PROGRESSIVE
ARCHITECTURE

newsletter

JUNE 1951

- The Controlled Materials Plan will go into effect on July 1st, as P/A had predicted, for steel, copper, and aluminum. It will operate as it did, successfully, during the last war: products that are controlled will either be "A" products, where the producer gets his orders and production authorization from his customer, or "B" products, where the authorization and the order comes directly from NPA (through the Industry Divisions). Manufacturers must file forms stating their detailed requirements for these metals, and NPA will allot specific amounts to them. By this restrictive production the government believes both defense and non-defense needs can be met. For three months CMP will be operated from Washington; after that it will be handled by NPA field offices.

- Construction materials which will be affected by the plan include fabricated structural steel products, lighting fixtures, millwork, screens, flat-glass products, insulation, hardware, plumbing fixtures, metal doors and sash. Exempted items include residential heating and cooking equipment and household refrigerators.

- Many building products also come under scope of Ceiling Price Regulation 22 of the Office of Price Stabilization. This sets ceiling prices at a pre-Korean base price plus actual increases in materials cost and factory payroll costs. Resulting in some immediate price rises in building materials, the Order should tend to stabilize prices during the rest of the year.

- Among honors awarded at the A.I.A. Convention last month in Chicago, in addition to the Gold Medal to Maybeck, were 39 Fellowships; the Kemper Award to Marshall Shaffer, the Fine Arts Medal to Thomas Church, landscape architect; Honorary Memberships to Lewis Mumford, Edwin S. Burdell, and W. Englebert Reynolds; and a special citation for craftsmanship to Corning Glass Works.

- A.I.A. and Producers' Council again have made awards for trade literature to building materials manufacturers. This year 15 Certificates of Merit were awarded, and 20 Honorable Mentions. Anemostat Corporation and Bettinger Enamel Corporation won Awards of Exceptional Merit.

- Again in April construction records for the month were broken. Dept. of Commerce figures show $2,353 million volume, with an increase over March of 7% in residential building, 7% in industrial building, 6% in hospital construction, about the same volume for school work and churches, and a drop in stores, restaurants, and recreational structures.

- G. E. announces a new laboratory at Nela Park, Cleveland, Ohio, to test modern lighting systems in relation to all sizes, proportions, and finishes of rooms. Regular spacing of simple filament units no longer answers the complex needs of contemporary buildings, and new requirements require new data, G.E. points out.

- HHFA is about to embark on another research program which is long overdue, as a result of a recommendation by its Advisory Committee on Resource Conservation. The study will be of

(Continued on page 2)

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newsletter

"wood-frame dwelling structures...and the need for new methods brought about by the tendency to use larger window openings and omission or reduction in the number of interior partitions which heretofore served as structural bracing."

- Another useful bit of research is being started at Cornell, where the Housing Research Center and the School of Business and Public Administration will collaborate to study distribution problems in prefabricated housing, the area in which this new industry has most often stumbled.

- The new Corning Glass Center in Corning, New York, began its career with a high-level conference on "Living in Industrial Civilization," under the co-sponsorship of Corning Glass Works and the American Council of Learned Societies. The architect's part in this discussion was upheld by John Burchard of M.I.T. and Wells Bennett of U. of Michigan.

- Princeton, which early was interested in the Ames studies in visual perception, is constructing an Architectural Laboratory, where study of architectural details and architectonic forms constructed in various materials can be studied under varying conditions of light and varying effects of weather. Professor Jean Labatut will direct the work.

- Georgia Tech School of Architecture looks forward to expansion as a result of a recent grant of a quarter-million dollars from the Board of the Institute. This will make possible a strong graduate program, programs in city planning, and in industrial design, and research in building materials and construction methods. To make the students and faculty even happier, all this will take place in a handsome new building to be finished in 1952.

- Skidmore, Owings & Merrill, which now has permanent offices in New York, Chicago and San Francisco, has announced that a Portland, Oregon, office will be established in association with Pietro Belluschi, now Dean of M.I.T.'s School of Architecture and Planning. "This," says the firm, "represents an important advance in S.O. & M's program of assisting in the development of the West Coast by establishing offices in strategic locations."

- Konrad F. Wittmann, Professor of Design and Head of the Department of Interior Design at Pratt Institute, often a contributor to P/A, died recently at the age of 60. German born and educated, Wittmann had practiced abroad and for ten years had edited a German architectural magazine before he came to this country in 1938.

- The 8th International Congress for Modern Architecture (CIAM) will be held the week of July 7th at Hoddison, Hertfordshire, near London. Theme will be The Core — the physical community heart — of the city. Various CIAM groups have been preparing material to present at the Congress, for five "scale-levels," from the village to the metropolis.

- Walker Art Center, Minneapolis' successful regional museum and spreader of contemporary culture announces that its director, D. S. Defenbacher, is taking a leave of absence and that William M. Friedman, who has been Assistant Director, will act as its head.

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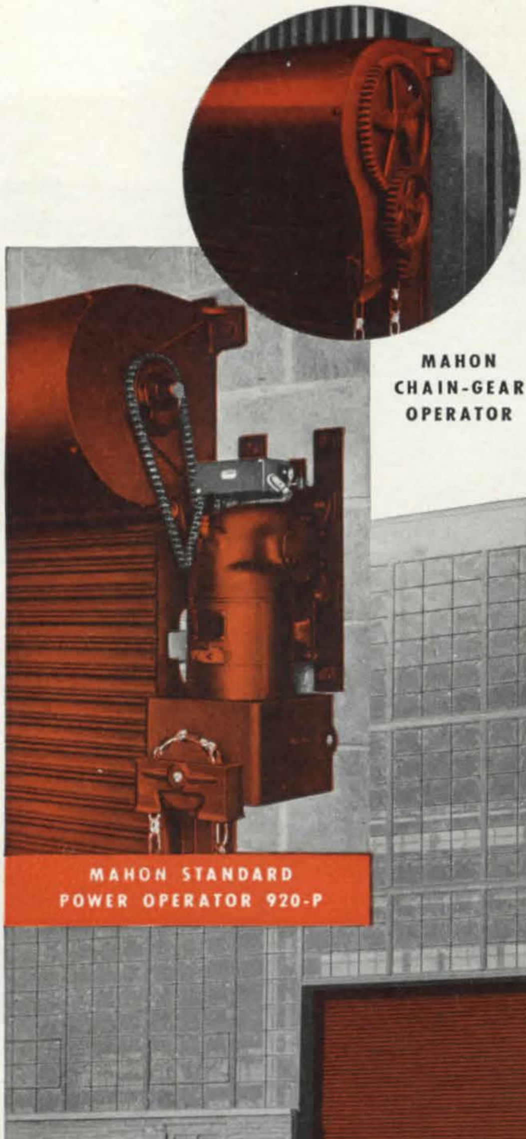

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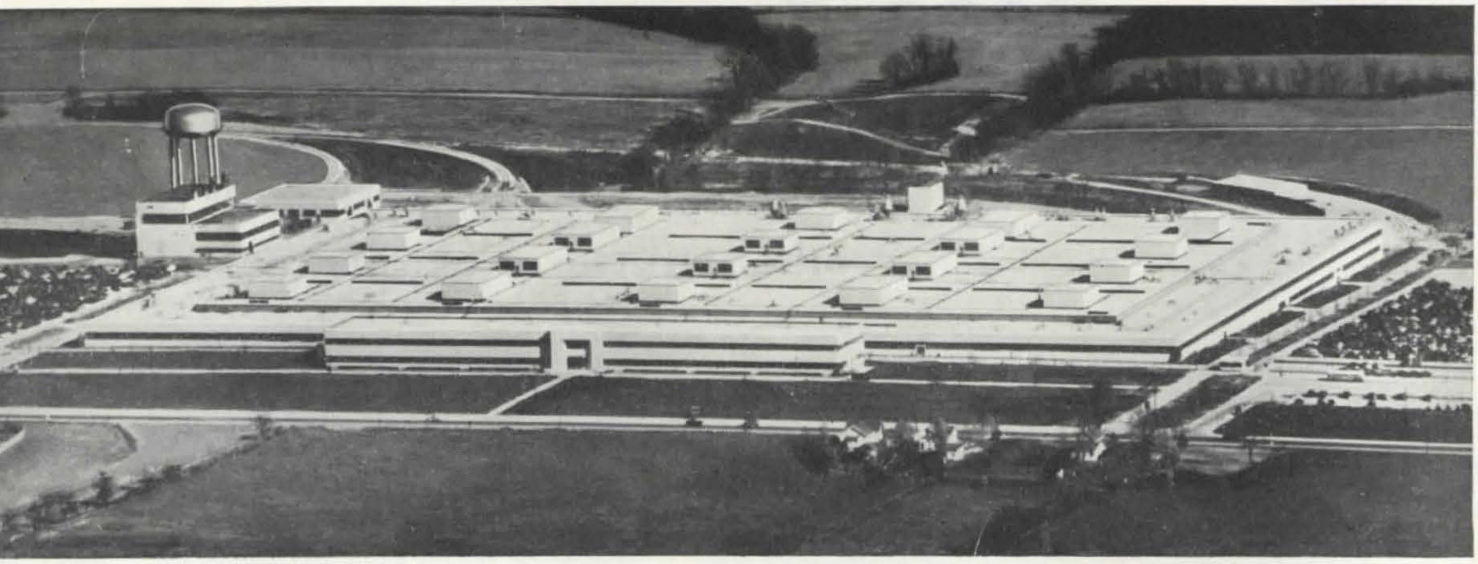

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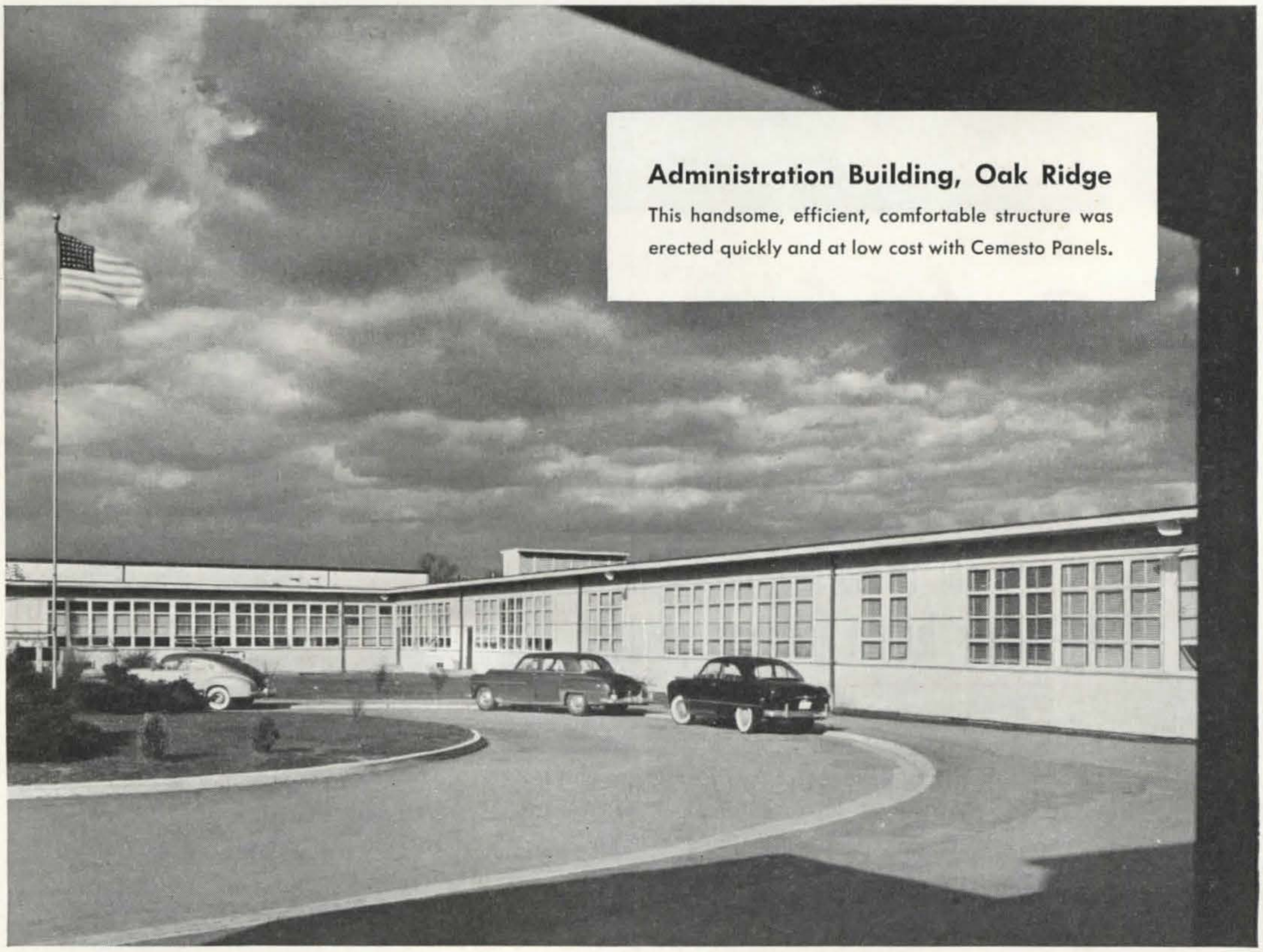

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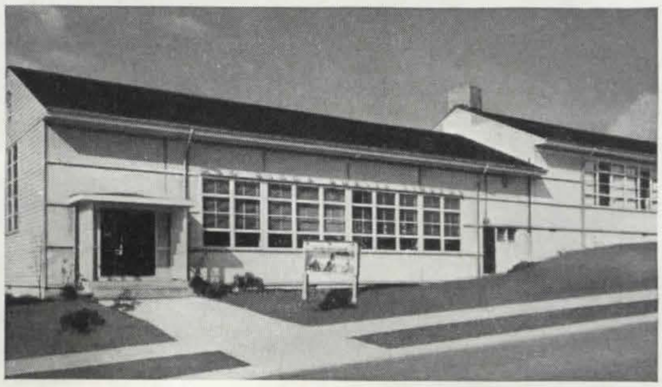

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P/A VIEWS

ORIGINAL FEATURES

Dear Editor: P/A in its April issue presents an interesting survey of Chicago's Multistory Public Housing. Every architect who would keep abreast of housing progress should read it.

With urban redevelopment in New York City and elsewhere taking definite shape, the new approach of the Chicago planners should be carefully studied and appraised. With the broadly accepted conclusion that the only economic possibility of opening up the now densely crowded slum districts lies in the substitutions of high many-storied low-land-coverage structures for the crowded-together, low, but high-coverage tenement houses characteristic of the city slums, the original features embodied in the Chicago multistoried buildings are of special interest.

Since the first intensive study of mass two-story housing, it has been recognized that outside light for all rooms is a necessity and that cross-ventilation is of the utmost desirability. Apartments but two rooms deep, with light and air at both front and rear, have long been the ideal. Apartments with but one exposure have long been discredited, and even the apartment with corner exposure has been recognized as second in desirability to those having complete cross-ventilation. To those of us who are familiar with the Chicago climate, the feasibility of the unenclosed open corridor, seems unbelievable; but if Chicago can get away with it, it certainly should not worry anyone else.

It is interesting to note that the skip-floor corridor schemes, akin to the East Gate apartments which have been built facing the Charles River in Cambridge for the N.E. Mutual Life Insurance Co. and M.I.T., were abandoned by the Chicago architects for outside corridors on each floor; and that when it was necessary to conform to the requirements of PHA, they had to abandon the outside corridor, though they found it possible to retain a communal play space at each story. Now that Chicago has had the courage to provide on each story an open and sunny play space of reasonable size, readily accessible to all the younger children on that story, what future planner will dare to avoid meeting this obvious, but heretofore unprovided necessity.

I note that it is stated that in these buildings having play spaces, as distinct from the roofed gallery corridors, they are to have mesh and removable glass enclosures, but the corridors in these Chicago plans appear to be open the year round. The storage space outside the apartments shared by the occupants of two adjoining apartments, as provided in some of their plans, must mean a tremendous contribution to the comfort of the tenants.

Whittlesey's clear and dispassionate description of these plans, highlights the desirability of planning which permits access to bedrooms without passing through the living room. I wonder, and have long wondered, how much this really means to the average family. Access to the kitchen without passing through the living room would seem to me to be more important. It is my guess, as Whittlesey seems to suggest, that families are not all alike and what suits one does not always suit another.

What all architects interested in housing are trying to do is to produce, at the least possible expense and no extravagance, apartment buildings which will make the maximum possible contribution to happy and healthful living. A careful study of these Chicago plans and what their architects found they could do and could not do, will be found most illuminating, for it would seem to be clear from their courageous designs that they had this aim clearly before them. ELECTUS D. LITCHFIELD, F.A.I.A
New York, New York

COMPREHENSIVE DISCUSSION

Dear Editor: The series of analyses by Julian Whittlesey in the April issue are of particular interest to me.

As director of development of the Chicago Housing Authority during the design stage of Loomis, Archer, and Prairie Courts I consider Mr. Whittlesey's discussion to be both clear and comprehensive. JOHN G. VAUGHAN, JR.
Chicago, Ill.

STILL-COOPED-UP

Dear Editor: As one who deals in urban planning, I would have been greatly interested in some discussion and analysis of costs, site-selection philosophy (city vs. periphery), the tangled web of political and social factors clothing the choice of sites, and site planning; I realize that Mr. Whittlesey was making an architectural appraisal exclusively.

As an apartment dweller, I sought, but failed to find in the Chicago blueprints:

1. A living room with privacy and without through traffic: the cardinal axiom of apartment anatomy. *Dearborn Homes* and *Ogden Courts* further destroy basic design by giving the living room a full view of the kitchen equipment and complete exposure to kitchen odors and heat (and unwashed dishes when evening guests are around—the housewife is at least entitled to dirty dishes after dinner, until visitors have departed!)

2. Ready access to coat closet, kitchen or bathroom by children with mud-covered or snowy shoes and dusty hands. Although this feature was solved in all instances, it seemed to be at the expense of axiom 1, above. In *Prairie Courts*' 14-story affair, the coat closet appears to be an afterthought rather than solution.

3. Storage space within apartment, supplementing common storage facilities in halls or basements. Of course, this allowance may have been considered and merely obscured by the scale and necessarily incomplete labeling of drawings.

4. Proper orientation. Even in Mr. W's "study for a future plan," with apartments two-deep, and with building appendages, some families must forego sunlight and/or breeze.

Without doubt Mr. W. and the design architects were concerned with the nature of vertical living, summarized as "cooped-up." But it hardly seems that "the blow" will be "softened" by gadgetry and gallery: nor by producing buildings shaped like L's, or X's, Y's, and Z's. Compensation must spring from within and without: in careful unit planning, so that spaciousness can be felt and desirable living and circulation patterns achieved, as well as in thoughtful site-neighborhood planning. Mr. W. grazed the touch-stone when he stated that "mature housing design must search beyond stylistic preconception." Even with high-rise structures, little novelty need be invoked; bathing buildings in greenery *a la* Corbusier can accomplish a sense of openness.

When Mr. W. affirms "the device of high density has increasingly driven Authorities to multistory buildings," he isn't quite precise. Where land costs form a high proportion of total development costs, higher densities are necessary to meet PHA-mandated ceilings. Yet, sites on the urban periphery, or even suburbs would not generally force high densities. As a matter of interest, be it noted that PHA-minimum project-density standards fare well alongside A.P.H.A. suggestions. It is for local Authorities to adhere to these minima as maxima!

Dwelling-space requirements are one facet of unit planning. One can, as does Mr. W., be skeptical of PHA maxima, if these are offered as adequate. But Mr. W's views that these gross areas serve to hinder efficient layout cannot be accepted. Size appears not to be a significant factor in fundamental apartment relationships, as witness the jury's alarm, in a recent single-family home competition, that many of the thousands of designs did not achieve living room privacy. *Archer Courts,* in fact, approximates PHA mandatory requirements and concurrently presents perhaps the best unit-design among those analyzed.

Just three parting shots:

1. Why does a competent architect occasionally sail into a sea of sociological pronouncement? Viz. "Families with-

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VIEWS

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out noisy children are historically sensitive about those with noisy children." This empirical statement is startling enough, without stressing that the observation is eternally true!

2. Are galleries and balconies justified at the expense of (cost and space) dwelling unit areas? As for the mother on the 6th-floor gallery eyeing her 3-year-old being pushed from his bicycle in the ground-level totlot—without housewives who are former Olympic 100-yard dash stars, what practical supervision or solace do the architects expect!

3. Chicago shows a preponderance of 1- and 2-bedroom units. In a way, this kind of distribution is more suited to high-rise structures. However, I am curious for it is my feeling that there may be great unfilled needs among families requiring 4- and 5-bedroom units.

SEYMOUR STILLMAN
Director of Planning
Buffalo 2, New York.

QUESTIONS AREAS

Dear Editor: The article, "New Dimensions in Housing Design," by Julian Whittlesey, in April 1951 **P/A**, is very enlightening. Congratulations to the Chicago Housing Authority! It should encourage other cities to improve their Public Housing Plans.

The average square-foot area per room as noted in the apartment schedules for the various housing projects does not, however, show the true picture.

In the past, cost per room (square-feet per room) was figured on a construction room basis. If the rental room is now used, instead, then the statistics used for public housing seems doctored up in order to reduce all figures which make up the costs.

Private speculative builders in the housing field use this method to calculate their rentals. FHA permits an extra one-half room count per apartment if the living room area is increased, but in no case is the living room considered a 2½ room count.

If Dearborn Home areas were changed from rental to construction rooms, the average square foot area would change from 217 sq. ft. to about 243 sq. ft. and Ogden Courts from 220 sq. ft. to about 273 sq. ft.

My housing research has proven that a change in the room count is not required to reduce the average square foot area per room. If waste and unnecessary space are eliminated, it is possible to get more and larger rooms in less area and cube than in a conventional plan at a saving of 10% to 15% in construction and maintenance costs. This can be done without sacrificing conveniences in the dwelling unit. Sound-proofed bedrooms without the use of soundproofing materials (patented), good privacy, light and ventilation, ample storage space, etc., can be enjoyed by each family without increasing costs.

Let us stick to the old-fashioned way, if we can call it such, of counting rooms and figuring cost on a construction room basis, at the same time use the latest ideas and materials to reduce cost and plan better buildings.

CHARLES HENRY SACKS
Brooklyn, N. Y.

DON'T TREAD ON ME

Dear Editor: In reference to the review of *Never Leave Well Enough Alone*: G.A.S. appears to suffer from a "schizophrenic" condition, resulting from inroads on architecture made by the Industrial Designer.

(Continued on page 13)

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p/a VIEWS

(Continued from page 10)

Being slightly prejudiced, since studying, teaching Industrial Design, and working with the Los Angeles office of Raymond Loewy Associates, felt the review a tirade, lowering the profession to the "flotsam" that is appearing upon our landscapes.

At present, I am with a nationally known architectural firm, doing the same type of work I did at R.L.A., principally, Store Planning. The difference is as great as night and day. When the members of the architectural profession devote more time to top echelon, rather than A.I.A. reunion hashes, better associates and use of talent will prevail, resulting in a class of unparalleled design.

Regarding M.A.M.'s report on the *51 U. S. Industrial Design* this reviewer appears to carry the same views, deriding the Industrial Designer for "casing the intestines," which is indistinguishable from the architect and his structure. A vexation has clouded the architects' horizon, thus acrimonious invectiveness to the successful Industrial Designer.

J. SMITH BENNETT
Hollywood, Calif.

LETTERS TO THE SCHOOLMASTER

Dear Carl: I admire your candid and erudite criticism of the four statements on "Basic Design." (February 1951 P/A) Wasn't it St. Paul who said that "only the foolish measure themselves by themselves?" God knows how easy it is to appear foolish in seeking art in abstract form. On the other hand, what is more abstract* than ideas about art expressed in word form?

I hope that you are wrong in your reference to a "*lack of emphasis of human factors in design . . . in all four statements*", though the rational side of the topic is the easier to express, I trust that we do not prejudice the presence or validity of the other.

It is good that you emphasized points such as the need for "*experience-vocabulary*" and "*the study of man and nature,*" which means everything! Without curiosity and love (in the teacher as well as student, neither experience nor understanding will come easily, or with satisfaction.

The line one might draw between Charles Eames' chair and his love of design in the commonplace may not be straight, but it could hardly be more direct.

EUGENE J. MACKEY
St. Louis, Mo.

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* *a reminder that my statement in December issue does not use the word abstract — no clear image-value, in my opinion.*—E.J.M.

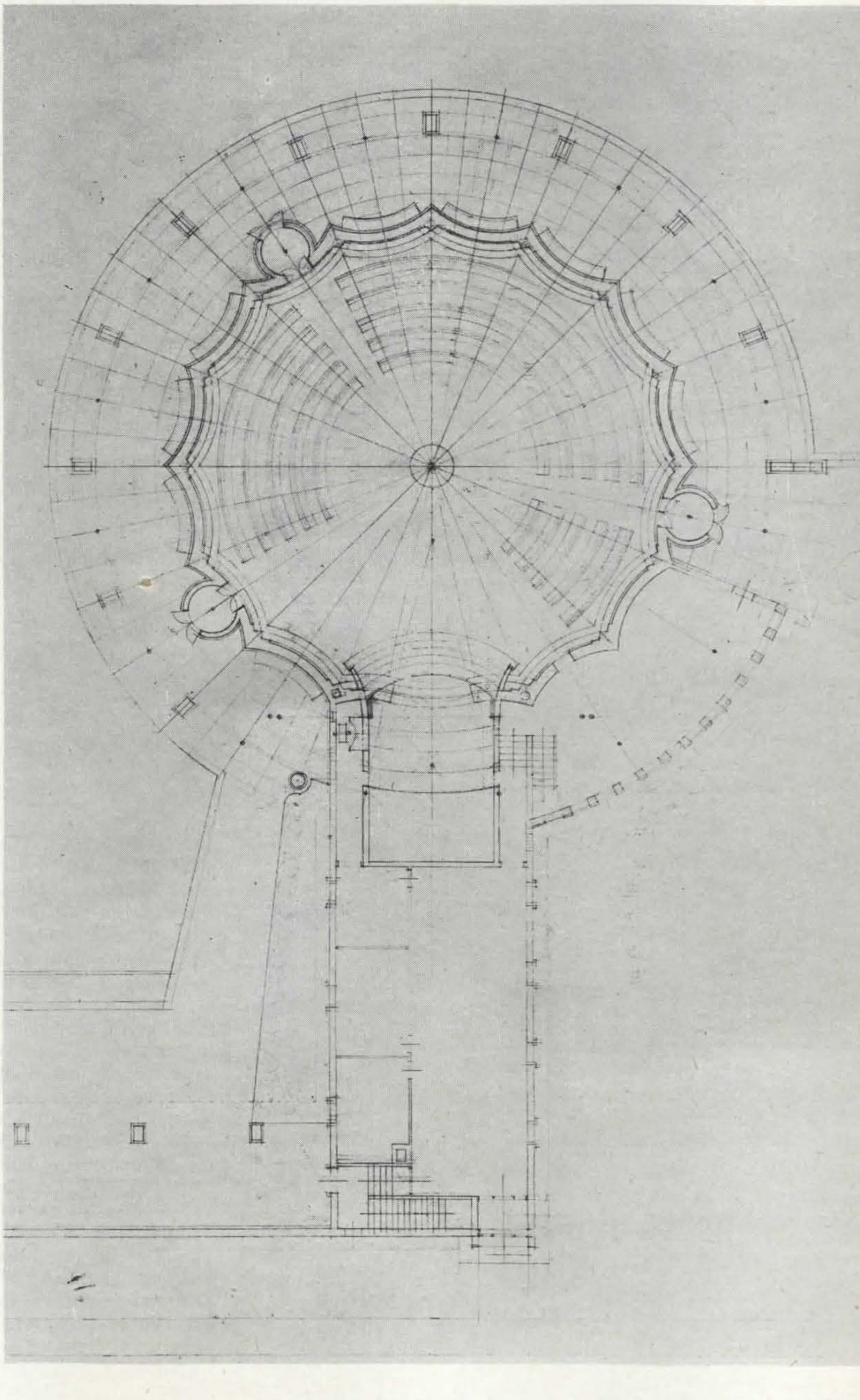
PROGRESS PREVIEW

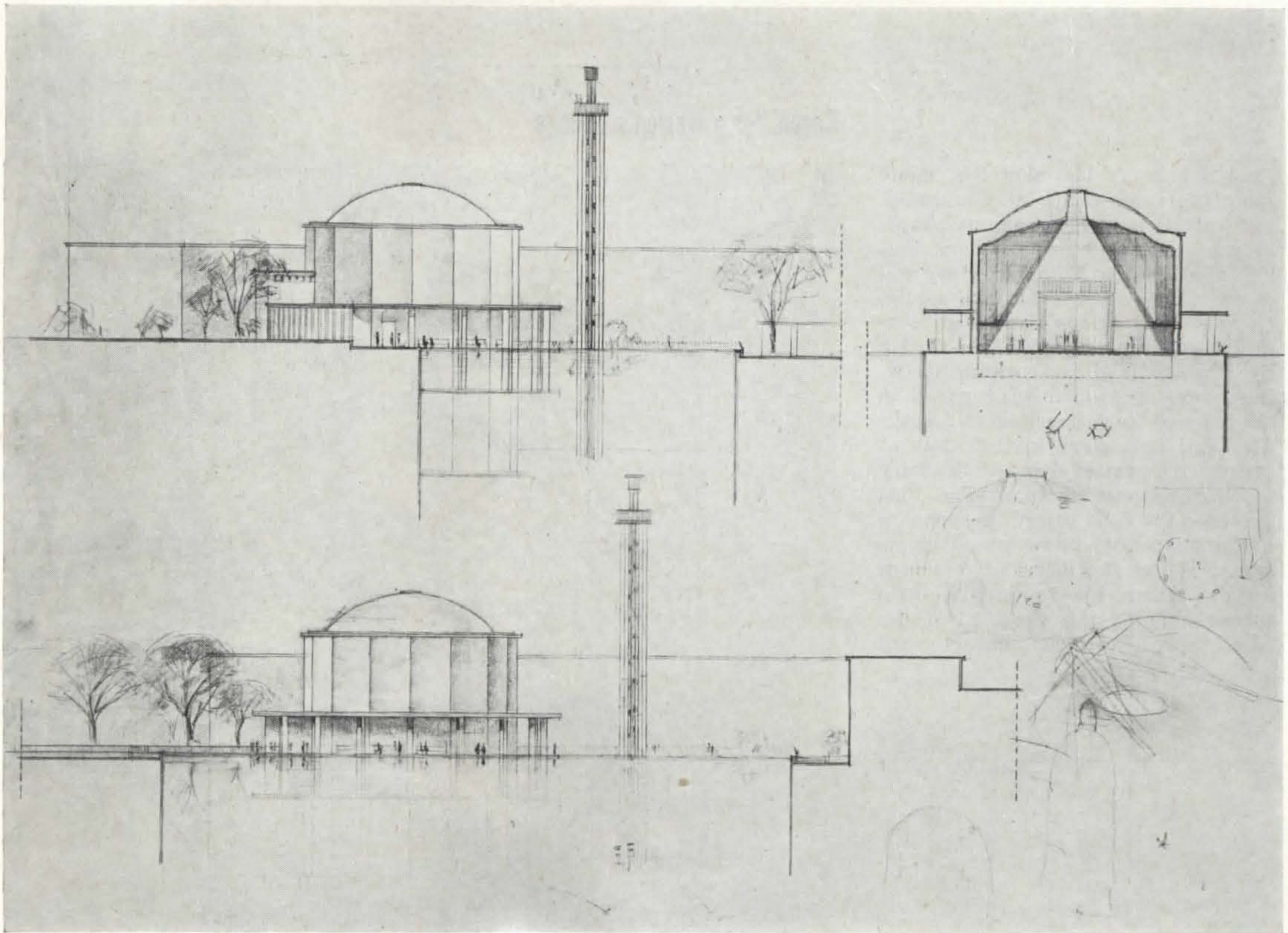
Chapel for a Women's College

Eliel Saarinen's last sketches, made just before his death at Cranbrook last July 1, were of a campus chapel he was designing for Stephens College at Columbia, Missouri. Here and on page 16 are shown his own studies (larger illustrations) and also several elevations of the chapel drawn by Robert Snyder. Working drawings were subsequently prepared in the office of Eero Saarinen & Associates and bids were invited, but at present the project is in the category of "future construction." The bids exceeded the fund raised by sponsors of the chapel, who now are attempting to collect the increased amount.

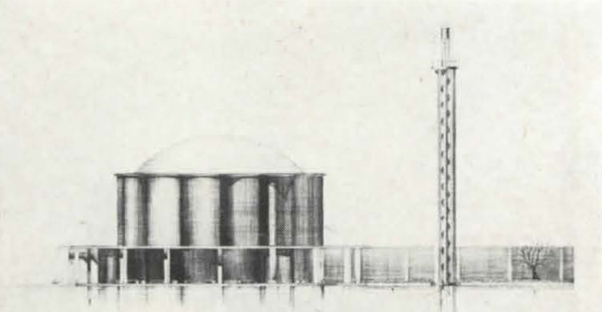
The sensitivity to architectural proportion and the elegance of design expression that characterized

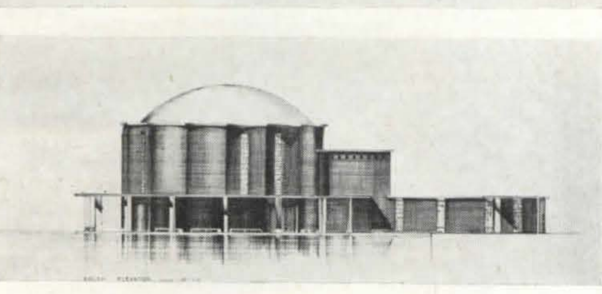
Eliel Saarinen's drawing of the chapel plan (right) is one of his last sketches. The elevation (above) was drawn by Robert Snyder.





The sketches (above) are by Eliel Saarinen.
The elevations (below) are by Robert Snyder.





the work of Eliel Saarinen are evident in these preliminary sketches from his drafting board. The unusual plan of the chapel with its syncopation of the spatial accents merits analysis. The adroit division of seating suggests a practicable and effective setting for the non-ritualistic services of a women's junior college under Baptist sponsorship. Thus the architect captured in his design the beauty of the circle, yet escaped the restrictions of such a finite *parti*.

Eliel Saarinen's sketches of the elevations of the chapel, further defined in the drawings by Snyder, reveal the subtleties of the major composition—slender bell tower accenting the rounded mass of the chapel. The fluting of the chapel wall, at a monumental scale, is perhaps the essence of the architectural expression.

HUNDREDS OF THOUSANDS OF SQUARE FEET LIGHT WEIGHT, PERMANENT, FIRE-SAFE, NO MAINTENANCE PRECAST CONCRETE ROOF SLABS *On the Atomic Projects*

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p/a

NOTICES

EXHIBITION

Well-designed, inexpensive household objects being made by hand in Japan today are being exhibited at the Museum of Modern Art, 11 W. 53 St., through June 17. Between 50 and 60 pieces of pottery, basketware, lacquer pieces, and matting designed for everyday use will be shown including bowls, casseroles, pitchers, vases, tea cups, plates, jugs, flower holders, lacquered plates, and containers.

The material in the exhibition was collected in Japan by the architect ANTONIN RAYMOND and his wife, NOEMI RAYMOND, who lived and worked there for many years. The objects were not made for export but for everyday use in Japan.

COMPETITION AWARDS

PHYLLIS MCCARY, a student at the University of California, Los Angeles, won the first award given by the American Institute of Decorators in its annual competition for the best solutions of a specified problem, which was the redesign of the street floor of a city house. This award consists of the Rorimer Gold Medal, $200, and expenses to and from Grand Rapids Convention of A.I.D. to receive the award.

The second award, consisting of a Rorimer Silver Medal and $50, went to MARSHALL C. PANN, a student at Pratt Institute, Brooklyn; while the third award, a Rorimer Silver Medal, was won by ERNEST W. GRILK, a student at the Chicago Academy of Fine Arts.

HARRY LAWENDA of San Francisco is winner of the furniture award in the 1950 Good Design Competition for Home Furnishings, staged annually by the American Institute of Decorators. The floor covering award goes to VIRGINIA HAMHILL, New York. PAAVO TYNELL of Finland won the lighting award, and KARL LAURELL of Poughquag, N. Y., designed and executed the winning material in the fabric category.

AWARD

The Committee on Scholarships of the Beaux-Arts Institute of Design announces the award of the 1951 Lloyd Warren Scholarship, representing the 38th Paris Prize in Architecture, carrying a stipend of $5000 for study of architecture abroad and in the U.S.A., to WILLIAM STOUTENBURG of the University of Illinois, Urbana, Ill. The alternate is KIRK R. CRAIG of Clemson Agricultural College, Clemson, S. C.

CONGRESS TO BE HELD

The second Congress of the INTERNATIONAL UNION OF ARCHITECTS will be held in Rabat (Morocco) from September 23 to 30, 1951. The theme will be "How the Architect acquits himself of his new tasks": construction, reconstruction, remodelling, realizations, and prospects for the future.

The Congress will be presided over by ALEXANDRE COURTOIS, President of the Council of the "Ordre des Architectes" in Morocco. The general Commissioner will be E. J. DUHON.

The Congress will be followed by study tours left to the choice of the delegates.

For further information, those who desire to take part in the Congress may apply to the national branches of the U.I.A., to their national professional societies, or to the Secretary, Organizing Committee, 11, rue Berryer, Paris 8, France.

(Continued on page 20)

At Oak Ridge, for dependability, beauty and ease of installation the builders of America's most modern home site installed

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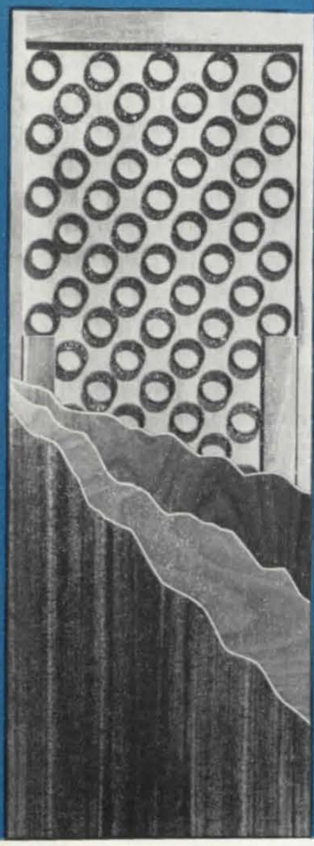

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FLUSH DOORS
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NOTICES

(Continued from page 18)

DESIGN STUDY ABROAD

The SCHOOL OF ART of Syracuse University will offer a design studies workshop course and study tour in Europe this summer under the direction of Professor and Mrs. Antonin Heythum. Students and teachers may earn six to nine units of academic credit, but anyone seriously interested in art, design, or architecture is eligible to register. Total cost of the trip, July 6 to August 26, is $987.

Participants will visit the Festival of Britain exhibitions in London and the "Triennale" international design exhibition in Monza, Italy. They will have interviews with prominent European designers, go to factories, studios, architecture centers, and attend various theatrical and musical performances in the six countries visited.

Contemporary design trends will be studied in Amsterdam, Rotterdam, and Frankfort; followed by an intensive 20-day workshop course in design analysis at the Ecole d'Humanité in Goldern, Switzerland, with excursions into the Alps, and to Lucerne, Zurich, Lausanne, and Geneva. Museums, galleries, and artists' studios will be visited in several Italian cities, with the last week of the study tour spent on the French Riviera and in Paris.

Illustrated folders may be obtained from the School of Art, Syracuse University, and from Study Abroad, Inc., 250 W 57 St., New York, N.Y.

New Practices, Partnerships

TULLY, HOBBS & HANSEN, Architects, Columbus, Ohio, announce the dissolution of their partnership.

RICHARD L. TULLY and FREDERICK H. HOBBS, JR., announce the formation of a new partnership; address: 582 Oak St., Columbus 15, Ohio.

ARTHUR E. THOMAS, Architect, formerly of THOMAS & MCGUIRE ASSOCIATES, has opened an office at 28 Shetucket St., Norwich, Conn.

M. WARNER KLEY, formerly head of the Dept. of Store Planning and Design in the New York office of RAYMOND LOEWY ASSOCIATES, has announced the opening of architectural offices at 50 E. 86 St., New York, N.Y.

BIBERSTEIN & BOWLES, INC., Architects and Engineers, announce a change in the corporation's name to BIBERSTEIN, BOWLES & MEACHAM, INC., 1600 Elizabeth Ave., Charlotte, N. C.

LONG & THORSHOV, Architects, 400 Metropolitan Life Bldg., Minneapolis, Minn., announce a change in the firm name to THORSHOV & CERNY, INC. ROY NORMAN THORSHOV is president and secretary; ROBERT G. CERNY, vice-president and treasurer.

CORRECTION

In the April P/A, page 60, the name of James Hammond was listed as Job Captain in connection with Ogden Courts, the Chicago multistory housing project designed by Skidmore, Owings & Merrill. This information came to us from what the newspapers usually describe as "informed sources." However, in this case the sources seem to have incorrectly informed us. For Mr. Hammond writes to tell us that, in the design of Ogden Courts, "Messrs. William E. Hartmann, Charles D. Wiley, and Paul B. Marxen were the Project Manager, Chief Architect, and Job Captain, in that order." We are happy to report this and henceforth shall regard our "informed sourees" with a more wary eye.

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Russwin Fire Exit Bolts

Your recommendation on emergency door exit bolts probably gets more customer consideration than any other hardware item. In the Russwin line, you have a very special "talking" point . . . its extremely simple mechanism . . . only 3 moving parts. You can see how sturdy it's made from the illustration at the right . . . and each part is positively aligned. Such simplicity assures "touch and go" action at all times.

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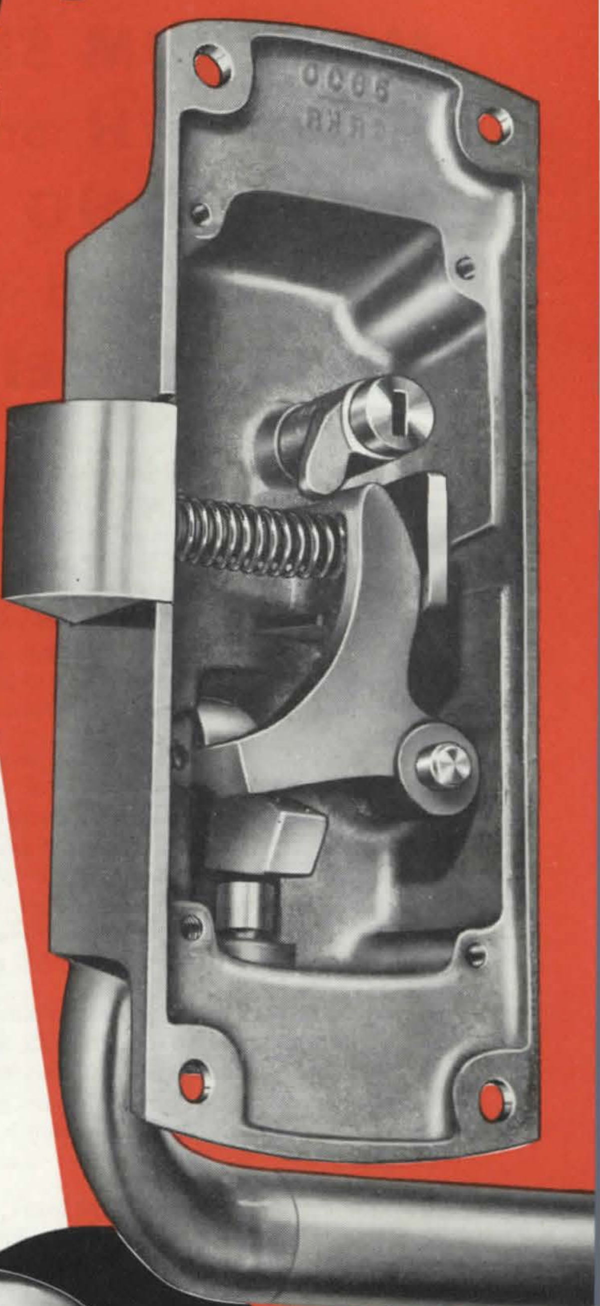
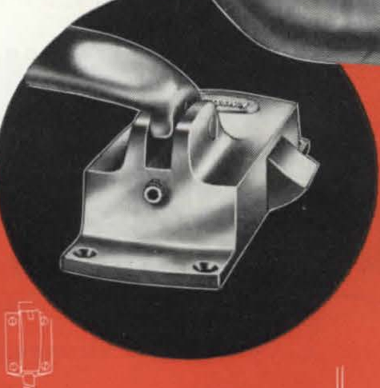
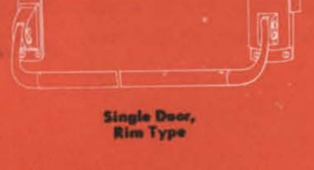




FOOL-PROOF DOGGING DEVICE

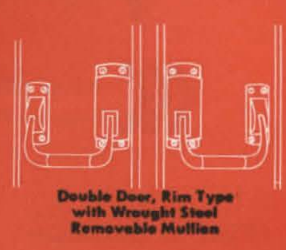
Positive, Tamper-Proof dogging device permits locking bar in depressed position, retracting latch bolt so that bar becomes a simple push and pull bar on door.



Single Door, Rim Type

Single Door, Mortise Type

Top and Bottom Latching



Double Door, Rim Type with Wrought Steel Removable Mullion

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. . . for Modernization of homes, offices, factories, farm buildings

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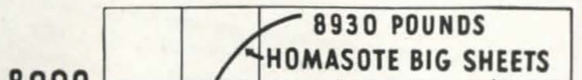
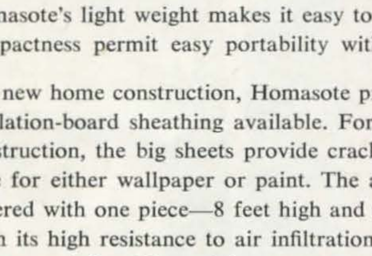


RACKING TESTS prove Homasote Sheathing *33.6% stronger* than diagonal wood sheathing and *272% stronger* than horizontal wood sheathing.



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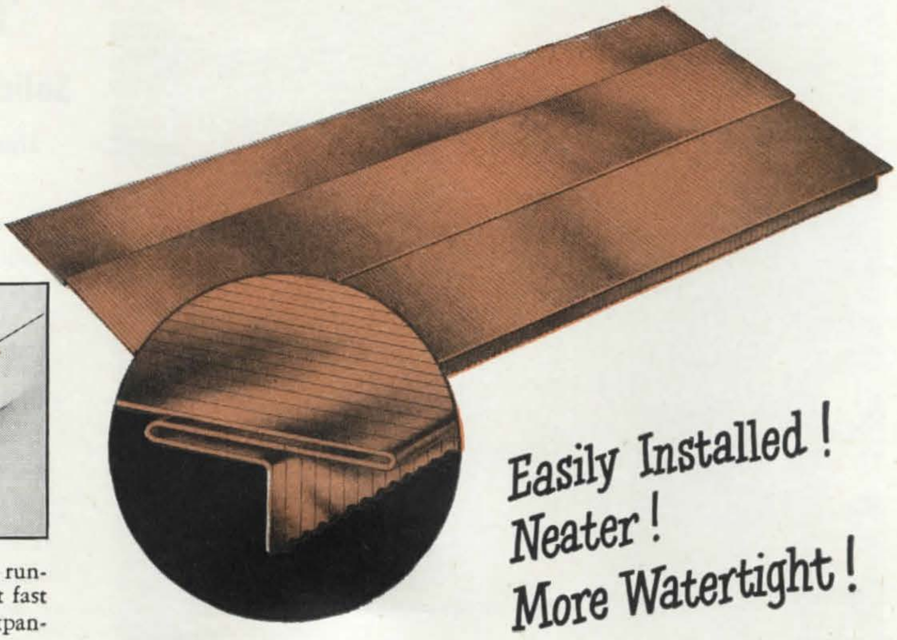
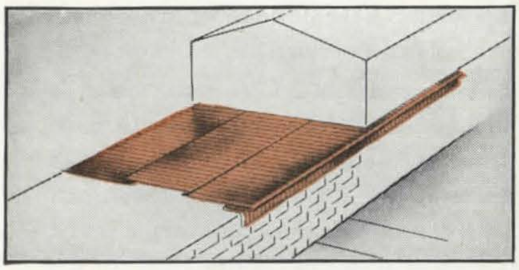
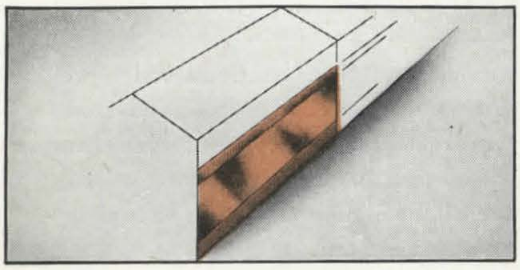
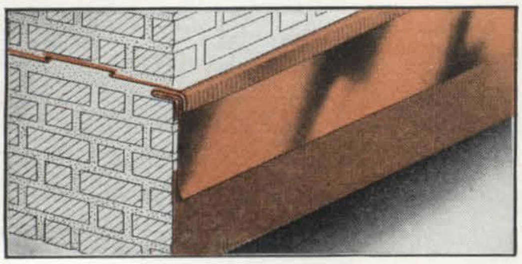




DRAINAGE CONTROL. Continuous channels running transversely through the wall permit fast drainage. This feature also provides for expansion and contraction.



MORE EFFICIENT CAP FLASHING. The added rigidity of cold rolled counter flashing eliminates the necessity of locking the cap flashing to the base flashing.



CAP FLASHING RECEIVER. Locks the cap flashing securely and permanently. The Cap Flashing Receiver also provides a guide to position the flashing during installation.

Here is a full weight copper thru-wall flashing (with a 3-way bond!) that combines an integral cap flashing receiver. The design* of this receiver permits the easy installation of cap flashing *after* the base flashing and roof are installed, without plugs or wedges to keep the receiver open. And since the cap flashing is never bent after it is inserted and locked in, it can be formed of *cold rolled* copper. The result: a neater, more watertight installation at reasonable cost.

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*Patent Pending

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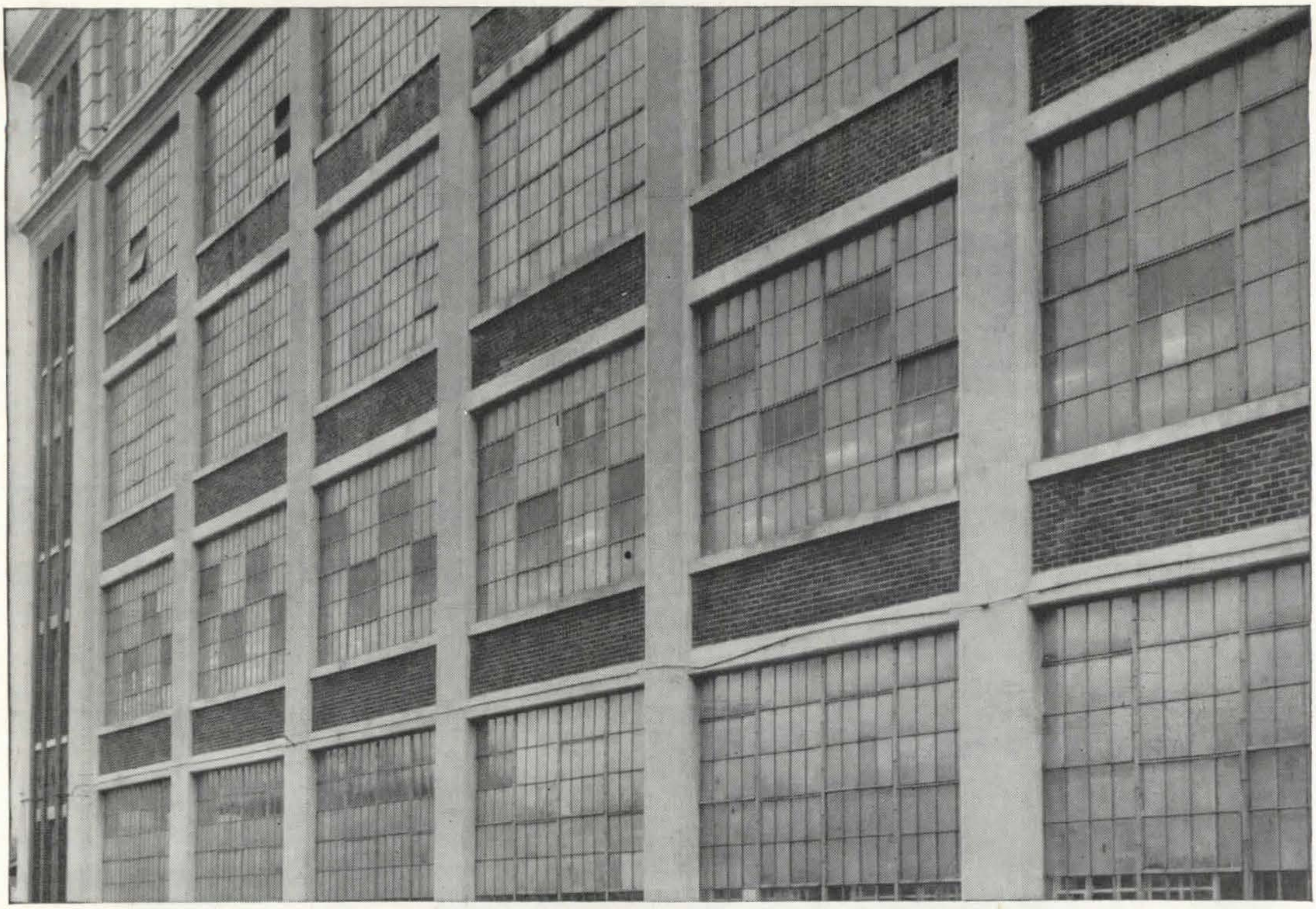

30-year-old Fenestra Galvanized Steel Windows in American Woolen Company's Mill No. 2, Shawsheen, Mass. No sign of rust—yet they've never been painted.

No Rust – Even After 30 Years

(and these steel windows have never been painted!)

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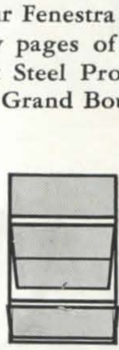
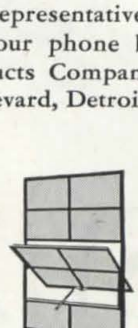
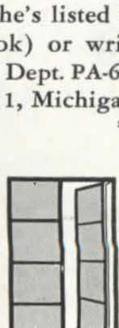


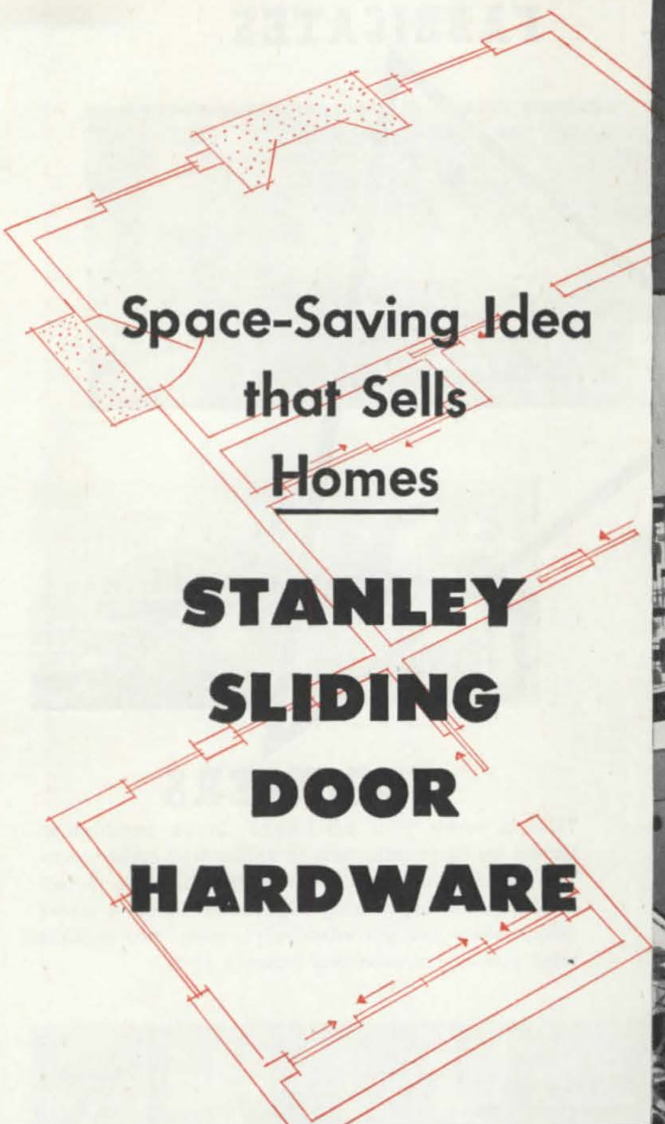
Intermediate



Industrial



Residence



Space-Saving Idea that Sells Homes

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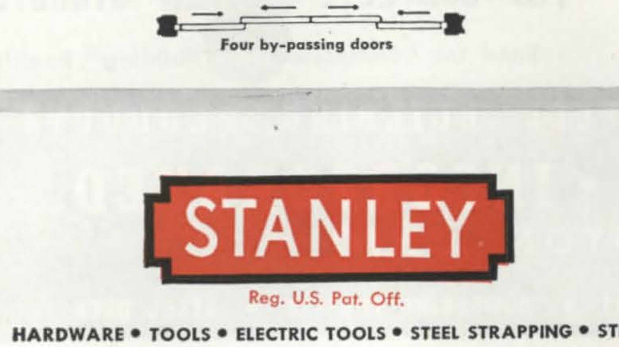
A type of Stanley Hardware for all these installations — and more



You can give clients what they want *most* — living space — with Stanley Sliding Door Hardware. Women, particularly, are intrigued with interior doors that slide in and out of walls. Silent-acting and smart-looking, as well as space-saving, they make your selling job easier.

Investigate this modern, low-cost way to build SELL into today's smaller homes. Your hardware consultant, lumber or building material dealer will be glad to tell you more about Stanley Interior Sliding Door Hardware. The Stanley Works, New Britain, Connecticut.

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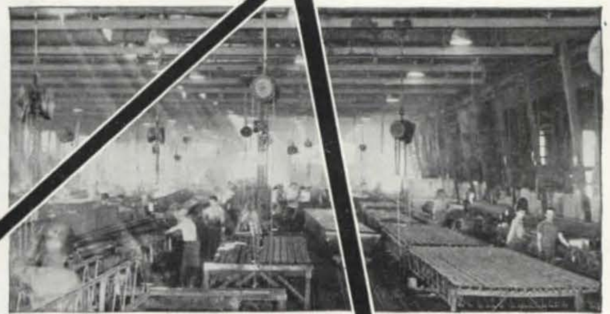

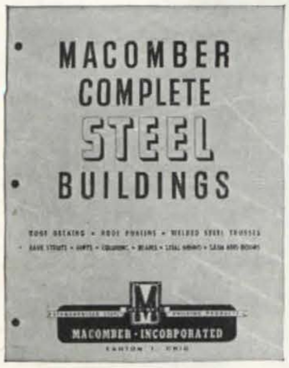

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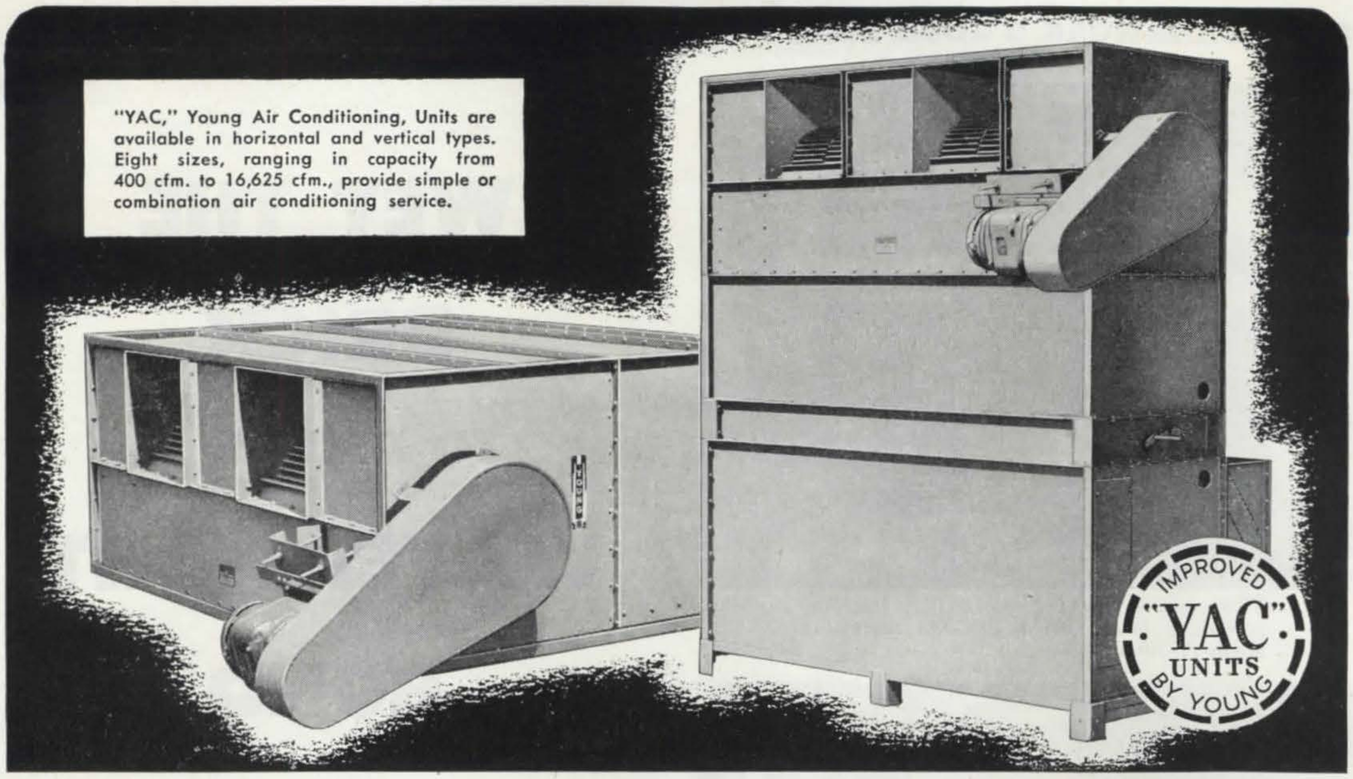

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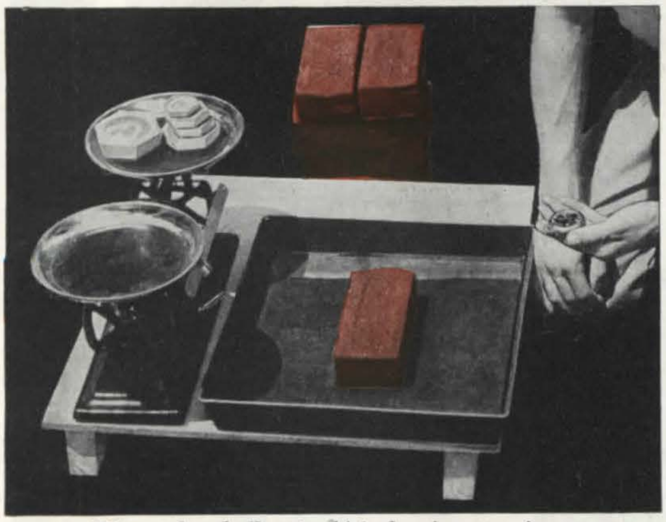


When placed flat in ¼-inch of water for one minute, a brick should gain not more than 20 grams (7/10-oz.)

A good bond was not secured here because the brick on which the mortar was spread had sucked the mortar dry, before the brick was laid.

A good bond was secured here because the mortar was not sucked dry too fast.

WET THE BRICK

TO SECURE A

WATERTIGH

BOND

WE SUGGEST THAT—

Brick taken from the scaffold should be tested for rate of absorption, as illustrated at top left. If the tested brick gains more than 1 ounce in weight, all brick should be thoroughly wet just before they are used.

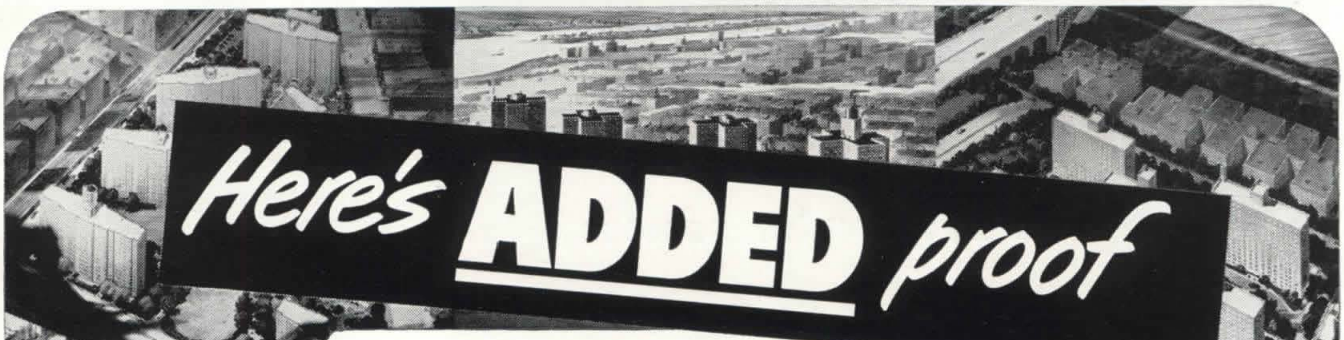
A good initial bond between brick and mortar depends (1) upon the suction rate of the brick, and (2) the water-retaining capacity of the mortar.

If the absorption rate of the brick is too high at the time they are laid, they will suck the water out of the mortar too fast, even though the mortar has high water-retaining capacity. A thorough wetting of the brick just before they are laid is the only way to be *sure* they will have a low enough rate of absorption.

BRIXMENT

Brixment mortar has higher water-retaining capacity and stays soft and plastic longer when spread on porous brick. This helps secure a good, watertight bond.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY



Here's ADDED proof

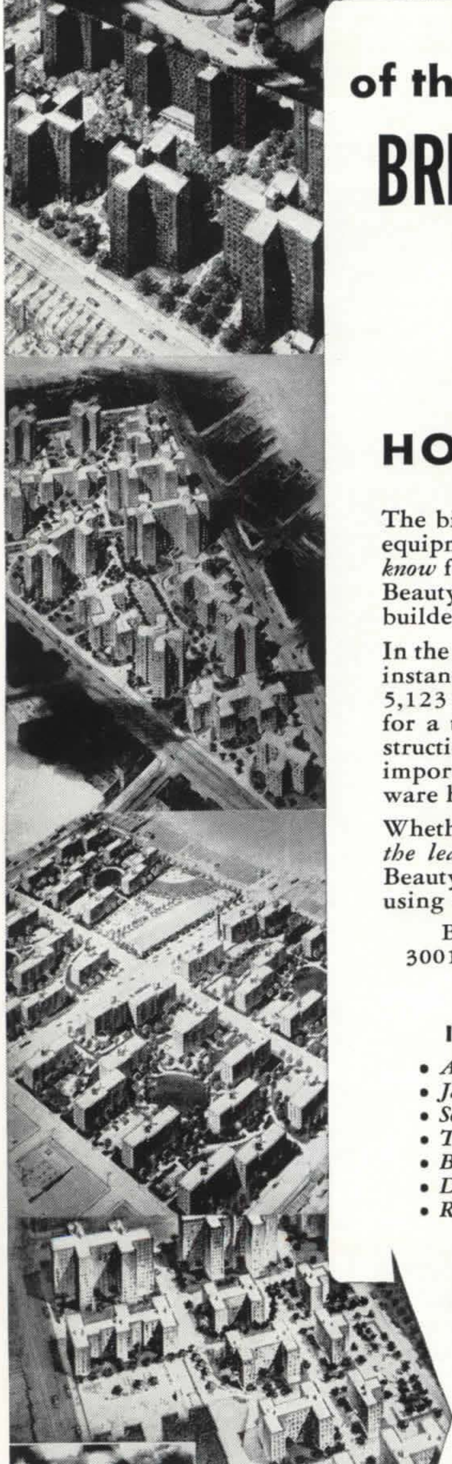
of the Great Acceptability of

BRIGGS BEAUTYWARE!

first choice in

NEW YORK

HOUSING PROGRAM!



The biggest builders don't take chances! They use equipment they can *depend* on—equipment they *know* for quality and durability! That's why Briggs Beautyware is first choice among leading project builders from coast to coast!

In the mammoth New York Housing Program, for instance, Briggs Beautyware has been installed in 5,123 apartments since 1948. It has been specified for a total of 11,753 apartments now in the construction or planning stage. This is just *one* of *many* important building projects where Briggs Beautyware has been used!

Whether yours is a big job or a small one—*follow the leaders!* Install modern, appealing Briggs Beautyware plumbing fixtures and know you are using the best!

BRIGGS MANUFACTURING COMPANY
3001 MILLER AVE., DETROIT 11, MICHIGAN

BRIGGS BEAUTYWARE IS BEING USED IN ALL THESE N. Y. HOUSING PROJECTS!

- *Amsterdam Houses*
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- *Ravenswood Houses*
- *Astoria Houses*
- *Sedgewick Houses*
- *St. Nicholas Houses*
- *Stephen Foster Houses*
- *Lexington Houses*
- *Morrisania Houses*
- *Woodside Houses*

BRIGGS

Beautyware PLUMBING FIXTURES

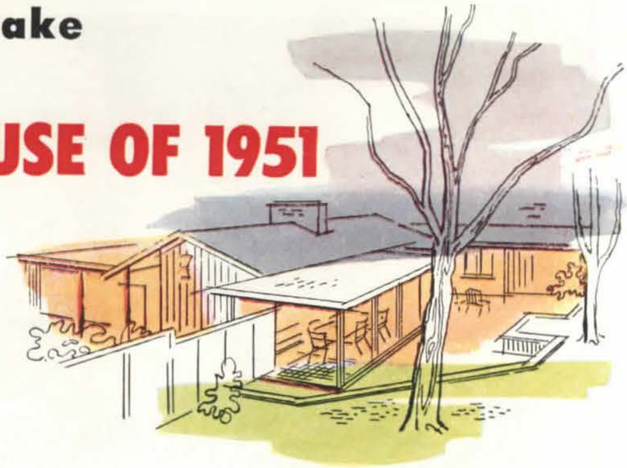
International Show Room — 101 Park Ave., New York City how MOSAIC tile helped make

THE PACESETTER HOUSE OF 1951

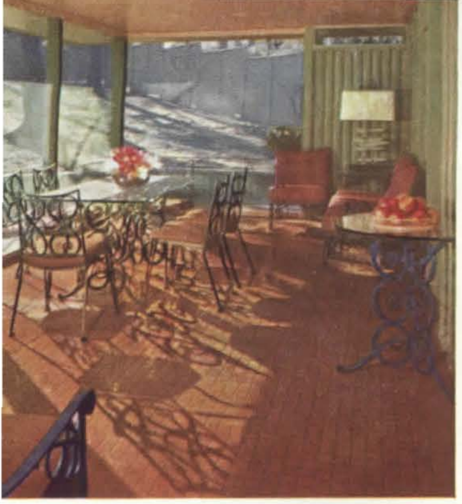
a spectacular success

The editors of "House Beautiful" have pioneered some unusually practical uses for Mosaic Tile in their *Pacesetter House for 1951.*

Architect—Julius Gregory
Builder—Robert Chuckerow Construction Company
Tile Contractor—R. L. Leonardi, Inc.



The "House Beautiful" Pacesetter House of 1951, at Dobbs Ferry, New York.



IN THE OUTDOOR living room the rich, earthy, red of the Mosaic Granitex Tile floor blends perfectly with its garden setting. Continuous traffic from the garden areas across this floor will never mar its surface or texture. Neither sun nor weather will change its permanent color. This floor may be hosed daily, for Mosaic Tile is impervious to moisture and stains.

Floor—Granitex Mosaic, Pattern No. 1779-A3.

BLUE FAIENCE TILE is an ever-beautiful finish on the sides of this combination serving bar and cooking peninsula. The hand-crafted appearance of Faience aids in blending the casual character of the living-dining area with the trim efficiency of this ultra-modern kitchen. Other types of Mosaic Tile are used on work counters, splash boards and walls for the utmost in easy cleaning and lasting beauty.

Peninsula—6" x 6" Faience color No. 2102.

MOSAIC TILE in this bathroom will turn in top performance for the life of the house because water and moisture will never effect the tile nor the manner in which it is set.

The vanity top and the floor are unglazed ceramics, an especially hard and durable type of Mosaic Tile, with permanent color throughout its wear-proof body.

Harmonitone wall tile color—No. 161.
Vanity top and floor color—No. 201 Velvetex.

From these pictures, you can visualize how Mosaic Tile, an extremely practical material—and used in every room in the *Pacesetter House*—may be used on both vertical and horizontal surfaces.

For example, Mosaic Faience Tile, which makes the fireplace wall so outstanding, offers opportunities of great interest if planned for elevator lobbies and for other large surfaces where everlasting beauty, utility and rock-bottom maintenance are required. For such uses, the cost of Mosaic Faience Tile will be no more than that of equally sturdy materials. *In fact, it will probably be less.*

There are other patterns you will want to see. Or, taking a clue from this job and from such other jobs as the ceramic Mosaic wall in Harvard University's recently completed graduate school, you may wish to develop your own design for the job you plan for Mosaic Tile.

In either case, Mosaic's Design Department is at your service. There is no obligation.

Center of attraction in *Pacesetter House* is this truly magnificent and really distinguished floor-to-ceiling fireplace wall, which serves also as a decorative partition between living and dining areas. Made of Mosaic Faience Tile, in a special design, its colors are there to stay; can't fade or bleach. Floor of living and dining area is Granitex Mosaic, which is also used on the floor of the outdoor living room.

—fireplace wall Mosaic Faience Tile, pattern No. 6056.

—floor Granitex Mosaic, pattern No. 1779-A3.

ON THE FLOOR at the windows in the master bedroom, Mosaic Faience Tile, in a delightful green, is used as an "indoor greenhouse." Here plants live in ideal atmosphere, on a floor that will never stain and which is so easy to clean.

Mosaic Faience Tile—Color No. 2164.

NO MATERIAL is more practical for window sills and window shelves. Here Mosaic Granitex are used as a broad under-window shelf—fine for plants, books, knick-knacks—an ideal combination of durability and decorative texture.

Shelf is Granitex Mosaic, color No. 1228.

THE DINING ROOM FLOOR is a continuation of the living room floor, a feature that contributes to the feeling of spaciousness which is apparent throughout the house.

Floor—Granitex Mosaic, Pattern No. 1779-A3.

THE PACESETTER HOUSE is open to the public until July 1. We'd like you to see it if you are in the East. It's at Dobbs Ferry, just up the Hudson River from New York.

Mosaic Tile offers a great deal to modern, contemporary design. No other material is more functional. No other material provides so much in color, long life or freedom from maintenance.

The Mosaic Tile Company offers freely of its assistance to those architects, builders and owners who want to investigate our products for their jobs. Ask any Mosaic representative or write Dept. 28-3, The Mosaic Tile Company, Zanesville, Ohio.

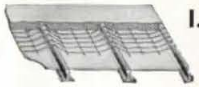
THE MOSAIC TILE COMPANY

General Offices—Zanesville, Ohio

Member Tile Council of America

MOSAIC

SHOWROOMS, OFFICES AND WAREHOUSES IN PRINCIPAL CITIES ACROSS THE NATION.



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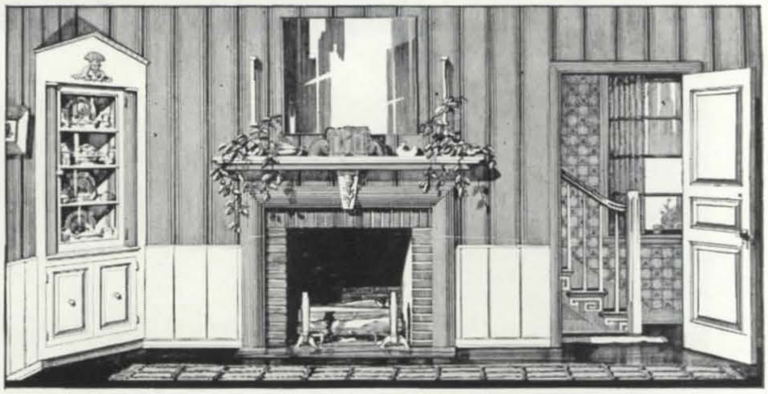
Fine, Permanent Furniture

INTO YOUR HOMES!



M-1585 China Case; M-1463 Mantel; M-760 Stairway; M-1073 Door.

MORGAN WOODWORK

Corner Cabinet

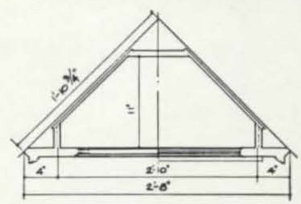
M-1588 Overall width: 2'8"; Overall height: 7'1⅝"

M-1586 Overall width: 2'7¼"; Overall height: 6'6"

All Styles and Sizes for Every New Home or Remodeling Job

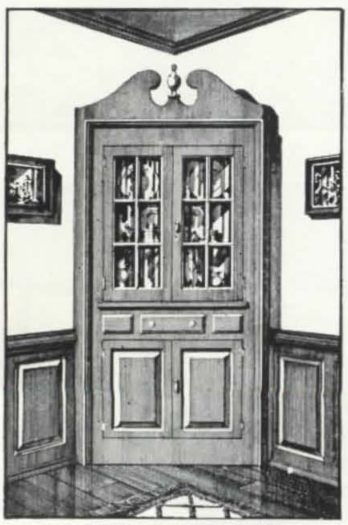
The entire line of Morgan Woodwork is second to none in design, construction, craftsmanship. And a typical example of this leadership is the Morgan Corner Cabinet. Morgan Cabinets are correctly designed by top-ranking architects, and manufactured by fifth generation craftsmen. Select any design shown here (more in our catalog). See why Architects, Builders, Dealers, never hesitate to specify and use Morgan Woodwork, in their own homes, and jobs. Morgan quality never yields to high production. That's why Morgan always "measures up!"

Send for Morgan Woodwork Catalogs



Typical Plan

Seasoned wood, kiln-dried before fabrication and assembling assures perfect fit and lifelong service.



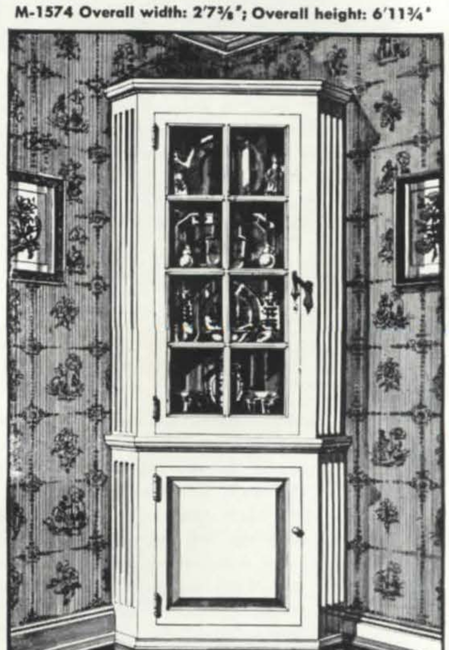
M-1553A Overall width: 3'6"; Overall height: 7'4"

M-1572 Overall width: 3'3"; Overall height: 7'½". Trim Not Included

MORGAN WOODWORK

Cabinets help sell new homes and Remodeling Jobs.

M-1574 Overall width: 2'7⅜"; Overall height: 6'11¾"



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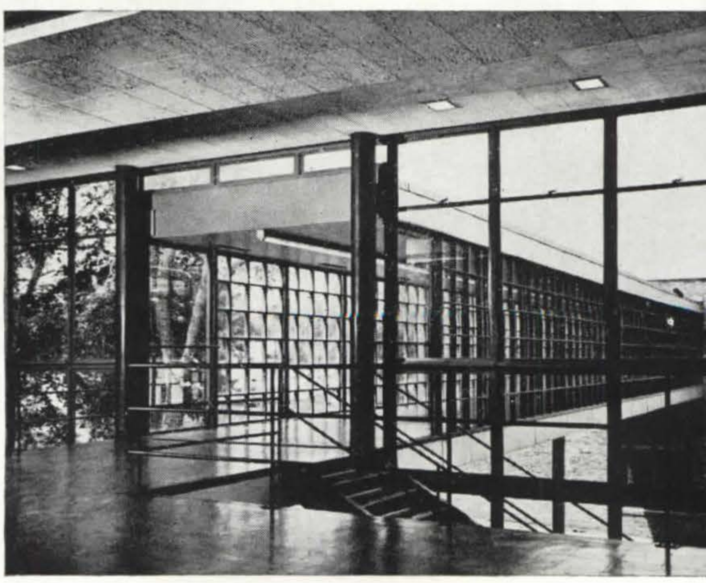
Morganwall Assemblies · Trim · Windows · Doors

MORGAN WOODWORK

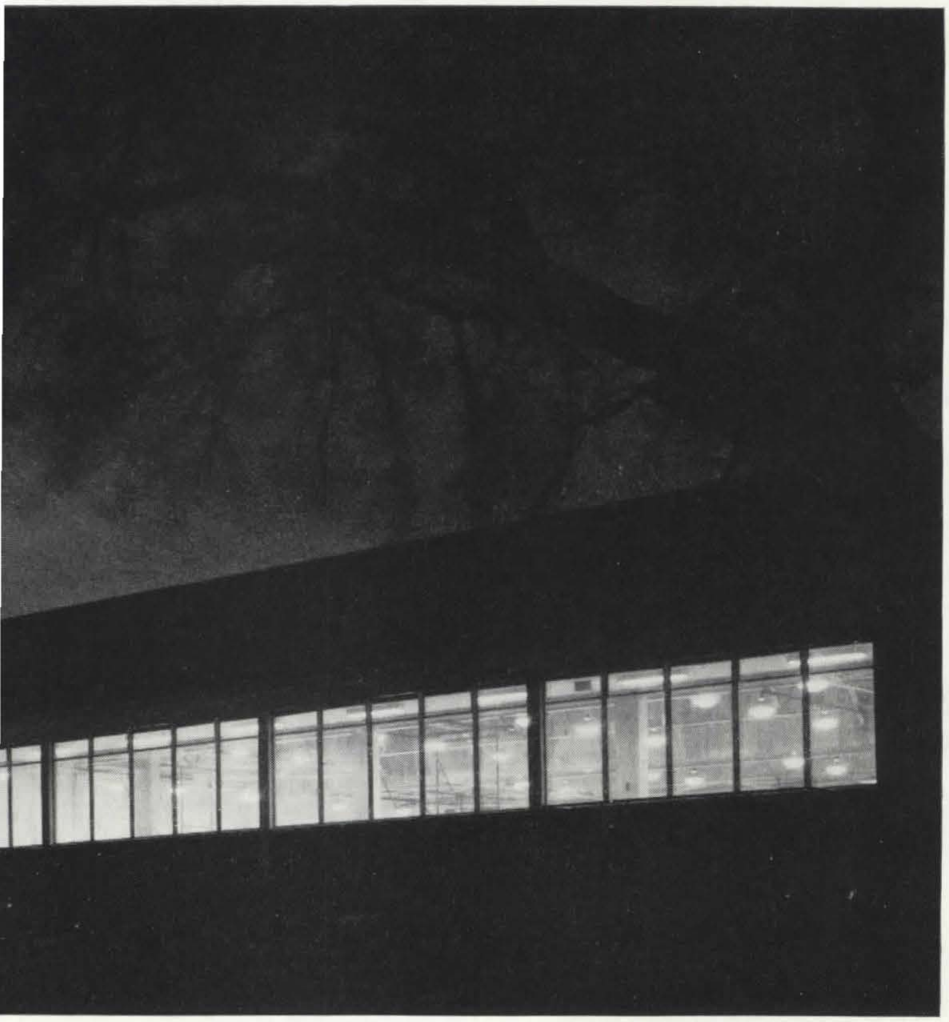
Varied applications of Pittsburgh Glass

THIS NIGHT view of the new Oak Ridge Senior High School building at the Oak Ridge project in Tennessee, is an interesting example of modern design in public building. Contributing to the impressive over-all effect is the wide use of Pittsburgh Polished Plate Glass and Pennvernon Window Glass—recognized as "window glass at its best!" Architects: Skidmore, Owings & Merrill, Chicago, Ill.

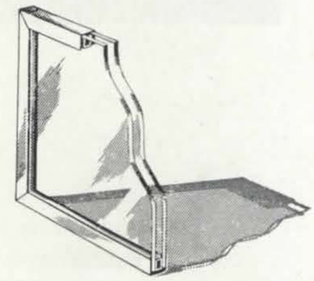


LARGE WINDOW wall areas, glazed with Pittsburgh Polished Plate Glass, are a prominent feature of the recently completed Harvey Ingham Hall of Science and Fitch Hall of Pharmacy buildings at Drake University, Des Moines, Iowa. The illustration here shows how the top floors of the new buildings are connected by an enclosed foot bridge, with huge window walls admitting floods of natural daylight. Architects: Saarinen, Swanson, and Saarinen, Bloomfield, Mich.; Associate Architects: Brooks-Borg, Des Moines, Iowa.

in current design



TO GIVE clients maximum value, America's leading architects design with Carrara—"the quality structural glass." Carrara Glass is unexcelled for the walls and ceilings of bathrooms and kitchens. An ever-lasting product, it is finely machined. Its joints are true and even. There is no lippage. It is impervious to weather, moisture, chemicals, acids, grease and pencil marks. Its decorative possibilities are limitless. And it is obtainable in ten attractive colors.



TWINDOW is made up of two or more panes of Pittsburgh Polished Plate Glass, enclosed in a protective, long-lasting stainless steel frame. There is a sealed-in air space between the panes for effective insulation. With two panes, Twindow provides nearly twice the insulating value of single-glazed windows. Forty-seven standard Twindow sizes are available.

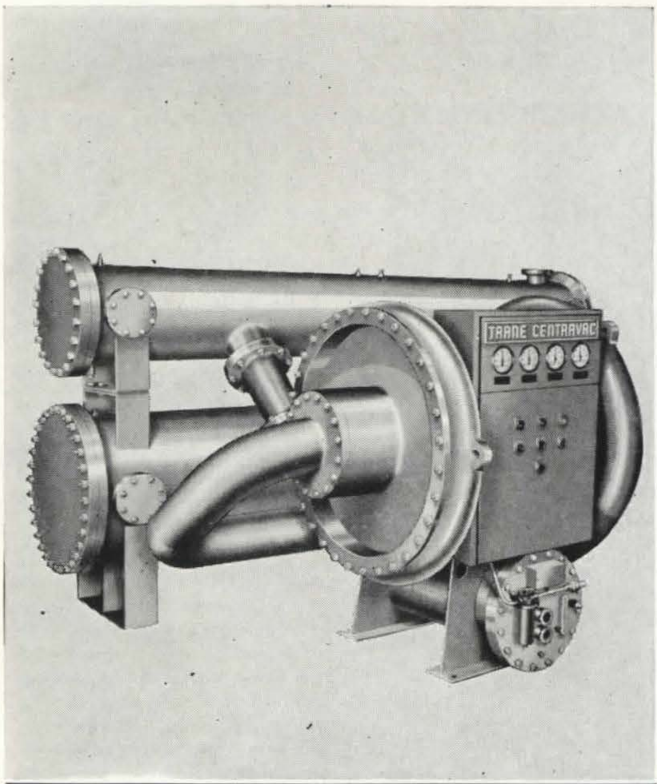
IN PLANNING this unusual office building, Architects Lankton and Ziegele of Peoria, Illinois, made striking use of Twindow—Pittsburgh's window with built-in insulation—at the entrance and in the large tilted bay at right. Pittco De Luxe Store Front Metal and the Herculite Door add further appeal to this distinctive architectural creation.

Design it better with Pittsburgh Glass

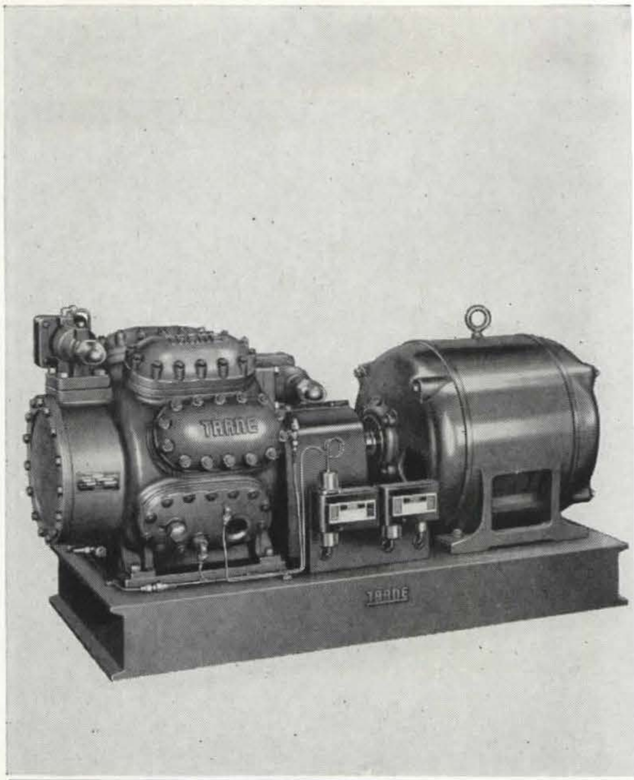
Your Sweet's Catalog File contains a complete listing and descriptions of Pittsburgh Plate Glass Company products.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY



Trane CenTraVac — Hermetic Centrifugal Refrigerating Unit — Six models starting at 45 tons.



Trane Reciprocating Compressor and Condensing Units — Six models up to 50 tons in capacity.

From Equipment Room to Penthouse

Many architects, engineers and contractors are discovering new advantages in the complete Trane line of heating, cooling and air conditioning equipment.

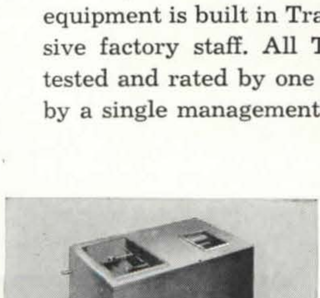
Trane manufactures equipment ranging all the way from a centrifugal compressor capable of developing more than 200 tons of refrigeration to a cooling coil small enough to carry under your arm. All the way from a tiny radiator valve to a 108" fan.

All this equipment is designed by one integrated staff of product engineers all working together. All this equipment is built in Trane plants under one all-inclusive factory staff. All Trane products are carefully tested and rated by one complete laboratory directed by a single management.

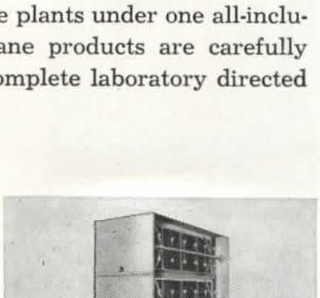
Matched Products. The result — all Trane products are designed and manufactured for use together. Each product is matched with every other Trane product for maximum service.

When Trane products are used together to provide air conditioning, heating and cooling for any type of building or for process, they offer:

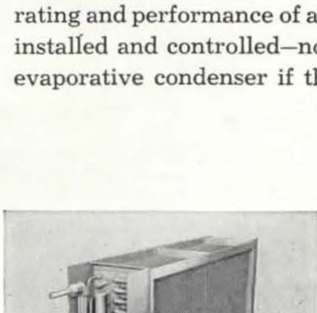
1. Undivided Responsibility—one manufacturer—Trane—assumes the complete responsibility for the correct rating and performance of all the equipment if properly installed and controlled—no blaming the maker of the evaporative condenser if the compressor won't work.



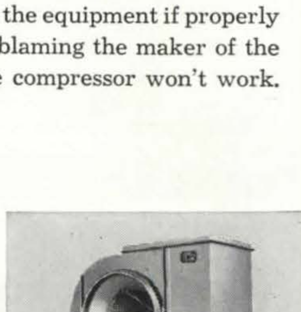
Trane Evaporative Condenser—For condensing refrigerants in the air conditioning system with the minimum use of water.



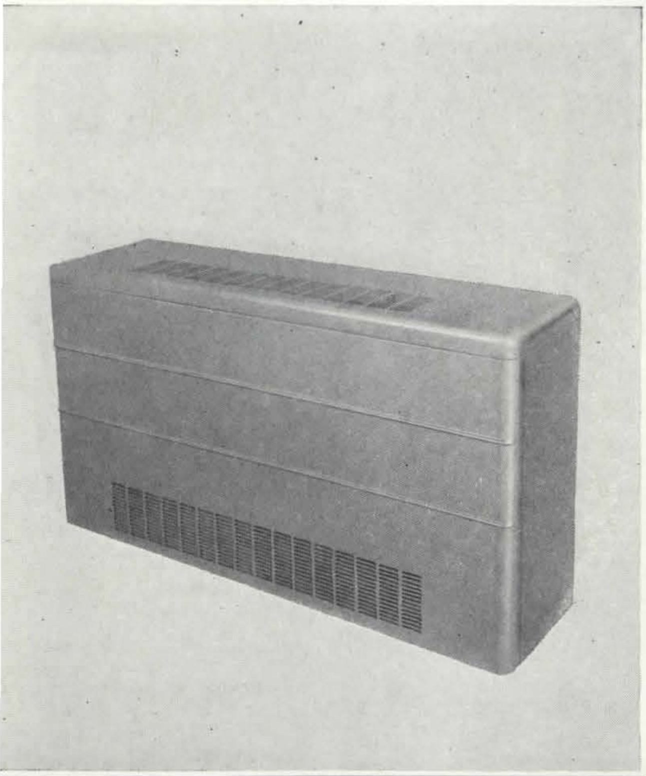
Trane Sprayed Coil Unit—For built-up systems requiring separate fan motor and drive and filters. Heats, cools and washes air.



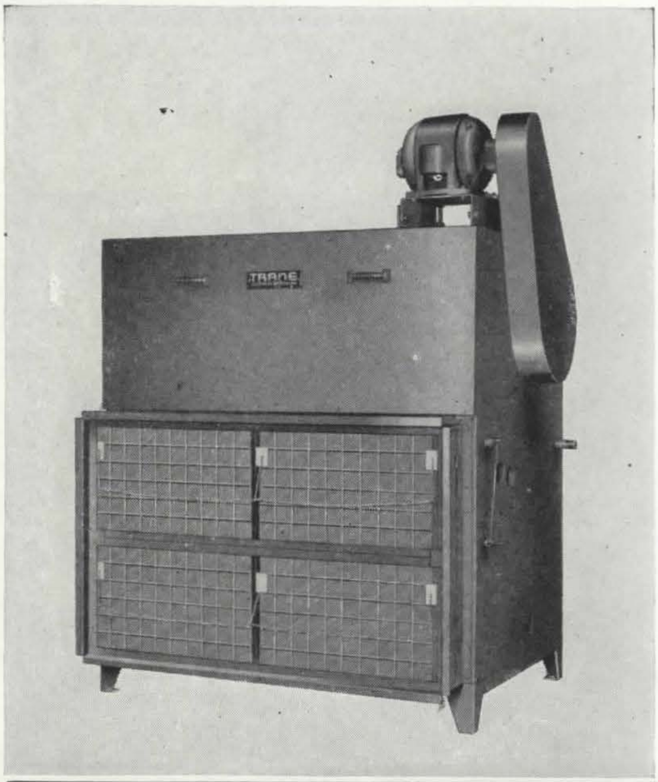
Trane Cooling Coils—For use with clean chilled water or well and municipal water or with direct expansion refrigerants.



Trane Centrifugal Fans—In Clas I and II construction with back wardly inclined or forward curve wheel construction.



UniTrane Air Conditioners — Available in two styles with one, two or three fan arrangements.



Trane Climate Changers — Twenty-four standard combinations of coils, fans, humidifiers, filters, dampers, 450 to 16,250 cfm.

Trane Air Conditioning Products Serve Everywhere

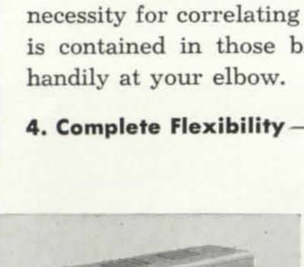
2. One Source of Supply—all products are sold by the same high-grade sales-engineers who are trained carefully as equipment consultants. They know Trane products and they know your problems of heating and air conditioning. You deal with one salesman instead of many.

3. One Set of Catalogs—you can select all the products you need for air conditioning from one catalog binder. No searching around for ratings and dimensions—no necessity for correlating ratings and sizes. Everything is contained in those big Trane binders that fit so handily at your elbow.

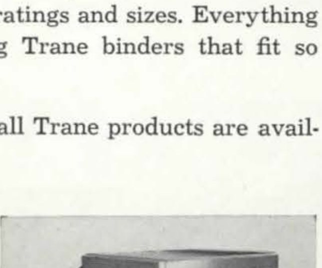
4. Complete Flexibility—all Trane products are available in a complete range of sizes and models. Regardless of your problems there is Trane equipment to fit your requirements exactly—no fitting your requirements to inflexible equipment. So flexible is the Trane line that you can create a 50-ton air conditioning system in at least 10 different ways.

More and more architects, engineers and contractors are specifying and installing Trane equipment for these reasons. Why not try the undivided responsibility of Trane Heating, Cooling and Air Conditioning Equipment on your next project?

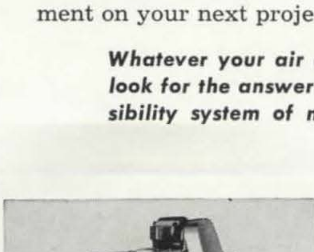
Whatever your air conditioning problem is, look for the answer in an undivided responsibility system of matched Trane products.



Trane Custom-Air—Deluxe air conditioning system for multiroom buildings. Controls temperature and humidity separately.



Trane Multi-Zone Climate Changers—A single air conditioner that handles up to six zones in the same building.



Trane AA Air Conditioner—A compact year-around unit for the small apartment, office, hotel or tourist court.

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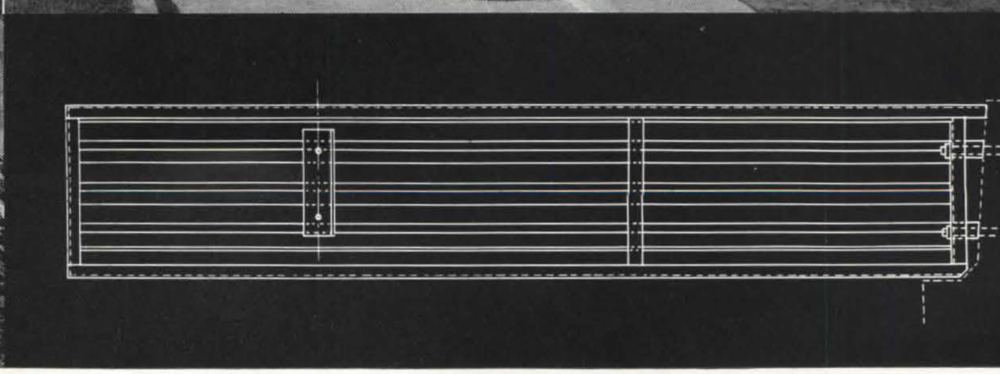
SOLAR SHADING TAKE

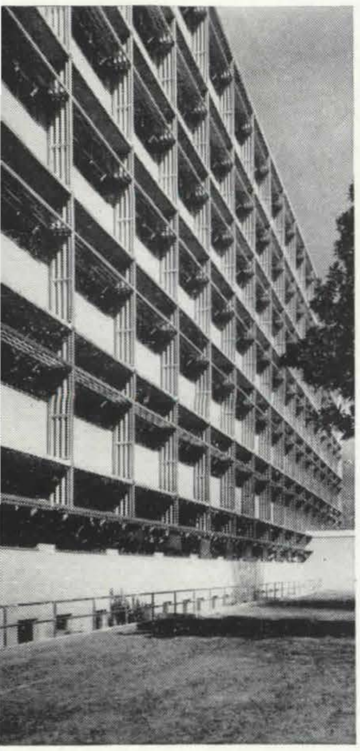
Georgia Baptist Hospital, Atlanta, Ga.; Stevens & Wilkinson, Architects; Henry C. Beck, General Contractor. Alcoa Aluminum used for solar shading, windows, exterior solarium walls, gravel stops, doors and interior trim.

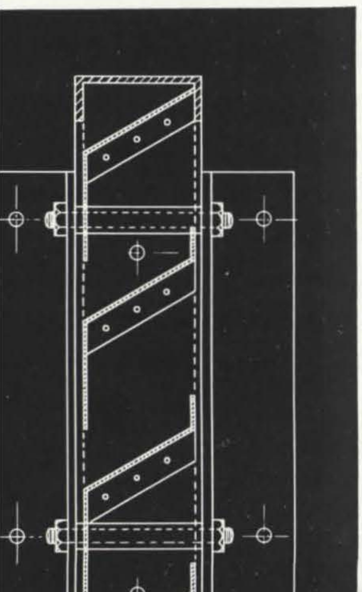
:ntrance lobby. Maintenance-free Alcoa Alumi-ıum used in doors, railing, trim and windows.



Detail, vertical solar shade.

HE HEAT OFF OPERATING COSTS





oss section, vertical solar shade.

The architects had both the needs of the patients and the problems of the treasurer in mind when they designed this hospital. Plenty of cheerful, healing light comes into every room, but hot sun-rays, that boost air-conditioning costs, stay out. Blocked by clean looking, cleanly designed aluminum solar shades.

The architects estimate that solar shades reduced the original cost of air-conditioning equipment by 30% and will cut its operating costs by 15%. And being made of maintenance-free Alcoa Aluminum, the fixed shading will never need painting, will never stain the light, bright exterior of the building.

Almost daily, architects are finding more ways to use aluminum's resistance to corrosion and stain; its reflectivity, conductivity and economy, to make buildings work better and cost less. Although rearmament needs now limit the civilian supply of aluminum, Alcoa is continuing to work with designers in developing new aluminum applications. For information on any application of aluminum and on availability and government regulations pertaining to aluminum uses, call your local Alcoa sales office or write ALUMINUM COMPANY OF AMERICA, 1890F Gulf Building, Pittsburgh 19, Pa.

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And the instrument for recording these seconds must be equally reliable. That is why Auth Elapsed Time Indicators are so frequently selected by leading hospital designers for use in operating rooms. They *are* reliable.

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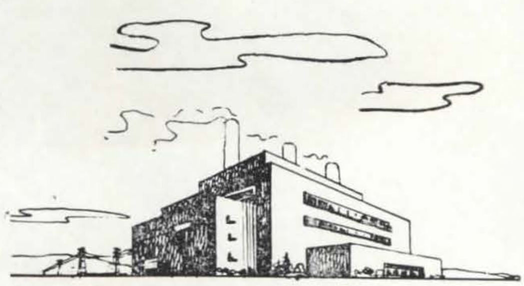
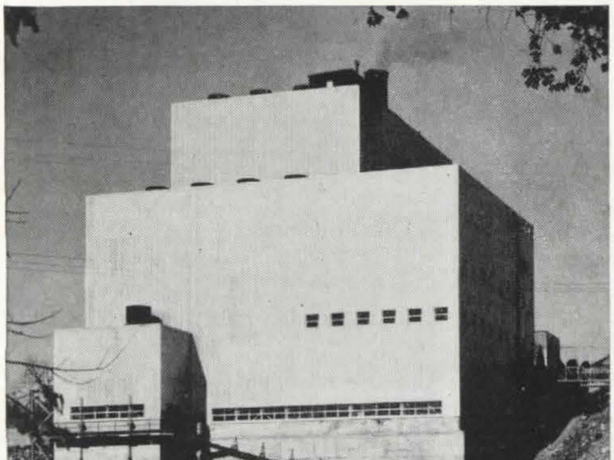


PERFECT FOR POWERHOUSES

Q-PANELS

Northern Virginia Power Co., Riverton, Va.
Designed and built by Sanderson & Porter, Inc. Chapman, Evans & Delahanty, Associate Architects.



Every feature of a Q-Panel is a desirable feature for powerhouse construction . . . which explains why Q-Panels have captured the powerhouse market.

Q-Panels go up fast—50 sq. ft. in 9 minutes. A small crew quickly attaches the panel to the steel framework. Little blocks don't pile up fast. *It's much quicker to hang a wall than to pile it up.*

Q-Panels provide a maintenance-free exterior; they are available in a variety of materials for exterior finishes, depending on their availability at time of ordering.

A Q-Panel is an insulated metal sandwich, only 3″ thick but with insulation value greater than a 12″ masonry wall.

The striking fluted surface of Q-Panels is now a familiar sight on powerhouses from coast to coast.

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Iowa Public Service Co., Eagle Grove, Iowa
Designed and built by Iowa Public Service Engineers and J. F. Pritchard & Co.

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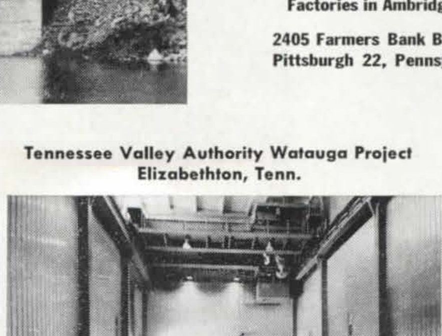
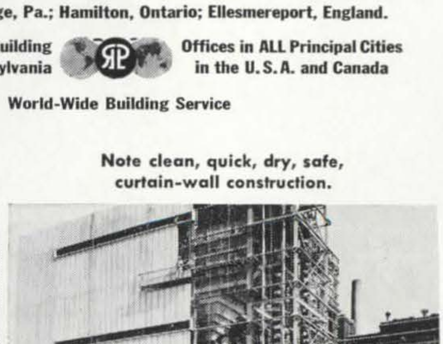


Note clean, quick, dry, safe, curtain-wall construction.

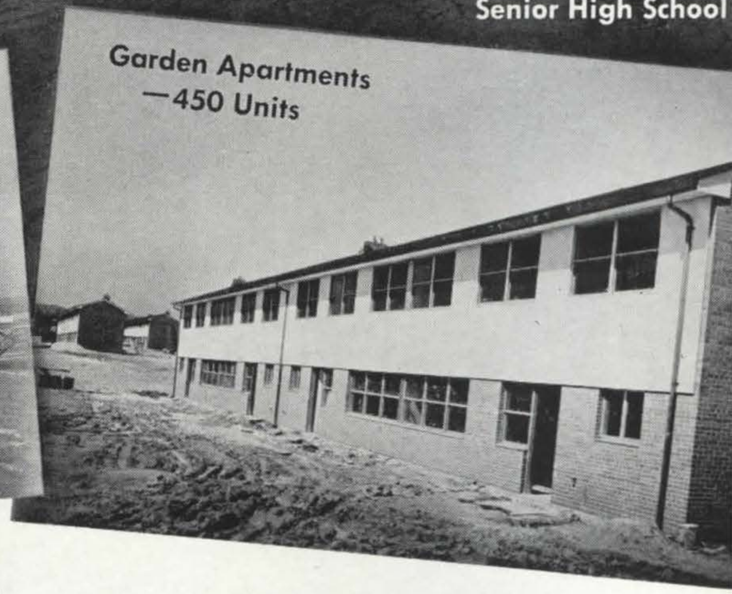


FITZGIBBONS BOILERS

aid comfortable living at OAK RIDGE


Senior High School


School No. 6


Garden Apartments —450 Units


School No. 11

■ For economical comfort in living quarters, schools, etc., the U. S. Atomic Energy Commission at Oak Ridge, Tennessee and the architects and engineers, Skidmore, Owings and Merrill of New York, Chicago and San Francisco, depend upon many Fitzgibbons steel boilers. Fitzgibbons is proud of its selection for a service where only the best is good enough.

65th Anniversary
MOST ECONOMICAL IN FUEL
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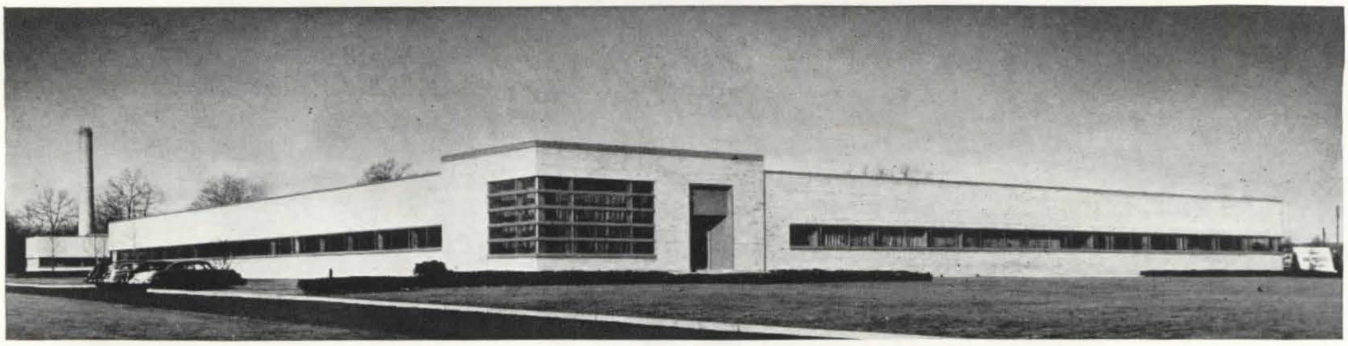

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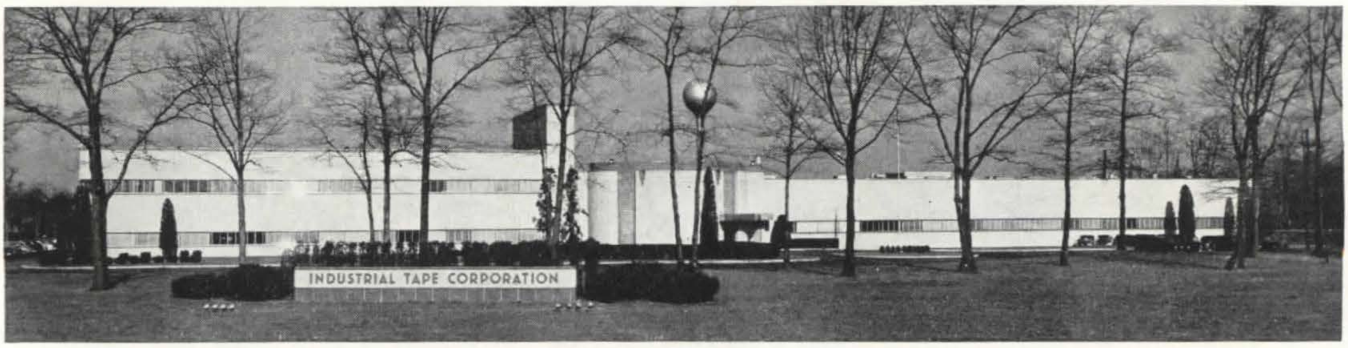

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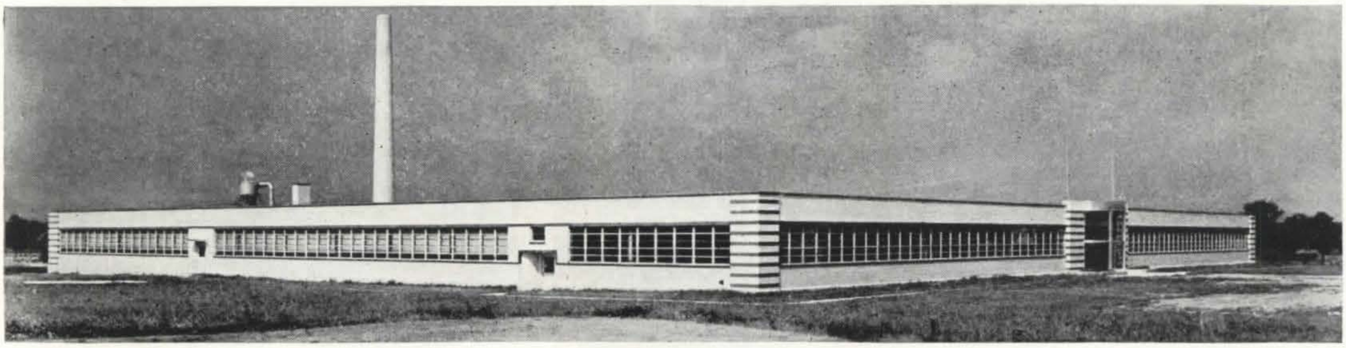

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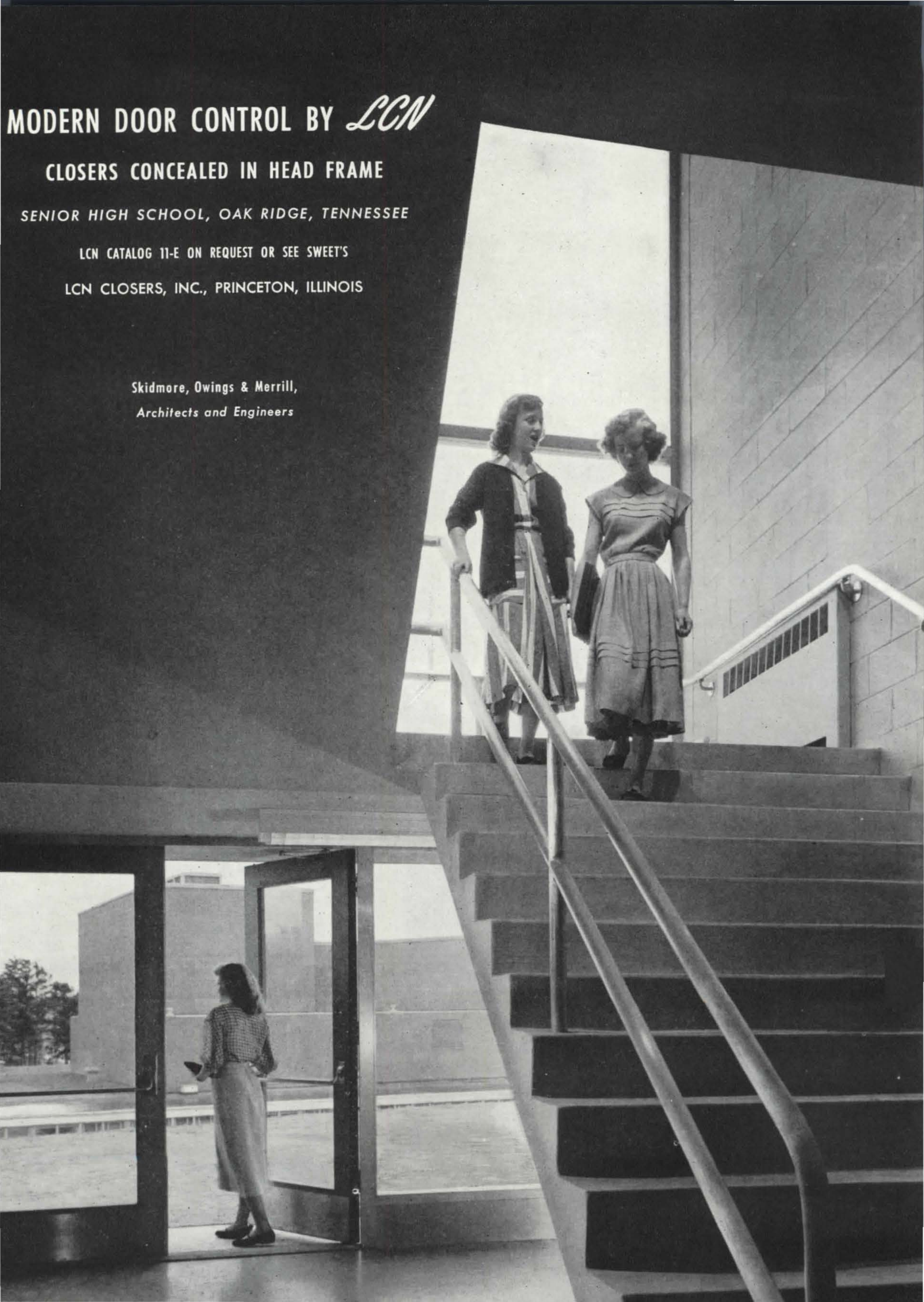
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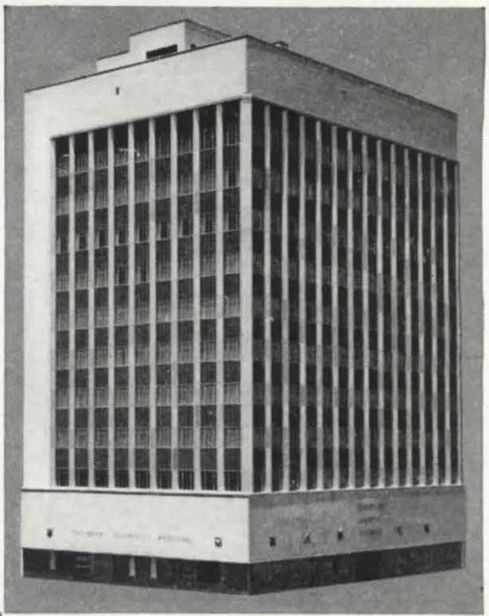

FOR ROOF LOCATIONS

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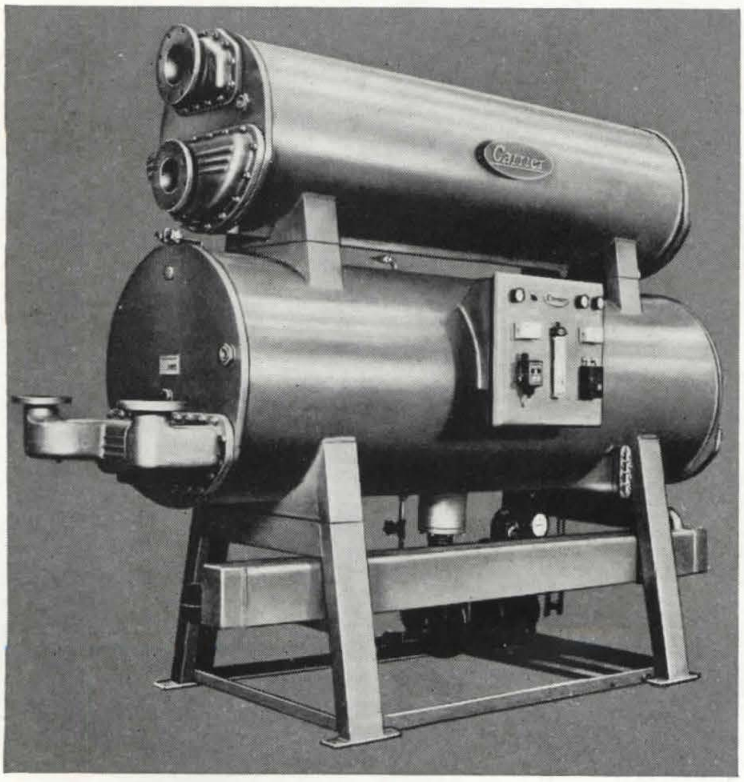

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Top left: Self Memorial Hospital, Greenwood, S. C.

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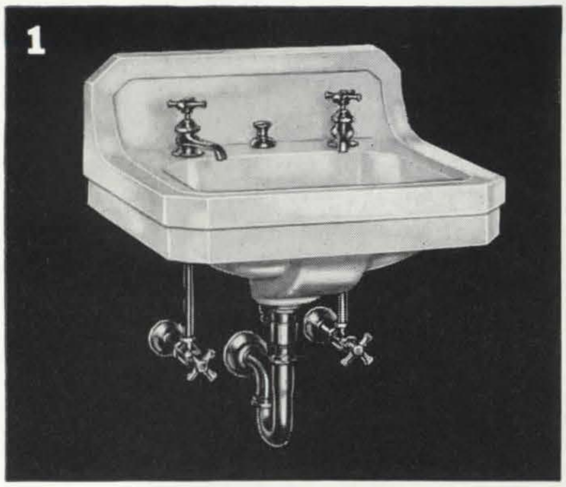

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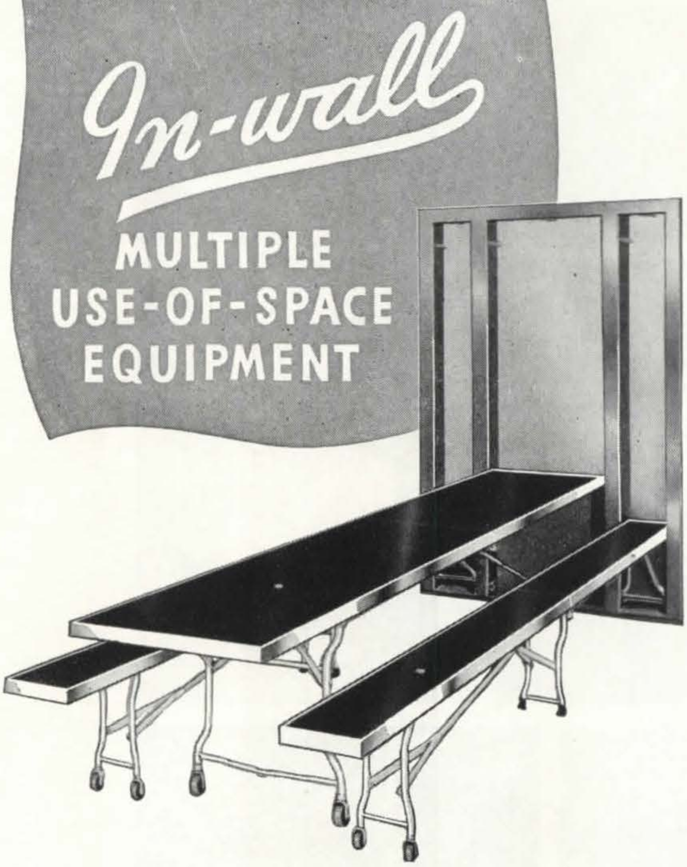
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MULTIPLE
USE-OF-SPACE
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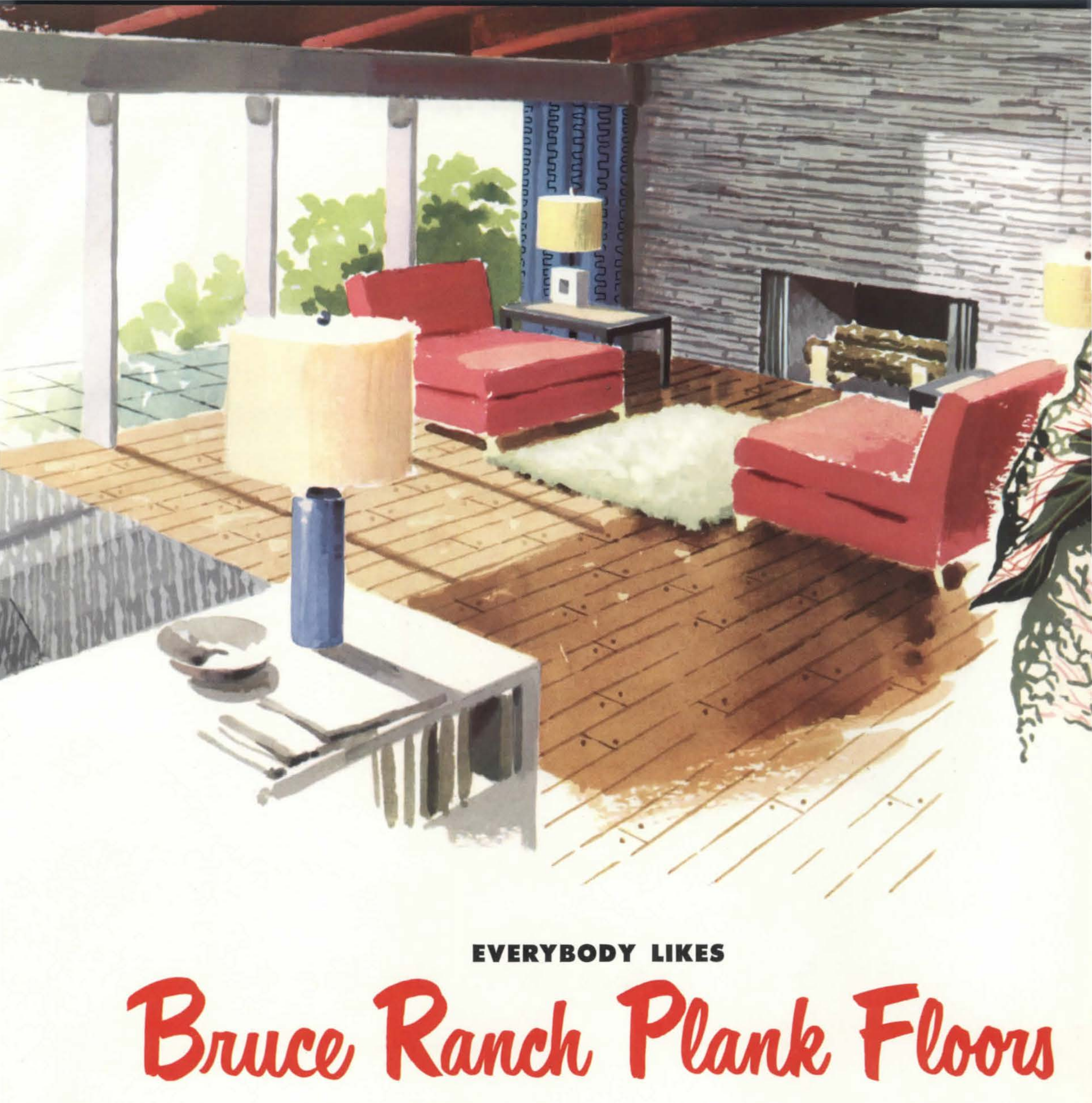

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Pegged and Finished at the Factory

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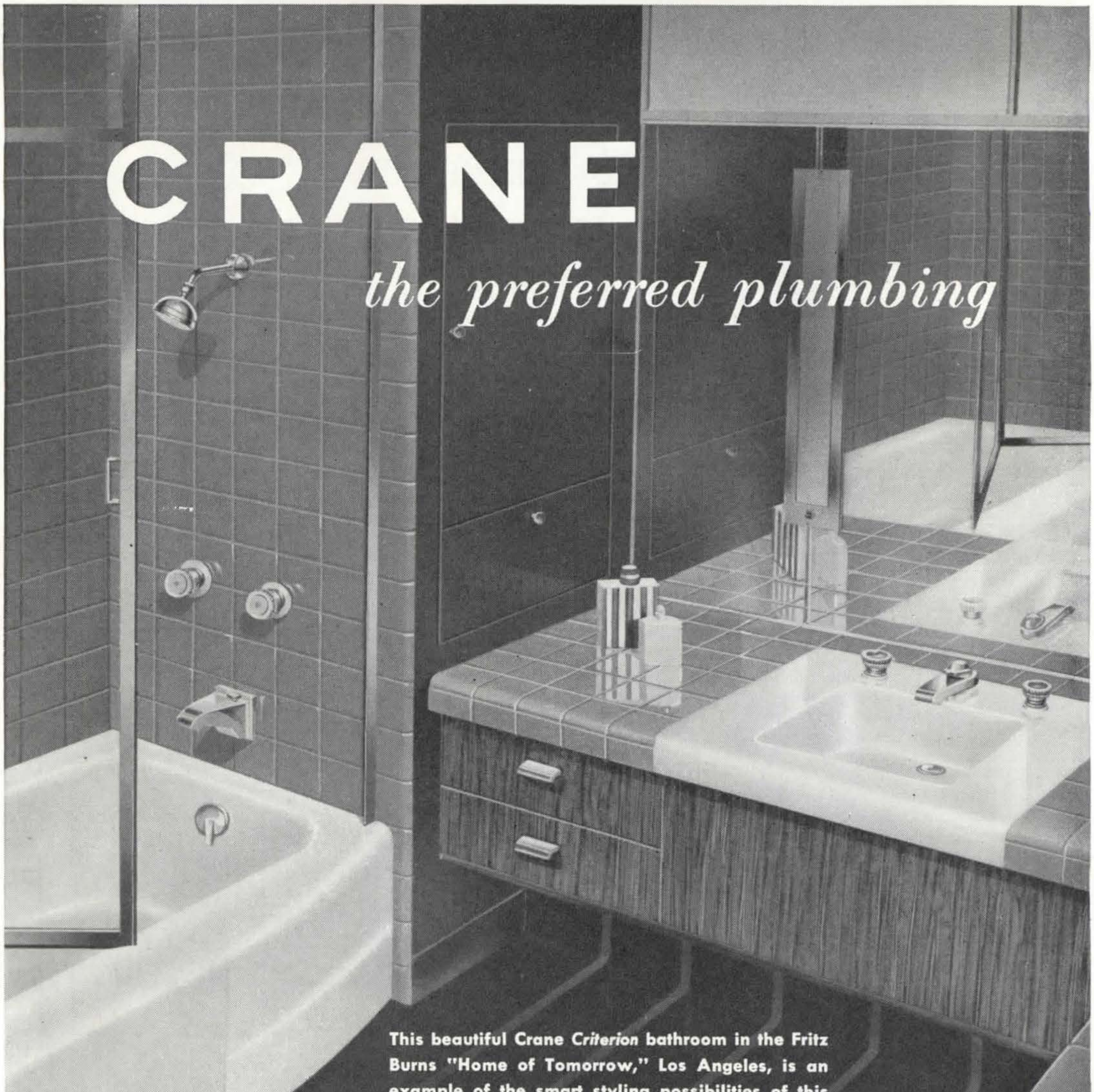

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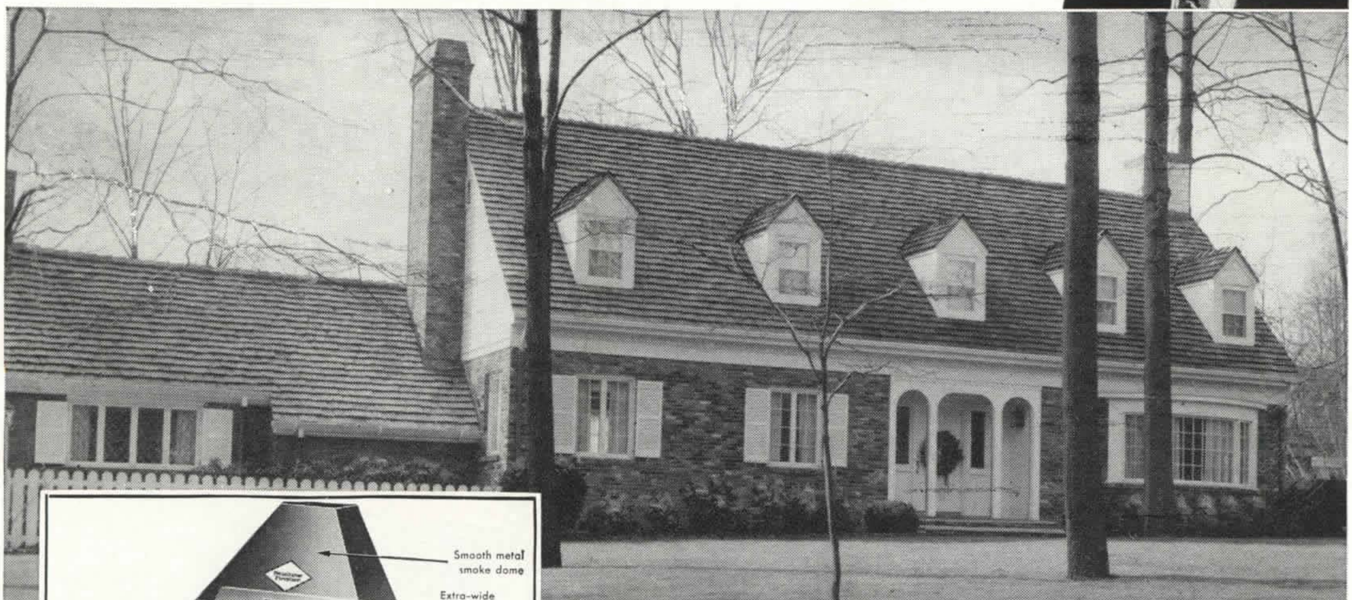
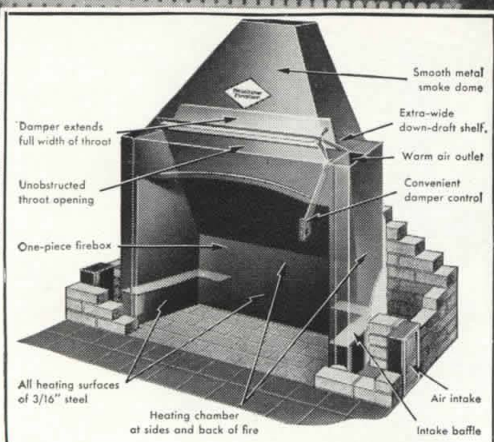
This beautiful Crane *Criterion* bathroom in the Fritz Burns "Home of Tomorrow," Los Angeles, is an example of the smart styling possibilities of this matching group of fixtures. The design of the *Criterion* lavatory won for Henry Dreyfuss the Annual Gold Medal Award, given by the Architectural League of New York. Lavatory also available with legs. See your Crane Branch or Crane Wholesaler.

"A Heatilator Fireplace cuts my supervision time way down!"

says **CARL KEMM LOVEN**
Nationally-known Architect, Glen Rock, New Jersey





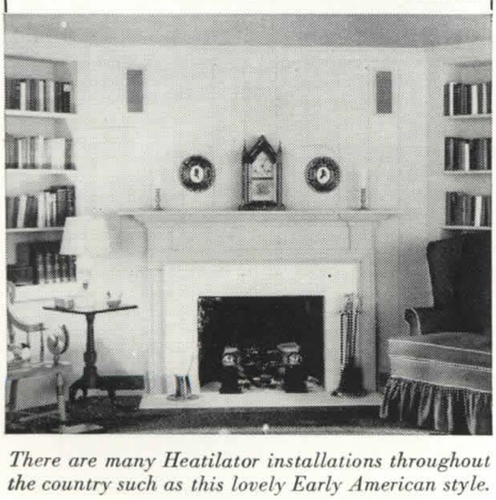
This beautiful home is typical of many designed by Carl Kemm Loven that include the Heatilator Fireplace.

"YOU'LL avoid trouble with a fireplace smoking or not drawing properly if you use a Heatilator* Fireplace unit," says Mr. Loven. It is factory engineered and designed so that even an inexperienced mason can install one *with a minimum of supervision.*

NO LIMIT TO DESIGN. A versatile architect, Carl Kemm Loven has designed scores of beautiful homes, summer camps and hunting lodges of every style and decorative treatment. The Heatilator unit fits into his plans perfectly because it allows complete freedom of architectural expression with no restrictions on mantel design or use of materials. It is a scientifically designed, heavy-gauge steel form, complete from hearth to flue, around which any style of fireplace can be built.

A LIFETIME OF EXTRA COMFORT. "A fireplace should be more than a decoration," says Mr. Loven. "My clients want extra comfort, too, and a Heatilator Fireplace gives it". It circulates heat to warm the entire room instead of giving off a little radiant heat and wasting the rest up the chimney.

PROVED FOR 24 YEARS. For complete client satisfaction, specify the Heatilator Fireplace... the first practical method of circulating fireplace heat. The name Heatilator is on both the dome and damper handle. Write today for complete specifications and illustrations. Heatilator, Inc., 926 E. Brighton Ave., Syracuse 5, New York.



There are many Heatilator installations throughout the country such as this lovely Early American style.

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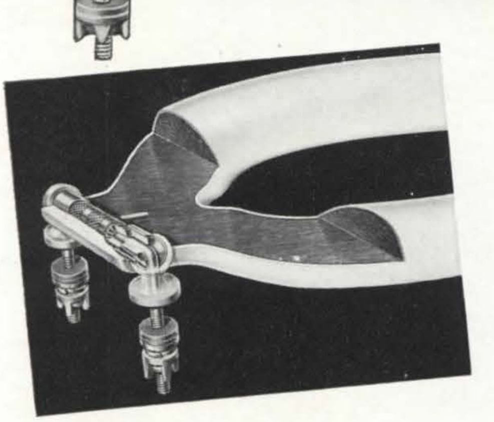

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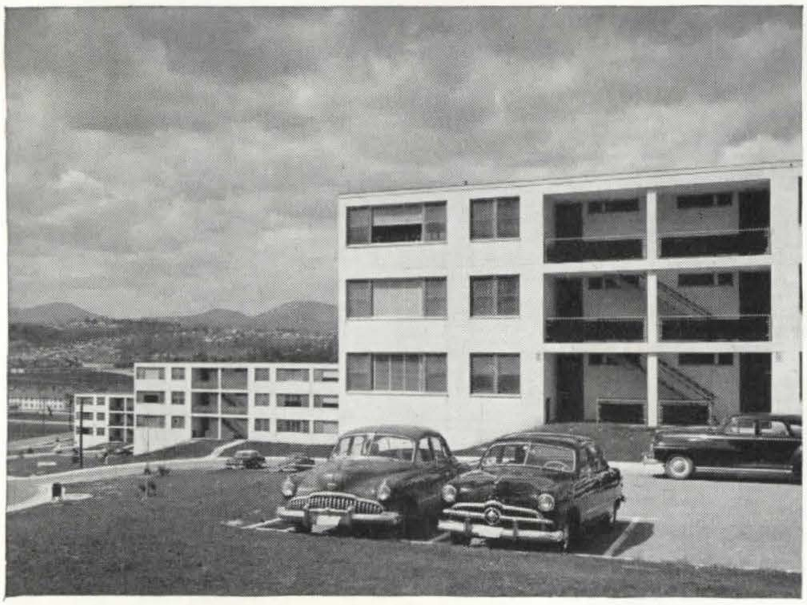
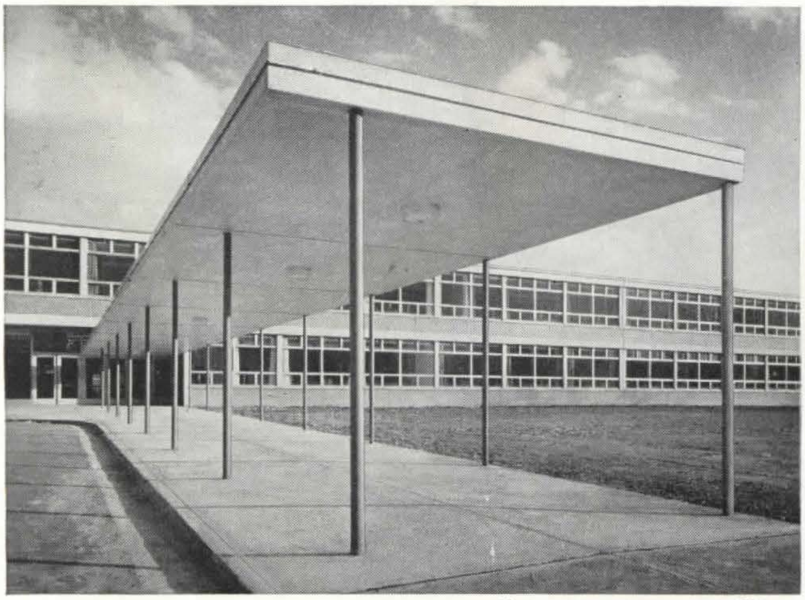
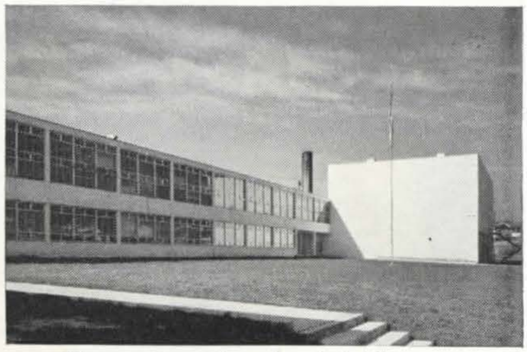


LEFT: *Attractive, multistoried apartments provide modern homes overlooking wooded hills.* **ABOVE:** *Exceptionally fine two-family garden apartments have convenient carports.*

OAK RIDGE, U.S.A., WORLD'S 8th WONDER

IN TENNESSEE'S HILLS THE PATTERN OF DESTINY IS BEING SHAPED





LEFT: *Ultramodern educational facilities are available to Oak Ridge youth in this fine high school and,* **RIGHT:** *Elementary schools are designed in contemporary manner.*

Photos, HEDRICH-BLESSING, Chicago

Only a few years ago the quiet of the Tennessee hills was shattered by construction activities unprecedented in all history. The world's No. 1 atomic energy community was being created. With few exceptions living facilities were temporary, pending community development according to a Master Plan. Since war's end architectural and engineering progress has been transforming the pioneer Oak Ridge into a model which may well influence planning for other defense communities throughout the nation. SLOAN is especially proud that its Flush Valves were selected for Oak Ridge—another example that explains why . . .

more **SLOAN** *Flush* **VALVES**
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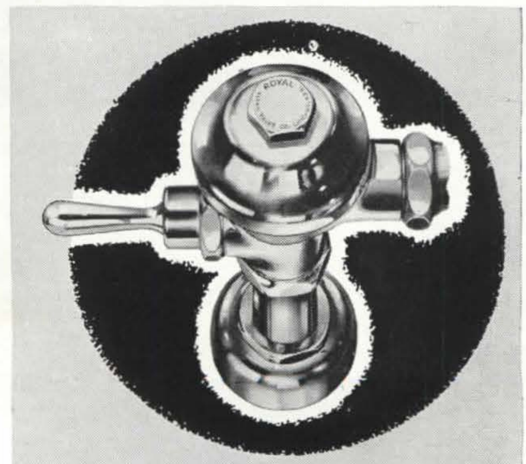


SLOAN VALVE COMPANY · CHICAGO · ILLINOIS

SLOAN FLUSH VALVES are specified for closets, urinals, service sinks, hospital sterilizers, etc., and once regulated to the requirements of the fixture, will deliver a uniform flush at all pressures between 10 and 100 pounds.

America's No. 1 Defense Community: Oak Ridge, Tennessee

U-235

By George A. Sanderson

SKIDMORE, OWINGS & MERRILL
architects-engineers
DAVID S. GEER
city plan director
FRED W. KRAFT
city planner
board of consultants:
TRACY B. AUGUR
JOHN O. MERRILL
LEON H. ZACH

Oak Ridge, it seems safe to say, is the most unusual city of 40,000 to 50,000 population in the United States, perhaps in the entire world. The fact that it is a single-industry city—and that this one industry is nothing less than the distillation of that potent ingredient U-235—puts it in a class by itself as (1) a place for which one must have a healthy respect and (2) one of this country's most vital defense centers. The place was so nonexistent in 1940 that it didn't even appear in the census of that year. This seems hard to believe in light of the fact that Oak Ridge will soon be an established municipality with 50,000 permanent residents. Yet another "believe it or not" is that it will be a totally planned community, organized in a series of well-knit neighborhoods with street patterns and neighborhood facilities of the sort for which city-planning protagonists have long argued. From the professional point of view, the fact that the entire city was designed by just one architectural-engineering firm is perhaps the most incredible of all. Yet, so it is.

Back in 1942, when the firm of Skidmore, Owings & Merrill was commissioned by an unspecified but well accredited governmental agency to develop site and building plans for an essential secret town, the architects didn't have the slightest idea of its purpose or even where it was to be built. All they had to work from, initially, were aerial photographs, with little information about the lay of the land.

The original patterning of streets and communities was designed to accommodate 3000 families, the agency's estimated need at the time. The first Skidmore, Owings & Merrill staff to reach the Tennessee farmland that was to become Oak Ridge, in 1943, consisted of but six city planners, architects, and engineers. Albert Goers and Louis Scesa, who were among the original six and are still there on the job, report that up to the time the newspapers carried the awful news about the Hiroshima destruction, they and their associates did not know the reason for the community, other than that there were some secret plants over behind the hills and that these were, presumably, militarily connected.

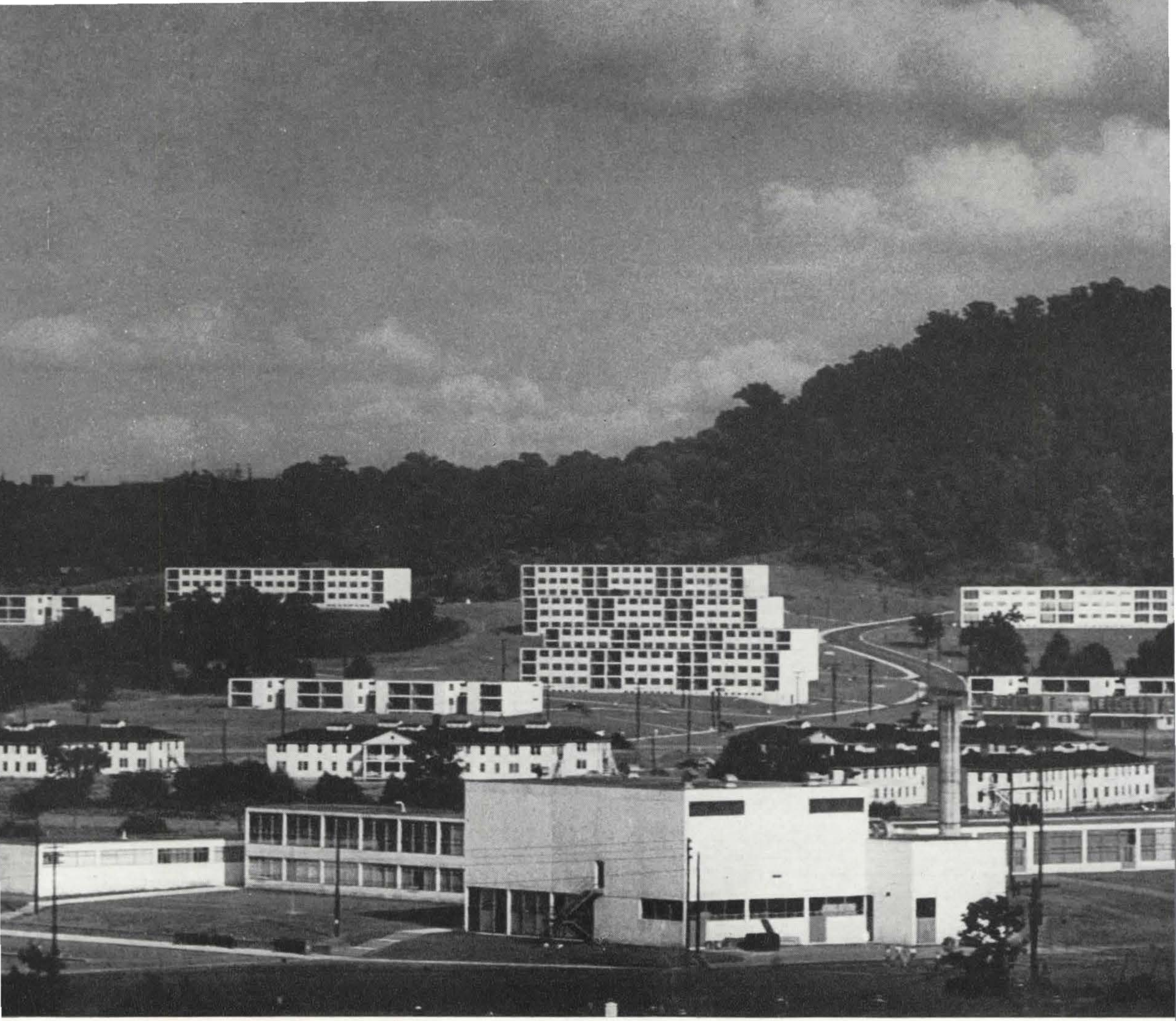
Skidmore

Owings

Merrill

Much of the earliest design work was handled by the New York office of S. O. & M., acting as architects-engineers. Using the Cemesto type of construction they had developed in conjunction with the John B. Pierce Foundation, they designed (among other things) the first important group of permanent single- and four-family dwelling units built at Oak Ridge. As the war and the demands of the town's secret enterprise became increasingly insistent, the design office grew to an eventual total (1944) of some 450 architects, engineers, city planners, designers, draftsmen, structural personnel, and related staffs. Even so, the arrival of new families raced ahead of any possibility of providing sufficient permanent buildings, and prefabricated houses designed by TVA architects were hauled in by the hundreds, adapted to existing conditions, and assembled along miles of curving streets and lanes in the new hillside neighborhoods. Trailer camps were huddled together wherever there was room, and temporary hutments and whatever else could be commandeered to serve as human shelter crowded the landscape: until, at the community's most frenzied moment (1945) 75,000 persons were variously housed or encamped at Oak Ridge.

January 1, 1946, "The Manhattan Project" was officially transferred to the civilian Atomic Energy Commission. In taking stock of its war-born community, the AEC asked Skidmore, Owings & Merrill to



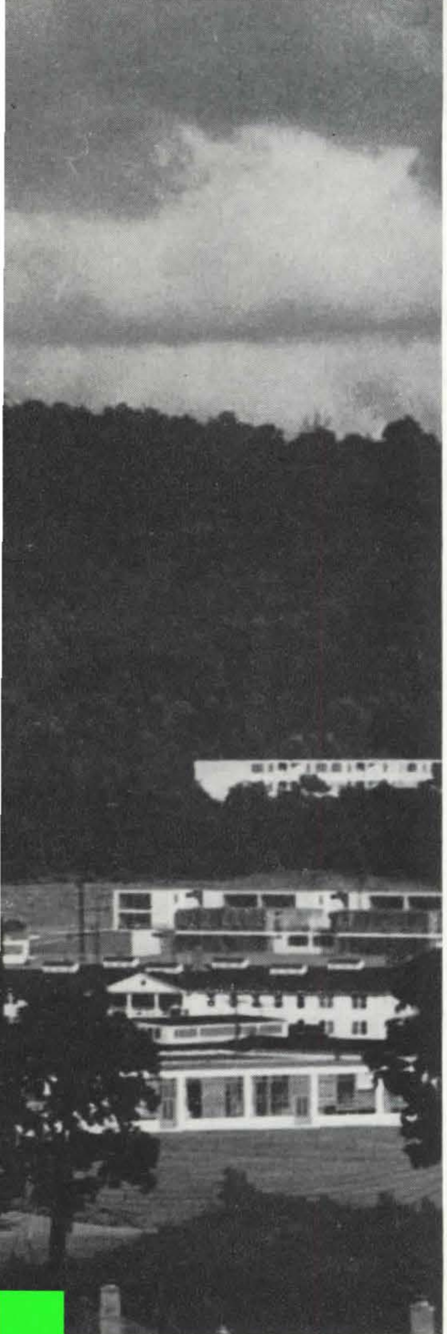
Above—looking south across Neighborhood 6 to the hillside Neighborhood 9 composed entirely of garden apartments.

Left—a group of the most recent Oak Ridge single-family dwelling units—50 three- and four-bedroom houses spotted throughout the city on available vacant sites.

Below—a typical group of the adapted TVA prefabs that are still in use in the earlier neighborhoods.

Acrosspage—some of the earliest permanent housing at Oak Ridge (3000 one- and four-family dwelling units).

Photos: Torkel Korling; except for view of three houses at left by Bill Hedrich: Hedrich-Blessing



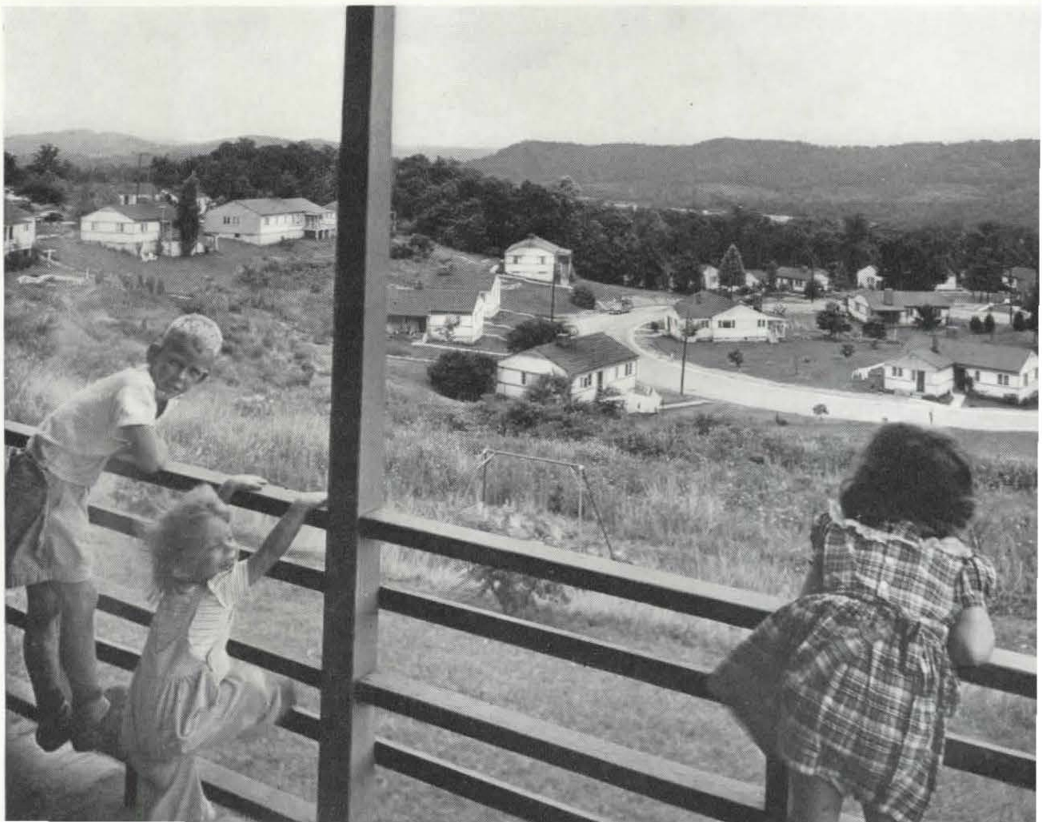
prepare an Evaluation Report on the existing town. Some portions of the city were of permanent construction and approved to remain; many buildings were semi-permanent; and a great deal of the sprawling development consisted of temporary or definitely sub-standard units that had to be replaced eventually (see map, top of page 66). So that this could proceed in orderly fashion and assure that the city would be sufficient and well planned, the Commission asked S. O. & M. to develop a Master Plan for the permanent city (see map, bottom of page 66). An early decision was that the eventual population should not exceed 50,000 to 55,000, both because of the physical limits of the narrow valley where the city is located and the estimated personnel requirements of the AEC plants and laboratories.

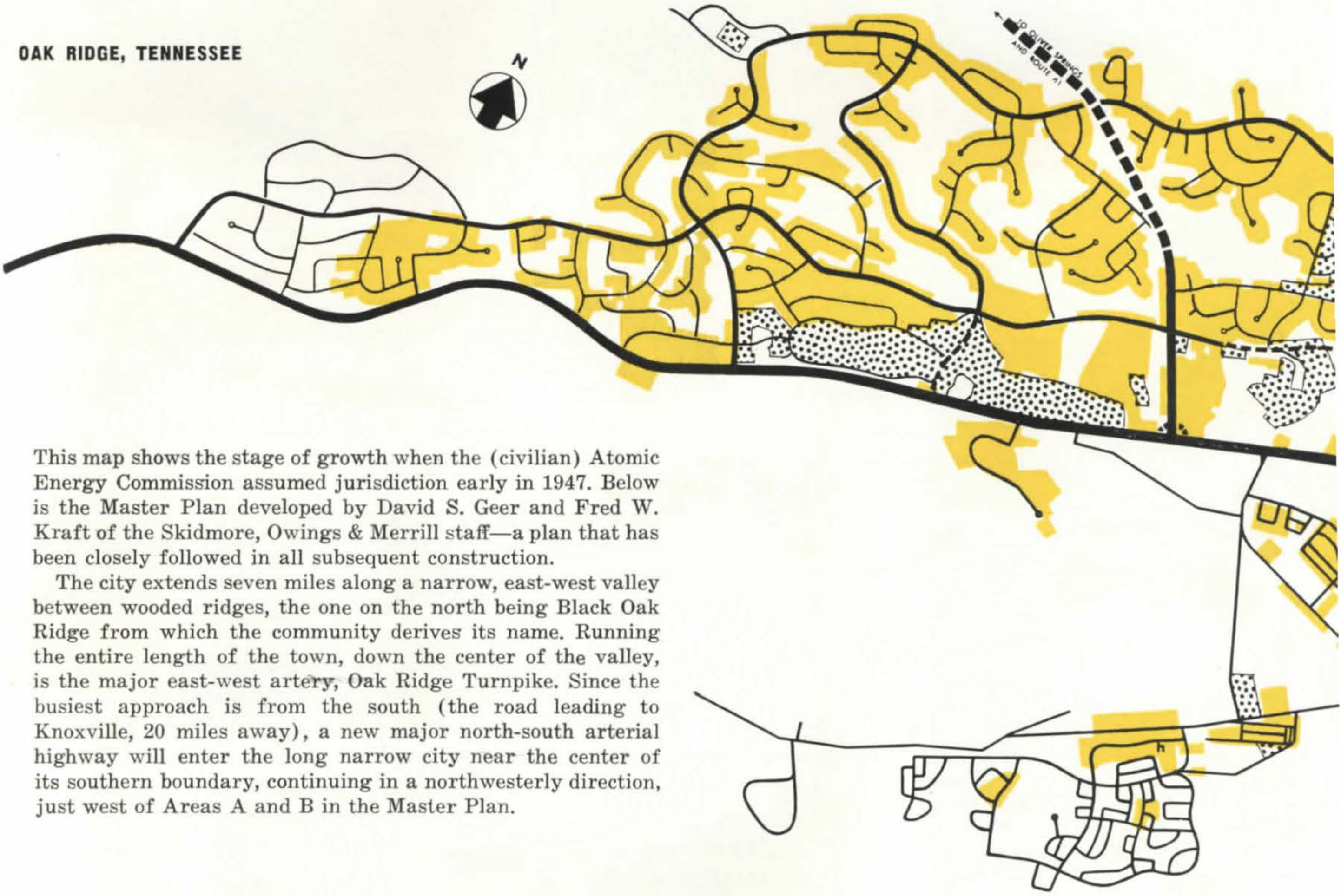
The first postwar housing construction actually to go forward was the group of garden apartments, two and three stories high, located in Neighborhood 9 (see pages 68-73). Following this came Willow Brook School (pages 82-84), an elementary school to serve the children of Neighborhood 6.

Third on the impressive agenda was a group of houses in Neighborhood 11, comprising 500 concrete-block single-family houses with two and three bedrooms (pages 74-75), and 343 single and duplex housing units, two-, three-, and four-bedroom type. Concurrent with this construction, and to serve this neighborhood, the Woodland Elementary School was erected.

The magnificent new Senior High School (pages 76-81) was the next undertaking which, with its adjunct auditorium and recreational areas, including an outdoor swimming pool, now will constitute an important part of the permanent city center.

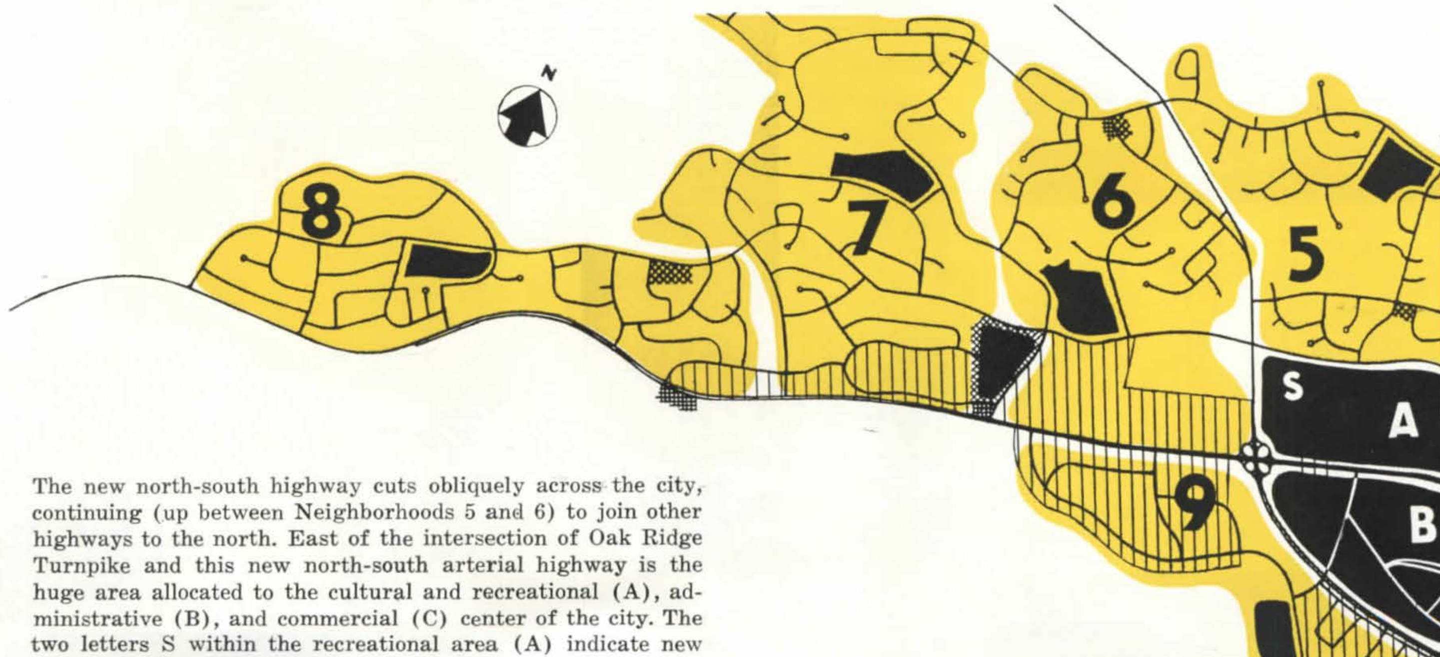
Currently under construction are 450 multi-family dwelling units—composed of three-bedroom row houses and two- and three-story apartment houses (one-, two-, and three-bedroom units)—in Neighborhood 11. Also, 50 single-family dwelling units are being built on available sites in various older neighborhoods. Neighborhoods 12 and 13, and the buildings for the future administrative and cultural center, will proceed as the need arises.



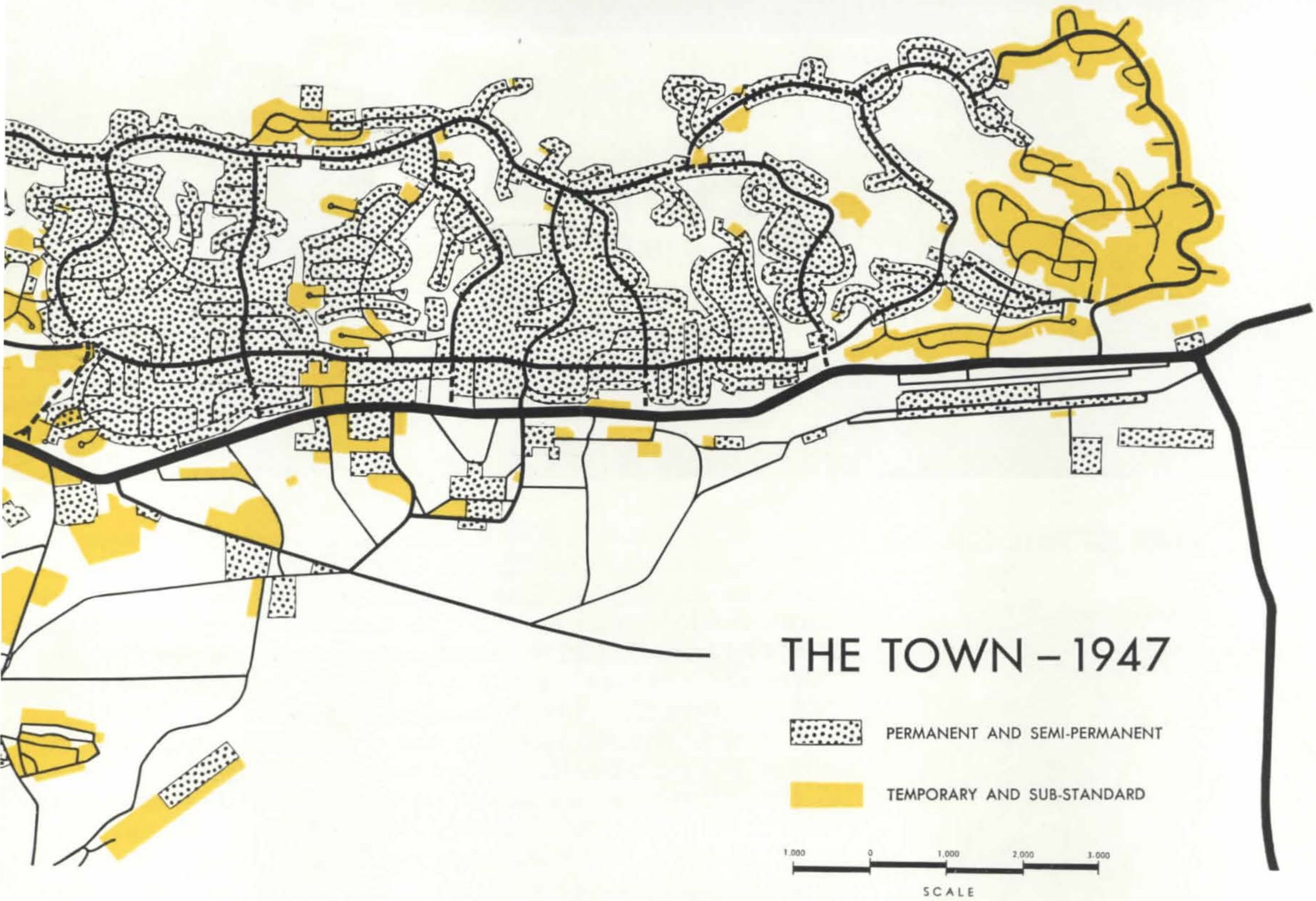


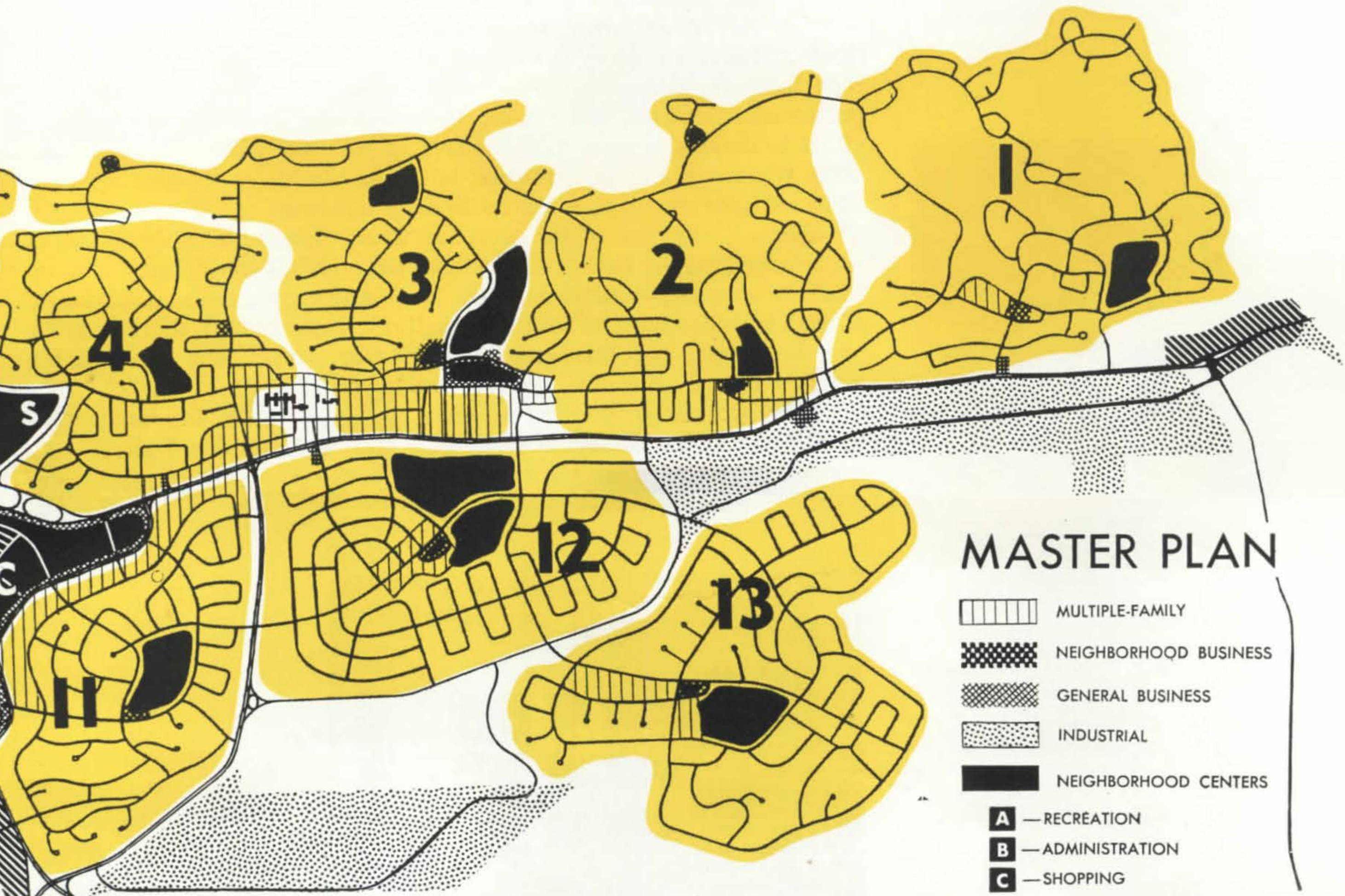
This map shows the stage of growth when the (civilian) Atomic Energy Commission assumed jurisdiction early in 1947. Below is the Master Plan developed by David S. Geer and Fred W. Kraft of the Skidmore, Owings & Merrill staff—a plan that has been closely followed in all subsequent construction.

The city extends seven miles along a narrow, east-west valley between wooded ridges, the one on the north being Black Oak Ridge from which the community derives its name. Running the entire length of the town, down the center of the valley, is the major east-west artery, Oak Ridge Turnpike. Since the busiest approach is from the south (the road leading to Knoxville, 20 miles away), a new major north-south arterial highway will enter the long narrow city near the center of its southern boundary, continuing in a northwesterly direction, just west of Areas A and B in the Master Plan.



The new north-south highway cuts obliquely across the city, continuing (up between Neighborhoods 5 and 6) to join other highways to the north. East of the intersection of Oak Ridge Turnpike and this new north-south arterial highway is the huge area allocated to the cultural and recreational (A), administrative (B), and commercial (C) center of the city. The two letters S within the recreational area (A) indicate new high schools, the one near Neighborhood 4 being the huge new Senior High School shown on pages 76-81; the S at the western end of this area is reserved for a future Junior High School needed to serve the western half of the city. Thirteen residential neighborhoods, designed for about 3600 persons each, stretch out along the valley—eight north of Oak Ridge Turnpike; five to the south of it. Each of these neighborhoods has its central elementary school and recreational area (indicated in black), as well as a small, local shopping facility.


THE TOWN – 1947
PERMANENT AND SEMI-PERMANENT
TEMPORARY AND SUB-STANDARD
1,000 0 1,000 2,000 3,000
SCALE


MASTER PLAN
MULTIPLE-FAMILY
NEIGHBORHOOD BUSINESS
GENERAL BUSINESS
INDUSTRIAL
NEIGHBORHOOD CENTERS
A — RECREATION
B — ADMINISTRATION
C — SHOPPING
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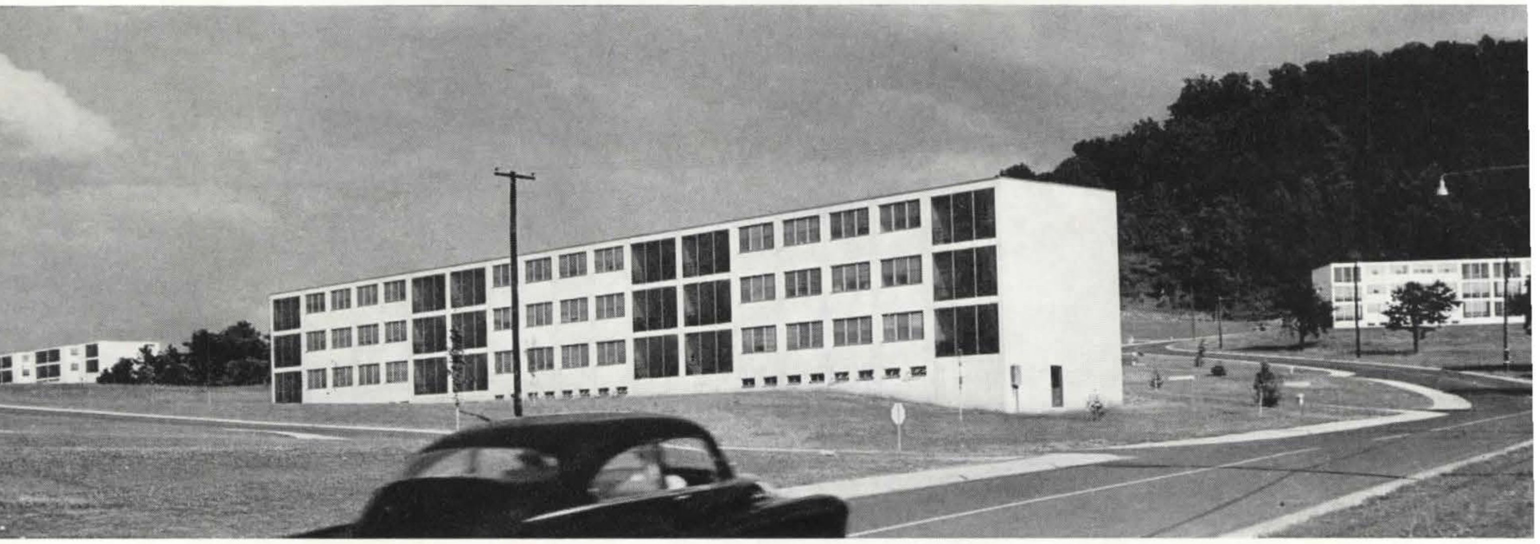


garden apartments: three-story

First housing to be built after the war—in fact, before the Master Plan was completed—were the "garden apartments" (453 dwelling units) that constitute Neighborhood 9. During the most hectic days of the city's war activity, the site south of the Oak Ridge Turnpike (see Master Plan) had been occupied by temporary dormitories and a trailer camp. The wooded hills slope abruptly up to the south and encompass an eye-filling northern view of the Cumberland Mountains.

An early decision, therefore, was to orient most of the buildings toward the view rather than toward south light though, as will be seen, all apartments have at least two exposures. Three types of buildings make up the group—the three-story walk-up, shown on these pages and top of page 70; an open-stair-link type of building, two stories in height (pages 70-71), and a series of four-family units in which the upstairs apartments overhang the lower floor (pages 72-73).

To keep costs down, the apartment blocks are boldly set on the steep contours, resulting in a dramatic, step-down ordering of the buildings that also makes the most of the magnificent view. Since leading personnel, scientists, and others, would live here, there was a conscious effort to make the units as attractive as possible; hence the balconies, large window areas, and unusual openness. In all, there are 284 two-bedroom apartments in these three-story buildings.

Esthetically, one of the most satisfying things about the group is its colorfulness—a factor not so apparent in black-and-white pictures. The white-cement-washed concrete block walls against the background of dark hillsides form an arresting pattern; perhaps even more striking are the bright, porcelain-enamel balustrade panels that occur at the stairs, variously red, blue, yellow, and green.

The two- and three-story concrete buildings employ the same structural system (see listing, acrosspage). Merritt-Chapman & Scott were general contractors for the entire Neighborhood.

Photos: Bill Hedrich: Hedrich-Blessing; except for view above by Torkel Korling

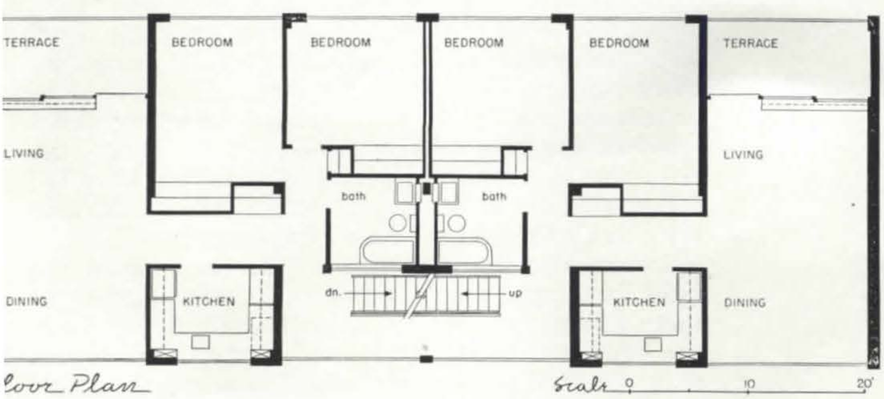
ATERIALS AND METHODS

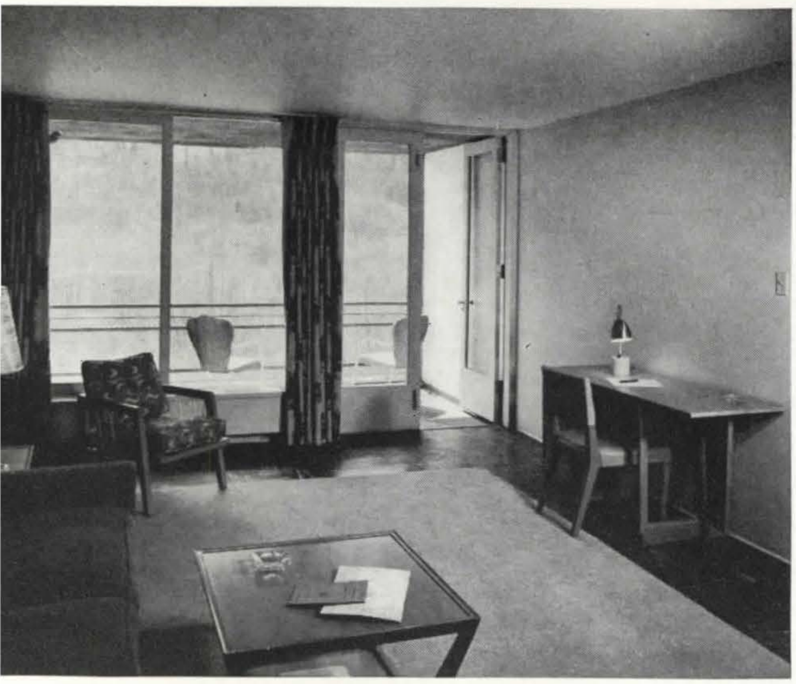
ONSTRUCTION

oundation: continuous footings, walls, grade eams, and piers of reinforced concrete. **Frame:** einforced concrete. **Walls:** lightweight concrete locks between exposed beams and columns. **loors:** reinforced concrete slab and monolithic oncrete joists formed by steel pans; reinforce-ent—Connors Steel Company. **Roof:** gypsum oured on sheetrock form boards supported by oen web steel joists—United States Gypsum ompany and Truscon Steel Company. **Water-roofing and dampproofing:** exterior concrete alls below grade dampproofed with asphalt rimer and two coats of waterproofing asphalt—ohns-Manville Company and Philip Carey Manu-cturing Company; porches off living rooms water-roofed by asphalt saturated-felt membrane be-veen sub and finished concrete slabs—Philip arey Manufacturing Company. **Insulation:** rock-ool batts with vapor seal between roof and ceiling. **oor surfacing:** all interior living areas, asphalt e—Mastic Tile Company; basement, terraces, d stairs: concrete. Basement floors treated with stproofer and hardener—Aquabar Company. **Wall surfacing:** concrete blocks have white, cement water-painted exterior—United States Gypsum Company; plaster furred out from concrete blocks. **Roof surfacing:** asphalt and felt built-up roofing with slag gravel—Philip Carey Manufacturing Company. **Roof drainage:** drains feed into concealed rain leaders—Norman Boosey Manufacturing Company. **Partitions:** plaster applied directly to gypsum tile. **Windows:** projecting extruded aluminum sash —William Bayley Company; double-hung aluminum sash—General Bronze Corporation; large, fixed and sliding wood sash between living rooms and porch; millwork—Fox Brothers. **Doors:** all door bucks metal and all basement doors hollow metal—World Steel Products Corporation; flush solid-core apartment doors—Roddis Plywood Corporation. **Paint:** oil-base paint on interior woodwork and plaster—Glidden Company.

EQUIPMENT

Kitchen: steel cabinets and sink—Tracy Manufacturing Company; stainless-steel and linoleum counter tops—Fanning Corporation; refrigerator—General Electric Company. **Lighting fixtures:** recessed ceiling light in bathrooms, bedrooms, kitchens, and interior halls; surface-mounted ceiling fixtures in stairwells—Perfeclite Company. **Electric distribution:** service entrance switch: Class "C" fuse disconnected switches, mounted in raintight enclosures —Fagan Electric Company; fiber-duct system; panelboards: Class "I" equipped with automatic circuit breakers, mounted in enclosed cabinets—Trumbull Electric Manufacturing Company; exterior underground cable—Okonite Company; building wire, weatherproof and bare—Anaconda Wire & Cable Company; rigid-steel conduit—Youngstown Sheet & Tube Company; wiring devices —Arrow-Hart & Hegeman Electric Company. **Plumbing and sanitation:** vitreous-china toilets and lavatory, cast-iron enameled bath-and-shower combination—Kohler Company; hot-water converter—Bell & Gossett Company; flush valves—Sloan Valve Company; accessories and metal medicine cabinets with fluorescent side lights—G. M. Ketcham Manufacturing Company; pipe: galvanized wrought-iron —A. M. Byers Company; copper tubing—Reading Tube Company; black steel—National Tube Company. **Heating:** central heating plant with hot water as heating medium; fin-type convectors—Bell & Gossett Company; automatic temperature control—Hoffman Specialty Company; thermometers—Moeller Instrument Company.





Above, right—the boiler house that serves the garden-apartment neighborhood.

Interiors—two views of a typical, living-dining room in a three-story walk-up apartment building. Above—toward the screened balcony at the living end; right—the dining end, with its wall-to-wall view window.

Photos: Bill Hedrich: Hedrich-Blessing

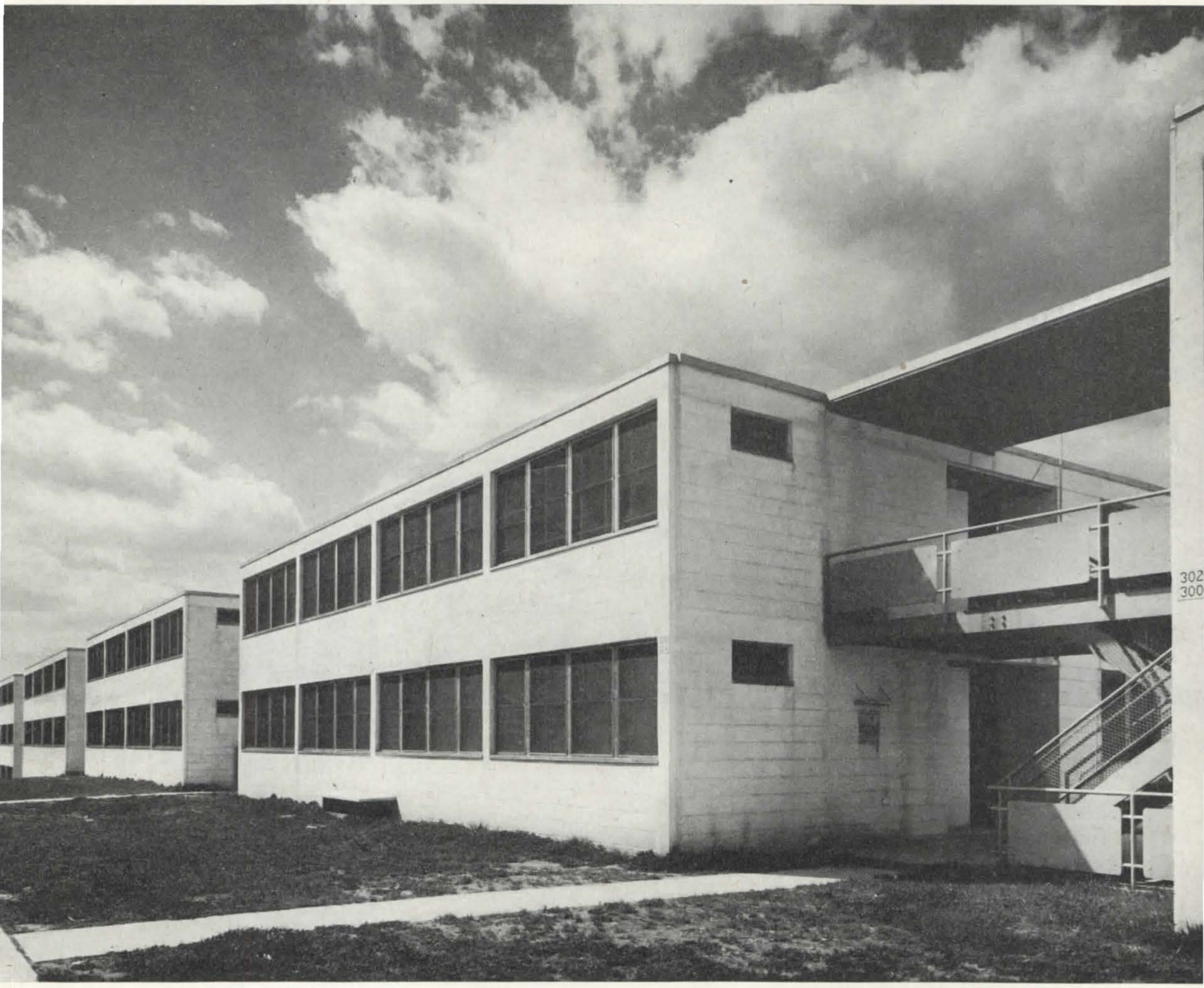
garden apartments: two-story

The two-story open-stair-link type of apartment building provides 97 three-exposure dwelling units, each with a screened terrace opening off the ample living-dining room. Initially, the architects hoped to use this plan scheme—essentially flexible links between units—more generally, so that buildings could be placed across contours, if necessary, by increasing story heights. In practice, however, this proved to be more expensive than the solid, three-story units.

As in the case of the three-story buildings, the structure is a reinforced concrete frame (8" x 12" columns) left exposed, with exterior walls of concrete block finished with a white, cement wash.

It seems to the Editors that the planning of the individual apartments deserves careful notice. In these two-story units, for example, not only is there good and economical interior circulation and the private, screened porch, but even the kitchen has its own small service porch adjoining the access gallery.

Acrosspage—typical plan, a general view, and a stair detail of the two-story link buildings.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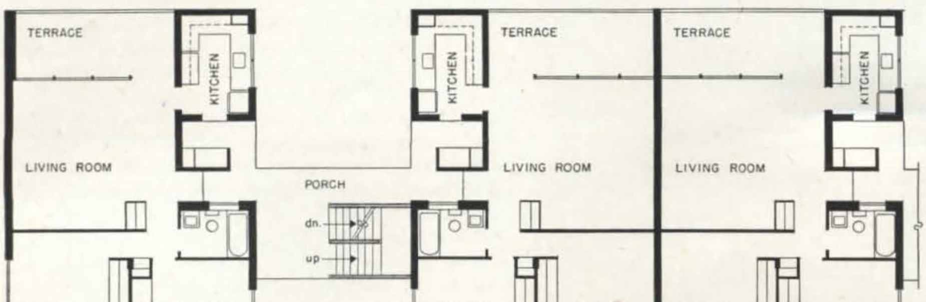
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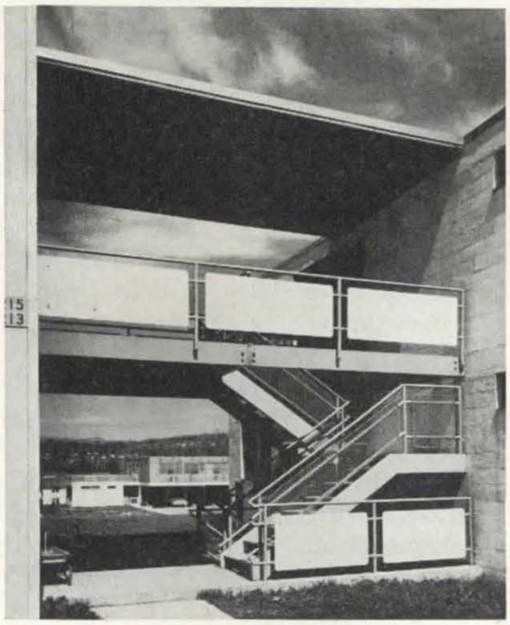
Typical Plan
Scale 0 10 20'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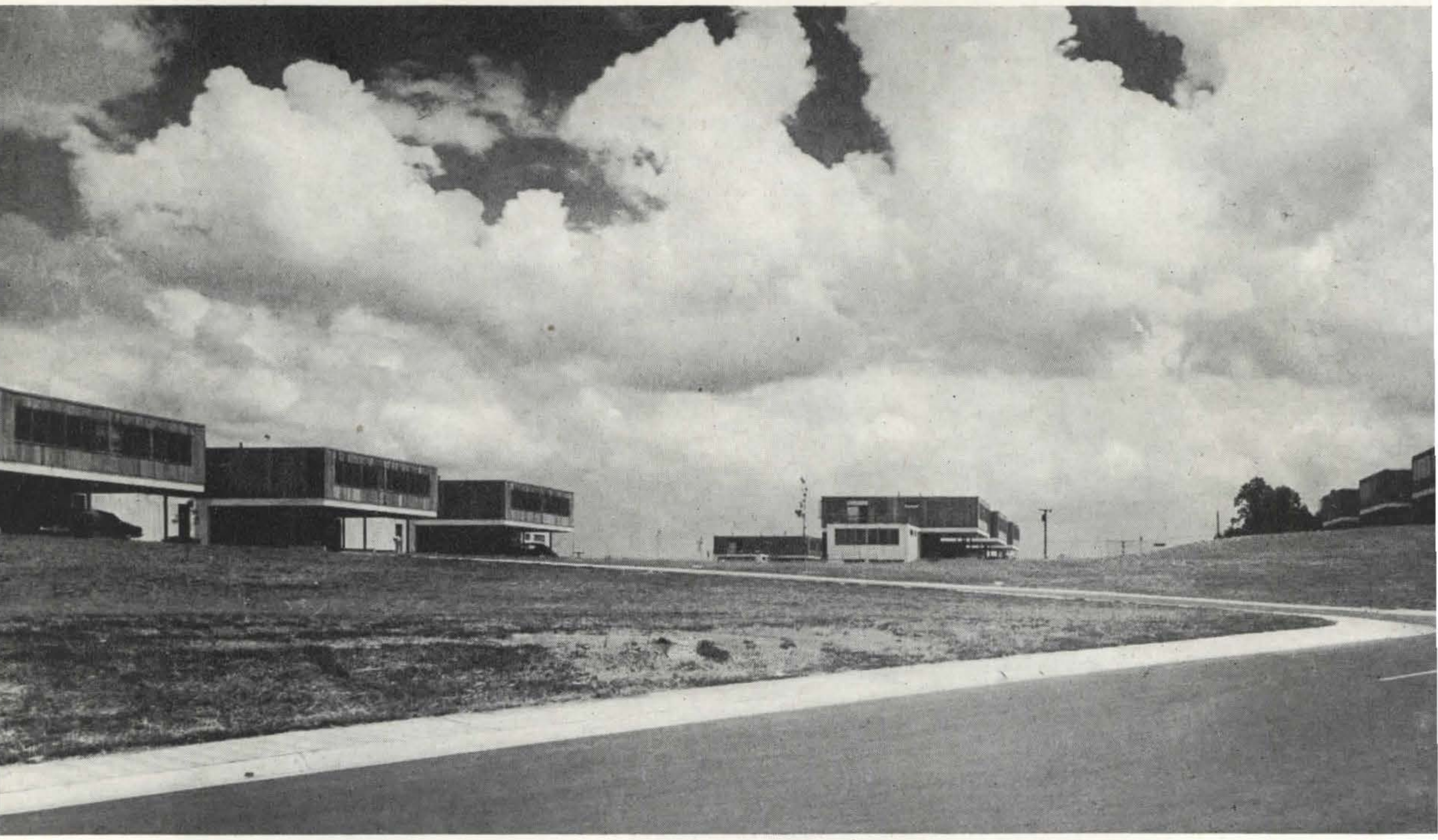


garden apartments: four-family units

The third of the garden-apartment building types—the four-family units, with the wood-sheathed overhanging second floors—are all located near the Turnpike boundary of the Neighborhood, because of their comparatively low height and apparent lightness. The architects felt that larger buildings near the road would be somewhat forbidding and block the entire project from view of passers-by.

Built in groups of three, the typical unit contains two identical two-bedroom apartments on the upper floor. Downstairs, in addition to the carports that are formed by the projecting second floor, are two additional rental units—mostly one-bedroom kitchenette units, but with two-bedroom apartments at the ends of each group (See plan acrosspage). In all, these so-called "over and under" buildings comprise 48 two-bedroom apartments and 24 one-bedroom units. Roofs of the extensions of the first-floor apartments become outdoor living terraces for the pairs of upstairs apartments.

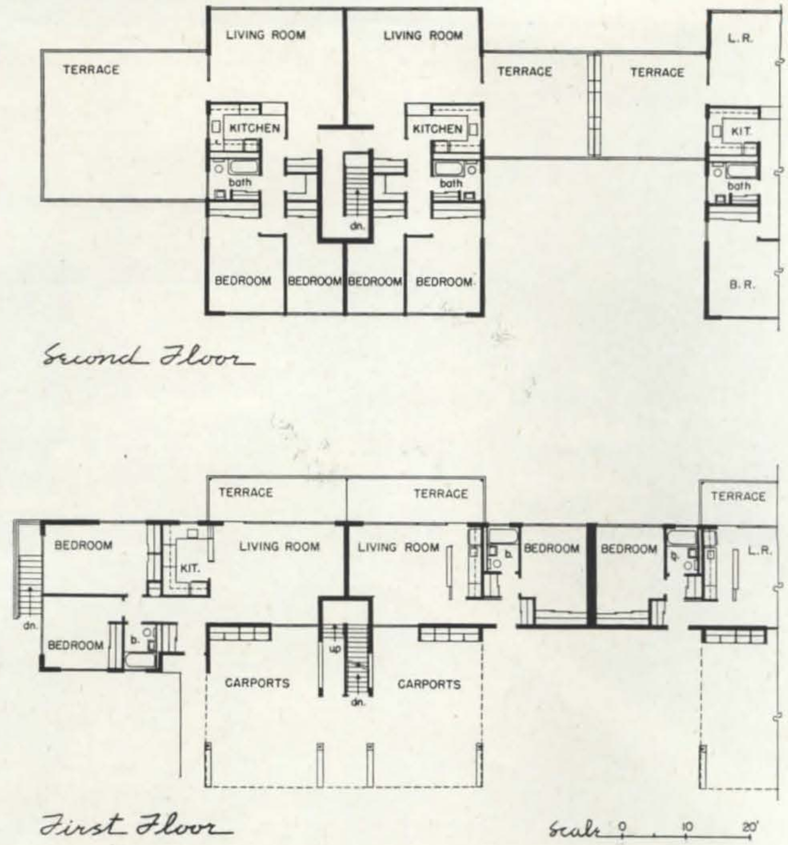
In structure, these units depart from the system used for the other apartment buildings in the neighborhood. The first-floor element is of concrete-block construction, while the upper floor is of wood frame, surfaced with redwood siding. There is no mechanical ventilation, but all apartments have through natural ventilation and the ground-floor units have broad, screened porches, facing the mountain view.

Photo above: Torkel Korling; close-up acrosspage by Bill Hedrich: Hedrich-Blessing

MATERIALS AND METHODS

CONSTRUCTION

Foundation: continuous footings, walls, grade beams, and piers of reinforced concrete. **Frame:** second floor supported on pipe columns encased in masonry walls for lateral stiffness—Lally Column Company; roof supported by stud wall erected from second floor. **Walls:** first story, concrete block with brick facing over small area; second-floor walls, stud frame. **Floors:** first and second floors: reinforced-concrete slab and monolithic-concrete joists formed by steel pans; reinforcement—Connors Steel Company. **Roof:** wood joist and sheathing for second-floor roof. **Waterproofing and dampproofing:** exterior surface of concrete walls below grade dampproofed with asphalt primer and two heavy coats of asphalt—Johns-Manville Company and Philip Carey Manufacturing Company; second-floor terraces waterproofed with asphalt-saturated felt-membrane between sub- and finished-concrete slab—Philip Carey Manufacturing Company. **Insulation:** walls between apartments soundproofed by continuous, acoustical blanket woven between offset studs —Home *Insulation* Company; rigid insulation between wood sheathing and built-up roofing —Wood Conversion Company; rockwool batts between concrete joists and under second-floor terraces, rockwool batts with vapor-seal between exterior studs on second floor. **Floor surfacing:** all interior living areas, asphalt tile —Mastic Tile Company; basement, terraces, and stairs: concrete. Basement floors treated with dustproofer and hardener, terrace slabs finished with integral, colored cement—Aquabar Company. **Wall surfacing:** exterior of concrete blocks painted white, redwood treated with clear varnish. Plaster on rock-

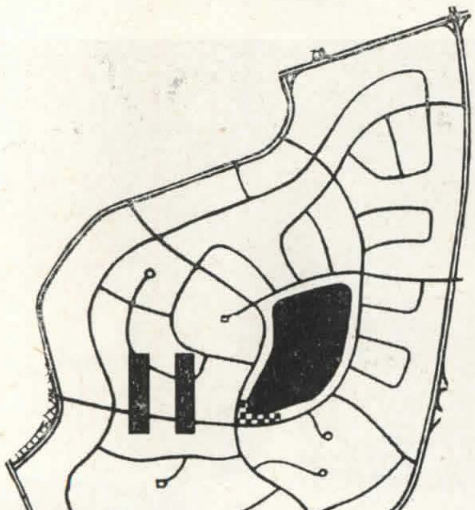


lath for interior surfacing. **Roof surfacing:** asphalt and felt built-up roofing with slag gravel—Philip Carey Manufacturing Company. **Roof drainage:** drains feed into concealed rain leaders—Norman Boosey Manufacturing Company. **Partitions:** first floor, plaster applied direct to gypsum tile—United States Gypsum Company; second floor, stud frame with rocklath and plaster. **Windows:** projecting extruded-aluminum sash—William Bayley Company; double-hung extruded-aluminum sash—General Bronze Corporation; casement extruded-aluminum sash—Universal Window Company; large, fixed and sliding wood sash at first floor terrace. Polished plate glass, DSA and DSB window glass—Pittsburgh Plate Glass Company. **Doors:** all door bucks are metal and all basement doors are hollow metal —World Steel Products Corporation; flush solid-core apartment doors—Roddis Plywood Corporation. **Paint:** oil-base paint on all interior plaster surfaces—Glidden Company.

EQUIPMENT

Kitchen: steel cabinets and sink—Tracy Manufacturing Company; stainless-steel and linoleum counter tops—Fanning Corporation; refrigerator—General Electric Company. **Lighting fixtures:** recessed ceiling light in bathrooms, bedrooms, kitchens, and interior halls; surface-mounted ceiling fixtures in stairwells—Perfeclite Company. **Electric distribution:** service entrance switch: Class "C" fuse-disconnected switches, mounted in raintight enclosures—Fagan Electric Company; fiber-duct system; panelboards: Class "I" equipped with automatic circuit breakers, mounted in enclosed cabinets—Trumbull Electric Manufacturing Company; exterior underground cable —Okonite Company; building wire, weatherproof and bare—Anaconda Wire & Cable Company; rigid-steel conduit—Youngstown Sheet & Tube Company; wiring devices—Arrow-Hart & Hegeman Electric Company.

Plumbing and sanitation: vitreous-china toilets and lavatory, cast-iron enameled bath and shower combination—Kohler Company; hot-water converter—Bell & Gossett Company; flush valves—Sloan Valve Company; accessories and metal medicine cabinets with fluorescent side-lights—G. M. Ketcham Manufacturing Corporation; pipe: galvanized wrought-iron—A. M. Byers Company; copper tubing—Reading Tube Company; black steel —National Tube Company. **Heating:** central heating plant with hot water as heating medium; fin-type convectors—Bell & Gossett Company; automatic temperature control—Hoffman Speciality Company; thermometers —Moeller Instrument Company.



The 500 concrete-block houses (photo above) were built by John A. Johnson & Sons, Inc.

Below—Woodland School, the elementary school for Neighborhood 11. A. Farnell Blair Co., Inc., general contractor.

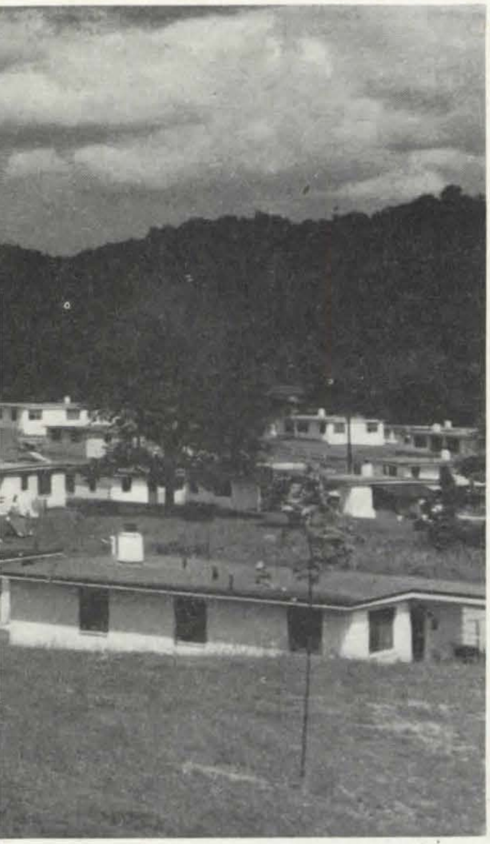
Photos: Torkel Korling

neighborhood 11

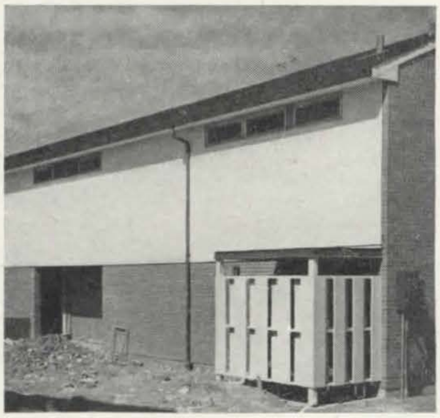
Neighborhood 11 is an entirely new postwar community. The site, like so much of Oak Ridge, was hilly and wooded and, after placement of the elementary school and park in the approximate center, the residential streets, utilities, etc., were designed along the contours of the land.

Eventually, the neighborhood will house 1000 families. First units were the 500 concrete-block houses shown here, and the elementary school, which utilizes directional glass-block above clear-glass fenestration for classroom lighting. Currently, some 450 additional dwelling units are being built in both two-story row houses and three-story apartment buildings (40 two-bedroom units; 128 three-bedroom units; and 282 one-bedroom units, the latter making up the entire three-story group).

In the design of the concrete-block houses, the architects hoped to build them in groups of from three to six, with open areas between them; but, due to cost of utilities, the dimension of 35 feet between houses was established, and the units were organized along the road patterns and oriented for south and east light and view. All houses were built from variations on four, basic, plan types, all of which had to be designed (to meet competitive bidding requirements) so that they *could* be built by the Le Tourneau precast-concrete system, the "tilt-up" precast-concrete-slab system, Stransteel's framing system with wood exterior siding, or conventional concrete-block bearing-wall construction. The central partition reflects the design's need to meet the most extreme case called for by the Le Tourneau method, though the successful bidder took the option of the concrete bearing-wall system. Roof framing is conventional wood. All houses have porches and are heated by a radiant system using copper tubing in the concrete floor slabs.



The 450 new dwelling units under construction in Neighborhood 11 consist of 4 two-story buildings with 40 two-bedroom units; 3 two-story buildings with 28 three-bedroom units; 8 three-story buildings with 282 one-bedroom units; and 18 two-story buildings with 100 three-bedroom units. The entire group is being built by T. C. Bateson Construction Company. ***Photos (row units): Bill Hedrich: Hedrich-Blessing; (detached unit): Thompson's Commercial Photographer***



MATERIALS AND METHODS

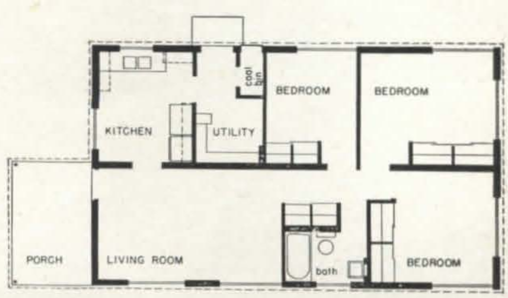
CONSTRUCTION

Foundation: continuous reinforced-concrete footing. **Frame:** lightweight concrete block walls. **Floors:** reinforced-concrete slab on fill. **Roof:** wood joist and sheathing. **Waterproofing and dampproofing:** asphalt felt between grade and underside of concrete floor slab. **Insulation:** rigid insulation on earth under radiant coils—Celotex Corporation; kraft-paper-surfaced batt between roof sheathing and ceiling; premolded insulation around concrete floor edge—Servicised Products Corporation. **Floor surfacing:** asphalt tile with cove-butt base—Mastic Tile Company. **Wall surfacing:** interior: painted gypsum board; exterior: gray- or white-painted concrete block. **Roof surfacing:** asphalt and felt built-up roof, covered with slag gravel—Philip Carey Manufacturing Company and Birmingham Slag Company. **Interior partitions:** stud partitions with gypsum-board covering and taped joints—Ebsary Gypsum Company. **Windows:** double-hung extruded-aluminum sash—Cupples Products Corporation; DSB quality window glass—Libbey-Owens-Ford Glass Company. **Doors:** flush hollow-core, plywood doors, metal door bucks—Metal Building Products Company. **Hardware:** Norwalk Lock Company. **Paint:** exterior: cement water paint—Thuroseal Company; interior: woodwork and gypsum board, oil-base paint; masonry, cement, water paint, resin emulsion—Glidden Company.

EQUIPMENT

Kitchen: sink and range—Tracy Manufacturing Company and General Electric Company. **Lighting fixtures:** pull-chain overhead hall light—Day-Brite Lighting, Incorporated; glass-bowl, bracket bedroom lights, kitchen ceiling fixture—Perfeclite Company. **Electric distribution:** wiring, cable, conduit—National Electric Products Corporation. **Plumbing and sanitation:** vitreous-china coupled-syphon washdown closet, iron enameled lavatory, recessed combined tub and shower—Crane Company; electric hot-water heater—Hotpoint, Incorporated; flush valves—Sloan Valve Company; tooth-brush and tumbler holder, paper holder, robe hook, grab bar and soap holder, towel bars, metal medicine cabinet—F. H. Lawson Company; copper tubing, wrought iron pipe—Revere Copper and Brass Company and A. M. Byers Company. **Heating:** oil-burning boiler, oil burner—Spencer Heater Division, Avco Manufacturing Corporation and Winkler Burner Company; hot-water radiant heating with copper tubing in concrete floor slab—Revere Copper and Brass Company; automatic controls—Minneapolis-Honeywell Regulator Company: thermometers—Manning, Maxwell & Moore, Incorporated.

Floor Plan Scale 0 5'



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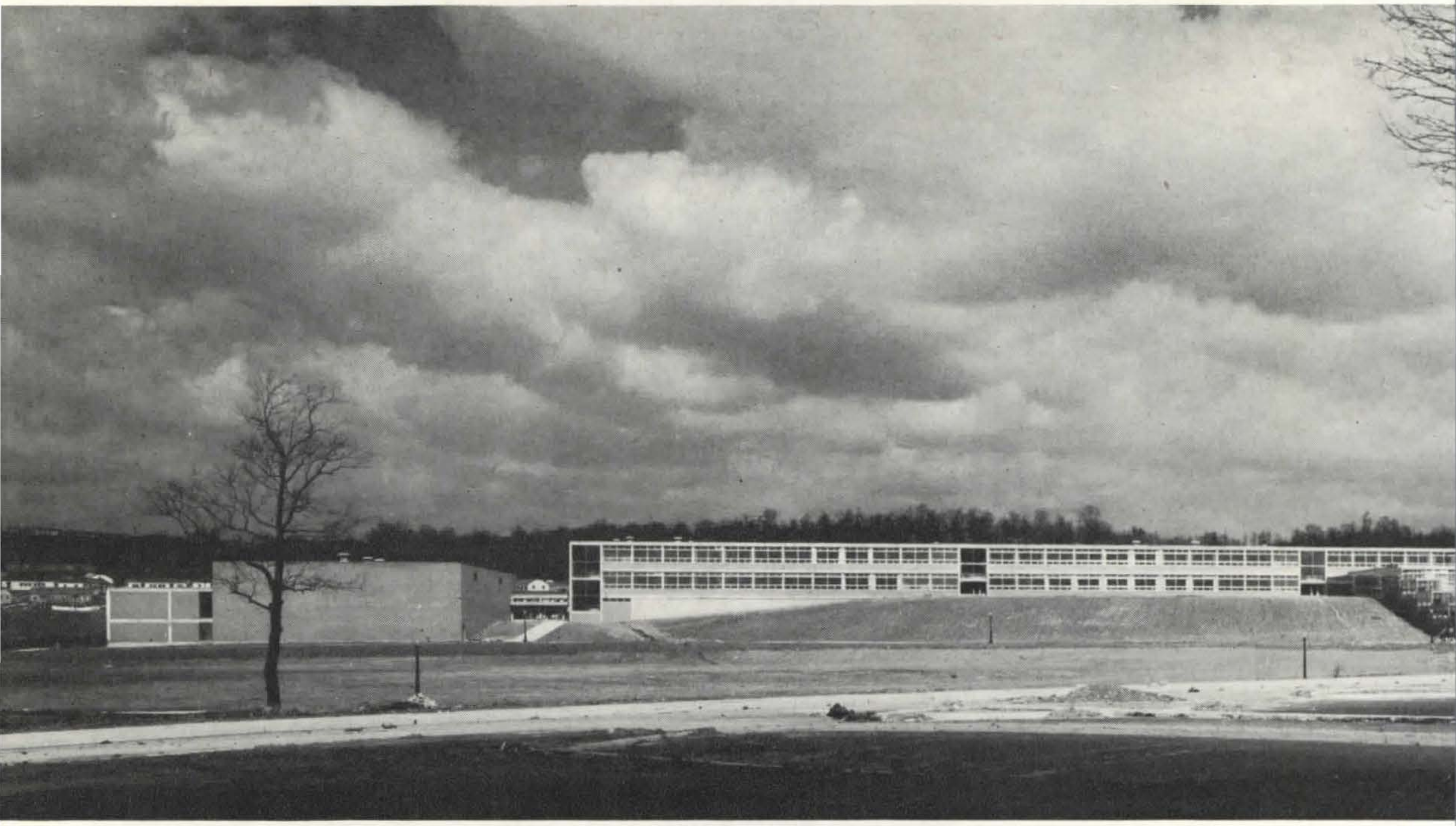
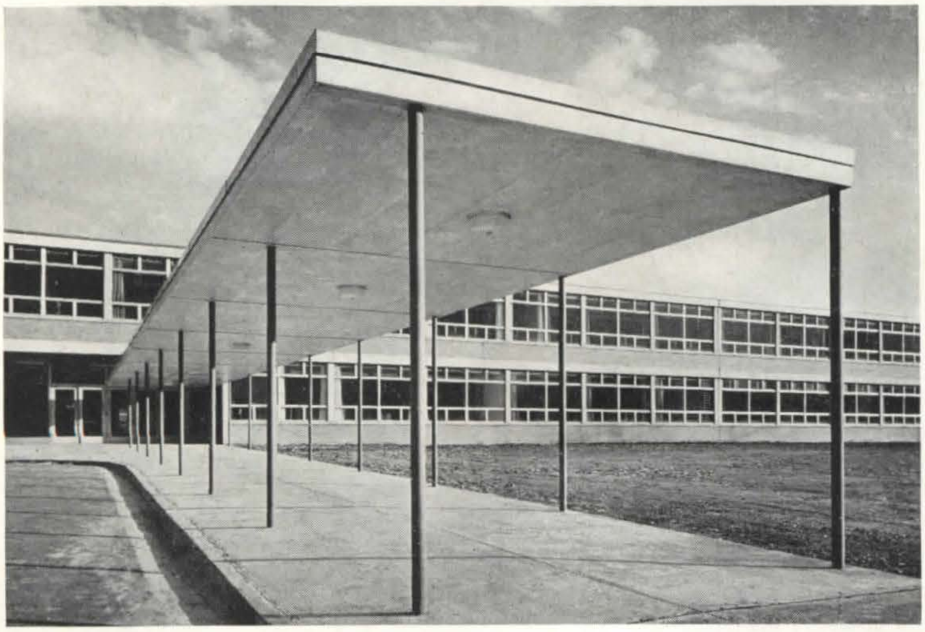
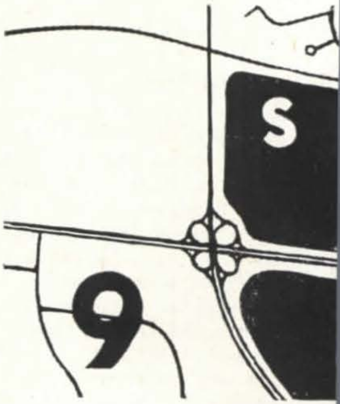






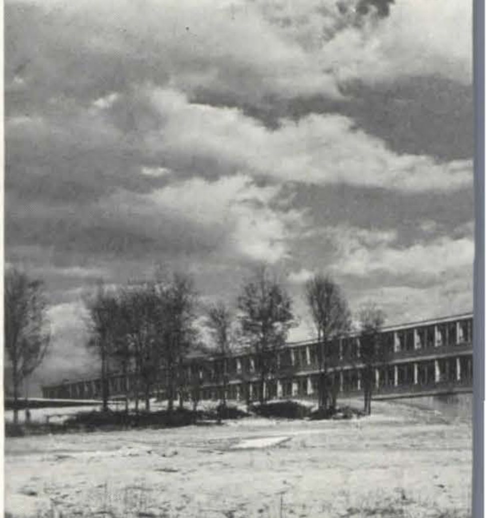
Top of page — the entire school complex viewed from the south: (left to right) the gym-locker room unit; the long classroom-administration building; the connecting stepped-down corridor, and the auditorium mass. John A. Johnson & Sons, Inc., general contractors.

Above—detail of the covered entrance on the north front of the classroom building.

Right—the north front, with gym unit (and its separate public entrance) at right.

Acrosspage—end of the south face of the classroom building; glazed stairhall at right; one-story library element in background, left.

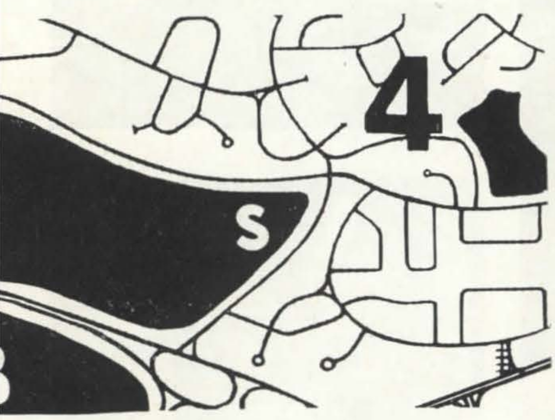
Photos: Bill Hedrich: Hedrich-Blessing

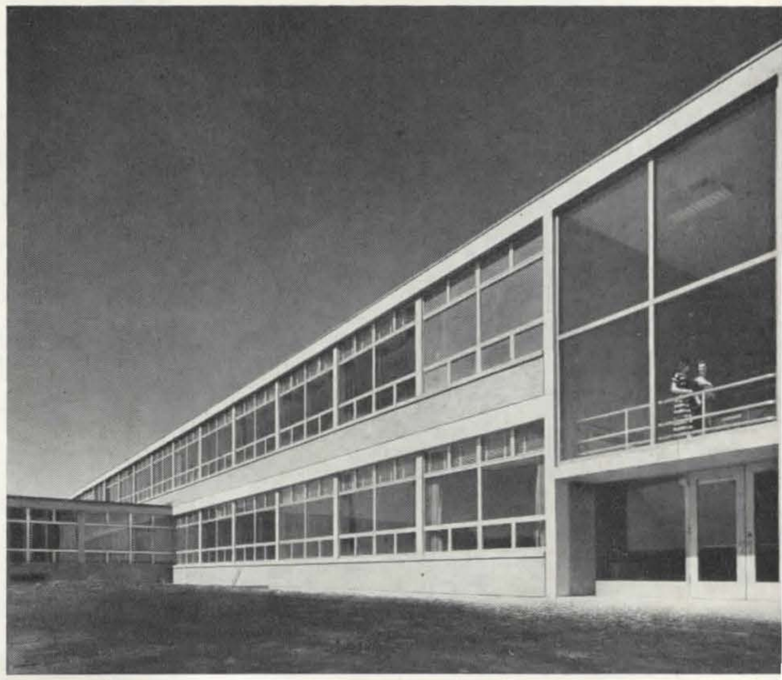


First permanent units of the city's new cultural center are the Senior High School, shown here, and its adjacent 1500-seat auditorium (page 81). Designed to provide for an ultimate enrollment of 1500 students, it will (when occupied next fall) take the place of the present Senior High School, in Neighborhood 3, which will then become one of the city's two Junior High Schools.

As a study of the Master Plan shows, this new cultural center, just north of Oak Ridge Turnpike, immediately adjoins the huge new administrative center and 100-acre shopping center that will be the main focus of the eventual community.

A hilly site, with a drop of more than 40 feet from the height on the north side down to the Turnpike, plus the desire to organize elements so that they could be used readily for extracurricular purposes as well as for school needs, dictated the basic scheme —with the 800-foot-long classroom-administration block on the higher land to the north, the gymnasium to the west adjoining the extensive playfields that are being built on this side, and a long, enclosed connecting passage leading down to the auditorium near the Turnpike, which has its own parking facilities. Because of curricular needs, workshops as well as art and music departments are included in the auditorium building, and also the big cafeteria (designed to seat 500) which, like the auditorium, will be used by various outside groups. The gymnasium, similarly, is to be used by adults and other groups, including professionals. Therefore, it includes a championship basketball court (running north and south) with folding bleachers along the east and west walls. By closing an electrically operated, folding partition, this huge room may be divided into two standard basketball courts, one for girls, the other for boys.

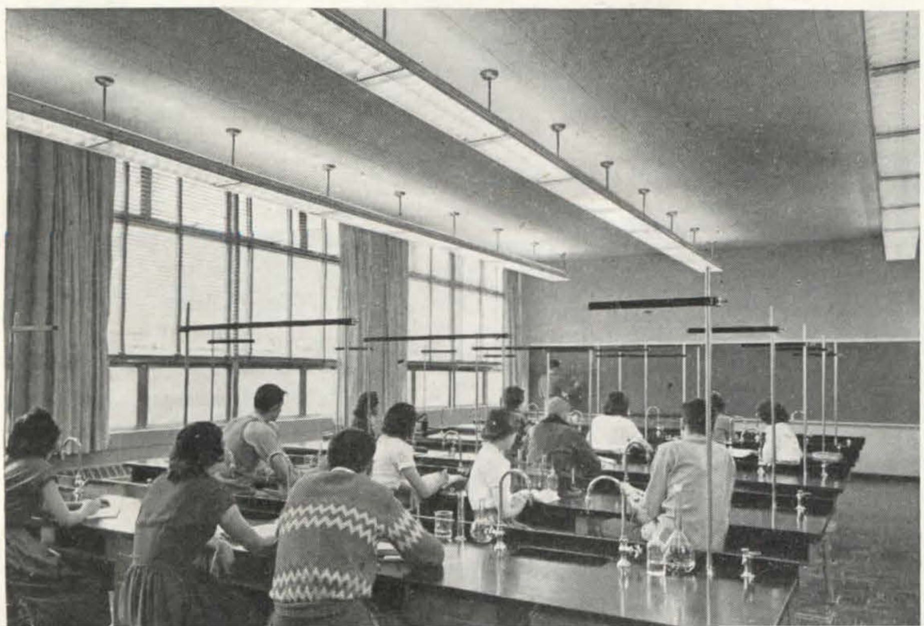




The architects' presentation drawing on the facing page shows both the immediate site organization and the plan detail. A faint arrow in the plot drawing shows that "north" is to the right.

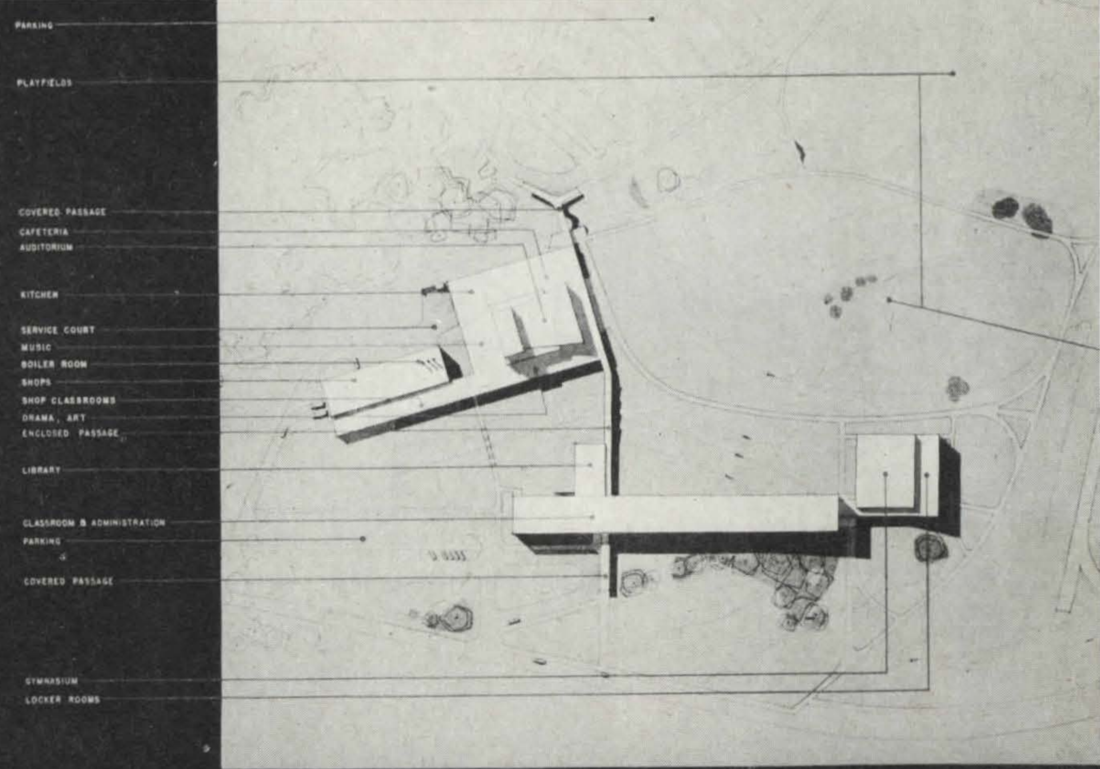
Left: (top)—detail of main (north) entrance lobby of classroom building with display case at left, library through doors beyond; floor is white terrazzo; (center)—a split classroom along the north wall of the second floor; (bottom)—one of the science classrooms.

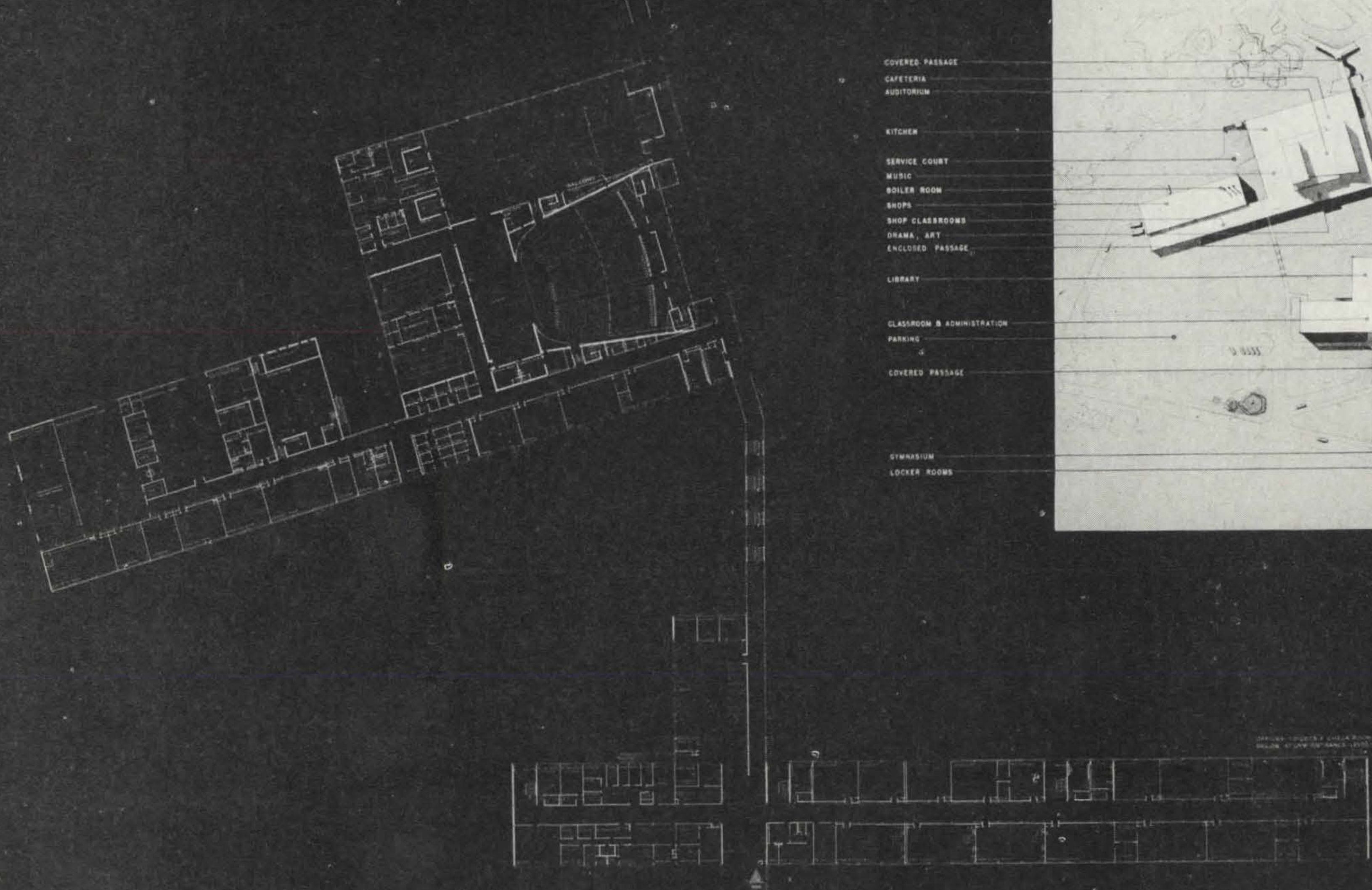
All classrooms have projecting-type extruded-aluminum sash, acoustic ceilings, asphalt tile floors, stem-mounted fluorescent light fixtures, and wall-hung convectors.

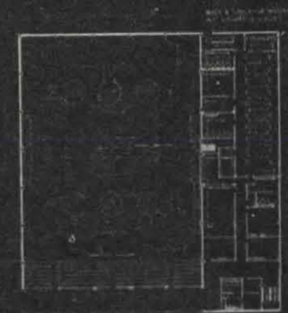


Above: (top)—typical stairhall, with aluminum sash and handrails; (below)—the main corridor, lined with coat lockers; asphalt tile flooring; acoustical tile ceiling.

Photos: Bill Hedrich: Hedrich-Blessing







GROUND FLOOR PLAN

SKIDMORE, OWINGS & MERRILL - ARCHITECTS - ENGINEERS
OWNER . . . . UNITED STATES GOVERNMENT
SUPERINTENDENT . . . . RAYMOND H. OSTRANDER
GENERAL CONTRACTOR . JOHN A. JOHNSON AND SONS, INCORP
GROSS A.I.A. CUBE 4,471,193 CF., DESIGNED PUPIL CAPACITY . 1500
GROSS AREA INSIDE OF EXTERIOR WALLS . . . . 186,212 SQ. F.

SCALE 25' 0 50' 100' 150' 200

UPPER FLOOR - CLASSROOM & ADMINISTRATION WING

CONSTRUCTION

Foundation: reinforced concrete with grade beams and piers. **Frame:** reinforced concrete for classroom, shop, and cafeteria areas; structural-steel columns and trusses for auditorium and gymnasium—Virginia Bridge Company. **Walls:** cavity, curtain walls of lightweight concrete block bonded to brick facing with metal ties. **Floors:** ground floors, reinforced-concrete slab on fill; upper floors, reinforced-concrete slab poured on Steeltex supported by open web steel joists—Pittsburgh Steel Products Company. **Roof:** all areas, gypsum poured on Weatherwood insulating form boards—United States Gypsum Company. **Waterproofing and dampproofing:** waterproofing used under concrete, brick sills and for beams, lintels, and slab built into exterior walls—Sisalkraft Company. Two coats of hot asphalt mopped over asphalt primer for outside surface of exterior walls below grade—Philip Carey Manufacturing Company. **Insulation:** acoustical tile ceilings in cafeteria, auditorium, corridors, and classrooms—National Gypsum Company; sheet-cork for interior finish of auditorium walls—Dodge Cork Company, Incorporated. Thermal insulation provided by Weatherwood and Celotex Vapor-Seal Roof Insulation. **Floor surfacing:** asphalt tile in classrooms, cafeteria, and corridor floors—David E. Kennedy, Incorporated; lobbies and toilet rooms, white terrazzo—H. H. Robertson Company; stairs and shop areas, concrete; monolithic composition flooring in kitchen; gymnasium and stage, maple floors. All concrete floors treated with applied hardener and dustproofer—A. C. Horn Company, Incorporated; carpeting in auditorium and adjacent lobby—Bigelow-Sanford Carpet Company, Incorporated. **Wall surfacing:** all exterior wall surfaces are red, select, common brick laid without headers; pattern interrupted by exposed, concrete beams and columns in classroom areas. Interior classroom and corridor walls are painted gypsum plaster over concrete block—United States Gypsum Company; kitchen, showers, and toilets surfaced with glazed structural units—Claycraft Company; gymnasium and shop interiors are painted concrete block. **Roof surfacing:** asphalt and felt built-up roofing covered with slag gravel—Philip Carey Manufacturing Company. Power exhaust and gravity roof ventilators—Burt Manufacturing Company; skylights over paint storage room—American 3-Way Luxfer Prism Company. **Roof drainage:** drains feed concealed rain leaders—Norman Boosey Manufacturing Company. **Partitions:** concrete block; folding partitions for gymnasiums—Horn Brothers Company; standard metal stalls with baked-enamel finish for toilets—Henry Weis Manufacturing Company. **Windows:** projecting type extruded-aluminum sash in classrooms—Valley Metal Products Company; commercial, projected steel, stock windows in shop area—Detroit Steel Products Company. Large, fixed, polished-plate glass areas—Pittsburgh Plate Glass Company; small areas of clear and obscure glass—Mississippi Glass Company. **Doors:** flush hollow-core doors with birch veneer for classrooms and offices—Roddis Plywood Corporation; hollow-metal doors in utility areas—Aetna Steel Products Corporation. Exterior overhead doors in automobile shop—Overhead Door Corporation; solid wood-frame entrance doors with large, fixed-glass panels—Roddis Plywood Corporation; sliding fire doors in various corridors—Syracuse Fire Door Company; record vault door—Mosler Safe Company. **Hardware:** locksets, door closers, hinges, panic exit—Sargent Company. **Paint:** cement, water paint on exterior—United States Gypsum Company; some interior surfaces of concrete block painted with cement, water paint; oil-base paint applied to other surfaces—Glidden Company.

EQUIPMENT

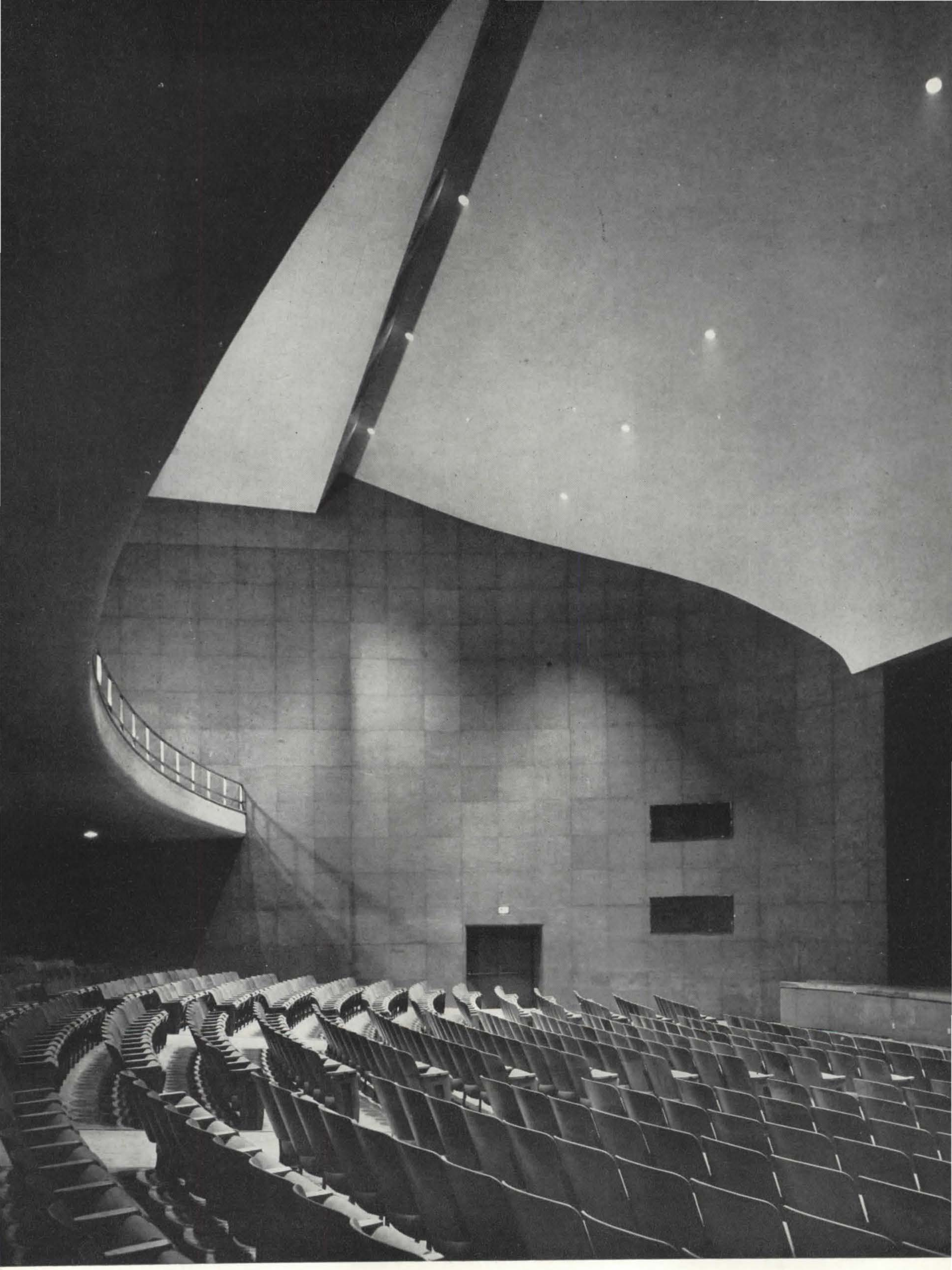
Kitchen: ranges, deep-fat fryer, bake ovens, vegetable peeler, and dishwashing machine—Hotpoint, Incorporated and Sterling Manufacturing Comp **Intercommunication:** phone system and clocks bells for schedule control—International Busi Machines Corporation; fire-alarm system—Ga well Company. **Furniture:** auditorium chairs plywood backs and spring-arch-type seats—Am can Seating Company. **Lighting fixtures:** st mounted fluorescent fixtures in classroom and of areas—Ender Manufacturing Corporation; flush cessed ceiling fixtures in lobby—Kirlin Compa recessed downlighting in auditorium—Cen Lighting, Incorporated; porcelain reflectors guards for gymnasium—Benjamin Electric Ma facting Company; stage lighting: border, sta floor, and wall lighting—Hub Electric Compa spot lighting—Belson Manufacturing Compa **Electric distribution:** service-entrance switc General Electric Company; underground concr ducts; panelboards equipped with automatic cuit breakers—Square D Company; manu operated, drawout-type multibreakers—Truml Electric Manufacturing Company; cable for inc ing service—Okonite Company: rigid-steel metallic tubing conduit—National Electric Pr ucts Corporation; wiring devices—Thomas & E Company. **Plumbing:** syphon-jet china toilets, to seats, and vitreous-china, wall-hung lavatorie Kohler Company; water heaters—American Dist Steam Company; flush valves—Sloan Valve C pany; semi-circular industrial washfountain Bradley Washfountain Company; steel and wrou iron pipe—Wheeling Steel Company and A. Byers Company; overhead sprinkler system—Au matic Sprinkler Company; shower cabinets— Metal Manufacturing Company. **Heating:** sto fed steam boilers—Fitzgibbons Boiler Compa wall-hung convectors—Fedders-Quigan Corpo tion; pipe-fin type radiators—Vulcan Corporati unit heaters in shop areas—Trane Company; t perature control—Johnson Service Company.

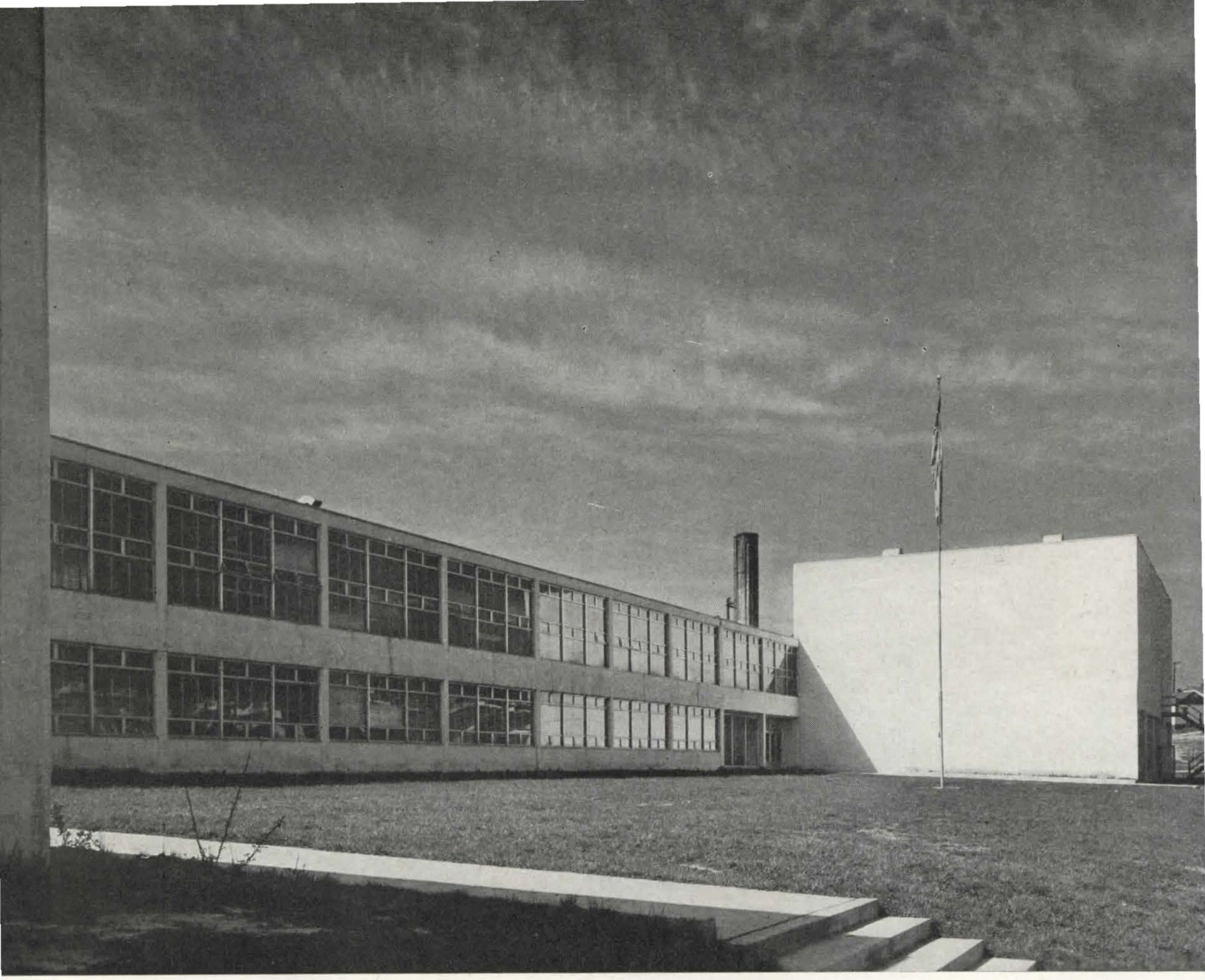
Acrosspage—the auditorium; walls are surfaced with sheet-cork squares; plywood-backed seating, with spring-arch-type seats.

Above—the bus dock at the southwest corner of the auditorium-shops building.

Right—view through the enclosed corridor connecting the auditorium and the classroom building, the south side of which, with gym block at far end, is seen in the background.

Photos: Bill Hedrich: Hedrich-Blessing



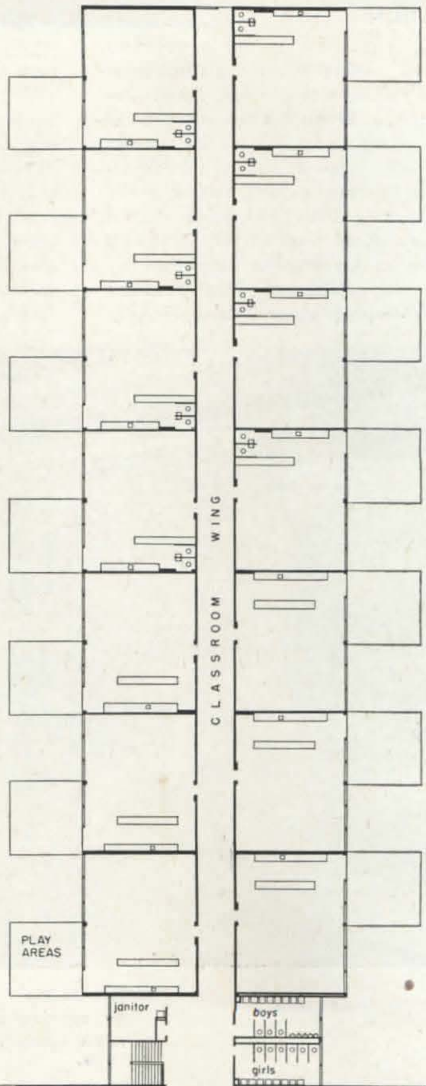


elementary school

In the postwar remodeling of Neighborhood 6, one of the prime needs was an elementary school to serve 600 children from kindergarten age through the sixth grade. Located north of the Oak Ridge Turnpike, and just west of a major north-south highway (see Master Plan), the school is built on an uneven, central plot.

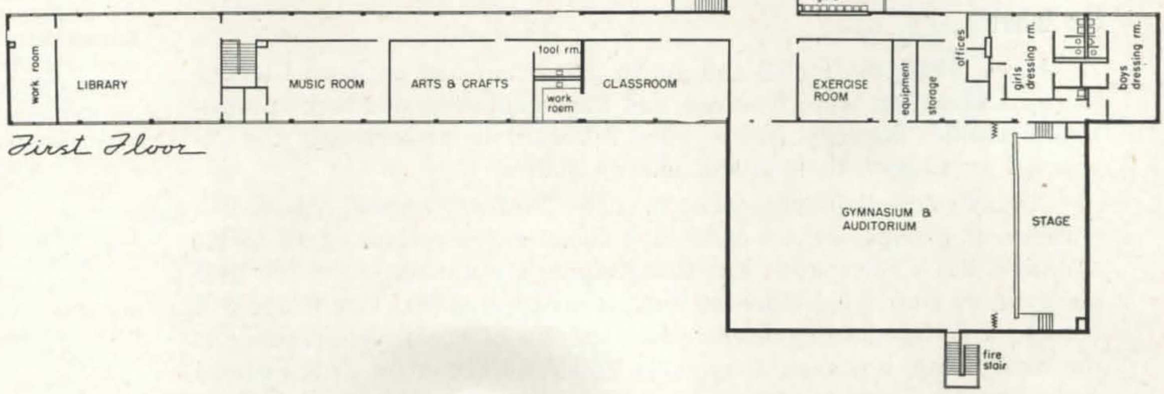
Because of the sloping site—but wholly in accord with the wishes of the school authorities—the building is organized with classrooms on one level and administrative offices, service facilities, and kindergartens on a lower level. On the upper floor, in addition to classrooms, there is a gym-auditorium, equipped with an electrically operated folding partition 8 feet in front of the stage, so that rehearsals can proceed even when the gym is in use. Under the gym is the school cafeteria and kitchen. The standard classroom (either side of a central corridor in the south wing) is 30 feet wide and 40 feet long and receives crosslighting from a clerestory above corridor walls. A long, cabinet-display unit defines work spaces at the ends of the rooms and, in the case of the lower grades, this unit is extended to enclose individual toilets in the rear corner. Exterior doors lead out from all classrooms to allow for outdoor classes.

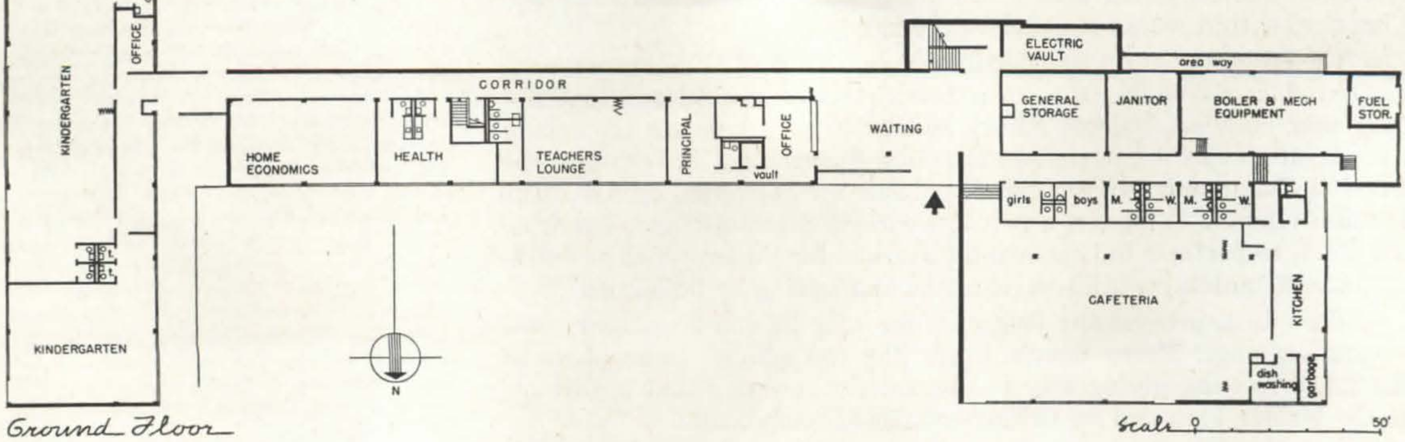
The building is a community center as well as an elementary school; hence, folding partitions are provided to close off school portions of the building when other areas are being used for adult, evening affairs.



Acrosspage—the east-west, two-story wing, with gym-cafeteria block at far end. John A. Johnson & Sons, Inc., were the general contractors.

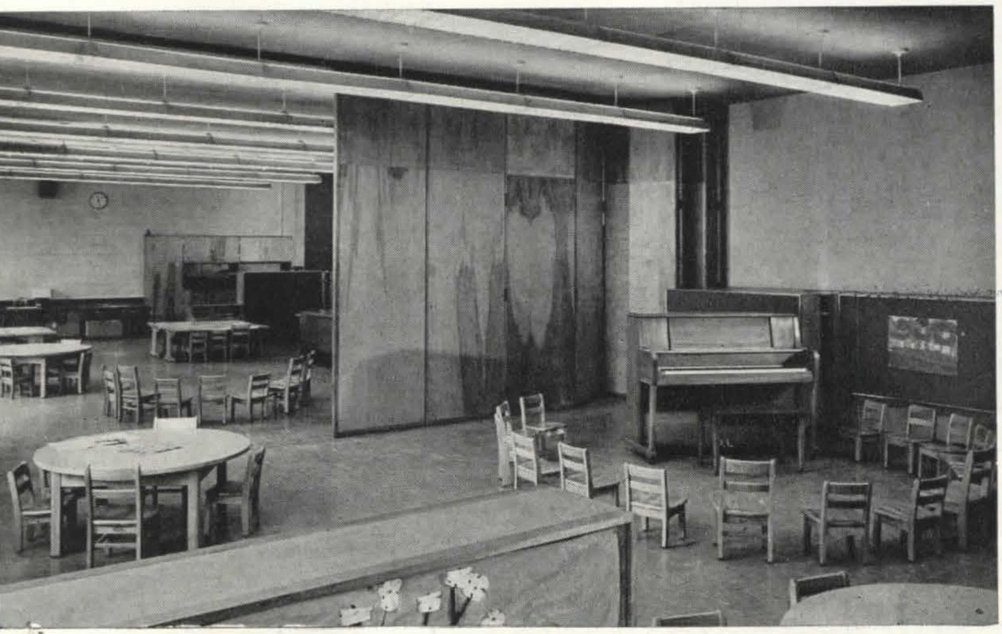
Above — gym-auditorium with automatic folding wall partly closed. *Photos: Bill Hedrich: Hedrich-Blessing Torkel Korling*





CONSTRUCTION

Foundation: continuous reinforced-concrete footings under basement walls; grade beams and piers under remaining areas. **Frame:** reinforced concrete. **Walls:** lightweight-concrete block between exposed, concrete beams and columns. **Floors:** ground floors: reinforced-concrete slab poured on fill; second floor: reinforced-concrete slabs and joists formed by steel pans. **Roof:** lightweight, insulating concrete poured on Steeltex supported by open web joists—Pittsburgh Steel Products Company. **Waterproofing and dampproofing:** exterior concrete walls below grade have two coats of asphalt over asphalt primer. **Insulation:** acoustical-batt-filling between perforated cement-asbestos facing and underside of concrete corridor roof slab—Zerocel Manufacturing Company and National Gypsum Company; classroom and auditorium ceilings, acoustical tile—National Gypsum Company. Asphalt-coated, rigid, thermal insulation under radiant heating coils—Owens-Corning Fibreglas Corporation; voids of all concrete blocks in exterior walls filled solidly with expanded vermiculite—Zonolite Company. **Floor surfacing:** classrooms, cafeteria, toilet room, and corridors, asphalt tile—David E. Kennedy, Incorporated; gymnasium and stage, maple floors. **Wall surfacing:** exterior of concrete blocks painted with white, cement, water paint; interior surfaces of concrete blocks in corridors painted red; classroom walls different pastel colors. **Roof surfacing:** built-up roofing of asphalt, felt, and slag gravel—Philip Carey Manufacturing Company. Power-exhaust ventilators over auditorium—Trane Company. **Roof drainage:** all roof drains feed into concealed rain leaders—Norman Boosey Manufacturing Company. **Partitions:** concrete block between classrooms; electrical folding partitions between stage and auditorium—Horn Brothers Company; standard metal stalls with baked-enamel finish in toilets—Henry Weis Manufacturing Company. **Windows:** aluminum, projecting sash for all classroom windows; large, fixed windows with extruded-aluminum sash in lobby and cafeteria—Valley Metal Products Company. **Doors:** metal bucks throughout—World Steel Products Corporation; flush, wood doors with birch veneer in all classrooms; entrance doors, wood with large, fixed-glass central panels. **Hardware:** Norwalk Lock Company. **Paint:** exterior masonry walls coated with cement water paint —United States Gypsum Company; one coat of cement, water paint and two coats of resin emulsion paint for interior masonry walls; oil-base paint for interior woodwork.



Two of the three kindergartens are so planned that, by opening a folding partition, they form a single room, some 80 feet in length. ***Photo: Torkel Korling***

the future

In March, 1949, the fences and guard gates that had enclosed the city since its inception were removed, and the community was thrown open to the public. Security fences were relocated to protect only the restricted areas with their atomic energy plants.

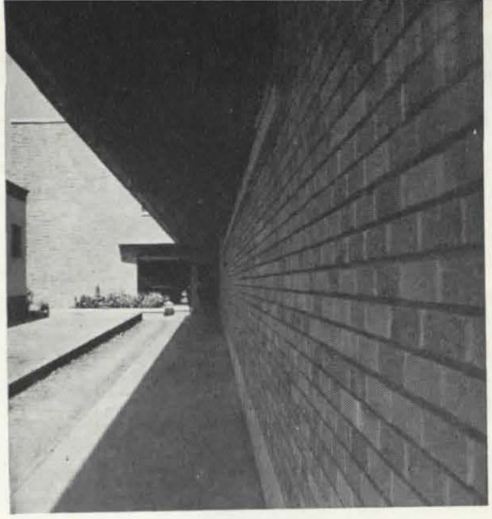
Today's city displays most of the aspects of any normal community —religious groups, service clubs, and social organizations of all sorts; a 5-day-a-week newspaper, *The Oak Ridger;* a radio station; a city golf and country club, etc. Before too long, it is expected that Oak Ridge will become a self-governing municipality of the State of Tennessee. For the time being, however, it remains under AEC control as a Federal Area, but subject to the laws of the State and of Roane and Anderson Counties, within whose boundaries the site lies.

The only outright land sales that have been made—and these, with restricted deeds—have been to a few church organizations that are currently building. Sale of homes and business properties is contemplated, but not as yet initiated. The local government is vested in the Office of Community Affairs, whose officials are appointed by AEC. The Roane-Anderson Company, a private concern, continues, as it has from the start, to perform the operating functions for the city such as maintenance of buildings, utilities, etc., and the leasing of buildings.

The city is progressing boldly in line with its one firm tradition—constant change. Every month, every day the bivouac atmosphere of the place recedes, giving way to the orderly new city that is foretold in the Master Plan and its already completed components.

EQUIPMENT

Kitchen: two-compartment dishwasher—G. S. Blakeslee & Company; water booster heater—Coates Company; linoleum counter tops—Armstrong Cork Company; ice-cream cabinet —Kelvinator Corporation. **Inter-communication:** telephones to all classrooms, bell and clock system—International Business Machines Corporation; public-address system throughout—Radio Corporation of America; fire-alarm system—Gamewell Company. **Lighting fixtures:** stem mounted fluorescent units in classrooms and offices; ceiling mounted fluorescent fixtures in lobby—Ender Manufacturing Corporation; board lights and dimmer banks for stage—Hub Electric Company. **Electric distribution:** fuse disconnected switches, surface mounted, panelboards mounted in closed, steel cabinets—Trumbull Electric Manufacturing Company; rigid-steel and metallic tubing conduit—National Electric Products Corporation. **Plumbing and sanitation:** baby, juvenile, and regular size toilets, enameled-iron classroom sinks, vitreous-china lavatories—Crane Company; water heater and storage tank—American District Steam Company; enameled-iron service sink—American Radiator-Standard Sanitary Corporation; flush valves: Sloan Valve Company; accessories—United States Sanitary Specialties Corporation; circular industrial wash-fountain—Bradley Washfountain Company; cast-iron soil pipe—Charlotte Pipe and Foundry Company; wrought-iron galvanized pipe—A. M. Byers Company; copper tubing and fittings—Revere Copper and Brass Company, Chase Brass and Copper Company, and Mueller Brass Company; shower controls—Powers Regulator Company. **Heating:** coal stoker-fed hot-water boilers—Fitzgibbons Boiler Company, Incorporated; pipe fin-type convectors—Trane Company; copper coils for radiant heating in first floor areas; unit heaters—Trane Company; controls—Johnson Service Company.

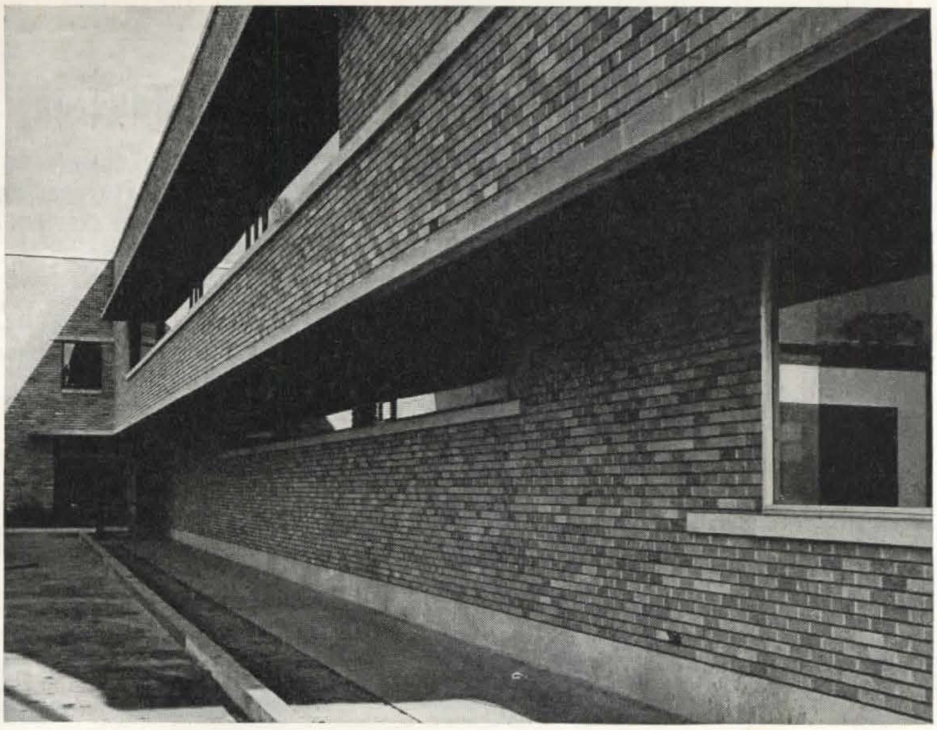


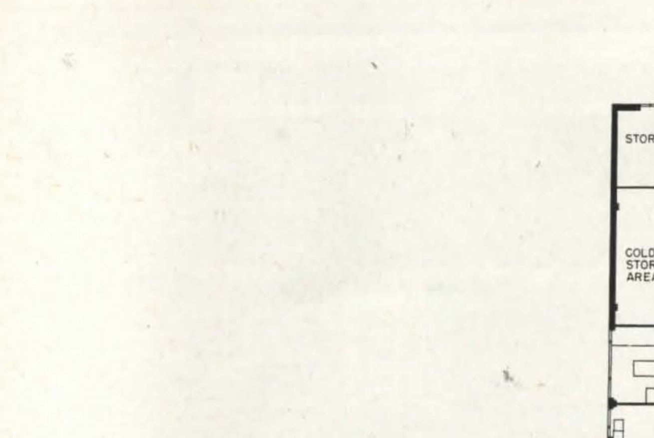
Cafeteria: Houston, Texas

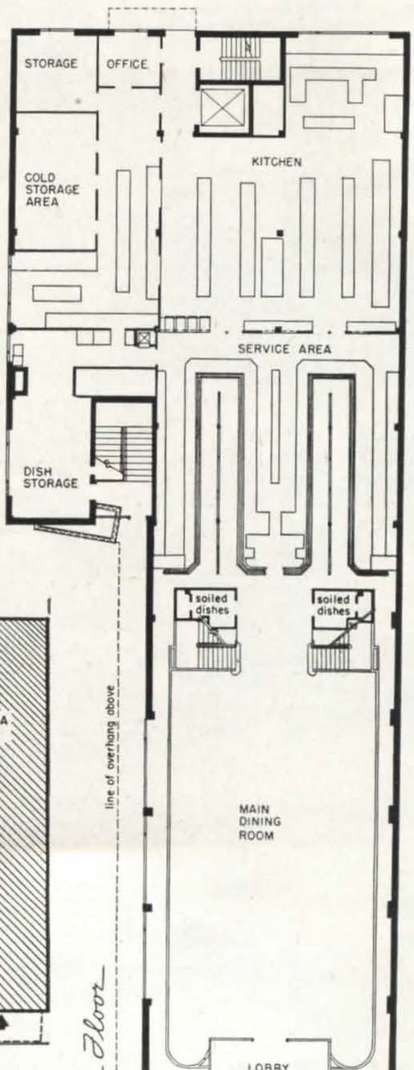
MACKIE AND KAMRATH, ARCHITECTS
WALTER P. MOORE, STRUCTURAL ENGINEER
H. U. BIBLE, MECHANICAL ENGINEER

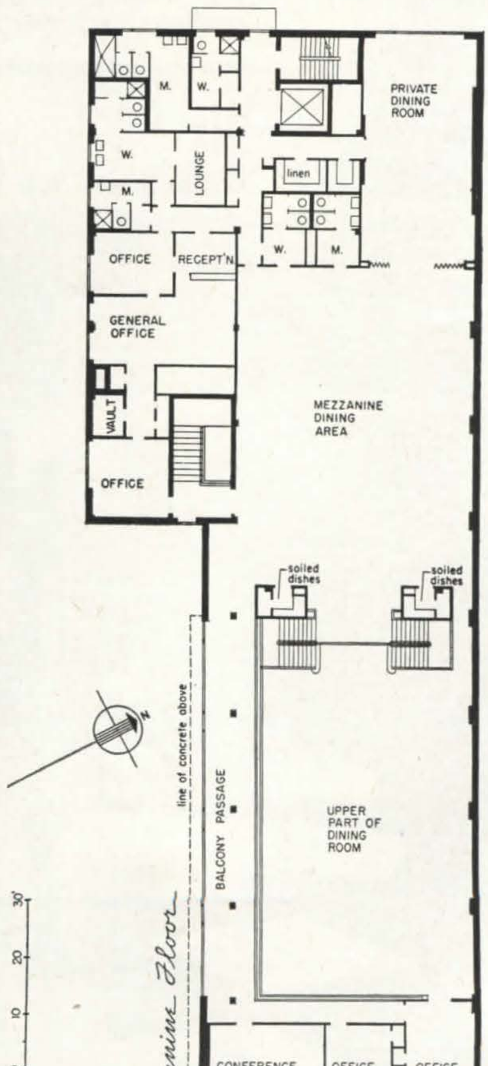
Left—a side entrance allows job applicants to reach the second floor office area without entering the main cafteria; the covered walk leads customers back to a rear parking lot.

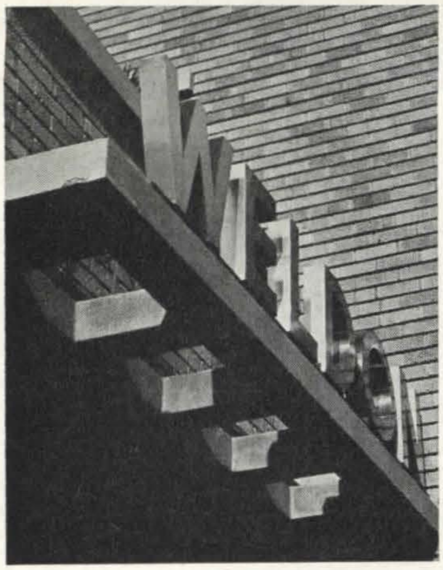
Below—the main cafeteria, showing (in the rear) the mezzanine dining space above the serving-counter space on the first floor. *Photos: Paul Dorsey*



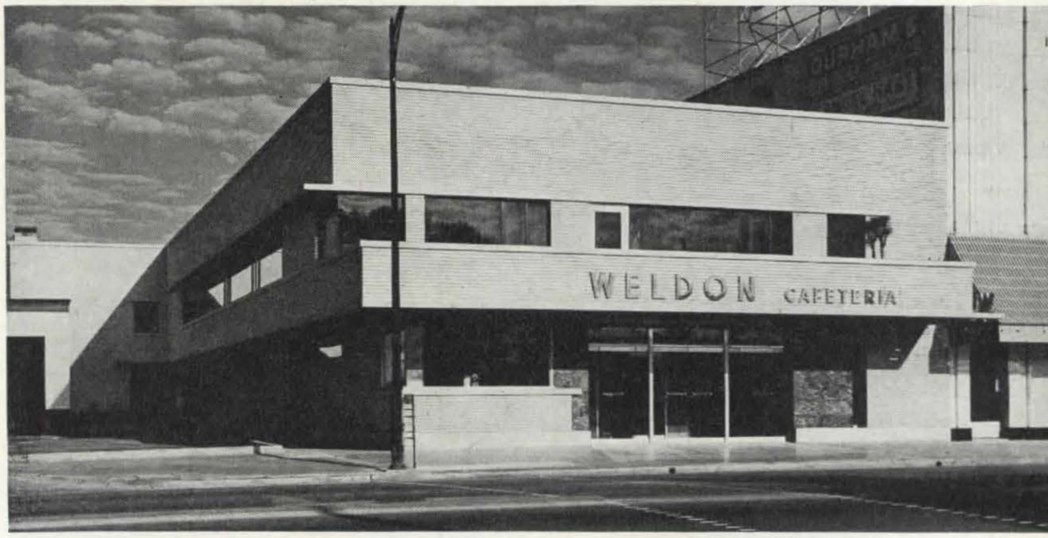

TRAVIS STREET
PARKING
PARKING
CAFETERIA BUILDING
PORTLAND STREET
N
Plot Plan
scale 0 25 50'


STORAGE
OFFICE
KITCHEN
COLD STORAGE AREA
SERVICE AREA
DISH STORAGE
soiled dishes
soiled dishes
line of overhang above
MAIN DINING ROOM
LOBBY
First Floor


M.
W.
PRIVATE DINING ROOM
W.
LOUNGE
M.
linen
W.
M.
OFFICE
RECEPT'N.
GENERAL OFFICE
VAULT
OFFICE
MEZZANINE DINING AREA
soiled dishes
soiled dishes
N
line of concrete above
BALCONY PASSAGE
UPPER PART OF DINING ROOM
CONFERENCE
OFFICE
OFFICE
BALCONY
scale 0 10 20 30'
Mezzanine Floor



The cantilevered second floor (acrosspage) provides a sort of "elevated sidewalk cafe" with a view of the street; across the front, this becomes a balcony onto which private parties sometimes overflow.



program A cafeteria to accommodate approximately 500, organized (for efficient service) for two serving lines; also with incoming and outgoing traffic separated. Private dining rooms for private parties.

site L-shaped property, with 50-foot frontage on Main Street; parking lot adjoins rear of building, serving two bordering streets.

solution Along the south side of the building, a covered sidewalk provides sheltered passage back to parking lot. The main dining room occupies the fore-part of the building, with service and kitchens to the rear and in the basement. Upstairs are offices, a mezzanine dining space, and private dining space in both the rear extension and along the south balcony passage that commands a view of the street—a "sort of elevated sidewalk cafe," as the architects term it.

Patrons entering from Main Street choose one of the two serving lines that lead along side walls of the main dining room back to parallel U-shaped lanes along duplicate serving counters, terminating at cash desks just inside the entrance to the main dining room. Dishwashing is handled in the basement, by means of conveyors located centrally between dining and serving areas. Food storage (a delivery entrance and freight elevator are at rear center of the building) and mechanical equipment also are in the basement. The entire building is air conditioned.

materials and methods CONSTRUCTION: *Foundation:* reinforced concrete. *Frame:* fireproofed structural steel. *Walls:* clay tile and face brick; some marble trim; interior walls—plaster, plywood, plastic wall finish, glazed wall tile, some stone. *Floors:* reinforced concrete (pan construction), first floor; steel joists, with reinforced gypsum concrete decking. *Flooring:* terrazzo, first floor; asphalt tile, second floor. *Insulation:* acoustical tile on ceilings; cotton-base thermal insulation. *Roof:* steel joists, gypsum concrete; built-up roofing. *Fenestration:* steel casement sash; polished plate-glass; oxydized aluminum storefront sections. *Partitions:* metal-stud and plaster; folding patented walls; metal type. *Doors:* slab-type, wood; metal elevated doors; tempered plate-glass entrance doors.

EQUIPMENT: *Heating and air conditioning:* gas-fired boiler; warm-air heating, galvanized-iron ducts, cork insulated; built-in conditioner, direct-expansion method; multi-shutter registers in walls, ceiling diffusers. *Electrical:* both incandescent and fluorescent fixtures.

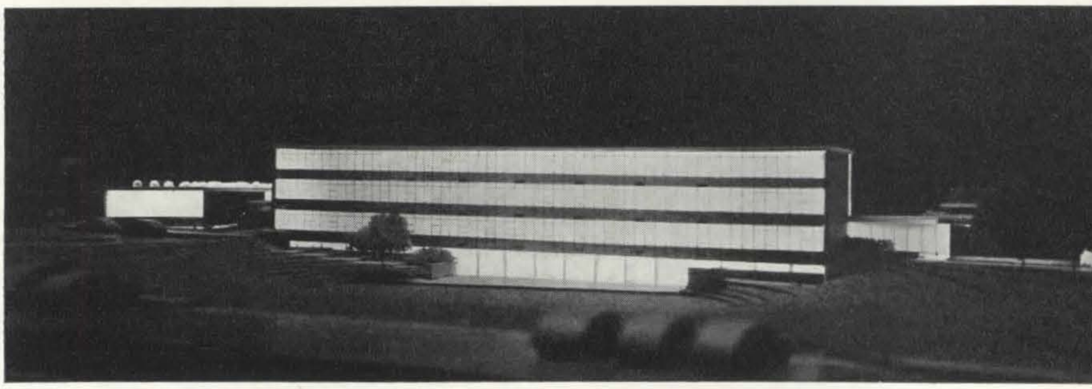
Left—the mezzanine "sidewalk cafe"; below—the rear mezzanine dining space, which may be closed off for private parties by an accordion partition.

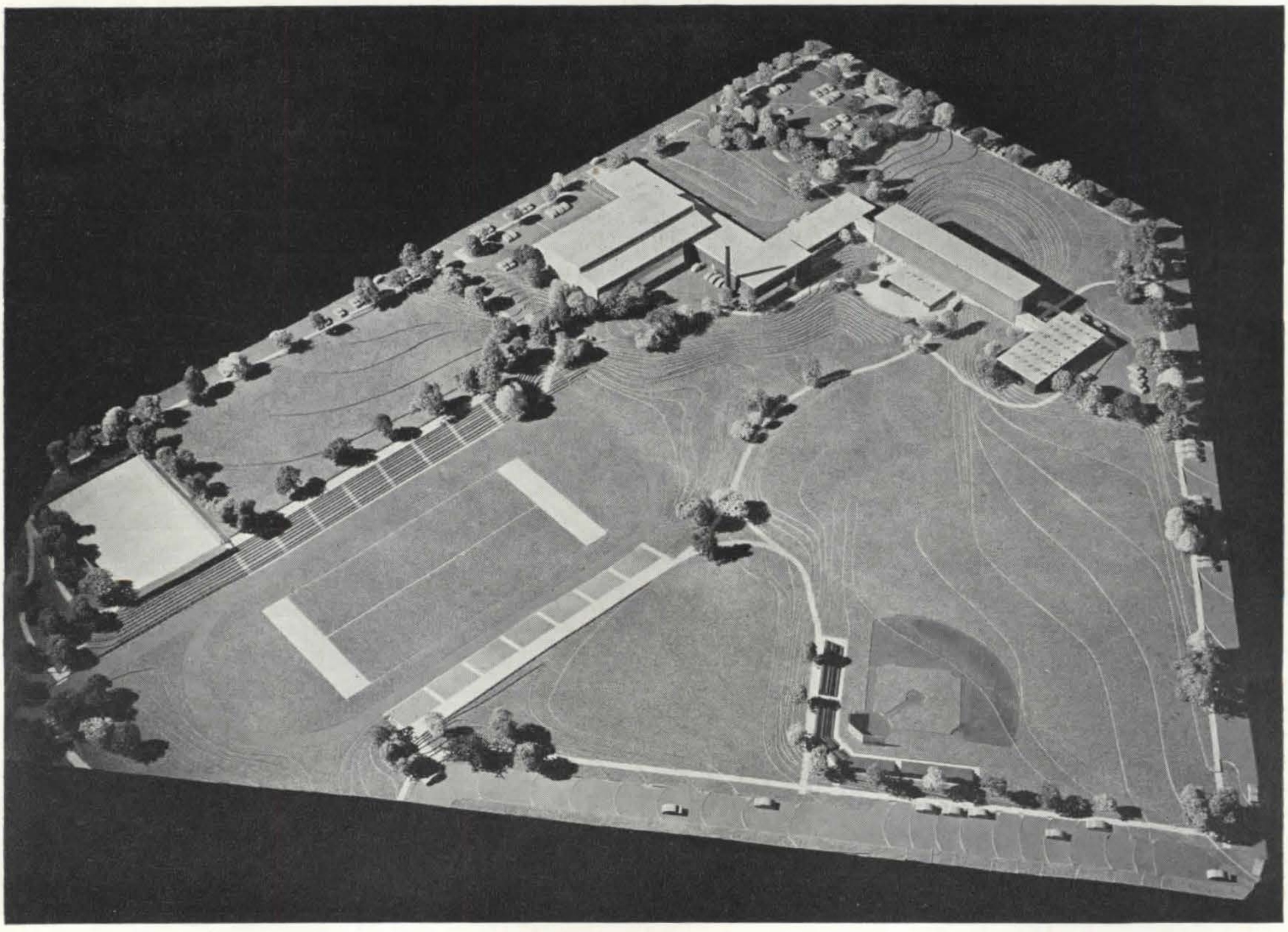
Below—customers' and workers' views of one of the paired serving lines and (bottom) a kitchen detail.

CAFETERIA: HOUSTON, TEXAS

Proposed High School
and
Community College: Keokuk, Iowa

PERKINS & WILL, ARCHITECTS - ENGINEERS
DEAN, ROSE & MUDRO, ASSOCIATE LANDSCAPE ARCHITECTS AND ENGINEERS





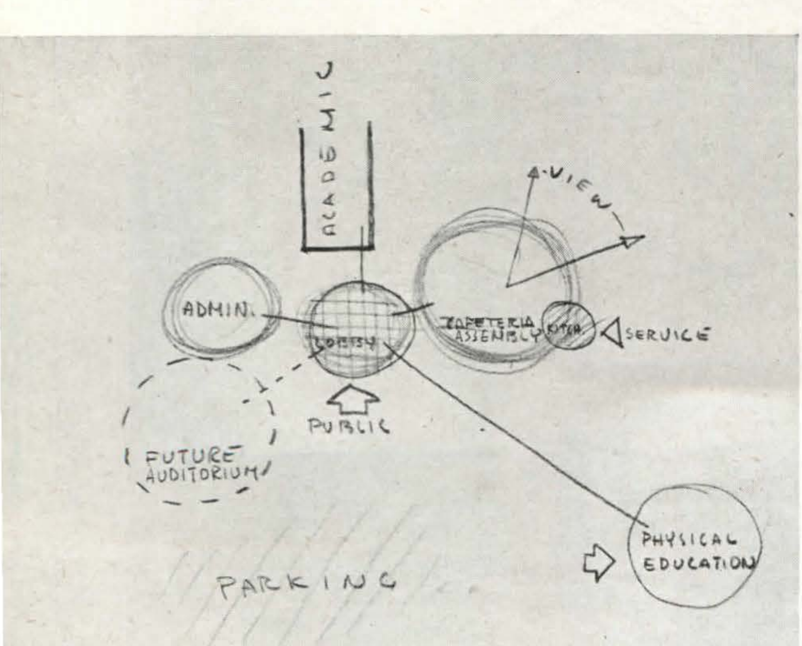
program Senior High School and Community College with a flexible plan to anticipate changing needs in the curriculum; a balanced scheme to provide for full mental, emotional, and physical development of students.

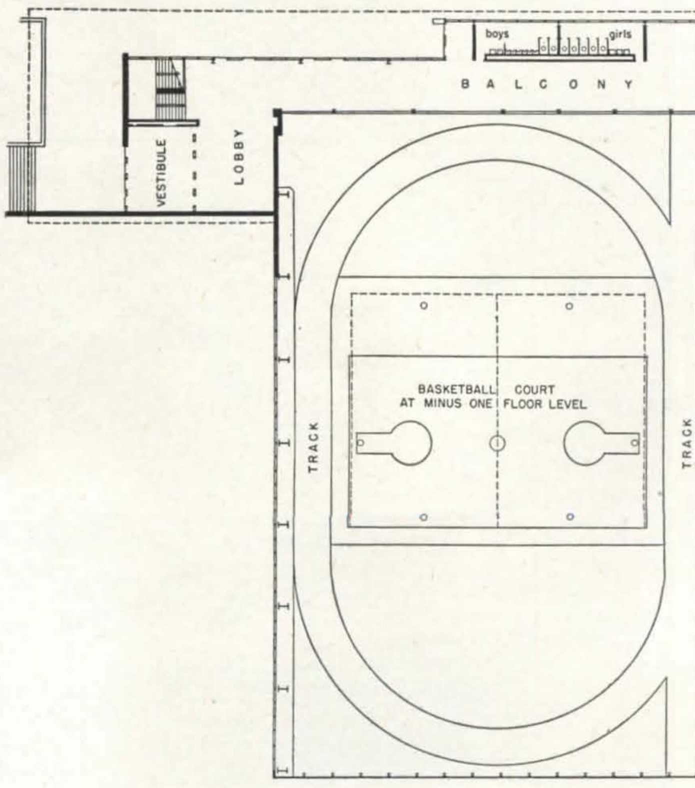
site Irregular, 25-acre site, with contour variation upwards of 50 feet from the lowest point at the southern end to the highest point on the north.

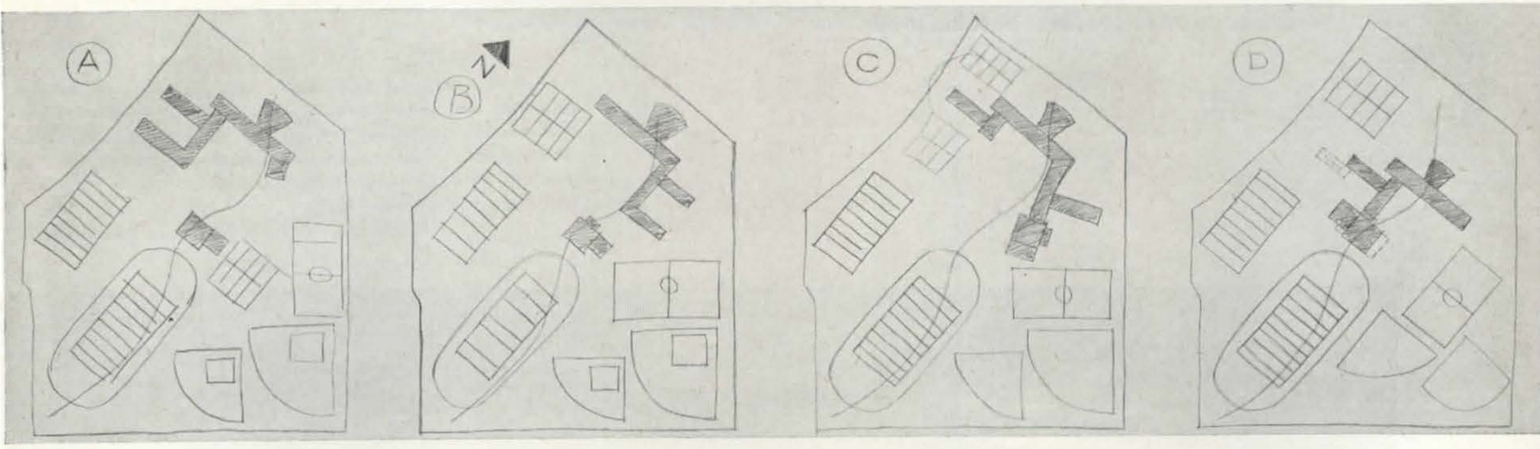
solution Arrangement within four distinct, but related and connected building elements: (1) the huge gym-field house unit at the relatively low, southwest end; (2) an L-shaped administration-cafeteria-office wing connecting the gym building with (3) a four-story academic—classroom wing, planned in a north-south-oriented rectangular block near the top of the site; and (4) the adjunct art department and workshops unit to the east. The community-junior college facilities that would share many of the school facilities are placed on the ground floor, across from the centrally placed library.

Most notable plan-and-design feature is the bilateral lighting of classrooms in the multistory academic block. Main classroom windows face north; interior walls of classrooms consist (on the corridor side) of banks of coat lockers, with plate-glass above them. The corridors themselves are cantilevered 12′-2″ out from the centers of columns (along interior classroom walls); the entire enclosing wall on the south side of the corridors is a curtain wall of polished plate glass with aluminum sash. Thus, the corridors are sunny, enclosed loggias; southern light, but not direct sun, enters the rooms by means of the window strip above lockers, and all classrooms are bilaterally lighted.

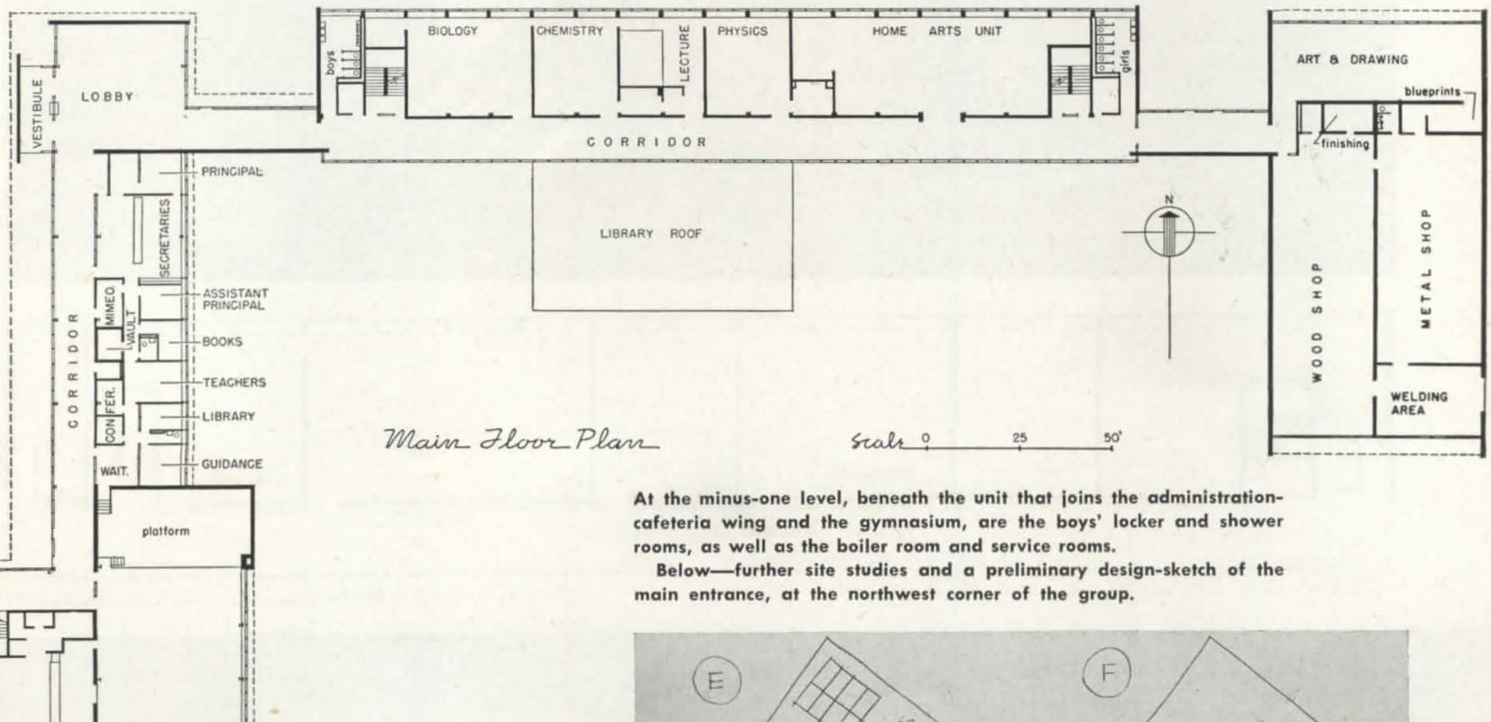
materials and methods CONSTRUCTION: *Foundation:* compacted fill under concrete slabs. *Frame:* reinforced concrete—pan and cantilever; also steel beams and slab. *Walls:* brick, stone, glass; interior walls—concrete block; glazed tile. *Floors:* concrete; ceramic tile; asphalt tile; rubber tile; carpeting; terrazzo; iron-bound maple in asphalt mastic. *Roof:* poured gypsum; tar and gravel; plastic semi-circular domes on library and shops. *Insulation:* acoustical ceiling tile; walls—perforated, tempered, pressed wood. *Partitions:* exposed concrete block; glazed tile; wood; steel and structural glass. *Fenestration:* aluminum and steel sash; polished plate, window, obscure, tempered, drawn and structural glass.





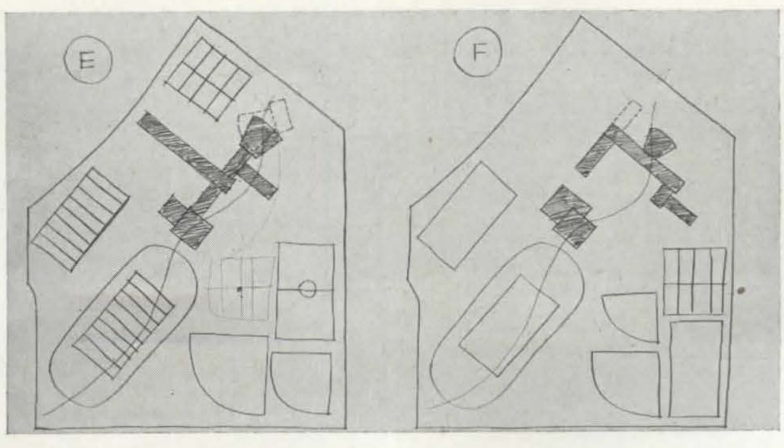


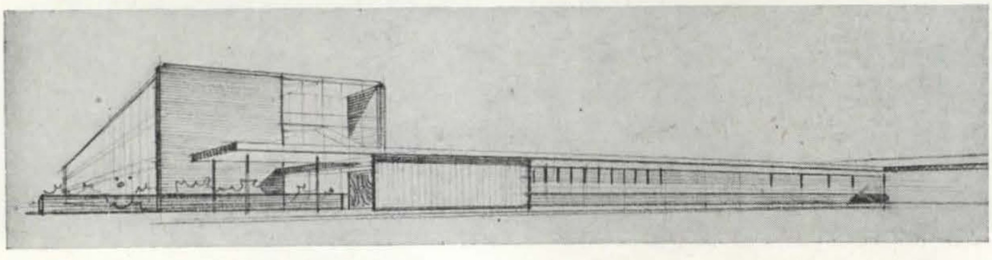
Above—a few of the innumerable site-plan studies made by the architects before the final scheme was jelled. Drawing at bottom corner of facing page is a typical early study of relationships between major functional elements.



At the minus-one level, beneath the unit that joins the administration-cafeteria wing and the gymnasium, are the boys' locker and shower rooms, as well as the boiler room and service rooms.

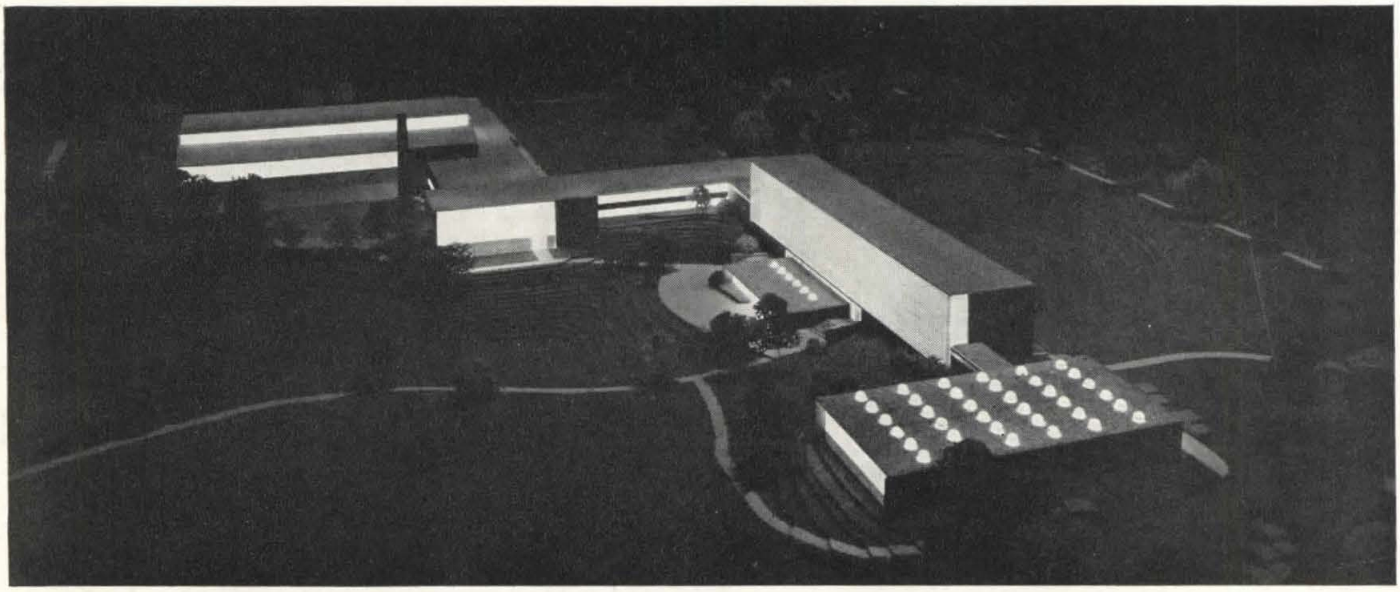
Below—further site studies and a preliminary design-sketch of the main entrance, at the northwest corner of the group.

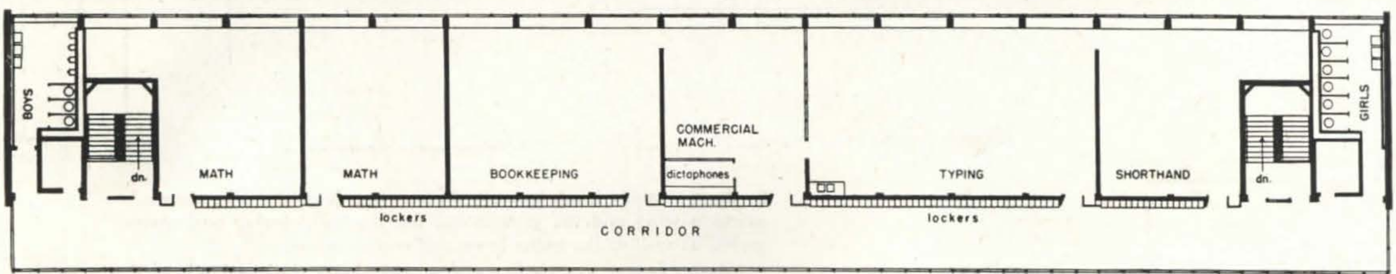




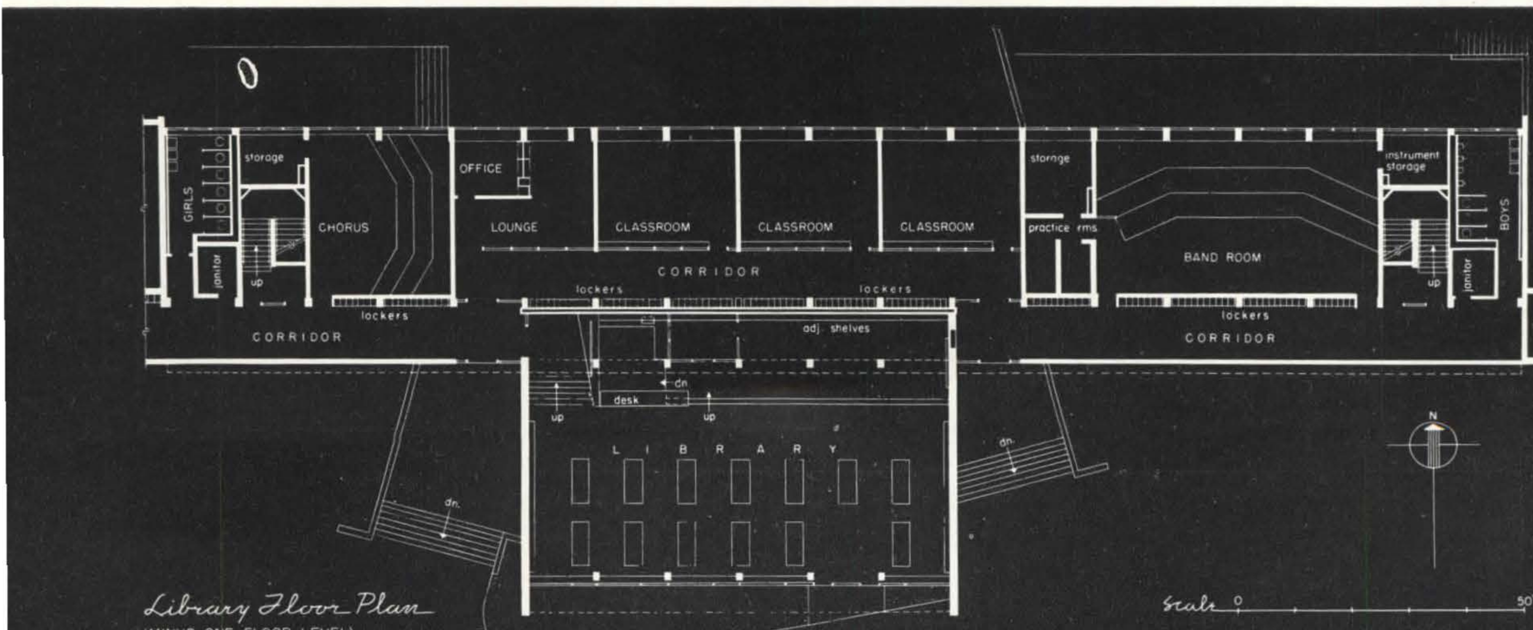
Bird's-eye view of model shows the gym wing at far left, cafeteria and administrative link, center; academic block (with library projecting toward the south at the minus-one level), and the art department-workshop building, in foreground. Note the plastic-bubble skylights in both the library and the workshop building.

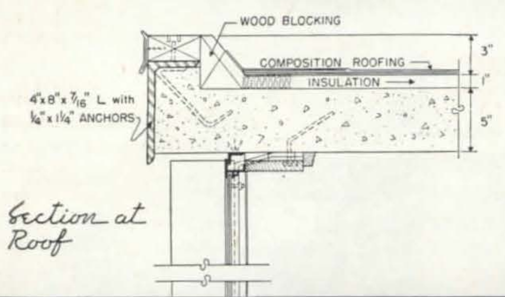
Photos of model: Bill Hedrich, Hedrich-Blessing



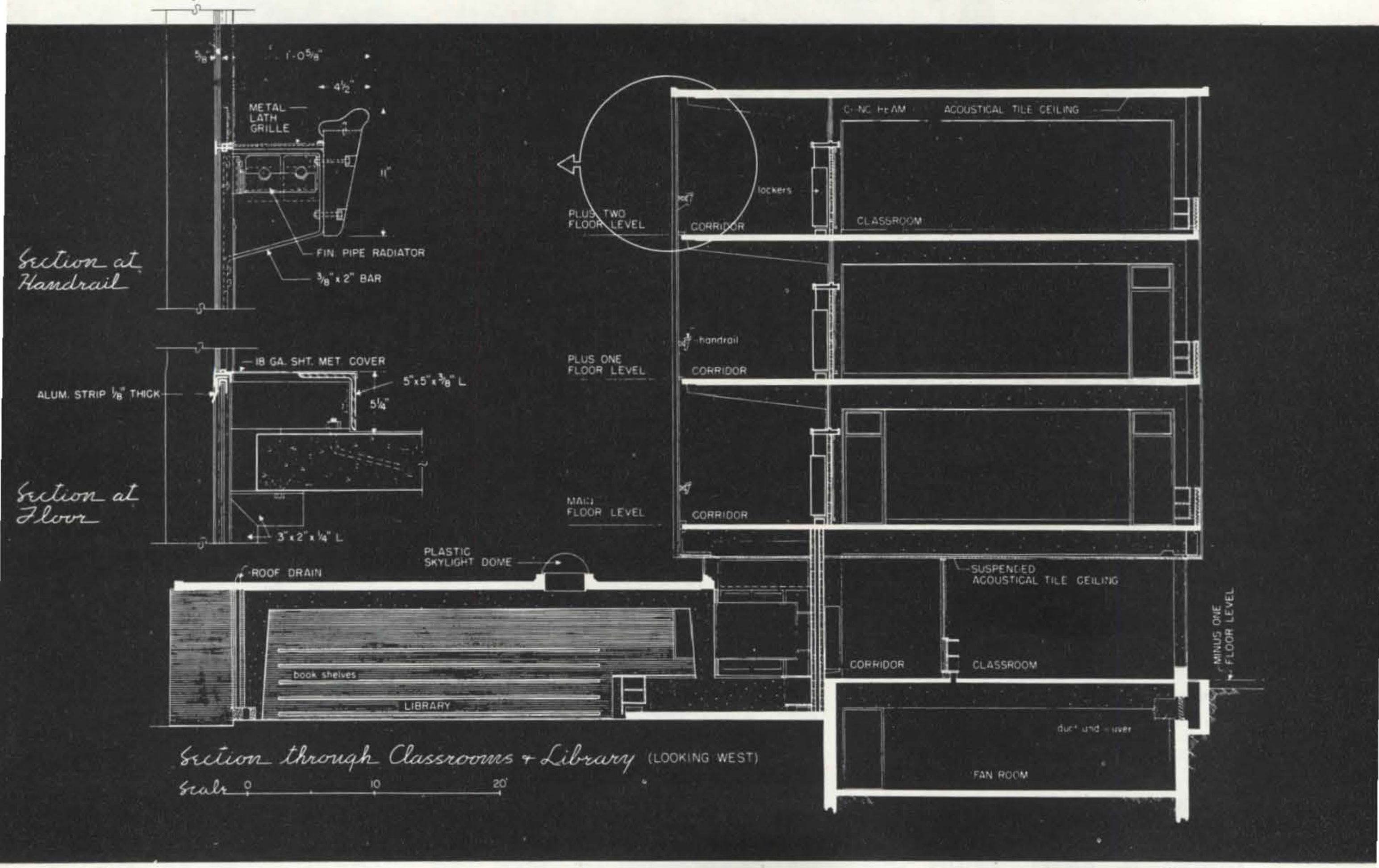


Classroom Floor Plan (PLUS TWO FLOOR LEVEL) *Scale* 0 50'





The section through the academic building, with the projecting mass of the library, clearly shows the ingenious solution worked out for bilateral lighting in a multistory classroom building. The cantilevered southern corridors have continuous glazing on the exterior wall (note the fin-pipe radiation concealed behind the corridor handrail) ; inner walls consist of coat lockers with plate-glass panel above, and the



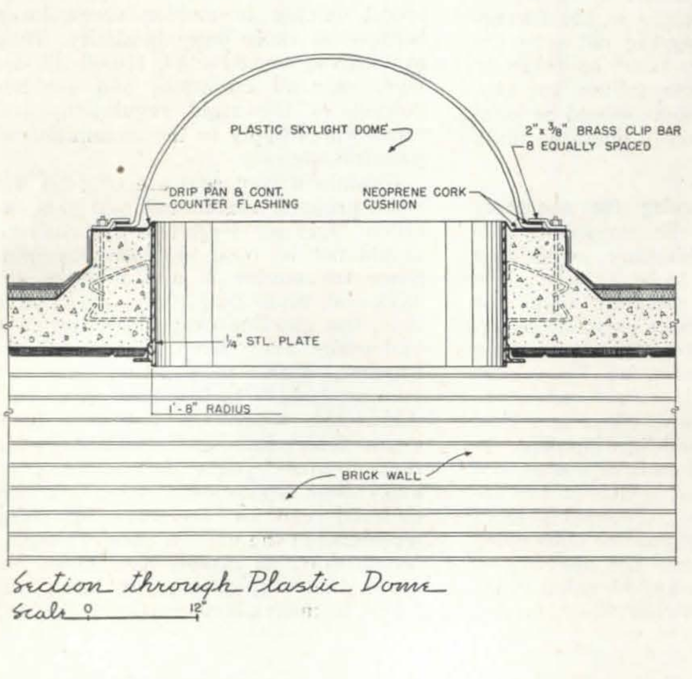
Section through Classrooms + Library (LOOKING WEST)

larger windows of the classrooms face north, overlooking the Community College campus. The north-lighted classrooms for the college occur at the minus-one floor level, across the corridor from the library.

The classroom floor plan on the opposite page illustrates the flexibility that the scheme allows. A modular system, with 12-foot bays between vertical columns, plus the 28-foot standard depth of the rooms, permits room sizes that range from a 12′ x 28′ room, for departmental offices or small labs, up to a room 48′ x 28′ in area, that was needed (for instance) by the commercial department. The basic classroom size is 24′ x 28′.

In both the library and in the arts-workshop unit, plastic skylight domes (see the detail, at left) bring light to interior areas.

A point in the school design that the sloping site helped the architects solve, is that the academic block, situated at the highest point of the site, dominates the scheme, even in competition with the huge mass of the gym unit which, through its placement at a lower grade, assumes its desired relationship—both visually and academically.



Section through Plastic Dome

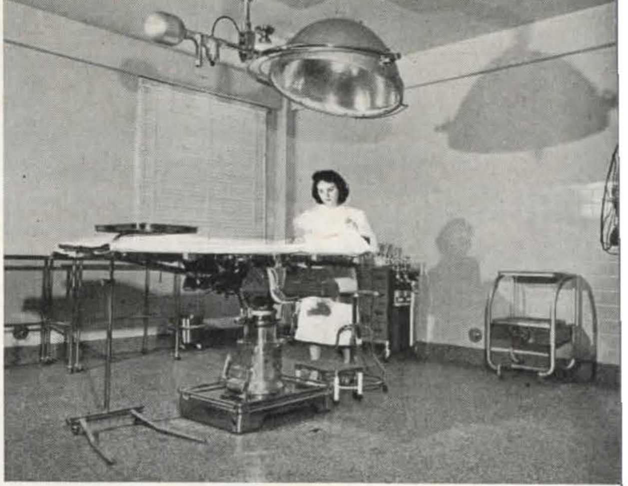


Figure 1 (above)—one of two operating rooms in the Stillwater Municipal Hospital (Oklahoma) protected by standby circuits. Power fall essential lights in this 60-bed hospital is provided by the plashown in Figure 2.

Figure 2 (left)—this 5000-watt unit is operated on city gas; wheregular power fails, automatic control switches the load over to thplant. *Photos: courtesy of D. W. Onan & Sons, Incorporate*

Standby Power Plants

By I. J. CROWLEY*

We have become so dependent upon electric power that an interruption of even short duration may result in loss of production, property, and even human life. As the demand for emergency power has steadily increased since the end of World War II, the installation of standby power equipment has become an important consideration in the planning of hospitals, department stores, hotels, office buildings, institutions, airports, pumping stations, and—most recently—bomb shelters.

The principal factors which should be reviewed before specifying this type of equipment will be analyzed in the following paragraphs.

automatic vs. manually operated units. Where prompt restoration of power (within 15 seconds) is of paramount importance, only a fully automatic unit will satisfy this requirement. This type of plant is essential for hospitals that have not been provided with automatic emergency lights in the operating and delivery rooms. Fully automatic units also must be provided where operating personnel is not available at all times or where the personnel may be incapable of starting and operating generating equipment.

Where a power loss of short duration, say a matter of minutes, will not have serious consequences, a manually started unit will provide satisfactory *protection*—assuming, of course, that personnel familiar with the equipment is in constant attendance. The Greenwich Hospital, Greenwich, Connecticut, possesses a manually started 50-kw (62.5 kva) diesel-driven unit which has given efficient emergency service for more than four years. During this period, seven power failures of varying duration have occurred—one failure lasted 17 hours. The operating and delivery rooms are equipped with automatic, battery-operated lights; however, at no time have other locations within the hospital been without power longer than 33 seconds. This efficient record was possible because the hospital employs three eight-hour boiler-room shifts and because the standby unit was given a half-hour operating test each week. The engine-generator unit (*see Figure 3*) is installed in the boiler room of this hospital; the switchboard is located near the main distribution panel in a switchgear room adjoining the boiler room. When normal power fails, the operator starts the engine, then goes to the switchgear room and shifts a manually operated double-throw switch from the normal supply to the emergency unit. The foregoing not only describes what actions must be taken in the event of a power failure but also indicates that conditions should be ideal for the use of manually operated units in hospitals.

determining and planning the emergency load. The load to be carried by the emergency unit obivously establishes the size of the unit to be installed. The wiring layout of a building should be planned so that circuits carrying essential facilities can be segregated from those deemed nonessential. The pieces of equipment usually considered essential are: oil burners, elevators, fuel and water pumps, and lighting. The operation of all elevators need not be provided for if selector switches are installed which permit the operation of one elevator at a time on the emergency unit. This will permit the discharging of passengers from any elevator which may be stopped between floors. In the case of existing buildings, it may be less costly to provide an emergency unit of sufficient capacity to carry the entire load than to attempt to make the wiring changeover necessary to separate essential facilities.

types of generating equipment available. Emergency generators are commonly driven by diesel or gasoline engines, or by steam turbines. Engines burning natural gas, manufactured gas, butane or propane, are also available. The prime mover to be used will be determined by the prevailing conditions and the decision as to which type will give the better results. The majority of engineers now favor diesel-driven generator sets. Diesels start and come up to speed in not more than five seconds; carry their rated loads easily; and respond quickly to sudden shock loads because of their lugging ability. They are heavily constructed, simple in design, easy to maintain, and are not subject to the rigid regulations and codes which apply to the installation of gasoline engines.

Gasoline-driven sets are efficient and when properly maintained will give excellent service. High-test gasoline should not be used in a standby unit. Since the engine is not operated for days and, more frequently, weeks at a time, the gasoline evaporates from the carburetor, fuel pump, and fuel lines. Further, high-test gasoline leaves a gummy residue in the fuel pump and carburetor, which in time—2½ to 3 years from date of installation—will render these parts inoperative and make their replacement necessary. This difficulty can be overcome by using white gas in the unit. A gasoline engine cannot start as rapidly as a diesel because the evaporation previously referred to makes it necessary to lift fuel

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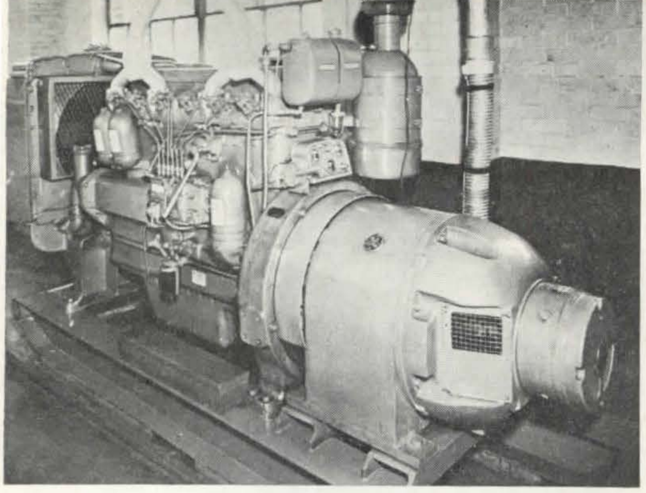
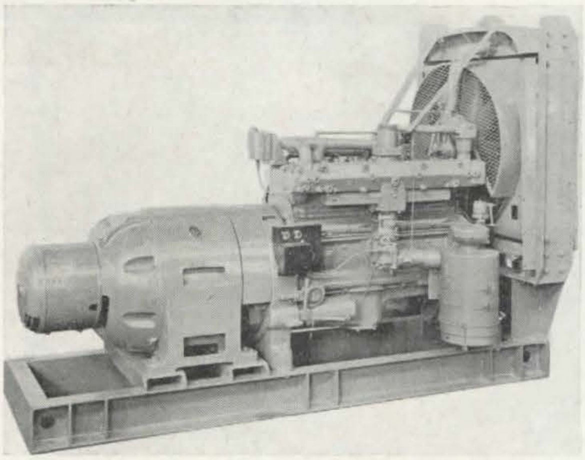




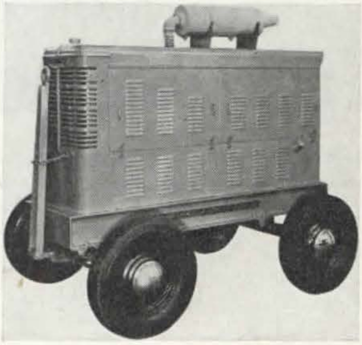


Figure 3 (above, left)—manually started 50 kw (62.5 kva) diesel-driven power plant located in the boiler room of the Greenwich Hospital, Greenwich, Connecticut.

Figure 4 (above)—small gravity tank mounted on gasoline engine (between engine and generator) provides quicker starting; tank capacity is limited to one quart, by National Board of Fire Underwriters.

Figure 5 (left)—small units, trailer-mounted, have advantages for localized emergencies.

Photos: courtesy of International Diesel Electric Co.

from the supply tank to the pump and carburetor before the engine will fire. This lifting has to be done at cranking speed. Diesel oil, however, will not evaporate and the injection pump delivers fuel to the injection nozzles on the very first turn of the starter.

To provide quicker starting, a small gravity tank may be mounted on gasoline engines *(see Figure 4)*. Fuel is pumped into this tank and then delivered to the carburetor. When the engine stops, this tank remains filled with fuel so that the engine will start promptly when next called upon. This small tank must be vented back to the main storage tank to avoid vapor lock; its capacity is limited to one quart by regulations of the National Board of Fire Underwriters.

Turbine-driven generators may be used where there is assurance of a continuing supply of high-pressure steam. They are quickly and automatically started by the use of a solenoid valve. Transferring the load back to the normal supply, however, must be done manually. No independent fuel supply or starting system is required.

Engines fueled with natural gas, manufactured gas, butane, or propane, assuming a nonfailing supply of fuel, will give satisfactory results.

Where a power failure can disrupt plant operations it is often advisable to have available a portable unit, mounted on a trailer. A 25-kw (31.25 kva) unit of this type is owned by the Kings County Lighting Company of Brooklyn, New York *(see Figure 5)*. When a failure occurs, this unit is towed to the point of failure and a portable cable run from the generator to the service.

generator ratings. An alternating current generator of standard manufacture is rated in kw (kilowatts) and in kva (kilovolt-amperes). The former rating indicates real power, or the generator capacity which is available for work. The latter rating indicates apparent power only. Standard ac generator ratings are based on a power factor of 80 percent: for example, 62.5 kva or 50 kw. It is advisable to give both ratings, as well as the power factor, in specifying generator capacities. Standard generator ratings are indicated in the table below:

kw	kva	kw	kva
5	6.25	75	93.8
7.5	9.4	100	125
10	12.5	125	156
15	18.7	150	187
20	25	175	219
25	31.3	200	250
30	37.5	250	312
40	50	300	375
50	62.5	350	438
60	75	400	500

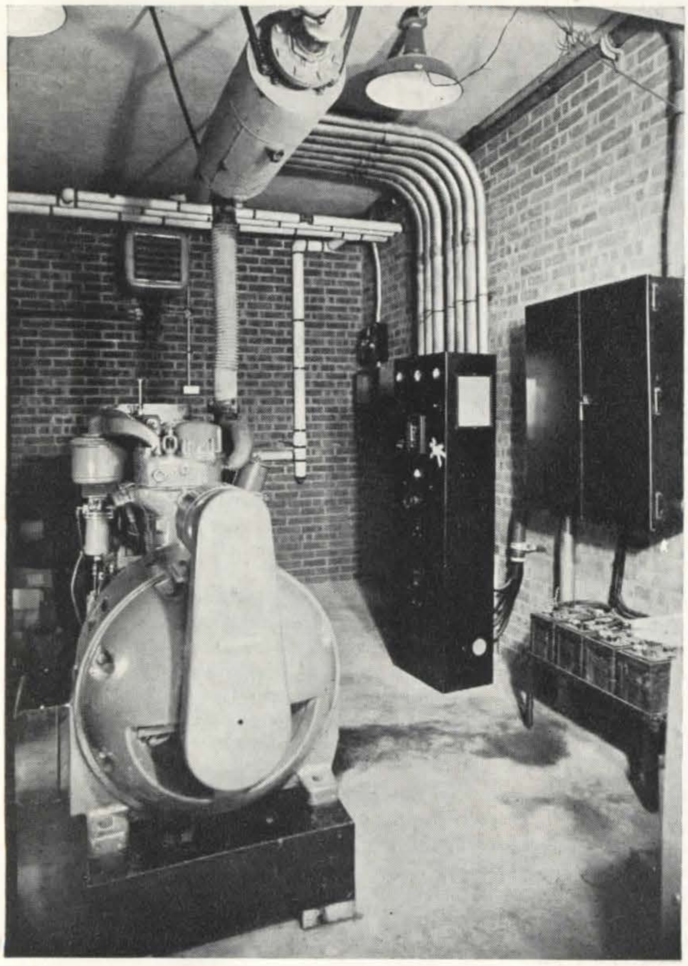
engine characteristics. The selection of an engine to drive a generator should be based upon obtaining, from the unit, a power supply of the same quality as that delivered by the public utility. A multicylinder engine should be provided —preferably one that does not have less than four cylinders. The speed at which the engine is to operate, of course, will have to be a synchronous speed—600, 720, 900, 1200, or 1800 rpm. Since standby units are used only occasionally, there should be no objection to operating at either 1200 or 1800 rpm. It should be noted that in *some* generator sizes the 1800 rpm generator is more expensive than the 1200 rpm generator, although the former is a four-pole machine and the latter a six-pole. This often results in a 1200 rpm unit costing less than an 1800 rpm unit due to the increase in the engine price being more than offset by the decrease in the generator price.

Engine accessories should include at least the following: air cleaner, fuel filter, lube oil filter, starting batteries with cables and electrolyte, trickle charger, safety alarms, flexible exhaust connection, and muffler.

Two methods of engine cooling are in general use. First is the conventional radiator and fan. Second, water from the normal supply is passed through the engine jackets, or through a heat exchanger, and off to waste. A heat exchanger should be used where raw water from the local supply might cause corrosion in the engine block.

Where water from the normal water supply is used for cooling, the rate of flow is regulated by a thermostatically controlled valve. This results in maintaining a given temperature regardless of load fluctuations or changes in ambient temperature. Where a heat exchanger is not used it is good practice to provide an expansion and mixing tank on the engine. Without such a tank, in the event of failure of the thermostatic valve, it is possible to seize the engine by a sudden inrush of cold water. (A 100 kw diesel unit equipped in this manner is shown *(see Figure 6)*.

When considering the possibility of bombing attacks, which could disrupt water supply, closed cooling systems are preferred. Where engine-room temperatures are high enough to prohibit the use of a radiator and fan, the radiator may be installed in an outside wall and a motor-driven fan mounted behind it. Where this system is not feasible, a method often referred to as "high-temperature cooling" may be used. The radiator and fan are eliminated and the



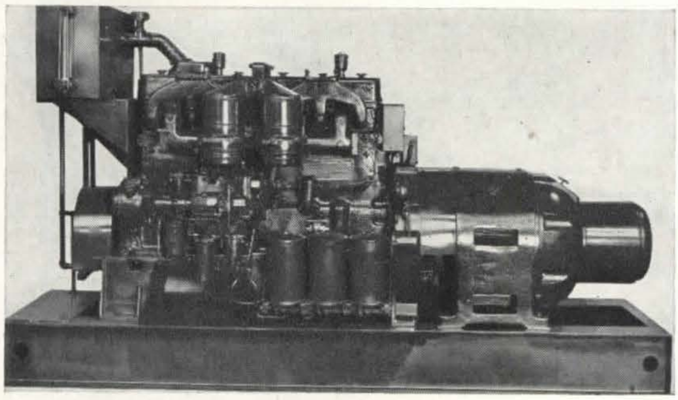


Figure 6 (above)—this diesel-driven unit, cooled by a local supply of water, has an expansion and mixing tank mounted on the engine to prevent the engine from being seized by a sudden inrush of cold water.

Figure 7 (left)—a free-standing switchboard and horizontal muffler above can be seen in this illustration.

Photos: courtesy of International Diesel Electric Co.

engine is operated at temperatures as high as 240 F. A steam separator is utilized and the hot water is returned to the suction side of the jacket water pump. The steam may be discharged to atmosphere, or may be condensed and returned to the separator. Where the steam is condensed, very little make-up water is required; if the steam is discharged to atmosphere, a reasonable supply of make-up water must be provided.

The conventional engine starting system comprises an electric motor with worm-gear drive and batteries. Criticisms of this system are based upon the limited life of batteries. Lead batteries carry guarantees of from 18 to 24 months and should be replaced at least every two years. This becomes an expensive item. Glass-jar or nickel-cadmium batteries, although initially higher in cost, will result in a saving over a period of years because their life is many times that of lead batteries.

The electric starter may be replaced by supplying a starting winding in the generator which is energized by batteries. This system is practical only in small generating sets. In larger units, the physical size of the generator and the battery capacity required become excessive.

The one system of starting which requires no batteries is compressed-air starting. Large diesel engines are universally started by this method. A compressor and air-starting tanks, with pipe connections to a starting valve in each cylinder head, are used. Air is admitted to the starting valves from a storage tank. A valve gear opens and closes the valves at the proper time and in correct sequence to keep the engine rotating until the fuel ignites and the engine starts to run under its own power. At this point the starting air is shut off. The opening and closing of the air supply is done manually; however, some progress has been made in the use of air-starting with automatic units.

Comparatively small diesel and gasoline engines are sometimes used in standby units. These engines are not equipped with air-starting valves in the cylinders. To use compressed air for starting these engines, an air motor is used in place of an electric motor. As in large diesels, a supply of compressed air must be provided. The initial cost is about four times that of the starting motor and battery system; however, the expense of battery charging and servicing is eliminated. It is predicted that air-starting will be increasingly favored. To bring the system into general use, positive controls must be designed which will automatically supply starting-air to the motor and shut it off when the engine is operating under its own power. At least two companies are studying this problem at the present time.

engine and generator assembly. The engine and generator shafts may be connected by means of a flexible coupling; or a flanged half-coupling mounted on the generator shaft may be bolted into the engine flywheel. Before connecting the engine and generator shafts, a responsible manufacturer will determine whether or not the new mass, the two shafts, will produce a critical at the operating speed. Should a critical result at or about the operating speed of the unit, a torsional vibration is set up and there is a good possibility that the shaft will break. To eliminate this hazard, an extensive mathematical procedure known as a torsional analysis is followed.

A standby unit is usually guaranteed for only one year. During the guarantee period an existing critical may not become apparent, due to the infrequent use of the unit. It is therefore important that specifications provide that the manufacturer must submit copies of a torsional analysis. When assembled on the base, the engine, generator, and accessories should be readily accessible for servicing or repairing.

switchgear. Switchboards may be free-standing, wall-mounted, or unit-mounted types. Because they are not affected by vibration and do not interfere with the circulation of air around the unit, the first two types are preferred. Instruments mounted on the board include the following: voltmeter, ammeter, frequency meter, voltage regulator, exciter field rheostat, circuit breaker or fuse block, and trickle charger. A typical free-standing board is shown (*see Figure 7 in right background*).

shop tests and acceptance. When the generating unit is complete, it should be given a full-load operating test at the plant of the manufacturer. This test should be witnessed by the principals or by the consulting engineers. Such tests not only demonstrate that the unit will carry its rated load but also insure that all accessories have been included. Should it not be convenient for the principals or engineers to be present at the test, an accredited testing or engineering firm may be delegated to perform this function.

installation. The installation, with particular reference to gasoline-driven units, should be made in strict conformance with the regulations of the National Board of Fire Underwriters, and local ordinances.

Fuel-supply tanks are to be buried under at least two feet of earth. The top of the tank must be below the bottom of the carburetor. Where units are to be installed in basements, the latter rule is difficult to comply with. In these cases, the tank may be buried beneath the engine-room floor if it is covered by four inches of reinforced concrete. The vent and fill lines must terminate outdoors. The fuel tank may be supplied with a remote-reading dial gage, if desired.

Exhaust lines preferably should be installed in a horizontal position. This is desirable because condensation in the line will collect in the muffler where it can be drained, or can be eliminated when the unit is operated. In cannot reach the interior of the engine, as happens when the muffler is installed in a vertical position. A horizontal exhaust line is shown (*see Figure 7*).

The exhaust tail-pipe should pass through an outside wall and be cut off at a 45-degree angle to prevent the entering of rainwater. Should the pipe pass through a combustible wall, local fire regulations will indicate the precautions to be taken. Exhaust lines may be discharged into existing stacks only with the approval of the authorities involved.

Batteries should not be installed on the unit. If so installed, they are subjected to the heat of the engine and the sealing compound may be dissolved. Also, acid may reach and damage the generator windings. It is best to provide a channel iron tray, or frame, which stands on the floor free of the unit. A battery charger mounted within the switchboard will simplify installation.

periodic tests. Standby plants should be given a load test once a week and be permitted to operate at least until the water temperature reaches the specified operating rate. Lubrication, fuel, water, and batteries should be checked as a part of the weekly test.

sample specification. Suggested specifications for a standby unit follow:

EMERGENCY GENERATING UNIT

general—The generating unit shall consist of a ——— engine, direct connected to a —— kw (—— kva), —— phase, 60 cycle, —— volt generator.

engine—The engine shall have at least —— cylinders and develop not less than —— hp at ——— rpm. The engine shall be equipped with the following:

- oil bath air cleaner
- fuel oil filter
- lube oil filter
- circulating water pump
- —— cooling system

generator—The generator shall be rated —— kw (—— kva) at 80% power factor with exciter, meeting all A. I. E. E. and N. E. M. A. requirements.

switchboard—The switchboard shall be of the ———— dead-front type, containing the following instruments mounted and wired:

- ammeter and ammeter switch
- voltmeter, voltmeter switch
- voltage regulator
- exciter field rheostat
- circuit breaker
- frequency meter
- necessary current and potential transformers
- trickle charger

accessories

- batteries with electrolyte, cables and battery tray
- muffler flexible exhaust hose
- vibration isolation material

assembly—The engine and generator shall be mounted on a structural steel base; the engine begin connected to the generator by means of a ———— coupling.

shop tests—The engine, generator, and all accessories shall be given a witnessed shop test at the plant of the manufacturer, at various loads and at full load. The manufacturer shall provide all facilities for testing at no additional cost. Copies of torsional analysis must be furnished.

materials—All materials shall be new, unused, of recent manufacture and best suited for the application.

drawings—The manufacturer shall supply ——— copies of outline assembly and —— copies of wiring diagram. All piping and wiring connections shall be clearly indicated and sizes given.

warranty—The manufacturer shall warrant the entire equipment free of electrical or mechanical defects for a period of one year from date of shipment.

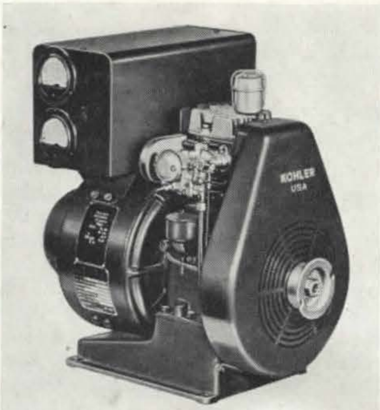
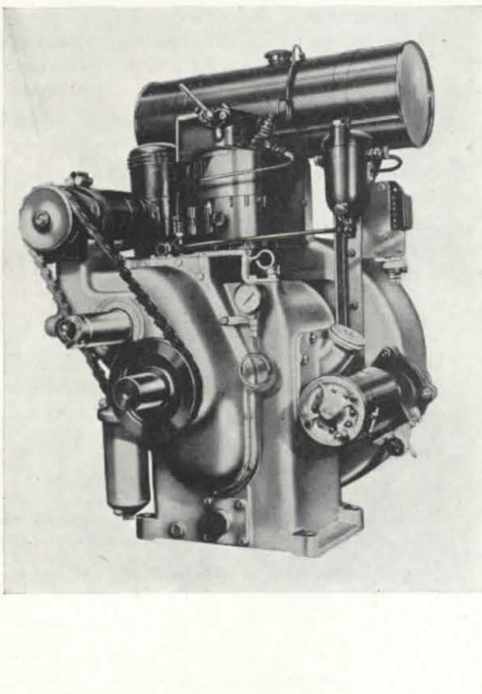


Figure 8 (right)—this 750-watt, 115-volt, ac, emergency unit has one cylinder and is air-cooled; gasoline operated, it starts and stops automatically.

Figure 9 (below)—a one-cylinder, air-cooled Armstrong-Siddeley diesel engine which develops 8 hp at 1200 rpm.

Photo: courtesy of Kohler Company
Photo: courtesy of Lister-Blackstone, Inc.



Structural X-Ray Protection

By CARL B. BRAESTRUP*

introduction

Handbook 41, National Bureau of Standards, contains the latest X-ray protection code.[1] With this publication, the hospital architect has available authoritative and detailed recommendations for structural shielding against radiation. The Handbook does not attempt to explain, however, the fundamental principles upon which the recommendations are based; nor does the code illustrate their application with typical examples of protection design. Consequently, the architect without special training in radiologic physics may have difficulty in applying the data of the Handbook to his particular problems of X-ray shielding. It is the purpose of this article to provide this supplementary information.

radiation hazards

Damage caused by overexposure to X-rays includes permanent local and systemic injuries. Typical local effects are the production of skin ulcers, which may become malignant, and the temporary or permanent loss of hair. These results are usually caused by improper operating techniques rather than by inadequate structural shielding. Insufficient structural protection, however, is a common cause of systemic damage. The systemic injuries include progressive changes in the blood forming organs and genetic injuries; the former result in anemia and lukemia while the latter may cause temporary or permanent sterility and, possibly, mutations affecting future generations.

As a result of more than a half-century of extensive research and experience, it is now possible to use Roentgen rays with a high degree of safety. Yet, even at the present time, adequate radiation safeguards are not universally employed; one still finds X-ray departments with insufficient or no structural shielding. In many cases, this is due to a false sense of security caused by the lack of early and obvious physiological changes associated with overexposure to radiation.

permissible exposure

The principle purpose in providing shielding against X-rays is to reduce unwanted or stray radiation to such a minute value that it has no known *harmful* effects on the human body. As this level, called permissible exposure (tolerance dose), has been progressively reduced, the expense of structural protection has steadily risen; it has now reached a point where it is an important factor in the construction cost of the X-ray department.

According to the recommendations of the National Committee on Radiation Protection, the maximum permissible exposure to X- or gamma-radiation from external sources is 0.3 Roentgen[2] (300 milliroentgens) per week. That is, it is considered safe to expose weekly the whole human body to this dose for an indefinite period.

It should be realized that it is impossible to eliminate exposure to ionizing radiations entirely; cosmic rays and the inherent presence of radioactive elements in the earth, the atmosphere, and in common building materials give a "background" exposure rate of about 0.01 mr/hr.

X-ray tube enclosures

The modern type of X-ray tube is enclosed in a protective housing, provided with a small aperture, practically limiting the rays to the useful beam. It should be emphasized, however, that although such equipment has been (erroneously) called "ray proof," it does not eliminate the need for structural shielding. Protective barriers must be provided against that part of the useful X-ray beam which is not absorbed by the patient and against secondary rays emitted by any material exposed to radiation.

protection barriers

The amount of structural protection required depends mainly upon the voltage used across the X-ray tube, the weekly milliampere-minutes (ma-min) of exposure, and the distance from the X-ray tube to the persons to be protected. The penetration of the X-ray beam increases considerably with the applied voltage, making the shielding requirements much greater for the higher potentials. As the quantity of X-rays is proportional to the milliampere-minutes, this consideration must be included in shielding calculations. Lastly, the intensity of the beam varies inversely as the square of the distance. This factor has a far greater significance than is generally realized; doubling the distance reduces the radiation to one quarter, tripling to one ninth, and so on.

Among the various metals suitable as barriers to the rays, lead is generally the most economical. Concrete and other heavy building materials may be used to advantage for voltages above 250 kv, where they are part of the structure as in floors and ceilings.[3] At voltages above 400 kv, concrete is used almost exclusively except where it is necessary to reduce the weight or space of the barrier. At 200 kv, a concrete barrier has to be about sixty times as thick as a lead barrier to give the same degree of protection; at one million volts, the ratio is only about six to one.

The thickness of a barrier also will depend upon the type of radiation to which it is exposed: the useful beam, leakage, or scattered (secondary) radiation. The barriers exposed to the useful beam are called *primary protective barriers* and their thickness may be determined directly from **Table I.** Leakage (also called direct) radiation describes the rays passing through the shielding of the tube housing. Leakage radiation varies greatly with the type and make of the tube housing; however, it generally does not exceed the values allowed by the latest protection code, or 0.1 r/hr for diagnostic and 1 r/hr for therapeutic tube housings, measured at one meter from the target of the X-ray tube.

The scattered radiation varies widely with field size and geometry; however, in fluoroscopy and radiography, it is safe to assume that at 90° it is less than one percent of the incident radiation measured at one meter (3.3 feet) from the scattering material. For 200-250 kv deep-therapy, this factor is less than 0.2 percent; and for one- to two-million volt therapy, less than 0.1 percent. Barriers exposed to leakage and scattered radiation only are called *secondary protective barriers.*

Consideration also should be given to the degree of occupancy of the space to be protected. Obviously, a stairway or lavatory requires less shielding than a permanently occupied office.

To summarize, the following factors must be known in order to determine accurately the protective requirements:

a. Kilovoltage: The maximum voltage rating of the proposed equipment.

b. Milliamperage-minutes per week: This factor depends both upon the milliampere rating of the equipment and the weekly work-factor. In fluoroscopy, the milliamperage is low, 5 ma or less, and the exposure time relatively long, perhaps 5 to 15 minutes per examination. In radiography, the current is high, up to 500 ma, but the individual exposure is short, mostly fractions of a second. In therapy, the current varies

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[1] *"Medical X-ray Protection up to Two Million Volts", (Handbook 41, National Bureau of Standards). Issued March 30, 1949; additions and corrections April 1950. Obtainable from Superintendent of Documents, Washington, D. C.; price 20 cents.*

[2] *Roentgen (r) is the international unit of quantity for both X- and gamma rays. The milliroentgen (mr) is 1/1000 r.*

[3] *Barium plaster has been used as a substitute for lead, also for lower voltage installations. However, as the barium plaster has to be applied very uniformly and as cracks may develop with age, its use has been practically discontinued in this country.*

Table 1—Primary Protective Barriers

Type of room	Kilo-voltage	Maximum weekly ma-min	Distance from X-Ray Tube Target to Occupied Area											
			6 ft.		8 ft.		10 ft.		12 ft.		15 ft.		20 ft.	
			Lead mm	Conc. in.	Lead mm	Conc. in.	Lead mm	Conc. in.	Lead mm	Conc. in.	Lead mm	Conc. in.	Lead mm	Conc. in.
Radiography	100	500	1.2	3¾	1.0	3¼	0.9	2¾	0.8	2½	0.6	2	0.5	1½
		2000	1.6	5¼	1.4	4½	1.3	4¼	1.2	3¾	1.0	3¼	0.9	3
Radiography	125	250	1.2	3¾	1.0	3¼	0.9	2¾	0.8	2½	0.6	2	0.5	1½
		1000	1.7	5½	1.5	4¾	1.3	4½	1.2	4	1.0	3½	0.9	3¼
Therapy	100	2000	1.6	5¼	1.4	4½	1.3	4¼	1.2	3¾	1.0	3¼	0.9	3
		8000	2.0	6¾	1.8	6	1.7	5¾	1.6	5¼	1.4	4¾	1.3	4¼
Therapy	135	2000	2.1	7¼	1.9	6½	1.7	6	1.5	5¼	1.4	4¾	1.2	4¼
		8000	2.6	9¼	2.4	8½	2.2	8	2.0	7¼	1.9	6¾	1.7	6
Therapy	200	20,000	5.0	13¼	4.6	12¼	4.3	11½	4.0	10½	3.7	9¾	3.3	8¾
		80,000	6.0	16	5.6	14¾	5.3	14	5.0	13¼	4.7	12½	4.3	11½
Therapy	250	20,000	8.8	16	8.1	14¾	7.6	14	7.2	13	6.6	12	6.0	11¼
		80,000	10.4	19	9.7	17¾	9.2	16¾	8.8	16	8.2	15	7.6	14

from about 2 to 30 ma and the treatment may last from less than a minute up to an hour.

c. Distance: The shortest distance which is likely to be used between the X-ray tube and the occupied areas; the distances to neighboring buildings must also be known, if these are within the radiation field.

d. Occupancy: The degree of occupancy of surrounding regions.

e. Building construction: Frequently, the lead protection may be reduced or omitted by increasing the thickness of the building materials, especially in floors and ceilings.

construction of protection barriers

Handbook 41 gives the detailed construction requirements for protection barriers; it is necessary, therefore, to point out only the more common sources of error.

Special precautions should be taken to prevent scattering under lead-lined doors and barriers of a therapy room where the floor is not lead-lined. This may be accomplished by providing an 18"-wide lead saddle under the doorframe and by extending the wall lead-barrier into the floor; another method is to install a continuous 18"-wide strip of lead under the walls and door-frames *(see Figure 2)*. It may sometimes be necessary to provide shielding in the entire floor, even though there is no occupancy below, to prevent scattering under the lead-lined walls. Nearby buildings may possibly cause "back scatter" into occupied regions near the treatment room, necessitating shielding of the treatment-room windows.

Lead-glass windows should provide the same degree of protection as that required of the wall in which they are located. There should be adequate overlapping to prevent scattering around the glass.

A common error in structural protection is the lack of adequate support for the heavy lead-lined doors. Extra hinges and additional support for the doorframe should be provided.

special requirements: fluoroscopy

In fluoroscopy, protection is required against leakage and scattered radiation only, as the useful beam is almost completely absorbed by the lead-glass of the fluoroscopic screen. However, as fluoroscopic rooms are frequently used for radiography at a future time, it is advisable to provide the required additional protection initially.

radiography

In radiography, the useful beam is principally directed toward the floor or the wall area behind the patient when radiographed in an upright position. These areas, then, require primary protection barriers. To insure a higher factor of safety, permanently occupied regions, such as the control space and adjacent offices, should also have primary protection.

Special attention should be given to the protection of the operator; the most effective shielding will be achieved by locating the control of the X-ray equipment in an adjacent room provided with a lead-lined door. This is not always practical, however, as more than 100 radiographs may be taken daily in a busy X-ray room. Often, there is a tendency to leave the control door open during exposures. A lead-lined control booth without a door and within the radiographic room is satisfactory, if access is provided by means of a maze which effectively prevents scattering of radiation into the operator's position *(see Figure 1)*.

Undeveloped X-ray films are extremely sensitive to radiation and may be damaged by exposures of less than a milliroentgen. It is essential, therefore, that the darkroom have ample protection. Additional structural shielding may be avoided by storing the un-

Table 2—Distances at Which Useful Beam Is Reduced to 300 mr/Week

Type of room	Kilo-voltage	Maximum weekly ma-min	Target distance feet
Radiography	100	500	85
		2000	125
Radiography	125	250	75
		1000	100
Therapy	100	2000	125
		8000	230
Therapy	135	2000	130
		8000	245
Therapy	200	20,000	360
		80,000	490
Therapy	250	20,000	385
		80,000	520

developed films in a lead-lined box, and by not directing the useful beam toward the darkroom.

therapy

Roentgen rays produced at potentials from a few kilovolts to several million volts are employed therapeutically at the present time. In the not-too-distant future, generators operating at many million volts may be used. There is a wide variation in the protective requirements of different types of therapeutic installations. Nevertheless, the aim is the same: to limit the radiation in all accessible locations outside the treatment room to the maximum permissible value of 0.3 Roentgens per week.

location of therapy rooms

The cost of structural shielding may be reduced materially by locating the treatment rooms at some distance from habitually occupied regions, taking advantage of the "inverse square" law. As the useful beam is directed most frequently toward the floor, considerable saving may be gained by avoiding occupancy directly below the treatment room. This is particularly true for high voltage installations; further economy may be obtained by utilizing corner rooms where possible. Outside walls and especially windows may require radiation barriers, if they are close to occupied regions. This is apparent from a study of **Table 2** wherein distances required to reduce dosage rates to permissible values are shown for various conditions.

The control of the X-ray generator should be located outside the treatment room if voltages above 100 kv are used; further, the doors to the treatment room should be provided with electrical interlocks, preventing exposure when open.

shielding

Unless the orientation of the useful beam is restricted, primary protection barriers should be provided in the entire floor and all the inside walls up to a height of seven feet. Where the location of the X-ray tube is fixed, it is possible to limit the primary shielding in the floor to the area actually exposed to the useful beam plus a border-strip one-foot wide. This saving is not recommended where there is a possibility of later changes in the location of the tube stand. Primary protection is usually not necessary in the ceiling, as the required secondary protective barriers are adequate to permit occasional therapy with the useful beam directed upwards. As previously mentioned, even outside walls and especially windows may require shielding. This is particularly true where treatment rooms face a narrow court. A solution for the protection barrier requirements of a 250 kv therapy installation is illustrated *(Figure 2)*.

scattered radiation

The most frequent cause of inadequate protection is insufficient shielding against scattered rays emitted by the patient, floors, walls, or other irradiated objects. The intensity and quality of the scattered radiation vary with the size of the field, angle of scattering, and the nature of the scattering object. Furthermore, the intensity depends also upon the dosage rate of the incident beam and the distance from the scattering object.

one- and two-million volt installations

The safe and economical construction of installations in this voltage range requires considerable individual planning and expert advice; it is not possible here to give detailed information which is generally applicable. There are, however, certain general principles which should be mentioned, while additional data may be obtained from two recent papers.[4]

The cost of shielding such installations is determined largely by their location. Great savings may be gained by taking full advantage of the "inverse square law" in reducing the radiation. Wherever practical, a maze should be used as access to the treatment room, rather than a heavy motor-driven lead or steel door, the cost of which may exceed $10,000. If possible, the orientation of the X-ray tube should be so restricted that the maze entrance, or door, and the operator's position are not exposed to the useful beam.

Observation of the patient may be accomplished through a transparent tank filled with water and covered with lead-glass on the side facing the operator. The observation window should offer the same degree of protection as that required of the wall in which it

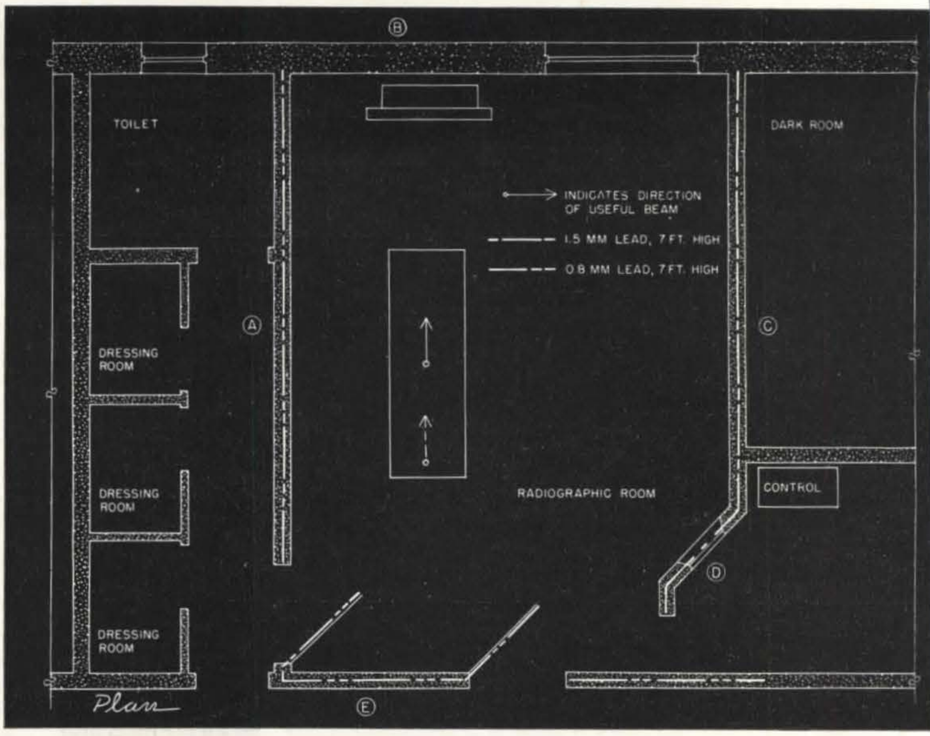


Figure 1—100 Kv Radiographic Installation, 2000 ma-min/Week

Position	Type of barrier	Distance feet	Barrier Thickness		Remarks
			Lead mm	Conc. in.	
A	Secondary	6	0.8	...	
B	Primary	20	...	3	
C	Primary	10	1.3	...	Dark room
D	Primary	10	1.3	...	Control
E	Secondary	8	0.7	...	
F	Primary	8	...	4½	Floor
G	Secondary	6	...	2¾	Ceiling

Note: Lead thicknesses on drawing are the nearest commercially available.

[4] *"Radiology 51,840" (1948); C. B. Braestrup and H. O. Wyckoff. "Radiology 51,849" (1948); H. O. Wyckoff, R. J. Kennedy, and W. R. Bradford.*

is mounted. The concrete, protective equivalent of such a window is approximately equal to one-third of the thickness of the water barrier plus twice the thickness of the lead-glass.[5] The two sides, the top and bottom of the tank should be lined with at least ¼" lead overlapping the lead-glass window to prevent scattering around the window.

More recently, observation windows using laminated, ordinary glass have been used. However, the total thickness of the glass has to be sufficient to give the same lbs/sq. ft. as that required for concrete wall.[6]

[5] *The actual protective equivalent of the window will also depend on the area of the window and quality of the lead glass.*

[6] *As the density of glass is higher than that of concrete, the thickness of glass can be reduced in the ratio of the density of concrete to glass. For example, if a glass has a 10-percent higher density than concrete, the thickness of the glass window can be 10-percent less than the thickness required for a concrete wall, acting as a protection barrier.*

calculation of barrier thickness

The National Bureau of Standards Handbook 41 has extensive tables and charts for the determination of the barrier thicknesses. They may be very much simplified by considering only those operating conditions which are commonly used.

In **Table I** are shown the required thicknesses of primary protective barriers for the usual range of milliampere-minutes used per week. The minimum values are applicable for the smaller, less active hospital, while the maximum values should be used for any institution with a busy radiological service.

The determination of the thickness of a secondary protective barrier is more complicated, as it involves a larger number of factors. However, a usually safe approximation may be made by assuming that the secondary barrier requires one-half of the thickness of a primary protective barrier, again using the values of **Table I.**

The thickness of both primary and secondary barriers may be reduced above seven feet, as the rays are rescattered or passed through the ceiling of the adjoining room before striking any occupants. Both processes result in considerable attenuation of the radiation; and the barrier thickness above seven feet only needs to be one-third or one-quarter of the primary protective barrier thickness. For voltages not exceeding 125 kv, no lead shielding is required above seven feet, as the wall itself offers enough protection. X-ray protection measurements of numerous representative hospital installations have established that the above empirical rules provide adequate shielding. Greater economy may be obtained by a more complete analysis of all the factors involved, but the methods used for such determinations are usually too involved to be of value to the architect.

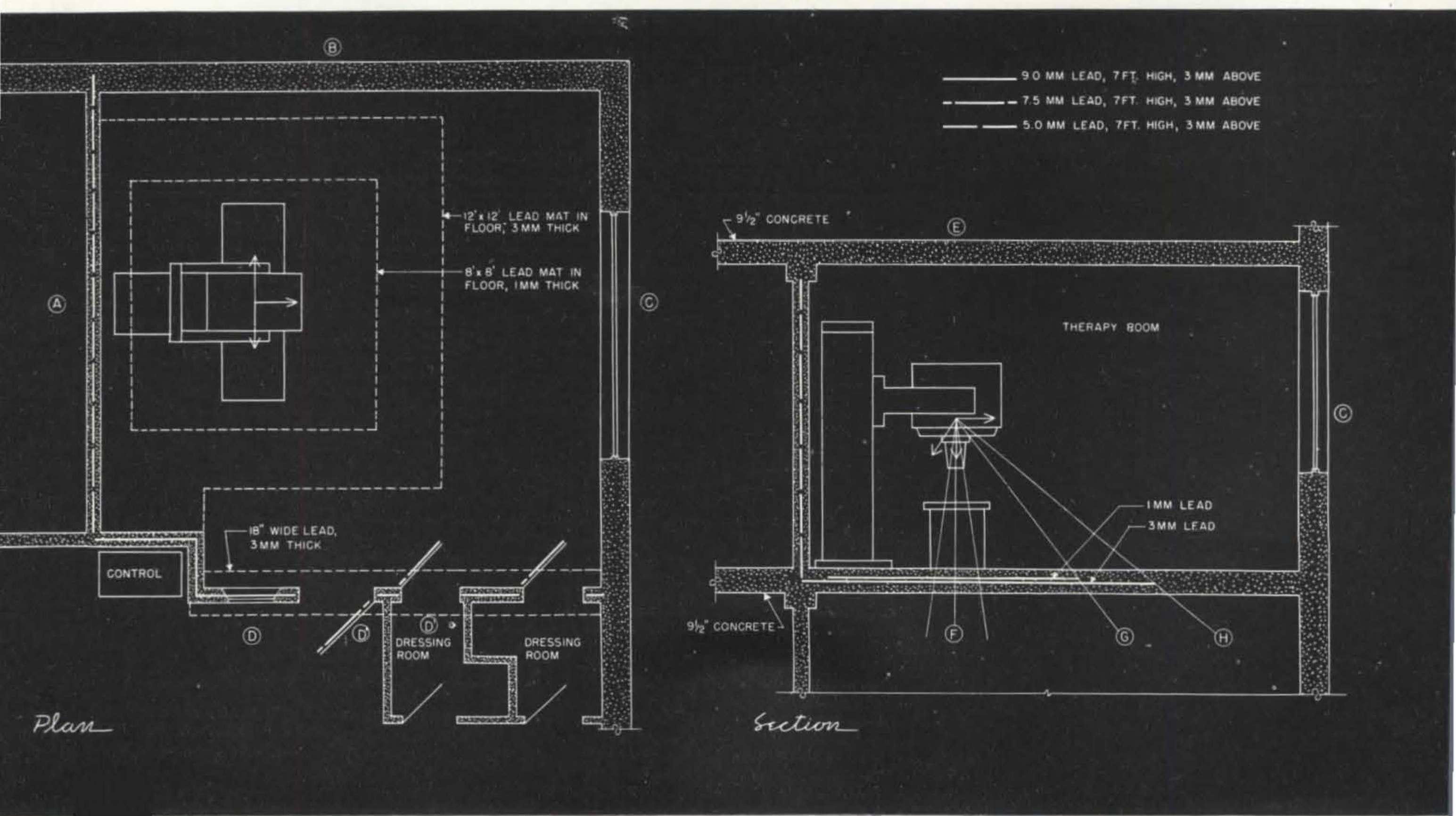


Figure 2—250 Kv Therapy Installation

Position	Ma-min per week	Type of barrier	Distance feet	Barrier Thickness Lead mm	Barrier Thickness Conc. in.	Remarks
A	80,000	Secondary	6	5.2	...	
B	20,000	Primary	20	...	11¼	
C	20,000	Primary	385	...	...	
D	80,000	Primary	10	9.2	...	
D[1]	20,000	Primary	10	7.6	...	
E	80,000	Secondary	6	...	9½	
F	80,000	Primary	10	4.0 plus	9½	
G	80,000	Primary	12	3.0 plus	9½	Oblique path = 11½"
H	80,000	Primary	15	...	9½	Oblique path = 14¼"

Streamlined Specifications: Asphalt Tile

By BEN JOHN SMALL*

1. general:

(a) Applicable provisions of "General Conditions" govern work under this Section.

(b) These specifications are of the abbreviated or "streamlined" type and include incomplete sentences. Omissions of words or phrases such as "the Contractor shall," "in conformity therewith," "shall be," "as noted on the Drawings," "according to the plans," "a," "an," "the," and "all" are intentional. Omitted words and phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings. Words "shall be" or "shall" will be supplied by inference where colon (:) is used within sentences or phrases.

(c) The Contractor shall provide all items, articles, materials, operations, or methods listed, mentioned, or scheduled on the Drawings and/or herein, including all labor, materials, equipment, and incidentals necessary and required for their completion.

2. work included:

(a) Furnish labor and materials necessary to complete asphalt tile work indicated, as specified herein, or both, including:

1. Felt over wood subfloors.
2. Clean, wax, polish asphalt tile work.
3. Submit full-size duplicate samples of asphalt base and each type of asphalt tile in accord with "General Conditions."
4. Submit shop drawing layouts of tile patterns for space ——— in accord with "General Conditions."
5. See Deductive Bid for substituting (or) omission of asphalt tile flooring and base.

3. work excluded from this section:

(a) Extend asphalt tile only to kitchen and pantry dressers and not under same except into toe space.

(b) Stop asphalt tile at front of radiator enclosures and do not carry into same.

(c) Do not lay asphalt tile over fireplace hearths.

(d) Undercoating. See "Undercoating Flooring" section.

(e) Metal dividing strips at joint where asphalt tile floors abut and finish flush with cement, concrete, terrazzo, ceramic tile and ——— are specified under other sections. (Where stair treads are to be covered with asphalt tile, specify and detail metal nosing strips.)

MATERIALS

4. asphalt tile:

(If Schedule is used, size, colors, etc. may be omitted here.)

(a) Asphalt tile: FS SS-T-306a (or) made by one of following manufacturers ———————————————,
factory waxed, 1/8" thick (or) 3/16" thick (always use over wood subfloor) 9" by 9", 12" by 12", 18" by 24". Asphalt tile: have calendered surface, contain no sand or grit, be equal to samples in Architect's office, with same factors of ductility, hardness, nonabsorbence, resistance to alkalis, acids and water, be free from lumps and unmixed coloring matter.

(For greaseproof asphalt tile use above specification inserting word "greaseproof" before asphalt tile and adding the following:

Greaseproof asphalt tile: not soften in all animal and vegetable fats at normal room temperatures, shall comply with following test. Two tiles: cut into 6" by 6", be totally immersed in pure leaf lard for 24 hours at temperature of 77F plus or minus 2°. At the end of 24 hours, tile: removed from lard, wiped off with dry cloth. If surface of tiles shall have become softened, tiles represented by sample: considered to have failed. In determining whether or not surface of tile has become softened, tile: lightly scraped with spatula blade. Any separation of surface from body of tile when so scraped: sufficient evidence of softening.)

(b) Color: standard (or) marbleized; colors: as selected later (or) as per "Schedule of Finishes."
(For economy, select colors before awarding Contract. Colors are divided into 4 color groups designated as Group A, Group B, Group C, and Group D. The lowest cost is Group A and the highest is Group D. Group A contains plain dark colors. Group B contains plain medium colors and dark and medium background marbleized colors. Group C contains plain light colors and light background marbleized colors. Group D contains light plain colors, such as white, and light, such as white, background marbleized colors.)

(c) Carry borders of 6" to 9" widths around fields.

5. base:

(a) 3/16" thick, "set on" cove type with premolded smooth rounded top and cove base; (or) 1/8" thick, straight base, with premolded internal and external angles (or) internal and external angles formed on job; be sufficiently flexible to allow for slight irregularities in walls and partitions.

(b) Base: —" high (4", 6", or state any special height required).

(c) Base: made of same material as asphalt tile floor.

(d) Base color: standard black.

6. strips:

(a) Of same material as asphalt tile floor: be ——" wide.
(In multiples of 1/2" from 1/2" to 4". 1" and 1 1/2" widths in 18" and 24" lengths. Other widths in 18" lengths.)

7. cement:

(a) Water-resisting asphalt cement: as recommended by tile manufacturer.
(Where asphalt tile floors are to be installed on concrete subfloors on or below grade, or on concrete subfloors where moderate amount of moisture may be expected, cut-back-type cement should be specified. Where asphalt tile floors are to be installed over felt or asphaltic underlayments, emulsion-type or cut-back cement should be specified.)

8. protective edgings:

(a) Stainless steel or aluminum alloy of approved design to protect exposed tile edges.

9. primer:

(a) Asphalt primer: as recommended by tile manufacturer; spreading capacity: 100 sq. ft. per gallon.
(Or)

(a) Asphalt primer: FS SS-A-701.
(Where asphalt tile floors are to be installed on concrete subfloors on or below grade, or on concrete subgrades which are new and may contain concealed moisture, cut-back-type *primer should* be specified. Where asphalt tile floors are to be installed over suspended concrete subfloors that have heated and ventilated spaces below them, cut-back-type or emulsion-type primers should be specified as options. Suspended concrete subfloors that are hard, dry, free from dusting and not porous do not require primer. Primer is never required over felt or asphaltic underlayments.)

10. lining felt (for use over wood floors):

(a) Lining felt: of type as recommended by tile manufacturer; not exceed 15 lbs. per 108 sq. ft.

11. samples:

(a) Do not start work until samples have been submitted and approved. Label samples stating color or shade, location in which they are used, manufacturer's name.

(b) Samples: finished with finish herein specified (or) unfinished.

(c) Installed materials: match approved samples.

12. delivery:

(a) Deliver materials to job in manufacturer's original unopened containers with manufacturer's brand and name clearly marked thereon.

* *Associate, Alfred Hopkins & Associates, Architects.*

INSTALLATION

13. subfloor:
(a) Lay asphalt tile on subfloor of ————————. (State whether cement, concrete, wood, or undercoating. If wood, specify sanding of wood subfloors elsewhere.)
(For separate Contracts)
(a) Inspect subfloor before starting work. Notify Architect in writing of any defects in subfloor. Do not proceed until such defects as reported have been corrected. Starting of work implies acceptance by this Contractor of underflooring. Where cement-filled metal pan stairs or top of landing is covered with asphalt tile, depress fill for thickness of tile.

14. preparation:
(a) Fill subfloor cracks, expansion joints and the like with spackle or approved joint filler.
(b) Clean subfloor of grease or other dirt before proceeding.
(For separate Contracts)
(b) Subfloor will be delivered to this Contractor broom clean; clean subfloor of grease or other dirt before proceeding.
(c) Wood subfloors: double construction, sufficient structural strength to carry intended loads without deflection. Surface flooring: well seasoned, kiln-dried t & g flooring not over 3" face width, topnailed and toenailed. Surface floorings: sanded to uniform smooth surface; contain no cupped or spring boards. Nails: flush or set.
(d) Cement or concrete floors. Apply one primer coat to subfloor; when dry, trowel on cement, evenly, thinly, using not over one gallon to 75 sq. ft. of floor.
(e) Subgrade concrete floors. Coat concrete subfloors with liquid cut-back asphalt cement of brushing consistency.
(f) Old cement or concrete subfloors: made clean, free from floor coverings or other surface treatments. Remove paints from floors in direct contact with ground. Fill expansion joints and score marks with spackle or approved joint filler.
(g) Do not begin work until work of other trades, including painting, has been completed.
(h) Maintain rooms and subfloors at 70F minimum for at least 48 hours before, during, and 48 hours after tile applications.
(For use over wood floors it is advisable first to lay undercoating on wire lath, but in case of very smooth and rigid wood subfloors it is possible to lay asphalt tile over felt. Undercoating should also be used over rough concrete, gypsum, steel, or over old worn flooring of any type.)

15. felt:
(a) Cover wood subfloors with felt layer having butt jointed edges, staggered cross joints, cut carefully to fit around vertical surfaces, laid across joints of wood boards. Apply felt securely to subfloor with approved type linoleum paste. Roll felt into paste so as to remove air bubbles and ensure complete adhesion; use 150 lb. linoleum type roller. Roll edges and cross joints until firm adhesion is obtained; lay tile thereon. (Floors which have been undercoated do not require any felt lining or further preparation.)

16. laying tiles:
(a) Use only experienced workmen. Lay tiles so as to ensure good contact with close, even joints and with finished surfaces in true plane, smooth. Lay tiles square with room axis, with border width varying slightly to maintain full size tiles in field. Lay tiles to pattern selected with grain reversed in alternate tiles.
(b) Borders to fit neatly, into breaks and recesses, against base, around pipes, under saddles and carpet strips. Cut, fit and scribe borders to walls after application of field tile.
(c) Cut tile to and around radiator legs and heaters, or excessively heavy fixed objects. (Asphalt tile will extrude from around any fixed object; excessively heavy objects should rest directly on subfloor.)
(d) Install protective edgings, where tile edges are exposed, with flush screws spaced 12" apart; use expansion shields for screws in concrete.
(e) (For alterations only.) Where saddles or carpet strips are now in place, remove same, replace them when border has been laid.

17. laying base:
(a) Do not apply base until plaster, or backing material, is thoroughly dried out.
(b) Cement base firmly to wall.
(c) Form in and out angles neatly; scribe base accurately to trim at doors.
(d) Base throughout: have top, bottom edges in firm contact with walls, floors.

18. cleaning, waxing, polishing:
(a) At completion, clean tile work and base; remove cement, dirt, or other foreign substances.
(b) Apply two coats of wax; polish each coat to produce well polished finish.
(c) Do not permit traffic on finished floors unless they are protected with heavy papers.
(Asphalt tile when properly compounded has semi-rigid structure; any distortion from a level plane is best corrected by laying same and allowing to "seat" naturally.)

19. adjustments:
(a) Inspect and make necessary adjustments within one month of time that heat is supplied continuously on finish areas.
(b) Tiles that have not "seated" in level plane with surrounding tile: have heat applied locally, be quickly rolled to surrounding floor tile level. Repair tile, showing minor breaks and fractures, with heat and quick rolling.
(c) Tiles showing broken corners or fracture lines entirely across their surface: warmed, removed; substitute new tile of same color, thickness.

NOTES TO JOB CAPTAIN

1. wood subfloors: Asphalt tile shall not be installed over wood subfloors which are subject to conditions that might cause buckling or rotting of wood. This condition occurs generally on wood floors that are below grade, on grade, or above ground and without heat or adequate ventilation underneath floors.

2. magnesite subfloors: Asphalt tile shall not be installed over magnesite subfloors that are in direct contact with the ground.

3. use out of doors: Asphalt tile shall not be used out of doors or in areas that are not heated in cold weather.

4. prevention of indentation: All metal domes shall be removed from the legs of furniture and equipment. Suitable protective devices as recommended by the manufacturer furnishing the asphalt tile shall be used on furniture and equipment to protect against indentation. As a precautionary measure against indentation, lining felt as specified hereinbefore is recommended over wood floors.

5. use of one solid color: Where a single color is used in an over-all pattern, the possible lack of uniformity should be given consideration. This is particularly true in plain colors.

6. general: Asphalt tile is available in:
- Standard (plain, marbleized)
- Greaseproof
- Industrial
- Conductive

NOTES FOR INSPECTION PURPOSES

1. preinstallation inspection:

Type of subfloor	Inspect for	Floor should be
1. New concrete	Proper curing and drying. Moisture or dampness.	Free of expansion and trowel marks, grease, dirt, or foreign matter. Free of imperfections. Hard, dry, and nonpowdery.
2. New wood	Compliance with flooring specifications of maker as to construction in single, double, tongue and groove, and hardboard underlayment.	Smooth, dry, and free from grease, dirt, or other foreign matter.
3. Old concrete, terrazzo, ceramic tile	Soundness, dryness, and necessary repair.	Level, free from cracks, holes, paint, varnish, and other finish. Also free from dirt and other foreign matter.
4. Old wood	Renailing, replacement of worn or damaged boards, necessary filling of holes and cracks.	Sanded smooth, free of paint, varnish, oil, or other foreign matter.

2. installation inspection:

Type of resilient floor	Inspect during installation for	Check finished floor for
Asphalt tile	Symmetrical joint lines. Tight joints.	Over-all appearance. Raised joints.

ASPHALT TILE MAINTENANCE

1. "don'ts":

1. Don't use water or wax until the asphalt tile is thoroughly seated and until the adhesive has set up—about two weeks.
2. Don't clean asphalt tile with gasoline, benzine, naphtha, turpentine, or organic solvents. Organic solvents will soften the material and cause discoloration.
3. Don't expose asphalt tile to oils, greases, and solvent waxes such as paste wax.
4. Don't use oily soaps or cleaners on asphalt tile floors.
5. Don't use waxes containing turpentine, naphtha, or similar solvents.
6. Don't use sweeping compounds which contain oils, sand, or chemicals.
7. Don't apply wax over a dirty floor.
8. Don't apply varnish, lacquer, or shellac. They contain ingredients which are injurious to asphalt tile and also eventually will cause unsightly traffic lanes.

2. cleaning:

(a) New floors should not be washed or waxed until all the tiles are tightly adhered to the subfloor. This may require several days. If cleaning is necessary in this time, wipe up with a damp cloth or mop—not wet.

(b) When ready, clean the floors thoroughly, and apply a good grade of water emulsion wax. *Several successive light coats are recommended.*

(c) An occasional washing with a diluted warm suds solution of a good neutral soap or cleaner will keep floors clean and attractive. After washing, rinse thoroughly with clear water and when all traces of soap and dirt have been removed, dry with a clean mop.

(d) If ordinary washing fails to remove any stains, the surface of the tile should be rubbed lightly with #00 Steel Wool using a concentrated solution of neutral soap or cleaner and warm water.

3. waxing:

(a) The use of a good grade water emulsion wax applied in accordance with the manufacturer's directions is recommended.

(b) If a high lustrous sheen is desired, apply several successive light coats, buffing each coat after it has been allowed to dry thoroughly.

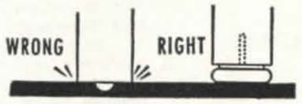
(c) DO NOT use waxes containing such solvents as turpentine and benzine, as they soften the tile and cause the colors to bleed.

(d) Grease and oils allowed to remain in contact with asphalt tile will permanently stain the floor. In case of spillage, wipe off immediately.

(e) DO NOT use varnishes, lacquers, shellac or other plastic finishes. These materials usually contain solvents that will permanently injure asphalt tile.

4. protective devices:

(a) For side chairs, light cabinets, etc., that are moved more or less frequently, glides having a smooth, flat base, with rounded edges and a flexible pin to maintain flat contact with the floor are recommended. The size should depend upon the weight to be carried. Such glides can be obtained in sizes from about 1" to 2½" diameter. *Small metal domes should be removed from the bottoms of all chair and furniture legs, and replaced with flat glides.*



(b) Easy swiveling ball bearing wide wheel casters, or flat guides, should be used on furniture that is moved frequently, such as desk chairs, etc. Casters should have large diameter wheels (2" or more) with wide flat soft rubber composition tread. Small diameter, narrow, hard wheel casters, particularly with a crowned tread and without ball swivels will unnecessarily and unduly mark all types of resilient flooring. For heavier furniture, such as pianos, trucks, hospital beds, etc., consult flooring contractor.

(c) Furniture cups are made of a composition material in a pleasing neutral color, designed to prevent the legs of furniture from cutting the floor. They are manufactured with openings 1½", 1¾", 2" and 2⅝" square, and also with round openings 1⅜" and 1⅝" in diameter. They are designed for use on heavier furniture that is moved infrequently.

The author acknowledges gratefully the assistance of the Asphalt Tile Institute in the preparation of these specifications.

Materials and Methods Articles: August 1949—June 1951 Classified Index

(Last index published July 1949.)

A. I. A. Sponsors Product Exhibit at Convention

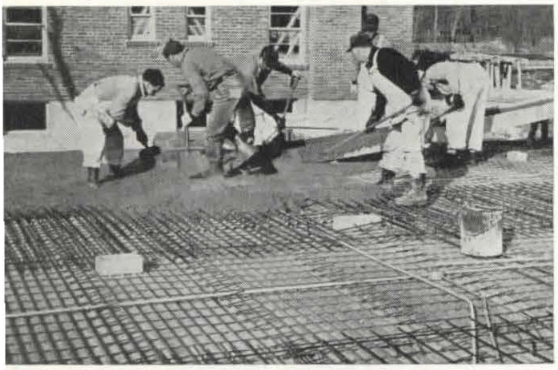
As an adjunct to the activities of last month's 83rd Annual Convention of the American Institute of Architects, in Chicago, a Building Products Exhibit *was staged to supplement the opportunities for architects, particularly those from smaller communities, to view some of the more recently developed building products and materials. Due to limited floor space, it was necessary to eliminate familiar and well known items of general promotional publicity. To meet this limitation, the theme "New Values" was selected by the Committee on Convention Exhibits, headed by Paul Gerhardt, Jr. of the Chicago Chapter. Forty-eight exhibition booths were occupied, and in all but a few instances, the booth designs had not been used at any previous public showing. On this page,* P/A *reports some of the products which were shown.*

new floor system simplifies concrete construction

Although high-strength steels have been used for almost a century in suspension bridge cables, these steels have found little application in building construction. Recently, however, the Granco Steel Products Company has pioneered an unusual but extremely logical floor construction system using this material. Their product, known as Cofar floors, replaces all temporary wood forming and conventional reinforcement for concrete construction with tough-tempered, galvanized, deep-corrugated steel and transverse temperature wires welded perpendicularly to the steel corrugations. The normal reinforcing bars placed in bottoms of slabs are eliminated; only those bars required to prevent cracks due to negative moment must be placed in tops of slabs over supporting beams. Construction is greatly simplified and accelerated; there are but two steps of ordinary concrete pouring procedure that remain: (1) placing the Cofar and its supports; and (2) pouring the concrete.

A 4" slab of Cofar does the work of a 12"-deep floor of conventional wood construction and can carry five times the load required of floors under ordinary service. Pipes for radiant heating and conduit for electrical services can be placed in the floor without difficulty. From the underside, the corrugated sheet is visible; it may be painted, or if desired, any type of hung ceiling can be installed.

With this system the advantages of concrete floors are brought within the budget of the home owner. Cofar construction has been widely accepted by modern building codes; St. Louis has approved its use and two 26-story Chicago apartment buildings using this system are now nearing completion. Granco Steel Products Company, Granite City, Ill.



lightweight, enameled curtain wall

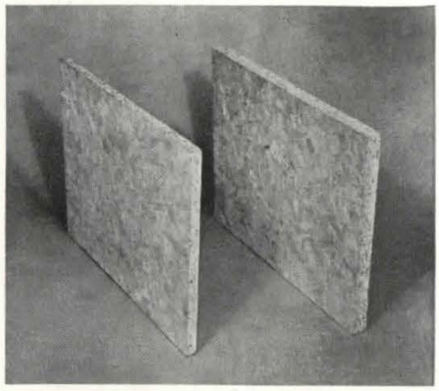
This enameled curtain wall, an assembly of metal studding and sheet-metal panels completely filled with loose insulation, has been designed to withstand a 30-lb. wind load and a 2-hour fire test. Suspended at each floor from spandrel beams, it is but 5" thick and weighs only 5½ lbs. per sq. ft. It can support its own weight and can be erected without scaffolding by one trade.

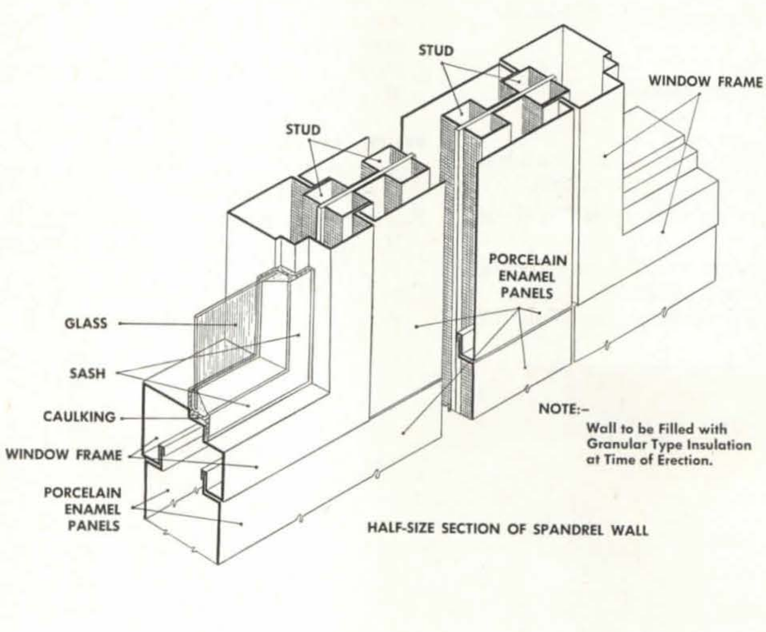
To insure that no corrosion will occur, all surfaces, inside and out, are of porcelain enamel. Both interior and exterior finishes can be made any reasonable color and the metal panels can be fabricated to meet any design shape. The Erie Enameling Company, Erie, Pa.

"flattest wood panel ever developed"

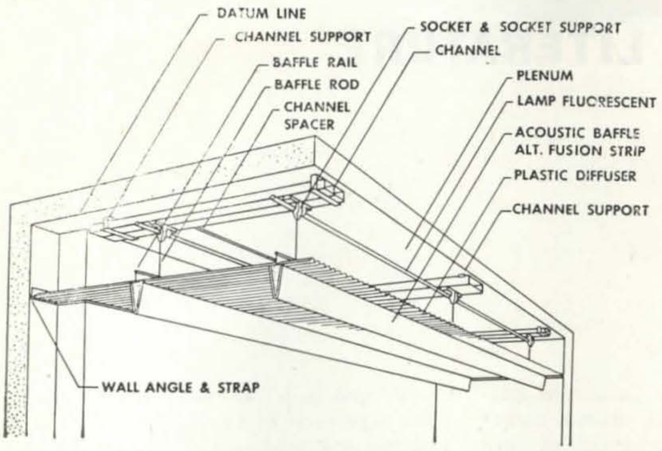
Among the newest materials that were exhibited in Chicago was United States Plywood Corporation's Novaply. This product is a 3-ply wood paneling composed of two 1/16" surfaces of small wood veneer flakes, separated by a core of medium size chips—both flakes and chips are resin-coated and impregnated. They are fused together under heat and pressure to produce a variegated, textured surface which can be painted, stained, or left in its natural finish.

The manufacturer claims that Novaply is the flattest wood panel ever developed and that it is practically warp-free. Easily fabricated by ordinary woodworking tools, it has excellent nail and screw holding properties. Novaply is relatively light weight, is highly resistant to abrasion, and possesses good acoustic and thermal insulation properties. This material should be considered for interior applications only; its principle uses will be for furniture, wall paneling, core stock for mounting veneers or plastic laminates, and for cabinet and sliding doors. United States Plywood Corporation, 55 West 44 Street, New York 18, N. Y.





HALF-SIZE SECTION OF SPANDREL WALL



luminous-acoustical ceiling

There was a great deal of interest in Wakefield's luminous-acoustical ceiling. In addition to the data included in the accompanying perspective, the following information will help to describe the system further. Perforated acoustical baffles, *wedged-shaped* and filled with sound-absorbing material, are spaced 36" on center. Tests have shown that in a hard surfaced room with linoleum floors, wood furniture, and without a luminous ceiling and acoustical baffles, there was a sound absorption rate of 5 seconds. After installation of this ceiling and baffles, low frequency sound was absorbed in .58 seconds, high frequency sound in .78 seconds, and average sound in .65 seconds.

This ceiling offers lighting intensities ranging from 50 footcandles to substantially higher levels. The acrylic plastic sheets, considered most suitable by this manufacturer, have furnished an apparent transmission of 87 percent in a test room. Completely diffused lighting qualities provide uniformity of brightness throughout the ceiling. As the plastic sheets slide over one another, the plenum space between the luminous ceiling and room ceiling is easily accessible from the floor for installation and maintenance. F. W. Wakefield Brass Company, Vermillion, Ohio.

among other exhibitors

Minneapolis-Honeywell demonstrated its electronic air-conditioning control system which enables the selection of a control sequence to provide maximum effectiveness of air-conditioning equipment. Baseboard radiant panels for use with forced-hot-water or two-pipe heating systems in residential, commercial, and institutional installations were exhibited by American-Standard. Their panels are shipped assembled in 6' lengths and can be assembled on the job in increments of 1' up to 30'; with a 3' minimum length.

The Structural Clay Products Institute booth demonstrated the use and application of adhesion type ceramic veneer. A structural, long-span sheet steel panel with integral acoustical treatment, combining the function of roof deck, joist, and metal pan acoustical ceiling was shown at the Detroit Steel Products Company booth.

this month's products

air and temperature control

Temperature Regulator: self-contained temperature controller, with clearly marked, calibrated, adjusting dial; no assembly, linkage, or adjustment necessary before or after installation, except for setting of dial which gives exact setting in degrees Fahrenheit. Two-wire connection to any 115v or 230v a-c circuit. Barber-Colman Co., 150 Loomis, Rockford, Ill.

Humidry: portable, 1/8 hp dehumidifier, designed for wide range of localities, from home basements to storage lofts; weighs only 60 lb., fitted with casters and handholds to move wherever needed. Said to have higher dehumidification capacity per hp than any other similar apparatus. Enclosed in baked-enamel, flat-topped cabinet. Carrier Corp., Syracuse 1, N. Y.

Filter: unique air filter developed to keep radioactive particles out of atmosphere; particularly useful wherever air must be completely dust-free or sterile. Filtering medium is special paper containing submicroscopic asbestos fibers which direct air in such a way that all particles become entangled in fibers. Single unit can filter 1000 cu. ft. of air per min. at pressures within capacities of central station air-conditioning system. Cambridge Corp., 350 S. Geddes St., Syracuse, N. Y.

Model CMZ Multi-Zone Air Conditioners: complete summer-winter operation with only one air-conditioning unit, for installation wherever one unit must serve two or more zones; individual controls for each zone make it possible to heat one zone while cooling another. Thermostatically controlled dampers modulate flow of warm or cool air. Eight different model sizes, with total air volume range of from 1500 to 17,000 cfm which can be divided into 2 to 6 zones. Marlo Coil Co., 6135 Manchester Ave., St. Louis 10, Mo.

Gas-Fired Winter Air Conditioners: five new high input sizes ranging from 300,000 to 675,000 Btu, all approved by A.G.A. for use with natural, mixed, and manufactured gas. Especially developed for heating larger residences, apartments, schools, churches, and commercial buildings. Easy to assemble, clean, and maintain. L. J. Mueller Furnace Co., 2005 W. Oklahoma Ave., Milwaukee 15, Wis.

Sonoairduct: new fire-resistant fiber-duct; when embedded in concrete floor slab, serves as supply or return line in radial and perimeter hot-air heating with oil or gas furnaces. Will not delaminate when placed under water or exposed to excessive moisture; said to improve with age because it cures with heat. Excellent substitute for metal, glazed tile, or concrete block. Available in lengths up to 25', in inside diameter from 2" up to and including 24". Cutting can be done with hand or power saw. Sonoco Products Co., Hartsville, S. C.

doors and windows

Daylight Diffusor: scientifically designed daylight-control screens, made of glass cloth, for installation along interior side of window bank in classrooms; screen flaps redirect most light upward and into room, yet provide for both some horizontal, direct light and some downward, diffuse light, to give glareless and uniform daylight. Screens may be laundered or dusted; no ironing necessary. American Seating Co., Ninth & Broadway, Grand Rapids 2, Mich.

electrical equipment, lighting

Holoflux: surface-attached luminaires; extreme shallowness (4½") simulates recessed construction without expense of roughing-in. Low brightness, high output, brightness control across and along axis of lamps. Claimed to have complete absence of glare, even in longest continuous runs. Suitable for commercial and institutional buildings. Holophane Co., Inc., 342 Madison Ave., New York, N. Y.

CF2-G Grounding "Plug-in" Strip: Lewis & Conger safety award winning wiring system provides complete grounding, thus reducing fire, life, and casualty hazards. Strip, made of 24-gage steel with copper conductors, carries Bakelite receptacles spaced every 6" or 18", each positively grounded to steel channel of strip. In 6' lengths, neutral-gray finish. National Electric Products Corp., Chamber of Commerce Bldg., Pittsburgh 19, Pa.

insulation (thermal, acoustic)

Perforated Temlok Tile: low-cost fiberboard acoustical material, finished in warm white. Quick, easy, and inexpensive installation made possible by means of special Lok-Bevel joint, which has wide flange for concealed stapling and nailing. Tiles available in 16" x 16" x ½" size, with sound-absorbing perforations arranged in 12" pattern. Armstrong Cork Co., Lancaster, Pa.

Birpac: premolded insulation to fit around ells, tees, and 45° pipe connections; low thermal conductivity, neat appearance. Simple application: merely place each half of fitting on each side of pipe section, then staple, wire, or tape both halves together. Available for all standard sizes of pipe from ½" to 8" in standard thicknesses. Birma Products Corp., 2665 Main St., Buffalo 14, N. Y.

sanitation, plumbing, drainage

ABCo Incinerator: commercial, air-cooled, automatic, gas-fired incinerator completely consumes wet or dry garbage and waste material in minutes. Steel construction; three-fold insulation keeps heat within unit; lining sealed tight with refractory cement to withstand extreme temperatures. Clock may be set for predetermined time, automatically controls burner and stops flame when time has expired. Units available in either 7 or 15 bushel capacities. ABCo Incinerator Corp., NBC Bldg., Cleveland, Ohio.

G-141 Vogue Lavatory: vitreous-china counter-top lavatory for any vanity or *dressing table installation*. Concealed front overflow, recessed soap dishes, wide splash rims, deep, full-size bowl punched for either centerset or combination supply fittings. Available in 5 colors. Richmond Radiator Co., 19 E. 47 St., New York 17, N. Y.

specialized equipment

Fire-Alarm Box: said to be smallest code station ever made, with maximum projection of less than 2" from wall. Single-action: one pull assures operation, sends coded alarm through control panel to audible signals in building. Transparent, dust-tight cover, on which are etched complete testing instructions, allows for visual testing of mechanism. Available in lustrous red enamel with highly polished metal trim, or any other desired color or finish. Edwards Co., Norwalk, Conn.

MANUFACTURERS' LITERATURE

★ *Editor's 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

1-101. Straight Ahead Since 1886, 8-p. booklet describing variety of steel boilers, ranging in size and capacity, for use in small and large homes, commercial, and industrial buildings. Types, biographical data, photos. Fitzgibbons Boiler Co., Inc., 101 Park Ave., New York, N. Y.

1-102. National Heating Products (586), 20-p. catalog containing heating products, such as steel or cast-iron boilers, convectors and enclosures, cast-iron radiation, baseboard heating units, domestic water heaters, and horizontal and down-flow unit heaters, for homes, stores, institutions, and industries. Ratings, capacities, inputs and outputs, roughing-in dimensions, contents table. National Radiator Co., 221 Central Ave., Johnstown, Pa.

1-103. Typhoon, 8-p. bulletin gives specifications and special features of line of packaged air-conditioning models from 1½ to 20 tons, as well as data on 3- to 20-ton evaporative condensers. Diagrams illustrate outside dimensions and general arrangement of components. Typhoon Air Conditioning Co., Inc. 794 Union St., Brooklyn 15, N. Y.

1-104. Zephair Fans, AIA 30-D-1 (5125), 12-p. catalog on belt-driven and other types of fans for homes and industry. Basic design data, grille and shutter sizes, dimensions, capacities, other tables. Hunter Fan & Ventilating Co., 400 S. Front St., Memphis, Tenn.

Two booklets on suspended unit heaters, giving capacity data, conversion factors, dimensions, general specifications. Other booklet on baseboard radiation; properties, advantages, architects' specifications, capacities, typical layout for hot water system, roughing-in dimensions. Fedders-Quigan Corp., Buffalo 7, N. Y.:

1-105. Unit Heaters

1-106. Downblow Unit Heaters, AIA 30 D11 (16C-1)

1-107. Baseboard Radiation

CONSTRUCTION

3-84. How to Give Students and Budgets a Break (SX-651), 4-p. folder on contemporary prefab steel school structures which can be extended at any time with standard parts. Properties, advantages, typical photos. Armco Drainage & Metal Products, Inc., Middletown, Ohio.

Two 4-p. folders, one on copper base flashing expansion joint for application at base of building walls, the other on one-piece through-wall copper flashing and cap flashing receiver. Methods of application, features, specifications. Chase Brass & Copper Co., Inc., Waterbury, Conn.:

3-85. Copper Base Flashing Expansion Joint, AIA 12-H

3-86. Thru-Wall Copper Flashing, AIA 12-H

3-87. Long Span Flexicore Slabs, AIA 4-k (1951 Issue), 8-p. brochure describing precast, prestressed concrete building unit for floors and roofs. Properties, load chart, table of sizes, typical drawings indicating methods of wiring, plumbing, and radiant panel heating with long span slab construction. Flexicore Co., Inc., P. O. Box 825, Dayton 1, Ohio.

3-88. Marble for the Modern Bank, AIA 22-A, 10-p. booklet illustrating use of marble in bank interiors. Photos of most recent counter, stair, lobby, and elevator wall installations; also membership list of Marble Institute of America. Marble Institute of America, Inc., 108 Forster Ave., Mt. Vernon, N. Y.

★ **3-89. Movable Metal Walls** (51), 48-p. booklet illustrating advantages of movable steel partitions, the speed and economy with which they may be erected, dismantled, and relocated to fit changes in space layout. Construction features, detail drawings, partition types and accessories, wiring facilities, photos. Mills Co., 965 Wayside Rd., Cleveland 10, Ohio.

3-90. Metal Lath and Plastering Accessories, AIA 20-b-1 (492-1), 26-p. catalog containing descriptions and illustrations of various forms of metal lath and accessories. General data and specifications, application, fireproofing details. Penn Metal Co., Inc., Parkersburg, W. Va.

3-91. Zonatile (ZT-1), 4-p. folder on new reinforced, lightweight, vermiculite roof slab for installation over bar, joists and bulb tees; combines insulation and structural strength, can be installed during any season. Physical properties, design data for sub-purlins and rail sections, specifications. Zonolite Co., 1235 S. La Salle St., Chicago 3, Ill.

Two booklets, one giving specifications and data on caulking and pointing of masonry construction, the other discussing roof problems and their treatment. Tremco Mfg. Co., 8701 Kinsman Rd., Cleveland, Ohio.:

3-92. Mastic Caulking and Pointing, AIA 7-D (164B)

3-93. Solving Roof *Problems*

DOORS AND WINDOWS

4-99. Sliding Door Hardware, 4-p. folder. Types of door and wardrobe hardware, dimensions, specifications, construction. Acme Appliance Mfg. Co., Pasadena 1, Calif.

4-100. Specify Levolor, 4-p. folder describing Venetian blinds made with plastic-coated aluminum slats, and incorporating tilting mechanism that ensures accurate slat alignment. Construction, specifications. Levolor Lorentzen, Inc., 391 W. Broadway, New York 12, N. Y.

4-101. Guide to Limitations for Labeled Doors, AIA 16 and 16-B, 4-p. data folder. Limitations for metal fire doors, based on Underwriters' Laboratories fire-door requirements; also, method of determining door swings from key side. Diagram indicating types of door, maximum opening size, maximum glass area permitted in door, door operation, hardware for lowest insurance rates. Overly Mfg. Co., Greensburg, Pa.

4-102. Phenix No. 700, 4-p. folder describing overhead residential garage door requiring minimum of headroom, allowing reduction of from 6 to 10 in. in height of new structure. Operation, stock sizes, specifications. Phenix Mfg. Co., Inc., 4129 N. Port Washington Rd., Milwaukee, Wis.

4-103. Seal-O-Sash, 4-p. folder on fabric strip, impregnated with non-drying asphalts, to protect imbedded and inaccessible members of metal window frames from moisture and other corrosive agents producing rust; strip also permits expansion and settlement. Application directions, specifications. Seal-O-Sash Co., 1020 E. 48 St., Brooklyn, N. Y.

ELECTRICAL EQUIPMENT, LIGHTING

5-66. V-51 Series Convertible Vaportight Lighting Fixtures (5-A), 20-p. bulletin illustrating new line of iron, vaportight lighting fixtures for pendant, ceiling, or bracket mounting on rigid conduit, with or without reflectors and guards. Wattages, weights, dimensional data, table of contents. Appleton Electric Co., 1701-59 Wellington Ave., Chicago 13, Ill.

5-67. Planned Lighting for Modern Schools, 6-p. brochure. Typical classroom photos demonstrating installations of fluorescent and incandescent lighting equipment. Pittsburgh Reflector Co., Oliver Bldg., Pittsburgh 22, Pa.

5-68. Mercury by Smithcraft (540A), 4-p. data folder. Description of popular, economical, all-steel, louvered fixture, general-diffuse in light distribution; designed for offices, schools, stores, etc. Suggested mounting arrangements, coefficients of utilization, specifications. Smithcraft Lighting Division, Chelsea 50, Mass.

FINISHERS AND PROTECTORS

6-33. Alodizing with Alodine, AIA 15-E (586B), 4-p. folder. Method of protecting painted and unpainted aluminum by use of amorphous phosphate coatings. Characteristics, test photos, data charts. American Chemical Paint Co., Ambler, Pa.

6-34. American Colors, 4-p. folder illustrating samples of streak-free, flat wall paints, oil-based, in colors ranging from deep tones to light pastels. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

★ **6-35. How to Decorate Classrooms in the Harmon Technic,** AIA 35-B (16), 10-p. revised brochure giving step-by-step procedure, developed by Dr. Harmon, for selection of color combinations for classrooms, laboratories, and domestic science rooms. Complete mixing formulas, light reflection factors, painting specifications for newly developed, washable rubber-base paint, classroom diagrams with 15 tested colors demonstrated on wall, ceiling, and trim areas. National Chemical & Mfg. Co., Luminall Paint Div., 3617 S. May St., Chicago, Ill. (First copy free, additional copies 25 cents.

INSULATION (THERMAL, ACOUSTIC)

9-48. Servicised Products, 12-p. bulletin describing cork composition vapor seal and floor insulation which helps prevent heat loss through concrete floor slabs and structures on grade; other products described include asphalt-plank flooring, rubber waterstops, joint fillers, and other related materials. Recommended uses, general information. Servicised Products Corp., 6051 W. 65 St., Chicago 38, Ill.

INTERIOR FURNISHINGS

9-49. Modern School Furniture, 12-p. booklet. Illustrations of desk-seat units, chairs, tables, and auditorium seats, all constructed of strong plywood and steel. Tables of sizes. Irwin Seating Co., Grand Rapids, Mich.

SPECIALIZED EQUIPMENT

19-133. Playground Equipment (K), 59-p. catalog reviewing wide range of playground equipment—swings, parallel bars, chutes, varieties of poles, ladders, seesaws, tennis equipment, etc. General data, shipping weight, accessories, rail freight rates. J. E. Burke Co., Fond du Lac, Wis.

19-134. Metalab Educational Laboratory, 4-p. folder. Illustrations of laboratory equipment, such as chemistry desks, chemistry and science tables, storage and other types of cabinets. Dimensions, construction. Metalab Equipment Corp., Hicksville, N. Y.

SURFACING MATERIALS

19-135. Asphalt Tile and Terraflex, AIA 23-D (FL-39A), 12-p. booklet. Illustrations of asphalt tile and plastic asbestos tile flooring. Typical applications, designs and colors, care and maintenance. Johns-Manville, 22 E. 40 St., New York 16, N. Y.

19-136. Miracle Chalkboard, 8-p. booklet describing different types of chalkboards and bulletin boards, including aluminum frames for chalkboards. Installation details, specifications, typical installations. New York Standard Blackboard Co., Inc., 225 Broadway, New York 7, N. Y.

19-137. Strong-Bilt Panels (781-25P-80), 8-p. booklet containing directions for application of waterproofed, laminated panels on walls and ceilings in new construction. Also includes method of painting, papering, and application of molding. Upson Co., Lockport, N. Y.

(To obtain literature coupon must be used by 8/1/51)

PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 18, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.
We request students to send their inquiries directly to the manufacturers.

1-101	1-102	1-103	1-104	1-105	1-106	1-107	3-84
3-85	3-86	3-87	3-88	3-89	3-90	3-91	3-92
3-93	4-99	4-100	4-101	4-102	4-103	5-66	5-67
5-68	6-33	6-34	6-35	9-48	9-49	19-133	19-134
19-135	19-136	19-137					

Name

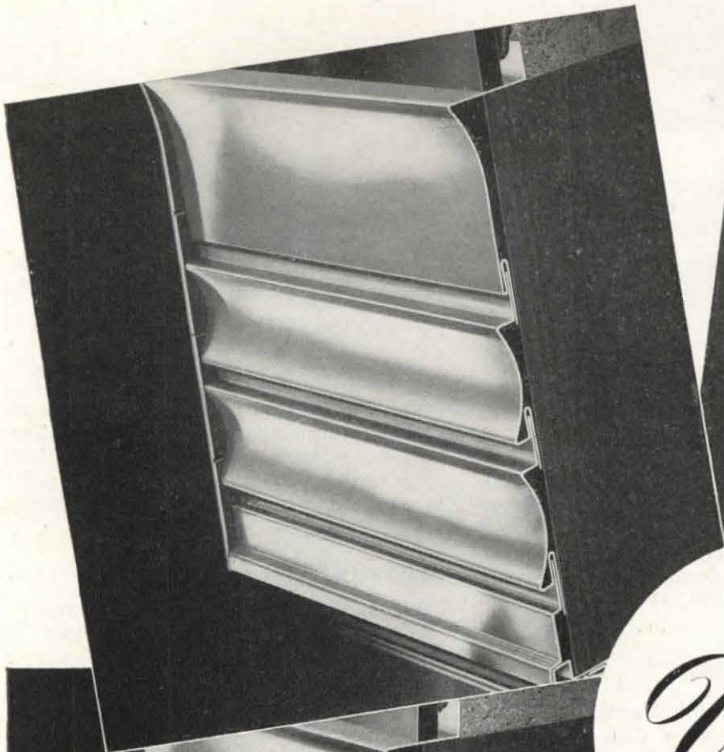
Position

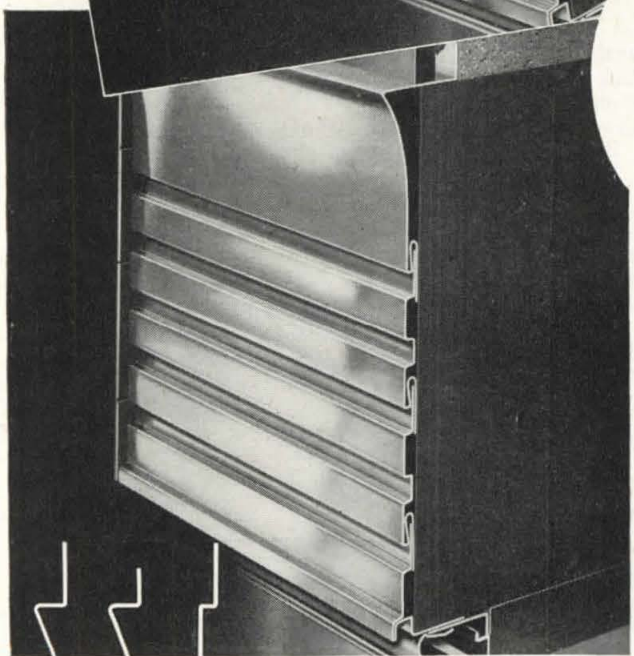
Firm

Mailing Address ☐ *Home* ☐ *Business*

City *State*

PLEASE PRINT **6/51**

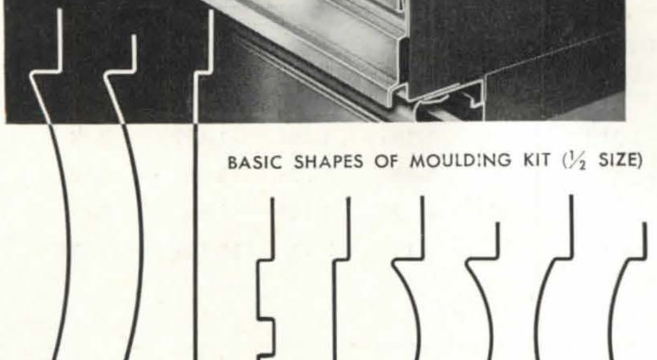




Variety in store front design

WITH THE **PITTCO PREMIER MOULDING KIT**

BASIC SHAPES OF MOULDING KIT (½ SIZE)



● By interchanging various basic shapes in the Pittco Premier Moulding Kit, the architect can avail himself of the widest latitude in store front design . . . can give fresh, distinctive beauty to each of several adjacent places of business.

Three of the almost limitless number of designs that can be made from the Pittco Premier Moulding Kit are shown here. Cross sections of some of the basic mouldings are illustrated at the left.

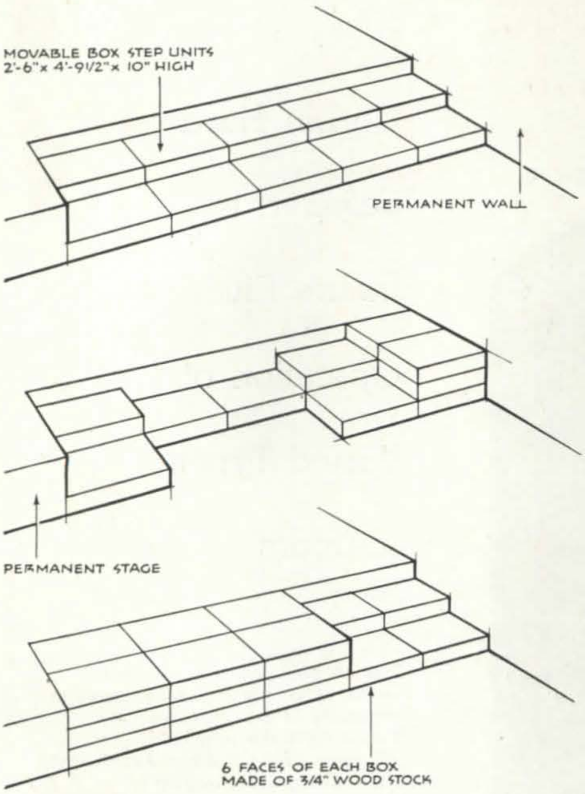
You'll find the Pittco Premier Moulding Kit . . . another product of Pittsburgh's continuing research . . . an invaluable tool in modern store front design.

PITTCO STORE FRONT METAL

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

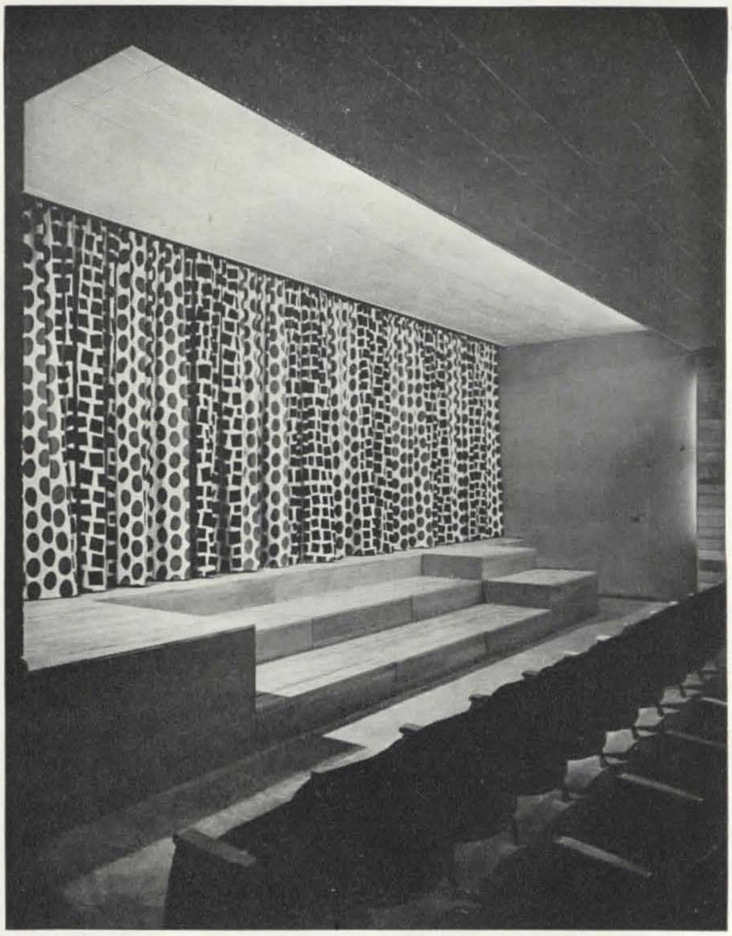
PITTSBURGH PLATE GLASS COMPANY

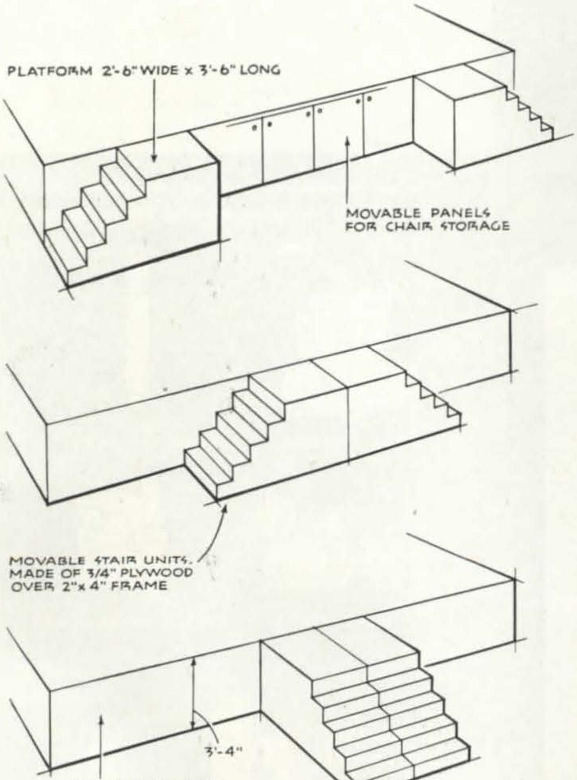
BLYTHE PARK SCHOOL, Riverside, Ill.
PERKINS & WILL, ARCHITECTS



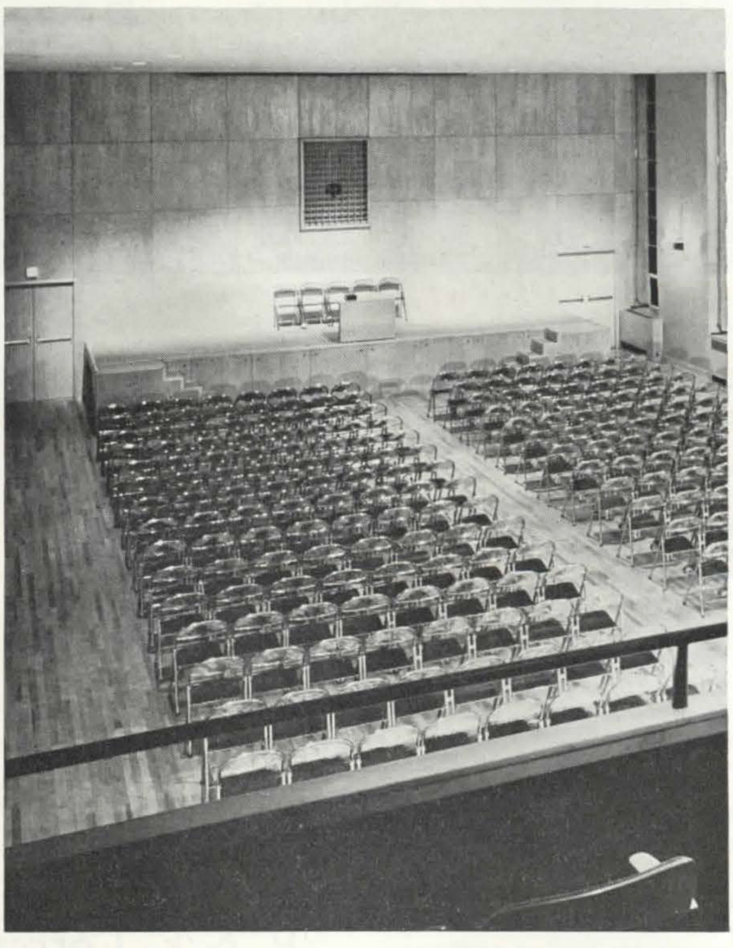
Typical Stair Rearrangements

HEDRICH-BLESSING STUDIO





EZRA STOLLER : PICTOR



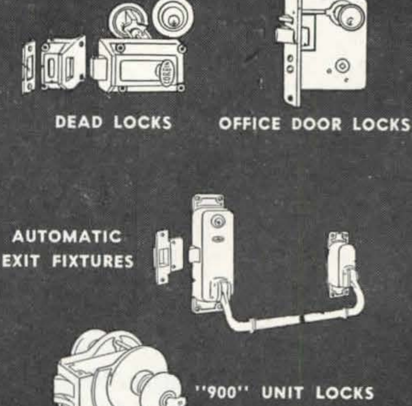
WHEATON COLLEGE, Norton, Mass.
HORNBOSTEL & BENNETT, ARCHITECTS

New Old-Age Home Includes Full Hospital Facilities

Corbin Hardware Selected to Insure Efficient Operation of Varied Types of Doors

Full hospital facilities, located on the upper floors, are available to occupants of the approximately 200 rooms in the new Home for Aged Jews, Chicago. **Architects:** Loewenberg & Loewenberg; **General Contractor:** Morris Handler Co., Inc.; **Corbin Hardware Supplied By:** Howell Hardware Co.

Corbin Hardware used at the Home for Aged Jews includes, among other items:



A more convenient building, a more economical building — these are two of the advantages of selecting Corbin Hardware for such carefully planned construction as the new Home for Aged Jews, Chicago.

The entrance doors of this building are equipped with Corbin Automatic Exit Fixtures, providing maximum safety in emergencies. For high security, many of the interior doors are fitted with Corbin "900" Series unit locks. Other interior doors have Corbin cylinder office door locks, dead locks or rim dead locks, master-keyed to their special requirements.

The completeness of the Corbin line makes it possible to select *exactly the right lockset for each door* and yet to have all locksets harmonious in appearance and master-keyed as needed. There is no cause for costly over-specification or inconvenient under-specification. Thus both initial costs and maintenance costs are kept to the minimum.

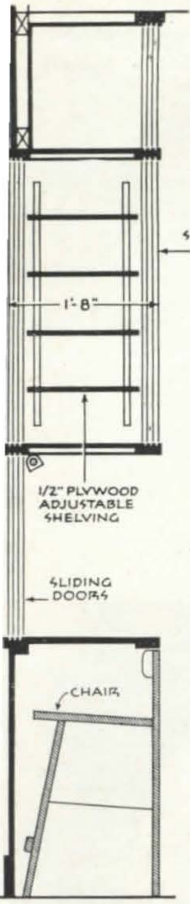
"Good buildings deserve good hardware" . . . and when you choose Corbin, you choose the finest — for convenience, for appearance, for lasting economy.

GOOD BUILDINGS DESERVE GOOD HARDWARE

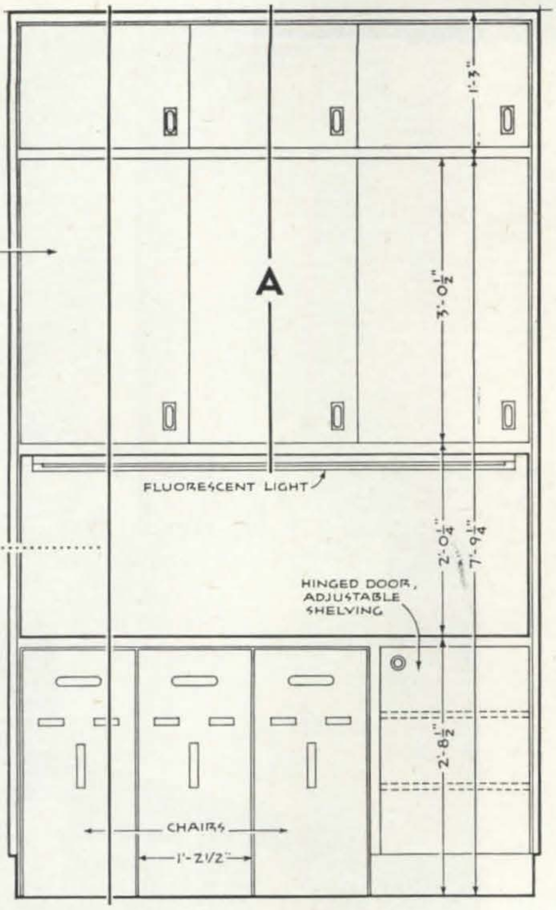
CORBIN

P. & F. Corbin
DIVISION

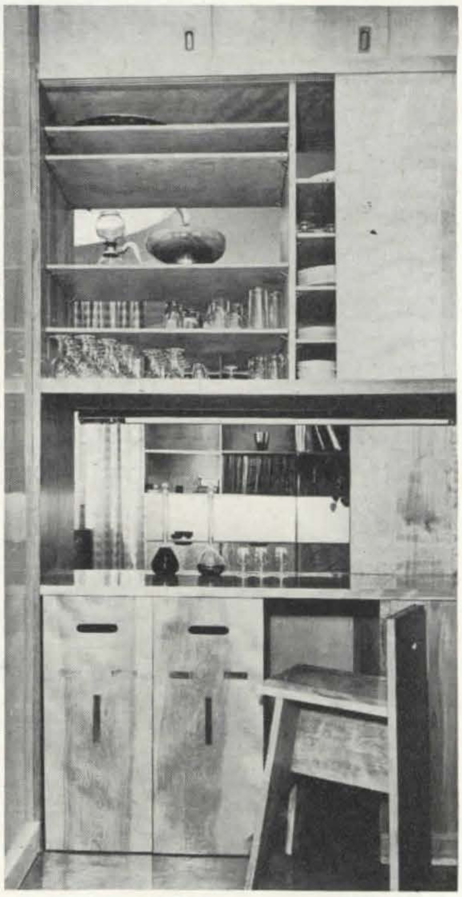
THE AMERICAN HARDWARE CORPORATION, NEW BRITAIN, CONNECTICUT, U. S. A.



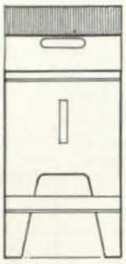
Section



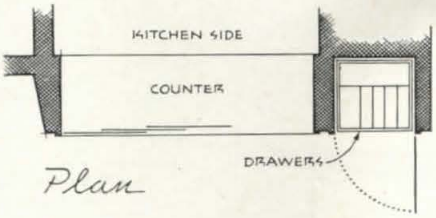
Elevation (KITCHEN SIDE) 1/2" SCALE



JEROME CONKLING PHOTOS

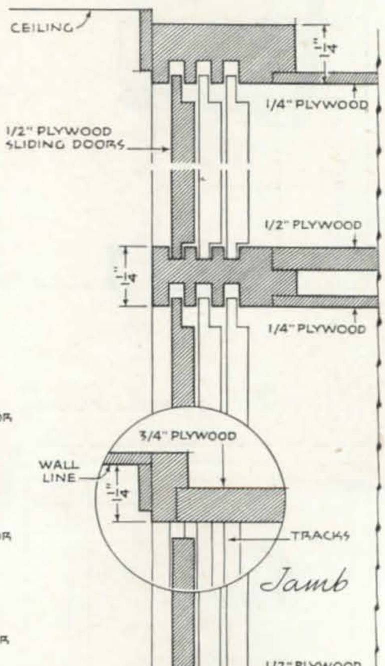


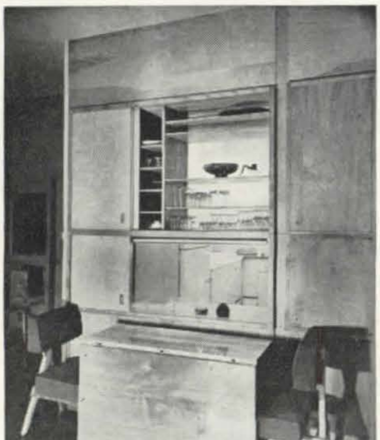
FRONT ELEVATION OF CHAIRS

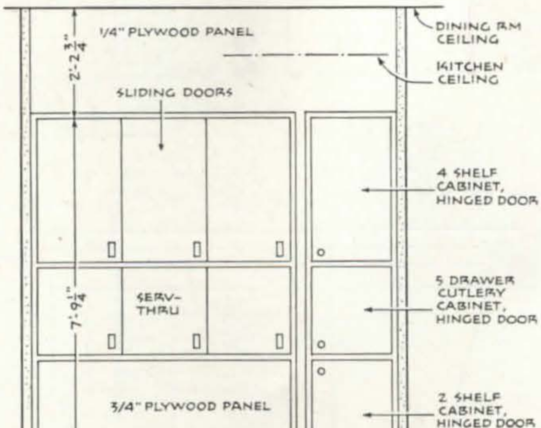


Plan

Section at A
3" SCALE



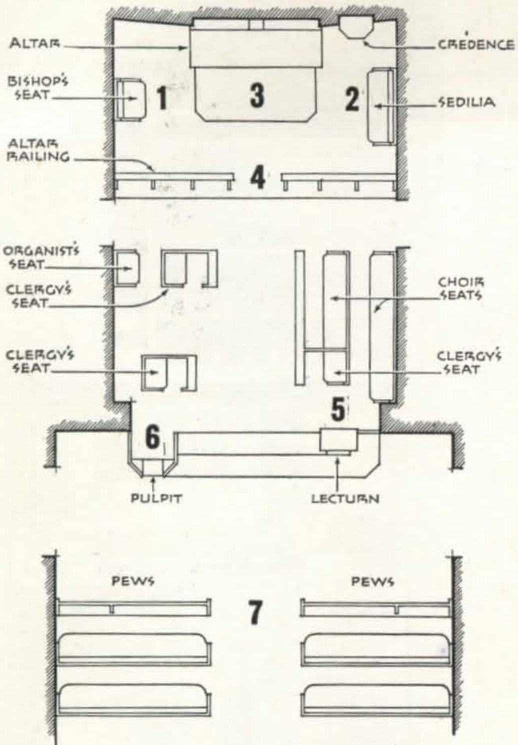




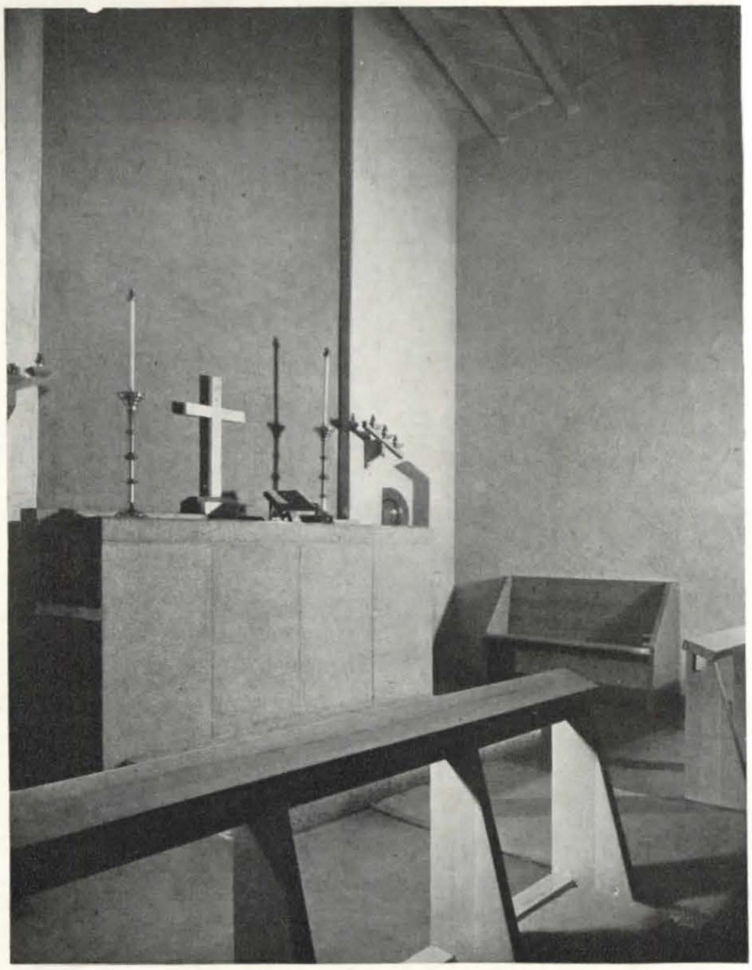
Elevation (DINING SIDE) 1/4" SCALE

SHAFFER RESIDENCE, New York, N. Y.

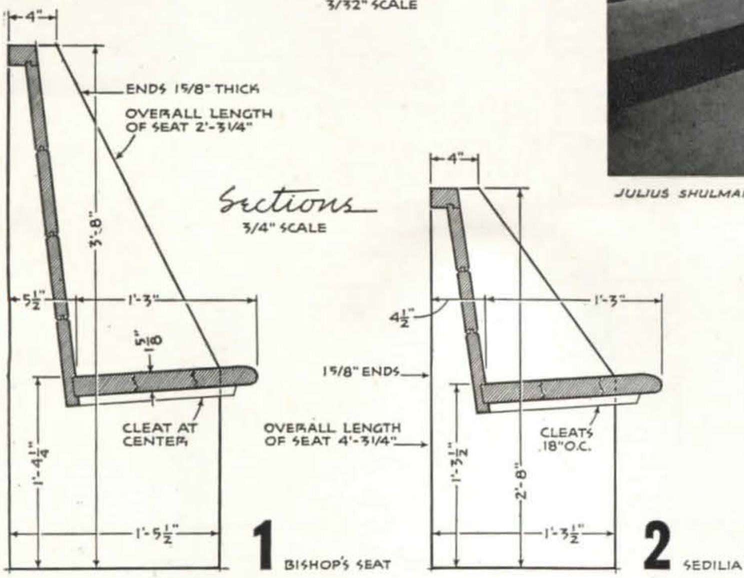
KATZ, WAISMAN, BLUMENKRANZ, WEBER & STEIN, ARCHITECTS

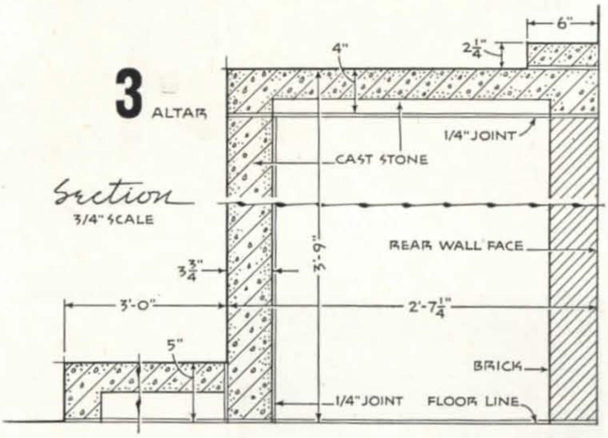


Key Plan
3/32" SCALE

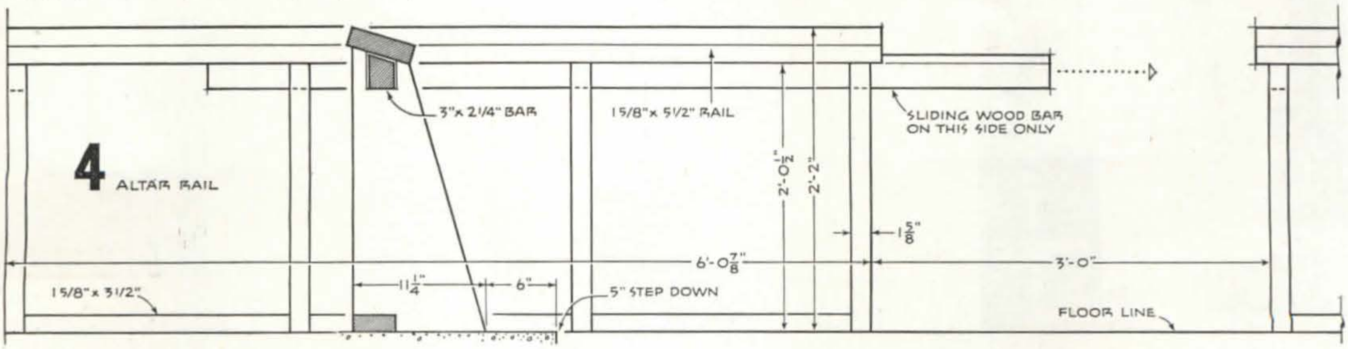


JULIUS SHULMAN





Elevation and Section 3/4" SCALE

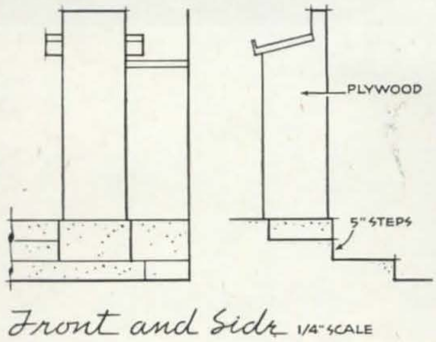


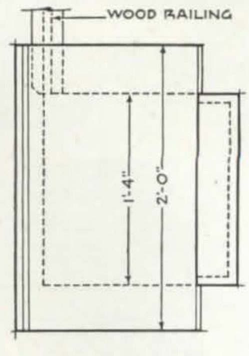
DESERT EPISCOPAL CHURCH, Palm Springs, Calif.

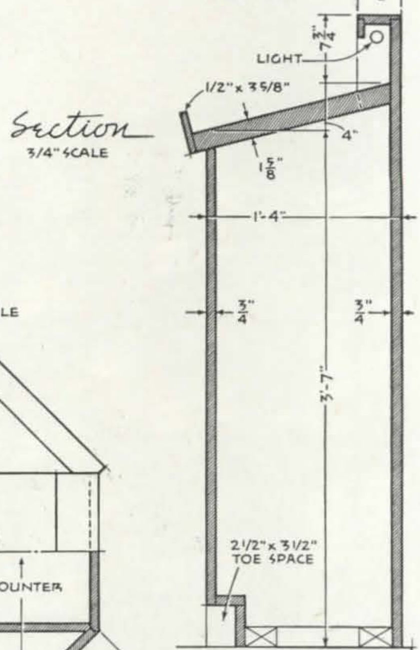
CLARK & FREY, ARCHITECTS

JULIUS SHULMAN

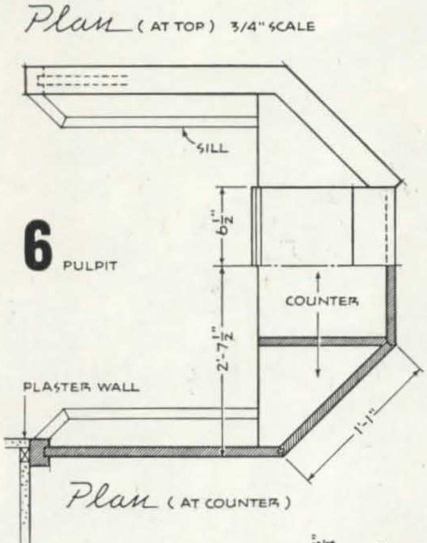
5 LECTURN

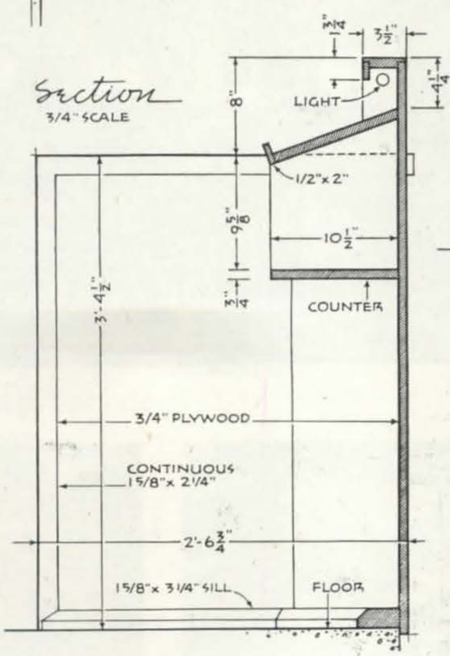


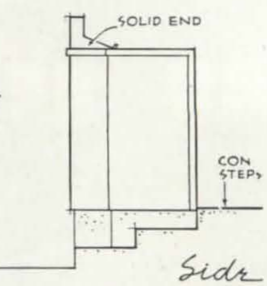


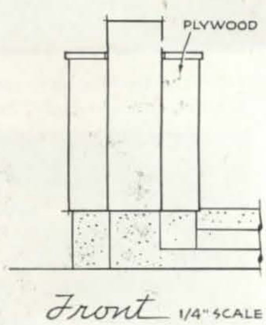


6 PULPIT

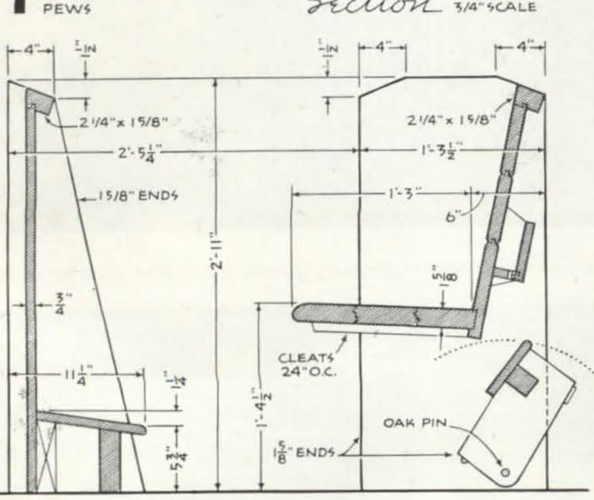








7 PEWS

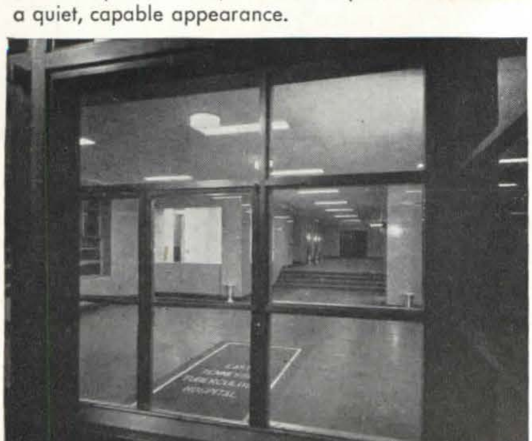


DESERT EPISCOPAL CHURCH, Palm Springs, Calif.

CLARK & FREY, ARCHITECTS

Care and Conscience Designs One of t

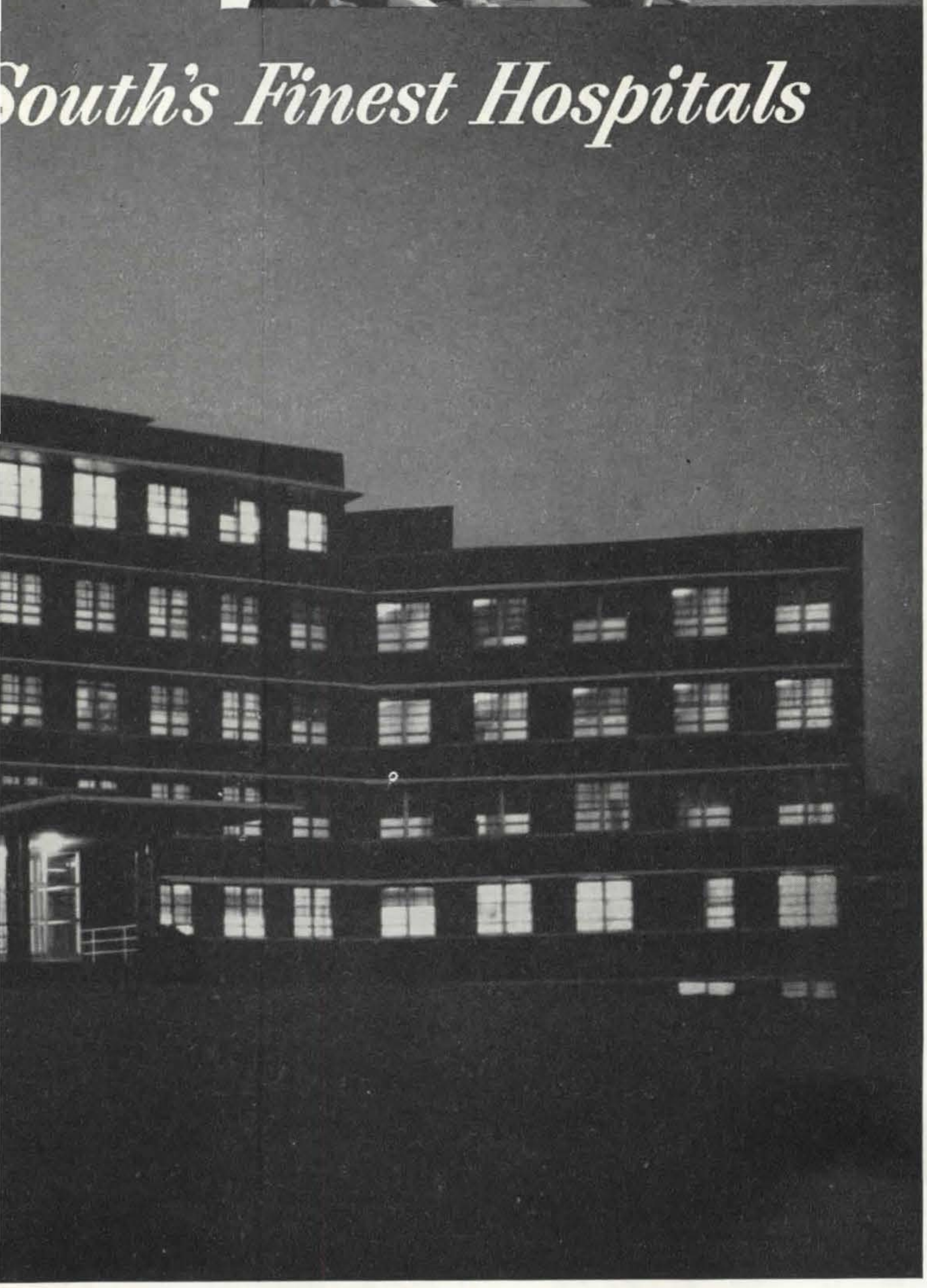
From the port-cochere, the interior presents a quiet, capable appearance.



The simple dignity of the entrance hall is lighted by glareless Day-Brite glass enclosed

Left to right:
Shi G. Goodwyne,
ert B. Baumann, Jr.,
Will W. Griffin.

South's Finest Hospitals



When three distinguished Knoxville architects like Albert Baumann, Jr., Will Griffin and Shi Goodwyne tackle a project, the results are going to be a dramatic example of designing skill. The new 200-bed East Tennessee Tuberculosis Hospital at Knoxville paves an architectural milestone for simple, modern beauty and solid patient comfort.

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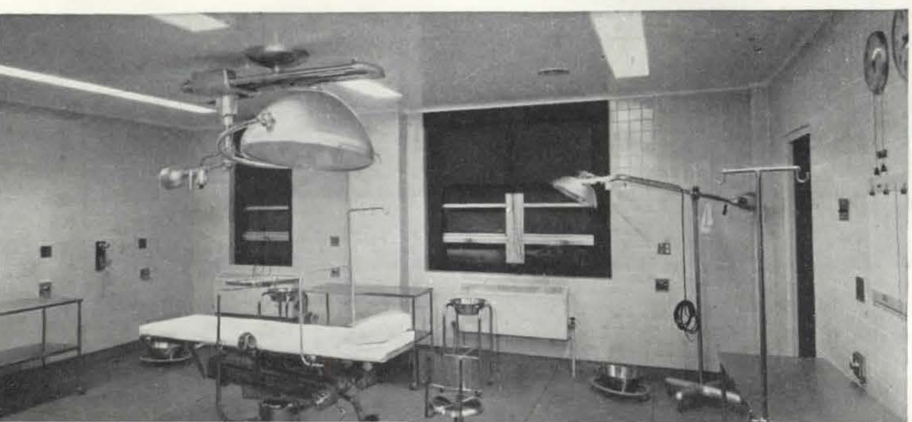
corner of the 5th floor operating room receives uniform, vision-saving illumination.



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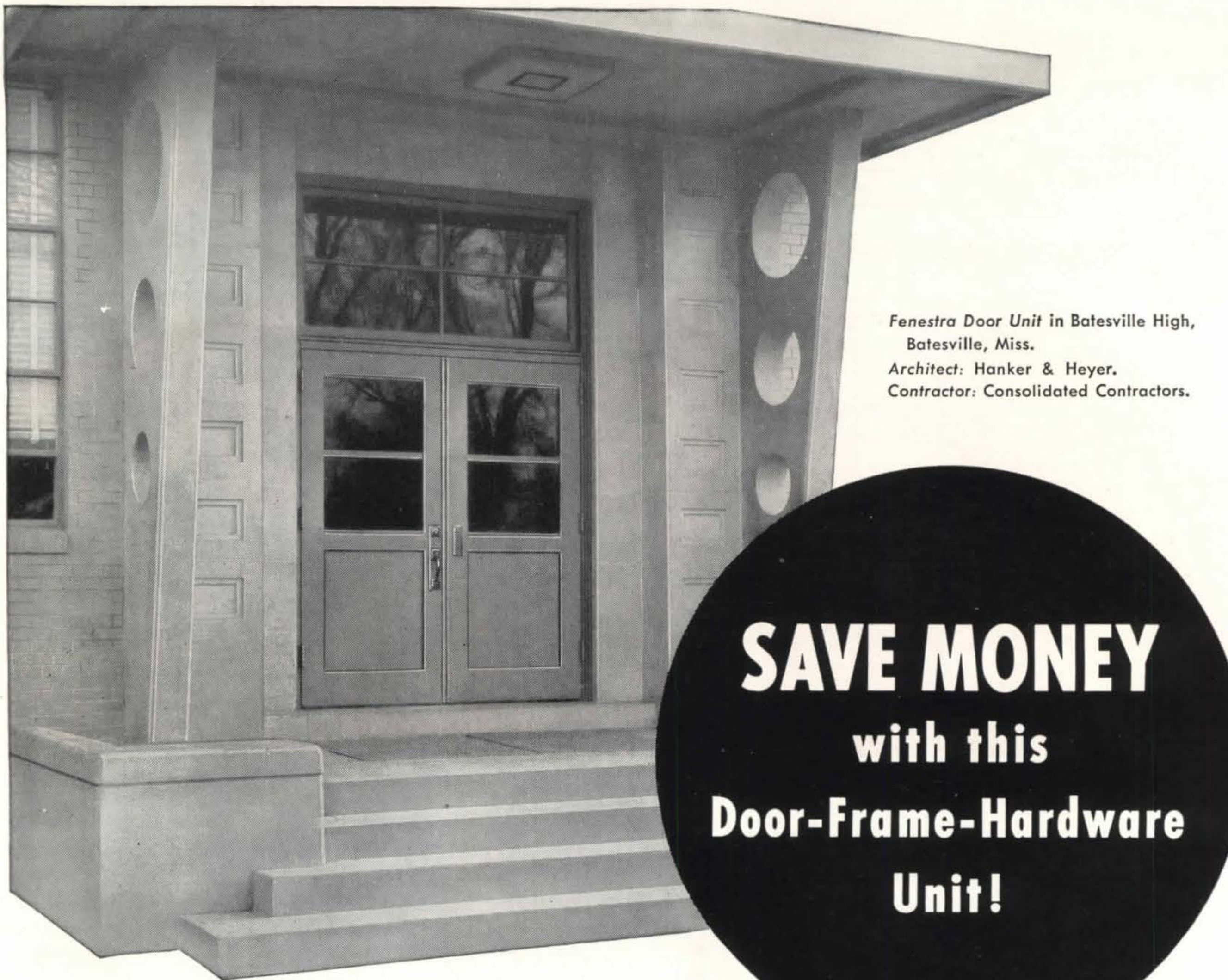

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Architect: Hanker & Heyer.
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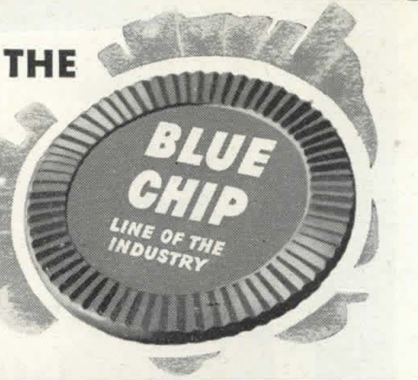

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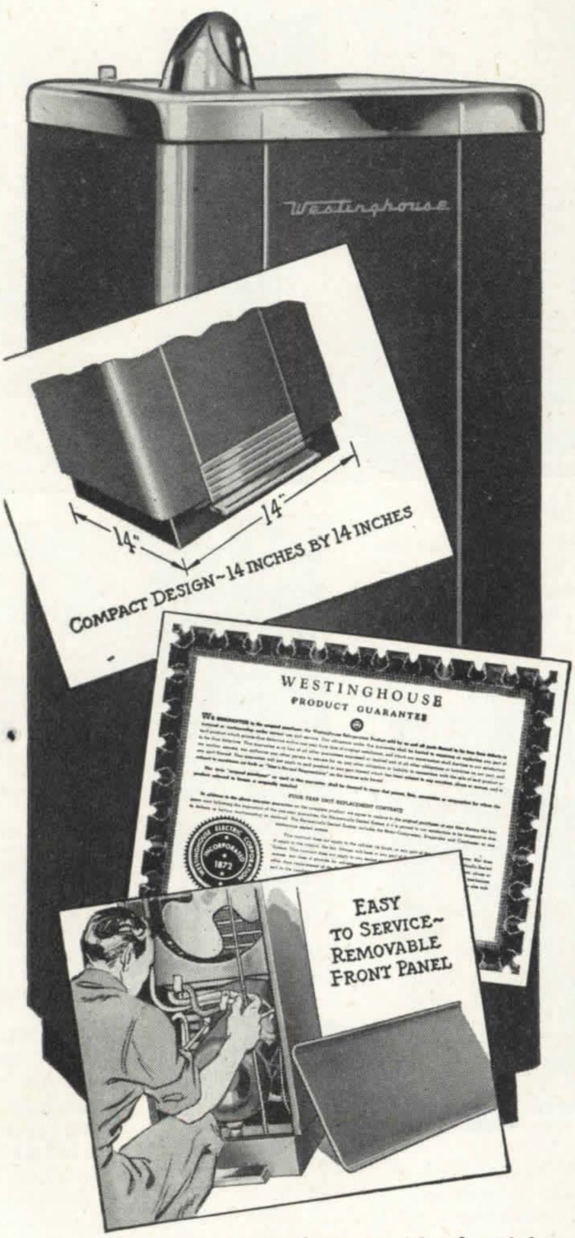

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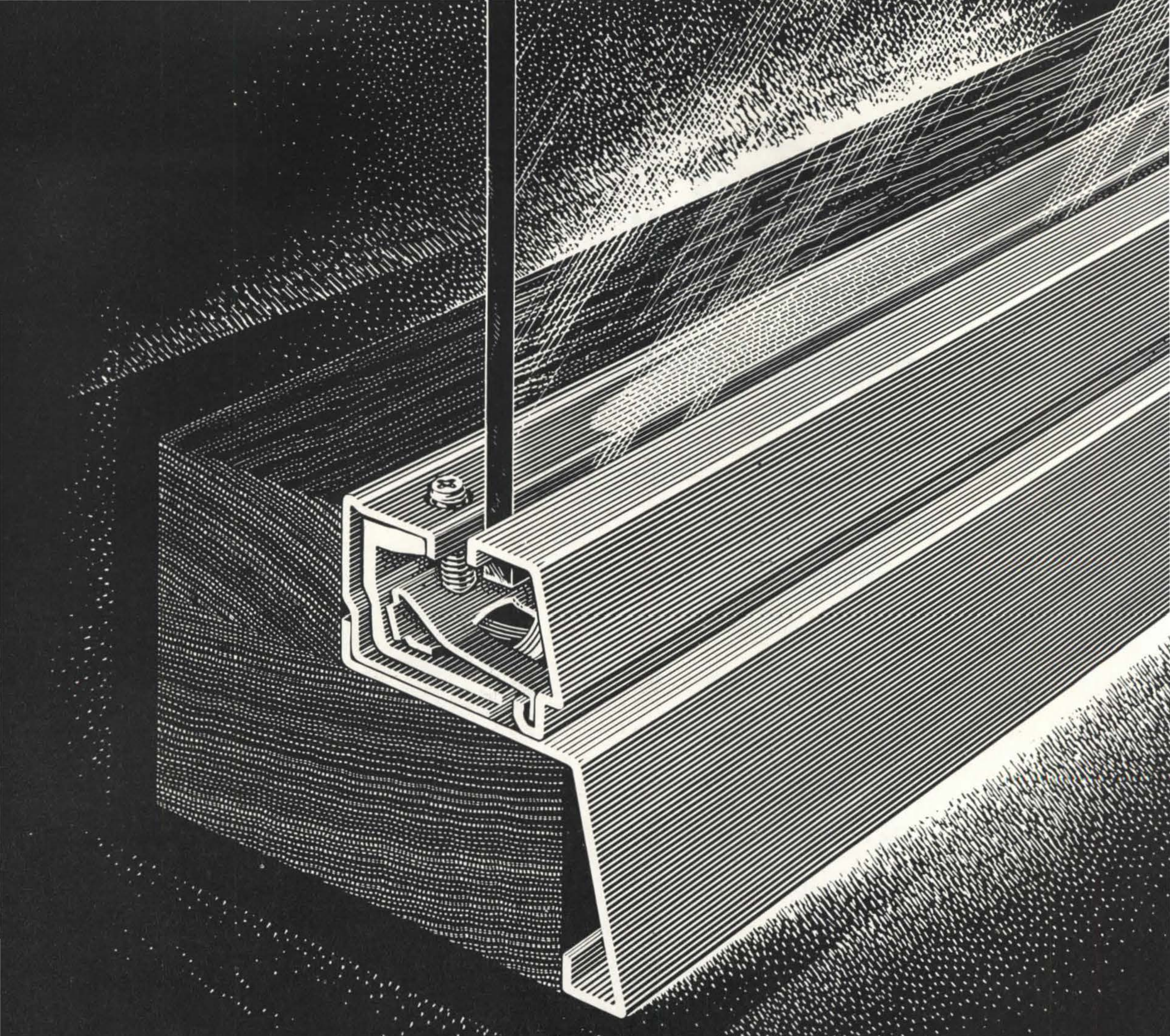

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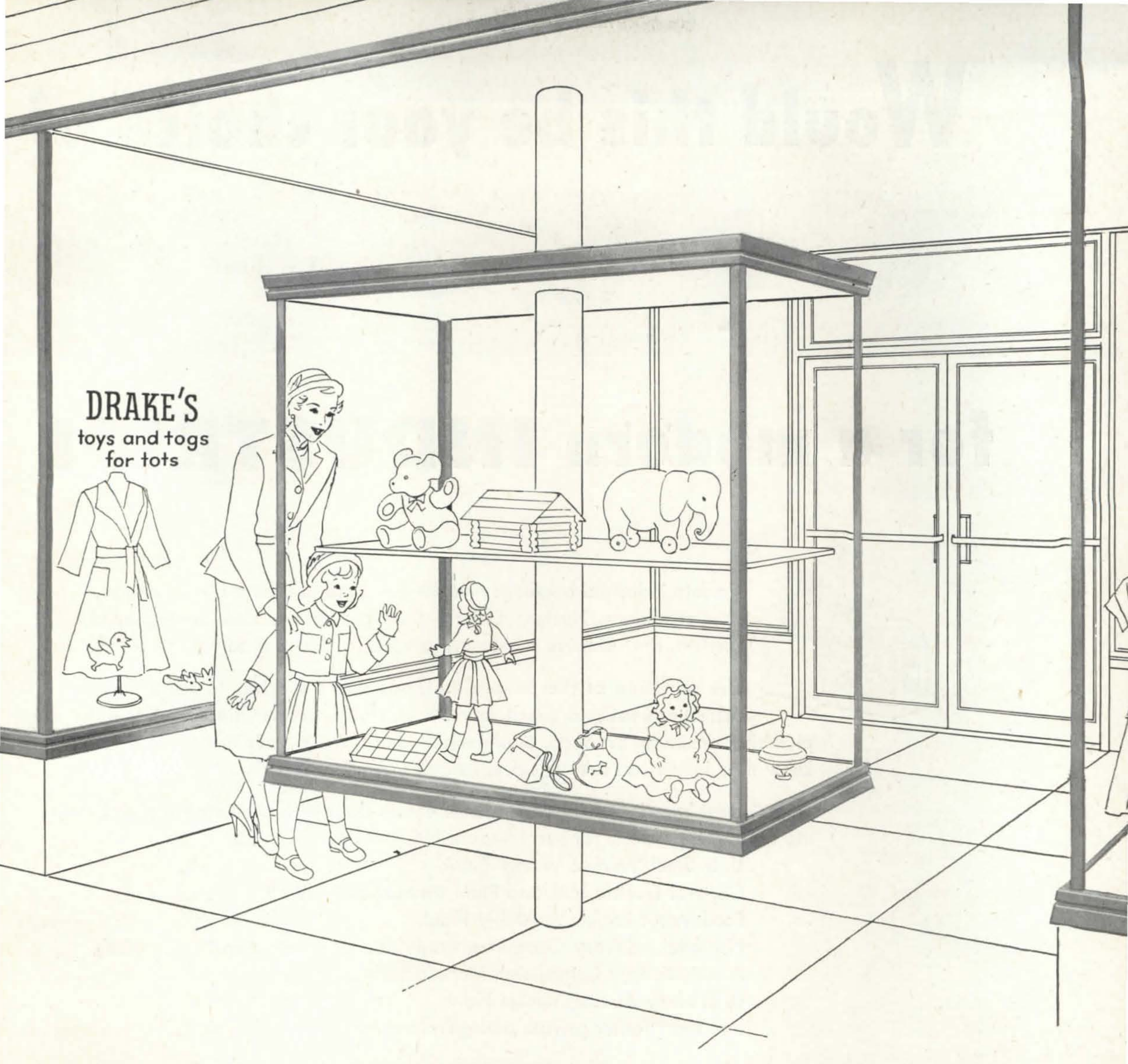

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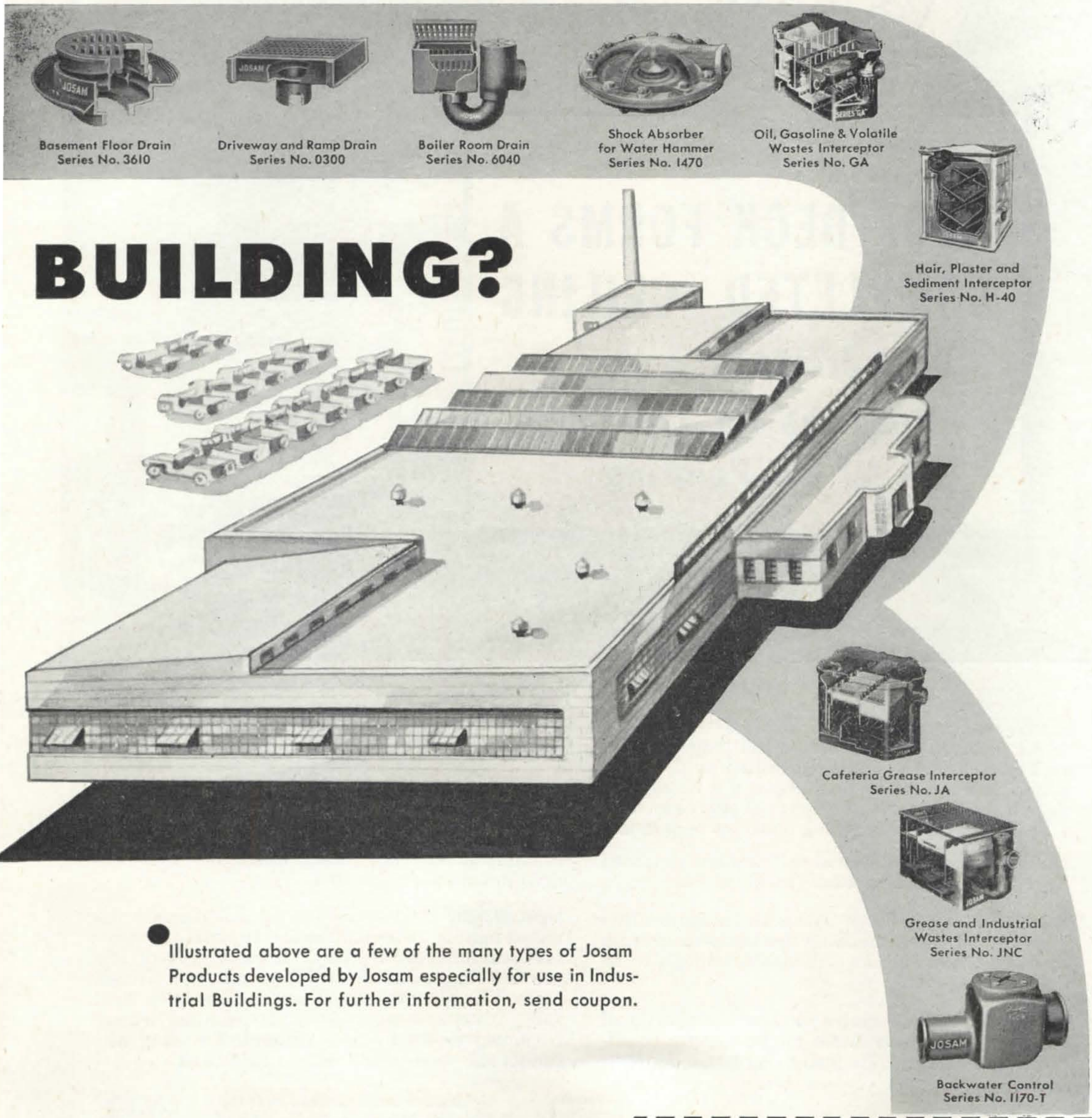

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THOSE IMPURE GREEKS

The Architecture of Ancient Greece. *William Bell Dinsmoor. B. T. Batsford, Ltd., 122 E. 55 St., New York 22, N. Y., 1951. 424 pp., illus. $6.75*

The last 25 years have been amazingly productive in archaeology so that the revised edition of Dinsmoor's *Architecture of Ancient Greece* is almost a totally new book. Not only does it bring the record of discoveries up to date, but also, because of the new material that has been found, it makes possible completely new syntheses. The history of ancient Greek architecture is today a far different story from what it was in 1927, when the preceding edition was issued, and Professor Dinsmoor's impeccable scholarship and his vast knowledge of the field have enabled him to present this new history with authority.

The differences between the old and the new concepts are striking. The earlier set categories of the orders have lost much of their hard-and-fast definition. The Greeks, we now realize, experimented with all sorts of forms outside the rules: they used Doric-type entablatures with Ionic or even Corinthian columns; they combined half-columns with piers, and they developed (at least once) an extraordinary capital Doric on one side with a sweeping upcurving modillion scroll on the other; they tried many different types of temple plan, and extensive variations in the interior effects of the temples were present. And in secular architecture we find an almost complete lack of crystallized types; there was a continual flux from the beginnings on down. Many of these variations were known earlier (but the early historians and archaeologists tended to overlook them or play them down), so it required the constant intensive work of the last quarter-century to see them in their proper proportion and to realize they were not mere accidents but, rather, integral parts of the Greek *quest for form.*

Another fact emerges from this new history: the extraordinary number of buildings—even famous buildings—that were never finished! The Athenian Propylaea and the Erechtheum are examples, but the list goes on indefinitely. Buildings were remodeled, often, almost continuously up through Roman times. Grandiose beginnings were made and the structures left half-built. Quarrying and setting bosses in many buildings were never smoothed off; apparently the ebullient Greeks were more eager to get on with the new than to complete the old.

Recent excavations and new studies of old sites have combined, too, to destroy the old picture of the early primitive stage, the culmination (in the Periclean period), and the later theoretical decay of Greek architecture. We can now realize that this older conception represents the choice, largely arbitrary, of but one of many attitudes toward Greek architecture. In planning, for instance, the period of supposed culmination was still definitely primitive, almost formless. The entire concept of architecture—and of city planning as well—that sees architecture as the ordered integration of many differing elements into a unity greater than the sum of its parts only developed in post-

(Continued on page 132)

(Continued from page 131)

Alexandrian times. The late agoras of Priene, Miletus, or Ephesus, for instance, were a far cry from the formless open space spotted with unconnected structures of the Athenian agora of the fifth century.

Now these are all important new perceptions. If there is to some a loss in the destruction of the old ideal of an architectural Golden Age under Pericles, there is a much greater gain; for, in the light of this new history, we can see the Greek architects as men much like ourselves, working in the context of their own times, seeking, experimenting, in the enduring architectural task of trying to find an expressive, a beautiful, and an efficient environment for human beings.

This is the lesson of Professor Dinsmoor's book. Its new presentation of the pre-Greek architecture of the area in the light of the most recent ethnic knowledge is particularly valuable, as is its clear exposition of the varying gifts to the common Greek tradition made by the peoples of European Greece and of Asia Minor and the Islands of the Aegean. Its examples are definite and clearly described; the bibliography is copious and authoritative.

This reviewer has but three small criticisms; all are possibly the result of the fact that this book, as a revision of a revision, still harks back in arrangement to its early original. The first criticism is the fact that major developments and important trends are sometimes buried under the number of examples that are named and described; the chronological framework sometimes conceals, more than it reveals those basic problems of planning and fitness that make architecture what it is. The second is the lack of a clear and thorough description of Greek construction, of the way the Greeks used materials or bridged over spaces. And the third is the fact that, except in the section on Aegean work, there is little attempt to relate these temples and tombs, these agoras and houses and sacred sites, to the thronging life that went on around them and in them—the life they were erected to serve. For it is not true that building form can only be truly understood in the light of that human context?

Yet even these three factors can largely be picked up by a diligent reader, implied, if not specifically stated in many passages in the book. Professor Dinsmoor has written a work of surpassing value to all students in the fascinating field of Greek building, and no one who pretends to a knowledge of it can do without this monumental achievement. TALBOT HAMLIN

LANDSCAPE DECORATION

China and Gardens of Europe of the Eighteenth Century. *Osvald Sirén. The Ronald Press, 15 E. 26 St., New York 10, N.Y. 1950. 223 pp., and 200 pages of plates (16 in color). $30*

Lordly pursuit of the European great and wealthy during the 18th century was reordering what Nature had wrought in the surroundings of their country houses. Notable among their enthusiasms was a mode of landscape decoration fondly believed to be a faithful recreation of the far-off gardens of China. Dr. Sirén, whose appreciation and meticulous knowledge of the genuine Cathay landscaping has made his earlier *Gardens of China* the outstanding contemporary reference on the subject, lovingly collected here rare photographs, drawings, and copious data on the extraordinary translation of this Oriental idiom. The examples are primarily English, French, and Swedish (Germany and Austria being forbidden territory during the years of this book's preparation).

The fashion that swept Europe's privileged class is considered in all its major characteristics—the changes in gardening, architectural innovations, the aristocratic interest, discussion, and controversy that resulted. The publisher has contributed fine printing in a format

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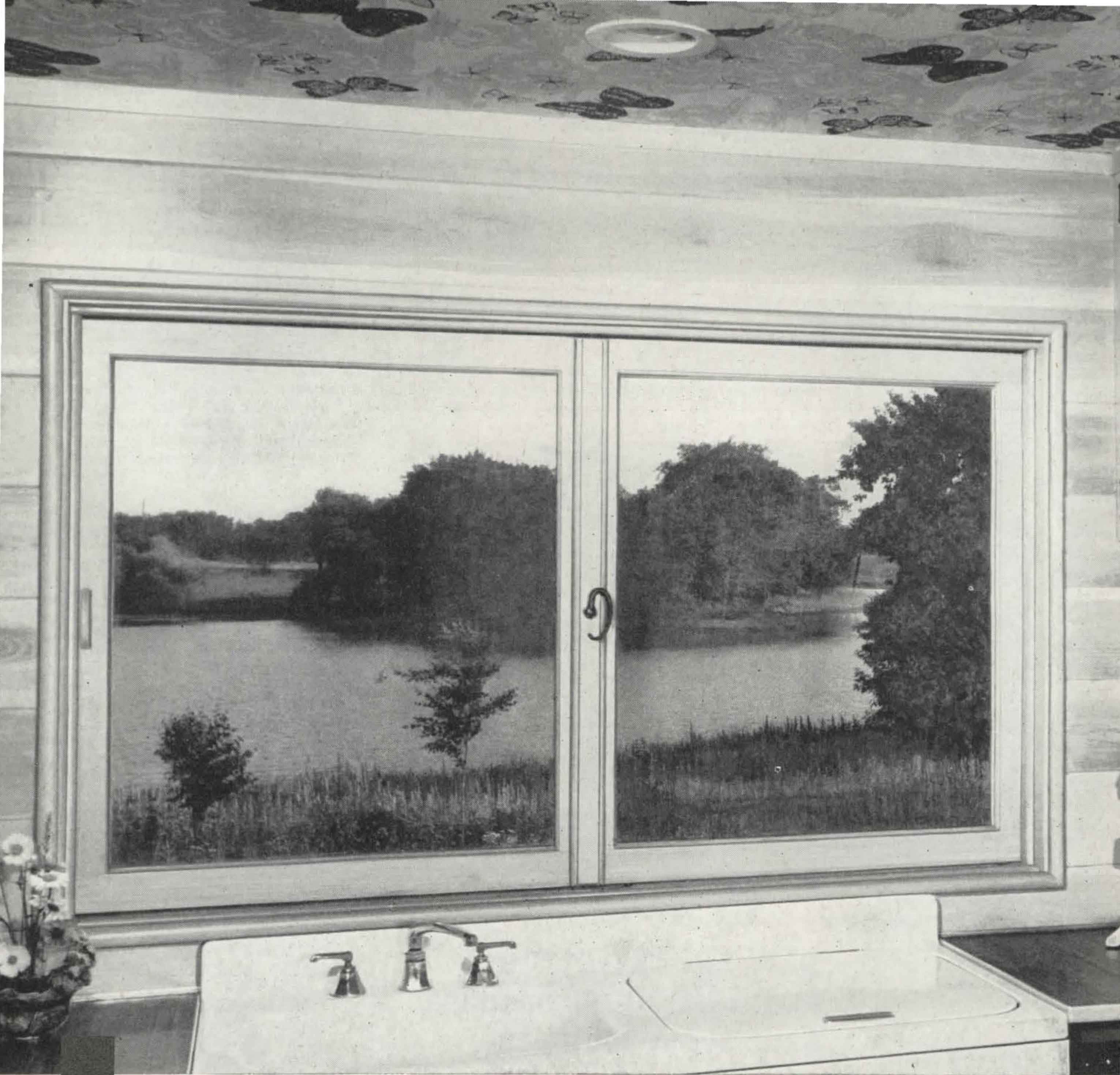

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(Continued from page 132)

worthy of the erudite treatise. This is a book that would have pleased those 18th century gentlemen who essayed gardening in the grand manner.

The taste for Chinese garden structures and scenes intended to convey the romantic charm of the imagined Oriental models was of more significance, Dr. Sirén declares, than such idle copying as led contemporary decorators to fill rooms with *Chinoiseries* and fantasies. There was intense interest in luxuries that could be imported from the Far East. The British East India Company was exploiting its rich monopolies and in France the fad was decreed by that top arbiter of spending, Madame de Pompadour (who was interested financially in the Compagnie des Indes). But in the open air, there were more serious implications. Dr. Sirén comments:

"It would be too rash to assume that the China enthusiasts and garden amateurs of eighteenth century Europe were sufficiently informed about the cultural traditions of the Far East to be able to appreciate the poetic symbolism and philosophical allusions characteristic of the Chinese gardens, but through the descriptions and illustrations which had reached the West they had nevertheless felt, as it were, a breath from that ideal world which supposedly was to be realized in the gardens of China. To what extent such notions were correct or incorrect, may be left an open question. It was of no fundamental importance, for here, as in so many corresponding cases, it was the creative thought rather than its material prototype or origin that was the essential thing. In a word, the scanty, and in part somewhat fantastic, information concerning the gardens of China that reached Europe was sufficient to act as a stimulating impetus, or a signpost to the distant landscapes of the world of dreams.

"They aroused the imagination and were translated in living creations in a manner that was as arbitrary as it was successful, for they corresponded to a spiritual demand, a cultural need that had then come to full consciousness. How this was realized in certain European countries is described . . . These remarks are intended only to motivate the title under which this volume appears. The motivation may seem necessary today, but it certainly would not have been so in the 1770's and 80's, when people were convinced that the gardens of China had really been transferred to Europe." C.M.

SCHOOL PLANNING

Schools for the Very Young. *Heinrich and Elisabeth Waechter. Architectural Record, 119 W. 40th St., New York 18, N. Y., Jan. 1951. 197 pp., illus. $6.50*

All will agree that this book is concerned with a very important building type and one about which there is insufficient knowledge. Mr. and Mrs. Waechter are suited to write such a book. He is an architect; she is a child educator. The book is largely the product of research done under the A.I.A.-Edward Langley Scholarship. Between them, the authors have valiantly attempted to cover the whole, wide field of pre-school development and the shelter in which it must occur. They give a brief historical survey of the pre-school educational movement from Oberlin & Pestalozzi, through Froebel & Maria Montessori to the present day, with its somewhat more pragmatic ideas. They go on to describe the actual life and work as it occurs in pre-schools and proceed to discuss the problems of design, location, equipment, and certain technological aspects. They give a number of plans and illustrations of various such buildings and include an extremely useful bibliography.

I say they have attempted to cover the field: in all sincerity, I cannot feel they have succeeded in doing so. If this book is intended for architects, it might well have given a more detailed analy-

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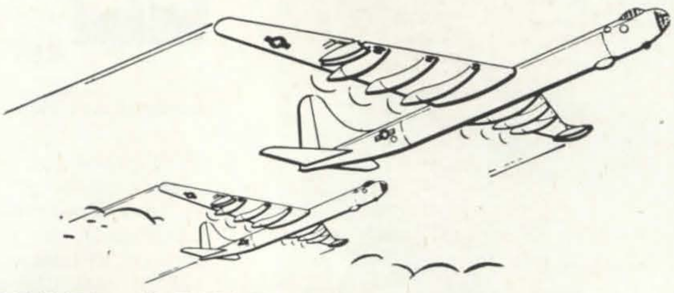

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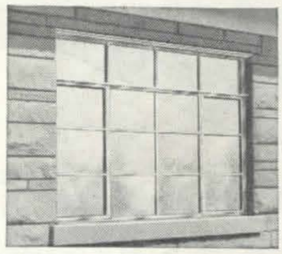
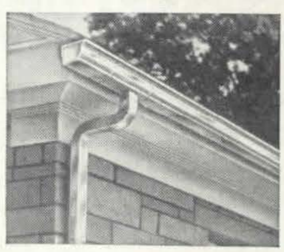
From thinnest foil to jet-plane armor, aluminum is the most versatile of metals. It has become the architect's most modern material. No other metal within economic reach can be rolled so fine, extruded so easily in endless shapes, drawn, forged, cast. No other metal offers *at low cost* aluminum's freedom from rust and resistance to corrosion. No other metal combines light weight with a strength which can be made equal to mild steel. And no other low-cost metal can equal aluminum's radiant heat reflectivity.

From this extraordinary range of characteristics stems the scope of aluminum's uses. Aluminum roofing, siding, gutters and downspouts, insulation and vapor barrier, windows, screens . . . these have become staple building materials. Decoratively as well as functionally, the field broadens . . . aluminum spandrels, bas-reliefs, spires, railings, doors, moldings. And there is an increasing trend to aluminum structurals.

Reynolds, leader in aluminum building products, offers literature on technical engineering subjects such as "Aluminum Extrusions" and "Aluminum Structurals," as well as on the specific products shown. Please address inquiries to **Reynolds Metals Company,** Building Products Division, 2038 South Ninth St., Louisville 1, Kentucky.



Reynolds Aluminum Windows (residential casement, double-hung, fixed, picture) are outstanding in finish and design. Military needs affect production but aluminum capacity is expanding. Check your supplier.



Reynolds *Lifetime* Aluminum Gutters prove aluminum's economy . . . half the cost of other rustproof materials. Ogee and Half-Round, smooth or stippled. Military needs for aluminum may affect supply.

Reynolds Aluminum Reflective Insulation—foil on one side (Type C) or both sides (Type B) of kraft paper. A preferred insulation and vapor barrier. 25", 33" and 36" widths, in boxed rolls of 250 square feet.

Aluminum is required for planes and other military needs. Expansion is under way. Keep checking your sources for products shown . . . also for Aluminum Nails, Flashing.

Reynolds *Lifetime* Aluminum Industrial Corrugated on coal conveyor system of Worcester County Electric Co., New England Electric System. .032" thick. Light weight with great strength. Low cost, lowest maintenance. DO-rated orders get priority handling.

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS METALS

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

REYNOLDS ALUMINUM

p/a REVIEWS

(Continued from page 134)

sis of pre-school development, not only briefly describing the Froebel and Montessori systems but also indicating the difference in the products. The educationalist will know this of course and will not need it; but on the other hand he might well be interested in the buildings in considerable detail, buildings with which the architect is familiar and can therefore study from other sources. The information about construction, lighting, and mechanical equipment is far too general to be of much use to architects, and without explanatory notes and illustrations can be of little value to the educationalist. Much of it is not concerned with the particular problem of the pre-school but with all schools—indeed, all buildings. Prefabrication, durability, cost, etc., are dealt with, in other books, much more comprehensively.

In his excellent foreword, Richard Neutra says, "It has long been my deep conviction that the planning of buildings—especially buildings for the very young—should be approached through applied physiology." Now there are deep physiological and psychological differences between the very young and the adolescent. The child's is a little world but it is a world which is expanding at a formidable rate. This comprehension should be very much at the back of any research on the problem. First, we must state that the child is the client, not the teacher or the educational authority. What does he need? After, we can decide whether he can get it or not. Scale is obviously of first importance; even teachers are often chosen smaller for this reason. But what should this scale be? Does the child need a little house for little people, something which may be even more in scale with him than his home? Or does he need something which will be a transition from his home to the primary school?

What we want to know are the pros and cons. Since the child sits and plays on the floor, it is obviously essential that this floor should be suited for such activities, i.e.: it should be heated, clean, soft, etc. But should it not also be used to develop those senses, so formative at this time, tactile and visual? Why, for instance should not color be used, even patterns on the floor?

It is not what is said in this book that is at fault: it is what has not been said. It is not that the buildings which have been illustrated are poor (though some of them are not pre-school buildings) but that others and important ones have not been shown at all. One might also suggest that photos or per-

(Continued on page 140)

WHEN GAY LIVING
GIVES FLOORS A GRIM TIME...

Tile-Tex takes it with a smile

This quality asphalt tile sticks permanently to concrete floors, even on or below grade.

It adds resilience, warmth, beauty . . . at *low, low* cost.

A floor of Tile-Tex* Asphalt Tile dresses up any part of the house. And, it can be a *big* help in transforming a dreary basement into a playtime palace for the whole family . . . at surprisingly *little* cost.

Jitterbug jubilee or quiet game of chess . . . this tough, resilient floor matches the mood of the party.

A warm design or a gay pattern . . . Tile-Tex has it.

You have a wide range of sizes, a rainbow of colors (28 of them).

Versatility of laying tile-at-a-time makes decoration almost a question of "name it, and you can have it."

You can even have special inserts, custom-cut to your own specifications and set into the floor.

Another Tile-Tex advantage is the ease of keeping it clean. A brush with the broom removes loose dirt. Washing is only an occasional necessity. And, if you want a high shine, it's easy to wax.

Add really exceptional durability to all the other qualities, and you can't help deciding on Tile-Tex.

A Tile-Tex floor will give the average family a lifetime of trouble-free service, and with reasonable care, show no signs of wear.

So, if you plan to re-do the basement, finish the attic, or build from the ground up, consider Tile-Tex Asphalt Tile for floors. Chances are you will place it in your plans.

Tile-Tex
ASPHALT
FLOORS AND WALLS

Look up your local Tile-Tex contractor in the classified telephone book. If he is not listed, write for data: THE TILE-TEX DIVISION, The Flintkote Company, Dept. R, 1234 McKinley St., Chicago Heights, Ill.

**Registered Trademark, The Flintkote Company*

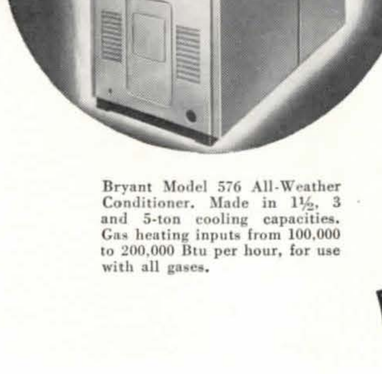
Now you can do something about the weather

This is how you can help your client obtain *complete* comfort indoors, day and night, through *all* the seasons.

Specify Bryant *All-Weather Conditioning* for refreshing summer cooling . . . automatic gas heating in winter . . . stimulating air circulation all the year . . . and *independent, automatic control of humidity* that eliminates that cold, "clammy" feeling.

The Bryant *All-Weather Conditioner* is designed for ease of installation and maintenance. All basic equipment and controls are concealed within a single, compact steel jacket. Cooling system, using safe, odorless Freon F-12, meets all code requirements. *Hevigage* Heat Exchanger and built-in draft diverter of heating component are porcelain-enameled for extra long life. *Five* different safety devices throughout the unit provide complete protection.

Add *value* and *livability* to your designs with Bryant *All-Weather Conditioning*. For application data and specifications, contact the Bryant Distributor in your locality or write direct. Bryant Heater Division, Affiliated Gas Equipment, Inc., Dept. 123, 17825 St. Clair Ave., Cleveland 10, Ohio.



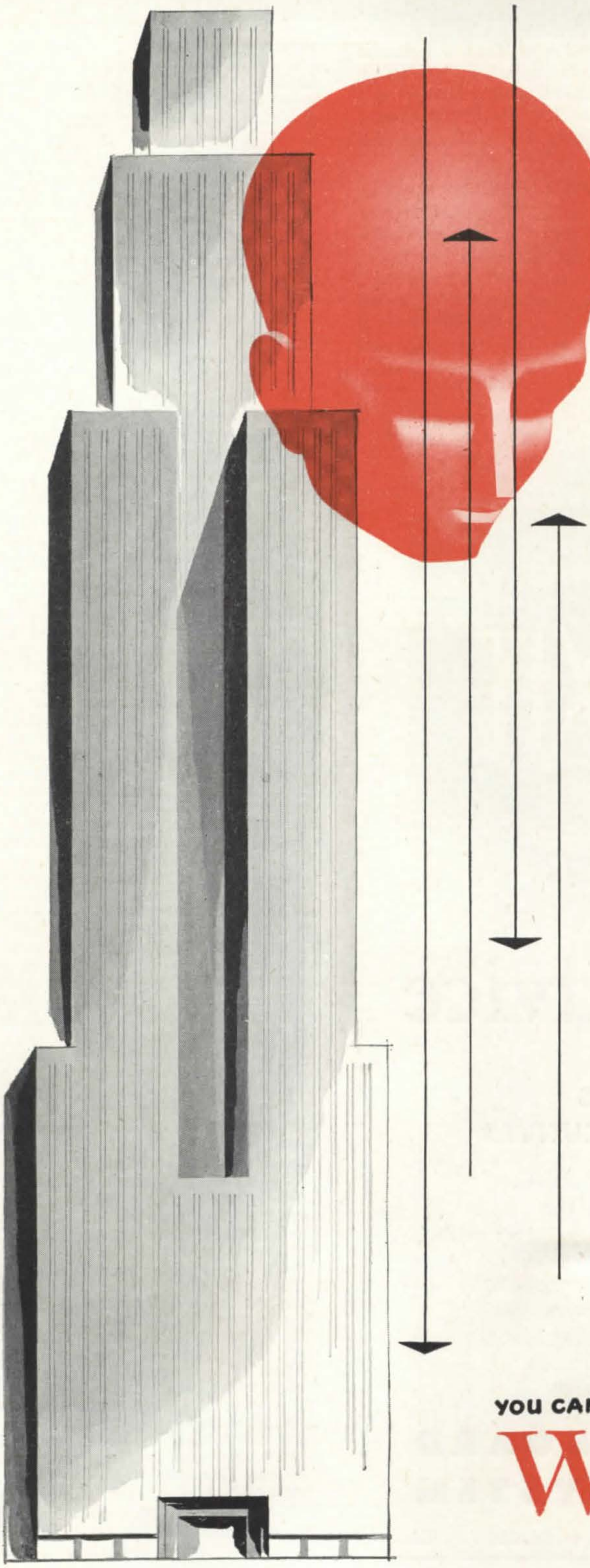
Bryant Model 576 All-Weather Conditioner. Made in 1½, 3 and 5-ton cooling capacities. Gas heating inputs from 100,000 to 200,000 Btu per hour, for use with all gases.

Let the pup be weatherman

bryant

ALL-WEATHER CONDITIONING

Your *single* source of supply for everything in gas heating equipment!



p/a REVIEWS

(Continued from page 136)

spectives of pre-schools should be taken from infant's eye-level and not photographer's or bird's eye-level. As it is, one has to wade through a great deal of irrelevant matter to discover what could be put in a nutshell; a pretty good nutshell, to be sure, but not a very big one, certainly not a big enough one to spread its contents over 200 pages.

FELLO ATKINSON

UNIQUE SURVEY

The Prefabrication of Houses. *Burnham Kelly. The Technology Press of Massachusetts Institute of Technology and John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. 1951, 466 pp., illus. $7.50*

This is the only comprehensive survey of all aspects of prefabricated housing that exists today. In the annotated bibliographies given in this book are listed a good many articles, pamphlets, and some books—but none of these begins to compare in comprehensiveness with the work of Burnham Kelly and his staff.

Don't let the fact that this is a comprehensive treatment of the subject scare you into thinking that it will be tedious reading. The book has been divided into three parts. The *first part* deals with the past, present, and future of the industry and is largely editorial opinion. I might say that from the standpoint of one who has been in the prefabricated field for the last 40 years, that I consider the opinions expressed in this section basically sound. The writer generally gives two, or sometimes three or four, sides to the various questions which come up. This first part of the book occupies the first 172 pages and gives a sound footing for the balance of the book.

The introduction to the *second part*, from which I quote, clearly indicates the type of thinking which one encounters in this book and indicates that the information obtained from various companies is not presented as a series of discontinuous facts, but has been integrated into the over-all picture of the industry. We might quote here the first four paragraphs of the introduction on page 177.

"Prefabricators of houses in the United States during the period of study by no means pursued the same goals. Their diversity of interests is reflected in their approach to design. To some, this term means structural engineering; to others, it means production engineering; to a few, it means architecture; and to many, it means sales appeal. The term properly includes all these aspects, and many others, for a decision made in any part of the long operational channel which leads from raw materials to completed houses may have an important effect on the design.

"Considering the term as broadly as this, one might with some justification say that this entire book is a discussion of factors which should influence design. As used in this chapter, however, the word means something narrower and more concrete. Described here in some detail are the different products which were made by the companies studied, with some reference to the techniques by which they were made. This, then, is design, in the terms of plans and specifications, and as defined by production systems.

"That the subject does not lend itself to simple treatment can be illustrated on the one hand by the millions of dollars spent by Lustron before even starting production, and on the other hand by the small company which, in answer to our request for information, reported that it had been so busy getting into production that it had no time to make plans and specifications.

"In large part, differences in design stemmed from differences in basic approach to prefabrication. The type of market sought, the house planned for that market, the scheme for the production of that house—all these things varied tremendously, and it would be a fascinating study to analyze the reasons of background, experience, intuition, and prejudice which could lead to such differences among producers in the same general field."

A great deal of the value of this book lies in the fact that it deals not only with design but with management,

(Continued on page 142)

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(Continued from page 140)

production, marketing, problems, and practices of the industry.

After reporting the trials and tribulations that the prefabricated industry has been through, the book ends on an optimistic note. On page 419, we find: "During the first half of 1950, the record was even more encouraging and reports from member companies of the P.H.M.I. showed that shipments had increased 215%, while proluction for the housing industry as a whole had increased in the neighborhood of 50%. It is estimated that 28,000 houses had been shipped by prefabricators during this period as compared with 35,000 for the entire year of 1949." *(Note: The 28,000 was for the first half of 1950.)*

This increase is attributed to several factors—one being the introduction of a thrift house selling without land for \$5000—\$6000 erected. Another important reason given by one of the operative builders purchasing prefabricated houses was: "One of the reasons we got into prefab building was the only way we could control our costs. When we start a job now we know exactly what our costs are and—more important—we are sure they won't jump up on us midway through the job." Coupled with this question of costs, of course, is the question of availability of materials.

The *third part* of the book, which is composed of appendix and index, will be of value to those wishing to check some particular item in the book or carry their investigation further.

This is undoubtedly the authoritative book on the subject and will probably remain so for some years to come. It is a book that most of those in the prefab industry will not only wish to read for the purpose of learning what is said about their particular efforts but a book from which even experts in the field can gain valuable information. To the architect, builder, real estate operator, or home owner, it will be found to have much information of value and be readable.

ROBERT L. DAVISON

LOVE OF THE LAND

English Panorama. *Thomas Sharp. The Architectural Press, London. Revised and Reset Edition, 1950. 151 pp., illus. Price: 12 s 6d net*

Thomas Sharp, in *English Panorama*, has produced an exciting book of a kind entirely absent in this country. It is a brief, vivid, and enthralling account of the changes in the face of England, urban and rural both, since mankind has been at work there. The English are connoisseurs in landscape as no American is. To the American observer, his landscape is confused with "views" or bits of "untouched nature"; to the American entrepreneur, landscape is merely another opportunity for exploitation either agriculturally, mineralogically, or by the devious ways of land speculation. To the Englishman, on the other hand, landscape is an expression always of the interplay of human history and natural condition. The earth is man's home and, like his house, it is expressive of his ideals and his achievements and his failures; also, like his house, it is something to be savored and cherished. Seen thus, landscapes become not only highly instructive but also deep sources of emotional satisfaction.

It is an almost total lack here of this sense of intimate relationship between men and land that has permitted the riotous destruction of natural human values, that has gone on recently across the Potomac from Washington and across the rivers from New York in New Jersey and Long Island—an unnecessary and thoughtless destruction of agriculture, of natural beauty, to replace them with a universal ugliness of basically squalid dormitories, focusless, spaceless, and dull with a terrifying and all-embracing dullness. It is for this reason that I believe *English Panorama* is a most valuable work for Americans: if we can learn its lessons, we may be saved much future disaster. I only wish that a whole series of regional analogues to it could be published here! TALBOT HAMLIN

(Continued on page 144)

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(Continued from page 142)

SALVAGING A METROPOLIS

Plan for Rezoning The City of New York. *A report by Harrison, Ballard & Allen, housing and planning consultants, New York. Published by City of New York on request of City Planning Commission. October 1950. 290 pp. illus.*

A portent of hope for New Yorkers sweating out increasing taxes and stifling in the malodorous traffic stoppage, so offensive to residents and visitors and so ruinous to Manhattan business, is the recent appearance of a long-awaited report on a *Plan for Rezoning the City of New York.* An opportunity to study the report is given this summer to property owners, land speculators, merchants, civic groups, and others painfully aware of the urgent need for an overhauling of the famed New York Zoning Resolution of 1916 (and its more than 1400 Amendments). In the fall, City Planning Commission intends to hold a series of public hearings to give all interested individuals and organizations full opportunity to comment. Then the Commission will act on the proposals and submit recommendations to the Board of Estimate.

Presumably the prospect of relief is expected to hearten residents in the intervening months, to restrain angry manufacturers from moving industries out of the city, to affect the planning of any new parks, schools, or other civic amenities, and generally to modify the psychological crisis. Ultimately the Plan for Rezoning is expected to stabilize property values, protect the established neighborhoods, and afford a sound basis for long-range planning. A number of planning experts, analysts, and statisticians collaborated in preparation of this report—and first reactions have been favorable on the part of civic groups, real estate interests, banks, and architects.

Pointing out that "zoning regulations in the long run determine the future city," the authors of the report begin with the definitive statement:

"The proper function of zoning, although often misunderstood, is simple and clean-cut. Zoning regulations constitute an exercise of the police power, generally delegated by the state to a local government, to control two things —first, the use of land and buildings, and second, the size and shape of buildings and their location in relation to each other and to lot lines."

•

A Review of the Proposals for Rezoning New York City. *Baker-Funaro for New York Chapter, American Institute of Architects. 1951. 59 pp. illus.*

In order to promote public comprehension and discussion of the report, the New York Chapter, A.I.A., drew on the Arnold W. Brunner Fund to finance preparation of a simplified analysis, which now has been made available. This analysis was prepared by Bruno Funaro, in association with Geoffrey Baker, under direction of a Chapter committee headed by Geoffrey Platt. Excerpts from this Review of the Plan for Rezoning suggest its succinct interpretation of the detailed study:

"Zoning is the act of dividing land into a number of zones, each allotted a specific use, such as single-family houses, apartment houses, office buildings, or factories. This zoning is enforced by a legal ordinance. The legal justification for imposing such restrictions upon private property has always been 'the promotion and protection of public health, safety, morals, and welfare'. These words can be made to justify almost any regulation. Actually, zoning controls are designed for a certain existing set of local conditions, with some intelligent attempt at forecasting conditions in the years ahead. The 1916 Ordinance, still in force today, could scarcely be expected to foresee and regulate the enormous growth of automobile use.

(Continued on page 146)

Only a good Thermostatic Water Mixer Can Prevent Accidents Like These

Baby Girl Scalded in Bath Tub

A 14-months-old girl was burned critically today when she turned on scalding hot water while she was being bathed in the [redacted]

Mrs. Johnnie Mason, attendant at the nursery, said she was bathing Joan about 11:30 a. m. today just before the child turned on the hot water faucet.

'Heard a Scream'

"I stepped in the next room to get a towel," Mrs. Mason said, "and heard a scream. I ran back and grabbed her out of the tub." She said Joan stood up in the bath tub to operate the faucet.

Joan Dodd, daughter of ...

ALMOST "BOILED ALIVE" IN APARTMENT HOTEL SHOWER

Seeking $40,000 damages for her injuries, Miss Rosalie B. Chivington, living at [redacted] a school teacher, yesterday in the Superior Court described how she was almost "boiled alive" in her shower in [redacted] Apartment hotel.

"I set the handle of the shower mixer at Warm," Miss Chivington testified. "Instantly a flood of scalding water was poured upon me, I slipped and fell into the tub."

"Unable to see because of th...

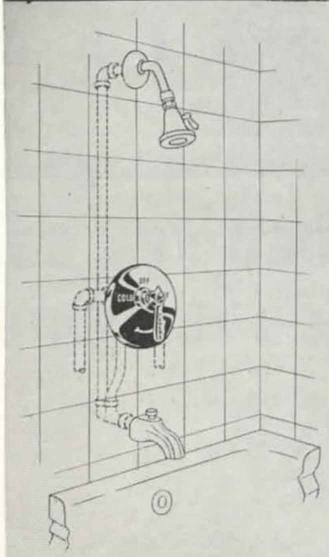
"BOOBY TRAP SHOWERS" are old-fashioned dangerous and expensive

Only ONE shower or tub accident may cost many times more than a

POWERS

THERMOSTATIC WATER MIXER

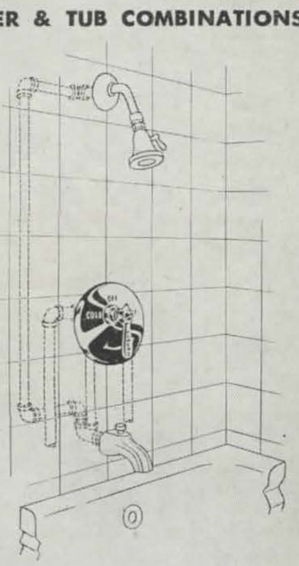
Safety tests prove it will outperform all other thermostatic or pressure actuated mixers



POWERS Type HVC Thermostatic Water Mixer For Concealed Piping. Dial Diam. 6". Connections ½".

TYPICAL SHOWER & TUB COMBINATIONS

with Diverter Spout and Fitting.



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Unsurpassed for SIMPLICITY CONVENIENCE COMFORT SAFETY

Contact your nearest POWERS office for specification data

How it works—Hot and cold water are piped to mixer where they are blended and thermostatically controlled at any temperature desired between 60° to 115° F. (Note safety limit).

For shower or tub bath, Powers mixer handle is turned to right until water flowing into tub reaches temperature desired. Then bather enters tub. For a shower, diverter spout knob is pulled up diverting water to shower head. When shower is completed, handle of mixer is turned to OFF. Diverter spout flapper valve returns to "tub" position automatically.

Only one moving part easily accessible from the front. Minimum of maintenance, simple, rugged construction.

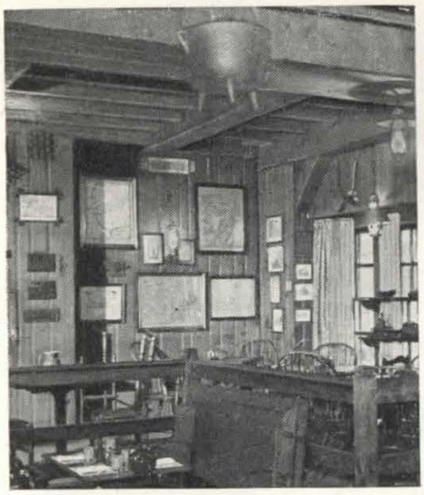
Safety Features that give better control: (1) Powers mixers prevent delivery to shower or tub above 115° F., (2) Temperature remains *constant* wherever set regardless of *pressure* or *temperature* changes in water supply lines, (3) Failure of cold water supply instantly and completely shuts off delivery to shower or tub.

Powers thermostatic water mixers are completely automatic, convenient, dependable and the safest temperature regulator made for tub and shower combinations.

THE POWERS REGULATOR CO.

Established 1891 • OFFICES IN OVER 50 CITIES • See Your Phone Book
CHICAGO 14, ILL., 2781 Greenview Ave. • **NEW YORK 17, N.Y.,** 231 E. 46th St.
LOS ANGELES 5, CAL., 1808 West 8th St. • **TORONTO, ONT.,** 195 Spadina Ave.
MEXICO, D. F., Edificio "La Nacional" 601 (H2C)

60 YEARS OF WATER TEMPERATURE CONTROL



p/a REVIEWS

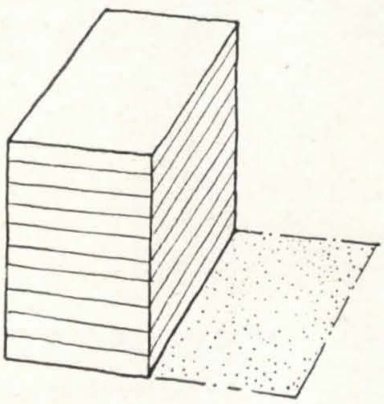
(Continued from page 144)

"This is but one of the present-day problems which need the fresh thought that a newly-framed Zoning Regulation may contain. To judge the work of such controls, you must first decide what services a sound zoning ordinance should be expected to provide. At present, it may be said that *zoning has four principal purposes:*

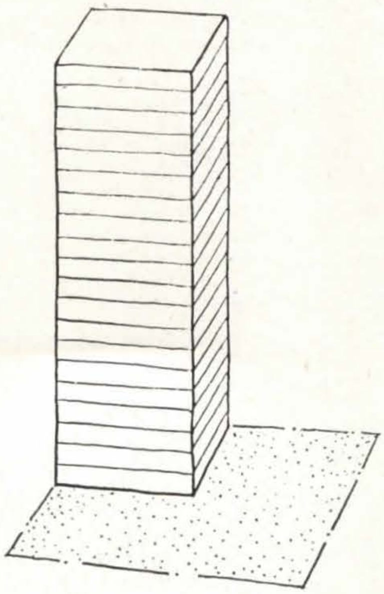
"1. To protect the character of a district; 2. to insure open air and light for streets and windows; 3. to reduce congestion; and 4. to promote orderly and economic city growth."

Maintaining that controls translate zoning into building, the reviewers proceed to topics such as Floor Area Ratio (specified for the various districts). Their sketches (below) liven the book.

(Continued on page 148)



either a 10-story building covering 50% of the lot



or a 20-story building covering 25% of the lot

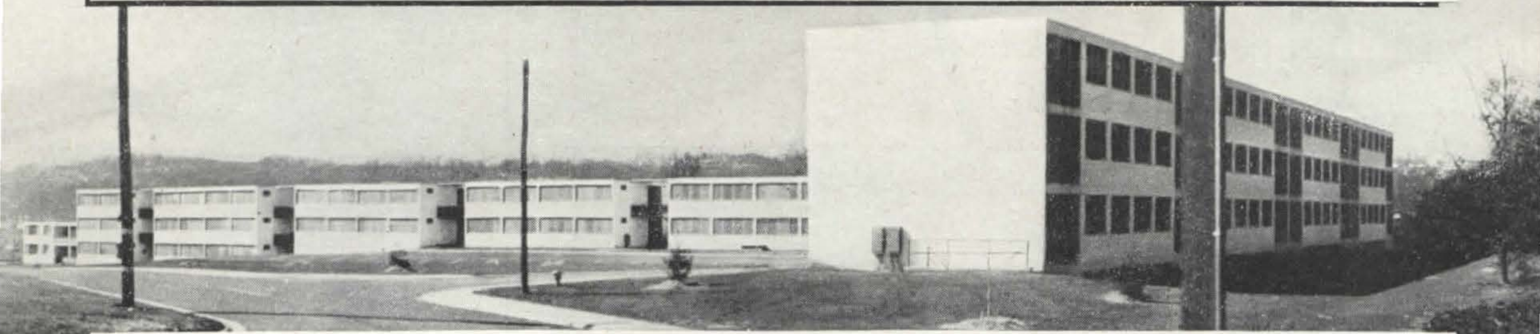
QUALITY CONTROLLED

MA·TI·CO®
TILE FLOORING

REPLACEMENT OR REFUND OF MONEY
Guaranteed by Good Housekeeping
IF NOT AS ADVERTISED THEREIN

PROVED IN IMPORTANT PROJECTS THE COUNTRY OVER!

Now MATICO delivers outstanding performance in famous Oak Ridge



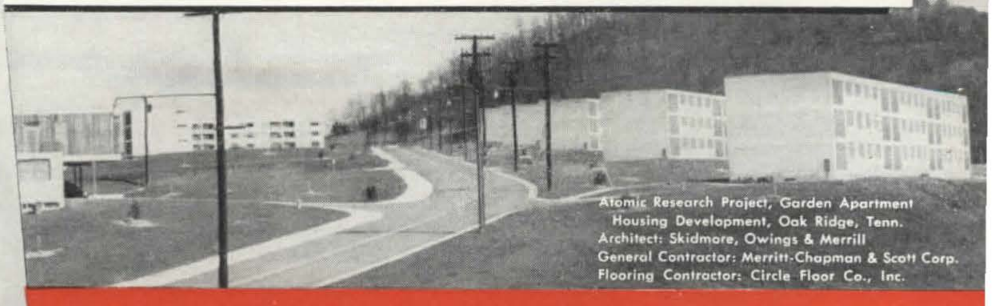
Finest quality . . . long-lasting wear . . . greater economy . . . resilience underfoot . . . easier, faster installation . . . enduring beauty . . . these are the outstanding advantages that make MATICO Asphalt Tile ideal for every type of installation. And in important projects throughout the country MATICO is proving its superior quality by on-the-job performance. Included in this list of projects are such well-known names as Bond Clothing Co., Philco Radio Corp., General Electric Co., Metropolitan Life Insurance Co., and Fort Hamilton Veterans Administration Hospital (where MATICO was used throughout).

There is no stronger proof of MATICO quality than the selection of MATICO Asphalt Tile—time after time—for use in America's foremost industrial plants, institutions, government buildings, apartment developments and housing projects.

Be sure to specify MATICO when next you order asphalt tile flooring . . . it's the most economical, serviceable type of luxury flooring you can choose.

GET TO KNOW MATICO

Consult our insert in Sweet's file Architectural Section 13g. For free samples write on your business stationery.



Atomic Research Project, Garden Apartment Housing Development, Oak Ridge, Tenn.
Architect: Skidmore, Owings & Merrill
General Contractor: Merritt-Chapman & Scott Corp.
Flooring Contractor: Circle Floor Co., Inc.

DEPT. 96

MASTIC TILE CORPORATION OF AMERICA

Member: Asphalt Tile Institute

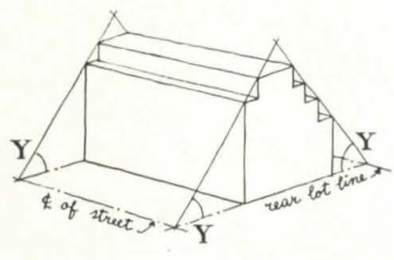
Factories: Newburgh, N. Y. • Long Beach, Calif.

1-A34

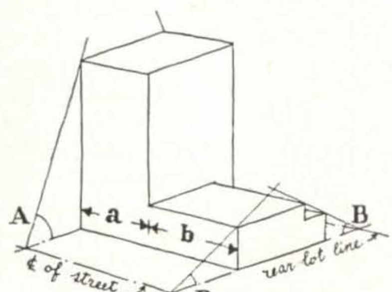
p/a REVIEWS

(Continued from page 146)

Turning to discussion of Angle of Light Obstruction (basis for limiting heights of buildings to insure ample light and air for streets and yards), Funaro and Baker note that the measurement is from street centerline to the lotline at rear—and that limitations are similar to existing New York regulations affecting heights and setbacks, though expressed in angles rather than vertical and horizontal dimensions. To free designers somewhat, heights may be averaged by a formula: $Y = \frac{Aa + Bb}{a + b}$.



Angle of Light Obstruction may be kept constant



or averaged along the frontage

To avoid overlong stretches of a uniform street frontage, such averaging is limited to 1½ times the width of a residential street and twice the street width in other districts.

Other topics of the Plan for Rezoning discussed by the reviewers include Area for Light Access (offering a convenient graphic device for the designer); Setbacks for the Non-Residential Buildings in Residential Districts (schools, firehouses, etc.); Off-Street Parking and Loading Berths;

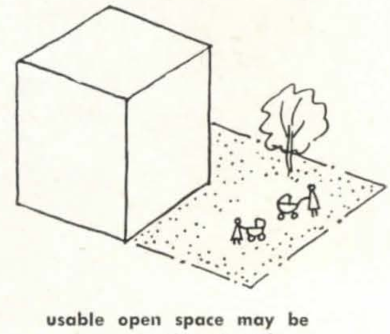
(Continued on page 150)

P/A REVIEWS

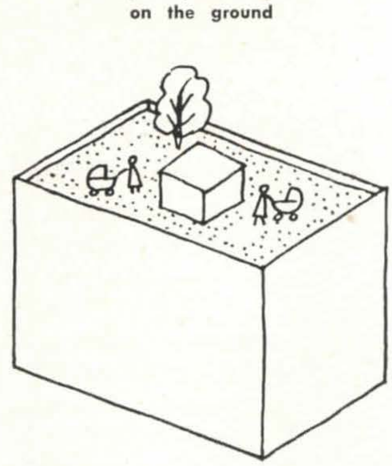
(Continued from page 148)

Non-Conforming Buildings; Transition Zoning; and the special controls for Large-Scale Developments; Airports, etc.

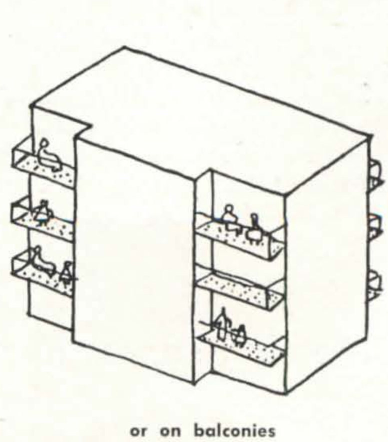
Citing the requirement that suitable outdoor space must be provided for tenants of all residential buildings, except high-density apartment structures of Mid-Manhattan, Baker and Funaro summarize the ways of creating Usable Open Space in the sketches below. Note one suggestion: that some part be covered for protection in inclement weather.



usable open space may be on the ground



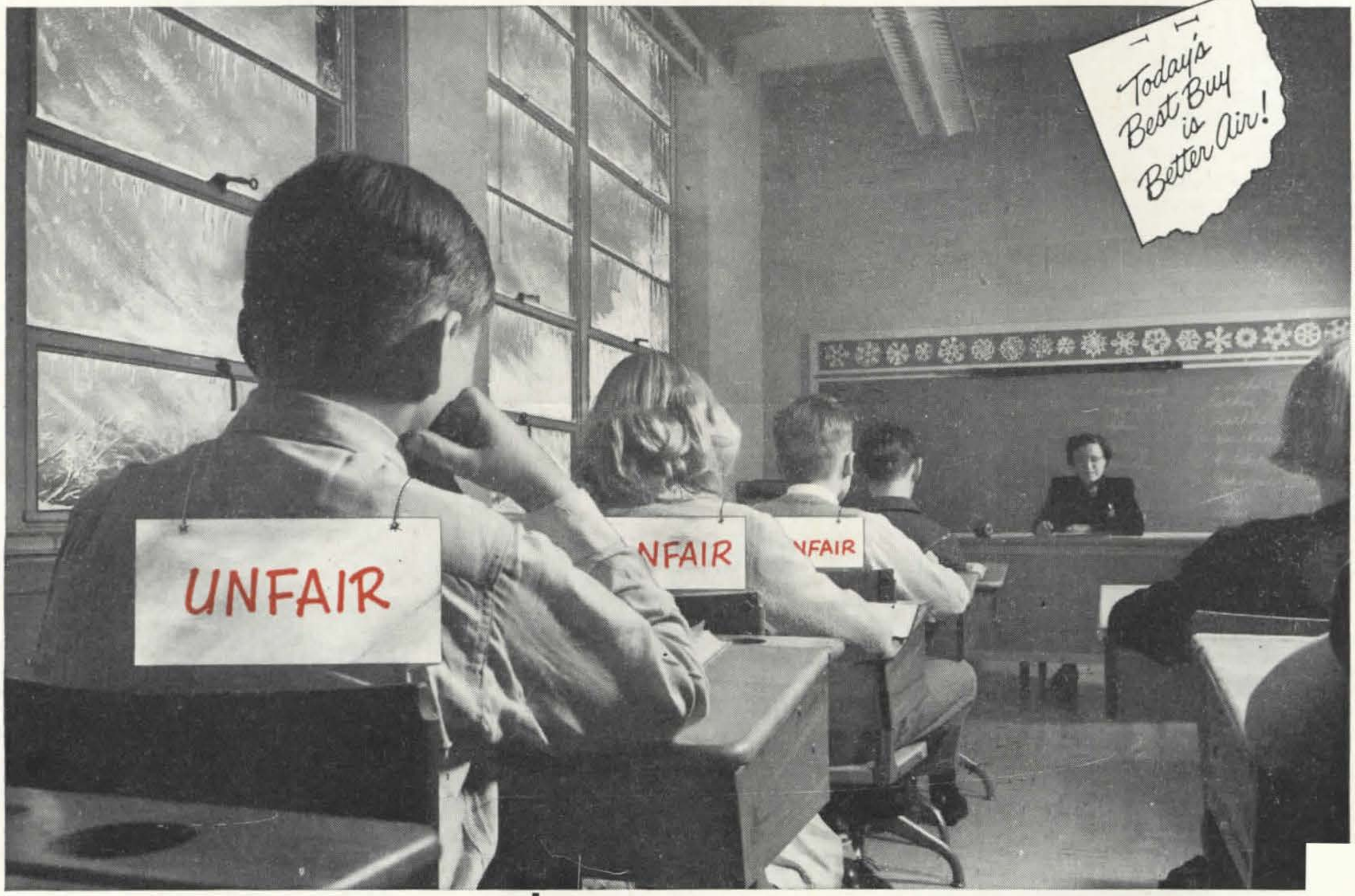
on the roof



or on balconies

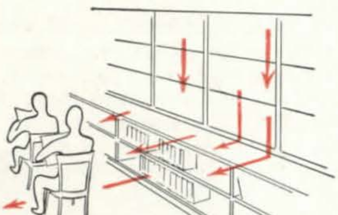
Sketches: Baker and Funaro

THEY KNOW THIS SUBJECT COLD!

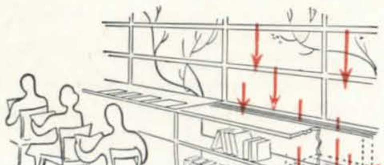


but DRAFT|STOP gets the honors

TRADE MARK



IMPROPERLY PLANNED *ventilation! See how drafts sweep into the classroom. A threat to health and good study habits, uneven temperatures are a constant problem.*



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out of school

"Think how much work would have been saved, if this world had been created by an engineer."
Rotter and Thoeren: *September Affair*

As usual, I am writing in flight, this time several thousand feet over the Carolinas, facing towards Florida. The redbud is in the woods and the fresh-plowed fields are tan rectangles in the dark patches of pine. Watching spring unfurl herself, as the plane swings southward, is an unrolling of a great panorama of the season. The dogwood is appearing now and there is a soft green fur over the land. I am always astonished to see how much of the Atlantic seaboard is forest and wilderness. There is so much room in this big country and people are so silly, jamming themselves together in cities. Excuse me a minute, we are just passing over a winding brown river and a white plantation under great trees on a bluff. There is a handsome formal box garden and a paddock. Wonder where we are? I'll bet they smoke their own ham down there. Grits and corn pudding and collards. Must be time for lunch. Stewardess, when do we eat?

This is my second "commencement" column addressed to young men and women just coming out of school. The world is no better and not much worse than it appeared to be last June. You are facing either military training or a return to familiar ranks. As I write this, the situation is most obscure. We are feeling our way along a tortured and dim corridor in the vast structure of time. At any moment our groping hands may open a door into the bright and tranquil gardens of peace, or we may fall into the frightful abyss of total war. How long we continue to feel our way in this limbo of fear and uncertainty, no one knows. There is some comfort in the fact that the corridor is crowded with others hoping to find the right door. We are in good company.

•

To dispel this atmosphere of brooding fear, the world needs men and women with strong conviction and virile, positive objectives. You have been trained as builders. You would not want to be architects and planners if you did not want to build for peace. Otherwise you would have concentrated on mining engineering and the building of an underground world for a hobgoblin race more grim than any conceived by the late George MacDonald in his most bloodcurdling story for little children.

Do not look for logic in a world that uses science to destroy on one hand and science to save lives and build on the other. The great anomaly of war is that we attack our enemy to kill and maim but the moment he lies bleeding on the ground our whole attention is directed towards the merciful comforting and healing of his wounds. After destroying and possessing an enemy city, having killed its inhabitants, wrecked its buildings, and broken its life, we immediately work to rebuild and restore. It is the fact that we can turn the spigot of our emotions on and off so easily, that gives me hope, though this is with one reservation. Do you remember the orator

(Continued on page 154)

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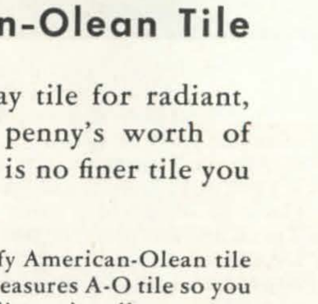

With Men Who Know, the Choice is A-O

AMERICAN-OLEAN TILE COMPANY

Executive Offices: **950 Kenilworth Ave. • Lansdale, Penna.**

out of school

(Continued from page 152)

in George Orwell's "1984" who in the middle of a speech changed sides so cleverly that the audience cheered those who a moment before had been an enemy and booed those who had just been called friends?

You are entering a world that has no more logic than human emotions themselves. It will require human understanding, great patience, and a sense of humor to get along in it. It will require courage; courage to fight for what all the rest of us are willing to fight for, the belief in our country and in free man. It will take even greater courage to fight for higher standards of democracy, while fighting for a peaceful world in which a democratic life may flourish. And this last in particular is your job.

The question of the maintenance of standards of living is still with us. For the architect and builder, and above all, for the physical planning technician, the preservation of the amenities of living during periods of stress is a test of conviction, patience, and endurance. It takes a stubborn man with a tough hide to maintain the purpose behind zoning ordinances and building codes, when a town is being packed full of defense workers. It takes good moral standards for an architect or builder to resist quick and easy money in shoddy design and construction, when there is a premium on every square inch of space and on every nail. And it takes a clever man to invent satisfactory expedients with an eye to getting rid of them ultimately.

There is no way that we have discovered in which it is possible to train you, in school, to meet these situations. Such training begins the minute you step out of school and assume some measure of mature responsibility. Those of you who may have been able to sandwich office experience in with your school training have an idea of what is the consistency of such responsibility. For the rest, your first steps into maturity may well establish the direction you may ultimately take. You are just about to take these steps.

•

Back in November 1949 P/A I wrote a column, the subject of which was "Ordeal by Disillusion." This had to do with the first office experiences of a trainee during his transition from student to licensed architect. Since that time, some progress has been discernable in the attention which the subject is now getting from several directions.

I thought it might be of interest to know that others are thinking about you at this moment. While it may be

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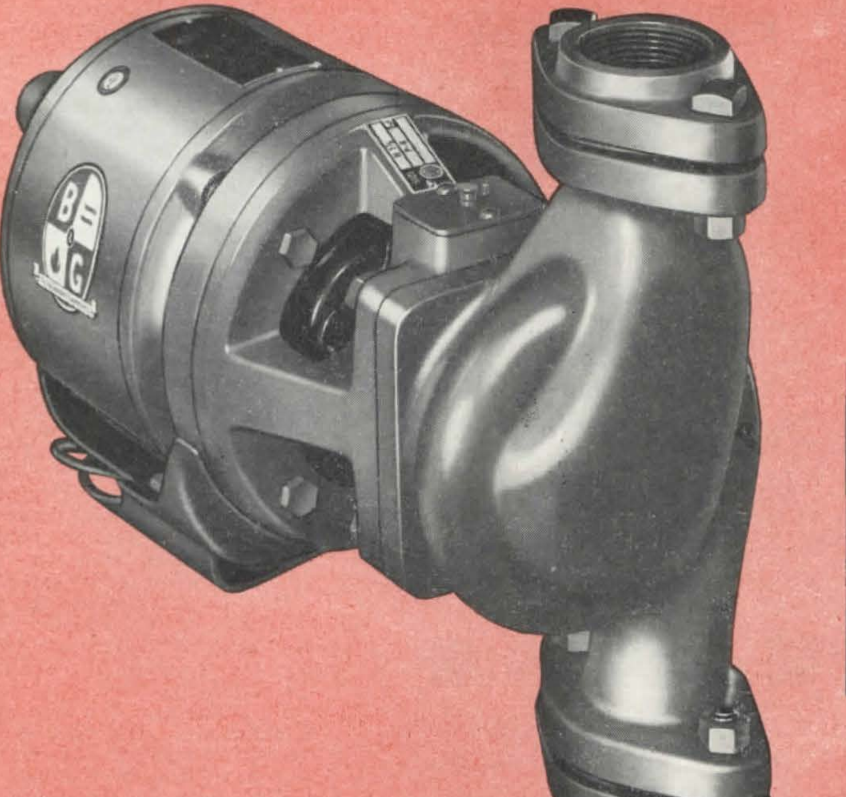
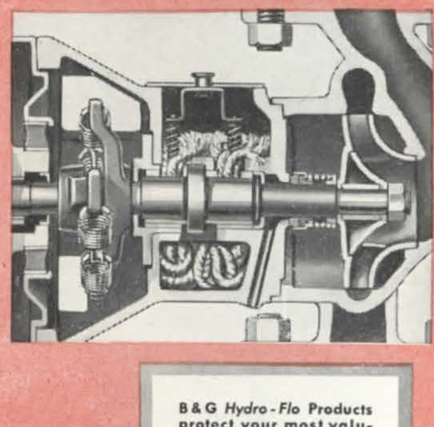
YOU CAN DO A *BETTER* JOB WITH A



*Hydro-Flo** BOOSTER



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2. Highly polished, score-proof steel Shaft, with integral, electronically hardened thrust collar.
3. Diamond-bored bronze Bearings, made extra-long for quiet, long-lived operation.
4. Genuine *oil-circulating* lubrication system.
5. Water-tight Seal prevents water leakage into bearings—protects against emulsification of oil.
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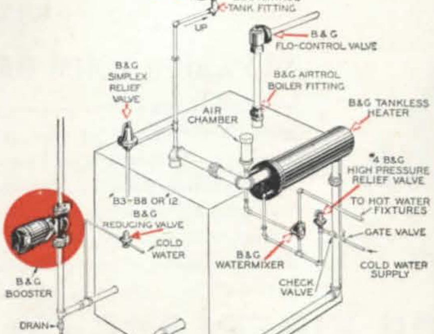

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out of school

(Continued from page 154)

too early for you to benefit directly from this thinking, through your own experience you may be able to assist others who will follow.

I have just had a letter from Harlan McClure, associate professor of the School of Architecture, University of Minnesota. For nearly a year he has been chairman of a committee to study and rewrite the Minnesota State Registration Examination for Architects.

Dear Carl: In one of your columns, I believe in November 1949, you discussed that haphazard period of architectural education which occurs between graduation from the professional curriculum and emergence as a full-fledged practitioner. This period should be something more than an "apprenticeship" as it is sometimes called. It should be, above all, regarded as a period of training as it is in the case of medical internship. Thoughtful practitioners and educators alike are, or should be, seriously concerned with the problem of giving direction to this period.

It seems to me there are two principal parts of the problem. The first is the form of registration examinations and the second is the quality of office training.

In Minnesota, the law permits the Architectural Registration Examinations to be taken in two parts, although this year will be the first time they will actually be offered that way. The first part of the examination will be devoted to the theoretical areas required in the Syllabus of the N.C.A.R.B., that is to say: Structural Design, Truss Design, Architectural Theory, Architectural History, and Mechanical & Electrical Equipment for Buildings. This portion of the examination may be taken by persons who have just completed the professional curriculum in an accredited School of Architecture. Upon successful completion of this portion of the examination, they will be designated Architects-in-Training, which is certainly more accurate than other descriptions now in use. The second part of the examination will be offered to these persons when they have completed an acceptable period of office training. This examination will include the remainder of the required Syllabus, or in other words, areas disclosing the results of the persons' practical experience such as supervision, counselling, and administration, etc. I believe this state is taking a necessary step in developing the two-stage examination and giving legal recognition to the period of architectural internship.

This year, we are also revising the form of examination questions in this state in an attempt to bring the mechanics of examination procedure up to date. Experts in the field of educational testing have repeatedly pointed out the disadvantages of the essay or free-answer type of questions, yet most state board examinations continue to employ

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out of school

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them. It is known that coverage of the subject is often spotty, grading inconsistent and unreliable, and in general, that essay examinations do not disclose those things which the examining board must know, to stand on firm legal and ethical ground. We have had a committee of experts in each required area of the Syllabus organize an objective examination, using for the most part large numbers of fixed response questions. Time will tell how it works out.

The second major problem to be faced in directing the period of Architectural Internship has to do with providing the Architect-in-Training with the best quality of office training. This must be considered a period of training and the graduate should be more concerned with his training than his salary. I must admit that this has been very difficult in the post-war period when a large number of persons in this category had dependents and required a living wage. It is not surprising, therefore, that the architect employing such graduates put them to jobs in which they could earn their pay regardless of whether or not they were receiving training at all.

Prof. Roy Jones of the University of Minnesota, who has given much thought to these matters, has referred me to an excellent letter written by Prof. Sherley Morgan of Princeton University, relative to the problem of continued professional education of Architects-in-Training. I think it would be a fine idea to have Director Morgan and several others representing the profession and the schools to contribute to a symposium on the subject of the Architect-in-Training. Frankly, I am much more alarmed about the prospects of good training for the recent graduate than the undergraduate who by and large is at least getting organized attention.

•

The letter from Director Morgan referred to here was one written to the Committee on Education of the A.I.A. I hope I'm not breaking a confidence in quoting, or spoiling Director Morgan's excellent points by pulling a sentence or two out of context. What he has to say is pertinent:

"The real candidate for future professional status must sample a great many types of activity, and obviously will not become expert at any of them in two or three years. He is gaining knowledge and experience somewhat at the expense of his employer. Consequently he ought to be willing to work for a lower wage, in return for the training which he is receiving. . . .

"The choice should be clearly presented to him. He can either become a draftsman and command a good salary in a very short time, or he can continue to study for his profession and therefore must sacrifice immediate financial rewards for the sake of future opportunity."

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Whatever you call a man in this period (and names in time seem to take care

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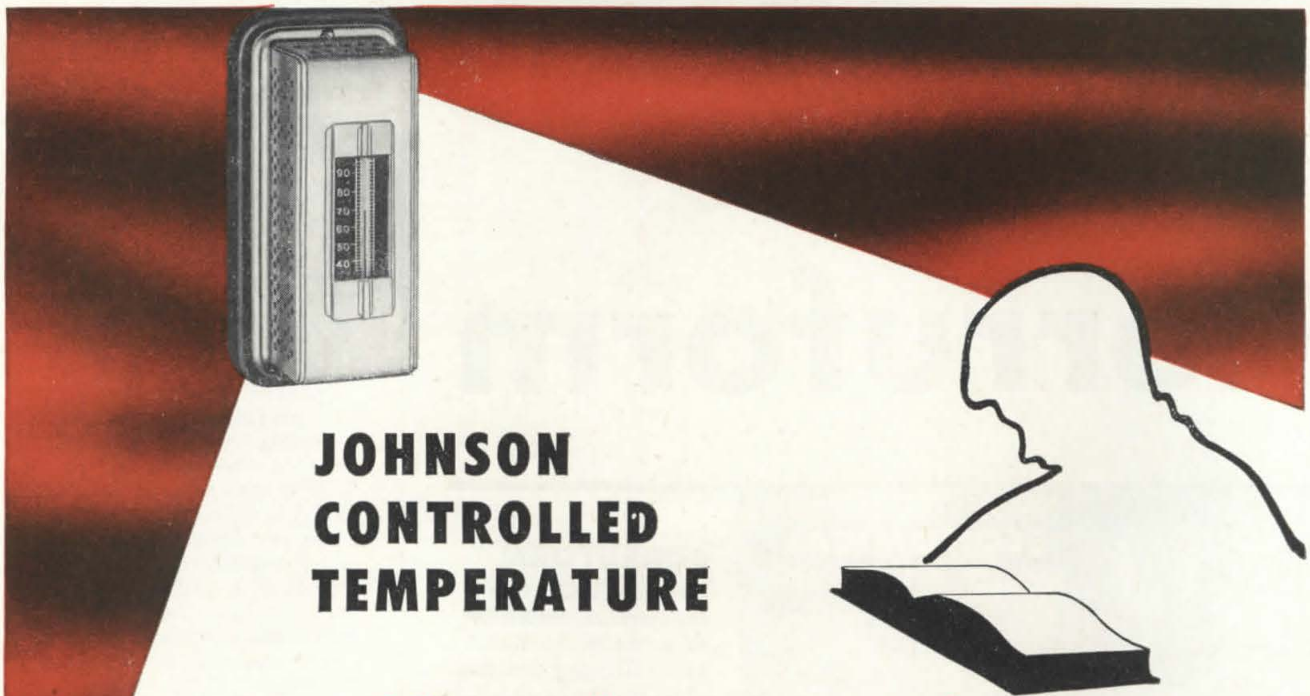

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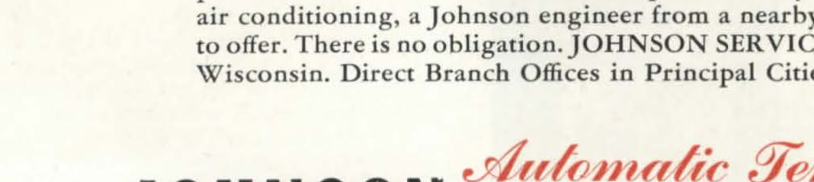

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out of school

(Continued from page 158)

of themselves), there are a series of other problems to be answered, not the least of which is what office system can be worked out to establish some kind of uniformity of experience and training. The economics inherent in the situation baffle me. And it is going to be very hard to define the specifics of each job, particularly in small offices. It is here that I question an artificial division between draftsman and young hopeful. How is each to know what he is doing? And isn't draftsmanship experience necessary training? No, I worry about the division of labor in an office. Can't you hear a young man on the architectural local refuse to get off at a way-station, because he only makes express stops. This won't sit very well up front.

Being sceptical of office control or the uniformity of training possibilities in the office, I rely on the very obvious benefits of the two-stage examination for a license as a first change in present procedures. I also believe that universities and colleges, through in-service training during the regular school programs, can speed up comprehensive architectural training. This has been discussed at length in several previous columns. More important for the Architect-in-Training could be two types of adult education—(1) institutes or seminars run by local A.I.A. and A.I.P. (American Institute of Planners) Chapters; and (2) the other, similar programs developed through Chapters in co-operation with local colleges or universities, *whether or not architectural or planning schools exist in them.* The point, and an obvious one, is that to make the two-stage state or national registration examinations mean anything and to provide a real equality of opportunity, local Chapters have a primary educational responsibility.

Walter Taylor, Education Director of the A.I.A., has pushed with limited success the development of a Chapter-sponsored seminar program. A number have been started in various parts of the country. However, there does not appear to have been a great deal of uniformity or follow-through. Part of the problem may be in the gaps between meetings, the difficulty of organizing, and the resistance of "adults" to being educated.

•

If I were a young grad today, looking for a start and wanting to qualify for registration at the earliest time allowed by law, I would work on my local Chapter to start and to continue an adult-education program for architects-in-training at once. Certainly you graduating today are the ones who should have the major interest in this problem. And since you would be the student

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or trainee, or whatever, if you don't take some initiative yourself and assume responsibilities to assist your local Chapter in program and organization, it is doubtful if any local programs, cooperative with educational institutions or not, can survive.

If you do not assume such a responsibility, you have no kick coming if local Chapters fail to come across. And the volunteer services of older men genuinely eager to help the younger, will quickly fade out unless a real enthusiasm is maintained.

Local Chapters can get assistance from national headquarters. The A.I.A. Committee on Education has been given the architect-in-training as an assignment. Bear down on that Committee to come up with a suggested series of subjects to be covered in an adult-education program for Chapter sponsorship. Push for the two-stage exam and for the sake of your brilliant future, your dream castles, and your profession, get in and pitch.

NOTICES

New Addresses

BAROVETTO & THOMAS, Architects, 718 Alhambra Blvd., Sacramento, Calif.

HARE & HATCH, Architects, 125 Broad St., New York 4, N.Y.

AMERICAN 3 WAY-LUXFER PRISM CO., INC., Daylight Engineers, 270 Park Ave., Suite 214, New York 17, N.Y.

STEWART M. CAMERON, 1264 Pender St., W., Vancouver, B.C., Canada.

RAMEY & HIMES, Architects (formerly RAMEY, HIMES & BUCHNER), 1206 E. Waterman, Suite 210, Wichita, Kans. BUCHNER office established at Tulsa, Okla.

WALTER WISZNIA, Architect, 2709 Swanter Dr., Corpus Christi, Texas.

KURT GROSS, Architect, 82 S. Third St., Sane Jose, *Calif.*

BERNARD W. RONEY, Architect, Fuller Bldg., 10 S. 18 St., Philadelphia, Pa.

RALPH J. BISHOP, Architect, 1526 W. Riverside Ave., Spokane 8, Wash.

GERALD A. PERKINS, Architect, 811 Crescent Blvd., Glen Ellyn, Ill.

ORLEAN V. STONE, Interiors Consultant, 137 E. 66 St., New York, N.Y.

it's the law

By BERNARD TOMSON

To what extent does an architect have an exclusive right in the use of plans he has drawn, in the reproduction of these plans, or in the reproduction of a building originally constructed according to plans designed by him?

Can an architect, after preparing plans for and supervising the construction of a building and being paid for the work, prevent the owner from using these plans in the construction of other buildings?

Does he have any rights against third persons who reproduce in almost identical detail a building like one he has designed for a client?

This column will not discuss the ethics of the situation involved, but will confine itself to the legal issues raised.

Two recent examples illustrate the type of situation which may arise. In one case an architect had drawn plans and specifications and supervised the construction of a unique residence for a client. Some months later he discovered that a house, copying in every respect the one he had designed, had been built in an adjoining state. On inquiry, he learned that the probabilities were that the contractor who had been employed to erect the building for which he had prepared plans, had been requested by another person to construct a building like the original one; and the contractor, complying with this request, had constructed the second residence in exact conformity with the plans prepared for the first building.

In the second situation, a hospital architect was associated with a consultant in preparing plans for a proposed hospital building. The working drawings were completed and the consultant received a complete set of plans. The hospital project then contemplated did not proceed, but the plans were submitted by the consultant to another architect who used them for another hospital in a different locality.

•

We will first consider the rights to ownership and use of plans as between owner and architect. Generally, the rights to the plans prepared by an architect for his client are provided for in the contract between the parties. The standard form of contract adopted by the A.I.A. contains the following provision on this point:

"Drawings and specifications, as instruments of service, are the property of the architect whether the work for which they are made be erected or not."

Under this stipulation the plans and specifications remain the property of the architect even after the building for which they are drawn is constructed, and the architect paid for his services. The owner cannot resist the architect's demand for payment for his services on the ground that the architect has not delivered the plans to him. Even where the owner decides not to build, he must pay for the plans which

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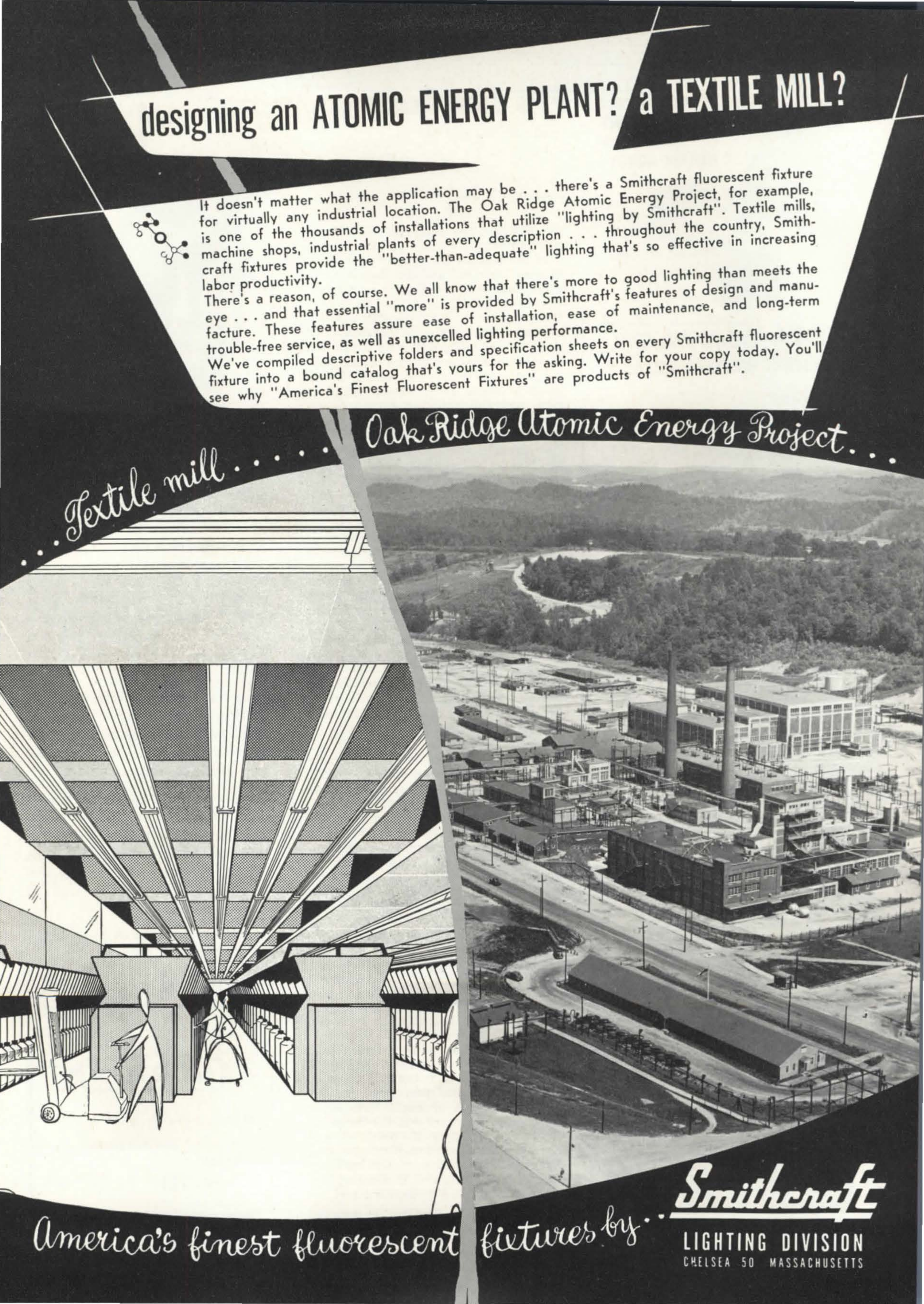
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it's the law

(Continued from page 164)

the architect has prepared—and is entitled to keep.

In the absence of such an agreement between the client and architect, a somewhat different rule applies. An architect is ordinarily no longer the owner of the plans and specifications which he designs and which are furnished to and accepted and paid for by the owner. In such case, on acceptance of and payment for the plans, the owner is entitled to them. They become his property, and the architect cannot subsequently prevent the owner from using them in constructing another building. Nor does he have a right to receive additional compensation when they are used again, since he has already been paid for them under the original contract.

The fact that there may be a custom among architects that an architect is entitled to retain the plans which he prepares for a client, is not necessarily conclusive on others outside the profession. A client is not bound by this practice, if at the time he entered into a contract with an architect he did not know of this custom and the contract did not include a provision covering it. He, therefore, cannot be compelled to pay the architect for his services in preparing the plans unless the plans are delivered to him, though he may have decided not to use them.

•

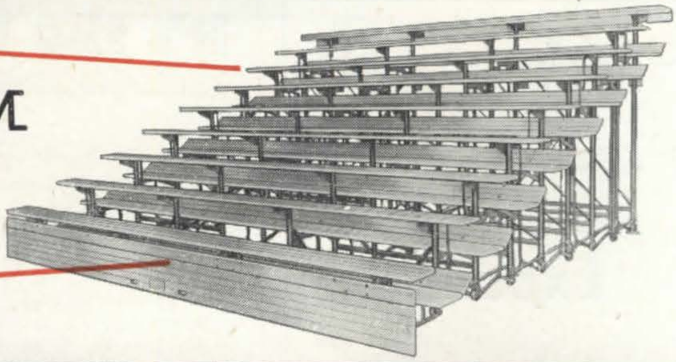
Apart from the question of ownership of plans on completion of his services, the architect is the owner of his plans before they have been accepted and paid for. As the product of his skill and ability, they are property for which he is entitled to be remunerated. The client cannot, therefore, by fraud or deception deprive the architect of the right to complete the contract while retaining the benefits of his work.

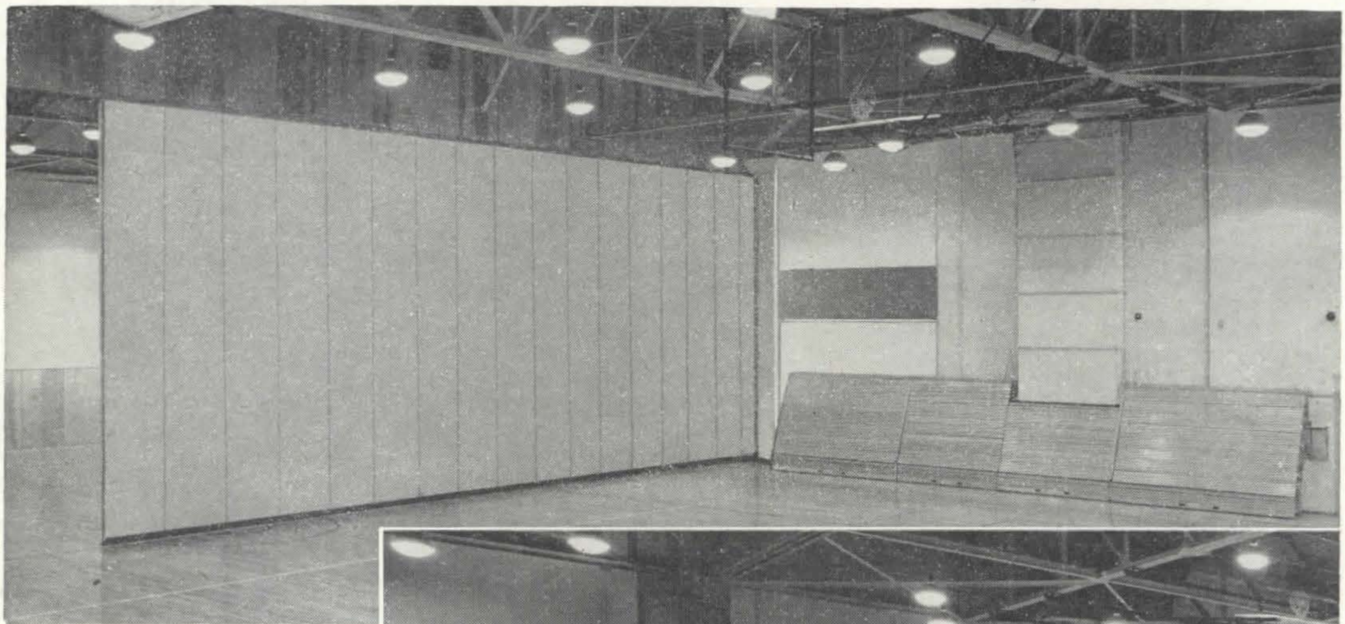
In one case an owner who represented to the architect that he was through with his services and did not intend to build, while secretly planning to use photographic copies of the architect's plans, was held guilty of fraud; and his misrepresentations in this regard vitiated any settlement made with the architect to his prejudice.

The architect's recovery under such circumstances was held not to be limited to payment for the reasonable value of the services he had performed, but included the profit he could have made if permitted to carry out the terms of the contract. Under the contract employing him to prepare plans for and supervise construction of the building, his loss was ascertained by allowing him the contract price less the costs and ex-

(Continued on page 168)

ANOTHER GYM PROBLEM SOLVED BY *Horn!*





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WORLD'S LARGEST MANUFACTURERS OF FOLDING GYM SEATS AND FOLDING PARTITIONS

it's the law

(Continued from page 166)

penses he would have incurred in completing the contract.

•

The architect's right to be safeguarded against appropriation of his plans by other persons is protected by the common law of copyright. This is distinct from copyright secured under the Copyright Law (which will be considered in a subsequent column) and operates independently of any statute. *The common law of copyright protects the architect's right in the design or plan which he has created only so long as he retains control of the work and until it is "published" (a term of art meaning some act which renders the work common property).* As a creator of a unique intellectual production the architect has a property right in any architectural plan he has designed and no copyright statute is required to protect him against use of the plan by anyone without his permission. As long as the plans and copies of the plans remain in his office, in his client's hands, and with others similarly situated, they are personal property, and no other person may, without his authorization, take them or use them without becoming liable to him for their use.

If the plans or copies of the plans are stolen, the architect may maintain an action to recover them. If they are lost, the court may grant him relief by barring the finder from using the plans without his consent. Should the plans fall into the hands of another architect who represents that they are his own and uses them in the construction of a building, there is little question that the architect who designed them has a legal remedy for such unauthorized use. However, where a client employs an architect to prepare plans for a building and the architect without his knowledge or consent copies the plans of another architect, the employer is not responsible for his illegal act. As to the preparation of plans, the architect is said to be acting for himself as an independent contractor and not as an agent for whose wrongful act the owner would be liable.

•

A problem which arises more frequently is that regarding the architect's protection against copying of his plans once the building has been built.

As pointed out above, the architect is protected by common-law copyright against appropriation of his work so long as he retains control of his design or until he releases it for general and unrestricted "publication." Once the work has been "published" the architect no longer has an exclusive right

(Continued on page 170)

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..to All Who Have Seen Fit to Specify Our Windows

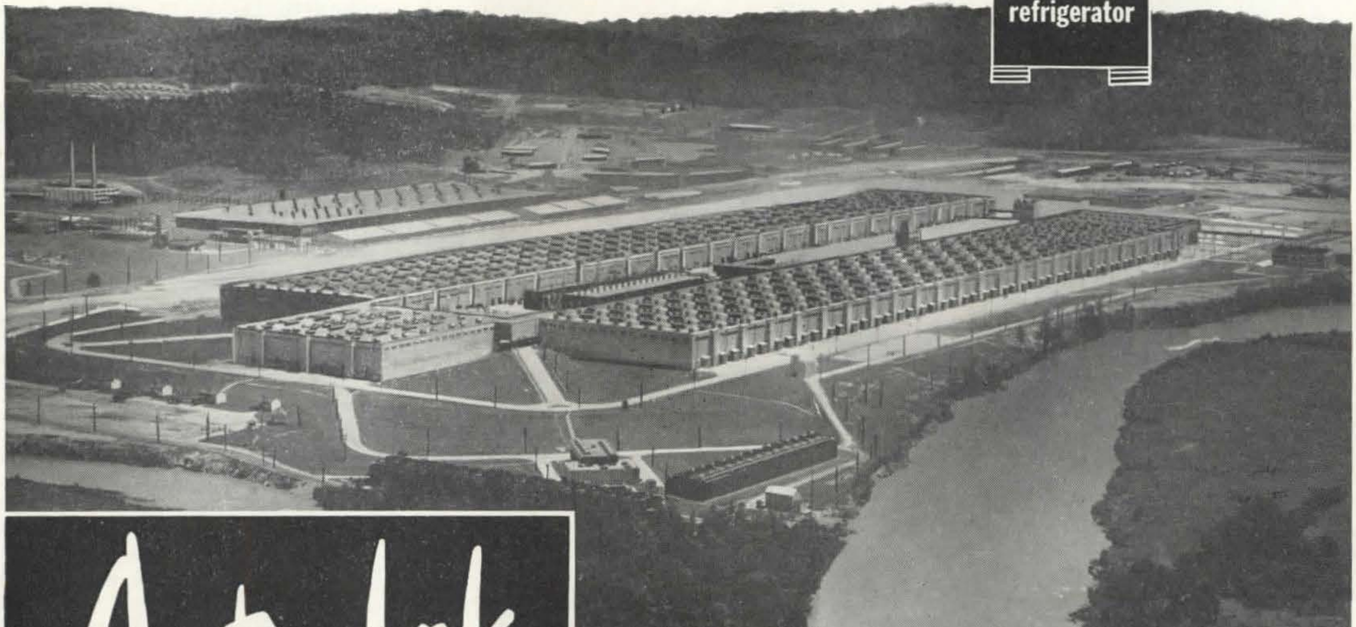
The Ludman Corporation, manufacturer of AUTO-LOK Aluminum Awning Windows, is humbly happy that its efforts are contributing to the national defense program -- at Oak Ridge in Tennessee and elsewhere.

At the Government's famed atomic energy plant in Oak Ridge*, AUTO-LOK windows are to be found in the 450 multi-family dwelling unit No. 5; in the Blair Gate, White Wing Gate and Gallagher Gate Guard Structures; in the Ammunition Storage Building and Fire Station No. 6.

"THE WINDOW OF VERSATILITY"

AUTO-LOK installations are seemingly unlimited in their variety. Because they protect against *all* climatic extremes, they are found in *every* section of the United States. Because they harmonize with practically every architectural scheme, they are as suitable for intimate cottages as for imposing hospitals or skyscrapers.

The secret to Auto-Lok's versatility is its unrivaled tight closure combined with the "natural" advantages of awning window design: Patented Auto-Lok hardware ingeniously pulls the vents in tight against the vinyl plastic weatherstripping sealing Auto-Lok just like a refrigerator. Vents are automatically locked at all four corners of each vent...assuring a degree of tight closure heretofore believed impossible.



Auto-Lok

PATENTED

weatherstripped

AWNING WINDOWS

ALUMINUM or WOOD

* Architects: Skidmore, Owings and Merrill, Chicago, New York
Contr.: T. C. Bateson Constr. Co., Dallas, Texas

Specify **AUTO-LOK** in either ALUMINUM or WOOD and You Specify the

TIGHTEST CLOSING WINDOWS EVER MADE

For details, see SWEET'S, and write for name of nearest distributor and free copy of "What Is Important In a Window?" Dept. PA-6

LUDMAN CORPORATION

P.O. Box 4541 Miami, Florida

it's the law

(Continued from page 168)

either in the design or its reproduction. What amounts to unrestricted "publication" has from time to time been considered by the courts.

In an early case it was held that an architect had a common-law right of property in his design of a novel and artistic porch only *before* its "publication," by its application to a building which he erected. It would seem under this holding that once an architect's idea has been embodied in concrete form in a house that all the world can see, common-law copyright cannot prevent anyone from copying his idea.

•

It has also been held that the filing of plans with a building department amounts to a "publication" so as to terminate the architect's common-law copyright. What this means, so far as the right of other persons to copy the work is concerned, can perhaps best be illustrated by setting forth the fact situation in a case in which this principle is applied.

An architect had prepared plans and specifications for a residence and filed the plans with the building department to procure a building permit. A house was erected under his supervision according to his plans and he received compensation from his client for these services.

The defendant, a person who was not connected with either of the parties, liked the house and desired to have one built like it. He asked the architect how much it would cost for a duplicate of his plans and specification, and on finding the figure named too high, he told the architect that he could get the same work for less money. He subsequently procured the services of another architect who prepared plans for a building which, when constructed, conformed substantially to that which the original architect had designed.

The architect then sued the owner of the second building to recover the value of the plans, claiming that they were copies of the plans and specifications filed by him with the building department. The court dismissed his complaint, stating that he had lost his common-law right of copyright by filing the plans with the building department. It emphasized that he had superintended the construction of a house under these plans and had been paid for the work. This, the court said, is as far as common-law right of copyright extends since the law protects him only in the first "publication" of his work. The court stated:

"When the architect has permitted the work to be filed in a public office as a step in furnishing the basis on

(Continued on page 174)

New Vinyl-Plastic Asbestos Floor Tile

developed by Johns-Manville

Now you can have a more beautiful lifetime floor! Ideal for kitchens and cafeterias. Greaseproof, unharmed by strong soaps, easily kept spick-and-span.

• Terraflex, a development of Johns-Manville research, is entirely new and different. Its bright colors and rugged characteristics are obtained by blending beautiful, clear, vinyl resins with *indestructible asbestos.*

Unlike other resilient floorings, J-M Terraflex is unharmed by strong soaps and caustic cleaning solutions —cannot "wash out." Requires no scrubbing, is not harmed by spilled oils and greases, moisture or dampness. Does not crack, curl, become loose or brittle, or shrink around edges. Does not become fuzzy or scratched, or lose its sheen from constant wear. Beautiful pastel colors keep their *first-day newness* for a lifetime.

The square tile-like units come in a wide range of marbleized colors. See the J-M Approved Flooring Contractor in your area. He is listed in the classified phone book. Or write for our free brochure on Flooring. Johns-Manville, Box 158, New York 16, N. Y.

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Other J-M products include Acoustical Ceilings—Movable Walls—Corrugated Transite®—Built-Up Roofs—Etc.

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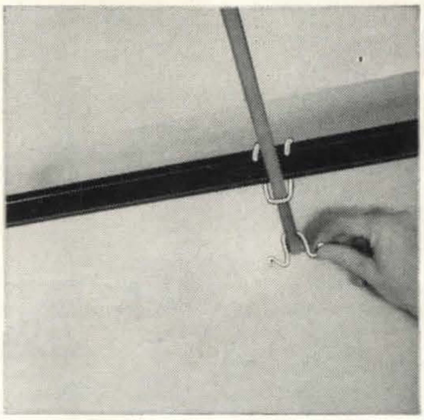
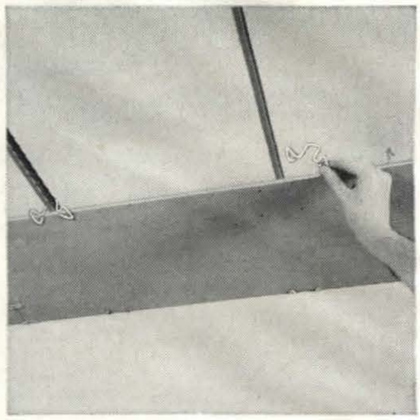
now easy with Gold Bond's CLIP-LOK System

It may be applied to any suspension of 3/4" cold-rolled channels not over 16" on center.

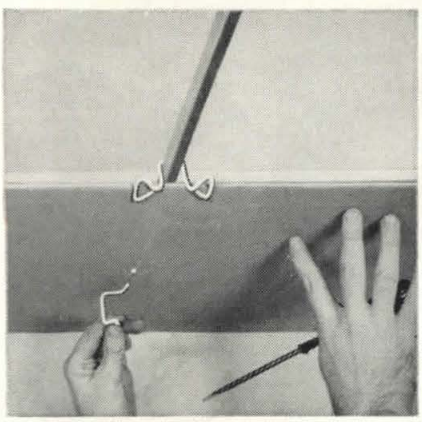


1. Here is the first step in installing an economical ceiling with the new Gold Bond Clip-Lok System. "F" starter clip is placed over ¾" furring channel at wall line. Note Gold Bond Hairpin Clip joining channels.

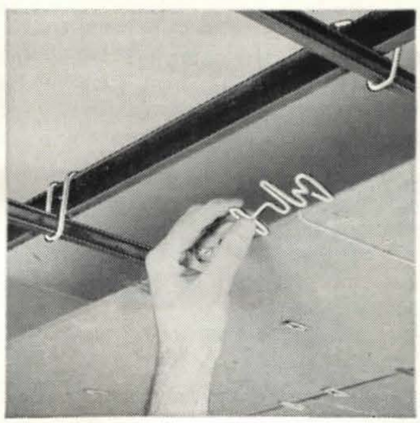
2. Now a piece of Gypsum lath is engaged by the starter clips. Plain or perforated ⅜" Gold Bond gypsum lath may be used. Handy clip cartridges are attached to lather's belt. Clips are made of strong wire.



3. Here the free side of the lath is supported by spring action "F" channel clips. They encircle the furring channels and provide a positive grip of lath to channel. Fast applying, no bending of clip required.



4. The center of the lath panel is permanently secured to the furring channel by the "Z" clip. This clip is pushed through the lath and locked over the channel. Holes can be punched with screwdriver or with the clip itself.



5. Ends of the lath fall between channels and are secured to one another by means of the flexible spring-type "C" connector clip. Completed lathing is rigid, providing a sturdy base for an economical application of ½" thick two coat plaster work.

Specification of this Gold Bond Clip-Lok System with Gold Bond gypsum lath permits contractors to build suspended ceilings that might otherwise be held up for lack of critical materials. Ask your local Gold Bond representative for more details, or write us.

Gold Bond Clips are also available for sound-rated and crack resistant wood-framed partitions.

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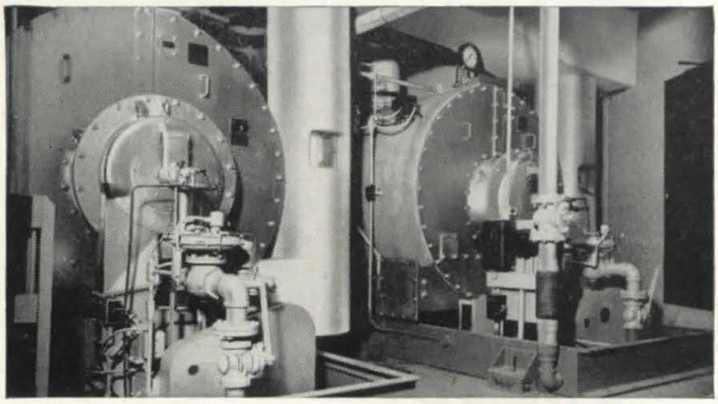
"The Boiler-Room? — On the Roof, Sir"



The "First of Tulsa" Boiler Room — Two Cleaver-Brooks 200 hp. Gas Fired Boilers

Boiler-Room in the SKY..

Boiler Room Directly Behind Roof Sign

FIRST NATIONAL BANK OF TULSA
TULSA, OKLAHOMA

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Gaynor & Albright
Mechanical Engineers
John W. Harris & Associates
Supervisory Contractors
Manhattan Construction Co.
General Contractor
C. Wallace Plumbing Co.
Heating, Ventilating & Air Conditioning Contractor

FURTHER PROOF OF CLEAVER-BROOKS BOILER FLEXIBILITY

The new $6,000,000 First National Bank of Tulsa, one of the finest buildings in the Southwest, is heated with Cleaver-Brooks Self-Contained Steam Boilers.

For very good reasons the boiler-room was placed at roof level. (Boiler-room is directly behind roof sign at top of building, instead of conventional location in basement.) First, since it was a bank building, basement space was extremely valuable for vaults, storage, and air conditioning equipment. Then, too, with the fresh air intake on the top of the building, a considerable amount of piping was eliminated by placing the boilers at the same point. Since Cleaver-Brooks boilers require only a simple vent for carrying off combustion gases, long stack runs were eliminated, leaving additional valuable space within the building.

These are just a few of the many reasons why Cleaver-Brooks boilers were specified. Being completely self-contained and compact in design, requiring minimum head room and floor area, Cleaver-Brooks boilers presented no installation problem.

Cleaver-Brooks Self-Contained Boilers are available for oil, gas, combination oil and gas firing, 15 to 500 hp, 15 *to* 250 p.s.i., for heating and processing loads. Write for the catalog.

CLEAVER-BROOKS COMPANY
326 E. Keefe Avenue • Milwaukee 12, Wis.

Cleaver-Brooks
STEAM BOILERS
The First and Finest of their Class

it's the law

(Continued from page 170)

which he is to receive compensation for his work, we are of opinion that . . . the plaintiff has published his work to the world and can have no exclusive right in the design or in its reproduction. This would seem to be especially true where the plans and specifications have been used in the construction of a building and the building has been exposed to the gaze of the public and has afforded to the plaintiff the full value of his services."

There was no evidence in the case that the defendant-owner or anyone acting in his behalf had copied the plans on file in the building department. It is doubtful, however, that had this been the case, the result would have been different, particularly since the court was of the opinion that all of the property rights in the plans, if they had any value as property after publication, belonged to the client for whom the architect had originally prepared the plans rather than to the architect himself.

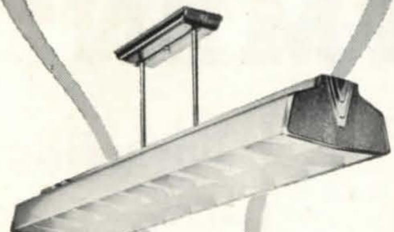
●

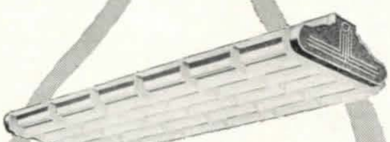
In another case where a house was built with the consent of an architect and according to his plans and was thereafter open to the public for inspection, the unrestricted exhibition of the house amounted to a publication and the architect's right to protection was extinguished. The facts in that case were that a magazine of national circulation had offered a prize for the best modernization of an old residence. A savings and loan association entered the competition by modernizing an old house in Kansas City and for this purpose employed an architect, paying him $250 for his plans. The house was thereafter advertised as being open for public inspection. Subsequently the plans were used by the defendant members of the association in erecting two other houses, and the architect sued them for unauthorized use of his plans.

The defendants, in their pleadings, admitted that they knew that the plans in question at all times remained the property of the plaintiff and entered into the contract with him in contemplation of this fact.

The question then arose whether in view of this understanding the defendants wrongfully appropriated and used

(Continued on page 176)





it's the law

(Continued from page 174)

the architect's plans. The court decided that the unrestricted exhibition to the public of the house with his consent was a "publication." It stated that if the idea itself was "published" with his consent he was not protected by a restrictive clause in the contract with the association. The court added that if there is an intention to render the work common property, then "publication" has occurred, and the intention of the author is not determined by what he says, but what he does.

•

Two other interesting points raised by the defendants were not considered by the court but it might be well to mention them here since they afford possible examples of a defense to a claim of infringement. The defendants alleged that the architect's plans were included with his consent in an article written for a national real estate journal and that this amounted to a "publication." They also alleged that exhibition of the plans at a Better Homes Show sponsored by a city real estate association amounted again to a "publication" of the plans.

While that point was not decided by the court, it would appear that publication of the plans in magazines of wide circulation and/or their unrestricted showing at an exhibition are such "publication" to the world as to render the work common property.

•

Whether a contractor who was originally employed to construct a building according to the architect's plans, may later construct an identical building, presents a somewhat different problem since the contractor bears a fiduciary relationship to the architect. This relationship arises out of the previous contract employing him to construct the building, at which time he had full access to the plans. This question is, therefore, outside the scope of this column.

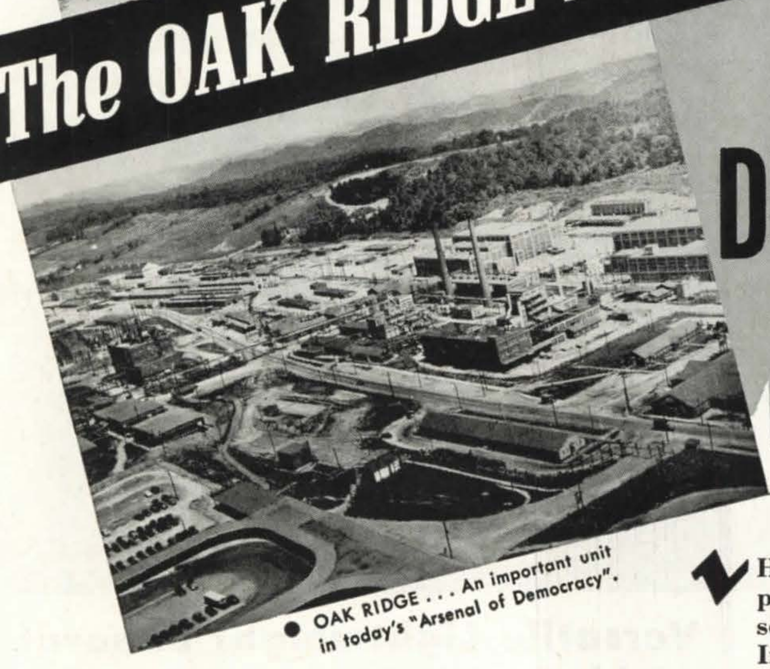
The contractor does, of course, have a right to the possession of the architect's plans while he is engaged under a contract with the owner to construct a building according to such plans. He is entitled to use the plans as long as they are necessary to the execution of the work. While he is engaged on the project, any unwarranted taking of the plans by the architect so as to deprive the contractor of their use, constitutes a trespass for which the architect will be held liable even though he remains the owner of the plans.

Following completion of the work, however, the contractor has no further interest either to the possession or the use of the plans and, depending upon the contract between owner and architect, they become the property of the owner or remain that of the architect.

(To be continued)

Another of the world's great engineering projects,

The OAK RIDGE Atomic Energy Plant



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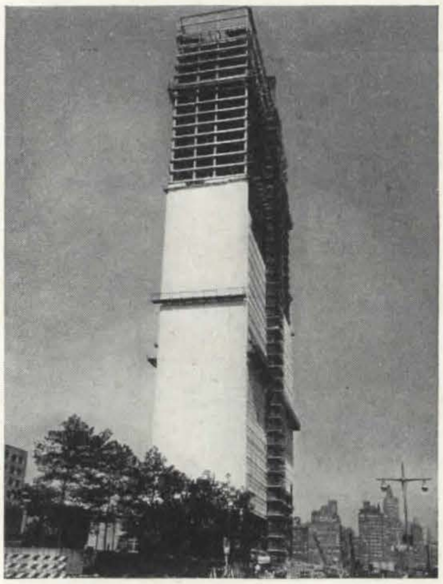
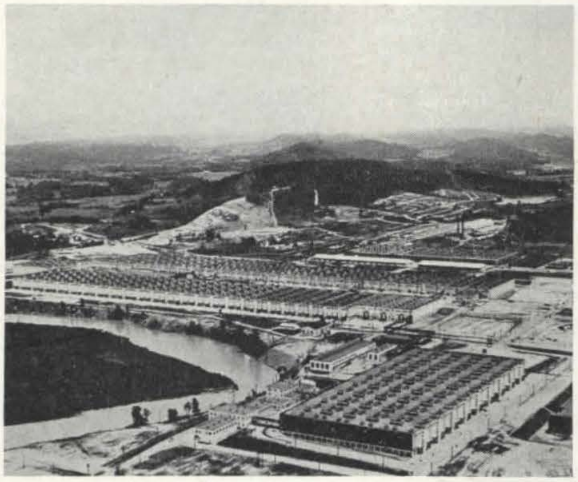
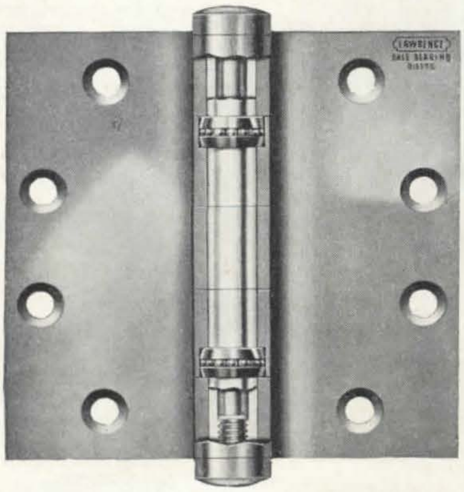


UNITED NATIONS SECRETARIAT



OAK RIDGE

THE GREATER PITTSBURGH AIRPORT



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Lawrence Ball Bearing Butt Hinges were used on these modern projects.

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NOTICES

New Addresses

ALPER & ALPER, Architects, 23 E. Bellevue Pl., Chicago, Ill.

A. G. WYATT & ASSOCIATES, Consulting Engineers, 406 Oak St., Columbus 15, Ohio.

MACKLIN & STINSON, Architects and Engineers, 639-A W. Fifth St., Winston-Salem, N.C.

POMERANCE & BREINES, Architects, 33 W. 46 St., New York 19, N.Y.

DAWSON, OLIVER & MURTAGH, Architects, 575 Madison Ave., New York 22, N.Y.

J. H. HUMPHREY, JR., 4922 Blair Circle, Apt. 1, Chamblee, Ga.

ROBERT C. SMITH, 1616 Whites Rd., Kalamazoo, Mich.

JOHN A. BLANTON, 4407 Jonathan, Bellaire, Tex.

MEYER E. EVERS, Architects, 149 California St., San Francisco, Calif.

RICHARD ROTH, EMERY ROTH & SONS, Architects, 575 Madison Ave., New York 22, N.Y.

New Practices, Partnerships

HAROLD C. BRUNNER, Architect, 206 Straus Bldg., Minot, N. Dak.

WALTER SANDERS and ARTHUR MALSIN announce that DON REIMAN has become a partner. The firm will be known as SANDERS, MALSIN & REIMAN with offices at 1 E. 42 St., New York, N. Y., and 309 S. State St., Ann Arbor, Mich.

ALVIN LUSTIG, Designer, announces opening of his office at 16 E. 40 St., New York 16, N. Y.

FRANCIS PALMS ASSOCIATES, Architects and Engineers, announce the opening of new offices at 925 20 St., N.W., Washington 6, D.C.

ROLAND L. ROBEL, Architect, 309 Western Surety Bldg., Sioux Falls, S.D.

F. L. COCHRAN, Architect, has been named a partner in PERKINS & WILL, Architects-Engineers, Chicago. This firm also announces the opening of a branch office at 171 E. Post Rd., White Plains, N.Y., to concentrate on programming, design and supervision of construction.

RUBENS F. CIAS, INC., announces a change of firm name to CLAS, REDDEMAN, INC., Architects, 525 E. Mason St., Milwaukee 2, Wisc.

SEELYE, STEVENSON & VALUE, Consulting Engineers, 101 Park Ave., New York, N.Y., announce that RICHARD E. DOUGHERTY has joined the firm as Consultant.

JOBS AND MEN

SITUATIONS OPEN

DESIGNERS, SENIOR ARCHITECTURAL DRAFTSMEN, STRUCTURAL ENGINEERS, JUNIOR OR SENIOR HEATING AND ELECTRICAL ENGINEERS—immediate employment central New York. Reply must give age, educational and experience background, date of availability and salary required. Crenshaw Beardsley & King Associates, 405 Herald Building, Syracuse, N. Y.

ARCHITECTS, MECHANICAL AND STRUCTURAL ENGINEERS, SPECIFICATIONS WRITERS AND SQUAD LEADERS—for immediate employment in our Omaha and St. Louis offices. Give full particulars, including experience, education and salary requirements. Leo A. Daly Co., 633 Insurance Bldg., Omaha, Nebr.

DESIGNER—draftsman for small office in Morristown, N. J. School and residential work. Permanent position which could lead to association or partnership. Box 377, PROGRESSIVE ARCHITECTURE.

WANTED—an architectural designer, architectural draftsman, landscape draftsman and civil engineers. Business established for thirty-six years. Live in a nice small city in the South. Only good men considered. Salaries based on qualifications and ability. Permanent employment. John Leon Hoffman, Inc., Forsyth, Ga.

ARCHITECT-MANAGER—to head department. Must be good contact man on new promotional work, with ability on conceptive sketches, knowledge of costs, etc. Location, Atlanta, Ga., field of practice unlimited. Write fully Box 378, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL DRAFTSMEN AND SPECIFICATIONS WRITERS—wanted for large scale program of hydroelectric and steam power plant buildings. Salaries $3,900 and $4,650 for 5-day, 40-hour week. Some work is scheduled more than 40 hours and pays overtime. Automatic increases for satisfactory service. Liberal vacation leave (26 days), sick leave and retirement benefits. Work location is Knoxville, Tenn. Write Tennessee Valley Authority, Division of Personnel, Knoxville, Tenn.

SALES REPRESENTATIVE—building materials manufacturer has exceptional opportunity for a southern college graduate having architectural or construction experience. Selected candidate must possess the personal qualities necessary to successful salesmanship. Our salesmen contact architects and contractors, and position involves travel in North and South Carolina and Virginia. Factory and field training given preparatory to becoming district sales representative. Submit complete information, including salary needs. Send photograph, which will be returned if desired. Rigid investigation will be made of personal history and habits. Our sales organization is familiar with this advertising. Write Box No. 379, PROGRESSIVE ARCHITECTURE.

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Standard charge for each unit is Five Dollars, with a maximum of 50 words. In counting words, your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for ten dollars, with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Jobs and Men, c/o Progressive Architecture, 330 W. 42nd St., New York 18, N. Y. Insertions will be accepted not later than the 1st of the month preceding publication. Box number replies should be addressed as noted above with the box number placed in lower left hand corner of envelope.

SITUATIONS WANTED

ARCHITECT—age 38, college graduate, registered New York, N.C.A.R.B. certificate, member A.I.A. Eleven years' varied experience including schools and public housing. Desires position with progressive firm, leading to partnership or associateship. Box 380, PROGRESSIVE ARCHITECTURE.

MECHANICAL ENGINEER—heating, plumbing, air conditioning, refrigeration plants, boiler plants. Over 20 years' experience in design and specifications of mechanical installations for public and industrial buildings. Part time or fee basis. Chicago area. Box 381, PROGRESSIVE ARCHITECTURE.

A.I.A. ARCHITECT—contemporary designer, office manager, desires position as associate with progressive firm. Also interested in position as consultant to large firm in the building investment field. Prefer location in the west U.S.A. or abroad. Box 382, PROGRESSIVE ARCHITECTURE.

MECHANICAL ENGINEER—experienced designer in all fields of building mechanical and electrical work. Registered, graduate, excellent references and background. Minimum salary $8,500 per annum. Consider consulting basis or syndicate participation for large scale program. Will travel. Box 383, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL DESIGNER—with architects' license in New York and Connecticut. With 25 years' broad experience in the best N. Y. offices. Presentation sketches, working drawings, field supervision, would like to locate in southern Connecticut with architect and possibility leading to partnership. Can submit samples of work. (Please give details) Box 384, PROGRESSIVE ARCHITECTURE.

MISCELLANEOUS

ARCHITECT-ARTIST AND DELINEATOR—of long experience, offers services for freelance architectural renderings and perspectives, bird's-eye views of real estate developments, city-planning projects, engineering structures, highways and bridges. Construction of "perspectives in lines," without rendering. Instruction in Perspective and Rendering. Theodore A. De Postels, A.I.A., 644 Riverside Drive, New York 31, N. Y. AUdubon 6-0160.

CAREER BUILDERS PLACEMENT SERVICE—for Architects, Architectural Designers, Interior Designers, Industrial Designers, Draftsmen and Office Personnel. Interviews by appointment. Plaza 7-6385, 35 West 53rd Street, New York 19, N. Y.

ARCHITECTS-DESIGNERS—don't be burdened with the overhead of draftsmen and space. Let us do your preliminary sketches, details, working drawings, renderings and engineering on housing, institutional and commercial work. All work is done under the supervision of architects and engineers. Architectural Drafting Service, 35 So. Dearborn St., Chicago 3, Ill.

CALIFORNIA SALES ENGINEERS—with industrial and construction experience in building materials, heating and ventilating, mechanical equipment, material handling, ferrous and non-ferrous metals, and building codes, desire to serve as manufacturers representative, sales specialist and armed services contact. Field engineers, office followup and drafting services. Eldaco Co., 360 Waverly Street, Palo Alto, Calif.

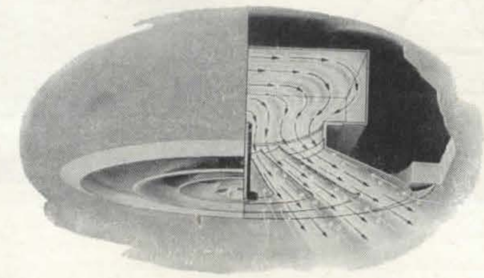
ENGINEERING FIRM—specialists in structural, hydraulic and mechanical engineering, now handling several government contracts, wants a connection with a leading architectural concern, to handle architectural and layout work. This engineering firm with motto "Plans ready for bids in 48 hours", has 3 partners and 11 associates, six of whom are professors, known specialists in various fields of engineering. Write Box 385, PROGRESSIVE ARCHITECTURE.

Naturally

ANEMOSTAT AIR DIFFUSERS *are at* OAK RIDGE

At Oak Ridge, the selection of every piece of equipment was of vital importance. They needed and got the best. That's why Anemostat Draftless Air Diffusers were chosen not only for the planned community, but for the production facilities as well. These pictures of the high school auditorium and workshop, designed by Skidmore, Owings and Merrill, show but two of the many Anemostat applications.

Anemostat has been a part of the atomic energy program since its inception. Today Anemostat Air Diffusers provide draftless air distribution in atomic energy projects throughout the nation.



Here, graphically presented, is the aspiration principle that makes the Anemostat Air Diffuser superior. Due to its patented design, the Anemostat distributes air of any duct velocity in a multiplicity of planes traveling in all directions. Simultaneously, the unit creates a series of counter-currents which siphon room-air into the device equal to about 35% of the supply-air. Room-air is mixed with supply-air *within* the Anemostat before the air-mixture is discharged into the room.

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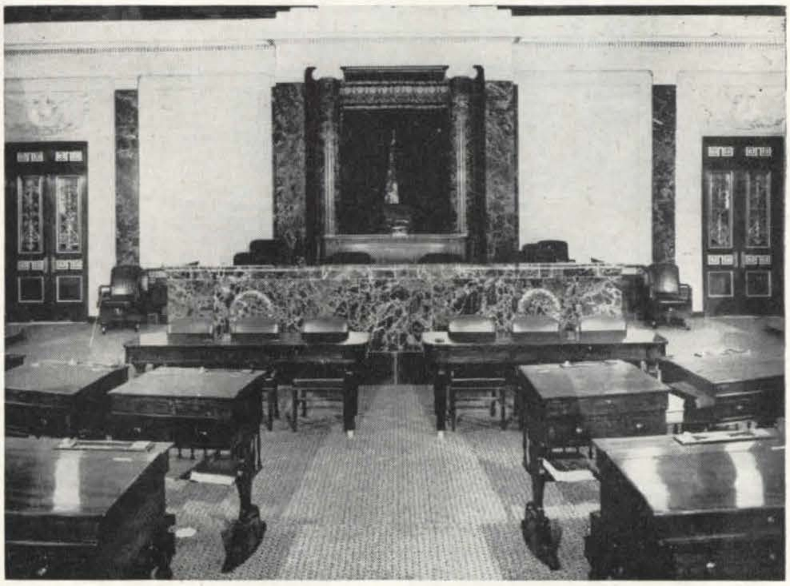

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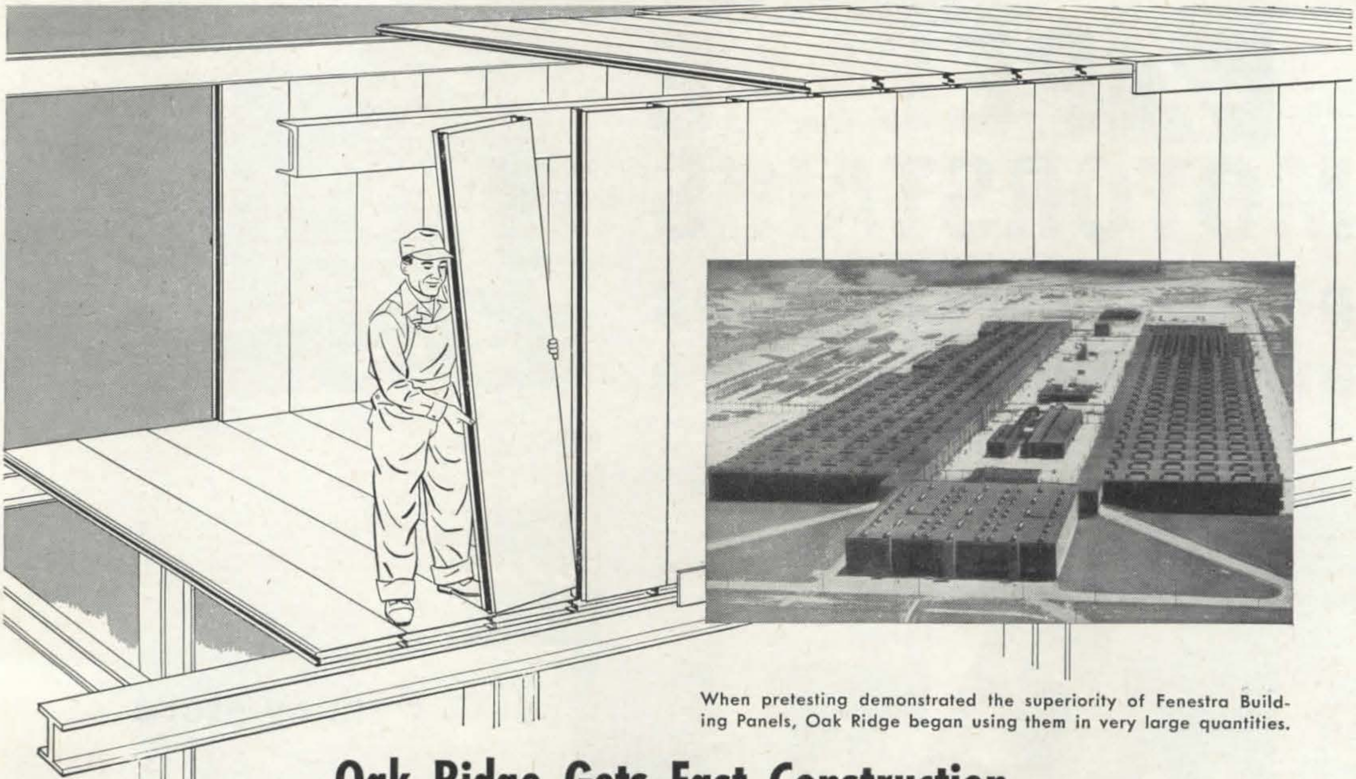

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You get walls only 3″ thick that have a better insulating value than a 16″ thick wall of masonry . . . a combined "U" value of less than 0.25 BTU's per sq. ft. per degree of Fahrenheit.

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No wonder Fenestra Panels are preferred for truly modern construction like Oak Ridge.

A FEW DETAILS ON FENESTRA "C" PANELS

Size: Standardized 3″ deep, 16″ wide, 7′ to 12′ long, 18 gage painted steel. Weigh only 6.50 lbs. per sq. ft.

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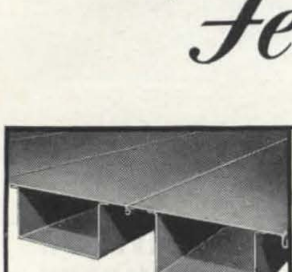

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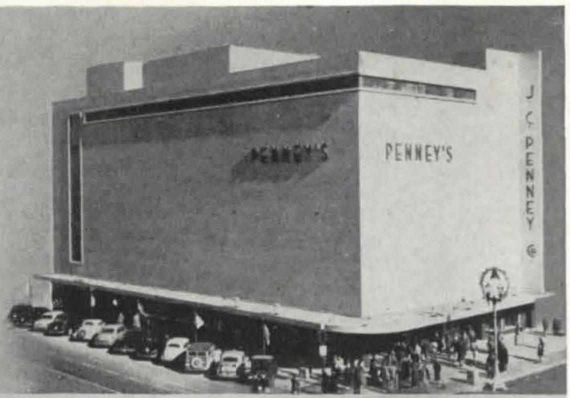
4 PEELLE MOTORSTAIRS
part of basic planning in this modern store



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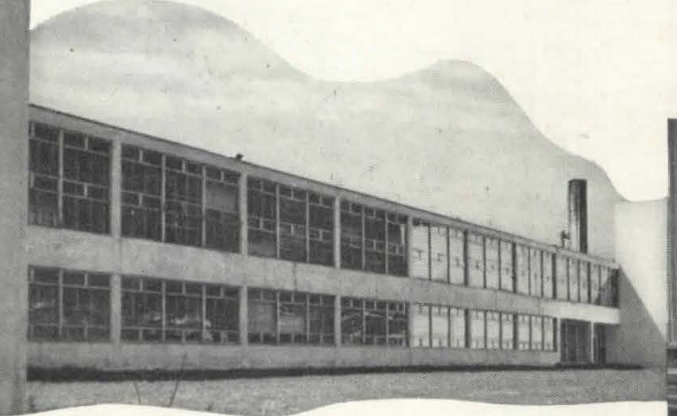

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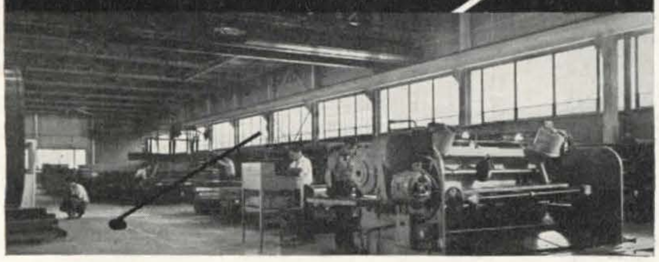

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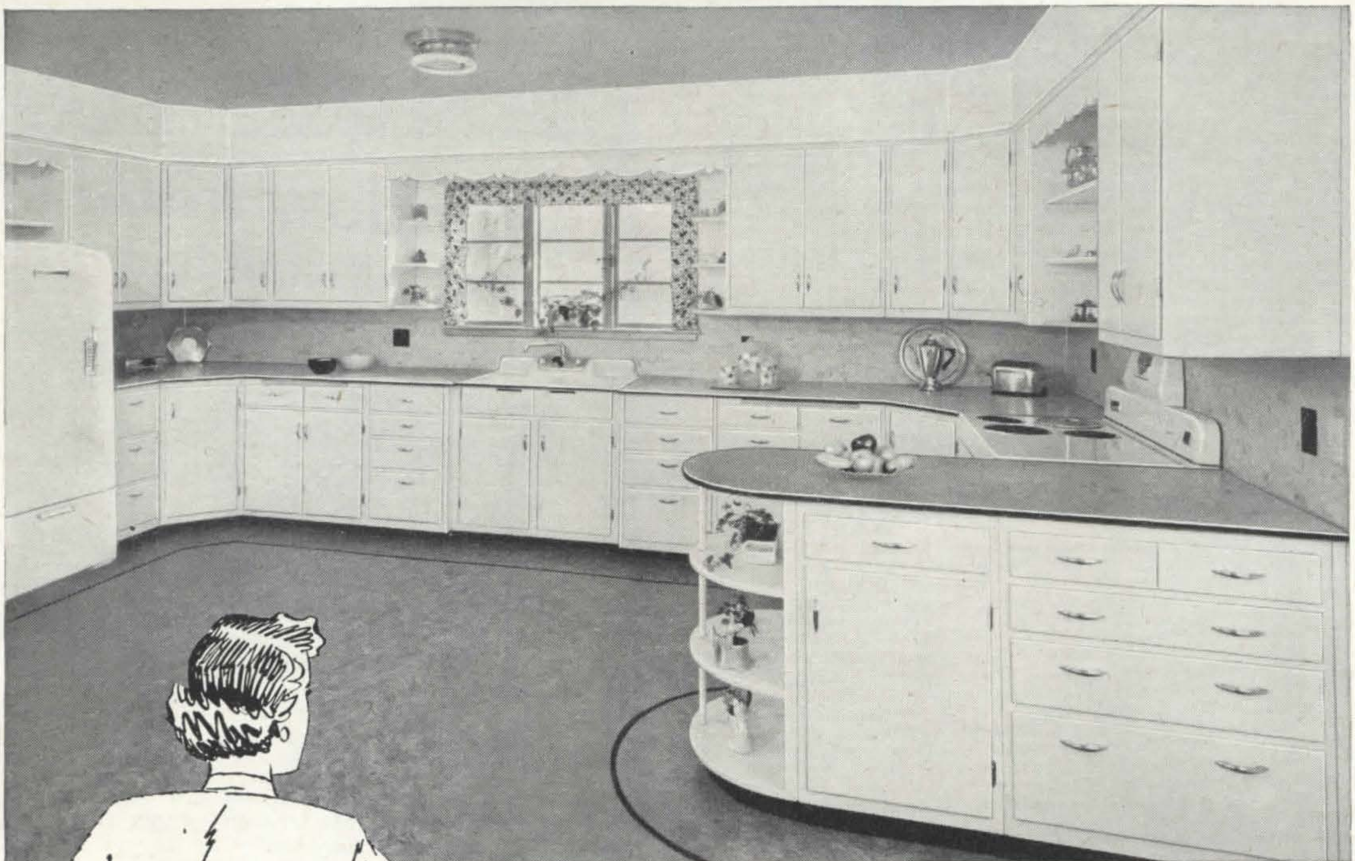

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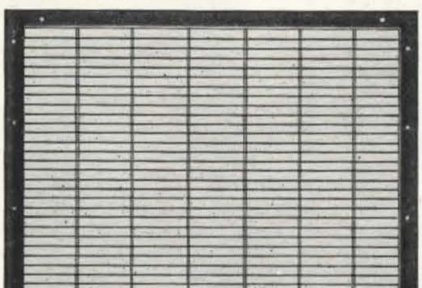
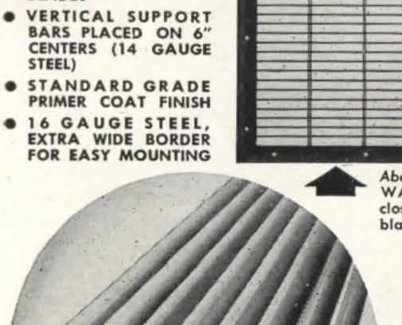
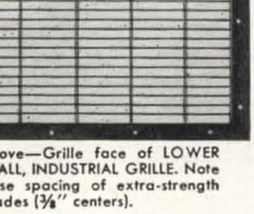


Above—Grille face of LOWER WALL, INDUSTRIAL GRILLE. Note close spacing of extra-strength blades (3/8" centers).



Above— Close-up view of volume control section. Note famous solid section AIRFOIL LOUVERS. Each blade is individually adjustable. CONCEALED LOUVER SUPPORT eliminates mullions and butted construction.



Above photo shows the 48" x 48" AIRFOIL INDUSTRIAL GRILLE supporting the combined weight of 4 Titus factory workers.

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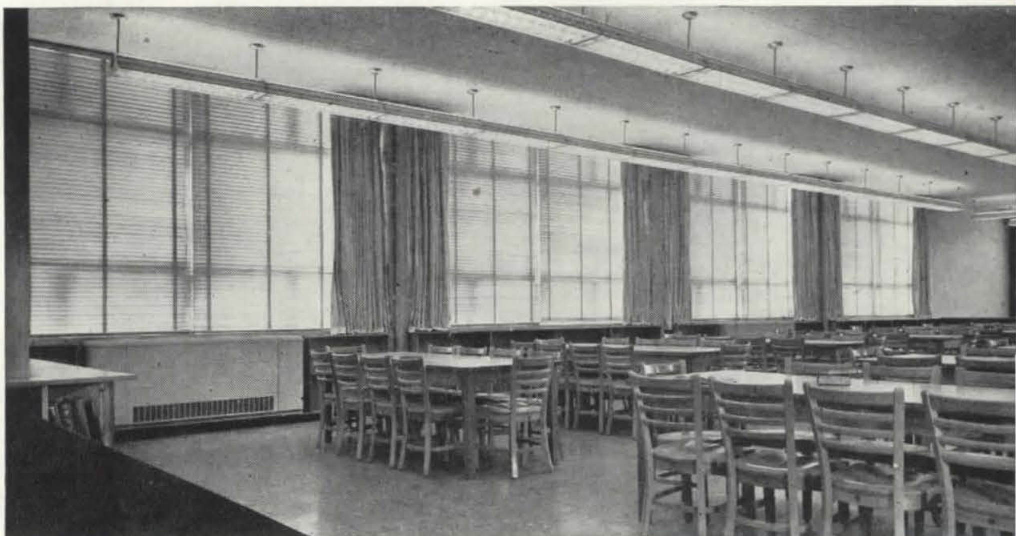

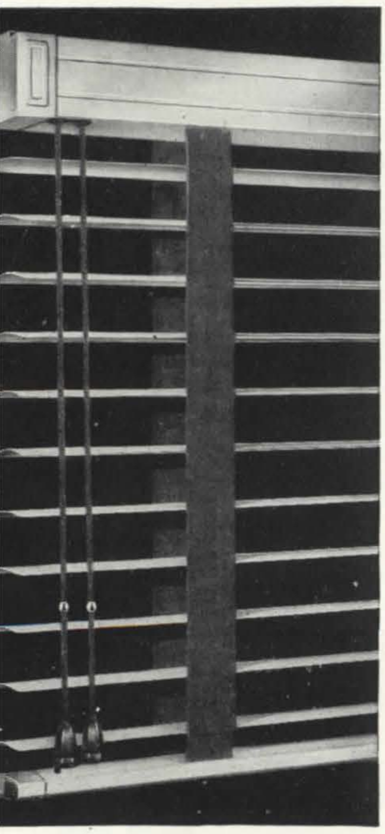

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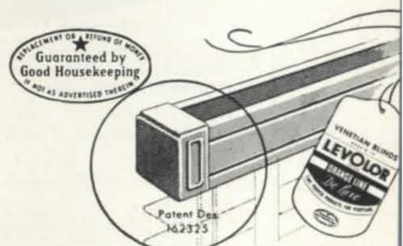

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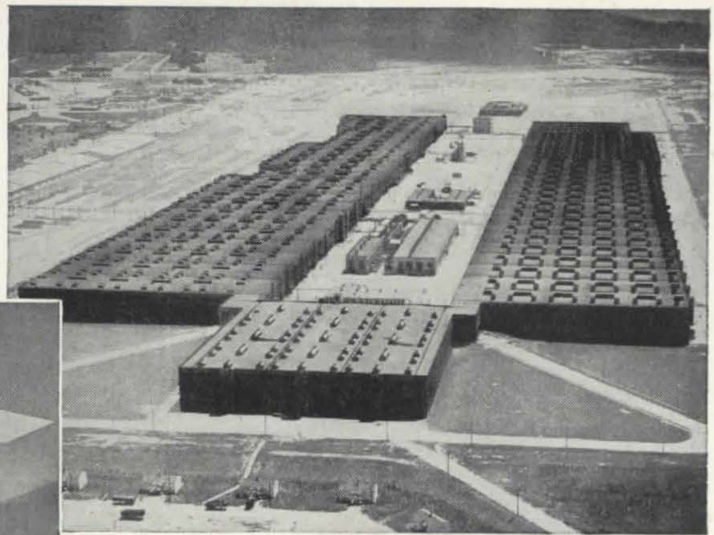
ur catalog in Sweet's Architectural File, 3A, and Sweet's File for Builders, 3E-5.



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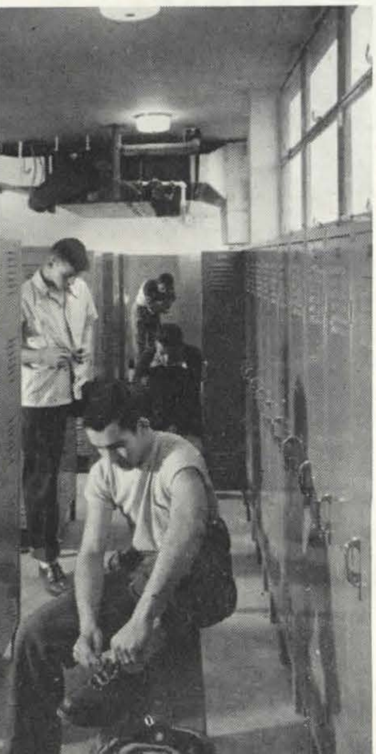
Oak Ridge High School, designed for the Atomic Energy Commission by Skidmore, Owings and Merrill, Architects-Engineers, Chicago, Ill. General Contractor, John A. Johnson & Sons, Brooklyn, N.Y.



ger Single Tier Lockers are recessed in s of the spacious corridors and box ers serve the team rooms.

3845 BERGER Steel Corridor and Gym Lockers Installed in new Oak Ridge High School

● Under direction of the Atomic Energy Commission, the world's largest defense plant community has been erected at Oak Ridge, Tenn. Within its boundaries, up to 75,000 operating and scientific personnel will engage in atomic energy research and production.

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Berger service and cooperation are recognized wherever lockers are used. In this vital defense project, as in thousands of other school installations, Berger representatives helped architects and school officials translate their ideas into a workable storage plan.

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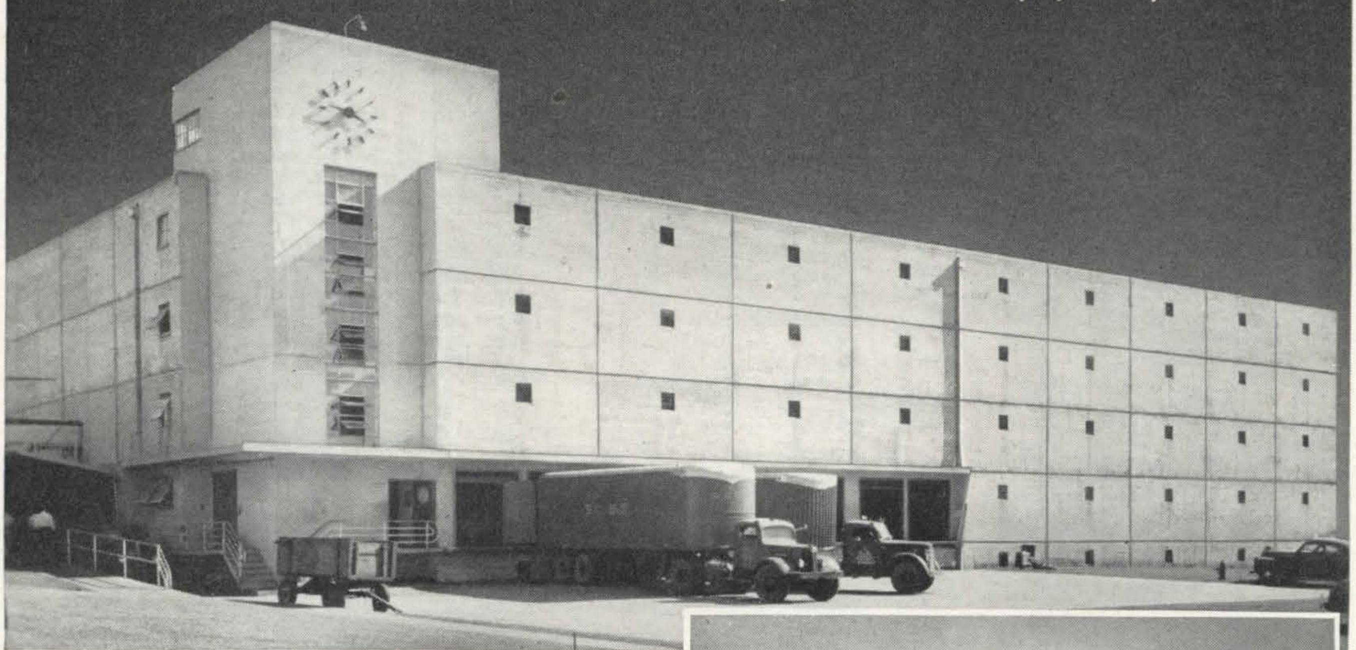
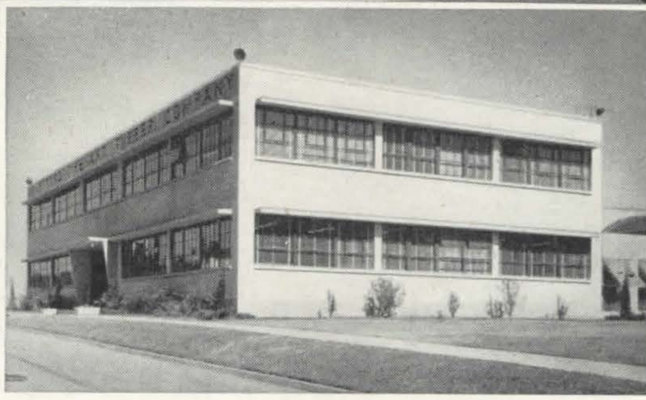
Architectural Concrete

ideal for industrial buildings for any purpose





THESE modern buildings are part of the large Armstrong Tire & Rubber Co. plant in Natchez, Miss. They demonstrate the adaptability of architectural concrete to industrial structures.

The warehouse and engineering building (top and bottom photos) are part of the original plant built in 1938-40. Today these buildings are still attractive and new-looking; yet no maintenance has been required. One cement grout coat was applied to the engineering building in 1946 to harmonize with the new office building. So satisfactorily have these buildings performed that all new additions, including a new office building built in 1945 (middle photo), were designed in concrete.

Architectural concrete stays new-looking because it has great resistance to weathering. Maintenance expense is low because concrete's durability reduces repairs and upkeep to a minimum.

In addition to rugged durability, beauty and low maintenance expense, architectural concrete offers maximum firesafety and strength, moderate first cost and long life. Moderate first cost, low maintenance cost and long life result in ***low annual cost.*** Even ornamentation is economical, for it can be cast integrally with structural parts.

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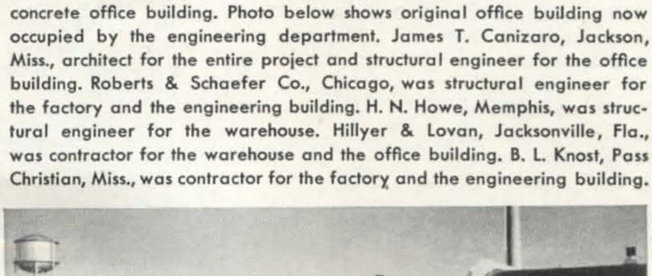
Large photo above shows rubber storage warehouse of the Armstrong Tire & Rubber Co., Natchez, Miss. Small photo above shows architectural concrete office building. Photo below shows original office building now occupied by the engineering department. James T. Canizaro, Jackson, Miss., architect for the entire project and structural engineer for the office building. Roberts & Schaefer Co., Chicago, was structural engineer for the factory and the engineering building. H. N. Howe, Memphis, was structural engineer for the warehouse. Hillyer & Lovan, Jacksonville, Fla., was contractor for the warehouse and the office building. B. L. Knost, Pass Christian, Miss., was contractor for the factory and the engineering building.



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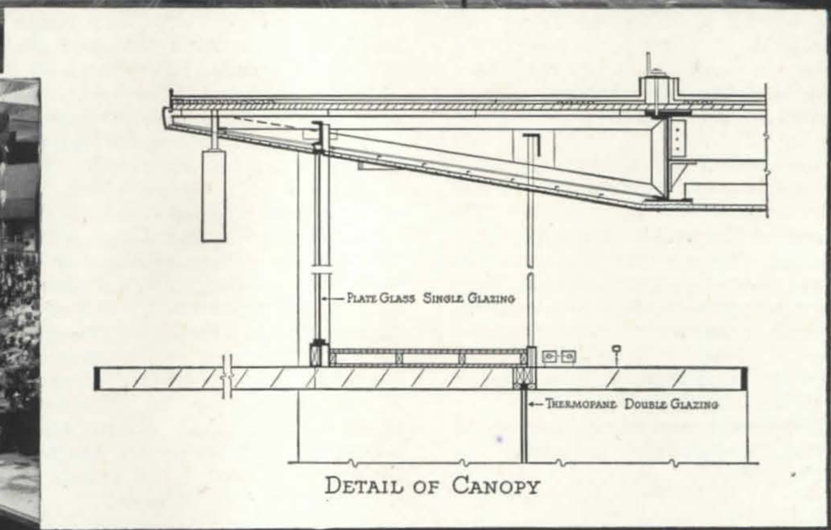

Richard Hawley Cutting Associates, Cleveland, Architects and Engineers.

Doubling in GLASS

This storefront presents display windows two stories high, with displays on two levels. One is on the floor and the other on the grid-pattern overhang.

Double display through mirrors, too. Their use at each end of the storefront reflects a view of the interior before the eyes of passing traffic.

Double-glazing with *Thermopane** insulating glass is provided in the windows at street level. It helps guard against steam and frost—provides clearer visibility on cold days. Notice the difference in the picture. The upper windows glazed with single glass are steamed, but the *Thermopane* windows below are clear.

Design applications for many types of glass are illustrated in our Visual Fronts Book. Write for your copy and ask, also, for a booklet on *Thermopane* Storefronts.

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LIBBEY·OWENS·FORD 7061 Nicholas Building, Toledo 3, Ohio

L O F GLASS

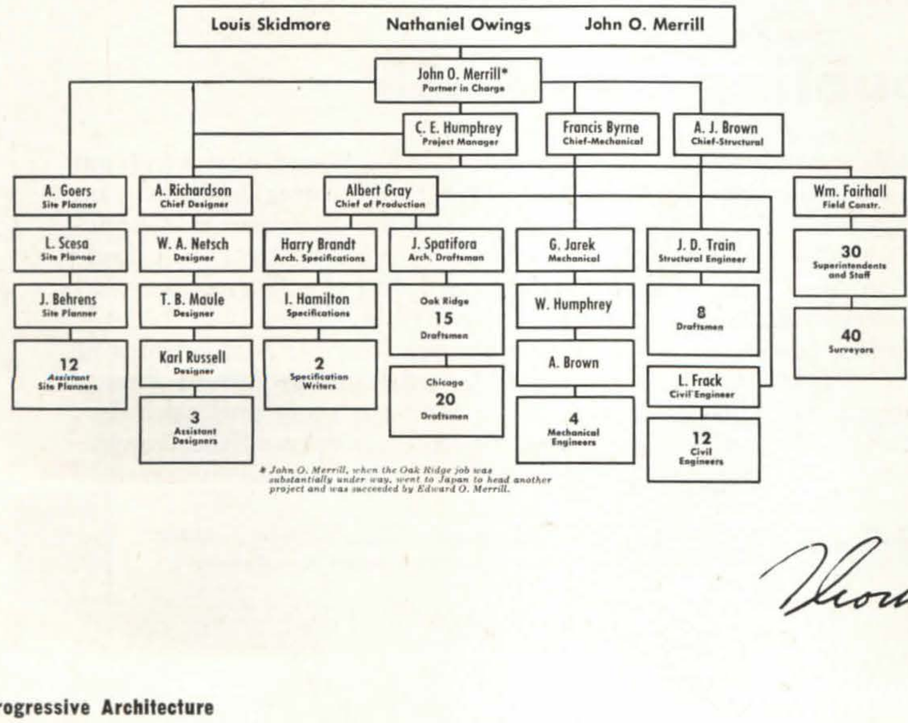
P.S.

Who designs a building? We on the P/A staff feel rather strongly that the entire architectural organization does—that the guy who throws in a good idea from the drafting room, the specification writer, certainly the "designer," and the job captain, all have something to do with the ultimate result. I know from my own experience that the superintendent on the job, making quick decisions under the pressure of actual construction conditions, often appreciably affects the final design. Many times we wish that full credit of this sort could be given when a building is published (you may have noticed that, whenever we secure the information, the responsible members of the organization are listed) but all too often the pretty pictures and the nice captions appear in the name of an "architect" who may have been rather pleasantly startled when he saw what *he* had produced.

In the case of the smaller organization where the principal is himself the strong designer and co-ordinator, this crediting of the architect alone is as it should be. The younger people in the office are in a sense apprentices, no matter how responsible their jobs may be, and their time for full professional credit will come. As a matter of fact, the stronger and more sure of himself an architect may be, the more likely he is to give credit, and to ask that credit be given, to responsible associates and co-workers.

It is in the case of the large organization that the particular person in charge of a project may not get the kudos due him. When a firm grows to huge proportions, it becomes almost anonymous, insofar as the design of particuar structures is concerned. The principal partners, of course, make the ultimate overall decisions, and determine policy; but the man in charge of a particular job may be operating in as responsible a capacity as many an independently practicing architect, yet never be noted in the professional press.

Skidmore, Owings & Merrill is a remarkable firm in many respects. Not only is it large and scattered (offices now in New York, Chicago, San Francisco, Oak Ridge, Tokyo, and within the last month, Portland—see our NEWS-LETTER for details) but through its individually able and hard-working partners, S.O. & M. is insistently generous in giving credit to members of the organization who deserve credit. We like this policy and we go along with it wholeheartedly. When it came to preparing copy for the Oak Ridge feature in this issue, however, we began to realize that in a planning accomplishment of this magnitude even an extended list such as we have at the beginning of the story did not give all the credits that should be given. Therefore, on this page I am reproducing an organizational chart of the Oak Ridge office of S.O. & M., as it was when the postwar design phase was in full swing.



* *John O. Merrill, when the Oak Ridge job was substantially under way, went to Japan to head another project and was succeeded by Edward O. Merrill.*

Even this extensive chart does not give *all* the credits that might be mentioned. I know, for instance, that Tom Flavin has bene office manager down there since the first group went to an unidentified town early in the war. And I remember that time well, because a neighbor of mine—Herb Mathiasen, who is now superintending the Lever House job in New York—went down at that time also, and even over drinks after bridge we couldn't extract from him (because he didn't know) what it was all about.

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Another phase of this business of credits which gives editors headaches is the matter that Bernard Tomson is getting into in its legal aspects—who "owns" an idea in the design sense? I have just been looking at a patented scheme for arrangement of apartment rooms in a housing structure. If we were to publish it, and around the country apartment houses were built which approximated it, who could tell whether there had been simultaneous developments of the idea, whether there had been bald copying, or whether that intangible inspiration which comes from reading and seeing and thinking many things had been the reason. We once published a house—gave it an Award as a matter of fact—and then got an angry letter from another architect who claimed that the design had obviously been stolen from one of his. In that sense, there was an awful lot of plagiarism during the Middle Ages; going back further, some lusty Romans might well have been sued by the estate of Ictinus (and in turn have passed on the basis for possible claims to their descendants during the Renaissance and even to some of the Italian immigrants to the United States during an earlier period.).

I am particularly sensitive to the problem right now, because I am working on an issue which will show several related "ideas" in planning, by several designers, and I have a feeling that I am building up the possibility of bitter letters ("What do you mean, this is a new conception—I did it in the Saint Reno hotel in 1929"). Do you want to start a good argument among some of the great modern designers? Just raise the question of who "invented" the brise-soleil. Or the butterfly roof. You don't give a damn. Frankly, I don't either, and I don't know why I'm bothering you with my problems. Just to make you feel happy that you're not an editor, I guess.

Thomas H. Creighton