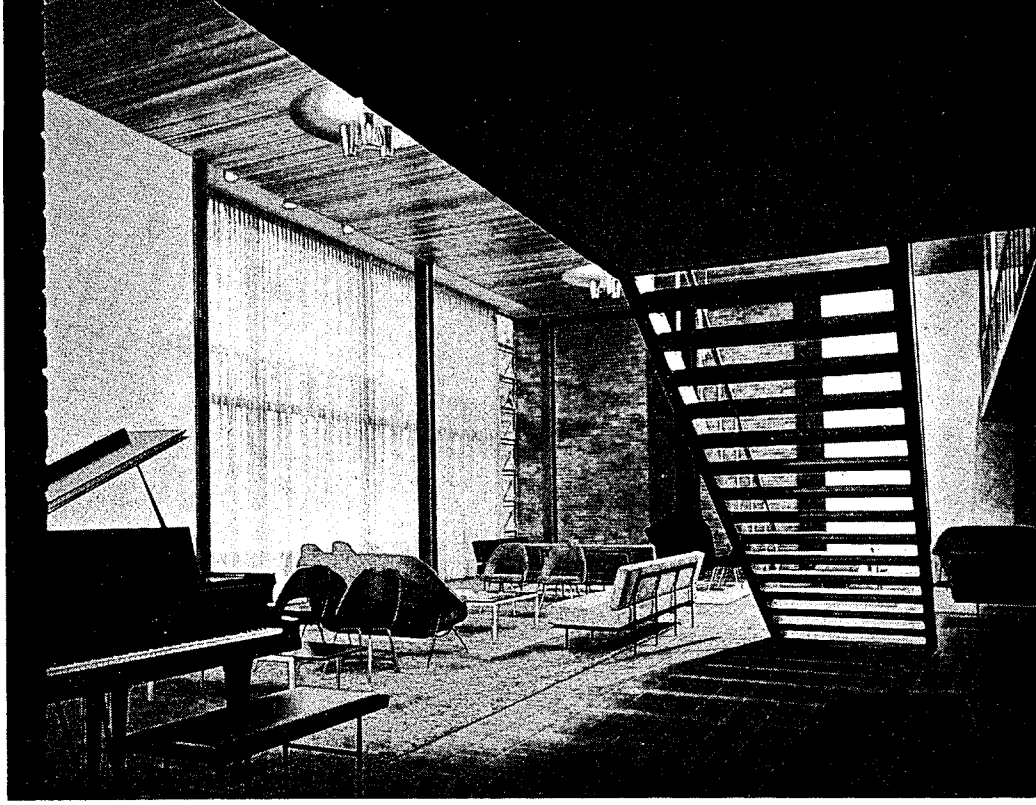
Materials & Methods

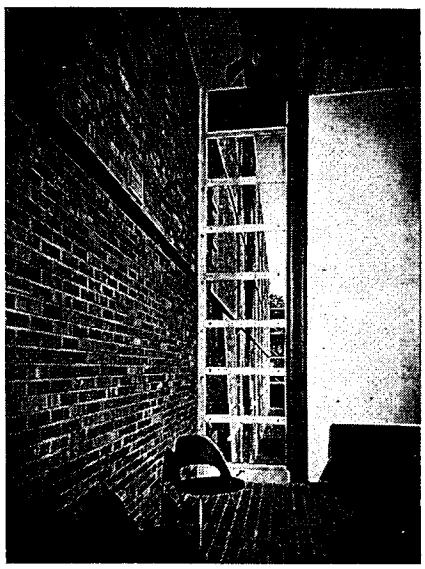
construction

Foundation, frame, floors, walls, roof: reinforced-concrete foundations, floors, and roof: reinforcing steel—Ceco Steel Products Corporation, concrete—Hawkeye Portland Cement Company, Penn Dixie Cement Corporation; frame: concrete and precast concrete; walls: precast concrete. **Wall surfacing:** exterior: face brick—United-Des Moines Clay Products Company; interior: concrete; rest rooms, toilets: cement enamel—Cement Enamel, Inc. **Floor surfacing:** asphalt tile—Johns-Manville. **Roof surfacing:** built-up roofing—Johns-Manville. **Waterproofing and dampproofing:** mastic waterproofing—L. Sonneborn Sons, Inc. **Insulation:** acoustical: perforated-metal pans—Armstrong Cork Company, glass-fiber board—Owens-Corning Fiberglas Corporation. **Partitions:** interior: metal partitions—E. F. Hauserman Company; metal toilet partitions. **Windows:** steel sash—Truscon Steel Division of Republic Steel Corporation; glass—Pittsburgh Plate Glass Company. **Doors:** interior: hollow-core flush wood—Paine Lumber Company, Ltd.; metal elevator doors—Peelle Company. **Hardware:** lock sets and door closers—Yale and Towne Manufacturing Company; hinges—The Stanley Works; panic device—Von Duprin Division, Vonnegut Hardware Company. **Paint and stain:** exterior: Acme Paint Manufacturing Company.

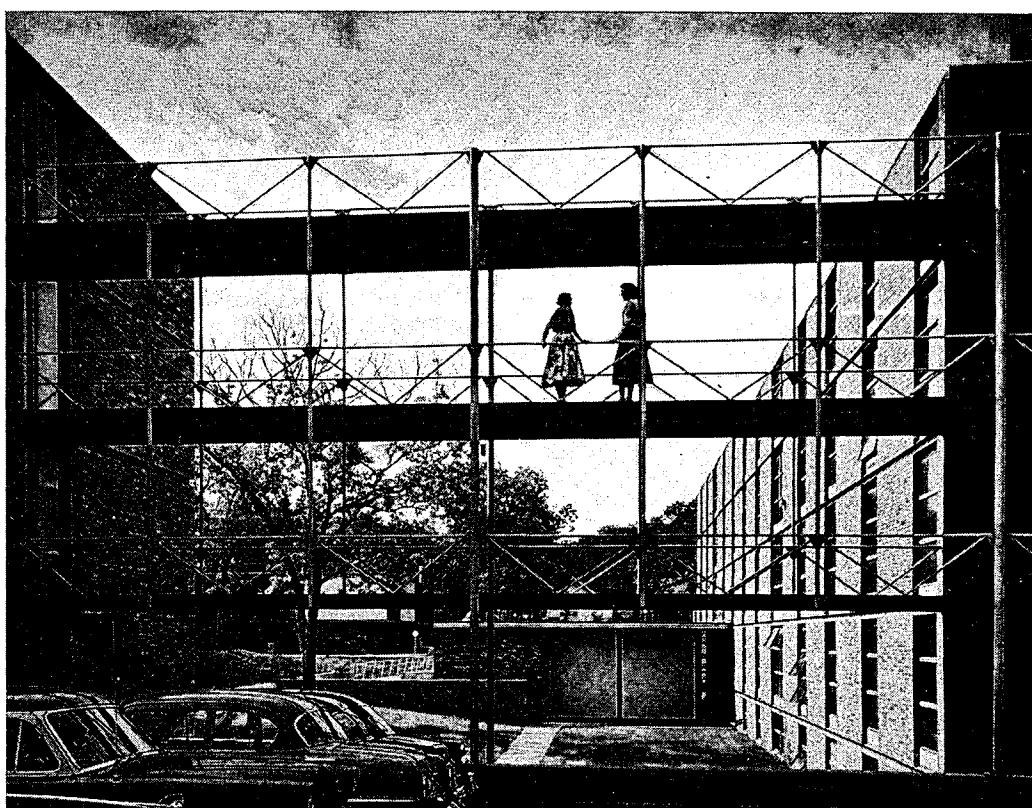
equipment

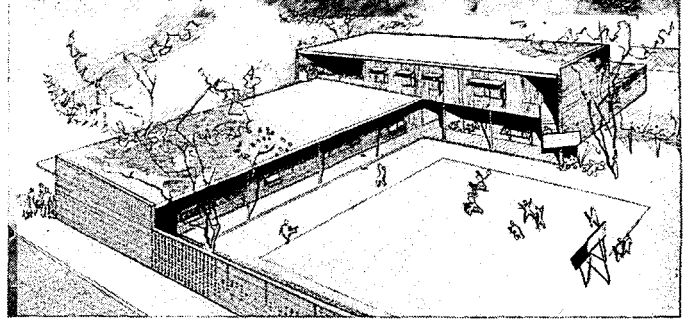
Special equipment: intercommunication system—Edwards Company, Inc. **Elevators:** hoisting equipment—Globe Hoist Company. **Lighting fixtures:** Ledlin Lighting Inc.; Day-Brite Lighting, Inc.; Kurt Versen Company. **Electrical distribution:** service entrance switch—Roller-Smith; panelboards—BullDog Electric Products Company; wire and cable—Anaconda Wire & Cable Company; wiring devices—General Electric Company. **Plumbing and sanitary:** water closets, tubs, and lavatories—American Radiator & Standard Sanitary Corporation; toilet seats—C. F. Church Manufacturing Company; water heater—Patterson-Kelley Company, Inc.; flush valves—Sloan Valve Company; shower controls—Powers Regulator Company; water supply system—Mueller Brass Company. **Heating:** boiler—Kewanee-Ross Corporation; furnace: combination oil-gas—Ray Oil Burner Company; convectors—Trane Company; unit heaters—Westinghouse Electric Corporation; ventilators—Kennard Corporation; controls: air-operated valves—Johnson Service Company. **Air Conditioning:** grills—Titus Manufacturing Corporation; blowers—Herman Nelson Products, American Air Filter Company, Inc.; filters—American Air Filter Company, Inc.; cooling coils—Kennard Corporation; ventilators—B. F. Sturtevant Division of Westinghouse Electric Corporation; controls—Johnson Service Company.

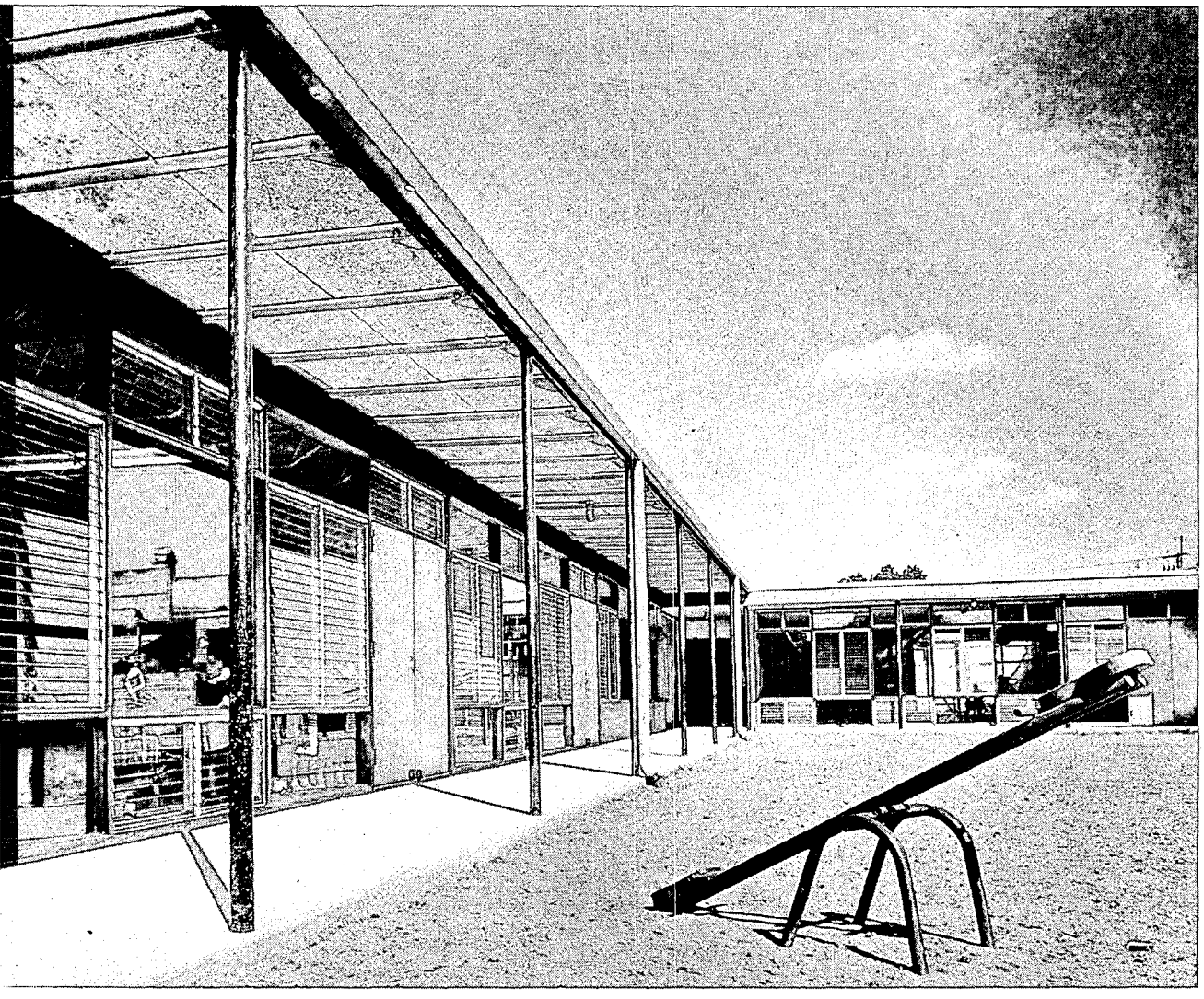




From the lower level of Social Room #3 (above), *stairs lead up to the balcony connecting with bridge and restaurant. High, awning-type window, at the meeting point of dormitory and social hall* (right), *emphasizes the desired effect of distinct structures, serving separate purposes. End walls and floor are surfaced with brick. White wall panels, similar to panels employed in the restaurant, are plaster on plasterboard supported on 6" metal studs. Suspended wood-slat ceiling improves acoustics and serves as cover for hung radiant-heating coils. Pedestrian bridges* (see photo below and SELECTED DETAILS for construction data) *serve as emergency exits, and interconnect all the dormitories.*



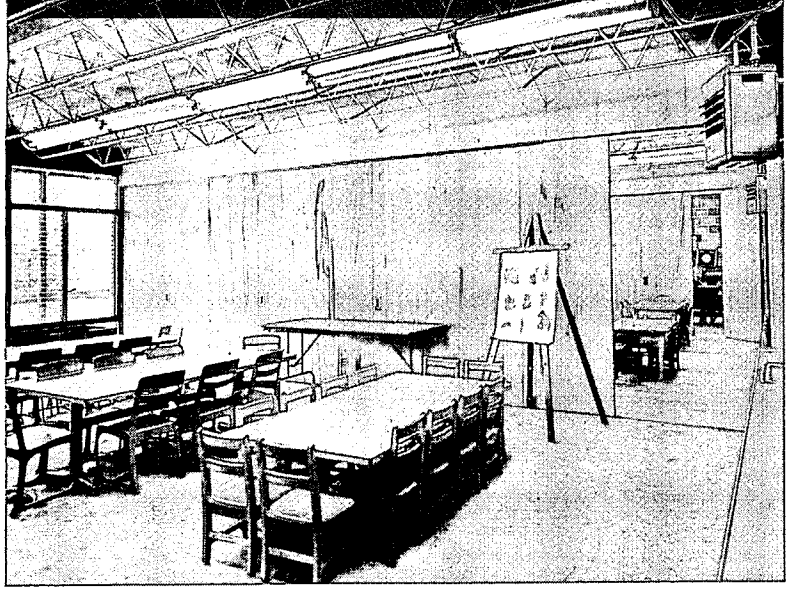




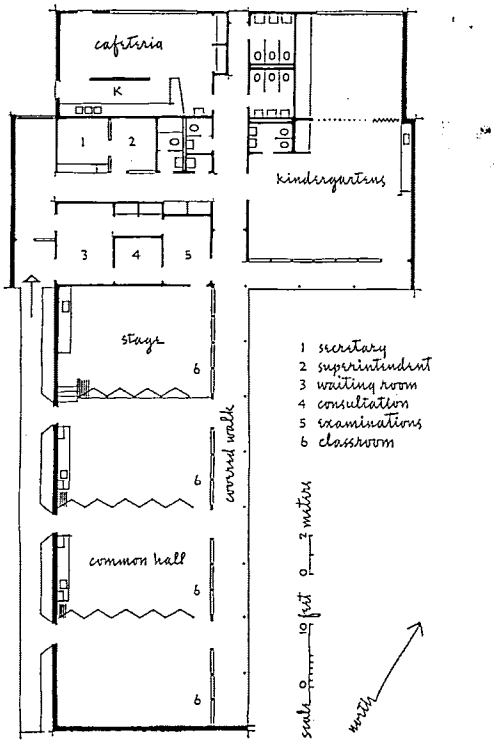
community center

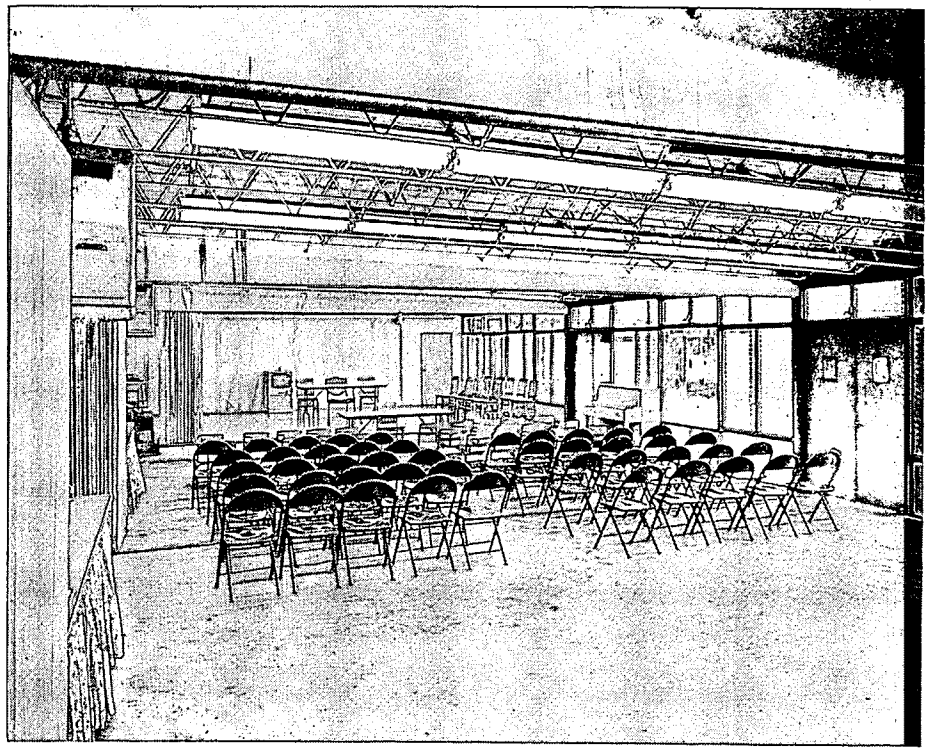
location	New Orleans, Louisiana
architects-engineers	Curtis & Davis
structural engineers	B. M. Dornblatt & Associates
general contractor	Lionel F. Favret Company, Inc.

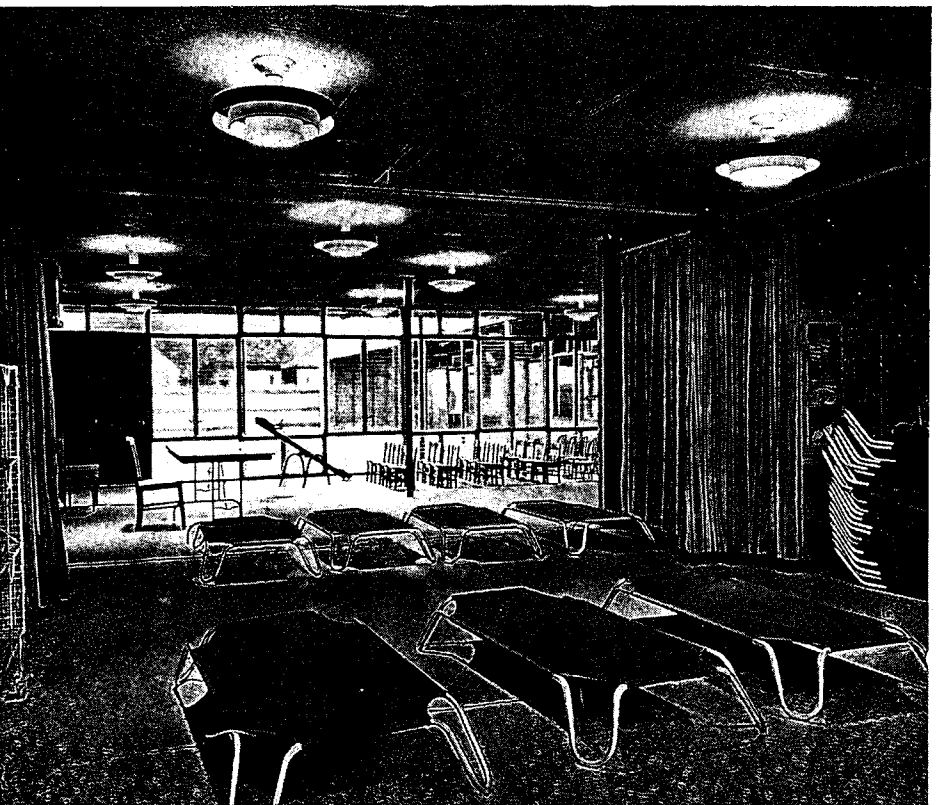
This building, serving a Methodist Negro community, houses a nursery school, classrooms, a meeting hall, and a health center. Due to a limited budget and a small site, from the early planning stages the architects had to allow for dual use of space. Thus the four classrooms for 120 school-age children also serve the adults for lectures, concerts, plays, and other occasions, when the individual rooms may be transformed into one large meeting hall seating 200 persons. At the junction of the classroom wing and the nursery school are administrative offices, toilet facilities, cafeteria, and kitchen. An adjacent dining patio has proved especially useful and pleasant. The health center, which serves the whole neighborhood, is located near the main entrance so that incoming patients will not disturb activities in progress in the rest of the building. The rear wing of the structure will accommodate a future second story, as shown in the sketch above.



Four classroms (left), *accommodating 30 children each, may at other times form one continuous space* (below) *seating 200 persons. In order to leave large areas unobstructed and adaptable to many uses, the structure consists of a roof plane supported by pipe columns.*



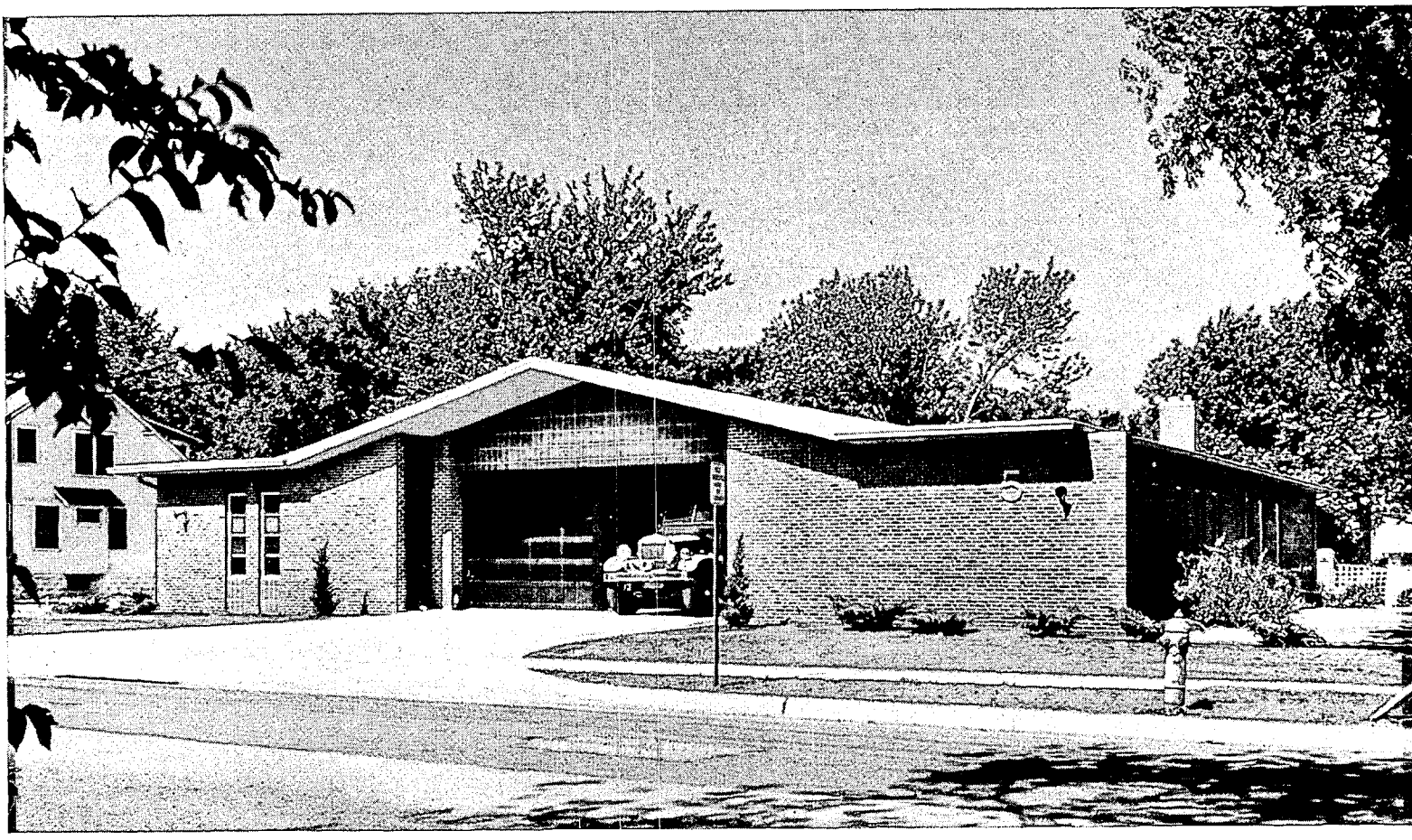




Bar joists frame into the steel beams which connect the columns. Structural, insulated roof slabs form the roof decking and have been left exposed as a finished, acoustically and thermally insulated ceiling. Walls are composed of interlocking tile left uncovered on the interior and faced with brick veneer on the exterior. Folding partitions are of plywood, painted to serve as chalk boards.

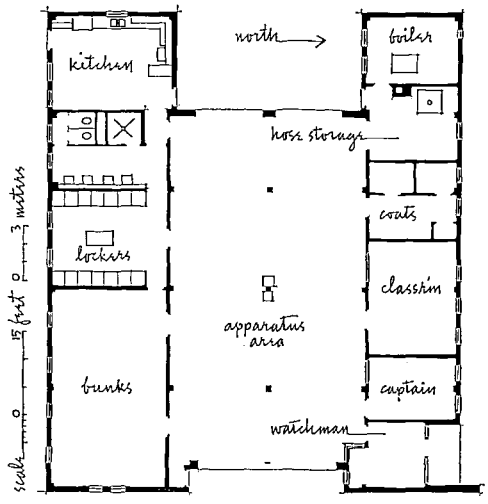
The nursery school for 50 children (left) *faces south and opens on its own play yard. In contrast to the natural colors supplied by wood, ceiling panels, and wall tiles, the structural elements, exposed utility lines, and doors have been painted in gay colors to create a happy and carefree atmosphere. Natural cross ventilation and wide roof overhangs, protecting from direct sun, precluded the need for air conditioning. Heat is provided by suspended unit heaters.*

Photos: Frank Lotz Miller

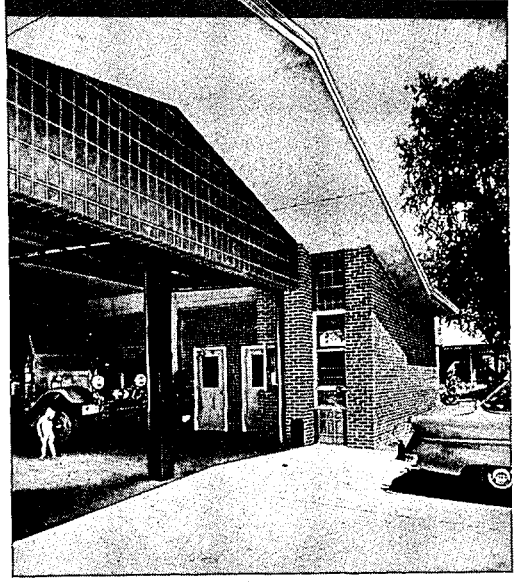


fire station

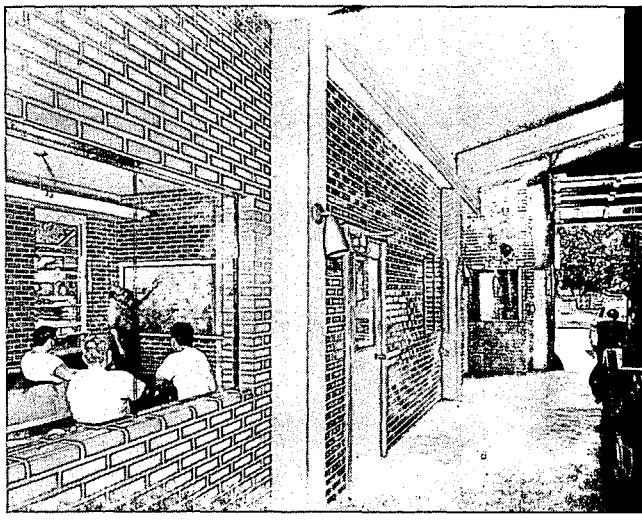
location	Wichita, Kansas
architects	Ramey & Himes
associates	Schirmer & Schaefer
structural engineer	Dudley Williams
electrical consultant	Carl Green
mechanical engineer	E. E. Hysom
color consultant	Erma Bamesberger
general contractor	Moreland Construction Company

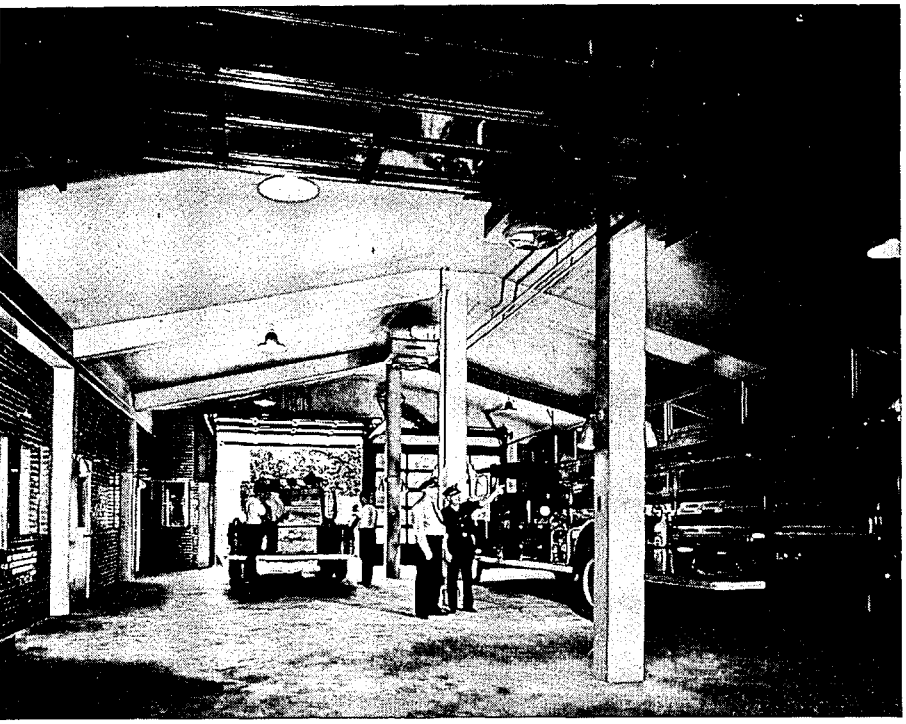


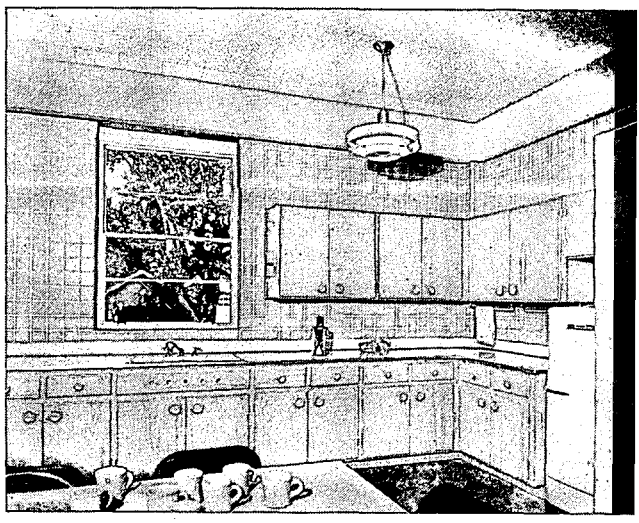
Firemen, city officials, and neighbors like this new fire station, which blends well into its residential setting. The structure houses: (a) two major pieces of equipment; (b) one classroom, one bunk room, kitchen, and lockerspace for eight men; (c) offices for the captain and the watchman. In the design, the proper flow of traffic was of prime importance and for that reason a drive-through plan was adopted, with the apparatus area in the center of all activities and directly accessible from all rooms. The east-west orientation was chosen for most favorable natural ventilation. Since a fireproof building was required, reinforced concrete was chosen for the basic structure, in combination with brick, glazed brick, and ceramic tile for the curtain walls. These materials were selected for their natural beauty, permanence, and ease of maintenance. A light tone of the brick color has been used on all exposed concrete. Yellow trim provides the accent, and blue-green glazed brick, surfacing the walls of the apparatus room, sets a restful color, contrasting with the red of the fire equipment. Unfortunately the budget did not permit a ceramic mural which was proposed for the space above the east doors.



From the watchman's office, the main entrance to the fire station (left) *and the apparatus area may be easily guarded. Firemen have direct view and access to the central apparatus room from classroom* (below). *All windows connecting with this central room are horizontal sliding type.*



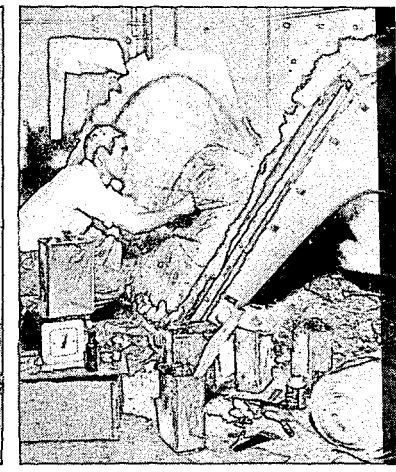




Drive-through plan, with two overhead doors at each end of the building, helps to speed operation and avoids backing-in of fire equipment. Reinforced concrete structure is frankly exposed in central apparatus area (above). *Unit heaters, mounted on the ceiling, serve this space. Adjoining rooms, such as the kitchen* (right), *are heated by a gas-fired hot-water system through convectors. Ceilings are acoustically treated. Ceramic tile faces the kitchen walls, and windows are double-hung steel sash.* Photos: Julius Shulman

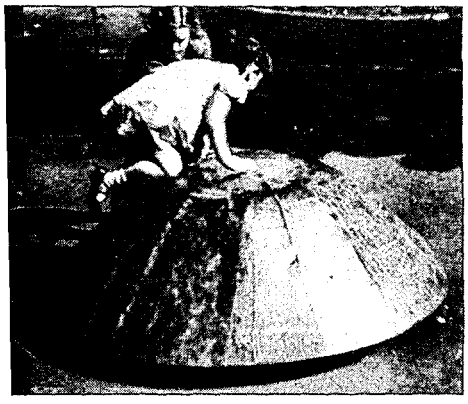
sculptural playground slide at lower cost

Encouraged by the success of sculptural playground equipment abroad, pioneered by Sculptor Egon Möller-Nielsen, in Sweden, Robert Nichols, landscape architect and site planner, has initiated in New York a project to make sturdy abstract sculptures known as "Saddle Slides" available for playgrounds here. Assisted by a team of talented colleagues, he has developed a production method that cuts costs of producing a ¾-ton, poured-concrete sculptural slide 8-½ ft long, 6 ft wide, and 4 ft high.

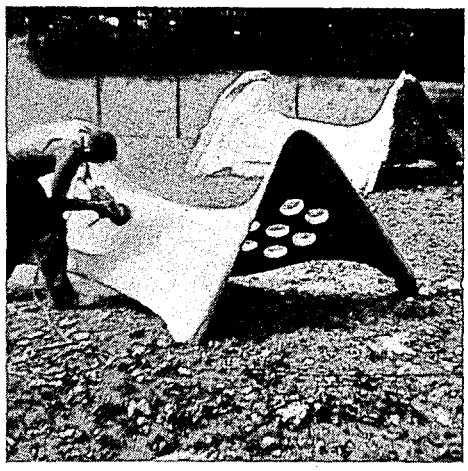


The design story, as told in pictures (*above* and *acrosspage*), begins with the conference in a West Side caffé espresso shop where Mitzi Solomon Cunliffe, American sculptor now living in England, first considered a preliminary model fashioned of paper by Nichols (after reading Felix Candela's discussion of stereo structures in June 1954 P/A). As Nichols and Architect Shephard Schrieber watched, she "turned it upside down and twisted a curve" to create the form that was finally produced. Mrs. Cunliffe next worked on the full-scale plaster model, aided by James Jones, who teaches in the Manhattan Sculpture Center where the model was made. Hideo Sasaki, professor of landscape architecture at Harvard, served as design consultant, and Architects Schrieber and Edward Barnes helped in designing the reinforcing (¼" and ⅜" steel rods). The next step—key to the economy of the method developed—was production of the reinforced glass-fiber mold (so much cheaper and lighter than the customary steel or bent-plywood molds) into which was poured a homogenous mix used industrially for cast stone, containing an aggregate of marble and granite chips. Nichols is shown at work on the mold and the final pictures demonstrate how the 180-pound mold was transported by truck to the playground of the nursery school of Sarah Lawrence College in Bronxville, just across the street from Marcel Breuer's auditorium completed last year; the casting of the Saddle Slide (upside down); and final polishing by Andreus Strand.

"This sculptural playground slide is in the tradition of sculptures by Noguchi, by Möller-Nielsen, and Giacometti," comments Nichols. "Simple, clean lines are essential for such sculptures. Abstract designs are the most practicable and they also stimulate the imaginations of the children to use them for countless little dramas of play. They are cowboys, sailors, camel drivers, and explorers when they climb over, under, and through.



Another multiple-play unit is the 40-pound "Magic Mountain" translucent dome of glass fiber (left) *now being made for sale at less than $50. Composed of sections (not unlike umbrella segments), with a rolled edge, this light dome may be climbed upon or turned over to whirl as a merry-go-round. When steadied by a simple wrought-iron frame, it serves as a sandbox or wading pool.*



"One can read too much into this, of course, but it has worked out dramatically, as we had hoped. It is also durable and, at this scale, safe playground equipment. The two-way curve, the most natural of shapes for concrete, gives strength to the Saddle Slide.

"This and other playground sculptural units, supplemented by climbing mounds and other terrain sculptures, offer art for the playgrounds to replace the sections of sewer pipe (familiar in the '30s), concrete animal forms, etc., representing stereotyped and sterilized design.

"Our aim has been to make this Saddle Slide readily available. It is easily poured in the glass-fiber mold, weighs ¾ ton, and can be delivered for $510 within 100 miles of New York City. Six or more would cost less. We will also rent the mold for $310 to architects who may wish to cast a Saddle Slide on the site. The cost of casting would be about $200.

"We hope this frankly commercial approach does not suggest vulgarization. As artists, our group wants to make the slide possible for any playground."

LIMIT DESIGN

by Mario G. Salvadori*

The analysis of any structure, be it the frame of a building or the spring of a car, consists in the determination of four essential factors: (1) the loads acting on the structure; (2) the state of stress determined by these loads; (3) the ratio of this state of stress to the ultimate strength of the structure; (4) the deformation of the structure under the given loads.

The set of loads to be assumed in the analysis of an architectural structure is usually dictated by codes. Unfortunately, these rarely take into account the essential probabilistic character of the loads and indicate in a clear but arbitrary manner their maximum values, their most dangerous combinations, and their worst locations. Hence, it will be assumed here that the loads are completely defined before the analysis is started; moreover, since we shall be almost exclusively concerned with the analysis — that is the *checking* of structures—we will logically assume that the dead load is also known, when it is of importance.

The analysis of the state of stress set up in a structure by the given loads is usually based on the fundamentals of strength of materials and, hence, on the classical theory of elasticity. Under certain conditions, this theory allows the determination of the most important stresses in each member of the structure —provided stresses are not too high. It is the purpose of this article, however, to show how *plasticity theory*, rather than elasticity theory, may at times be used advantageously to analyze a structure with saving of time and clearer understanding of its behavior.

The ultimate strength of a structure may be defined in a variety of ways. Here, it will be taken to mean the largest set of given loads the structure will be able to support before it collapses. (It must be remembered that in certain cases the ultimate strength of a structure will depend, instead, on the buckling of one of its elements, or on fatigue rupture under repeated loading.) This criterion of final *structural damage* may be dropped at times in favor of a criterion of *functional damage*. Thus the ultimate set of loads may be dictated by limitations on the deformation of the structure in order to insure that it will still be capable of performing its function even if there is no danger of actual collapse.

* *Professor of Civil Engineering, Columbia University, New York, N. Y.*

material properties

The evaluation of the above mentioned factors of structural analysis depends essentially on the properties of the materials used in building the structure.

All structural materials present to a greater or lesser extent two fundamental properties, called respectively elasticity and plasticity. A material is said to be *elastic* when its deformation under load disappears immediately or shortly after unloading (*Figure 1*). If, moreover, the deformation under load is proportional to the load, the material is called *linearly elastic* (*Figure 2*). For sufficiently small loads all structural materials are linearly elastic.

A material is called *plastic* whenever the deformation induced by the loads does not disappear entirely upon unloading. For sufficiently high loads *all* structural materials are plastic and, upon unloading, present residual displacements or strains (*Figure 3*). As will be shown later in detail, the essential phenomenon occurring during the plastic stage of deformation, is a *redistribution of stresses* which, in general, allows the structure to sustain higher loads.

The structural material most commonly used in America is steel. Figure 4 shows a typical load displacement or stress-strain diagram of structural steel. For stresses up to the elastic limit steel exhibits direct proportionality between stress (load) and strain (displacement); above the elastic limit the diagram becomes a curve, indicating a lack of proportionality, and reaches a peak value—*the upper yield point.* Beyond the strain corresponding to the upper yield point, the stress decreases to a lower *yield point* and then remains constant while the strain grows (*plastic flow*), until the stress increases again due to *strain hardening.* For purposes of structural analysis the complicated diagram of Figure 4 can be simplified to the *ideal elasto-plastic* diagram of Figure 5, showing an elastic range, a yield point, a range of plastic flow under constant stress and, eventually, a strain hardening range before rupture.

In order to understand the behavior of a steel structure under repeated loading it must be remembered that, if the structure is unloaded after reaching the plastic range, stresses will decrease *elastically:* that is, will follow a straight-line diagram. Thus (*Figure 6*) residual strains appear when the stress is reduced to zero. Moreover, since the stress-strain diagram of steel is identical in tension and compression, a reversal of stress will follow the arrows of Figure 6.

Concrete does not exhibit the characteristic features of steel (*Figure 7*). Its stress-strain diagram is practically a continuous curve with a short straight segment at low strains. Notwithstanding this, an approximate ideal elasto-plastic diagram for concrete is used at times, particularly in connection with reinforced-concrete design. As shown (*Figure 8*), a reinforced-concrete beam with a relatively small percentage of steel will have a moment-rotation diagram resembling that of steel and may be approximately treated as an elasto-plastic body.

safety factors

Safety factors measure the ratio of the worst expected loading to the ultimate

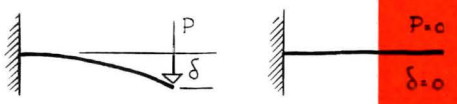


Figure 1—elastic behavior.

loading of the structure. They are introduced essentially to take care of the unavoidable uncertainties in the properties of materials, the loads, the manufacturing process, and the outright ignorance of certain factors on the part of the designer.

All designs are *limit designs* in the sense that they are referred to a limit or ultimate set of conditions. Elastic and plastic design differ only because of the chosen ultimate condition. In design for elasticity the ultimate condition is that for which the material reaches its elastic limit; in design for plasticity that for which plastic *flow* takes place, i.e., for which displacements increase indefinitely under *constant* loads.

In the elastic range, loads and stresses are proportional. The sum of two loads creates a stress equal to the sum of the stresses due to each load acting separately (*principle of superposition*). Hence, the safety factor can also be used to define an *allowable stress*, which should not be overcome.

In the plastic range, superposition does not hold and the safety factor must be defined always as the ratio of actual to ultimate *loads*.

In the elastic range, moreover, the stress is uniquely determined by the loads and is independent of prior loading, since stress is always proportional to load. In the plastic range, instead, the state of stress depends essentially on the *load history* of the structure and safety factors for single loading differ from those for repeated loading.

Both elastic and plastic design are based on conventional rules and do not represent the real behavior of structures. Therefore, matters of convenience, economy, and safety decide what type of design to adopt. The analysis of a building under usual loading conditions is accomplished, at present, by the principles of elastic design and justifiably so, in most cases, for reasons of simplicity and safety.

Figure 2—linearly elastic behavior.

Figure 3—plastic behavior.

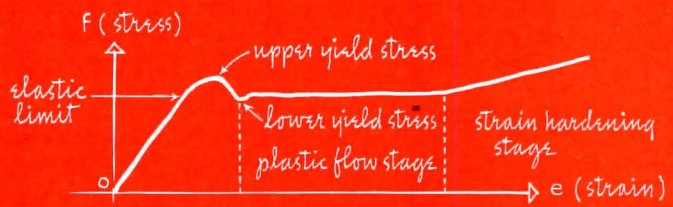


Figure 4—stress-strain diagram of structural steel.

Figure 5—ideal elasto-plastic material.

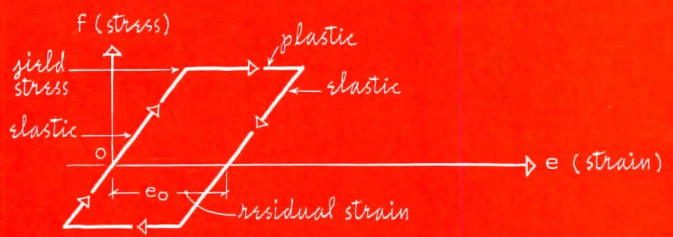


Figure 6—reversal of stress in elasto-plastic material.

Figure 7—stress-strain diagram for concrete.

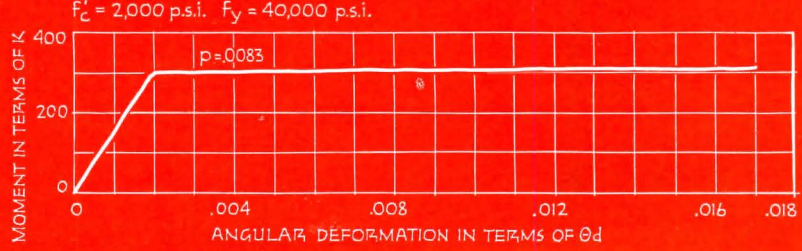


Figure 8—moment-rotation diagram for weakly reinforced-concrete beam. (Ultimate Design of Reinforced Concrete. *Structural and Railways Bureau, Portland Cement Assn., 1951, adapted from figure 8, p. 9.)*

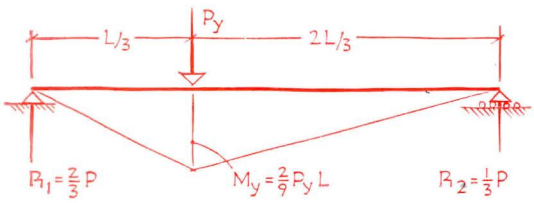


Figure 9—elastic-moment diagram.

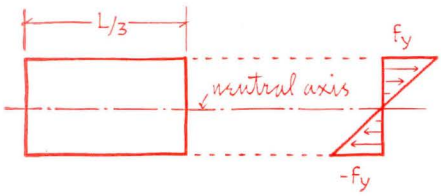


Figure 10—limit of elastic-stress distribution across beam section under load.

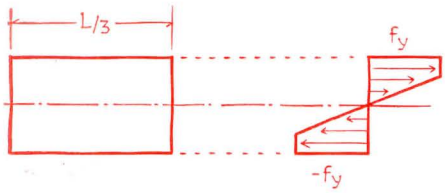


Figure 11—partly plasticized section.

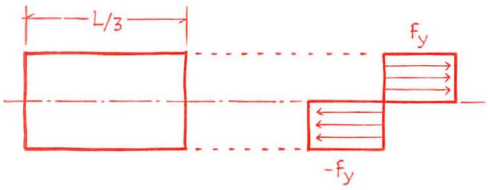


Figure 12—totally plastic section.

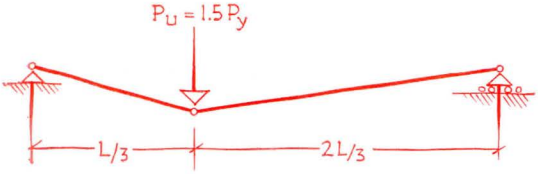


Figure 13—plastic hinge in rectangular cross-section beam.

The study of a frame under earthquake or blast conditions should use the principles of plasticity, in view of the exceptional stresses and deformations allowable under exceptional circumstances.

One point should be kept in mind: No structure would behave elastically *as a whole* were it not for plastic flow in the small areas of stress concentration always present. The flow of material around notches, holes, and connections allows the wiping out of peaks of stress at low values of the loads. This redistribution of stress keeps stresses within the elastic limit in all essential sections of the structure and permits an elastic analysis, which would otherwise totally misrepresent the state of stress.

statically determinate structures

Consider a simply supported beam of constant rigidity with a third-point load P (*Figure 9*) whose intensity grows from zero to an ultimate value P_u.

The maximum bending moment, under the load, equals:

$$M = \frac{2}{9} PL \qquad (1)$$

and the corresponding maximum elastic fiber stress is given by:

$$f_e = \frac{M}{S_e} = \frac{2}{9}\frac{PL}{S_e}, \qquad (2)$$

where S_e is the *elastic section modulus:*

$$S_e = \frac{1}{12}\frac{bh^3}{(\frac{1}{2}h)} = \frac{bh^2}{6} = \frac{Ah}{6} \qquad (3)$$

for a rectangular section of area A = b x h, and:

$$S_e = \frac{Ah^2/4}{h/2} = \frac{Ah}{2} \qquad (4)$$

for an ideal I section of flange area A/2 and negligible web area. The stress (2) is derived under the assumption that plane sections remain plane and that the stress is linearly distributed across the section (*Figure 10*).

Combining equations (2) and (3), or (2) and (4), the largest value of P producing elastic stresses $f_e = f_y$ becomes:

$$P_y = \frac{3}{4}\frac{h}{L} f_y A \qquad (5)$$

for rectangular sections, and:

$$P_y = \frac{9}{4}\frac{h}{L} f_y A \qquad (6)$$

for I sections.

As P grows beyond these values, the stress at interior fibers of the section under the load gradually increases to f_y creating a distribution of the type shown (*Figure 11*).

When the stress in each fiber of the cross section has reached the value f_y (*Figure 12*), all fibers flow freely. The two halves of the beam rotate around the third-point section, which acts as if it were a hinge (*Figure 13*). The formation of such a plastic hinge makes the beam unstable and the load P cannot grow any further. The corresponding ultimate moment is given by:

$$M_u = \frac{2}{9} P_u L \qquad (7)$$

and the corresponding stress by:

$$f_y = \frac{M_u}{S_p} \qquad (8)$$

where the plastic section modulus S_p is:

$$S_p = \frac{Ah}{4} \qquad (9)$$

for a rectangular section, and:

$$S_p = \frac{Ah}{2} \qquad (10)$$

for an ideal I section. Comparison of equations (8) and (9) or (8) and (10) shows that the ultimate value of P is given by:

$$P_u = \frac{9}{8}\frac{h}{L} f_y A \qquad (11)$$

for rectangular sections, and:

$$P_u = \frac{9}{4}\frac{h}{L} f_y A \qquad (12)$$

for I sections. A comparison of equations (5) and (11) shows that: For rectangular-section beams, when the extreme fibers have reached the yield point, the beam still has a load reserve of 50 percent ($\frac{9/8-6/8}{6/8} = .50$) and a reserve moment of 50 percent before the ultimate load is reached; for an ideal I section there is no load reserve. Hence, safety factors must be different for different cross-section shapes and may be established either as fractions of P_y or of P_u on the basis of the percentage of load reserve:

$$\frac{P_u - P_y}{P_u} \quad \%. \qquad (13)$$

It is important to notice that in this simple example of a statically determinate

beam, the bending-moment diagram (*Figure 9*) is triangular with a maximum under the load equal to 2PL/9 whether the stresses in the beam be elastic or plastic.

statically indeterminate structures

The influence of plasticity on statically indeterminate structures is of a much more fundamental character. Consider a beam (*Figure 14*) which is built-in at the ends and has a rectangular cross section. The peak values of the moment in the elastic stage occur at the ends and under the load:

$$M_A = \frac{12}{81} PL;\ M_B = \frac{8}{81} PL;\ M_C = \frac{6}{81} PL.$$

As the load P grows, a value $P_1 = \frac{81}{12} \frac{h}{L} f_y A$ is reached at which the extreme fibers of section A become plastic under a moment $M_{A1} = \frac{12}{81} P_1 L$, while sections B and C are still entirely elastic (*Figure 14a*). Beyond P_1 section A becomes *entirely* plastic for a value P_2 of the load for which $M_{A2} = 1.5 M_{A1} = M_P$, while sections B and C are only partially plastic (*Figure 14b*). Eventually when $P = P_3$ all the fibers at section B also become plastic. The moments at A and B cannot grow beyond M_P and the moment diagram takes the form shown (*Figure 14c*).

Any increase in load beyond P_3 is carried by cantilever action of the portion BC of the beam and only increases the moment at C up to the plastic value M_p.

At this point the bending moment diagram is as shown (*Figure 14d*) and the load P has reached its ultimate value $P_4 = P_u$ since with three hinges the beam will flow freely (*Figure 14e*).

This simple example shows one of the fundamental properties of statically indeterminate plastic structures: the ultimate load is reached when enough plastic hinges have been formed to allow the free motion of the structure under constant loads. The structure thus becomes a *mechanism*. One may also state this result by saying that *before a structure collapses under plastic conditions it will develop*, at strategic sections, *the largest*

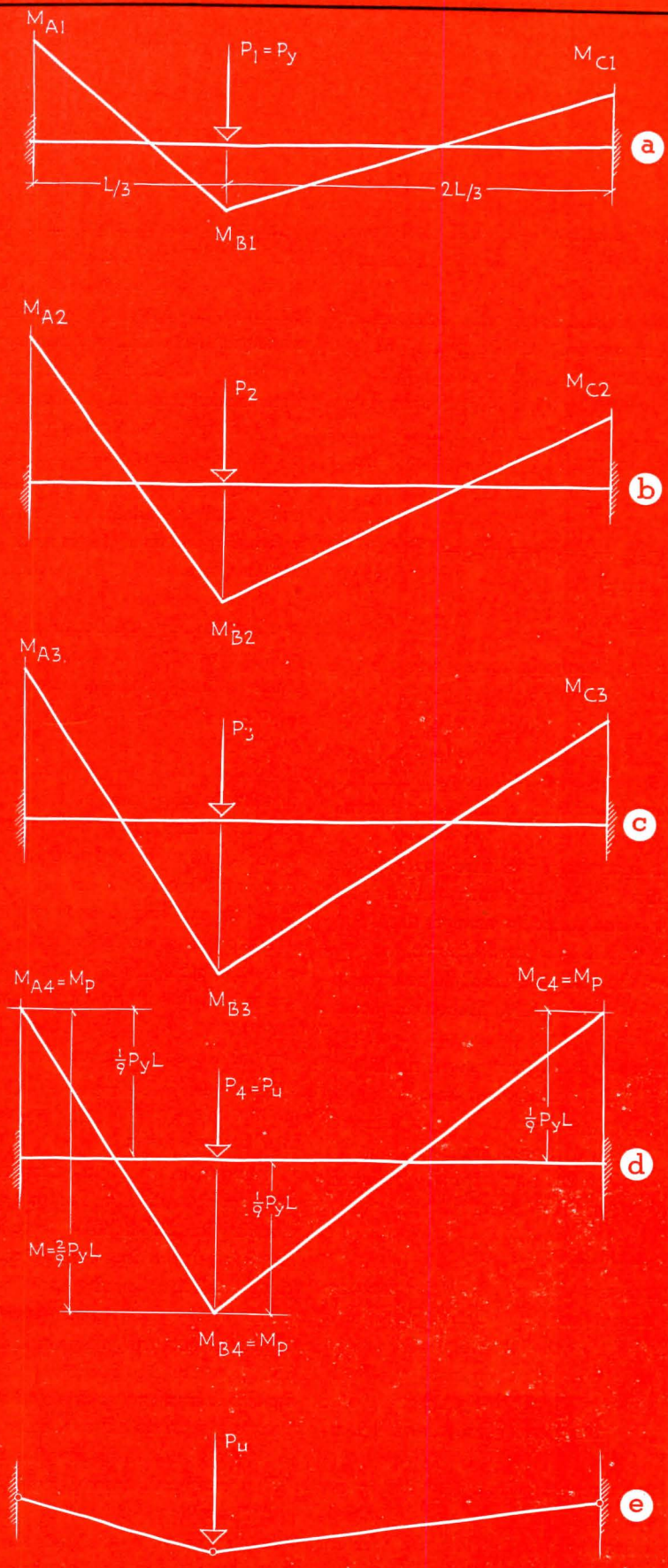


Figure 14—variation of bending-moment diagram as load grows and ultimate value in fixed-end beams.

possible moments which will all be equal to the moments of the plastic internal stresses.

Thus without a statically indeterminate analysis, we may establish the ultimate load of the beam (*Figure 14d*) by noticing that in the plastic stage the maximum moments must equal one half the maximum moment of a simply supported beam $M = \frac{2}{9} PL$:

$$M_u = -M_A = +M_B = -M_C = \frac{1}{9} P_u L, \quad (16)$$

and hence:

$$P_u = 9 \frac{M_u}{L}.$$

In terms of the yield-point stress the ultimate load becomes:

$$P_u = \frac{9}{4} \frac{h}{L} f_y A = \frac{162}{72} \frac{h}{L} f_y A.$$

This load is *twice* as large as the load P_1 at which the first beam fibers became plastic.

It is seen from this little example that in statically indeterminate structures plastic flow substantially changes the shape of the bending-moment diagram and increases the load and moment reserve beyond the elastic limit. Moreover, plastic analysis allows the determination of ultimate loads without previous evaluation of statically indeterminate moments, a long and tedious procedure. This explains its popularity with some engineers who are not too often familiar with all the implications of plastic design.

repeated loads

The analysis derived above for the case of a single load may be extended to a set of loads, provided they all grow at the same rate (*proportional loading*). Figure 15 gives the hinge location of a multiple frame under proportional loading.**

It is more complicated to follow the behavior of a structure in the elastoplastic range when the loads of the set change their intensity independently or when loads move on the structure.

Imagine, for example, that the single load on the beam shown (*Figure 14*) reaches its ultimate value P_u and then decreases to zero. As pointed out previously, the reversal of stress occurs elastically and, if sections A, B, and C have been strained in the plastic range, a release of the load will not wipe out residual strains in these sections. Hence, residual bending moments will be present at A, B, and C and the unloaded beam will have a bending-moment diagram of the type shown (*Figure 16*). If the load P is applied a second time, the stresses developed all through the beam will be elastic and no repeated application of the same loads will ever introduce plastic flow, unless the final intensity of the load is ulteriorly increased beyond P_u. The beam, after the first load application, behaves elastically and "shakes down." Criteria for the "shake down" analysis of frames have been established by Prager and his associates, but are too technical to go into here. It may suffice to note that plastic analysis for repeated loading requires a complete, statically indeterminate, elastic analysis followed by trial procedures in the plastic stage and that the loading history of the structure must be known—a condition seldom satisfied in practice and not easily established by "equivalent loading" requirements.

The words "limit or ultimate design" have acquired in recent years a particular meaning in reinforced-concrete literature. In view of the fact that reinforced-concrete sections, *weakly reinforced and hence failing due to steel tension,* exhibit a moment-curvature diagram of the elastoplastic type, the fundamental formulas for the design and analysis of reinforced-concrete sections have been extended to the type of stress distribution illustrated (*Figure 17*). In these formulas one usually introduces the bending moments obtained from an elastic analysis and actually limits the use of plastic concepts to the definition of safety factors.

Figure 18 shows the different plastic behavior of a section (moment versus rotation) as a function of steel percentage p. The lower curve (I) corresponds to a *balanced design* in which the steel and the extreme concrete fiber reach the yield point at the same time. The intermediate curve (II) indicates a section in which concrete yields first. The upper curve (III) shows a section in which the steel reaches yield when the concrete reaches ultimate strain. Plastic design should only be applied to sections behaving according to curve I, since the idealized stress-strain diagram does not hold for unreinforced concrete.

results of experiments

Numerous experiments have been performed to check the validity of limit design.

The ultimate loads obtained under the assumption of fully plastic moments at the critical sections are an upper limit to the carrying capacity of the structure. The elastic loads developed when first $f_c = f_y$ are a lower limit for the carrying capacity. The real carrying capacity of a structure has been shown to be near the average of these two limits (*Figure 19*).

In general the upper limit is approached when the structure is so designed that the plastic value of the moments is reached simultaneously at all critical sections, i.e., in well-balanced designs. The lower elastic limit is nearer the true capacity of the structure if plastic redistribution of stress is substantially necessary before all critical sections become plastic, i.e., in unbalanced designs. Thus, in a uniform built-in beam under uniform load, in which the elastic end-moments are twice the elastic mid-span moment, one cannot expect the ultimate load to reach its theoretical plastic value, since redistribution of stress is necessary to equalize the end and mid-span moments. If, on the other hand, a concentrated load is carried at mid-span, producing equal end and center moments (*Figure 20*), the ultimate value of the load would approach its upper plastic limit:

$$P_u = 8 \frac{M_u}{L}$$

** *Taken from a paper "Recent Progress in the Plastic Methods of Structural Analysis" by Symonds and Neal in the* Journal of The Franklin Institute, *November and December 1951.*

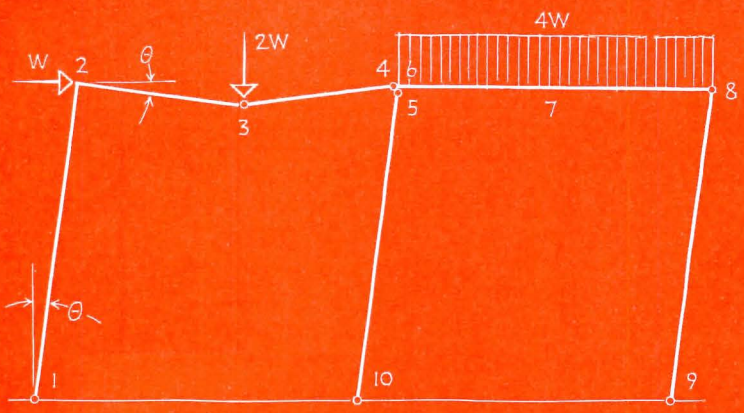


Figure 15—plastic hinge location in framed structure. (Journal of The Franklin Institute, Nov. 1951, figure 11, p. 402.)

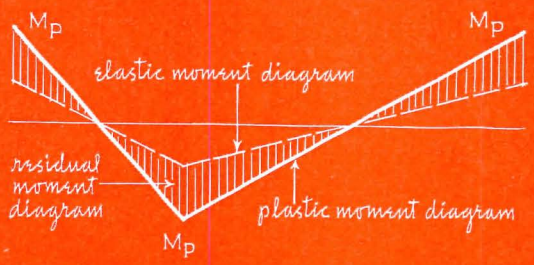


Figure 16—residual-moment diagram.

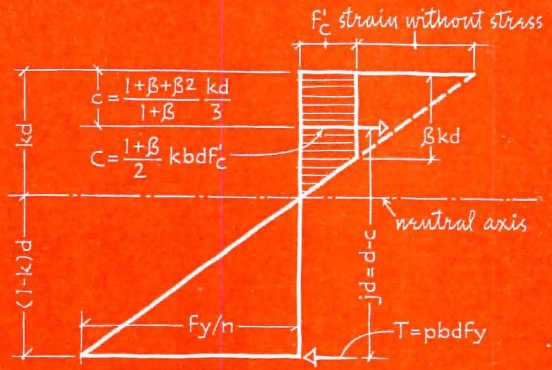


Figure 17—plastic-stress distribution in reinforced-concrete section. (Ultimate Design of Reinforced Concrete, Structural and Railways Bureau, Portland Cement Assn., 1951, figure 4 (b), p. 3.)

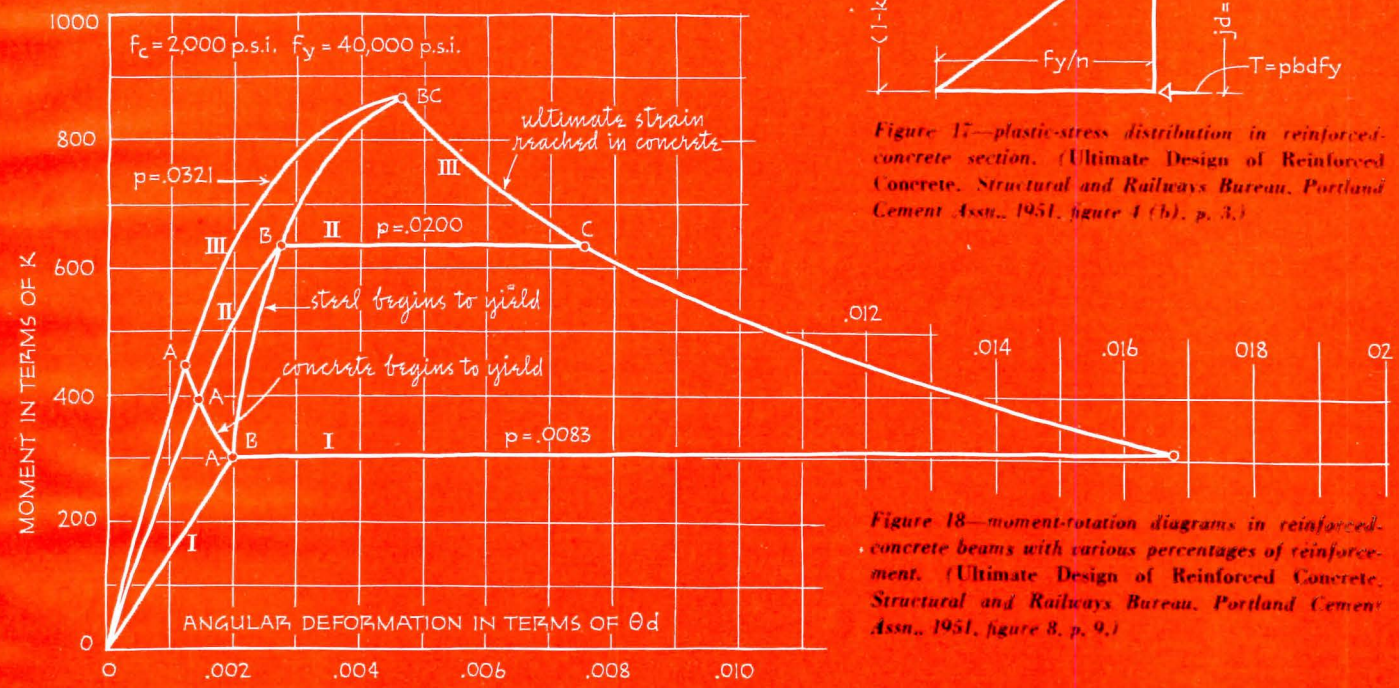


Figure 18—moment-rotation diagrams in reinforced-concrete beams with various percentages of reinforcement. (Ultimate Design of Reinforced Concrete, Structural and Railways Bureau, Portland Cement Assn., 1951, figure 8, p. 9.)

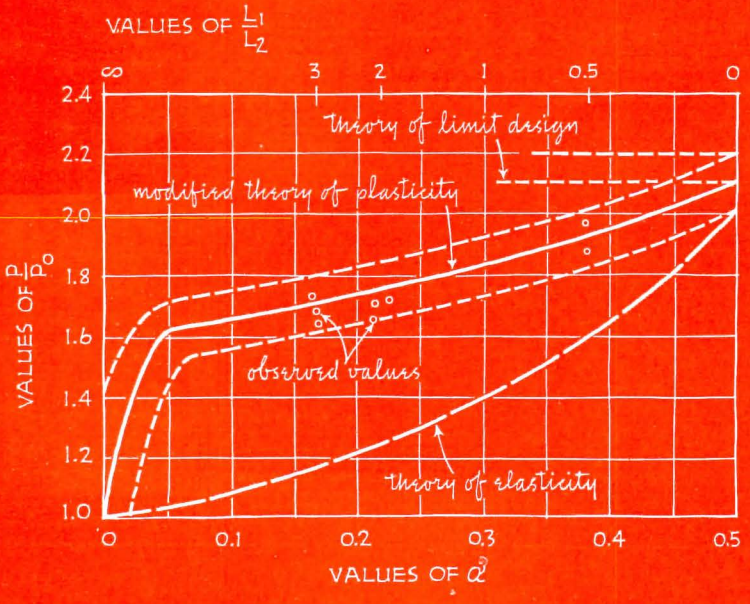


Figure 19—comparison of theory and experiments in ultimate design. (The Inelastic Behavior of Engineering Materials and Structures by Alfred M. Freudenthal, p. 400.)

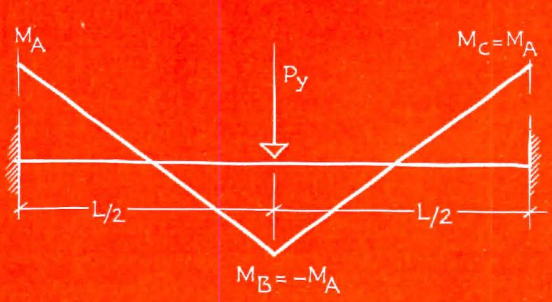


Figure 20—elastic moments in fixed-end beam with center load.

plastic design of two-dimensional structures

The reserve of strength exhibited by a beam of rectangular cross section after its extreme fibers have reached the yield point is due to the fact that the stress distribution across the section is not uniform so that the beam fibers become *successively* plastic as the load increases. In an ideal I beam, consisting of a tension and a compression flange, such strength reserve is not exhibited, since *all* the beam fibers become plastic at the same time; all fibers are, so to say, extreme fibers. An identical situation develops in structural elements subjected to simple compression and simple tension. Thus plastic design cannot be practically applied to trusses since tension bars will suddenly flow at the yield-point stress, while compression bars will either flow or, more often, suddenly buckle.

In other words, ultimate plastic loads differ from yield-point loads if and only if there is a possibility of plastic stress redistribution. While one-dimensional structural elements in compression or tension do not have this possibility and although beams and frames in bending do have it to a certain extent *two-dimensional structures* (plates and shells) present wide possibilities of stress redistribution and hence *a very high strength reserve.* It is easy to see why. After the extreme fibers at a point of a plate have reached the yield point, the plate cross section at that point may eventually become entirely plastic; yet, at the same time, the stress at other points may increase and a *whole portion* of the plate may become plastic. While plastic hinges at a few points of a beam or frame will eventually transform it into a mechanism, that is, an unstable structure, a plate must develop a whole plastic region before it collapses.

Moreover, as the plate becomes plastic in wider regions, the stretch of its middle plane increases substantially, introducing in the middle plane new stresses which are uniformly distributed across its thickness and capable of increasing the plate sttiffness. Thus, both stresses and *deformations* will increase slowly under growing loads, as compared to stresses and deformations in a frame.

A similar situation occurs in thin shells. Thin shells develop exclusively tensile or compressive stresses under any distributed load (except in the neighborhood of their boundaries). Hence, no redistribution of stress is possible *at a point.* But once the stress at a point has reached the yield value, the load can be increased substantially by a spreading of plastic stresses to adjoining areas. One may visualize this phenomenon by thinking of the flow of water in a river in which a bridge pier is being built (*Figure 21*): If the flow of water were uniform and capable of allowing a given discharge, the same discharge is still possible after building the pier since water will naturally increase its velocity in the neighborhood of the obstacle. In plastic flow the speed cannot exceed a limit (yield-point stress), so that this limit speed will be reached by as many water particles as is necessary to discharge the total flow.

The same kind of two-dimensional plastic behavior may be noticed in a square cross-section bar twisted beyond the elastic limit. As the torque grows, the yield point in shear is first reached at points A (*Figure 22*). It then spreads into the section, plasticizing larger portions of it, until the whole section becomes plastic and the torque reaches its ultimate value. This phenomenon can also be easily visualized by imagining a thin membrane, for example a soap bubble, stretched over a square hole. If a slight pressure is exerted from below, the membrane bulges up and its slope is representative of the stress in the twisted-bar section. If the stress cannot exceed a given value, the membrane slope cannot become greater than a limit slope. The limiting slope may be physically imposed by covering the membrane with a *roof* having that maximum slope (*Figure 23*). As the pressure increases (increase in torque), larger and larger membrane areas will come in contact with the roof. These are the areas of limit stress value in the bar, i.e., the plastic areas. The ultimate value of the torque is reached when all the points of the membrane touch the roof, i.e., when the membrane acquires a pyramidal shape. Such analogies are used to study quantitatively plastic shear stresses in twisted bars.

dynamic plastic analysis

The importance acquired in recent years by dynamic stress analysis of earthquake- and blast-resistant structures has suggested the extension of plastic design to this field.

Structures subjected to earthquakes or atomic blasts cannot be required to evidence only minor damage; it is economical to ask, at most, that they should not collapse. Hence, large plastic deformations may be permissible in the sense that plastic deformations may be large as compared to elastic deformations. This in turn suggests neglecting elastic stresses and strains altogether. We thus reach the *idealized rigid-plastic behavior* of materials in which it is assumed that a bar, for example, will be totally rigid up to the dynamic values of the loads capable of creating plastic hinges. These suddenly developed hinges will then flow plastically without any increase in local bending moment. Figure 24 shows the ideal stress-strain diagram for a rigid-plastic body.

Although many limitations reduce the

validity of the rigid-plastic assumption, this simplified analysis of dynamic problems has led to the solution of interesting practical problems.

conclusions

The introduction of plasticity in analysis and design is officially recognized in many countries. Steel and reinforced-concrete codes with specifications for plastic design are used at present in many European and South American nations. Plastic design was proposed as far back as 1906 in Belgium.

The study of plasticity has become popular in the United States over the last 20 years and the American literature on this subject is rapidly becoming wide and substantial. Some of the fundamental theories in this field were originated by American scholars.

On the other hand, the practicing engineer and the code maker have not adopted plastic criteria of design, as yet, in our country. We are, as a whole, very conservative in any field that has to do with safety and are not pushed by lack of structural materials into refined studies which have the purpose of economy.

No respectable designer of steel or reinforced-concrete structures may ignore today the influence of plastic flow on redistribution of stress and on resulting strength. The architect should be aware of these factors in his work and should collaborate with the engineer in making use of all sound new theories and practices. But limit design is no cure-all and requires conscientious analysis of all factors involved.

Like all new steps in the rapidly advancing field of science, plastic design will contribute to the improvement of our structures if wisely used. Let more architects and engineers learn its principles and make use of its practical implications.

Figure 21—increase in flow speed around an obstacle.

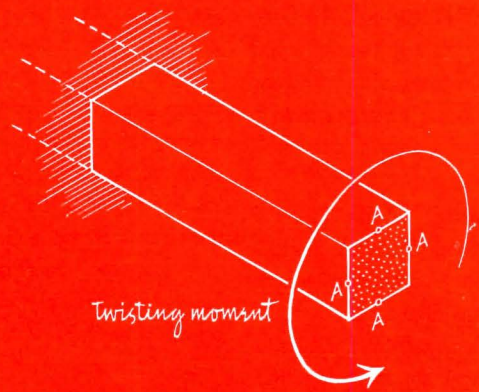


Figure 22—square bar under torsion.

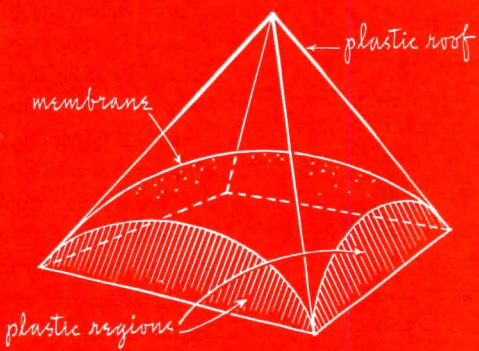


Figure 23—elasto-plastic membrane analogy.

Figure 24—ideal rigid-plastic behavior in dynamic problems.

sound-reducing doors

by M. Rettinger*

There are, strictly speaking, no soundproof doors. All doors admit some sound, even though the amount of transmitted energy may be so small as not to interfere seriously with the activities for which the room is intended. The term, therefore, is to some extent a relative one, whose connotation is not precisely equal to that carried by such terms as a "waterproof" vessel or a "lightproof" cubicle.

What goes by the name of "soundproof door," therefore, is usually a heavy door with rubber seals about the edges and a clamp which presses the door against the seals.

It was learned early, in the field of architectural acoustics, that the insulation of a single homogeneous partition is a function of its mass. The average transmission loss[1] of such a wall in decibles is given (approximately) by the equation:

$$TL = 23 + 14.5 \log \frac{\text{partition weight in lb}}{\text{partition area in sq ft}}$$

Thus, a wall which weighs 10 psf has an average transmission loss of:

$$TL = 23 + 14.5 \log 10$$
$$= 37.5 \text{ db}$$

According to this equation, a partition which weighs twice as much as another of similar construction provides approximately 4.5 db more insulation.

Figure 1 shows the transmission loss of a single homogeneous partition averaged over the frequency range from 128 to 2048 cycles, plotted against the mass per sq ft of the partition. A door of equivalent surface density may have a transmission loss slightly greater than that shown on the curve, particularly if the door panels are well damped. In most practical instances, however, 3 db should be subtracted from the values shown to obtain the average transmission loss of a door. This holds for doors with good seals. Poor seals may lower the calculated loss by as much as another 3 db, while lack of damping of the laminations of which the door is composed may be responsible for an additional reduction of the average of the transmission loss over the 128 to 2048 cycle range.

It was also found early, in the field of sound insulation, that a light wood door—one weighing less than 7 psf—has a very irregular sound transmission loss characteristic. Thus, a change of the test frequency of only 50 cycles in the region of 300 cycles can produce a transmission-loss change of 10 db or more, due to panel resonance. From this it is clear that the three most significant factors to be considered in the construction of a sound-reducing door are:

1. Maximum weight practical.
2. Good seals.
3. Means for dampening panel vibration.

Finally, and almost needless to note, is the fact that two doors, even though of only moderate weight each, are better than one of sturdy construction. The reason for this is that the transmission losses of the two doors tend to add arithmetically. (Strict arithmetic summation, of course, would be possible only if the doors could be structurally isolated from each other.)

In practice, however, particularly when the door is meant to be used as a so-called fire or emergency door (as in theaters) fire ordinances prohibit double doors. To meet building requirements, a compound door may be constructed, consisting of two partitions elastically connected to each other (*Figure 2*[2]). Each of the partitions is damped by a sheet of metal wedged between the sheets of plywood. The sound-absorbent material on the inner face of one of the partitions is also helpful in reducing the sound energy transmitted by one of the partitions into the space between the partitions. Note that the double wall is not bridged over solidly at the jamb, sill, or head of door opening. The measured average transmission loss of such a door having a mass of 18 psf came to 46 db.

To show the degree of noise infiltration through a small opening in a wall or through an insufficient seal of a door, consider a room 10′ x 10′ x 10′. Its total interior surface, S, will be 600 sq ft. Assume the wall, ceiling, and floor construction to be identical (say, 6 in. of concrete) and that the total interior absorption, A, comes to 300 sabines. If the transmission loss of the boundaries at a certain frequency is 60 db, the acoustic transmittivity, t, will be .000001 according to the equation:

$$t = \log^{-1} \frac{10}{\text{transmission loss}} = \log^{-1} \frac{10}{60}$$
$$= .000001$$

The total transmittance, T, will be:

$$T = St$$
$$= 600 \times .000001$$
$$= .0006$$

The noise insulation factor of the room will be:

$$NIF = 10 \log \frac{A}{T}$$
$$= 10 \log \frac{300}{.0006}$$
$$= 57 \text{ db}$$

Next, assume that cracks through the walls at various places amount to 1 sq in. The transmittance, T_1, of the apertures comes to 1/144 or .00694; the total transmittance, to .0006 + .00694, or .00754, and the noise-insulation factor of the room to:

$$NIF = 10 \log \frac{300}{.00754}$$
$$= 46 \text{ db}$$

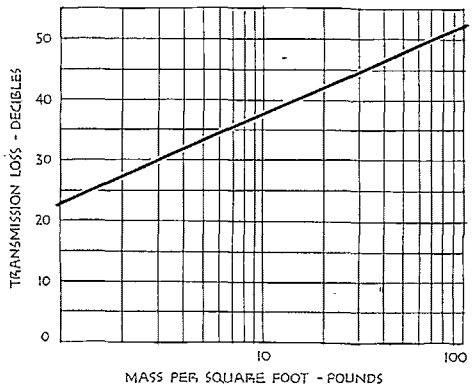
In other words, the cracks reduced the noise-insulation factor by 11 db. If it is remembered that the transmission loss of solid masonry or monolithic partitions increases directly with the weight per sq ft of wall sections, and that each succes-

Member of Engineering Department, Radio Corporation of America, Hollywood, Calif.

[1] *The average transmission loss is the arithmetic mean of the transmission loss at 128, 256, 512, 1024, and 2048 cycles per second. Transmission loss is the numerical measure of the reduction of sound intensity level provided by a partition; the unit is the decibel.*

[2] *Developed by Republic Studios, Hollywood, Calif., in conjunction with the author.*

Figure 1



sive doubling of the weight of the partition adds some 4.5 db to the transmission loss, the ("leaky") room discussed above is equivalent to one having walls 1 in. thick but having no cracks in the walls.

The above is truly idealized, because small openings such as cracks and fissures act somewhat in the nature of frequency selective filters. Still, such figures may be borne out in practice. And here, as elsewhere in sound-reducing construction, it should be remembered that the cost of initial preventatives is often but a small fraction of the cost of subsequent corrective measures.

Figure 3 depicts various seals for doors. "A" represents a flat seal, probably the most commonly used, and also the least effective. It requires close tolerances in the finished dimensions of the door and the jamb rabbet to assure an airtight fit. Even a slight warpage of the door will seriously affect the seal, with a consequent increase in the transmitted sound. Also, the durometer rating of the rubber has to be chosen with care, in order to assure sufficient compression of the pad for a tight joint. More often than not, the rubber selected for the seal is far too stiff, requiring enormous pressure on the door to prevent sound passage. For a 3′-6″ x 6′ door, the durometer rating of the ½ in.- or ¾ in.-wide rubber pad should not be greater than 30, unless means are provided to press the door against the jamb with great force.

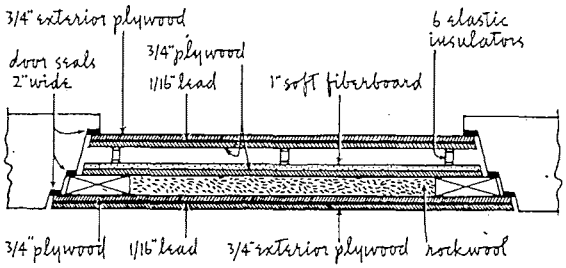
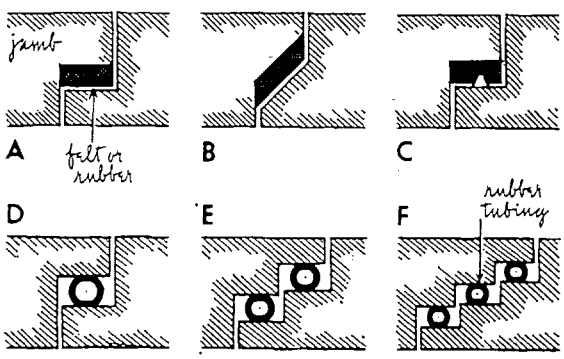


Figure 2

Figure 3

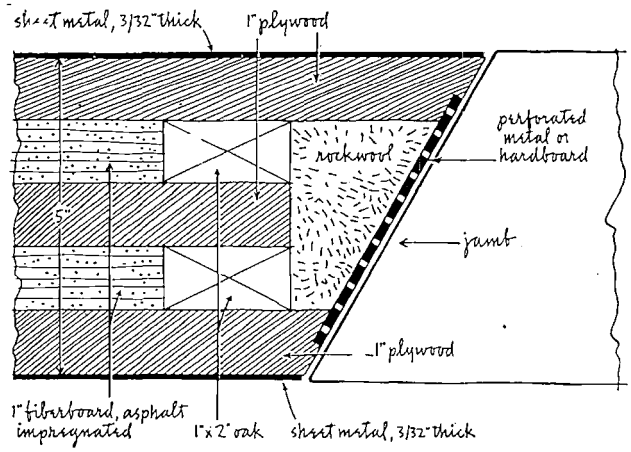


In the construction shown in "B," the door and jamb employ splayed butting surfaces. This type of seal is more effective than that shown in "A," particularly along the door edge where the hinges are located, and in general requires less pressure against the door for intimate contact. The door still calls for a high degree of workmanship, and very strong hinges should be employed, because of the large forces applied along the closing edge of the door.

In "C" small triangular fillets have been applied to the door frame. With this construction, less door pressure is required for tight closure because the relatively small fillets can penetrate the rubber or felt more deeply than the edges of the door shown in "A" and "B" can compress it. The dimensional tolerances of the jamb and door employing fillets can be made larger, with a consequent decrease in cost of the door. Also, warpage or sagging of the door has less effect on this type of seal than on the other seals. The fillets can likewise be employed in connection with the construction shown in "B." Also, fillets tend to provide a better seal at the four corners of the door.

"D," "E," "F" show single, double, and triple seals respectively, made with rubber tubing. This type of seal is superior to flat pads and, having no sharp corners, is also less subject to abrasion and damage. The chief advantage of multiple seals consists in correcting for the imperfections of a set of seals, since it would be most

Figure 4



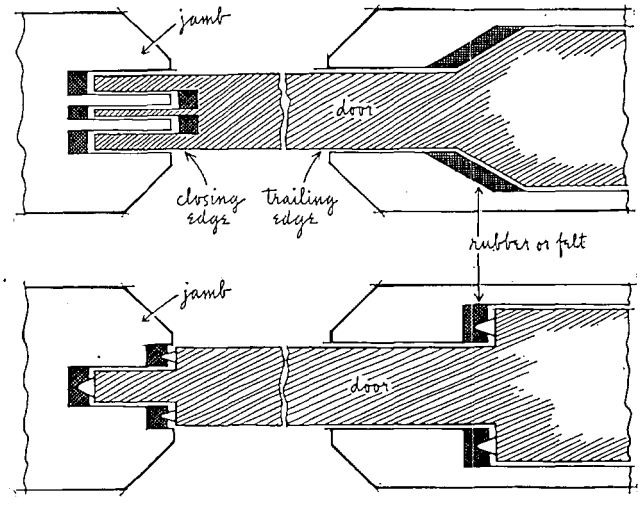
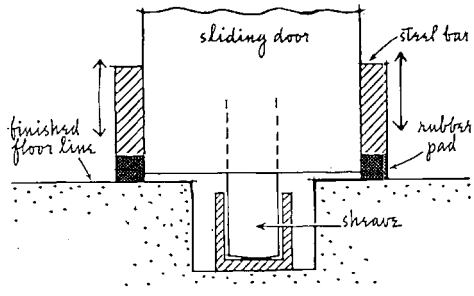


Figure 5

Figure 6



unlikely that leakage would occur at exactly the same place on each set, unless the door is badly warped or poorly constructed.

Figure 4 shows a sound-reducing door using an acoustic filter as a seal. The filter is composed of a rockwool-filled recess around the edges of the door, and is covered with a strip of perforated metal or hardboard for protection.

Figure 5 shows cross-sectional views of two sliding doors. Seals similar to those shown for the jambs can be employed also for the sill and head of the door. However, this is possible only if the door permits a vertical displacement. To avoid the use of door-lifting machinery, a seal of the type shown in Figure 6 may be employed. A pad of rubber is bonded to a steel bar which may be raised or lowered by means of a manually operated lever.

For the calculation of door weights, the following table may prove helpful:

Material	Surface density psf
1" plywood	2.5
1/16" lead	3.7
1/8" lead	7.4
1/4" steel	10
1/4" glass	3.5
1/2" glass	7
1" concrete	15

A side-hung sound-reducing door, because of its weight, should be hung with strap hinges. So-called butt hinges are unsuitable for the purpose, because the screws are pulled out from the jamb rather easily by the tension exerted against them, unless the hinge is made very long (like a "piano hinge"). The strap hinge should be fastened to the door and jamb by bolts rather than ordinary wood screws, to provide extra support.

In order to secure a good seal it is desirable to use some sort of clamp which forces the door tightly into the frame. So-called icebox or refrigerator clamps are suitable for the smaller sound-reducing doors, particularly when one such device is located near the top and the other near the bottom of the door. For heavy doors, however, whether sliding or side-hung, an electrically operated cam should be used. Mechanical advantage may be had either by leverage action or by hydraulic means, the latter being necessary only for very large doors.

prestressing for ceiling-crack prevention

Frank B. Wallace, Phoenix Architect and Builder, makes use of an inexpensive but extremely effective method of eliminating cracks in plaster ceilings. By means of wood struts driven between ceiling joists and rafters (*photo below*), joists are deflected before plastering begins. After the plaster has set, the struts are removed, thus placing the ceiling surface in compression. Wallace reports that the results have been excellent and in the very rare case where a hair crack does appear before removal of the struts, it vanishes entirely after the struts are removed.

In practice, center joists are depressed more than the joists near the edge of the room so that the ceiling is bowed downward both longitudinally and transversely. Thus compression is developed in both directions when the braces are removed. This compressive force should be greater than any stress developed by movement due to weather and greater than the tensile stress created by the weight of a man moving about in the attic.

An interesting, if casual, experiment conducted by Wallace demonstrates the effect of prestressing. He selected two 2x4's of white pine and to each applied ⅜" plaster lath. Before plastering, one piece was deflected ⅜" at center span. After the plaster had set, the stress was removed from the one 2x4 and both members were subjected to a concentrated load. The load required to crack the prestressed plaster was 154 lb, while only 98 lb was necessary for the unstressed sample. The crack was significantly wider in the unstressed piece.

The extra time required to prestress the joists of an ordinary five-room house with wood ceiling joists is about two hours. Removal of struts is also included in this time. Lathers say "it makes a much better lathing job as the ceiling joists are more rigid for nailing."

prestressing of wood ceiling joists

Size	Length	Kind	Pressure applied at center	Deflection
2 x 4	8'	white pine	300 lb	9/16"
2 x 6	10'	white fir	300 lb	7/16"
do	12'	do	do	5/8"
do	do	Douglas fir (Coast reg.)	do	5/16"
do	16'	do	do	25/32"
2 x 8	20'	do	400 lb	15/16"

These deflections are less than the calculated deflections, indicating that the actual modulus of elasticity was up to 50 percent greater than moduli from tables compiled by the Federal Housing Administration.

As the prestressing is noncritical, it is not necessary to follow the above table exactly, but it may serve as an indication of what might be used. Plastered ceiling on 2nd floor joists should have similar prestressing.

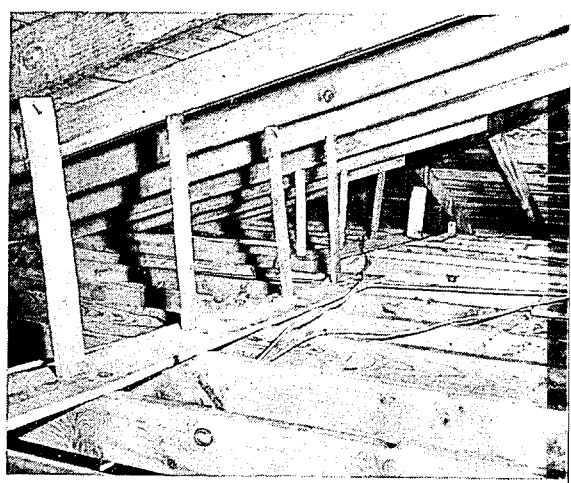


Photo shows scrap lumber being used for prestressing. Struts are fastened with 8 d box nails, driven about half way so that they can be easily withdrawn.

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Milton A. Ryan, Architect

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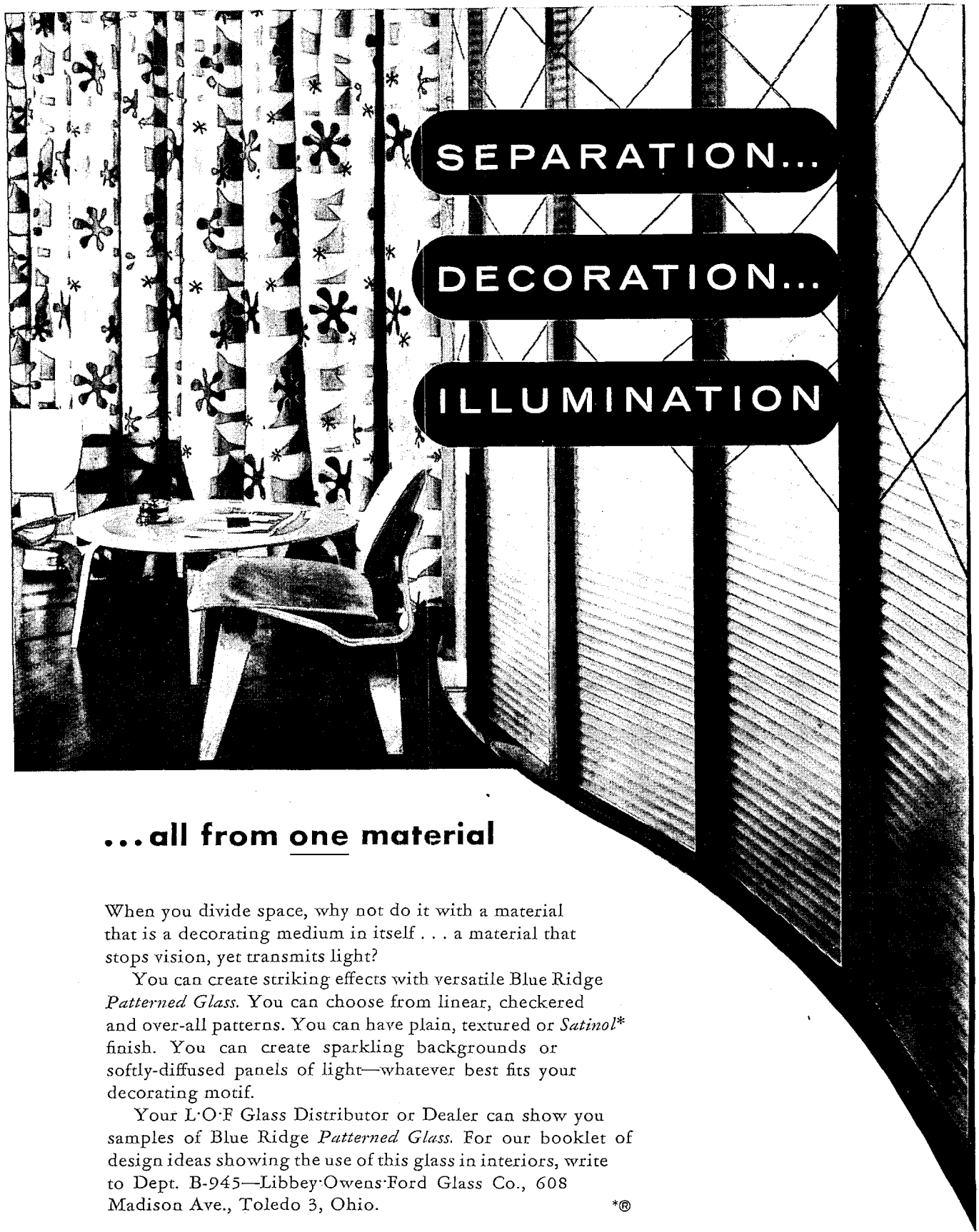

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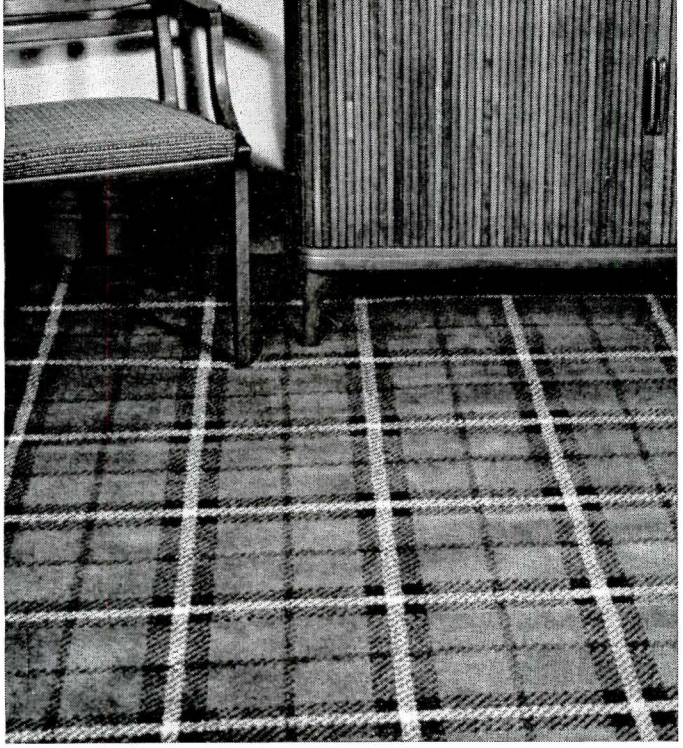
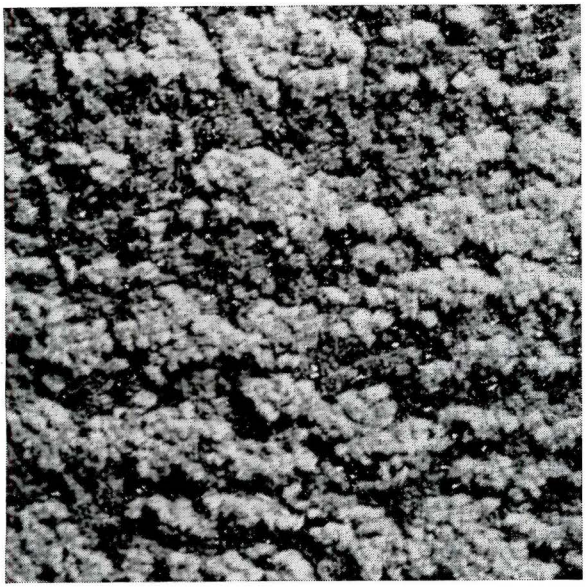
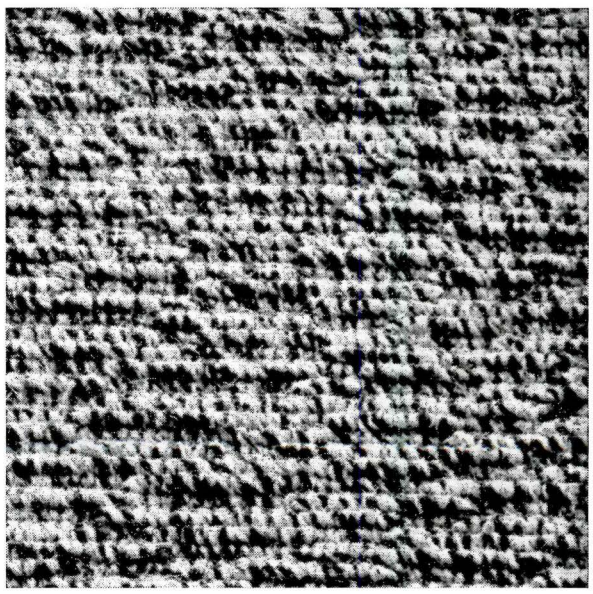


"Tam-O'-Shanter Plaid": Axminster "Galaxy" quality/ all-wool pile, twist yarns/ vibrant red, yellow, navy against green/ 9 ft width only/ **retail:** $10.95 sq yd/ **James Lees & Sons Co., E. Fourth St., Bridgeport, Pa.**

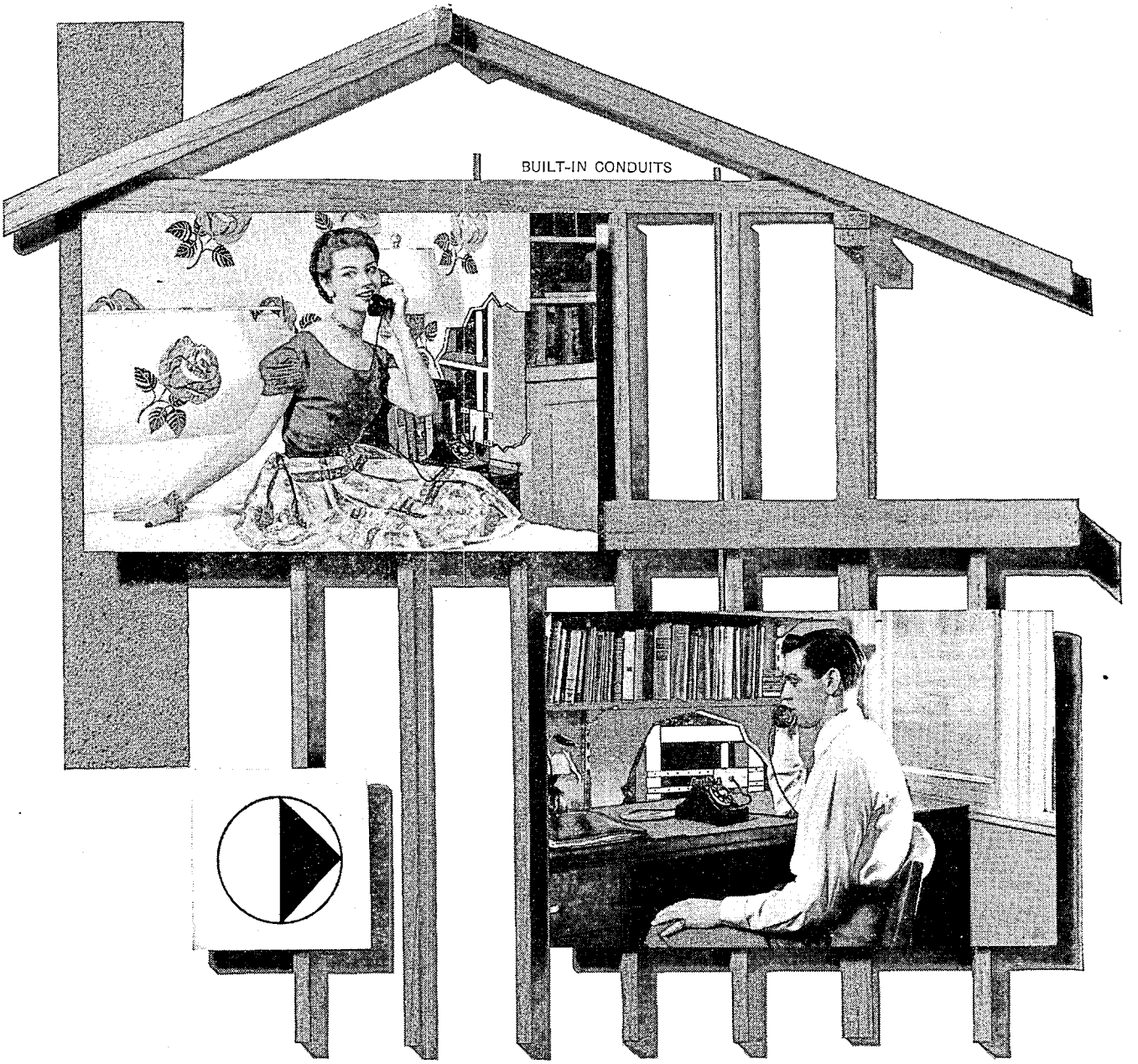


"Monte Carlo": wool quality/ three levels of cut pile/ plasticized, metallic, gold-thread highlights/ rubberized white back/ Lockweave construction/ widths up to 15 ft/ colors: Doeskin Beige, Dawn Gray, Suburban Green/ **retail:** $14.50 sq yd/ **Bigelow Rugs and Carpets, 140 Madison Ave., New York 16, N.Y.**

"Serrata": "Shag'lon" quality/ 100% nylon chenille/ nubby texture/ two-color random peak-and-valley design/ unified pile and back construction/ nine basic colors, 72 possible color combinations/ colors: Geranium, Bermuda Sand, Snowberry, Tokay, chartreuse, aquamarine, beige, platinum, black/ standard widths: 2' 3", 3', 4' 6", 6', 9', 12', 15', 18'/ custom-woven, tailored, dyed/ **retail:** $25 sq yd/ **Nye-Wait Co., Inc., Auburn, N.Y.; through Raymond & Heller, Inc., 295 Fifth Ave., New York 16, N.Y.**



"Random-Tex": wool broadloom Wilton/ high- and low-loop pile/ random tweed texture/ tightly packed for extra firm surface/ colors: Flect Avocado, Golden Beige, Walnut Brown, Salt 'n Pepper Gray, Buckskin Beige, Pinefrost Green, Russet Spice/ widths: 9', 12', 15', 27"/ **retail:** $12.95 sq yd/ **Archibald Holmes & Son, Erie Ave. & K St., Philadelphia 24, Pa.**



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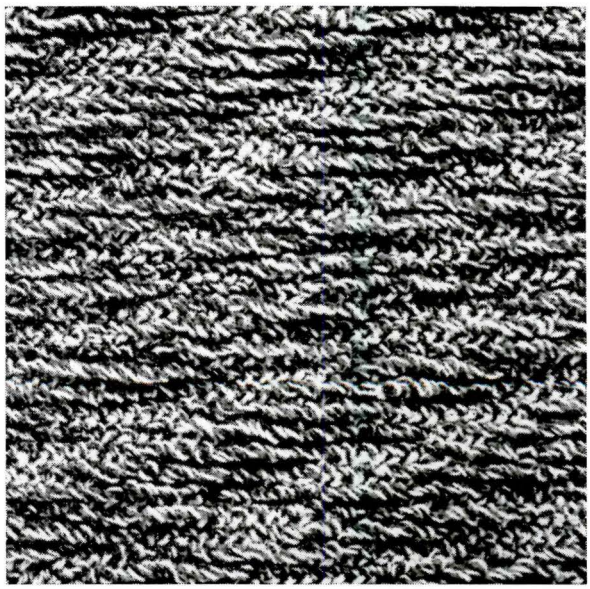
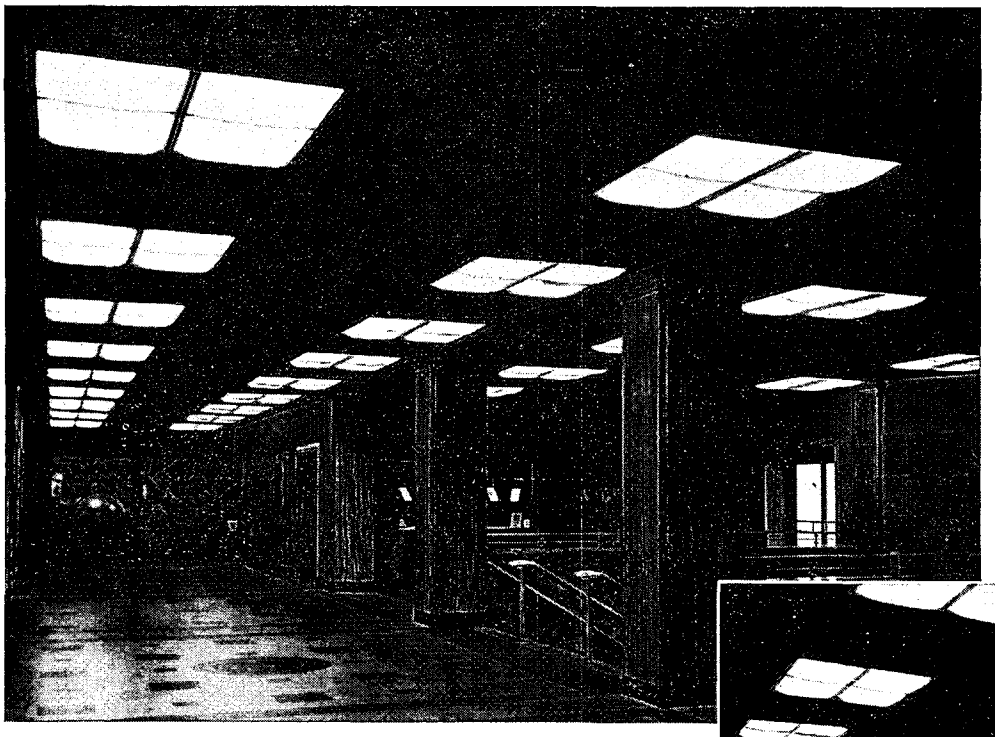
"Multicolor": "Waitrend" quality/ rayon with fiber filler/ soft-textured, reversible/ self-fringed/ vertical stripe pattern combining 19 shades of blues, reds, greens, neutrals/ standard rug sizes from 27″ x 50″ to 12′ x 15′; also full rolls and cut-order broadloom/ **retail:** 9′ x 12′: $45/ **Waite Carpet Co., Oshkosh, Wis.**

"Star-Point": "Tuftronic" tufted wool/ random-textured broadloom/ varying pile heights/ white plastic backing/ colors: Mist Gray, Nutria, Hampton Beige, Corsage Green/ widths: 9′, 12′, also rolls and cut-order/ **retail:** $11.95 sq yd/ **C. H. Masland & Sons, Spring Rd., Carlisle, Pa.**

"Skidmore": all-wool/ flat hard partial-sheared texture/ shown in black, white, and gray/ available any custom-color, any custom-size/ **retail:** $24 sq yd/ **V'Soske, available through Lord & Adams, 4 E. 53 St., New York, N.Y.**



"Haiti": wool construction/ deep pile random loop texture/ multicolor treatment/ rubberized white back/ colors: Rhumba (charcoal, Spice); Tambour (turquoise, charcoal); Calypso (Dubonnet, black, white); Samba (Nutria, natural); Voodoo (Nutria, beige, green)/ widths to 15 ft/ **retail:** $10.50 sq yd/ **Sanford Carpets, 295 Fifth Ave., New York 16, N.Y.**



Architect:
Roger C. Kirchhoff

Lighting Engineer:
Albert M. Koga
Hub Electric Co.

Electrical Contractor:
Russell Hainstock
Havey Electric Co.

Consulting Engineers:
Robert E. Hattis

Luminaires:
Corning Alba-Lite

A main lobby in the University of Wisconsin Memorial Library. Drop bowls of Corning Alba-Lite create interest in the ceiling, prevent any feeling of "weight." Luminaires are easy to maintain.

Alba-Lite equipped luminaires blend in perfectly with the architectural scheme, enriching the various colors through warm, soft, complementing light. Each luminaire has four 75-watt lamps. Illumination level is 45 foot-candles and can be increased simply by installing lamps of higher wattage.

Complex requirements determine choice of Alba-Lite in $5,000,000 University Library

How would *you* choose luminaires for key areas in one of the world's largest and most beautiful university libraries?

The architects and engineers set up a list of rigid lighting requirements for the University of Wisconsin Memorial Library. Against this list, they evaluated all possible choices to select the one that would best meet their standards.

When it came to luminaires for lobbies and corridors, the choice was large luminous elements with 24" square bowls of Corning Alba-Lite.

Luminaires equipped with Alba-Lite possess the qualities of character and beauty required in a building so richly conceived. They are distinctive without being conspicuous—another key point on the architect's list. And they highlight the beauty of architectural design, besides having a look of "belonging."

Pleased with results

Alba-Lite filled the requirement of variation in light output without obvious difference in brightness. And, the luminaires also fit into the long-term picture of low maintenance cost. A wipe with a damp cloth keeps Alba-Lite looking bright and new. And there's never any discoloration or fading with age.

How would you summarize final results? The completion report said simply, "The architect was immensely pleased with results."

And that about sums up the opinion of everyone who is concerned with Alba-Lite installations. We'll be happy to send you complete information on beautiful, practical and versatile lightingware, if you'll just return the coupon.

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Address.....

City.....Zone.....State.....

Geometile: vinyl flooring in modular geometric units/ in five shapes: Slim Diamonds, 12" and 18" long with angles of 45 and 135 degrees; Regular Diamonds, 12" long with 60 and 120 degree angles; Hexagons, 12" wide; Octagons, 12" wide/ in solid colors and marbleized patterns/ shapes permit wide design diversity in variety of possible combinations/ **Robbins Floor Products, Inc., Tuscumbia, Ala.**

"Color Harmonizer": color workbook permits accurate preselection of colors/ 100 full-page (5"x7") color chips of standard and intermix colors in "Quali-Kote," latex-base paint/ windows show two harmonizing colors/ light reflectance value is indicated/ **Painter-Maintenance Division, The Sherwin-Williams Co., Cleveland 1, Ohio.**

Upholstered Counter Stool: contour back/ hidden braces extend from seat to top of back/ available on tubular steel column with porcelain enamel or amber bronze cast base, or with one-piece cast construction column and base in chrome or 11 colors of porcelain enamel/ seat in plastic or genuine leather upholstery/ **The Chicago Hardware Foundry Co., North Chicago, Ill.**

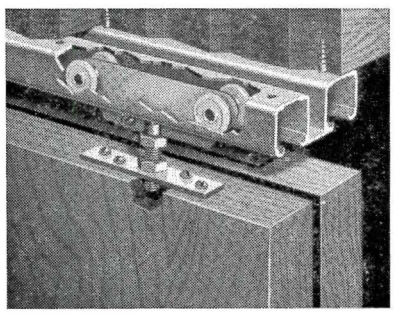
Prefabricated Bench: designed to fit body contours in natural sitting position/ for use as church pew or other mass seating/ supplied in continuous lengths up to 10 ft/ sanded and trimmed to specifications/ available in 1/2", 7-ply; 5/8", 9-ply; 3/4", 11-ply thicknesses/ veneers 1/28" thick, bonded to hardwood core, in oak, birch, maple, mahogany, korina, walnut/ **U. S. Plywood Corporation, 55 W. 44 St., New York 36, N.Y.**

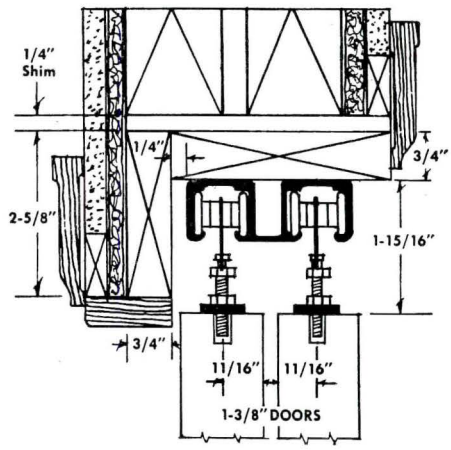
Sliding Door Cabinet: steel-switch and double-track arrangement engineered by Mulray Products, Inc., permits sliding doors to close flush/ available in wall or floor models/ floor cabinet 42" long x 18" deep x 28" high retails for $221.25/ **Lehigh Furniture Corporation, 16 E. 53 St., New York 22, N.Y.**

"Fold-Away" Burner Unit: built-in cooking burner that folds against wall when not in use/ automatically shuts off when closed/ cooking units save space, may be housed in previously unused wall space between counters and cabinets/ **Dixie Products, Inc., Cleveland, Tenn.**

New Uses for Struc-Tube: in a store: support for movable clothing hang-rods, clothing "pull-outs," removable glass shelves, cornice with concealed lighting/ in an office: pierced partition combined with translucent, laminated plastic and wood panels/ in an exhibition: cages containing suspended materials/ in a school: as partitioning and dividers for large classroom divided into library, art, laboratory areas/ Struc-Tube assembles without tools/ designer: George Nelson/ **Affiliated Machine & Tool Co., 260 West St., New York 13, N.Y.**

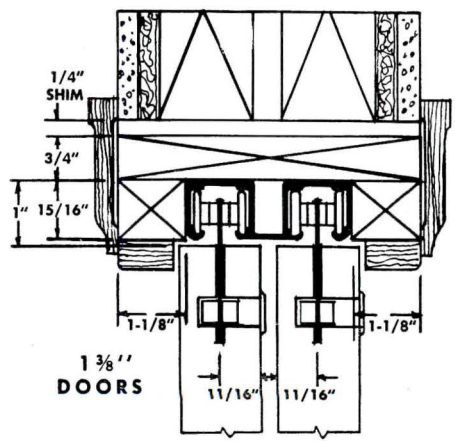
Wardrobe Combinations: for built-in or free-standing installation in hospitals, institutions, dormitories/ available in standardized combinations for single, double, or multiple purpose room or ward areas/ flush double-pan insulated doors, flush drawers, cushioned with rubber bumpers/ wardrobe portions furnished with full door or with door-bottom drawer combination/ vanity or lavatory units furnished with double doors or drawers or door-drawer combination/ back panels include mirror with fluorescent lighting fixtures/ **Hospital Equipment Division, Maysteel Products, Inc., 740 N. Plankinton Ave., Milwaukee 3, Wis.**

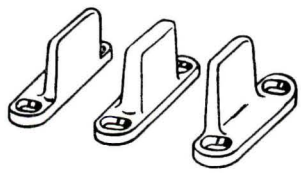




Kennatrack Series 600 sliding door hardware is designed for quality wardrobe installations of 1 3/8-1 3/4 in. doors/ door weight is evenly distributed over 8 self-aligning nylon wheels for finger-tip operation/ extruded aluminum double track automatically assures correct spacing between doors/ heavy gauge steel hangers have threaded vertical adjustment for exact alignment of door to jamb.

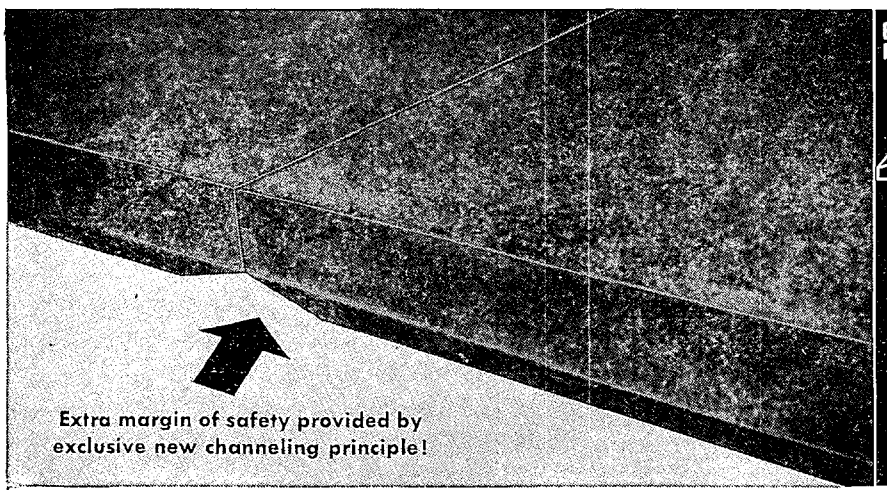
New nylon Kennaguides which screw to floor can be used without saw kerf in bottom of door/ center spacer goes between doors/ side guide goes at outside of each door and are slotted for easy adjustment.

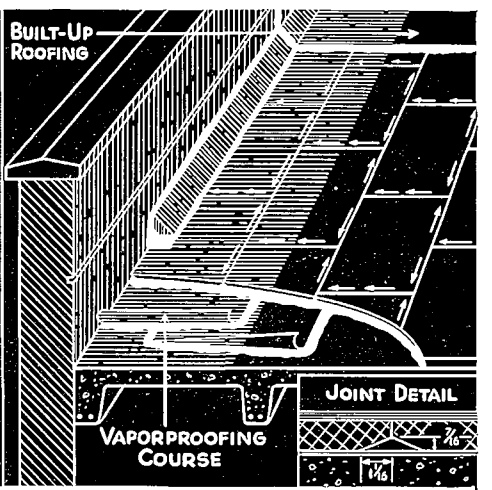




The Kennatrack "Architectural Portfolio" gives you full information for detailing this complete line of sliding door hardware/ its scaled detail drawings save you valuable time/ write manufacturer for free copy/ **Kennatrack Corporation, Elkhart, Indiana.**

New safeguard against blistering, separation of felt and insulation!





Celotex CHANNEL-SEAL ROOF INSULATION

A unique network of interconnecting channels, formed by Celotex Channel-Seal Roof Insulation units laid on the deck, permits free air circulation beneath roof surface. Along these "escape routes", high-pressure air pockets are constantly being relieved. Result: *Cost-saving protection no ordinary roof insulation can offer!*

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Each unit of Channel-Seal has bevels 7/16" high, 1 1/16" wide on all deck-side edges. Bevels produce a system of broad channels that reduce and equalize pressure pockets. This minimizes risk of blistering or separation of felt and insulation.

Celotex Channel-Seal Roof Insulation provides high insulating efficiency, comes in range of thicknesses for every job specification. Asphalt-coated on both sides and all edges for extra moisture protection in storage and on-the-job.

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Low in both initial and applied cost, Channel-Seal is rigid, tough, yet light and easy to handle. Resists job handling damage. Coated surface assures positive bond to both roof deck and roofing felt. Specify Celotex Channel-Seal, the only roof insulation made of durable, interlocking long Louisiana cane fibers, protected by the patented Ferox® Process against dry rot and termite attack.

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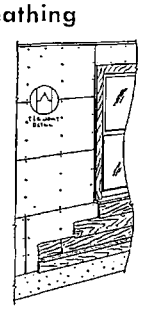

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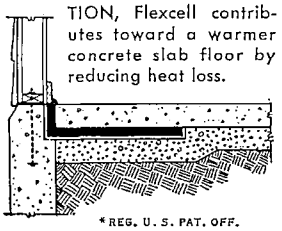
As PERIMETER INSULATION, Flexcell contributes toward a warmer concrete slab floor by reducing heat loss.



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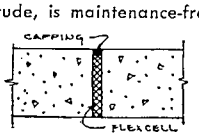
As EXPANSION JOINT FILLER for driveways, walks, curbs and gutters, Flexcell expands *and contracts* with concrete slab—is not affected by temperature changes . . . does not extrude, is maintenance-free!



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Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

★

air and temperature control

1-18. Winkler Gas-Fired Furnaces (FG-2228), 4-p. circular giving information on basement-model furnaces for residential installations. Drawings and diagrams show operation of vertical and counterflow units; table gives Btu ratings and dimensions. U. S. Machine Div., Stewart-Warner Corp., Lebanon, Ind.

1-19. Young Air-Conditioning Units, AIA 30-F-2 (7554), 32-p. booklet describing horizontal- and vertical-type units. Outlines step-by-step procedure for design of system and selection of component parts, including sample problem. Tables give data on performance, capacity, and mean effective temperature difference. Installation suggestions and architectural specifications; drawings and dimensions. Young Radiator Co., Racine, Wis.

1-20. Hydro-Flo Products (FK-954), 28 p. catalog on hot-water heating equipment. Gives information on booster pumps, fittings for single-pipe systems, temperature controls, tankless water heaters, and heat exchangers. Outlines design and construction of each product; provides drawings, layout diagrams, specifications, and dimensions. Bell & Gossett Co., Morton Grove, Ill.

1-21. Dravo Case Studies, 24-p. file folder enclosing data on eight industrial installations of warm-air space heaters, used to temper large volumes of fresh make-up air for plant ventilation. Discusses individual ventilation problem; explains how space heater facilitated venting of fumes, odors, or dust. Also includes information on fuels and Btu outputs; photos. Dravo Corp., Pittsburgh, Pa.

1-22. Commercial Steel Boilers, AIA 30-C-1 (675), 8-p. brochure on boilers featuring induced-draft fans. Describes method of providing adequate draft without requiring high, costly stacks—particularly suitable for garden apartments, airport buildings, and wherever there are problems of down-draft. Drawings and data on mounting fan to boiler; wiring diagrams; charts of space requirements and dimensions. The National Radiator Co., Johnstown, Pa.

construction

2-27. Airtherm Decking (205), 8-p. booklet describing ribbed-steel roof decking manufactured in large sizes (20′ x 30″). Gives features of construction with large-size sheets, erection methods, physical properties, and suggestions for specifications. Photos, drawings, and tables; diagrammatic details of accessories. Airtherm Mfg. Co., 749 S. Spring Ave., St. Louis, Mo.

2-28. Cellular Concretes, 48-p. paper discussing preparation and physical properties of cellular concretes (having homogeneous void or cell structure and weighing from 10 to 100 lb per cu ft). Report also covers foaming agents, ingredients used in moist- and steam-cured concretes, and summary of compressive strengths. Photos, graphs, and tables. American Concrete Inst., 18263 W. McNichols Rd., Detroit 19, Mich. ($1)

2-29. Embeco Premixed Grout (EPMG-2), 8-p. pamphlet outlining advantages of nonshrinking grout mixed under laboratory control. Contains information on ingredients and quality of grout for use with anchor bolts, heavy equipment, and building columns. Drawings and details show common methods of grouting; tables give instructions for estimating quantities and use in hot or cold weather. The Master Builders Co., Cleveland 3, Ohio.

2-30. Fireproofing With Perlite, AIA 21-C-1 (5), 8-p. bulletin describing fire retardant constructions using lightweight plaster or concrete made with perlite aggregate. Gives details and descriptions of 38 approved assemblies; discusses advantages of perlite concrete; covers fire protection of columns, floors, ceilings, and partitions. Perlite Institute, 10 E. 40 St., New York 16, N.Y.

2-31. Symons Forming System, 8-p. publication illustrating plywood forms with wood, steel, or magnesium frames. Diagrams show use of forms on curved walls, high reinforced walls, and mass-produced homes; explains use of panel forms for slabs, columns, and beams. Also includes data on corner sections, hardware, bracing, and safety shoring. Symons Clamp & Mfg. Co., 4249 Diversey Ave., Chicago 39, Ill.

★ **2-32. Data on Vermiculite Concrete Panel or Spandrel Walls,** AIA 4-E-13, portfolio containing 68 pages of material on machine-applied vermiculite concrete wall for use with any type of exterior facing and interior finish. Contains basic data and working drawings by Severud-Elstad-Krueger, including design analysis and recommended connection details for steel-frame or reinforced-concrete buildings. Also gives results of fire tests, listing wall thicknesses required for various degrees of fire resistance. Vermiculite Institute, 208 LaSalle St., Chicago 4, Ill.

doors and windows

3-19. Cookson Rolling Doors, AIA 16-D-13 (401-5), 12-p. bulletin illustrating rolling doors of many types—steel service doors, fire doors, aluminum counter doors, and rolling grills. Provides description of operation, specifications, and dimensions. Photos and diagrams; charts for selection of proper guides, power units, and equipment. The Cookson Co., 1525 Cortland Ave., San Francisco 10, Calif.

3-20. Ellison Balanced Door, AIA 16-A-1 (41), 8-p. pamphlet describing operation of balanced door with concealed mechanism. Includes construction details and photos of actual installations. Specifi-

(Continued on page 155)

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1-22	3-20	5-3	9-6
2-27	3-21	6-6	9-7
2-28	3-22	6-7	11-1
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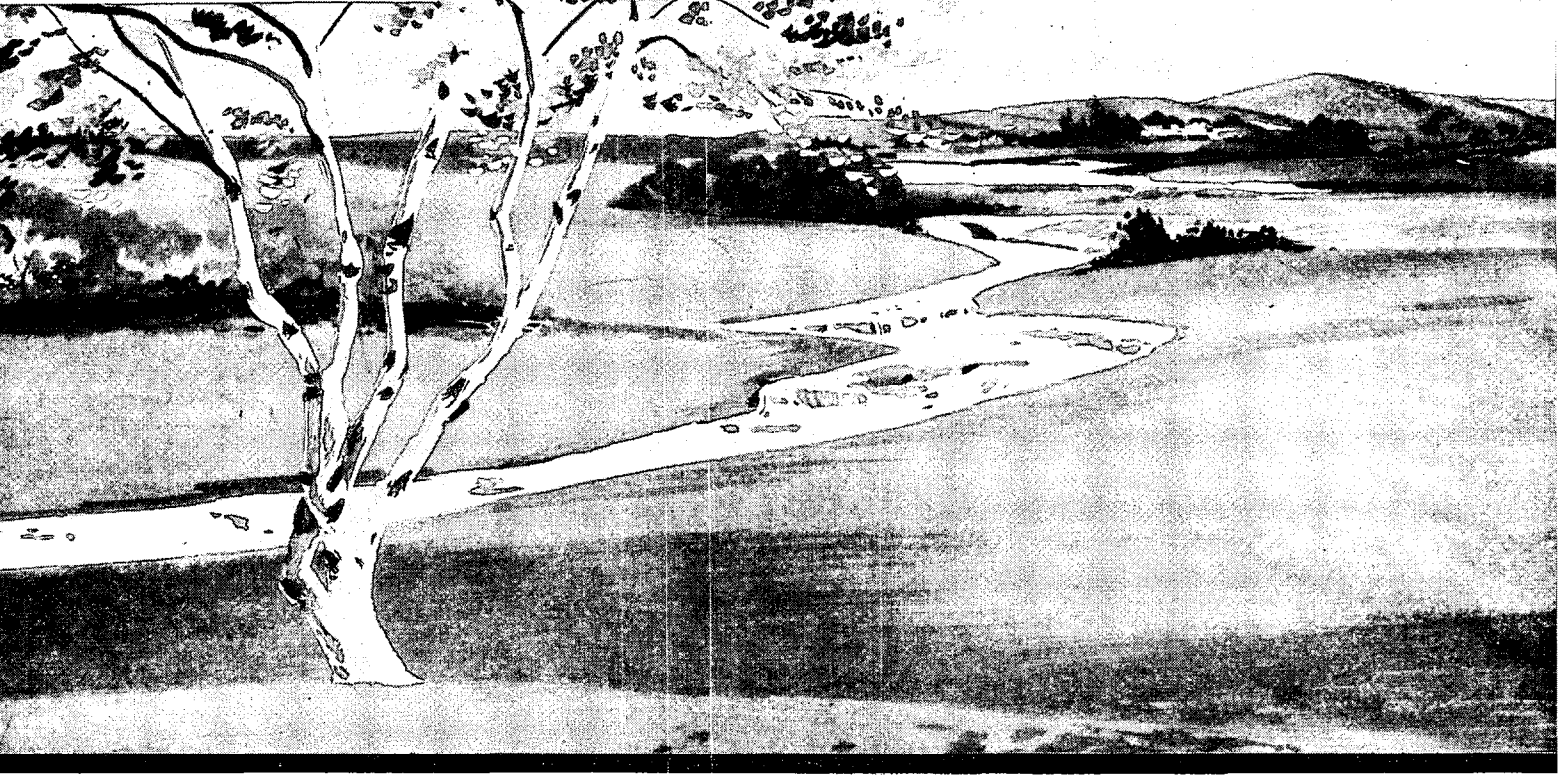
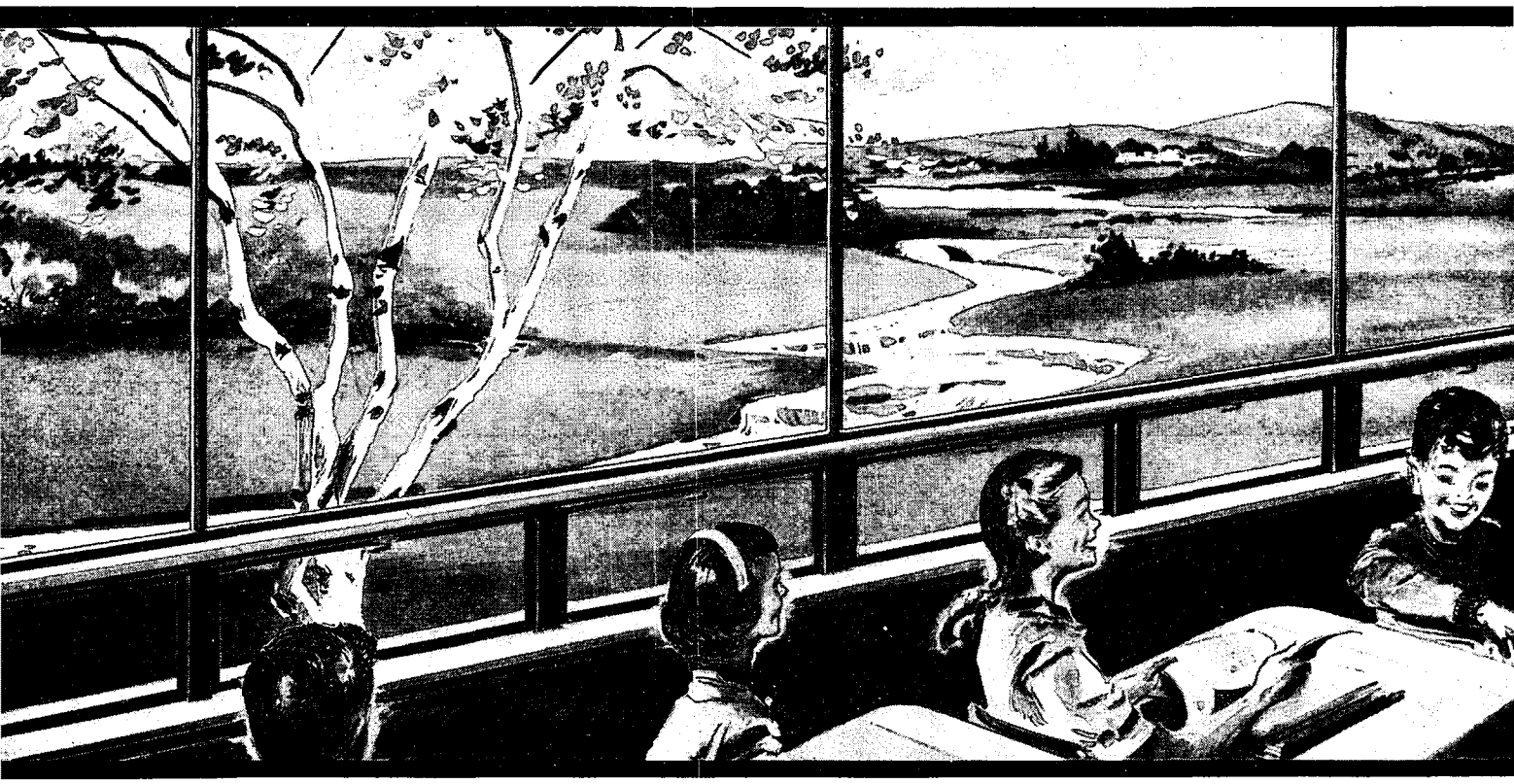


bring the outdoors



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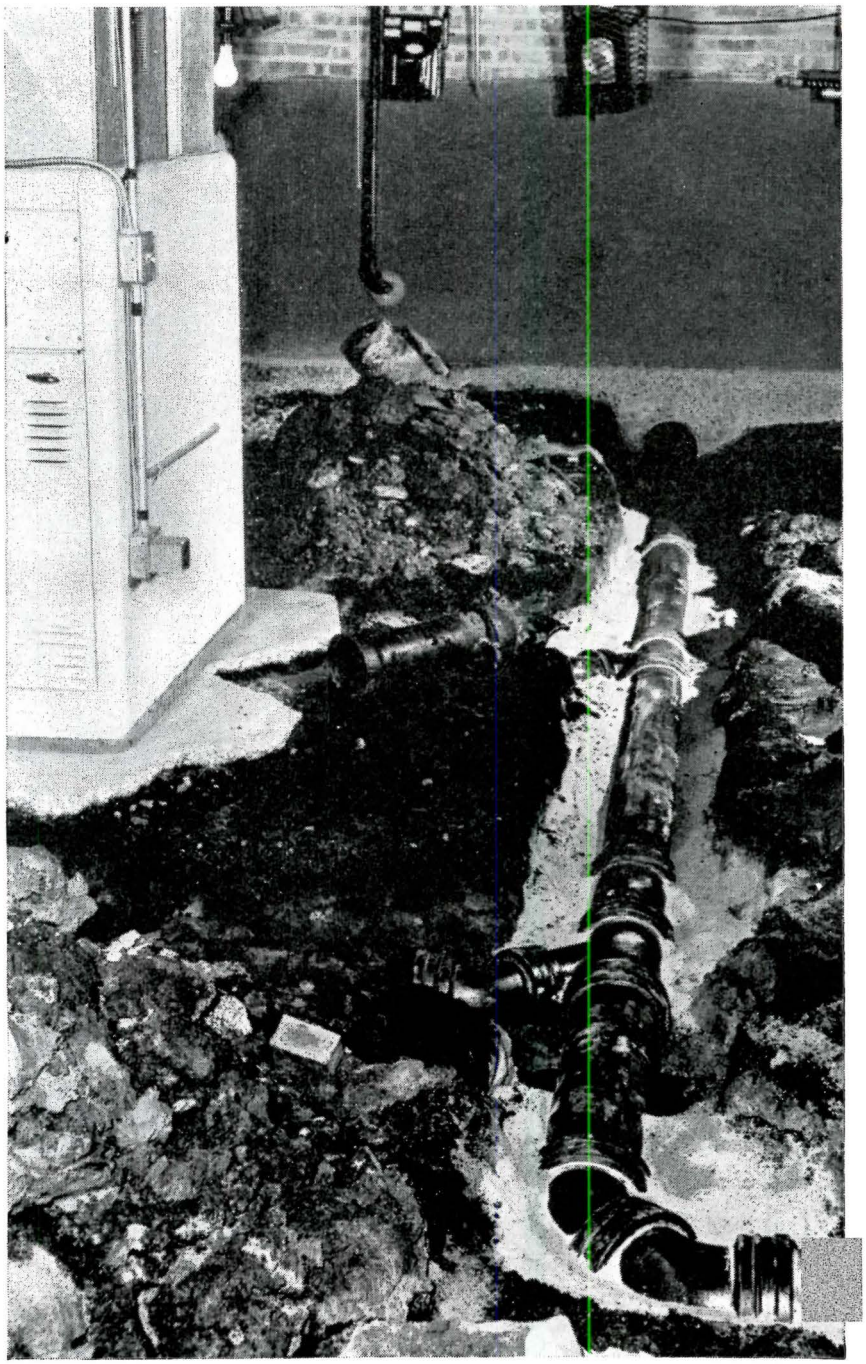

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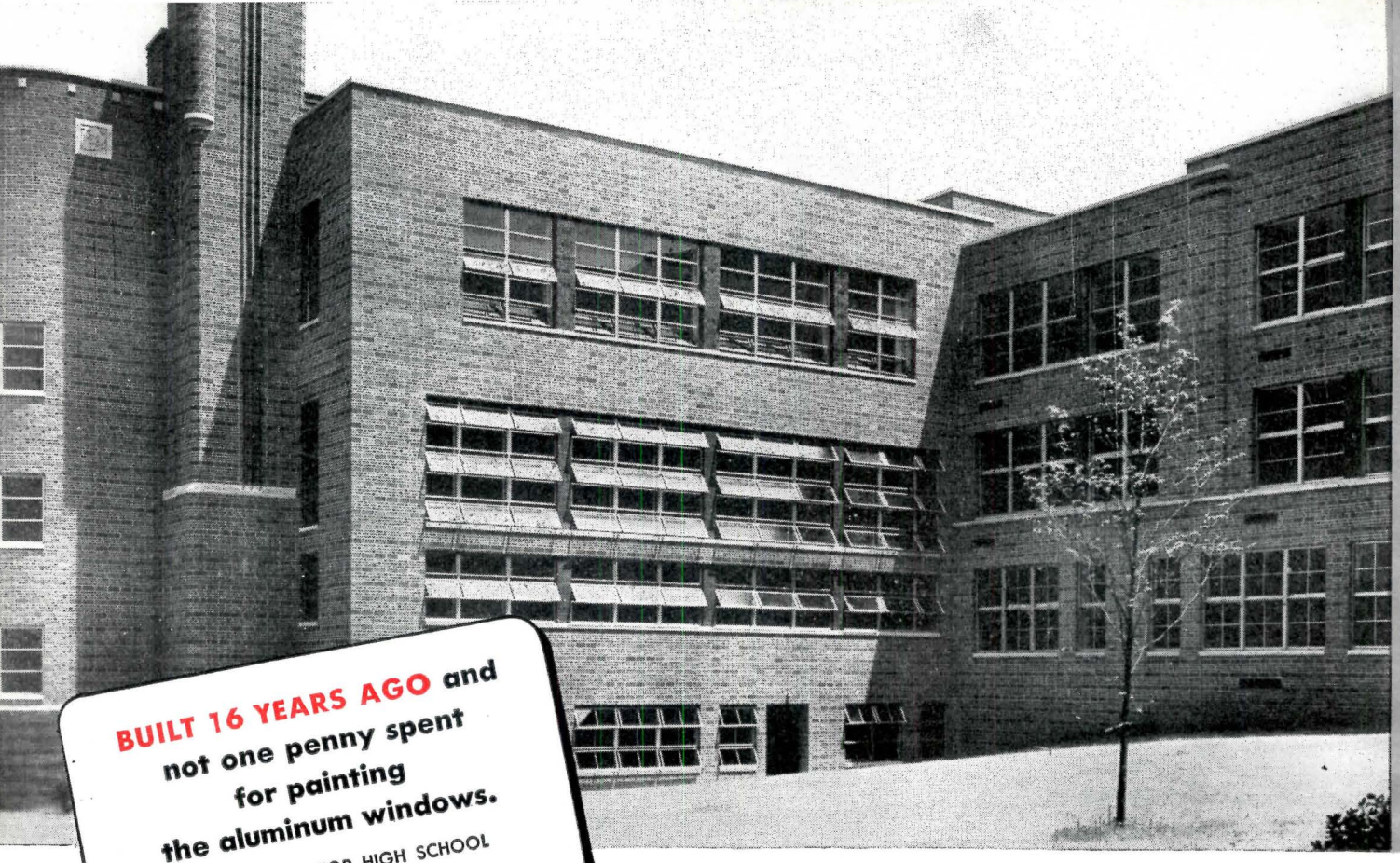

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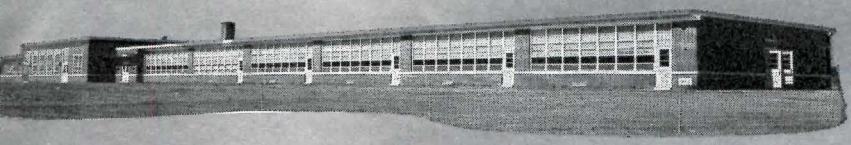
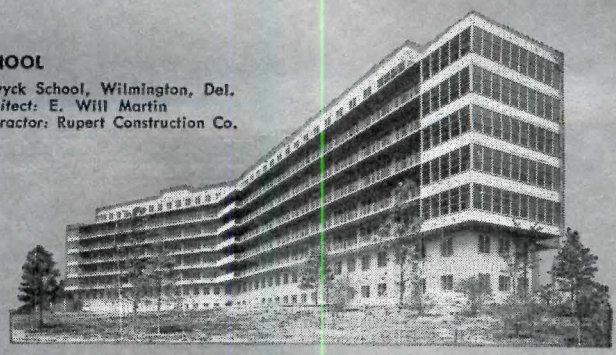
MEMBER—ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

ALUMINUM



SCHOOL
Colwyck School, Wilmington, Del.
Architect: E. Will Martin
Contractor: Rupert Construction Co.



HOUSING PROJECT
Public Housing Project Ga. 78-1,
East Point, Ga.
Architect: Abreau & Robeson
Contractor: Gilbert Beers

HOSPITAL
East Bronx Tuberculosis Hospital, Bronx, N. Y.
Architects: Pomerance & Breines
Contractor: Gerace & Castagna

COMMERCIAL BUILDING
McShain Building, Washington, D. C.
Architect: Edwin Weihne
Contractor: John McShain, Inc.

PUBLIC BUILDING
State Office Building, Des Moines, Iowa
Architects: Tinsley, Higgins & Lighter
Contractor: Kucharo Construction Company

EXPERIENCE SHOWS . . . ALUMINUM WINDOWS SAVE MANY DOLLARS ON PAINTING ALONE

Have you considered recently how much it costs to maintain an average 4′ 0″ x 6′ 9″ window by periodic painting? Reports of maintenance superintendents for several large commercial buildings say their records show it costs from $2.00 to $3.00 (average $2.65) per window per year when painted every 5 years on outside and every 3 years on inside.

Now, just think how much you save over a period of 30 or 40 years when your new building has "Quality-Approved" aluminum windows.

Experience in all types of buildings—schools (like the one shown on the opposite page), hospitals and other buildings—erected 15 to 20 years ago, shows that not one penny was ever required for painting the aluminum windows.

That's why today, more and more architects as well as maintenance-conscious building owners insist on "Quality-Approved" aluminum windows for all new buildings.

Aluminum windows, whether they be double-hung, casement, sliding, projected or awning type, are the only practical, reasonably-priced windows that *never* require painting . . . that cannot rust or rot, warp or swell . . . that retain their trim, modern-looking appearance for the life of the building.

A WORD OF CAUTION—Remember, that only aluminum is rustproof through and through. Mere surface protection against rust is not enough. Wear, unintentional scratches in delivery or installation may nullify any protective surface coating and soon require painting.

"Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles that fit any exterior design treatment. For your protection and full satisfaction, insist on the "Quality-Approved" Seal when you specify or OK specifications.

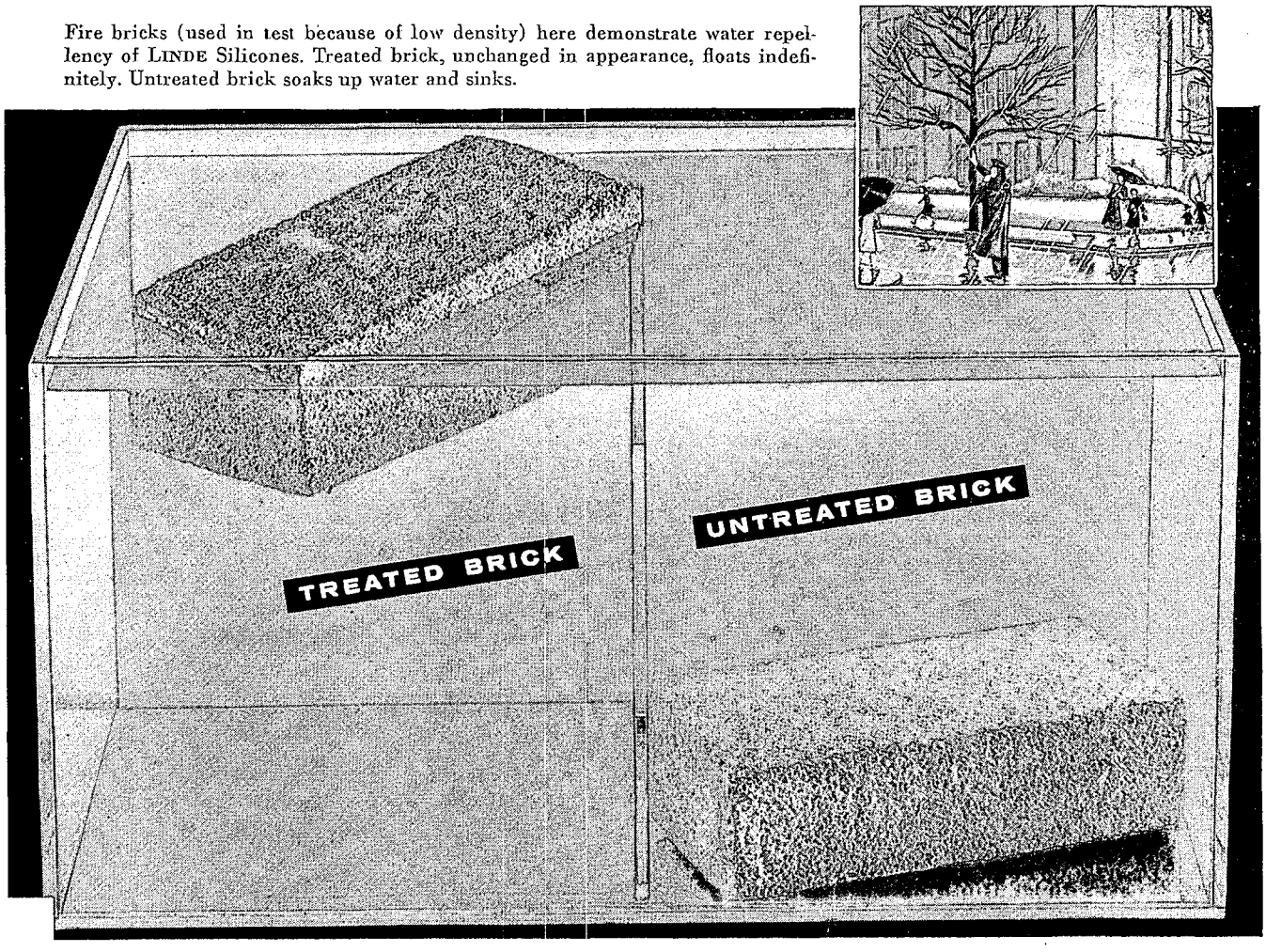
For a copy of our 1955 window specifications book and names of approved manufacturers, consult Sweet's Architectural Catalog (Section 16a/ALU) or write direct to Dept. PA-4.

Aluminum Window Manufacturers Association
74 Trinity Place, New York 6, N. Y.

MEMBERS: Alcasco Products, Inc., Detroit, Mich. • **Aluminum Home Products Co.**, Knoxville, Tenn. • **The Wm. Bayley Co.**, Springfield, Ohio • **Ceco Steel Products Corp.** *(Sterling Aluminum Window Division)*, Chicago, Ill. • **Cupples Products Corp.**, St. Louis, Mo. • **Fentron Industries, Inc.**, Seattle, Wash. **Michael Flynn Mfg. Co.**, Philadelphia, Pa. • **General Bronze Corp.**, Garden City, N. Y. • **Metal Arts Mfg. Co., Inc.**, Atlanta, Ga. • **Reynolds Metals Co.** *(Parts Division)*, Louisville, Ky. • **The F. C. Russell Co.** *(Aluminum Division)*, Bristol, Pa. • **J. S. Thorn Co.**, Philadelphia, Pa. • **Universal Window Co.**, Berkeley, Calif. • **Ware Laboratories, Inc.**, Miami, Fla. • **Windalume Corp.**, Kenvil, N. J.

WINDOWS

Fire bricks (used in test because of low density) here demonstrate water repellency of LINDE Silicones. Treated brick, unchanged in appearance, floats indefinitely. Untreated brick soaks up water and sinks.



How buildings can keep their heads above water

You can keep water out of your above-grade brick and masonry walls just as it's kept out of that floating brick, above.

Above-grade masonry water repellents made with LINDE Silicones do the job. Tests already indicate they last ten years and up.

Damage to interiors from seepage is eliminated. Repair and maintenance costs really drop.

Fully protect new buildings. Fix up old buildings. These silicone-based water repellents prevent even 100-mile-an-hour wind-driven rain from penetrating brick and concrete. They do not change surface appearance. Yet they *do* keep building surfaces clean, since water simply rolls down the sides, carrying dirt with it. Streaking and efflorescence are stopped. They are easily applied by spray or brush.

These silicone masonry water repellents end spalling and cracking caused by freezing moisture. They even prevent seepage where exhaust fans reduce indoor air pressure. They let no outdoor water in, yet the pores of the masonry can still "breathe."

For full details on above-grade masonry water repellents made with LINDE Silicones, and a list of representative suppliers, write Dept. B-4.

Linde AIR PRODUCTS COMPANY | A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

General Offices: 30 East 42nd Street, New York 17, N. Y.
In Canada: Dominion Oxygen Company, Division of Union Carbide Canada Limited

(Continued from page 147)

cations cover hardware, weatherstrips, and frames manufactured in bronze, aluminum, or steel finishes. Ellison Bronze Co., Inc., Jamestown, N. Y.

3-21. International Doors for Aviation and Industry, 20-p. catalog containing information on steel doors. Describes construction and operation of canopy-type, folding, sliding, and lifting doors for warehouses and hangars. Guide for selection of doors recommends type for particular installation requirements; includes photos, operational diagrams, and specifications. International Steel Co., 1983 Edgar St., Evansville 7, Ind.

3-22. Kawneer W-Series Door (J9285), 8-p. folder picturing aluminum entrance door with narrow stile for use where simplified lines are desired. Drawings show interchangeable hardware and push plates; specifications cover materials and construction. Details of single- and double-acting doors. The Kawneer Co., Niles, Mich.

3-23. Arislide Steel Sliding Doors, AIA 16-E, 12-p. catalog presenting information on sliding doors for residential and commercial use. Details show installation of single- and double-pane doors with screens; provides specifications for both types. Also contains dimensions and details of modular casement windows. Michel & Pfeffer Iron Works, Inc., 212 Shaw Rd., S. San Francisco, Calif.

electrical equipment, lighting

4-14. Plasticord-Plasticote Wires and Cables, 6-p. circular on plastic- and nylon-insulated wire. Gives description and voltage ratings for sizes ranging from light appliance cord to heavy coaxial cables. Drawings and tables. Chester Cable Corp., Chester, N. Y.

4-15. Low-Brightness Lens Panels No. 70 (LS-47A), 4-p. folder describing prismatic crystal lens for fluorescent fixtures, which distributes light for even illumination. Gives performance data, method of approximating amount of illumination required, and specifications; outlines advantages of light control in schools, offices, and commercial buildings. Photos, charts. Lighting Sales Dept., Corning Glass Works, Corning, N. Y.

4-16. Acusti-Luminus Ceiling, AIA 31-F-21, 16-p. publication explaining luminous ceilings with sound-control baffles. Gives answers to questions concerning light diffusion, sound control, sprinkler systems, and air flow. Specifications cover installation, vinyl diffuser, perforated-steel acoustical louvers; includes data on recommended lighting elements. Photos, tables, and drawings. Luminous Ceilings Inc., 2500 W. North Ave., Chicago 47, Ill.

4-17. Good Lighting Is Good Business (F-687), 20-p. booklet discussing advantages of good office lighting from economic and mechanical aspects. Covers design, maintenance, and quantity of light. Also compares performances of fluorescent, incandescent, and natural lighting. Photos, charts, and technical data. Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

finishers and protectors

5-3. Stop Rust With Rust-Oleum (254), 24-p. catalog containing information on rust prevention in industry. Features color system designed to provide harmony of interiors and machinery surfaces; also gives data on primers, chemical and heat resistant products, sealers, and masonry coatings. Photos and color chips; recommendations for application and mixing. Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

insulation (thermal, acoustical)

6-6. Acoustical Tile Adhesive Handbook, 20-p. manual covering acoustical-tile cement. Outlines general practices and precautions in setting tile and provides specifications for cementing tile to different kinds of surfaces. Drawings show recom-

(Continued on page 158)

CLEAR PRISMATIC GLASS

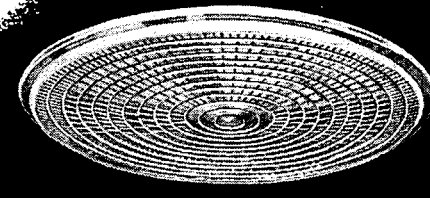
tomorrow's lens lighting TODAY!

AMCOLENS, an advanced concept in lighting, is the ultimate for the improved illumination of tomorrow.

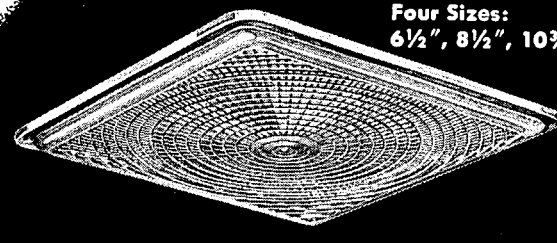
The precision engineering of AMCOLENS clear prismatic glass lens offers you the lighting of the future with all these unique advantages:

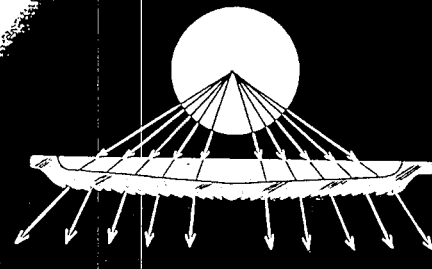
- **Crystal clarity**
- **Undiminished light transmission efficiency**
- **Unaltered white lamp light transmittance**
- **Precise light direction control**
- **Predetermined light distributions**
- **Minimum brightness in glare zone**
- **Edge-light on ceiling for contrast relief**

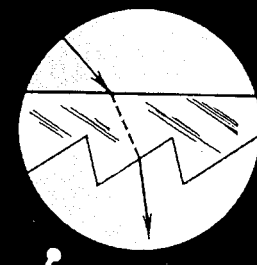
SEMI-FLUSH
Three Sizes:
8⅜", 10⅜", 13½" Dia.



SEMI-FLUSH SYMMETRIC
Four Sizes:
6½", 8½", 10⅜", 12" Sq.







This enlarged segment of Amcolens illustrates prism detail. AMCOLENS utilizes clear glass prisms, the most exact means known to science for controlling the direction of light.

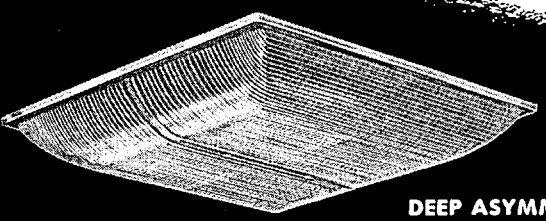
A cross section of a typical Amcolens shows control of light. Precision engineering achieves multiplied useful light utilization below 60° with minimized glare zone brightness.

AMCOLENSES are the result of original ART METAL lens research and are available only in ART METAL complete lighting equipments.

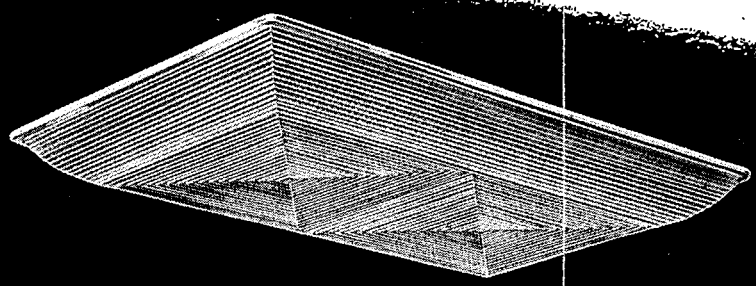
AMCOLENSES ARE ANOTHER *Lighting Research* DEVELOPMENT OF ART METAL

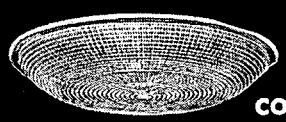
18 AMCOLENSES

are precision engineered
for specific lighting applications.



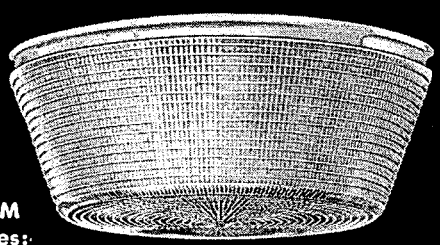
DEEP ASYMMETRIC
One Size:
10⅜" Sq.



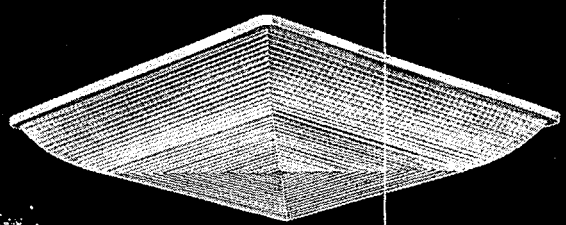


CONVEX
One Size:
7½" Dia.

TWO-LIGHT DEEP SYMMETRIC
One Size:
9½" x 16½"



LENSDRUM
Three Sizes:
9½", 11⅝", 13⅝" Dia.

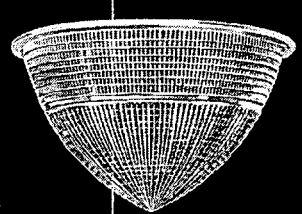


DEEP SYMMETRIC
Three Sizes:
8½", 10⅜", 12" Sq.

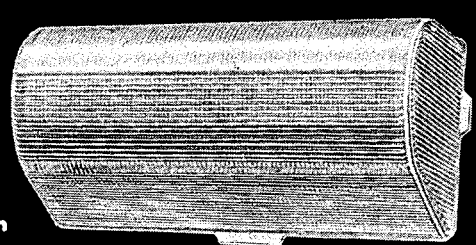
May we send the new catalog?

ART METAL Catalog 255, dedicated to the advancement of incandescent lighting through original research development, provides detailed information on Amcolens, plus factual data on all ART METAL lighting equipment with unbiased test data on lighting performance, evaluated by Electrical Testing Laboratories, Inc.

Write to:



AREALENS
One Size:
7½" Dia.



WALLENS
One Size:
11½" Length

THE PRODUCERS' COUNCIL INCORPORATED

The **ART METAL** *Company*

CLEVELAND 3, OHIO

p/a manu :turers' literature

(Continued from page 155)

mended procedures. A. Z. Bogert Co., Ambler, Pa.

6-7. **Insulation Data Book**, AIA 37-C-2 (HI-48), 8-p. pamphlet outlining properties of vermiculite insulating fill. Describes recommended installation procedure; gives heat-transmission coefficients of several different assemblies. Photos and drawings; table for approximating amount of fill needed. Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.

sanitation, plumbing, water supply

7-4. **Adams Swimming Pool Filters**, (625), 24-p. publication containing information on filtration for swimming pools of more than 50,000-gal capacity. Lists features of diatomaceous filters; gives specifications for complete filtration, recirculation, and sterilization system; provides layout and operating diagrams for medium and large installations. R. P. Adams Co., Inc., 225 E. Park Dr., Buffalo 17, N. Y.

7-5. **Nibco Copper Drainage Systems** (1), 20-p. manual explaining basic types and requirements of drainage systems. Lists features of copper pipe and fittings; compares costs of copper and iron systems. Description and drawings of fittings; tables for designing plumbing layout. The Northern Indiana Brass Co., Elkhart, Ind.

specialized equipment

8-6. **Reach-In Refrigerators** (5530), 4-p. bulletin on refrigerators for commercial and institutional use. Describes standard models in porcelain or stainless steel; gives information on special requirements —biological, formula, and frozen food refrigerators. Specifications and dimensions. Koch Refrigerators, Inc., N. Kansas City 16, Mo.

8-7. **New Gymnasium Grille**, 4-p. folder illustrating heavy-gage steel grilles for air-conditioning outlets in gymnasiums and locations subject to impact. Describes standard louvered grille and model with volume controller attached. Photos and dimensions. Titus Mfg. Corp., Waterloo, Iowa.

8-8. **Modular Multi-Units**, AIA 35-B-1 (B-43), 4-p. brochure showing versatile wall units for chalkboard, displayboard, or corkboard. Outlines features of movable units in modern classrooms; describes materials and construction of lightweight boards with aluminum frames. Details and dimensions. Weber Costello Co., Chicago Hts., Ill.

surfacing materials

9-6. **Miracle Adhesive Products**, AIA 23-P, 24-p. booklet explaining tile setting in thin adhesive bed. Gives installation details for various surface requirements; provides instructions for use with floor, wall, and ceiling tile. Photos and detailed specifications. Miracle Adhesives Corp., 214 E. 53 St., New York 22, N. Y.

★ 9-7. **Vicrtex Fabrics**, AIA 28-C, 12-p. brochure illustrating molded-vinyl surfacing material with many colored photos of actual installations. Features actual sample of material and reproduction of many different textures and colors available. Provides suggested specifications and hanging instructions. L. E. Carpenter & Co., Inc., Empire State Bldg., New York 1, N. Y.

interior furnishings

11-1. **Knoll Index of Contemporary Design**, 68-p. booklet of furniture and textiles for contemporary living. Included are designs by Saarinen, van der Rohe, Bertoia, and Nakashima. Photos, dimensioned drawings, and description of each piece. Knoll Assoc., Inc., 575 Madison Ave.) New York 21, N. Y., $5.

11-2. **Paul McCobb Designs**, 6-p. circular illustrating contemporary home furnishings. Pictured are several chairs, tables, cabinets, and desks with accompanying descriptions of materials and upholstery. Directional, 201 E. 57 St., New York 22, N. Y.

Those who really know say:

CERTIFIED CBM CERTIFIED by ETL BALLASTS

give best results!

• No one knows better the value of CERTIFIED CBM BALLASTS than the manufacturers of fluorescent tubes. For the satisfactory performance of their lamps is vitally dependent on the ballasts that operate them. They know CERTIFIED CBM BALLASTS are Tailored to the Tube.

CHAMPION *says:*

"Fluorescent lamps are designed to operate at specific electrical values. The use of auxiliary equipment that has been proven to meet these agreed upon standards will assure the user maximum value for his lighting dollar with a minimum of operational failures. Certified Ballasts are inexpensive insurance."

GENERAL ELECTRIC *says:*

"The life and light output ratings of fluorescent lamps are based on their use with ballasts providing proper operating characteristics. Ballasts that do not provide proper electrical values may substantially reduce either lamp life or light output, or both. Ballasts certified as built to the specifications adopted by the Certified Ballast Manufacturers (CBM) do provide values that meet or exceed minimum requirements. This certification assures the lamp user, without individual testing, that lamps will operate at values close to their ratings."

SYLVANIA *says:*

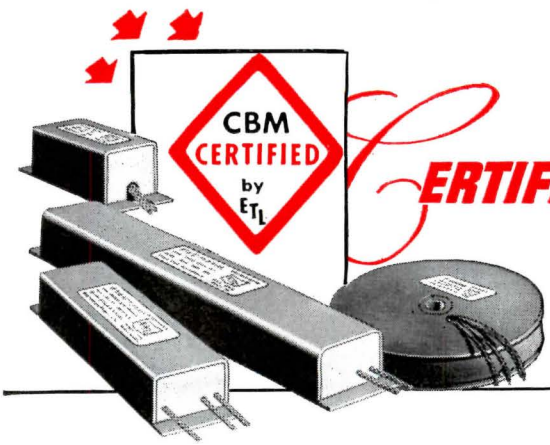
"The light and life ratings of fluorescent lamps are based on three hour burning cycles under specified conditions and with ballasts meeting American Standards Association specifications. Ballasts marked with the CBM emblem and certified by Electrical Testing Laboratories, Inc., meet ASA specifications."

WESTINGHOUSE *says:*

"Use ballasts that are tested and Certified by Electrical Testing Laboratories or ones that are otherwise known to meet the specifications of the lamp manufacturer. These will give best results with Westinghouse fluorescent lamps."

That's why CERTIFIED CBM BALLASTS merit the slogan—Tailored to the Tube.

Certified CBM Ballasts are built to assure quiet operation and long trouble-free life.

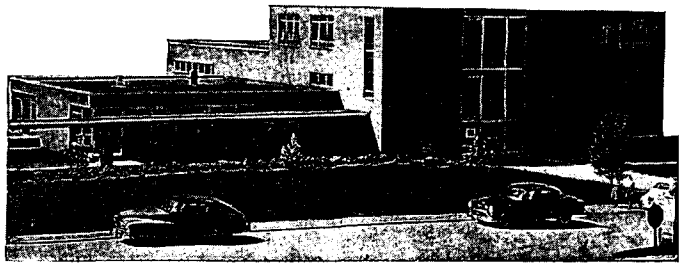


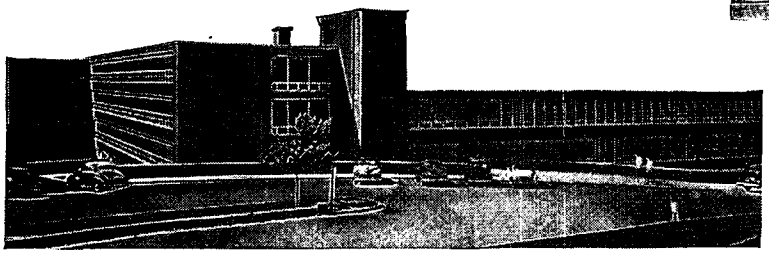
CERTIFIED BALLAST MANUFACTURERS

Makers of Certified Ballasts for Fluorescent Lighting

2116 KEITH BLDG., CLEVELAND 15, OHIO

In the rolling hills

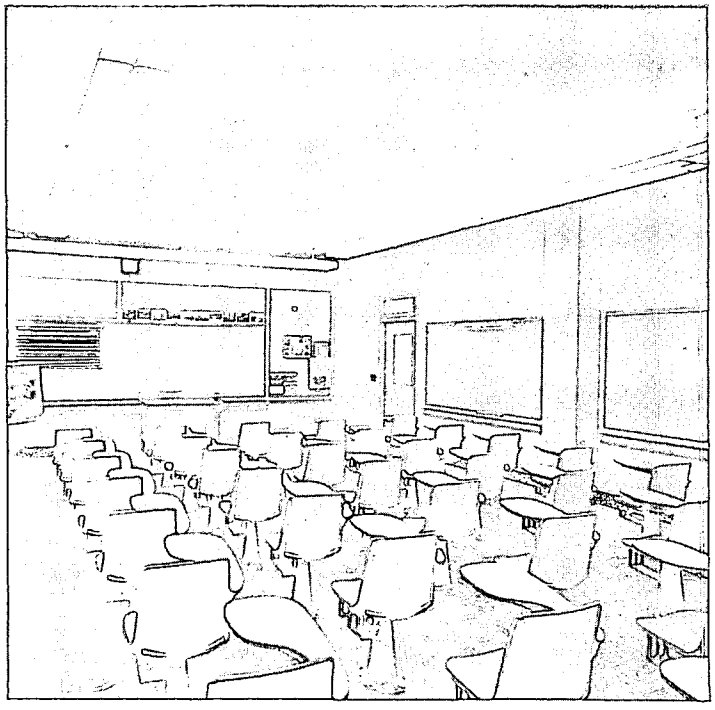




of North Carolina

Eye comfort is all importan

Western Carolina College at Cullowhee installs Day-Brite LUVEX® fixtures in classrooms and departments, symmetrical strip in the library, big 4 by 4 units in the main reading room.



The famous Day-Brite LUVEX "U" pattern for classrooms provides ample light on the desk tops and chalkboards and an emphasis of light on the teacher's desk.

Six Associates, Inc., Architects of Asheville, designed these two recently completed science and library buildings... The famous Day-Brite LUVEX fixture was selected for classrooms and departments — mirrored surface reflector strips for book stacks — 4 by 4 units for the main reading room. How fully their choice was justified is shown in the interior views pictured on these pages.

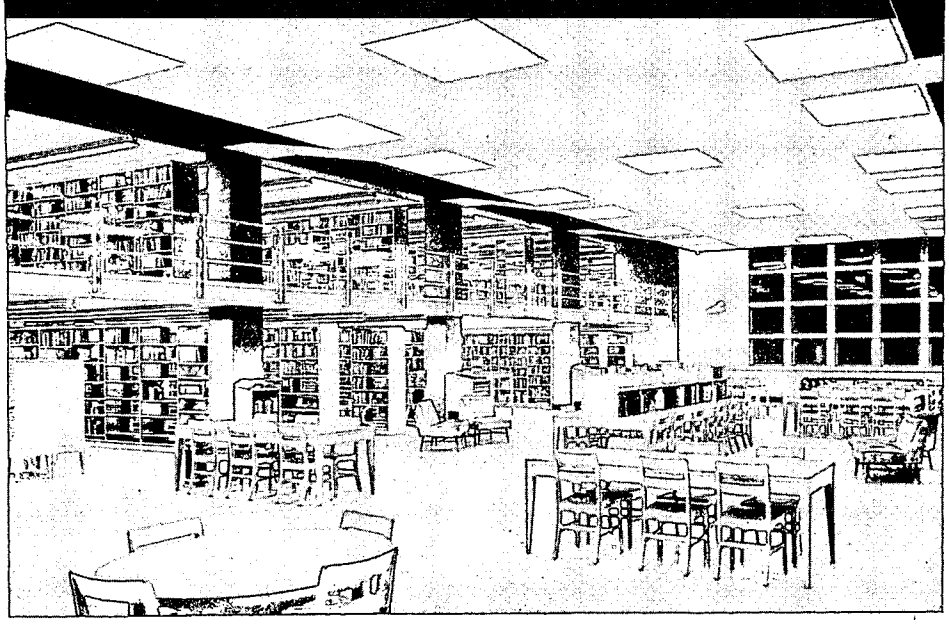
Their comment on the installation is interesting.

"Please say that the owners and architects are pleased indeed with the lighting job that Day-Brite fixtures are doing at the College and that in the Library reading rooms, which are used a great deal at night, the lighting is such that seeing is effortless and at the same time the atmosphere is restful."

By installing LUVEX fixtures, full advantage was derived from the light-colored walls and ceilings — since LUVEX design combines 50% *upward* lighting with 50% *downward* lighting, ceiling gloom is "washed out." This results in adequate lighting PLUS all-important eye comfort.

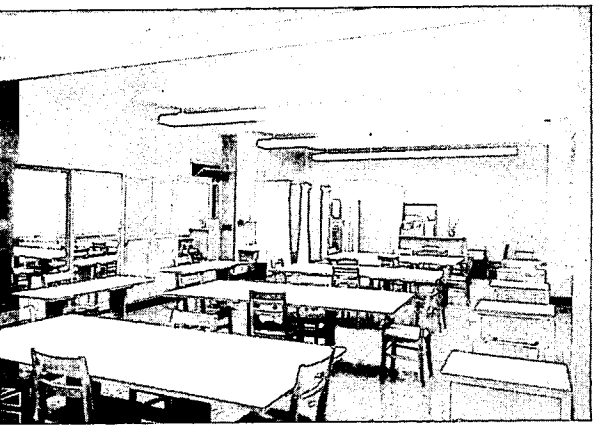
CALL OR WRITE YOUR NEAREST DAY-BRITE LIGHTING REPRESENTATIVE FO

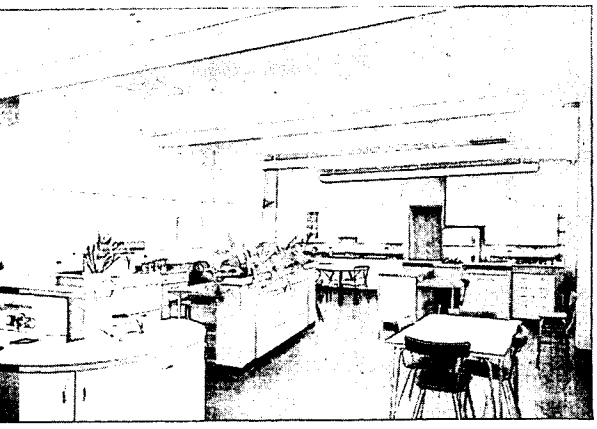
Day-Brite Lighting, Inc., 5405 Bulwer Ave., St. Louis 7, Missouri.
In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.



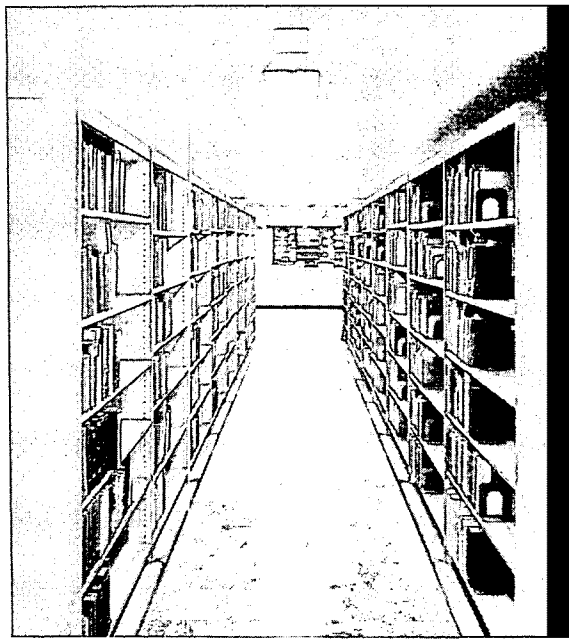
Large rooms such as this library reading room were, in the past, apt to suffer the discomforts of inadequate lighting. Not so with this one. Here, Day-Brite's big 4 by 4 units become integrated into this spectacular ceiling, and in addition, provide a minimum of 50 comfortable foot candles — enough light to read the smallest text with ease.

to Western Carolina College





Here, in the sewing lab and the home economics kitchen, LUVEX fixtures are mounted on eight-inch stems across the width of the room. Comfort is not dependent upon the orientation of this fixture to the working area.



From the top to the bottom shelves in these stacks an ample 30 to 40 ft. candles allows swift and easy identification of any volume. A perfect application of Day-Brite's standard single-lamp STRIP units with symmetric polished alzak reflectors.

5424

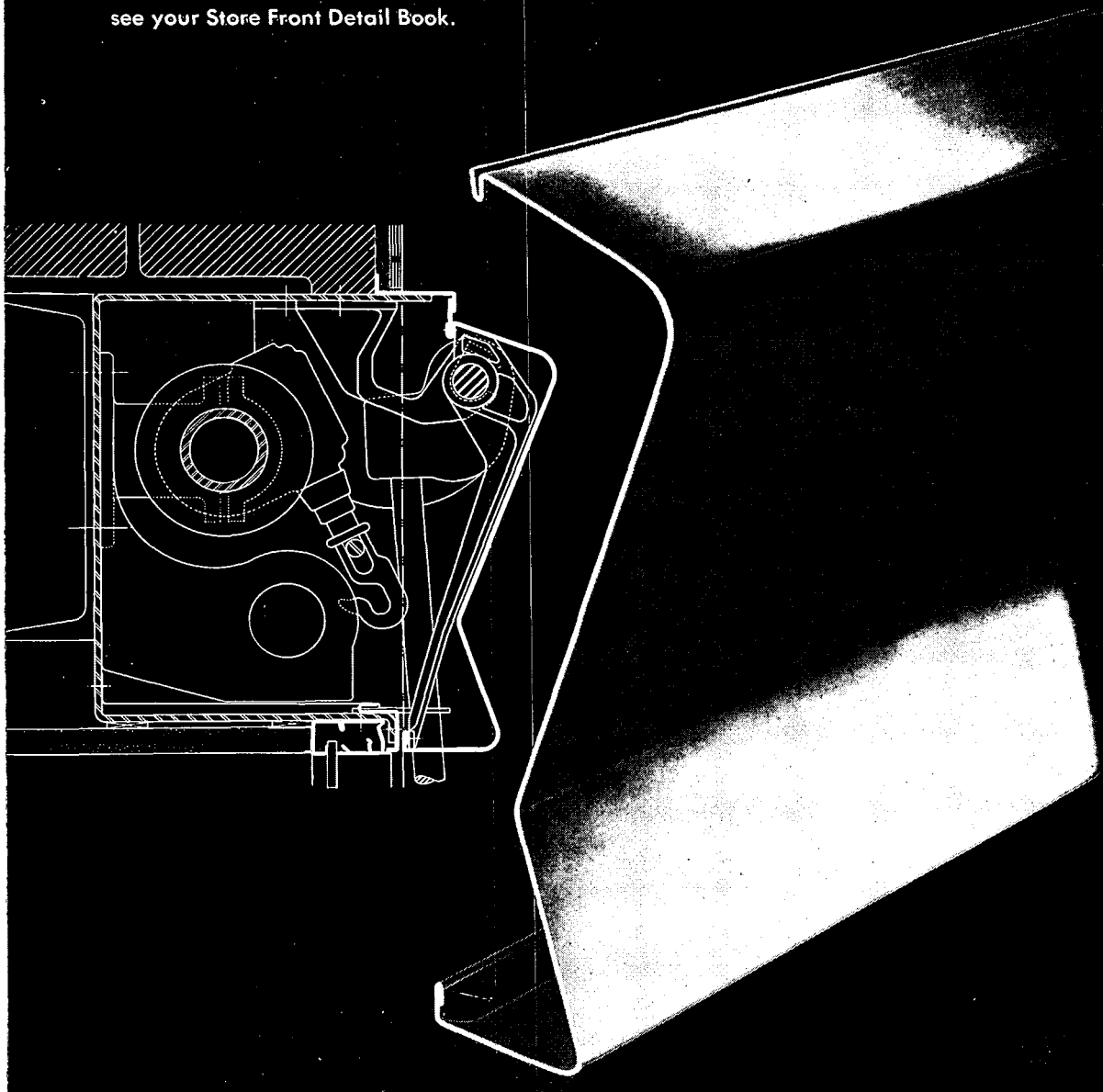
NFORMATION ON ANY LIGHTING PROBLEM

"DECIDEDLY BETTER"
DAY-BRITE®
Lighting Fixtures

Nation's Largest Manufacturer of Commercial and Industrial Lighting Equipment

New Pittco NO. 90 Awning Bar

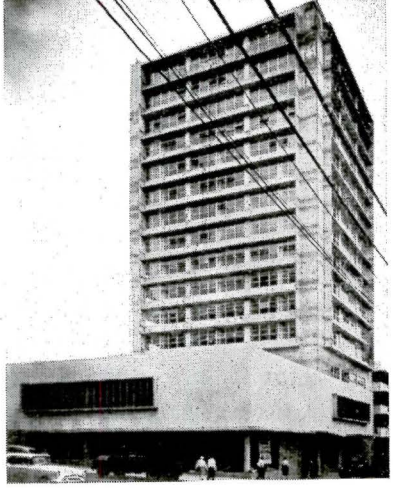
. . . combines beauty and function. The photograph shows how the profile creates a pleasing balance of light and shadow. The Pittco No. 90 Awning Bar will give added character to a store front, window or entrance. Factory or field fabricated. For complete information, see your Store Front Detail Book.

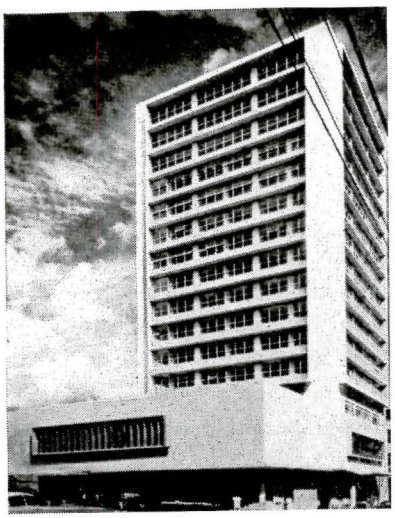


PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

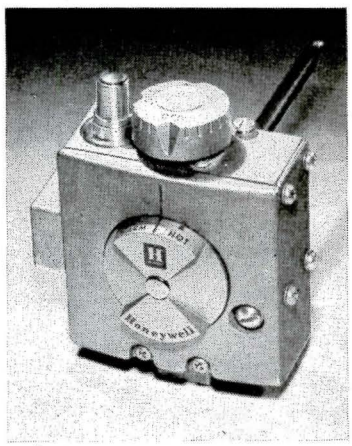
PITTSBURGH PLATE GLASS COMPANY

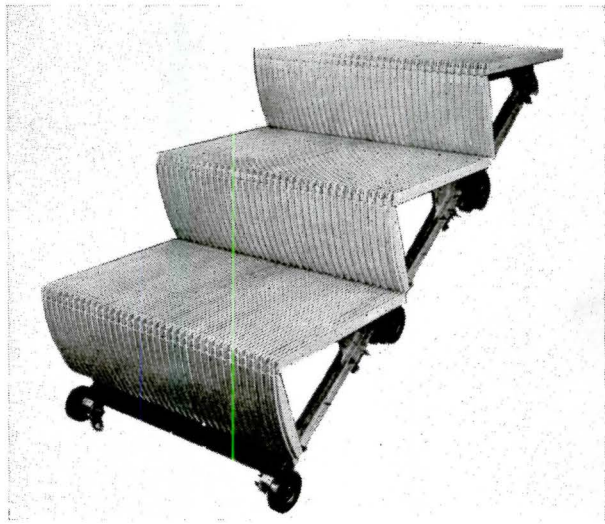
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED





This reinforced-concrete hotel in Tyler, Tex. (left), *was designed to take full advantage of sprayed-on vinyl-plastic sheeting. Substantial savings were possible because all flashing, coping, fascia, and painting ordinarily used on such a building were eliminated. The flexible, weatherproof, noncombustible skin, .030" to .035" thick, was sprayed directly on the concrete to form a continuous, jointless skin at an average cost of 40¢ per sq ft. The work was performed by two licensed applicators of Liquid Plastics Corporation: Progressive Industries, Inc., New York and Lawrence Service, Inc., Houston. Liquid Plastics Corp., 50-02 23rd St., Long Island City, N. Y.*





To improve operation and increase safety of their escalators, Otis Elevator Company has adopted the use of ribbed-aluminum risers (above) *die-cast by Precision Castings Company, Inc., Fayetteville, N. Y. First installation will be in a Marshall Field store in suburban Chicago.*

Henry Dreyfuss, noted industrial designer, has styled a new line of precision water-heater controls known as "Aqua-Maid," to be available in a choice of colors to match trim on tank. Minneapolis-Honeywell Regulator Co., Appliance Controls Division, 8775 Mettler St., Los Angeles, Calif.

air and temperature control

"Fresh'nd-Aire" Electric Dehumidifier: new portable dehumidifier is mounted on swivel casters for removal to any desired location. Compressor of 1/6 hp gives improved efficiency at lower cost, removing up to three gal of moisture every 24 hr; condensate is collected inside unit or connections may be made for automatic drainage. Redesigned in gray-green enamel finish, unit measures 20¼" high x 13½" wide x 20¼" long and is claimed to control moisture in closed areas of up to 10,000 cu ft. Cory Corp., 221 N. LaSalle St., Chicago 1, Ill.

Norse Economizer Heat Exchanger: developed primarily for homes, heat exchanger is claimed to convert up to 50 percent of chimney heat losses into usable heat. Unit takes heat from hot chimney gases and blows cool air through its coils, warming it and sending it to any room in house. Heat exchanger still allows gases to escape from chimney and permits good furnace draft. Norse Boiler Co., New Market, N. J.

Built-In-Room Air Conditioner: unit, resembling radiator grill in appearance, is inserted in opening under window or on exposed wall, fitting flush with interior surface. Designed for apartments and large-scale installations, air conditioners are quieter and less costly than conventional models and give added advantage of individual room controls. Unit measures 15" deep x 14" high x 32" wide. Tywel Mfg. Corp., 5702 First Ave., Brooklyn 19, N. Y.

Chromalox Electric Baseboard Heaters: carefully designed heat output of baseboard units gives proper balance of radiant and convected heat—radiant heat supplies warmth at floor level and convected warm air counteracts cold downdrafts on outside walls. Heater produces 540 Btu's per lin ft, but surface temperature remains cooler than steam radiator. Separate thermostatic controls for each room or for sections of hard-to-heat areas; available in 5′, 2′, and 1′ lengths, 8⅞" high x 2-9/16" deep. Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.

construction

"X-trong" Steel Bridging: improved type of bridging is made from 18-gage steel, zinc coated for resistance to rust and corrosion. Bridging is preformed to fit all joist arrangements (6", 8" 10", or 12" joists on 16" centers). Easily installed, supports eliminate all need for cutting and fitting. Associated Fabricators, Inc., Kittanning, Pa.

Plastic Tape No. 471: pressure-sensitive plastic tape seals joints in forms of plywood sheeting. Tape prevents formation of concrete beads seeping between forms, stops moisture from deteriorating edges of plywood, and removes easily without discoloring concrete. Available in 36-yd rolls in various widths. Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.

Wal-Lok Joint Reinforcing: horizontal mortar-joint reinforcing is now manufactured in superstandard grade and in prefab corner sections. Superstandard reinforcing has 8-gage longitudinal bars and 10-gage cross bars; steel is deformed for better bonding in mortar and cross bars are galvanized for protection of areas exposed in cavity-wall construction. Corner sections, which eliminate cutting and bending, are available in superstandard or extra-heavy grades for all wall widths. Adrian Peerless, Inc., 1411 Michigan Ave., Adrian, Mich.

(Continued on page 166)

HERE'S HOW THESE 3 SPACE PROBLEMS WERE SOLVED

AT INDIANA UNIVERSITY'S NEW MEDICAL CENTER*

*Eggers & Higgins, Supervising Architect
Edward D. James, Architect
J. L. Simmons Company, Inc., Builders

PROBLEM 1

Cafeteria dining room must serve as many as 1000 students at once—yet be adaptable for medium size banquets, meetings and student activities. Only a portion of the total area would be used for breakfast and dinner. Closing off the unused area was desirable to save on heating, table setting labor and to provide a closer, friendlier atmosphere.

PROBLEM 2

One oversized room must serve primarily as the main lecture hall and as a suitable setting for University receptions. However, to obtain maximum use from this large area—could it also be used as a social room by the students? And how could the space be effectively partitioned for private conferences, parties, teas and small meetings?

PROBLEM 3

One large classroom must provide seating capacity of approximately 75—and be promptly convertible, after conclusion of group lectures, into smaller, private rooms for seminars. Between classes, the division of the total area should be flexible enough to provide accommodations for staff meetings, lectures and displays of widely varying sizes.

SOLUTION 1

RESULT 1

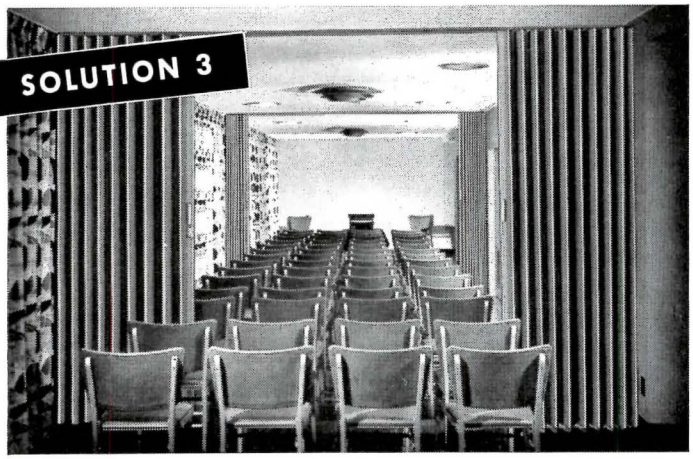
FOLDOOR proved the only practical solution to the problem of dividing this large dining space into two distinct areas. While a banquet is being served in one room, a meeting, a student dance—or even another banquet can be held in the other room at the same time. The spectacular (20′ by 48′ 10″) motor-driven FOLDOOR installation opens and closes at a rate of 35 feet per minute and stores in a pocket.

SOLUTION 2

RESULT 2

As many as four private dinners have been served at one time in this large room, partitioned by four FOLDOORS. When a tea or reception is scheduled, one or more of the doors are folded back so the space will fit the size of the group. During a dance or other large student function, all four doors are stored against the wall and the entire floor area is available.

SOLUTION 3



RESULT 3

After a lecture, this classroom is immediately divided by FOLDOORS into three private areas for more individual student instruction. If the class needs only a portion of the room, the unused part can be closed off and used for other purposes. The flexibility obtained by FOLDOOR also permits the classroom to serve as an excellent location for large or small conferences, as well as University receptions and banquets.

You Get More When You Specify FOLDOOR

Stacks into 1½″ per foot of opening—that's less than any similar door • designed structurally for its largest size, so all doors have the same strong construction. Welded frame provides 100% pantagraph action • has no "air bellows" action that prevents easy operation, distorts fabric • includes an attractive cornice, where desirable, at no extra cost • has a size for every opening, a type for every need • offers a large selection of colors in either commercially popular smooth fabric or the deluxe fabric that looks and feels like cloth, yet wears and washes like vinyl

HOLCOMB & HOKE MANUFACTURING COMPANY, INC.
1545 Van Buren Street, Indianapolis, Indiana
IN CANADA: FOLDOOR of Canada, Montreal 26

HOLCOMB & HOKE
FOLDOOR
THE SMARTEST THING IN DOORS
®

THE PRODUCERS' COUNCIL INCORPORATED
AFFILIATED WITH THE AMERICAN INSTITUTE OF ARCHITECTS

p/a products

(Continued from page 163)

doors and windows

Adams Rite Door Lock: newly designed interior-door lock features contemporary styling and noiseless operation. Easily turned knob and directional indicator, which tells whether door is locked, is mounted in circular setting. Adams Rite Mfg. Co., 542 W. Chevy Chase Dr., Glendale 4, Calif.

Glass-Fiber Screens: frames are not needed for screens made of glass fiber. Safety catches at bottom hold screens in tension and insure snug fit against window frame. Completely resistant to weather, screens will not crease, dent, nor bend. Lumite Div., Chicopee Mills, Inc., 47 Worth St., New York 13, N.Y.

Capri Sliding-Glass Doors: sliding-glass doors come in complete package ready to be installed in rough opening. Anodized-aluminum frames or hardwood ash top and bottom rails with aluminum stiles are inincluded in addition to vertical-grain Douglas-Fir frame and head jamb. Frames will hold 3/16", 7/32", or ¼" plate glass; extruded-aluminum screens are also available. T. V. Walker & Son, Inc., P. O. Box 547, Burbank, Calif.

electrical equipment, lighting

Split-Bus Service Equipment: new type service equipment is designed to solve problem of expanding residential power demands. Units provide capacity for electric appliances and also subfeeder circuit to additional centers of distribution; each is furnished with one service connection having double-pole 50-amp circuit breaker with wire connection to appliance branch-circuit section. Units, of enclosed panel-base assembly type, have 100- or 200-amp capacity. Frank Adam Electric Co., P. O. Box 357, Main Post Office, St. Louis 3, Mo.

Prewired, Recessed Lighting Fixtures: recessed, incandescent ceiling fixtures are made in square or rectangular shapes. Prewired unit features large wiring compartment for convenient access from both interior and exterior of fixture. Includes one-piece aluminum reflector, choice of five different lenses, and hinged lense frame of stainless steel. Litecraft Mfg. Corp., 8 E. 36 St., New York 16, N.Y.

finishers, protectors

Ceilcote Concrete Protector: plastic-base surfacing material protects concretes from fluorides, hydrofluoric acid, and hydrofluoric-acid solutions. Minimum coating ⅛" thick provides dense monolithic membrane, resistant to abrasion, impact, and constant immersion in harmful acids. Membrane is claimed to be successful substitute for brick lining in some cases. The Ceilcote Co., 4919 Ridge Rd., Cleveland, Ohio.

finishers, protectors

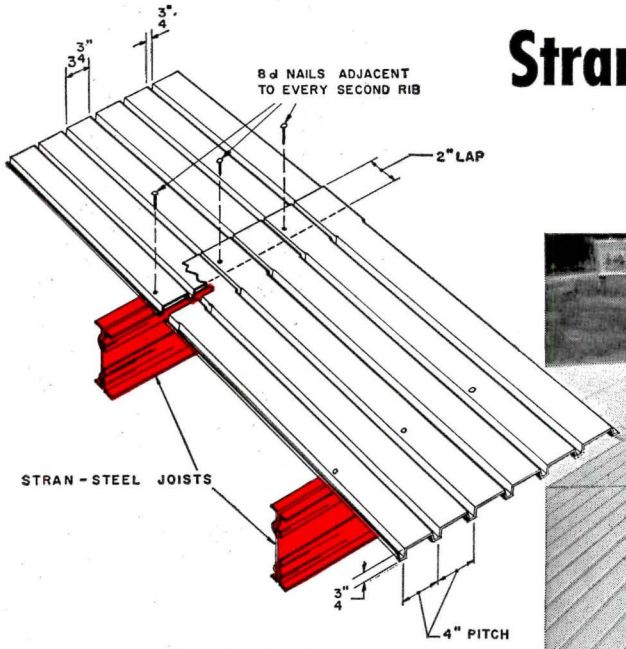
Thompson's Redwood Stain: formulated to preserve and protect redwood surfaces, stain combines water-repellent and weather-resistant properties with preserving qualities especially blended to complement natural beauty of wood. Stain, which may be used on exterior construction and interior surfaces, will cover up to 400 sq ft per gal; may be applied by brush, spray, or dipping in dilutions. E. A. Thompson Co., Inc., 1355 Market St., San Francisco, Calif.

sanitation, plumbing, water supply

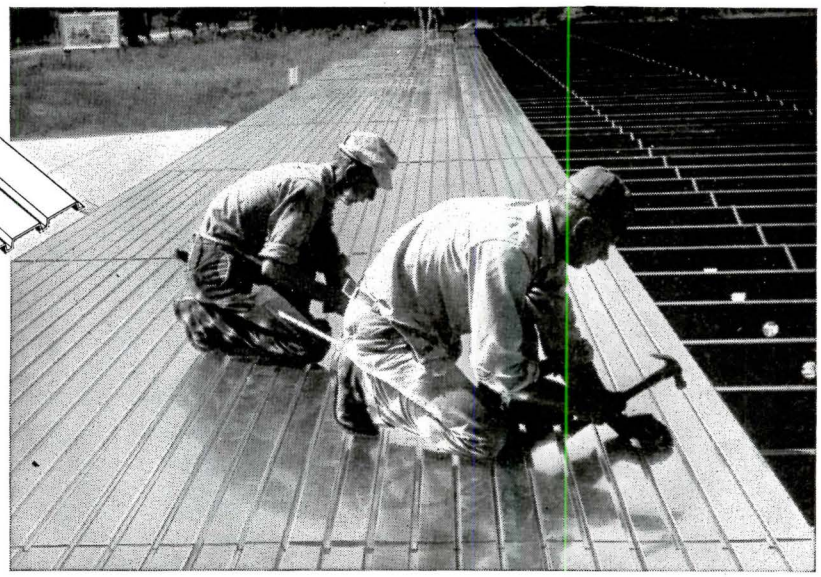
Steam-Water Mixer No. 1360: especially useful where steam is available in quantity, mixer produces hot water by injecting steam directly into water. Safety feature shuts down mixer in case of water-supply failure; mixing chamber is designed to prevent stratification and false temperature indications. Manufactured in five temperature ranges. Fulton Sylphon Div., Robertshaw-Fulton Controls Co., Box 400, Knoxville, Tenn.

(Continued on page 170)

Premium quality . . . at no extra cos



Stran-Steel® Galvanized Decking
for use with Stran-Steel Framing



Woodland Acres Shopping Center in Green's Bayou, Texas, utilizes 26-ga. Stran-Steel galvanized roof deck nailed to 9" Stran-Steel joists, on 24" centers. Built-up roof was applied over ½" fiber glass insulation. Architects: DUNAWAY AND JONES, Houston. Distributor: BUIE BLDG. MATERIAL CO., Houston.

STRAN-STEEL DECKING IS . . .

LIGHTWEIGHT but STRONG: Dead load savings up to 10 lbs. Total weight of this dry system, including 1" of insulation board, is less than 3 lbs. per sq. ft. Great strength-to-weight ratio assures maximum economy in materials.

ECONOMICAL: Competitive with poured-in-place decks. Galvanized coating assures long life . . . no painting is required.

EASY TO INSTALL: A 5-man crew can install up to 14,000 sq. ft. in an 8-hr. day. Insulation and built-up roofing can be applied *immediately* after erection. Erection is simplified by accurate fabrication and uniform pattern of decking.

AVAILABLE: On-the-spot distributors and dealers in all major building centers . . . with trained technical personnel to assist you in design and fabricating problems and adaptations to meet local conditions.

New Catalog!

Stran-Steel Div.
Great Lakes Steel Corp.
Ecorse, Detroit 29, Mich.

Please have your representative give me your new catalog and other information, without obligation. I am a: Builder ☐ Architect ☐ Engineer ☐ Owner ☐ planning the design or construction of: School ☐ Church ☐ Hospital ☐ Dwelling ☐ Commercial or Industrial Building ☐ Interior Steel Partitions ☐ Other_____

Name_____

Company_____

Street_____

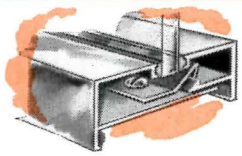
City_____ Zone____ State____

D

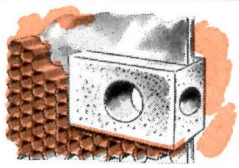
YOU NAIL TO STRAN-STEEL FRAMING
STRAN-STEEL AND QUONSET REG. U.S. PAT. OFF.

Stran-Steel Division
GREAT LAKES STEEL CORPORATION
Ecorse, Detroit 29, Mich. • A Unit of
NATIONAL STEEL CORPORATION

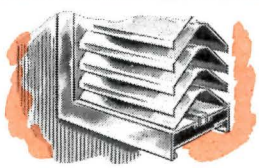
PRODUCER OF USS HIGH-TENSILE STEEL



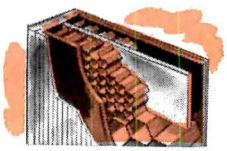
Mitered frame with no exposed screws. Spring clip construction allows glass to float safely within its strong, resilient support.



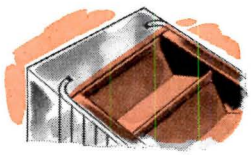
Styrofoam insert at the lock location prevents the infiltration of moisture.



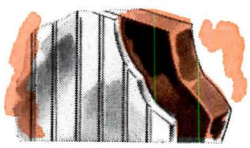
Alumilited aluminum louver assembly for optional use in resilient frame.



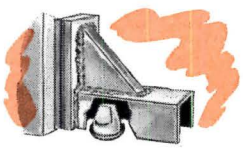
⅛" steel plate centered in dense honeycomb area provides solid support for surface hardware.



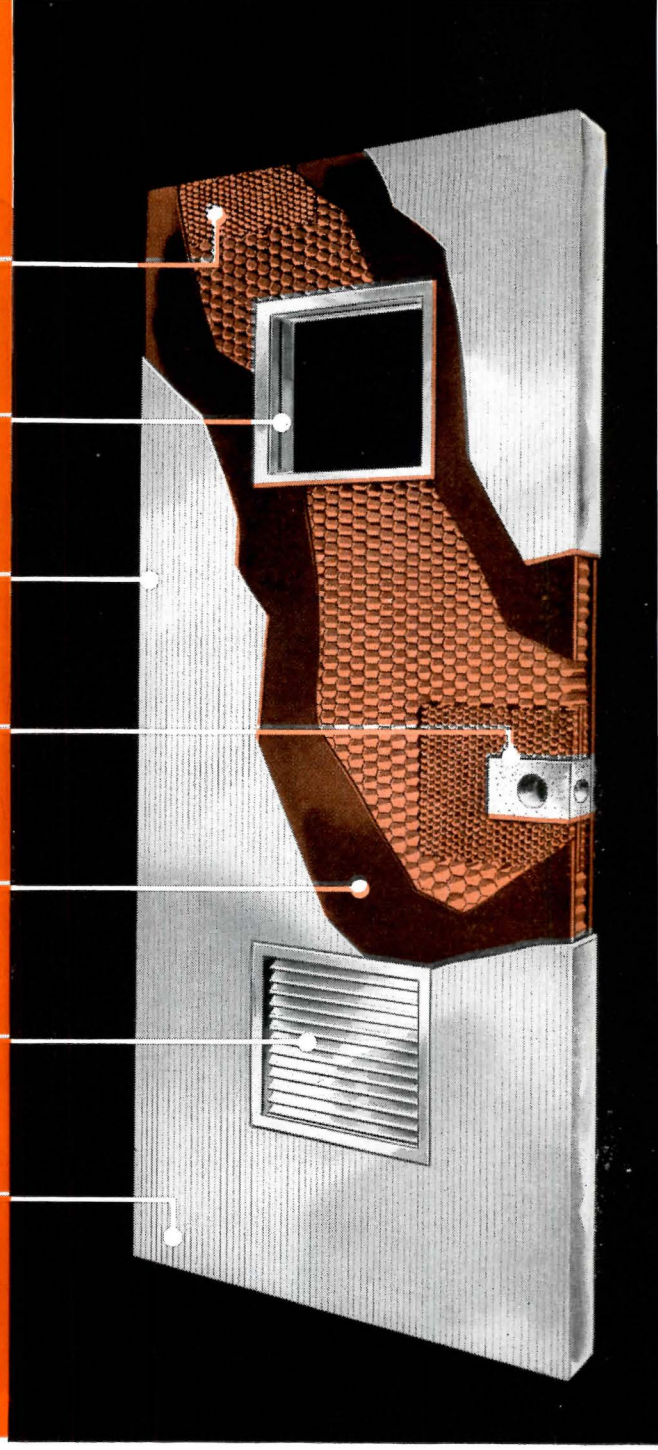
Aluminum skin is interlocked with solid aluminum stile for invisible skin-rail construction.



Attractive ribbed aluminum sheet laminated to hardboard backup sheet. Exceptionally high impact resistance is built-in.



For doors on floor closers, the concealed aluminum channel welded to pivot stile transmits reaction over the entire door area.



NEW TRIPLE-STRENGTH FLUSH DO

Sandwich with Honeycomb Core Formed on Hot Platen Press
Built like a sandwich with a honeycomb core, the new Kawneer Flush Door is 10 times stronger than the obsolete girder type and will last many years longer than ordinary doors. It has a high strength/weight ratio with great resistance to flexure and impact making it ideal for heavy use such as in hospitals or offices. Surface of *standard* door is handsome, *subtle-ribbed* aluminum with alumilited finish to insure lasting beauty. Special surfaces in aluminum and plastic can be provided on special order.

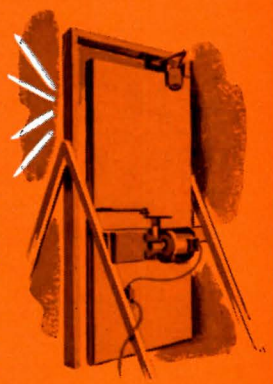
- Economically priced. Competitive with top quality wood core or hollow metal.
- Built for rugged duty in high traffic areas.
- Practically impossible to dent under normal use.
- Easily cleaned, *virtually* no maintenance.
- Suitable for both interior and exterior use.
- Absolutely cannot peel apart.

Kawneer

manufacturers of architectural metals, doors and entrances, and sun-control products, aircraft and appliance products.

Extremely *Rigid*
Remarkably *Moisture proof*
Passes Critical Tests

1,000,000 slam test

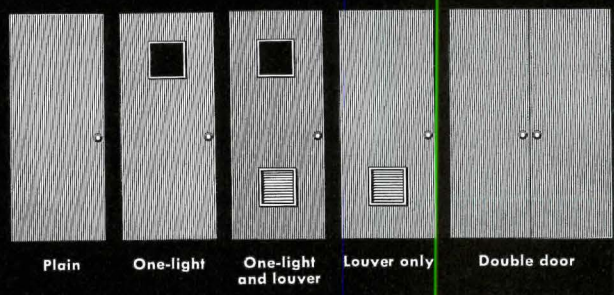


This new honeycomb door outperformed its girder-type competitor 10 to 1 in a slam test. This test specifies that the door be slammed repeatedly against a metal jamb until failure. The old-type door failed completely after 98,761 slams, whereas the new honeycomb core door was still plumb and true after 1,000,000 slams! It was needless to continue the test until failure. The test proves it will stand up many years in high traffic areas.

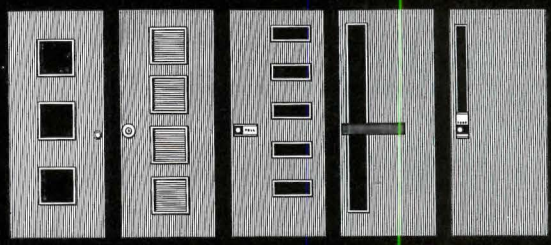
4 month saturated steam moisture test

Subjected to saturated steam day and night in a controlled chamber on one side for nearly 4 months and regular atmospheric conditions of late winter and early spring on the other side, this remarkable door survived without separation of laminations, warping or sagging. The new Kawneer door will withstand extremes in weather and still provide excellent service. The moisture resistance of this door makes it just as practical for exterior use as well as interior.

Freedom of design with Honeycomb



Plain | One-light | One-light and louver | Louver only | Double door



Three lights | Four lights or louvers* | Special lights—shape and location*

Because this new door is completely free of interior structural girders, there is a wide flexibility for positioning lights and louvers within the following limitations*:

1. One light not to exceed ⅓ of door area.
2. Two lights not to exceed ½ of door area.
3. Special size lights not to be placed closer than 1″ to edge of stile or 6″ from top to bottom.

BOTH STANDARD AND SPECIAL SIZES AVAILABLE...

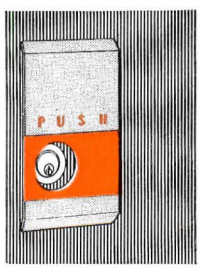
To provide complete flexibility the Kawneer honeycomb door is available in both standard and special sizes. The standard frames are extruded tube type for double and single acting doors. Frames in aluminum or steel can be provided to meet structural requirements.

Standard Sizes	Special Sizes
Single doors—2′6″, 2′8″, 3′0″, 3′4″ x 6′8″ or 7′0″	From: 2′0″ x 6′8″
Double doors—5′0″ and 6′0″ x 6′8″ or 7′0″	To: 4′0″ x 8′0″

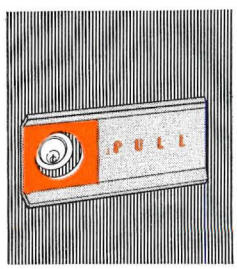
ardware in COLOR

To blend the new honeycomb door with any room decor, push and pull hardware is available in color. An attractive band of color is silk-screened on the hardware in the area of the lock opening. Lock is semiconcealed behind hardware, yet is easily accessible. Blue-green color standard. Other special colors from which to choose.

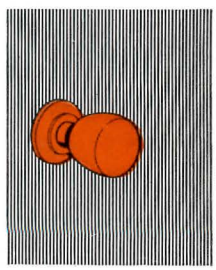
Door knob hardware is attractive tear drop design. It is available with knob latch, thumb turn, or standard cylinder deadbolt.



Lock is semiconcealed in distinctive Kawneer-designed push-pull hardware.



Push and pull plates for special doors available with or without attractive blue-green color band.



Tear drop design; available with knob latch, thumb turn, or standard cylinder deadbolt.

FOR DETAILED INFORMATION WRITE DEPT. PA

Kawneer
General Offices
NILES, MICHIGAN

ARCHITECTURAL PRODUCTS DIVISION

p/a products

(Continued from page 166)

specialized equipment

Multi Audio-Visual Nurse Call: electronic call system permits nurse to carry on two-way conversation with patient from several different points on nursing floor, without returning to main desk. System will also transmit slight whisper or weak breathing of patients under constant observation. Made in wall mountings and standard desk model. Executone, Inc., 415 Lexington Ave., New York 17, N. Y.

Skyrite Porcelain - Enamel Chalkboard: porcelain-enamel chalkboard utilizes sandwich-type construction to prevent warping and buckling. Vitreous-porcelain writing surface, fused to 16-gauge steel, is separated from galvanized-steel backing by ½" of strong, lightweight honeycomb material. Board is fire resistant, water resistant, and remains unaffected by extreme temperatures. Jecmen Co., 4608 W. 20 St., Chicago 50, Ill.

notices

fellowships

VOORHEES, WALKER, FOLEY & SMITH, Architects, New York, have established a Fellowship Award of $2000 to be granted yearly for graduate study in School of Architecture, PRINCETON UNIVERSITY.

The College of Architecture and Design, UNIVERSITY OF MICHIGAN, announces that the GEORGE G. BOOTH TRAVELING FELLOWSHIP IN ARCHITECTURE, in the amount of $2000, will be offered this year. The competition is open to all graduates of the school who have not reached their 30th birthday on May 15, 1955, closing date.

assistantships

PRATT INSTITUTE School of Architecture is offering two graduate assistantships, on half-time schedules, each covering tuition and providing a stipend of $1500.

competition

The TILE COUNCIL OF AMERICA, in co-operation with the BEAUX-ARTS INSTITUTE OF DESIGN, New York, has announced a design competition open to architectural students throughout the United States. The program calls for the planning of headquarters of a corporation in a suburb. The Tile Council will award winning designs a first prize of $100, a second of $50, and five others of $25 each. Detailed information about the competition, which closes May 1 and will be judged May 21, may be obtained by writing to the Beaux-Arts Institute of Design, 115 East 40 Street, New York 16, N.Y.

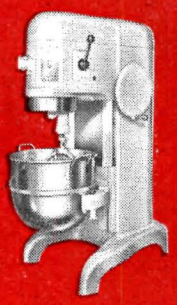
ST. LOUIS CHAPTER, NATIONAL SOCIETY OF ARTS AND LETTERS, announces a competition, calling for design of "The Missouri House," open to architects under 36 years of age (July 1, 1955), who are within a 50-mile radius of downtown St. Louis. Cash awards amounting to $2000 will be made. Closing date May 2, 1955.

fair postponed

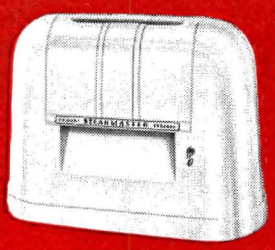
WORLD PLASTICS FAIR AND TRADE EXPOSITION, originally scheduled for April 6-10, has been postponed to October 5-9, 1955. Location—Los Angeles' National Guard Armory—is unchanged.

For the Most in Mass-feeding Efficiency

BUILD WITH HOBART

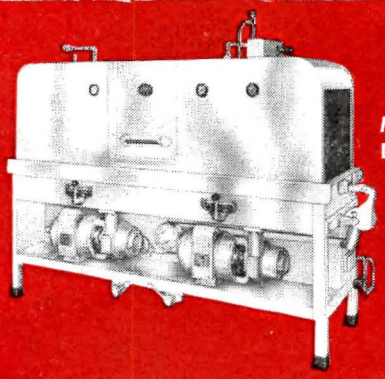


Model H-600 MIXER

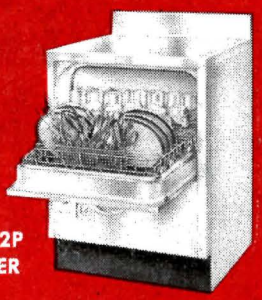


Model 400 STEAKMASTER

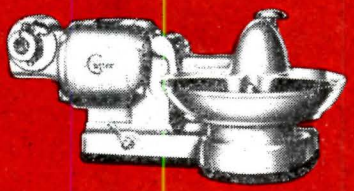
Model 4052 MEAT CHOPPER



Model XXM-4 DISHWASHER



Model UM-2P DISHWASHER



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Hobart machines

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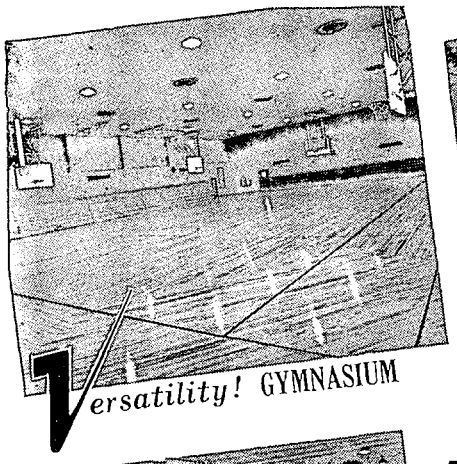

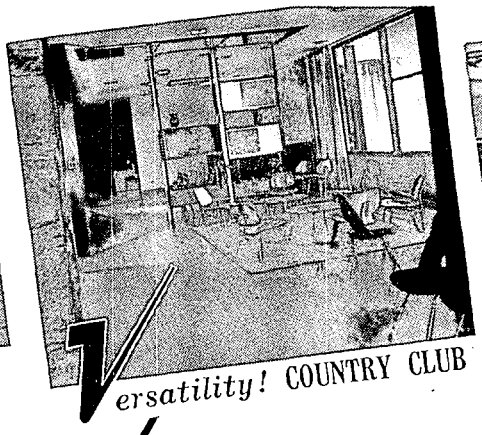

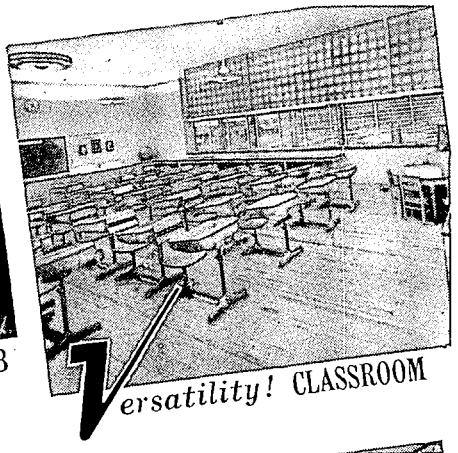

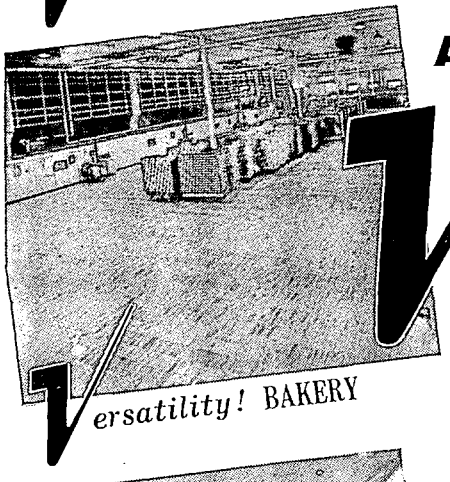

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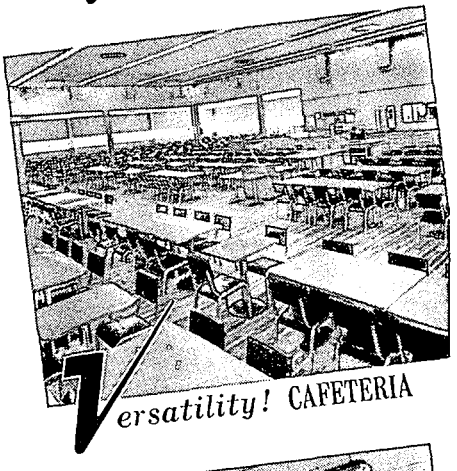

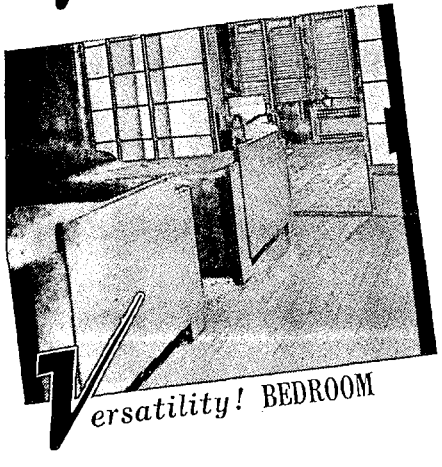

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See Sweet's Arch. 12j-MA, or write for AIA full-color File Folder.

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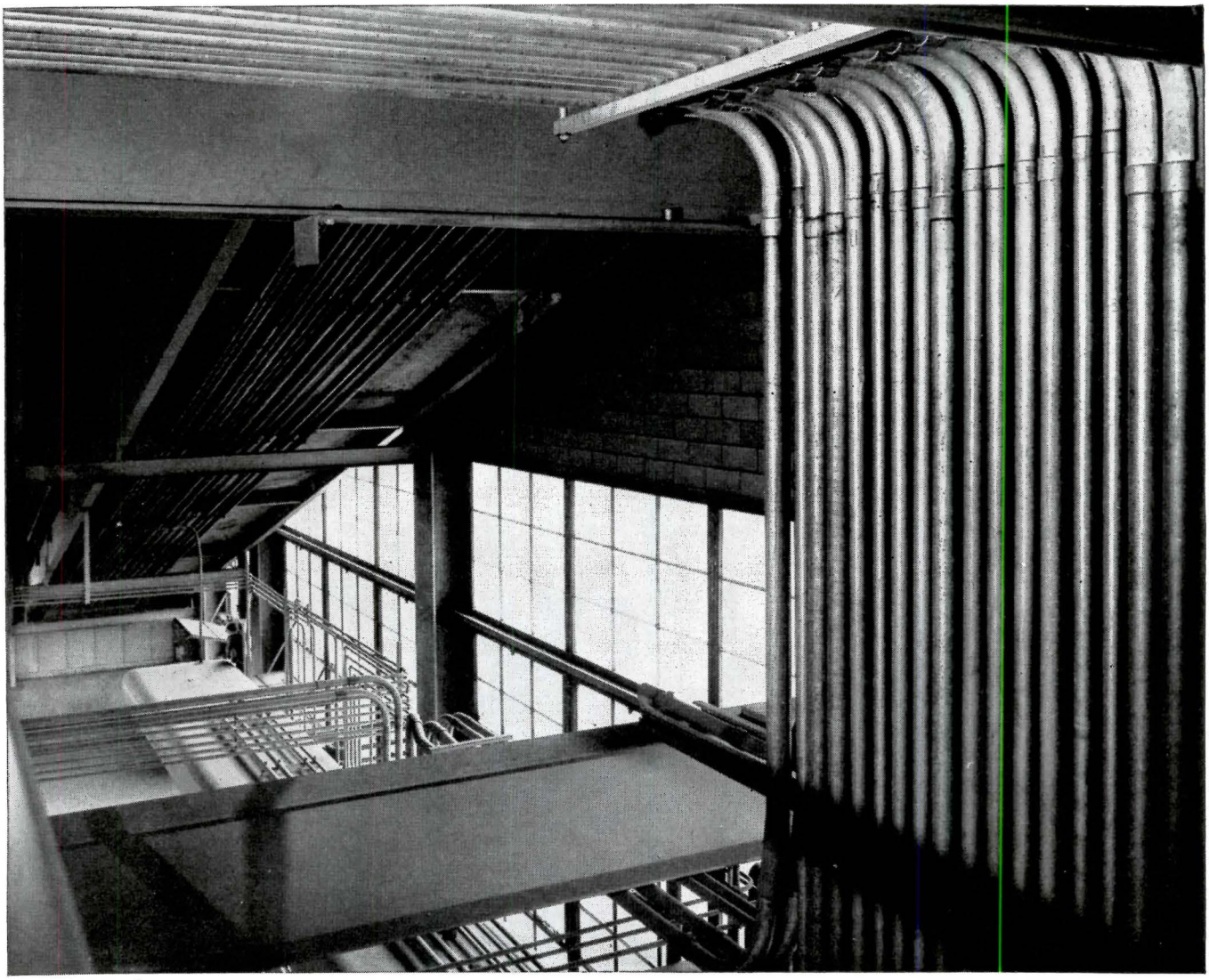

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by Carl Feiss

cash!

The Deans and Directors of Schools of Architecture and of Planning in private colleges and universities, should ask their university librarians to send them the February 3 issue of *Wall Street Journal.* In this is an important article by Staff Reporter Fred Weymuller on aid through educational grants to such institutions by business and industry. I quote from the first two paragraphs:

"American business is stepping up its financial support of private colleges and universities, the main suppliers of its brain power.

"Until recently, corporation dealings with higher education have generally been limited to plunking down money to buy a research job or training of scientists and technicians. Now, more and more companies are coming across with outright gifts, in the form of scholarships, other special-purpose contributions, and grants with no strings attached."

Weymuller goes on to discuss the large contributions already made by General Motors, General Electric, Standard Oil (New Jersey), Columbia Broadcasting, Armstrong Cork, Ford Motors, and others. He lists many of the contributions already received by several private universities and technical institutions. One interesting story is worth quoting:

"Concretely, it was calculated that in 1952 it would cost a Colorado company $67,000 in additional taxes to support the University of Denver if it went on the tax rolls. The company immediately made an annual pledge of $10,000 as an insurance against this eventuality."

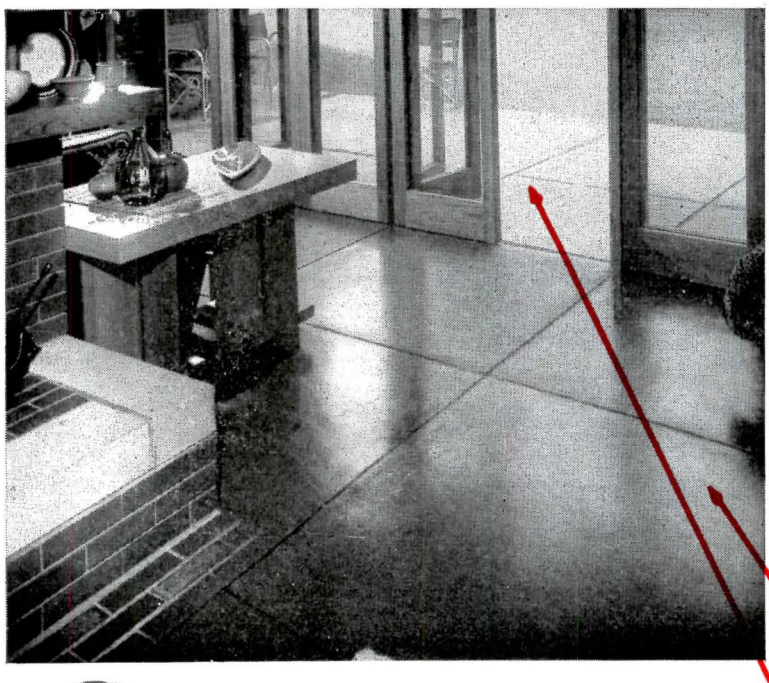
For the Architectural and Planning schools this significant trend in gifts opens up possibilities well worth investigating. The building industry has been generous, from time to time, but certainly not on the scale that it might be. It seems to me that local AIA Chapters, working with the local schoolmen, could be most helpful in selling the idea to Producer's Council members and others. Better yet, schoolmen, working through their university's Department of Development might try the direct approach. Don't forget the tax angles!

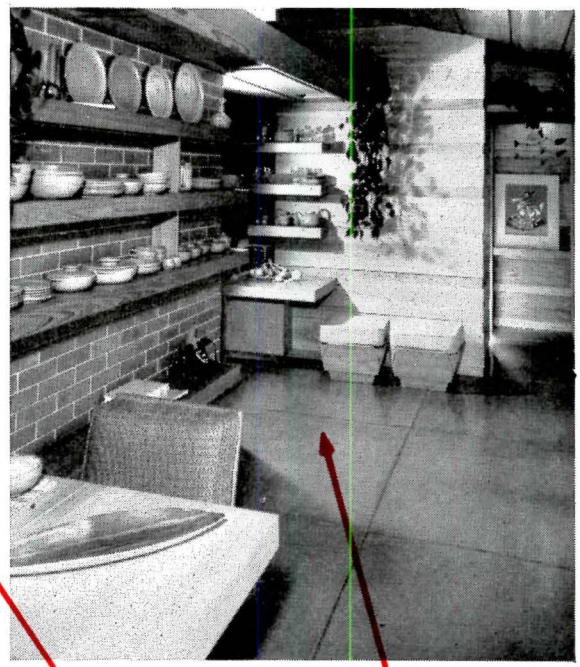
two views of teaching of architectural history

It has been some time since this column has discussed the teaching of architectural history. I, therefore, approached two distinguished history professors to get some current thoughts for our consideration. Prof. Leonard Eaton of the School of Architecture at the University of Michi-

(Continued on page 178)

Home of Mrs. I. Zimmerman, Manchester, N. H.
Designed by Frank Lloyd Wright





From the first rough sketches . . .

Frank Lloyd Wright specified Colorundum floors for their warmth of color and beauty."

Mrs. I. Zimmerman, Manchester, N. H.

"Look at these photographs of our exciting new home and you can see why we just wouldn't consider drab, colorless concrete. From the first rough sketches," writes Mrs. Zimmerman, "we planned attractive, luxurious Colorundum for the patio and the service areas . . . especially when we found out how little it cost!"

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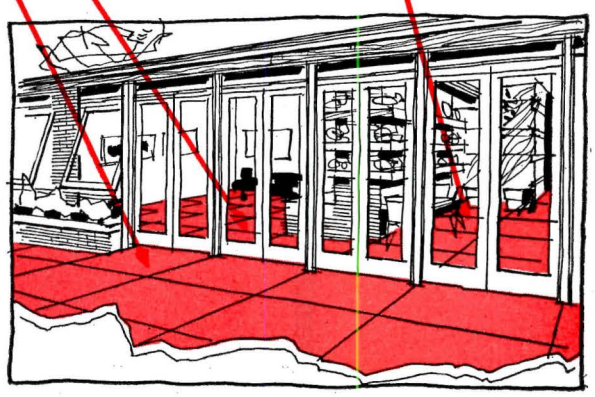
Colorundum is available in eleven decorator colors.



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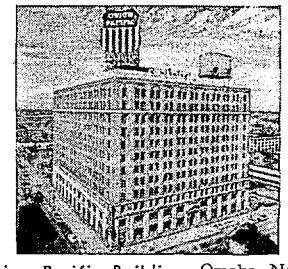
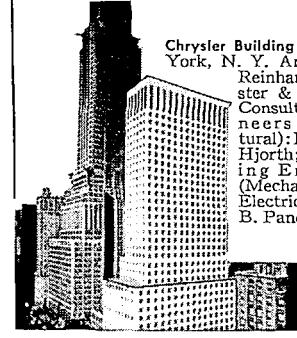


Union Pacific Building, Omaha, Nebr. Architect: Davis Hunt, Chicago; Engineers: Ritter & Mott, Chicago; Contractors: James Stewart & Company.

Harold Grubman Company, North Hollywood, Calif. Engineer: Sam L. Kaye, Los Angeles; Builders: Craig and Randall, Los Angeles.



Chrysler Building East, New York, N. Y. Architects: Reinhard Hofmeister & Walquist; Consulting Engineers (Structural): Edwards & Hjorth; Consulting Engineers (Mechanical and Electrical): Guy B. Panero.

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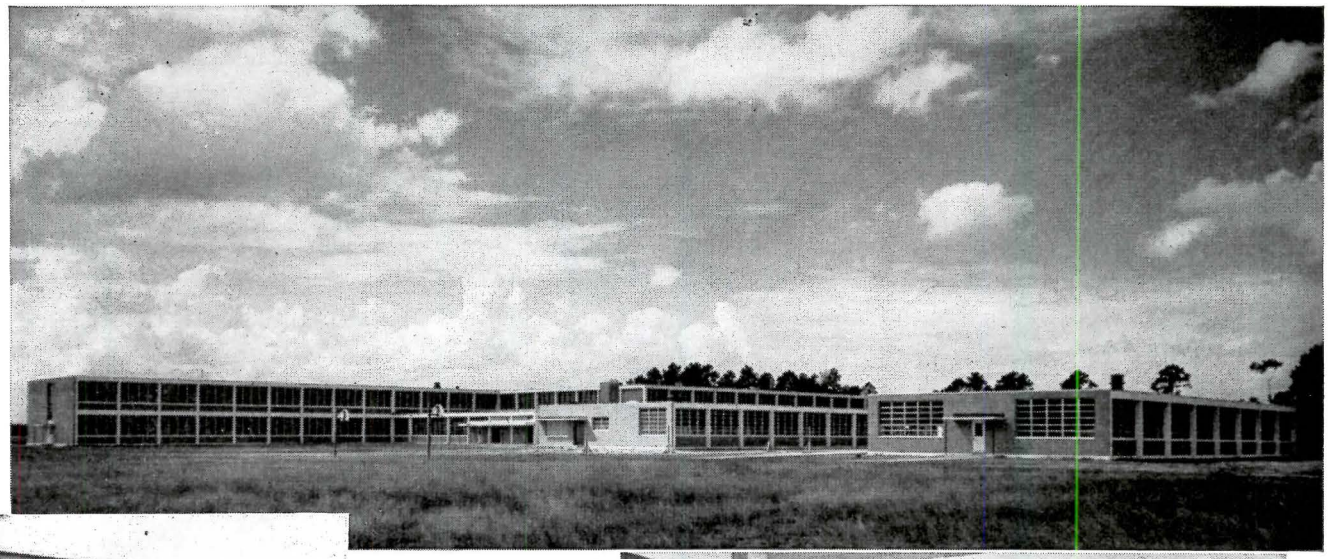

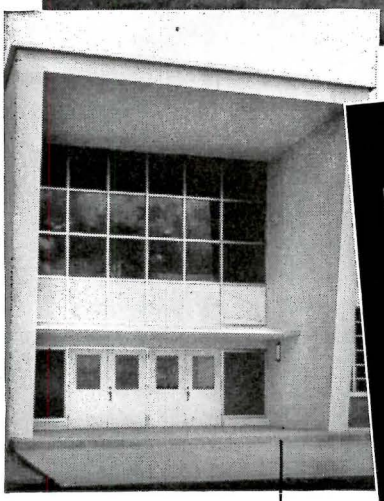

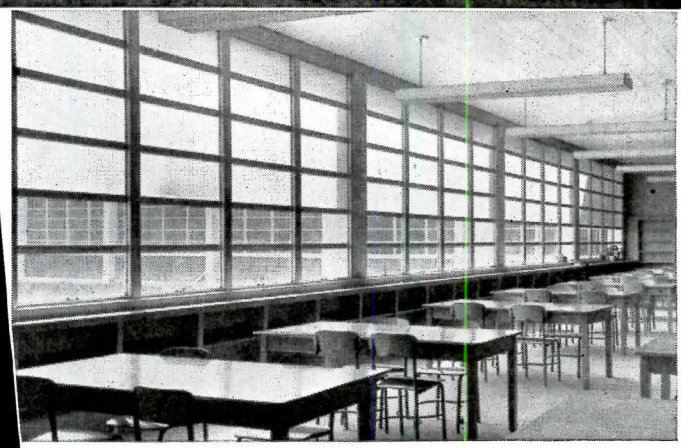

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Contractor: East Coast Construction Co.

Glazing: Pittsburgh Plate Glass Co.

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Architects of the Paxon Senior High School were determined to make the most of that fabulous Florida sunshine; so they used Mississippi glass lavishly throughout the structure. In this outstanding example of modern school design, Coolite, Heat Absorbing, Glare Reducing glass, floods rooms with great quantities of natural illumination from which the harmful qualities of "raw sunlight" have been removed. This glare-reduced glass cuts eye-fatiguing harshness and sharp contrasts . . . makes seeing tasks easier, more comfortable. And Coolite's famous ability to absorb excess solar heat permits such extensive glazing, yet helps keep interiors comfortably cool.

Translucent, light diffusing glass makes the classrooms seem larger, friendlier. Students feel better, work better when they see better, in this modern environment.

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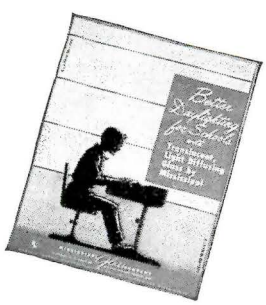

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out of school

(Continued from page 174)

gan, now in Europe on a Ford Foundation fellowship, has just completed a survey of the teaching of architectural history in the United States. Prof. James Fitch of the School of Architecture of Columbia University, well known author and writer, has read Professor Eaton's paper and is in general agreement with it. He has been kind enough to permit me to excerpt his excellent paper recently delivered at the annual meeting of the Society of Architectural Historians. Needless to say, opinions expressed are those of the authors and not necessarily those of anyone else. Let me know what *you* think.

Architectural History How Much, and by Whom?

Leonard K. Eaton,
University of Michigan

The subject of architectural history has been a vexing matter for the schools during the past few years. It seems fair to say that in the late 1930s and the war years, most collegiate schools of architecture revamped their design curriculums; the influence of Walter Gropius and his Harvard version of the Bauhaus was felt throughout the land. In 1938, Mies van der Rohe became Chairman of the Department of Architecture at the Illinois Institute of Technology, to strengthen the infusion of modernist thinking in the schools still further. Rightly or wrongly, many educators drew from the doctrines of these men the conclusion that the discipline of history, long the staple fodder of the architectural student, could now be scrapped. In some cases, the history requirement was cut down substantially or discarded altogether; in others, history courses were relegated to position of minor importance. Impelled by a desire to see how far this process had gone, the writer last fall visited a number of the country's leading architectural schools and asked some questions about the place of history in the architectural curriculum. Among those visited were: Minnesota, Utah, Oregon, California, USC, Washington University (St. Louis), Cornell, Harvard, MIT, Yale, Columbia, Princeton,

(Continued on page 182)

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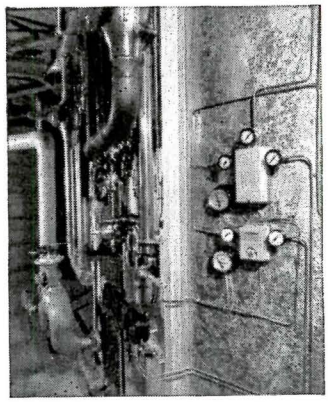
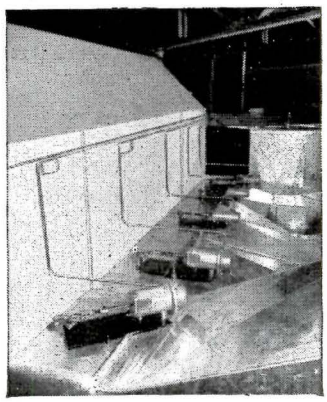
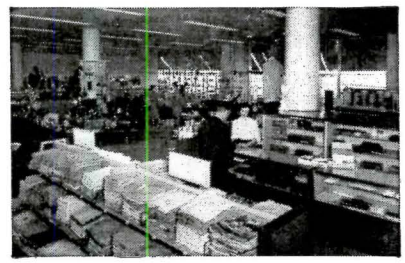


Temperature of the cool air plenum of this unit is controlled by a Johnson T-800 Capillary Thermostat, while a T-901 Submaster Thermostat, controlling a V-103 Steam Valve on the heating coil, regulates the temperature of the warm air plenum.



Johnson D-251 Damper Operators, controlled by T-400 Thermostats in the store, regulate Mixing Dampers on each of four central fan air conditioning units.

The Denver Dry Goods Co., Cherry Creek Store, Denver, Colorado. T. H. Buell & Co., architects and engineers; Denver Plumbing & Heating Co., heating, ventilating and air conditioning contractor, both of Denver.



Shoppers move in perfect comfort throughout this spacious store. Strategically located Johnson Room Thermostats maintain refreshing, even temperatures regardless of outside weather or occupancy conditions.

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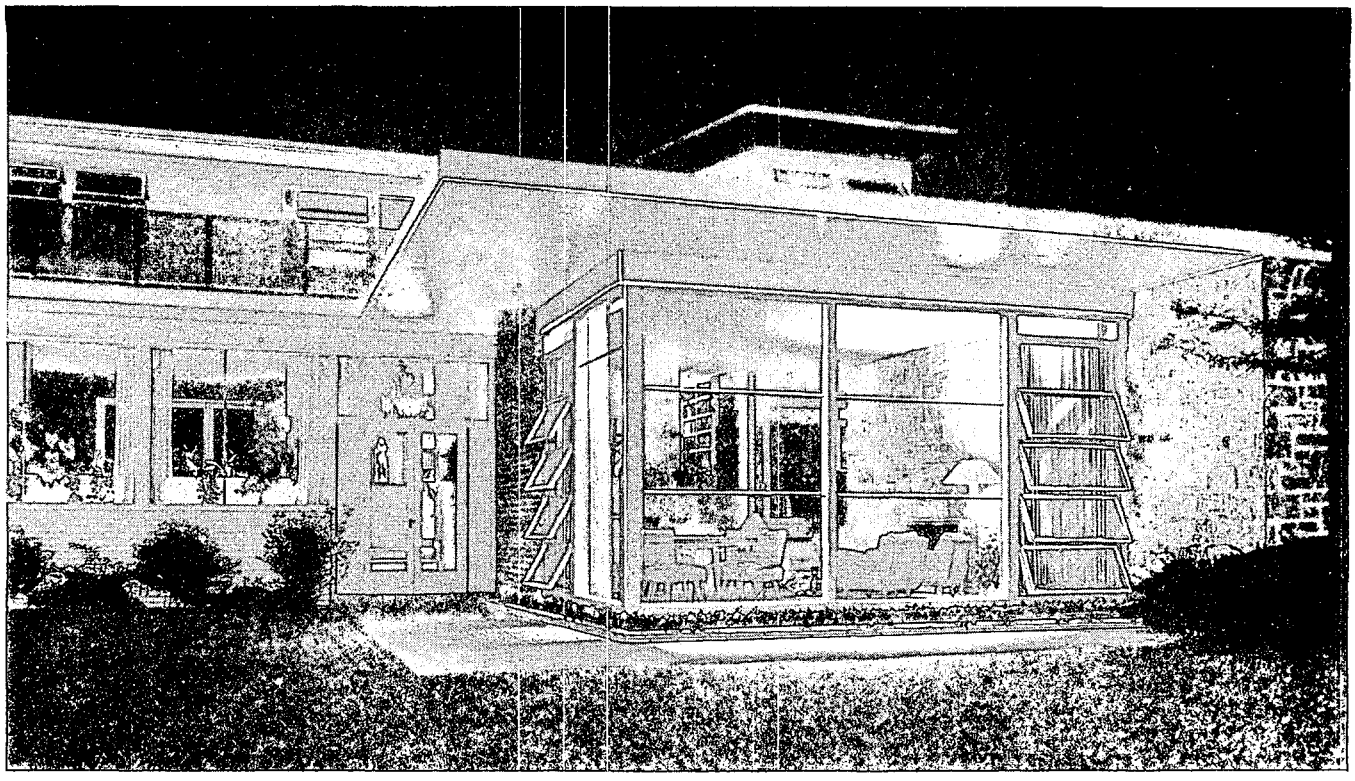

Architect Edward Stone of New York has tastefully combined Gate City units with picture windows in this modern dwelling.

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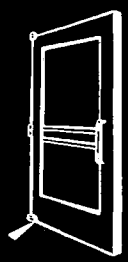

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patient room doors

utility and supply room doors

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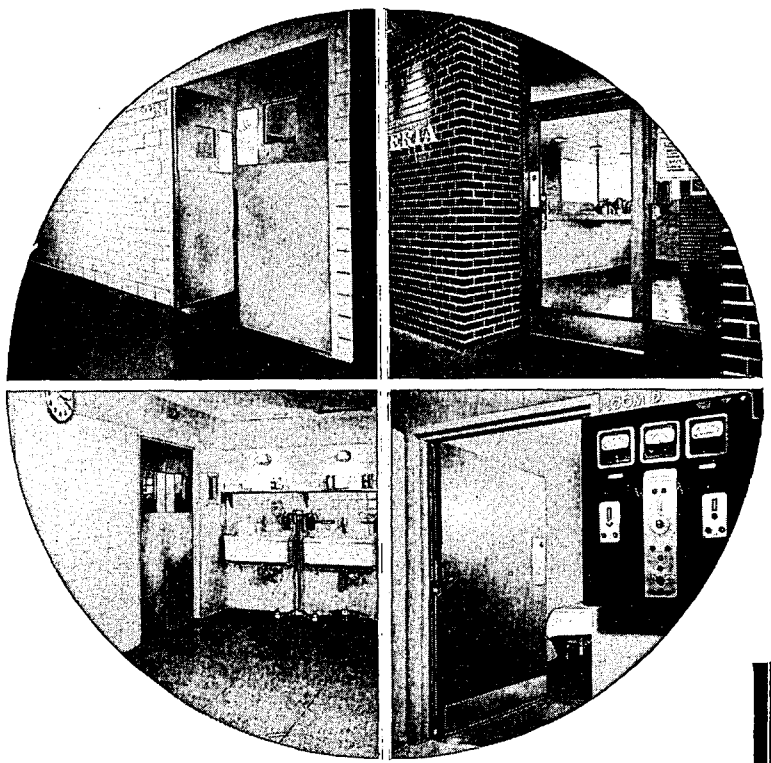
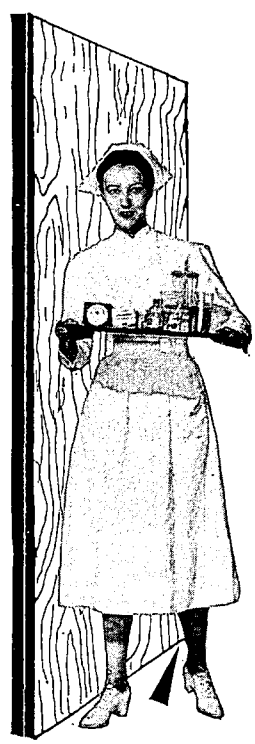


Weiss Memorial Hospital Interiors, Chicago.

LOEBL, SCHLOSSMAN and BENNETT, architects, Chicago.



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Where patients, visitors and a busy staff pass through doors . . . a safe, controlled door closing action is important. Every "working" hospital door, including entrance and vestibule doors, utility room, toilet, and patient room doors—should be equipped with RIXSON floor type closers. The doors will open with a light, easy push and then close gently, quietly, and automatically. RIXSON Closers are out of the way, firmly concealed in the rigid floor where they cannot gather dust or dirt and cannot obstruct the door opening. No unsightly arms or mechanism exposed.

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out of school

(Continued from page 178)

Penn., and Carnegie Tech. The present article is a product of this survey.

In general, it can be said that there is widespread agreement on the necessity of history as a significant feature of the architectural curriculum. When asked "Why teach history?," most deans and department chairmen argue vigorously along the lines indicated in Volume I of *The Architect at Mid-Century*.[1] Turpin Bannister's cogent reflections on this point are so well known that they may be omitted here. Suffice it to say that most administrators view history as an important liberalizing element within the architectural curriculum. Sample comments were, "The study of history helps a student to get perspective on himself and his own time," and, "It makes no sense to cut an architectural student off from his past," and, "After all, we are not running a trade school." The chairman at one far-Western state university phrased the matter nicely when he commented, "The history courses make them look beyond the mountains." Notwithstanding these remarks, I sensed a strong feeling of distaste for the way history has been taught in recent years and, in many places, a great desire for experimentation. Superficially, this feeling might seem to stem from a general agreement with the Bauhaus position that the architectural curriculum was like a dusty closet which needed to be swept clean, but I do not believe that such is the case. On the contrary, I suspect that the men I interviewed would have come to feel as they do without the aid of Walter Gropius and Mies van der Rohe: they would simply have decided that in far too many cases history was being badly taught.

Now to say that a discipline is being badly taught is not a simple statement. It may mean that the level of instruction is too advanced for the students. It may simply mean that the instructor is unimaginative and dull. Or it may mean that the wrong type of person is teaching

(Continued on page 186)

[1] The Architect at Mid-Century. Vol. I: Evolution and Achievement. *Edited by Turpin C. Bannister. 513 pp., $8.75.* Vol. II: Conversations Across the Nation. *Edited by Francis R. Bellamy. 260 pp., $5. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1954.*

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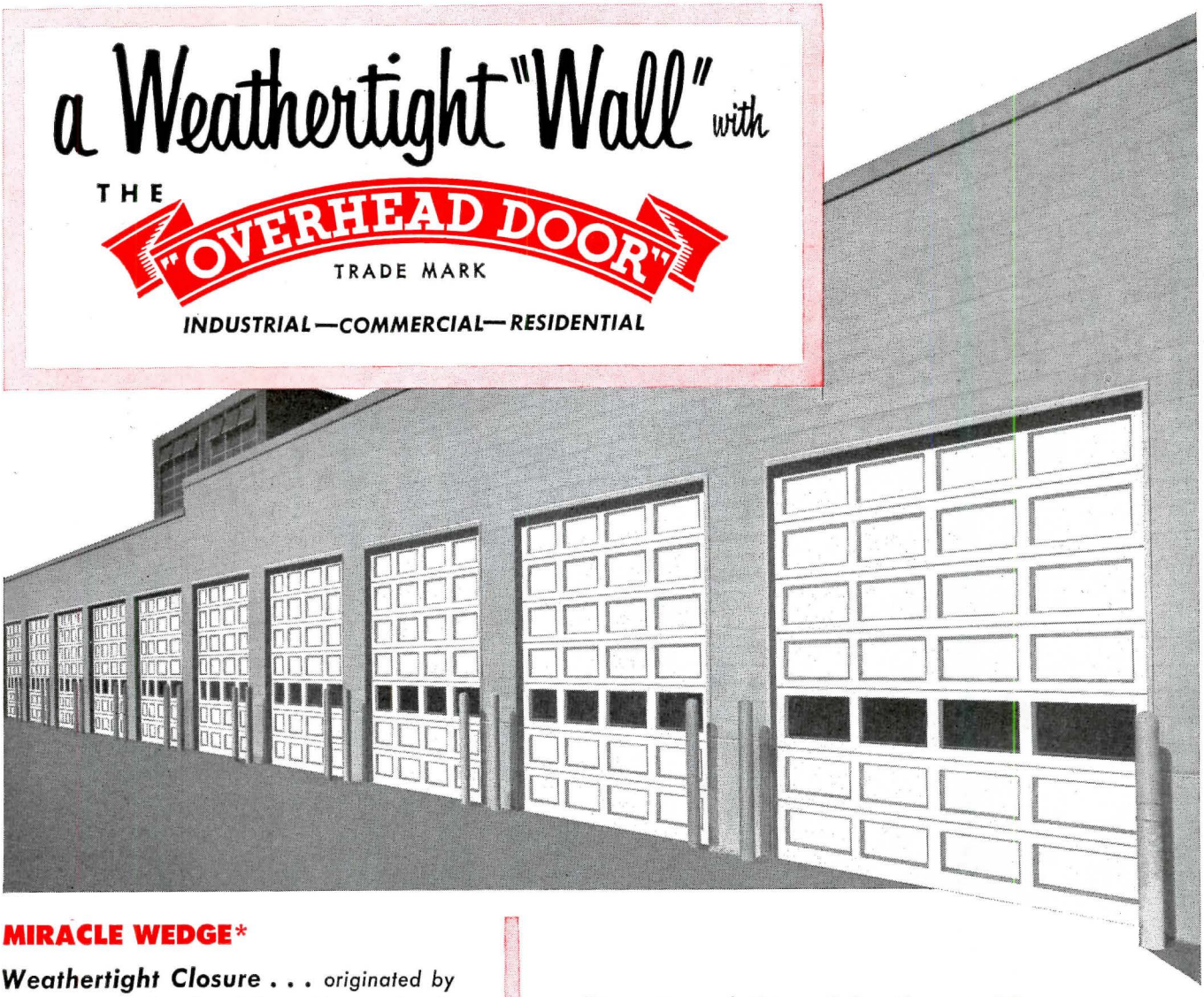

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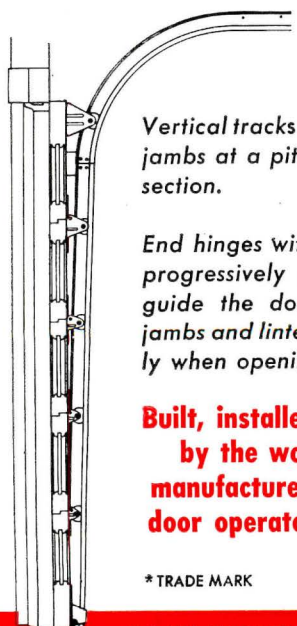

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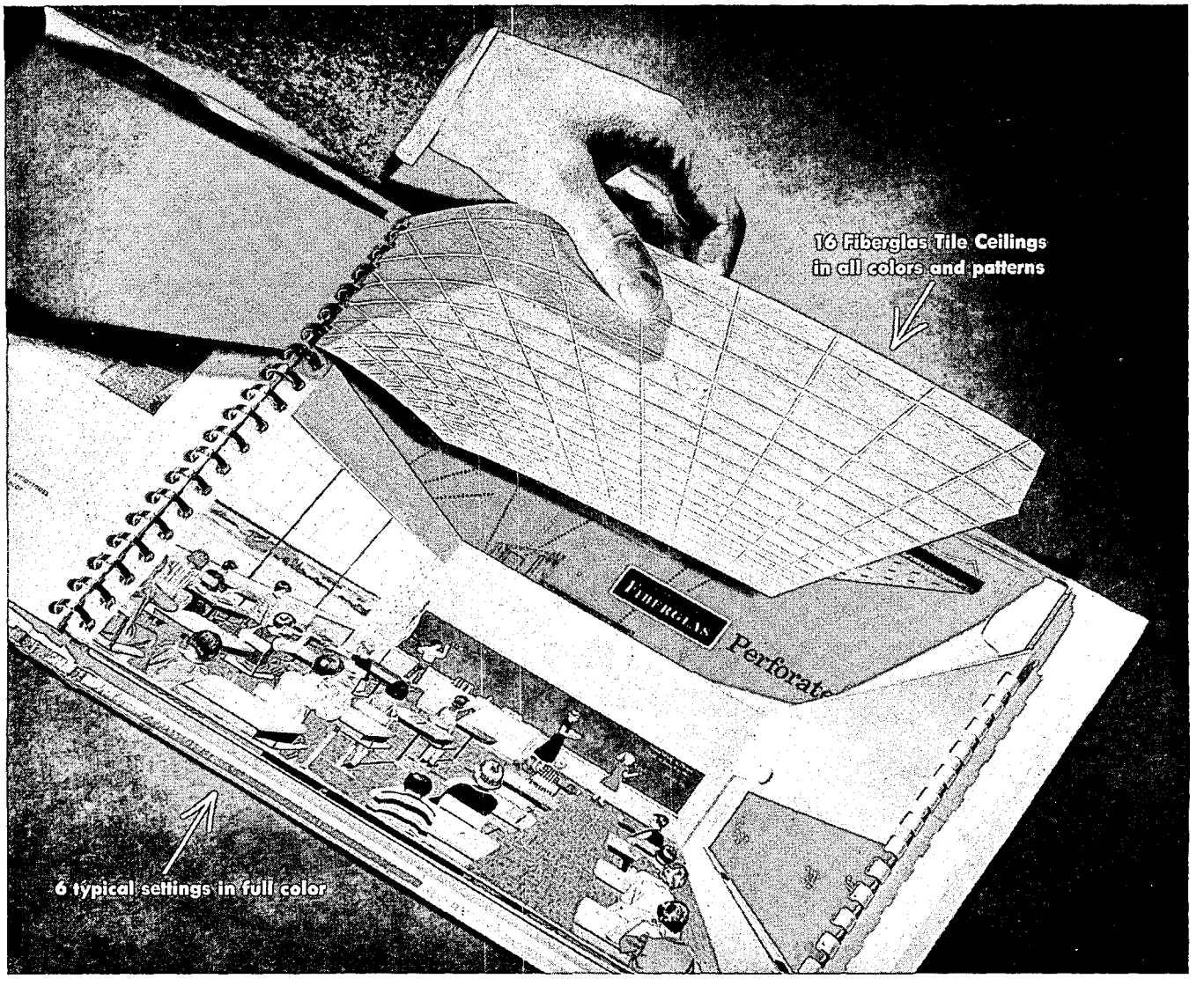

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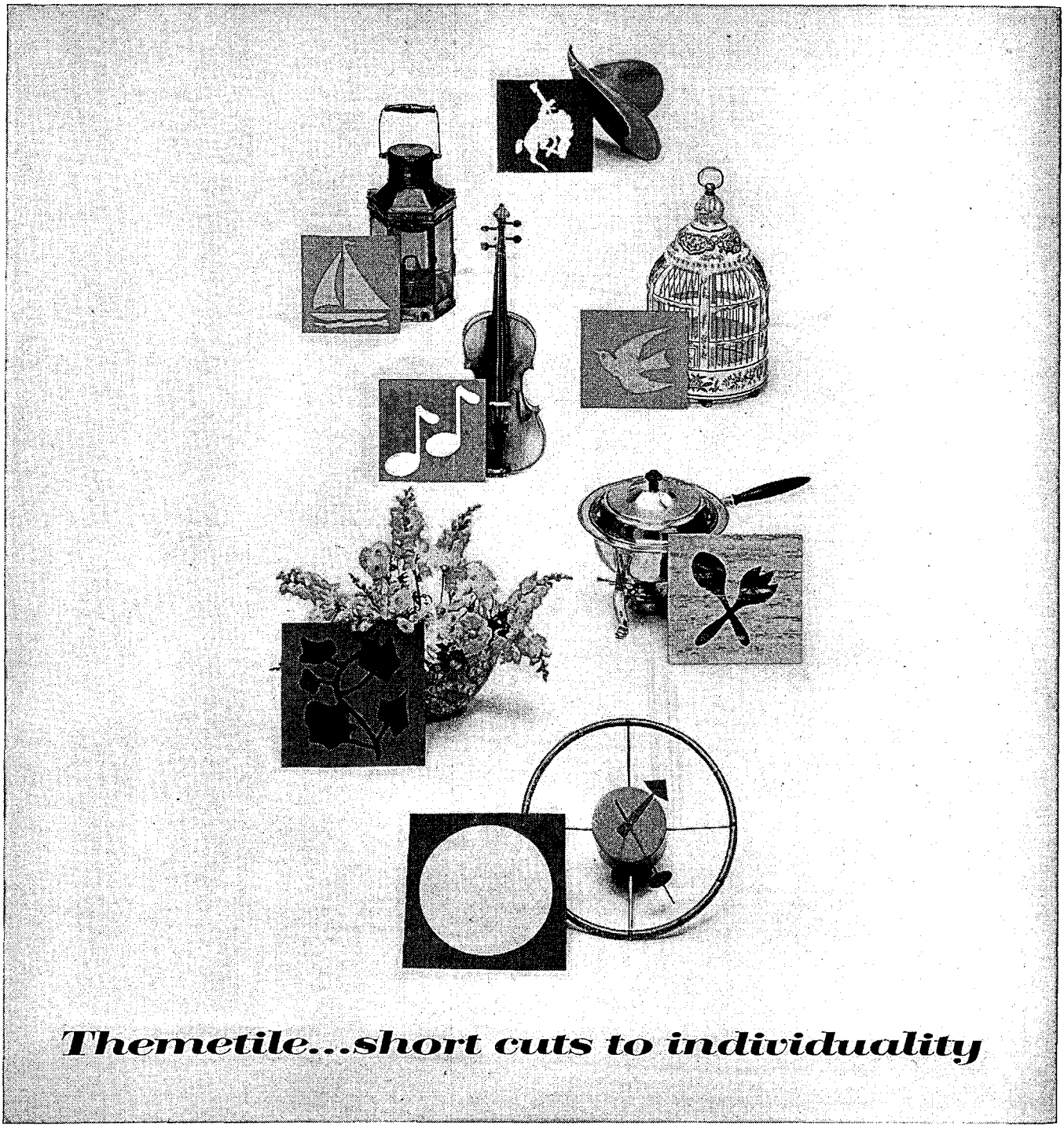

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out of school

(Continued from page 182)

the subject. This last condition seems to me to lie at the root of our difficulties with architectural history. The standard complaint about the subject is that it becomes an unconnected series of unconnected names and dates. What does this criticism imply? To this writer it implies that architectural history has too long been taught without any reference whatever to the philosophical generalizations which alone can give meaning to any variety of history. On all sides, it is said that we have had enough of Banister Fletcher and the "The next slide, please" approach. What people are really saying, it seems to me, is that we have had enough of an approach to history which refuses to find a pattern in the past. Without some attempt to find a pattern, history is indeed reduced to a meaningless collection of names and dates with which any thinking person would be bored. Furthermore, the idea of working out an architectural tradition becomes senseless; and the notion that they are working within an honorable tradition is something that most American architectural students greatly need at the present moment. Henry Adams, an acute critic of architecture and American life in general, once wrote that an educated man was one who was aware of his own tradition. His statement has important implications for architectural education.

It is not hard to see how the present situation came about. The root of the difficulty lies in the fact that few individuals who take an architectural degree care to follow it up with a thorough historical training. This condition is, after all, quite understandable. If a man completes the exacting architectural curriculum, he presumably wants to design buildings or at any rate be active in some phase of the construction industry. It is the rare individual who is attracted to a career in architectural history. Of course, there are a few such men in every generation and we should certainly all be thankful for them. Men like Talbot Hamlin, Kenneth Conant, and Carroll Meeks have done and will continue to do work of the very highest quality. Nonetheless,

(Continued on page 190)

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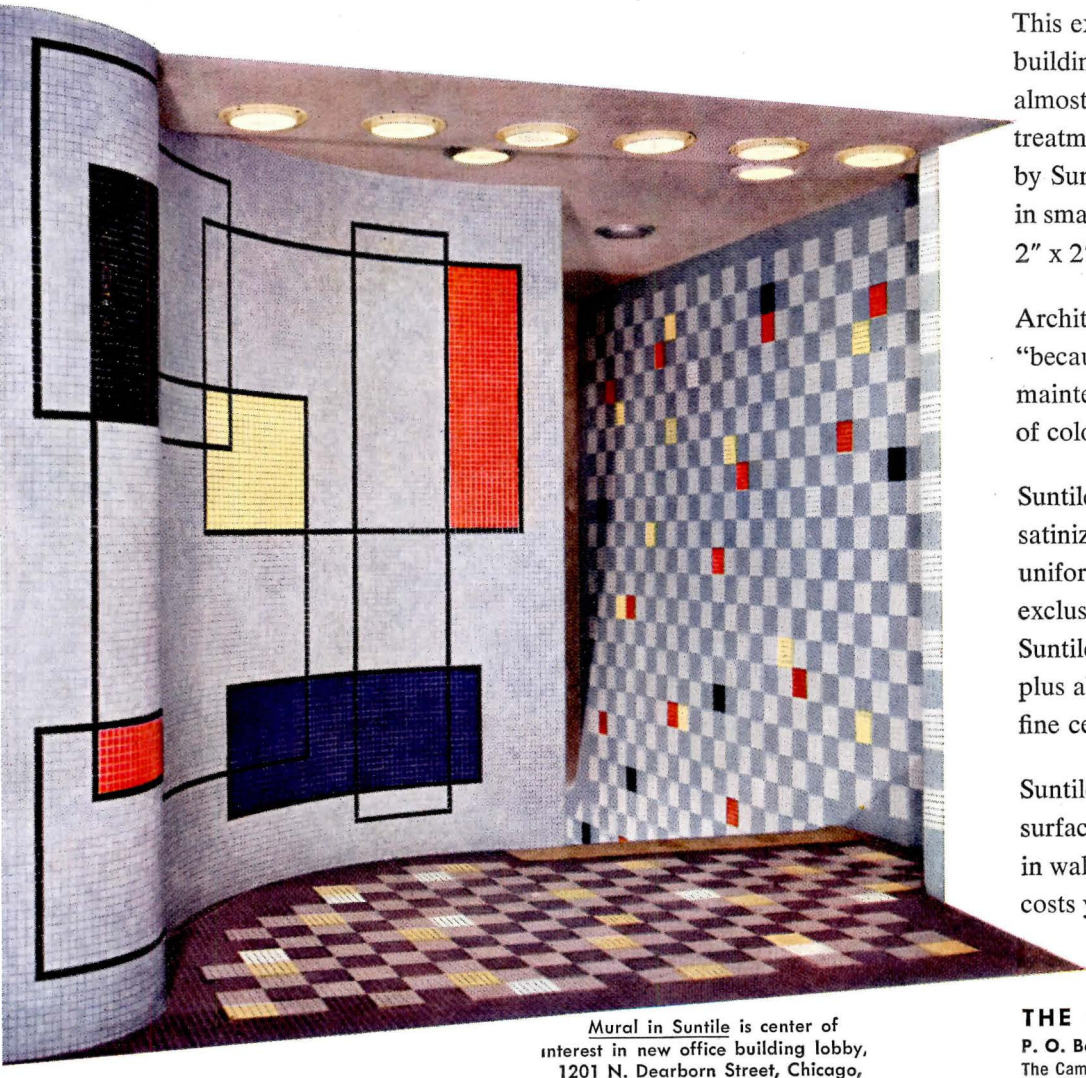

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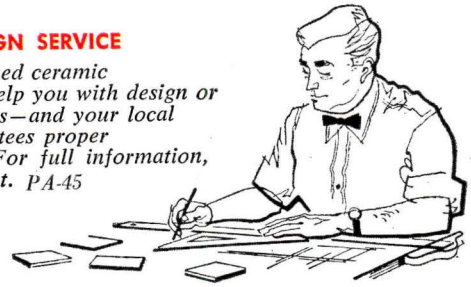

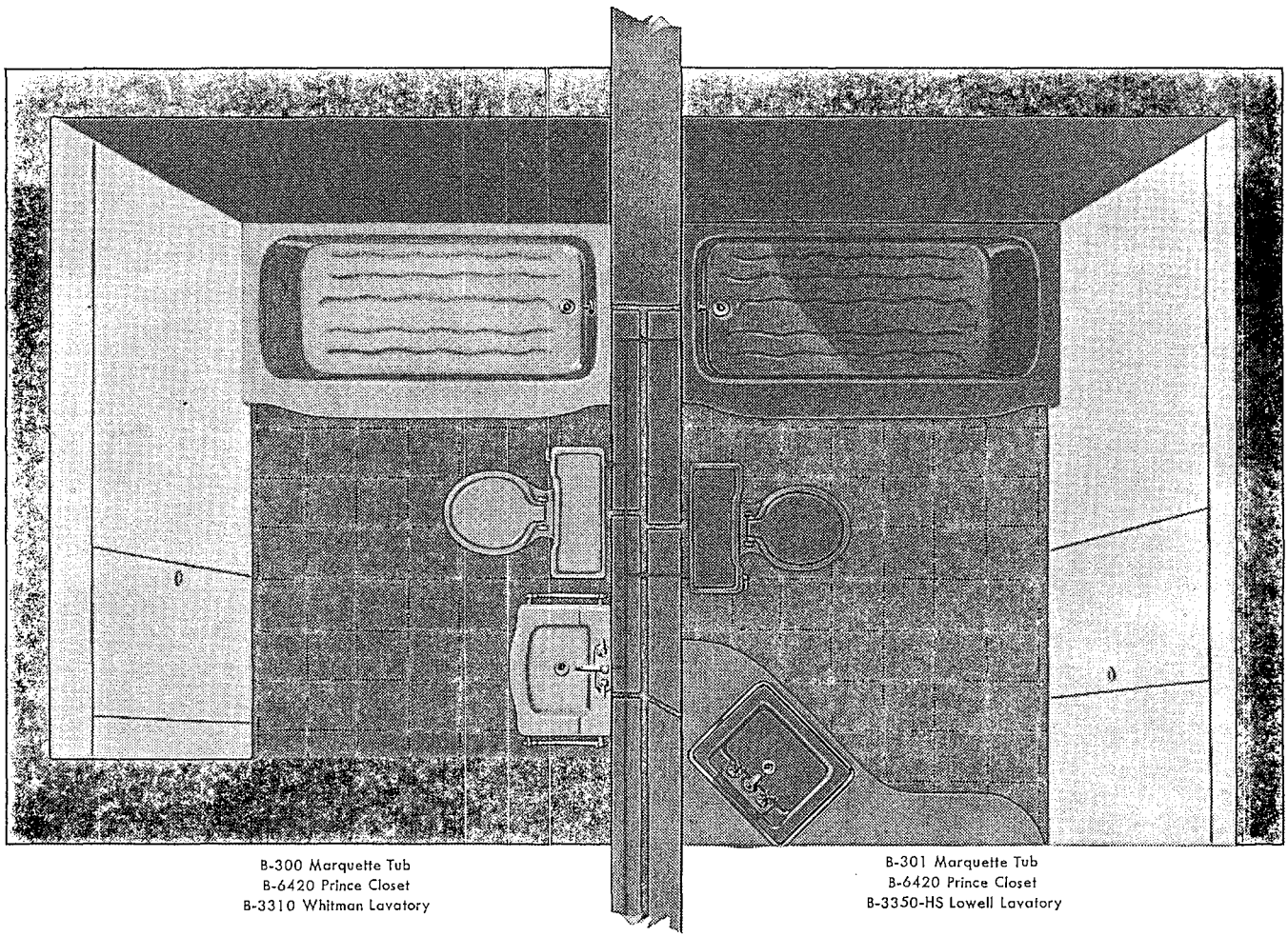

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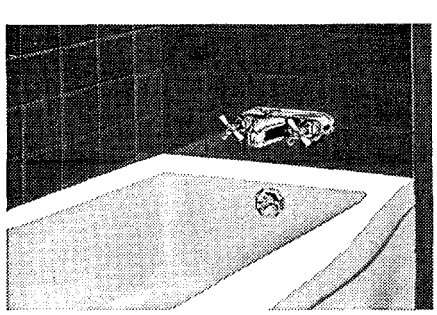

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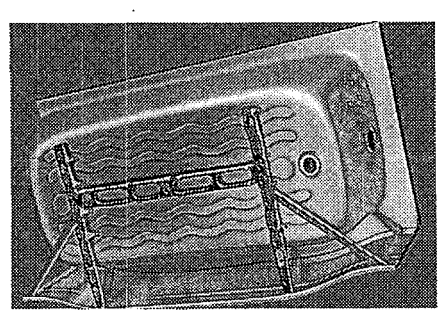

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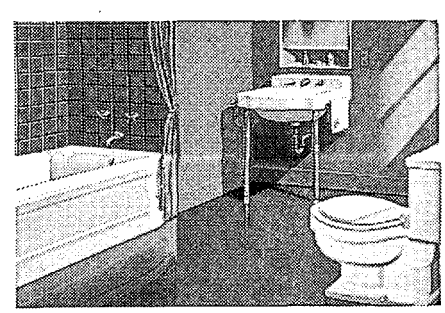

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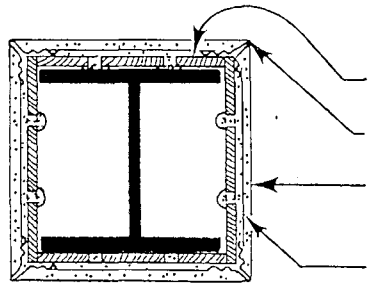

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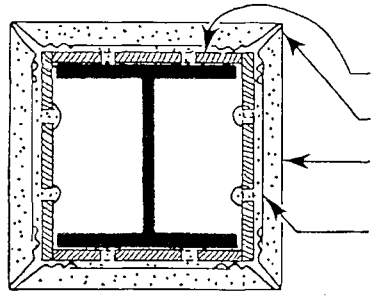
- 3/8" Perforated Beaver Lath
- Corner bead wire tied in place
- 1/2" Lite-Mix (1 application double-up)
- Tie wire around lath to hold in place

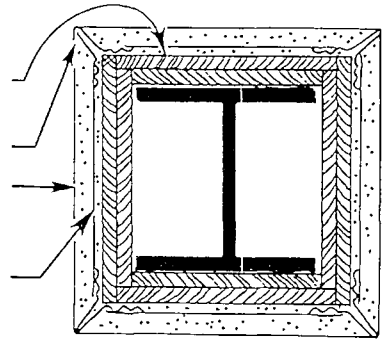


2 HOUR

- 3/8" Perforated Beaver Lath
- Corner bead wire tied in place
- 1" Lite-Mix (1 application double-up)
- Tie wire around lath to hold in place

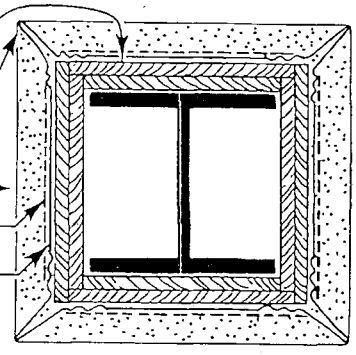
3 HOUR

- 2 layers 1/2" thick plain Beaver Lath
- Corner bead wire tied in place
- 1" Lite-Mix (1 application double-up) (including white coat)
- Tie wire around lath to hold in place



4 HOUR

- 2 layers 1/2" plain Beaver Lath
- Corner bead wire tied in place
- 1 1/2" Lite-Mix
- 20-gauge galv. 1" mesh wire around lath
- Tie wire around lath to hold in place



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out of school

(Continued from page 186)

the facts remain that the schools produce only a few such men in every generation and that the demand for highly qualified teachers of architectural history will probably remain in its present (healthy) condition for quite a few years to come.

Besides the shortage of people who combine architectural and historical training, there are certain other factors operating which tend to draw nonarchitects into the teaching of history. Perhaps most important is a growing conviction among schoolmen that consideration of a building's total cultural setting is at least as important as an analysis of its esthetic elements. If history has any value in orienting the student to the social and economic forces which shape his own world, it is as important for him to know something about the Greek pottery trade and the political organization of the ancient city-state as it is for him to be familiar with the notions of beauty which filled the mind of the designer of the Parthenon. The concept of cultural history is, of course, nothing new; but the emphasis that it is now receiving in the schools probably is new. More and more, the great buildings of Western history are being taught as social documents rather than as purely esthetic undertakings.

It also happens that architectural history consistently attracts a number of people with little or no formal architectural training but who still display a deep interest in the subject. The most prominent individuals of this type in the United States today are probably Lewis Mumford and Henry-Russell Hitchcock, both of whom have taught in architectural schools in the past few years. The tradition of the architectural historian with little or no formal training in architecture is, incidentally, an old and honorable one in the United States. It goes back at least to Montgomery Schuyler, a critic whose writings may still be read with pleasure and profit. It is interesting to speculate on what would have happened if Schuyler, with his sympathy for the Chicago School, had been given an influential teaching post. He might well have done something

to stem the tide of eclecticism which engulfed American architecture at the time of World War I.

As a consequence of all these factors, it is today possible to discern a trend in favor of delegating the subject to someone with a broad training in cultural history. In some schools (California and MIT), this person is a PhD in art history whose particular interest is in architecture. In others (Princeton and Pennsylvania), courses in architectural history are actually "farmed out" to an art history department. At Cornell, an architect and a trained art historian collaborate on a series of courses which are noteworthy for the attention they pay to sculpture and painting. While the reasons for these developments are not entirely clear, one cannot escape the feeling that the process of re-evaluation which has been going on for so long in design courses is now being extended to history curriculums. The amount of experimentation seems an especially healthy sign and an indication that there are a number of different ways of making history play an effective part in architectural education.

While there is, of course, no agreement on the number of history credits which ought to be required, the average in the schools I visited would probably be about 12 semester hours. Half of this time must ordinarily be devoted to a survey of architectural history, the sort of thing ordinarily encompassed under some such title as "Great Buildings of the Western Tradition." The difficulties inherent in any survey course of this kind are well known. How much attention can be paid to painting, sculpture, and the minor arts? How much writing and sketching can be required of students already carrying heavy programs in structure and design? How much time shall be given to the important but largely neglected tradition of oriental architecture? What kind of texts shall we use to supplement the monumental but outmoded *History of Architecture on the Comparative Method?* All these are problems which deserve (and are receiving) close study from a

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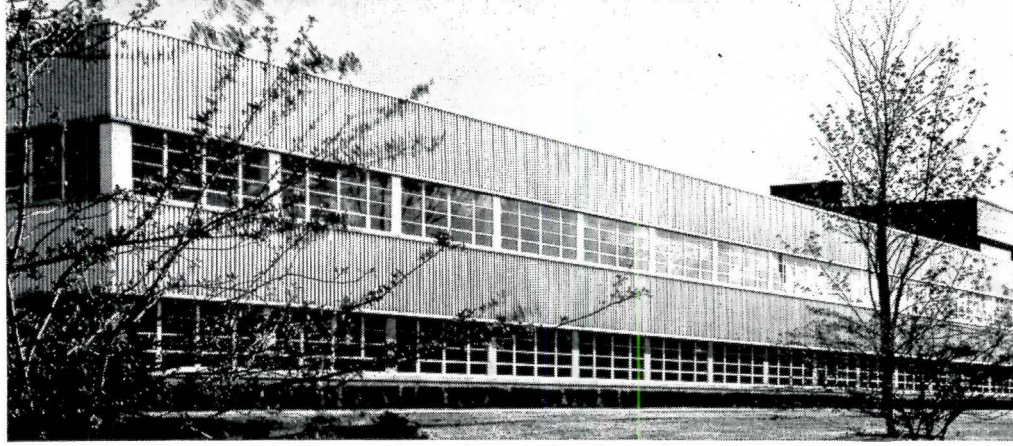

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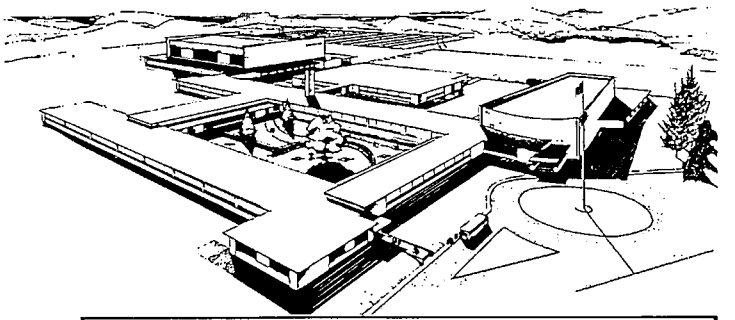

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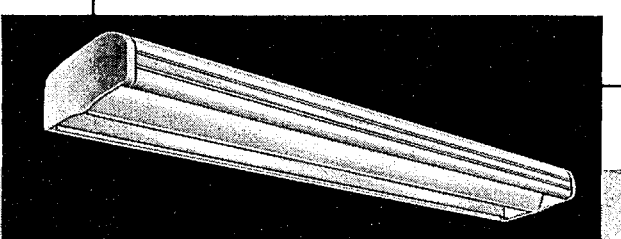

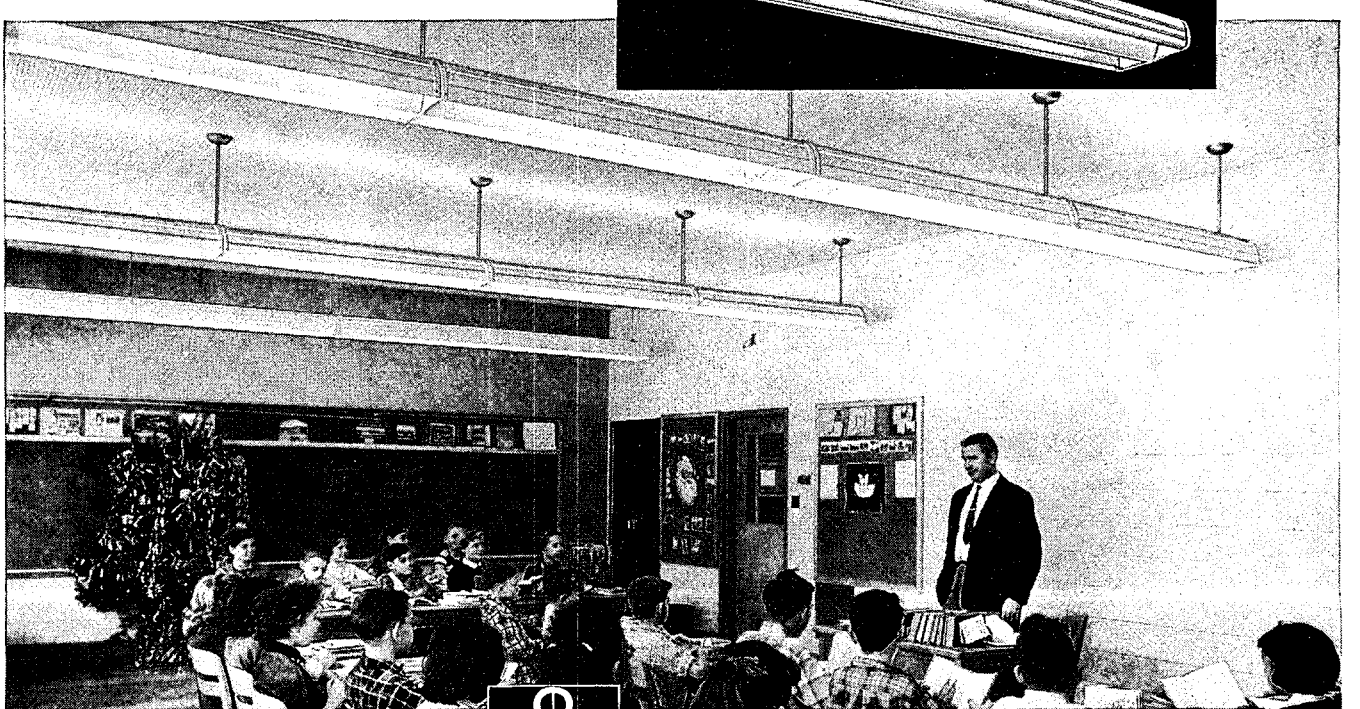

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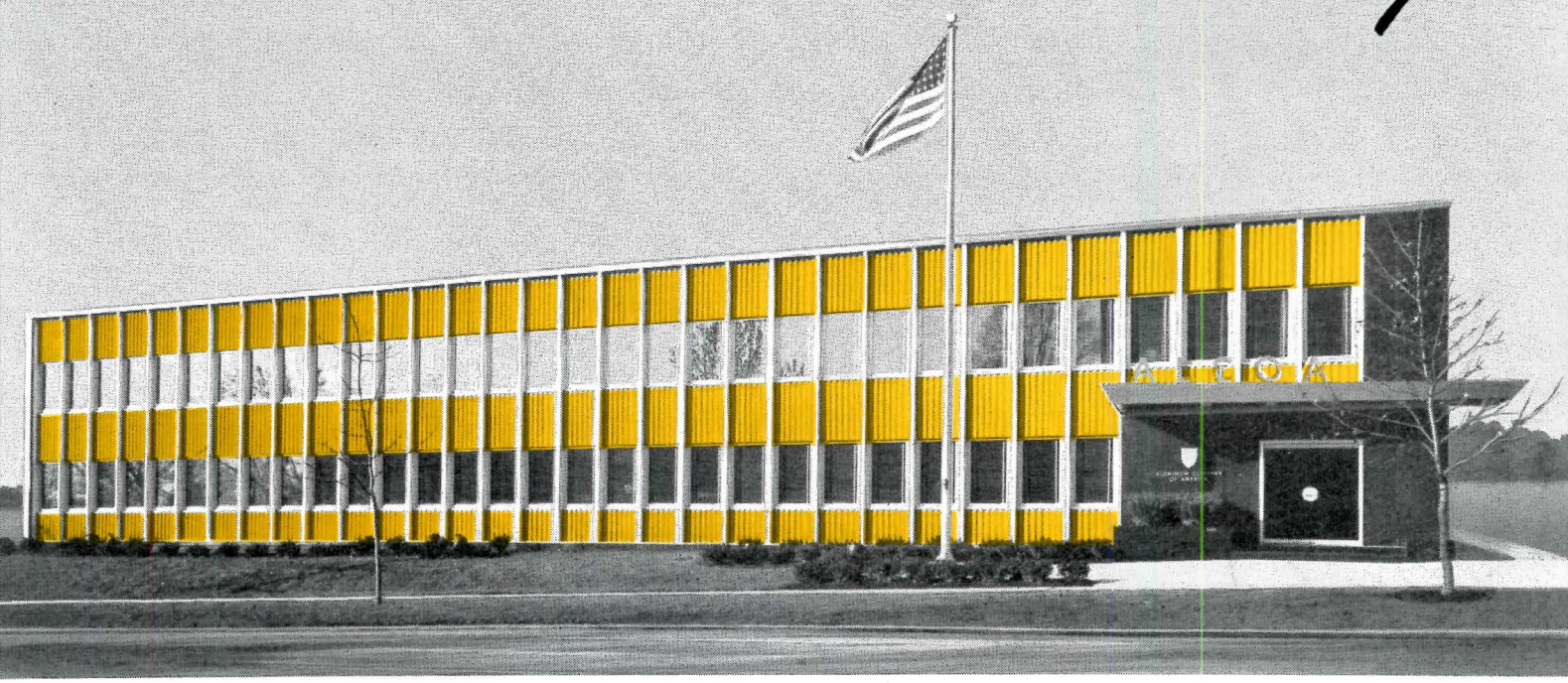

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out of school

(Continued from page 191)

number of extremely able persons. Few claim to have the answers to these questions, but there are signs of progress on every side.

With the initial year-long survey of architectural history out of the way, arises the problem of what kind of advanced work to offer. It is here that some of the most provocative thinking is being done. Broadly speaking, there are two kinds of courses being offered on this level: these might be called the periodic and thematic. In the periodic course, the instructor undertakes to give the student some depth of understanding in the achievement of a great era in architectural history—Renaissance, Baroque, Medieval, or whatever. This kind of course seems especially workable in schools which have close relationships with art history departments. Art historians, men whose whole life is devoted to understanding some particular period of human history, can often communicate some of their own enthusiasm to architectural students. In the thematic approach, the instructor chooses some important aspect of architecture and follows it through several periods. He may dwell upon the relation of city planning to architecture, the utilization of some particular structural or surfacing material, or perhaps upon the impact of the industrial revaluation on architecture. This kind of material lends itself nicely to collaborative teaching; frequently the instructor is able to call in a colleague whose interests touch the course at some particular point. The thematic approach has all sorts of possibilities; particularly striking is the work in the literature of architectural theory, given at Columbia for many years by Talbot Hamlin and today being carried on by James Fitch. At a time when theory is being reconsidered in many schools, the content of this course is extremely suggestive.

In summary, the picture in architectural history at the schools I visited was, on the whole, encouraging. In some places, the content and approach of history courses had not been changed in 20

(Continued on page 196)

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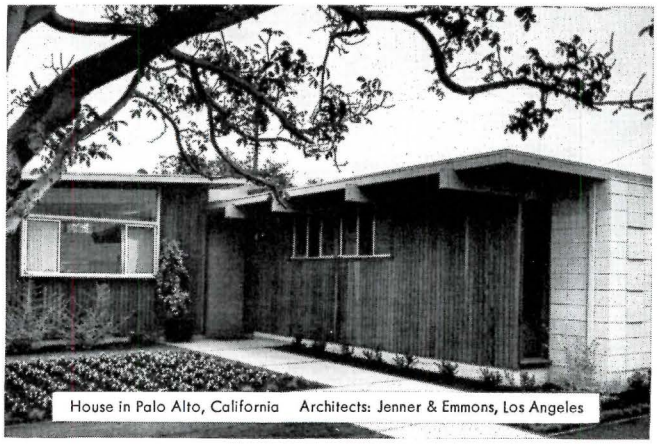

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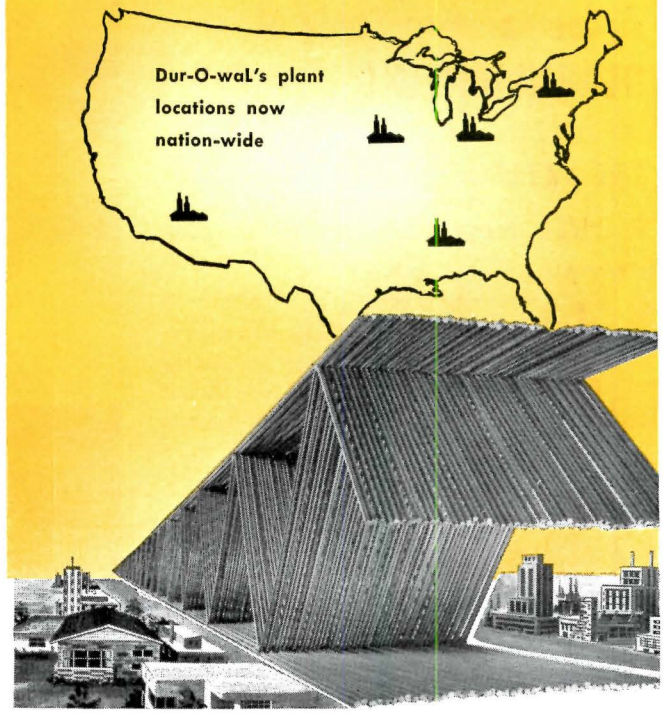

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out of school

(Continued from page 194)

years, but these were the exception rather than the rule. In most schools, an earnest effort is being made to "re-think" the historical side of the curriculum. In some places, historians with little or no formal architectural training but with great enthusiasm for the subject are making a real contribution. In any event, the field shows far more intellectual vitality than it has in many years.

Architectural History And the Present-Day Architect

James M. Fitch, Columbia University

Today's architect has, of course, been exposed to a certain amount of history in his schooling. Rather too much history, some of them would say, bearing in mind the esthetical and antiquarian overtones which architectural history has carried until the very recent past. Rather too much history, some architects would protest, pointing to the disastrous stylistic eclecticism into which the study of history led the architecture of the Western World and from which it is only now extricating itself.

However, such protests are the result not of the study of history but of its misunderstanding. For the past is not just one vast deposit of shining success. On the contrary, it lies geologically in strata of truth and falsehood, success and failure, fact and fancy. And history is the tool with which we analyze and separate the two—bearing in mind, of course, the odd fact that the past, viewed in this light, is quite as valuable for what it warns us against doing as for what it tells us to do.

That the study of history has immediate utility is being demonstrated in many fields other than our own. Dr. Henry E. Sigerist, the famous historian of medicine, studies the practice of the Hippocratic Greek physicians, not out of idle scholarly curiosity but as a guide to modern psychosomatic medicine. Dr. Laszlo Schwartz, historian of dentistry, investigates the mechanic-craftsman origins of his profession to demonstrate how they

(Continued on page 198)

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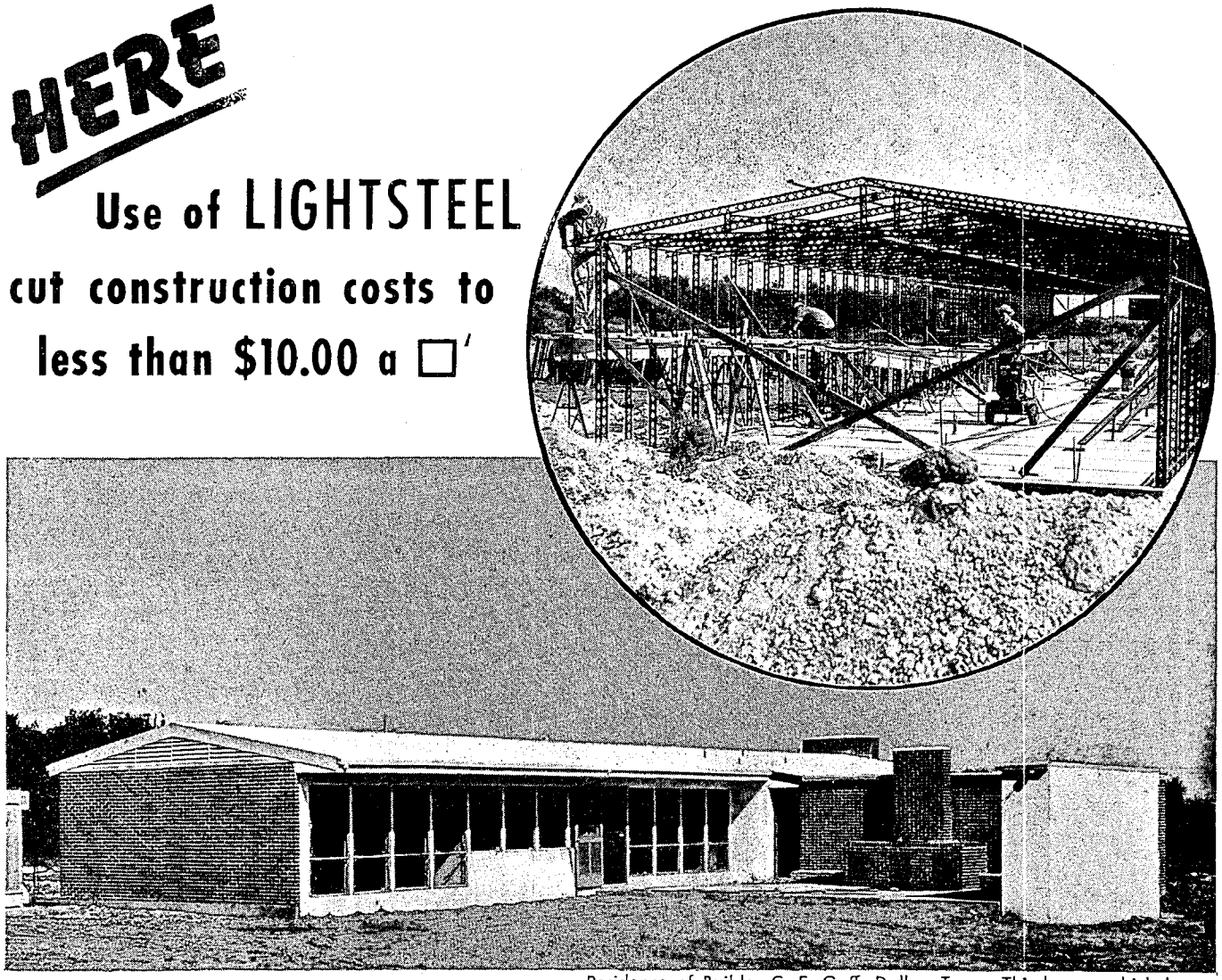

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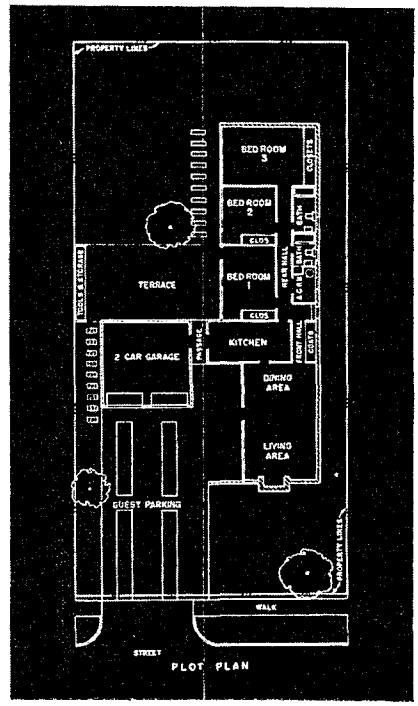

out of school

(Continued from page 196)

led to the mechanistic, anti-physiological bias of certain schools of modern dental thought. The pharmaceutical industry launches extensive research into the folk medicine of primitive peoples, first to discover unknown drugs of known effectiveness, and then to isolate them from the rest of the witch doctor's brew. And archaeologists, of course, long ago learned not to ignore myth and folk tale as accurate guides to the discovery of new sites.

In one way or another, these are all planned expeditions, scientific treasure hunts, into the past. Their results are known; and they serve not only to illuminate general theory in their respective fields but also to yield discoveries of real and immediate practicality.

When the architectural past is similarly exposed to the light of modern historical investigation, equally new and fruitful discoveries are revealed. I am aware that our field presents some rather special complications. The history of science or medicine, for example, has no esthetic dimension. Sigerist can discuss Egyptian surgery; or Schwartz, Paul Revere's dental plates, without becoming enmeshed in a whole network of subjective esthetic values. This seems to be an enviable situation: with us, things are quite otherwise. American architects today display one of two characteristic attitudes toward the past, both of them highly charged with emotion. The older generation, generally speaking, looks at the past through the rose-tinted glasses of a romantic antiquarianism. The younger generation wears the blindfold of simple esthetic prejudice and refuses to look at it at all.

Both attitudes are, in my opinion, mistaken. Neither is of help to us in exploiting the great resources of history. But there is an escape from the *cul-de-sac* into which these attitudes seem to have led our entire profession. And I think it is the task of the historian to chart the way.

Let me illustrate my point. All over the world today—in the Arctic, in the Middle East, in the South Pacific—the

(Continued on page 202)

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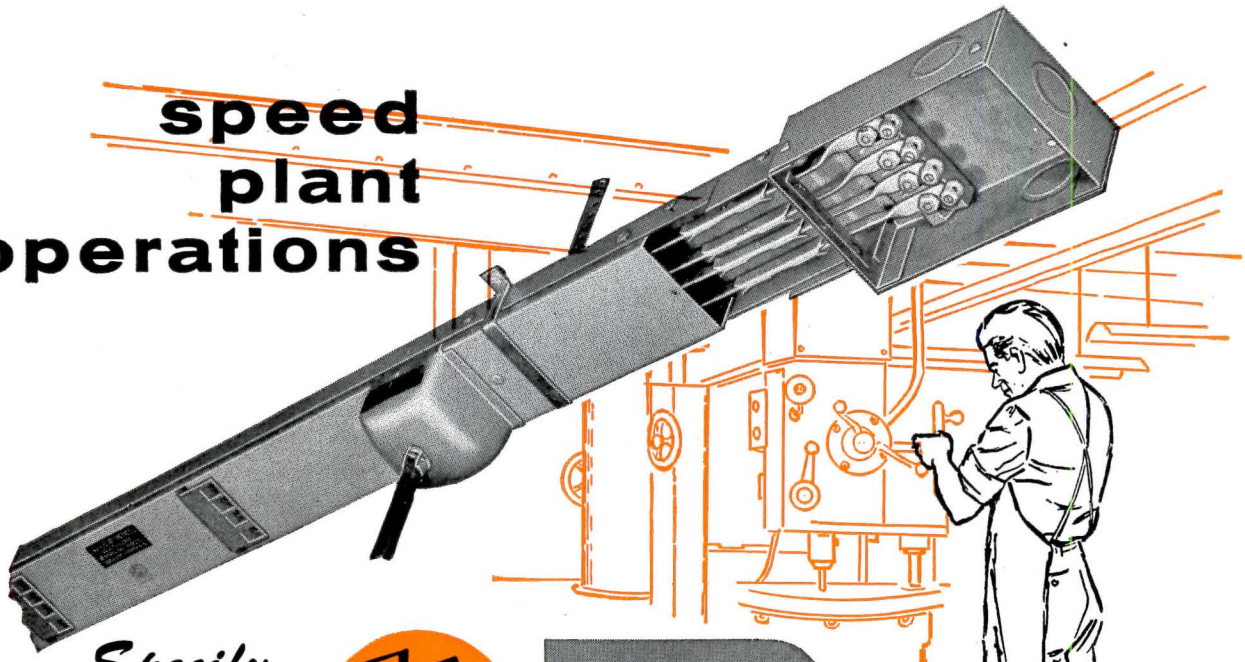

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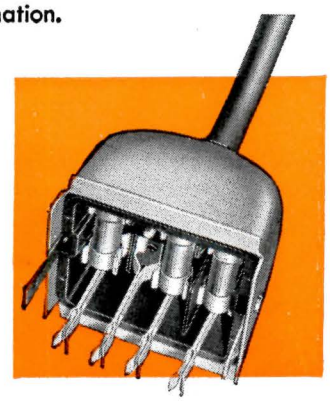

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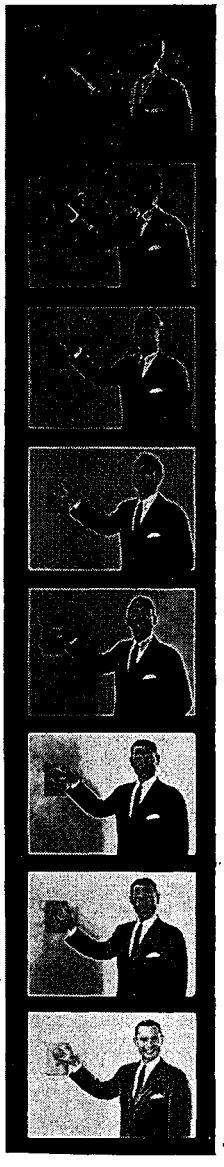

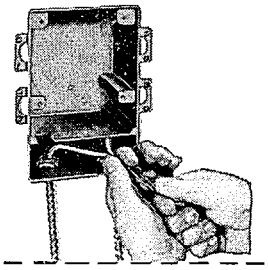

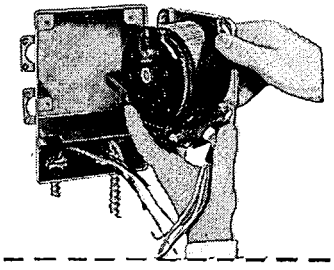

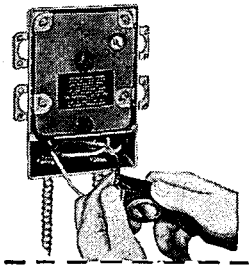

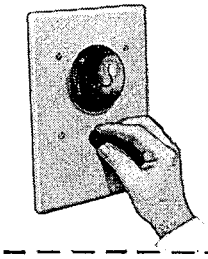

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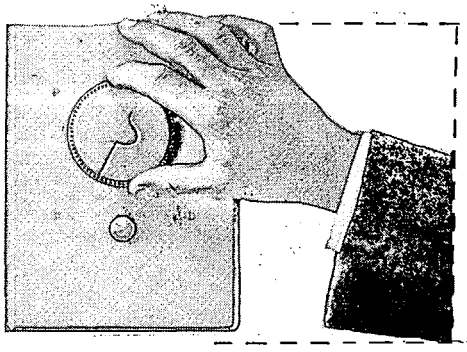

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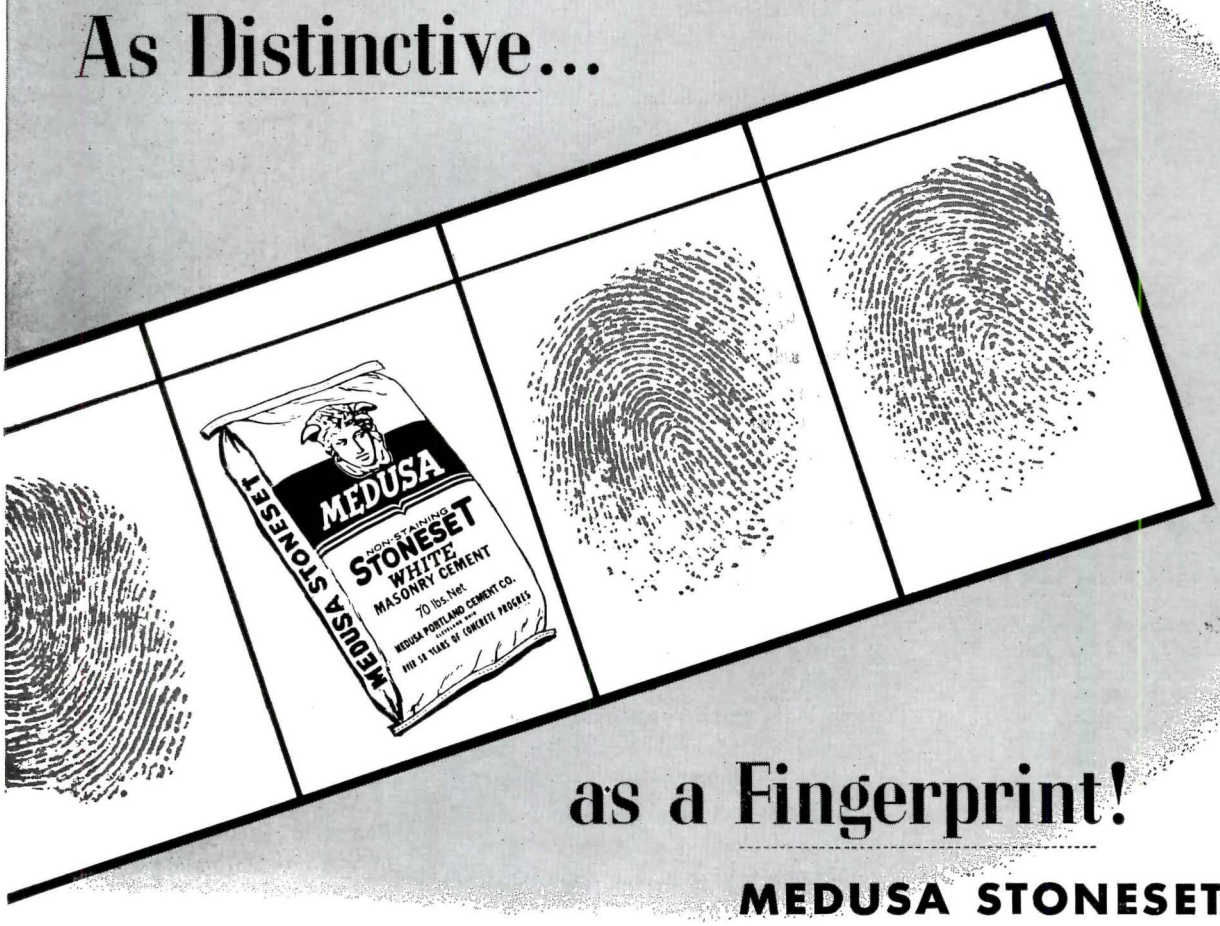

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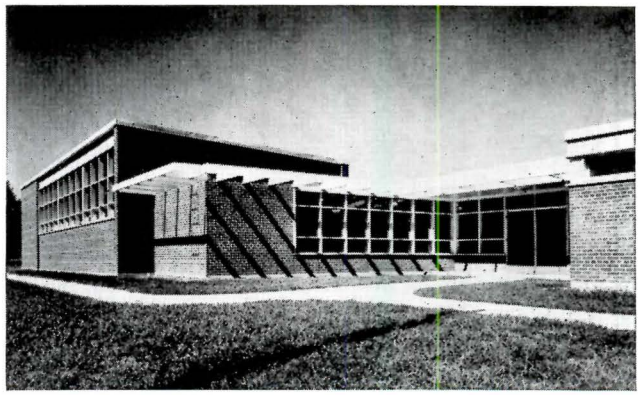

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(Continued from page 198)

American architect is being called upon to design buildings which in diversity, scale, and complexity are often without precedent. In such a context, he is inclined to protest that he "has no time for history." I, on the contrary, should say that history is precisely the first thing he should make time for. For he is being asked to design for cultures, climates, geographies entirely unlike his own. In a situation like this, texts and handbooks are of surprisingly little value. A first-rate historical analysis of the culture and its indigenous architecture—its materials, structures, and operating principles—would be of more immediate usefulness.

When the U. S. Army, floundering in the Arctic cold, wrestles with such problems as building on permafrost, a handbook on isolation would be far less useful than a real study of Eskimo culture. For, as Steffanson long ago pointed out in matters of clothing and diet, the igloo is an example of regional architecture quite remarkably adapted to the needs, resources, and climate of the area. Its combination of ice-lined snow blocks and pin-point radiant heat source stands up to the strictest scrutiny of modern science as a formula for comfort in such a climate—far better, in fact, than our most "modern" concepts.

Or when we are called upon to build in the South Seas, with its continuous heat and humidity, we could not find better principles than those involved in the airy, stilted, wide-roofed native architecture. Here, as Antonin Raymond and Richard Neutra have so admirably demonstrated in their designs for Guam, is the proper point of departure of contemporary design.

For the architect to understand such principles in primitive or historic architecture is, it seems to me, a matter of elementary culture as well as of technical proficiency. And who but the historian should discover them for him? Yet, up to date, this is a largely neglected field. Three basic "world" history texts devote respectively 20%, 8½% and 7½% of

(Continued on page 204)

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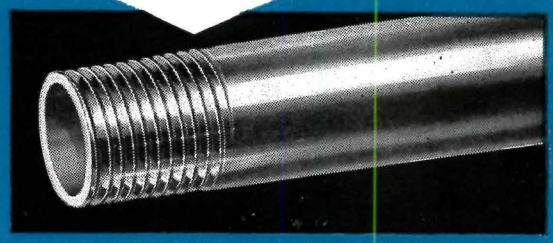

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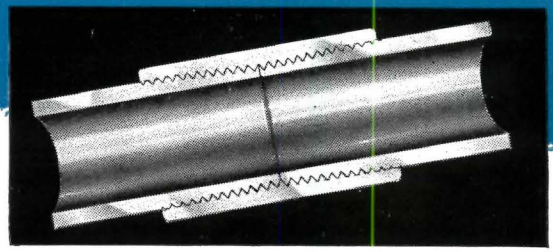

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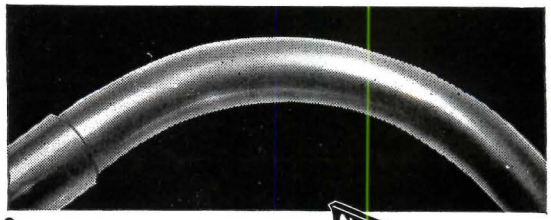

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(Continued from page 202)

their space to the art and architecture of the world *outside* the Mediterranean Basin, Western Europe, and North America!

Now, if it be objected that my examples are far-fetched, or that American architects have no business being in such outlandish places anyway, we can turn to our own country. The technical problems of building around the world are duplicated, in climate if not in culture, right here at home. We have Saharas, tundras, steppes, and Melanesias all around us. Furthermore, we have behind us three to four centuries of experience in dealing with them—centuries in which much was learned, but much forgotten. This experience constitutes real wealth which goes largely unexploited because of the blindfolds and the rose-tinted glasses.

Permit me to cite a region with which I happen to be resaonably familiar: New Orleans and the Gulf Coast. The late 17th and 18th Century architecture of this region has been fairly well explored by historian and amateur antiquarian alike. While much of the resulting literature may strike me as snobbish or academic in emphasis, I have no desire to belittle its importance. It has proved necessary and useful work, and many an important building has been preserved (either in records or reality) because of it. But this aspect of the past, this particular historical perspective, is of primary interest to the scholar and the specialist. The average architect tends to ignore it: the younger men and the students reject it out of hand.

Yet it happens that this same body of material can be analyzed from quite another point of view, one which I believe will prove more fructifying—that is, from the point of view of social and technical invention. An examination at this level will, as Buford Pickens has pointed out, reveal an architecture remarkably advanced when judged by modern scientific criteria. With its characteristic features you are all familiar:

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(Continued on page 206)

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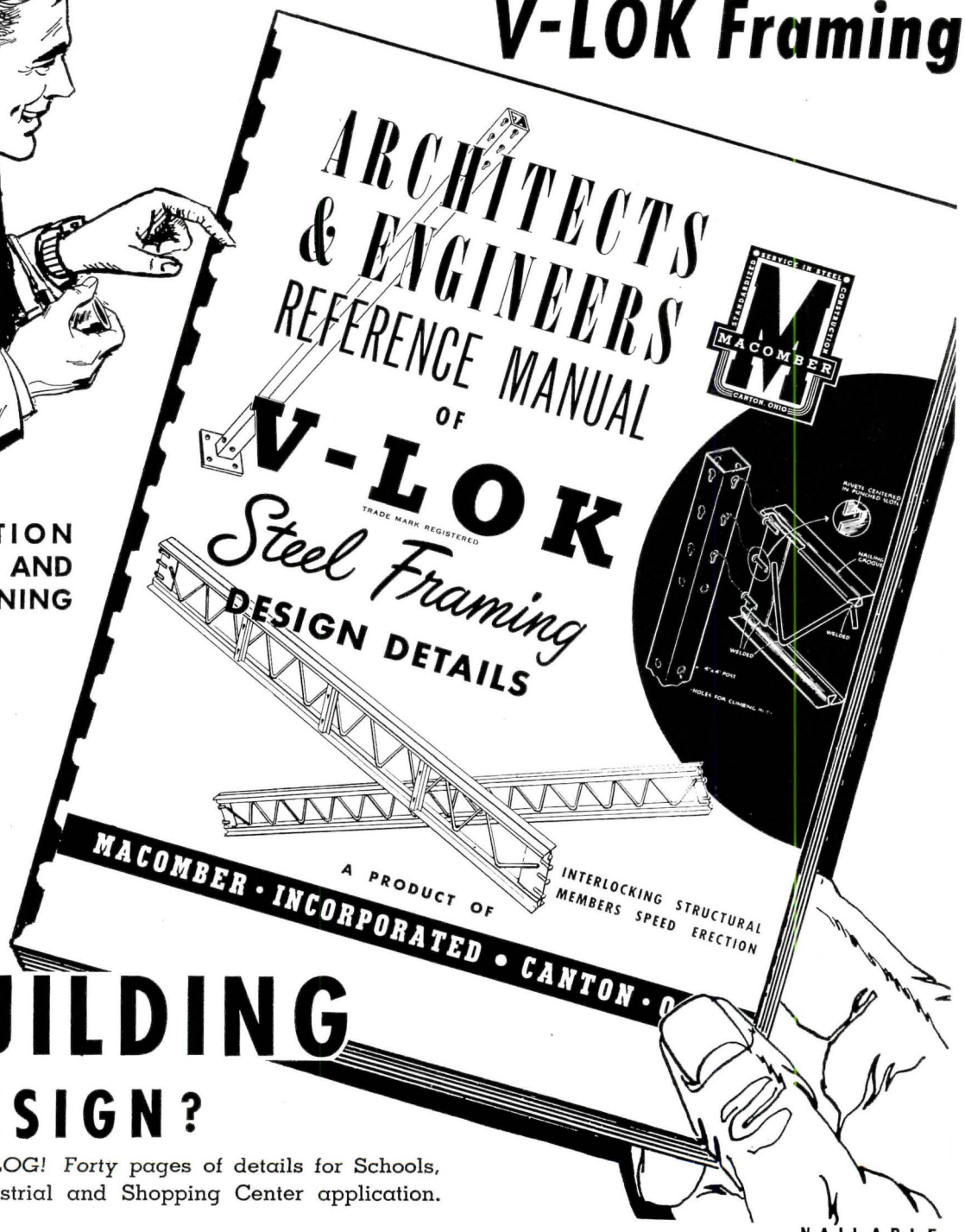

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(Continued from page 204)

humidity; and exposed to prevailing breeze.

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4. Big floor-to-ceiling openings for maximum ventilation.

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In short, the characteristic features of this architecture show a deep understanding of the relation between climate and comfort; and a most intelligent use of simple materials and techniques to manipulate this relationship.

There has been a lot of subsequent invention, both social and technical. But to what sort of *use* has this invention been put? Can we honestly say that the level of contemporary architecture in this area measures up to its historic precedent? I think not. In terms of grace and amenity, the average level of residential architecture is lower than that of a century ago. We find the antiquarians mimicking the *forms* of the past, with no real understanding of their content and function. And the young men display a hostility to the wide eave and the balcony, the turned baluster and the lunette, which is little short of psychotic.

I know that it is currently argued (by the blindfold set) that modern technology has made obsolete the principles on which this earlier idiom was based. But this is patently untrue: a moment with the slide rule will convince you that, in New Orleans, an air-conditioning system needs a cool roof worse than you do. This attitude toward the past is thus not only not scientific: it is not civilized—like refusing to learn from Shakespeare because he wrote in English.

So we have the paradox of a tradition, valid by all objective tests, useful for the present, yet ignored by all. It is the task of the historian to intervene in this situation, to show the way out of this absurd paradox. We must admit, of course, that

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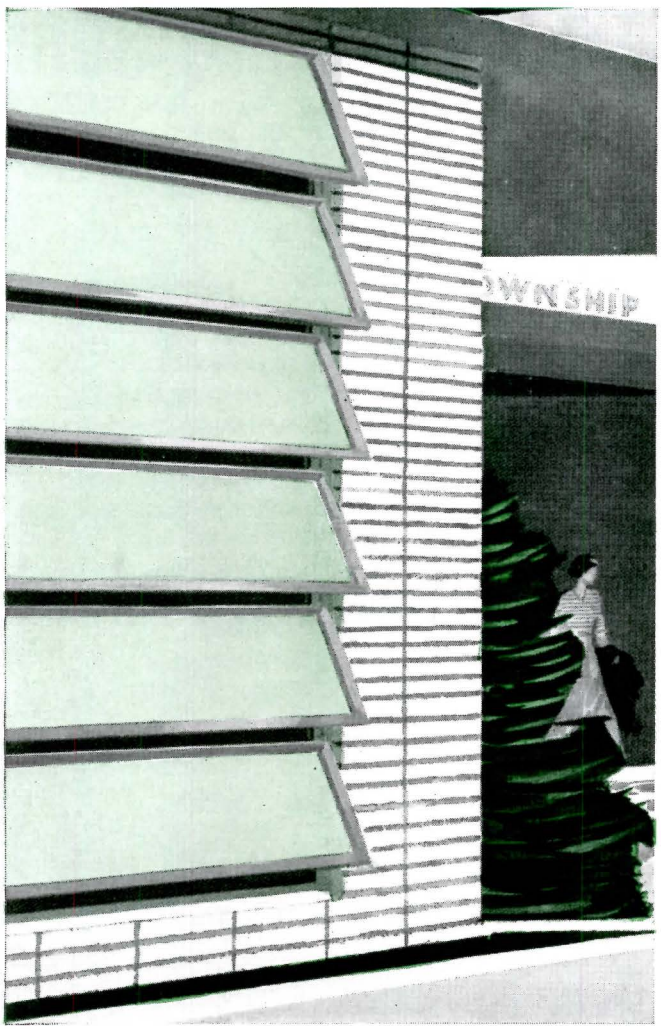

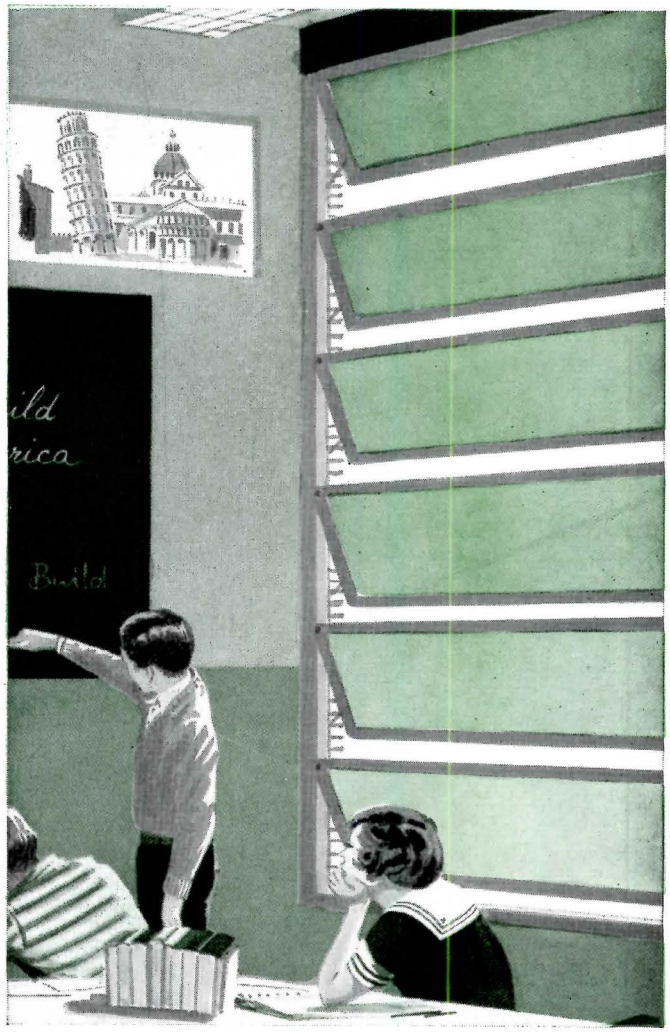

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out of school

(Continued from page 206)

we are ourselves largely responsible for it. For centuries, architectural historians —like architects themselves—tended to regard the past as a great treasure trove of prefabricated architectural elements which only needed assembly to become architecture. The architects of our generation have been right to reject this approach. We know now that the past has riches, but only in the form of raw materials—rich strata of tested principles and proven concepts which need only the crucible of modern knowledge to take new and shining form.

Obviously, not all the past is immediately useful: nor is the discovery of the immediately useful by any means the only goal of the historian.[2] At what one might call the level of pure research stands a recent work like Professor Hitchcock's monumental study of Early Victorian architecture. This work explores a *terra incognita* of our recent past, lays an indispensable base for surveying whole new territories rich in potentials. The detailed scale at which it is developed, the wealth of data-attributions, relationships, dates, etc.—make it by definition a historian's history. For the student and architect, however, it will be helpful for others to extract the principles which such an epoch reveals. For the ultimate function of our work should, it seems to me, be not only to raise the level of the writing and teaching of history but also of the practice of architecture itself.

[2] *I'm speaking here of history for the student and architect, not history for the historian.* J.M.F.

notices

meeting, exhibition

The Prestressed Concrete Institute will hold its first annual meeting at the Lagamar Hotel, Fort Lauderdale, Fla., April 21-22.

The third Basic Materials Exposition will be held at Convention Hall, Philadelphia, May 31-June 3. A three-day conference will be held concurrently.

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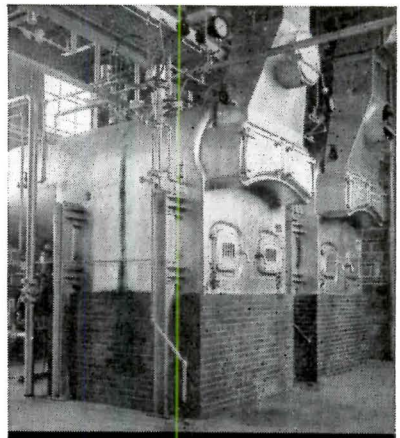

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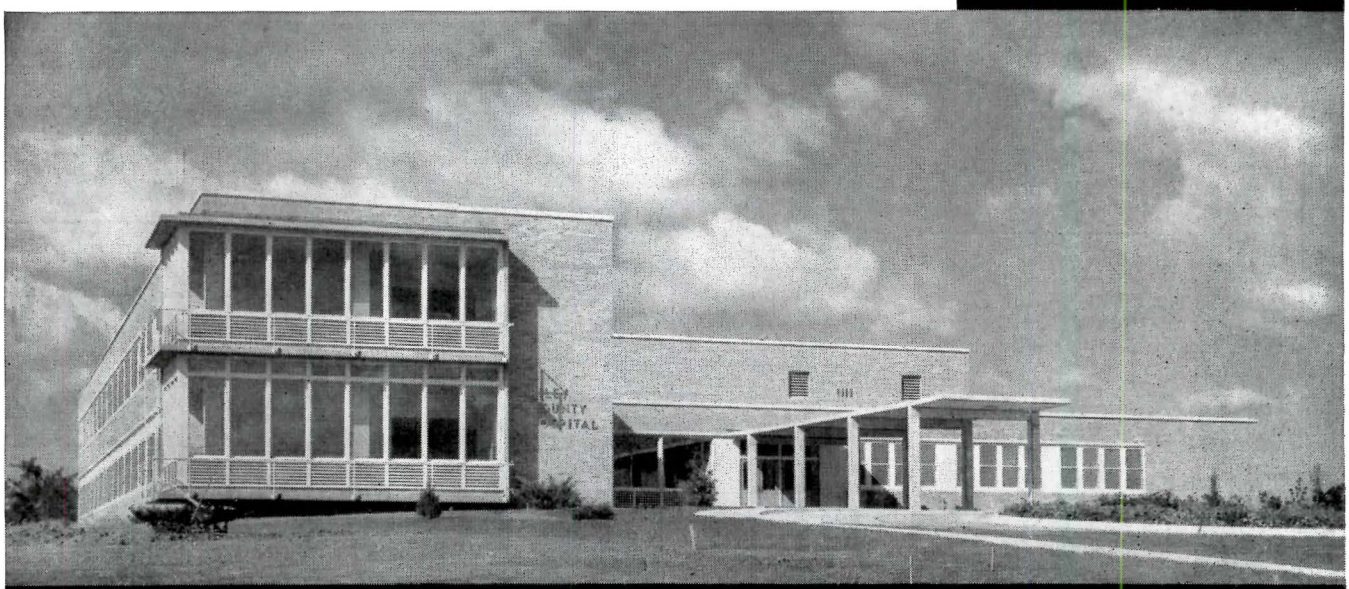

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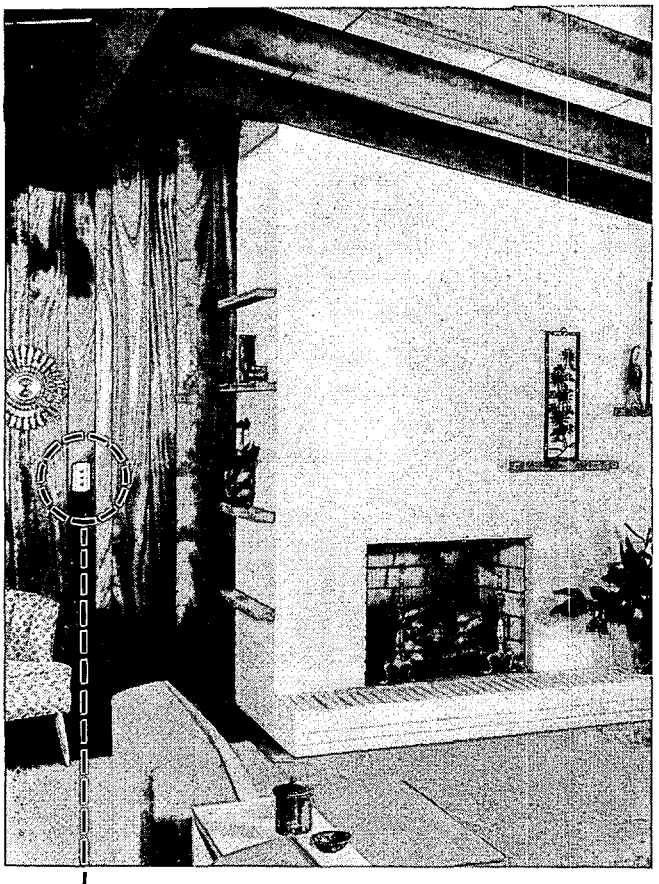

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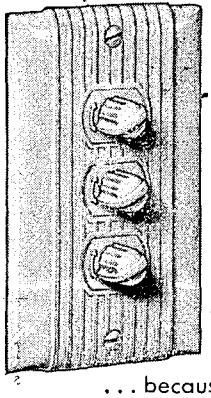

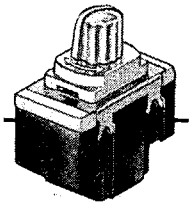

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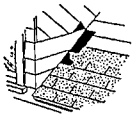
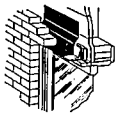
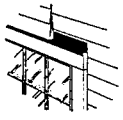
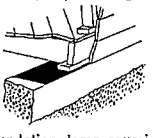
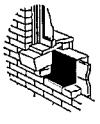
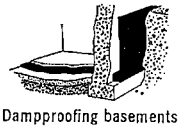

Step flashing

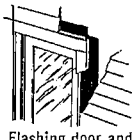

Flashing window and door heads


Drip cap flashing


Foundation damp-coursing, termite shield


Sill flashing


Dampproofing basements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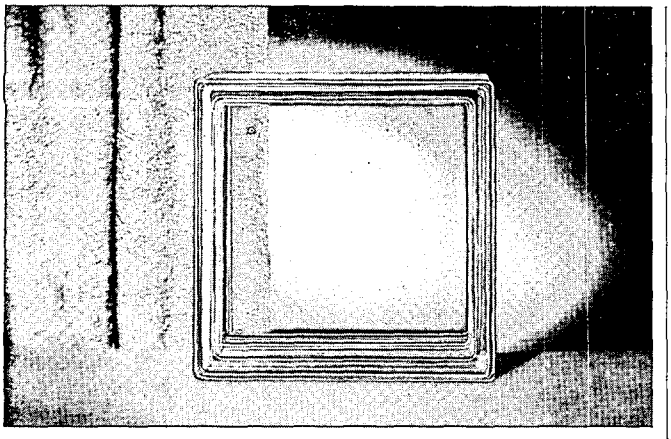

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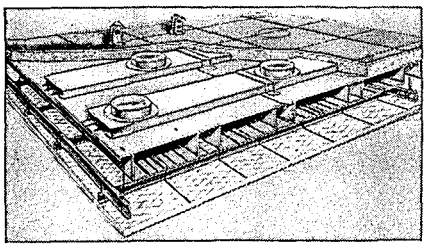

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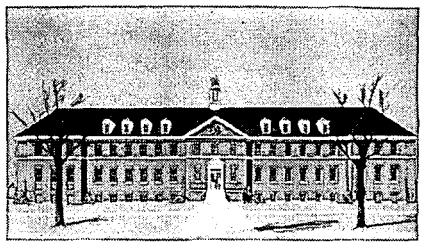

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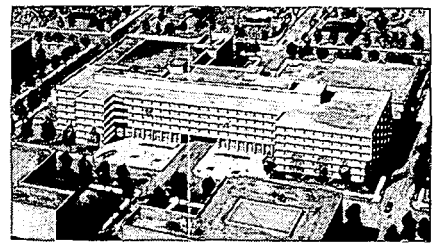

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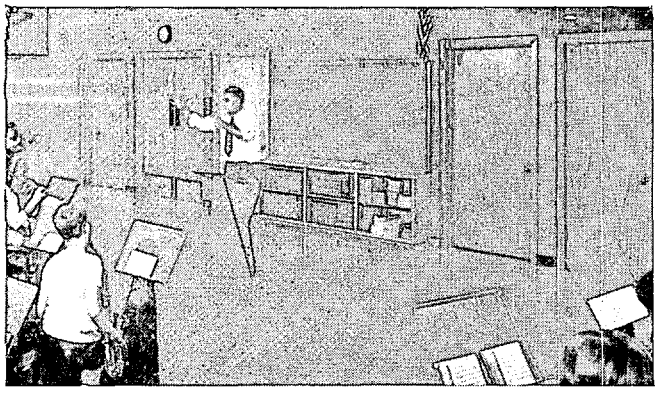

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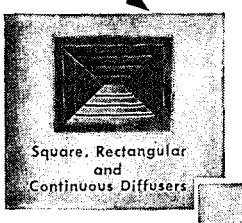

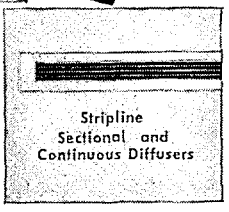

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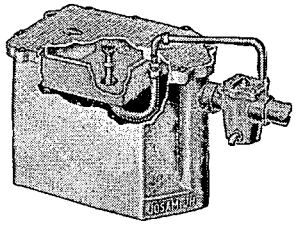

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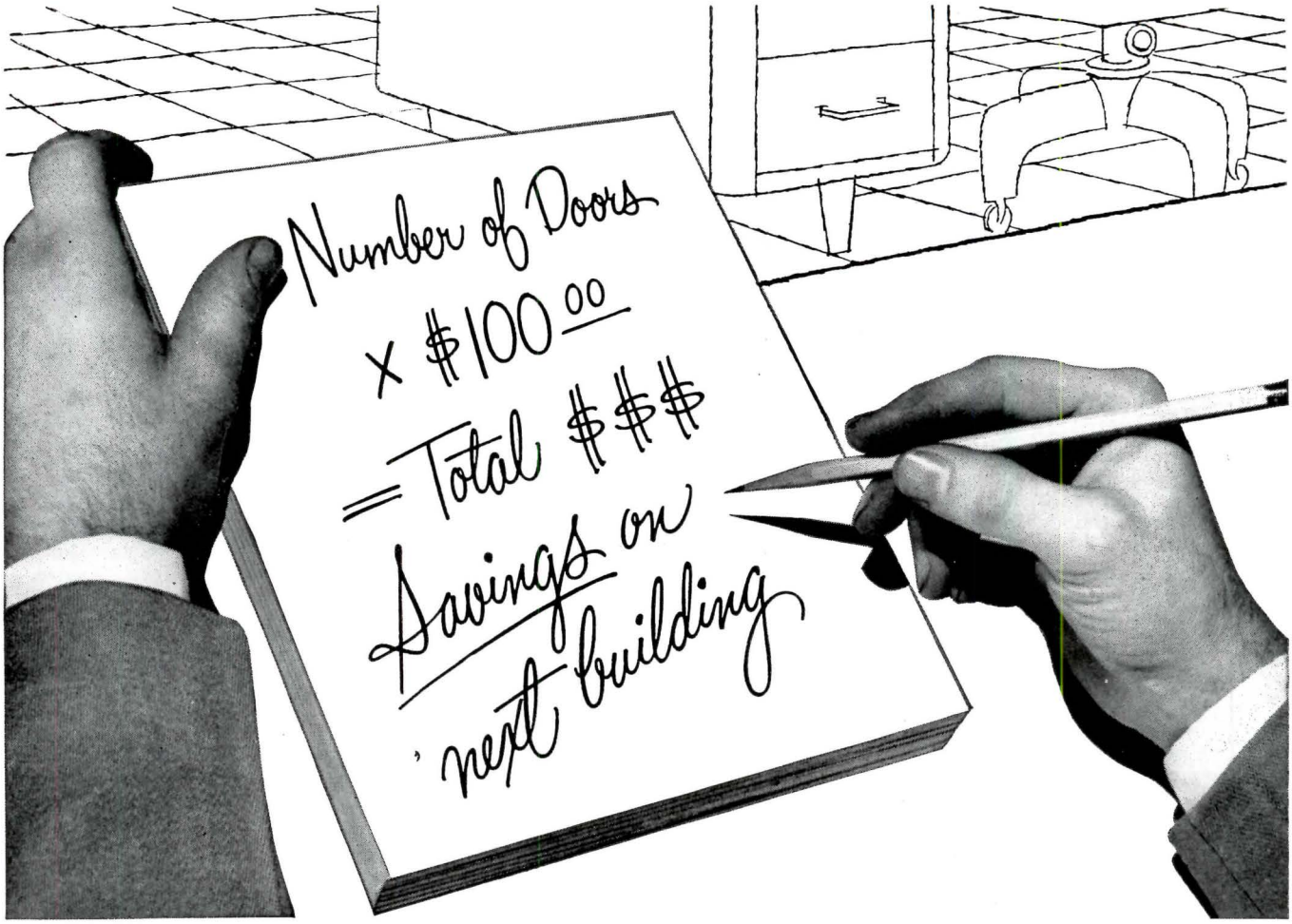

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For complete information on Fenestra Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, and Doors with the Underwriters' B Label, write: Detroit Steel Products Co., Dept. PA-4, 3409 Griffin Street, Detroit 11, Michigan.

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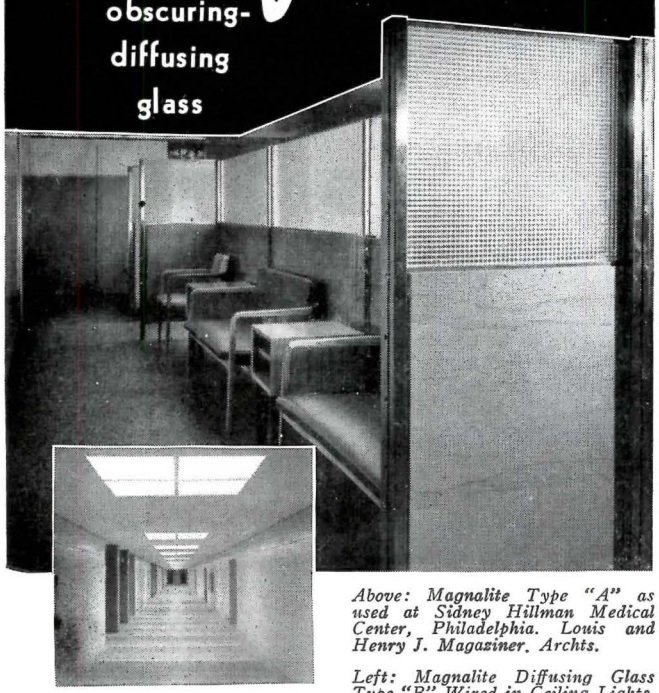

Above: Magnalite Type "A" as used at Sidney Hillman Medical Center, Philadelphia. Louis and Henry J. Magaziner. Archts.

Left: Magnalite Diffusing Glass Type "B" Wired in Ceiling Lights, Fox Point Elementary School, Providence, R. I. Cull and Robinson, Archts.

WHEN you want to combine functionalism and a touch of distinctive beauty, the one outstanding easy-to-use material you can turn to is Magnalite Obscuring-Diffusing Glass. Magnalite is practical regardless of the building price bracket. It adds a modern, beautiful, yet practical touch to your design . . . the ideal material for partitioning and screening. When used in ceiling lights, lighting units above are concealed and the entire glass area appears as the light source.

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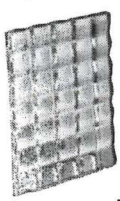

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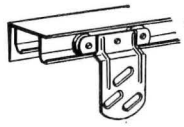
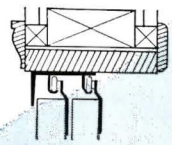


Satin Aluminum Track with Apron—Adjustable Hangers With Nylon Rollers



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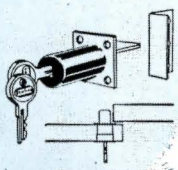
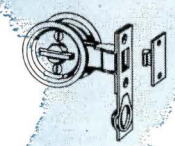


No. 1058 Lock For By-Passing Doors



No. 1036 Lock For Pocket Doors

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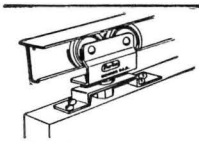

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into today's homes with

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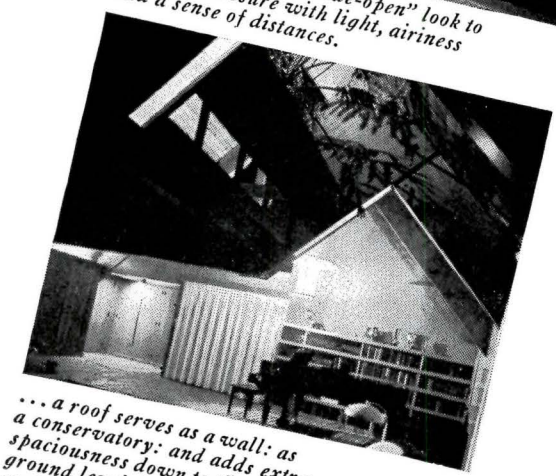

. . . a roof serves as a wall: as a conservatory: and adds extra spaciousness down to the very ground level, literally forming the enclosing wall.

. . . the complete glass wall (not a window) can provide space for placing furniture: with curtains it affords privacy: or harmonizes the spaciousness of outdoor beauty with a room's individuality.

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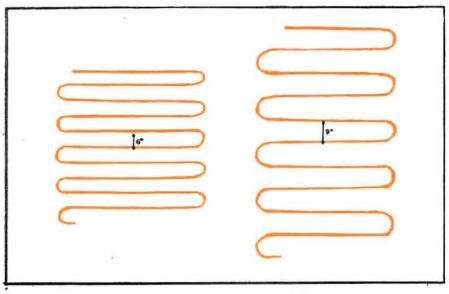
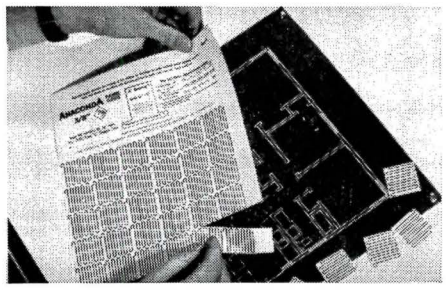
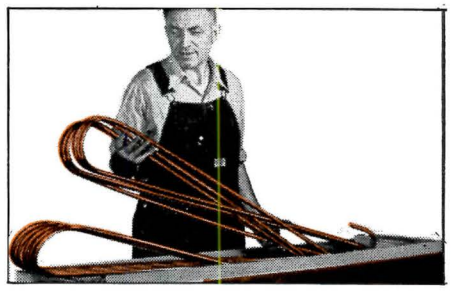


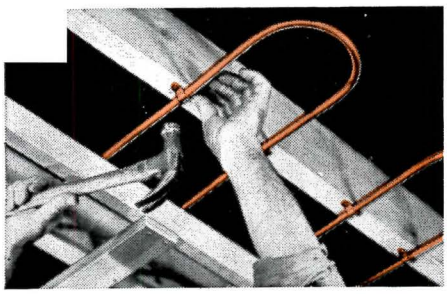
NEW ANACONDA GRIDS* (PG's) contain 50 linear feet of Type L Copper Tube and come in two tube sizes—left, ⅜" (½" O.D.) for ceilings; right, ½" (⅝" O.D.) for floors.



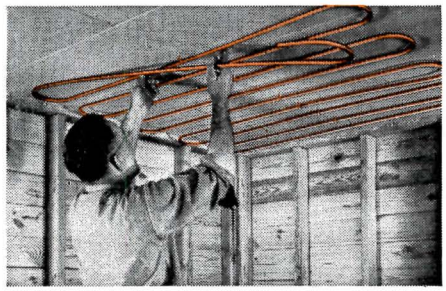
DESIGN AND LAYOUT is simplified by Anaconda's free layout kit of printed, gummed PG scale drawings, which show precise layout of heating panels on blueprints.



MACHINE-FORMED PG's are compactly packaged 4 to a carton. One tube end of each PG is expanded so that it can be solder-connected in series without requiring fittings.

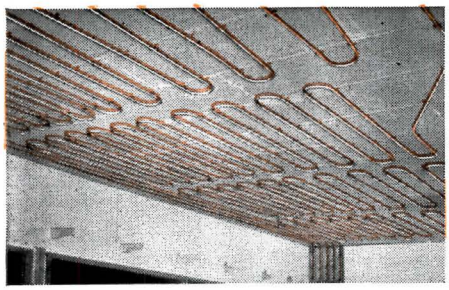


PG's ARE EASILY INSTALLED—A ⅜" PG weighs only 10 pounds, is easily lifted and propped in place, leaving worker's hands free to fasten straps. Here, metal lath goes under the PG's.



A HOOK TYPE FASTENER offers another easy, quick installation method. Fasteners are partially set in joists, PG's are positioned, and fasteners driven home.

HEAT FOR THIS basement game room will be provided by ½" PG's embedded in concrete. For floor or ceiling installations the pre-formed Anaconda Panel Grid offers many economies.



CEILING INSTALLATION ready for plastering. Note tube spacing narrows to 4½" c-c nearest the outside walls, and supply lines to panel circuits run next to outside wall.

NO SAGS OR DIPS in the tube lines permits a uniform plaster thickness, which means savings in time and materials.

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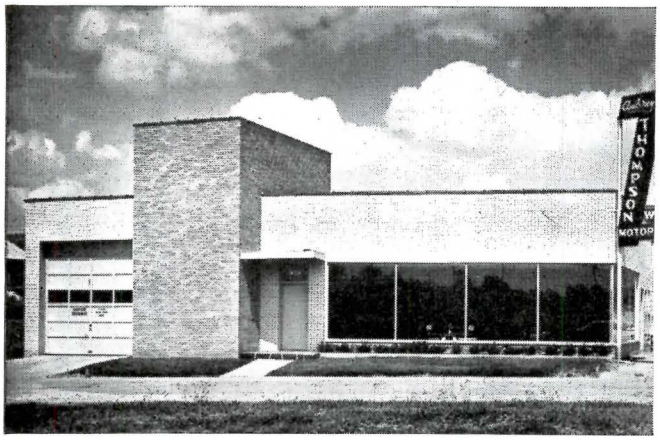

UNIFORMLY GOOD COLOR of Atlas Mortar helped produce this attractive masonry for the Aubrey Thompson Motor Co., Tyler, Texas. Designer and builder: Hobart Plunkett, Tyler, Texas.

EXCEPTIONAL WORKABILITY – Contractor Frank Scheck, working on Oswalt Company's concrete block plant at Broadview, Ill., says, "Atlas Mortar holds its plasticity... does a better job—faster."

3 good reasons for pecifying ATLAS MORTAR

TRUE, TIGHT JOINTS – Atlas Mortar provides a strong, weather-tight bond for cast-stone facing of the South Bend Motel, South Bend, Ind. Engineer: W. E. Fett, Mishawaka, Ind. Owner and contractor: Jacob H. Mitschelen, South Bend.

Atlas Mortar Cement gives you (1) superior workability for speedier construction, (2) well-bonded, durable walls and weather-tight joints, (3) uniformly good color for consistently good appearance. Concrete block, brick or stone – in fact, *any* type of masonry unit—will lay up better with Atlas Mortar.

Masons praise Atlas Mortar for its smooth *plasticity*. They like its easy response to the trowel. Builders prefer Atlas Mortar because its buttery *smoothness* helps work progress evenly and rapidly. And architects report that the *uniform color* of Atlas Mortar helps make masonry work more attractive, adds to the over-all appearance of any job.

Contractors, masons and architects agree – superior workability, strength and good appearance make Atlas Mortar the outstanding choice for all masonry work.

ATLAS MORTAR has proved itself on both large jobs and small. It complies with ASTM and Federal Specifications for masonry cement. For further information, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

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can be used generously even if your budget is restricted...

Writes Architect Louis Justement: "There are few materials as satisfactory to the architect as marble.

"In the new United States Court House in Washington the total cost of the marble work was less than **3.5%** of the cost of the building — in spite of the fact that marble walls were used in all main corridors, all elevator lobbies, portions of wall in back of bench of all courtrooms as well as many individual purposes throughout the building."

For more complete data on the basic economy of marble write:

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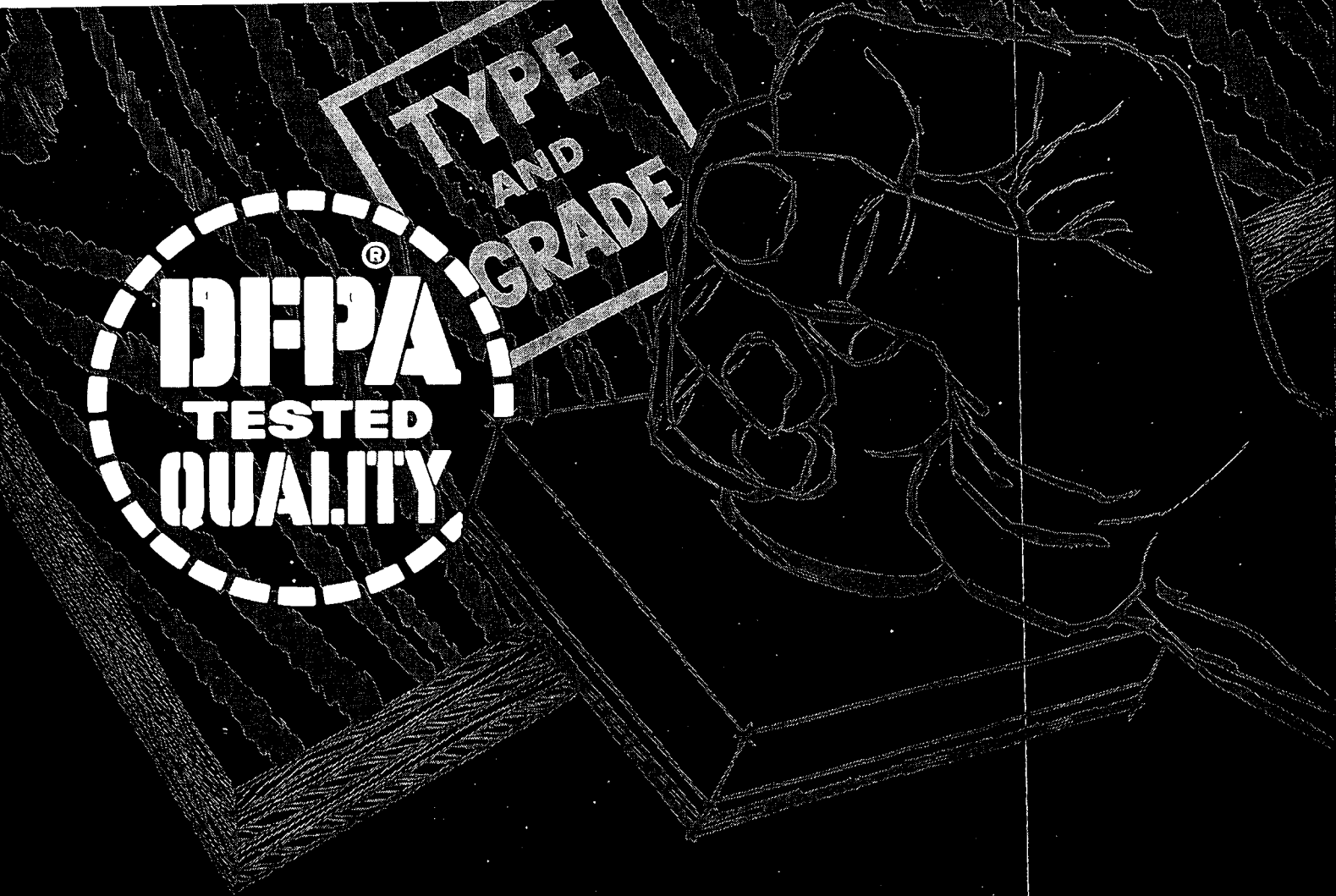

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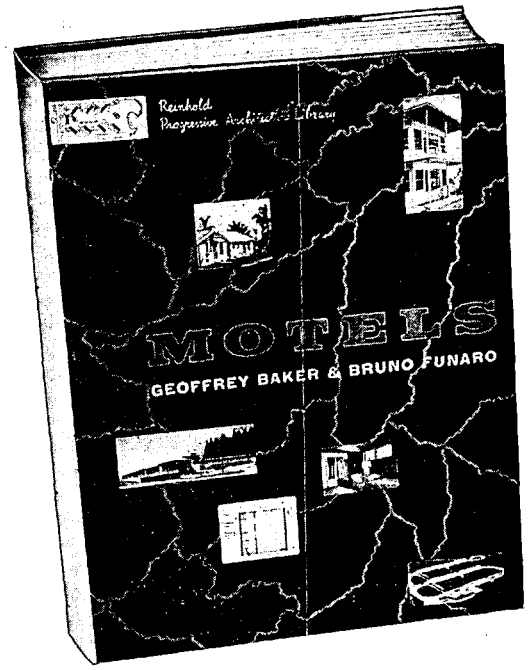
Everything You Want to Know About Motel Planning and Designing

MOTELS

by GEOFFREY BAKER and BRUNO FUNARO

Another "First" and a Valuable Addition to the PROGRESSIVE ARCHITECTURE LIBRARY



THE amazingly fast growth and obvious success of the Motel idea in the past decade is a development which every alert architect is watching with keen interest. Motels are now thriving from the Atlantic seaboard to California—from Canada to the Gulf of Mexico. It's a trend which seriously affects the entire hotel field—has already, in fact, practically revolutionized the industry that caters to the travelling public.

This is the first and only complete and up-to-date book for architects on the subject of Motels exclusively. Here you will find all of the information and data you need on Motel design essentials—plus a wealth of ideas and practical information based on actual experience in building and operating many different types of roadside hostelries.

The well-known team of Baker and Funaro, authors of the best-seller, "Shopping Centers", travelled all over the country gathering fresh, first-hand material in order to bring you an organized work showing the very latest developments in Motels.

Many Factors Enter Into the Design of A Well-Conceived Motel

With over 600 photographs and plans the authors cover in detail all the factors the architect must be familiar with in order to plan and design a Motel that has all the elements essential to successful, profitable operation. And you will be astonished at the number of important factors to be considered—many of which could be easily overlooked. Here, for example, are some of the subjects covered in this book:

- Relation of Motel to highway
- Flat site or sloping?
- Developing site to fit guest
- Access and outlook
- How to treat a hillside site
- Parking and Paving problems
- Basic geometry of motel site planning
- Single or two-storey?
- Two-storey for view
- Creating the Motelscape
- Swimming pools
- Play areas
- Variety in room plans
- Activity areas
- Sitting and sleeping areas
- Bathrooms, dressing and clothes storage space
- The entrance lobby
- Lighting
- Basic dimensions of furnishings
- Basic plan types, with controlling dimensions
- Interiors—the new look for Motels
- Sofa beds
- Living-bedrooms
- Color and Texture
- Outlook
- The carport
- Combination units
- Zig-zag plans
- Heating and Air Conditioning
- Soundproofing
- Administration Buildings front office and lounge

Complete Data, Photographs and Plans on 36 Successful Motels Located In All Parts of America

An entire section of the book is devoted to stories told in pictures, plans and text of thirty-six carefully selected Motels now in successful operation. These abound with fresh new ideas to stimulate the architect in producting sound, original designs.

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It is always interesting to know the client's reaction to a completed work of architecture. The fully satisfied client, it seems to me, reaches that state because the architect has done a completely successful job, has fulfilled needs (not always in the way expected), has met budget requirements, and—an important factor—has managed to remain a trusted advisor and friend throughout the job. This isn't always an easy accomplishment for the architect, and it becomes particularly difficult in the case of institutional and educational buildings. Here the "client" is a multiple personage: the Board, or whatever corresponds to it; the administrators and working staff members; and the ultimate users — patients, students, or whatever.

When, in the routine of gathering data about a structure to be published, we ask the "client" how he likes his building, responses vary. The really unfavorable reaction is rare (because we choose such excellent buildings to publish!) but divided opinion about the success of every element can often be expected. However, when we asked this question of the people at Drake University, whose new dormitories we publish this month, the response was so uniformly enthusiastic as to warrant quotation.

From the President, Henry G. Harmon: "The architects achieved our wishes to a remarkable degree. The buildings are modern and functional, yet classic in their simplicity. The construction costs were relatively low, yet the buildings provide efficiency, convenience and comfort. The admirable use of color creates a gay atmosphere. Operational costs are satisfactory. Best of all, students consider them attractive and interesting homes."

From the Dean of Students, Dr. Robert B. Kamm: "Students are tremendously proud to be living in Drake's new dormitories—proud not only because they are living in beautiful new buildings, but mainly because of the exciting, functional design and structure of these dormitories which they call home."

From a student: "Everything is convenient. The rooms are conveniently located to the snack bar, the dining hall, and the skating pond — and the rooms are certainly easy to keep clean. All the dormitories I saw before I came to Drake seemed to be pretty grim and dreary, but when you wake up in the morning in these dormitories you feel like jumping out of bed. . . ."

The picture on this page shows a Drake student, in one of the new dormitories, jumping out of bed—and not expecting to find an architectural photographer at work.

Every once in a while we have manufacturers of building materials come to us for advice on advertising intended to reach the architectural audience. The first point we make is always that *technical* information (performance, specification data, costs, etc.) is what the architect wants most; the second that an indication of *design results* is the best way to attract the architect visually. I believe that most of our readers would agree with me in the conviction that advertising directed to a technical, professional group should be quite different from advertising intended for consumer readership.

From time to time I find manufacturers (or more often advertising agencies) who disagree with this premise. I remember one advertising manager of a large company who told me, "Look, we know that architects are human beings and consumers just as much as anyone else. We know we can draw more response from your readers with an ad showing a good looking girl in a shower enclosure than we can by giving specification data about that enclosure. So don't tell us you've got a special audience."

I think he was wrong, in a long-term sense. Undoubtedly a lot of P/A readers stopped and looked at his ad, but whether that meant more specifications of his product I would doubt. However, I'm not an ad man, and *I* could be wrong. To be an ad man today apparently requires more knowledge of psychological motivation than an editor has. I've come to this conclusion after reading a report called *A Psychological Research Study on the Sales and Advertising Problems of Red Cedar Shingles and Shakes,* prepared by the Institute for Research in Mass Motivation, Inc., of which Dr. Ernest Dichter is head.

This Institute is not content with the usual statistical survey of preferences and prejudices; its study becomes, in effect, a psychoanalysis of the mass market. With regard to Red Cedar shingles and shakes, Dr. Dichter's staff found a "surface expression of conflict," and felt sure that "a basic psychological pattern became evident as the significant source of the conflict feelings." The conflict, it is clear in the report, is due to the fact that the people studied have "warm positive emotional feelings for Red Cedar," on the one hand, and on the other "seem to be seeking moral permission to take their own feelings into account." What this means, the report indicates, is that people *like* Red Cedar shingles and shakes, have some doubts about practical applications and cost, and need to be reassured that "happiness and personal satisfaction" are just as practical as "the old-fashioned mechanical kind of practicality and rationality."

The report goes on to indicate the importance of the professional advisor in making these decisions. In a purely statistical sense, the architect led all other "sources of information" and "sources of advice" in the survey. As a result, there is a strong recognition in the report of "the key role of the professionals in the choice of building materials."

However, with regard to the point I began discussing—advertising to those professionals—the conclusion is interesting. It is simply that the professional plays a dual role: technical advisor and interpreter of clients' wishes. Since the consumer needs reassurance that his fondness for warm wood surfaces, natural and enduring materials, individual rather than mass-produced effect, and so on, are practical and rational; and since the professional is the most-sought source of advice; it follows, says the report, that there should be a dual approach in advertising to the professional. It should recognize, in fact, that "he is answering his own technical and professional questions as he reads the ad, but at the same time he is thinking of the ultimate consumer and how he can use this material to 'sell' the consumer."

I think this makes a lot of sense. If the Red Cedar Shingle Bureau (or any other advertiser) can find a formula which will supply the architect with the technical data he wants, and furnish him as well with answers to his clients' "secret desires and needs" it will be doing a real service in its advertising.

Thomas H. Creighton

Photo: Warren (Candid) Reynolds