PROGRESSIVE ARCHITECTURE

newsletter

APRIL 1951

- February construction activity beat all other Februaries on record. $2 billion in new buildings went up, 22% more than in the same month last year. Astonishing fact is that, according to U.S. Dept. of Labor and U.S. Dept. of Commerce, increases were in almost all categories, including private residential work (up 21%), commercial (up almost 60%), churches (24% increase), hospitals, schools, and so on. Industrial work, of course, had the greatest increase -- a 91% jump over last February.

- "Engineering News Record" analysis of construction gains by regions, for first two months of this year, compared to 1950 figures, shows some interesting variations. The South is up 209%; the Midwest, 106%; states west of the Mississippi, 82% and Middle Atlantic states only 49%. Both the Pacific States and New England have dropped -- in each case by about 30%.

- Present estimates of defense contracts possible directly from the military -- Army and Navy -- are fairly conservative and indicate why, in February, military and naval construction amounted to only $25 million (as compared to $864 million for nonfarm residential). The Navy -- concentrating primarily on rehabilitation of training centers, lengthening and strengthening of airfields, construction of harbor and ammunition facilities -- has appropriations of $450 million for "Navy public works" and $149 million for "Navy civil engineering." Totals appropriated to date for Army and Air Force construction is $2.4 billion.

- Situation on materials will worsen in months ahead. One difficulty is that a shortage or a restriction in one item causes a rush on something else and hence new shortages there. For instance, limitations on copper plate and tubing resulted in more use of galvanized steel -- and the copper ruling was relaxed.

- Copper and zinc will cause the greatest trouble for some time. As John Haynes, NPA director of Building Materials Division, remarks, "we can make aluminum and we can make steel, but you've got to dig copper and zinc."

- Setup within National Production Authority is confusing to many. Here are some facts: it is an agency of the Dept. of Commerce. Top director is Manly Fleischmann. Frank R. Creedon is assistant administrator in charge of Facilities and Construction Bureau. John L. Haynes is director of the Building Materials Division, within Creedon's Bureau. Then there are many individual divisions (22 at present writing) dealing with specific products -- metals, forest products, etc., etc. -- each headed by an expert in that field. Field offices are being established daily (as of January 24 there were 76). They will be listed in local telephone directories under "U.S. Government, Department of Commerce."

- A preliminary analysis of the 1950 Census of Housing has been issued by HHFA. Some highlights: 80% of nonfarm dwellings now have inside toilets, compared with 73% in 1940; 2½ million nonfarm units are reported as dilapidated; about 2 million units house more than a person and a half to a room; the average

(Continued on page 2)

newsletter

household has declined from 3.2 to 3.0 persons; 53% of all occupied units are owned by the occupants; median rent is $35 (compared to $21 in 1940); median value of one-family dwellings is $7400.

- New York State Building Code Commission has issued proposed version of its one- and two-family dwellings code, and a 280-page illustrated manual indicating acceptable construction methods and test procedures for acceptance of alternate methods under the code. The proposed documents have been sent to municipalities in the state, to various professional groups and individuals, and to interested officials in other states, for review and written commentary, before final issuance.

- The code is a simple document setting up performance standards; an excellent job. The manual gets fairly long-winded and may have the fault of any series of graphically illustrated standards -- minimums tend to become maxima; new methods may be forgotten in the copying of those illustrated as "acceptable."

- Two fellowships in city planning are announced -- by Yale, a research fellowship in civic design, amounting to $1500, for graduate students: by M.I.T., the Chandler Fellowship in City Planning, amounting to $1200 or either undergraduate or graduate work leading to a degree.

- Richard E. Baringer of Harvard's Graduate School of Design has won the Rome Prize in architecture for '51-'52. Harvard is also bragging about the fact that half the prize money in the recent NAHB - "Forum" House competition went to staff members, students, or recent graduates of the Graduate School.

- College of Architecture and Design, U. of Michigan, announces the Booth Traveling Fellowship, open to graduates of that school under 30 years old. Applications must be in by May 15.

- Cranbrook Academy of Art announces three memorial scholarships -- the Eliel Saarinen, the Ellen S. Booth, the George G. Booth.

- A.I.A. Convention in Chicago, May 8-11, promises to be a big time. Hotel accommodations are gone, unless you have pull. The program hasn't yet been announced, but the schedule includes the first Institute-sponsored show of building products (important new ones only), reports on the current construction situation, a report from the Commission that has been surveying the profession, election of Glenn Stanton of Portland, Oregon, as president.

- American Institute of Decorators will hold its annual convention in Grand Rapids, April 30 to May 2. At that time winners will be announced in A.I.D.'s Home Furnishings Design Competition, and other annual judgments will be made. A trade show and a special exhibit of room decorations will be featured.

- American Designers' Institute (A.D.I.) has changed its name to Industrial Designers' Institute (I.D.I.).

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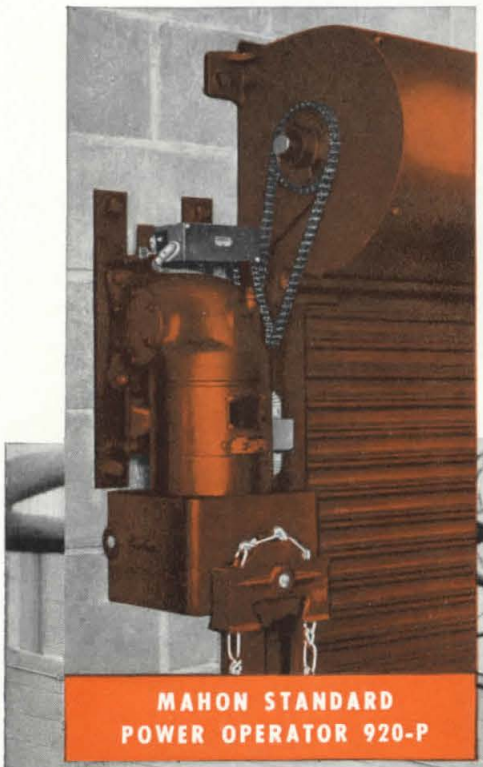

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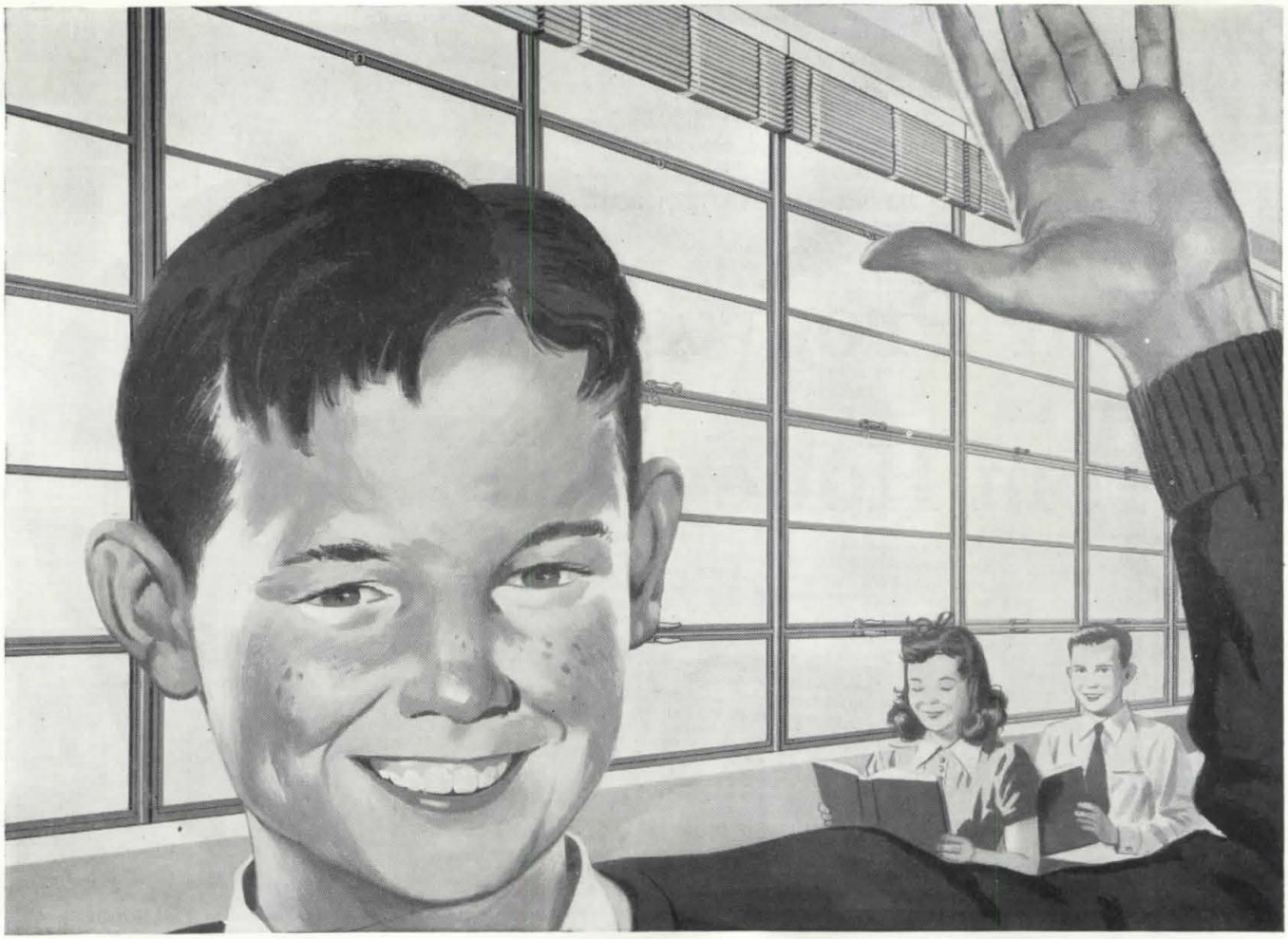

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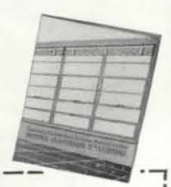

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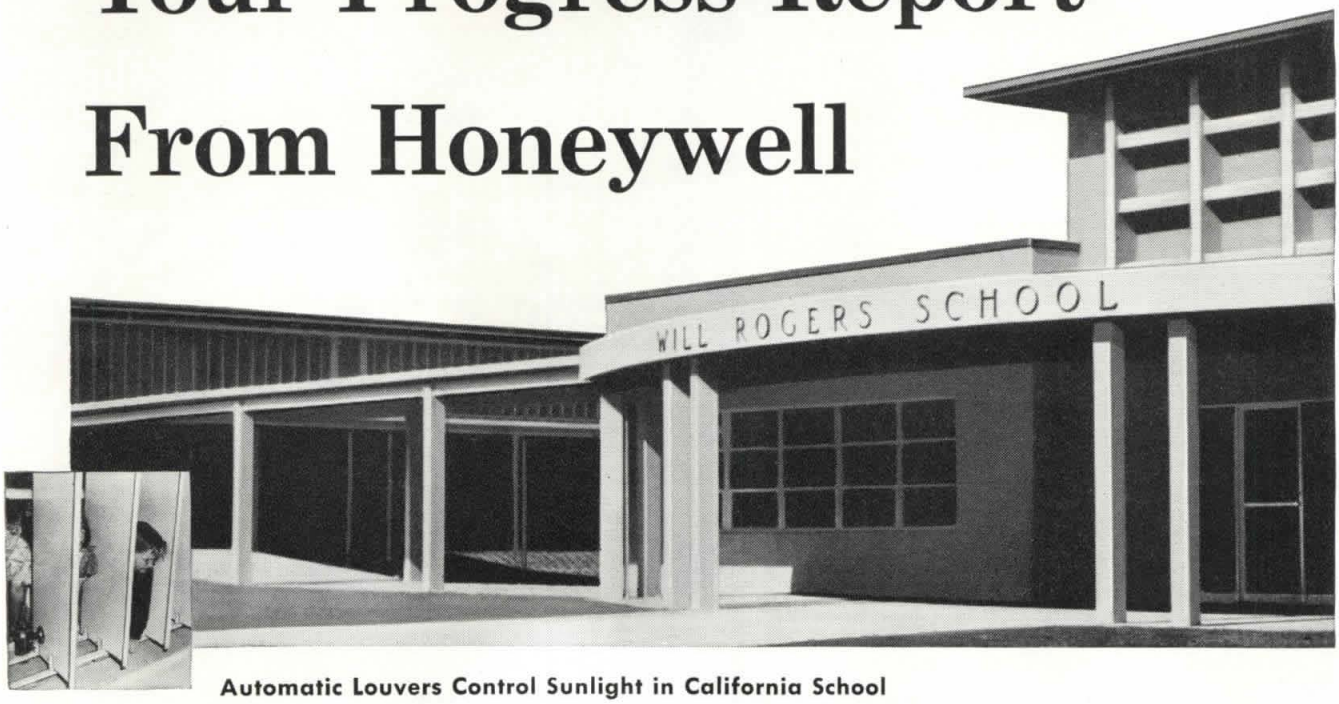

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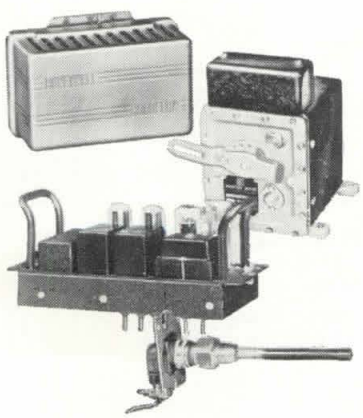

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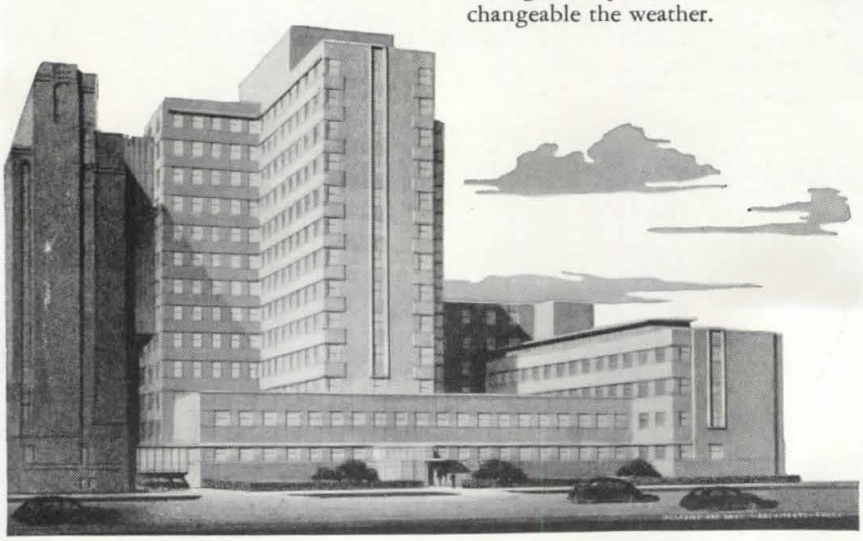

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VIEWS

FAVORS SUBCONTRACTING

Dear Editor: Thanks for including me in a preview of Co-operative Housing.

First, may I state that Vernon DeMars is to be congratulated on his fine presentation of the subject matter (also P/A).

Second, I note as he concludes his enthusiasm runs out, in trying to really sell the idea fully.

Third, something should be done to get good housing—the type of progressive work he and many, or few(?), architects are trying to promote but are hampered by buying public, contractors in general, and banks in general—note general. I've been able to educate a few, even FHA, to this type of thing.

Fourth, I've found a good answer but not Co-operative housing, at least in metropolitan Rochester area.

Co-operative housing, as such, is a splendid idea and on paper has many merits but does not bring about *full compatibility* among all who are concerned with the end results. This can and has proved very distasteful and in some cases very detrimental to a young architect who falls for its great appeal.

Cost-wise, under present-day methods of doing business, you cannot build for any less. This I have learned well. I find by subcontracting, the client can come out just as well and in many cases better than by the Co-op method.

I cannot, nor would I attempt to, discuss the merits of one system vs. another on paper. I will admit that the Co-operative system has great appeal at the start; but once on its way, one should surely hire a lawyer, bookkeeper, accountant, and a few other business heads—all which adds up to more than hiring a first-class residential architect and using a subcontract system, which will end up keeping each out of the others' hair and allowing the Joneses to do as they see best and not object because it looks like the Smiths are getting more out of the deal than they are.

I hope I have made myself clear. After 23 years in this business, I've learned that architecture has to do not only with the science of building but also the science of getting along with all people concerned with building. I have prescribed to several Deans of Architecture that a complete course in architecture should include courses in the *humanities*, in order to prepare the boys and girls for the business of architecture.

Thanks again for the privilege.

DON HERSHEY
Rochester, New York

LONG-NEEDED ACCOUNT

Dear Editor: DeMars' article on Co-operative Housing is a long-needed, handy account by a man who went through the mill of hard experience. The writer has been consulted by two of the cited co-operatives, while they were in the formative stages, and his detailed recommendations were largely similar to DeMars' conclusions.

One of the most painful developments and most damaging to aftertalk, is a zigzagging or unsteady course of aspirations in the minds of those who enter into the promotion. It forces faithful early participants and co-workers to give up and sometimes see the jointly hatched venture climb to new economic levels, out of reach. Steadiness, which means so much to lenders of funds, should be precious also to the co-operators themselves.

It must be guarded, while realization is approached, against undue change in social and personnel composition of the group. But, naturally, housing co-operatives, being still experimental in this country, seem to attract—besides steady, practical idealists—a good percentage of experimenters and persons who rock the common boat.

RICHARD J. NEUTRA
Los Angeles, Calif.

WORKED IN TEXAS

Dear Editor: Thank you very much for DeMars' article on co-operative housing which I have read with considerable interest, including the conclusions and recommendations. My conviction is the same as his, particularly with regard to the building services and the role of the government. A sample house which will permit a packaged deal will serve considerable purpose in establishing in the minds of both the FHA and the prospective co-operator just what is to be expected—and at what price.

You may be interested in a three-year experience record of a project which you recorded for posterity in May 1950 P/A, the "608" housing project, 3416 Yoakum Boulevard, here in Houston, of which we were the architects. There were nine units in this project facing a central court, five of which were two-bedroom and four were three-bedroom. The nine owners of the corporation each owned equal shares of stock and contributed equally to the required equity, and each had the option of occupancy at a per room pro rata payment per month of one apartment, either two- or three-bedroom.

In three years, due to increased housing needs, three of the original corporation have been forced to sell their stock and move. They have been able to sell their units for an amount which approximately doubles their initial investment, plus their share of the amortization of the mortgage, and have satisfied the remaining shareholders by selling to persons who are entirely acceptable to those who will remain living in the project.

As one of the originators of the idea, as well as one of the occupants, I believe that it may be considered a reasonably successful operation. One of the reasons for this, I think, has been the similarity of interests of people on the same financial, age, and social levels.

S. I. MORRIS, JR.
Wilson, Morris & Crain
Houston, Texas

TOO COLD-BLOODED

Dear Editor: It is our conviction that generally the tone of current architecture is entirely too cold-blooded and that an architect should be permitted a few detours into the realm of esthetics without having to excuse his foibles. We account for the terrific impact of Niemeyer and (*also*) the Mexico City School in their following along such by-paths. We, too, would like a piece of sculpture—off center and applied to the wall—not too large in scale and done in black granite. We are frankly afraid of of showing it at this time—and are guilty of subterfuge, to the end that we want it there without fanfare.

JAMES M. HUNTER, Architect
Boulder, Colorado

THE ARCHITECTS EXPLAIN

Dear Editor: Fred and I just noticed the "oozes, juts, drips" comment on page 9 of the P/A December issue by G. Milton Small of North Carolina, who we suppose is an architect. If he isn't, he should be because his eye for detail is unique and well trained.

We don't think P/A should be criticized for publishing said photo, but rather that we, as architects, should be questioned for allowing such poor handling of material to occur.

We are not pleased or proud of this particular detail, but our conscience is not too disturbed since our plans did not call for this crude handling—it actually occurred as a result of mis-setting of two structural metal pipe column supports that all concerned on the job missed until finishes were being installed, plus the direct insistence of the owner upon raising the ceiling height in the two passages leading to this room, which we struggled to keep from doing, but in the end to no avail as has been noticed by Mr. Small.

The criticism of the North Carolinian is well taken but the "oozing" sarcasm inferred is considered by this office as "small" talk, "dripping" with drama. We will now "jut" our mouth.

KARL KAMRATH
MacKie & Kamrath, Architects
Houston, Tex.

(Continued on page 10)

p/a

VIEWS

(Continued from page 9)

LETTERS TO THE SCHOOLMASTER

Readers of "Out of School," the P/A column *conducted* by Carl Feiss, raise some questions provocative of further discussion.

Dear Mr. Feiss: While you were here in October we had just begun to talk about the teaching of Architectural History when you had to leave. You asked that I write you my opinions concerning your OUT OF SCHOOL article on that subject in the November issue of PROGRESSIVE ARCHITECTURE. I have meant to write before now, but time slips by.

I want to start by saying that I agree with the basic points of your article. I have contended for a long time that architectural history, to be of any value in the architectural curriculum, must be contributive rather than separative. I further agree that the recognized textbooks are of little value in the teaching of history as a contributive subject.

The quote which you gave from Sir Bannister Fletcher is typical of history texts, in that they give, shall we say, insignificant data and little discussion of the architecture involved. On the other hand, several texts that have fair discussion, are inadequate with regards to illustrations. Then again, the books relating to specific periods become so involved with research that the undergraduate student gets lost in detail.

I have discontinued the use of any text and depend upon carefully selected reading assignments from a large number of books in which the points that I want to put over are clearly stated. In my teaching of architectural history I have attempted to eliminate a great deal of the "guide book" information; dates, 'blank' narration and romance, and am trying to use history as a tool for the teaching of fundamental principles of design.

I attempt to emphasize the structural "why" and "how" underlying the basic building types of different periods. Emphasis is placed upon the fact that the better architecture of any period is that which evolves naturally with organic planning, logical and direct structure, practical use of materials, and esthetic form that is characteristic of the structure materials and plan. Many modern designs are simply of the structure materials and plan. Many modern designs are simply "different"; uneconomical and unnatural structural practice and use of materials are used to achieve these unusual exercises in so-called modern esthetics. Cliches are abundant today. These conditions have been true in the past periods of design as well as the present.

I also attempt to show that refinement, proportion, and scale are the important factors in the creation of a good building, regardless of the period designed. I try to use history to bring the student to the realization that architecture is a three-dimensional art of volume and mass, and that any building must be considered as a whole, that must be not be considered alone from any one moved toward, around, and through, and particular point of vantage. Likewise, a building cannot be considered with regard to plan, structure, and esthetics as individual factors, but that each effect the other.

I feel that if a student can be taught to study objectively the relative merits of existing buildings, whether they are designed by the Egyptian or the French Gothic Masterbuilder, or by the 19th or 20th Century designer, he can approach his own solution to design problems more objectively.

ROBERT W. TALLEY, Acting Director
School of Architecture
University of Texas
Austin 12, Texas

(Continued on page 12)

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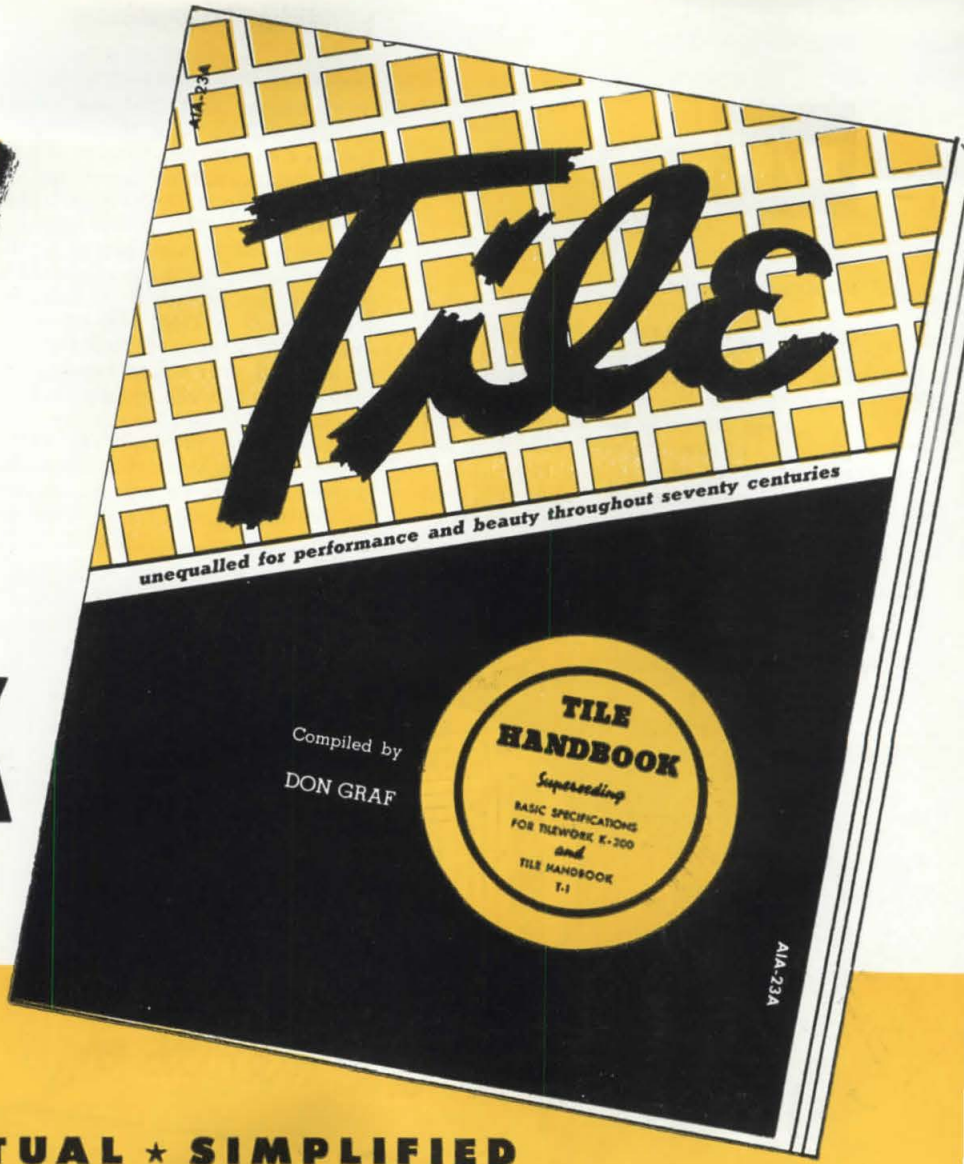

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p/a VIEWS

(Continued from page 10)

CLOSER TO UNREALITY

Dear Mr. Feiss: Your astute articles become increasingly interesting to me as you spiral closer to the indirection and unreality of architectural education. My student experience in New Haven, professional experience in California, and teaching in the middle west all seem to point up the fact that the schools, in general, fall short of the highest mark. Perhaps superficial study in the field of general education influences my opinion, yet that body of knowledge exists for any educators who care to use it.

Superficially, there are at least three principles which I believe should be applied in architectural education. The first, "Leading from the known to the unknown," is the major concern of basic design, and your recent reports indicate that quite a few schools are on the right track.

The second principle or definition, "Teaching the student to do better the desirable things he will do anyhow," is particularly applicable to esthetics and extremely demanding upon the instructor, requiring the sacrifice of personal design idiom, much more time and effort with the individual student, and constant vigilance in remaining broadly informed not only in architecture but in all pertinent fields. It seems improbable that any one person can attain the ultimate here, but it should be attempted as a preventive against the cliche and against the meaningless imitation of illustrious mentors, so frequent in our strongest schools.

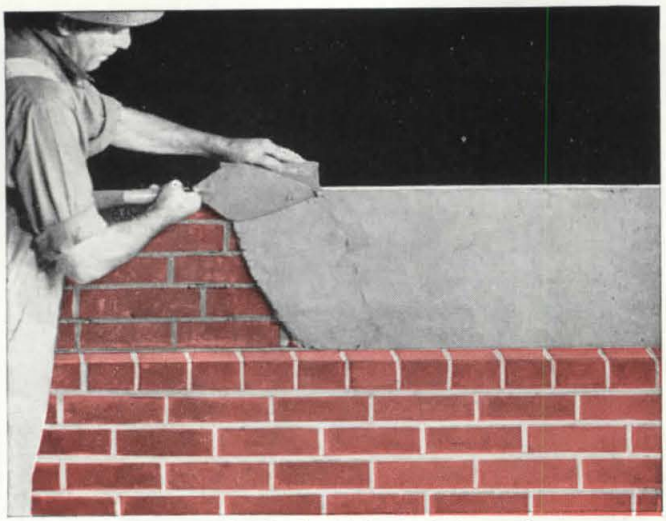
The third principle, "Learning by doing," represents our gravest sin of omission. We call our design hours "labs," but how does this compare with a welding lab where they actually weld, or a chemistry lab where industrial processes may actually be performed? Students may build models or take summer jobs with contractors ad infinitum, yet they never see their conceptions translated into realities during their formative period. Is there any wonder that the real issues are obscured by two-dimensionalism and ivory towers? Even in music, most similar in the respect that one does not conceive and execute at the same time, the student can actually hear his own work performed. This indicates how absurd it would be if the musician was concerned with the format of the printed score rather than the beauty of the sound it indicated.

It is granted that the financial, professional, and even political obstacles to a program of this sort would be many. However, such details could be worked out, and would greatly enhance the prestige of the first school to regard this as its primary object. Yet it seems that no attempts in this direction are being made. One might also mention the resulting educational value to the public, and even to the building industry; it seems self-evident.

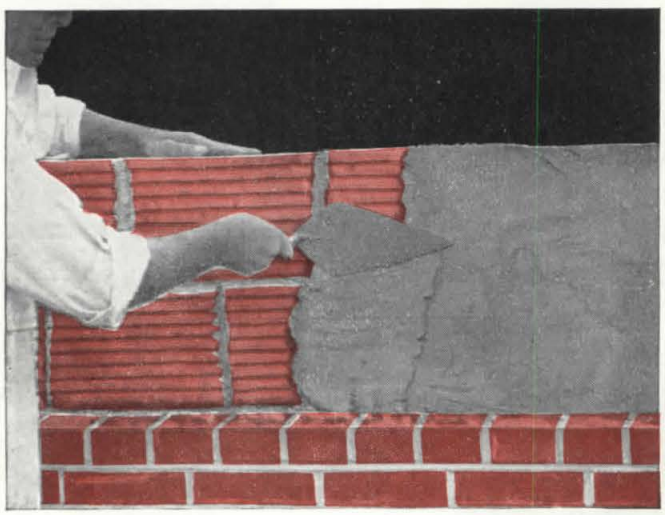
ANTHONY ELLNER, JR.
Assistant Professor
Department of Architecture
North Dakota State
Fargo, N.D.

Dear Mr. Ellner: *I greatly appreciate your pleasant comments on "Out of School" in* PROGRESSIVE ARCHITECTURE. *It is a real reward to have an appreciative audience and one that is doing intelligent thinking about the problems of architectural education. Your three principles are both valid and fundamental. I'm not certain that they are not principles that have not been recognized for a good many of years, even by some of the most conservative in education. However, our main problem seems to be in translating principle to practice and keeping the objectives of the basic principles continually before us as we do make this translation. In addition, it seems to me to be most important that we find means of keeping principles and objectives constantly before us as our technology and social patterns change. I hope that your experiments in North Dakota can shed light on these complex problems.*

Thank you again for your most acceptable letter. CARL FEISS



The face brick should be backplastered.



If the back-up units are laid first, the front of the back-up units should be plastered.

Backplastering should not be attempted over protruding mortar joints.

PARGING

WITH

BRIXMENT

HELPS ASSURE

DRY WALLS

WE SUGGEST THAT—

The face brick should be backplastered with not less than 3/8 of an inch of mortar before the back-up units are laid.

Or, if the back-up units are laid first, the front of the back-up units should be plastered with not less than 3/8 of an inch of mortar before the face brick are laid.

Heavy rains don't make brick walls leak—they merely reveal the fact that the walls contain voids or passages through which the water may penetrate.

Dry brick walls are primarily the result of good design and good workmanship. Good materials are important, but still secondary. The more *plastic* the mortar used, the easier it is for the bricklayer to deliver good workmanship.

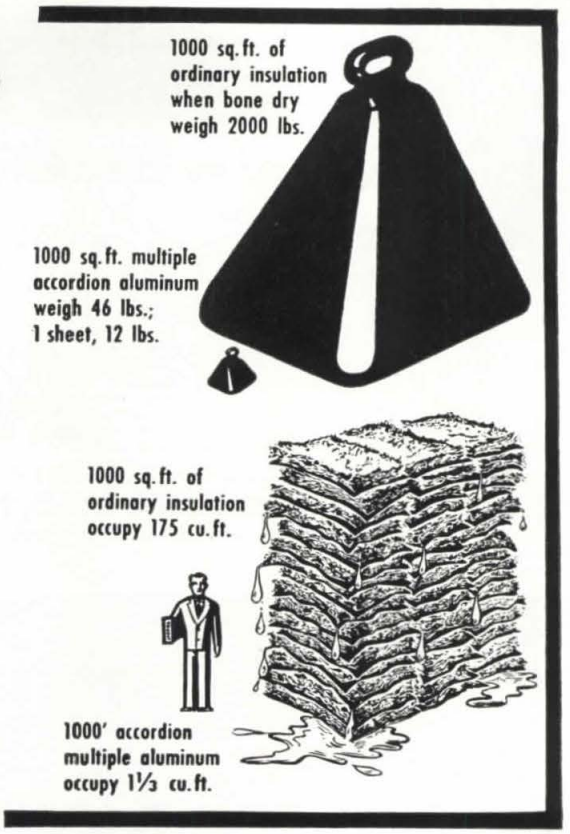
The photos at the left show some points of *good workmanship.*

Brixment mortar has greater plasticity, higher water-retaining capacity and better bonding quality. Because of this *combination* of advantages, architects, contractors and dealers all over America have for thirty years made Brixment the largest-selling mortar material on the market. Why not try it yourself?

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

Why heat TONS

OF INSULATION, MOISTURE AND OUTER WALLS DAILY ?



3000 sq. ft. of ordinary mass insulation means about 3 tons of it to heat every winter morning. If moist and heavy with condensation, there is that much more tonnage to heat, plus the fuel required to evaporate it. (It takes 1,060 Btu's at 60° F to convert 1 lb. of WATER into vapor. Only half that amount, or 530 Btu's, is needed to raise 1500 cu. ft. of AIR 20°.) In addition, ordinary insulations transmit heat to outer walls by direct conduction through solids.

Most building materials, including mass insulations if air-spaced to reduce direct conduction through solids, ABSORB over 90% radiant heat on one surface, and emit 90% on the other surface. *Multiple sheets of accordion aluminum THROW BACK the heat inside the building in winter, outside in summer.* (They REFLECT 97% of heat rays, emit but 3% on the opposite side, block convection; and allow but 5% heat loss by conduction through their air spaces which have negligible density.)

NO CONDENSATION CAN FORM

In winter (with multiple accordion aluminum sheets) there is little heat loss or expense in heating 3000 sq. ft. of the one aluminum sheet in contact with the warm air. It weighs less than 40 lbs. (1/100 lb. per sq. ft.), immediately assumes almost the same temperature as the contiguous warm air, and so is *non-condensation forming.* Its zero permeability prevents any passage of vapor.

The outer aluminum, which also weighs less than 1/100 lb. per sq. ft., is about the same temperature as the contiguous cold air, (slightly warmer in fact) and so is *also non-condensation forming.* Since heat flow in conduction and radiation is from warm to cold, no heat is extracted from the air (the reverse in fact). Therefore the capacity of the air to retain vapor without condensing is not reduced (in fact, increased).

THERE IS NO DEW-POINT

Between the 2 external aluminum sheets are 4 protective, reflective air spaces; *without a dew-point* anywhere on or within the insulation.

The commercial form of multiple sheets of accordion aluminum is Infra Insulation Type 6. For additional information about heat and vapor, consult the U. S. Government booklet *"Insulation and Weatherproofing,"* or Infra's *"Simplified Physics of Vapor and Thermal Insulation."* Either or both sent free by Infra. Use the coupon.

THERMAL FACTORS, TYPE 6

Down-Heat C.044 R22.72 equals 7½" DRY Rockwool
Up-Heat C.08 R12.50 equals 4" DRY Rockwool
Wall-Heat C.073 R13.69 equals 4½" DRY Rockwool

VAPOR PERMEABILITY equals ZERO

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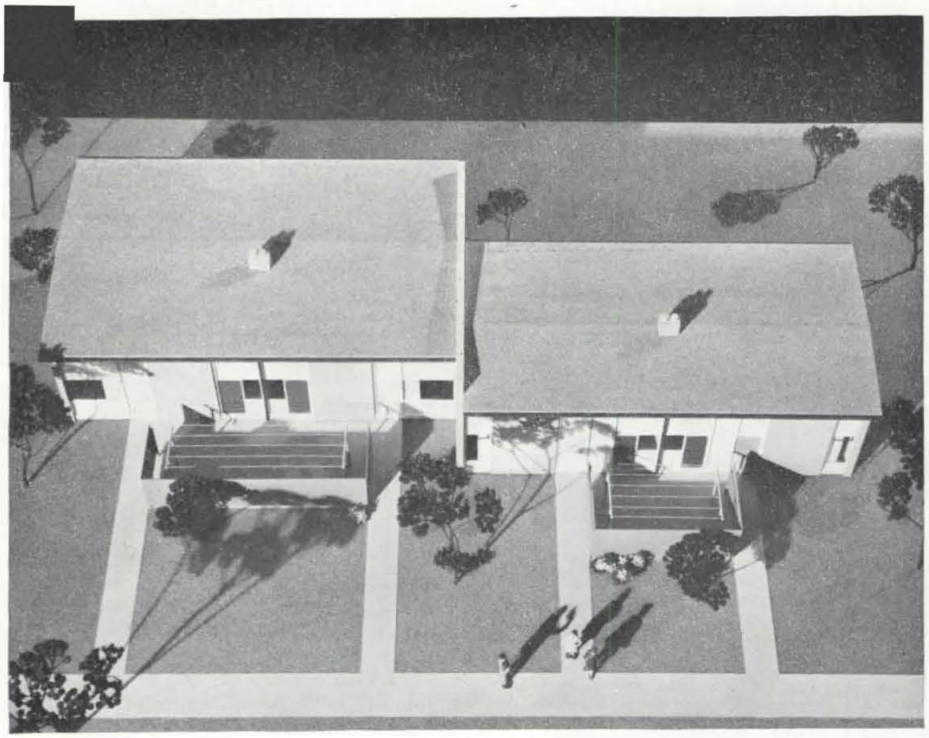
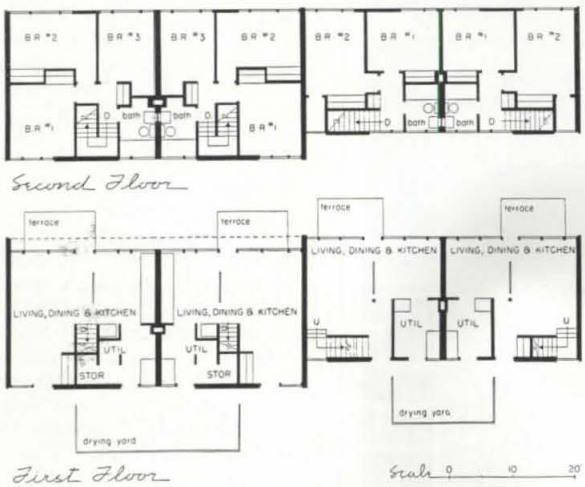
PROGRESS REPORT

low-rent housing for benton harbor, michigan





One of the best "close to earth" housing projects brought to the attention of P/A editors during a review of recent work in this field, preliminary to preparation of the featured study of Chicago's high-rise developments in this issue, is the Benton Harbor, Michigan, low-rent row-house project designed by *Leinweber, Yamasaki & Hellmuth,* architects, Detroit, with *H. E. Beyster & Associates,* associated architects and engineers; *H.W. Van Dongen,* associated architect, Benton Harbor; *L. G. Linnard,* landscape architect.

The request of the architects for a special credit to the local PHA as "interfering architects" is their reference to the difficulties surmounted before they obtained approval and were permitted to ask for bids. The first of this year, they got a favorable bid of $8500 a unit for construction costs (site improvement, streets, landscaping, and the buildings). This averages $1716 a room, which the architects believe to be the first instance of a public housing bid within the Presidential limitation of $1750 a room, since the fighting in Korea started.

Reviewing the planning and bidding stages, the architects explain:

"This is the second time that this project has been bid. The first time was in July and due to the unfavorable market conditions, prices were up about $1500 a unit. We were under a pretty severe attack by (local) public housing officials, who claimed our design was too radical and caused the high costs. Since we did not feel the costs were unreasonable, in view of the situation, we held our ground and even carried our fight to Washington. We had the help of William W. Wurster, as head of the Architectural Advisory Committee for Public Housing. Finally, John Egan, head of PHA, agreed that if we could reduce costs by increasing density, etc., he would not make us alter the design. So, without many

Pleasing residential character of the project, due to variations in the pattern of repeated elements as well as the modest scale, is evident from these views of the model and plans of one of the several unit types.

Photos: Deetjen

PROGRESS REPORT

(Continued from page 15)

changes except for adding a few more units on the site, we are able to go ahead.

"The scheme, as you can see from the plans (and the model), is based on a service-street side and a garden side. In the site plan, we have tried to orient the units east, west, and south on the garden side, as much as possible. To avoid monotony, we have offset the units. The laundry-drying areas (one for every two families) are enclosed by cedarstake fences, which have been the subject of much controversy with PHA. We went all out for these fences, because they were the crux of our scheme.

"In the plans, our endeavor was to leave the first floor as open as possible with an expanded-metal screen between the living and kitchen sections. The structure is frame throughout, with brick veneer on the end walls and on some of the panels in front. There is a masonry fire-wall for every two units.

"The color scheme will be: pink brick, wood painted white, and natural cedar fences. Doors and some window panels will be painted black, bright orange, primary blue, or primary yellow. We are using built-up roofs and flush, wood siding painted white."

NOTICES

SCHOLARSHIP

Opening of the competition for the $2,800 LeBrun Traveling Scholarship for 1951, annual nation-wide architectural competition sponsored by the New York A.I.A., has been announced.

This year's problem is the design of a "motel" with possible conversion into use as a temporary shelter for evacuees from large cities and as a medical first aid station.

The winning entrant, who must be an architect or draftsman between the ages of 23 and 30, a U.S. citizen, and nominated by a member of the A.I.A., is required to spend the prize money for a minimum of six months travel in Europe.

The jury will consist of J. BRUNO BASIL, chairman, LEOPOLD ARNAUD, ROBERT CARSON, RANDOLPH EVANS, MAURICE SALO, and THORNE SHERWOOD.

The closing date for the submission of drawings is April 30, 1951, and the winner will be announced on or about May 15. Further details may be obtained by writing the LeBrun Scholarship Committee, N.Y. Chapter A.I.A., 115 E. 40 St., New York, N.Y.

COMPETITIONS

Results of the "Competition for an Imperial Palace at Addis Ababa," in which several American architectural teams were entered, have been announced in Paris, following a 12-day jury meeting in December. First prize went to HUGO BRUNNER and HERMAN KIESS, Stuttgart; second to HENRI CHOMETTE, Paris; third to HUBERT MATUSCHEK and ANTON UBL, Gmunden, Austria. In addition, there were Honorable Mentions awarded to teams from Rome, Paris, Helsinki, and Geneva. No English or American teams placed in the final judgment. The jury has announced that the final competitors will be invited to enter another competition for the design of the palace.

(Continued on page 18)

Using **Copper** wisely in **Building Design** and **Construction**

WRITE FOR DETAIL DRAWINGS
(Numbered for A.I.A. Filing)

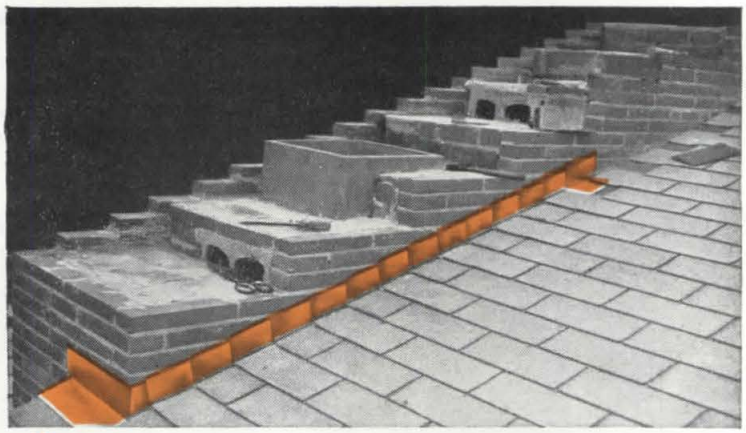
Construction details of copper flashings for this and many other types of chimney and roof designs are available on 8½" x 11" sheets convenient for filing. This is one of a series of advertisements presenting designs to illustrate how a little copper can go a long way in achieving good building construction.

Through-to-flue chimney flashing

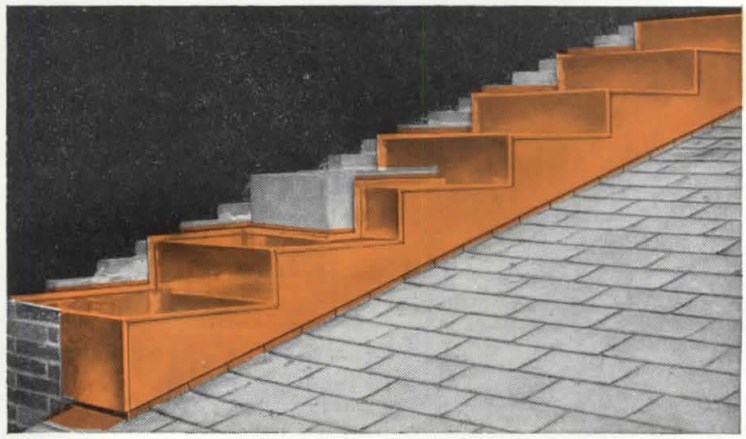
RIGHT FROM THE START this flashing design provides a permanent barrier to water which seeps or is wind-driven through the porous brick and mortar. Water reaching the through-to-flue flashing can drain in only one direction—to the roof where it belongs.

And it isn't only a big architectural chimney, as pictured, that may cause trouble and expense unless properly flashed. The small ones are just as vulnerable and leaks are just as hard to locate and repair. Guard against this on your work . . . standardize on through-to-flue design.

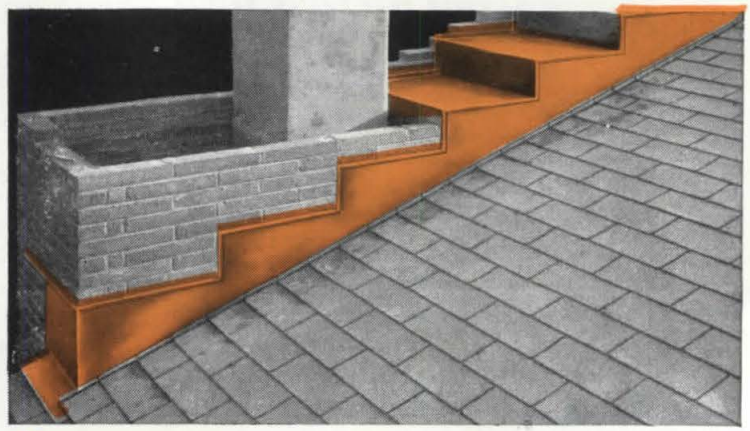
For suggestions or counsel on any problem involving sheet copper and for detail drawings of this and other uses of sheet copper in building construction, write to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 5101



1 Copper base flashing being installed. Note how flashing is interlaced with shingle courses.



2 Shop prefabricated cap flashing in position, through-to-flue.



3 Brickwork resumed. Space within will be filled with masonry rubble.

nothing serves like **ANACONDA®** **COPPER**

p/a

NOTICES

(Continued from page 16)

FELLOWSHIPS

The 20th annual consideration of candidates for the KATE NEAL KINLEY MEMORIAL FELLOWSHIP has been announced by the Committee in charge at the University of Illinois. The Fellowship yields the sum of $1000, which is to be used by the recipient toward defraying the expenses of advanced study of the Fine Arts in America or abroad.

It is open to graduates of the College of Fine and Applied Arts of the University of Illinois and to graduates of similar institutions of equal educational standing whose principal or major studies have been in *one* of the following: music, art, or architecture. Applications should reach the Committee not later than May 15, 1951. Requests for application blanks and instructions should be addressed to Dean Rexford Newcomb, College of Fine and Applied Arts, Room 110, Architecture Bldg., University of Illinois, Urbana, Ill.

A.I.A. HONOR AWARDS, 1951

All registered architects practicing professionally in the United States are invited to submit their best work completed here or abroad since January 1, 1946, for Honor Awards in three categories—residential, industrial, and hospital buildings—offered by The American Institute of Architects. Entries must be submitted on or before April 21, 1951, and the winners will be announced and entries exhibited in May at the 83rd annual A.I.A. convention at Chicago. For program and further information, address: Walter A. Taylor, Director, Department of Education and Research, The American Institute of Architects, 1741 New York Avenue, N.W., Washington 6, D. C.

LATROBE BIOGRAPHY

A biography of Benjamin Henry Latrobe, architect and engineer (1764-1820) is being written by Professor Talbot Hamlin, Avery Hall, Columbia University, New York 27, N. Y. Readers who may have letters, drawings, journals, or notes by or about Latrobe are requested to advise Professor Hamlin. He is aware, of course, of the extensive Latrobe material in the Library of Congress, the Maryland Historical Society, the Pennsylvania Historical Society, and the archives of the Diocese of Baltimore.

POOL DESIGN WINNER

ALAN M. MCHENRY, University of Illinois architectural student from Wichita, Kans., took first prize in a national swimming pool design competition sponsored by the Tile Council of America, in co-operation with the Beaux-Arts Institute of Design.

DON B. WINES, Oklahoma A & M student, won second place.

RESEARCH ASSISTANTSHIPS

The UNIVERSITY OF NORTH CAROLINA announces research assistantships in City and Regional Planning. Stipends cover tuition plus $75 a month. Qualifications are: persons holding a Bachelor's Degree in one of the design science or social science fields interested in undertaking a program toward the Master's Degree in City and Regional Planning; demonstrated ability in study and research; interest in interdisciplinary research. Inquiries should be addressed to the Department of City and Regional Planning, University of North Carolina, Chapel Hill.

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Maintenance Drops WITH TROUBLE-FREE TILE

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Ideal combination of advantages makes J-M Sanacoustic a favorite choice for institutions, offices, hospitals, schools, restaurants, etc. . . .

THE ADVANTAGES of J-M Sanacoustic Panels include fire safety, good appearance, removability, high light-reflection, ease of maintenance, and extremely high sound-absorption qualities.

As a result, millions of square feet of Sanacoustic have been installed in institutions, offices, hospitals, schools, hotels, and other places of public assembly.

Consisting of perforated metal panels backed up with a fireproof sound-absorbing element, Sanacoustic Ceilings will not burn, rot, or disintegrate. They may be applied over new or existing construction.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units. Write for our brochure, "Sound Control." Johns-Manville, Box 158, Dept. MB, New York 16, N.Y.

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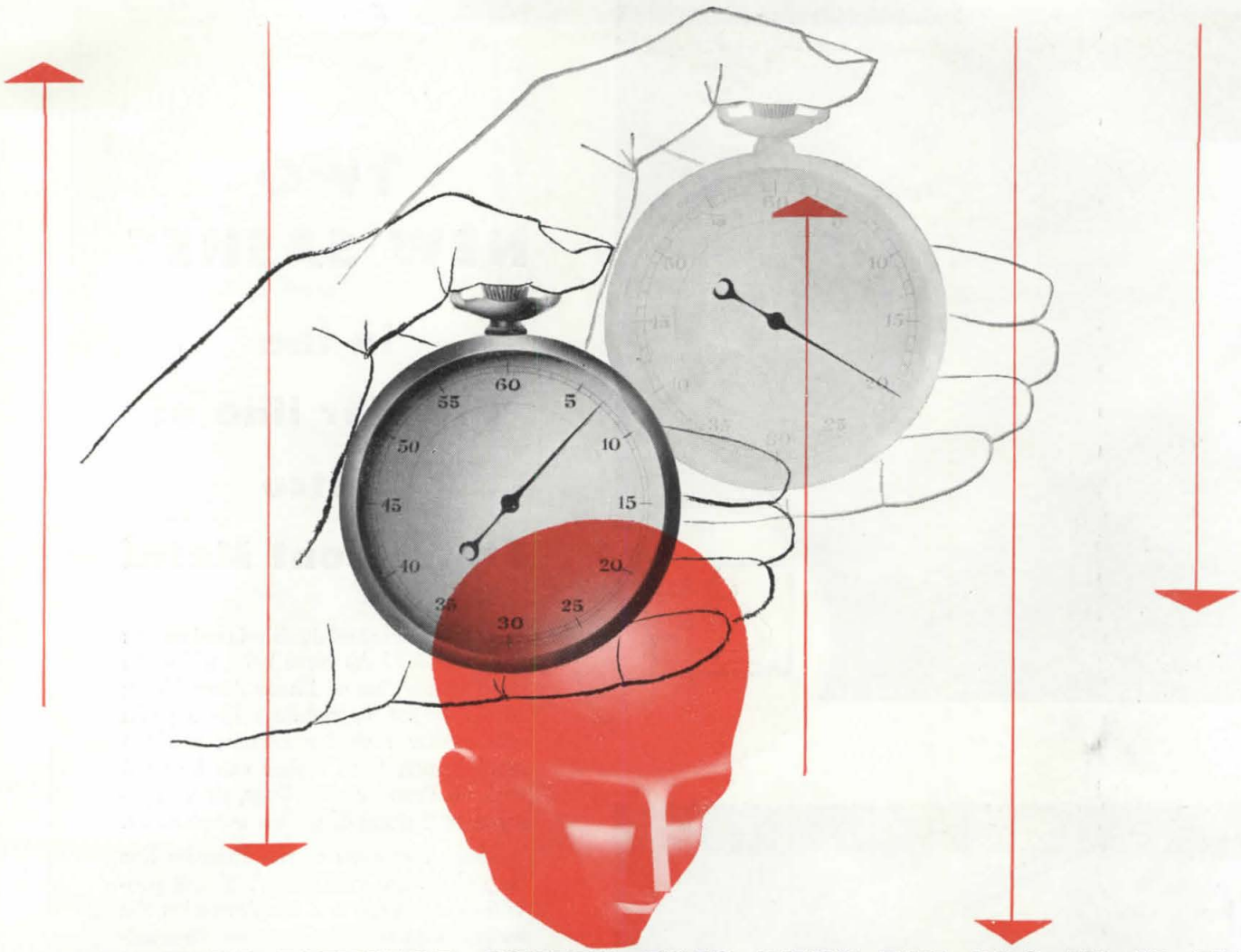

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When you time Selectomatic's "running time," you see what fast service really means. For instance, in one Selectomatic installation this fabulous system gets 900 people out at night in 15 minutes *flat!* (25% faster than in pre-Selectomatic days.)* And it's done with fewer cars—an investment factor worth considering.

All over the country, in new-building and modernization jobs, the wise money is riding on Selectomatic. So, if you're thinking about an elevator investment . . . *test ride Selectomatic before you decide.* Notice how you speed from floor to floor. See how Selectomatic always stops exactly level with each floor . . . never wastes time releveling.

Write us today for the names of Selectomatic installations you can "test-ride" in your locality. Westinghouse Electric Corporation, Elevator Division, Dept. E-1 Jersey City, N. J.

*Facts given on request.

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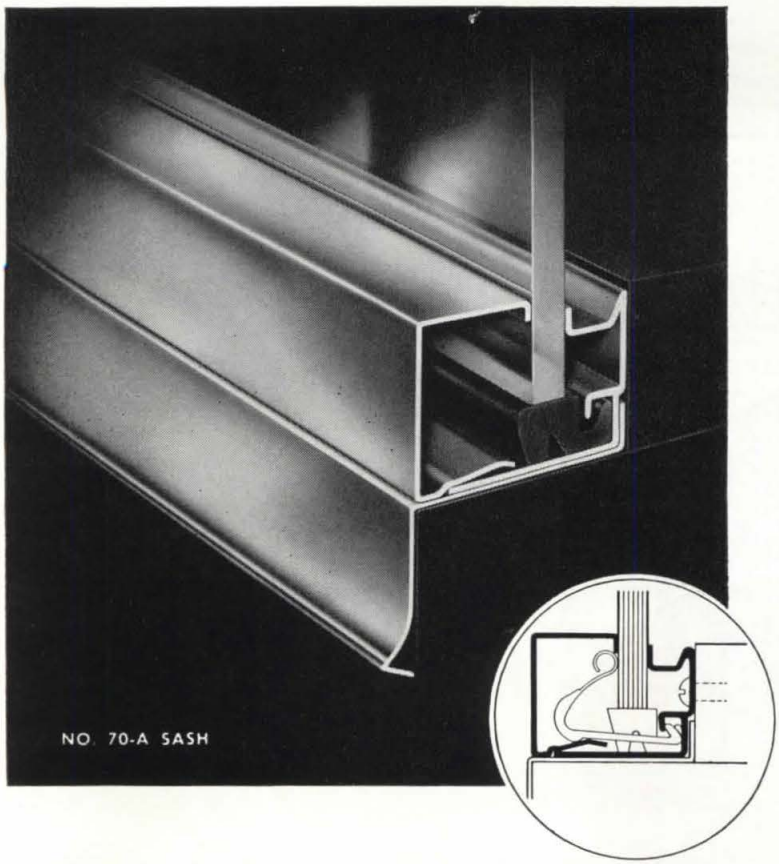

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in the Premier line of Pittco Store Front Metal

● These single and double-faced sashes (70-A and 72-A) have been added to the Premier line of Pittco Store Front Metal to satisfy requests for a plain rectangular sash for certain modern store fronts. Both sashes can be used with all Premier mouldings, thus offering a multitude of design possibilities.

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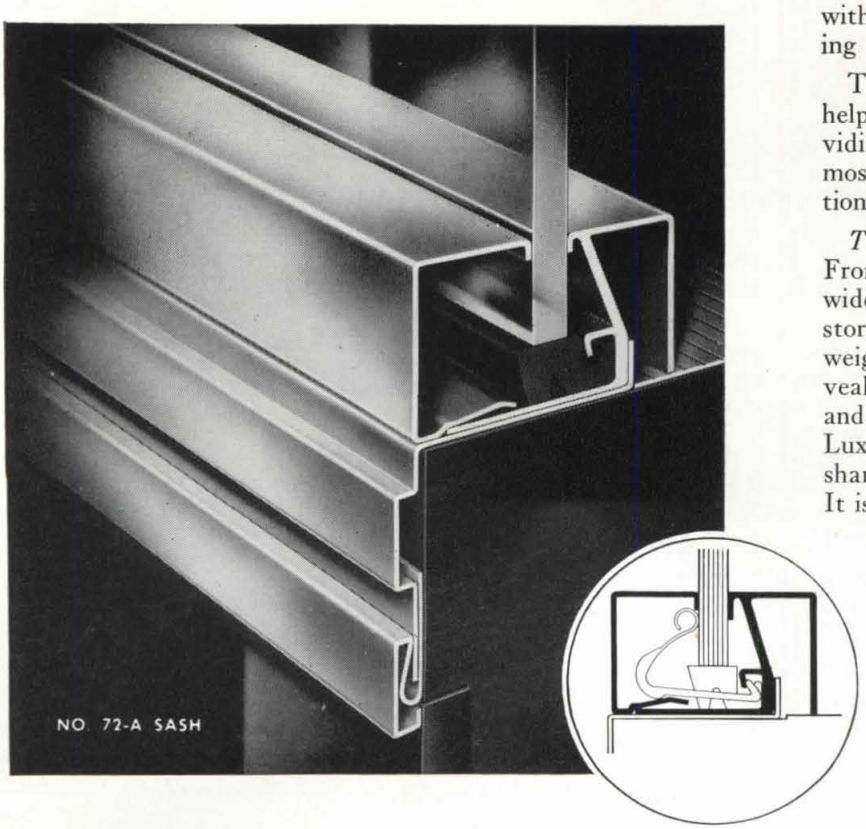

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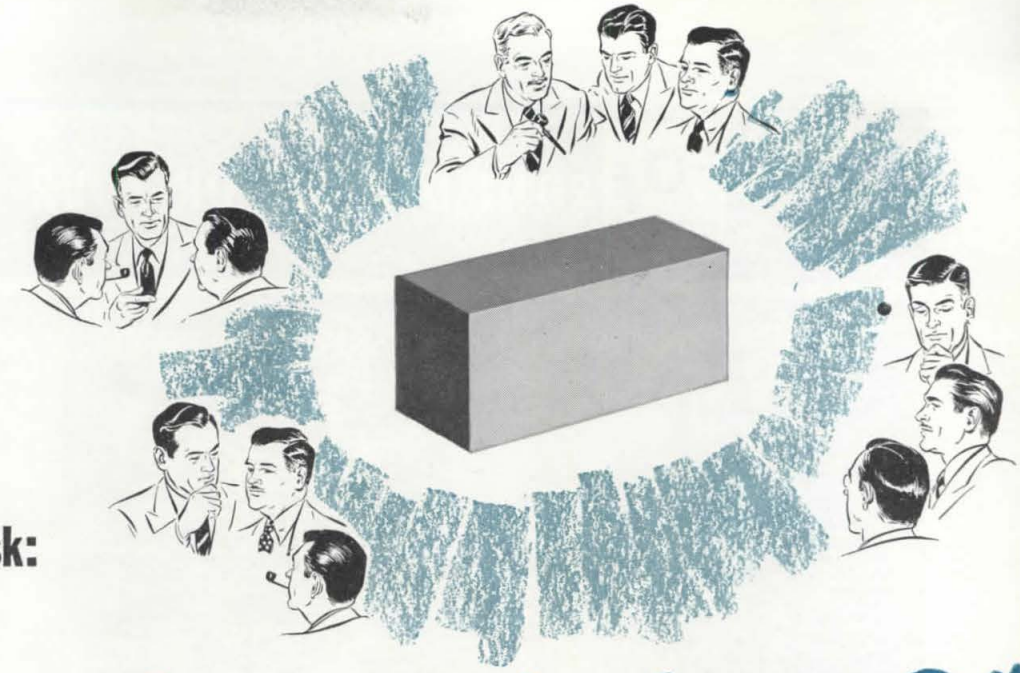

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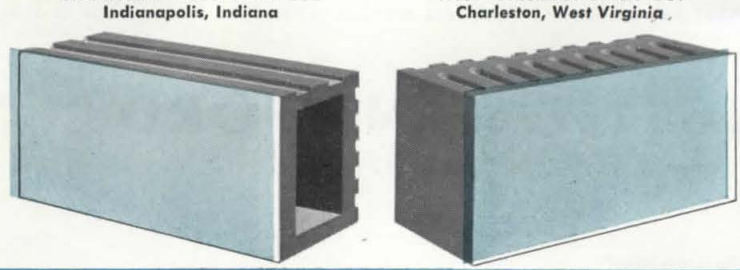

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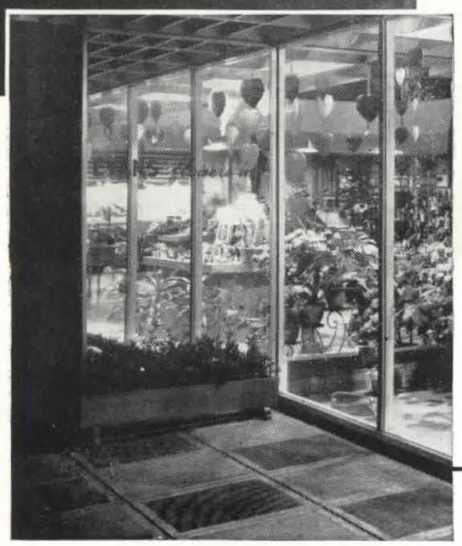

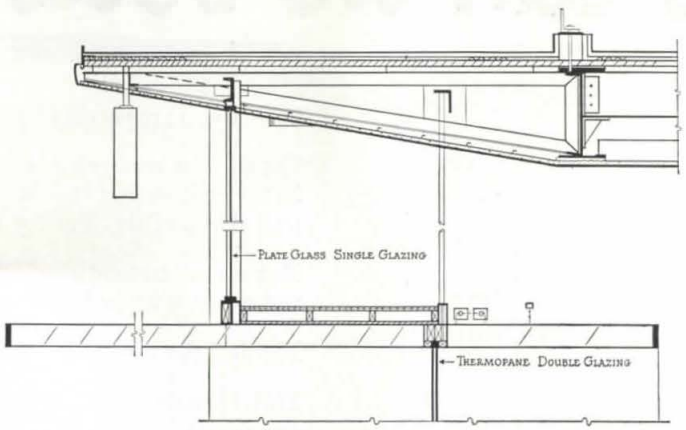

DETAIL OF CANOPY

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.

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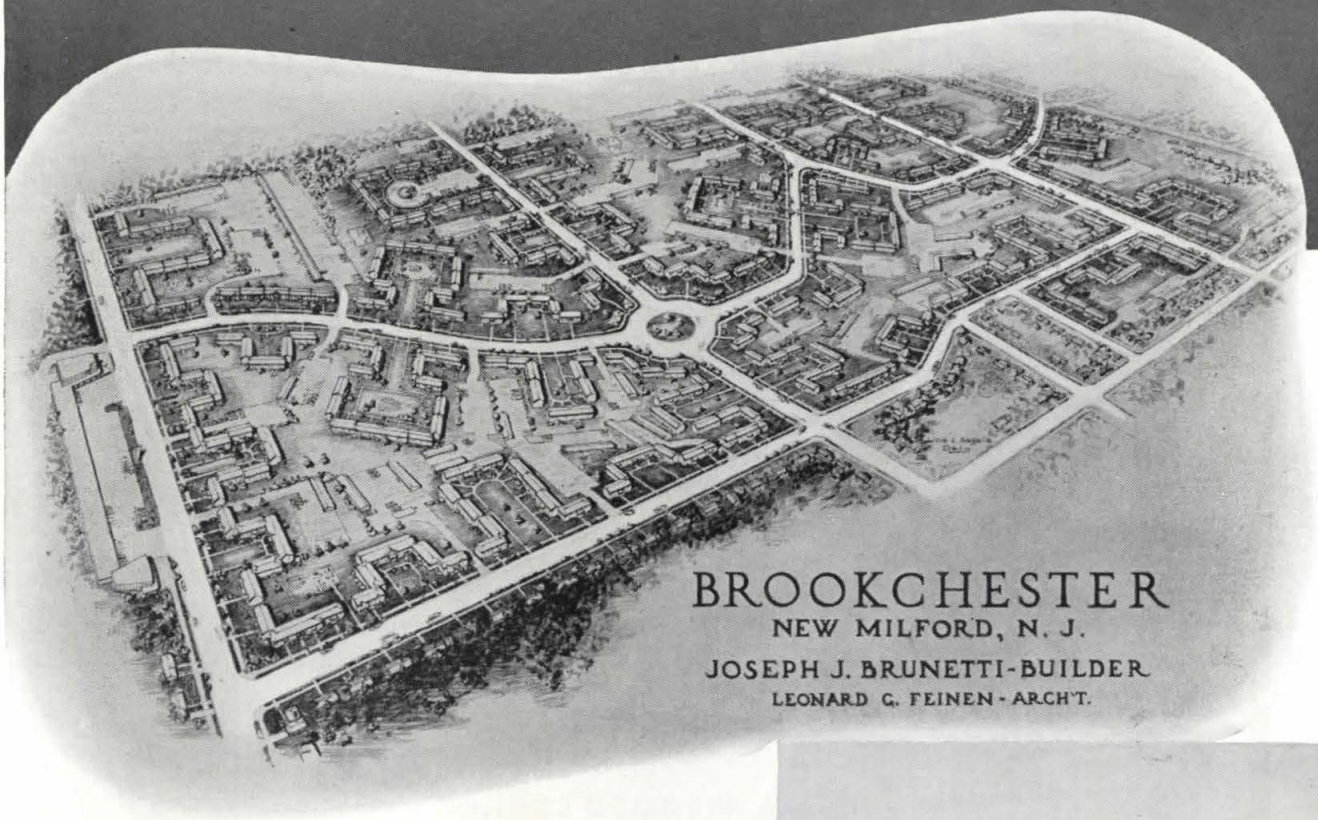
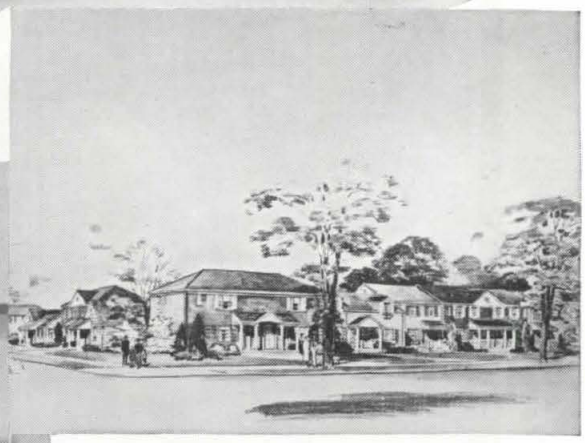
Servel's lower upkeep





ABOVE is the Brookchester development at New Milford, N. J., where 2000 Servels are being installed. Another 2000 Servels are being installed in the modern garden apartments at Richfield Village, Clifton, N. J.

LEFT: New Servel Gas Refrigerator in a typical kitchen of a 3-room apartment at Richfield Village and Brookchester.

cost important reason for 4000 unit order

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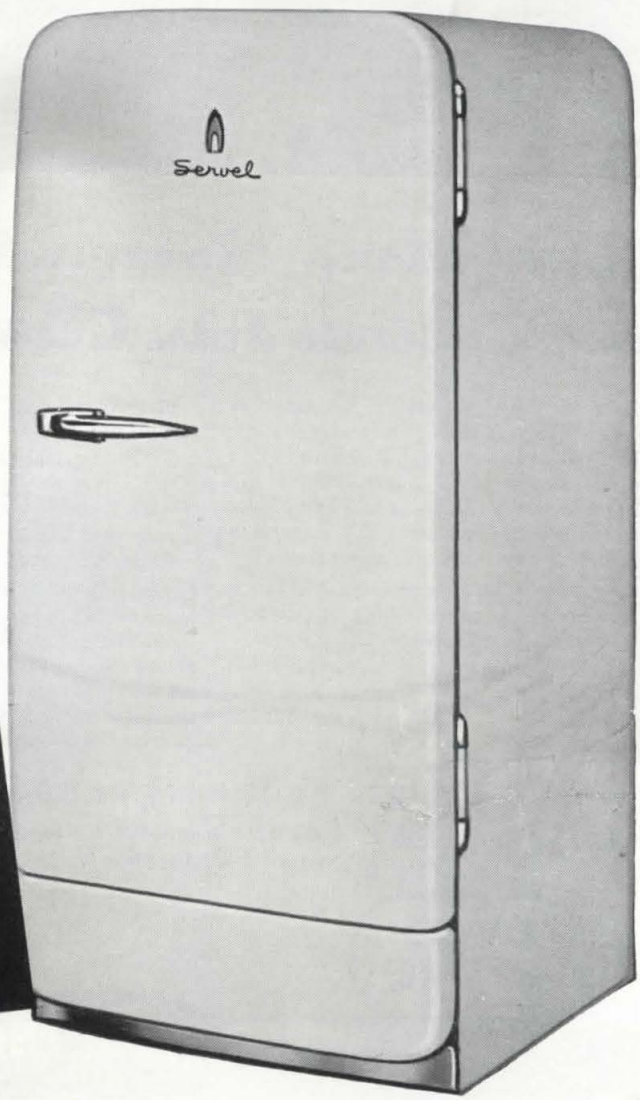
When builder Joseph J. Brunetti ordered 2000 Servels for each of his new Brookchester and Richfield Village developments, it was the largest single refrigerator order ever placed in New Jersey.

Servel was chosen for many reasons. Its year-in, year-out dependability . . . handsome design . . . famous silence—and particularly because of its remarkably low maintenance cost. This rock-bottom cost of upkeep has been proved time and time again in multiple-housing projects all over the country. It is the result of Servel's *basically different* principle of operation . . . its motorless freezing system. Just a tiny gas flame does all the work. There are no moving parts to wear, grow noisy, require replacement. That's why *only* Servel *stays silent, lasts longer* . . . provides year after year of matchless efficiency and worry-free service.

For full details consult Sweet's catalogue or write to Servel, Inc., Dept. A-13, Evansville 20, Ind.



Servel
The GAS Refrigerator

Save Men...Money...Material *with* Concrete Joist Construction

In these days of critical shortages—when men and money and material must be used to the very fullest, there is one method of building that truly meets the need on every count—it's Ceco's Meyer steelform construction. For here is a building way that saves as it serves:

Saves men because less time and labor are required in providing open wood centering and form work.

Saves money because less concrete is used . . . the dead load is kept at a minimum . . . less lumber is needed . . . and since removable steelforms can be used over and over again, only a nominal rental fee is charged.

Saves material because only a minimum of critically short steel is needed—and even here less concrete is necessary than required by other concrete floor constructions.

Ceco originated the removable steelform method of concrete joist construction. The company is first in the field—actually providing more services than all competitors combined. So, when concrete joist construction fits the need, call on Ceco . . . the leader over all.

SCHOOLS—Safe, low-cost construction is assured: concrete is kept at the minimum required for the live load. Saving in dead load reduces costs throughout the structure.

CONCRETE JOISTS eliminate much of the concrete below the neutral axis, saving money, saving material. Suited to buildings with long spans: stores, offices, apartments, hotels.

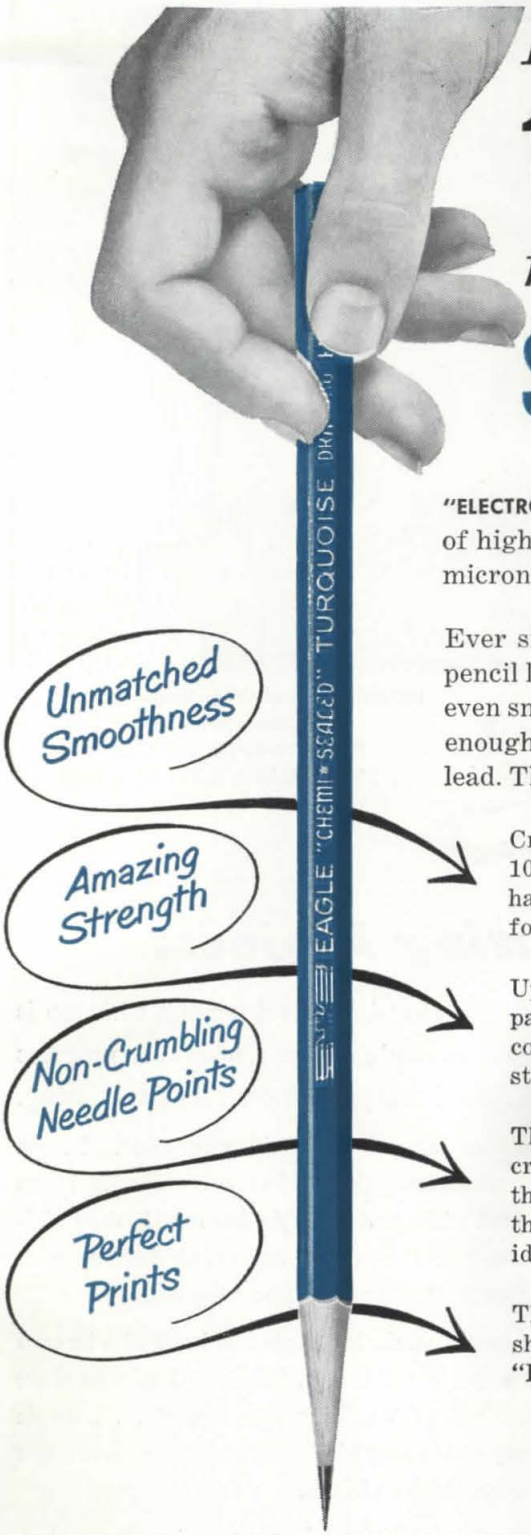
CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

CECO STEEL ®

In construction products **CECO ENGINEERING** *makes the big difference*



Here's why

100% "Electronic" Graphite

makes the new Turquoise

Serve You Still Better

"ELECTRONIC" is Eagle's trade name for a blend of crystalline graphites of highest purity from Madagascar and Ceylon, reduced to particles of micronic fineness in our patented Attrition Mill.

Ever since we tested our first pound of "Electronic" graphite in fine pencil leads and found how much they were improved by the addition of even small amounts, we have planned for the day when we could process enough of this super-graphite to use it 100% in every TURQUOISE lead. That day has come! Here's what it means on your drafting board:

Crystalline graphite is nature's perfect lubricant. Leads made with it 100% have a frictionless, smooth-gliding quality impossible in leads having the usual content of amorphous graphite which contains harsh foreign materials.

Upon reduction, the graphite crystals break down into microscopic particles of infinitely varied, close-interlocking shapes. The clay binder completes an extremely dense ceramic structure . . . the strongest lead structure ever achieved.

The particles of "Electronic" graphite are so fine that millions more crowd into the air spaces in the lead, producing a richer, tighter lead that deposits more particles, more evenly, at every stroke. That's why the new TURQUOISE lead holds a needle point better than ever and is ideal for long, even lines.

The finer the particles of crystalline graphite, the blacker, denser and sharper is the line deposited on the paper. Drawings made with 100% "Electronic" graphite reproduce to perfection.

PROVE IT YOURSELF
Order TURQUOISE today from your dealer. Or write us for a sample in any degree you desire.

EAGLE PENCIL COMPANY
NEW YORK • LONDON • TORONTO

*®

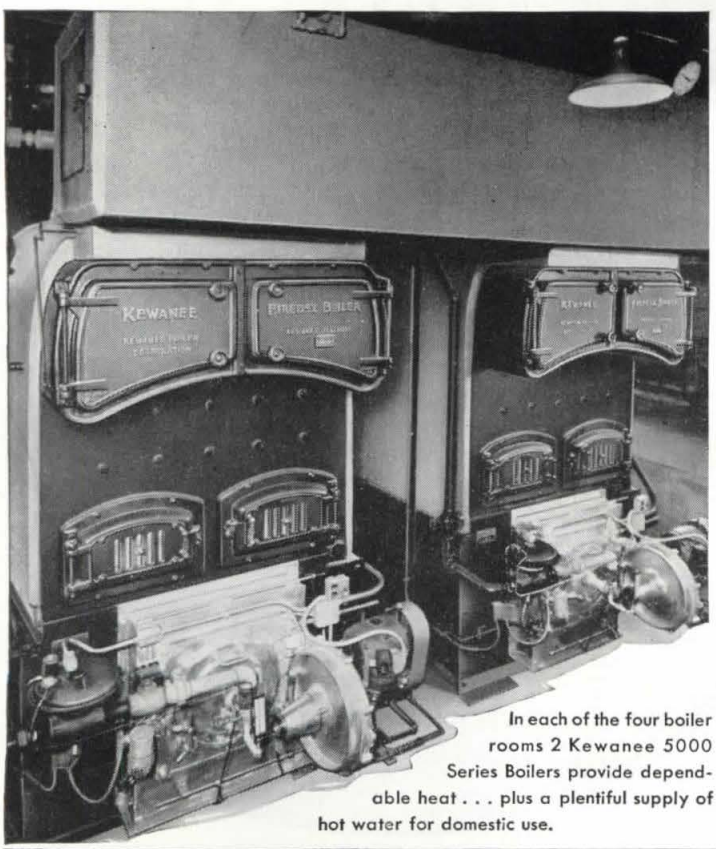
EAGLE
*"CHEMI-SEALED" SUPER BONDED
*TURQUOISE
DRAWING PENCILS AND LEADS

WITH 100% *"ELECTRONIC" GRAPHITE

Dearborn Homes, Chicago Housing Authority—
Loebl, Schlossman & Bennett, Architects;
Robert Gordon, Inc., Heating Contractor;
Samuel R. Lewis & Associates, Mech. Eng.

KEWANEE
STEEL BOILERS

Cut Heating Costs in Housing Projects



In each of the four boiler rooms 2 Kewanee 5000 Series Boilers provide dependable heat . . . plus a plentiful supply of hot water for domestic use.

The Dearborn Housing Development, Chicago is an excellent example of the remarkable progress being made in "homey," economical mass housing.

Built in four separate units with one, two and three bedroom apartments, the project accommodates 800 families. And, *although designed for low rentals*, the buildings include such refinements as modern heating with wall hung convectors and fin type radiators.

Each of the four units is complete in itself with its own boiler room in which *2 Oil Fired Kewanee Boilers* produce heat at the rate of 7 million Btu hourly . . . ample capacity to provide heat plus an abundance of hot water for kitchen, laundry and bath.

Because of their long standing reputation for producing heat economically, Kewanee Boilers were the logical choice for Dearborn Homes as they are for many other important housing projects throughout America.

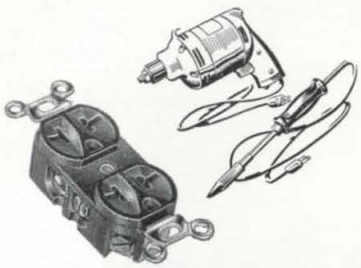
KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS
Eastern District Office: 40 West 40th Street, New York City 18
Division of American Radiator & Standard Sanitary Corporation

BUILDING BETTER BOILERS OVER 80 YEARS

Serving home and industry

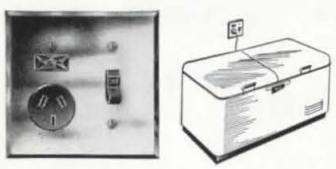
AMERICAN-STANDARD · AMERICAN BLOWER · CHURCH SEATS · DETROIT LUBRICATOR · KEWANEE BOILERS · ROSS HEATER · TONAWANDA IRON

Basics for Basement Living



DUPLEX RECEPTACLES

3-wire — 2-wire grounding type duplex convenience outlet for safe grounding of exposed metal parts of portable appliances, etc.

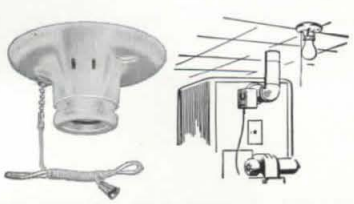


APPLIANCE OUTLETS

Rugged, heavy-duty 2-gang units include switch, 2- or 3-wire grounding type receptacle, and warning light. Excellent appliance receptacles for basement.

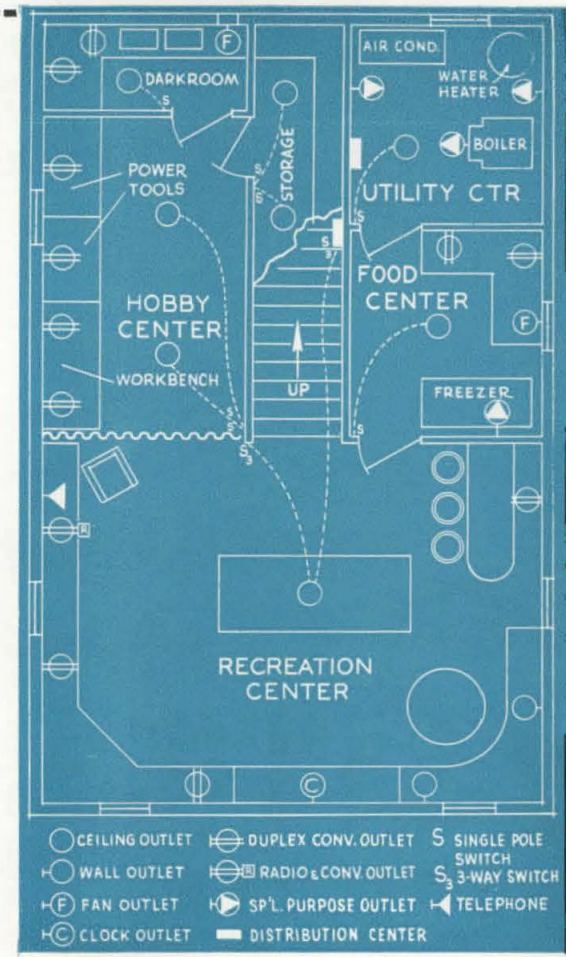
SERVICE EQUIPMENT

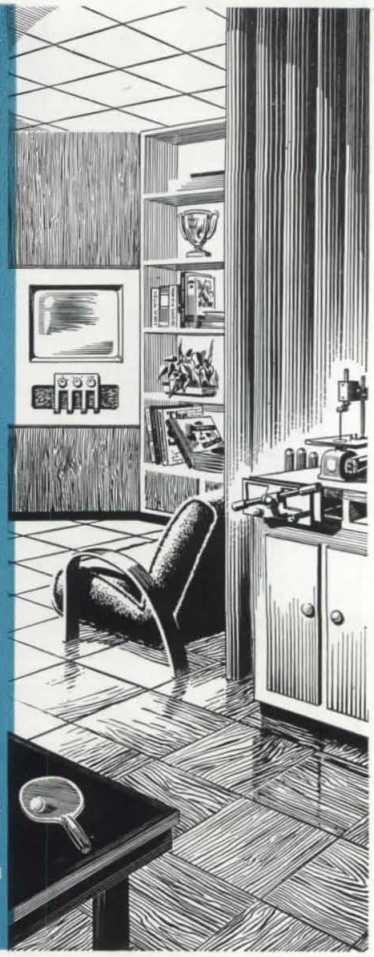
Pull-out type or front operated enclosed switches are quality-made, highly dependable units. Positive acting mechanisms protect the home owner. Pull-out types available for main and range with 4, 6 or 8 branch circuits — surface or flush



PORCELAIN RECEPTACLES

Outlet box, porcelain pull receptacles with shadeholder grooves, and with or without convenience outlets, should be part of your basic basement plans. Put them near heating plant, air conditioning unit, work bench, etc.





PLAN A BASIC BASEMENT TO MEET TOMORROW'S NEEDS

Build for Better Living

WITH H & H WIRING DEVICES

Today's living calls for adequate wiring, and adequate wiring devices; and it calls for an eye to ***tomorrow's*** living. Today's people are thinking about the future—about color TV, home freezers, radiant heating, air conditioning, luxury living out-of-doors, etc. Your planning can contribute much to making that future complete, more livable electrically.

The H&H line of wiring devices can help you on that score. You'll find all the fundamental devices in our catalog. More important, you'll find dozens of special, unique switches and outlets — units that will fire your imagination, solve a special problem, or fulfill a certain client's individual requirements. And the H&H line meets every specification for adequate wiring. Incorporate these smart, modern, dependable wiring devices in your plans.

For more information, write today to: 2304 Laurel St., Hartford 6, Conn.
Send for idea-provoking booklet "Electrical Planning in the Home."

QUALITY-MINDED ARCHITECTS SPECIFY

HART H & H HEGEMAN DIVISION

WIRING DEVICES

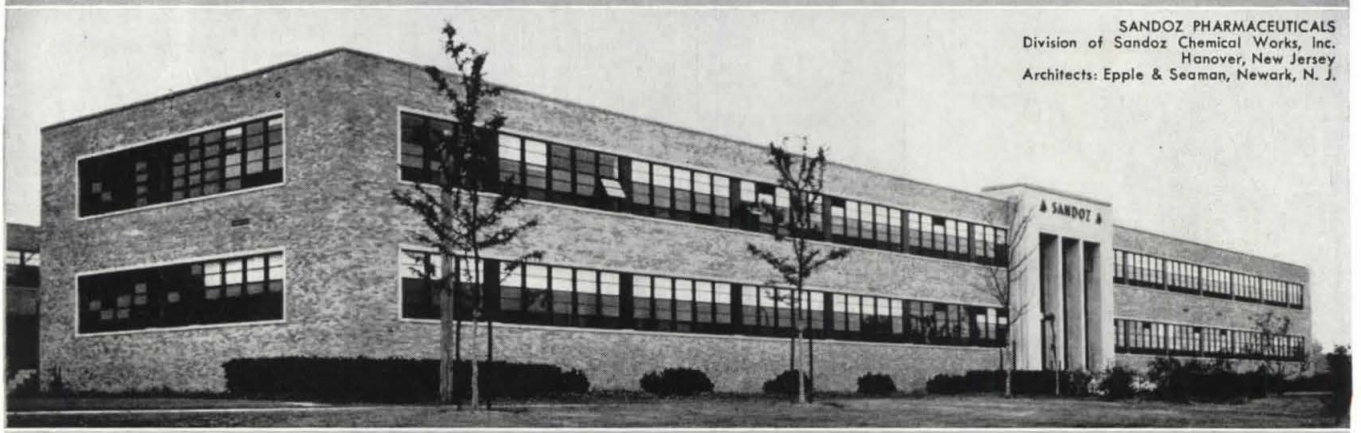
ENCLOSED SWITCHES

THE ARROW-HART & HEGEMAN ELECTRIC COMPANY
HARTFORD, CONNECTICUT

Branches in: Boston, Chicago, Cleveland, Cincinnati, Dallas, Denver, Detroit, Los Angeles, New York, Philadelphia, San Francisco, Syracuse. In Canada: Arrow-Hart & Hegeman (Canada) Ltd., Mt. Dennis, Toronto.

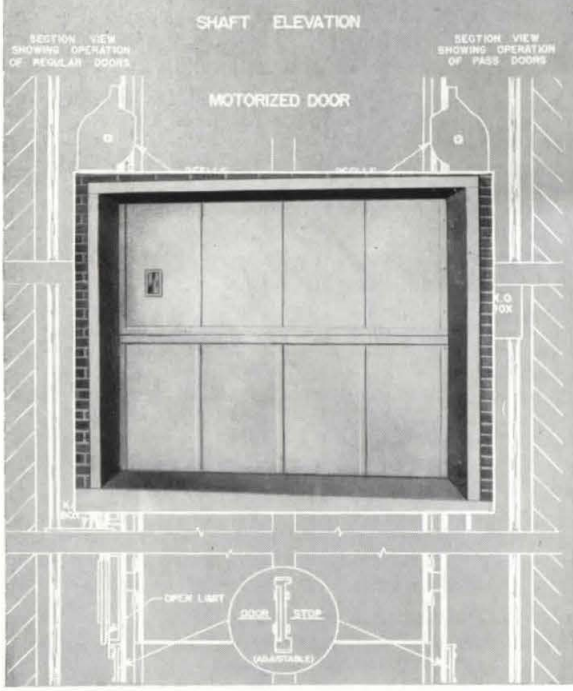
5 PEELLE MOTORIZED FREIGHT ELEVATOR DOORS

INSTALLED IN THIS MODERN PHARMACEUTICAL PLANT



SANDOZ PHARMACEUTICALS
Division of Sandoz Chemical Works, Inc.
Hanover, New Jersey
Architects: Epple & Seaman, Newark, N. J.

because they handle peak loads with maximum efficiency and minimum maintenance



Peelle Counterbalanced Motorized Doors increase the carrying capacity of freight elevators as much as 20%. When peak load demands would tax the physical capacity of a manual operator, Peelle Motorized Doors and Peelle Vertical Sliding Car Gates open and close in one fourth the time of manually operated doors. This eliminates costly bottlenecks in busy plants, yet the cost of motorizing is but a small percentage of the total investment.

It is no mere chance that Peelle Motorized Freight Doors are being installed in so many modern plants. The Peelle Company has pioneered motorized doors for many years and has originated many major improvements which add to the safety and efficient operation of these doors.

Peelle Motorized Freight Elevator Doors assure safe, smooth operation and reliable performance. These doors are approved by the Underwriters' Laboratories and the Factory Mutual Insurance Companies. They *always* carry the U. L. Seal.

Write us about suggestions or complete specifications. Peelle Engineers will help you solve your door problems.

"it's PEELLE *engineered*"

BETTER-ENGINEERED PRODUCTS FOR MORE THAN 45 YEARS

SEE OUR CATALOG IN SWEET'S

THE PEELLE COMPANY
47 STEWART AVENUE, BROOKLYN 6, N. Y.
Offices in principal cities

PEELLE MOTORSTAIRS • FREIGHT ELEVATOR DOORS • DUMBWAITER DOORS • INDUSTRIAL DOORS

sell the BRIGGS *plan . . .*

Beautyware

and you'll sell 2 *bathrooms in every home!*

A BIG NATIONAL ADVERTISING PROGRAM BY BRIGGS WILL MEAN MORE BUSINESS FOR YOU!

Briggs Beautyware is out to make "Mr. Average Homebuyer" two-bathroom conscious! With a complete program of colorful advertisements in national publications, Briggs is building buyer-preference for its colored fixtures—building more business for the man who follows the Two-Bathroom Plan!

BRIGGS started the idea!

BRIGGS is promoting the idea!

BRIGGS is selling the idea!

Today's homebuyer is a bargain hunter! He's looking for something *new* and distinctive—something that will take the home he buys out of the "ordinary" class—yet keep it within his budget!

Install *two* bathrooms of colorful Briggs Beautyware in every home you build—add a star attraction that will help you sell more homes faster! Don't overlook the big economies of "back-to-back" installations where the same rough piping serves both bathrooms and the savings you can make by installing one bathroom over the other in two-story houses. What's more, your homes can have the extra appeal of Briggs Beautyware colored fixtures *for only* 10% more than white!*

You'll find it will *pay* to capitalize on the Briggs Two-Bathroom plan! Install *two* bathrooms of colorful Briggs Beautyware in *every* home you build!

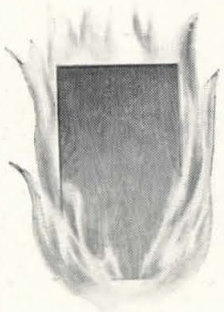
**10% extra charge for colored ware applies to complete sets including brass fittings.*

BRIGGS MANUFACTURING CO., 3001 MILLER AVE., DETROIT 11, MICH.

Roddiscraft Solid Core Flush Veneered Doors

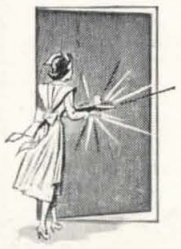
An Institution with Institutions

For nearly two generations Roddiscraft Doors have been standard equipment in hospitals, schools, hotels, churches and other institutions. Roddiscraft standard construction incorporates all the features demanded by institutional installations — fire protection, sound resistance, ability to take rough treatment. Roddiscraft standard 5-ply construction — core, crossbandings and faces welded into a single unit — builds in all the strength and stability of plywood construction.



SAFE — Standard 1-3/4" construction withstands independently conducted fire tests in excess of 40 minutes.

SILENT—Standard 1-3/4" construction develops a sound transmission loss of 30.9 decibels.



STURDY — Solid core and strong 1/10" crossbandings give complete support to the faces — absorb shock.

WATERPROOF—Two complete waterproof glue lines deny entrance to moisture.

Standard Thickness Face Veneers* Out-Look and Out-Last Thick Veneers

The thinner the face veneer, the less wood exposed outside the waterproof glue line. That's a self-evident fact — and that's why Roddiscraft Standard Thickness Face Veneers — *1/28" for most woods — are best. Exposure tests show checking patterns become coarser and more conspicuous as the face thickness increases. Thin veneers also permit better matching, are more resistant to abuse because of the tough hardwood crossbandings to which they are inseparably bonded.

Roddiscraft construction utilizes 1/10" thick hardwood crossbandings . . . sure protection against core pattern showing through face veneers after finishing.

FOR SPECIAL INSTALLATIONS

FLUSH VENEERED FIRE DOORS FOR INTERIOR USE...

Advanced safety features that guard life and property are built into Roddiscraft Protex Doors. That's why these doors are so often specified in plans for hospitals, hotels, schools and apartment buildings. They are built to withstand the 60-minute fire test, including the hose stream test. Independent laboratories show they have a safety margin well above the prescribed minimum. Identical in appearance to other Roddiscraft Flush Doors.

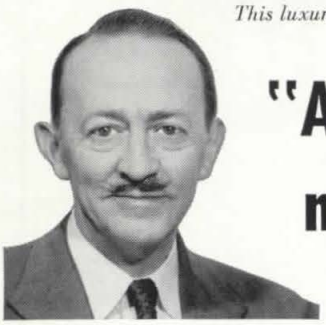
FLUSH VENEERED DOORS FOR X-RAY PROTECTION...

The Roddiscraft X-Ray Door matches regular Roddiscraft Flush Doors in appearance. It is equipped with a continuous sheet of lead set midway between a divided wood core. Otherwise, it is identical in all respects to the Roddiscraft Solid Core Door. Roddiscraft X-Ray Doors are manufactured only on special order. Any thickness of lead may be specified, according to the amount of protection required.

Roddiscraft
RODDIS PLYWOOD CORPORATION
MARSHFIELD, WISCONSIN

NATIONWIDE Roddiscraft WAREHOUSE SERVICE
Cambridge, Mass. • Charlotte, N. C. • Chicago, Ill. • Cincinnati, Ohio • Dallas, Texas • Detroit, Michigan • Houston, Texas • Kansas City, Kan. • New Hyde Park, L. I., N. Y. • Los Angeles, Calif. • Louisville, Ky. • Marshfield, Wis. • Milwaukee, Wis. • New York, N. Y. • Port Newark, N. J. • Philadelphia, Pa. • St. Louis, Mo. • San Antonio, Texas • San Francisco, Calif.

This luxurious home is typical of many designed by Mr. Burrows that include the Heatilator Fireplace.



"A Heatilator Fireplace makes *any* home more comfortable!"

says **GEORGE H. BURROWS,** *prominent Cleveland Architect*

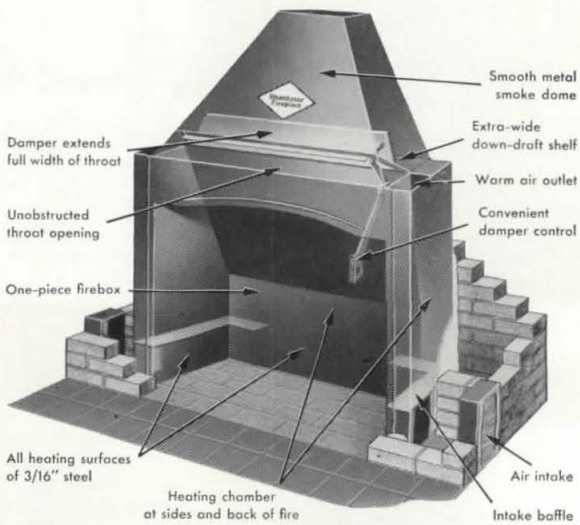
"WHETHER a home costs $10,000 or $100,000," says Mr. Burrows," a Heatilator* Fireplace will make it more comfortable!" The designer of many of Cleveland's most palatial suburban homes, Mr. Burrows knows that the Heatilator unit simplifies construction, eliminates smoking, and circulates heat to warm the entire room instead of wasting it up the chimney.

NO LIMIT TO DESIGN

"There's no restriction on mantel design or use of materials," says Mr. Burrows. The Heatilator unit is a scientifically designed, heavy-gauge steel form, complete from hearth to flue, around which any style fireplace can be built.

WILL NOT SMOKE

The Heatilator Fireplace is factory-engineered to draw properly. It will not smoke. Cuts construction supervision time to a minimum. It was the first practical method of circulating fireplace heat for room-wide warmth . . . has been proved by use in thousands of homes for 24 years. The name "Heatilator" is on both the dome and the damper handle. Write today for a catalog giving complete specifications and illustrations. Heatilator, Inc., 924 E. Brighton Ave., Syracuse 5, N. Y.



*Heatilator is the registered trademark of Heatilator, Inc.

HEATILATOR *America's Leading* FIREPLACE

T.M. REG. U.S. PAT. OFF.

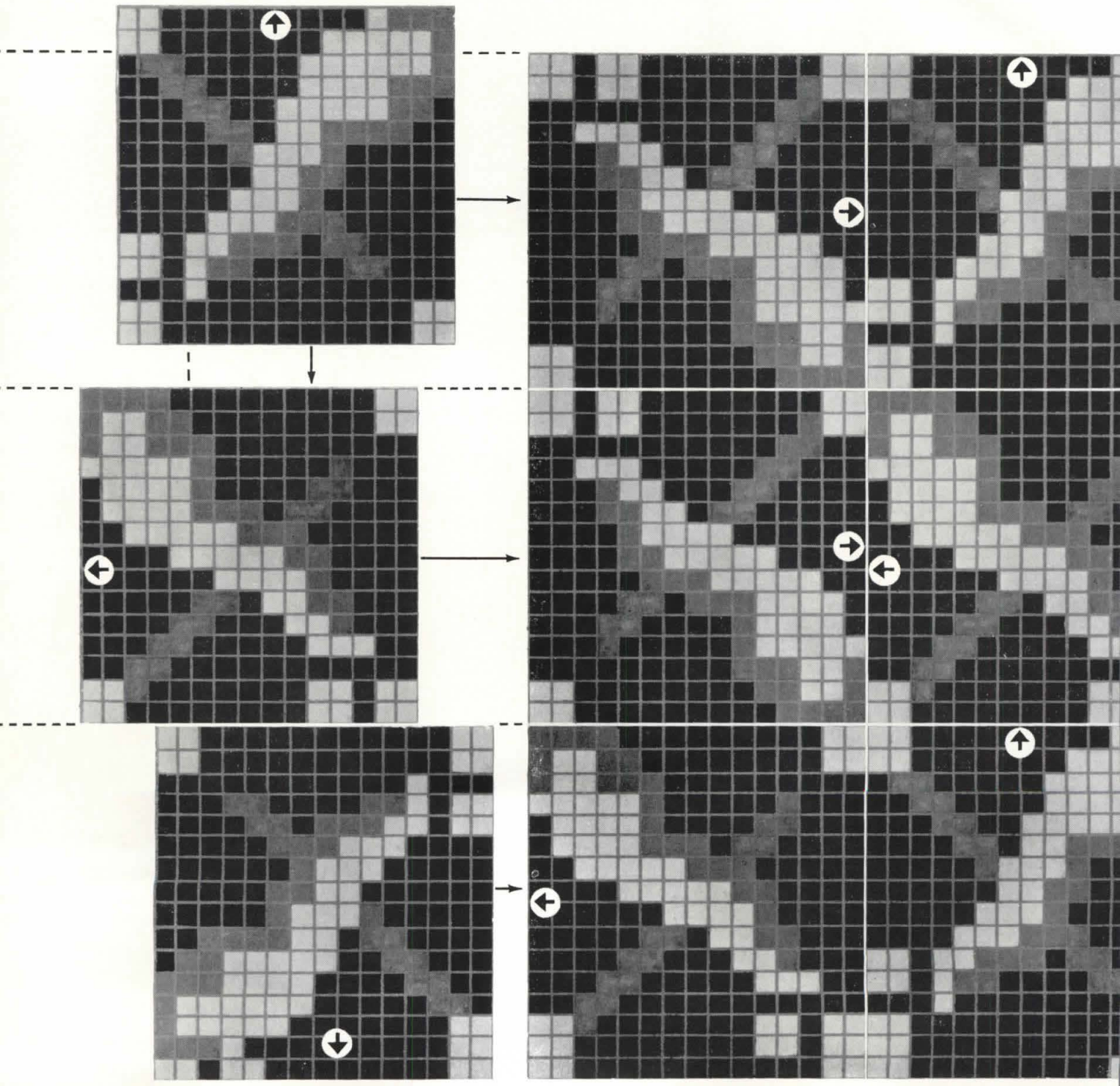
presenting ... a brilliant design contribut

Mosaic Tile's new copyrigh

Here are new opportunities to employ the age-old beauty and durability of Mosaic Tile on both floors and walls.

Mosaic's *Formfree Patterns* are especially suited for large areas because of the freedom of their design. Surfaces commonly served by less colorful materials may now be treated in a new and extremely effective manner. In building entrances, corridors, galleries, show rooms, for example, *Formfree Patterns* may furnish just the effect you wish for either walls or floors or both.

The random application of Mosaic *Formfree Patterns* is clearly illustrated here. The overall design is formed in no pre-arranged manner. The tile sheets have no actual top or bottom. We have selected an arbitrary "top" for each sheet and designate it with the symbol ⊕ to enable you to follow easily, the random application. Sheets for this pattern are 12″ x 12″.



floor and wall areas!

Formfree patterns"

Formfree Patterns, exclusive with Mosaic, are made up of ¾" tiles, mounted on sheets approximately 12" x 12" or 12" x 24". Each sheet is an independent unit, so designed that it may be placed adjacent to any other sheet at *random*. This new, copyrighted design idea speeds up the installation of Mosaic Tile. The tile setter follows no design plan; a surface is installed as fast as the tile sheets can be set in place. Color preference is easily satisfied with *Formfree Patterns*. They can be made up in any desired color combination, selected from Mosaic's famous Harmonitone Line.

Two other new Mosaic *Formfree Patterns* - - - available in any color combination desired.

With the introduction of *Formfree Patterns*, The Mosaic Tile Company makes available a design device which widens greatly the use of Mosaic Tile in large vertical, as well as horizontal areas.

Color selection for *Formfree* is virtually unlimited. In Mosaic's Harmonitone line, there are twenty-four modern colors from which to choose.

Mosaic will be happy to answer your questions on *Formfree* and on other Mosaic Tile designs and products. Write for your copy of "Floors of Ceramic Mosaic Tile," a new 16-page booklet in full color. Please address Dept. 28-2. The Mosaic Tile Company, Zanesville, Ohio.

MOSAIC

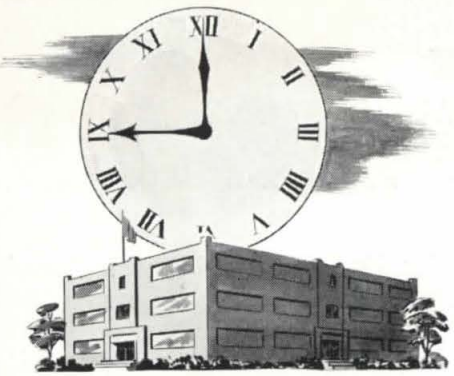
THE MOSAIC TILE COMPANY

(Member — Tile Council of America)

GENERAL OFFICES: ZANESVILLE, OHIO • WAREHOUSES AND OFFICI
IN PRINCIPAL CITIES • OVER 4000 TILE CONTRACTORS TO SERVE YO

Formfree Patterns
Patent Pending

AUTH SYSTEMS FOR THE SCHOOL



CLOCK AND PROGRAM BELL
FIRE ALARM • INTERIOR TELEPHONE • MISCELLANEOUS SIGNAL

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

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

Auth Fire Alarm Systems are approved by the Underwriters' Laboratories whose requirements generally form the basis for local regulations.

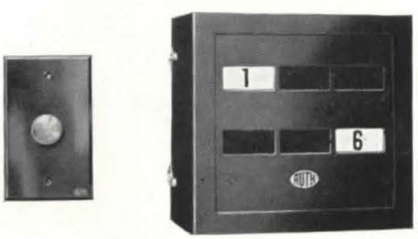
Auth Interior Telephone Systems provide the same kind of quick and reliable communication as the public telephone system.

For many years the Boards of Education of the City of New York and numerous other municipalities have installed Auth systems. *Dependability is the reason.*

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

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

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



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

Literature is available describing these and other Auth products and systems.

Complete Systems • One Responsibility

MANUFACTURERS OF

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

SINCE 1892

AUTH ELECTRIC COMPANY, INC.

34-20 45TH ST., LONG ISLAND CITY 1, NEW YORK.

Hospital Traffic Flows Quietly

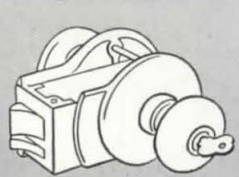
through doors equipped with Corbin Hardware

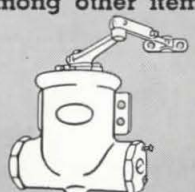
Mount St. Mary Hospital
Nelsonville: *Ohio*
Architect: *Louis F. Karlsberger, Columbus*
Contractor: *Knowlton Construction Co., Bellefontaine*
Hardware supplied by: *Columbus Hardware Supplies, Inc., Columbus*

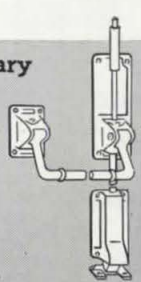
HOSPITAL ZONE—QUIET is a warning that has been taken to heart in the manufacture of Corbin Hardware. In function, Corbin Hardware meets all of the specialized needs for the efficient flow of hospital traffic. In quality, Corbin Hardware is unsurpassed for its ability to provide year after year of noiseless, trouble-free service.

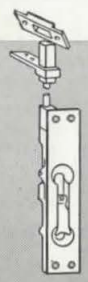
The fine, new Mount St. Mary Hospital in Nelsonville, Ohio is representative of hundreds of American hospitals that are equipped throughout with Corbin Hardware.

Corbin Hardware used at Mount St. Mary Hospital included, among other items:


"900" Unit Locks


Door Closers


Exit Fixtures


Flush Bolts


Hook Door Pulls

P. & F. CORBIN
DIVISION
THE AMERICAN HARDWARE CORPORATION

CORBIN
New Britain, Connecticut

what changed their minds about floor construction?

When these buildings were first conceived by the Tishman Realty & Construction Co. and their architect, Claud Beelman, Q-Floor was not in the picture. But a closer look at the real advantages of Q-Floor construction over traditional, old-fashioned methods convinced these experienced builders that no amount of architectural style could make up for the lack of Q-Floors.

These buildings are being built for rental purposes by one of the country's largest builders and real estate operators whose success for over 50 years in New York City has been built by giving the tenant the most for his rental dollar. The question in their minds was, *could these buildings compete against other office building* space if they did *not* have Q-Floor? The decision was not hard to make . . . only Q-Floor buildings offer a prospective tenant the *one* feature that will enable him to use his rented space efficiently and economically . . . complete electrical flexibility. Complete freedom of office and desk layout with electrical and telephone outlets exactly where needed, without the usual enormous bill for electrical alterations (even before he moves in!)

And if this wasn't enough, the many structural advantages of Q-Floor . . . faster, cleaner, dry, uncluttered job site . . . left no doubt that to build without Q-Floor would result in a waste of building money.

The first of these buildings is well on its way—giving proof every day of the wisdom of the choice of Q-Floor.

Claud Beelman—*Architect*
Herman Spackler—*Associate Architect*
Tishman Realty & Construction Co., Inc.—*Owners & Builders*

3440-3460 Wilshire Boulevard Buildings, Los Angeles, California; **Owner**—Tishman Realty & Constr tion Co., New York City; *Architect*—Claud Beelman, Los Angeles; *Contractor*—C. L. Peck, Los Ange

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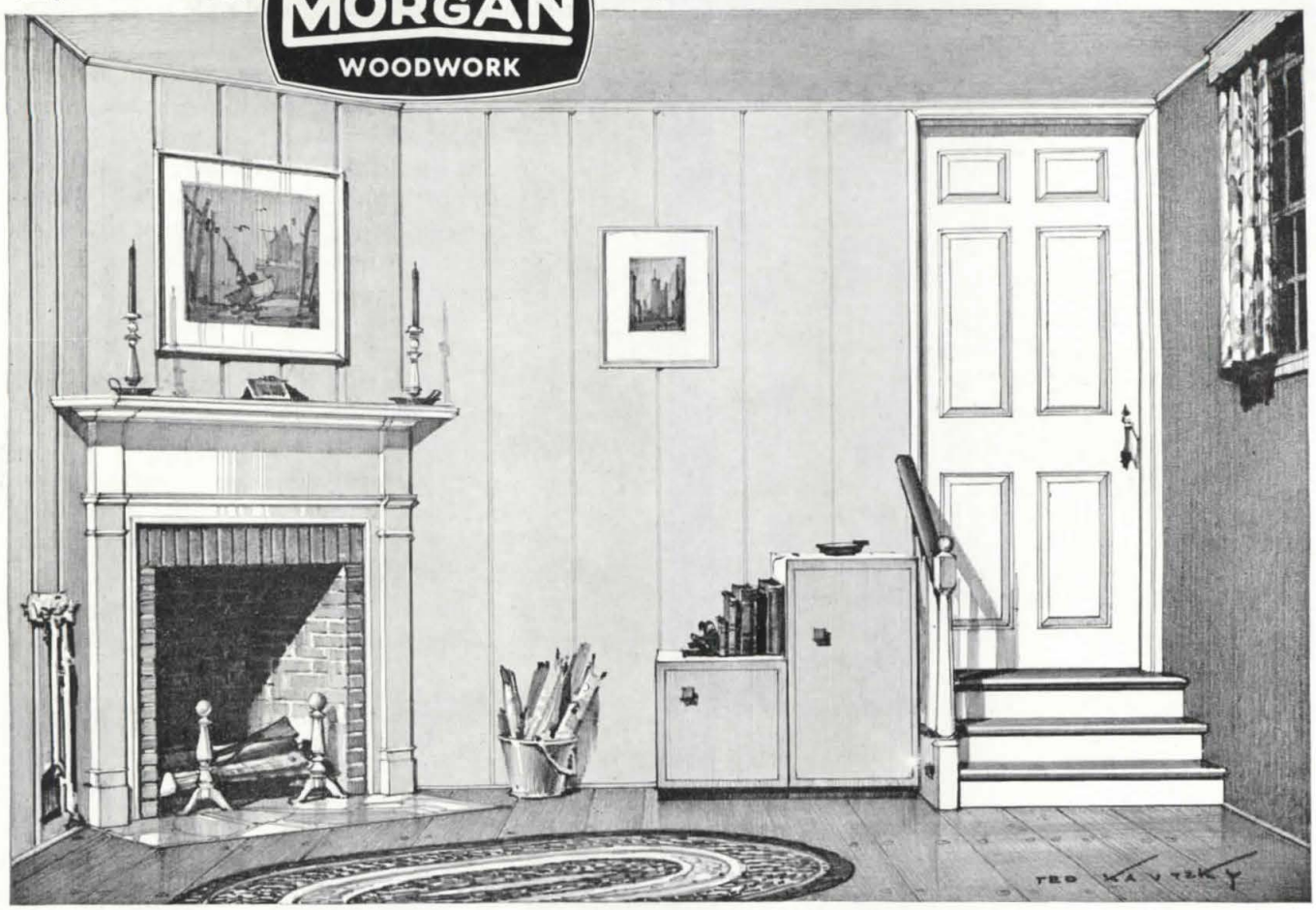
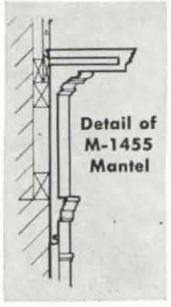
Morgan Interior Door • M-1050





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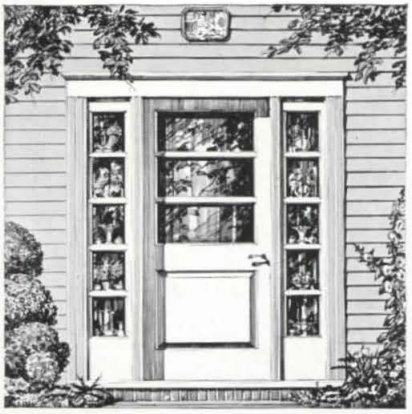

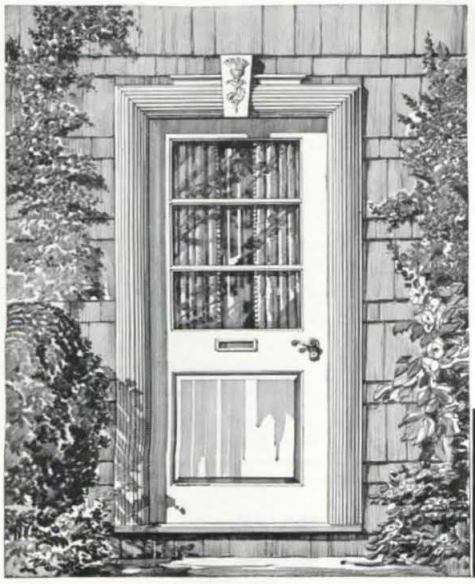

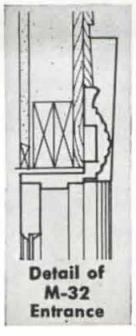

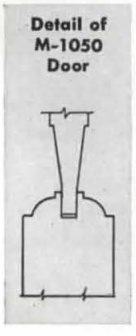

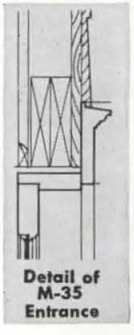

Lower Left: M-32 Morgan Entrance, M-124 Door.
Above: M-35 Entrance with M-124 Door and M-126 Side Lights.

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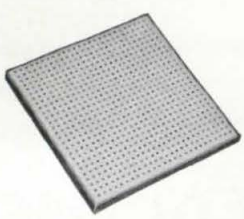
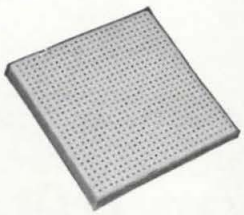


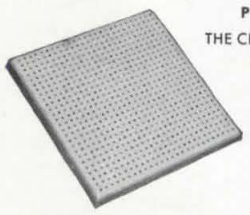
ACOUSTI-CELOTEX* CANE FIBRE TILE

A lightweight, rigid unit, combining acoustical efficiency with a durable, smooth surface. Perforations (to within ⅛" of the back) assure repeated paintability, easy maintenance. Available in a variety of sound-absorbent ratings. Dry rot proofed by exclusive Ferox* process.



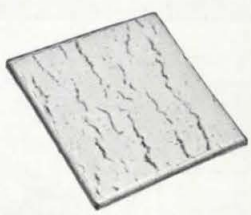
ACOUSTI-CELOTEX* MINERAL TILE

Made of mineral fibre, felted with a binder to form a rigid tile with a universal rating of incombustibility. Perforated with small holes extending almost to the back, this tile provides high acoustical absorption plus unrestricted paintability by either brush or spray method.



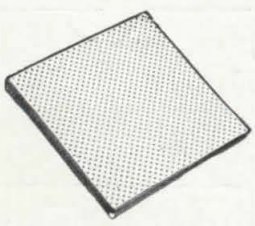
ACOUSTI-CELOTEX* FLAME-RESISTANT SURFACED TILE

A cane fibre tile with a flame-resistant surface. This tile meets *Slow Burning* rating contained in Federal Specifications SS-A-118a. It may be washed with any commonly used solution, satisfactory for good quality oil-base paint finishes, without impairing its flame-resistant surface characteristics and without loss of sound-absorbing capacity. Repainting with Duo-Tex flame-retarding paint will maintain peak flame-resistant efficiency. Supplied in all sizes and thicknesses of regular cane tile.



ACOUSTI-CELOTEX FISSURETONE*

A totally new mineral fibre acoustical tile. Attractively styled to simulate travertine. It beautifies any interior and effectively controls sound reverberation. Lightweight, rigid and incombustible, it is factory-finished in a soft, flat white of high light-reflection rating.



ACOUSTEEL*

Combines a face of perforated steel with a rigid pad of sound-absorbing Rock Wool to provide excellent sound-absorption, together with attractive appearance, durability and incombustibility. The exposed surface of perforated steel is finished in baked-on enamel. Acousteel is paintable, washable, cleanable.

**Trademarks Reg. U. S. Pat. Off*

Why should *you* concern yourself with school doors?

Stop to think about the matter and you'll agree—the doors in a school building have a heavy responsibility

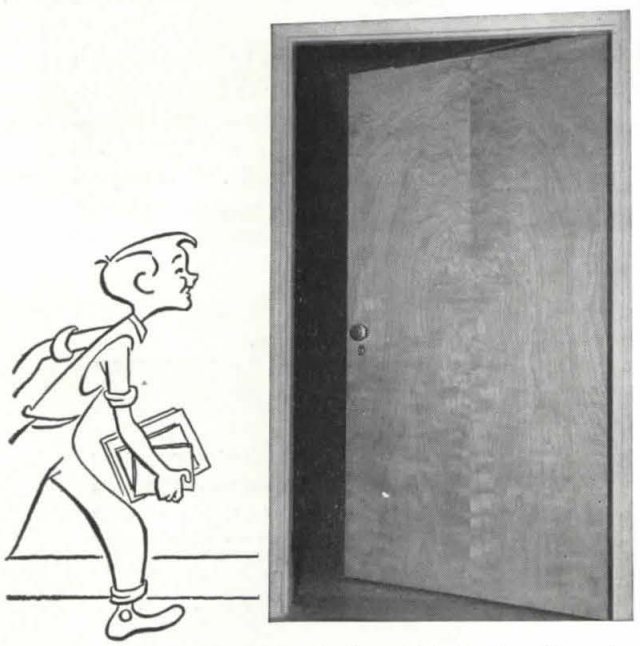
They must be fire resistant because today school officials and their architects recognize the need of providing substantially greater fire protection than is offered by the conventional lumber-core door.

They must be beautiful because the utmost in decorative qualities is now practicable without sacrifice of the safety factor.

They must be durable because — as you know so well — almost everything about a school building must be built to withstand abuse.

They must be light weight, easy to open and close because small children may be using them. School doors are in motion much of the time and, therefore, must be perfectly balanced and free from warpage.

You get all these desired qualities *and more* in the two Weldwood® doors described here. No other school doors on the market offer such a combination of features important to you.



No school can afford to be without the protection offered by this beautiful, inexpensive wood-faced fire door.

THE WELDWOOD FIRE DOOR carries the Underwriters' Label for all Class B openings. It has the incombustible Kaylo* core with special construction and fireproofed edge banding. Standard flush faces are handsome birch veneers. A wide variety of other fine hardwood faces is available on special order. Combined with safety and beauty, Weldwood Fire Doors give you the maximum in durability, dimensional stability and resistance to vermin and decay. And you get all this in a light, easily-manageable door. For example, the 3′ x 7′ size weighs only 84 lbs.

THE WELDWOOD STAY-STRATE DOOR is similar to the Weldwood Fire Door but is without the fireproofed edge banding. This door does not have the Underwriters' Label, but the incombustible Kaylo core gives it a high degree of fire protection. It is recommended for use where a labeled door is not specified, but where fire resistance is a desirable extra advantage. It is offered in the same wide variety of beautiful hardwood facings.

**Reg. Trademark, Owens-Illinois Glass Co.*

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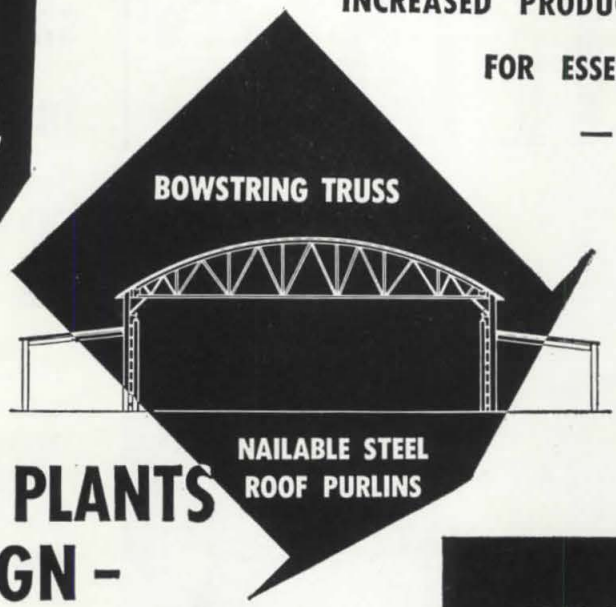

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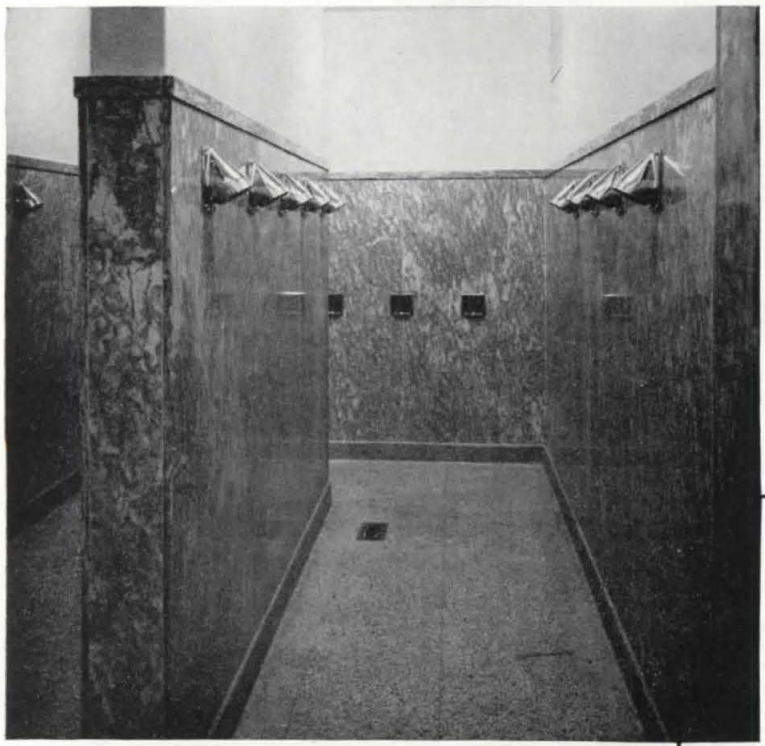
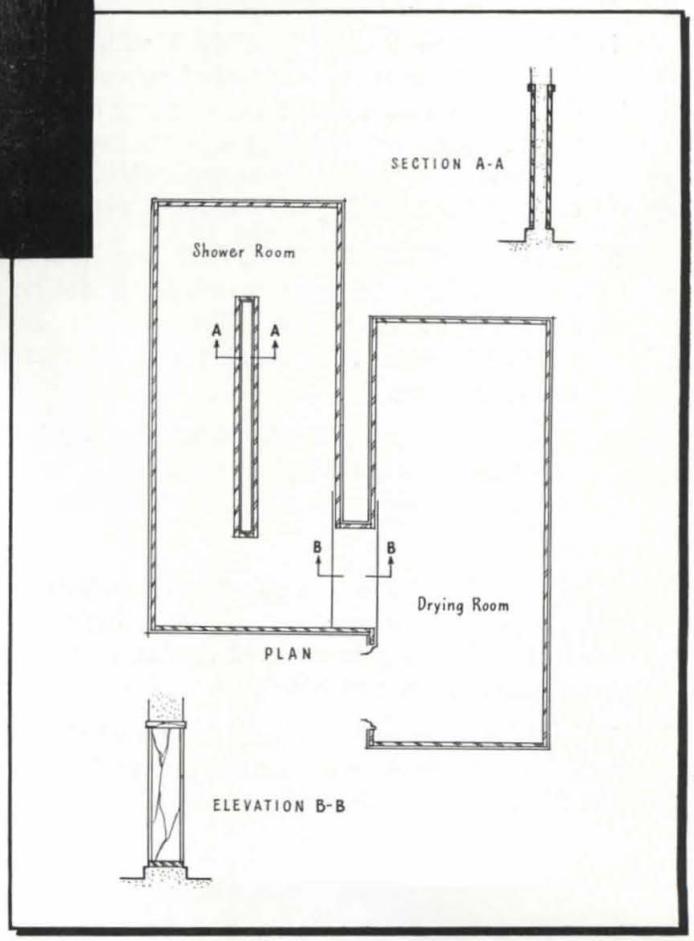
marble | saves critical metals for critical needs!



New Central School, Roscoe, N. Y. Robert R. Graham, Architect

When the finest material available for many needs is also the *most economical*, and one which makes it *unnecessary to divert critical materials from defense uses* — then that material is the one to use today! Marble has no equal when protection is necessary against rust or rot, dirt or corrosion, and the deterioration to which other materials are subject from long and hard wear. Specify Marble!



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Windowalls*

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See Detail Catalog in Sweet's Architectural and Builders' Files, or write us for further information. The complete WINDOWALLS Tracing Detail File will be sent on request to architects and designers at no charge. Andersen WINDOWALLS are sold by lumber and millwork dealers.

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KAYLO LAMINATED PANELS

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Kaylo Laminated Panels have a core of calcium silicate (not glass)—a remarkable chemical compound which is completely inorganic and incombustible. The Kaylo core is securely bonded to facings of cement-asbestos with a waterproof adhesive. Installed with proper joint systems, the Kaylo Laminated Panels meet ASTM one-hour fire standards.

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2" KAYLO LAMINATED PANELS WITH CEMENT-ASBESTOS FACING	.30	6¼
8" SOLID BRICK	.50	84
8" HOLLOW CINDER BLOCK	.42	30

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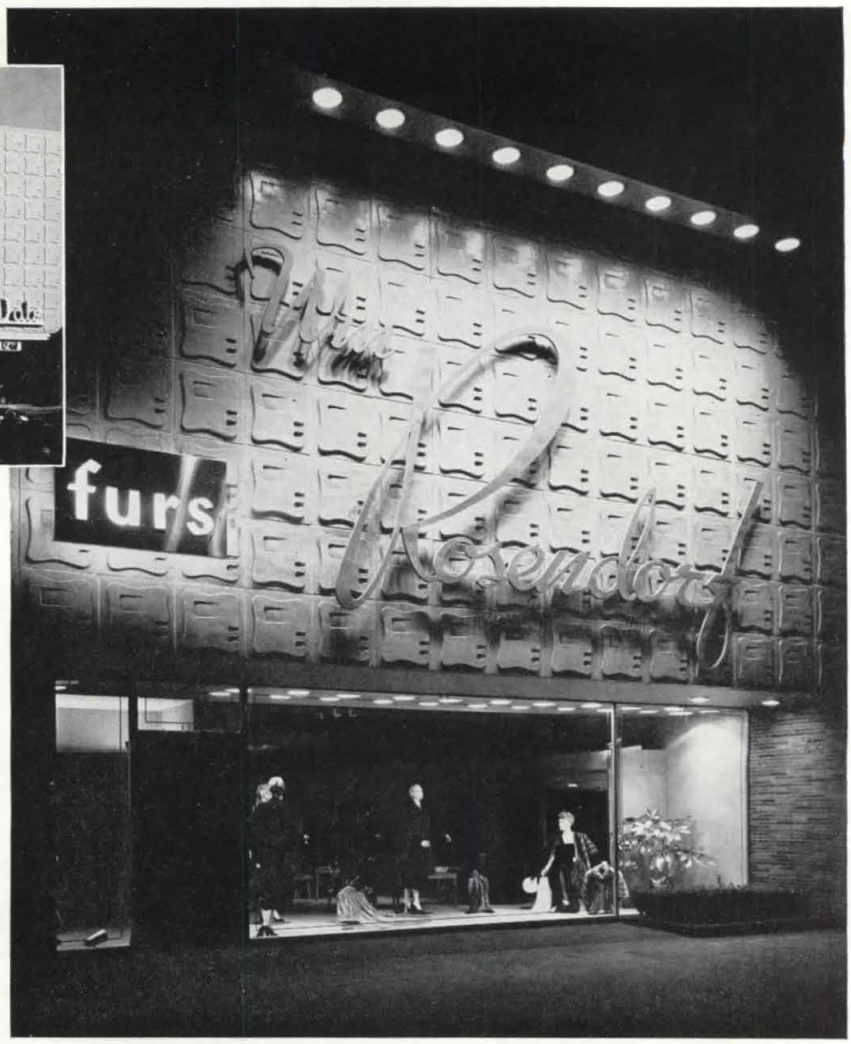

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Plants at Perth Amboy and South Amboy, N. J.

How compact

can an air conditioning system be?

That's what they were asking themselves in Dallas back in 1940. There was never any question that the new Mercantile National Bank Building would be air conditioned. All they asked was how.

And they asked everybody . . . studied all the types of air conditioning installations that could be used in a multi-room building. One stood out. This all-weather system:

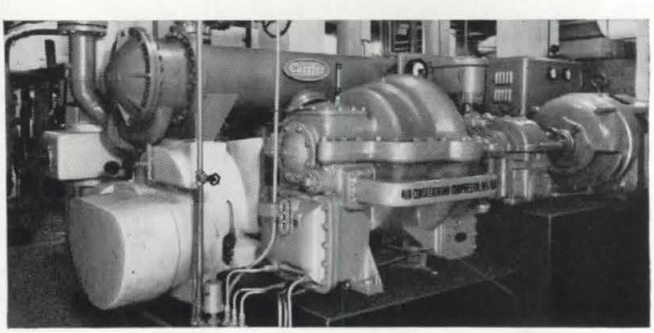
1. *Took from 75 to 85% less space than the other systems.*
2. *Permitted individual room control of temperature.*
3. *Had no moving parts in the room unit.*
4. *Centralized all mechanical elements for easier servicing.*

This was the system they selected — the Carrier Conduit Weathermaster System. Since then this same bank has built two additional buildings — the Mercantile Securities Building and the Mercantile Commerce Building.

The Carrier Conduit Weathermaster System was selected for both. We think that's pretty good evidence that the owners believe that *is* the best way to air condition a modern office building. Carrier Corporation, Syracuse 1, New York.

Above: Carrier Conduit Weathermaster Unit as installed in executive office.

Below: the Carrier Centrifugal Refrigerating Machine.



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August 21, 1950

Mr. August Rust-Oppenheim, President
Anemostat Corporation of America
10 East 39th Street
New York, New York

Dear Mr. Rust-Oppenheim:

Using the new Anemostat High Pressure Induction-Type Diffusers was certainly the answer to our air conditioning needs. These units operate quietly. The volume control for modulating temperature works very well. Our guests feel more at home than ever in the comfortable, draftless environment of our hotel.

I wish to congratulate the Anemostat Corporation of America and Mr. S. O. Stevens of the Stewart Distributing Company, the Air Conditioning Contractor, on the excellence of this new type of hotel air conditioning. It was installed at low cost, with a minimum amount of construction alteration. Most importantly, the job was completed on time and without loss of room rental.

Sincerely yours,

THE KENTUCKY HOTEL

H.E.Harter

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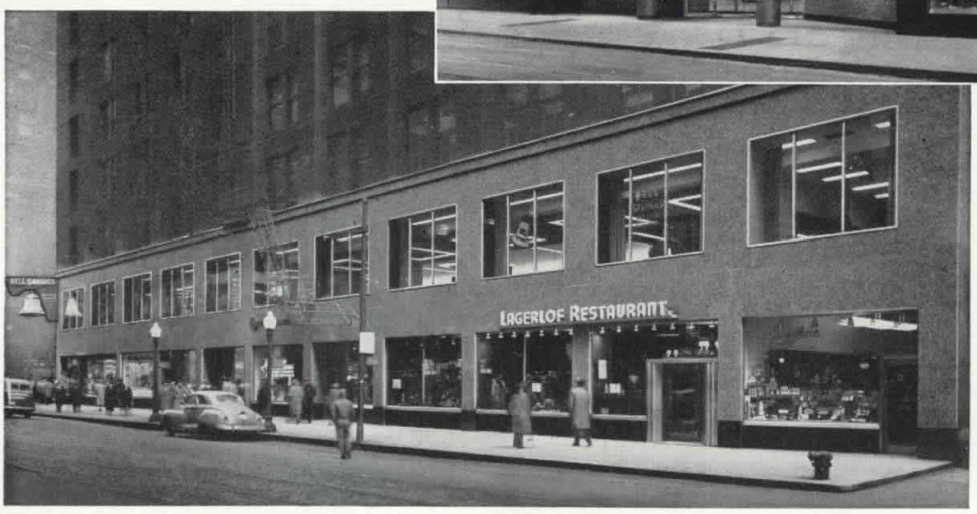

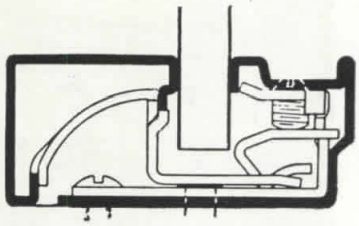

SASH No. 208 actual size, showing simplified setting mechanism and deeper, safer Brasco grip on glass.

IN THE EARLY 1900s it was known as the Rector Building, home of the original Rector's Restaurant of fond memories. Remodeling the old structure called for an unusual degree of architectural and engineering skill. Completely transformed, the building is now a modern Chicago landmark of outstanding attraction.

Nine busy shops, stores and restaurants adorn the street frontage. Each is handsomely framed in Brasco Store Front Settings of stainless steel. Note the wide second floor windows glazed with Thermopane, also in Brasco stainless steel settings.

Fabricated in anodized aluminum as well, Brasco Construction permits distinguished architectural treatment at moderate cost. Beautiful, sturdy stock assemblies are available in wide variety. Sections are fully interchangeable to suit varying needs. Wherever you are located there is an experienced Brasco distributor to serve you promptly and efficiently. Write for his address.

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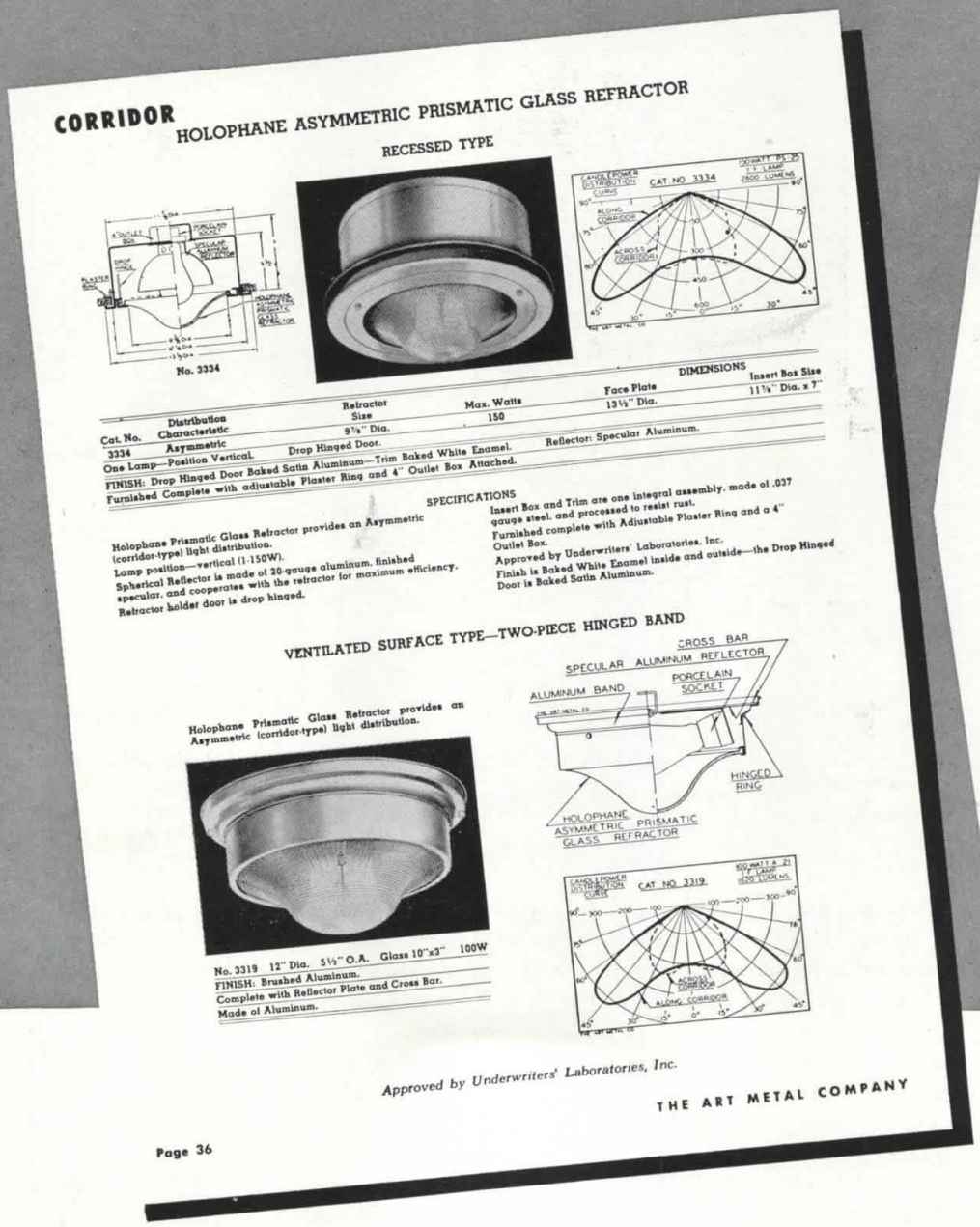
BRASCO MANUFACTURING CO.

HARVEY · (Chicago Suburb) · ILLINOIS

Specialists in Metal Store Front Construction for more than 40 Years

ART METAL details product performance and construction to speed Specification Writing and Installation Planning for all Types of INCANDESCENT LIGHTING



CORRIDOR

HOLOPHANE ASYMMETRIC PRISMATIC GLASS REFRACTOR

RECESSED TYPE

No. 3334

Cat. No.	Distribution Characteristic	Retractor Size	Max. Watts	DIMENSIONS Face Plate	Insert Box Size
3334	Asymmetric	9⅞" Dia.	150	13½" Dia.	11⅞" Dia. x 7"

One Lamp—Position Vertical. Drop Hinged Door. Reflector: Specular Aluminum.

FINISH: Drop Hinged Door Baked Satin Aluminum—Trim Baked White Enamel.

Furnished Complete with adjustable Plaster Ring and 4" Outlet Box Attached.

SPECIFICATIONS

Holophane Prismatic Glass Retractor provides an Asymmetric (corridor-type) light distribution.
Lamp position—vertical (1-150W).
Spherical Reflector is made of 20-gauge aluminum, finished specular, and cooperates with the retractor for maximum efficiency.
Retractor holder door is drop hinged.
Insert Box and Trim are one integral assembly, made of .037 gauge steel, and processed to resist rust.
Furnished complete with Adjustable Plaster Ring and a 4" Outlet Box.
Approved by Underwriters' Laboratories, Inc.
Finish is Baked White Enamel inside and outside—the Drop Hinged Door is Baked Satin Aluminum.

VENTILATED SURFACE TYPE—TWO-PIECE HINGED BAND

Holophane Prismatic Glass Retractor provides an Asymmetric (corridor-type) light distribution.

No. 3319 12" Dia. 5½" O.A. Glass 10"x3" 100W
FINISH: Brushed Aluminum.
Complete with Reflector Plate and Cross Bar.
Made of Aluminum.

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THE ART METAL COMPANY

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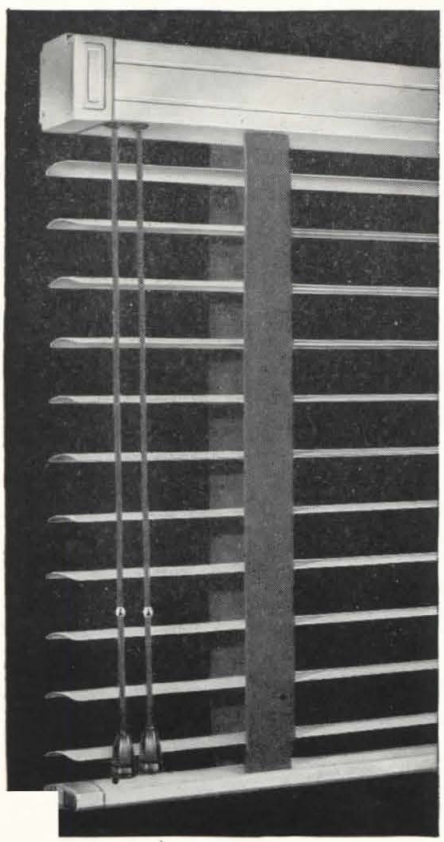

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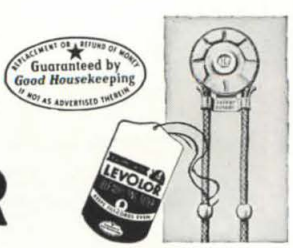

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"Housing" is today an important and controversial subject. Public housing of one sort or another — whether for defense purposes, as a part of redevlopment programs, or simply because a great many people still need homes — remains an active field of design and one in which continually more architects find themselves involved. The critique that follows is an evaluation of one city's progressive experiments with one type of low-cost housing structure: the tall urban apartment. In its preparation, Whittlesey and P/A had the active co-operation of the various architects involved and of the Chicago Housing Authority, through Executive Secretary Elizabeth Wood and Chief of Design Reinhard Lesser. THE EDITORS

new dimensions in housing design

an appraisal of Chicago's multistory public-housing projects

BY JULIAN WHITTLESEY

To many architects interested in housing — particularly public housing — the scene has not seemed particularly stimulating in the last two years.

To some, it is still a specialized if not a barren field, for which they don't feel cut out. To some, a housing project is just so many sheets calling for early completion, if to be profitable. To others, it is a field of dedication in which the struggle with standards and with official fixations and restraints seems more arduous today than in any previous period.

With all the frustrations that beset housing design — and whatever reasons may be given for them — there is, thanks to the regenerative power of the profession, stimulating fresh work constantly coming to the surface. Some of this work is officially rejected but none the less noteworthy and deserving of further perseverance. Some of the stimulating and fresh work is winning official acceptance, having met and somehow managed to override the hurdles in its path. To dwell upon these hurdles, whether born of a central or regional government office or of a local authority, would inspire no one, nor would it admit of illustrations becoming to PROGRESSIVE ARCHITECTURE. It seems better to show and comment upon a few newsworthy plans that have emerged in the past year.

Since 1947 I have watched the development of a particular group of plans shaping up in Chicago and now feel that more of the profession should know of them and how they came about. I was particularly impressed by the way Chicago went about its work. The Chicago Housing Authority seems notably successful in capitalizing upon the talents of its architects and seems to have refrained from telling them that they cannot do this and cannot do that. They have sought economy, not so much through administrative edict as through an effort at the outset to secure the co-operation and assistance of the architects.

That the plans here shown and commented upon are all in the high-rise field is not intended to woo anyone away from low density and row housing. Among others, Dean William W. Wurster rightly deplores the tendency he sees exhibited by modern architects (and by New York and Chicago, in general) to overweight their thinking in favor of elevator apartments. "The American family," as he puts it, "still likes its controlled plot of ground where a mother can keep her eye on the children: no family enjoys an elevator per se." It was with trepidation and with a deep understanding of this that the executive secretary of the Chicago Housing Authority, Elizabeth Wood, long experienced in public housing management, first assayed the elevator-type project.

Entering the high-rise field, the Chicago Housing Authority deliberately set out to pick the brains of enterprising architects. No more fruitful example of this can be found than the series of recent plans resulting from this policy. As a means of seeking fresh solutions to meet the troublesome problems inherent in rehousing yard-bred families, pancake style away from their accustomed quick contact with the ground, several firms were given wide latitude to come up with their best answers. A series of progressively interesting plans was thus generated, as though by chain reaction, starting first with Dearborn Houses, now built, and culminating with Archer Courts. All are low-cost low-rent subsidized projects, state-financed with the exception of Dearborn, a federal project. Where beyond the reach of federal restraints, their designers still had to toe marks set by a cost-conscious and management-minded Authority. Control checks were continually made against the day when final construction estimates would confirm or reject any plan.

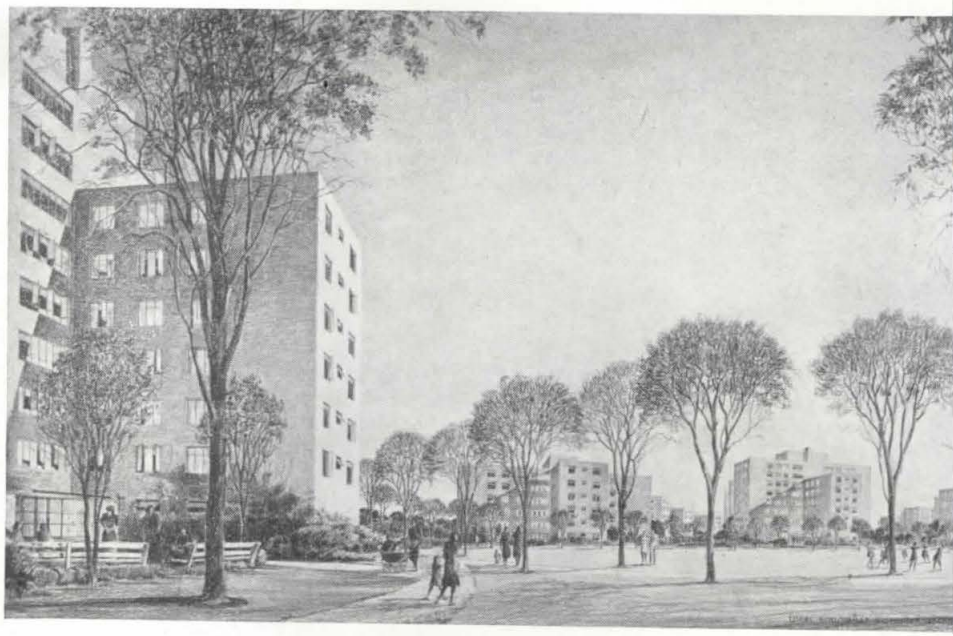
In justice to Chicago's housing policy, it is noted that the Authority continues withal to prize low-density row houses and walk-up apartments wherever feasible. In the successive stages of Altgeld Homes can be traced an era of progress in this field. Racine and Leclaire Courts are among the row-house projects in Chicago's current program of state- and city-financed Relocation Housing Sites.

Dearborn Homes was the entering wedge in the high-rise field. The blow was softened by a new device: namely, special play spaces located on each floor above the ground. Each space is small and sheltered. Each is shared by four families whose apart-

ment doors open on or near it. These spaces are intended to help mothers solve the problem of getting their children out from underfoot for short-notice playtime in all weather. It is one thing to accomplish this from a row house but quite another to manage when "cooped up in an apartment." These little floor-by-floor play areas were Elizabeth Wood's tentative answer to the anticipated resistance to elevator apartments by low-income families. They are not claimed as the answer to Wurster's housing-wide cry for private, controlled outdoor space. They were a stepping stone to later plans in Chicago's high-rise series. In practice, these spaces have proven useful where families are like-minded in taking advantage of their convenience; but a source of complaint where some are bothered by "commotion" just outside their doors. Families without noisy children are historically sensitive about those with noisy children.

Also brought to the typical floor were pram rooms, each shared by four families; and storage rooms, each shared by two families. These moves recognize the facts of apartment life to which almost any manager will attest. Regardless of regulations to the contrary and of space provisions elsewhere, mothers *will* bring prams up in elevator apartments. The New York Housing Authority recognized this by providing an extra space suitable for a pram in each apartment. Common storage depots, controlled by the management and remote from the apartment, have long been a management-favored solution to a vexing problem. The Dearborn solution to this problem is fairer to the tenant, putting the control between only two neighbors while not affording either the luxury of collecting in his apartment items which one might question in a grandmother's attic.

Architects are generally conscious of the social drawbacks of the multi-story project in having deprived the tenant of freedoms and facilities more easily provided by row housing. Privacy of the tenant's quarters and of his storage, his easier contact with the out-of-doors for sitting out, for gardening, or hammering on something in the backyard, for easier supervision of his children and their play, for laundry drying, seeing his neighbors, having a bicycle, etc., are attributes of the low-density walk-up projects. These and many other things contribute to a fuller family and neighborhood life, and even in row-

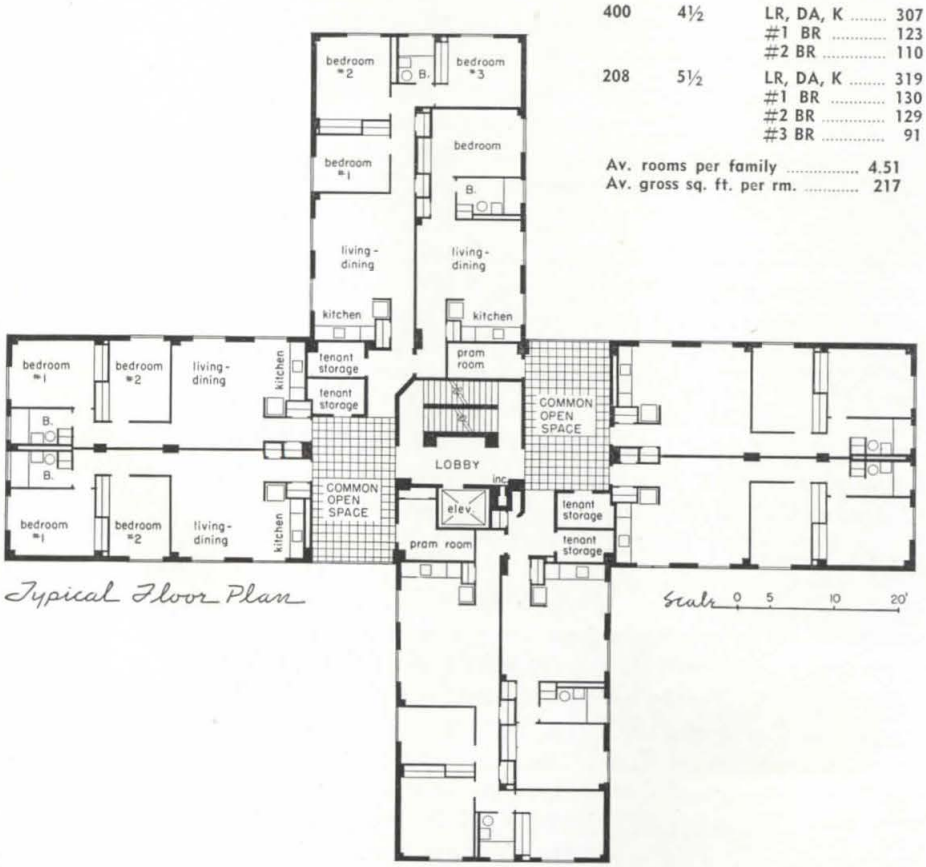


Dearborn Homes: Loebl, Schlossman & Bennett, Architects and Engine

800 families; 6, 7, and 9 stories; federal aided; Project Ill. 2-9

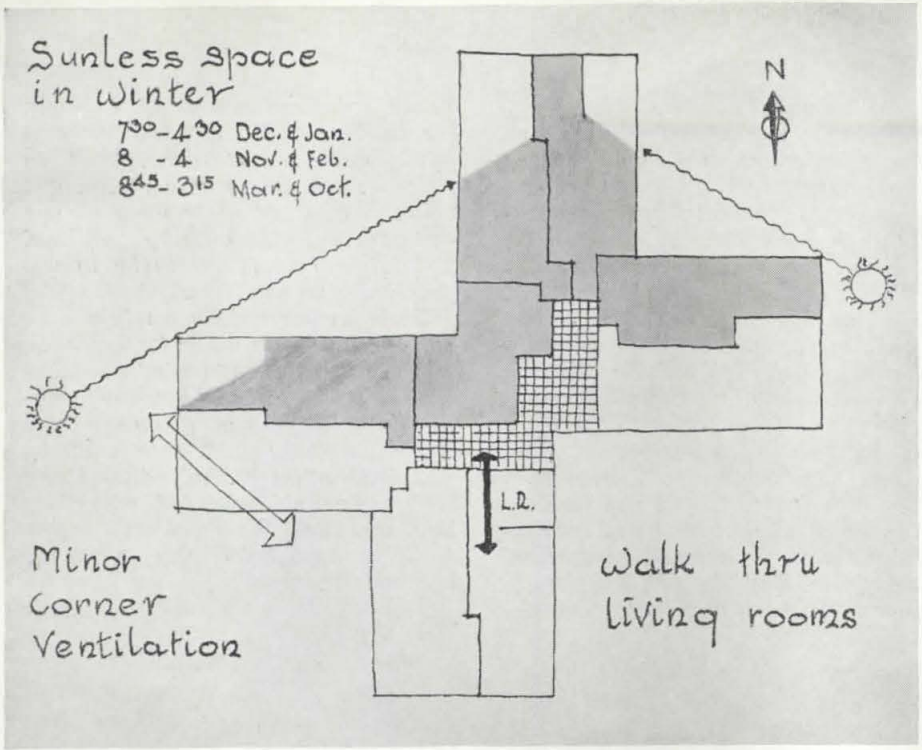
#apts.	#rms.	Room sizes (sq. ft.)
192	3½	LR, D A, K 270
		#1 BR 130
400	4½	LR, DA, K 307
		#1 BR 123
		#2 BR 110
208	5½	LR, DA, K 319
		#1 BR 130
		#2 BR 129
		#3 BR 91

Av. rooms per family 4.51
Av. gross sq. ft. per rm. 217



Typical Floor Plan

Scale 0 5 10 20'



Characteristics of an eight-family, split-wing cross plan.

house projects they are not successfully gained except by the meticulous study required for any group-living facility. Architects can therefore appreciate Chicago's trepidation in approaching its first high-rise public housing and the significance of the special features which Dearborn introduced.

Architects have come to have other reservations about multistory projects. The buildings themselves are falling into a big and brutal pattern. Walk-up projects may be accused of barrenness and monotony, but the usual elevator-type buildings up to 14 stories high are so large and ungainly as to call for even more radical re-thinking. There is now a widespread effort being made in this direction. Dearborn's new feature of play space on each floor is an essential part of this effort, though it did not contribute in this case to any radical departure in the outward form of the building. Dearborn still held to the large cross-shaped buildings, providing, however, a welcome relief by not carrying some wings to the full nine-story height of the buildings.

The device of high density has increasingly driven Authorities to multistory buildings housing eight or more families on a floor, thus minimizing public stairs and elevators. This has repeatedly boiled down to the huge cross-shaped building wherein each wing is divided to form two apartments. These are ungainly shapes to site, producing a restless confusing effect. Where paired into double crosses as in some of the highest-density projects, the result is truly overwhelming. Architects are tired of this and stung by the public's comment that the projects are unattractive fortresses. The struggle to free themselves from the tyranny of the massive cross is marked by all sorts of attempted variations from it. Most rewarding of these has been the "Z" shaped buildings, which can be more shapely and siteable. But the capacity per floor, given equal conditions of natural ventilation, does not measure up to that of the classic eight-family-per-floor split-wing cross.

If this cross *parti* had solved the paramount questions of living-room privacy, of good natural ventilation, and of good sun orientation, architects might truly find themselves forced toward it or one of its ugly offspring. This is not the case. How could a plan offer less, considering the advanced state of the art, unless it were also uneconomical? Its characteristic apartment is denied privacy in the living room as one must pass through it to reach the bedrooms. Natural air circulation is usually reduced to modest corner ventilation by one end-room in a series having a second window on the minor exposure. As to orientation, from one-quarter to one-half of the rooms will not get the sun, depending on the season, no matter how the building be turned. Two out of eight apartments will get none but very early and late sun in winter, unless the project is built at the North Pole. That three-quarters of the families get sun is no comfort to the quarter without sun: people are not statistics.

Architects have been breaking out of this trap by various means. New York and Chicago have both contributed notable departures in the more recent plans. In all cases, something had to give way, to make the departure possible. Several different approaches have been made. They fall, however, into two categories: the one where a modification of standards — either by relaxation or tightening — permitted or automatically resulted in a significant departure; and the other where either the skip-corridor or gallery-type plan was the basic approach. Whether either of these approaches is open to an architect is pretty much up to the Authority for which he is working, and to the federal or state agency governing that Authority's work. However, a genuine co-operation or searching for common objectives by those concerned may give the architect an effective role in this matter.

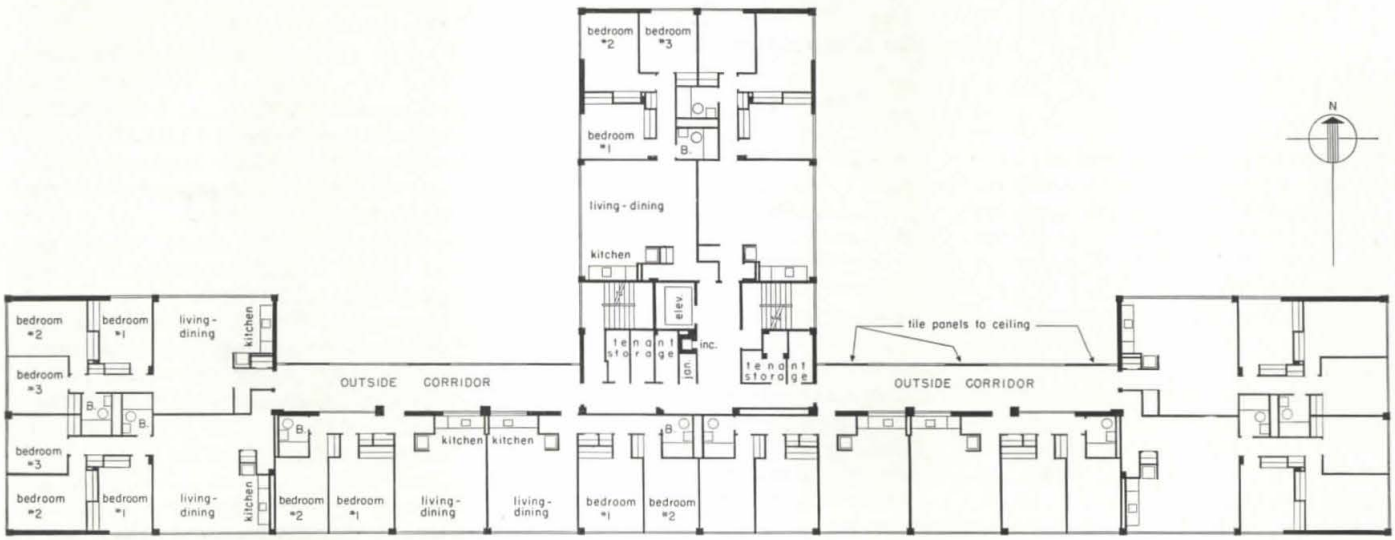
The Chicago Housing Authority and its architects have embarked courageously, it must be admitted, upon the gallery-type plan. And, it is believed, with their eyes open. Their investigation over several years was accompanied by a series of studies of skip-corridor plans, which also promised a fruitful break from the precedent set by the cross- and double-cross plan. The skip corridor offered through-ventilation, privacy of circulation, and better orientation, while preserving economy of public stairs and elevators. The vicissitudes of skip-corridor planning are many. Multiplicity of private stairs, mechanical, and structural conditions were not easily resolved with economy while, at the same time, convincing hesitant code Authorities and meeting prescribed apartment schedules and codes which had never anticipated such buildings. The skip-corridor studies, therefore, eventually gave way to one form or another of the gallery plan.

A Public Housing Authority economy bulletin recently frowned upon this unorthodox approach. Planners and critics have been sharply divided, as to the feasibility of the gallery plan for a northern climate, and for other reasons as well. Students meanwhile have chosen it as the easy way out in countless "charettes," too often without regard for what they were gaining or losing. Some professionals also seem to have "gone overboard" for gallery plans, turning out handsome studies without sufficient improvement in apartment planning, in this writer's mind, to justify the gallery system. Mature housing design must search beyond stylistic preconception.

It is significant that the Chicagoans have observed much which was close at hand as supporting their venture into gallery plans. It may be presumed that the New York Life Insurance Company's Chicago project has been influenced by these same observations. First, *the "typical" Chicago walk-up apartment features an open back porch. It is used throughout the year. Its primary function as a service entrance, by way of an open stair and cross-over at each porch, seems to be unhampered by snow and ice. Its secondary function as an outdoor upstairs area provides for perambulators, play pens, and taking the air in less severe weather — and access to laundry lines.* Second, *a three-story building on Michigan Boulevard has a patio with open galleries connected by open stairs which serve as the only access to the apartments. This has been in existence for several decades and appears to function well. The* Petit Gourmet *Restaurant is located in this building and may prove convenient to those investigatnig this story.* Third, *three modern two-story walk-up buildings, designed by Thomas Scott Twerdahl, were built several years ago with open galleries four feet wide along the north side of the second-floor apartments. Tenants who have experienced the Chicago winter there reported that snow and ice conditions have not created an unusual hazard and that the gallery, though narrow, has been useful as a balcony. These buildings are at 6107 North Cicero Avenue.* Fourth, *the Authority's Wentworth Gardens, built in 1946-47, has two public stairs, one being a recessed stair open at one end and protected only by a railing. This stair was found to be in use practically all the time.*

Such observations might be matched in many other localities. In New York it brings to mind a number of substantial "model" housing" projects built for "the poor" by the Open Stair Company and sponsored by altruistic investors. Indeed the stairs were and are still open to the weather. Another such in Brooklyn has, in addition, open balcony access to the apartments.

The whole question of climate



Typical Floor Plan

Ogden Courts

Skidmore, Owings & Merrill

Architects and Engineers

James Hammond, Job Captain

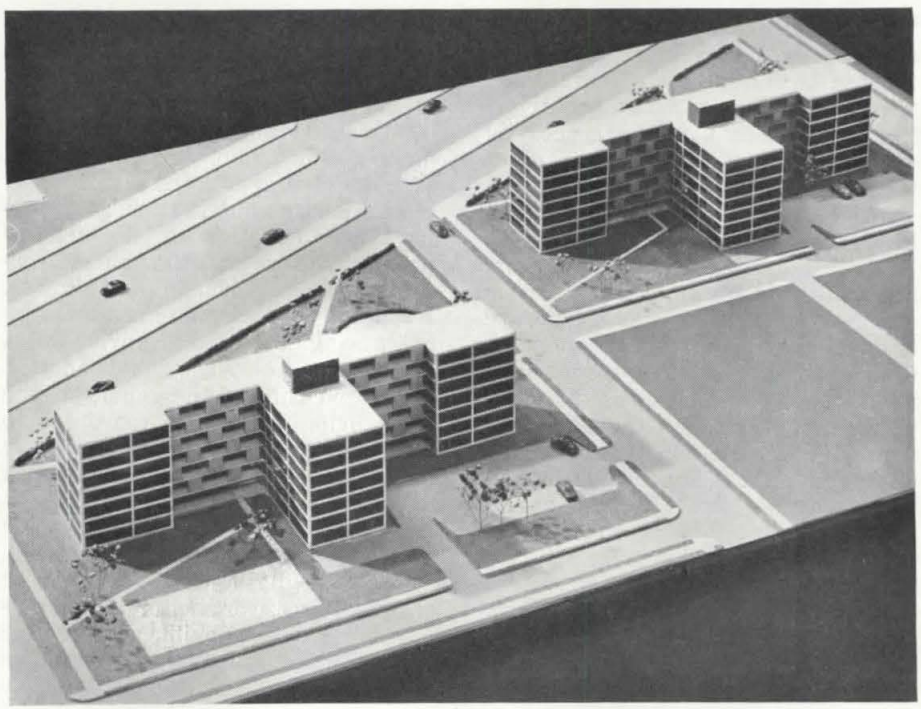
136 families; 7 stories; state aided

Project R. H. S. No. 3

The success of the common-use open areas on the typical floor at Dearborn Homes suggested that this space be attenuated as an open gallery, continuing to serve the double function of access to the apartments and as a congregating and play space. Hence at Ogden Courts a gallery was provided and was kept eight feet wide. These galleries constitute about 32 square feet of open space per room, which is about 50% more than Dearborn's common rooms come to. The important innovation was that the open space was now developed to provide cross-ventilation for the apartments bordering it. This decision enabled a departure from the split-wing scheme characteristic of the eight-family cross plan by which Dearborn Houses gives each apartment corner ventilation. Ogden Courts, however, retained a three-wing plan taking care of six families in the conventional split-wing arrangement. Four other apartments are ranged in a straight line one room deep along the two open galleries and enclosed corridor connecting them. This permits an efficient layout while preserving living room privacy from circulation. In this respect it benefits only the two-bedroom apartments; whereas the three-bedroom apartments, paired in the wings, still have circulation through the living rooms. If a choice can be made, I would prefer to give privacy to the living rooms of the apartment having the larger family, not to the smaller. However, the choice of locations adopted in this case enabled a more compact and efficient over-all plan with bedrooms of each large apartment sharing two exposures. The Authority claims this is their most efficient and economical high-rise plan, among the projects here shown. The wing plan is notably compact, due partly to interior backed-up bathrooms. The two end wings shape up nearly to a square, thus approaching the minimum length

seems to come down to snow and ice clearance of a covered gallery. The experience of the Chicago Housing Authority's management department in securing tenant co-operation for the cleaning of stair wells leads them to believe they can get similar co-operation in keeping galleries clean. Passage close to the building is better assured by the galleries being wide and covered, in some cases partly screened as well. Wind velocities were investigated at various heights, and the conditions found offered, in their opinion, no serious obstacles to the use of open galleries on high-rise buildings.

The question whether galleries will prove useful as balconies is more speculative. At Wentworth Gardens, there are front balconies at the third floor. Each is shared by two families having access to them from their living rooms. There are also rear balconies at the second floor reached from the stair-hall landing. While these two kinds of balconies are not comparable as to location, it is worth noting that there is a reluctance to use the second-floor balconies which must be shared by more than one famliy — at least as long as the ground floor is relatively accessible. In the high-rise building, the majority of families will be over two floors from the ground and the gallery may well be expected to come into its own as a balcony. "Sidewalks in the air" is a favorable four-word summary if it doesn't remind you of the wrong kind of sidewalk. But if you can recall a dead-end street limited to half a dozen families all living on one side of it, you are reminded of the pleasant uses to which a sidewalk may be put. There are no people from above having to use the patch in front of your door, and few from beyond having to pass across it. Quite different is the teeming sidewalk serving several stories and along which pass unknown and through-bound pedestrians, hemmed in by street traffic. The unsightly open back porch of Chicago's "typical" apartment house is not necessarily an ominous comparison because these properties seldom provide an alternative location for laundry hanging and there is little incentive for neatness.



#apts.	#rms.	Room sizes (sq. ft.)	
52	4½	LR, DA, K	255
		#1 BR	123
		#2 BR	108
84	5½	LR, DA, K	340
		#1 BR	125
		#2 BR	107
		#3 BR	96

Av. rooms per family 5.12
Av. gross sq. ft. per rm. 220

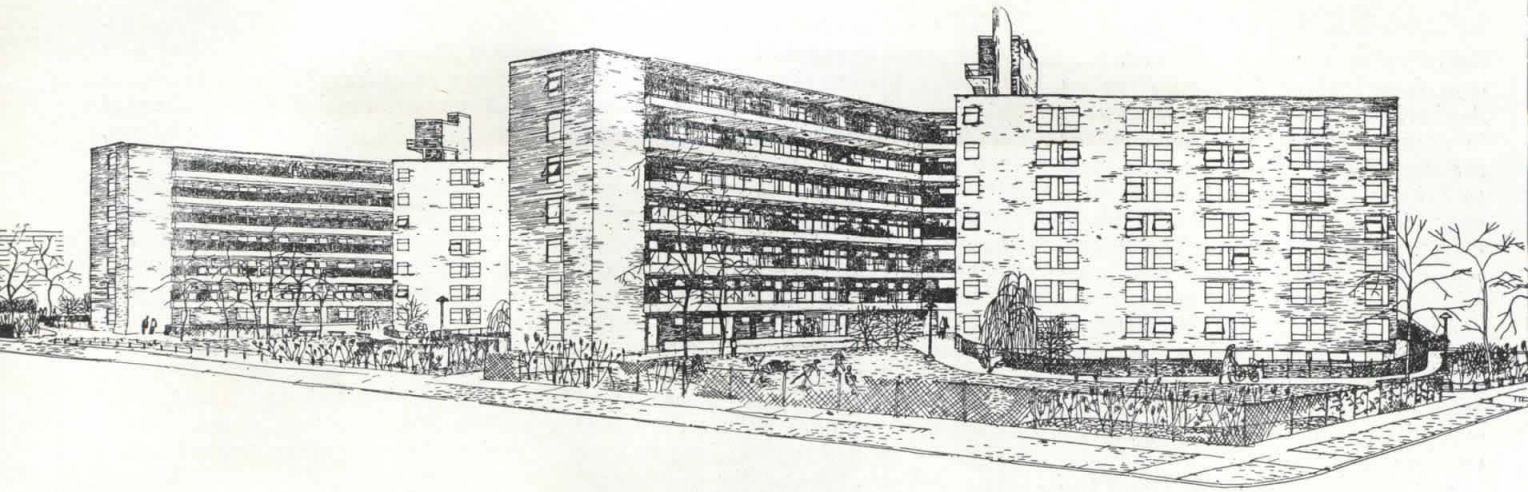
of wall to enclose a given rectangular space. Wing apartments have really generous corner ventilation, as there are two bedrooms on the minor exposure.

Gallery apartments get through ventilation by the use of high windows opening on the gallery from the kitchen and the apartment hall. Hall windows are opposite bedroom hall doors, in two of the four gallery apartments. Bedrooms of the other two apartments fare rather poorly as their halls abut the enclosed public corridor; hence their through ventilation must be circuitous and by way of the apartment entrance or kitchen window. A notable expert in microclimatology recently dissuaded me from my wishful belief that light breezes on a hot, quiet night would turn corners.

Perambulator space is provided in the entrance hall of each apartment. This is an advance over the standard set for Dearborn Homes, where prams were kept on the typical floor but outside the apartment in spaces shared by four families. Storage closets shared by two families are, as in Dearborn Homes, located on the typical floor. Kitchens of 60 square feet are opened broadside to the living room. Where kitchens have gallery windows on their one long wall, there is little available wall space for hanging shelves, utensils, and cleaning gear. Tenants will miss this and will want draperies or screens, as in the case of doorless closets. This later omission is unpopular among tenants. To many it is an important, if unfortunate, symbol of public housing economy. Continuous fenestration will also impose quite a curtain expense and may result in a colorful if not patchy effect from outside.

An exposed structural frame characterizes the elevation. Fenestration is from column to column, with brick panels below. The elevation is enlivened by a checkered pattern of colored wall panels in glazed tile, which occur on the balcony facades. These wall panels alternate with wire mesh panels to protect balconies from floor to ceiling. Exposed structural concrete frame is not new to Chicago, and is being used in a number of the new public and private projects.

Orientation of the "T" shaped unit with galleries under the head of the "T" is rather troublesome. Southern exposure for the gallery apartments is at the expense of northern exposure for the gallery. Apartments in the north leg of the "T" and on the north side of the head are no better off than the poorest half of the apartments in an eight-family cross plan. Play yards, easily viewed from the gallery, are however pretty well cut off from winter sun except very early in the morning. A similar "T" gallery plan with its leg turned east and play yard in the southeast quadrant would seem to make a better score on the above points.



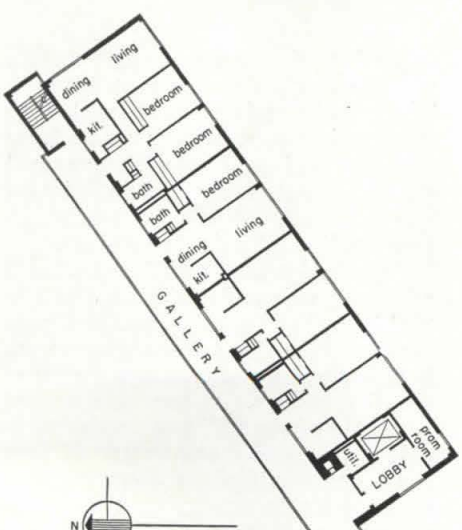
In the Loomis Courts project, the principle of the gallery was carried further than in Ogden Courts. The gallery was again given the triple function of access, outdoor space, and cross-ventilation. The gallery, eight feet wide, was extended the full length of a building, free of any wings interfering with orientation.

The long, free exposure away from the gallery is given to living rooms and bedrooms. The gallery exposure is devoted to kitchens, baths, and to dining foyers of the 3½-room apartments; cross-ventilation is therefore through these spaces by way of entrance doors and by high windows on the gallery. The schedule is confined to 3½- and 4½-room apartments, the latter being on the ends of the buildings. All apartments have privacy of circulation, without need of passage through living rooms to reach bedrooms. The living room of the 1-bedroom apartment can be used for sleeping, as the kitchen in this case is reached from the dining foyer. Kitchens are separate, fully enclosed rooms in all cases. The architects have utilized the gallery-access principle to get throughout a high standard of individual apartment planning. If the Authority's observations, supporting their adoption of the gallery principle, prove out, they should certainly have good housing in this case.

Each building is, in effect, two separate wings oriented at a wide angle from one another. They are connected by an extension of the gallery of one wing bridging over to the other so that the stairs of each are available to the other and a common elevator in one wing is shared by both. The galleries cross from the face of one wing to the opposite face of another, thereby giving a choice of sun or shade, of breeze or shelter, and of outlook. This rather flexible spread wing plan affords southeast exposure to the living rooms and bedrooms of one wing, west exposure to those of the other, leaving none facing only north.

The site plan is imaginatively developed with freely winding paths which pass through the buildings at the meeting point of wings, next to the elevator lobbies. Off-street parking is very convenient to these points. Play areas are well located, and set apart from the path circulation. These areas are, for the most part, easily surveyed from the galleries, while being kept away from the living side of the apartments. Large semicircles of protected green areas adjoin the living side of each wing. These areas are slightly sunken, presumably helping to give light and air to the basement facilities on the off-corridor side of the plan.

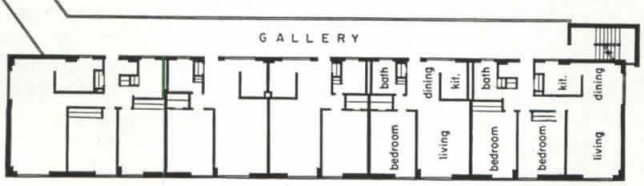
Of the plans here reviewed, Loomis Courts have, to my mind, best exploited the advantages of the gallery idea, both as to building and site.

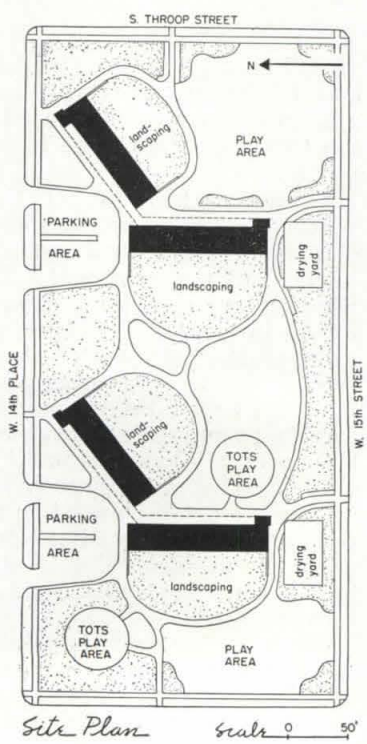


#apts.	#rms.	Room sizes (sq. ft.)	
84	3½	LR & DR	239
		K	42
		#1 BR	125
42	4½	LR & DR	243
		K	57
		#1 BR	127
		#2 BR	118

Av. rooms per family 3.83
Av. gross sq. ft. per rm. 251

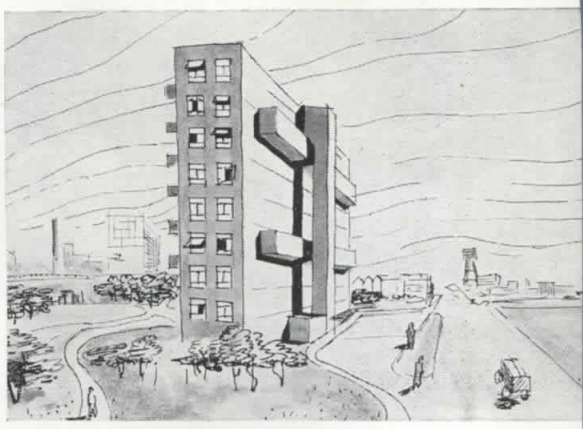
Floor Plan Scale 0 30'



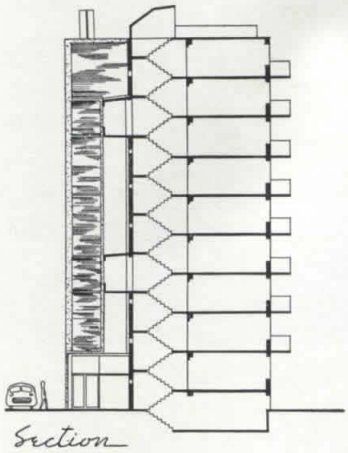


Site Plan Scale 0 50'

Loomis Courts: Loewenberg & Loewenberg, Architects and Engineers; Weese & Van der Meulen, Associate Architects. 126 families; 7 stories; state aided; Project R. H. S. No. 7

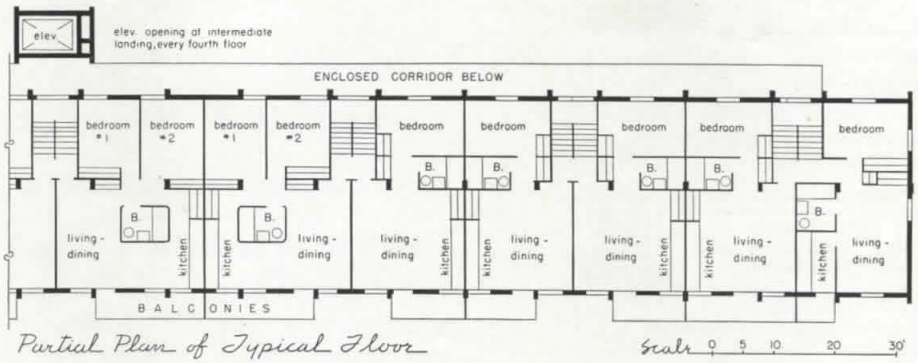


At left and above—section and sketch of a triple-skip corridor building.

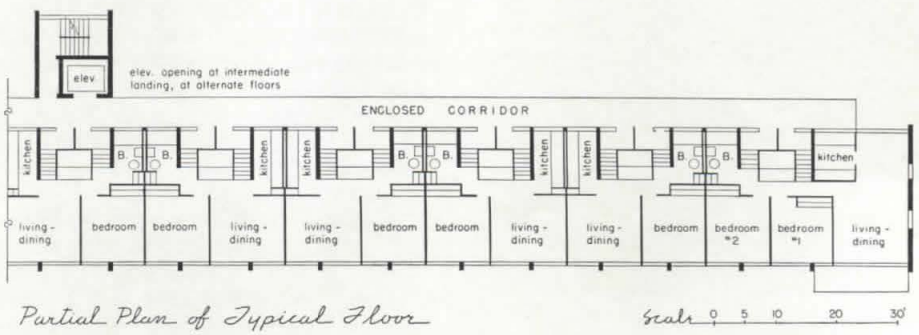


Among the several schemes studied before arriving at the one adopted were two skip-corridor plans (right) and a central-corridor plan (see page 68) of some interest. These are worth noting as having finally led to the gallery plan. Each tried in some measure to get qualities not found in the conventional multistory, cross plan of eight or more families per floor.

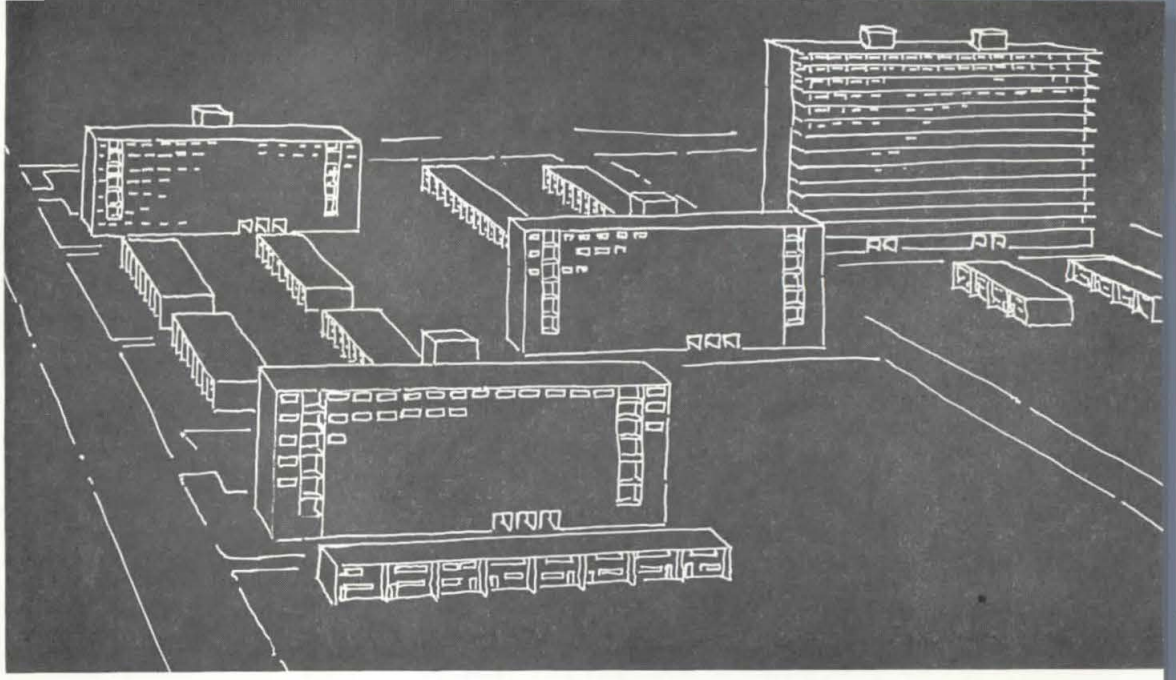
The two skip-corridor plans aimed at a nine-story building in which the apartments would have much the same qualities as a walk-up apartment two rooms deep, where one stair serves two families per floor. The architects proceeded quite directly to this goal, planning a building with seven pairs of apartments laid in one line which were, in effect, three tiers of walk-up buildings one on top of the other. They then provided each tier with a horizontal approach corridor which, in turn, was reached by an elevator having to stop at but two such corridors above the ground. From the corridor one can enter the conventional walk-up stair and, by going up or down not more than 1½ floors, reach any of the floors of the tier. The horizontal approach corridors are attached to the outside of the building, midway between floors, and the elevator shaft stands away from the building by the width of the corridor — the two elements forming a sort of main circulation grid handsomely "embossed" on the outside of the building.

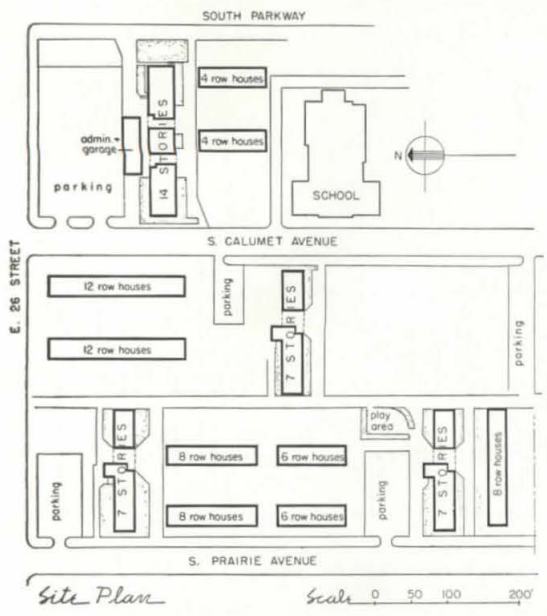


Above and below—plan studies for skip-corridor schemes developed by Loewenberg & Loewenberg; Weese and Van der Meulen before the final plan for Loomis Courts was adopted.



This system would show up better except that the bedroom window placement above and below corridors at half the floors has to be rather unconventional, due to the limited floor-to-floor dimension. As this particular scheme did not solve the problem of getting prams to the apartments, a rather more expensive modification was designed, providing one mid-floor corridor for each pair of floors, so that prams could be left at the entrance to the apartment before going up or down a private half-flight. Cost of the supplementary stairs in each of these schemes was high. This is the case for any skip-corridor plan if developed to the extent of giving every apartment through-ventilation.





Prairie Avenue Courts

George Fred Keck; William Keck, Architects

342 families; 2, 7, and 14 stories

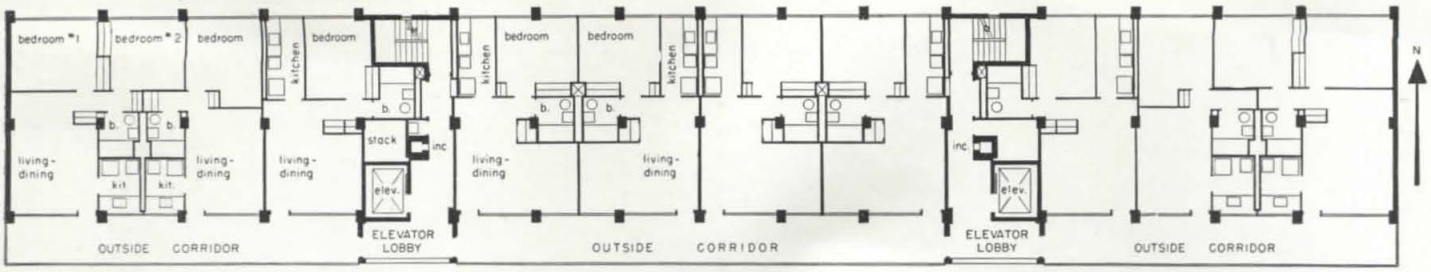
State aided; Project R. H. S. No. 9

Those who complain of monotony in public housing, and cry for variety, will find some answers in Prairie Courts. The variety here lies in building types and heights. The very large families are in 2-story row houses and all others are in elevator buildings of two different heights. Here is variety which recognizes not only differences among families housed but among the opinions of those housing them. Given architectural form, this sort of variety may well express the vitality of people who are not alike, though housed together. Compare this with the sham variety wrought and pasted upon the type-cast "Model Home" advertised to be yours and only yours.

Monotony within and among housing projects recalls, among other things, how confoundedly sure and prudent group thinking can believe itself to be — especially in the administration of public housing law. Must valid differences of opinion always be "settled" rather than acted upon? Instead, to build some one way and some the other, be it dining spaces or entire buildings, is to understand that back of some of our most ardent planning debates is, in fact, the image of the people we profess to build for rather than exploit. To act upon these differences bespeaks prudence, humility, and social understanding!

Prairie Courts, unlike most housing projects, is a redevelopment program within its own site and hence a good place to turn these high-sounding thoughts into architecture. The architects have had to deal with time as their fourth dimension, because the site must be cleared in stages and displaced tenants rehoused on-site as the project is built. The location and planning of different height buildings has turned upon this requirement. Construction of high buildings in the first footholds enables rehousing and further demolition to make way for row houses for the largest families.

Prairie Courts must rehouse an unusually large variety of families by size. The row housing is interspersed among the high buildings, visually an attractive grouping, and calculated to avoid shadows from the high buildings. Families having one or two bedrooms are housed in the elevator buildings. These latter, seven and

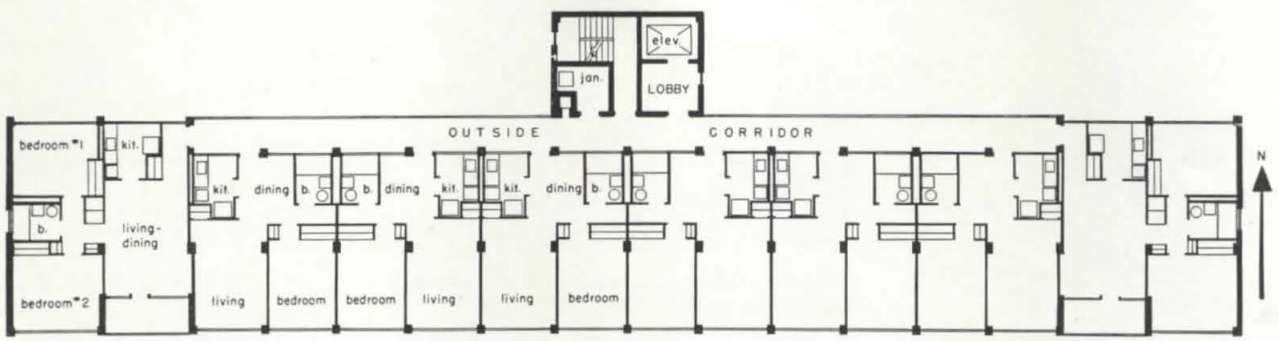


Typical Floor Plan (14 STORY BUILDING)

Scale 0 5 10 20 30'

#apts.	#rms.	Room Sizes (sq. ft.)		
212	1 BR	7-story buildings	14-story building (smallest unit)	14-story building (largest unit)
		LR 152	LR & DR 171	LR & DR 242
		DR 73	K 48	K 63
		K 42	#1 BR 118	#1 BR 111
		#1 BR 116		
62	2 BR	7-story buildings	14-story building	
		LR & DR 197	LR & Dr 223	
		K 56	K 48	
		#1 BR 130	#1 BR 134	
		#2 BR 112	#2 BR 116	

Later, there will also be 52—3BR apartments; 8—4BR apartments, and 8—5BR apartments in two-story row houses. Ave. rooms per family (multistory) . . . 3.68 Av. Gross sq. ft. per rm. (multistory) . . . 234



Typical Floor Plan (7 STORY BUILDING)

Scale 0 5 10 20 30'

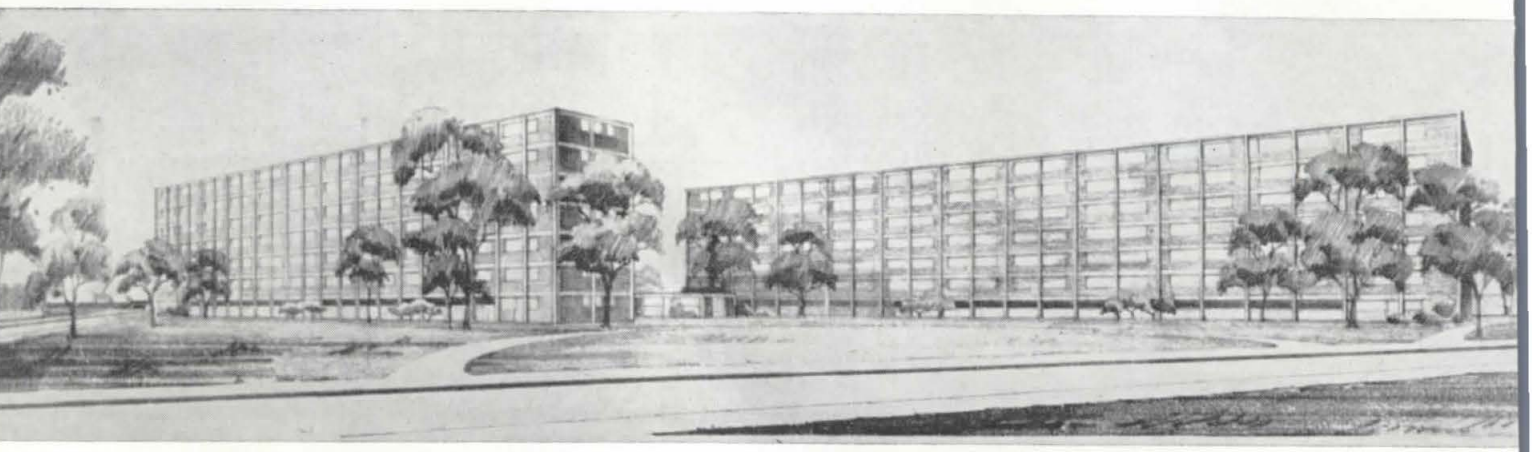
fourteen stories, follow two quite different and seemingly opposed design theories; and it is over this that there is quite a division of opinion among those concerned in Chicago. One hopes that these opinions are so valid as to warrant construction of both designs, and that each will find its adherents among those housed.

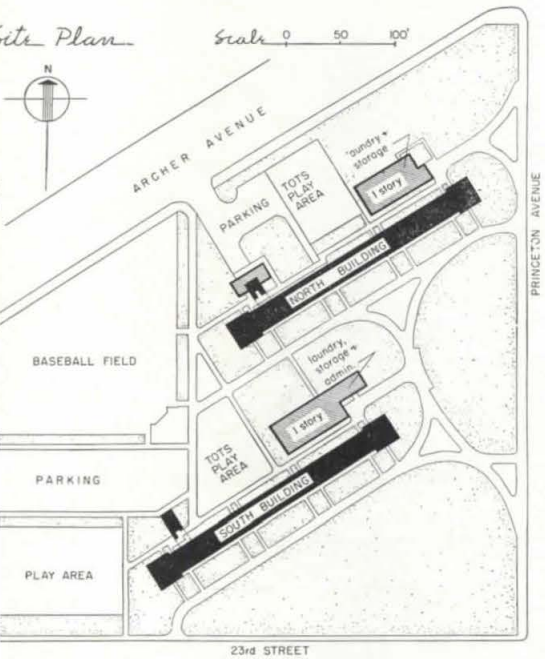
The seven-story building develops six highly efficient south exposure single-bedroom apartments flanking the open gallery. A two-bedroom apartment fully occupies each end of the building. This shortens the gallery and seems more efficient than the end arrangement of Loomis. A private, sheltered south balcony for this apartment, however, offsets the saving while making this apartment the more desirable. This end arrangement also gains through ventilation independent of the gallery. The apartment could have even wider choice of bedroom exposure but for the exactitude of furniture placement and of a design concept demanding closed end walls to contrast with the abundant openings of the long sides. The interior hall space in Prairie's two-bedroom end apartment does not obviate thoroughfare through the living room as does the same amount of hall space in Loomis. Given equal efficiency of the space, these two *partis* involve choosing between different plan qualities.

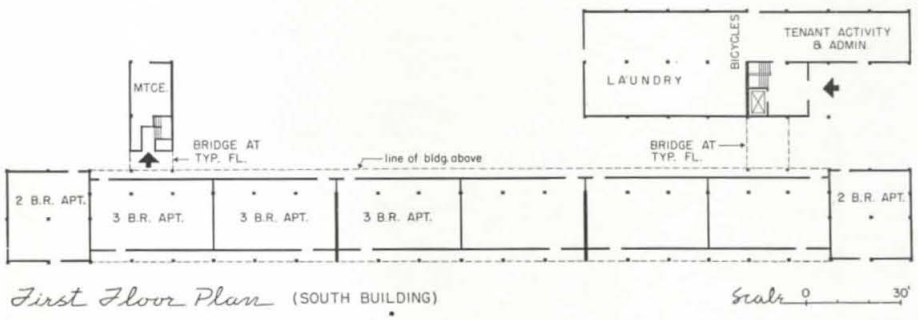
Efficient, economical housing design is a rigorous job in which just such choices must often be made. Rents in subsidized public housing are graded according to income. If this grading could also be geared according to quality of apartment, the architect would have greater freedom in design choices for apartments of the same size in the same project.

The fourteen-story building at Prairie Courts attempts to assemble solar row houses in a multistory ribbon tier. Unlike the other designs in this Chicago series, the gallery is turned south along the main living part of the house. Living rooms face fully upon it and are directly entered from it. Thoroughfare through living rooms is in no case avoided, and all bedrooms are north. Through-ventilation is complete and does not rely on hall windows. It is a real two-room-deep plan and each apartment is notably compact. So far so good, but the bone of contention is whether the solar exposure of the living room and the gallery functioning as a balcony off it is worth the price of such full exposure to one's passing neighbors. A part of the price is in the partial defense of having to have a large measure of obscure glass in the solar face of the living room. Winter sun at a 25 degree angle will strike the window about 5½ feet above the floor and flood the floor back 12 feet inside — given a 7½ foot wide gallery — and in summer, there will be shade from high sun.

Before condemning this plan out of hand, count the neighbors having to pass your house and note that the placement of elevator lobbies greatly minimizes this sort of traffic in comparison with the other designs in this series. Who can say that this design may not turn out to be the most successful? It is exciting to know there is a Housing Authority which has the courage of its architect's convictions and that there is a point beyond which statistics cannot settle the matter. (However, I *would* like an east window in the north corner bedroom, come winter.)







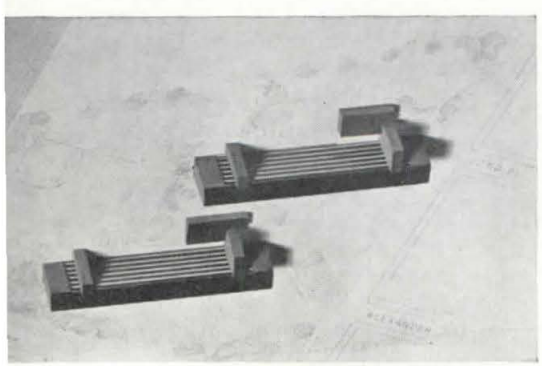
Archer Courts

Everett F. Quinn & Associates, Architects

Alfred L. Mell, Associate Architect

148 families; 7 stories

State aided; Project R. H. S. No. 8



This project lies in an area which the architects have analyzed as being a potential residential community, centering close to their site. They envisage several neighborhoods within 15-minutes walking from the area's center. The site is in the northwest corner of the most northerly of these neighborhoods, beyond which is the Chicago River and a solidly obnoxious industrial expanse. The buildings are faced southeast, giving excellent exposure to living quarters and looking toward the likely residential land and its natural community center site, not far away. A buffer strip is held between the buildings and the Pennsylvania Railroad elevated tracks west of the site. Heavily traveled Archer Avenue will be widened on the northwest boundary. Beyond this lies industry, trackage, slips, and smoke, upon which the buildings turn their back. Baseball, parking, and play occupy the west buffer strip adjoining the railroad. Tot lots are northwest of the buildings: they are easily watched from the galleries; they are close to the ground-floor laundry rooms and drying roofs above them; but they *are* quite cut off from morning sun in winter. The southeast, open part of the site is landscaped park overlooked by the living room and bedroom side of the buildings.

The building plan is notable for placing all the three-bedroom units in a row-house arrangement on the ground floor. The typical floor is a gallery-access plan superimposed on this. Each row house has its own front and rear entrance from walks surrounding the building. The row houses are slightly sheltered by being inset, back and front, within the line of the building face above. The structural members are not offset, due to the plan change, although plumbing offsets are involved. The two-bedroom end apartment of the typical floor is repeated on the ground level. Exterior columns are exposed, projecting on the outside and leaving no interior breaks on the typical plan. Spandrels are exposed concrete, flush with brick wall panels in which windows are set, one to a bay but not the full width, except at kitchen and dining foyers on the gallery side. The perfectly regular, exposed structure gives a firm pattern of bays in which the windows are not centered but occur in pairs on either side of alternate columns.

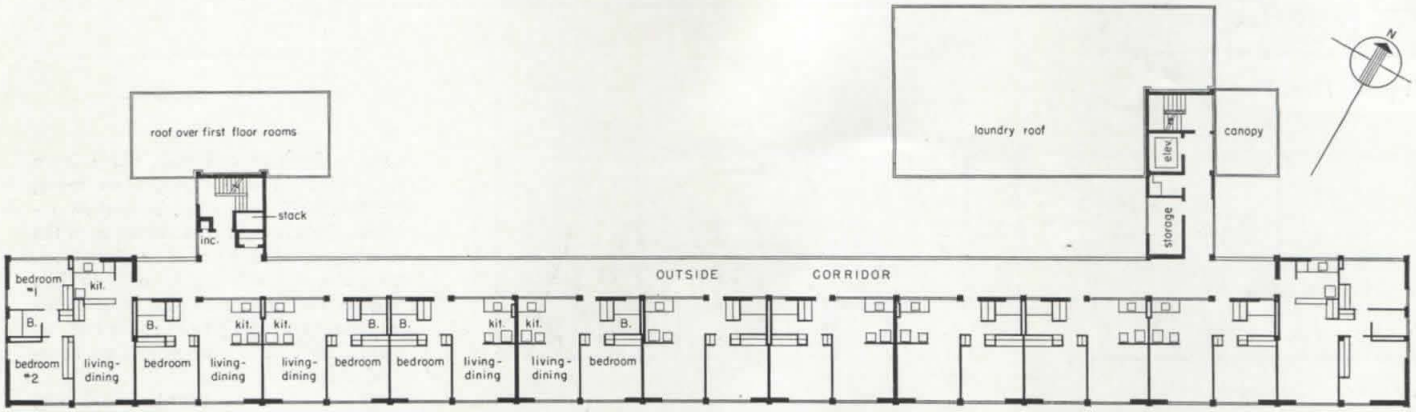
The regular and simple structure

grows out of an equally regular, simple, and efficient plan. The column interval is 12'-6". The typical room is rather wide, the building shallow, and the exterior wall area great. Against this is to be considered the gained efficiency of plan and structure. The building is but 21 feet deep, a single span requiring no interior columns and no girders in ceilings. The gallery is cantilevered.

The building arrangement is well composed on the site. Elevator entrances are set apart from the building in an accessible one-story unit housing the office, laundry, tenant's activity room, and bicycle storage. Elevator and stair shafts rise separately from the building and bridge over to it, so as to free the typical plan and gallery, though at some cost. This similarly frees the first floor plan for its continuous, row-house system. However, the path arrangement from elevator entrances to the west side of the site offers short cuts which will produce a good deal of traffic on the service path, very close to the row houses.

The elevator location at one end of the typical plan, rather than centrally as at Ogden, Loomis and Prairie Courts, doubles the gallery traffic passing the apartments closest to the elevator. Nor are the apartments at the opposite end of the gallery much better off in respect to traffic because the incinerator is down at their end. This arrangement, which intensifies gallery traffic, will relatively discourage the use of galleries as balconies.

Archer Courts is distinguished by the clarity of its architecture in plan, in elevation, and in mass. The design comes out of a site plan of equal clarity and orderliness. I find Archer a most satisfying design, esthetically.



Typical Floor Plan (NORTH BUILDING)

Scale 0 5 10 20 30'

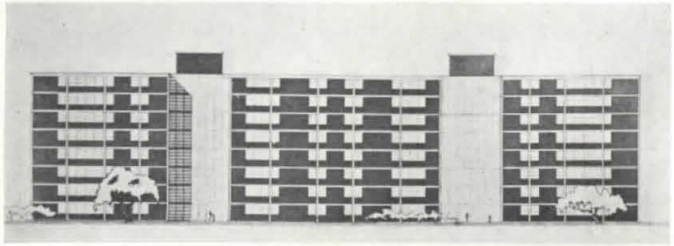
#apts.	#rms.			Room sizes (sq. ft.)		
108	3½			LR	133	
				DR	75	
				K	47	
				#1 BR	127	
		First Floor				Typical Floor
28	4½	LR & DR	218			LR & DR 211
		K	58			K 59
		#1 BR	125			#1 BR 127
		#2 BR	101			#2 BR 113
				First Floor		
12	5½			LR & DR	222	
				K	44	
				#1 BR	125	
				#2 BR	113	
				#3 BR	97	

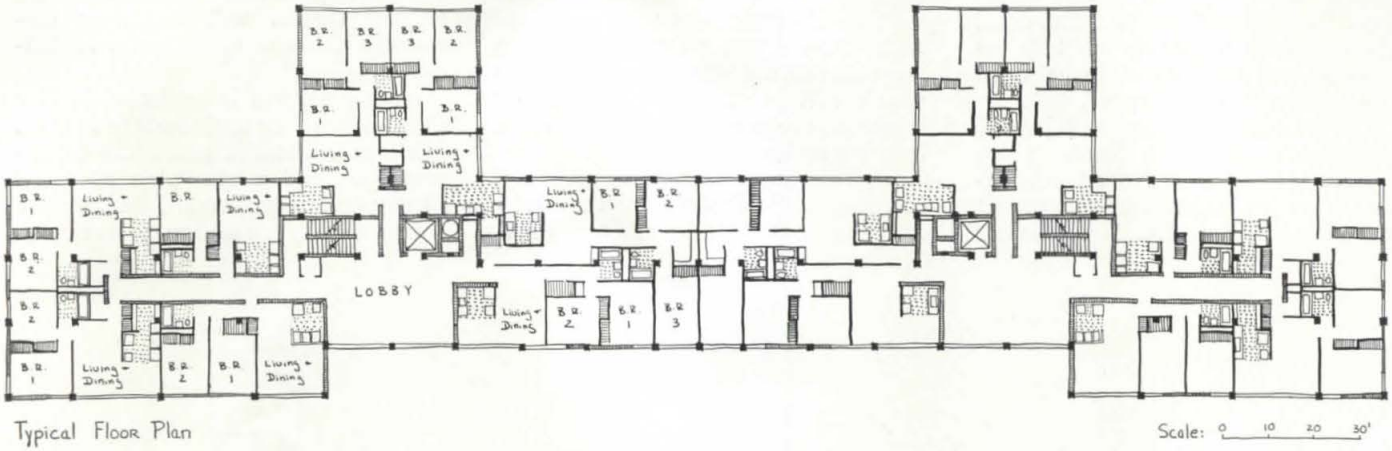
Av. rooms per family ..... 3.85 Av. gross sq. ft. per rm. 221

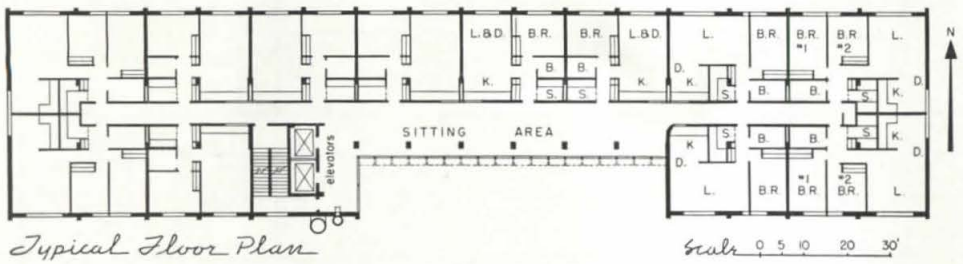
COMPARATIVE DATA FOR FIVE CHICAGO HIGH-RISE PROJECTS*

Project	Land Data				Project Size			Composition				Dwelling Area†
	Net Site Acres	Net Density pers./A	fam./A	Cover %	Fam. No.	Rms. No.	Aver. Rms./fam.	3 Rms.	3 1/2 Rms.	4 1/2 Rms.	5 1/2 Rms.	Av. gr. sq. ft. per Rm.
Dearborn Homes (6, 7, & 9 stories)	16.21	204.8	49.4	20	800	3606	4.51		192	400	208	217
Odgen Courts (7 stories)	3.16	212.0	43.0	15	136	696	5.12			52	84	220
Loomis Courts (7 stories)	3.64	115.4	34.6	10	126	483	3.83		84	42		251
Prairie Courts (7 & 14 stories) **					274	1008	3.68	26	186	62		234
Archer Courts (7 stories)	5.31	94.5	27.9	10	148	570	3.85		108	28	12	221

*For Comparison with current PHA standards, see pages 142-143.
**In addition, there will be 68 two-story row houses having 3, 4, and 5 bedrooms for large families. These will be constructed in a second phase. Land data therefore omitted here, as meaningless for high-rise buildings only.
†Includes gallery.







Above — elevation and plan study for a PHA project. The common, open space, with sash 100% openable, or entirely removable for summer, is set apart from the main traffic aisles by rails or glass-block stub walls, admitting light and air into the plan. The space may thus be arranged for supervised activities sponsored by tenants, such as a play school on occasional floors.

Left — an early study for Loomis Courts, with open space similarly used.

study for a future plan: site—unknown type—multistory

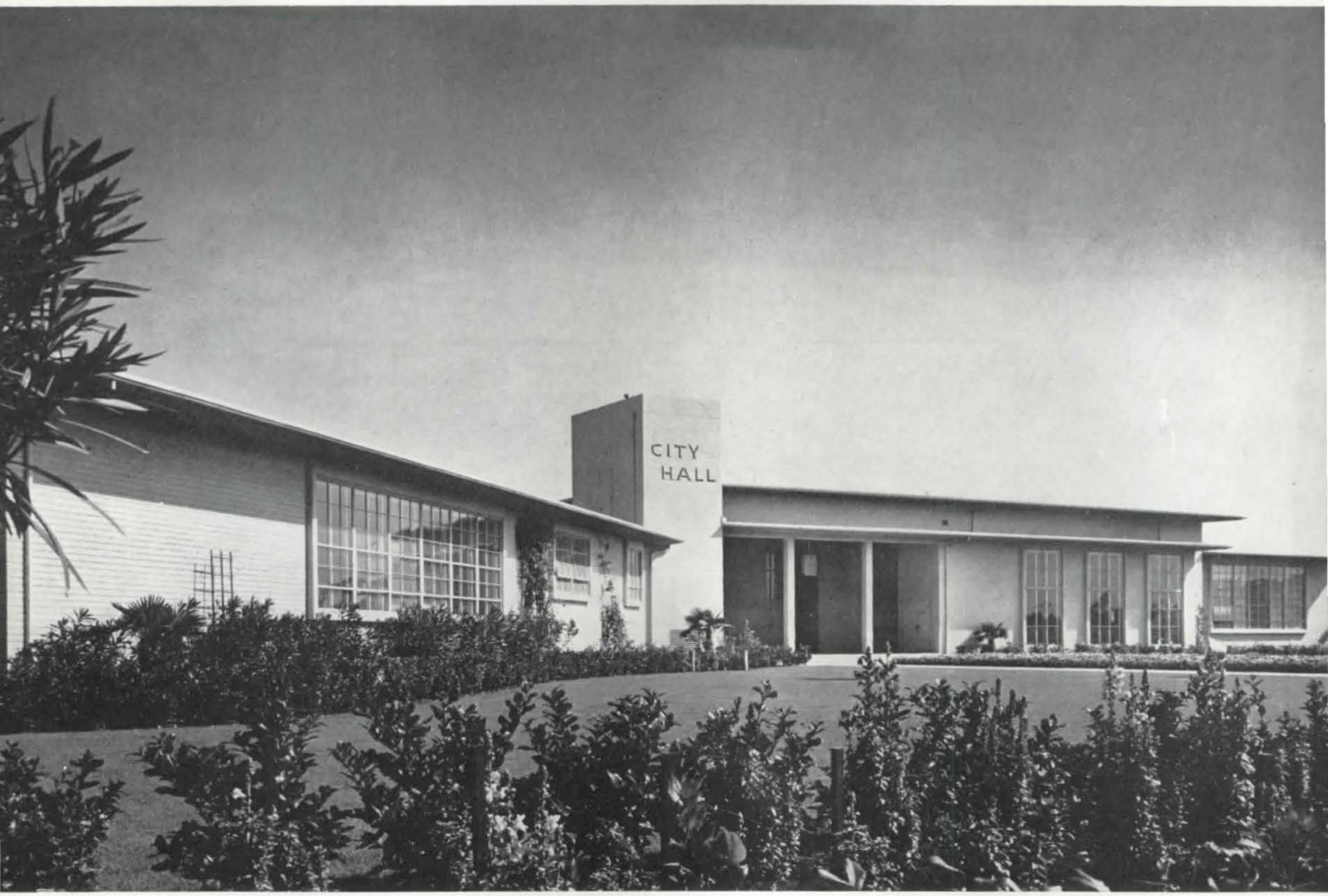
Julian Whittlesey, *author of this appraisal of Chicago's multistory public-housing projects was educated as an engineer and architect. As a practicing architect and partner in the New York firm of Mayer & Whittlesey, he has had wide experience in the fields of housing and other large-scale planning work. Recent work of the firm includes Manhattan House, block-long New York apartment house designed in co-partnership with Skidmore, Owings & Merrill for the New York Life Insurance Company; and the master plan for the new capital city of the Punjab, India. In 1950, Whittlesey served as Air Force Consultant on Wherry Act Housing. He is also a member of the Architects Advisory Committee to PHA.*

After Dearborn Homes, a federal-aided project, Chicago has turned to state financing in its further excursion into multistory housing; with higher costs, and hence higher standards, permitted under the Illinois Relocation Housing Law. Now Chicago turns back to resume its federal program. Federal standards have meantime been tightened. Minimums of 1949 are now maximums! The federal goal must now, if ever, admittedly be to build the least house for the most people — or build none. American Public Health Association standards have been left "out of sight" in what the A.I.A. has called "bobtail housing."

So Chicago faces the music! The open corridor scheme must be temporarily shelved. The public corridor is again double-loaded but a leg comes off the eight-family cross and at its severance re-emerges the common, open area, which Chicago means to keep. The two families from the lost leg are reinstated in single exposure apartments in this "T" plan; and the "T" is doubled.

There can be no magic in the resulting score. Split-wing end apartments still afford only corner ventilation — but here generous of its kind, because two rooms are the apartment's minor exposure. The 1950 maximum gross areas do not admit public corridors deep enough to avoid living-room thoroughfare in these apartments. The two apartments regained on the corridor win back privacy of living room arrangement.

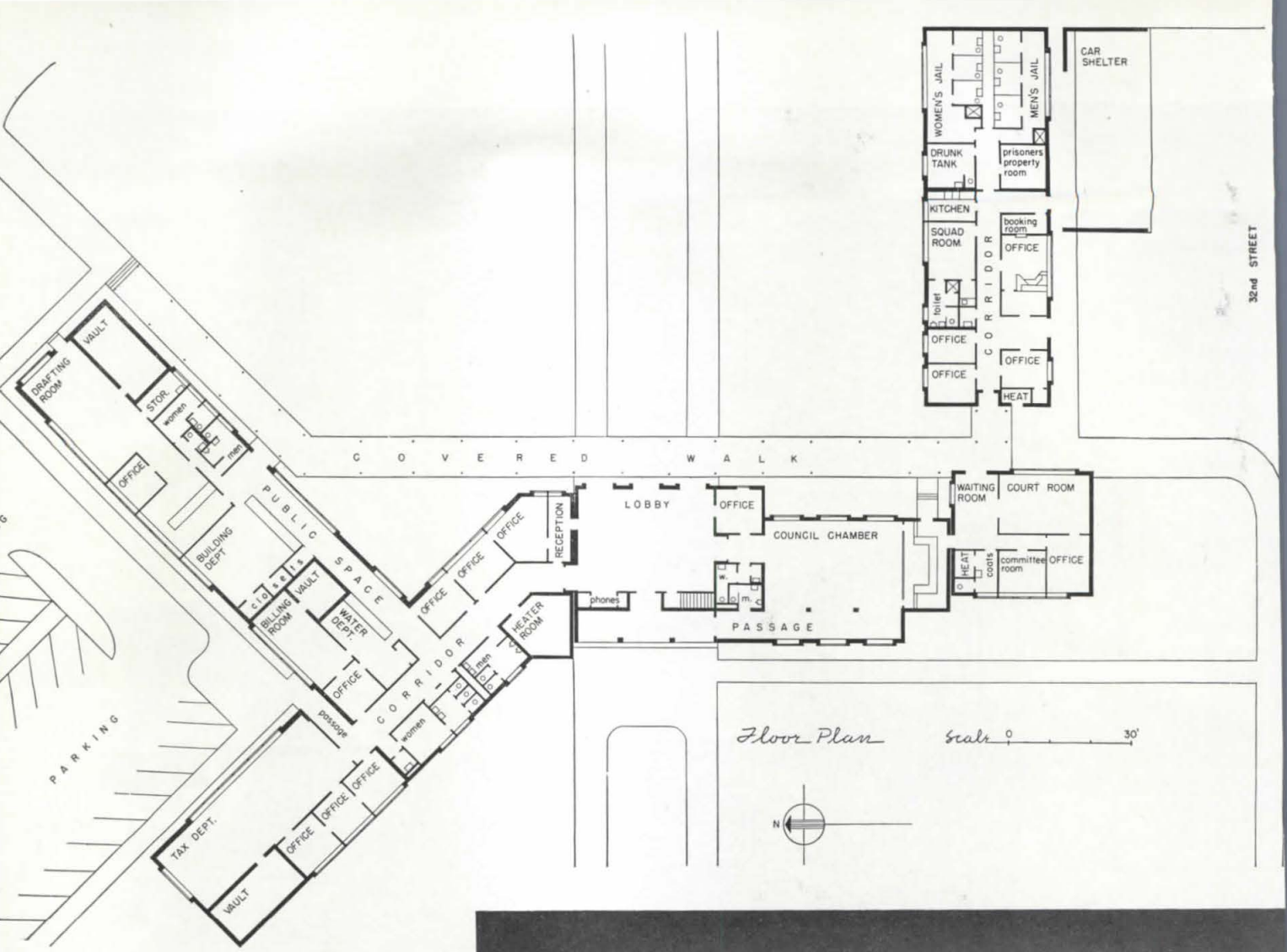
The plan is compact like a closed book, and the battle line with costs is here carefully drawn to defend and keep the common, open space which is the salient feature of this plan. I think it is well calculated to succeed in this respect, more than any similar study I have seen this last year. Many others are seeking this same goal, and the Chicago Authority comes particularly well prepared. A part of this preparation dates back to the early study for Loomis Courts (also shown here), which is one of the series leading up to the final design.



City Hall and Police Station: Newport Beach, California

RALPH C. FLEWELLING & ASSOCIATES, ARCHITECTS

This informal civic group for a resort city is built on a spacious plot that provides ample off-street parking. The general view of the front (above) shows the handsome planting that is an integral part of the scheme. At the time the photographs were made, landscaping was still in progress at the rear of the building (right).
Photos: Julius Shulman



Above — general view from the south; court room and office in low mass in foreground; council chamber and lobby in center, tax-department wing in background.

Left — the police station, a separate structure, joined to the City Hall by a covered walk; the car shelter faces a side street.

program

Department offices, a council chamber, and a police station for the fashionable resort city of Newport Beach, some 50 miles south of Los Angeles. The new building replaces a miscellany of offices that had been inefficiently housed in an abandoned two-room school building and a decrepit house. Generous off-street parking was a specific requirement; and the wish was expressed that the building should be informal and inviting, to echo the lightsome, holiday character of the community.

site

A spacious, irregularly shaped, flat lot, near the central business area and directly accessible from a main boulevard.

solution

A spread-out, one story scheme, with wings connected on the exterior by covered walkways; the police station, in a separate structure but joined to the main group by a covered walk. Entrances to the various departments open directly from this outside circulation, though corridors connect these within the building. The police department's wing faces a side street, permitting quick and easy access undisturbed by other traffic lanes.

A sandy, silty soil, subject to some movement due to pressure of ocean tides, led to construction of the building on concrete piles. To withstand earthquake stresses, walls are of reinforced brick masonry or (in the lobby-council chamber mass) reinforced concrete. Sections of the building are connected by means of fragile joints, with 6-inch divisions at various points, so that stresses in one portion of the building would not be carried to the next section.

materials and methods

CONSTRUCTION: *Foundation:* concrete piling. *Walls:* reinforced masonry and concrete. *Floors:* concrete slabs, surfaced with asphalt tile, terrazzo, or carpeting. *Roof:* steel joists; concrete or wood decking; built-up roofing with gravel surfacing. *Insulation:* acoustical — white asbestos fiber, sprayed on ceilings; thermal — mineral wool. *Sash:* steel. *Doors:* flush veneer with built-up core.

EQUIPMENT: *Heating:* forced hot-air system, with gas-fired furnaces, *Lighting:* incandescent units, with directional lenses; specially designed fixtures in main lobby. *Special equipment:* prison window guards; bunks; doors; etc.; auditorium seating.

architect

Ralph C. Flewelling: Wesleyan U. (B.S.); graduate work at M.I.T. Has practiced architecture in Los Angeles since 1924 and now is a partner in the firm of Flewelling & Moody.

The walk connecting the lobby area and the building department wing defines a triangular, landscaped court.

CITY HALL AND POLICE STATION: NEWPORT BEACH, CALIFORNIA

Above — the covered walkway at the rear of the building; the large windows are in the council chamber (right); projecting mass beyond marks the lobby (above, right).

Are You Professionally Exempted?

By ROBLEY D. STEVENS*

The purpose of this article is to acquaint architects and employes of architectural organizations with the major features of the exemption provisions of the Fair Labor Standards Act 1949, amended effective January 25, 1950. A thorough understanding of the basic requirements is essential. In other words, the new regulations contain "tests" of duties, responsibilities, salary levels, and other requirements which employers must apply in qualifying and determining which employe may be exempted from the wage-hour provisions of the act.

Exemption of an architect depends upon meeting the official professional requirements set forth herein. In my former governmental investigational work, I inspected firms who claimed that certain workers were bona fide architects, but when I applied the official "tests" for exemption a number of them could be classified properly only as draftsmen.

As a result, these firms had to make restitution of substantial sums for back pay to comply with the wage-hour requirements.

ARCHITECT'S QUALIFICATION FOR PROFESSIONAL EXEMPTION

Section 13 (a) (1) of the F.L.S.A. 1949, amended, exempts from the wage-hour provisions of the act "any employe in a bona fide executive, administrative, professional, or local retaining capacity, or in the capacity of outside sales."

A few words of caution are necessary in connection with the use of the illustrations. The exempt or nonexempt status of any particular employe must be determined on the basis of whether his duties, responsibilities, and salary meet *all* the requirements of the pertinent section of the regulations. The employe's title or class specification is of *no significance* in determining whether he meets these tests. In any specific case, it is the actual work performance, the responsibilities, and salary of the individual employe which determine whether a particular test has been met and whether the exemption applies. Finally, it is a well-established principle that the burden of proving exemption rests on the employer.

---

check list: executive architect (section 541.1) exemption

Yes	No	
		(a) whose primary duty consists of the management of the enterprise in which he is employed or of a customarily recognized department or subdivision thereof; and
		(b) who customarily and regularly directs the work of two or more other employes therein; and
		(c) who has the authority to hire or fire other employes or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotions or any other change of status of other employes will be given particular weight; and
		(d) who customarily and regularly exercises discretionary powers; and
		(e) who does not devote more than 20% of his hours worked in the work week to activities which are not directly and closely related to the performance of the work described in paragraphs (a) through (d) of this section; provided, that this paragraph (e) shall not apply in the case of an employe who is in sole charge of an independent establishment or a physically separated branch establishment, or who owns at least 20% interest in the enterprise in which he is employed; and
		(f) who is compensated for his services on a salary basis at a rate of not less than $55 per week, exclusive of board, lodging, or other facilities.

short test applicable

Provided: that an employe who is compensated on a salary basis at a rate of not less than $100 per week, exclusive of board, lodging, or other facilities, and whose primary duty consists of the management of the enterprise in which he is employed or of a customarily recognized department or subdivision thereof, and includes the customary and regular direction of two or more other employes therein, shall be deemed to meet all of the requirements of this section.

check list: administrative architect (section 541.2) exemption

Yes	No	
		(a) whose primary duty consists of the performance of office or non-manual field world directly related to management policies or general business operation of his employers or his employer's customers; and
		(b) who customarily and regularly exercises discretion and independent judgment; and
		(c) 1. Who regularly and directly assists a proprietor or an employe employed in a bona fide executive or administrative capacity, or
		2. Who performs under only general supervision work along specialized or technical lines requiring special training, or experience, or knowledge, or
		3. Who executes under only general supervision special assignments and tasks; and
		(d) who does not devote more than 20% of his hours worked in the work week to activities which are not directly and closely related to the performance of the work described in paragraphs (a) through (c) of this section; and
		(e) who is compensated on a salary basis or fee basis at a rate of not less than $75 per week, exclusive of board, lodging, or other facilities.

short test applicable

Provided: that an employe who is compensated on a salary or fee basis at a rate of not less than $100 per week, exclusive of board, lodging or other facilities, and whose primary duty consists of the performance of office or non-manual field work directly related to management policies or general business operations of his employer's customers, which include work requiring the exercise of discretion and independent judgment, shall be deemed to meet all of the requirements of this section.

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* J.D.; former official representative Wage and Hour Division, U.S. Department of Labor; co-author with Prof. E. W. Mounce, Modern Labor-Management Relations, How To Keep Regulatory Records, Collective Bargaining, etc.

check list: professional architect, (section 541.3) exemption

Yes	No	
		(a) whose primary duty consists of the performance of work:
		1. Requiring knowledge of an advanced type in a field of science or learning customarily acquired by a prolonged course of specialized intellectual instruction and study, as distinguished from a general academic education and from an apprenticeship, and from training in the performance of routine mental, manual, or physical processes, or
		2. Original and creative in character in a recognized field of artistic endeavor (as opposed to work which can be produced by a person endowed with general manual or intellectual ability and training), and the result of which depends primarily on the invention, imagination, or talent of the employe; and
		(b) whose work requires the consistent exercise of discretion and judgment in its performance; and
		(c) whose work is predominantly intellectual and varied in character (as opposed to routine mental, manual, mechanical, or physical work) and is of such a character that the output produced or the result obtained cannot be standardized in relation to a given period of time; and
		(d) who does not devote more than 20% of his hours worked in the work week to activities which are not an essential part of and necessarily incident to the work described in paragraphs (a) through (c) of this section; and
		(e) who is compensated for his services* on a salary or fee basis at a rate of not less than $75 per week, exclusive of board, lodging or other facilities.

* Provided: that this paragraph shall not apply in the case of an employe who is the holder of a valid license or certificate permitting the practice of law or medicine or any of their branches and who is actually engaged in the practice thereof.

short test applicable

Provided: that an employee who is compensated on a salary basis or fee basis at a rate of not less than $100 per week, exclusive of board, lodging, or other facilities, and whose primary duty consists of the performance of work either requiring knowledge of an advance type in a field of science or learning, which includes work requiring the consistent exercise of discretion and judgment, or requiring invention, imagination, or talent in a recognized field of artistic endeavor, shall be deemed to have met all the requirements of this section.

ARCHITECT'S RECORDKEEPING REQUIREMENTS

Section 11 (a) of the F.L.S.A. of 1949, amended, provides that the Administrator or his designated representatives may investigate and gather data regarding the wages, hours, and other conditions, and practices of employment in any industry subject to this act, and may enter and inspect such places and such records (and make such transcriptions thereof), question such employes, and investigate such facts, conditions, practices, or matters as he may deem necessary or appropriate to determine compliance.

Architectural organizations are still required to post in a conspicuous place the Compliance Posters issued by the Wage and Hour Division. Such employers are required to make, keep and preserve such records of the employes.

No particular form or order of records is prescribed. It is required only that an employer make and keep clear, accurate, and complete records which shall reflect the information and data required by official requests. Records must be kept for a period of 3 years and made available for inspectional purposes within 72 hours upon official demand.

Complaints, records, and other information obtained by the Wage and Hour Division from employes and employers are treated confidentially.

check list: items required (section 561.1)

Architectural employes exempted under Section 13 (a) (1) who are employed in a bona fide executive, administrative or professional capacity.

1. Name in full.....
2. Home address.....
3. Date of birth (if under 19).....
4. Occupation in which employed.....
5. Time of day and name of the day on which the employe's work week begins .....
6. Basis on which wages are paid.....
7. Total wages paid each pay period.....
8. Date of payment and pay period covered by payment.....
9. Social Security Number.....

check list items required (section 516.3)

Architectural employes under certain Union Agreements in pursuance of a contract, made as a result of collective bargaining by representatives of employes certified as bona fide by the National Labor Relations Board as provided in Section 7(b) (1) or 7 (b) (2). The following items are required:

1. Name in full.....
2. Home address.....
3. Date of birth (if under 19).....
4. Occupation in which employed.....
5. Time of day and name of the day on which the employe's work week begins .....
6. Regular hourly rate of pay; basis on which wages are paid.....
7. Hours worked each work day, and total hours worked each work week.....
8. Total daily or weekly straight-time earnings or wages paid.....
9. Daily and weekly overtime excess compensation.....
10. Total additions to or deductions from wages paid each pay period.....
11. Total wages paid each pay period.....
12. Date of payment and the pay period covered by payment.....
13. Copy of collective bargaining contract.....
14. List of each employe employed pursuant to a collective bargaining agreement.....
15. Listing period covered and hours worked under collective bargaining contract.....

OBSERVATIONS

The F.L.S.A. 1938, amended 1949, has been on the statute books for over a decade. During this period approximately $140 million has been collected in back wages by official agents. Official reports confirm the fact that violations included instances of complete disregard of the overtime provisions; improper computation of the regular rate of pay; misapplication of exemptions provided for executive, administrative, professional or sales employees; and inadvertent clerical errors. Although many of the violations resulted because of misunderstanding or error, a substantial number of them resulted from willful or intentional violations.

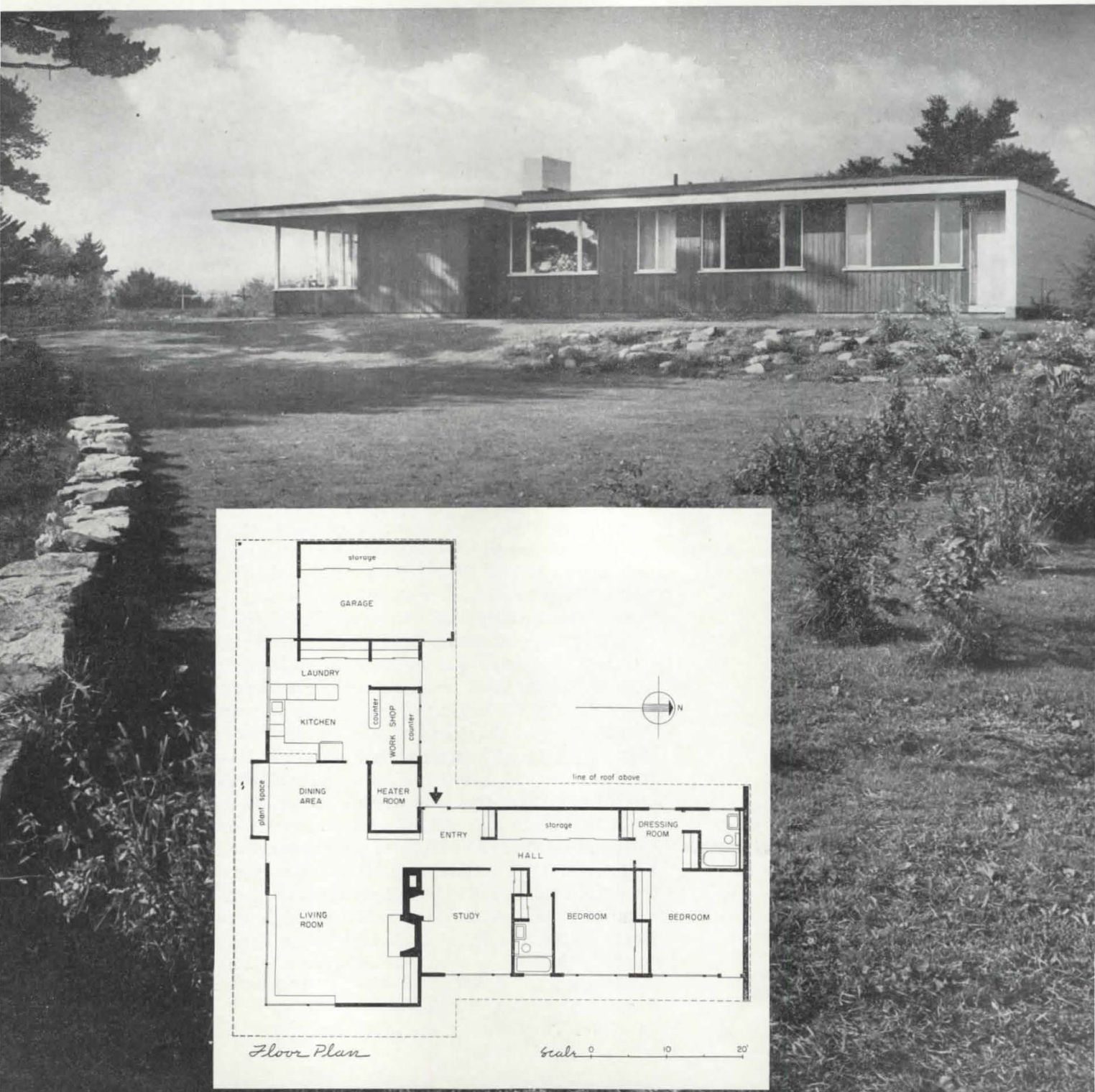
An architectural organization's first contact with a Wage-Hour inspector is through an examination of the records. For that reason, it is impossible to overstress the importance of well-kept and accurate records with regard to the foregoing requirements.

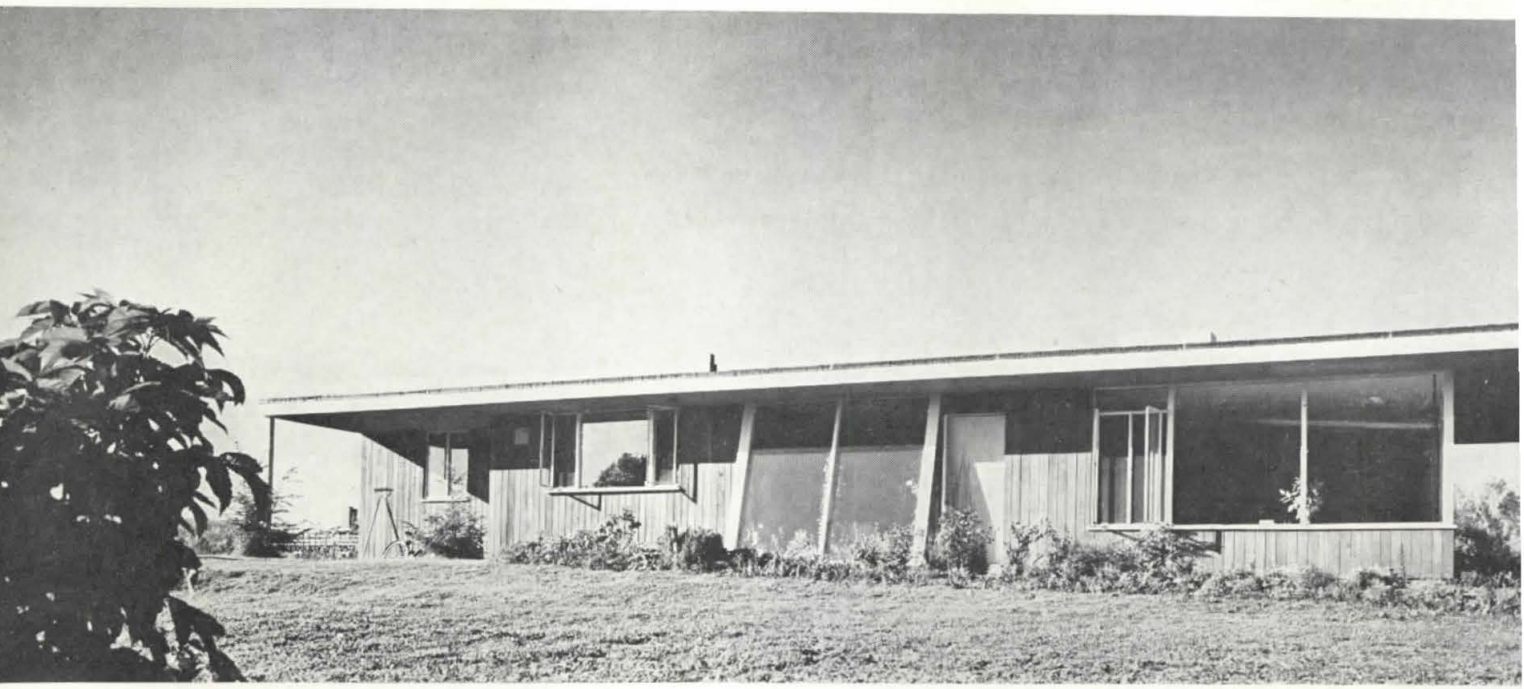
Can you prove compliance? The best way to ascertain your operational status is to conduct a periodic audit of the records for controlling wages, hours, records, and exemptions permitted thereof. In this way, architectural management will learn what broad class of employes may be exempt and how they may qualify for the exemption clause.

Section 16 provides for harsh penalties—$10,000, 6 months imprisonment, or both. In other words, the Wage-Hour Division has vast enforcement measures. One of the best ways to keep overtime labor costs down is to understand fully the basic requirements.

House: Hanover, New Hampshire

E. H. AND M. K. HUNTER, ARCHITECTS





program Home for a Dartmouth Professor and his wife and daughter. In addition to fairly standard requirements of living-dining space and kitchen, two bedrooms and a study were requested, arranged so that one bedroom might later be used as a rental unit. Other special needs were "a workshop off the kitchen" (for making block prints) and "laundry equipment in the service entry."

site Level, with a fine view across a ravine to the south.

solution House arranged in an L-shaped plan, with main living rooms oriented south. An exterior door into the end bedroom makes possible conversion of this space to a rental unit; one dressing-room closet is equipped to receive a small unit kitchenette. The kitchen-workshop-laundry unit is particularly notable; extending through the house from north to south walls, it provides good southern light for the food-preparation area as well as good north light for craftwork, and the laundry space opens to covered drying space for use in rainy weather.

Discussing the storage space, the architects report that an original idea of a partial basement was abandoned because of cost. Instead, the bedroom hall has a 16-foot-long compartment, and an even larger one occurs along one wall of the garage. In fact, the architects comment that there may actually be too much storage space!

materials and methods CONSTRUCTION: *Foundation:* poured concrete. *Frame:* spruce. *Walls:* frame, surfaced ouside with 6″ shiplap cypress; inside, with burlap over rigid wallboard; ¼″ oak plywood, or (kitchen and baths), plastic-finished panel board. *Floors:* concrete slab, surfaced with asphalt tile. *Roof:* frame, sheathing, built-up roofing. *Insulation:* acoustical — ceiling tile; thermal — wool type in walls and ceiling. *Fenestration:* steel casements; ½″ and ⅛″ double "A" glass. *Doors:* hollow core birch; door — solid core birch.

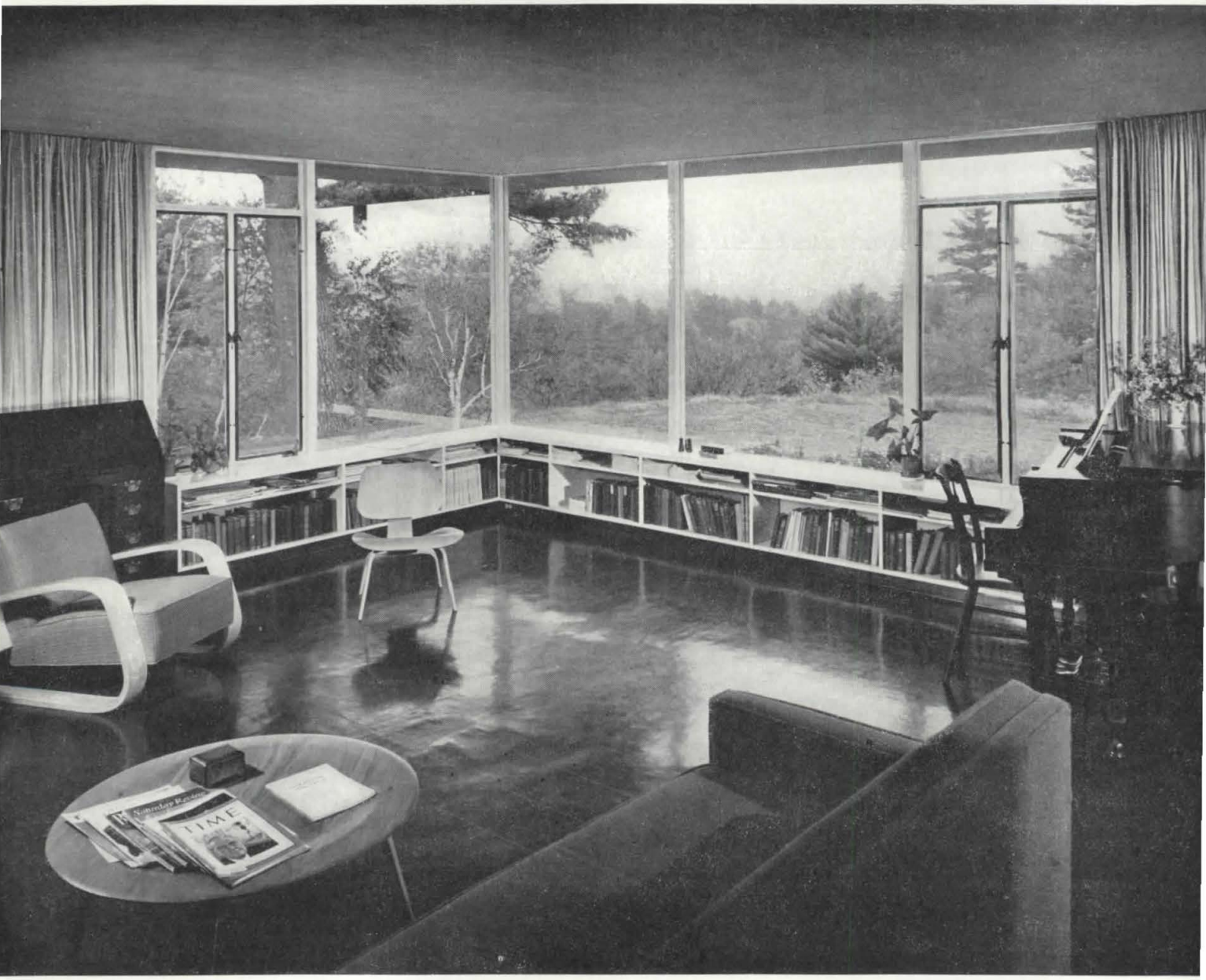
EQUIPMENT: *Heating:* oil-fired, hot water radiant system; wrought iron pipe coils in floor slab; controls.

Top — south front of house, with garden entrance (covered drying space) at left.
Left — living room fireplace wall is surfaced with oak plywood; flooring is asphalt tile over radiant-heated concrete slab.
Photos: Richard Garrison

HOUSE: HANOVER, NEW HAMPSHIRE

Right — an outsloping south window in the dining bay increases the apparent size of the area and allows year-round indoor planting.

Below — entrance side of house and the window corner of the living room. The flush ceiling-soffit line was made possible by use of deep overhangs and hipped roof, which gave space at the plate for 4" x 8" beams above large glass areas.

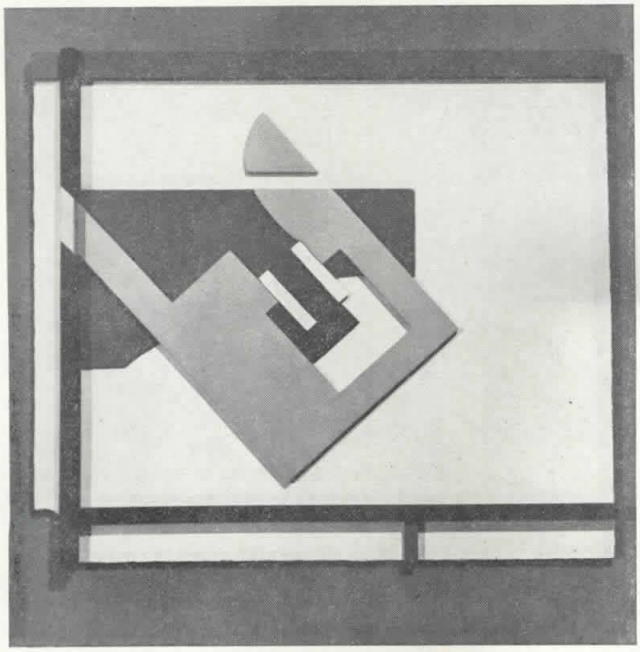


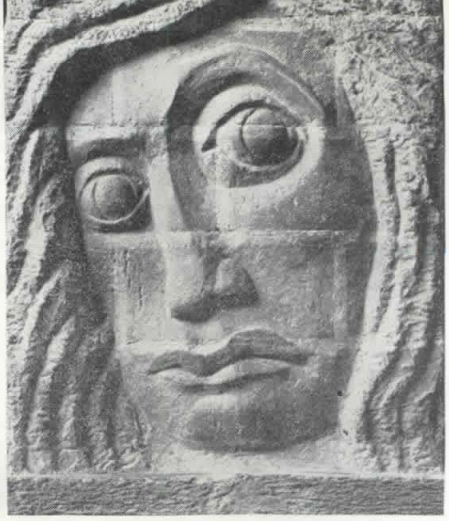
HOUSE: HANOVER, NEW HAMPSHIRE

Top — south side of the zoned kitchen-laundry-workshop area, viewed from the laundry portion; pass-through window to dining area in corner.

Left — detail of study; acoustical tile ceiling; burlap-covered wallboard wall surfaces.

Below — passage from entry into living-room, with door out to south lawn in background.





The wood Construction (above) is by Gertrude Greene, New York and Pittsburgh. At right (top) is a self-portrait in common brick, by Lilli Gettinger, Washington, D.C.; and a hammered lead, "Woman at Mirror," by Martin Craig, Paris and New York.
Photos: Gettinger, Victor Amato, Whitney Museum

Wall Decoration

BY BERTHA SCHAEFER*

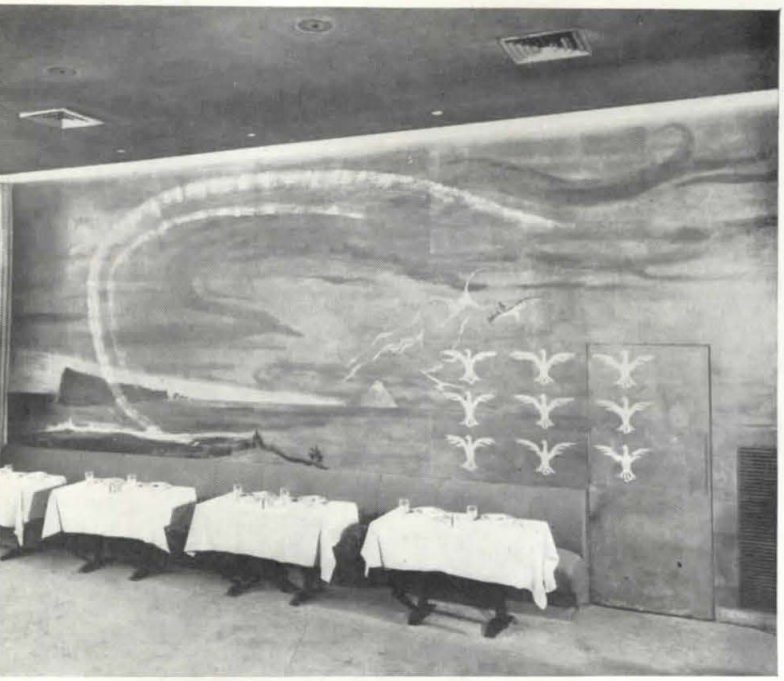
Just as wall is essentially an element of whole structure, so wall decoration must take its place as an integral part of whole structure. When decoration is obviously applied ornamentation rather than a well-ordered component of the wall, it fails to sustain that element and acts to destroy the qualities of integration and fine spatial feeling.

The interest of the design of a wall can be heightened in so many ways by the contributions of our imaginative artists, both painters and sculptors. They have much to offer in their handling of materials that are new in their relation to buildings, and also the old materials. A change in the way of working with a material, or the introduction of a new material in a well-considered design, gives a happy buoyancy of expectation.

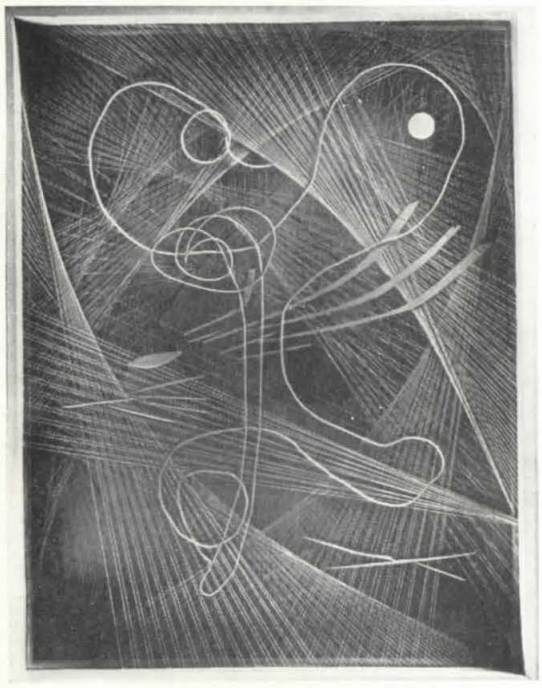
Too often in contemporary buildings, with textural use of stone or plaster and wood in combination, these materials are repeated with dull monotony of effect. Even handsome woods, well-surfaced plaster, or carefully chosen stone will create tedium if used in the same way in room after room, over and over. A building that may hold true interest in its plan and general solution can lose all interest by dull repetition of a wall treatment.

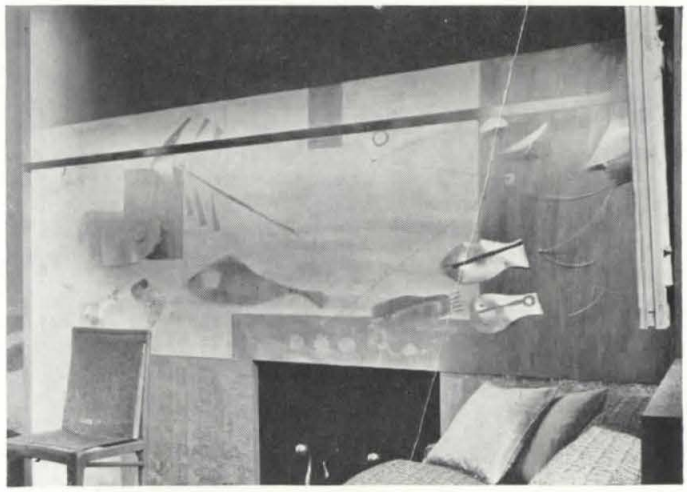
Yet the original handling of materials has too often been contrived—for experiment's sake rather than the constructive, creative mastery of a design problem. Richness of experimentation carried on by creative artists of today (too often in an ivory tower) should be related to the work of our progressive architects and builders. From such a co-ordination of effort there could result a form of ornamentation fresh in interest and well related to structure itself, in both character and expression.

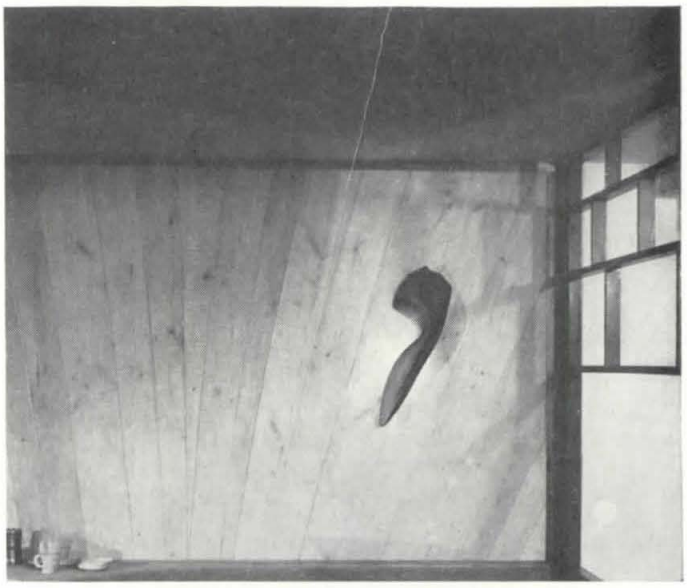
* *Bertha Schaefer Interiors and Bertha Schaefer Gallery, New York, N. Y.*



Grain of fir plywood used by Bertha Schaefer in the Caribbean Room of Hotel Pontchartrain, New Orleans, was included as a design element of the painted mural (left) by Dwight Marfield, New York. *Photo: Leon Trice*

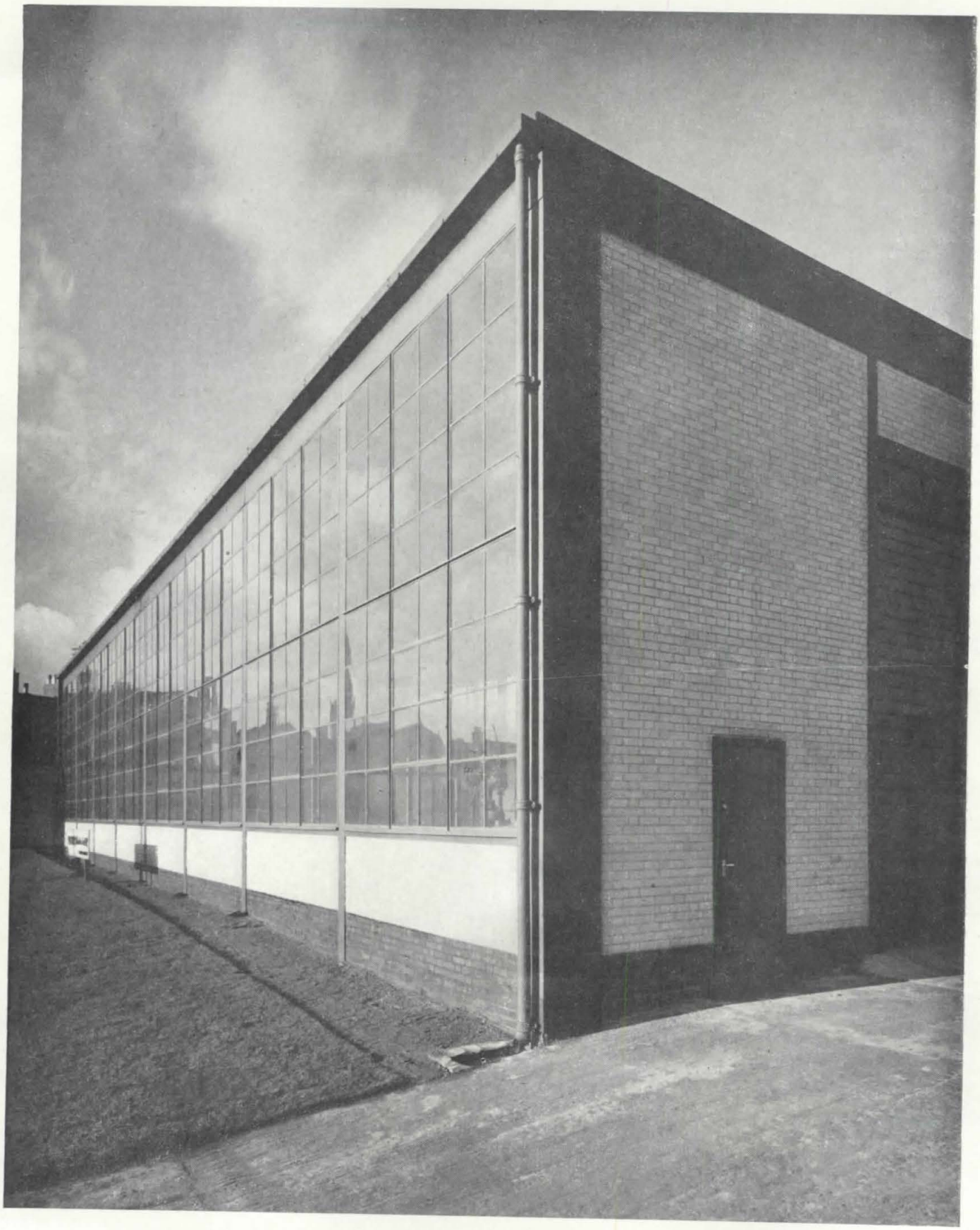






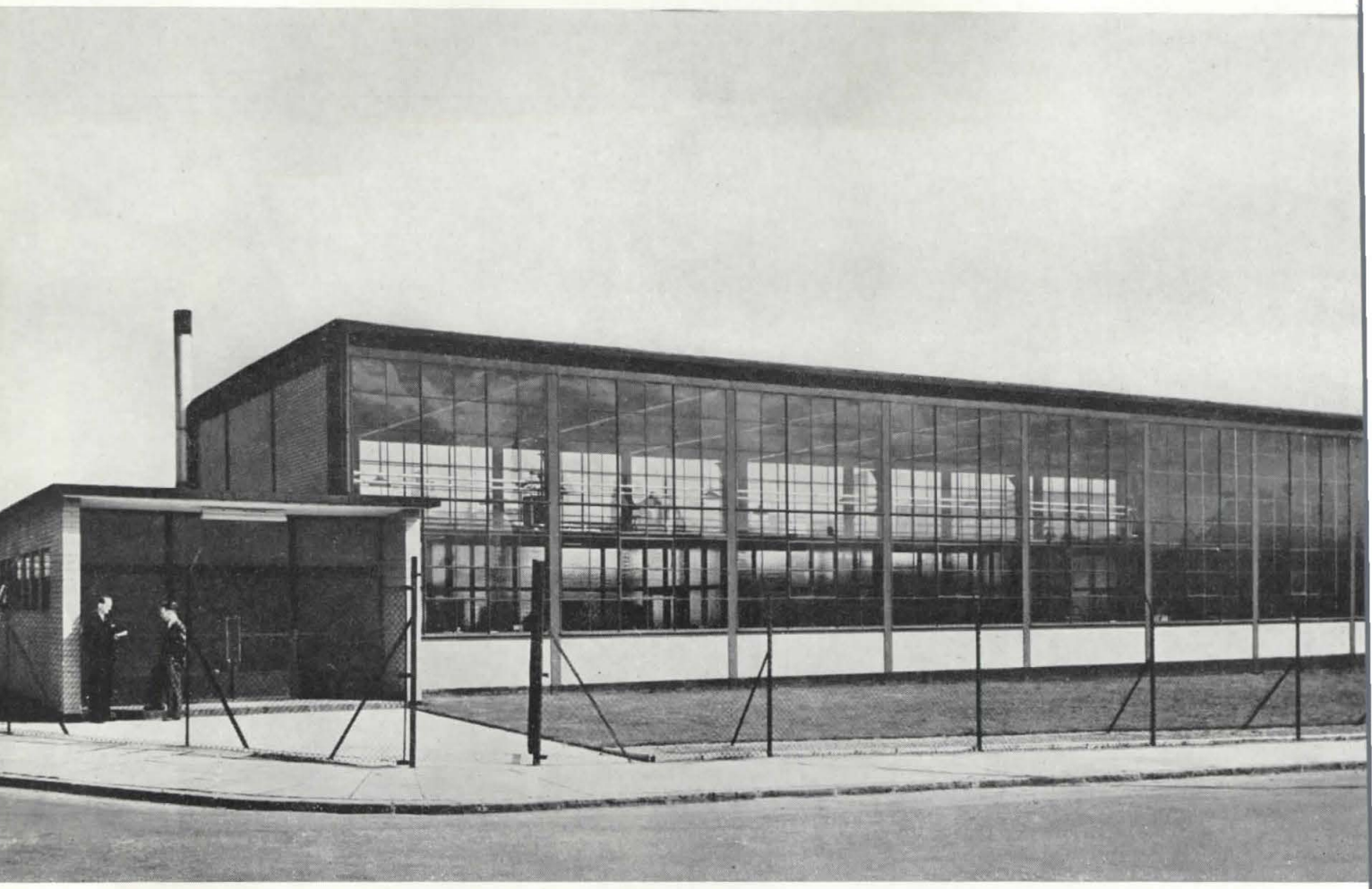
The string Composition (above) by Sue Fuller, Brooklyn, N.Y., was praised by Josef Albers as "the least common denominator used with maximum effect." At right (top) is shown a mural of metal forms, wire, and a mobile, against a painted background, by Dorothy and Fred Farr, New York; and from Sculptor Wharton Esherick's home at Paoli, Pennsylvania, a wood sculpture and boarded wall dramatized by light.

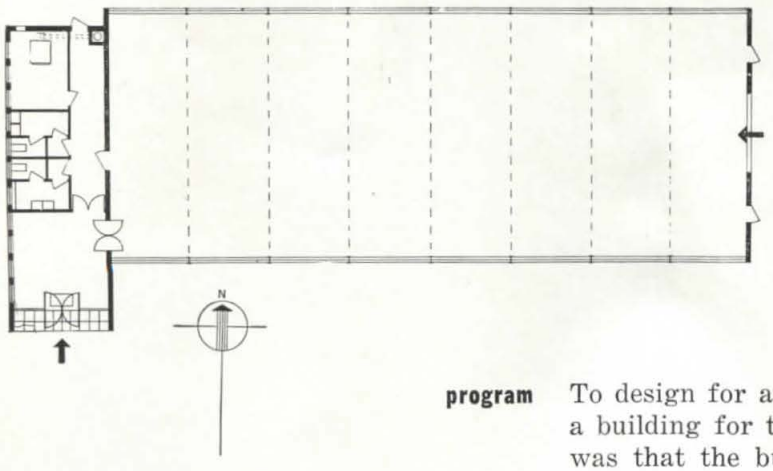
Photos: Michael Miller, Leon Trice, Richard Garrison



architecture for industry

BY RUDOLF FRANKEL, ARCHITECT



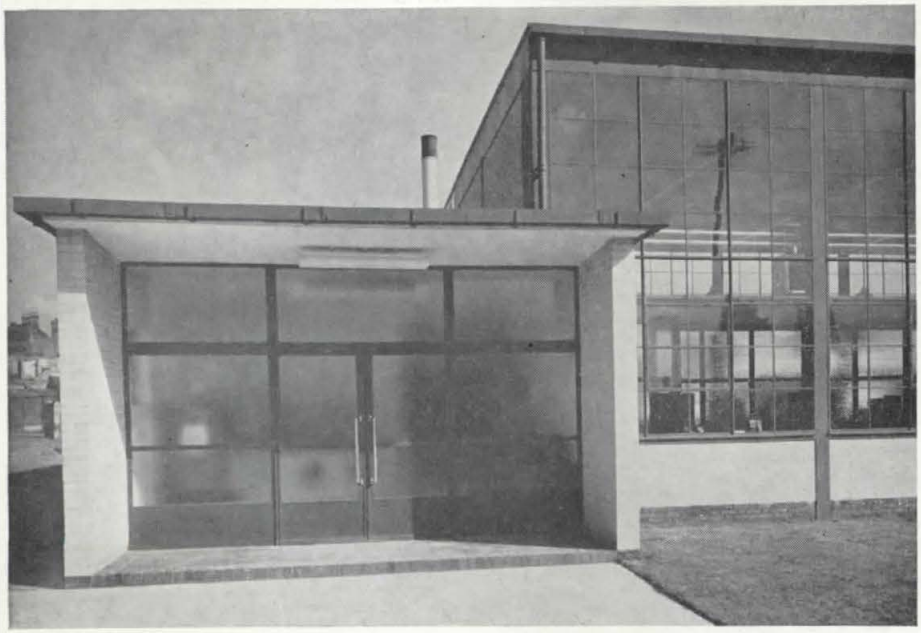


1. Machine Shop: Birmingham, England

program To design for an organization of machine-tool agents, a prototype of a building for the showing and servicing of machine tools. The idea was that the building could be erected, with minor adaptations, in various industrial centers.

site A valuable corner site near the center of Birmingham.

solution A rectangular, steel-framed building, 40′ x 105′ in area, and 21′ in height, with continuous fenestration along the two long sides. Electric bus ducts are continuous under the window sills to provide power contact wherever required. Trucks drive directly into the building through a roll-up overhead door in the center of the east end of the building and are unloaded by means of a 10-ton crane. The low wing at the west end of the building contains the entrance hall for visitors, coat rooms, and the boiler room. The present wing plan anticipates addition of a bay, in which there would be steel-partitioned offices on a gallery.



materials and methods

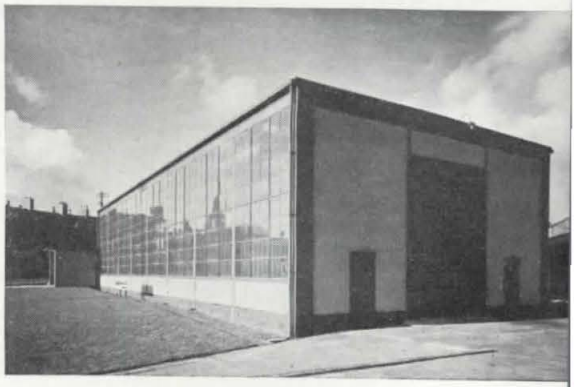
CONSTRUCTION: *Frame:* steel. *Walls:* 9″ filler panels of white facing brick; base coursing is of dark blue industrial brick. The steel work was detailed so that no frame bolts are visible; corner plates are spot welded, and the fascia plates and metal sash are clipped to the columns. *Roof:* steel decking painted with aluminum paint; all steel work, inside and out, painted light blue-gray. *Floors:* in the shop — concrete slab; in entrance hall area — terrazzo surfacing.

Facing page — over-all view from southwest; entrance, coat rooms, etc., in low mass at left.

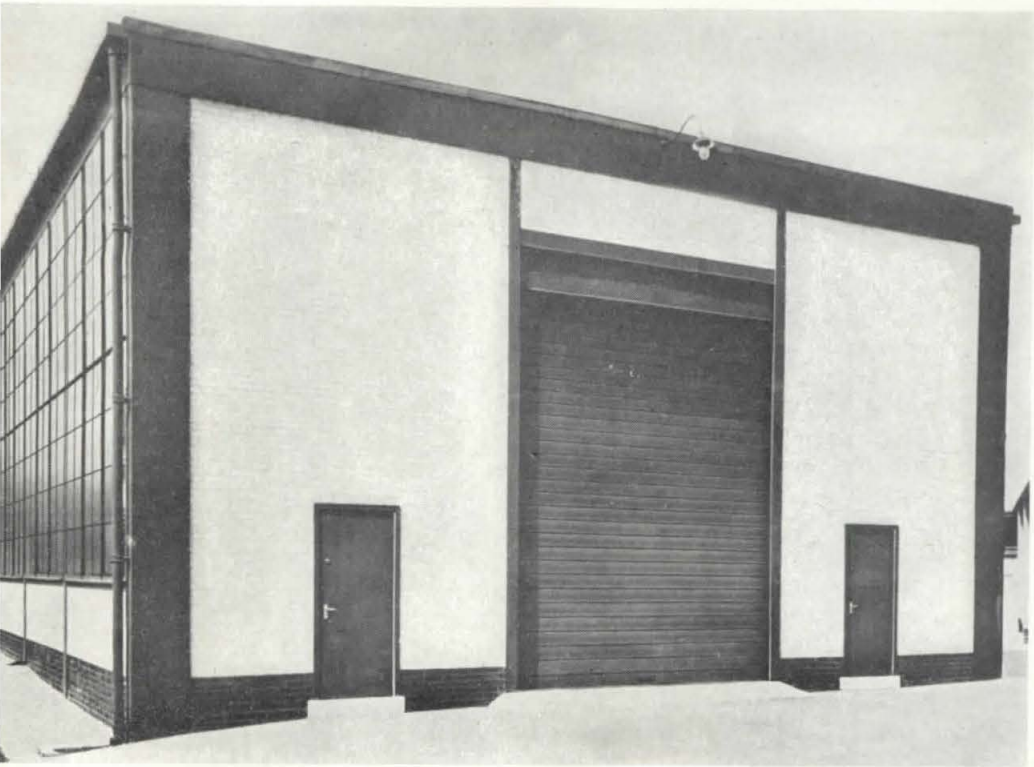
Top — detail of main entrance, with diffused glass panels.

Left — general interior view, looking east, with truck entrance door in end wall open. Directional unit heaters are attached to columns.

Below — general view from southeast; base brick is dark blue; steel members painted light blue-grey; filler panels, white brick.

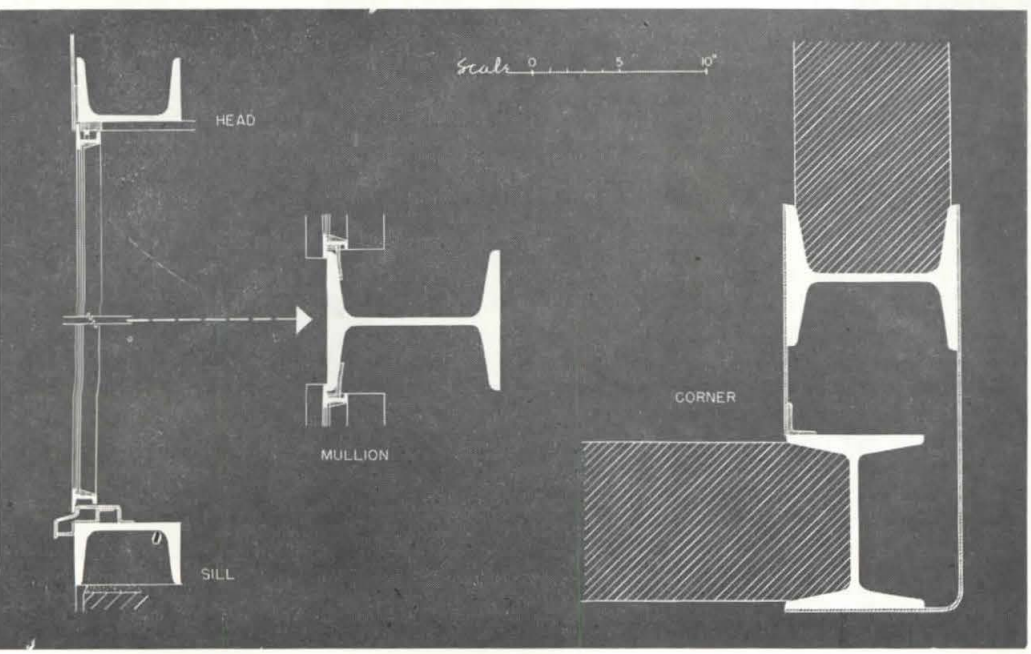


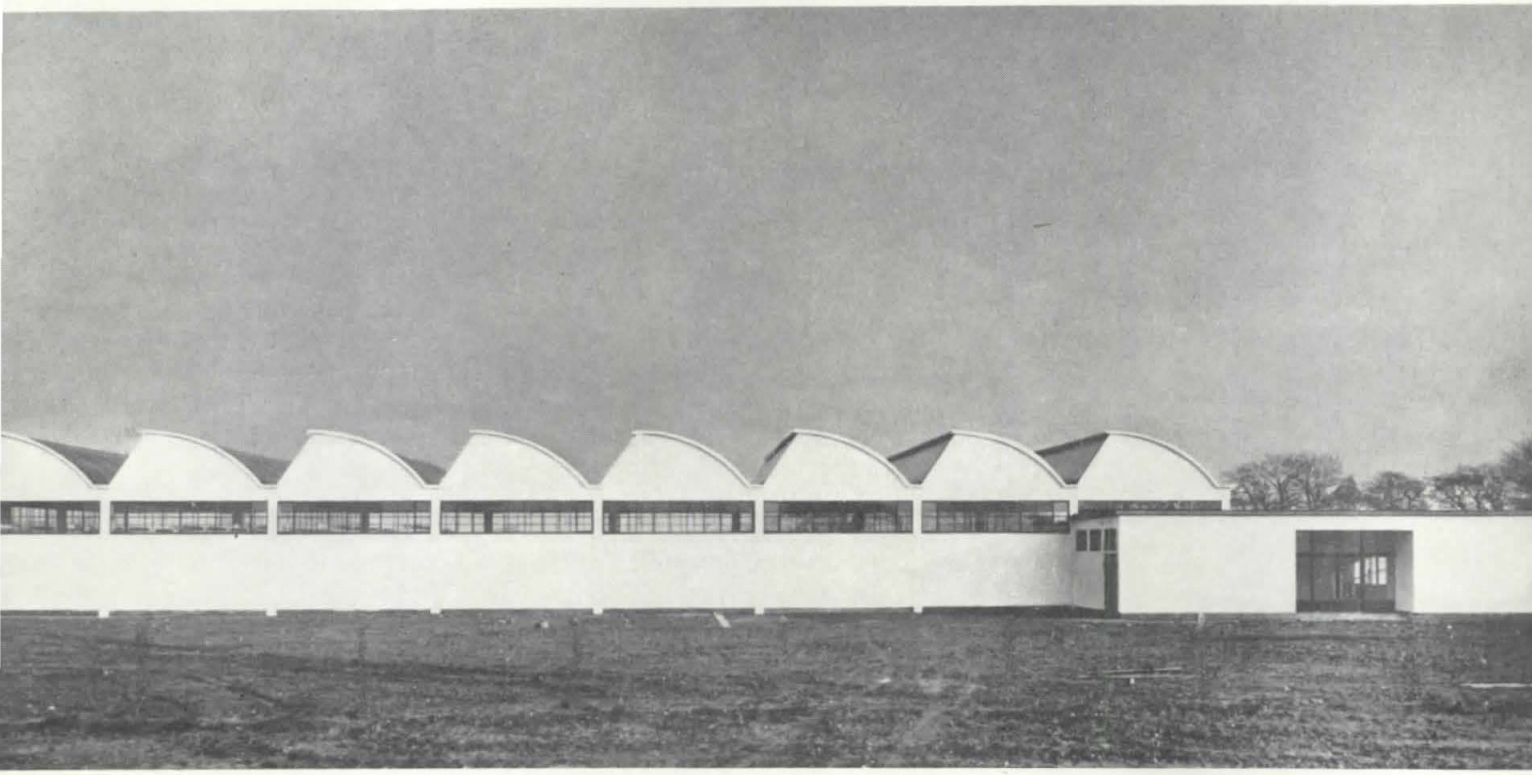
1. MACHINE SHOP: BIRMINGHAM, ENGLAND

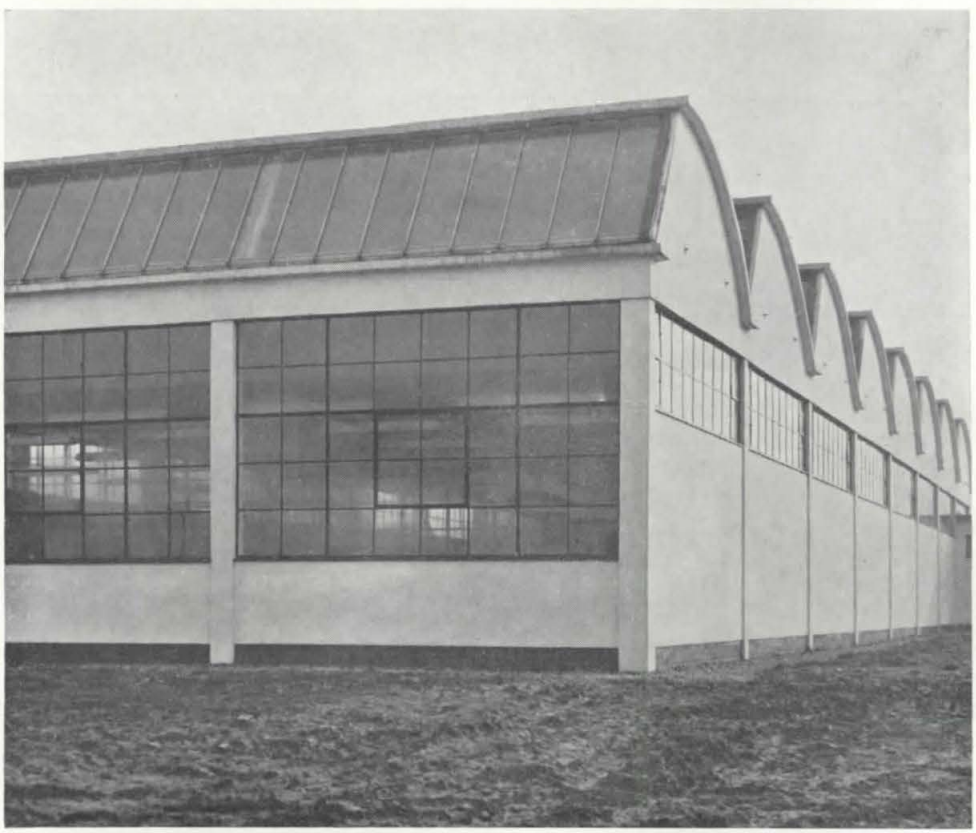


Above — truck entrance (east) end of building.
Right — detail of north wall of main hall; continuous bus duct at window-sill height allows attachment to power at any point.

Structural details showing welded members that help give the building its cleancut appearance; and elements of the fenestration and column framing.







First unit of an eventual scheme that will be five times the present size, this barrel-vault-skylighted plant was designed to use minimum steel.

Above — general view of western facade.

Right — detail of north end; brick cavity-walls fill between reinforced concrete structural columns.

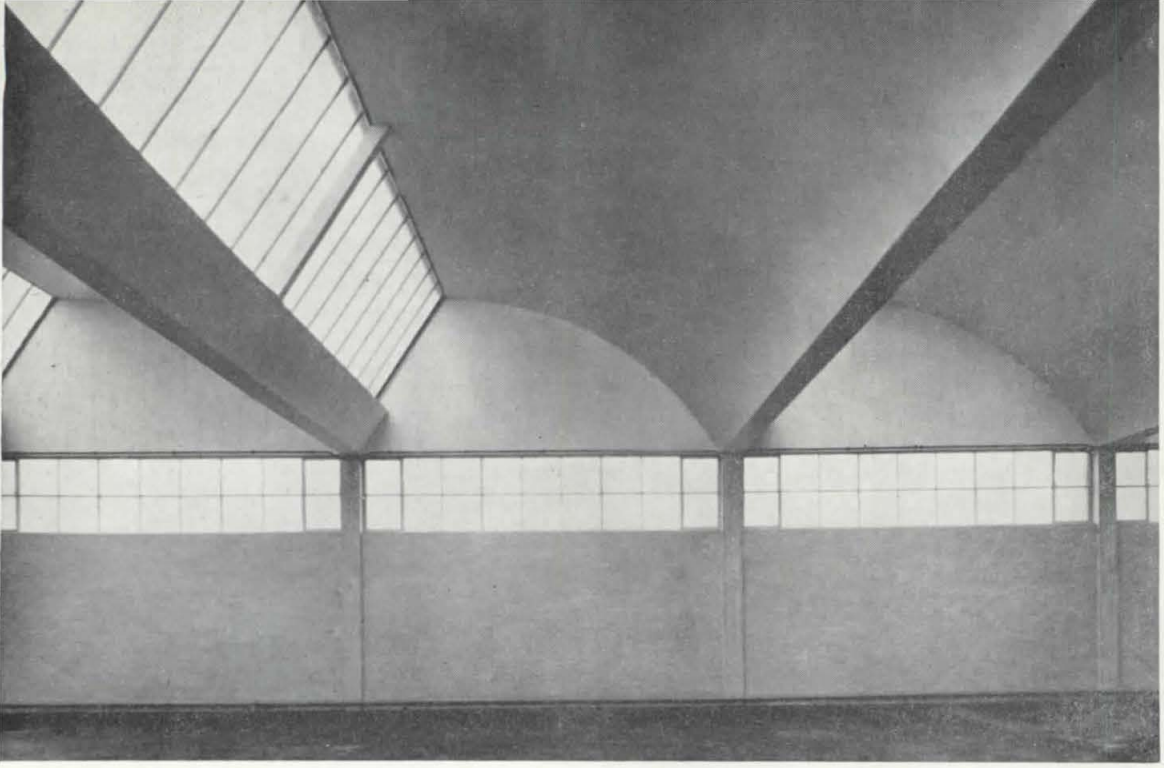
2. Nylon Factory: Congleton, Cheshire, England

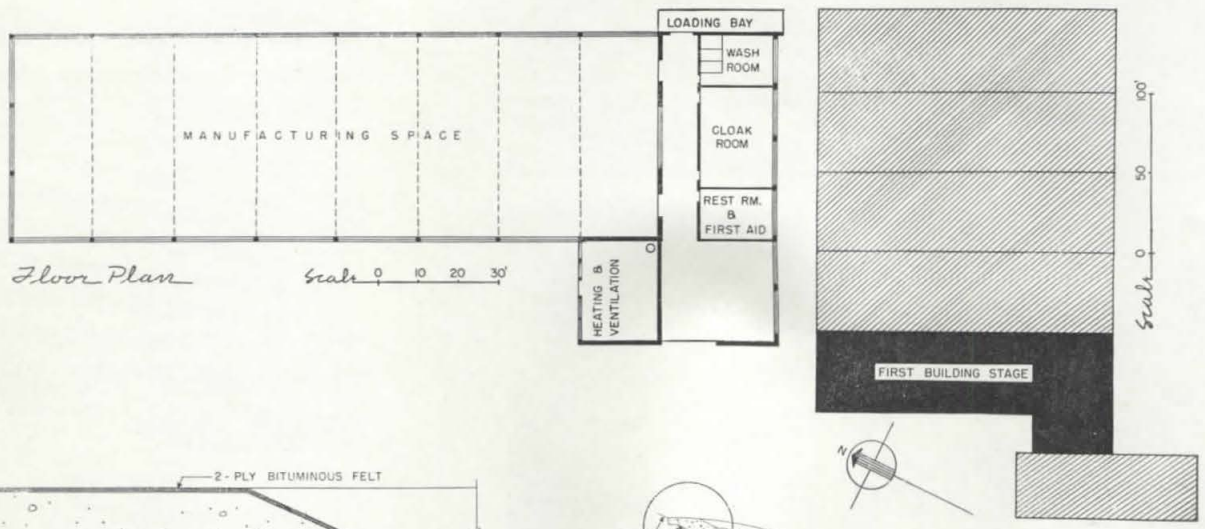
program Factory for the manufacture of nylon stockings and other knitwear. To house the required machinery and process, bays of 50′ x 160′ were found to be most efficient. The future development of the plan (see plot) envisages five such bays, with an administration building at the front.

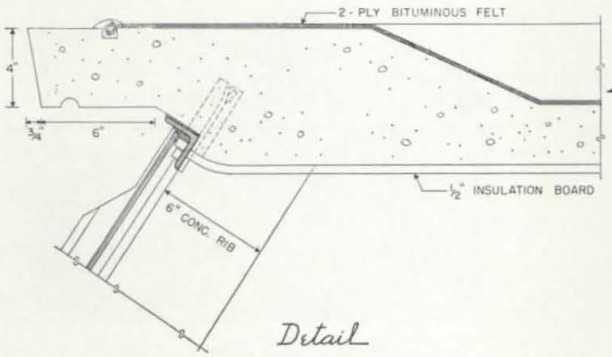
site Level site, approximately 5 acres in extent, on the outskirts of the town.

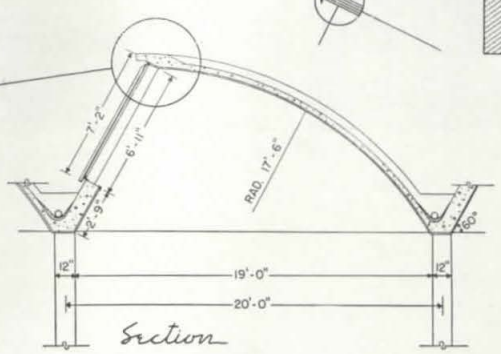
solution This first unit of the factory is oriented so that the barrel-vaulted skylights face the desirable north light; loading bays, coat rooms, etc., face the side yard and car-parking space to the south. At the time the building was planned, steel was in short supply; hence, every effort was made to economize on use of steel. The answer was reinforced concrete, barrel-vault roof construction, using about one-third as much steel as a similar steel-framed scheme would require. The curves of the 3″ vaults are painted white, serving as reflectors for the north light and also — at night — for the artificial lighting concealed in troughs at the base of the roof lights.

materials and methods CONSTRUCTION: *Frame:* reinforced concrete, with reinforced concrete barrel-vault roofs. The barrels are lined with insulating board against condensation and heat loss and are covered with bituminous felt. Panels, between structural columns, are of 11″ brick cavity-wall construction. *Floors:* in manufacturing area — hardened and treated reinforced concrete; offices, coat rooms, etc. — composition. Exterior of the building has a white preservative coating; the base courses, entrance steps, and paving are dark-toned industrial bricks; windows, doors, gutters are painted dark blue. The central heating is served by an oil-fired furnace.





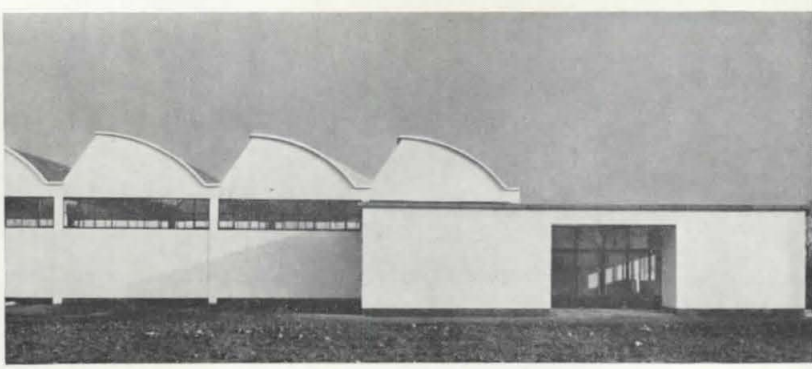




Facing page — general view of manufacturing area looking north.

Top — detail of the barrel-vault-skylight (see also drawings) designed to reflect and distribute the north light; night lighting is concealed at the base of the window bands and distributed similarly.

Right — detail, at entrance.



2. NYLON FACTORY: CONGLETON, CHESHIRE, ENGLAND

RUDOLF FRANKEL, ARCHITECT

1 Cinema, Berlin — 1929
2 House, Breslau — 1931
3 Theater, Frankfurt — 1932
4 Apartment House, Berlin — 1932
5 Factory, Bucharest — 1934
6 Cinema, Bucharest — 1936
7 Two views of a house, Bucharest — 1936
8 Apartments, Bucharest — 1936
9 House, Stanmore, England — 1938

RUDOLF FRANKEL: *Born in Germany 1901; studied in Charlottenburg-Berlin. First project as independent architect (1924), a state-aided housing scheme with 800 flats, shops, restaurants, and a cinema. Practiced in Bucharest from 1933 to 1937; in London from 1937 to 1950, during which the factories shown in this issue were designed. Late in 1950, came to the United States as Professor in Design, Department of Architecture, Miami University, Oxford, Ohio. Currently, an exhibition of Frankel's work is touring schools affiliated with the Association of Collegiate Schools of Architecture. Photographs on this page illustrate some of his work before coming to this country.*

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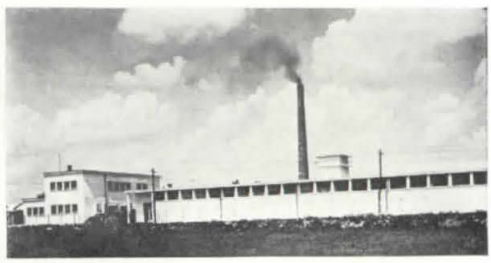

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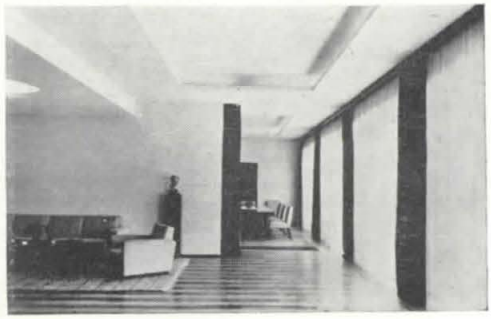

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3

Vinyl Plastics and Resins in Architecture

Plastics, in general, provide qualities of durability and versatility and are vastly more suited to modern mass production methods of manufacture than many older materials; vinyl plastics, which can be applied and kept clean with ease and are economical and colorful, have many architectural applications. To more thoroughly understand the advantages and limitations of this material, one should have at least a small understanding of its chemical properties.

what are vinyl plastics and resins?

Vinyl resins in their primary state are exceedingly fine colorless powders formed by the polymerization of organic chemical molecules containing the vinyl groupings. Polymerization is a process in which molecules are linked together in long chains—a process which can be regulated so that the number of these molecules can range from hundreds to hundreds of thousands. The various vinyl compounds that lend themselves to polymerization and co-polymerization include vinyl acetate, vinyl chloride, and vinylidene chloride. With the variations that can be made in molecular weight, together with other variations that may be obtained in the basic vinyl molecule itself, the number of possible vinyl resins, theoretically possible, is infinite.

The vinyl chloride type resins, which include the vinyl chloride-acetate copolymers, account for the largest portion of these materials. Not only are they free from color, odor, and toxicity, but also they have the advantage that they can be made to any degree of flexibility by the addition of plasticizers. These characteristics make them suitable for the formulation of film and sheeting, tile, surface coatings, molded articles, and wire and cable insulation.

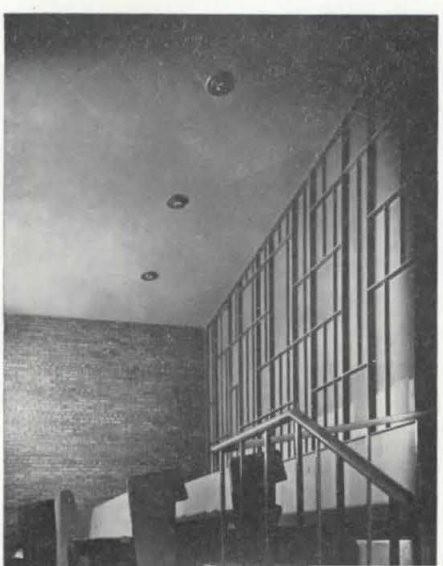
In preparing the flexible plastics the basic vinyl resin is mixed with small amounts of stabilizers (to minimize deterioration under exposure to heat, oxygen, and light), lubricants, and colorants, and from 25 to 45 percent by weight of plasticizer. Plasticizers, which are usually high boiling esters, convert the hard plastic into soft, flexible materials. This mixture is converted into usable forms by mixing and fusing; it can then be processed into film and sheeting of various thicknesses by means of a calendering operation. It can also be extruded as rods or tubes, or to coat wire, and it can be molded into almost any shape.

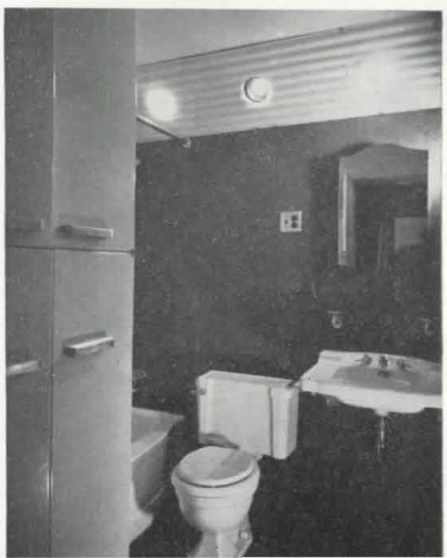
wall and window covering

Flexible film (the Society of Plastics Industry defines film as any continuous material not over 10 mils in thickness) and sheeting made from vinyl plastics can be manufactured in any thickness, although they are commercially available only in thicknesses of .003, .004, .006, .008, .010, .012, .020, .030, and .040, in continuous rolls of varying widths. The color range is unlimited and many textures are possible. Both film and sheeting are flexible, resilient, and highly resistant to tearing, abrasion, scuffing, flexing, and may be compounded so that they are resistant to fire. Because of its exceptional durability vinyl sheeting serves effectively as a wall covering material in hospital and hotel corridors, schools, restaurants, buildings and apartment lobbies, elevator cabs, railroad terminal public spaces, and department store walls. Recommended wall surface backgrounds for the application of this plastic include plaster, plywood, and sheet rock.

A relatively new vinyl material has been made by coating reinforced cellulose fibers to produce a sheeting that is flexible, crackproof, and stainproof. Used as a wall covering it can be cleaned with soap and water; for installation purposes it can be cut, stitched, or pasted with ease. Some of the uses for flexible vinyl film which may be described as adjuncts

*Technical Editor, Bakelite Division, Union Carbide and Carbon Company.





Right—woven vinyl plastic fabric used for organ screen in church balcony. Fabric which can be cleaned without removal was applied to rough framing before the screen installation was erected in place. It is claimed that this type of screening material helps to maintain high quality of tone transmission. Architects, Saarinen, Saarinen and Associates. *Photo: courtesy of Lumite Division, Chicopee Manufacturing Corporation.*

Far right—sheeting of vinyl plastic was specified for walls of this bathroom at Levittown, Long Island. *Photo by Ben Schnall.*

to architectural structures, include shower curtains, window shades, and draperies. Window shades made from vinyl plastics look and feel much like conventional cloth type shades, but have many advantages over them in that the vinyl shades will not crack, fray, water spot, or wear out.

floor covering

A number of methods have been devised to convert vinyl resins into floor covering materials, each striving to retain all of the advantages that vinyl resins can contribute. The actual processes are quite different. The resulting products may be grouped into four major types of floor coverings: resilient tile; hard or rigid tile; continuous sheeting of vinyl plastic laminated to a backing material; and basic resin used as a surface coating on paper.

Resilient tile is made from filled vinyl resin compounds having, in general, a filler-resin-plasticizer ratio of approximately 40-40-20—the most common type of fillers are calcium carbonate and asbestos. Annealing of the tile is done in a pressing operation which gives the topside a smooth surface for appearance and a rough surface to the underside for better adhesion. Although the tiles are available in squares of varying sizes, the thickness is usually about ⅛". They come in solid colors and in blended marbleized designs.

The rigid tile is made from a lower molecule weight resin and a larger amount of filler is used in compounding. It can be made in a wide range of sizes and has all the important characteristics of the vinyl flooring. Indentation is less and it can take a greater amount of abuse; however, it is somewhat noisier when walked on.

Continuous vinyl flooring consists of a highly filled vinyl resin compound that is first calendered into a sheet and then laminated to an asphalt-impregnated felt backing; the resulting product is trimmed to 72" width and rolled. This tough-wearing material is easy to maintain since it is nonporous. Although wax is sometimes used to provide additional gloss, it is not necessary as a protective coating.

Another type of vinyl flooring which stands to compete, not with hard surface floorings such as those previously mentioned but with fabric, is commonly called "soft" flooring. It is made in an entirely different manner: a low cost fabric is calendered-coated with a vinyl resin which may or may not contain filler; the sheeting is deeply embossed to simulate a twist-type fabric rug, and then laminated to a thin layer of sponge rubber. This product is light in weight, flame-resistant, has excellent wearing properties, and is extremely comfortable underfoot.

Among the newest of the vinyl floorings is one made by precision printing a waterproof paper, applying a coating based on vinyl resins, and laminating the coated paper to backing material. There are countless possibilities of design, color, and styling in this type of flooring; and color is stabilized as vinyl resins will not turn yellow on aging.

surface coatings

The vinyl resins are playing an ever-increasing role in the formulation of highly successful protective and decorative coatings. Certain of these resins were developed specifically for widespread compatability with other vehicles such as alkyds, ureas, and several oleoresinous varnishes. Others have been developed for service in primers and undercoats. Being colorless themselves, the resins allow the formulator a full range of color possibilities.

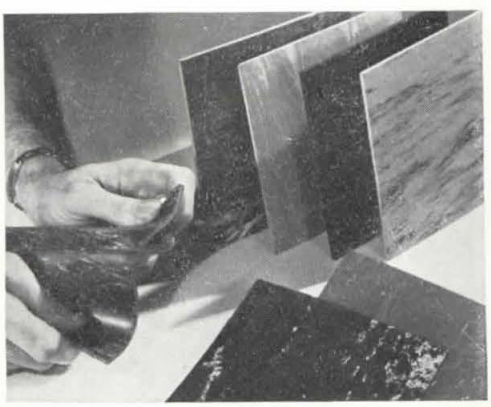
Among the newer developments is a vinyl resin coating for application

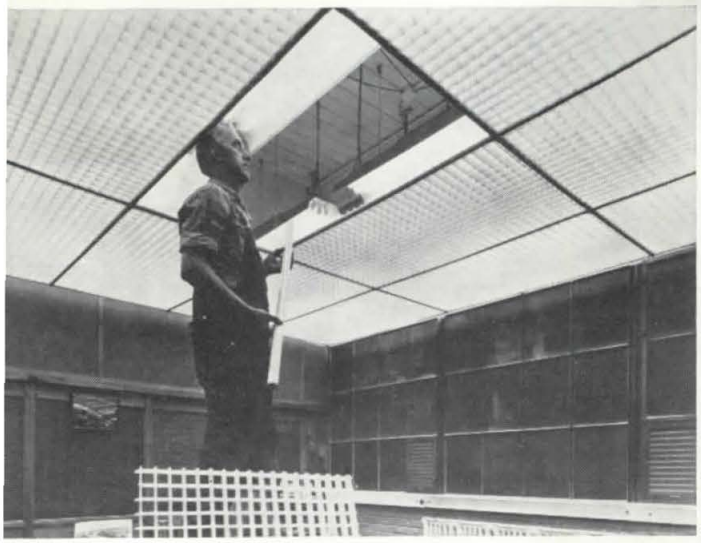
Below, left—several types of flooring are made from vinyl resin compounds. Resilient tiles, similar to those pictured, are available in varying sizes; however, the thickness is usually about 1/8". *Photo: courtesy of Bakelite Division, Union Carbide and Carbon Corporation.*

Below—vinyl plastic flooring is highly satisfactory for beauty salons. In this photo, 18" square tiles have been laid in combination with feature strips. *Photo: courtesy of Delaware Floor Products, Incorporated.*

Easy-to-clean, woven vinyl plastic fabrics are frequently specified by furniture designers. Above—a twill weave fabric has been stretched between the aluminum tubing of this rocker-type chair designed by Bartolucci-Waldheim. *Photo: courtesy of Lumite Division, of Chicopee Manufacturing Corporation.*

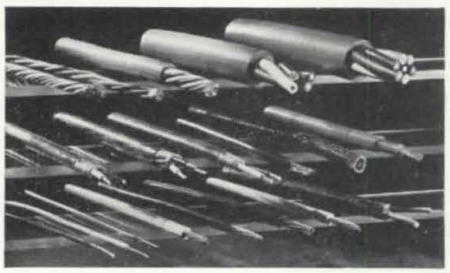
Above, right—the back and seat of this all-around work chair which swivels, turns, and rolls is of foam rubber upholstered in woven plastic. *Photo: courtesy of Knoll Associates, Inc.*





Above—luminous ceiling in reading room of Fitchburg Youth Library combines cold cathode lamps with a corrugated vinyl ceiling surface. Architects, Carl Koch and Associates. *Photo: Ezra Stoller © Pictor.*

Other uses of this material are: left, above—rigid vinyl plastics for louverall ceiling in an industrial office; left, below—vinyl resin base coatings sprayed on exterior cement block walls provide a tough, nonporous film; below—primary insulation and jacketing for single, double, and multiple electrical conductors. *All photos: courtesy of Bakelite Division, Union Carbide and Carbon Corporation.*



on brick, stucco, concrete, concrete block, and cinder block. This coating provides a tough, nonporous film that resists weathering, industrial fumes, acids, alkalies, salt spray, oils, greases, and cleaning solutions. The coating is being used on homes, apartment and office buildings, service stations, stores, and industrial buildings such as factories, smelting plants, and other structures where corrosive fumes are prevalent. Coatings for swimming pools in both color and in white have shown high resistance to fresh and salt water and to the disinfectants that may be present. In damp basements, the use of these coatings provides dry, clean, and easily maintained walls for years of useful service.

ceiling louvers

Rigid materials made from vinyl plastics are well adapted to the demands of architects and engineers who require a permanent, colorful, easily fabricated thermoplastic. They differ from the flexible plastics chiefly in that no plasticizer is used. The basic resin, stabilizers, lubricants, and colorants are mixed together and heat-processed into a number of forms, including sheet, extruded shapes, and molded articles.

One application of architectural importance is the use of rigid vinyl plastic for louverall lighting. In contrast with opaque materials commonly used, the plastic not only rejects 18 percent of the light striking the surface, but also allows 71 percent transmission.

In an application of this type, vinyl plastic proves its dimensional and color stability and nonwarping and noninflammable qualities. The toughness of the plastic minimizes the possibility of damage during shipping, handling, installation, or cleaning.

wire and cable insulation

The nonconductive characteristics of vinyl resins make them particularly suitable for use in the manufacture of electrical insulating materials. In addition, these resins have physical and chemical properties that provide full protection to both wire and cable when used either as the primary insulation or as jacketing, in the various conditions that may be found in service.

Vinyl plastic insulating compounds have brought a number of advantages to the wire and cable industries: The high dielectric and physical strength of these materials, which obviates the need for fibrous rovings or braids, permits the construction of thin-wall insulation and, hence, the insertion of a greater number of circuits in existing conduits. Since the basic resins are colorless, the insulating compounds may be made either in transparent or opaque colors. These color possibilities are of special interest in complex circuits where positive tracing is necessary. Special inks have been developed for striping the insulation, making the coding possibilities limitless.

These compounds may be formulated to produce noninflammable insulation. They are resistant to weak acids and alkalies, to oils and greases, to weathering, to abrasion, and to the rough handling they might receive when used on household appliances. They have extremely low moisture absorption. They can be formulated to have exceptionally high flexibility at low temperatures.

Underwriters' Laboratories have listed these various compounds as suitable for a broad range of applications, such as building wire in both dry and wet locations, 80C (145F) switchboard and appliance wire, and even when exposed to oil as high as 60C (110F). Many of the compounds have been listed as suitable for combinations of these applications, including their versatility.

Design Factors in Panel and Air Cooling Systems: Part 2

BY CHARLES S. LEOPOLD

control in a test installation

Three rooms with a south exposure and one adjacent room in the interior, on the 32nd floor of a New York office building, were equipped with a test installation of panel cooling. The air supply to the south rooms was 0.5 cfm per square foot and to the interior room was 0.4 cfm. These air supplies were maintained at 60 F summer and winter, with a dew point at a maximum of 50 F. The conditioned space was completely surrounded by unconditioned space and a larger percent of the ceiling was in the form of panels than would be required in a completely conditioned building. Control of the panels was as follows:

The panels beneath the window sill were controlled by a thermocouple on the inside of the windowpane shielded from the direct rays of the sun by a metallic disc on the outside of the glass. This thermocouple regulated the supply water temperature for the panels below the windows. Since the major loss or gain of heat by transmission is through the glass, this device, to a large degree, integrated the effect of wind velocity, outside temperature, and, to some extent, the effect of the venetian blind. Thus, if the glass is at a temperature of 75 F, there is no need for either heating or cooling of the sill panel and this condition could prevail even on a cold winter day, if there is enough energy from the sun. The area of such panels is limited so that generally they cannot provide for the full solar effect.

The temperature of the water to the ceiling panels directly adjacent to the windows was controlled by the intensity of the sunlight as measured by a photo-electric device located outdoors. As the solar intensity increased, the water temperature was lowered. Photo-electric control, plus shielded outside dry bulb control, has proved satisfactory over a period of years for the primary control of air temperature to low pressure window units in a very large structure.

There was question as to whether the photo-electric device or an instrument similar to a pyroheliometer should be used. Tests with a heat meter and a light meter indicated that there was a straight-line correlation between total and visible radiation, with the exception of a few isolated deviations which were so few in number that the complications of maintenance of a pyroheliometer were considered unnecessary. The advantage of the photo-electric meter is that it is rugged, sensitive, commercially developed as a control means and, further, that dirt has little effect on its operation as it must be initially shielded with thick colored glass.

It will be noted that these controls respond to the outside conditions before they have had a chance to produce a measurable effect on the air temperature within the building.

The interior zone in the test installation was intended to be controlled by a time clock providing predetermined temperatures in accordance with a schedule. It was found, however, that one temperature of water was sufficient yearround. This installation differs from a fully air conditioned building in that the four rooms under test were surrounded by unconditioned space. Some elaboration of interior zone control is anticipated in a fully air conditioned building. The suggestion of a time clock to set a predetermined schedule of water temperature should be satisfactory, or it would be possible to control the temperature of the water to the interior zone panels from the changing electric power demand of that zone. In this way, the cooling effect would be applied as soon as there was load and would therefore anticipate and integrate the cooling requirements.

This control system recognizes that with a zone system there is little that can be done in sensing minor variations in load as between areas in the same zone and that the primary response of the system would, therefore, be better obtained by directly sensing the major load and making an allowance for the minor energy gains. The controls are applicable to zoned panel or air systems.

With conventional controls, it is customary to locate a thermostat either in an area considered to be average or in a return air duct. There are difficulties encountered with either of these procedures, though the method is useful. Instruments responsive to maintained air temperature all have the disadvantage of failing to call for a change until the room air temperature has been affected.

comfort

The comfort results of a panel cooling system are comparable to the results which would be obtained with a good conventional zone system with relatively small difference between cooling air and maintained room air temperature and with air distribution as by a perforated ceiling.

In the test installation, there was no significant increase in the optimum room temperature in summer. The rooms were held at approximately 75 to 76 F. In winter, the people who lived with this test installation reported an apparent increased tolerance for lower temperatures than would normally be expected and this was partially substantiated by the fact that there was no comment when the temperature was deliberately varied from 75 to 70 F without the knowledge of the occupants. If the observation is correct, it may in part be explained by the following:

Temperatures are constant from the floor surface to within about 6″ of the ceiling where a drop in temperature is noted. There is no noticeable air motion or draft, even at the floor. The sill panel provides symmetry of radiation. This reported result is the more unusual because the interior surfaces tend to be at a lower temperature than they would be with a conventional air system.

These opinions and observations are presented as a subject for further study. They cannot be considered as a definite conclusion drawn from a properly controlled test.

limitations

There does not appear to be any problem in operating a panel cooling system with the lowest panel coolant temperature well above the desirable dew point for offices and similar structures but careful consideration must be given to applications in which it is possible for the dew point to rise above approximately 63 degrees for a long enough period to produce condensation. Other than this problem of condensation, the limitations of a panel cooling system are those inherent in any system where there is a limited supply of ventilation air and the sensible cooling is accomplished by multiple cooling units each serving a small area. In a liberally designed conventional air system, from two to four times as much air is circulated as with most split systems. Although the absolute quantity of outdoor air is no greater in a conventional system, the total supply to any one office, including recirculated air from other areas, can be considered as substantially smoke-free when compared with the air in a room in which people are smoking, so that the control of concentrated sources of odor is not so good as it would be for a comparable conventional system.

The other limitation of split systems in general lies in the fact that

refrigeration, rather than outdoor air, is required for more hours than would be needed for a liberally designed all air system. This effect may, in part, be offset by the relatively small power requirements of the panel system. In cool weather, with panel design, the incoming outdoor air can be caused to cool water to be circulated in the panels and, since the total air circulated may be greater than the minimum outdoor air requirements for peak summer weather, some extension to the hours of cooling without refrigeration may be obtained.

In applying conditioning to large buildings, there are frequently special areas which can be best served with a conventional system and, if there is a series water circuit, the outdoor air passing through these conditioners can also be caused to cool the panel water. Evaporative cooling may be used to cool the water which is circulated to the panels. In a panel system, the problem is generally easier than with coil systems since the panels will seldom require water below 65 F. With the panels, there is the further possibility of operating two levels of refrigeration, one for panel cooling and the other for dehumidification.

conclusion

The author has attempted to present the theory of panel and conventional air cooling systems and to indicate possible courses of panel cooling design.

In comparing air conditioning methods, it is essential that the methods under comparison shall not produce an end result which will unduly compromise with the production of optimum conditions.

Assuming that the air conditioning methods to be compared are capable of attaining the same end result, the selection of a particular form of air conditioning is a matter of economics. The air conditioning design should be related to all elements of building construction and use, and the economics be determined not solely on the owning and operating cost of the air conditioning but on the owning and operating cost of the entire building.

acknowledgment

The author wishes to express his appreciation to The Bohn Aluminum & Brass Corporation for their co-operation in the commercial development of the panel; to the magazines, *Time, Life, Fortune* and *Architectural Forum,* who financed the laboratory work; and to Frank Wilder, who had charge of the experimental program for the author.

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APPENDIX A

cooling panel performance with load due to luminaires

Part Ceiling—Steady State

The test cubicle previously described[1] was modified by the addition of a suspended ceiling 9″ below the continuous cooling panels, as shown in Figure A-1. The supply air grille was lowered to maintain 12″ from the top of the grille to the underside of the suspended ceiling. Standard perforated steel pans with acoustic pads covered 71 percent of the ceiling, and 29 percent was in the form of aluminum panels of the same construction as those used in previous tests. These panels were 6′-8″ long, 2′ wide, and were separated by 2′ of the perforated steel ceiling pans. A 1″ layer of insulation board was placed on the underside of the original continuous ceiling cooling panels. During this series of tests the original ceiling panel was maintained at the same temperature as the surface of the insulated floor and, since the 1″ of insulation board has approximately the same thermal resistance as 10″ of cinder concrete, this procedure approximated the steady state condition in the interior zone of a multi-story building with 10″ cinder concrete slab construction.

As in previous experiments, two types of ceiling paint were used, a commercial flat white paint containing zinc oxide and a special paint containing a small amount of copper phosphate.[5] Test data in Table A-1.

The unit area performance of a cooling panel which comprises only a portion of a suspended ceiling is usually greater than the unit area performance of a panel in a continuously cooled ceiling, due in part to the effectiveness of the top of the panel as a useful heat sink and, to some extent, to conduction from the adjacent metal acoustic pans.

There are combinations of air supply, type of luminaire, and ceiling paint which will cause a continuous ceiling to be more effective per unit area than a partially paneled ceiling.

The tables include a column for the fictitious value of surface conduction h. This factor is presented as a convenience only. As previously pointed out[1] it is not correct to present these results in the form of over-all surface coefficients to cover both radiation and convection since they cannot be multiplied by a temperature difference as, for example, panel to room air, to predict results under any other conditions than those of this test.

The column on Independent Radiant Transfer shown in the previous experiments is omitted here as tests were not conducted for the separate measurement of this quantity.

Part Ceiling—Unsteady State

Tests were performed to check the effect of thermal storage with a panel cooling system for the load due to luminaries. In the test cubicle with a part panel ceiling, the 1″ insulation board covering the floor panel was removed and 10″ cinder concrete slab was poured directly on the panel (lower left corner Figure A-1) in the following mixes:

5-½″ of 1:2:5
3-½″ of 1:3:6
1″ of 1:2

Figure A-1: construction of test room for luminaries.

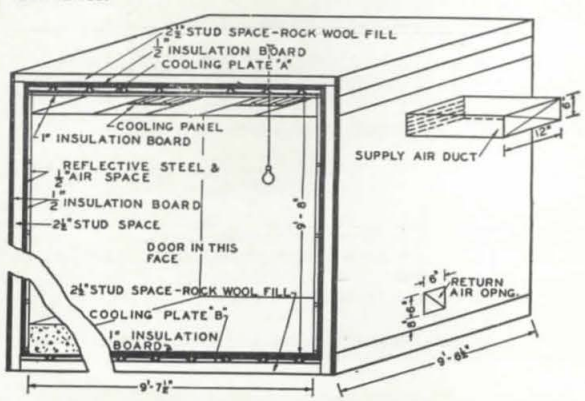


Table A-1—Summary Part Ceiling—Steady State
(Air Supply Where Used, 37.4 cfm—Floor Area, 92 sq ft)

Lamp Type	Air Supply Temp. F	Paint Used on Panels[a]	Panel Transfer[b] Btu/(sq ft) (hr)	Panel Transfer[b] % of Lamp Load	Panel Temp[c] F	Air Temp[d] 5 ft Level F	Floor Temp[c] F	Air Temp 2½ in. Below Panel Center[c] F	Air Temp 4 in. Above Panel Center F	Structure Temp. Directly Above Panel Center[c] F	Apparent "h" For Panel Btu/(sq ft) (hr) (F deg)
500 w, Bowl Silver Indirect	No Air	#1	51.2	80.0	61.6	78.0	79.5	77.6	72.9	71.7	3.12
500 w, Bowl Silver Indirect	60	#1	28.3	44.0	69.4	"	79.2	77.5	74.0	73.8	3.29
500 w, Bowl Silver Indirect	No Air	#2	51.2	80.0	62.2	"	78.6	78.3	74.6	73.0	3.25
500 w, Bowl Silver Indirect	60	#2	34.7	54.1	69.9	"	79.3	77.8	75.4	74.8	4.29
500 w, Bare	No Air	#1	46.4	72.5	61.6	"	79.4	78.0	71.6	70.1	2.83
500 w, Bare	60	#1	26.3	41.0	69.5	"	81.0	78.3	75.3	74.3	3.10
500 w, Bare	No Air	#2	48.2	75.1	61.1	"	79.5	77.4	72.4	71.1	2.86
500 w, Bare	60	#2	33.0	51.4	68.5	"	80.4	77.6	74.2	73.9	3.47
300 w, Bowl Silver Indirect	No Air	#1	28.6	74.6	68.6	"	78.7	78.0	75.3	74.6	3.04
300 w, Bare	No Air	#1	27.2	71.0	67.8	"	79.2	77.7	74.0	73.8	2.67
6 Single-Tube Direct Fluorescent	No Air	#1	41.3	92.0	61.7	"	78.3	79.0	72.1	70.9	2.54
6 Single-Tube Direct Fluorescent	60	#1	18.1	40.4	71.1	"	79.2	78.5	75.1	75.0	2.62
2 Four-Tube Semi-Direct Flourescent	No Air	#1	40.7	83.5	63.9	"	76.8	79.8	74.2	72.3	2.89
2 Four-Tube Semi-Direct Flourescent	60	#1	19.8	40.6	71.9	"	78.6	79.5	75.8	75.5	3.24

[a]#1 Zinc oxide flat white paint. #2 Special copper phosphate heat absorbing paint.
[b]Measured by water flow and temperature rise.
[c]By surface couples.
[d]Aspirated couple.
[e]Corrected for Radiation.

¼″ thick dark red asphalt tile was placed on top of the concrete. Thermocouples were inserted in the concrete slab. The original hung lighting fixtures were replaced by two prismatic glass reflectors; one to direct light to the ceiling panel, the other to the floor. This arrangement was used to minimize the absorption effect of radiant energy by the insulated and reflective walls.

The water temperature to the floor panel beneath the concrete was maintained constant at its initial value before the start of the test. The full panel ceiling water temperature was regulated throughout the test according to the surface temperature of the floor. The part panel temperature was set at an initial depression below the room air temperature and maintained constant throughout the test. The air supply to the room was 0.4 cfm/sq ft and maintained at a constant temperature.

A lighting load of 500 watts was selected as the standard loading (5.4 watts per square foot) and, with the required panel depression to maintain the room air constant at its initial value with this loading, additional tests were conducted with the room 160 percent (800 watts) and 60 percent (300 watts) loaded. The effect of using a higher supply air temperature with the normal loading was checked by one test. All tests were conducted with heat-absorbing paint on the ceiling. Tests are summarized in Table A-2. Figure A-2 and A-3 show the variation of structure and air temperatures with time for the normally loaded room.

In Test No. 1 for the normally loaded room, the panel temperature was initially established and continuously held at a value which would produce a 78 F room air temperature at the end of five hours. For Tests Nos. 2 and 3 this same panel temperature was maintained in order to check the deviations of room air and structure with time under different conditions of load. This variation in temperature of 6.2 F compares with the approximately 4.3 F degree variation for a continuously cooled ceiling, as shown in Figure B-7.

In the overloaded room, with a panel ceiling, the rise in structure temperature is less than for a conventional air system. Floor, ceiling, and mean radiant temperatures are lowered.

Test No. 4 is for the same conditions as Test No. 1 but with the air introduced at 70 F instead of 60 F.

cooling panel performance with load due to solar radiation

Part Ceiling

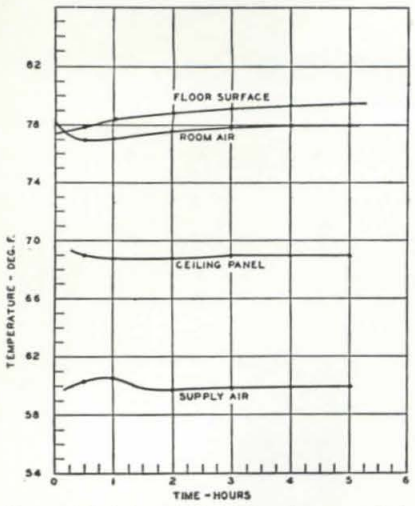
The original experiments[3] are here extended to include data on a suspended ceiling consisting, in part, of panels. Data were obtained for additional types of shading device and angles of incidence other than 35 degrees.

The solar model previously described was modified by the addition of a suspended ceiling of which 40 percent was in the form of aluminum panels and 60 percent of steel perforated plate with acoustic pads above, as shown in Figure A-4. The panels were 20″ long by 9″ wide and separated by 6″ of perforated steel ceiling. The original continuous panel ceiling was raised 9″ and covered with 1″ of insulating board on the

Table A-2—Summary, Part Ceiling—Unsteady State
(Air Supply Where Used, 37.4 cfm—Floor Area, 92 sq ft)

Test No.	Lamp Arrangement	Air Supply F	Paint used on Panels[a]	Panel Transfer[b,e] Btu/(sq ft) (hr)	Panel Transfer[b,e] % of Lamp Load	Panel Temp[c,e] F	Air Temp.—5′ Level[d] Initial	Air Temp.—5′ Level[d] 3rd Hr	Air Temp.—5′ Level[d] 5th Hr	Floor Surface Temp[c,e] F	Air Temp 4 in. Above Panel Center[e] F	Structure Temp Above Panel Center[e] F	% Storage of Lamp Load At End Of 3rd Hr	% Storage of Lamp Load At End Of 5th Hr	Apparent[f] "h" For Panel[e] Btu/(sq ft) (hr) (F deg)
1	200 w Up — 300 w Down	60.0	#2	29.2	45.5	69.0	78.0	77.8	78.0	79.5	74.5	74.3	15.0	14.9	3.25
2	300 w Up — 500 w Down	60.0	#2	40.5	39.4	70.5	78.0	81.9	82.4	82.7	75.4	75.1	18.1	19.1	3.40
3	100 w Up — 200 w Down	60.5	#2	21.6	56.5	69.0	78.0	76.2	76.2	77.8	73.8	73.5	2.8	5.0	3.00
4	200 w Up — 300 w Down	70.0	#2	35.0	54.5	69.5	78.0	80.0	80.5	80.6	74.8	72.6	21.3	27.9	3.18

[a]#2, Special copper phosphate heat absorbing paint.
[b]Measured by water flow and temperature rise.
[c]By surface couples.
[d]Aspirated couple.
[e]Fifth hour value.
[f]For conditions of test only.



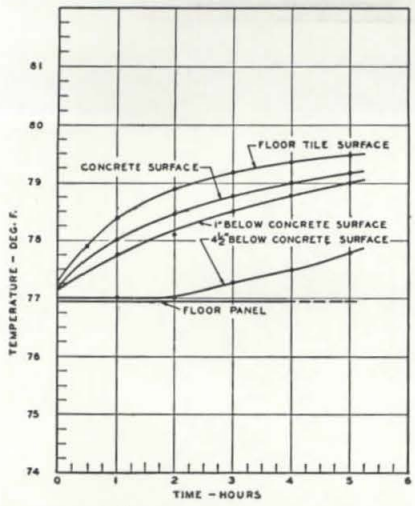


Figure A-2, left: test data for the normally loaded room, unsteady state.
Figure A-3, right: test data, normally loaded room, unsteady state, temperature within the structure.

underside to represent the thermal resistance of a concrete slab of the floor above in a multi-story building. The openings created by the raising of this panel were sealed with insulating board to conform with the original walls of the model. The water piping arrangement remained as previously described. Additional piping was installed for the new ceiling. For these tests the continuous ceiling panel temperature was adjusted to be the same as the surface temperature of the floor in order to simulate the steady state condition. Other than for this point, the procedure was the same as in the original test with a continuous ceiling.[3]

The test data are presented in Table A-3. The performance per unit area, where the panel represents 40 percent of the ceiling, is better than the performance for the continuously cooled ceiling, as previously presented.[3] Lines 27 and 28 have been included for convenient comparison. Line 20, heat storage within the floor, is small with the exception of the one test with a half-drawn blind, in which case the radiant energy from the artificial sun was permitted to strike the floor.

Columns B, C and E indicate that the scheme of placing a venetian blind or white shade between two sash is approximately equivalent to using heat absorbing glass outside, clear glass inside, plus a white venetian blind. Both methods effect a significant decrease in solar load.

APPENDIX B

space cooling systems analyzed with a hydraulic analogue

In a previous paper[2] the difference between the real behavior of a conventional air cooling system and the design concept is indicated by means of a hydraulic analogue. These studies have been continued with the analogue modified as required.

Figure B-1 indicates the performance of a conventional air cooling system for the interior zone of a

Table A-3—Solar Model Part Panel Ceiling (Data for End of 3rd Hour)

Tests[a]	Single Clear Glass Inside White Ven. Blind	Heat Absorb'g Glass Outside, Clear Glass Inside, White Ven. Blind	Double Clear Glass, White Ven. Blind Between Glass Panes	Double Clear Glass, ½ Drawn Inside White Ven. Blind	Double Clear Glass, White Shade Between Glass Panes	Single Clear Glass Inside White Ven. Blind	Single Clear Glass Inside White Ven. Blind
	A	B	C	D	E	F	G
1. Ceiling Paint	Regular	Regular	Regular	Regular	Regular	Heat Absorb'g.	Heat Absorb'g.
2. Room Air Temperature (aspirated) F	78.0	78.0	78.0	78.0	78.0	78.0	78.0
3. Average Ceiling Panel Surface Temperature F	65.5	69.0	68.2	68.1	70.5	67.9	72.3
4. Average Sill Panel Surface Temperature F	66.1	69.2	68.4	68.0	71.0	68.1	72.5
5. Supply Air Temperature F	57.2	61.6	62.1	58.9	63.9	59.9	61.9
6. Return Air Temperature F	76.6	77.3	77.7	77.5	77.8	76.4	76.9
7. Floor Surface Temperature F	75.6	78.1	78.9	77.3	78.9	74.4	76.3
8. Rear Wall Surface Temperature F	79.2	78.9	80.0	79.9	80.9	79.0	78.9
9. Alzac Surface Temperature F	78.7	78.3	79.3	78.7	78.5	78.0	77.7
10. Wall Surface Temperature Above Window F	85.7	86.1	81.8	84.5	86.5	85.4	86.9
11. Shield Thermocouple (room air) F	78.3	78.2	78.2	78.7	78.1	78.4	78.1
12. Inside Shade or Venetian Temperature F	89.7	84.3	127.0	94.5	113.9	92.4	89.3
13. Inside Glass Temperature F	114.4	114.1	103.4	97.0	95.4	—	—
14. Outside Glass Temperature F	114.7	134.8	131.0	104.5	113.9	101.4	101.1
15. Front Ambient Temperature F	79.7	83.8	89.0	83.5	85.9	78.4	84.6
16. Ceiling Panel Transfer by Test Btu/hr.	102.0	76.0	80.8	93.0	72.0	107.0	58.0
17. Sill Panel Transfer by Test Btu/hr.	47.8	36.3	44.0	60.8	40.2	44.0	28.6
18. Removal by Air Supply Btu/hr.	65.5	53.1	53.0	63.0	47.0	55.8	50.7
19. Transfer Through Walls[b] Btu/hr.	— 42.1	— 8.7	26.4	— 30.8	— 4.8	— 33.0	— 28.7
20. Storage (average)[c] Btu/hr.	5.0	— 9.0	— 6.0	35.0	1.0	9.0	9.0
21. Total Room Load[d] Btu/hr.	262.4	165.1	145.4	282.6	165.0	248.8	175.0
22. Normal Incident (meter) Btu/hr.	536	463	509	515	498	490	343
23. Reflection, % of Normal Incident (meter)	35	12	38	—	42	36	37
24. Solar Altitude Deg.	35	35	35	35	35	35	60
25. Solar Azimuth Deg.	0	0	0	0	0	0	0
26. Room Load from Test, % of Normal Incident	49.0	35.6	28.6	55.0	33.1	50.8	51.0
27. Apparent "h" for Ceiling Panel Btu/(sq ft) (hr) (F deg)	3.26	3.38	3.30	3.75	3.83	4.22	4.07
28. Apparent "h" for Sill Panel Btu/(sq ft) (hr) (F deg)	2.14	2.19	2.43	3.22	3.05	2.36	2.76
29. Calc. Room Load, % of Normal Incident 78 F Ambient (5 mph Wind)	46.7	30.2	24.8	51.9	30.0	48.8	46.6
30. Calc. Room Load, % of Normal Incident 93 F Ambient (5 mph Wind)	50.6	33.1	27.5	57.5	33.0	52.8	52.7

[a]Window fully covered where shading devices used except where noted, venetian blind slats set at 55 deg.
[b]Positive values — transfer into room.
[c]Positive values — increased storage.
[d]Values of line 21 = values of lines [(16 + 17 + 18 + 20) — 19].
Ceiling panel area — 2.50 sq ft. Sill panel area — 1.88 sq ft. Floor area — 6.25 sq ft.

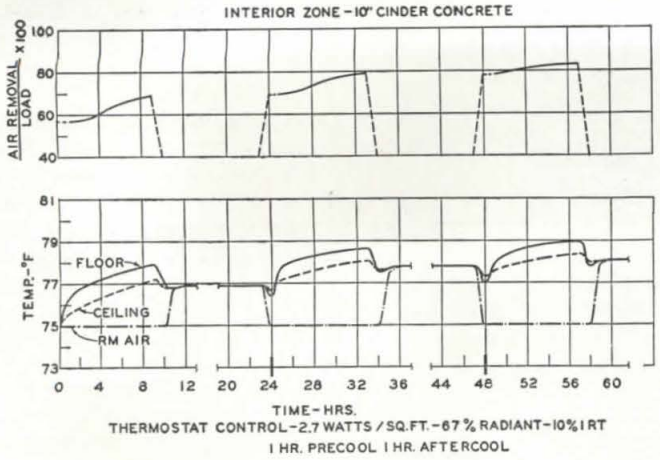
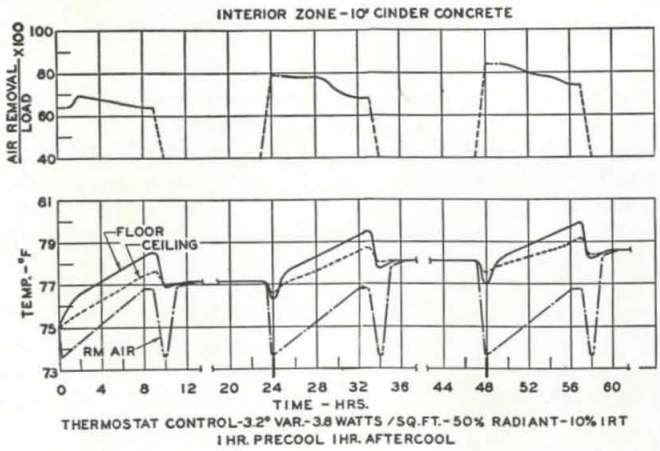


Figure B-1: performance of an air cooling system with direct lighting by filament lamps.



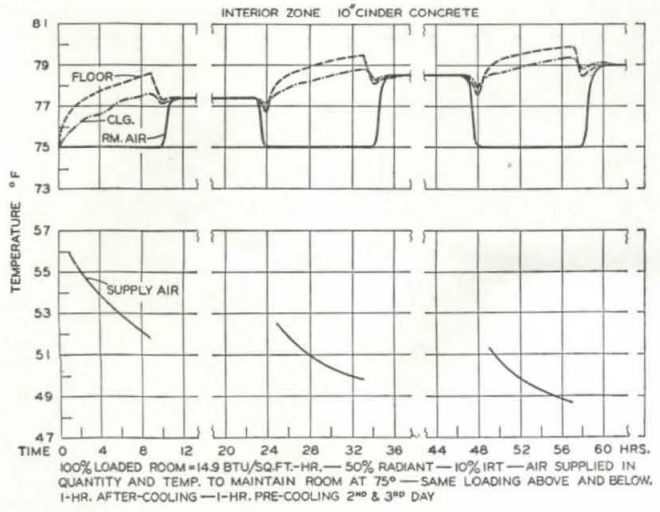


Figure B-3: air cooling system—required supply air temperature vs. time to maintain constant temperature.

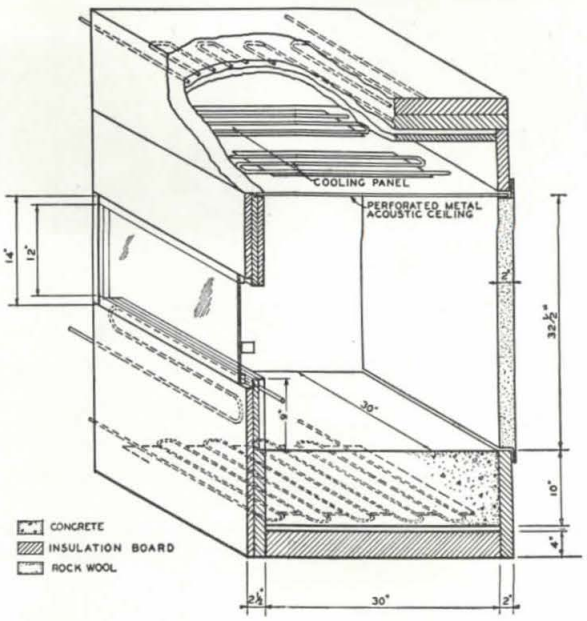


Figure A-4: construction of model for solar test.

Figure B-2: performance of an air cooling system assuming a lower percentage of heat gain in the form of high temperature radiation as would be approximated by direct filament lighting and people.

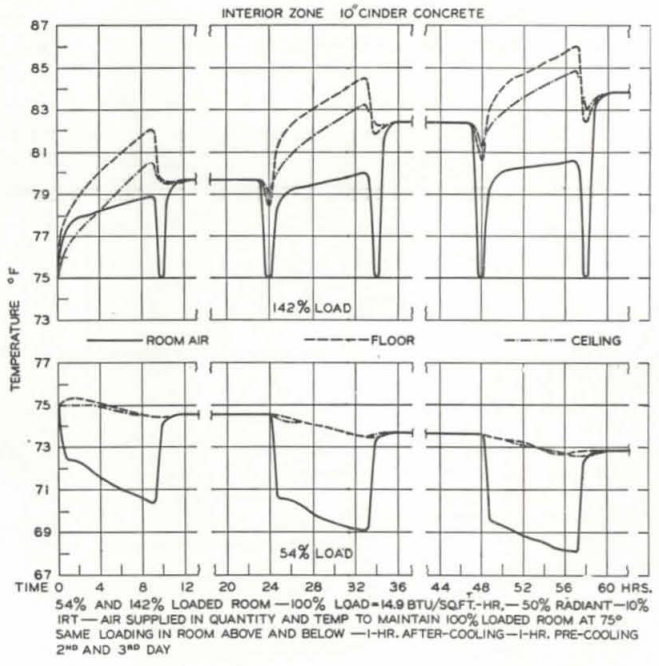


Figure B-4: air cooling system—temperature for a structure and air for a 54 percent and a 142 percent loaded room with air supply for a normally loaded room.

multi-story building, with eleven hours of operation of the system and nine hours full load due to the lighting system. The illumination in this case has been assumed as by direct filament lamps and a load equivalent of 2.7 watts per square foot. At the end of the third day the actual cooling requirements are approximately 83 percent of that calculated for the removal of the internal sensible load.

Figure B-2 approximates the performance of a conventional system, with 3.8 watts per square foot, assuming a luminaire having a lesser radiant component than a filament lamp, or a rough approximation of a load consisting of filament lamps and people. In this experiment the room air has been assumed to be permitted to vary from 73.6 F to 76.8 F. The actual sensible cooling requirements in the afternoon are indicated as less than in the morning and this is a fair indication of the performance of a system which is under capacity as to means of sensible heat removal.

In order to establish some boundaries to the problem of the need for individual control for differently loaded rooms on the same zone of a conventional system, the problem was set up on the analogue as follows:

In Figure B-3 the supply air temperature to maintain constant room temperature was determined for a three-day period. At the end of the third day, the required air temperature was approximately 49 F to maintain 75 F, and this difference of 26 degrees was assumed as establishing the design temperature difference between room air and air introduced for cooling. As shown in B-1, the full cooling effect of design air is not required at the end of the third day so that this temperature depression of supply air would correspond to a

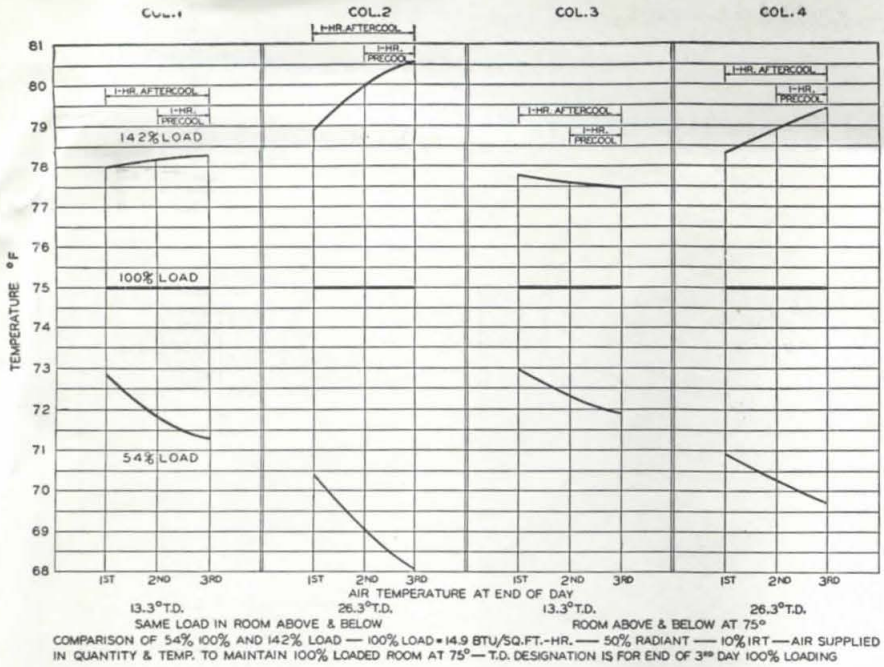


Figure B-5: air cooling system—results of tests of required room air temperature at the end of day when supply air is introduced to maintain the 100 percent loaded room air temperature at 75 F during each day.

slightly greater depression in conventional design. The air temperature schedule diagrammed in B-3 was then applied on the Analogue to a room which had 142 percent of full load and to a room having 54 percent of full load. The temperature results of structure and air are diagrammed in B-4.

For the result in B-4 it was assumed that the space directly above and directly below were subject to the same overload and the same underload as the area stated. The experiment on the Analogue was repeated but modified in the assumption that the rooms directly above and directly below were maintained at normal load. This condition was simulated by maintaining a known schedule of mid-point temperatures, floor and ceiling slab, as previously determined as an average for a run with a normally loaded room and a run for an overloaded or underloaded room. This is not an absolute parallel but the assumption is within the accuracy of the experiment.

The results of the two series of experiments are shown in Figure B-5, for two depressions of air supply below room temperature as measured at the end of the third day.

Comparison of Columns 1 and 3, 4 and 5, shows the importance of transmission through the floor and ceiling slabs. Transmission through partition walls would be expected to have a similar effect.

The Analogue was modified to simulate a continuous suspended panel ceiling. Briefly, this is accomplished as follows:

The Independent Radiant Transfer is independent of the panel temperature. The effect of the Independent Radiant Transfer could, therefore, be simulated by not introducing into the system the quantity of fluid corresponding to this energy. A single tube, corresponding to the thermal capacity of an aluminum ceiling with coolant tubes, was used to simulate the panel. This tube was then connected to suitable conductors representing radiation to the floor and ceiling above and other conductors representing convection to the air below and above the panel. The temperature of the panel was simulated by a valve connection which controlled the height of liquid in the tube to simulate the panel temperature.

The analogue was operated to establish the required panel temperature for the normally loaded room, with a selected air supply of 0.4 cfm at room temperature, as shown in the middle diagram of Figure B-6. This schedule of panel temperatures was then applied to the overloaded and underloaded room, as shown in the upper and lower diagrams respectively. The experiment was repeated with the modification that the ventilating air was assumed as introduced 18 degrees below the temperature of the normally loaded room, with the results as shown in Figure B-7. Where the full ceiling is used in this latter case, the required panel depression below room air temperature is less than 2 degrees.

Figure B-6: room air and floor surface temperatures for a panel cooling system in which the panel is the only means of cooling. The panel temperature required to maintain the 100 percent loaded room air temperature at 75 F is used in the overloaded and underloaded rooms.

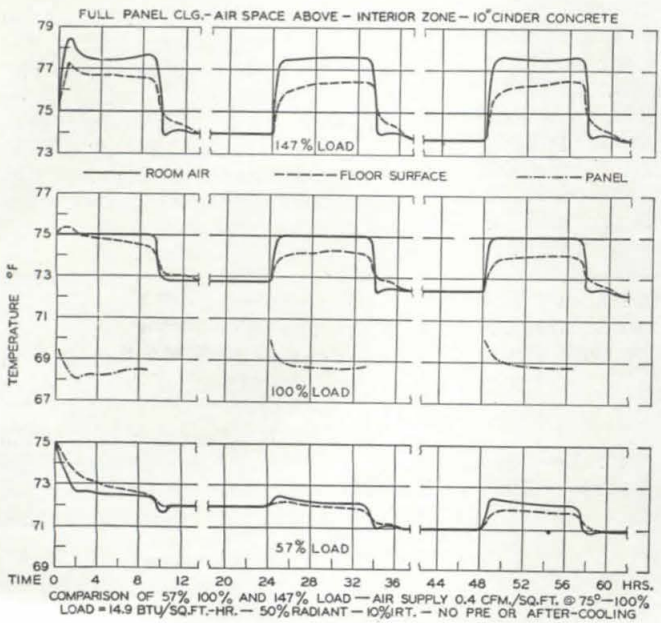
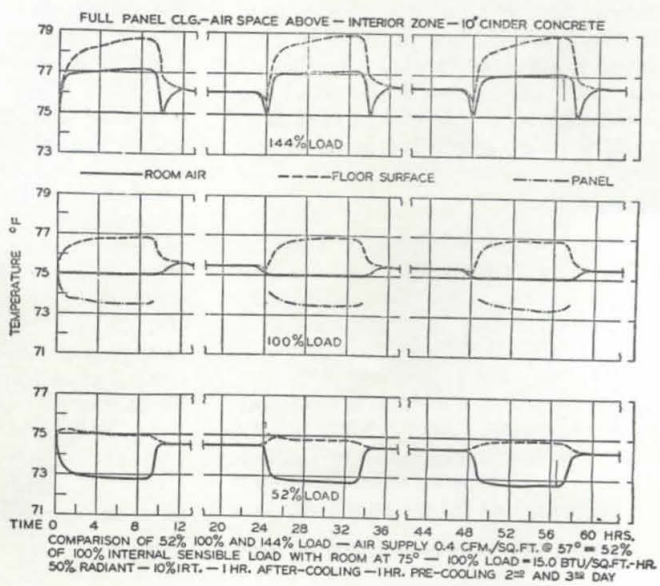
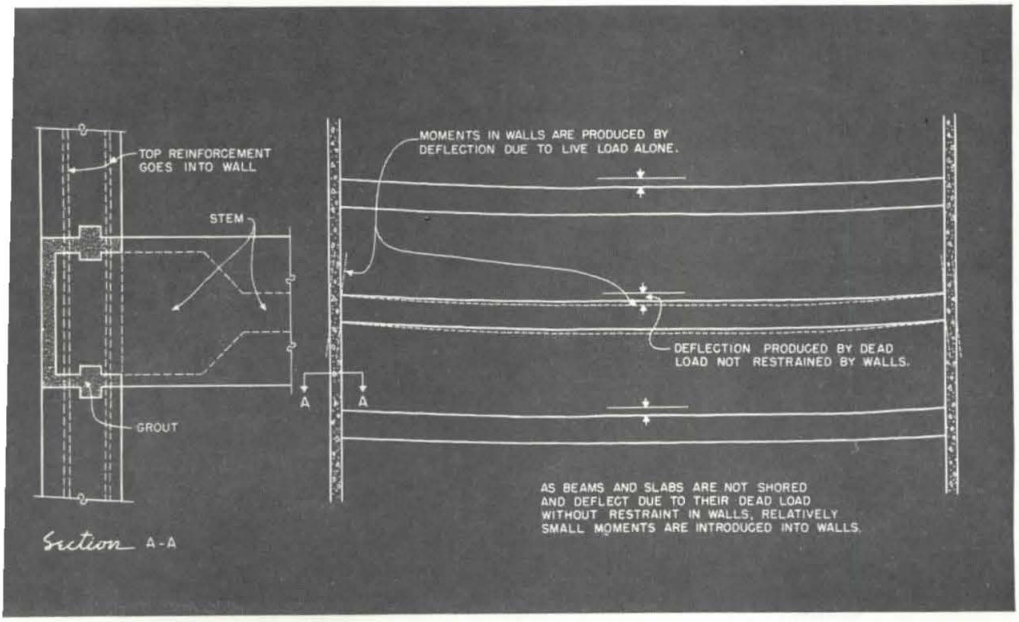


Figure B-7: resultant room air and floor surface temperatures for a panel cooling system in which both supply air and panel provide room cooling.



Research Report: Prestressed Concrete Beams for Commercial Garage

BY HENRY H. WERNER*



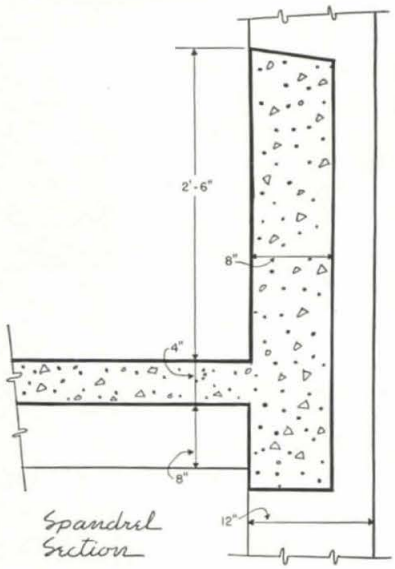


Figure 1, left above — walls are poured to height required for placement of prefab beams; after beams have been anchored and slabs poured, erection of walls continues. Diagram illustrates that only the deflections caused by live load moments must be restrained by walls. Detail of spandrel is shown above.

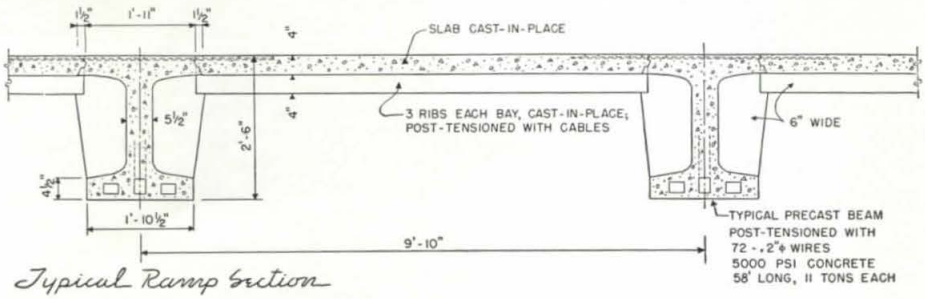


Figure 2, left below — section through typical beam shows location of cavities for wires and spacers; area of prestressed wire per beam is 2.23 sq. in.

program

In many, if not most urban areas, adequate automobile parking facilities have long been difficult to provide. Although intelligent city planning will help solve this problem for the future, better solutions are needed for the present. The purpose of this research was to develop an efficient plan and an economical structural system for a commercial garage that would provide space for at least 500 cars.

site

A typical property which extends the width of a city block situated in a congested district; its dimensions are 125′ x 200′.

solution

1. Plan — a continuous double spiral ramp encircles a central utility core; each ramp, which has a 56′ clear width and a slope of approximately five percent, has its own separate entrance and exit and is normally limited to one-way traffic. A cross-over at the center of each "level" permits rapid access to down-ramp traffic during periods of normal operation; during rush hours, however, cross-overs may be closed and all traffic controlled in the appropriate direction. (See Figures 3 and 4). The floor to floor height is 10′-6″ and a clear height of 8′-0″ obtains throughout. 1,860,000 cu. ft. are enclosed by the structural shell and the total floor area is 162,000 sq. ft. 525 cars can be customer parked or 800 can be attendant parked. In the central core, space is provided for two elevator hoistways, two fire stairs, sliding pole rooms, small offices, toilets, and storage areas. The garage is enclosed by horizontal spandrels and fenestration on both street façades.

2. Structure

a) Design data

Concrete: in general — 3000 psi; for prestressed beams — 5000 psi.

Steel: for reinforcing bars — 20,000 psi; for prestressing wires — 150,000 psi (initial).

Live load: 75 psf plus a 2000 lb. concentrated load at any point.

b) Construction — supported by the interior core and the exterior walls, 240 prestressed, precast, and identical concrete beams carry the spiral ramp and the roof (ramp and roof supports are 9′-10″ and 13′-6″ on center respectively). These long-span beams, prestressed by 72 — .2″ diameter wires, eliminate all columns. Four-inch concrete slabs are cast-in-place between the beams and cross ribs are post-tensioned by cables. (See Figure 2). Only the deflections caused by live load moments in the beams must be restrained by the walls; minimum reinforcement in both wall faces will adequately resist these forces. (See Figure 1.)

c) Construction method — while the foundation is being prepared, the identical beams can be prefabricated with a maximum re-use of forms.

* *Consulting Engineer, Long Island City, New York.*

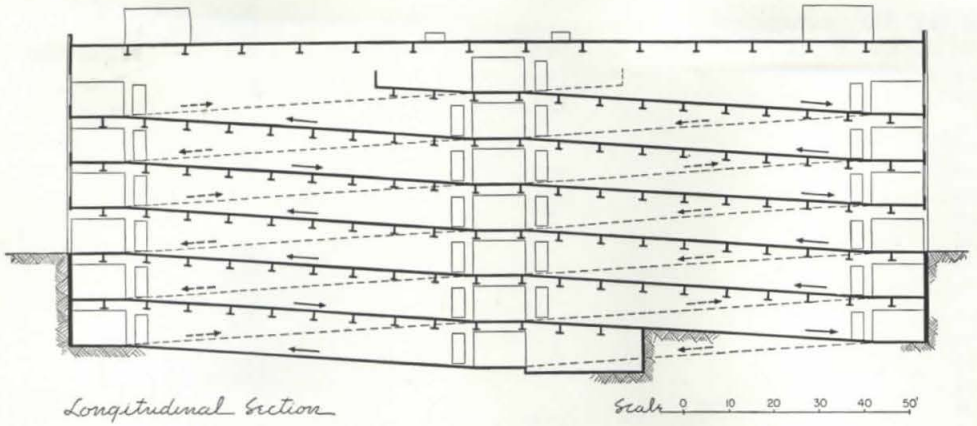


Figure 3, left above — entrances to both upper and lower level parking are at same end of garage; exits are at opposite side of building.

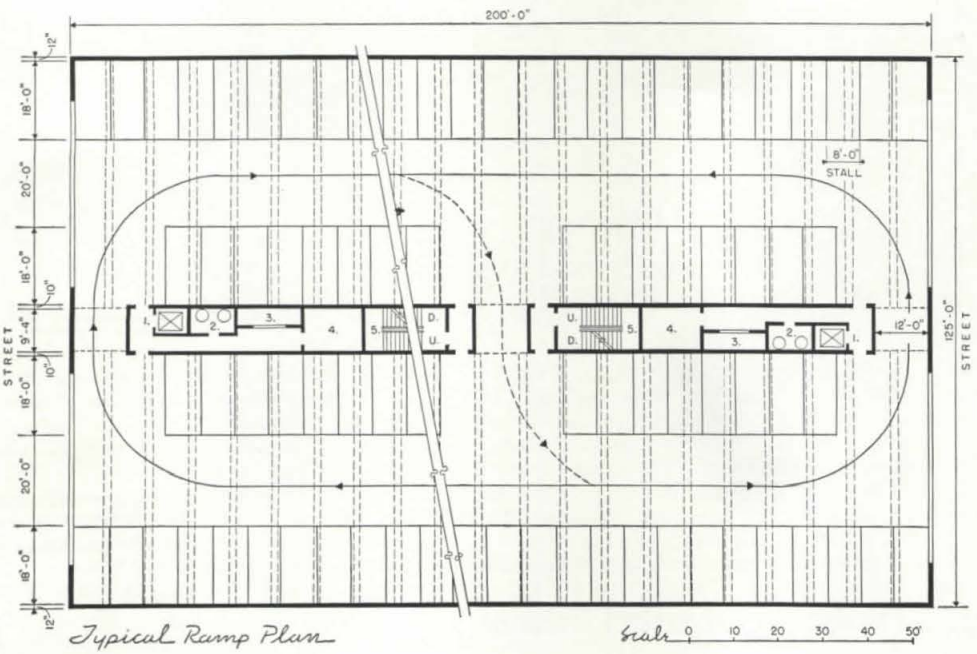


Figure 4, left below — within the core are: 1) elevator; 2) sliding pole room; 3) duct space; 4) office, toilet, or storage area; 5) fire stairs.

Two 80′ boom guy-derricks will easily hoist the 11-ton beams as well as all other construction materials. The simple framework and reinforcement design requires only normal wall and slab erection methods. Walls are poured to height required for placement of prefab beams; after beams have been anchored and slabs poured, erection of walls continues. As the ramp is continuous, construction proceeds as if on one level. The customary drudgery of ramp-forming in conventional garage construction is eliminated and work can proceed on several levels simultaneously.

d) Amount of material — 4700 cu. yds. of concrete at 3000 psi and 1420 cu. yds. of concrete at 5000 psi; 265 tons of reinforcing bars and 53 tons of .2″ diameter wire (1,000,000′).

conclusions

1. Cost data — exclusive of property, this project, including two elevators, satisfactory lighting, exhaust ventilation of basement, and provision of heat up to 45 degree temperature difference, is estimated to cost $1800 per stall for customer parking. New York City real estate values would add $350 to $450 to this amount. An open multiple-story parking lot utilizing this construction system is estimated to cost $1350 per stall without the property.

2. Savings

a) Elimination of conventional ramp space used for access to parking level reduces the required floor area by 15 to 25 percent.

b) By using high stressed wire, one-sixth of the corresponding amount of steel (now critical) is required.

c) The use of prefab beams without props cuts erection time to about that required for a steel frame building.

d) The maximum use of precasting, repetitive forming, and simple construction methods save many valuable man hours.

e) Efficient use of property.

f) Total cost reduction about 30 to 40 percent.

3. Advantages

a) Plan well adapted for customer parking (least number of attendants required).

b) Flexibility in parking arrangement and operation.

c) Level bays can be added to either flank of building by using same type of beam.

d) Well suited for rush service.

4. Alternates

a) Structural system can be used for multiple-story parking lot.

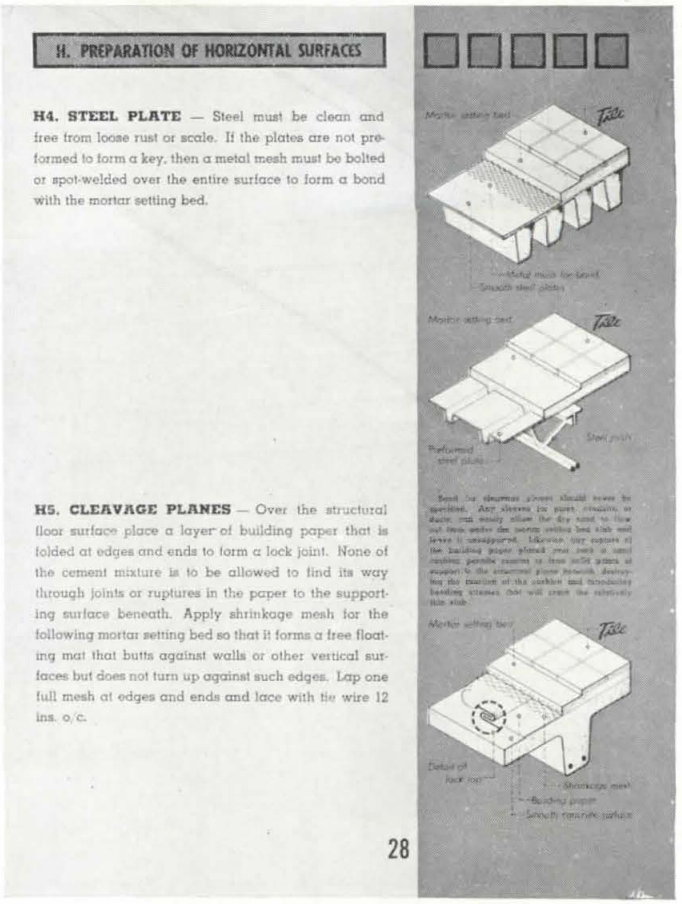
b) Field welds enable the use of continuous beams in multiple bays — as the continuity applies only to the live load, haunches may be avoided at the support.

c) Construction system can be used for a warehouse or industrial building.

d) Building can face any street or may be erected on interior of block with alley driveways.

e) Does not require basement.

don graf compiles new handbook for tile council



In publishing the first comprehensive and authoritative handbook ever developed by the tile industry, The Tile Council of America has done a great service for both the architectural profession and its own members. The contents of this publication were compiled by Don Graf, of *Data Sheet* fame, and represent the cumulative experience and best judgment of the country's leading and responsible manufacturers and installers of tile work. By judicious editing, the essence of at least two packing cases of previously published data has been resolved into 48 8½" x 11" pages; also, valuable data never before integrated in one such publication have been included.

The *Tile Handbook* (A1A-23A) has been divided into three parts: 1) the specification itself, covering contractual and legal considerations, scope of work, preliminary and incidental, materials, general provisions, preparation, and setting on vertical and on horizontal surfaces special construction, and results; 2) related work, including demolition, wood-floor framing, sub-flooring and paper, wood studs, wood trim meeting tilework, furring exterior masonry walls membrane waterproofing, and pans; 3) appendix, including glossary of terms, a note on thin-setting-bed methods, Bureau of Standards SPR 61-44, and construction details. In these three divisions, the majority of the individual sections of the specifications, related work, and appendix are illustrated with drawings and explanatory comments by Graf. Ample discussion has also been devoted to the various regional methods of application. For the general format, a wide column of specifications occupies the left two-thirds of each page; on the remaining third, explanatory paragraphs and drawings are overprinted on a yellow background to separate visually the basic from the supplementary data.

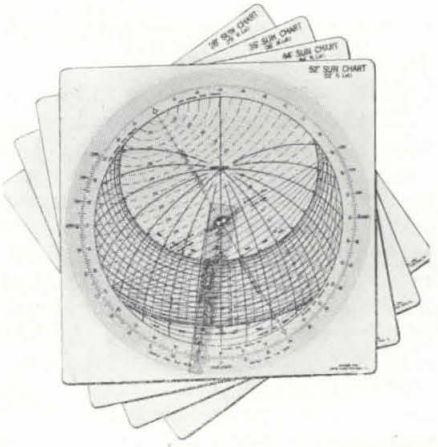
Architects, designers, draftsmen, detailers, and specification writers will find these handbooks easy to use; they may be obtained by architects and their key personnel by sending a request on office stationery to The Tile Council of America, 10 East 40 Street, New York 16, N.Y.—or through local manufacturers' representatives. Copies are available to others for $2.00 each.

sun angle calculator simplifies analysis of sun control problems

To know how the sun's rays will strike a building and how far they will penetrate through openings, to know if certain areas should be shaded and others irradiated, to know how to use the sun for supplementary heating or to study the effect of solar energy on air-conditioning capacity and operation, one must have the following data: 1) the angle of the sun above the horizon; 2) the bearing of the sun, or its direction with respect to the points of the compass; 3) the angle of incidence of the sun's rays with respect to the surface being considered. To obtain these solar angular values quickly and easily, a device has been needed which would give *all* of the necessary values for all possible conditions of time and orientation in terms which could be applied directly to the drafting board. During the last two years, as a part of its research and development program, the Libbey-Owens-Ford Glass Company has contrived such a device; the *Sun Angle Calculator* greatly simplifies the analysis of sun control problems.

The elements of this device consist of an index map, sun charts, overlay, and cursor. There are sun charts for each four degrees of latitude from 24° to 52° North latitude (the entire United States lies within these parallels). These charts, made of white plastic, are printed on both sides in black. There is but one transparent overlay, printed in red, which is applied to all sun charts; it is pivoted in the center and will rotate when placed in position. A clear plastic cursor pivots about the center point on top of the overlay; with it one reads the true altitude of the sun and also the bearing of the sun from true South and from normal to the window. The cursor intersects graduated scales along the perimeter of the sun charts and overlay.

A booklet accompanying the calculator explains how the device is operated. In two representative examples, the operator is given the latitude of a building, design date, design solar time, and orientation of window. Step by step, he is shown how to determine the profile angle, bearing of sun's position, true altitude of sun, and angle of incidence. In a succeeding chapter, he is taught a simple graphic method for determining the window areas which will be irradiated by the sun. Principles involved in the solar house are related to other portions of the booklet and to the *Sun Angle Calculator*. A final chapter relates all of this data to how much solar energy will pass through a window into a building. Two large-scale charts enable one to determine easily both direct solar energy and sky (diffuse) energy. In a final example (an extension of an earlier one), the total solar heat gain in Btu's is simply developed for either single- or double-glazed windows.



Preparation and production supervision of this calculator was by Aeronautical Services Incorporated, Washington, D.C. An architectural firm may obtain a *Sun Angle Calculator* from Libbey-Owens-Ford Glass Company, Toledo 3, Ohio, by sending a request on office stationery and enclosing $9.50.

p/a products

air and temperature control

HV Filter: high-velocity air-filter unit made of corrugated strips of fine-mesh wire formed in such a way as to eliminate any open-air passages through media. Designed to operate over wide range of velocities up to 500 fpm with uniformly high cleaning efficiency. American Air Filter Co., Inc., Louisville 8, Ky.

Magne-Filter Air Cleaner: electronic dry-type air-cleaner removes pollen, air-borne bacteria, fine dust and smoke from air by electrical attraction. Made in all sizes for installation in return duct of any air heating or cooling system. Unit consumes about as much electricity as 25w bulb; requires no water or drainage connections. American Radiator & Standard Sanitary Corp., Bessemer Bldg., Pittsburgh 30, Pa.

Armco Duct Calculator: calculating duct sizes for forced or gravity warm air heating systems made much simpler with pocket-size slide rule calculator which is based on standard methods of calculating heating requirements. Made of heavy, enameled paper-board; offered at printing cost. Armco Steel Corp., Middletown, Ohio.

Ranchief Counterflow: compact heating unit, which provides under-floor-duct heating by warm air, now available with pressure oil burner, in addition to vaporizing oil and gas burners originally provided. Designed for basementless houses, can be installed in closet as small as 24" x 30". Delivers 64,000 Btu at bonnet, easily converted from oil to gas. Conco Engineering Works, Mendota, Ill.

Coroaire "In-The-Wall" Heater: new gas-fired heating system, for installation in wall, said to heat completely 3½ to 6½ room, one-floor home or apartment. Unit incorporates patented Venturi tube heat exchanger supplying 5 to 1 heating surface, and filtered, forced air circulation. Fully automatic controls. No insulation necessary between heater and wall as cabinet is constructed with double steel walls. Coroaire Heater Corp., 1422 Euclid Ave., Cleveland 15, Ohio.

Sahara Dehumidifier: low-cost electric dehumidifier for home and commercial use, will remove 2 to 3 gal. of water from up to 10,000 cu. ft. of closed area in 24-hour period. Is claimed to check and prevent rot, rust, mold, mildew, and warping, thus converting damp areas into useful space. Mitchell Mfg. Co., 2525 N. Clybourn Ave., Chicago, Ill.

Twin Junior Cooler: direct-drive dual-blower air-cooler for single-room operation. Small, easily portable, can be moved from one room to another; 4-⅓ gal. water reservoir solves problem of water connection. Window fillers included with unit, adapting it to variable size windows. Palmer Mfg. Corp., Phoenix, Ariz.

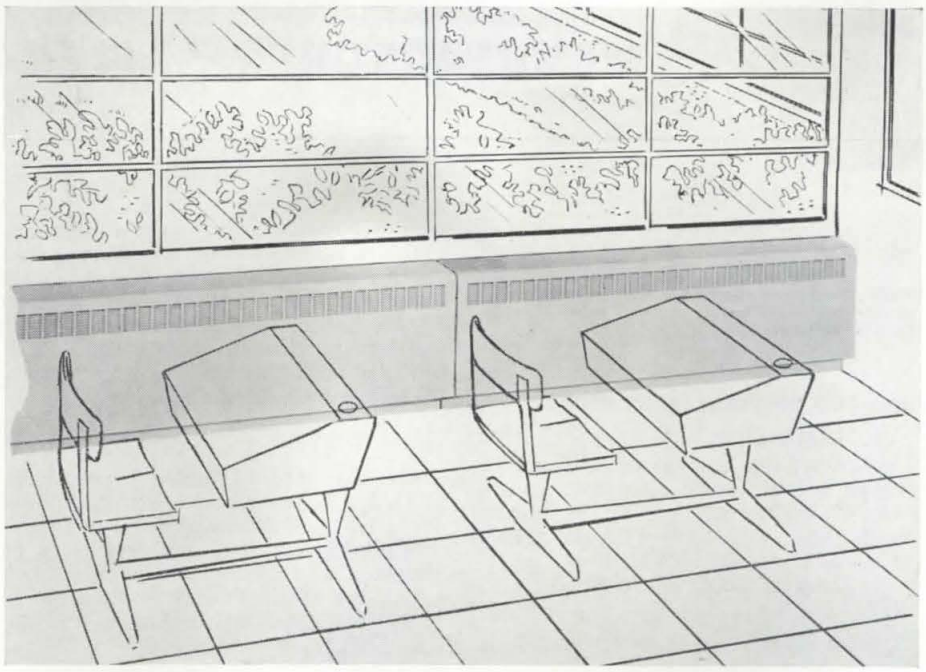
construction

Insulux Glass Block: two improvements reducing installation time and costs for light-directing glass block are: 1) new water-repellent finish on exposed block faces to prevent adhesion of mortar to faces during laying operation, eliminating need for strong acids used for cleaning masonry work; 2) electronically applied gold stripe on top mortar-bearing edge of each block, assuring simple and accurate laying of block course. American Structural Products Co., Ohio Bank Bldg., Toledo 1, Ohio.

Flexicore Long Span Slab: precast, prestressed concrete slab, constructed with two hollow cores running lengthwise to lighten weight without sacrificing strength, available in new size, 16" x 8", in lengths of up to 26'-8". Span of 26' will carry superimposed load of 54 lbs. per sq. ft. Flexicore Co., Inc., 1932 E. Monument Ave., Dayton 1, Ohio.

doors and windows

Lilly-Vent Window: new type of permanent window gives maximum regulated air circulation, with full unobstructed vision, through use of vertical sliding panels which adjust to any position required. Unit constructed of wood, and includes weatherstripping, concealed screen, all exterior trim. Made in standard or custom sizes, is competitive in initial cost with ordinary sash window. Lilly-Vent, Inc., 7962 S.E. Powell Blvd., Portland, Ore.



Sill-Type Radiator: radiator, combining radiant and convected heating, for under-window installation in schools, apartments, office buildings, etc. Unit assures warmth of outside glass walls and floors; also provides sill, or can become finished wall beneath window, eliminating considerable plastering and wall finishing. Actual tests have shown only 3-degree variance in floor and ceiling temperatures in large glass-walled rooms. Rittling Corp., 1202 Rand Bldg., Buffalo 3, N.Y.

Yale Home Duty Tubular Locks: line of 4 models offers tubular locks for every ordinary residential need, including key-in-the-knob entrance-door locks, locks for closets, bedroom, kitchen, bathroom doors, etc. Available only in brass knobs and trim for front doors and in steel knobs and trim for interior door locks in satin brass finish. Yale & Towne Mfg. Co., 45 Market St., Stamford, Conn.

electrical equipment, lighting

Dua-Lite: newly designed incandescent unit provides indirect illumination for general room lighting as well as direct illumination for use as reading light. Glass cover, together with aluminum reflector, diffuses indirect light from 150w lamp; Fresnel lens is utilized to control downlight distribution of 75w lamp used in direct component. Aluminum housing can be readily painted after wall installation to blend with room interior. Curtis Lighting, Inc., Dept. N-34, 6135 W. 65 St., Chicago 38, Ill.

Slimline Fluorescent Lighting Unit: low-cost fixture designed for industrial application, uses two T-12 430 milliamp 96" single-pin instant-start slimline lamps. Equipped with special ballast to reduce serious hazards found in plants using lighting units that have series sequence ballasts where high speed machinery is in operation. Constructed of 20-gage steel with one-piece, 8-ft. body channel and reflector consisting of two 4-ft. sections. Unit comes completely wired. Mitchell Mfg. Co., 2525 N. Clybourn Ave., Chicago, Ill.

Rough-Service Lamp: smaller 100w lamp fits standard wire-guard extension-cord equipment. Applicable to all types of rugged service, especially for after-dark construction projects, because it emits more light from smaller, more breakage-resistant bulb. Voltage ratings from 115v to 300v. Westinghouse Electric Corp., Bloomfield, N.J.

finishers and protectors

Durepel: powder, combining inorganic mineral and metallic elements, which, when mixed with water forms very hard, dense surface coating for application on masonry walls as protection against water seepage and dampness. Product comes in shades of buff, gray, green, rose, as well as white. Easy to apply, quick setting. Durepel Corp., 10 E. 43 St., New York 17, N.Y.

Flexseal: colorless, water-repellent coating protects brick, stone, cement, and various insulating materials from all kinds of weather. Treated surfaces will also retard efflorescence. Can be brushed, sprayed, or poured on, regardless of surface or air temperature. Flexrock Co., 36 & Filbert Sts., Philadelphia 4, Pa.

Shatterbond: clear coating, brushed or sprayed on glass minimizes flying glass hazard and guards against entry of radioactive dust by reducing broken apertures. Wilbur & Williams Co., 130 Lincoln St., Boston 35, Mass.

surfacing materials

Pittsburgh Interlock Tile: bevel-edged plastic tile available in 22 decorator colors. Interlocking construction feature provides self-alignment; special ridge on back of tile "locks" mastic in, giving better grip to installation. Tile said to withstand temperatures up to 165F. Dow Chemical Co., Midland, Mich.

Floran: vinyl plastic floor covering; decorative process accomplished by means of rotogravure printing with vinyl inks; nonpeel, clear vinyl plastic coating is then applied over inks, supplying extra-durable wearing surface. Delaware Floor Products, Inc., 295 Fifth Ave., New York 16, N.Y.

vertical transportation

Standardized Electric-Stairway: new 48"-wide electric stairway, capable of moving up to 10,000 riders per hour, designed for department stores, office buildings, railroad stations, and other public buildings. Costs 30% less than previous similar models because of standardization. Speed of 90 fpm, maximum rise of 23'; safety features include ½" spaced cleats preventing catching of small heels, and extended handrails that allow gripping before boarding stairway. Westinghouse Electric Corp., Elevator Div., Dept. TP, Jersey City, N.J.

MANUFACTURERS' LITERATURE

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

AIR AND TEMPERATURE CONTROL

1-86. Diffuser-Lite Fixtures (DL-100-151), 4-p. illus. bulletin describing ceiling air diffusers combined with incandescent or fluorescent lighting, in square, rectangular, and circular designs. Table of types, dimensions, capacities. Air Devices, Inc., 17 E. 42 St., New York 17, N.Y.

Booklet illustrating three types of heat diffusers, employing blower type fans, for heating and ventilating large enclosed spaces in warehouses, factories, hangars, etc. Application and construction features, dimensions, specifications, steam and hot water Btu constants, steam ratings, fan speeds. Also two folders, one on gas-fired unit heaters with dimensions and ratings given; the other on self-contained air-conditioning units for commercial and industrial buildings. Carrier Corp., Syracuse 1, N.Y.:

1-87. Heat Diffusers (46P)

1-88. Unit Heaters (46T50)

1-89. Weathermakers (50K73)

1-90. Fans for 1951 (X6849), 29-p. illus. catalog. Design and construction specifications on various types of air circulators, kitchen ventilators, ceiling, attic, and window fans. Performance data, dimensions, list price sheets. Emerson Electric Mfg. Co., 8100 Florissant Ave., St. Louis 21, Mo.

1-91. The Niagara Fifty (501), 8-p. illus. booklet. Describes gas-fired winter air conditioner with cast iron heat exchanger of improved design and 3-speed direct-drive blower which can also be used to circulate air in summer. Diagrammatic chart illustrates comparison of 3-speed and single-speed blower operation; reference tables, standard and optional equipment. Forest City Foundries Co., Niagara Furnace Div., 2500 W. 27 St., Cleveland 13, Ohio.

1-92. Military Application Brochure (511), 8-p., illus. folder offers products, services, and facilities to those concerned with military problems in air cooling, air drying, liquid cooling, air conditioning, and refrigeration. Products include such units as mobile coolers for use in bombsight repair shops, radar stations, tropical buildings; also refrigerating machines, dehumidifiers for storage rooms, console and window air conditioners. Remington Corp., Auburn, N. Y.

1-93. Hi-Cap Webster Baseboard Heating (B-1601A), 6-p. folder illustrating high capacity baseboard heating system for installation wherever heat losses are too great for use of standard Webster baseboard unit. Applications, dimensions of heating element, installation details, brief descriptions of accessories. Warren Webster & Co., Camden 5, N.J.

CONSTRUCTION

3-71. Standard A305 Reinforcing Bars, 8" x 11" reference card listing standard weight, nominal dimensions, and new, simplified, bar size numbers, based on number of ⅛ inches included in nominal diameter of bar. Concrete Reinforcing Steel Institute, 38 S. Dearborn St., Chicago 3, Ill.

3-72. Building Materials (BK-216), 12-p. booklet describing variety of roofing, siding, and insulation materials, including asphalt shingles, asbestos-cement sidings, built-up roofing, decorative and structural insulation board, and insulation wool. Index. Flintkote Co., 30 Rockefeller Plaza, New York 20, N.Y.

3-73. Construction by Adhesion, AIA 23Q (RESC-51), 4-p. folder on heavy-bodied, solvent-type mastic, which sets without heat or pressure for waterproof bonding of metals, glass, plastics, masonry, and other rigid materials as well as some flexible materials such as linoleum, canvas, and certain types of rubber and fabrics to rigid surfaces. Properties, applications, details, bonding chart. Miracle Adhesives Corp., 214 E. 53 St., New York 22, N.Y.

Folder illustrating step-by-step application of fireproof gypsum wallboard; types and dimensions. Other folder describes laminated wall panels, built with two thicknesses of gypsum wallboard; method of application, layout patterns, detail drawing of general assembly; specifications. National Gypsum Co., 325 Delaware Ave., Buffalo 2, N.Y.:

3-74. Fireproof Gypsum Wallboards (133)

3-75. Laminated Gypsum Wallboard Double-Wall Construction, AIA 23-L (138)

★ **3-76. The Aluminum Data Book** (1950), 194-p. manual, newly revised to give more detailed information on aluminum alloys and mill products. Contains 117 tables of data on physical, chemical, and mechanical properties; also standard tolerances, weights, standard sizes, and production limits, finishes, and other data. Contents table, cross index. Reynolds Metals Co., 2500 S. Third St., Louisville, Ky.

★ **3-77. Tri-Lok,** AIA 14-P-21 (1103), 16-p. catalog giving specification data, safe load tables, and installation methods, on various types of open steel flooring and safety treads. Also, general information on Tri-Lok Floor Armoring, an assembly of tee bars which, when filled with concrete, can be used in place of heavy concrete flooring, thus reducing dead load and permitting lighter weight superstructure. Typical installation photos. Dravo Corp., Neville Island, Pittsburgh 25, Pa.

DOORS AND WINDOWS

4-86. Windowalls, AIA 16L (511), 16-p. illus. catalog presenting various types of wood window units (casements, double-hung, utility basement, and gliding units). Installation specifications, details, sizes. Andersen Corp., Bayport, Minn.

4-87. Miami Aluminum Awning Windows, 8-p. illus. booklet. Operational features, construction, standard and modular sizes, installation details, architect's specifications, and general data. Industrial Machine Tool Co., *Inc., 301 S.* Oak St.. Fenton, Mich.

4-88. Modernfold, AIA 16-M, 12-p. brochure describes accordion-type interior doors, covered in decorative vinyl fabric, for practical, economical use in residences, institutions, and commercial establishments; furniture can be placed next to door openings without conventional door interference. Types of applications, solutions to typical opening problems, standard and stock sizes, elevation and plans, specifications, fabric color chart. New Castle Products, New Castle, Ind.

4-89. One-der, 4-p. folder on complete, one-piece steel window- and door-frames for any type of conventional construction; window buck is built around frame, no fitting or adjusting necessary. Advantages, sizes, specifications, details. One-der Frame Corp., 2109 Third Ave., N., Birmingham, Ala.

4-90. The "Overhead Door" (S-51), 12-p. catalog. Illustrations of residential, commercial, and industrial types of wood and metal overhead garage and entrance doors. Construction, headroom requirements for electric operator, types of counterbalance, track classifications. Overhead Door Corp., Hartford City, Ind.

Booklet on vertical slide type metal window unit combining glass and screen panels, weatherstripping and double window insulating sash, complete with either metal or wood surround. Standard residential types and sizes, multiple unit combinations, types of picture windows, full size details, installation details. Other types of commercial, institutional, and industrial windows. Folder describing permanent, all-metal Venetian awnings with interlocking louvers for year-

round use. Advantages. F. C. Russell Co., 1100 Chester Ave., Cleveland 1, Ohio:

4-91 The Rusco Prime Window (RPW-120)

4-92. Rusco Venetian Awnings (A-400)

ELECTRICAL EQUIPMENT, LIGHTING

5-62. Life-Line D-C Motors and Generators. (B-4594), 19-p. illus. booklet covers new line of motors and generators available for constant, adjustable, or varying speed applications for either continuous or intermittent service. Construction data, types for different applications, methods of mounting. Westinghouse Electric Corp., Motor & Control Div., P.O. Box 2099, Pittsburgh 30, Pa.

FINISHERS AND PROTECTORS

6-26. Aluminum Roof Coating (5650), 4-p. folder on protective aluminum coating for bituminous roofing; one-coat application will check action of ultra-violet rays and retard drying and oxidation. Properties, general data. Philip Carey Mfg. Co., Lockland Station, Cincinnati 15, Ohio.

6-27. Use Pak-Tamp to Repair or Resurface Your Floors (L 37-34), 1-p. bulletin describing ready-to-use plastic resurfacer for concrete floors, trucking aisles, sidewalks, wood floors, etc.; usable immediately after application. Advantages, method of applying. Paramount Industrial Products Co., University Center Station, Cleveland, Ohio.

INSULATION (THERMAL, ACOUSTIC)

9-42. Alumiseal, 12-p. illus. booklet demonstrating uses of reflective insulation and vapor barrier materials in commercial refrigeration. Properties, typical installations, temperature recommendations, specifications, section drawings. C. T. Hogan & Co., Inc., 383 Madison Ave., N.Y.

9-43. Balsam Wool . . . Nu-Wood (988), 12-p. illus. booklet describing blanket type heat and sound insulating mat made from balsam wood fibers chemically treated to resist rot, termites, and vermin. Properties, method of application. Other product described is especially processed wood fiber insulating board for interior finish in new or old construction. Types, application, light reflection tests, colors and finish. Wood Conversion Co., 1st National Bank Bldg., St. Paul 1, Minn.

9-44. How to Do It (1951), 12-p. booklet explaining proper application of all forms of vermiculite insulations. Installation methods given for insulation fill, plaster aggregate, plaster finish aggregate, acoustical plastic, concrete aggregate, and insulating plastic; design data, specifications, index. Zonolite Co., 135 S. La Salle St., Chicago 3, Ill.

SANITATION, WATER SUPPLY, DRAINAGE

19-118. The New Submersible Pump (ADB590.1), 4-p. folder announcing new self-priming, water-cooled deep well pump designed to deliver unusually high capacities at settings in excess of 70 ft. with well diameters of 4 in. and larger. Performance data, specifications, cutaway illustration showing all operating parts exposed. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

19-119. Olsonite Seats, AIA 29-H-22 (S.C.S.-7), 30-p. catalog illustrating complete line of plastic toilet seats. Construction data, types of hinges, colors. Swedish Crucible Steel Co., Olsonite Div., 8561 Butler St., Detroit, Mich.

SPECIALIZED EQUIPMENT

19-120. Folding Stairways, 4-p. illus. folder describing disappearing folding stairways, made of wood with safety treads on each step, designed for homes and garages to provide convenient means of access to attic. General data, clearance diagrams, specifications. EZ Way Sales, Inc., Box 300, St. Paul Park, Minn.

19-121. Jerrold Mul-TV Antenna System (503), 24-p. guide giving circuit description and instructions for installation and operation of antenna system that permits simultaneous operation of unlimited number of television sets from one antenna. Diagrams. Jerrold Electronics Corp., 121 N. Broad, Philadelphia 7, Pa.

SURFACING MATERIALS

19-122. Nairn Linoleum, AIA 23J (B-382), 28-p. booklet. Wide range of plain and patterned linoleum, linoleum tile, bulletin board cork, and asphalt tile. Index to uses, gage and specification data, color charts. Congoleum-Nairn, Inc., 195 Belgrove Dr., Kearny, N.J.

19-123. Hood Asphalt Tile, 8-p. illus. catalog showing typical asphalt tile installations. Color and pattern charts. B. F. Goodrich Co., Flooring Div., Watertown 72, Mass.

19-124. Olympic Texterior Siding, 6-p. folder illustrating side wall paneling, made of striated red cedar, for interior and exterior surfaces. Types of application. Olympic Stained Products Co., 1118 Leary Way, Seattle 7, Wash.

★ **19-125. Ceratile,** AIA 23a, 12-p. catalog containing color photos of ceramic tile, manufactured by means of entirely new process at considerably less cost than for hand-decorated tile, producing original and individual concepts in tile design, texture, and color combination. Standard patterns; special design service will suggest suitable design, color, and texture, or reproduce any design submitted by client. Pacific Tile and Porcelain Co., 7716 E. Olive St., Paramount, Calif.

19-126. Superlite, 4-p. folder describes predecorated panelboard with easy-to-clean baked finish for wall and ceiling applications. Sizes, colors; brief descriptions of other products, such as wallboard cement, bead compound, metal molding or trim, and hand-grained simulated leather for wall applications. Superior Wall Products Co., 4401 N. American St., Philadelphia 40, Pa.

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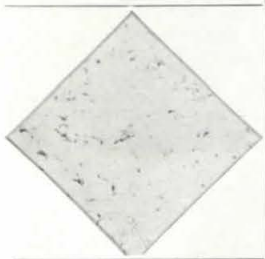
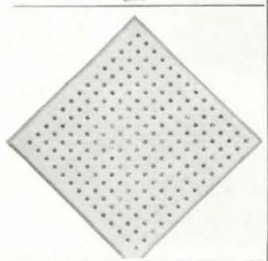
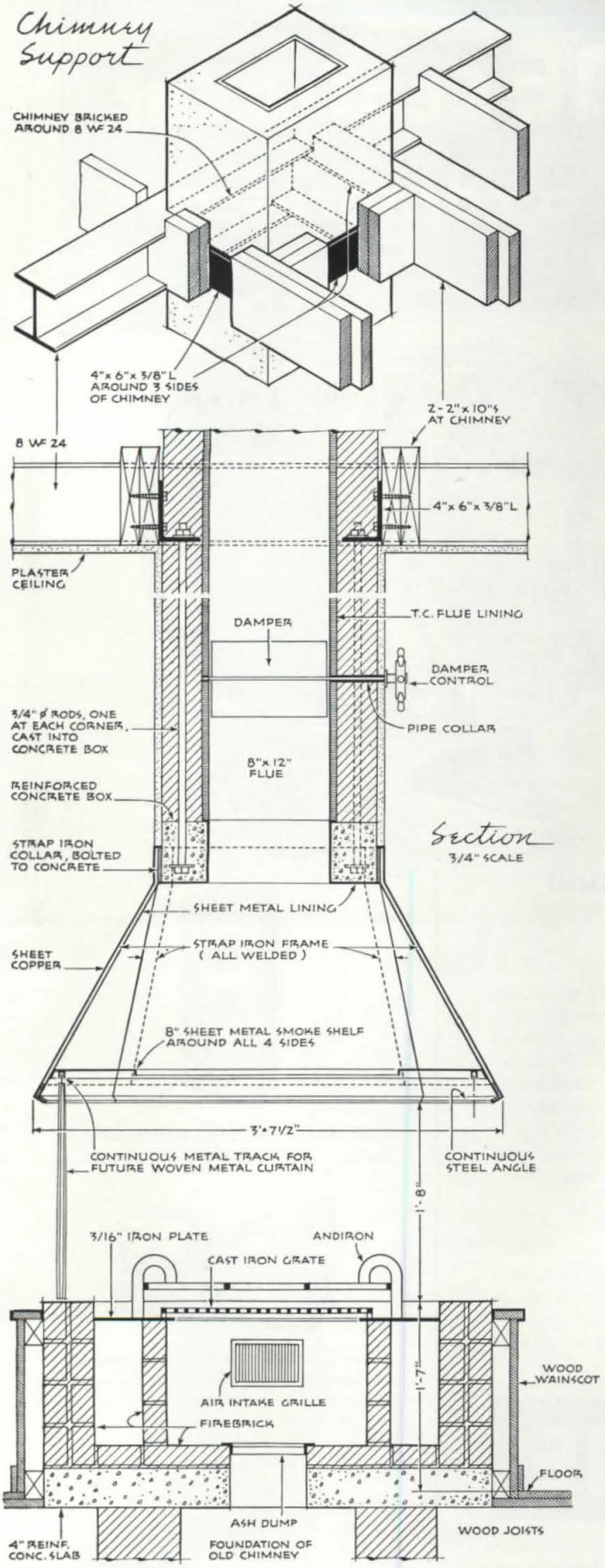
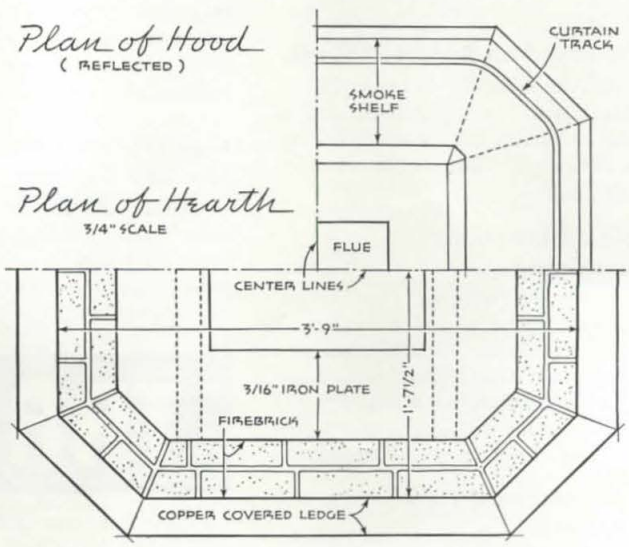
Lath . . . plaster . . . lime . . . sheathing . . . wall paint . . . rock wool insulation . . . metal lath and sound control products . . . fireproof wallboards . . . decorative insulation boards.

		Noise Reduction Coeff.	Thickness	Sizes	Finish
	**ACOUSTIMETAL** Low maintenance cost. Can be washed or painted any number of times. Panels quickly removed for access to plumbing and wiring. Fireproof, permanent, salvageable.	.85	1¼"	12" x 24"	Alkyd resin enamel finish. Baked on by infra-red light. Bonderizing of metal assures greater adhesion of paint.
	**TRAVACOUSTIC** Fireproof mineral tile. Closely resembles beautiful travertine stone. Fissures vary in size, depth, and arrangement. Permanent, sanitary, acoustically efficient.	.65 .70	11/16" 13/16"	6" x 12" 12" x 12" 12" x 24"	Non-glaring white finish applied at the factory gives high light-reflection. Repaintable with brush or spray gun.
	**ACOUSTIFIBRE** Perforated wood fibre tile. Round, clean holes drilled deep into porous core. Chemically-treated against mould and fungus. Sanitary, cleanable, repaintable.	.50 .65 .70	½" ⅝" ¾"	12" x 12" 12" x 24"	Factory-applied shell-white finish on face and bevels results in high light-reflection.
	**ECONACOUSTIC** Low cost wood fibre tile. Distinctive brushed texture surface offers unusual natural beauty. Cleanable with vacuum cleaner.	.60	½"	12" x 12" 12" x 24"	Prepainted white. May be spray-painted when other colors are desired.
	**THERMACOUSTIC** A mineral wool product which is sprayed to any desired thickness. Fireproof and rotproof. Especially adaptable to irregular surfaces.	.80 at ½" thickness	As desired	Monolithic	Fissured texture can be repainted to harmonize with the decorative scheme without destroying its acoustical properties.



PHOTOS BY J. ALDEN LAMB STUDIO



SODERBERG RESIDENCE, Mystic, Conn.

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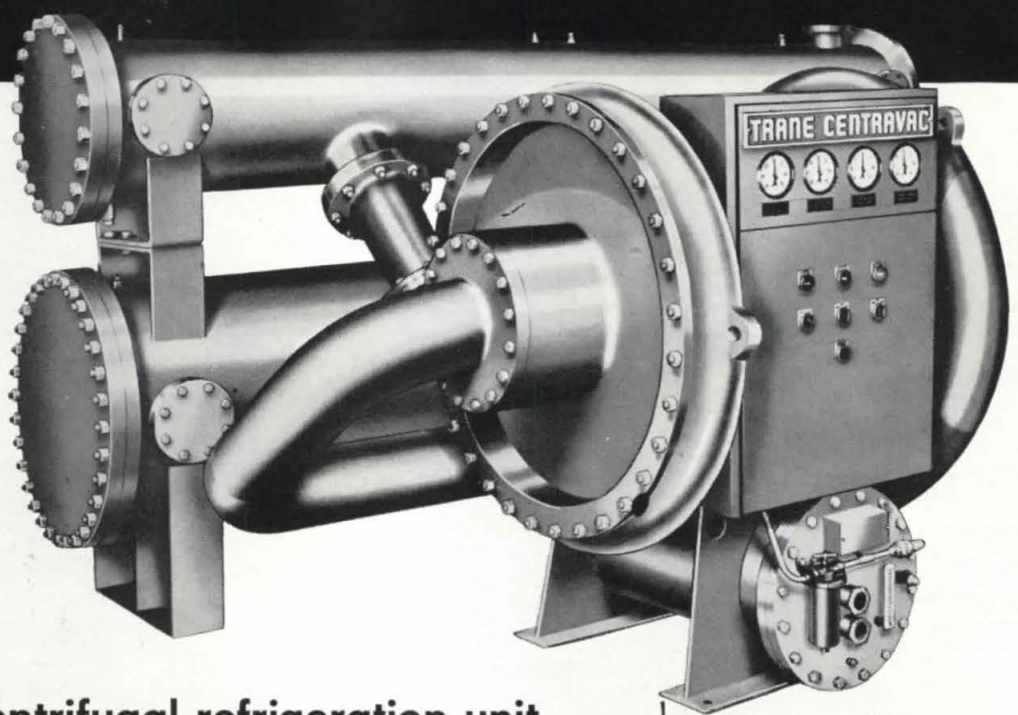
Here's the new TRANE CenTraVac ... it's more than a compressor!



Now . . . for the first time . . . Trane makes centrifugal refrigeration available for the all-important 45- to 190-ton range.

Complete centrifugal refrigeration unit cuts costs four ways

The CenTraVac is a new kind of centrifugal . . . hermetically sealed direct drive . . . with stable operation from 100% down to 10% of rated capacity . . . with efficient operation on reduced loads.

Power Saved on Reduced Loads!

CenTraVac has *built-in* capacity control. Horsepower saving runs parallel to capacity reduction over wide operating range. Owner pays only for chilled water actually used.

Simplified Installation Slashes Costs!

Compact, lightweight, vibration-free CenTraVac can be mounted anywhere from basement to penthouse without special *foundation*. One hermetically sealed unit is a complete chilled water refrigeration system. One wiring job—one set of connections—one system of controls.

Less Maintenance Time and Expense!

Designed to run without special attention, CenTraVacs are simple to turn on or off—or may be run continuously season after season. Unit has only two main bearings, force-feed oiled; direct connected water-cooled motor in hermetically sealed compressor eliminates gear boxes, shaft seals and similar devices, resulting in a machine that minimizes maintenance time and expense.

High Efficiency Means Low Cost Cooling!

CenTraVacs are designed to deliver over a ton of refrigeration per horsepower. Efficient on small as well as large jobs. Five models—45 through 190 tons.

TRANE

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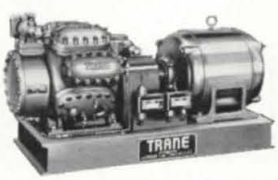
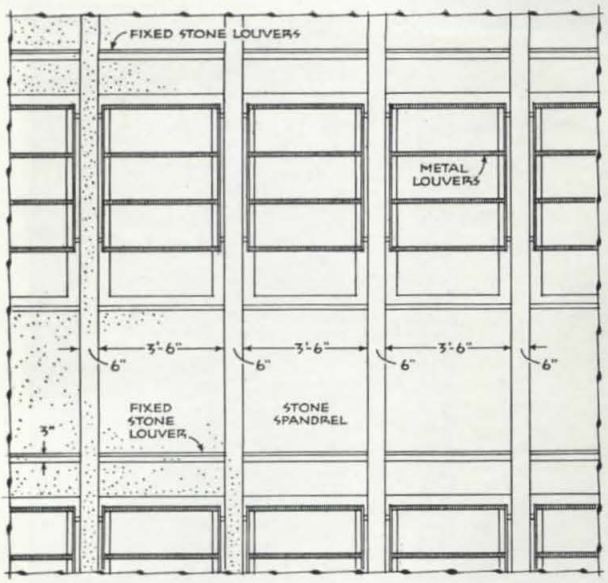
MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT • OFFICES IN 80 CITIES

New, 1951 S. C. Air Conditioner packs more cooling in less space. See Bulletin S-362.

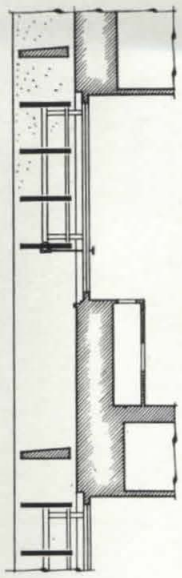


Brand-New, All-New Trane Reciprocating Compressors and Condensing Units . . . Trane-designed and Trane-built, 10 to 50 tons, for higher efficiency . . . smoother running . . . longer life. Bulletin DS-361.

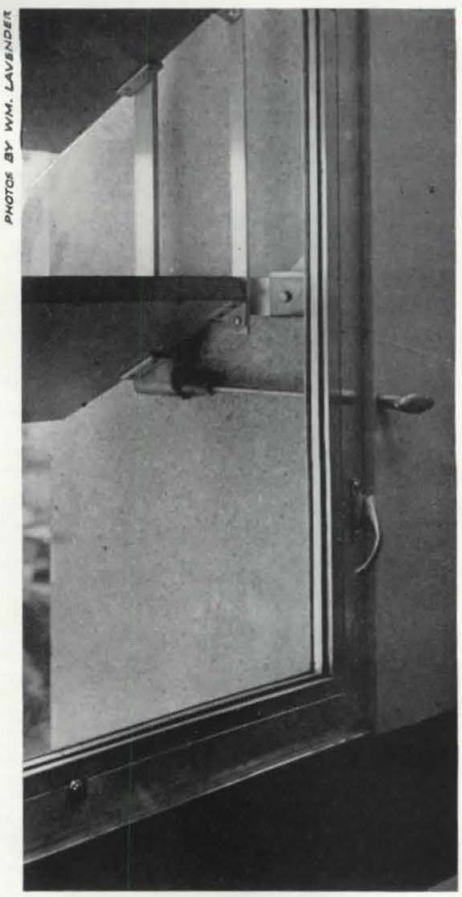
Ask the Trane representative in your area — or write The Trane Company, La Crosse, Wis., for CenTraVac Bulletin S-399.



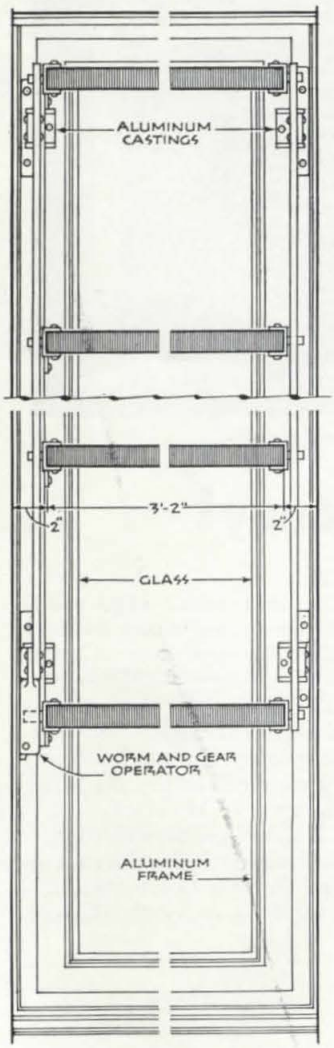
Part Elevation and Section 3/16" SCALE



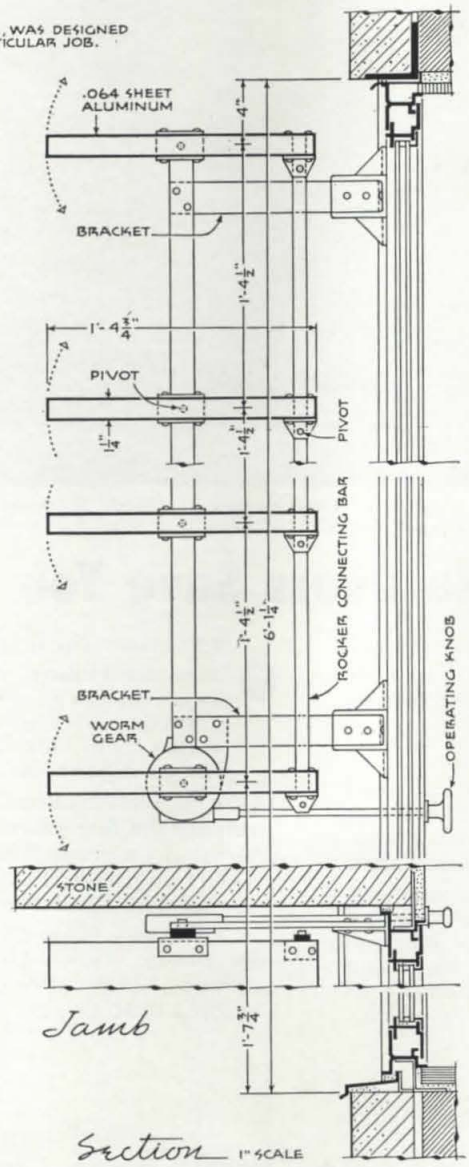
PHOTOS BY WM. LAVENDER



NOTE. THIS LOUVER UNIT, NOW A STOCK ITEM, WAS DESIGNED ORIGINALLY BY THE ARCHITECTS FOR THIS PARTICULAR JOB.



Elevation 1" SCALE



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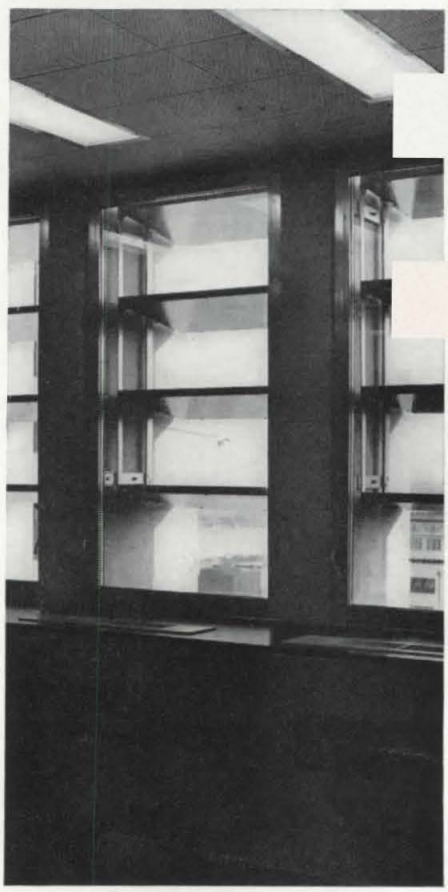
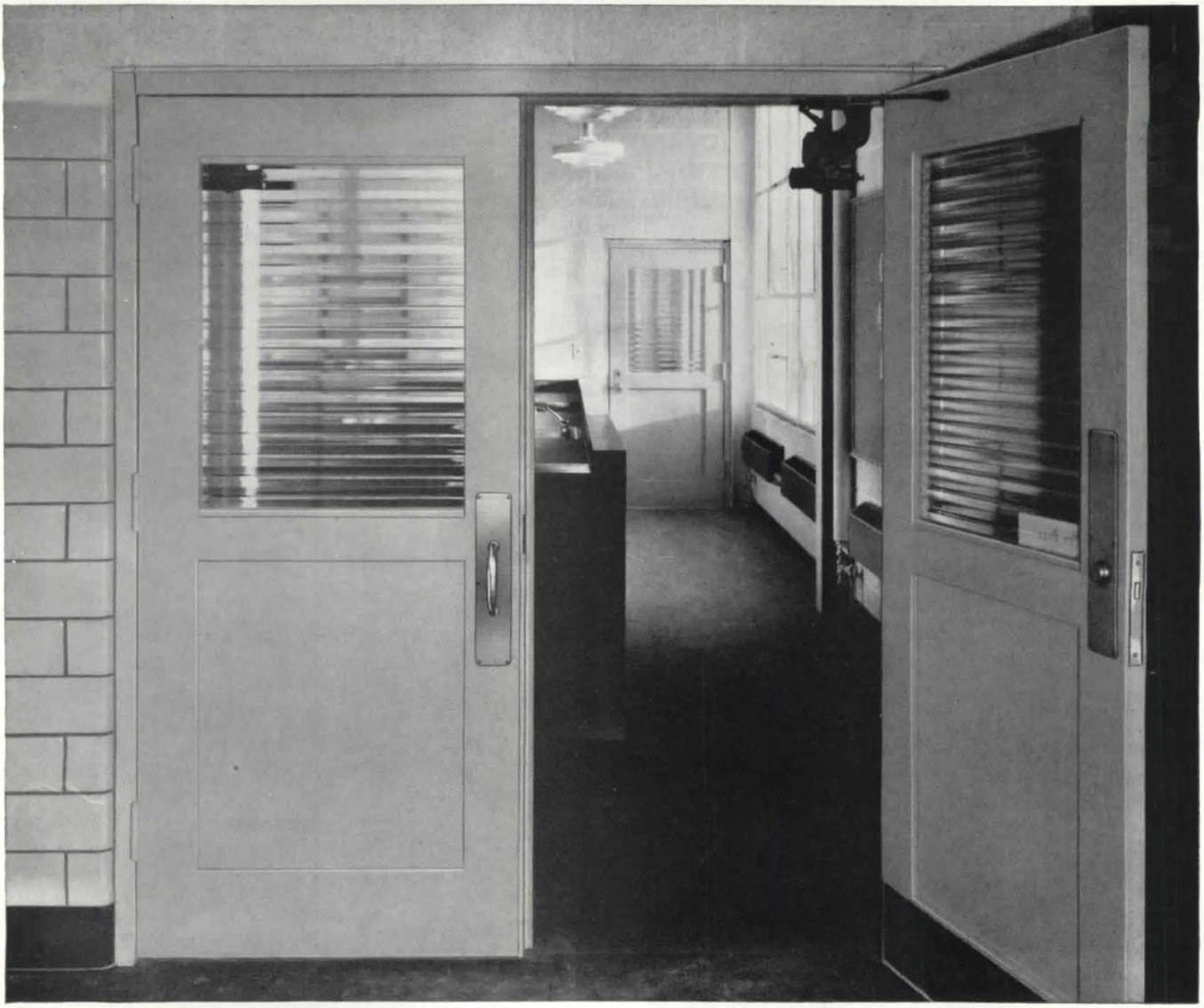
Section 1" SCALE



WATERMAN BUILDING, Mobile **PLATT ROBERTS, ARCHITECT; O. W. LONG, JR., A. B. BENSON, ASSOCIATES**



Two of the 135 Fenestra Metal Door Units (Door, Frame, Hardware) in Robert N. Mandeville High School, Flint, Mich. *Architect:* Bennett & Straight, Dearborn, Mich. *Contractor:* Karl B. Foster, Flint, Mich.

Look How These Doors Save You Money!

You save money with these beautiful standardized Fenestra* Doors because they cost less to buy than most doors, less to install, less to keep *working* and *looking* like new.

Here's Why:

1. Fenestra's great manufacturing facilities, engineered for volume production and elimination of waste of materials and man-hours, can turn out more high-quality door units . . . in less time . . . at lower cost.
2. Fenestra Hollow Metal Doors come *complete with strong steel frames and shining hardware.* Installer just bolts the frame together, attaches it to floor and anchors it to wall, screws on template locks and hinges, hangs the door. No cutting or fitting or mortising or puttying or prime-painting. That's real on-the-site timesaving!
3. Fenestra Hollow Metal Doors won't sag, warp, swell, shrink or splinter. They can take a beating and come up smiling. An occasional coat of paint makes them look like new. They're insulated, too, for quiet performance.

These Fenestra Hollow Metal Doors are in local stocks. Compare the *performance,* the *quality,* the *cost* with *any* door on the market. They're another Fenestra Building Product engineered to cut the cost of building.

Doors with Underwriters' B Label are also available. Just call your Fenestra Representative (he's listed in your phone book). Or write Detroit Steel Products Company, Dept. PA-4, 2253 E. Grand Boulevard, Detroit 11, Michigan.

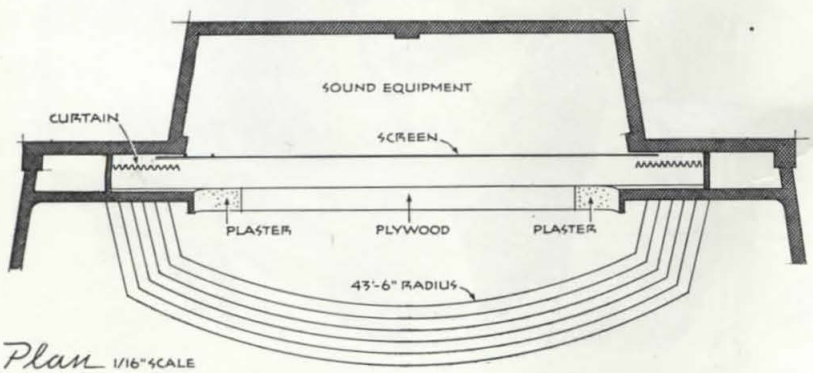
*®

Fenestra

DOORS • WINDOWS • PANELS

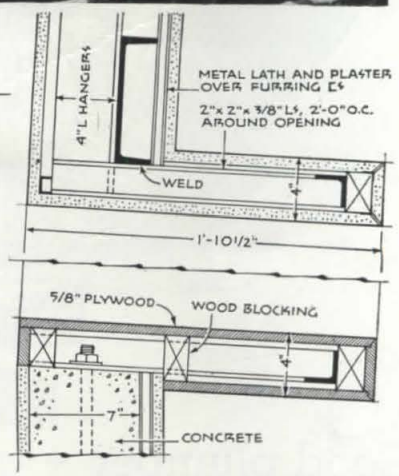
engineered to cut the cost of building

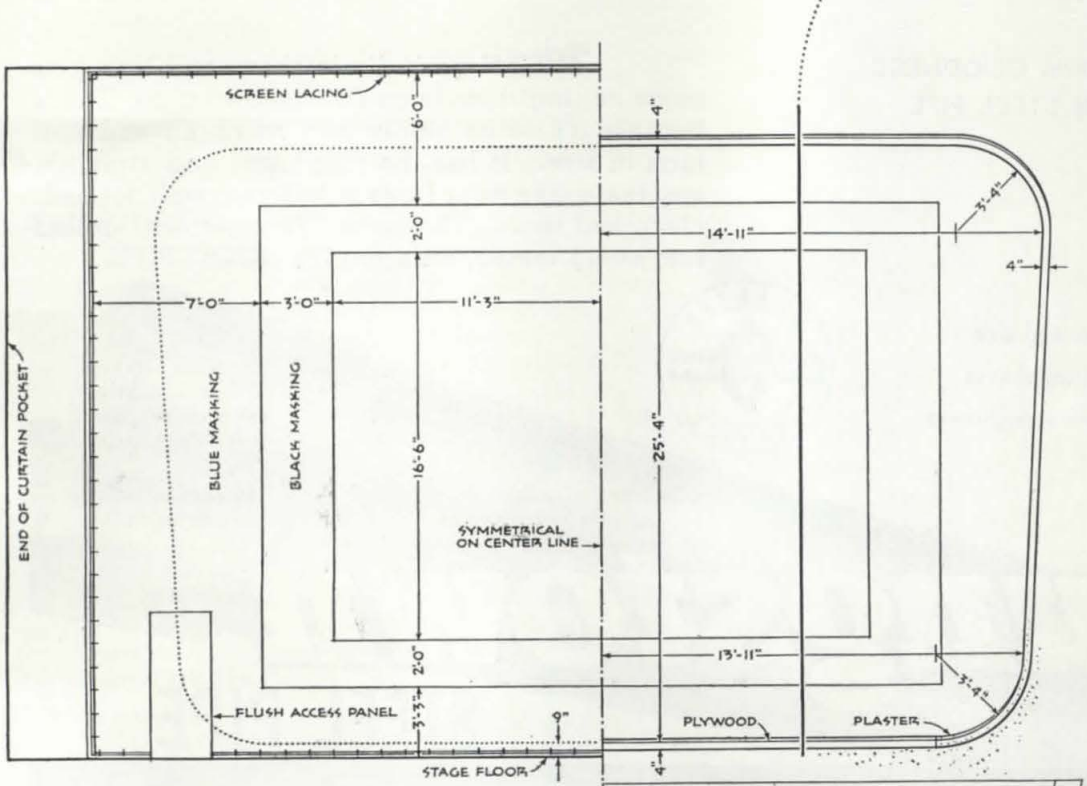
BEN SCHNALL

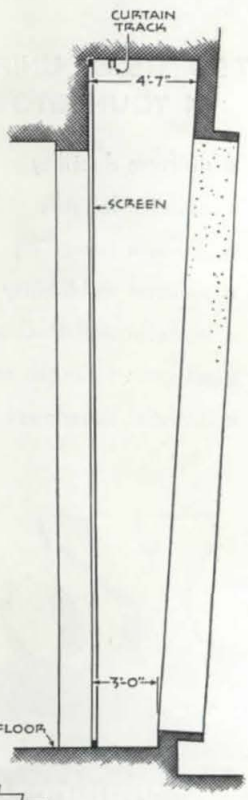


Plan 1/16" SCALE

Section 1" SCALE





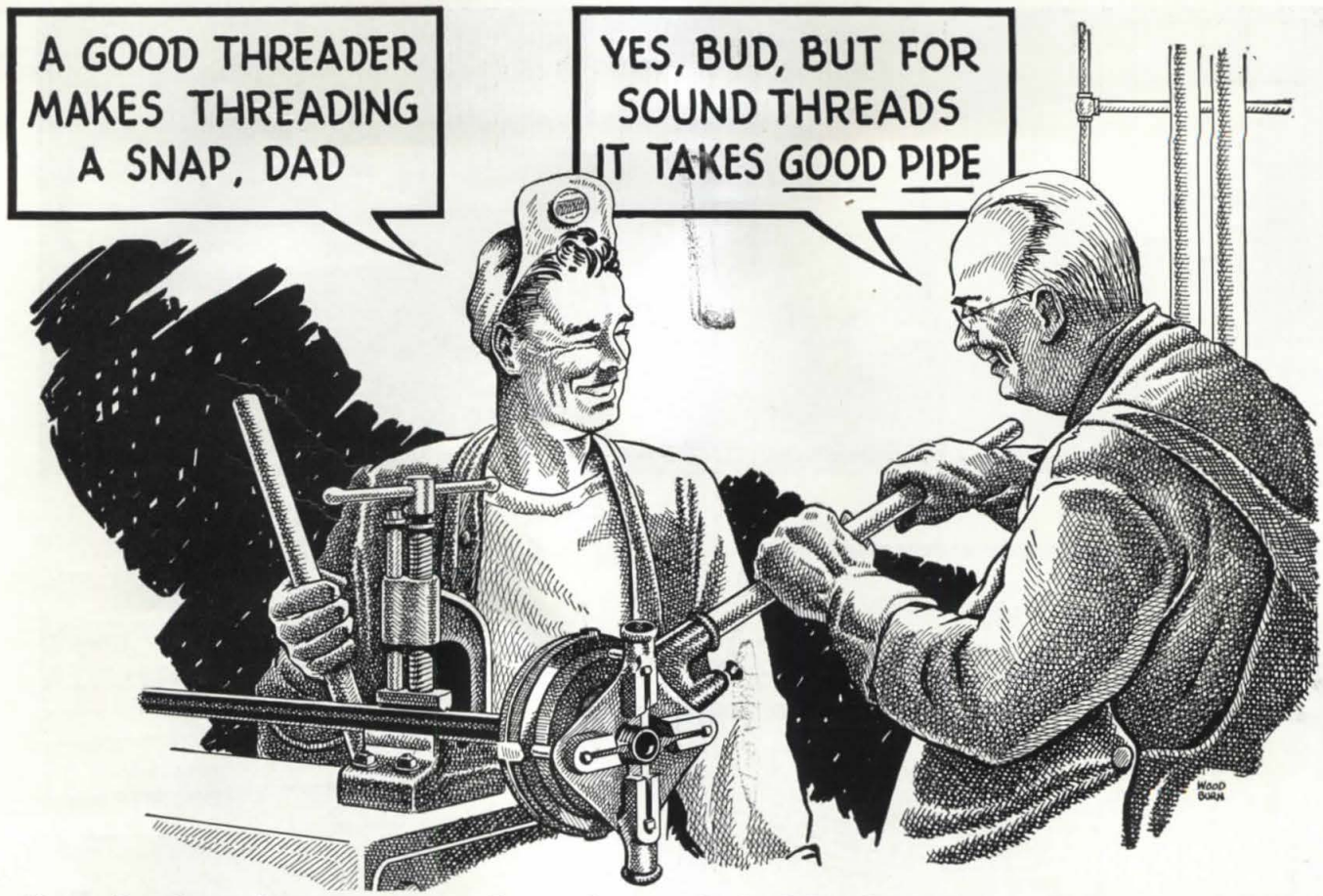


Proscenium Elevations 1/8" SCALE

Section

CALDERONE THEATER, Hempstead, N.Y.

WILLIAM LESCAZE, ARCHITECT



Good plumber + good tools + GOOD PIPE = GOOD JOB!

7 POINTS OF UNIFORM GOODNESS IN YOUNGSTOWN STEEL PIPE

- uniform ductility
- uniform lengths
- uniform threading
- uniform weldability
- uniform wall thickness and size
- uniform strength and toughness
- uniform roundness and straightness

WHEN your die is sharp and true, you enjoy cutting threads on Youngstown pipe. That's because it's so uniformly soft, so round and uniform in size. It has the toughness and strength, too, that make your threads full and well formed, clean and sharp. The name "Youngstown," rolled into every length, tells you it's GOOD PIPE.

QUALITY V YOUNGSTOWN SERVICE

Youngstown STEEL PIPE

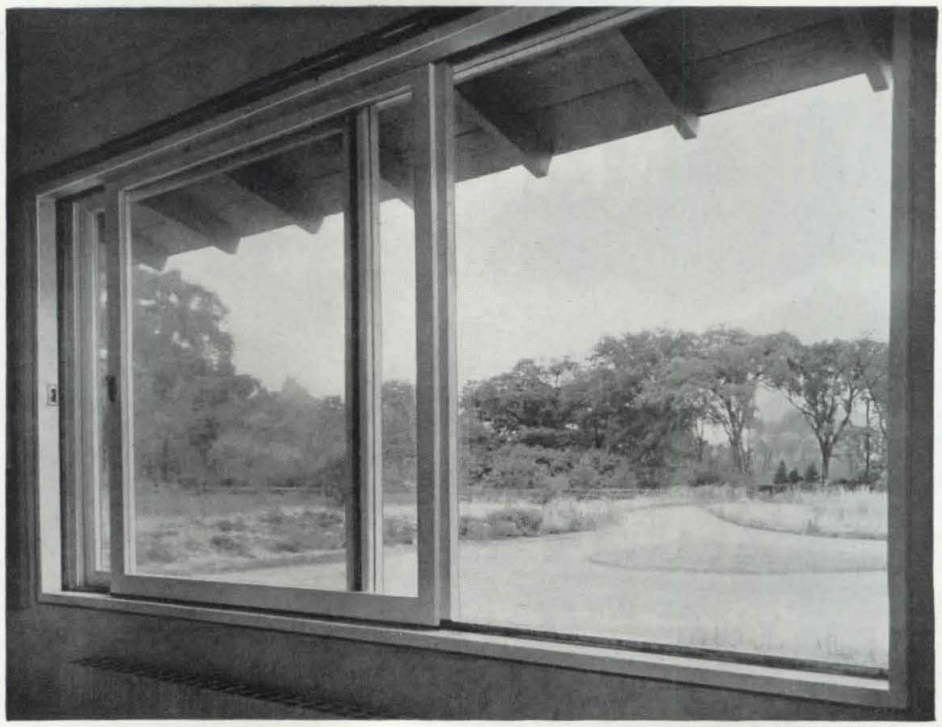
THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices — Youngstown 1, Ohio

Export Office - 500 Fifth Avenue, New York

PIPE AND TUBULAR PRODUCTS - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - HOT AND COLD FINISHED CARBON AND ALLOY BARS - RODS - SHEETS - PLATES - CONDUIT - RAILROAD TRACK SPIKES.



GEORGE M. CUSHING JR.

HOOPER RESIDENCE, Dedham, Mass.

ROBERT WOODS KENNEDY, ARCHITECT

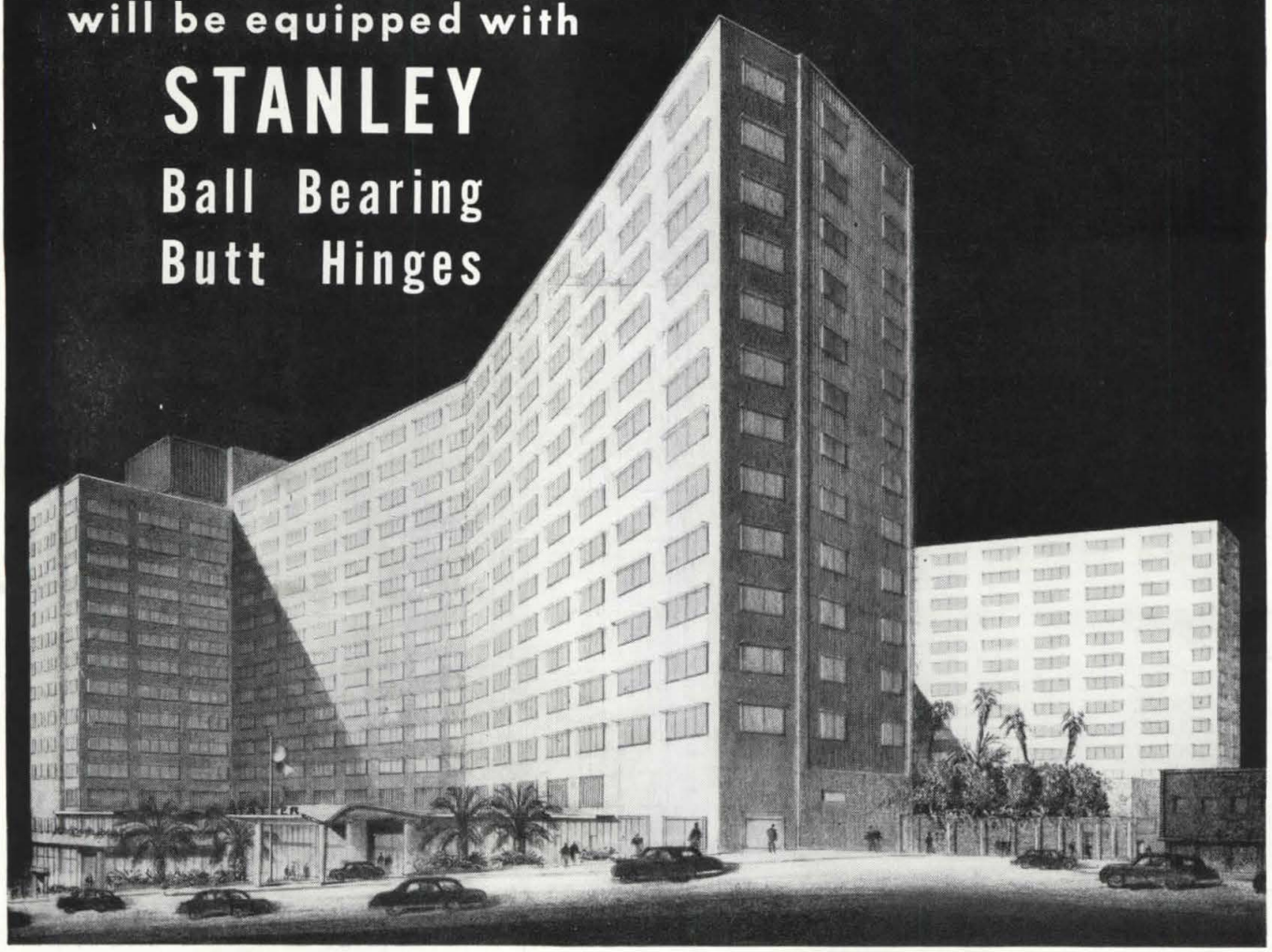
THE NEW STATLER CENTER

LOS ANGELES

will be equipped with

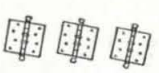
STANLEY

Ball Bearing
Butt Hinges



Architects: Holabird & Root & Burgee, Chicago, Ill.
William B. Tabler, *Associate Architect*

The new Statler Center is a symbol of modern functional designing and construction "know-how". Equipped throughout with Stanley Ball Bearing Butt Hinges—*three to a door*—this beautiful new building contains, in addition to typical commercial hotel accommodations, a 13-story office building, an extensive shopping arcade, and a 475-car parking garage.

REMEMBER  THREE HINGES TO A DOOR

THE STANLEY WORKS, NEW BRITAIN, CONN.

STANLEY

Reg. U.S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS
STEEL STRAPPING • STEEL

Modern...in design...in application

The ideal floor for use over concrete slab or wood subfloor

Bruce Block Floors fit right in with modern design and modern construction. From an appearance standpoint, they give smart style and decoration along with the natural, friendly beauty of hardwood. Structurally speaking, Bruce Blocks are most practical and economical because they can be laid in mastic over the concrete slab. Or they can easily be blind nailed over wood subfloors or old wood floors.

Owners find these solid hardwood floors warm, quiet and comfortable underfoot . . . and so easy to keep clean and shining at all times. They're thrifty, too . . . will last the life of a home or building. Even after many years of hard service, all their original beauty can be restored by refinishing.

See our catalog in Sweet's Files, and write for new color booklet on "Modern Hardwood Floors of Bruce Blocks."

Bruce Block

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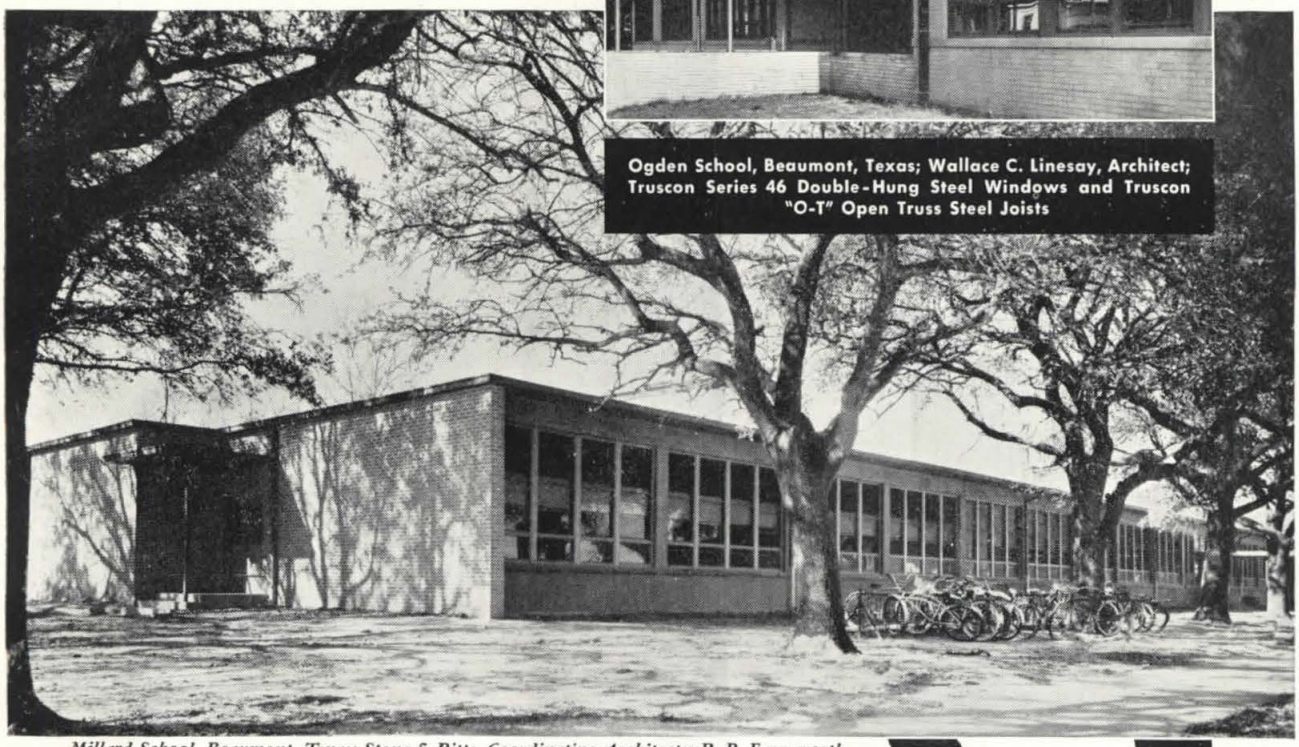
PRODUCT OF E. L. BRUCE CO., MEMPHIS 1, TENN., WORLD'S LARGEST MAKER OF HARDWOOD FLOORS

Other Bruce Products: Ranch Plank, Strip, Random-width Flooring • Lumber and Wood Parts • Terminix • Floor Cleaner, Waxes, Finishes.

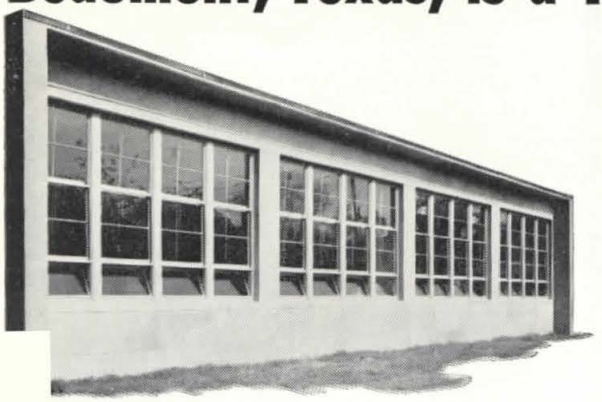
TRUSCON... a name you can build on

Ogden School, Beaumont, Texas; Wallace C. Linesay, Architect; Truscon Series 46 Double-Hung Steel Windows and Truscon "O-T" Open Truss Steel Joists

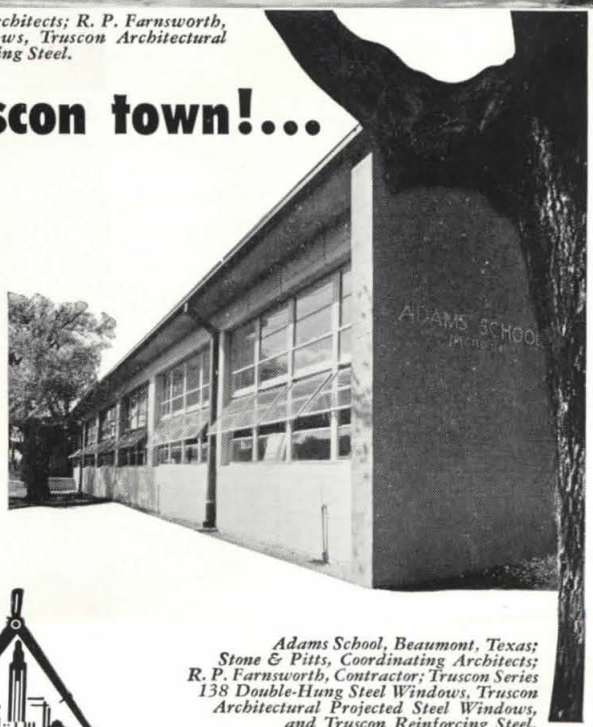


Millard School, Beaumont, Texas; Stone & Pitts, Coordinating Architects; R. P. Farnsworth, Contractor; Truscon Series 138 Double-Hung Steel Windows, Truscon Architectural Projected Steel Windows, and Truscon Reinforcing Steel.

Beaumont, Texas, is a Truscon town!...



Averill School, Beaumont, Texas; Heartfield & Woodside, Architects; Stone & Pitts, Coordinating Architects; Herman Weber, Contractor; Truscon Architectural Projected Steel Windows and Truscon Series 138 Double-Hung Steel Windows.



Adams School, Beaumont, Texas; Stone & Pitts, Coordinating Architects; R. P. Farnsworth, Contractor; Truscon Series 138 Double-Hung Steel Windows, Truscon Architectural Projected Steel Windows, and Truscon Reinforcing Steel.

Here are four Beaumont schools built *better*, stronger, safer, with many of the items in the wide range of Truscon Steel Building Products. Such outstanding preference for Truscon materials is testimony for their unusual quality, structural and functional advantages. In the window field particularly, Truscon offers an exceptional range of designs, permitting the most efficient installation for every classroom lighting and ventilating requirement. See SWEET'S for complete details of the Truscon line, or write direct.

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PRODUCTS

TRUSCON® STEEL CORPORATION
YOUNGSTOWN 1, OHIO
Subsidiary of Republic Steel Corporation

As functional as they are beautiful, modern Fox-Made Gate City Awning Windows *anticipate* tomorrow's living needs in offering all these advantages for your buildings:

COMFORT — Cooler in summer — they scoop in up to twice the amount of fresh air with uniform, draftless ventilation. Equipped with Thermopane or interior storm sash, they assure greater warmth in winter.

SAFETY — Made of Protexol-impregnated lumber they will not burn. They lock in any open position (children cannot fall out, intruders cannot enter.)

CONVENIENCE — A simple turn of one handle tilts sashes out to any degree—the tilt keeps out rain. Both sides can be washed easily from inside . . . screens are applied from within.

BEAUTY — Their graceful lines plus the warmth and charm of wood construction add to overall building appearance.

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Send me information on the following products:

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Address.....

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

put 'em on the

1. This beautiful floor installation in the Colonial House Candy Shop, East Orange, New Jersey, shows

...with the 4-square features of

No other floor covering gives you such limitless creative opportunities. No wonder leading architects and designers everywhere are again turning to the proved advantages of Nairn Linoleum. Its wide range of colors and patterns harmonizes with any decorative scheme . . . offers complete flexibility for your designs and your clients' requirements.

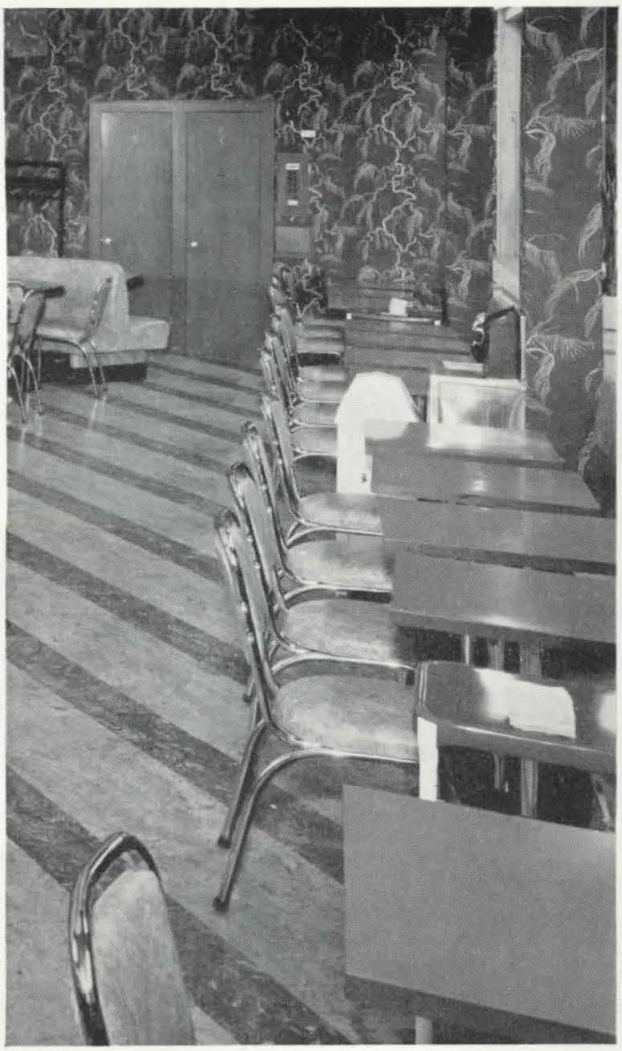
From a practical standpoint, Nairn's service record speaks for itself! Specified again and again by the same customers, Nairn installations have given over 30 years of economical service. Sanitary, easy to clean, crevice-free Nairn Linoleum is foot-easy and quietizing. No other material gives you and your clients *more* value for your flooring dollar!

For your specifications: Nairn Linoleum – Nairn Wall Linoleum – Nairn Asphalt Tile. Congoleum-Nairn Inc., Kearny, New Jersey

NAIRN LINOLEUM

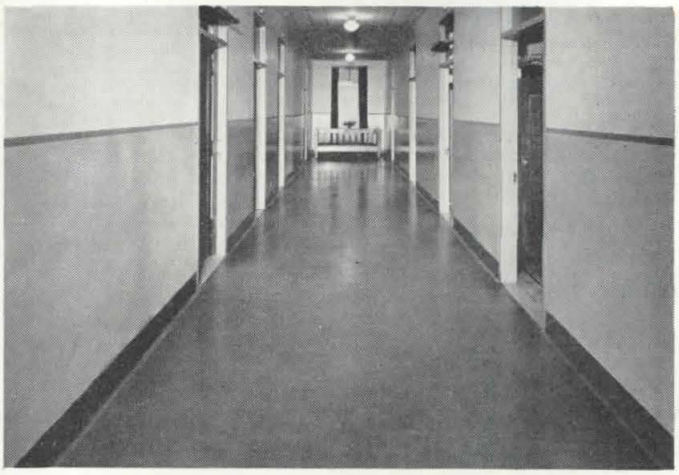
Trademark ®

right footing



how easily Nairn Linoleum follows the architect's design . . . creates a distinctively beautiful effect.

2. Nairn Linoleum makes this floor in the Hackensack General Hospital, Hackensack, New Jersey, quiet and foot-easy . . . satin-smooth surface eliminates dirt- and germ-catching crevices.



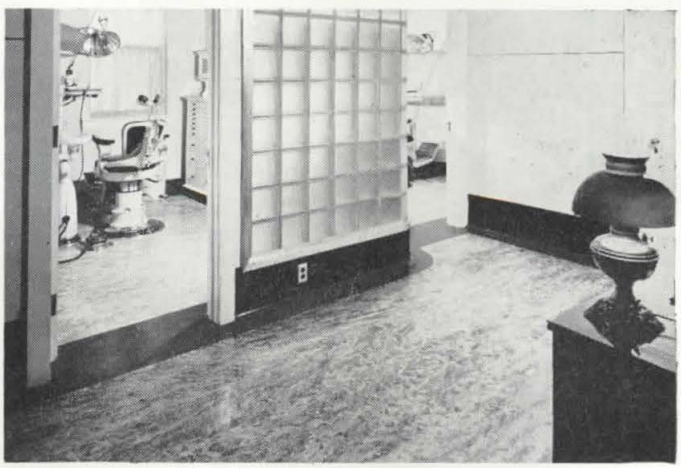
3. A corridor in the same hospital showing an installation of battleship linoleum now in use over thirty years! Proved long life where traffic is heavy . . . always clean and sanitary.

Nairn Linoleum!

NAIRN
SATISFACTION GUARANTEED OR YOUR MONEY BACK

For FLOORS and WALLS

1. **Long Life**
2. **Enduring Beauty**
3. **Easy Maintenance**
4. **True Resilience**



4. An interior of the suite of Dr. J. D. Ross, Arlington, New Jersey, shows how Nairn Linoleum with one-piece cove base and border insures cleanliness, easy maintenance, enduring beauty.

Some of the many installations of

POWERS

Pneumatic Temperature Con rol

In Contemporary Secondary School

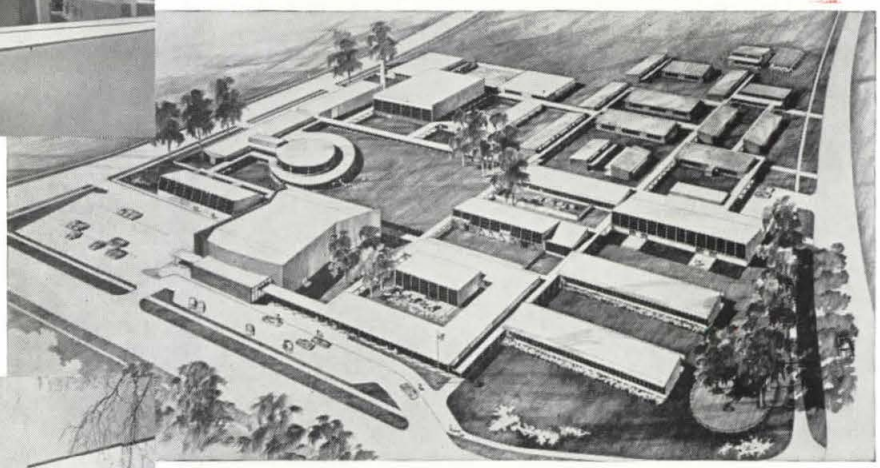
Assures Utmost Comfort and Efficiency of Teachers and Pupils

Lower Maintenance—Bigger Fuel Savings

Many 25 to 40 year old installations still giving dependable regulation . . . . . these and many other plus values in POWERS systems of temperature control give users more for their money

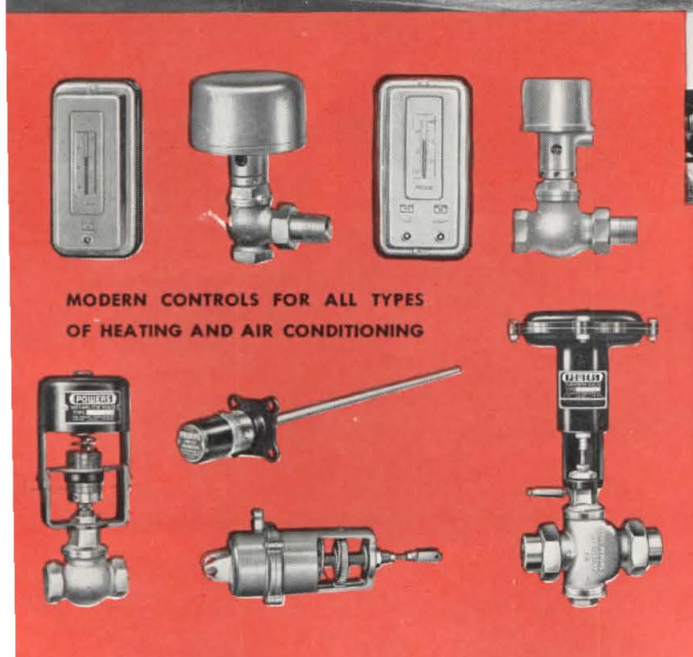
Above: Junior High School 54, Manhattan, New York City.
Architect: Eric Kebbon. Engineer: T. F. Dwyer, Board of Education, City of New York.
Heating Contractor: Daniel J. Rice, Inc., Long Island City, N. Y.

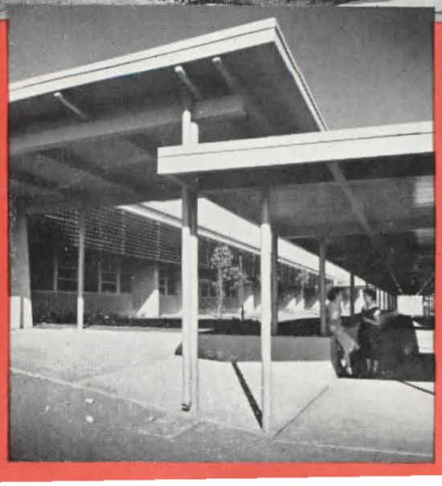
Below: Archbishop Williams High School, Braintree, Mass.
Architects: Maginnis and Walsh, Boston, Mass.
Engineer: A. Ehrenzeller, Boston, Mass.
Heating Contractor: Fred. Williams, Inc., Boston, Mass.



Above: Westchester Junior High School, Los Angeles, Cal.
Architects: Sumner Spaulding and John Rex.
Mechanical Engineers: Bartlett & Berky.
Heating Contractor: West Coast Plumbing & Heating Co.

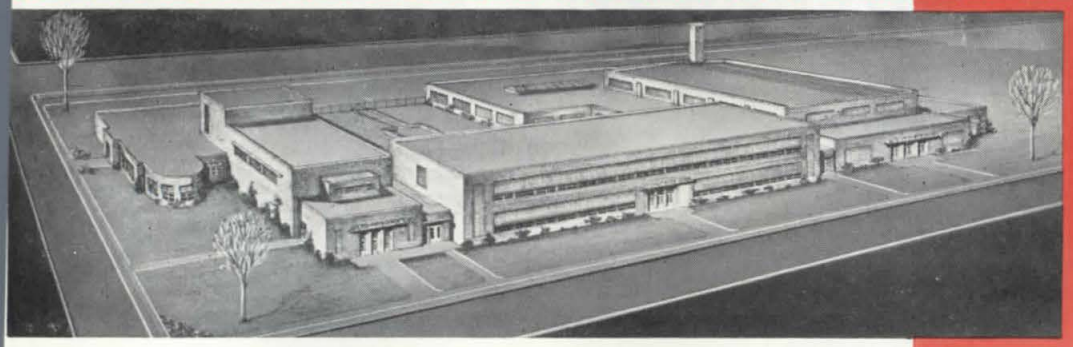
Below: Intermediate and Farragut Ave. Schools, Culver City, Cal.
Architects: Daniel, Mann and Johnson, Los Angeles, Cal.
Consulting Engineer: Chester D. Walz
Heating Contractor: S. Glen Hickman Co.





Memorial High School, Calais, Maine
Architect:
Alonzo J. Harriman, Auburn, Maine.
Engineer: The Fels Co., Portland, Maine.
Heating Contractors:
Pullen Brothers, Augusta, Maine.

POWERS

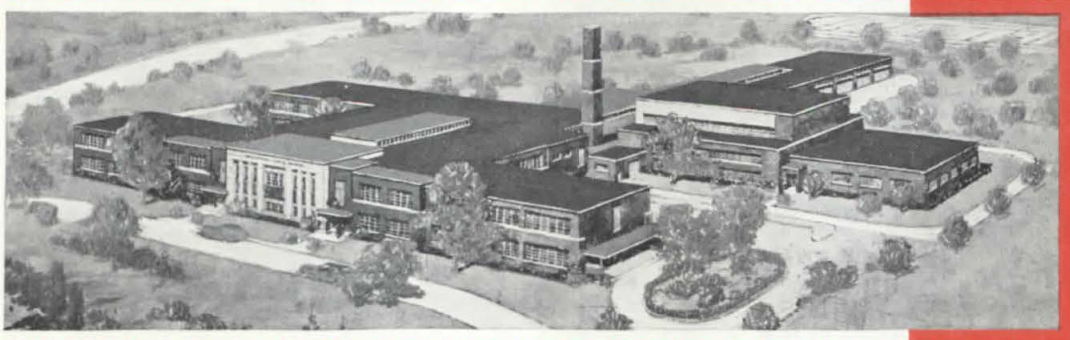


Lincoln High School, East St. Louis, Illinois
Architects & Engineers: S. T. Pabst & Associates, East St. Louis, Illinois.
Heating Contractor: E. J. Maag Plbg. & Heating Co., East St. Louis, Illinois.

POWERS

Newfane-Wilson School, Newfane, N. Y.
Architects: Duane Lyman & Associates,
Heating Engineers: Beman & Candee,
Heating Contractor: Jos. Davis, Inc.,
Buffalo, N. Y.

POWERS



Southfield High School, Southfield Township, Michigan
Architects& Engineers: Jensen & Keough,
Heating Contractors: J. D. Naylor & Sons,
Detroit, Michigan.

POWERS

Below: Junior-Senior High School, Carthage, Texas

Architect & Engineer: Preston M. Geren, Fort Worth, Texas.
Heating Contractor: Spencer Plumbing & Heating Co., Dallas, Texas.

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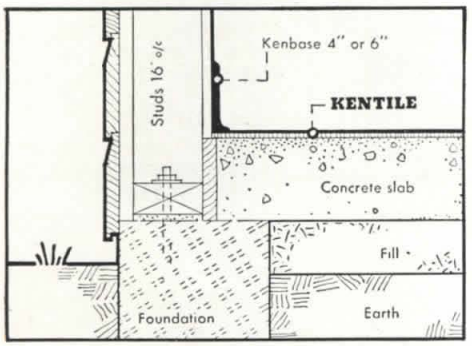
There's no obligation

KENTILE Asphalt Tile...
KENCORK Cork Tile...
KENTILE *RUBBER TILE* } floors

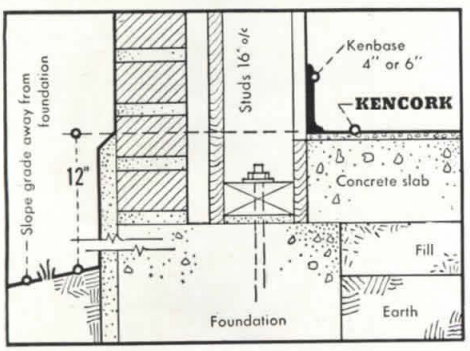


KENTILE Asphalt Tile...

. . . is made of asbestos • coumarone-indene resins • plasticizers • color pigments.

KENTILE can be installed over any smooth interior floor that is free from spring, oil, grease, lumps or foreign matter. METAL • WOOD • CONCRETE • RADIANT HEATED CONCRETE FLOORS • CONCRETE IN DIRECT CONTACT WITH THE EARTH.

KENTILE costs about 25¢ per sq. ft. for standard ⅛" thickness for 1,000 sq. ft.—exact price depends on area and condition of floor, colors chosen and freight rates. For an accurate estimate, consult your Kentile Dealer. His name is listed in your classified phone directory under FLOORING.

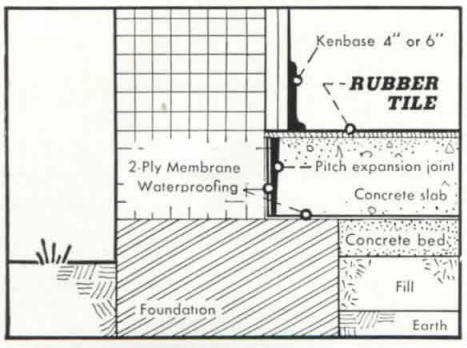


KENCORK Cork Tile...

. . . is made of pure cork . . . with no artificial binders . . . compressed under heat and pressure to a fraction of its original bulk.

KENCORK can be installed over any smooth, dry interior floor that is not subject to sidewalk grit and grime . . . OVER CONCRETE IN DIRECT CONTACT WITH THE EARTH IF DRAINAGE IS AWAY FROM THE INSTALLATION.

KENCORK costs about .56¢ per sq. ft. for 3/16" thickness for 1,000 sq. ft.—exact price depends on area, condition of floor and freight rates.



KENTILE Rubber Tile...

. . . is made by vulcanizing synthetic rubber and pigments.

KENTILE RUBBER TILE can be installed over any smooth interior surface that is removed from greases and oils . . . EVEN OVER CONCRETE IN DIRECT CONTACT WITH THE EARTH IF WATERPROOFING MEMBRANE IS USED TO PREVENT CAPILLARITY (if there is a static head more plies may be required).

KENTILE RUBBER TILE costs about .62¢ per sq. ft. for ⅛" thickness for 1,000 sq. ft.—exact price depends on area, condition of floor, and freight rates.

KENTILE

The Asphalt Tile of Enduring Beauty

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Recommended and Not Recommended uses

RESIDENTIAL USES

KITCHENS	BATHROOMS	BEDROOMS	NURSERIES	LIVING ROOMS	FOYERS	BASEMENT ROOMS
R	R	R	R	R	R	R — can be installed below grade over concrete in direct contact with the earth (see diagram)

COMMERCIAL USES

OFFICE WORKING AREAS	PRIVATE OFFICES	HOSPITAL CORRIDORS	SCHOOLS & PUBLIC BUILDINGS	LIBRARIES	STORES	RESTAURANTS	FACTORIES
R	R	R	R	R	R	R — *See Footnote on use of SPECIAL KENTILE in certain areas	R — *See footnote on use of SPECIAL KENTILE in certain areas

RESIDENTIAL USES

KITCHENS	BATHROOMS	BEDROOMS	NURSERIES	LIVING ROOMS	FOYERS	BASEMENT ROOMS
NR	R	R	R	R	NR	NR

COMMERCIAL USES

OFFICE WORKING AREAS	PRIVATE OFFICES	HOSP. WARDS & CORRIDORS	INNER ROOMS OF PUB. BLDGS.	LIBRARIES	STORES	RESTAURANTS	FACTORIES
R	R	R	R	R	NR	NR	NR

RESIDENTIAL USES

KITCHENS	BATHROOMS	BEDROOMS	NURSERIES	LIVING ROOMS	FOYERS	BASEMENT ROOMS
R	R	R	R	R	R	R — can be installed below grade over concrete in direct contact with the earth if waterproofing membrane is used (see diagram)

COMMERCIAL USES

OFFICE WORKING AREAS	PRIVATE OFFICES	HOSP. WARDS & CORRIDORS	SCHOOLS & PUB. BLDGS.	LIBRARIES	STORES	RESTAURANTS	FACTORIES
R	R	R	R	R	R	R — not in or near kitchen areas	NR

*Standard Kentile is not recommended where floors are constantly exposed to the deteriorating effects of industrial or cooking greases and oils. SPECIAL KENTILE resists oils, greases, alcohols, alkalis and most acid solutions and is recommended for areas such as:

industrial plants • laboratories • machine shops • food preparation areas • cafeterias and restaurants

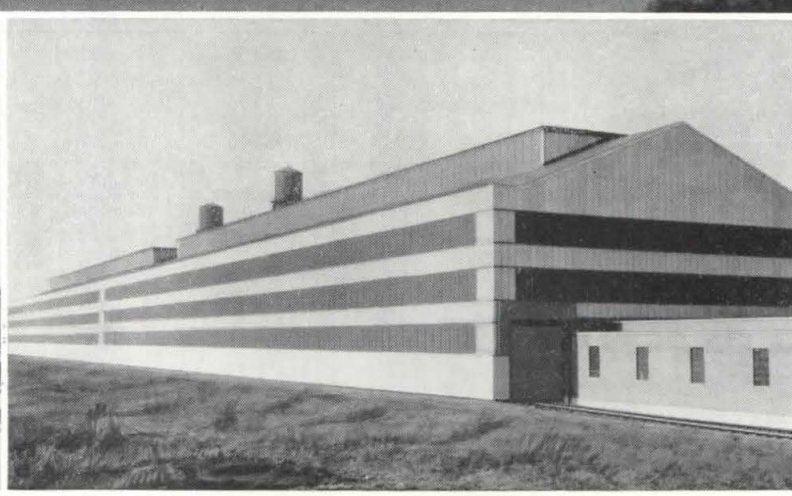
SPECIAL GREASE PROOF KENTILE

SPECIAL KENTILE can be installed over any smooth floor surface just like standard KENTILE...even over concrete in direct contact with the earth...use it in basement locker rooms, rest rooms and all rooms where greases and oils are tracked-in underfoot or on work clothing.

IS YOUR BUILDING

Workers and the community are proud of this Glen Rock, N. J. weaving plant of F. Ducharne Silk Co. A "Controlled Conditions" plant; designed and erected by The Austin Co. Office area faced with Alcoa Aluminum.

dministration Building, Aluminum Company of America, Davenport, wa, Rolling Mill. Wall facing of Alcoa Aluminum Cast Panels. Harrison Abramovitz, Architects. Geo. A. Fuller Co., General Contractors.



Cleveland Chamber of Commerce awarded this Perfection Stove Co. plant medal for "Meritorious work of designers and builders." George S. Rider Co Architects. G. A. Rutherford Co., General Contractors. 885 feet of plant wa faced with Alcoa Aluminum panels, fabricated and erected by H. H. Robertson C

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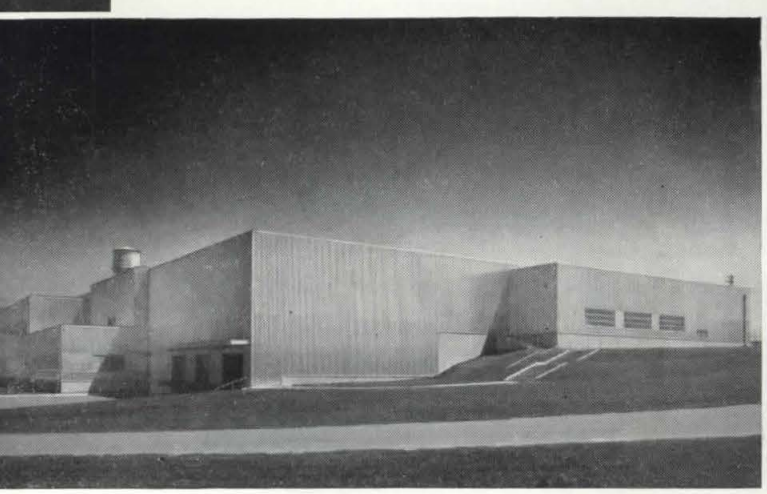

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p/a REVIEWS

POWER AND FAITH

Moholy-Nagy; Experiment in Totality. *Sibyl Moholy-Nagy. Harper & Bros., 49 E. 33 St., New York, N.Y., 1950. 253 pp. illus. $6.50*

Those who knew Moholy-Nagy well and worked with him must say that he lives again in this book. No one need have any doubt that the image invoked is a true image. His presence dominates the chronicle rather than the other way around. This is good biography.

Lazlo Moholy-Nagy will perhaps be best remembered as the man who not only helped to formulate one of the most vital manifestos of our time, but who, unlike many of his brillant Bauhaus colleagues, had the power and the faith to fight to the point of death for the social implementation of the brave young words of the original Bauhaus documents.

In the Weimar and Dessau beginnings, starting in 1919, a new and healing spirit arose which strove to find a creative place for the inheritors of western culture in a mechanized world. Moholy-Nagy in setting up the New Bauhaus in Chicago in 1937 (later the School of Design, and then the Institute of Design) put this great new principle to its second sustained test, in the heart of industrial America. The new school and its experimental program could not hide behind established academic walls. It had to stand or fall on its power of persuasion and performance.

The fact that today, 14 years after the Chicago founding, the movement has again splintered into independent segments of progressive industrial design education on the one hand, and on the other a new art pedagogy for general education, is no fault of Moholy. He exhausted himself in an effort to maintain the balance. The essence of his effort is crystallized in his books, in his paintings, and now it is sensitively portrayed by his widow in his biography. His influence will be enduring for the problem he tackled is one that this era must solve if its generations are to regain wholeness and creative health and peace.

ROBERT JAY WOLFF

THE INELUCTABLE R.L.

Never Leave Well Enough Alone—the personal record of an industrial designer from lipsticks to locomotives. *Raymond Loewy. Simon & Schuster, New York, N. Y. 377 pp., illus. $5*

There are, I think, three aspects of this breezy, first-person-singular account of how one of the most famous industrial designers got that way, that the architectural fraternity will find particularly fascinating.

(Continued on page 126)

BOOKS RECEIVED

Planning Together for Better School Buildings. Bulletin 412. Published by Lee M. Thurston, Sup't. of Public Instruction, Lansing, Mich., 1950. 141 pp.

HOW to Expend and Improve Your Home. Lee Frankl. Simmons-Boardman Publishing Co., 30 Church St., New York, N.Y., Jan. 1951. 245 pp., illus. $5.95

Electric Illumination, Second Edition. John O. Kraehenbuehl. John Wiley & Sons, Inc., New York, N.Y., Jan. 1951. 446 pp., graphs and charts.

A Critical Review of Le Corbusier. P. M. Bardi, Director, Museum of Art, Sao Paulo, Brazil. 71 pp., illus. Text in English and Portuguese

China and Gardens of Europe of 18th Century. Osvald Siren. The Ronald Press Co., 15 E. 26 St., New York, N. Y., 1950. 223 pp., plus 192 photo plates. $30

English Panorama. Thomas Sharp. The Architectural Press 13, Queen Anne's Gate, London, Revised and Reset Edition, 1950. 151 pp., illus. Price: 12s 6d net

p/a

REVIEWS

(Continued from page 125)

One is the nigh-unbelievable success story. Just seven years after coming from his native France to this country, he was "making an excellent living for a relatively young man of 33, probably thirty or forty thousand a year" —plus much more of the same ilk— "One day in 1927, I met . . . Horace Saks."—"My good friend, Adam Gimbel"—"Paul Bonwit, whom I had met shortly before," etc., etc. Any designer, industrial, architectural, or whatnot, can hardly fail to be impressed by, if not envious of, the remarkable astuteness—or was it just plain good luck? —that put Raymond Loewy in the path of men who were willing to try something new, had the money to pay for it, and found Loewy's offerings acceptable.

Second, quite distinct from the highly personal flavor that permeates this book, one is instructed by Loewy's amazing ability as an executive. Apparently he is perfectly equipped to select competent associates, knows how to and does delegate authority to them, and has developed a smooth-running organization that keeps on running smoothly. One cannot help but feel that many a skillful architect would thrive handsomely if he were endowed with, or could develop, greater talent in this line.

Third, and probably most significant to a professional audience, is the philosophy of design that R.L. expresses, plus an objective look (through the numerous illustrations) at the design result. In both of these areas, the Loewy assurance seems less firm. The problem of designing for volume sale evidently produces a sort of worrisome schizophrenia. This situation is variously described in the book—"better looking products, consistent with better looking sales curves;" "trying to get a new, more advanced appearance without losing the general flavor of the present production job . . . which has clicked with the public"; "whether or not a designer is justified in giving the public what it wants, even should the consumer's taste be short of all that could be wished for? Or should his professional integrity compel him to produce designs of highest esthetic quality, even if the penalty were to be failure and eventual disappearance of his client?"

The author insists that discussion of this point always leaves him either "in absolute rage or plain somnolence." But he raises the point himself, time and time again. It is not surprising, therefore, when one turns to look at the products the organization has designed (sales currently total $3,000,000,000 annually) that they reflect this basic dual problem. A few are truly distinguished; a few are clear compromises; the majority fall between these extremes.

Loewy is quite generous about giving credit to fellow industrial designers for things they have done that he admires. With respect to architects, however, he apparently has a blind spot. In the case of the Lord & Taylor branch store in Manhasset, for instance, one could not learn from the book that Starrett & Van Vleck were in any way involved. And, while the merchandising layout and design of Foley's department store in Houston were all (I believe) designed by the R.L. organization, the office of Edward E. Ashley, Consulting Engineer, was concerned with the design of some of the wonderful mechanisms for handling merchandise, and Kenneth Franzheim, Houston Architect, had a finger in the pie; but neither is mentioned.

The sleek, chunky (6¼" x 7¼" x 1¼") little book is, in itself, an arresting design performance. Clever things are done with typography to make certain points about design theory, and it is a book whose pages you find yourself turning, if only to discover what's coming next. G.A.S.

(Continued on page 128)

Leadership in Chicago

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REVIEWS

(Continued from page 126)

The Gothic World, 1100-1600. *A Survey of Architecture and Art. John Harvey. B. T. Batsford, Ltd., London, New York, 1951. 160 pp., illus. $6.75*

John Harvey is described by his publishers as a "gentleman scholar." What peculiar distinction this is meant to convey will probably be obscure to many readers. Much clearer is the impression that the author has made the ungentlemanly error of biting off more than he can chew. No doubt this is inevitable when any scholar attempts in 132 text pages to survey five centuries of Gothic architecture and art, to answer questions of what, how, where, and when was Gothic art, and to cover medieval sculpture and church-building not only in the familiar areas but also in such remote outposts of the time as Ireland, Finland, Roumania, and Peru.

True students of the Gothic age will find little of new or arresting import in this book, unless it be in some eyebrow-raising sections in which the author speaks of Strassburg as excelling *all* European cathedrals or dismisses Chartres with a few minuscule references. However, *The Gothic World* should hold considerable interest for architects, engineers, and builders whose knowledge of the subject is cursory or rusty. Harvey traces the design and production of Gothic art, defines its development through Europe and the British Isles, and sums up the principal social, religious, and (to less extent) political and economic influences of the Middle Ages. He is perhaps most engrossing when he writes of medieval construction methods, the impressive status of master masons and craftsmen, and the growth of "national" styles.

The Gothic World contains over 225 photographs and many drawings, all handsomely reproduced and, in some cases, rarely encountered. The endpaper map showing the travels of Gothic artists should be particularly noted, if only for the long, thin trail of Robert the Sculptor who voyaged possibly from England and reached Trebizond, on the Black Sea, a few years before the opening of another brave new century, A.D. 1300. HARMON TUPPER

GUIDE FOR TODAY

A Guide to Contemporary Architecture in Southern California. *Watling & Co., 406 Wilshire Blvd., Santa Monica, Calif., 1951. 91 pp., illus. $1.95*

A timely survey of contemporary architecture in Southern California has been assembled in this well printed guide book, by Weston Bonenberger and Frank Harris, graduate students in architecture at the University of Southern California. It is the first—and possibly the only—documentation of regional architecture to be produced by local publishers and it is commended to the attention of A.I.A. Chapters and other professional groups, who might do likewise for their localities.

In compiling this survey the authors selected 229 examples of residential, commercial, and public buildings representative of the current architectural trends, plus a flash-back or two to the works of F.L.W. and R.M. Shindler. These examples, many exteriors and interiors of which are illustrated in photographs taken by Julius Shulman, architectural photographer, are assembled in the book according to five zones, four of which are suburbs of Los Angeles, the fifth a somewhat sporadic area, mostly along the California shoreline.

Also included in the book for the interest of architects, students, and laymen are a directory of Southern California architects and a bibliography covering the history, principles, and eminent personalities involved in the growth of modern architecture throughout the world. E.T.

(Continued on page 130)

REVIEWS

(Continued from page 128)

MAGAZINE INDEX

The Architectural Index for 1950. *Compiled and edited by Ervin J. Bell. The Architectural Index, 1904 Bellaire St., Denver 7, Colo. 32 pp. $2*

Here, at last, is a comprehensive index that provides a convenient reference to back copies of the leading American architectural magazines — *Arts and Architecture, Architectural Record,* and PROGRESSIVE ARCHITECTURE,—and also *Architectural Forum The Magazine of Building.*

Entries are arranged alphabetically under headings that range from "Accounts" and "Acoustics," through "City Planning," "Hospitals," "Remodeling," and a hundred-odd others, down to the final, "Windows." Entries are also cross-indexed under "Architects and Designers." Under some headings, subdivisions are made geographically and by subject; and buildings in foreign countries are cross-indexed under the name of the country. Architects and designers should find this Index an altogether useful, easy-to-find key to their periodical files. E.T.

DESIGN FOR SPEED

51 u. s. industrial design. *Society of Industrial Designers, New York. Studio Publications and Thomas Y. Crowell Co., 432 Fourth Ave., New York, N. Y., Feb. 1951. 184 pp., illus., index. $10*

This second yearbook of the Society of Industrial Designers has been assembled in the same manner as its predecessor, with the members themselves selecting the designs and doing the individual layouts. The products—covering everything from amputees' hooks to portable toidy seats—seem to prove that most industrial designers, following the lead of automobile stylists, tend increasingly to conceal the necessary intestines inside large, rounded covers that give no hint as to what they contain (though they must be removable for repairs).

On the plus side—there are fewer striated surfaces; manufacturers' names no longer take on the repetitive quality of radio commercials; good clear numerals on clocks are saleable. There is a television set, with the viewer radically done in the same shape as the picture tube, and a lavatory with a *flat* surface for such oddments as tooth paste and shaving soap (though the lack of a soap drain does mean the clean surface must be cluttered with some gadget for that necessity).

Despite suggestions from such critics as Lewis Mumford, only one new refrigerator has a flat top where a dish could be safely placed while the icebox is being reorganized. And most small radios seem to have dust-catching as their main mission. Also, the G-E alarm clock has only 48 minutes to the hour and a strange arrangement of numerals backing and filling around the face.

With few exceptions, there is a schizophrenic quality to packaging design; with the old familiar mish-mash of type faces carried over to fine new labels. And most units for transportation have interiors reminiscent of rural hotels, taverns, or shuttered cottages. It seems forbidden to remind travellers that a restless sea or changing countryside may exist outside the cozy walls. From the examples shown, architects have little to fear from invasion of their field by the industrial designers.

As to the outstanding design, after going through the book many times, this reviewer returns again to the top of page 26 where a small gem shows what might be achieved. It is an electric stove, with cooking surface and oven each at the most convenient level and the shape pared down to its purest form. The minimum amount of floor space it uses, leaves room for cupboards to hold pots and pans (at room temperature and away from dripping fats from the oven). The caption reads: "1929 First Range Electromaster Inc." (designer un-named).

M.A.M.

(Continued on page 132)

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p/a REVIEWS

(Continued from page 130)

HEROES IN ART

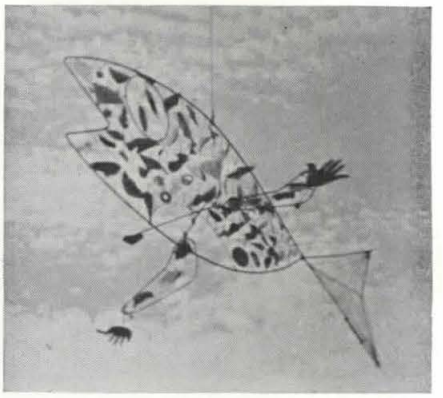
Gods And Goddesses In Art And Legend. *Herman J. Wechsler. Pocket Books, Inc. 18 W. 48 St., New York 19, N. Y. 112 pp. illus. (gravure) 25¢*

Greek Art. *Thomas Craven. Pocket Books, Inc. 18 W. 48 St., New York 19, N. Y. 120 pp. illus. (gravure), glossary, 25¢*

For a generation that has turned its back on classical learning and become all but illiterate in Greek and Latin literature, Pocket Books, Inc., offers at popular price two usable keys to the identity of pagan V.I.P.'s who persisted almost to our time as models for painters and sculptors. Wechsler retells briefly (censored for squeamish moderns and the U.S. Post Office) the heroic and erotic tales of Olympians immortalized by Ovid, whose poetry inspired generations of great artists. Craven attempts to explain the artistic achievements of the ancients. Aside from their value as handy reference books, these are good reading in neglected lore. C.M.

RARE AND DELICIOUS

Works of Calder, a 16 mm color film, attempts to explain the "why" of Alexander Calder's beautiful and fascinating mobiles. Using the device of a small boy by the sea watching the myriad movements of nature—the trees, waves, pulsing jellyfish—the photographer moves into Calder's studio where evermoving mobiles quiver like the leaves, advance and recede like the surf, circle and hang suspended like the planets. You see Calder himself—a large casual person without pretense—working on a new design, his capable workman's hands filing and drilling and cutting the metals. And you see his cluttered workroom with mobiles circling, swooping down, withdrawing like a passing breeze.



The commentary, spoken by Burgess Meredith, somehow, misses a full expression of Calder's aims, his desire to create the endless variety and unceasing movement of the universe. Music by John Cage has a Javanese flavor and in time grows monotonous, seeming never to develop beyond the opening phrases.

There is a feeling that this should have been a first "take" rather than the finished production. Nevertheless, *Works of Calder*, in showing the mobiles themselves and in reminding us of the endless ebb and flow of the natural world, stretches the imagination and should inspire a fresher approach to any design problem.

The film is available to schools and educational groups through The Museum of Modern Art (11 West 53 Street, New York 19, N.Y.), and we feel it would lead to much lively discussion if shown at A.I.A. meetings, like a rare and delicious tropical fruit following the meat and potatoes of humdrum business. M.A.M.

MANUAL FOR OFFICE

Fundamentals of Perspective. *Theodore DePostels, Reinhold Publishing Corp., 330 W. 42 St., New York 18, N. Y., January 1951. Portfolio of 30 plates $5.*

Fundamentals of Perspective, enlarged second edition is composed of a series of handsome plates easily understand-

(Continued on page 134)

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REVIEWS

(Continued from page 132)

able and mainly in graphic form. These plates in loose-leaf form with drawings on one side of sheet only are serviceable in this manner for drafting room use. In this work, the science of perspective is more readily classified than is usual in texts; the introductory exercises make use of a perspective model and the later examples are drawn in colored lines. Each part of the construction of the perspective examples—the object, the perspective framework, the construction lines, and the constructed perspective—is drawn in a different color. Furthermore, arrows are indicated on the lines to note the direction in which de perspective construction is drawn. Thus, the perspective layout are set forth in a practical visual manner in conformance with the subject.

In addition to the exposition of perspective in its elementary form, the author also includes certain short cuts and other practical helps. Actually the simple and elementary exercises are fully, even elaborately shown in comparison with the complex advanced exercises which are perhaps drawn too small for the exposition of involved techniques. Explanation of the theory of perspective is minimized with the result that this work *is more* a manual of perspective methods as it seems to be intended. It is, nevertheless, an attractive presentation. OLINDO GROSSI

INSULATING MATERIALS

Heat Insulation. *Gordon B. Wilkes. John Wiley & Sons. Inc., 440 Fourth Ave., New York, N.Y. 224 pp. $4*

The term "heat insulation" is used in a double sense, either for the insulating process or for insulating material employed in such process. The first sentence of the present book shows that the author devoted his work to the insulating materials and their combination. A lot of practical experience is presented, which the author has gained in almost 40 years of testing heat insulations and providing testing apparatus of various kinds. In nine chapters he deals with the purpose of heat insulation, elementary formulas, methods of measuring and factors affecting thermal conductivity, types of insulating materials, specific heat, moisture contents, and economies of insulation. An appendix, comprising about one-fifth of the whole book, contains numerical data of pertinent properties and of over-all coefficients of many types of building walls.

The thermal conductivities are given, using square foot for the area and inch for the thickness, as, unfortunately, many manufacturers of building and insulating materials do, in contrast to the use of consistent units in scientific books on the subject of heat transfer. This custom does not become better by the author's odd use of commas in writing the units (Btu, hr^{-1}, ft^{-2}, F^{-1}, in.). In Table 2-2 the author states that consistent units are used in the International Critical Tables, in the so-called meter-kilogram-second system, and by physicists, chemical engineers, and foreign engineers, whereas mechanical and refrigerating engineers are said to employ different units for area and thickness. The writer wonders whether the last two groups will agree to being classified in this way.

It is this writer's opinion that the book would have been improved if the author had made an attempt to guide the users of his book to a reasonable understanding of what is going on in heat transfer instead of giving them just some formulas and facts to be employed according to certain rules. Then, for instance, it would not have been necessary to fill about ten pages with eight items "with which the reader should become thoroughly familiar . . . before attempting to understand reflective insulation." It should not have been too difficult for the author to explain in one or more introductory chapters in an elementary way the essential features of conduction, convection, and radiation in such a way that most of the

(Continued on page 136)

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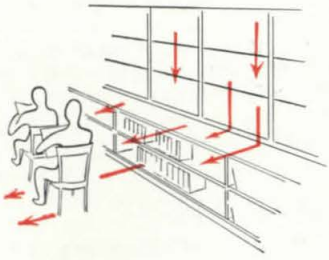

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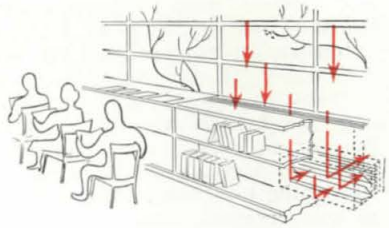

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p/a

REVIEWS

(Continued from page 134)

eight items would be almost self-explanatory to those for whom he wrote his book.

On the other hand, the writer appreciates that many of the facts, methods, and numerical data compiled in this book will be of considerable value, particularly, for persons working in and for the building industry. MAX JAKOB

WINDOWS WERE WINDOWS

A Guide to Designing Windows. *Neville Woodbury, A.R.I.B.A. Neville Woodbury Ltd., 1 Ferdinand St., London, N.W.1., England 77 pp. 6 s.*

Here is a booklet intended to guide the reader — probably some gentleman builder respectful of esthetic propriety — in the design of pleasing and harmonious window patterns. According to the author, this is not difficult. He states: "Careful application of the text will give the reader the fullest opportunity to design windows which will contribute to designs; which can be pleasing, interesting, or even inspiring, but never bad!"

The timing of this book seems wrong. It should have been published about 40 years ago, when there was no doubt in most people's minds about such eternal values as the British Empire, when Style, Shape, Proportion, Contrast, Ornament, and Balance — to quote some of the headings — were the keys to sound and unequivocally correct Architecture, when walls were still Walls — and windows still Windows.

BRUNO FUNARO

NATURE OF MATERIALS

Elementary Theory and Design of Flexural Members. *Jamison Vawter and James L. Clark. John Wiley & Son, Inc., 440 Fourth Ave., New York, N.Y. 215 pp., illus., index. $4*

It is essential, Vawter and Clark point out, that the student of structural design begin his studies by obtaining a thorough grounding in theory before he becomes involved in all the intricate details he will encounter in putting the pieces of members and the parts of structures together. This book presents the basic theory of flexure as applied to the design of members in bending. Major structural materials—steel, timber, and concrete—are discussed; and although separate chapters treat the use of these dissimilar materials, it is shown that the same basic laws govern them all, indicating that there are no fundamental differences in the analysis if the material is applicable. However, certain special peculiarities of the various materials are taken into consideration; for instance, in the chapter on reinforced concrete, mention is made of the effects of time yield in order to agree with present specifications.

The book is offered as a specific text for an elementary design course, or it can be used to precede separate advanced courses in steel and reinforced concrete; it is also suitable as a single course for noncivil engineers. Appropriate references are given, supplemented by recommended handbooks and specifications. E.T.

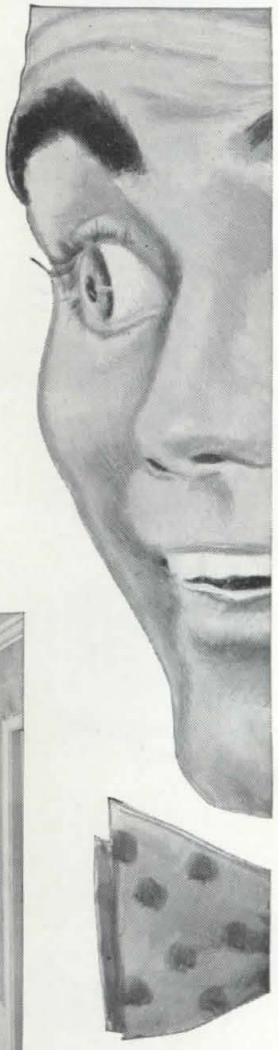
RESEARCH REPORT

Wet Venting of Plumbing Fixtures. *Building Materials and Structures Report BMS119. National Bureau of Standards, U. S. Department of Commerce, Washington 25, D.C. 27 pp. 20 cents*

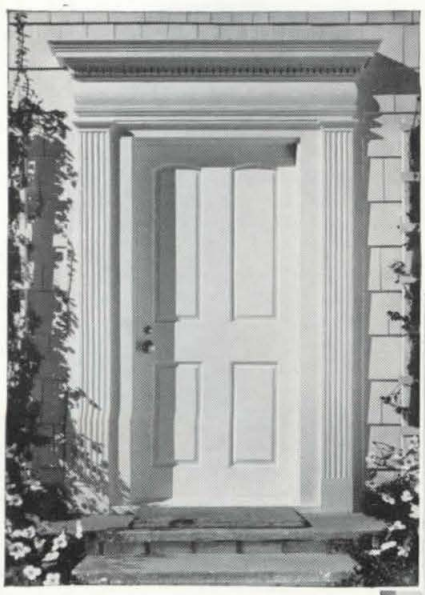
Under the sponsorship of the Housing and Home Finance Agency, the National Bureau of Standards has made extensive laboratory tests on the potentialities of wet venting plumbing fixtures in typical drainage systems. The use of wet venting reduces the number of vent pipes required in a plumbing system, thus effecting a saving in the total cost. This fact has led to an increasing tendency among code-writing authorities to permit the wet venting of plumbing fixtures under

(Continued on page 138)

How to Catch an Eye (and/or) a Sale

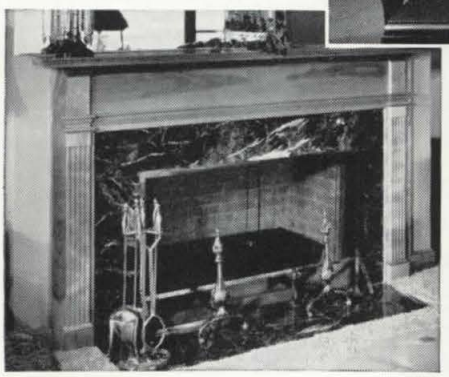


Whether you're designing a house for an individual owner—or building houses to sell—a sure way to catch a prospective owner's approving eye is to use Curtis Woodwork. More plainly than in words, Curtis Woodwork says: "This is a quality house built for a lifetime of comfortable, happy living." Yet Curtis' large production of Architectural Woodwork enables you to get this effect at very reasonable cost. For instance—



A Curtis entrance design which recalls many doorways to be found in the New England area. The entablature with its bowed face, dentil course, and pilaster beading, all contribute to the beauty of an entrance that is suitable for most any type home. Curtis Entrance C-1730 —Door C-1040.

Formal and dignified is this very beautiful Curtis cabinet—often used in pairs as here. It is made for corner use only and is shipped completely assembled. This is Design C-6505. Curtis makes cabinets in all styles and sizes and priced to meet every budget.



This Curtis mantel fits gracefully into a traditional or modern interior. It is pictured here in a beautiful Ranch Style home. Curtis mantels, like all Curtis Woodwork, are made with the skilled craftsmanship used for fine furniture. This is Curtis Design C-6055 — one of several styles.

Curtis makes a complete line of architectural woodwork and kitchen cabinets for the modern home. Make your next house "all Curtis."

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1866 CURTIS WOODWORK

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Name.....

Address.....

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

p/a REVIEWS

(Continued from page 136)

certain circumstances; hence, one of the objects of this investigation was to provide a sound basis for plumbing codes. The report describes test procedures and interprets their results. Diagrams, tables, and graphs are given to show the trap-seal losses that occur under various conditions of wet venting and the maximum permissible unvented lengths of fixture drain that may be used. The conclusions reached regarding the limits under which wet-vented fixtures will operate are given in suitable form for inclusion in plumbing codes. E.T.

USING STAINLESS STEEL

Architectural Uses of the Stainless Steels. *Committee of Stainless Steel Producers, American Iron and Steel Institute, 350 Fifth Ave., New York 1, N.Y. 32 pp., illus.*

More than 75 photographs of stainless steel applications and the many forms in which the metal is supplied commercially, are shown in this booklet which was compiled with the assistance of a consulting architect to familiarize the architectural, building, and engineering professions with the growing fund of technical data on stainless steel. Architectural treatments of building fronts and entrances, exterior walls, flashing, roofing, and drainage are illustrated throughout ten full pages with two-color detail drawings. The final pages are given over to an explanation of the technical factors involved in the choice of stainless steels, recommendations for specifying stainless construction, and a table which lists the types, uses, and typical properties of the metal. E. T.

HOME WIRING

The Home Wiring Book. *Third Edition. Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa. 135 pp., illus. $1*

Planned home wiring which provides not only safe, efficient wiring systems but also a full use of present or future electrical equipment, is thoroughly demonstrated in this modernized expansion of Westinghouse's earlier home wiring guide book. Eleven chapters cover every phase of house wiring, from the minimum needs of a small, low-cost dwelling to the ultimate refinements of electrical living; technical data include the selection of number

(Continued on page 140)

STOP RUST WITH RUST-OLEUM

Effective, long-range *rust control* must start in the plans and specifications for any structure — particularly when iron and steel are important structural materials. Architects and builders find that RUST-OLEUM offers excellent protection — particularly in hidden or inaccessible areas where damaging rust conditions can breed unchecked.

It's particularly essential to safeguard the strength and usefulness of structural columns and beams, metal deck ceilings, crawl spaces and many other details of construction. These are readily damaged over the years where fumes, manufacturing processes and condensation due to limited ventilation cause serious rust damage that may threaten the safety and life of the entire structure.

RUST-OLEUM'S capacity to stop rust has been proved in industrial applications for many nationally-known companies, and leading railroads for the past 25 years. Its tough, pliable, rust inhibiting film resists the basic causes of rust — dampness, brine, salt air, and general weathering — indoors and outdoors.

Discuss effective *rust control* with your clients. To solve your rust-in-construction problems, recommend RUST-OLEUM. Specify RUST-OLEUM as the primary or shop coat on all steel, metal sash, structural beams and bar-joists, fire escapes, etc. Your clients will readily recognize that future protection of sealed-in steel begins with the primer coat.

We're ready at all times to consult with you on rust problems and offer specific recommendations. See the complete RUST-OLEUM catalog in *Sweet's* Architectural File, or write for a copy. Industrial Distributors in principal cities of the United States and Canada carry large stocks of RUST-OLEUM for immediate delivery.

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p/a REVIEWS

(Continued from page 138)

and type of circuits, outlet requirements, circuit protection, communication systems, and suggested specifications, all of which are illustrated by charts and diagrams. E.T.

WORKS OF GROPIUS

A Bibliography. Walter Gropius, 1919 to 1950. *Compiled by Ruth V. Cook. Published by American Institute of Architects, Chicago Chapter, 1951, 26 pp. $1*

A venture somewhat aside from the usual program for A.I.A. Chapters, recently produced in Chicago a valuable result. Through the interest of Reginald R. Isaacs of the Chicago Chapter A.I.A. there was published a comprehensive bibliography of the published material of Walter Gropius, as compiled by Ruth V. Cook, Librarian, Department of Architecture Library, Graduate School of Design, Harvard University. This valuable reference book has been given to architectural school libraries of the United States and is offered for sale to professionals. C.M.

CORRECTION

Frederick Catherwood, Architect, lived his life chronologically, and his biography by Wolfgang Von Hagen was reviewed chronologically by Greville Rickard (see page 116, February 1951 P/A). But when our pages were made up there was some juggling of paragraphs, with the result that we reported Catherwood jumping about the world's landscape more erratically than he did in life (an actual record for astonishing restlessness). We regret that the review was thus confused, but feel sure that the interested reader could only be intrigued by the many facets of this colorful biography.

NOTICES

NEW PRACTICES, PARTNERSHIPS

EDWIN B. CRITTENDEN, Architect, P.O. Box 95, Anchorage, Alaska.

J. M. HUDDLESTON, JR., Architect, 1550 Elizabeth St., Shreveport, La.

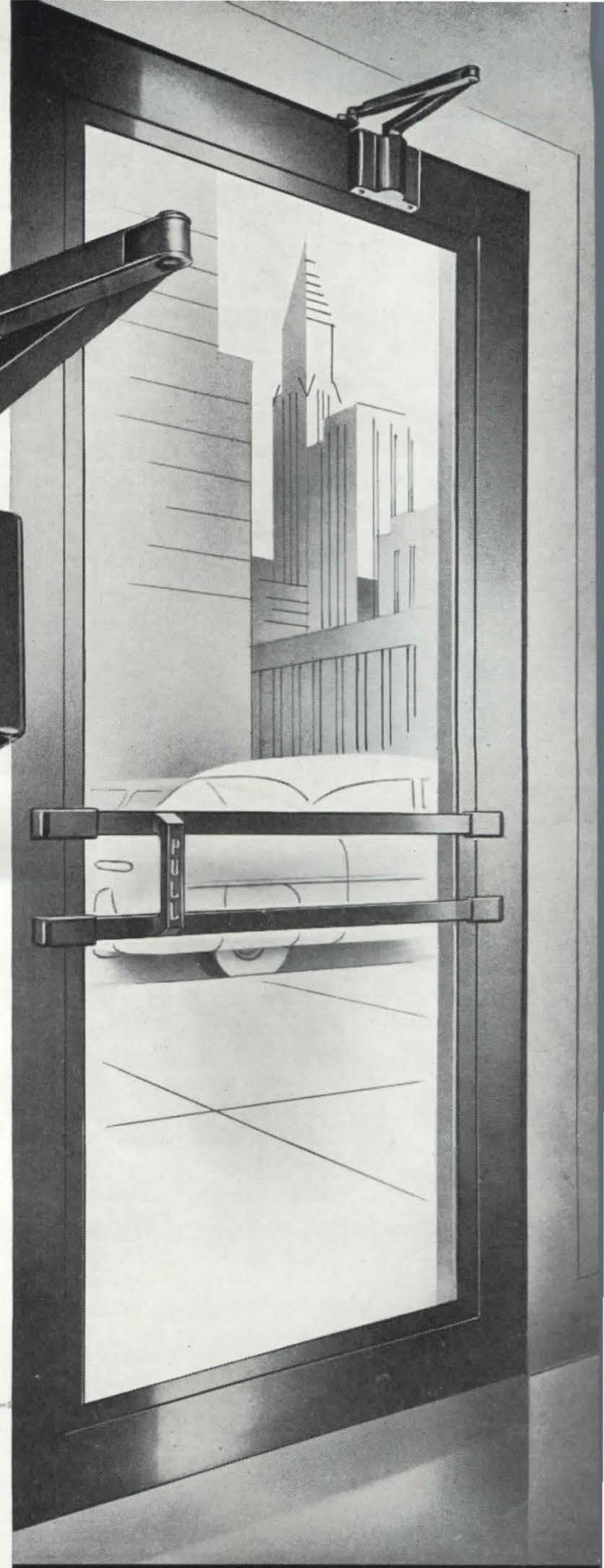
ERLING G. DOLLAR and WILLIAM F. BONNER, JR., announce the formation of a partnership for the practice of architecture under the firm name of DOLLAR & BONNER, Architects, 1009 Washington St., Wilmington, Del.

JOHN ALFRED WAHL, Architect, has

(Continued on page 142)

You get top performance and modern design too in the . . .

Russwin "400" Door Closer



By combining power and modern appearance, the Russwin "400" Semi-Concealed Door Closer enables you to meet demands for an unobtrusive yet effective door closer in modern buildings. Made with one size of housing in 5 spring sizes, it handles all interior and exterior doors that can be handled by a door closer. Structurally, it has no equal for strength. Yet it's so compactly designed that it projects only 1¾" from door face.

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Here are two "extras" that you won't find in any other door closer. Four combinations of closing speeds let the Russwin "400" work at top efficiency. Exclusive "silence adjustment" permits the door to be closed so quietly in less than 3 seconds from 90° that there is no audible contact between door and stop. These features plus a hold-open device for 18 different positions and precision construction throughout assure top performance in addition to modern design. Write for full information. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

NO OTHER DOOR CLOSER GIVES YOU THIS 4-SPEED CONTROL

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- **Fast — Slow** — **Silent Closing**
- **Slow — Fast — Slow** — **Silent Closing**

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Proving the Economy of Quality

p/a NOTICES

(Continued from page 140)

joined STARRETT & VAN VLECK and REGINALD E. MARSH, Associate Architects, as Project Manager on the Triborough Houses, a Low-rent Housing Project for New York City Housing Authority.

NEW OFFICES

SLATER & CHAIT, Architects, announce the opening of additional offices at 15 Park Ave., and 171 E. 33 St., New York 16, N.Y.

Below are supplementary data on the Chicago high-rise housing projects discussed on Pages 57-68.

EXCESS OVER PHA EVALUATION CRITERIA

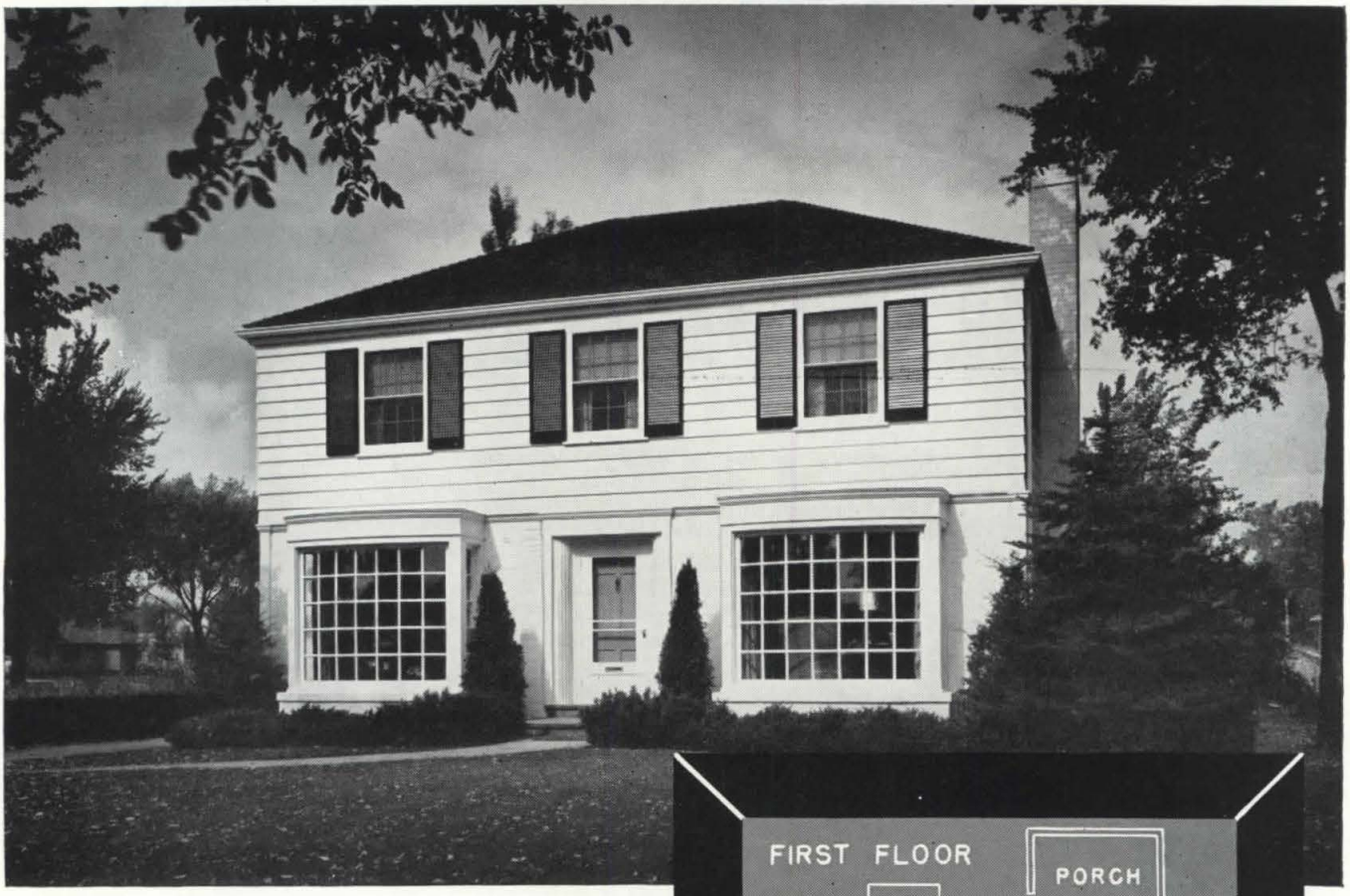
PHA states the gross area within which dwelling units of varying sizes are possible of achievement in different types of buildings — detached, semi-detached, row and apartment housing — given PHA Standards for room sizes, closets, storage, furniture arrangement, room relationship, etc., and after allowing for public spaces such as halls, stairs, and elevators. The "excess" or "underage" above or below the applicable possible gross area for any given plan is calculated percentage-wise as a part of the PHA evaluation procedure.

The reference for these criteria is the table on Page 42 of the PHA "Blue Book" entitled *Planning, Design, and Construction for Economy* (Dec. 1950). The resultant excess for the four non-federal Chicago projects shown in this study is of interest as summarizing to what extent they are liberal — as including not only their galleries but in most instances larger net room areas.

	PHA "Blue Book"*
	Excess
OGDEN COURTS	
Two-BR Apt.	8.7%
Three-BR Apt.	8.7%
LOOMIS COURTS	
One-BR Apt.	18.1%
Two-BR Apt.	25.7%
PRAIRIE COURTS (7-story)	
One-BR Apt.	7%
Two-BR Apt.	15.7%
PRAIRIE COURTS (14-story)	
One-BR (smallest)	(—4.8%)
One-BR (largest)	8.8%
Two-BR Apt.	2%
ARCHER COURTS (Typical Flr.)	
One-Br Apt.	17.1%
Two-BR Apt.	20.5%
ARCHER COURTS (First Flr.)	
Two-BR Apt.	(—10.3)%
Three-BR Apt.	(—12.8)%

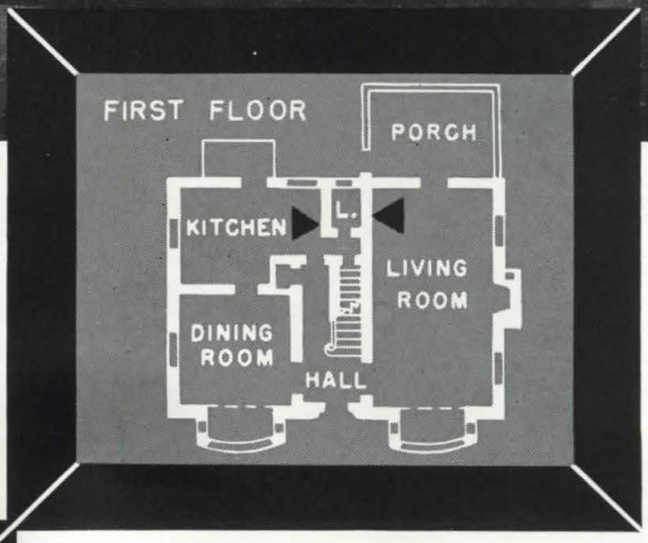
* 5/6 of minimum storage space added to PHA standard, as indicated in footnote to table of areas, Pages 42 and 43 ("Blue Book.")

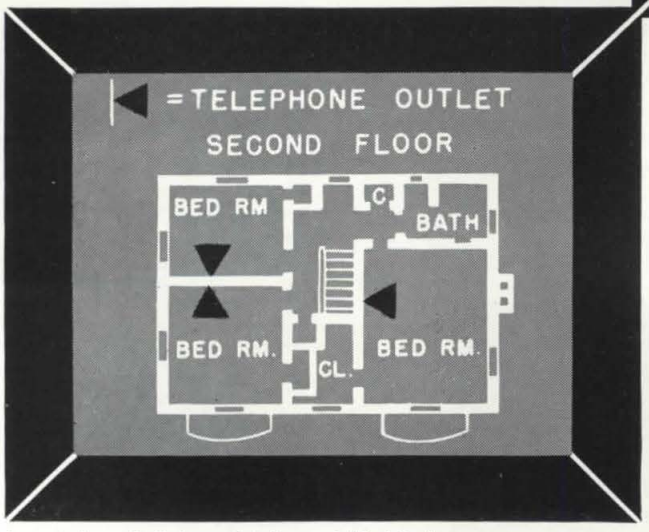
(Continued on page 144)



EDWARD H. FAIRBANK, ARCHITECT

Good telephone planning starts here





Layout shown includes outlets for portable telephone

One of the first signs of thoughtful planning is the triangular telephone symbol. It marks the spots for conveniently placed telephone outlets and permits concealed telephone wiring—two features planned to please clients and make houses you design and build more salable.

Translated, the triangles simply mean a few outlet boxes and connecting lengths of pipe or flexible tubing placed in the walls during construction. The cost is low; the beauty and convenience value, high.

Your Bell Telephone Company will be glad to help you in planning efficient, economical conduit layouts. For this free service, call your local Business Office

BELL TELEPHONE SYSTEM

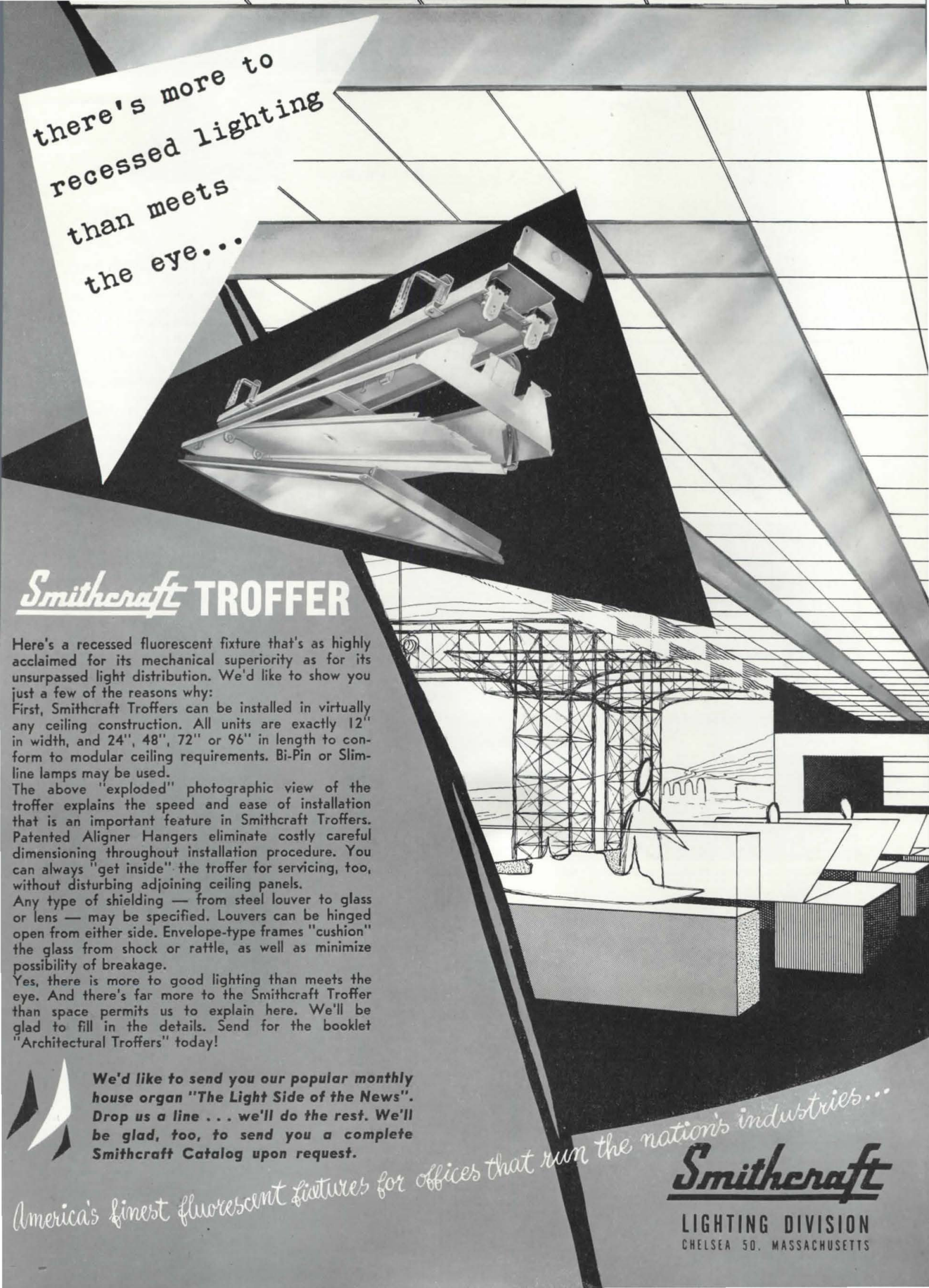
(Continued from page 142)

COMPARISON OF ROOM SIZES IN THE FIVE CHICAGO HIGH-RISE PROJECTS WITH TODAY'S PHA STANDARDS

The figures in this table indicate squarefoot areas.

		PHA (min.)	PHA (max.)
Dearborn			
One-BR Apt.			
LR, DA, K	270	215	240
#1 BR	130	120	125
Two-BR Apt.			
LR, DA, K	307	245	265
#1 DR	123	120	125
#2 BR	110	100	110
Three-BR Apt.			
LR, DA, K	319	270	305
#1 BR	130	120	125
#2 BR	129	100	110
#3 BR	91	90	110
Ogden			
Two-BR Apt.			
LR, DA, K	255	245	265
#1 BR	123	120	125
#2 BR	108	100	110
Three-BR Apt.			
LR, DA, K	340	270	305
#1 BR	125	120	125
#2 BR	107	100	110
#3 BR	96	90	110
Loomis			
One-Br Apt.			
LR & DR	239	170	175
K	42	50	65
#1 BR	125	120	125
Two-BR Apt.			
LR & DR	243	185	190
K	57	60	75
#1 BR	127	120	125
#2 BR	118	100	110
Prairie — 7 story			
One-BR Apt.			
LR (152) DR (73)	225	170	175
K	42	50	65
#1 BR	116	120	125
Two-Br Apt.			
LR & DR	197	185	190
K	56	60	75
#1 BR	130	120	125
#2 BR	112	100	110
Prairie — 14 story			
One-BR (smallest)			
LR & DR	171	170	175
K	48	50	65
#1 BR	118	120	125
One-BR (largest)			
LR & DR	242	170	175
K	63	50	65
#1 BR	111	120	125
Two-BR Apt.			
LR & DR	223	185	190
K	48	60	75
#1 BR	134	120	125
#2 BR	116	100	110
Archer			
One-BR Apt.			
LR (133) DR (75)	208	170	175
K	47	50	65
#1 BR	127	120	125
Two-BR (typical)			
LR & DR	211	185	190
K	59	60	75
#1 BR	127	120	125
#2 BR	113	100	110
Two-BR (1st flr.)			
LR & DR	218	185	190
K	58	60	75
#1 BR	125	120	125
#2 BR	101	100	110
Three-BR (1st flr.)			
LR & DR	222	205	215
K	44	75	90
#1 BR	125	120	125
#2 BR	113	100	110
#3 BR	97	90	110

there's more to recessed lighting than meets the eye...



Smithcraft TROFFER

Here's a recessed fluorescent fixture that's as highly acclaimed for its mechanical superiority as for its unsurpassed light distribution. We'd like to show you just a few of the reasons why:

First, Smithcraft Troffers can be installed in virtually any ceiling construction. All units are exactly 12" in width, and 24", 48", 72" or 96" in length to conform to modular ceiling requirements. Bi-Pin or Slimline lamps may be used.

The above "exploded" photographic view of the troffer explains the speed and ease of installation that is an important feature in Smithcraft Troffers. Patented Aligner Hangers eliminate costly careful dimensioning throughout installation procedure. You can always "get inside" the troffer for servicing, too, without disturbing adjoining ceiling panels.

Any type of shielding — from steel louver to glass or lens — may be specified. Louvers can be hinged open from either side. Envelope-type frames "cushion" the glass from shock or rattle, as well as minimize possibility of breakage.

Yes, there is more to good lighting than meets the eye. And there's far more to the Smithcraft Troffer than space permits us to explain here. We'll be glad to fill in the details. Send for the booklet "Architectural Troffers" today!

We'd like to send you our popular monthly house organ "The Light Side of the News". Drop us a line . . . we'll do the rest. We'll be glad, too, to send you a complete Smithcraft Catalog upon request.

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LIGHTING DIVISION

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ou of schoc

By CARL FEISS

"I really like school (teaching) quite a lot, if only the boys wouldn't look at me." "They don't look at you, Colin, they look through you," said Everard, staring into his port as if it were the soothsayer's pool of ink. "When we are young we all look through our elders, to see what lies beyond. And when we see what is there, we are the elders ourselves."
Summer Half by Angela Thirkell

Darned if I know how to begin this little column this month. I've been avoiding the problem for some time, pretending, with spring and the puss on the willow and the long winter past, that some of the drear would be out of the air. It isn't though, as I write this on February 1st. It couldn't be and I can't *quite* guesstimate April—either good or bad!

What's bothering me is what's bothering a lot of you. Schooling and soldiering. Soldiering and schooling. Come June, the drafting rooms close and the last charette is over for the school year. Then what happens? Will we reopen in the fall? Those of us who remember how it all happened 10 years ago hoped and believed it would never happen again. We believed it *just five* years ago. We were wrong: *very* wrong. And I guess we won't guess again. We will approach the problem of permanent peace with a sad, clear eye. The job just wasn't finished: the will to peace had not won a victory after all.

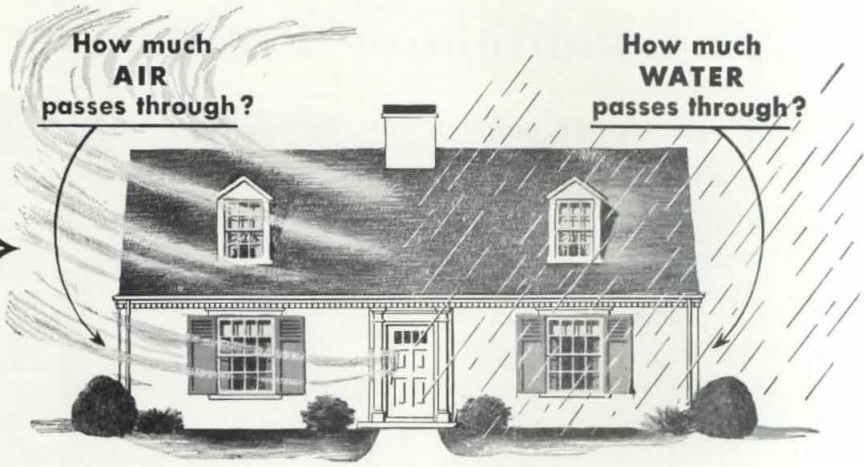
So, what comes next? I've been trying to see my way through a welter of defense and offense issues, trying to weigh my own mind's makeup in the mess of things to be done. And I keep coming up with the fundamental issue over and over again—train for peace. A world at war with itself must not forget what peace is. That isn't being either an ostrich or a pacifist. It simply means that the objectives must be made very clear and remain clear through *strum und drang*. And it's going to be a long storm, with perhaps occasional calms like the last one, but always in the background the mutter of great mushroom thunder clouds—always, from now on out to the end of our Time.

I remember once, a great many years ago, standing on a high hill back of Princeton under a chestnut tree (that dates me) and looking westward and north over the valley. It was early July, a hot afternoon, and all of central New Jersey lay somnolent in the haze. Great cumulus clouds piled and writhed and gathered a storm around me and my tree. The glossy dark leaves and the long timothy hardly breathed in the dead calm. And I knew and sensed that the tree and grasses knew, that this was a dangerous place. And yet I was held almost as firmly rooted as they by the excitement and terror and beauty. Neither the tree nor I was struck by lightning. The tree has gone to the happy resting place of all *Castanea dentata* and I await whatever

(Continued on page 148)

ANOTHER ADVANTAGE OF BUILDING WITH HOMASOTE . . .

RUE INSULATING VALUE



Four factors determine the insulating value actually delivered

FOR MANY YEARS, the insulating value of a material has been based on the BTU rating. Such a test, made in a laboratory under perfect conditions of temperature and humidity, can hardly tell the whole story of what actually happens in the finished house.

When you select insulating material, you also need to know *how much water the material will absorb*—and *how long it will take the water to penetrate through the board.* As a fourth factor—you also should know *whether air will pass through the material in any appreciable quantity.*

To determine the meaning of *true insulating value,* we invite you to study the chart at the right. Homasote's leadership is clearly indicated.

To give your client *real comfort,* important fuel savings, lasting freedom from drafts and mildew—and maximum structural strength *without corner bracing*—always specify *weatherproof* Homasote.

HOMASOTE COMPANY, Trenton 3, N. J.

ITEM	DESCRIPTION	AVERAGE 11 BOARDS		HOMASOTE	
		B.A.	A.A.	B.A.	A.A.
No. 1	BTU	.356		.43	
No. 2	By vol.—2 hrs.	6.2	44.45	4.1	4.0
No. 3	Hours	15.09	5.24	47.0	45.0
No. 4	$cm^3/sec./m^2$	1095.0	1323.0	30.0	48.0
B.A.—before aging A.A.—after aging					

THIS CHART shows how Homasote compares with the average of 11 other boards on: (1) BTU rating—the lower the better; (2) water absorption—the less the better; (3) time of water penetration through the board—the longer the better; (4) rate of air flow through the board—the lower the better. All figures are from tests made by an undisputed, *independent* bureau of standards . . . These figures show why Homasote envelops a home in a material that gives the owner the nearest-to-perfect combination for true insulation.

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. . . oldest and strongest insulating-building board on the market

Nova Sales Co.—a wholly-owned Homasote subsidiary—distributes the Nova Roller Door, Nova-I. P. C Waterproofing Products, the Nova Shingle and Nova-Speed Shingling Clip and the Nova Loc-Nail. *Write for literature.*

out of school

(Continued from page 146)

blight comes my way, all in due course. So, when the night sky of California is illumined from San Francisco to Los Angeles, and when the windows of Las Vegas rattle and break, I think of my hill back of Princeton. This is a fascinating and dangerous world.

●

To get back to training for peace—obviously, we first must train to provide the locus for peace. I'm not an expert in this kind of training. That is the problem to be handled by military educators and by educators of experts in international relations. It is getting more and more difficult to distinguish between the requirements of the two. The camp follower today is the economist, the sociologist and the decontaminator of intellects, the expert in languages and local cultures, the expert in government management, and the architect. War today is no longer a purely military enterprise. It is a complex series of operations in which there are great ranges of skills required—and many of them are planning, architectural, and engineering in nature.

One of the major changes in democratic war practice today is the recognition that a victory implies the assumption by the conqueror of certain almost paternalistic responsibilities over the vanquished. I distinguish between the modern democratic approach, the savage tribal warfare approach, and a third, the victory and absorption by ideological force method. In the first (the method recognized by the United Nations), the rehabilitation of a conquered people or of *any* land ravished by war is a recognized responsibility. One of the first major requirements of such a rehabilitation is inevitably the rehousing of the civilian population and the restoration of domestic services. To the extent that a population can be instructed or instruct itself the work progresses successfully. Such instruction and direction requires trained experts.

The last war proved that both the victor and the vanquished faced the same physical restoration problems. Bombs are notoriously neutral. And no country can afford not to recognize the need for a stockpiling of technical skills. Of necessity, we turn for such skills to the office and the school.

Looking still further into the grim facts—and I told you that I've been shying away from this for some time—both the office and the school have to come to grips with the issue, not only to survive, which is important, but also to render a vital service to their country, and when called upon, to the world. In the last article I discussed shortages of raw materials and the adjustments we must train into, and suggested research into the use of substitutes beyond our present concepts.

(Continued on page 150)

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4 **Sylvania "All Line" Folders** . . . they briefly describe the entire Sylvania Fluorescent Fixture line. Leave these folders with your prospects. They call attention to other fixtures . . . help build additional sales.

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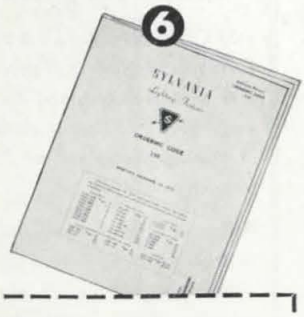

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out of school

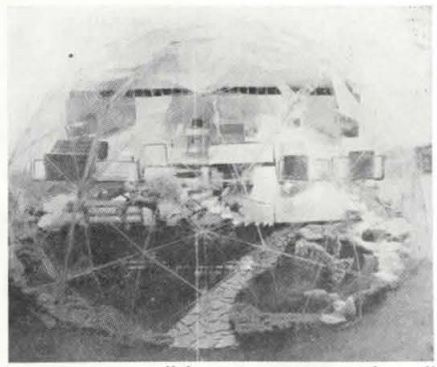
(Continued from page 148)

Let us take the matter still further and perhaps touch base for a moment. If you as an architect or architectural student had been dropped into, say, Cologne or Nagasaki a year after the cessation of hostilities, or into Seoul after its fourth liberation, what would you do? You are given orders to build. All about you is rubble, filth, and despair. You have as supplies half a pencil and a can of X-ration. You are a graduate of an accredited architectural school, have a license to practice in Illinois, and are an A.I.A. member, paid up. What do you do?

Before you answer that one, let me remind you that they are looking for architectural technicians in the villages of Northern Iran, that there are men needed in the earthquake shattered cities of Ecuador, and the tropical settlements of Liberia and the Amazon. Architects and planners are also badly needed on the other side of the tracks in Sauk Center. In other words, there's a lot of basic work to be done, just in making large parts of the world habitable. That's why I like what Buckminster Fuller is doing, reverting to the creation of elementary space enclosure using the universals of mathematics, geometry, and physics. Bucky claims (and he can prove it) that he can enclose a space within a half-mile-diameter, great-circle dome of aluminum and plastic, weighing half the tonnage of the Queen Mary. We may never need an enclosed space of such size but shelter in any of many variables of material and size and cost and shape and speed is a prerequisite this day and age.

It is an interesting and perhaps important cultural phenomenon that Oscar Stonorov's brilliant exhibit of Frank Lloyd Wright's work is exhibited this Anno Domini at the Strozzi Palace in Florence, and the 462 years intervening between De Maino, his contemporaries, and Wright are identified. Still I am not sure that the Fuller approach is not the more exciting, perhaps as valid this day as the piling of heavy stones in rusticated masonry was in the days of the Strozzi, and was in the days of the Jacobs House II, in Madison, Wisconsin, and the Friedman house, in Westchester County. While I grant that one of your first jobs in Seoul will be to salvage building stones out of rubble, I am bothered by the haunting thought that we are still children building with stone blocks which we knock down when we are tired and angry, then build up again when back in the mood.

Bucky's bubbles may not be the answer. The Aluminum Company of Canada, Ltd., has been willing to explore; and an experimental house in Raleigh, N.C., being developed with the help of the faculty of the School of Architecture at North Carolina State, will help in the determination. Bucky's bubbles are not yet architecture in toto. They enclose space and provide a form of shelter. They are not yet adapted to the variables of human need. And their acceptance as architectural design for those who insist on the design identity will require the mentality of one who enjoys the mathematics in the Parthenon, or in a Bach fugue, or the imagery in the domes of Isphahan.



"elementary space enclosure"
Photo: Interiors

"the piling of heavy stones"
Photo: The Bettmann Archive

Simple and speedy space enclosure and the development of adequate living conditions for emergency purposes with locally available materials and manpower require ingenuity, imagination, and leadership. Architectural schools and offices today, in the United States, are pretty much organized in a set series of patterns. Our own history since 1865 has not required an attack on fundamentals of reconstruction—and we didn't do it very well in 1865 either. If our schools would plan during the next

(Continued on page 152)

HOW TO ELIMINATE PICTURE WINDOW DRAFTS!

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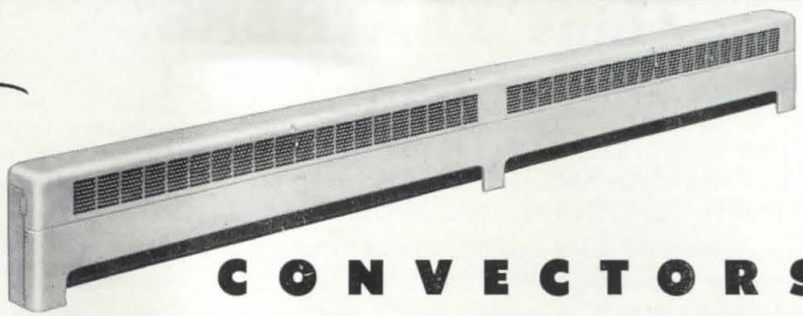

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out of school

(Continued from page 150)

six months to develop themselves into design laboratories for reconstruction and technical assistance programs, in my humble opinion their future would be insured.

Many architectural, engineering, and housing research laboratories and institutes throughout the country are deeply engrossed in finding the best new materials and construction methods. I plan to talk more about these at a later date. It is obvious that a real co-ordination between research divisions at universities and the architectural schools (as may be possible at M.I.T., Illinois, and Denver) would effectively tool the value of technical assistance at all points. To date there seems to have been a very inadequate correlation of architectural and housing and building research activities in many universities. (You know what I mean.)

●

European aid immediately after the last war should have included, from the start, well-trained teams of young men who could have entered the still-smoking cities of Italy, France, and Germany to do an emergency shelter and a long-range planning job at the same time. As I have indicated, there is a need for such work at any time, anyway. I quote here at some length form an article by Anatole A. Solow, Chief, Section of Housing and City Planning of the Pan American Union, in an article, "Planning and Reconstruction after Disaster" (September 1950 *The American City*):

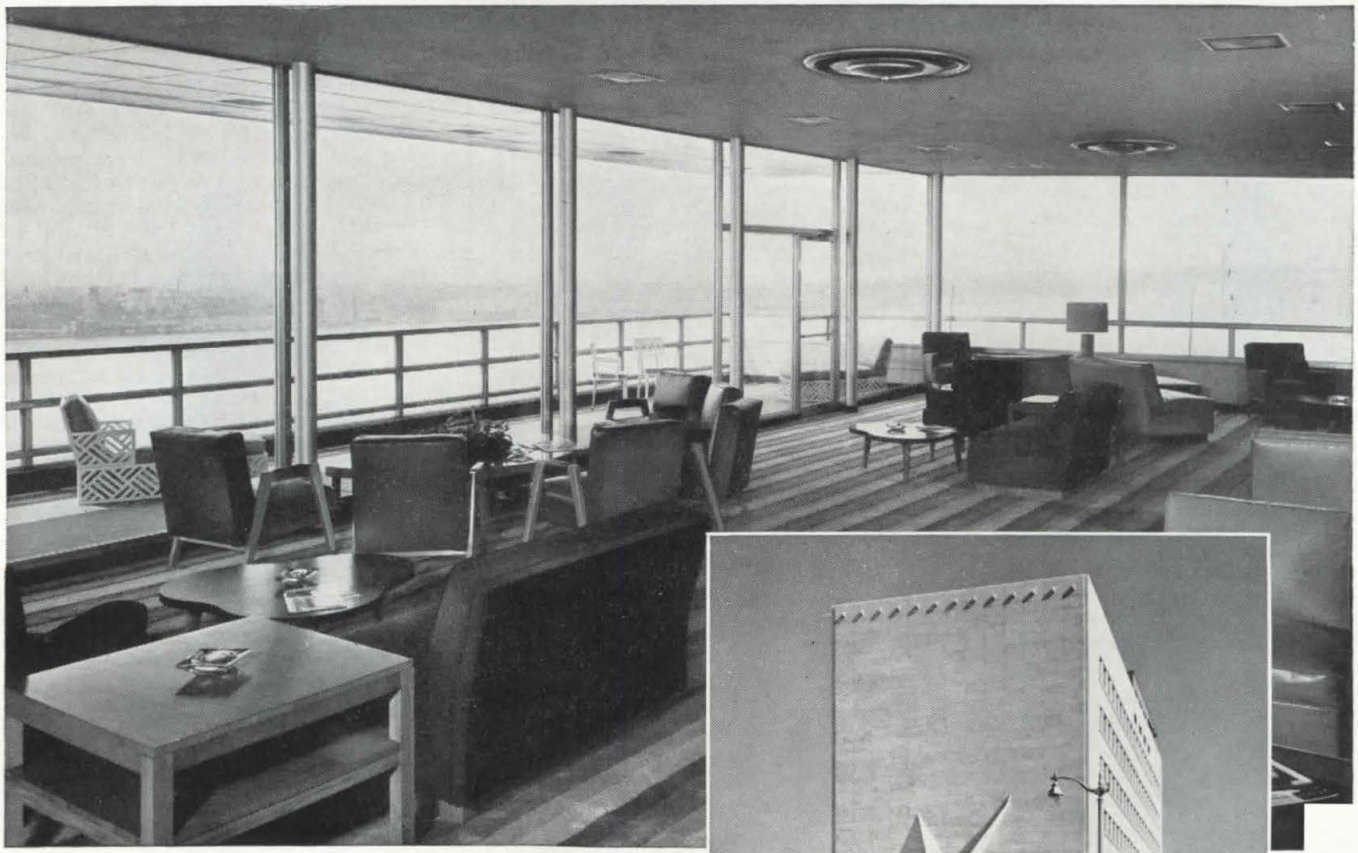
"... Planning for reconstruction after natural catastrophes assumes major importance in many Latin American countries. The first steps after a disaster are inevitably directed toward emergency measures: temporary shelter, distribution of food and clothing, provision of medical supplies, and sanitary services to prevent the spread of epidemics. Emergency measures are of course vital, but what of the long-range planning and reconstruction? That part of the job is only too often neglected, or entirely forgotten after the first enthusiasm of cooperative endeavor has petered out.

"Each reconstruction job is a test of the people to plan their future in an enlightened and rational way. The study of past history shows, interestingly, that only in the rarest instances are people willing to abandon their destroyed communities in search of safer sites. And often the reconstructed cities are poorer in layout and amenity than the old ones. Yet, in recent years there appear hopeful examples . . . of sound planning for reconstruction. Advantage is being taken of the opportunities for creating a better and safer environment, and the job is often entrusted to imaginative, competent, and well-trained planners."

●

Curriculum designers today, as at the University of Florida and at Tulane

(Continued on page 154)



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

out of school

(Continued from page 152)

University, encourage direct construction activity on the part of students. The unfortunate division or separation of architecture from building and contracting, which I have attacked previously in this column, is a further handicap in our training for usefulness in the years to come. In the meantime, I would like to see some *courageous* school volunteer to send a team of dependable youngsters to some one of the world's many distressed areas, to work under competent direction of either U.S. foreign assistance officers, or the United Nations equivalent, and prove to the world at large that architectural and planning education had demonstrable value.

Who has guts enough to get the first team together? Come on boys, you don't have much time or you're going out of business again. If your *service* instinct isn't strongly developed, your instinct for self-preservation should be.

NOTICES

In order to avoid suspension of subscription or other mishap arising from Post Office failure to deliver P/A regularly, all subscribers contemplating change of address are urged to advise us at least 30 days in advance, sending notice to: Miss Sue Feldman, PROGRESSIVE ARCHITECTURE, 330 W. 42nd St., New York 18, N. Y.

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THEODORE H. IRION, Architect, 199 N. Main St., Oshkosh, Wis.

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HAROLD J. PERRY, Architect, and EDWIN V. BISHOP, Engineer, 11 N. Willow St., Trenton, N. J.

WESLEY V. WALLACE, Architectural Designer, 6670 W. Colfax Ave., Lakewood 15, Colo.

FRANK E. WEHRLE, Architect, 821 Brighton Rd., N.S., Pittsburgh, Pa.

J. FREDERICK LARSON, Architect, Reynolda, N.C.

PUBLIC HEALTH NURSING MAGAZINE, 2 Park Ave., New York 16, N.Y.

PAUL HAYDEN KIRK, Architect, 615 Lakeview Blvd., Seattle 2, Wash.

COSTON & FRANKFURT, Architects and Engineers, 323 Madison, Oklahoma City, Okla.

(Continued on page 156)

*Satinol** Flutex pattern in Hotel Dupont Plaza, Washington, D.C. Architect: Alvin L. Aubinoe, Washington, D.C.

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p/a NOTICES

(Continued from page 154)

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ROBERT E. BUCHNER, A. BLAINE IMEL, Architects, 1341 S. Boston, Tulsa 3, Okla.

The firm of VON STORCH & PEARCE, Architects, having been dissolved, SEARLE H. VON STORCH has opened an office at Box 14, Waverly, Pa.

FOWELL, MANSFIELD & MACLURGAN, Architects, announce that they have taken into partnership JOHN DIGBY FOWELL, Architect, formerly an associate in the firm. The firm name will remain unchanged.

HARRISON, BALLARD & ALLEN announce the retirement of ALLAN S. HARRISON from active participation in the firm. The firm will continue business under the same name, at the same address.

HARRISON, BALLARD & ALLEN also announces that JAMES H. HANSEN has joined the firm as construction engineer.

WILLIAM E. GRAHAM and EDGAR S. IRVIN, under the name of GRAHAM & IRVIN, Architects, 2014 17 Ave., Vero Beach, Fla.

ERSKINE G. ROBERTS, Design and Engineering Consultant, 224 N. Alabama St., Indianapolis 4, Indiana, associated with E. F. Cramer, General Contractor.

The partnership of RINAUDOT & MEAD, Architects, has been dissolved. ALFRED M. RINAUDOT will continue to practice at 7240 Wisconsin Ave., Bethesda, Md.

KELLY & GRUZEN, Architects-Engineers, New York and New Jersey, have opened a new office at 73 Tremont St., Boston, Mass. WILLIAM DAVIES has joined the firm as associate and will be in charge of the firm's office there.

EDWARD J. HURLEY and RAYMOND P. HUGHES, Architects, under the firm name of HURLEY & HUGHES, 12 E. 48 St., New York, N. Y.

LAWRENCE LIEBERFELD is joining the firm of GIORGIO CAVAGLIERI, under the new firm name of CAVAGLIERI & LIEBERFELD, Architects, 250 W. 57 St., New York 19, N. Y.

WALKER O. CAIN has become an associate of the firm of MCKIM, MEADE & WHITE, 101 Park Ave., New York 17, N. Y.

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's the law

By BERNARD TOMSON

The architect often assumes the role of umpire between owner, contractor, and subcontractor. In undertaking to supervise construction of a project, he frequently determines questions and disputes relating to the performance of the building contract. The decision of the architect, however, may be challenged by the party who feels aggrieved, and the binding and conclusive nature of his decision will depend primarily upon the contract entered into between the parties to the dispute.

The rule has been well established by the courts that any stipulation in a building contract whereby the parties appoint an architect or engineer as the final arbiter between themselves, as to a matter connected with the performance of the contract, makes his decision conclusive on that matter. Despite this well-settled rule, courts are frequently called upon to determine whether, in a given case, the parties *did* intend to confer on the architect or engineer the authority to make a final decision.

Where the owner and contractor desire to make the architect's decision in respect to performance under the building contract binding upon them, it is important that their contract clearly authorize the architect to make such binding decisions. If the contract clearly furnishes such authority, the architect's decision cannot be attacked upon the merits, but can only be challenged upon such grounds as fraud, bad faith, or gross neglect. As an impartial arbiter authorized to make binding decisions, an architect is bound to act honestly and to exercise reasonable care. If he does so, his determination is conclusive on both parties and is not subject to review by the courts.

●

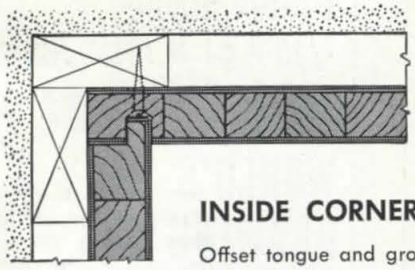
A recent case in the United States Court of Appeals (*Dyker Building Co. v. U. S.*) clearly illustrates some of the factors which will defeat the conclusiveness of the decisions of an architect or engineer. In that case, a contract had been entered into between a contractor and a subcontractor, which contained the following provision:

"All quantities shall be computed by a disinterested, qualified professional engineer as may be mutually designated by both parties hereto, from data indicated on the contract drawings as prepared by the Alley Dwelling Authority."

Pursuant to this stipulation, an engineer was designated by the subcontractor to make certain computations, including a computation of borrow fill. The subcontractor took the position that a computation of the engineer was binding upon the contractor, but the court rejected this contention.

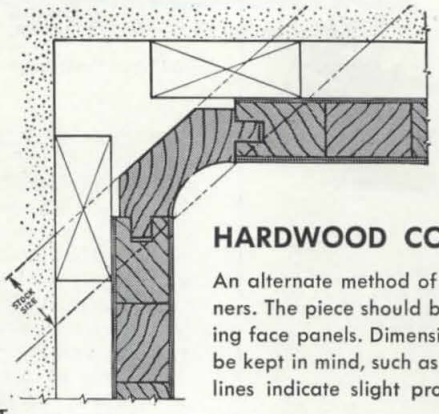
In its decision in the *Dyker* case, the United States Court of Appeals based its determination upon various grounds. The court found that the contract did not specifically provide that the engineer's computations were to be final. It further pointed out that the contractor had contended on the trial of the action that the engineer in quesion had not been "mutually designated," nor had his designation by the subcontractor as arbiter been accepted by the contractor. Lastly the court held that the computation relied upon by the subcontractor was not the engineer's final computation and that he had not intended it to be final.

(Continued on page 160)



INSIDE CORNER

Offset tongue and groove is the preferred joint where flush treatment is desired. It provides positive locking and hides attachment screws.

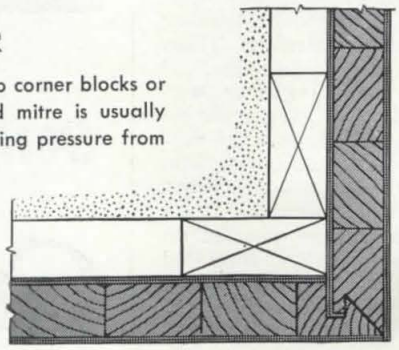


HARDWOOD CORNER

An alternate method of treating inside corners. The piece should be hardwood matching face panels. Dimensions of piece should be kept in mind, such as ⅞" or 1⅛". Dotted lines indicate slight projection often used.

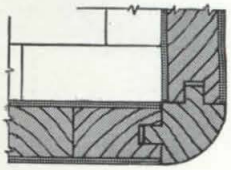
OUTSIDE CORNER

For a clean corner with no corner blocks or molding, this tongue and mitre is usually used. It needs glue-clamping pressure from one direction only.



HARDWOOD CORNER

Outside corner handled in same manner as inside corner (above).



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it's the law

(Continued from page 158)

When parties enter into a written agreement, all of their prior negotiations are merged into the written contract, which stands as the final expression of their intent. It is important, therefore, that in drawing a written contract the parties leave little to inference or conjecture. If it is their intention to select an arbiter who is an expert in the field, and by whose decision they are willing to abide, they should explicitly state such intention. The courts will not imply an agreement making the architect's decision binding. Thus, for example, in the *Dyker* case the trial court found that the engineer was merely regarded by the parties as an informed expert, and that since the contract did not expressly authorize him to make final determinations, the court would not imply such authority.

Generally the question of whether an architect has been mutually designated by the parties to a contract to act as arbiter, or has been accepted by the parties to a contract for that purpose, does not arise. In most instances, the designation of the architect to act as arbiter is set forth in the building contract. The fact that the architect is ordinarily employed by the owner does does not disqualify him from acting in such capacity. In supervising construction of the project the architect acts on behalf of and as agent for the owner. As the arbiter charged with the task of determining disputes or specified questions relating to the contract, he acts for and binds both parties. Therefore, in acting in such dual capacity, both parties to the contract are entitled to his honest judgment and he must act impartially and in good faith in performing these duties.

●

The problem, however, of designating or accepting an arbiter may arise on the death, discharge, resignation, or other inability of the architect originally selected. The decisions of a substituted architect can only be binding if his mediation is accepted by both parties. The parties, therefore, in entering into a building contract, should consider whether it is advisable to insert a clause providing the means and method for replacement of the orignal designated architect.

The principle underlying the rule that an architect may not delegate his authority to make decisions binding upon the owner and contractor, is that this authority is considered to be personal in nature. A specific obligation is imposed upon him to make his own decisions based upon his personal observation, investigation, and experience. Any attempt to delegate these responsibilities may be successfully resisted by the party who feels such delegation has prejudiced him.

(Continued on page 162)

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(Continued from page 160)

Further, a decision by an arbitrator, to be binding, must be intended by him to be final. In the *Dyker* case, the computation of the engineer relied upon by the subcontractor was not in fact the engineer's final computation. The evidence disclosed that the engineer made various subsequent revisions due to mistakes and changes in methods of computing quantitites.

●

Parties to a building contract often submit to the architect questions of account, measurement, or distance and this is proper even though these questions may be capable of mathematical ascertainment. The architect's determination is not necessarily predicated on the development of an actual controversy, but his computations, if final in nature, will be conclusive.

Architects, who are authorized to issue certificates of performance or approve work that has been done, cannot after such issuance or approval, modify or revoke their decisions. The same principle would seem to apply to other decisions of an architect, which he has made in his capacity as an arbiter of disputes arising under the building contract. However, if the architect's determination is not intended by him to be final, then he may amend or modify it.

●

To sum up — the decision of an architect on any matter as to performance which the parties have stipulated to submit to him is final when:

1. *The contract clearly provides that the architect's decision will be final and conclusive.*
2. *Both parties to the contract agree upon a designated architect as arbiter, either in specific terms, or impliedly by their conduct.*
3. *The architect acts honestly, in good faith, and with reasonable care in rendering his decision.*
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(8) Towel dispenser away from basins, near exit.
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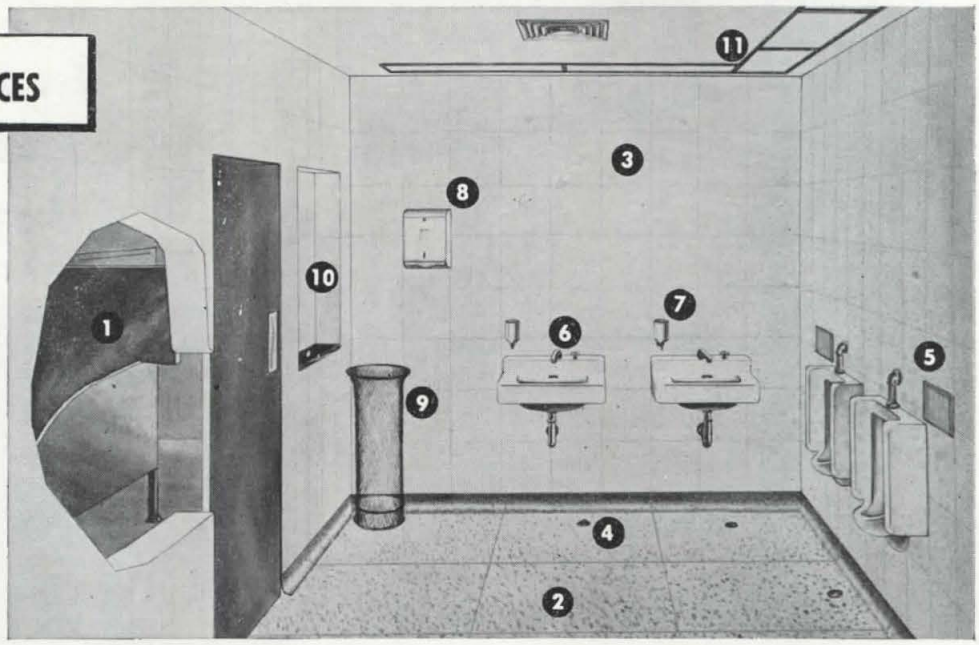
(10) Recessed shelves, mirrors and lights.
(11) Recessed fluorescent lighting for proper illumination over facilities.



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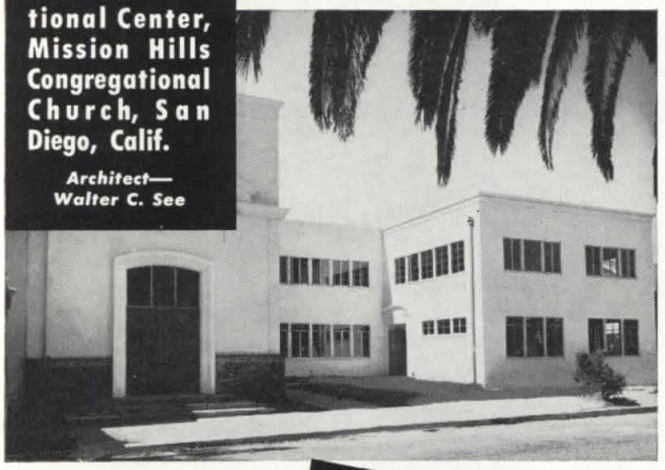
Architect—Walter C. See



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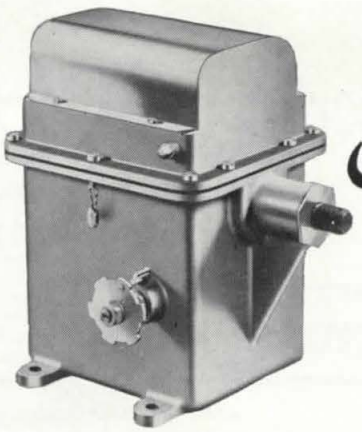

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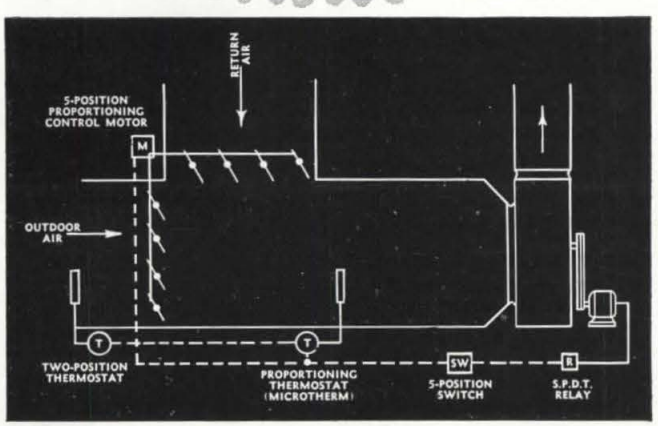

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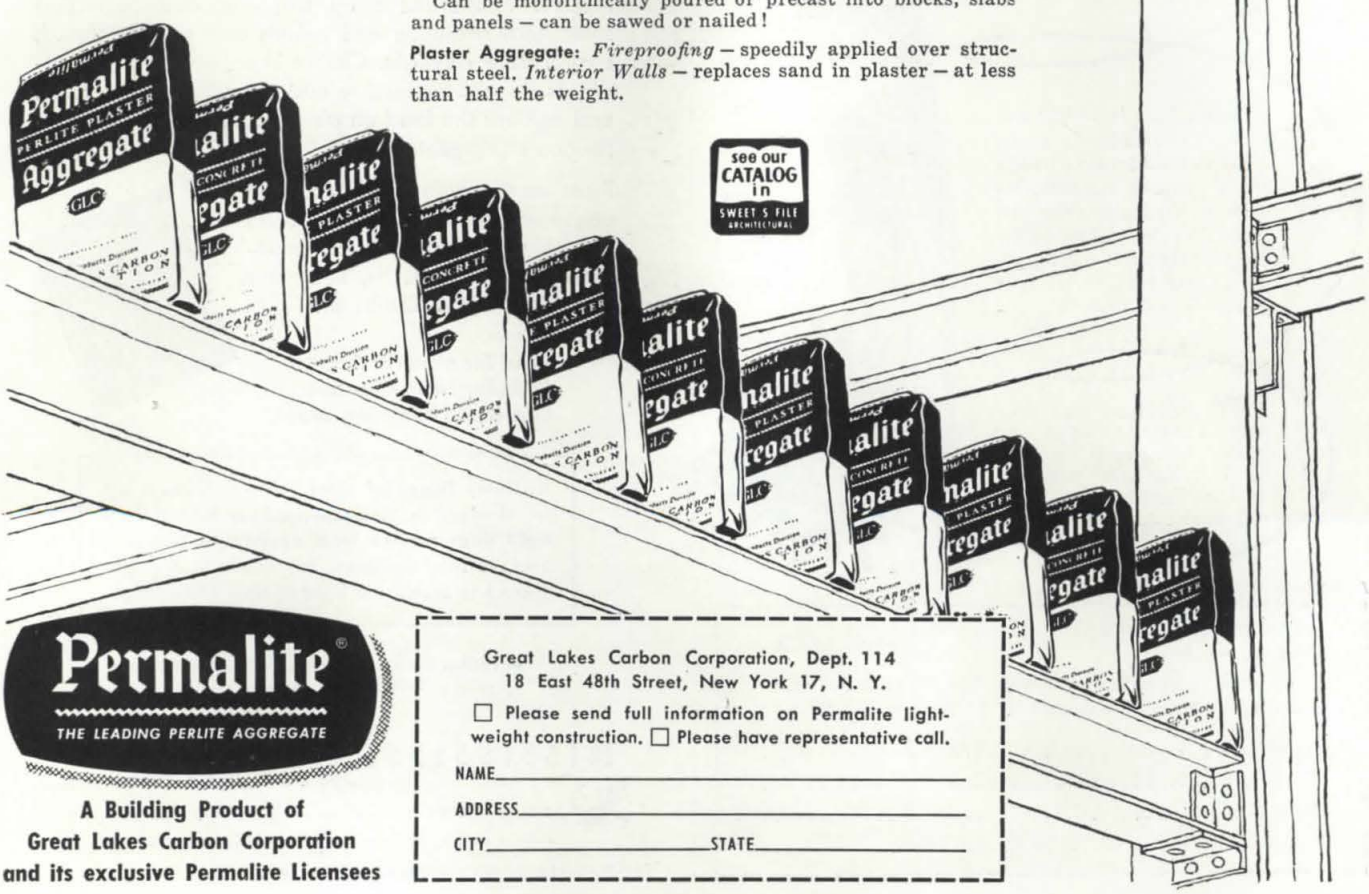

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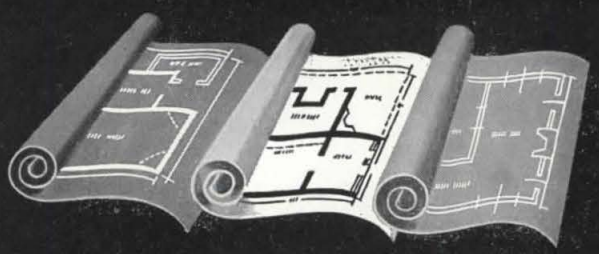

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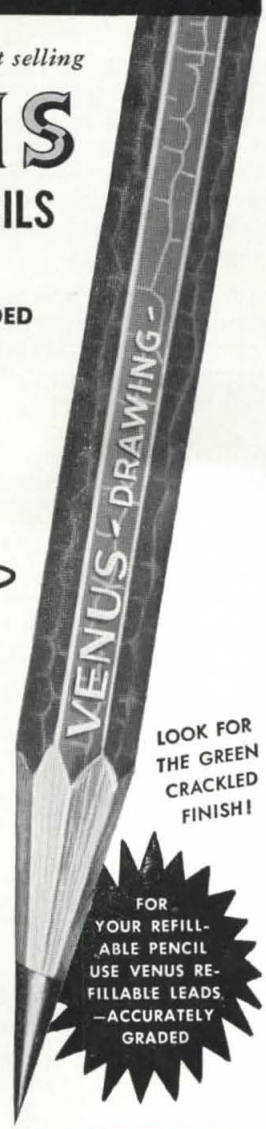

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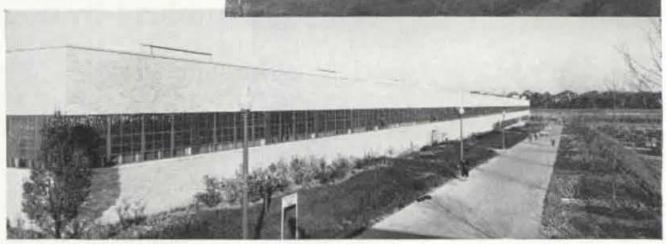

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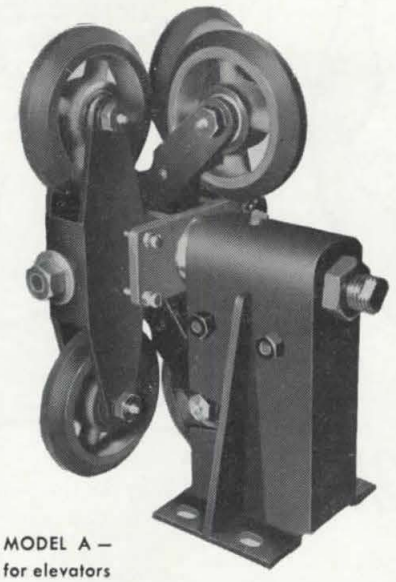

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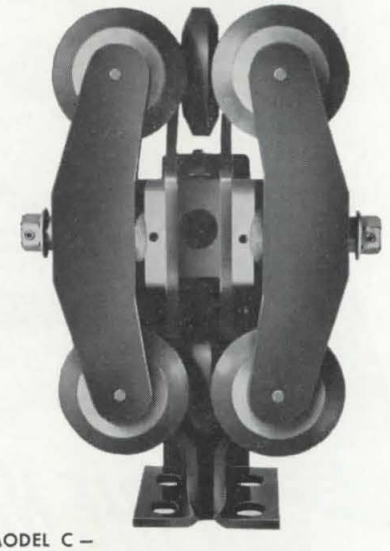

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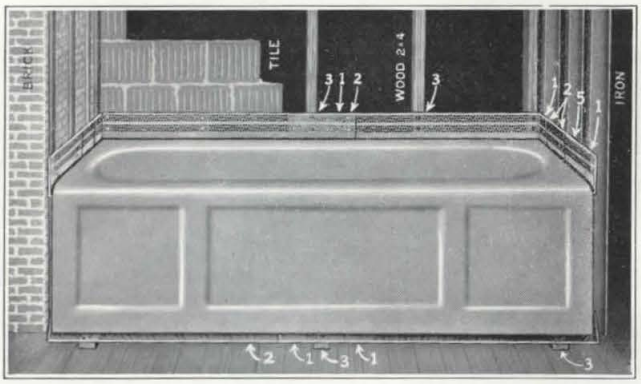

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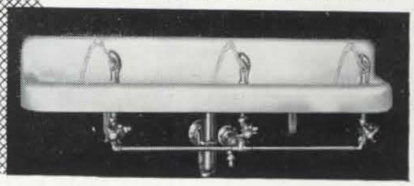

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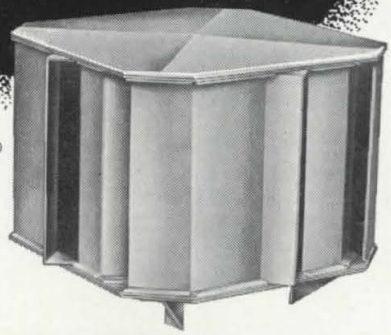

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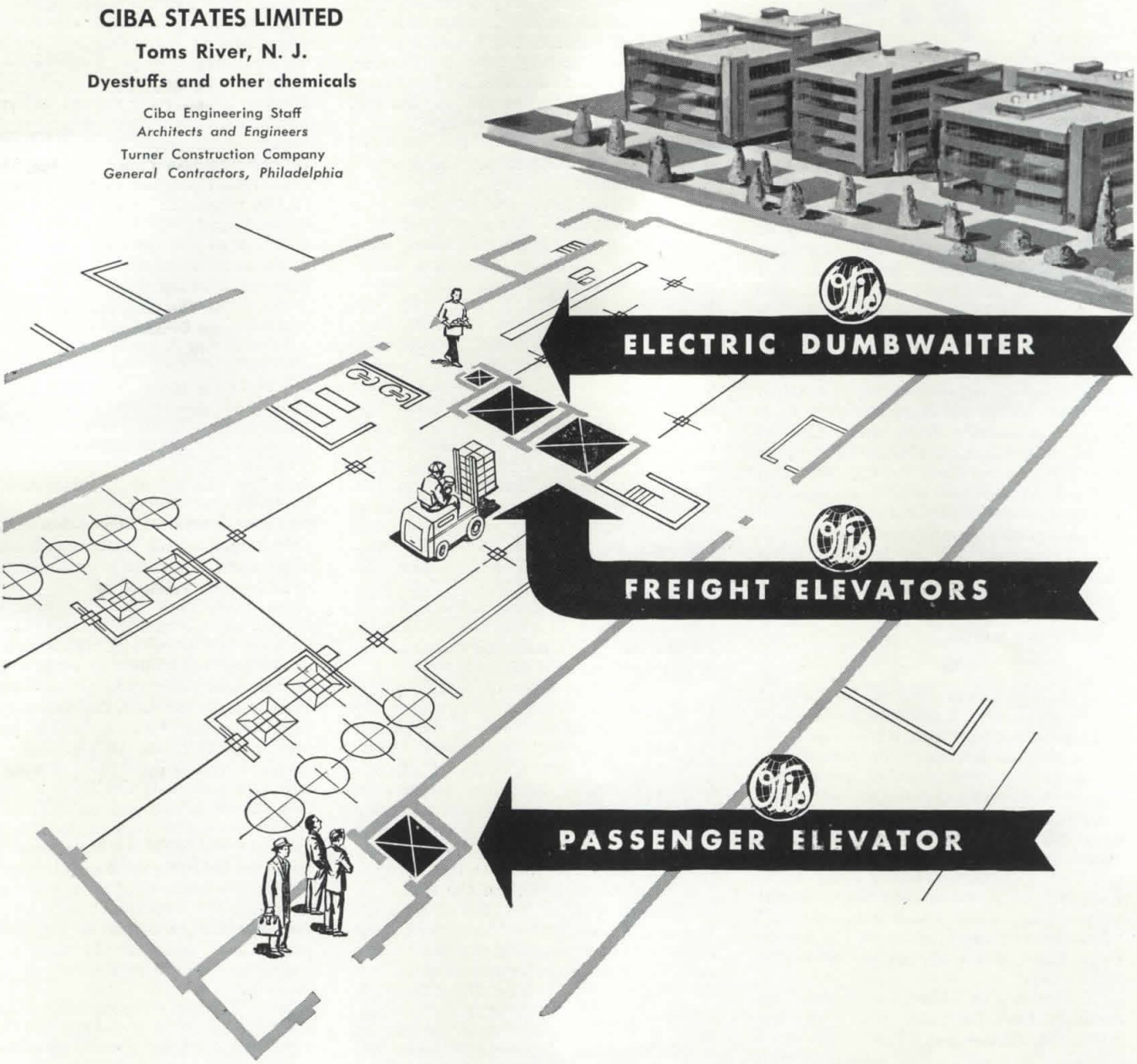

This floor plan of the central building at CIBA's new Toms River Plant is typical of all three buildings. "Factory-traffic" ranges from industrial-truck freight handling to light-duty laboratory service.

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P.S.

I SEE FROM OUR NEWSLETTER that the American Designers' Institute is now the Industrial Designers' Institute. This should clear up some of the confusion between what was A.D.I. but is now I.D.I., and what is still A.I.D. (American Institute of Decorators). There must still remain a slight possibility of telephone calls going to A.D.A. (American Diabetics Association): though I understand from the A.I.A. that the American Institute of Accountants has never caused the architects any trouble. But a good friend of mine from Alabama who unexpectedly went on the wagon (a colloquial expression we use when we note, sadly, the disappearance of a regular customer from the Architectural League bar) explains that he just got going, one time, as a joiner and started through the telephone book. He made application to A.I.A., he joined the Alabama Alumni Association, took out a membership in the American Automobile Association, and then before he realized what had happened he was a member in good standing of Alcoholics Anonymous.

●

I HAVE WRITTEN FROM TIME TO TIME of the difficulty in maintaining friendships with good architects of whom I'm fond, when we can't always publish all of the work they would like to have us use. Apparently every editor has that problem, because I have in front of me a copy of *The Children's Telescope*, a mimeographed publication put out by the Handicapped Children's Home Service, full of contributions by talented people like "Skippy Skinner, age 11," "Anonymous, age 9," etc. On the letters page there is an appeal to the editor which says:

"I hope you will like this picture I am sending. Last time you didn't put my poem in. Please put in everything I send." *Anna Murro*

The editor (Miss Olga Tranberg; she doesn't give *her* age) replies plaintively:

"We are sorry we didn't put the poem in last month's issue, but it isn't always possible to put every contribution in." *The Editor*

I know just how she feels. Last month we couldn't put everything in, either, and we had to leave out a house designed by a very good architect, who's a swell guy (age 38). Honestly, Anna, he felt just as badly as you did about your poem being left out of the *Telescope*, and I felt just as mortified as Miss Tranberg did.

●

BOB ALEXANDER, Los Angeles architect, town planner, and all-around good guy, is on a trip to India. He is sending back from time to time, to a group of friends and relatives, miscellaneous descriptions of, and commentaries on, the things that he sees on the way. They make good reading, and I think it's only fair to pass along to you some of his remarks about people, architecture, and food. In particular, the account of his time in Tokyo might be interesting, since several U.S. architects (Tony Raymond; Skidmore, Owings & Merrill, etc.) are doing work there now.

Bob describes visiting the home of a Cornell architectural classmate—Shigeo Hirata:

"We arrived home and sat down to a treat of Japanese whiskey and *hors d'oeuvres*. Little glazed rice cakes, some sweet, some salty, as good and habit-forming as peanuts. Some little cakes, pillow-shaped, about ¾ inch long, had a small square of green seaweed applied to outside. Also tried various tidbits including sea-urchin paste, orange color, salty and very fishy. Reminded me of fish-bait at the end of a long, hot day.

"Shigeo instructed the maid to make no change in the menu. First course was cold soup — potato and raw egg. This was the only dish I didn't really go for. Ate some with chopsticks and rice, however. Glutinous, shiny mess to me, but delicious to everyone else. Used seaweed squares, dipped in soya and laid on top of rice. Chopsticks spread apart and pressed down form a little roll of rice enveloped in seaweed. Delicious! Potato salad, fish and tea, with relishes in center of table to be used at will!

". . . Went to office of Matsuda and Hirata where I could recognize specs and cost-estimates. They do work for the military as well as Japanese firms. Cost-estimates are calculated on the Japanese adding machine, an abacus, which looks like a cribbage counting board with little wooden beads which slide on wooden dowels. They develop amazing skill at working this gadget. The hand is quicker than the eye.

"Went through Frank Lloyd Wright's Imperial Hotel. Geometric carved stone repeats very interesting texture. Don't care for general exterior massing, but the interior is dramatic and somewhat mystically enchanting. Attempts at designing French doors with feeling of wood-and-paper Japanese screens unfortunate. Now falling apart, due to weight of glass instead of paper. Spirit of Japan captured skillfully in an original architecture, however.

". . . Went with Takinaka, Matsuda, and Hirata to see building under construction which I had asked about. Amazing job, brilliantly conceived and ably organized and executed! Any American contractor would take his hat off to this one! Most of Tokyo built on muck of varying depth to hard pan. In this area, hard pan, 60′ deep. Normal construction is to drive sheet piles down to hard pan outside of building perimeter, excavate muck, form deep concrete basements, and fill around perimeter. Very time-consuming and expensive. *In this case*, they form a "cutting edge" (Japanese word now) around perimeter of building, about 13" high, tapering from a cast-steel knife-edge shoe at bottom to a 3′-thick reinforced-concrete top. Exterior vertical, interior battered. Top of cutting edge framed in steel for future bottom sub-basement floor. Four floors of future basement are then built in reinforced-concrete and steel above the cutting edge into the air. As the cutting edge settles in the round, 12" x 12"-timber cribbing is arranged under the sub-basement framing in the form of an arc in plan along each exterior wall, to equalize the pressure and regulate the settlement to 10 to 15 centimeters average settlement per day.

"Construction on the upper 9 stories continues without waiting for basement to settle 60′ to hardpan. Cribbing squeezes muck toward center of building, where it is excavated as the building goes down. Settlement must be kept level, or tremendous stresses, for which framing was not designed, would be introduced. At five key points, accurate level indicators resting on micro-adjustable tripods with three-point continuously recording needles on smoked paper drums, detect the slightest divergence from level. They are electronically reflected at a central control panel containing five crosses of lights — a green at center, four yellow at right angles to center, and four red farthest removed from center, for each point recorded. As long as green light burns, a point is level to within one 10,000th of a centimeter. A yellow light indicates the direction and extent of tilt from level. Anytime there is such an indication, crews of laborers are rushed to the higher parts of the building to excavate muck until the building settles to level. A simple device consisting of a wire around a pulley, one end attached to the building and the pulley to a vertical steel section imbedded in the ground, indicates the vertical settlement on a drum recorder.

". . . Thence we proceeded to an all-Cornell dinner at a Geisha house. Matsuda took some pictures of us all which I hope he does *not* use for blackmail, but sends me a copy instead. Shigeo let me see the many color pictures he took in the States last year and gave me some to have copies made for Phil Will, Fred Langhorst, and myself. We proceeded with a sukyaki meal cooked in the center of the table. We were then entertained with a traditional Geisha song and dance: two girls moving very slowly in unison with conventional steps. After the dance, I borrowed a lute and we all joined in 'Far Above Cayuga's Waters'."

Thomas H. Creighton