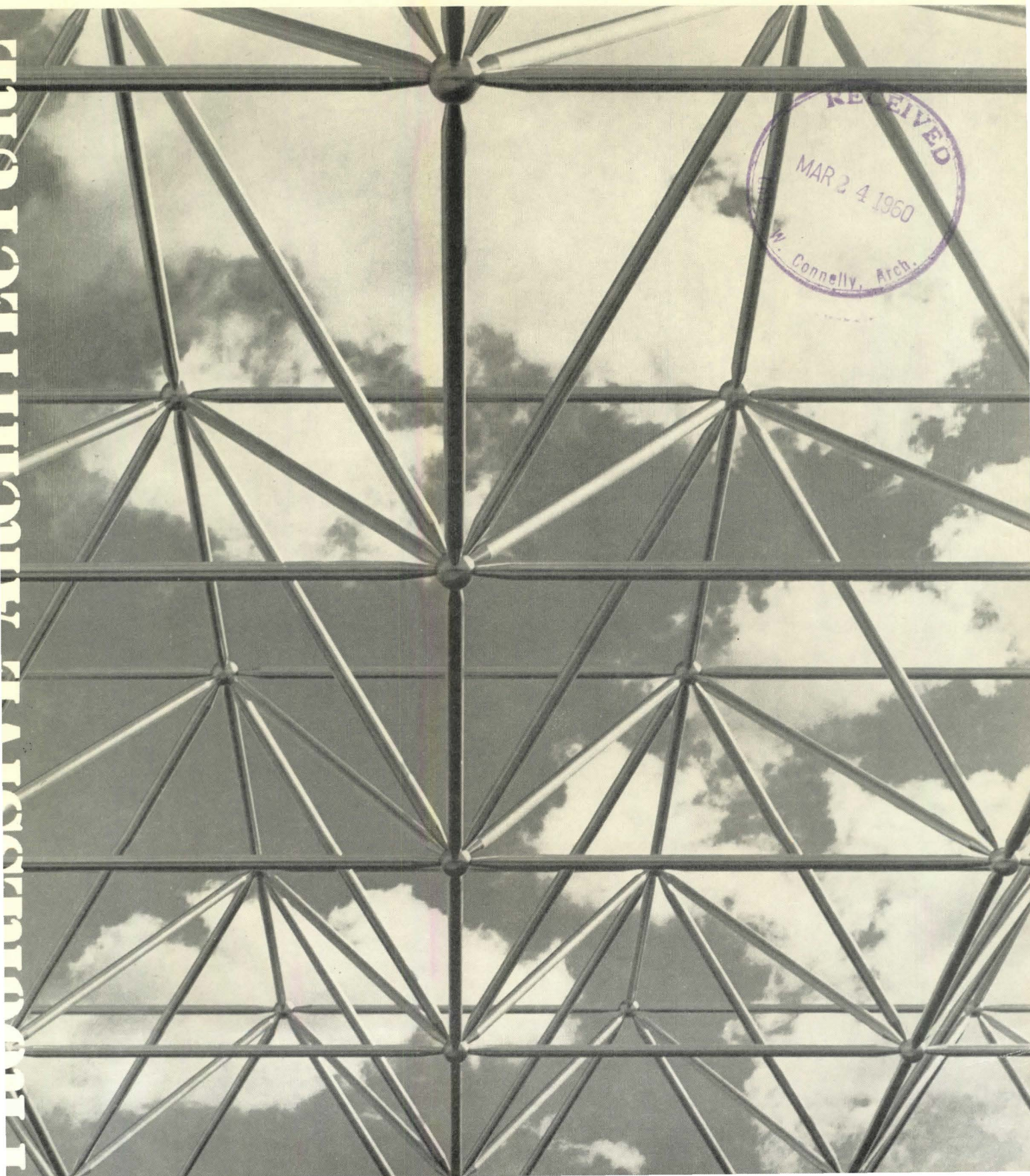
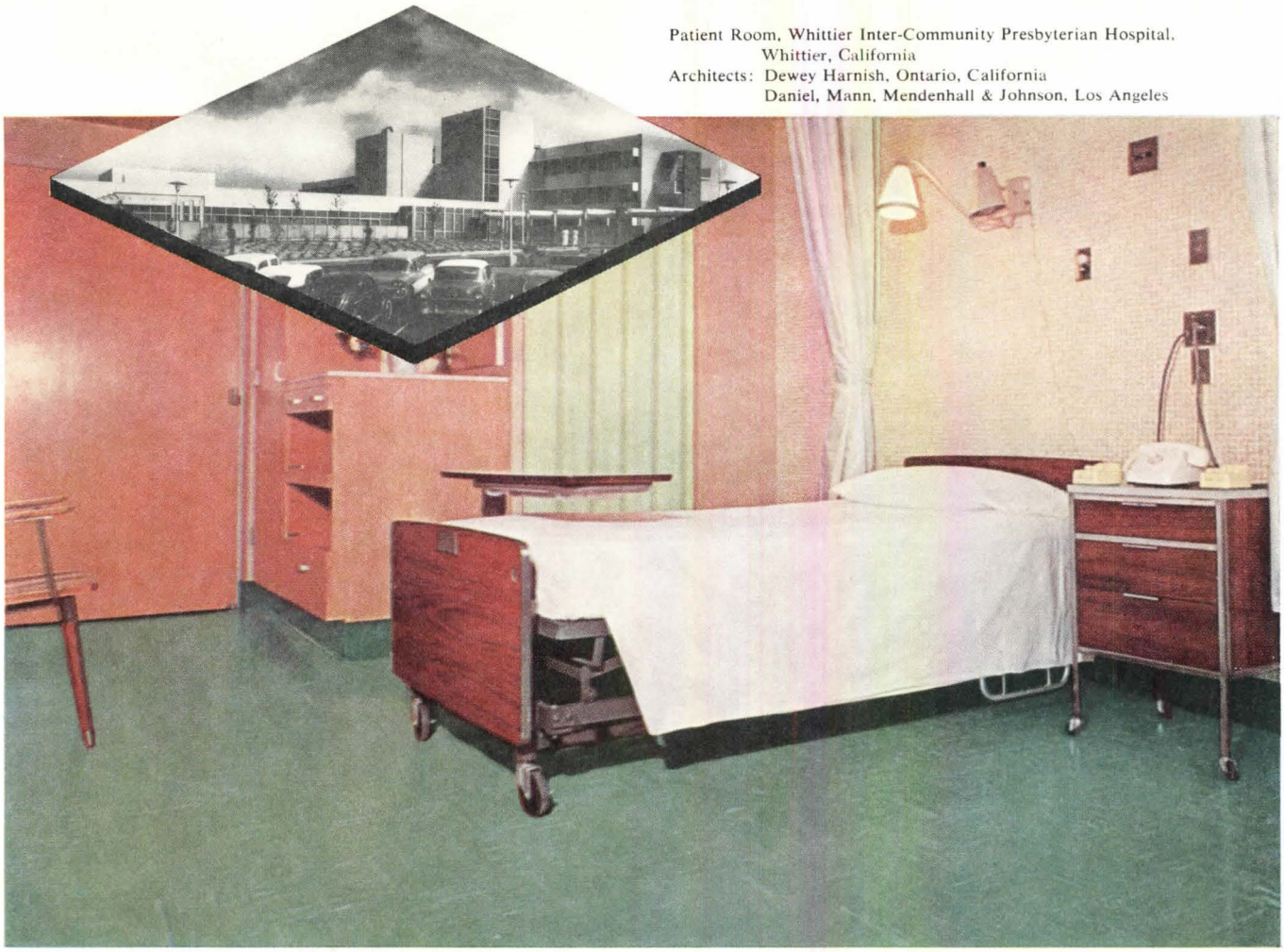
p/a

march 1960

PROGRESSIVE ARCHITECTURE





Patient Room, Whittier Inter-Community Presbyterian Hospital,
Whittier, California
Architects: Dewey Harnish, Ontario, California
Daniel, Mann, Mendenhall & Johnson, Los Angeles

Vina-Lux® floors serve Whittier Hospital

More and more architects across the nation are specifying Vina-Lux vinyl asbestos tile because . . .

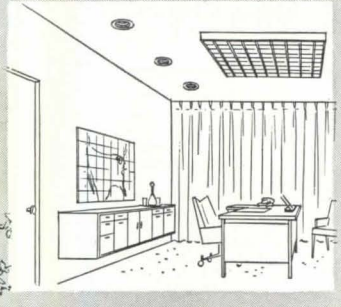
- It's an honest product skillfully made by men dedicated to quality.
- It's a vinyl flooring reinforced with asbestos fiber — stable, durable and attractive.
- It's available throughout the United States through responsible outlets.
- It's made by a company earnestly trying to serve the architect with constantly improved products that solve architectural floor problems.
- Finally, Vina-Lux performance is guaranteed by its maker.

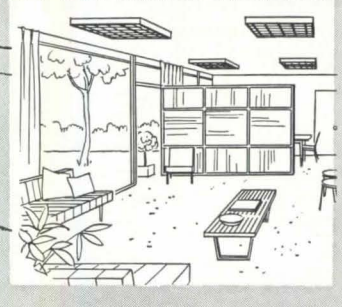
For complete specification data and color chart, consult Sweet's Architectural File or write us.

AZROCK FLOOR PRODUCTS DIVISION
Specialists in the manufacture of vinyl asbestos tile and asphalt tile flooring
UVALDE ROCK ASPHALT CO. • 522A FROST BANK BLDG. • SAN ANTONIO, TEXAS

PROGRESSIVE ARCHITECTURE

Published monthly by REINHOLD PUBLISHING CORPORATION, 430 Park Avenue, New York 22, N. Y. Second-class mail privilege authorized at New York, N. Y. Professional subscription—$5. (For full data, see page 35.)
Volume XLI, No. 3





WONDERFUL WARM WALNUT...BEAUTIFUL BIRCH ...A NEW CONCEPT IN FLUORESCENT LIGHTING

Lightolier's Corona is more than an unusual new concept in fluorescent illumination—it is a richly-styled design element for fine residential and commercial interiors. Broadly-scaled yet extra-shallow panels of light have a regressed housing, give the effect of floating in air. Corona's solid walnut frame is satin finished, complements fine furniture and furnishings. Birch baffles cut a pleasing modular pattern across the face of the white vinyl diffuser, adding a feeling of warmth and friendly informality. It's a completely enclosed unit, easy to maintain, easy to relamp. Available in four sizes: 54″ square, 30″ square, 32″ x 54″, 16″ x 54″.

LIGHTOLIER

For complete information, write today to Dept. PA-30, Lightolier, Jersey City 5, N. J. Showrooms: New York—11 East 36th Street • Chicago—1267 Merchandise Mart • Dallas—1718 HiLine Drive • Los Angeles—2515 South Broadway

Permissible Use of Real Estate

It's the Law Column by Bernard Tomson and Norman Coplan

P/A Practice of Architecture *column describing a case involving an interpretation of deed restrictions.*

A recent New York case (*Duklauer vs. Weiss*, 18 Misc. 2d 747) is illustrative of the involved problems that can arise in connection with the use of real property, and these problems in turn demonstrate that the architect is not the appropriate person to make a determination as to the permissible use of real property.

In the *Duklauer* case, the plaintiff was the owner of certain property located in a highly residential area of Westchester County in New York State, known as "Westerleigh." Certain restrictions and covenants were placed upon the Westerleigh tract at the time it was originally subdivided. Among these restrictions was the requirement that the real property should be "utilized only for a private residence for one family . . . nor for any purpose other than a private residence for one family." The restrictions also provided that every plot "will have an area of not less than three acres to use as a private residence for one family."

One of the defendants was the owner of a parcel of fifty-three acres of land which was contiguous to the Westerleigh tract, but which was not a part of that property and was not governed by the restrictive covenants applicable to the Westerleigh property. This defendant's access to a public road was in imminent danger of being impaired by the construction of a highway by the State of New York, and consequently, the defendant acquired an easement and right of way over the land of two property owners, whose land was part of the Westerleigh tract, for the purpose of furnishing egress and ingress to the defendant's property.

Although the defendant had no intention of subdividing his 53-acre parcel which he utilized as a residence and farm, the plaintiff, nevertheless, sought to restrain him from constructing a road over the easement and right of way he had acquired from property owners whose land was subject to the restrictions and covenants above quoted. The plaintiff contended that the restrictions and covenants were imposed in order to restrict the use of the Westerleigh tract for only private one-family residences containing not less than three acres, and that this excluded the use of any part of such premises for road or street purposes. The plaintiff further contended that the property owners who had granted the easement strips had thereby left themselves with less than three acres in violation of the applicable restrictive covenants.

The defendant, on the other hand, contended that he had an absolute right to acquire the easements and rights of way in order to build a road so that he might have ingress and egress for his contiguous property which was not subject to the restrictions and covenants.

The Court in determining the issues, emphasized the complexity involved in construing restrictive covenants which limit the use of land. The Court said:

"It has been said that probably in no single subject of the law is there found a greater divergence of opinion among the courts of the several States than on the nature, extent and construction of covenants restricting building and the use of land (see 26 C.J.S. Deeds, Sec. 162 (1)). Counsel recognizes the general principles of law applicable to a situation such as here presented but differ upon the application of these principles to the particular words and phrases contained in the covenants now under scrutiny."

The Court, after reviewing the evidence, concluded that an injunction should be granted prohibiting the defendant from constructing a road on the easements which he had obtained over property which was subject to the restrictions and covenants in question. The Court stated:

"A reading of the subject covenants individually or collectively leads this court to the inescapable conclusion that they were enacted for the sole purpose of maintaining and preserving the highly residential development even to the extent of forbidding the construction of the road now contemplated by Kaufman. . . . Indeed, it is difficult to imagine what language the original grantor (Westerleigh Corporation) could have used to more minutely and with more precision express its intention to make the restrictions more onerous so as to insure a conservative, restricted, residential development for the mutual protection of the owners of property in this tract. Phrases, such as '*only* for a private residence for one family,' 'nor for *any purpose other than* as a private residence for one family,' and '*solely* for private one family residence' (emphasis supplied) are clear and unmistakable and present no problem of ambiguity or doubt. They are synonymous with 'nothing else' and as such, speak with finality, are not reasonably capable of more than one construction. They call for one—and only one—interpretation."

The court emphasized that the purpose of the easements was not for private benefit to the Westerleigh property owners who had granted them "or to facilitate the better enjoyment by them of their respective homes." In this connection, the Court said:

"Defendant is frank to admit in his brief that he intends to presently construct a road through the Weiss property for his own personal accommodation and, while he disclaims any intention to subdivide his 53-acre parcel in the future and thus use the roads over both parcels as a service to any such subdivision, nonetheless, if the complaint here were dismissed and the injunction denied, he would then as a matter of right have the clear legal power and unobstructed privilege to construct a modern macadam or concrete road 30 feet wide leading from Westerleigh and Sylvanleigh Roads extending over the Weiss property for a few hundred feet and into his land and another road 50 feet wide running from Sylvanleigh Road over the Marx property for another distance of a few hundred feet to his said property (including the right 'to install water, gas, sewer, telephone and light lines'). These roads would then afford the public at large a means of ingress and egress to Kaufman's property lying outside the Westerleigh tract and could be put into service as an incident and thoroughfare to a possible development which Kaufman might create on his adjacent land which is unrestricted and unincumbered by any of the aforementioned restrictions. Certainly, it could not then realistically be said that such roads were incidental, or an adjunct to, or served for the better enjoyment by Weiss and Marx of their respective residential homes."

The application and effect of restrictive covenants, zoning ordinances, deed limitations, etc. involve considerations concerning which the architect ordinarily is not competent or trained to handle. The basic responsibility for determining that property can be used for the purpose intended, should lie with the owner, and for his own protection, the architect should obtain that affirmation from the owner. The owner, on the other hand, should rely on nothing less than the opinion of his attorney, who must consider the complete legal questions involved. The architect should make clear to his client that it is the client's attorney, not the architect, who must determine in the first instance whether the program for the proposed project will not violate applicable ordinances and restrictive covenants. It should then (and not until then) be the architect's function to comply with the restrictions found to affect the projected structure.

Port of New York Authority selects Kalwall "for evenness of lighting — superior thermal and acoustical insulation."

Ultramodern control tower at Newark Airport sheathed with translucent Kalwall panels

KALWALL CORPORATION
Dept. PA, 43 Union St., Manchester, New Hampshire

How One School Architect Was Selected

by Robert H. Mutrux, AIA

P/A Practice of Architecture *article describing, from backstage, meetings of a School Building Committee and reasons for its choice of an architect.*

It is a long time since I last heard the expression, "dirty pool." Those were the bantering words of an architect who, after he had been interviewed for the Wilton High School project, learned that there were *two local* architects on the building committee. I was one of them! Whether this was indeed "dirty pool" is of little significance to me, compared to the experience of watching the proceedings of a school-building committee from backstage.

The Wilton High School building committee was no ordinary committee. Strange as it may seem, there was no sign of political activity in its organization, nor did politics once rear its head in the selection of an architect. Otherwise, the group had the usual New England earmarks. There was a preponderance of men, and a preponderance of conservative voters. There was a fair cross-section of business and the professions: an advertising man, a member of a publishing firm, the junior executive of an oil company, a retired chemical engineer, a young attorney. There were two women, both active in public affairs, a well-established local builder, and the two architects. They were, as a whole, untutored, unbriefed, and completely open-minded: in fact, they placed the preliminary selection of a panel of architectural firms in the hands of the two architects on the committee.

We sent out 35 questionnaires, and received 22 replies. Of these we eliminated, arbitrarily, those who had never designed a high school, and those who seemed, in our opinion, too small in stature to handle a fairly large job. This reduced the list to 15 names. From then on, it was a week-by-week indoctrination in school-building methods, in architecture in general, and, most of all, in public relations.

The first acknowledgement of our existence as a committee came when each of us received bound brochures of the work of two firms. This was the start of a fascinating see-saw between the "hard sell" and the "soft sell"; the large firm with the public-relations staff, and the small group with the intimate, personal approach. Basically, one is flattered on receiving a brochure, especially when it is accompanied by a personal letter. However, to be most effective, a brochure must be correctly timed and presented. For example, if every firm sent a brochure, a committee might be so deluged with printed matter that it could no longer register and evaluate their separate contents. In other words, brochures could tend to cancel each other out. Moreover, a brochure sent out too early loses its impact, because it cannot stand by itself as an introduction to a firm's work. The best presentation occurred when the principal of one firm handed out brochures to the assembled committee, explaining, describing, and amplifying the contents.

Thereafter, one by one, and on some evenings, two by two, came the interviews. Here is my first warning to architects: try to avoid being placed first on the list. There is a tendency to forget the first interview and retain the impression of the most recent ones; this was the unanimous reaction of the committee. Second, it is essential that a firm be represented by its principals. Not only should at least one member of the firm take charge of the interview, but also the individual who will have personal charge of the job should be present. This may seem unnecessary advice, but two firms with nationwide reputations unconsciously disqualified themselves when they stated that they would "select the man most suitable for the job when the time came." A committee wants to see and size up the individual with whom they will have to deal for the next two years.

Much can be said about slides and pictures. The standard of photography to which school committees are subjected is usually quite low. Architects are prone to show a great number of mediocre pictures without realizing that a few well-selected shots make a far more lasting impression. School buildings, at least in New England, have a tendency to look alike, and when you've seen 20 one-story window-wall jobs, with blue panels and red brick, you've seen them all.

Photographs at a large scale are desirable, and slides, particularly in color, are highly acceptable. Good photographs, plus a good commentary, will go a long way toward promoting a firm's work. It must be remembered, however, that it is natural for a committee to look at photos for their own sake—as pictures, as a general introduction to the field—without necessarily relating the work of a particular firm to the committee's immediate problem. A firm noted for its use of color in classrooms did not receive a single vote, but it did impress the committee with the importance of color in school architecture.

The outstanding pictorial presentation was not a series of pictures of school work. It was a most ingenious series of charts, sketches, photographs, and montages showing *not* "schools we've done" but a graphic presentation of the slow, dull month-by-month steps required by a committee and a town before even reaching the vote for a bond issue. Here were the facts of life, a foretaste of the repeated meetings, review of plans, changes, newspaper releases, discussions, dissensions, and town meetings which long precede the ground-breaking. This was an introduction, not to the result but to the method of achievement, which struck us all as completely pertinent; we wondered why other architects had not developed this approach. After the interview, two members asked, "Shall we vote for him now, or later?"

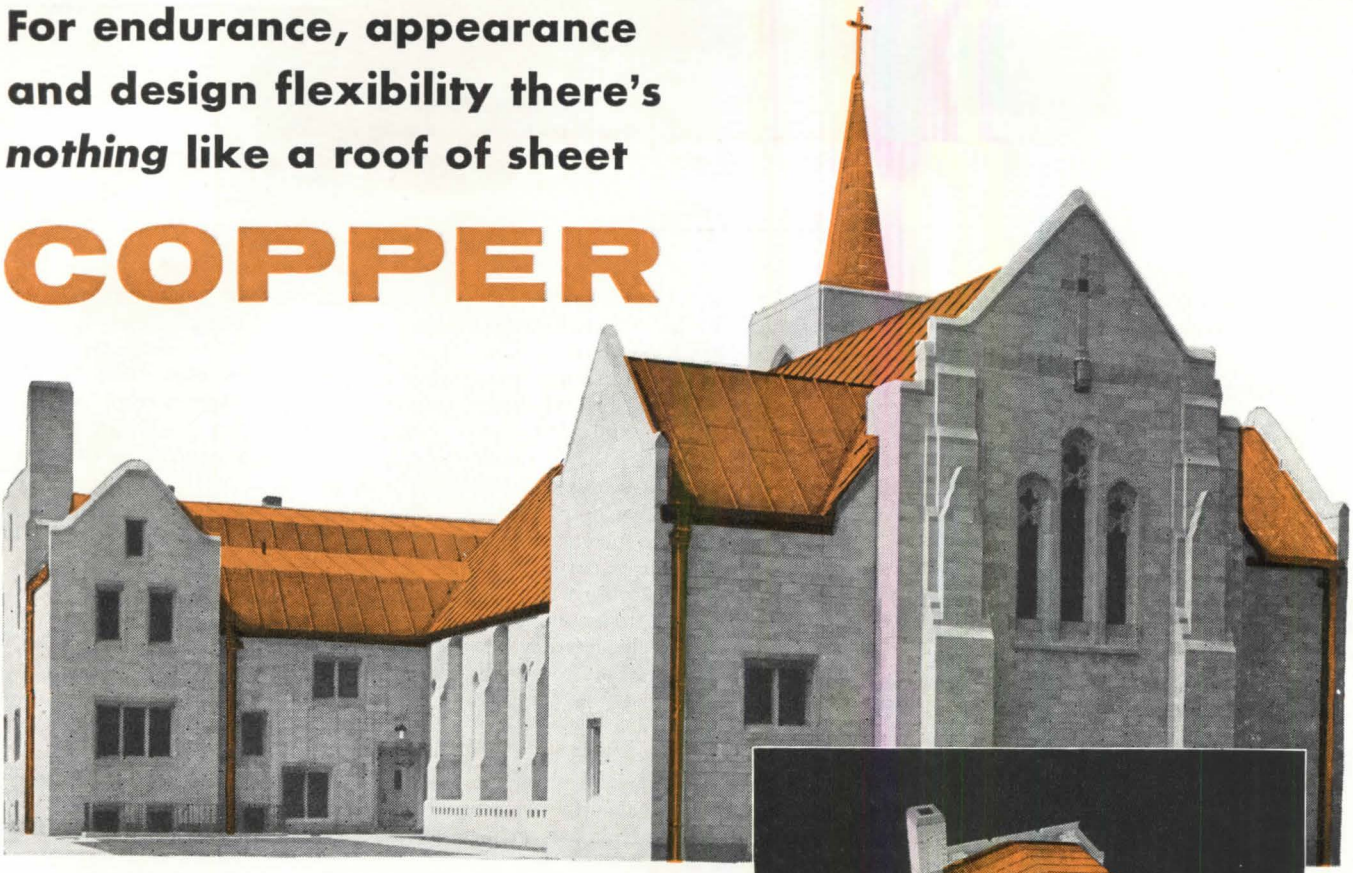
The head of one very well-known eastern firm spoke so softly that everyone leaned forward unconsciously to listen with great concentration on every word. The work of this architect, unfortunately, suggested that the clients who listened most attentively to his hypnotic *sotto voce* were multimillionaires. Another curious fact was noted, regarding speech in itself. Having spent a good deal of time in my youth trying to cure myself of stuttering, I was interested to see how far a good architect can go in spite of an obvious speech defect. Two architects, both highly regarded in the school field, have noticeable speech impediments; I fail to see any adverse effect of this in their work or in their apparent success. I almost believe that a committee, subconsciously, regards them favorably because of, not in spite of this peculiarity.

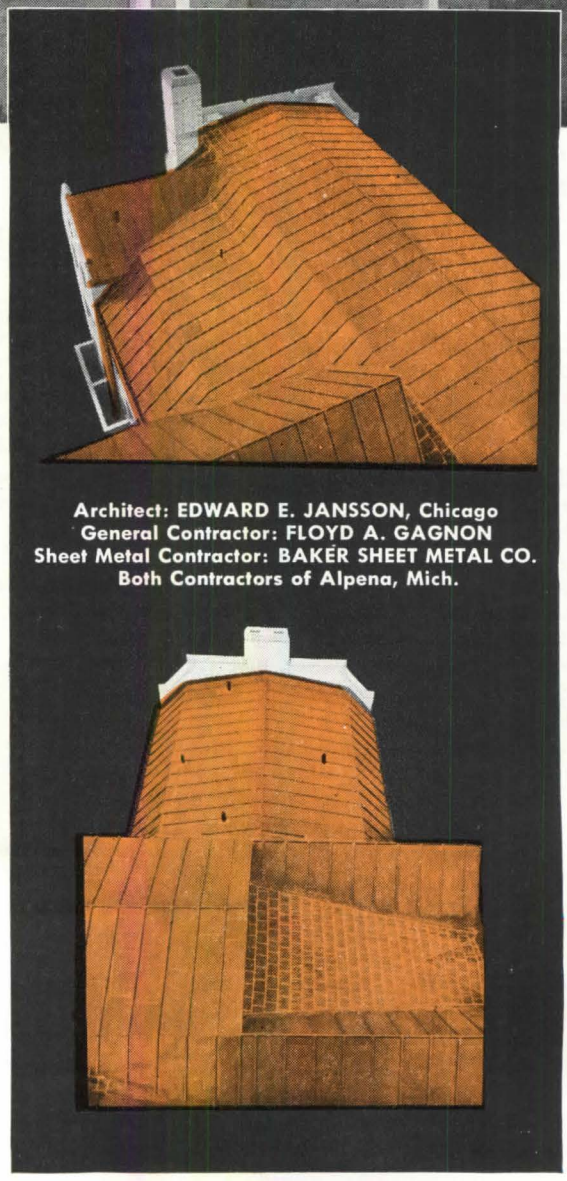
I have not yet decided what finally sold this committee. Of all the factors which enter into discussions about school architecture, it was certainly not "cost." Cost is a catchword, with no realistic meaning unless it is qualified, and interpreted in simple language. No committee has the time, nor the inclination, during preliminary interviews, to go into

(Continued on page 11)

For endurance, appearance and design flexibility there's *nothing* like a roof of sheet

COPPER





31,000 lbs. of 20 oz. Cold Rolled Revere Sheet Copper were used to roof FIRST CONGREGATIONAL CHURCH, Alpena, Michigan

Traditional, modern, you name the design . . . no matter what you call it, copper is at home with all of them. An excellent example of the versatility of copper is shown by the combination of the batten and flat seams in photos shown at right.

This most versatile of metals is also the most enduring. And because of its workability into any shape or form and the ease with which it is soldered, copper is the preference of architects, engineers and contractors alike.

Since 1806, when Paul Revere rolled sheet copper to roof the Old North Church, Boston, Revere Sheet Copper has been serving the nation.

As a result of this more than century and a half of experience Revere's Technical Advisory Service is qualified to aid you in the solution of problems you may be having in connection with the application of Revere Copper, whether it be for roofs, gutters, flashing, leaders, spires, fleches or other ornamentations.

And remember, too, all Revere Sheet and Strip Copper is marked with the correct gauge and temper in water-soluble ink for easier, more accurate identification by architects and sheet metal men. Another reason why you should specify, use, Revere Copper.

And if you do not have a copy of Revere's 110-Page Book, "Copper and Common Sense" you'll find it a worth-while addition to your files. Free copy on request.

SEE OUR CATALOG IN SWEET'S FILE.

Architect: EDWARD E. JANSSON, Chicago
General Contractor: FLOYD A. GAGNON
Sheet Metal Contractor: BAKER SHEET METAL CO.
Both Contractors of Alpena, Mich.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue
New York 17, N. Y.

Mills: Rome, N. Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.

COPPER ★ BRASS ★ 18 01 ★ REVERE ★ ALUMINUM

How One School Architect Was Selected (continued)

the intricacies of square-foot breakdown, construction cost, separate contracts, percentage for equipment, site consideration, and so on down to the fees; and then to weigh these in favor of any particular architect. Moreover, every architect has a "low-cost-school" up his sleeve, and it is virtually impossible to interpret or challenge one architect's figures or compare them to those of another.

Design, likewise, does not play a strong part in the selection of an architect, for the reason that the standards of judgment accepted by the profession are completely unintelligible to the New England layman. Besides, almost all architects screened for interviews of this sort are "good designers." All seem to have won an award, and all take flattering views of their favorite jobs. Unfortunately, more often than not, the favorite is not a low-cost-job, but one with a distinct abundance of special workmanship and expensive materials.

In open competition, it is probably the well known name combined with a special personality that sells a job. These two factors clearly outweighed all others in our case. It was not difficult for the committee to become acquainted with the Brand Names in the profession. We made it a point to ask each applicant which other firms, if any, they considered their peers in the field. The firm most often mentioned literally knocked itself out in the first round when the head of the firm told us that they were currently engaged in the design of twenty schools and, privately, that he had two other meetings to attend that same evening. It was made quite clear that he was going to have some difficulty working us into his schedule.

Others suffered from the "kiss of death" in various forms. One firm was disposed of when the superintendent of schools, a non-voting member of the committee, mentioned that it had an exaggerated number of change orders on a previous job, and that representation by the firm was delegated to a junior partner as the job progressed. In another case, a firm was ruled out because our educational consultant had never heard of them. In still another case, it was reported by the builder on the committee that the work of a particular firm "just doesn't stand up." In no case were these comments substantiated. In two cases, two small firms with excellent reputations were ruled out because no satisfactory answer could be given to the question, "What if something happens to the head of this one-man firm?" These comments resembled a sort of whispering campaign, with no basis of realism or fact but with no less lethal effect.

One of the firms which sent out the premature brochures heavily overworked the public-relations side. They sent letters to each member of the committee, calling attention to a forthcoming newspaper article about their work; after the article appeared, another letter followed, ". . . in case you missed the article, we enclose a reprint . . ." This firm so far outdid itself in letters, lunches, invitations to guided tours, etc., that one of the first remarks, after we had made our final decision, was, "Now I can get *them* off my back!"

A noticeable amount of sharpshooting goes on, as applicants tend more and more to resemble contestants in a polite but deadly free-for-all, sometimes striking close to the ethical border-line. Two firms offered to share the cost of the Clerk-of-the-Works, and one architect offered to pay for the services of an educational consultant as part of his fee. The combined Architect-Engineer firms were sniped unmercifully by architects, who stated that they would hire the services of structural and mechanical engineering firms which specialized, as *they* did, in school architecture, thus undermining the architect-engineer who offered "a complete service within our organization." The larger firms made a point of over-riding the smaller organization with the questionable point that "the size of our firm allows flexibility in our staff to assure completion of your job within your time schedule." Our choice finally narrowed down to three firms which we re-interviewed. As we look back, the final choice was a foregone conclusion. One firm was ruled out because it had no Connecticut office, another, "too small."

We wound up with not one firm, but a partnership of two large firms, one nationally known for its specialization in school work, the other supplying working drawings, specifications, liaison, and supervision from an established office nearby. The personalities present provided, in combination, all the qualities we had observed and weighed in previous interviews. The relatively young designer of the team seemed to promise background, plus imagination, and humor in an easy-going, intimate approach, while the partner in charge of production was factual, and cut-and-dried. To our surprise, as we looked back, their's had not been a single brochure, not one slide or photograph, nor any invitation to "see an example of our work."

So there we have it, for better or for worse: a name, a record, a personality, a philosophy, and half the fee (at least) remaining in the home state. One wonders if there is not some way of avoiding all the time spent by so many who have nothing left to do but fold up their easels and page through the Dodge Reports for the next lead. I imagine that, out of loyalty to our democratic method, no one would have it otherwise.

A factor of great importance is that this process is necessary to the indoctrination of the previously amorphous group who are charged, eventually, with spending two million of the town's honest dollars. The committee was once green, untutored. Now, after four months of late meetings, it is surprising to find how conversant they are in the terminology peculiar only to school construction. State-aid, double-loaded corridors, square-feet-per-pupil, audio-visual room, have become part of their vocabulary.

And last, in exchange for spending time not immediately productive, the profession gains by being introduced to the public. Architecture is on stage!

AIA General Conditions Revised

Specifications Clinic by Harold J. Rosen

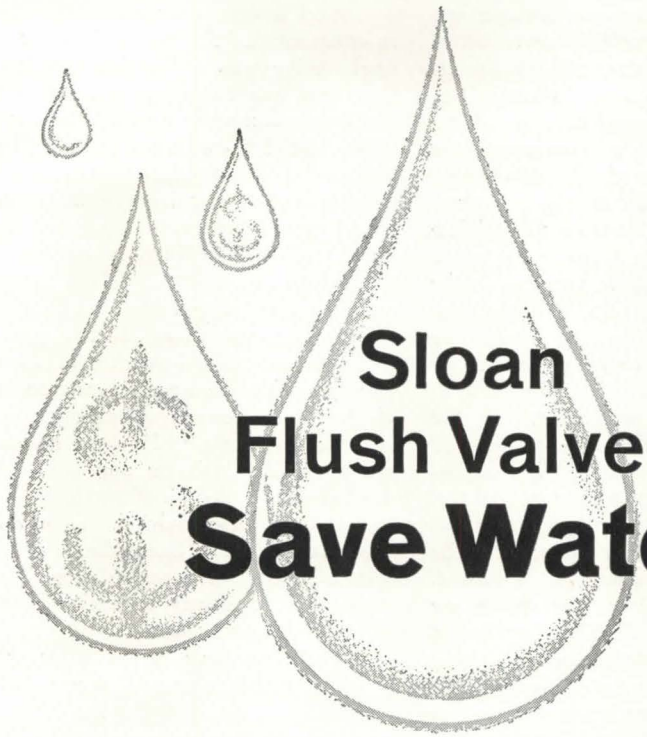
P/A Practice of Architecture *this month offers a discussion of the revisions of the Sixth Edition of AIA General Conditions now identified as AIA Document No. A-201, Standard Form of General Conditions, 1958 Edition.*

AIA *Standard Form of General Conditions*, Sixth Edition (AIA Form A2, Revised 9-1-51) has been superceded by a new document, bearing the same title, but now identified as AIA Document No. A-201, *Standard Form of General Conditions*, 1958 Edition. The number of Articles remains at 44; however, the titles of several have changed. In addition, there have been some significant changes in the text and content of some of the Articles.

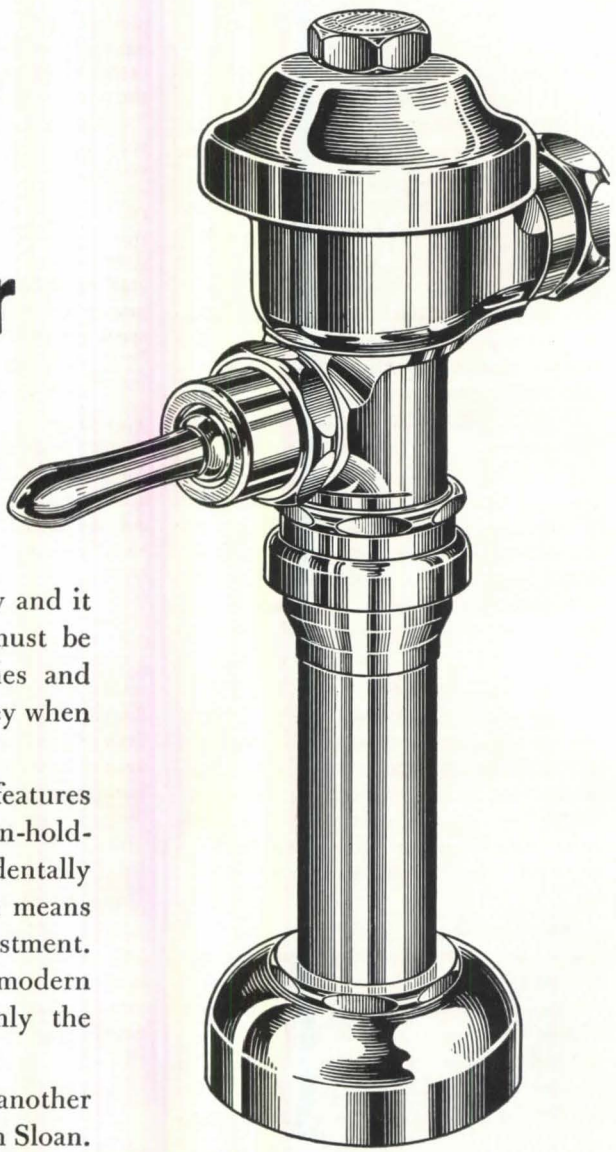
No document comparing the wording of these two editions has yet been prepared by the AIA, and the following

(Continued on page 13)

You pay no more for unequalled SLOAN quality...



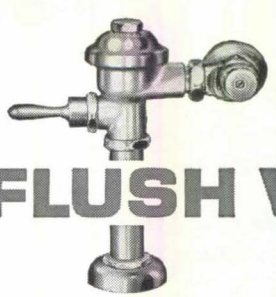
Sloan Flush Valves Save Water



• Water is scarce in many parts of the country and it costs money—and costs often rise when it must be pumped within a building to distant branches and upper floors. You can save both water and money when you specify the Sloan ROYAL Flush Valve.

In the ROYAL, there are two water-saving features providing maximum water economy—(1) "non-hold-open," which prevents the waste of water accidentally or maliciously and (2) "no regulation," which means there is no regulating screw to get out of adjustment. These are the two most important features of modern flush valves and, as standard equipment, only the ROYAL has both.

This exclusive combination of features is another example of that bonus of quality you expect from Sloan. And since you can have Sloan quality at no extra cost—why not make sure you get it.



SLOAN FLUSH VALVES

SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO 24, ILLINOIS

AIA General Conditions Revised (continued)

represents my own comparison. Where an Article is missing it indicates that there is no significant change.

Article 1—Definitions: In subparagraph (a) of the 1958 edition, the "Supplementary General Conditions" have been included as a part of the Contract Documents.

Article 2—Execution, Correlation, and Intent of Documents: The second paragraph has been altered so that it now consists of two paragraphs, and one of the provisions has been modified as follows: This provision previously stated that "It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class, or trade of the specifications shall be supplied unless distinctly so noted on the drawings." This has been changed to read "It is not intended, that work not covered under any heading, section, branch, class or trade of the specifications, shall be supplied unless it is shown on drawings *or is reasonably inferable therefrom as being necessary to produce the intended results.*"

Article 3—Detail Drawings and Instructions: In the sixth edition, a schedule for submitting detail drawings and shop drawings was required. This provision is omitted from the 1958 edition. The 1958 edition further requires that the contractor prepare a Progress Schedule indicating the dates for starting and completion of the various stages of construction.

Article 5—Shop Drawings: The 1958 edition now includes the following requirements: (1) that the contractor check and verify all field measurements; (2) that the contractor check and approve shop drawings before submission; and (3) that where the contractor deviates from drawings or specifications he obtains the architect's written approval for such deviation. In addition the number of copies of shop drawings to be submitted has been changed from two to three.

Article 7—Ownership of Drawings: The heading and the text in the 1958 edition have been changed to eliminate models.

Article 11—Surveys, Permits, Laws, and Regulations: The heading of the 1958 edition has been changed to include "Laws." A significant change is made concerning the securing of permits and licenses for the prosecution of the work by the contractor. In the sixth edition, this requirement was modified to the extent that permits and licenses of a *temporary nature* were to be paid for by the contractor. The words "temporary nature" are omitted from the 1958 edition and the contractor is now required to pay for all permits and licenses. An additional paragraph has been added requiring the contractor to pay for all sales, consumer, use, or other similar taxes.

Article 12—Protection of Work and Property: In the 1958 edition, the provision concerning damage to the owner's property is modified to exempt the contractor from making good any such damage, if it is "due to causes beyond the contractor's control and not to his fault or negligence." (This statement was the third paragraph of Article 31, Damages, of the sixth edition.)

Article 13—Inspection of Work: The provision concerning tests or approvals is modified in the 1958 edition to require the contractor to secure required certificates of inspection.

Article 20—Correction of Work After Final Payment: This article has been completely rewritten. The most significant change has been to establish the time element concerning the one-year guarantee period. In the sixth edition, this was established as "within a period of one year from the date of substantial completion." The 1958 edition establishes this period as either "the date of final payment, or from the date of the Owner's substantial usage or occupancy of the project, whichever is earlier." In addition, this statement is further modified to provide that "Neither the foregoing nor any provision in the contract documents, nor any special guarantee time limit, shall be held to limit the contractor's liability for defects, to less than the legal limit of liability in accordance with the law of the place of building."

Article 22—Owner's Right to Terminate Contract: The 1958 edition provides that when an owner pursues his right to terminate a contract with a contractor, because of the delinquency or insolvency of the contractor, and there is a guaranty bond issued by a surety, the surety too must be sent a written notice of the owner's intent to terminate the contract. The 1958 edition further protects the architect to the extent that if extra services are required by the architect, because of the termination of the Contract, the architect is reimbursed for these extra expenses.

Article 23—The Contractor's Right to Stop Work or Terminate Contract: The 1958 edition changes several of the time limitations that were previously set forth. The 1958 edition notes that if the work is stopped by a court order, or by other public authority, for a period of *30 days* the contractor may terminate the Contract upon seven days notice.

In the sixth edition, the contractor could not terminate the Contract unless the stoppage lasted three months. The 1958 edition further provides if the architect fails to issue a certificate for payment within *14 days* after the contractor's request, or if the owner fails to pay within *21 days* of its presentation, then the contractor may terminate the contract upon *30 days* notice. Previously these time intervals were all *seven days.*

Article 24—Applications for Payments: The wording of this article has been rearranged so that emphasis is given to first things first. In essence, there is no change in content, except that payment for materials not incorporated in the work may be made if the materials have been delivered to a location other than the site, and this condition has been agreed upon in writing.

Article 27—Contractor's Liability Insurance: The 1958 edition adds the provision that the contractor must maintain insurance to protect him "from claims for damages to property." In addition the contractor must now file certificates for such insurance with the owner and the architect where previously such certificates were filed with the owner upon his request.

Article 29—Fire Insurance With Extended Coverage: The heading and the text has been expanded in the 1958 edition to include extended coverage. The following text has also been added to the 1958 edition. "The owner, contractor, and all subcontractors waive all rights, each against the others, for damages caused by fire or other perils covered by insurance provided for under the terms of this contract, except such rights as they may have to the proceeds of insurance held by the owner as trustee. The owner shall be responsible for and at his option may insure against loss of use of his existing property, due to fire or otherwise, however caused." (The second sentence has been taken from Article 31 of the sixth edition and added to this article.)

Article 31—Damages: Two provisions formerly part of this article in the sixth edition have been omitted from the 1958 edition and inserted in Article 12 and 29 of the 1958 edition (q.v.)

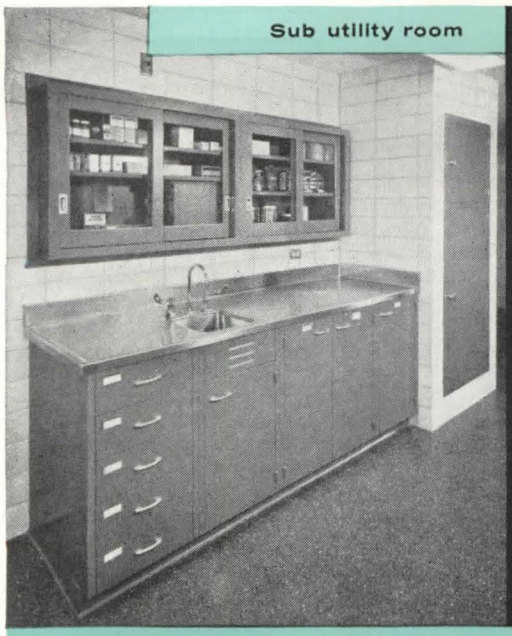
Article 36—Subcontracts: The language of the first paragraph has been changed to read that in submitting the names of the subcontractors, the contractor "shall not employ any to whom the architect may have a *reasonable objection.*" The words "reasonable objection" replace the words "incompetent and unfit" which formerly constituted the reasons for an architect's disapproval of a subcontractor. In the second paragraph the term "or after" is included to permit a change in contract price, if after the contract is signed and the subcontractors have been approved, the owner elects to change a subcontractor. A new paragraph has been added to this Article reading as follows: "The contractor shall not be required to employ any subcontractor against whom he has a reasonable objection."

Article 37—Relations of Contractor and Subcontractor: The 1958 edition does not include a clause contained in the sixth edition as follows: "This does not apply to minor subcontracts." Sub-paragraph (o) is amended in the 1958 edition as follows: "In the matter of arbitration, their rights and obligations and all procedure shall be analogous to those set forth in this contract; *provided, however, that a decision by the architect shall not be a condition precedent to arbitration.*"

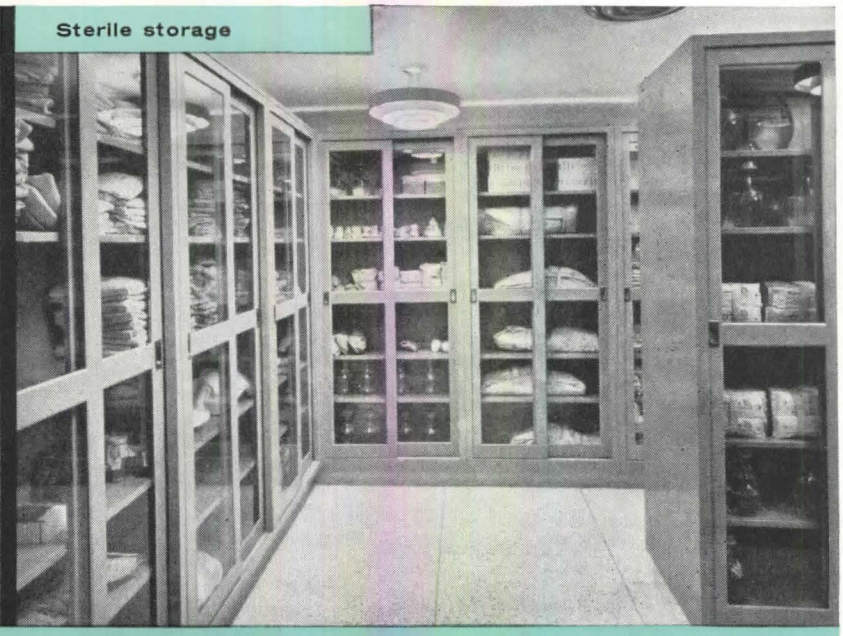
Article 40—Arbitration: A provision in the sixth edition has been omitted namely that "If the arbitration is an appeal from the architect's decision, the demand therefor shall be made within 10 days of its receipt." The 1958 edition permits any demand for arbitration within a reasonable time, but not later than the time of final payment.

Article 41—Cash Allowances: While there is no change in this Article, the last sentence thereof is a duplication of the new third paragraph of Article 36, Subcontracts, 1958 edition.

Article 43—Cutting, Patching: The term "and Digging" has been omitted from the new heading, but not from the text where "excavating" has replaced "digging."



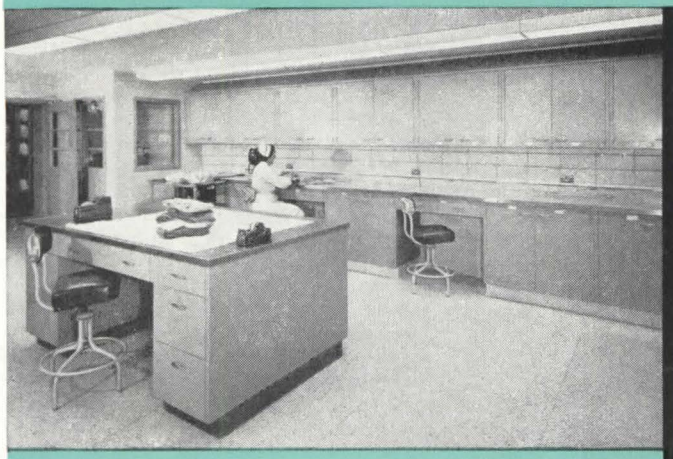
Sub utility room



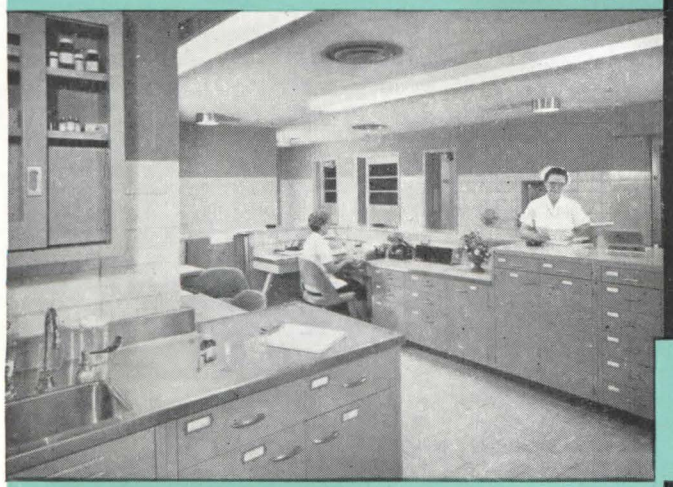
Sterile storage

Hospital Casework by St. Charles

Installed in Muskogee General Hospital, Muskogee, Oklahoma



Central sterile supply



Nurses' station

HORSTMAN & MOTT, *Architects*

ROSS GARRETT & ASSOCIATES, *Consultant*

St. Charles acceptance and reputation as quality hospital casework is due to the careful attention given planning and construction details. Complete custom building, too, means casework flexibility to meet individual specifications, even to the most exacting demands.

Send For Catalog. This complete catalog, "St. Charles Hospital Casework," is available at request on your letterhead.

St. Charles

CASEWORK SYSTEMS FOR HOSPITALS

St. Charles Manufacturing Co.,

Dept. PAH-3, St. Charles, Illinois

Integral Lighting / Air-Conditioning Systems

Mechanical Engineering Critique by William J. McGuinness

P/A Practice of Architecture *column on mechanical and electrical design and equipment, devoted this month to the recognition of general lighting systems as integral parts of air conditioning installations.*

The Blackwell Report[1] on lighting intensities was the culmination of 10 years of research. Its findings provided a new and rational approach to the selection of lighting levels based upon the actual nature of various *seeing tasks*. Some intensities will be lower and some very much higher. These recommendations have triggered a series of discussions on the design of lighting and of related mechanical services. The inadequacy of currently available luminaires was made clear in the Galemmo Report.[2] There has also been some consideration of the correct methods of dealing with heat generated by lights, especially in spaces which are air conditioned. The prospect of higher levels of illumination resulting in greater heat output from lights has drawn attention to the need of removing this heat in summer and making it an effective part of the heat to be supplied in winter.

As a very interested party, General Electric Company stepped up its studies and full scale tests which led to a summary report by W. S. Fisher and J. E. Flynn presented to IES in September, 1959. A few of the important conclusions of this learned and comprehensive report (28 pages and 13 illustrations) are given here.

It will be seen that the time has come to really appraise the amount of heat produced, to trace its normal path of escape, and to study the resulting temperatures. Some of the results are quite surprising. They are very likely to change the simple philosophy previously held by some of us. This was that heat produced by lights in summer could merely be picked up from the room air by extra air-conditioning tonnage. In winter it was recognized that the heating system might run at lower output or less often, but it was designed to operate without the aid of the lights. It is now strongly indicated that the heat from luminaires should be collected separately by exhaust air. In winter this would be returned to the central conditioner to supplement the heating system. In summer it would usually be exhausted directly to the outdoors, effectively preventing most of the luminaire heat from ever entering the room.

Strangely enough, one of the principal advantages of this direct approach is an improvement in electrical efficiency. It affords a much-needed *luminaire cooling system*. A specific example is given of a luminaire which was found to have 12 percent less light output at 100 F than at 77 F. Under extreme conditions and with no luminaire ventilation, GE found that the luminaire temperatures *(positions* C *and* D, *Figure 2)* were 128 F and 126 F respectively. This undesirable condition poses another problem. At these temperatures, the fixtures and the adjacent ceiling areas take over as self-appointed *radiant-heating* surfaces, annoying for heat control and causing discomfort in summer. One must not permit high lighting levels to take the heating and cooling systems out of the control of their equipment. Adequate ventilation through the luminaire can reduce these temperatures to about 80 F, which is well below the somewhat standard radiant-ceiling surface temperature of 115 F. A reason for the heat build-up in fixtures is seen in the fact *(Figure 1)* that 76 percent of the power in a typical fluorescent-and-ballast fixture is trapped above the ceiling level. This is also another argument for heat removal through the luminaire.

Lighting levels of 100 ft-c are being accepted for office buildings and 400 ft-c intensity is being discussed for special seeing tasks. The Fisher-Flynn Report includes data obtained from full-scale tests of spaces lighted to these and to intermediate intensities. Estimates of heat gain in offices show that in many cases 100 ft-c produces enough heat in the office space to account for about 40 percent of the air-conditioning requirements. At 400 ft-c this could amount to 70 percent of the total required tonnage. It is evident that this heat gain may well be exhausted separately and, in some cases, more economically by outside air instead of by conditioned air. A large percentage of the heating load is carried by lighting in winter and, indeed, with high intensities the lighting may carry all of it. It is suggested that this fact might prompt the acceptance of some of those contributions of heat to reduce the size of the heating plant installation, thus reducing initial investment costs. This appears valid. Less desirable, however, is the thought that light levels should be consciously increased to the point where the light and heat are all supplied through the luminaires. Two considerations oppose this. The summer heat gains would be excessive and the heating method would obviously be straight electric-resistance heating, which is usually much more expensive than the use of oil, gas, coal, or the heat pump.

The Benesch Report to BRI is quoted by Fisher-Flynn in the matter of air quantities to be handled for the removal of luminaire heat. The outdoor replacement air *(Figure 2)* is often admitted at the rate of 27 cfm per office occupant to maintain freshness. About one-third of this added air is bled off through exhausts in toilet spaces. This leaves just about enough air, exhausted through the luminaire, to absorb and remove the 37 percent *(Figure 1)* of total luminaire heat that is not delivered to the room by light and invisible radiation. These air-handling rates might have to be varied for a number of reasons. Quite separate demands are made by the requirements for air freshness, pressurization of the space, toilet and other exhaust, and luminaire cooling. They must be co-ordinated.

[1] MECHANICAL ENGINEERING CRITIQUE, SEPTEMBER 1959 P/A.
[2] MECHANICAL ENGINEERING CRITIQUE, JANUARY 1960 P/A.

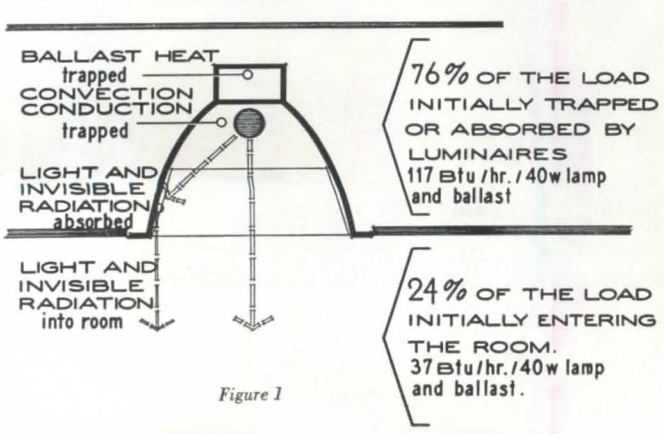


Figure 1

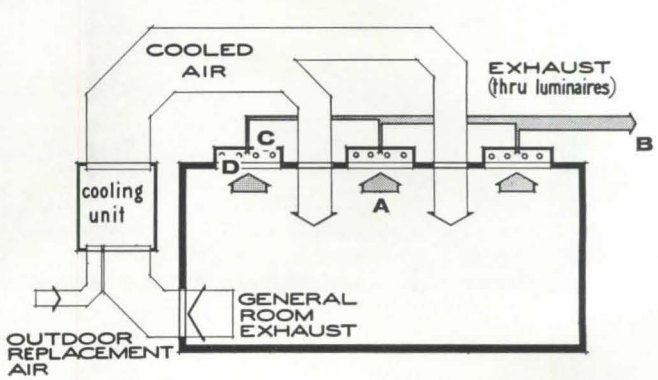


Figure 2

city garages: boost to retail sales or to traffic jams?

Dear Editor: My memorandum called "An Appraisal and A Proposal" *(excerpts below)* contains both a conscientious analysis of Traffic Commissioner Wiley's *Midtown Garage Program* for Manhattan, and a proposal for an alternate solution.

VICTOR GRUEN
New York, N. Y.

A $52,500,000 garage program for Mid-Manhattan has been proposed by Traffic Commissioner T. T. Wiley. This plan provides for the construction of 10,000 car spaces in 15 garages placed in the midtown area of Manhattan between 31 St. and 59 St. and between Second Ave. and Eighth Ave.

The stated *purpose* is to regain lost retail volume, and it is hoped that the plan will generate $100,000,000 in additional retail sales per year.

The *method* by which this additional retail volume is to be achieved is to attract customers from the metropolitan region who are presently doing their shopping in suburban centers.

The *reasoning* behind the proposal is that suburbanites do not come for their shopping activities to Manhattan for one reason: they cannot find parking space reasonably close to stores.

The *argument* is made that if the city would build 10,000 parking spaces in 15 midtown garages and if charges for the use of these parking spaces were such as to encourage fast turnover and discourage long-time use, then the stores would gain additional customers, sales volumes would go up, additional personnel would be hired, and an over-all economic gain would result for the city.

I believe this is a correct summary of the program and its justification. A number of questions arise. I state and answer some of the most obvious ones below:

will the midtown garage program achieve its stated aim?

1. *Is it true that lack of parking space is the only or even the major reason which keeps suburban shoppers from driving to Manhattan?*

1. Lack of parking space is by no means the only or even the major reason suburbanites prefer to do their shopping in suburbia. Other reasons are:
   - A The difficulties and time loss involved in driving on arteries leading toward Manhattan and on streets within Manhattan.
   - B The physical inconveniences which the overcrowded Manhattan environment imposes.
   - C The additional costs, consisting of parking fees and costs of car operation, which have to be applied to every purchase.

Therefore, it is highly questionable whether by providing 10,000 parking spaces, without at least partly eliminating the other deterrents (A, B, and C), the desired aims would be achieved.

2. *What are the means of transportation now used by shoppers who live in the metropolitan region but shop in Manhattan?*

2. Presently persons entering Manhattan daily do so by the following means of transportation:

By railroad	233,000
By rapid transit	1,970,000
By ferry	36,000
By trolley	3,000
By truck	92,000
By bus	246,000
By public transportation and truck	2,580,000
By private automobile *and* taxicab	736,000

Exact figures as to the breakdown between people entering by taxicab and those entering by private automobile are not at my disposal, but it may be assumed that about one third of the above combined figure should be applied to taxicab transportation. . . . Thus approximately 85% of all people coming to Manhattan below 61 St. do so by public transportation and by truck, and 15% by private car.

3. *What is the main purpose of the 3,316,000 persons who daily come to Manhattan (below 61 St.)?*

3. The main purpose, of course, is employment. It must be assumed, however, that the people who come to Manhattan to work are also customers of the stores.

(Continued on page 40)

PROGRESSIVE ARCHITECTURE published monthly by REINHOLD PUBLISHING CORPORATION, 430 Park Avenue, New York 22, N. Y. Ralph W. Reinhold, Chairman of the Board; Philip H. Hubbard, President and Treasurer; Fred P. Peters, Vice-President and Secretary; Alfred E. Fountain, H. Burton Lowe, Merald F. Lue, D. Bradford Wilkin, William P. Winsor, Vice-Presidents; Kathleen Starke, Assistant Treasurer. Executive and Editorial offices: 430 Park Avenue, New York 22, N. Y. Subscriptions payable in advance. Subscription prices to those who, by title, are *architects, engineers, specifications writers, designers* or *draftsmen*, and to government departments, trade associations, members of the armed forces, college libraries, college students, publishers, advertisers, prospective advertisers and their employes—$5.00 for one year, $8.00 for two years, $10.00 for three years. Above prices are applicable in U. S., U. S. Possessions, and Canada. All practicing architects and engineers *outside* U. S., U. S. Possessions and Canada—$10.00 for one year, $16.00 for two years, $20.00 for three years—ALL OTHERS: $20.00 for one year, $40.00 for two years, $60.00 for three years. Single copy—$1.00; special issues—$2.00 per copy. Printed by Publishers Printing Co., New York, N. Y.

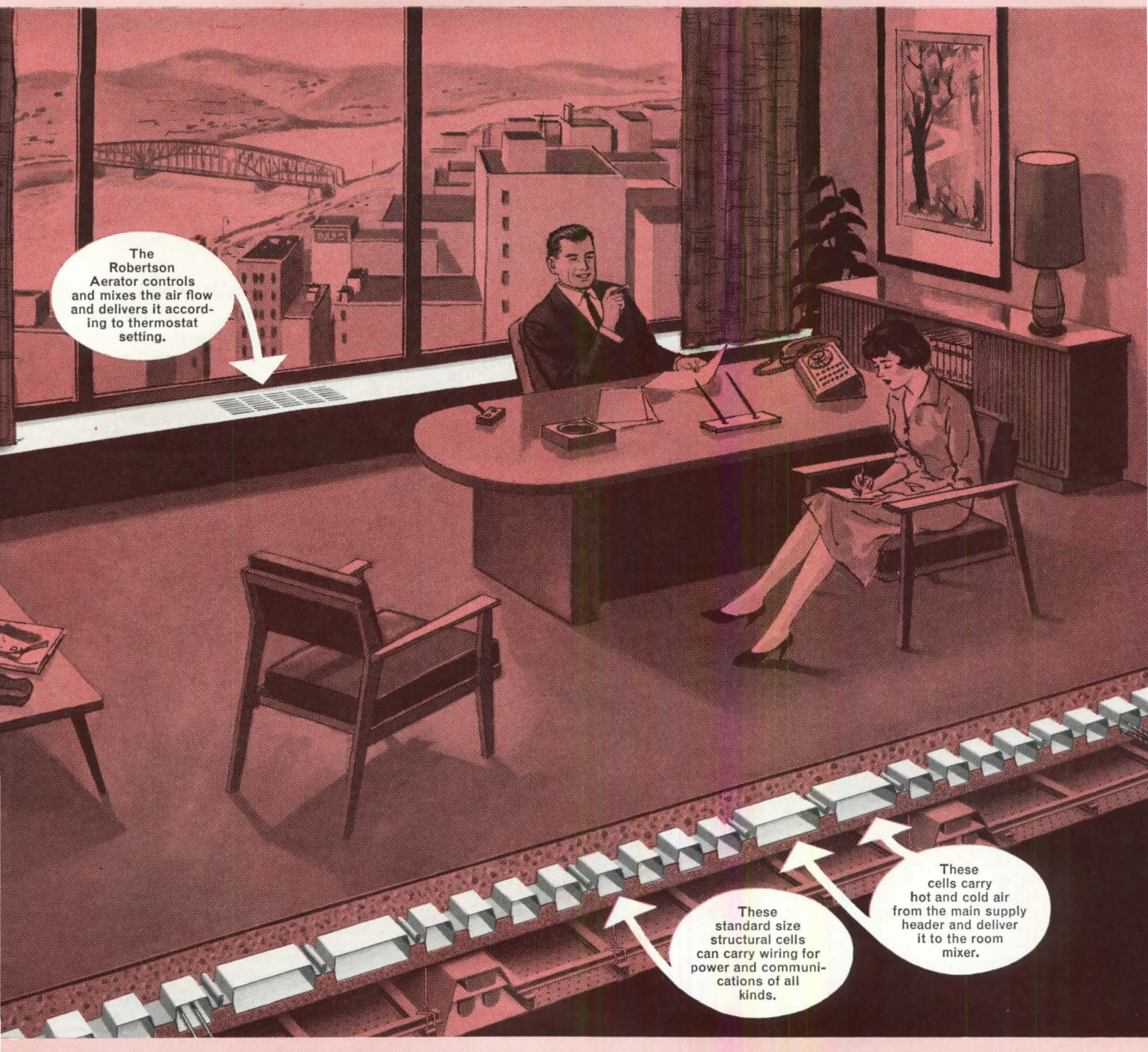
Indexed in Art Index, Architectural Index.

ABP

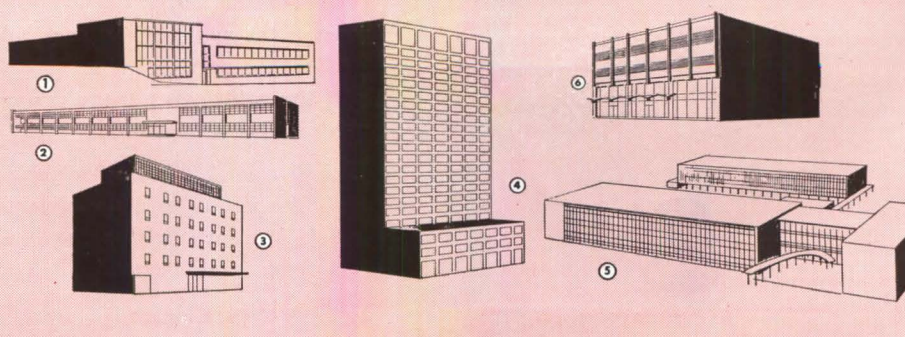
AUDITED PAID CIRCULATION ABC

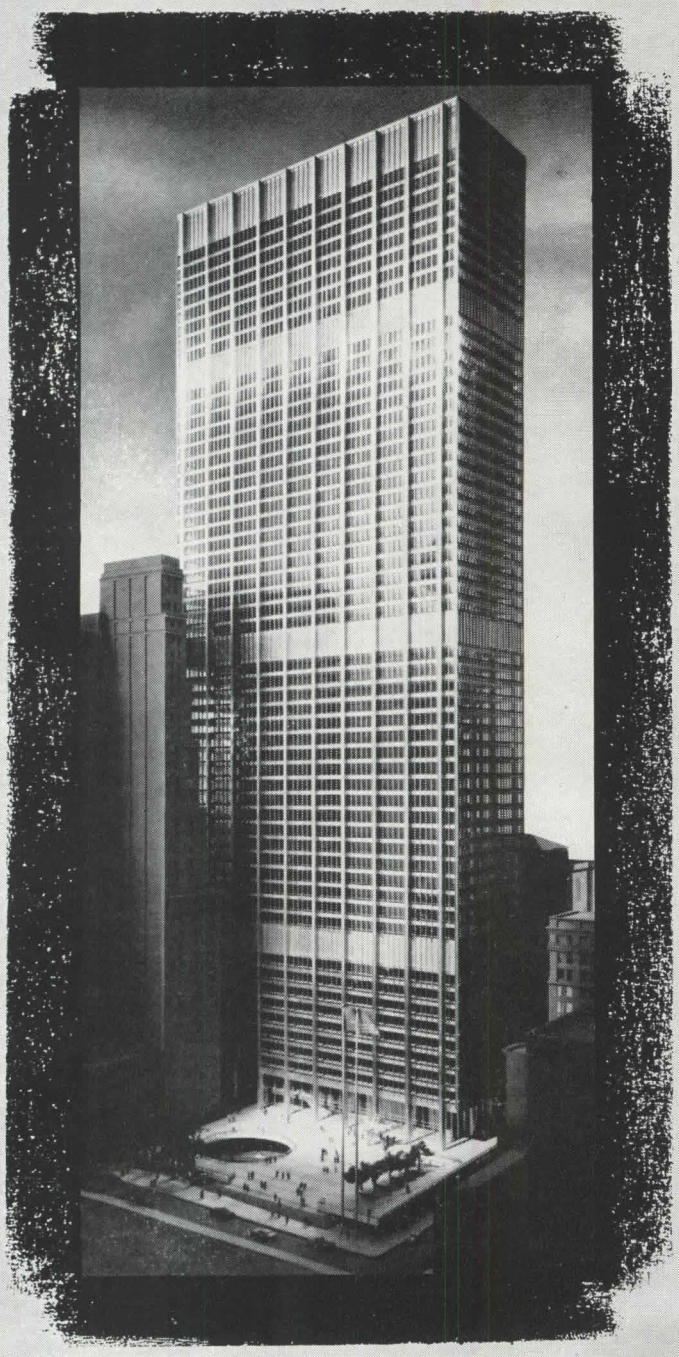
REINHOLD

NOW you can design an air-conditioned building for much less money with



Q-AIR FLOOR INSTALLATIONS INCLUDE: 1. Tennessee Eastman Company Industrial Relations Building, Kingsport, Tennessee. *Owner-designed and built.* 2. Police Headquarters Bldg., Fresno, California. Walter Wagner & Partners, Architects and Engineers; Lewis C. Nelson, Contractor. 3. MD Corporation, Pittsburgh, Pa. Gerard & McDonald, Architects and Engineers; Ragnar Benson, Contractor. 4. First National Bank Building, Fort Worth, Texas. Skidmore, Owings and Merrill and Preston M. Geren, Architects; Childs Construction Co.—W. S. Bellows Construction Corp., Contractors. 5. Morristown Headquarters Bldg., Jersey Central Power and Light Co. and New Jersey Power and Light Co., Morristown, N. J. Bernard Kellenyi, Architect; Blanchard Const. Co., Contr. 6. Tarrant County Savings & Loan Assn., Fort Worth, Tex. Hedrick & Stanley, Architects and Engineers; Thomas S. Byrne, Inc., Contr.





Beauty of glass is largely a matter of the reflections seen in it. Wiggly reflections—which mar beauty—are minimized with *plate* glass. *Twin-ground* plate glass gives you the truest reflections. And you always get twin-ground plate glass when you specify L·O·F ¼" *Parallel-O-Plate*® or *Parallel-O-Grey*®.

The Chase Manhattan Bank
head office building, New York.
Windows: L·O·F *Parallel-O-Plate* Glass.
Architects: Skidmore, Owings and Merrill, New York.
General Contractor: Turner Construction Co., New York.

LOF GLASS

PARALLEL·O·PLATE GLASS

LIBBEY·OWENS·FORD GLASS CO. *a Great Name in Glass*

TOLEDO 3, OHIO

(Continued from page 35)

4. *Should one assume that a significant number of inhabitants of the New York metropolitan region come to Manhattan for the sole purpose of shopping?*

4. This would be a highly unlikely assumption. Even in large suburban shopping centers which are much more easily approached by automobile, it has been found that residents who live more than 15 minutes' driving distance away will visit a regional shopping center only if they can combine their shopping activity with other pursuits. . . . Visits to Manhattan by inhabitants of the region are, in the overwhelming number of cases, undertaken to serve multiple purposes: Visits to Doctors' offices, theaters, museums, exhibits, galleries, restaurants, etc., are combined with shopping activities. Because of the multiple character, these visits extend over long-time periods—anywhere from six hours to a full day.

Parking garage/office building designed by Freidin-Studley Associates.

5. *Would visits of the nature described above be encouraged by the newly projected garages?*

5. Inasmuch as it is intended to establish parking fees in such manner that they would discourage long usage of the garages by "steeply rising fees," the garages would prove unsuitable for the prevailing pattern of Manhattan visits of regional residents.

6. *Is Commissioner Wiley's estimate that a midtown garage program would result in $100,000,000 in retail sales realistic, and under which conditions?*

6. The estimate of $100,000,000 to be created by providing 10,000 parking spaces appears realistic on the basis of experiences gained in large suburban shopping centers. . . . If a four-times turnover of parking space in the garages could be achieved (similar to the turnover in the parking lots of regional shopping centers), and if the municipal garages would be filled to capacity at all times, then Commissioner Wiley's estimate seems to be reasonable.

Summary: It is highly unlikely that the stated aims will be achieved. Because of the deterrents (Question 1) to driving into the city for short-time shopping trips, the garages will not be filled to capacity. Because of the characteristic pattern of visits to Manhattan (Question

(Continued on page 42)

SAINT PAUL, *Capital of Minnesota, is spending more than $150-million on a major redevelopment and expansion program. Formulated cooperatively by labor, business and government, it includes a $35-million interstate highway and bridge complex in the Capitol Plaza and central business district; $3½-million for two parking ramp projects; $30-million for six housing redevelopments; 28½-million for three hospitals; $15-million for five cultural and recreational buildings; and $29-million for seven public and institutional buildings. Industrially expanding Saint Paul, as the gateway to the Great Northwest, is the transfer point of nine railroads. As head of navigation on the upper Mississippi River, Saint Paul handles more than 5-million tons of cargo yearly. OTIS has a long-standing "quality" interest in Saint Paul's growth. Over 500 of its elevators are the world's finest. They're by OTIS.*

OTIS ELEVATOR COMPANY

260 11th Avenue, New York 1, N. Y.
Offices in 501 cities around the world

AUTOTRONIC® OR ATTENDANT-OPERATED PASSENGER ELEVATORS • ESCALATORS • TRAV-O-LATORS • FREIGHT ELEVATORS • DUMBWAITERS
ELEVATOR MODERNIZATION & MAINTENANCE • MILITARY ELECTRONIC SYSTEMS • GAS & ELECTRIC TRUCKS BY BAKER INDUSTRIAL TRUCK DIVISION

Baker® industrial trucks

(Continued from page 40)

4) the turnover will be considerably less than four times. The garages will be used at least partially by persons who do not intend to shop but find the new municipal garages more conveniently located and lower priced than those they use at present. Because of the combined impact of the conditions discussed above, it must be assumed that the retail-sales volume generated through the midtown garage program will be considerably smaller than estimated.

would the gains be real or offset by losses?

1. *Assuming, however, that the garages would function in the manner visualized by Commissioner Wiley and that short-term use of garage spaces would take place, what would be the probable influx of automobiles?*

1. Assuming a four-times turnover and an average 2-hour stay during an 8-hour period, 40,000 private automobiles would be newly attracted into the Manhattan midtown area during the business day.

2. *What is the available traffic capacity of avenues and streets in the midtown area of Manhattan?*

2. The area in which the garages are to be located occupies roughly the stretch between 31 St. and 58 St. in the north-south direction and between Third Ave. and Eighth Ave. in the east-west direction. Thus there are available for automobile traffic 8 avenues with 4 traffic lanes each (together, 32 lanes). Assuming an average block length of 200 ft and taking the 27 blocks between 31 St. and 58 St. into consideration, this amounts to 172,800 feet of traffic lanes. Assuming that 28 cross streets have two traffic lanes each and assuming that each block is on the average 600 ft long, there would be available altogether on the cross streets 235,200 ft of traffic lanes.

   Thus the entire available length of traffic lanes in the midtown area is theoretically 408,000 ft. In order to take into consideration actual conditions, such as construction work on buildings adjoining these streets, construction work on the sewers and underground cables, and the unavoidable breakdowns in traffic, a deduction of one third should be made. Thus, actually available for traffic purposes are 272,000 ft of traffic lanes.

3. *How much traffic space will be occupied by the automobiles driving to the projected garages and exiting from them?*

3. If 40,000 cars would be using the garages and if this usage were spread evenly over the day (which is an extremely optimistic assumption), then 5000 automobiles within each hour of an 8-hour day would enter the garages and 5000 automobiles would leave. Within any given hour, therefore, 10,000 automobiles would be on their way through the midtown area into and out of garages.

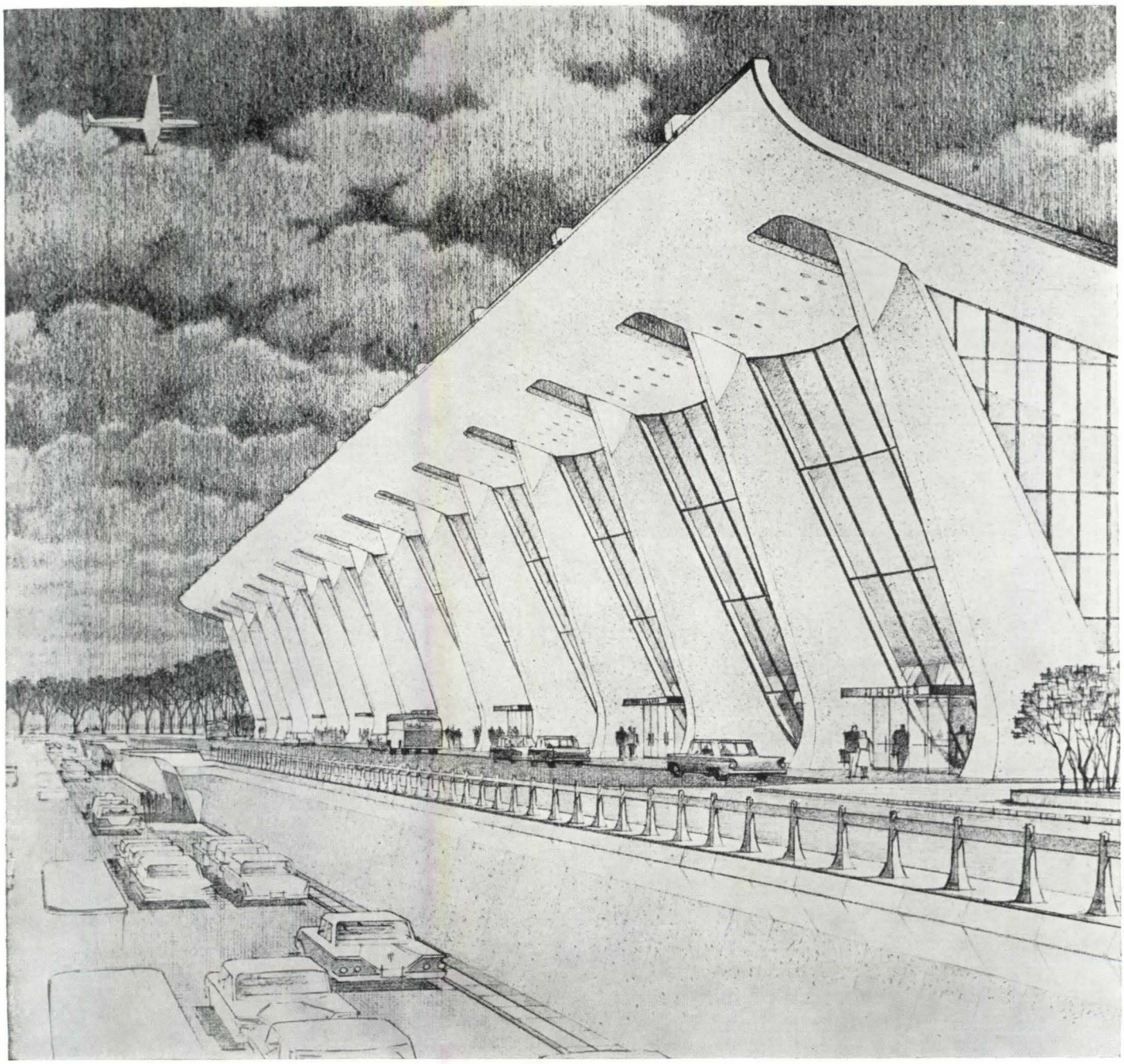
   Each car, in order to move at a

(Continued on page 46)

PROGRESSIVE ARCHITECTURE MARCH 1960

NEWS REPORT

Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products



Striking façade of Eero Saarinen's Dulles International Airport Terminal for Washington, D. C., is 600 feet long—half eventual length.

Why the architect specified

*Ironbound** CONTINUOUS STRIP* HARD MAPLE

One of the outstanding recreational centers in the 50th state is in Honolulu's Palama Settlement. It includes a spacious gymnasium with the finest hardwood floor in the islands – a beautiful Ironbound installation.

This Ironbound floor was chosen for more than its natural beauty and uniform resiliency – it is the *right* floor for Hawaii's climate, too. The hard maple flooring, laid over cork underlayment directly on a concrete slab, is interlocked with sawtooth steel splines for control of normal expansion and contraction. The flooring was also treated with Woodlife preservative to double the normal retention for positive protection against termites and excessive moisture absorption.

Important, too, was the fact the architect and owners knew Robbins stands behind this floor and sees that it's properly installed.

Indeed, Ironbound was a happy choice for Honolulu, as it has been for thousands of gymnasiums throughout the other 49 states and Canada. For literature and the name of your nearest installer, write Robbins Flooring Co., Reed City, Mich., Attn: Dept. PA-360

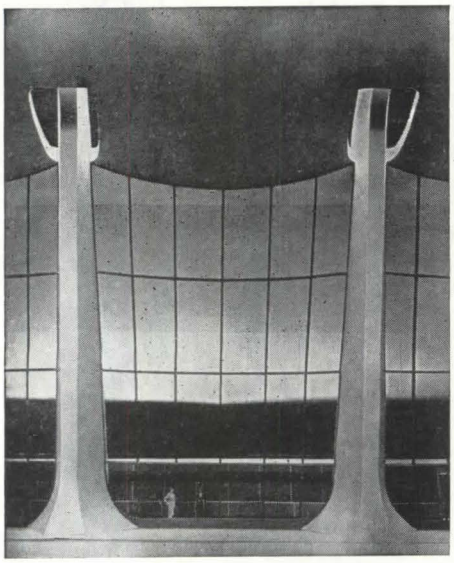
Material for the Palama Settlement Gymnasium was Dri-Vac treated. Specify certified Dri-Vac treatment with Woodlife for wood floors. For unusual conditions, special retentions are available.

*T.M. Reg. U.S. Pat. Off.

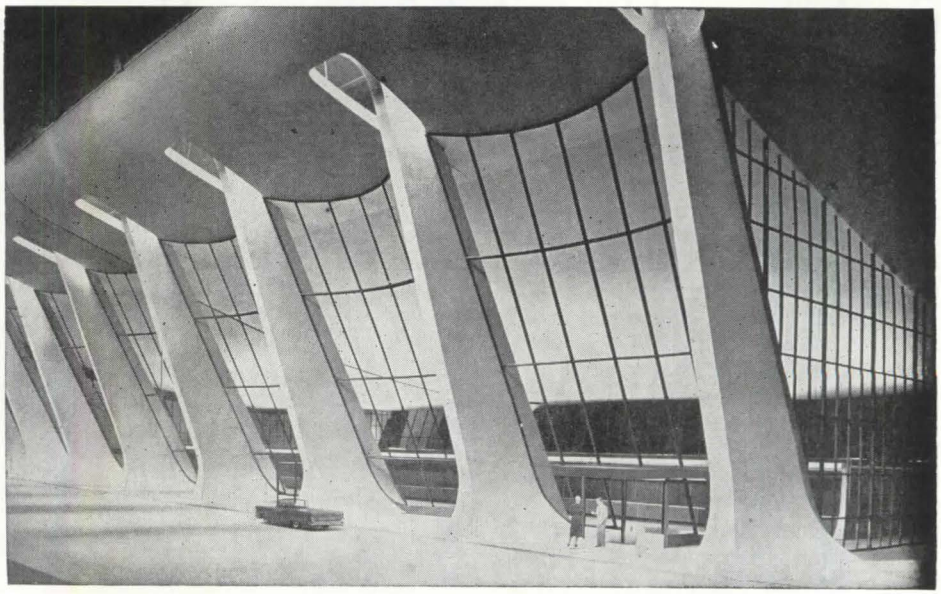
ROBBINS flooring company

MAKERS OF MODERN MAPLE FLOORS

REED CITY AND ISHPEMING, MICHIGAN



Detail shows how piers will pierce concave terminal roof.



Slope of columns protects passengers entering huge terminal.

Washington to Get a Swooping Saarinen Air Terminal

Dulles Airport Designs Revealed

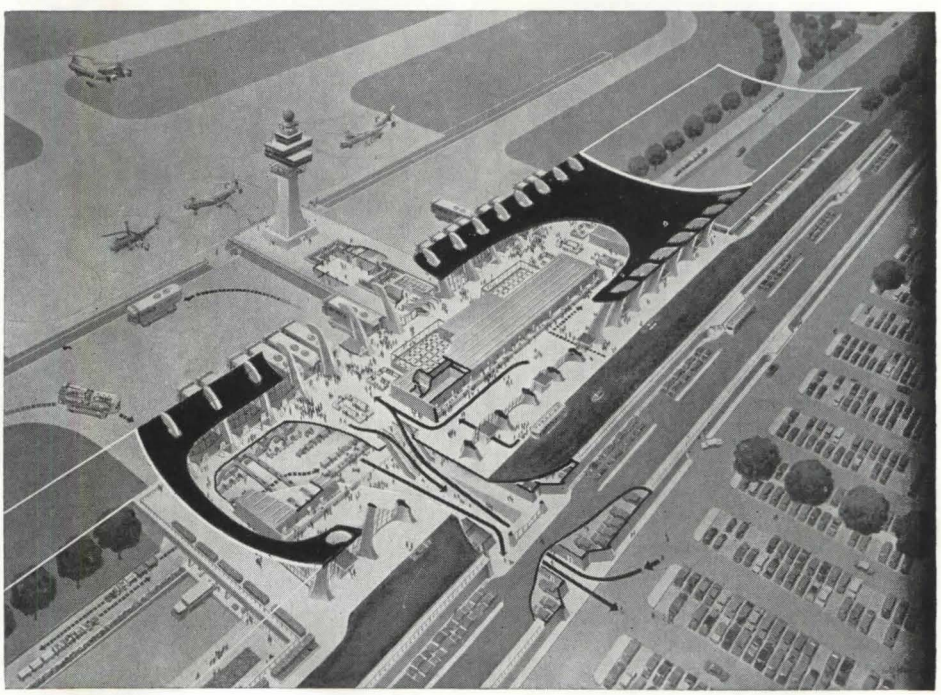
WASHINGTON, D.C.—For the terminal building at Washington's Dulles International Airport, Eero Saarinen & Associates has designed a structure rivalling for drama Saarinen's design for the TWA terminal at New York International Airport.

Sweeping structure of the terminal will be of massive concrete piers supporting a cable-hung roof. Fifteen columns 40 ft apart will be placed on either side of a vast concourse. Columns on the field side will be 40 ft high, those on the entrance side 65 ft high. The piers will soar upwards and outwards, counteracting the pull of the cables and providing shelter at entrance and "docks" for Mobile Lounges on the field side.

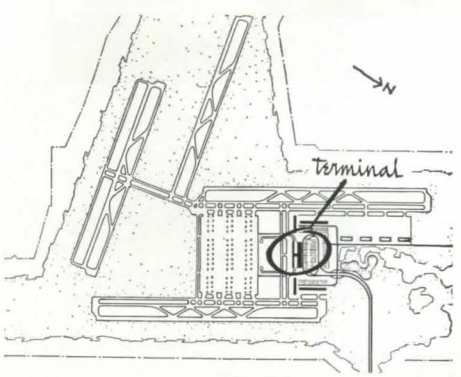
The Mobile Lounge system (p. 100, MAY 1959 P/A) abolishes "finger" plan terminal. Passengers, after checking in at the ticket desk, simply cross the concourse and walk into what appears to be a small room. Room is actually a bus which transports passengers to the waiting plane where they enter the aircraft without ever having been outside. Concept is somewhat similar to one proposed by Victor Gruen and Edgardo Contini in 1957 (pp. 108-110, DECEMBER 1957 P/A).

Separation of traffic between enplaning and deplaning passengers has been achieved by placing these activities on two levels. The outbound passenger will dismount at the entrance directly in front of his airline. Ticketing and baggage counters will be just inside the door, obviating long walks loaded with bags. Passing this area, he will enter the grand concourse concession area, past which will be the entrances to the Mobile Lounges. The deplaning passenger will be driven from his plane to the terminal via the Lounges, whence he will take an escalator to the lower level for baggage processing. Exits from this level will have direct access to transportation. Approaches from parking lots to the grand concourse may be made up the escalators.

Engineers for airport are Amman & Whitney; Ellery Husted is master planning consultant; Burns & McDonnell are consulting engineers on terminal.



Cutaway drawing shows separation of incoming and outgoing traffic.



Site plan gives relation of terminal to rest of airport.

Prototype Hospital Accents Progressive Patient Care

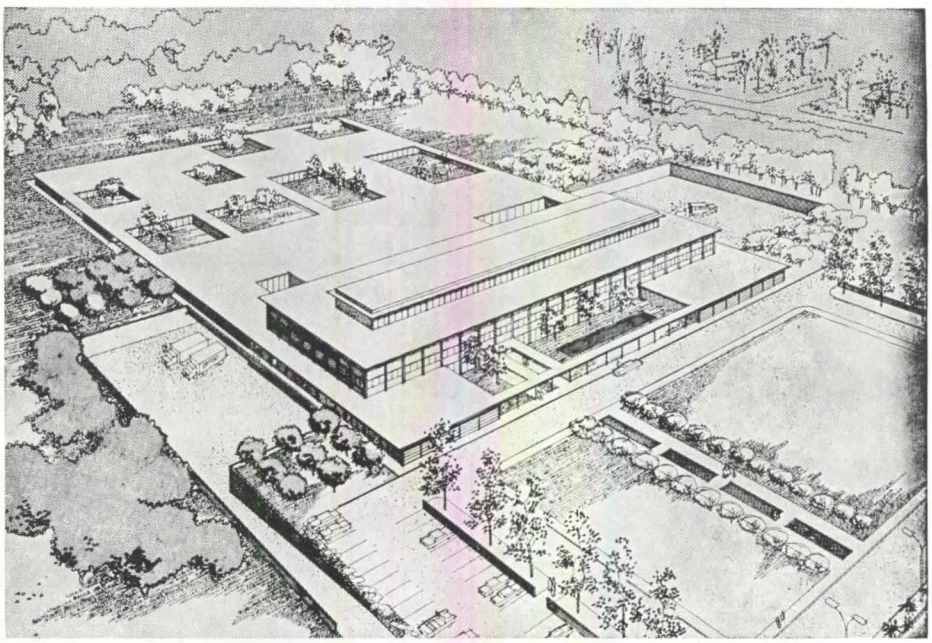
Plan Appropriate for a Typical American Town

A new view of the "progressive patient care" system of hospital planning has been introduced in the form of a prototype hospital design by Associated Architects Ballard, Todd & Snibbe and Robert W. Hegardt. Developed at Manchester (Conn.) Memorial Hospital a few years ago by U. S. Public Health Service and Manchester Director Edward J. Thoms, progressive patient care emphasizes planning based on individual needs of patients as they progress from sickness to health.

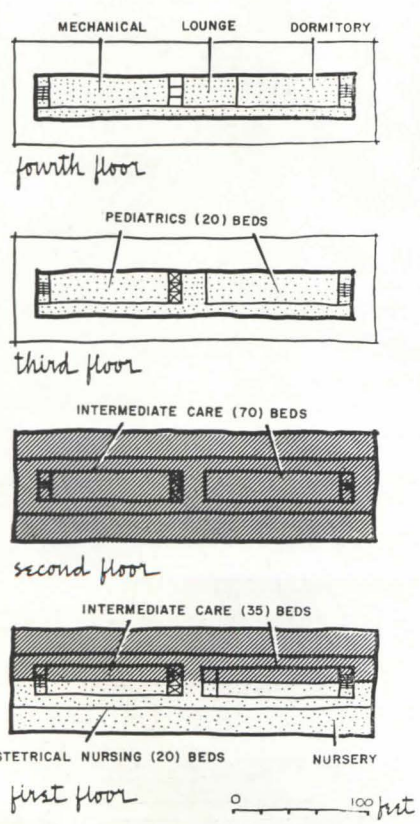
The prototype hospital is principally a one-story structure, with three floors above the main element for intermediate care and pediatrics. Intensive care beds are located next to the surgical and delivery suite, self care wing is connected to the main building by a passageway, and long term care patients occupy a separate wing.

Despite the progressive care nature of the scheme, its units seem to be a little too rigidly separated. Most authorities agree that there should be "gray"—or flexible—areas between elements to provide care service for patients who fall between two stools, so to speak.

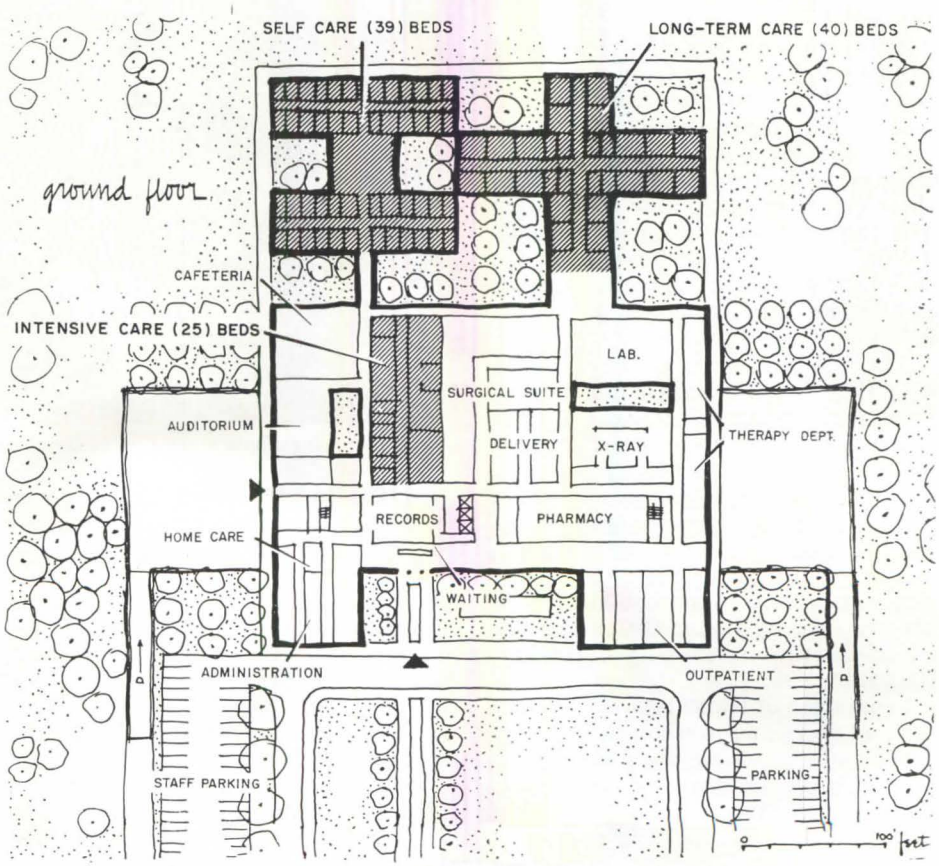
Commenting on this problem to P/A, Director Thoms said, "Semantic-wise we have changed from grey areas to flexible areas and in our preliminary research report soon to be published we definitely established the imperativeness of flexible areas between the Intensive Care Zone and the Intermediate Care Zone. We have not started research work yet on the flexible area between the Intermediate Care Unit and the Self-Care service. However, our experience here at Manchester points out the need for this flexibility and we hope to document this through research in the future."



Prototype progressive patient care hospital requires 10-acre site.



Intermediate care, obstetrics, pediatrics are in upper floors.



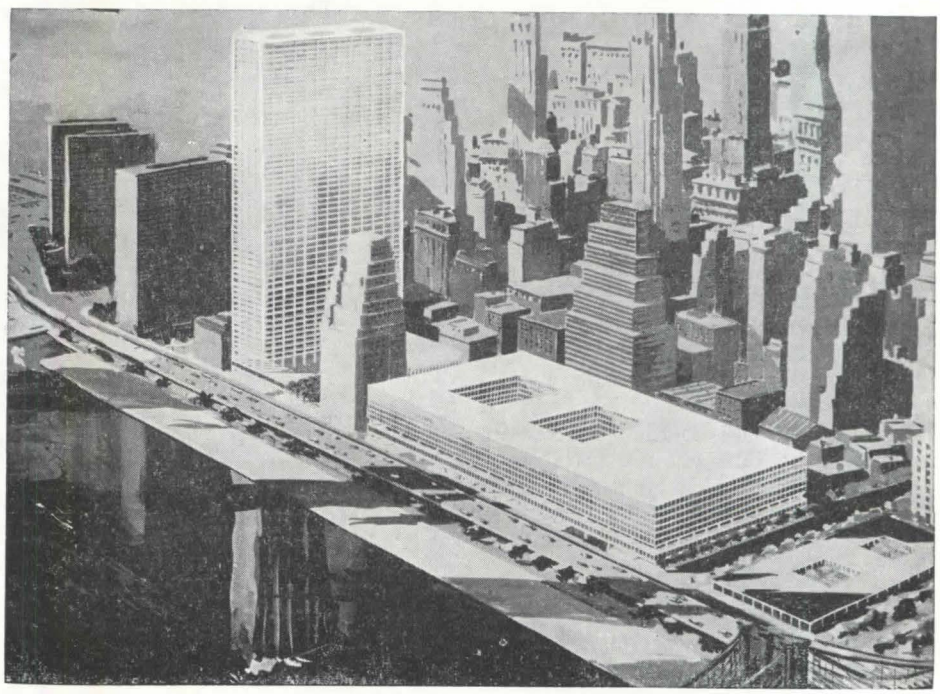
Intensive, self, and long term care occur on ground floor.

International Trade Mart Proposed for New York

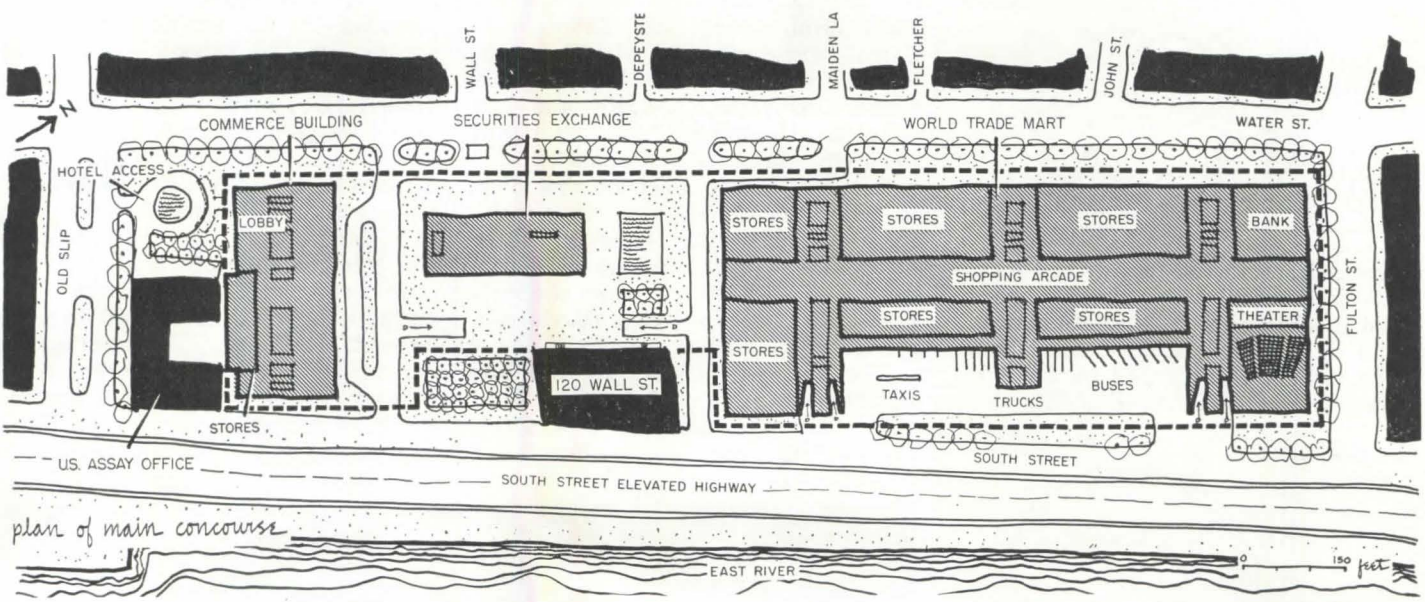
Would Be on East River At Foot of Wall Street

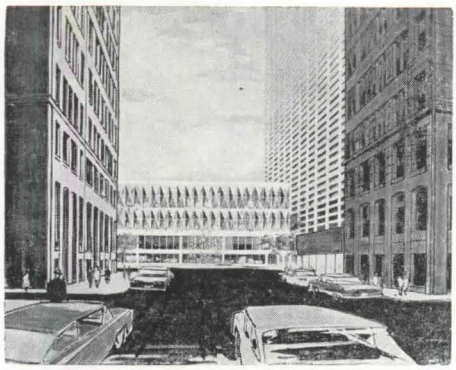
NEW YORK, N. Y.—Ambitious plans for a mammoth World Trade Center in downtown New York have been proposed to the Governors of New York and New Jersey and the Mayor of New York by the Downtown-Lower Manhattan Association, Inc. Preliminary architectural studies and sketches were made by Skidmore, Owings & Merrill.

The Center would have three major elements: a World Trade Mart, a World Trade Center Commerce Building and a Central Securities Exchange Building. The Mart would contain office and display space for trade activities, receiving and storage space for exihibits, restaurants and shops, space for commodity exchanges, and such areas as library, transient office space, and stenographer pools. The 50 to 70 story Commerce Building would house U.S. and foreign business firms, banking houses, and brokerage firms dealing in the international field. Ten floors at the top of this building would house a 500-700 room hotel to accommodate traveling magnates. A world-trade club with facilities for meetings, banquets, and dining would occupy the last two or three floors. The Exchange Building would provide a central securities market place for the world's greatest port. Officials of the New York Stock Exchange have expressed willingness to entertain such a project. The three buildings would sit on a vast pedestal which would include arcades and shops.

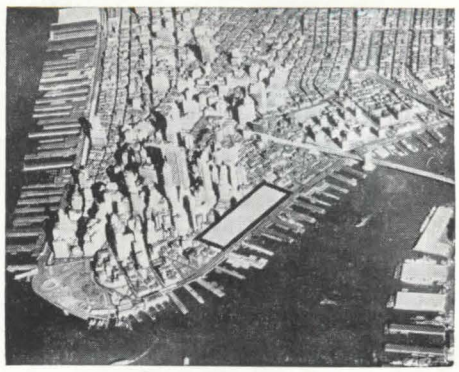


Seagull's-eye view of trade mart as seen from over Brooklyn Bridge.



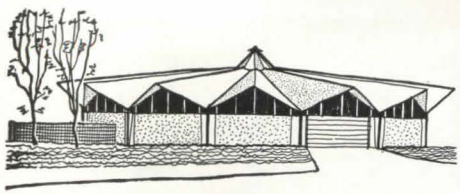


Looking east on Wall Street, base of trade mart would be seen.



Aerial photo of New York shows site of proposed trade mart.

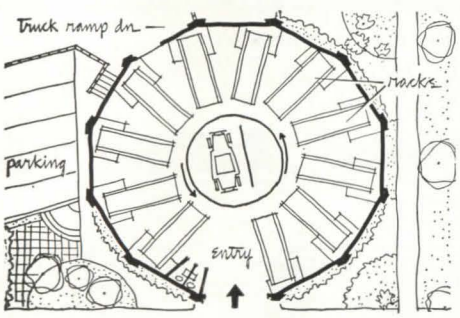
Muffler Shops Use Roundhouse Principle



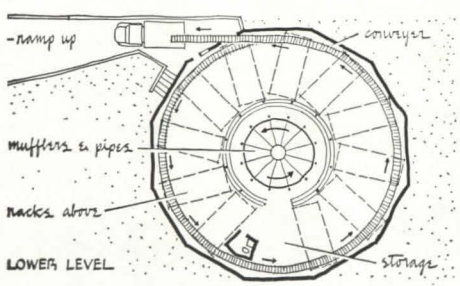
DETROIT, MICH.—"Run into the roundhouse, Nellie, that muffler can't corner you there!" might be the cry of Detroiters soon, when the first muffler installation shop designed by Hawthorne & Schmiedeke is erected.

The architect's commission was to plan, design, and standardize facilities for a chain of muffler installation shops to be built in major cities of the Great Lakes Region. The shops must accommodate a quick turnover in trade with as little building cubage as possible.

A reworking of the locomotive-roundhouse concept emerged as the most feasible proposal. The car to be

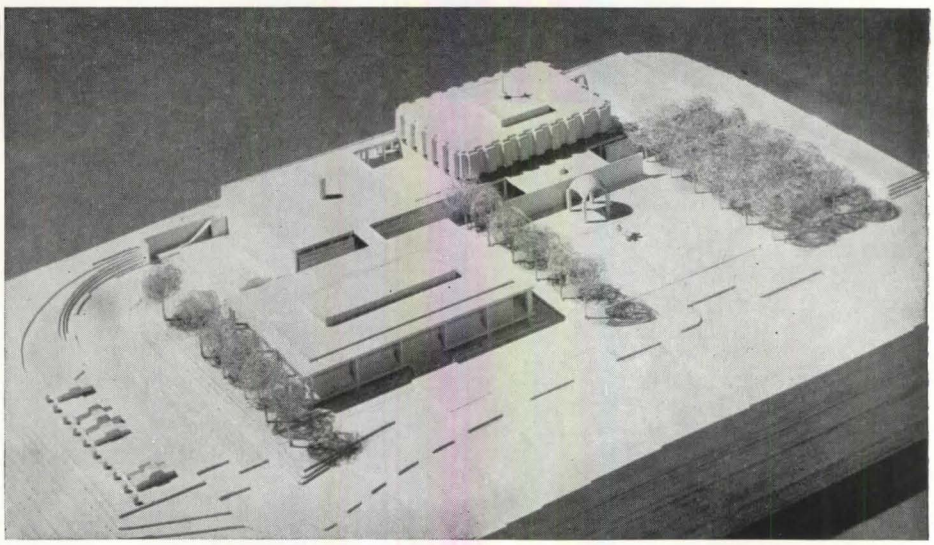


serviced enters the garage and moves onto a turntable; this platform turns and discharges the car automatically into an empty, channel-tracked stall. The patient is operated on from below, where mechanics obtain new



parts and other supplies from a revolving Lazy Susan at center of the shop. Old mufflers and pipes are collected on a circular conveyor and carried to a waiting truck on the outside. When repairs are complete, the car moves back onto the turntable, and is turned toward the exit.

Exterior walls are to be of specially-designed, textured block. Glass in the gables will provide adequate daylighting.



Entrance to chapel is under cupola over fountained plaza.

Prelate's Residence Has Dual Spirit

Temporal, Spiritual Are United in Design

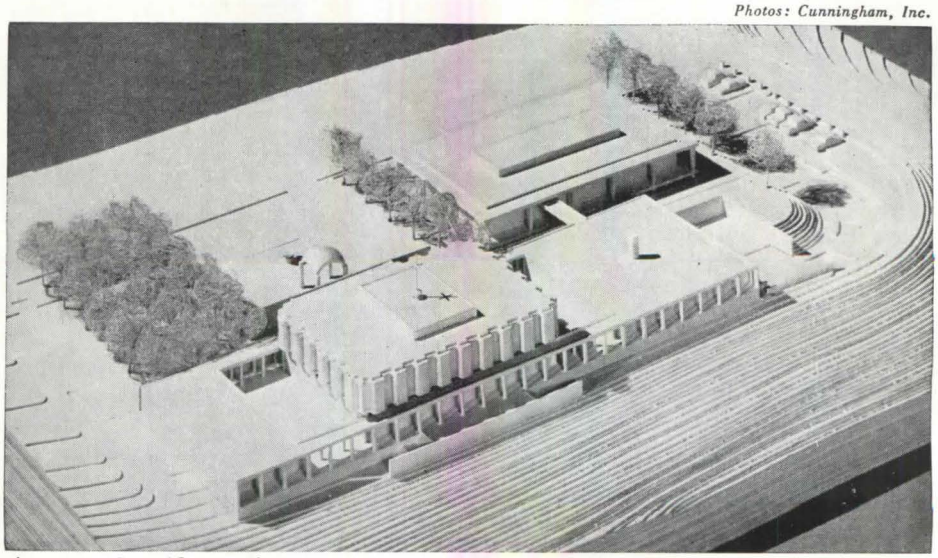
ST. PAUL, MINN.—In designing the archbishop's residence and chancery for the Catholic Archdiocese of St. Paul, Minn., Architects Thorshov & Cerny were confronted with the problem of combining temporal administration of church affairs and the spiritual atmosphere to be reflected in the living quarters and chapel of the prelate's residence. Decision was made to treat each element according to its function, hence, the chancery, where business is transacted, is an open, pavilion-like structure, while the residence is turned in facing courts surrounding the chapel.

The chancery houses a reception room and waiting areas for the public, offices for the archbishop and his priests, conference rooms, library, and general office space. Floor-to-floor galleries surround it on all four sides, giving an hospitable appearance.

The cloistered residence area has as its dominant element the chapel centered between two courts. These courts serve as meditative areas and also separate the living quarters of the archbishop and priests on one side and those of the nuns on the other, from larger, more formal spaces towards the front of the building. Public areas, including consultation spaces, court yards and waiting rooms are always discreetly separated from private courts, areas for meditation, and cloistered corridors.

Materials will be reinforced concrete with brick floors and exposed-concrete ceilings. Terra-cotta sun screens on the west will emphasize the privacy of the residence in contrast to the chancery's openness. Galleries of chancery also show difference.

Photos: Cunningham, Inc.



At rear of residence, living quarters have open promenade.

Development Keynotes ACTION Conference

Housing Design Created by Impressive Team

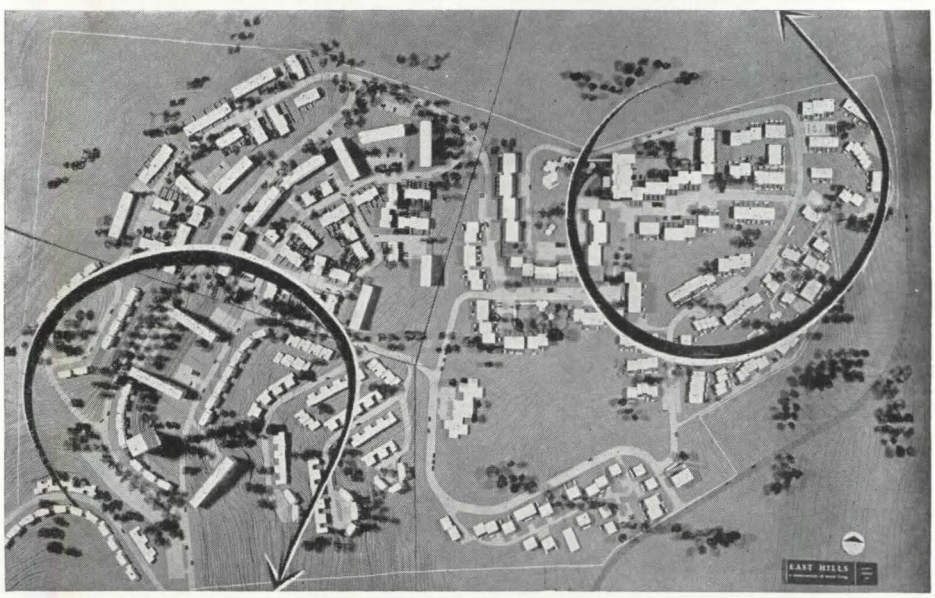
PITTSBURGH, PA.—A stellar group of architects created a design for a residential development which was the highlight of the ACTION-Housing, Inc. annual conference here recently. B. Kenneth Johnstone; Carl Koch & Associates, Inc.; Sert, Jackson & Gourley; and The Architects Collaborative collaborated with housing expert Burnham Kelly and ACTION research head Martin Meyerson on a program for the development of Pittsburgh's East Hills, currently 130 acres of abandoned mines and rocky terrain. Representatives of the architectural firms, in a unique program, presented the project before the client to an audience composed of prominent architects, city planners, educators, redevelopment officials, and editors.

The designers capitalized on the rugged hilly site by creating levels for groupings of different types of housing. One technique of achieving varying elevations will be to make wide shelves of nearly level ground by digging coal from what was once a strip-mining bed. Some costs of the project could then be defrayed by sale of the coal.

East Hills will be for low-, middle-, and high-income groups, and will be an integrated community. A wide variety of living units will be erected: low-rise and high-rise apartments, town houses, duplexes, detached dwellings, and garden apartments. Some units will be stacked in seven or eight levels, with access provided by slope of the land. All but 114 units will have a private garden. The highest point of East Hills enjoys a view all the way to Pittsburgh's Golden Triangle. This site will be made a park.

Neighborhood groups will have their own common facilities such as nurseries and play areas, swimming pools, and adult recreational areas. Within individual dwelling units, the aim of the architects was privacy and isolation. Precast concrete walls will contribute acoustic separation, and private walled gardens will insure visual privacy.

Architects and ACTION officials have placed much emphasis on designing with more freedom from land and building regulations, and also with creative use of new materials. Cooperation on this project is expected to show design advances possible when architect and developer are not hampered by codes and controls.



Closeup photos of model show different housing types within groups.

Designs for Mid-East University Revealed

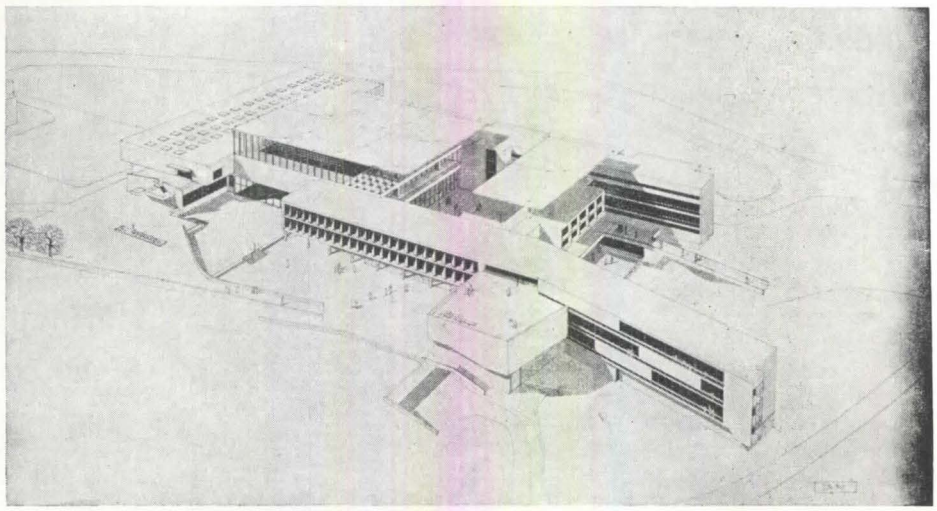
Project by Turkish Team Wins Competition

ANKARA, TURKEY—Designs by a hometown team of architects has won first prize in the international competition for the creation of the all-new Middle East Technical University here. A Jury composed of G. Holmes Perkins, U.S.; Sir Hugh Casson, Great Britain; Steen Eiler Rasmussen, Denmark; and Sedat Eldem and Mustafa Inan, Turkey, selected the scheme by the impressively named firm of Turgut Cansever, Ertur Yener & Mehmet Tataroglu.

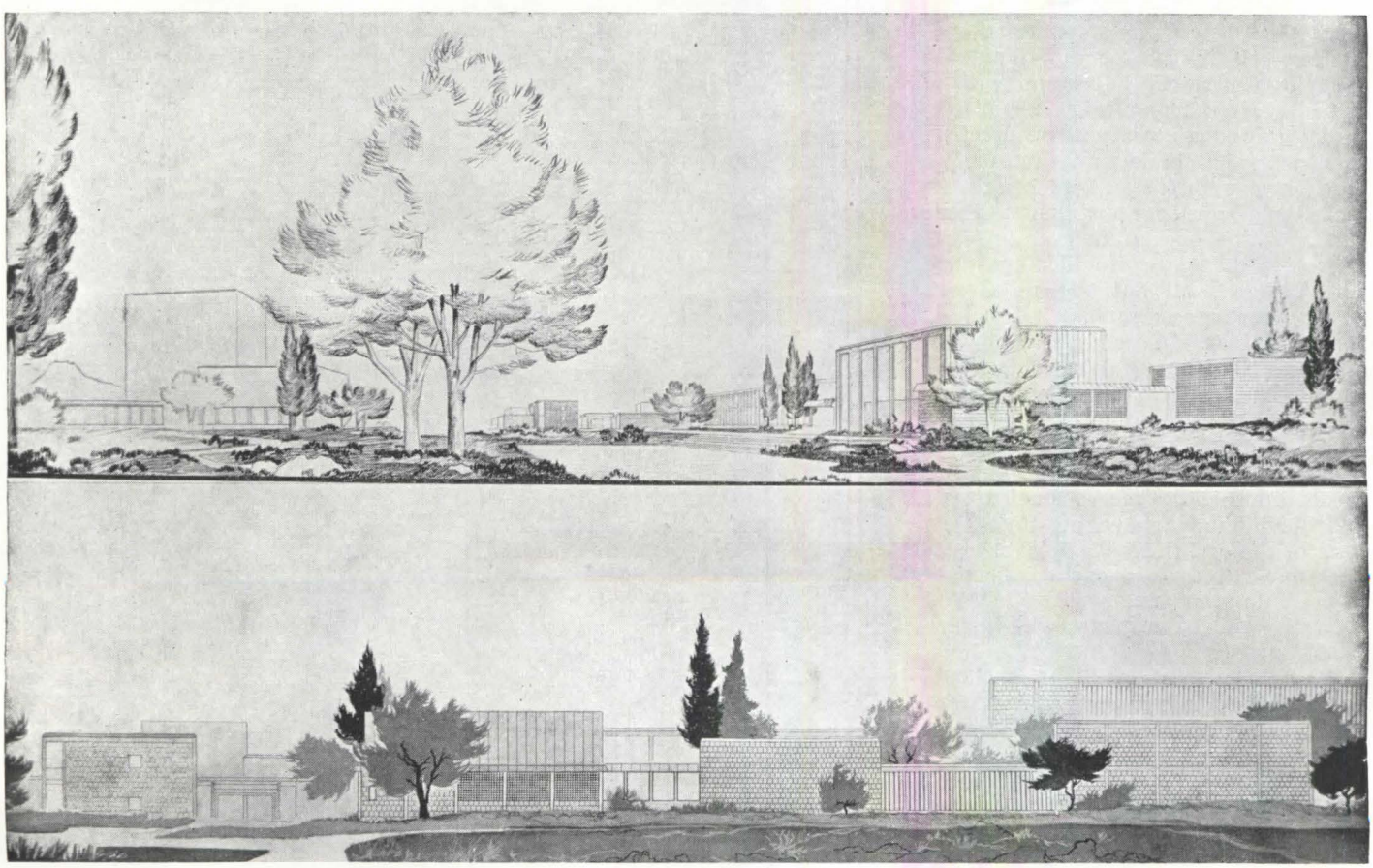
The university, chartered only last year, already has more than 500 students and expects a student body of 20,000 within the next dozen years. The first units will provide living quarters for 900 students, plus faculty housing. Dr. Edwin S. Burdell of The Cooper Union will be Consultant President of the University beginning this month (page 75, FEBRUARY 1960 P/A).

The Jury recommended the completion of seven elements by fall of 1962: dormitories, School of Administrative Sciences, School of Arts and Sciences, university library, engineering laboratories and offices, faculty housing, and central core walks and arcades. The campus is planned so as to permit an orderly development outward from a central core. The central green and courts of all the schools will be reserved for pedestrian use, and all buildings will be less than a ten minute walk from any other. Automobiles will be parked away from academic areas. The architects disposed the buildings on the site so as to make full use of views to Ankara, the hills, and the citadel. The Jury commended the plans for use of native stone and palette of subdued colors, avoidance of excessive mechanical equipment; and protection of buildings against hot sun and cold winter winds.

Second prize in competition was won by U.S. Team of Charles Scurlock, Burton Kampner, Edward Hammarskjold, and William Muschenheim.



Jury liked umbrella-like canopies featured by the U. S. winner.



Elevations of Middle East Technical University show close scale relationship between buildings.

Newark Redevelopment Sparked by Mies Apartments

Buildings to Occupy Only 10% of Site

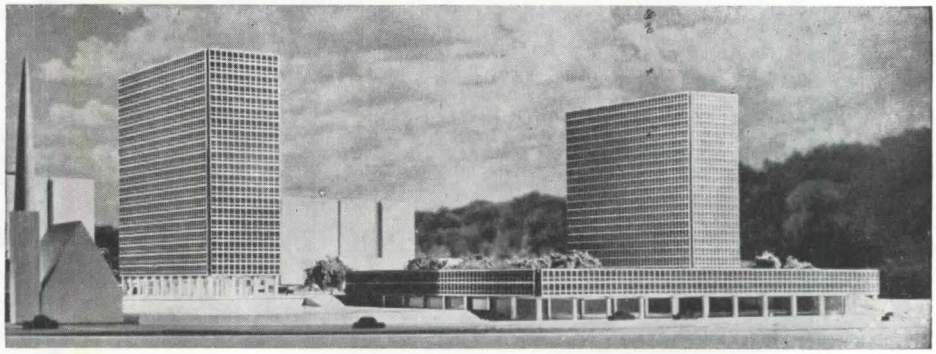
NEWARK, N. J.—This city, which has recently seen designs for a wholesale redevelopment of its downtown business center, will soon witness occupancy of a 1240-apartment middle-income residential development designed by Ludwig Mies van der Rohe. (For more news of Mies, see page 67.)

Colonnade Park, as the development is called, consists of two 22-story "Pavilion" buildings facing each other, and a 440-ft-long 22-story "Colonnade" building across Branch Brook Park. Construction is concrete-and-steel frame, with curtain walls of natural aluminum and tinted glass. The "Pavilion" buildings contain studio-efficiency apartments and one- and two-bedroom apartments. The Colonnade structure includes larger units. All three buildings have the lofty lobbies, floor-to-ceiling windows, and crisp detailing which distinguish such Mies structures as the Lake Shore Drive apartments in Chicago and Seagram House in New York.

By directing the buildings upwards rather than giving them horizontal expression, Mies has used only 10% of the 30-acre site. The remainder will be landscaped with walks, gardens, terraces, lawns, and play areas. Lobbies of each apartment house will be inset to provide two-story-high loggias around the buildings.

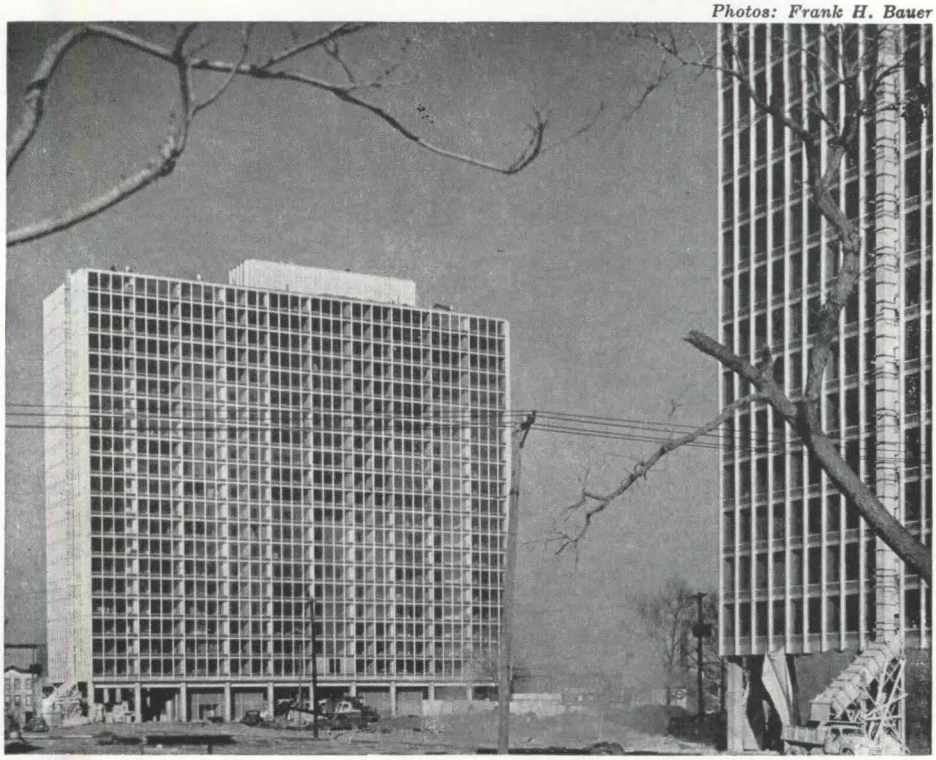
The Newark buildings comprise just one of a number of projects Mies van der Rohe has designed for Metropolitan Structures Inc., a Chicago and New York building organization. Across the street from Pratt Institute in Brooklyn, two Mies-designed buildings are scheduled to join a residential project known as Willoughby Walk; these apartments will contain 962 units. In Detroit, the first units of Lafayette Park have been completed. This apartment development will eventually consist of five 22-story high-rise apartments and 300-plus one- and two-story garden-court apartments.

Metropolitan Structures is successor to Metropolitan Corporation of America. Pres. Bernard Weissbourg says that "good design policies of firm will continue to be pursued."

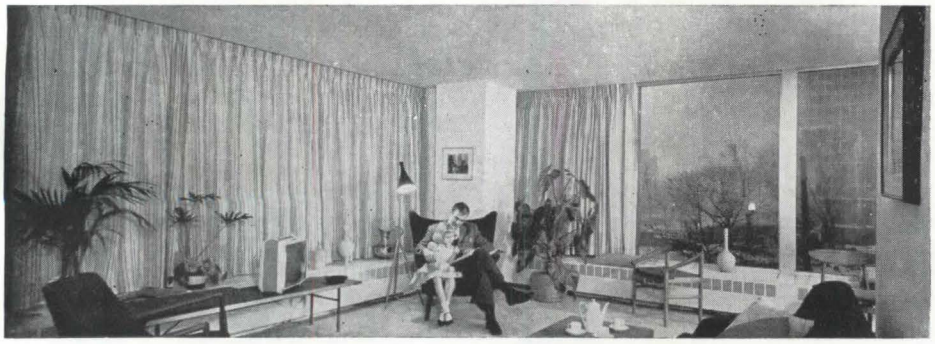


Model shows relation of apartments to each other on the site.

Photos: Frank H. Bauer



Two "Pavilion" buildings face each other over future landscaping.



Mies' trademark—window walls—distinguish apartments.

Miesian simplicity is evident in close-up of apartment building.

PERSONALITIES

On the evening of April 21, at American Institute of Architects Convention in San Francisco, LUDWIG MIES VAN DER ROHE will receive that organization's highest honor, the Gold Medal of AIA. Mies is the second Bauhaus pioneer (he was its last director, 1932-33) to be belatedly recognized by the Institute — WALTER GROPIUS received the medal last year.

Upon the closing of the Bauhaus by the Germans in 1933, Mies practiced in his home country for five more years before his repugnance for Nazism caused his emigration to the United States. Here, he promptly began what was to become one of the most renowned teaching careers in architectural history when he undertook the directorship of the architectural department of Armour Institute. His twenty years with the school (which later became Illinois Institute of Technology) influenced the entire texture of U.S.—and world—architecture. A reserved, shy man who would prefer to throw up a smoke screen from his famous cigar than to make a speech—as he will have to do on April 21—Mies is already the recipient of almost all significant architectural honors, including the Gold Medal of Royal Institute of British Architects. He is the subject of a forthcoming book from Reinhold Publishing Corporation.

P/A regrets that, due to circumstances beyond its control, credits for the First Design Award-winning project (pp. 100-107, JANUARY 1960, P/A) were incomplete. Associated architects for Marin City, Calif., redevelopment were noted architects and town planners MAYER, WHITTLESEY & GLASS, New York. . . . P/A's Washington reporter predicts next investigation on agenda of Sen. ESTES KEFAUVER is building materials prices; expected to uncover many mare's nests. . . . 1st prize winners of "Creative Living" Design Competition sponsored by Textile Fibers Dept. of Dow Chemical Company, makers of "Lurex," are Architect JAMES MORRISON LEEFE and Fabric Designer MIRIAM LEEFE; Mr. Leefe is currently working on a book on light building construction for Reinhold. . . . HAROLD A. CARLSON, Perkins & Will, Chicago, received landscape design award from Iowa chapter of American Association of Nurserymen. . . . AIA legal counsel JOHN T. CARR LOWE retired and was replaced with SAMUEL SPENCER. . . . Service of AIA Executive Director EDMUND R. PURVES on Advisory Board of Contract Appeals for AEC was honored with a citation. . . . New President of Hawaii Chapter AIA is FRANK S. HAINES.

When MORRIS KETCHUM took over as President of The Architectural League of New York two years ago, that organization was moribund and almost unknown to the general (and even some of the professional) public. Today, after two terms of Ketchum's leadership, the old place is coming alive with increasing membership, interesting programs, and better member participation. Some old hat Beaux-Artsy vestiges still remain, such as that perennial joke the Small Sculpture Competition, but by and large the League has had a renaissance which could be the envy of any professional group. The League-sponsored 1960 National Gold Medal Exhibition of the Building Arts is currently drawing viewers at New York's Museum of Contemporary Crafts. Prepared from previous League exhibits with the co-operation of the American Craftsmen's Council and the American Federation of Arts, the show will tour the country under AFA auspices when it closes in New York.

Partner with J. STANLEY SHARP in the firm of Ketchum & Sharp, Morris Ketchum has achieved much of his design fame for the superior merchandising facilities created by his firm (he is the author of *Shops and Stores*, Reinhold). Recent work has also included schools and colleges and the U. S. Embassy in Rabat, Morocco. Ketchum, who went to Columbia University School of Architecture and l'Ecole des Beaux Arts, has been on the architectural faculties of Yale, New York University, Pratt Institute, and The Cooper Union. Indubitably *rara avis*, a native New Yorker, he can wind up his League presidency with a sense of job-well-done.

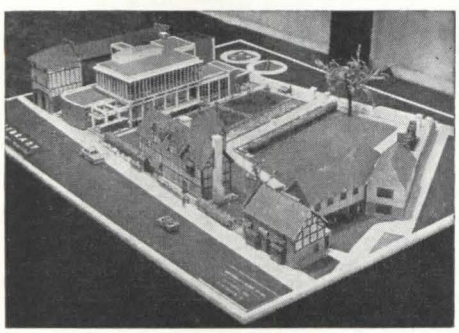
Major AIA awards to be presented next month at the AIA convention in San Francisco will include a newly-created honor for architectural photography. First recipient will be ROGER STURTEVANT of San Francisco. It is evidently old-timers' year this year, since the Fine Arts Medal goes to Painter THOMAS HART BENTON, and the Craftsmanship Medal will be received by Silversmith WILLIAM L. DEMATTEO of Williamsburg, Virginia. . . . Five First Honor Awards for completed buildings will be given by AIA. They are: SHERWOOD, MILLS & SMITH for Mutual Insurance Company, Hartford, Conn.; ROBERT GEDDES, MELVIN BRECHER, WARREN CUNNINGHAM (of Geddes, Brecher & Qualls) for Moore School of Electrical Engineering, Philadelphia, Pa.; KILLINGSWORTH, BRADY & SMITH for Long Beach, Calif., residence; CORLETT & SPACKMAN and KITCHEN & HUNT for Olympic Ice Arena, Squaw Valley, Calif. (a P/A Award winner in 1958); and EERO SAARINEN & ASSOCIATES for U. S. Embassy, Oslo, Norway. Firms winning AIA Awards of Merit will be: PERKINS & WILL; VICTOR A. LUNDY; TOOMBS, AMISANO & WELLS; RAPHAEL S. SORIANO; LEE STUART DARROW; MEATHE, KESSLER & ASSOCIATES, INC.; WEED JOHNSON ASSOCIATES; SKIDMORE, OWINGS & MERRILL; JOHN CARL WARNECKE & ASSOCIATES; SATTERLEE & SMITH; and PIETRO BELLUSCHI and ROBERS, TALIAFERRO & LAMB. . . . AIA's Allied Professions Medal will go to Naval Architect FRANCIS GIBBS.

A. QUINCY JONES (A. Quincy Jones & Frederick E. Emmons, Los Angeles), the new president of Southern California Chapter of AIA, has, in the past few months, been the recipient of a raft of awards and citations which would stagger one of less sturdy build. In addition to an Award Citation received from P/A in its Seventh Annual Design Awards Program, Jones's firm (together with builder JOSEPH L. EICHLER and San Francisco architects ANSHEN & ALLEN) won the first annual award of honor co-sponsored by AIA and NAHB; received a regional merit award in the *Parents' Magazine* 10th Annual Builders' Competition; got an honorable mention from the Church Architectural Guild of America; and was given an award of merit in the Western Home Awards Program sponsored by AIA and *Sunset Magazine*. He must spend more time in a dinner jacket than at his desk!

Sketches by Ramiro Corbetta.

Modern Building Set for Bard's Birthplace

The Shakespeare Birthplace Trust has announced a new library and office building to rise next door to the poet's birthplace at Stratford-upon-Avon. Completion date is set for 1964—in time for the celebration of the 400th anniversary of Shakespeare's birth. Architects Wood & Kendrick & Williams, Birmingham, England, designed the two-story structure "to achieve an over-all simplicity in the design which will harmonize with the setting." Major rooms will face the birthplace over a garden. The ground



floor will contain the library and public use facilities, plus a 50-person-capacity seminar room. Book storage space, including a strong room for extra-valuable documents, will be in the sub-basement. The upper floor will include the administrative office of the Trust and a board room for meetings of the trustees. The architects state that they feel "the solution offered has a spaciousness and grace and a twentieth-century flavour which will not offend the dignity of its neighbours."

Shakespeare, in *King Henry IV*, Part II, wrote, "It was always yet the trick of our English nation, if they have a good thing, to make it too common."

Harrison Reveals Latest Model of Met

Most recent concept of exterior design of Metropolitan Opera House in New York's Lincoln Center project has been revealed. Architect Wallace K. Harrison, Harrison & Abramovitz, said that design is still awaiting approval by Center and Opera officials. This design is said to bring "large lobby and auditorium section of the Opera House into a closer relationship with the spacious exterior parks and plazas and the other buildings of the

Center." The ten-story columns which were a feature of the façade of the original design now enclose the lobby and auditorium on three sides. Vast mullioned windows still permit a view of lobby and promenade areas from the outside. A 20-story tower in the rear will contain backstage and workshop facilities and rehearsal halls.

House with "Crow's Nest" Is Part of Electric Push

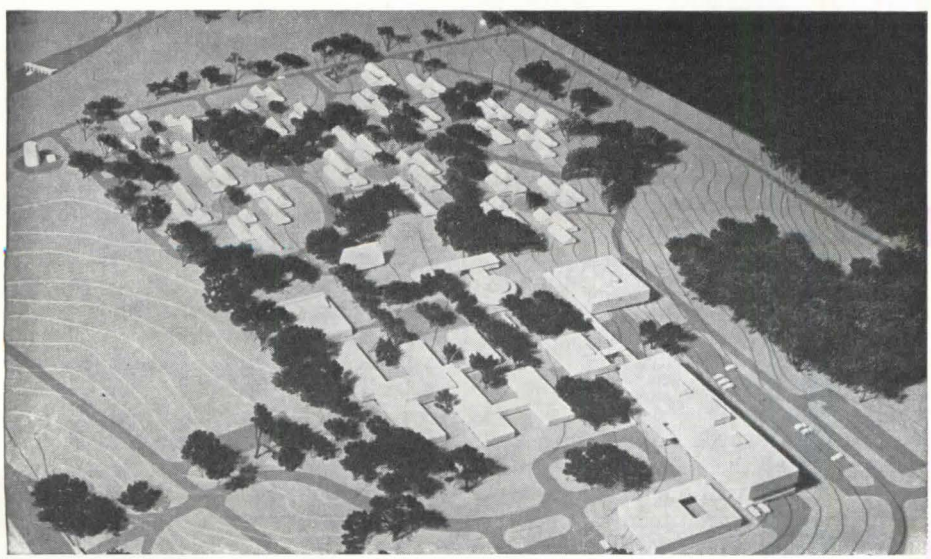
House designed by John Morse, Seattle, for Westinghouse's "Total Electric Home" program, has "crow's nest" at highest peak of roof. Here, children may retire on rainy days to become pirates, range riders, Martians, or even architects. House is planned for three living areas: adult space including living room, bedroom, and bath; kitchen and dining area opening onto

eating terrace; and playroom and children's bedrooms, with interior court.

Westinghouse program includes houses designed by several architects for all-electric living. The Morse house is planned for year-round climate control through use of single heat pump.

Campus Community Designed for Disturbed Children

The Eastern Pennsylvania State School and Hospital, a treatment center for disturbed children, will be a miniature community with "neighborhoods" of patient cottages around a school, recreation-community center, and hospital. Construction of the Center—designed by Philadelphia Architect Vincent G. Kling—will be in two phases. First will include 164-bed clinic, 12 cottages, and units for food service, recreation, and education. Second will see erection of cottages for 148 more patients, 20-bed research unit, classrooms, more recreation space, and facilities for administration, worship, and maintenance. Cottages will have from 4 to 18 beds. Here, children up to 16 years old will live in homelike surroundings under the care of staff "foster parents." Mechanical Engineers: McCormick-Taylor Associates; Electrical Engineers: Pennell & Wiltberger.



Dozen-plus Umbrellas Roof Cleveland Exhibit House

John Terence Kelly's design for the exhibition house at the Cleveland Home and Flower Show this month is

Continued on page 72

"OVERHEAD DOOR" opens a new door to climate control

Now doors adapt any building to weather, temperature changes

Now the "OVERHEAD DOOR" offers you new ideas in climate control. Through unique, imaginative applications you can now design structures that literally *adapt* to changing seasons, changing temperatures.

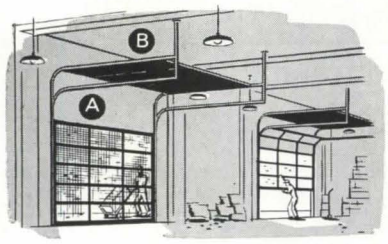
One new idea is the movable wall—banks of "OVERHEAD DOORS" that make the whole wall open, close . . . quickly, silently. To a basically outdoor structure, they let you add indoor protection. To a basically indoor structure, they let you add measured amounts of sun and fresh air.

The dramatic swimming pool shown at left is an example. Oregon architect Gordon Trapp utilized banks of glass-paned aluminum "OVERHEAD DOORS" to bring climate control to this indoor-outdoor swimming pool. They open the pool to warm, fair weather, tightly close it to cold, foul weather—flood it with light all year 'round.

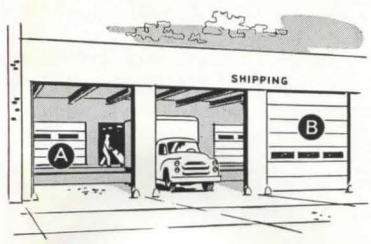
Many other new ideas in climate control have been developed and tested by Overhead Door Corporation engineers—ideas that are a result of this company's 39 years of experience in the garage door field. Some of these ideas may be of value to you.

Get detailed information from your local distributor (see "OVERHEAD DOOR" in the white pages) for an application you may now be planning, or write to Overhead Door Corporation, *General Office:* Hartford City, Indiana—*Manufacturing Distributors:* Cortland, N.Y.; Hillside, N.J.; Lewistown, Pa.; Nashua, N.H.—*Manufacturing Divisions:* Dallas, Tex.; Portland, Ore. —*In Canada:* Oakville, Ontario.

To solve many climate control problems—



Ventilating doors—Protection from winter weather, screened ventilation for summer comfort are both provided with a double-track "OVERHEAD DOOR." This arrangement actually holds two doors—one with screen panels (A), one with wood and glass panels (B).



Weather-lock—Double rows of doors protect shipping areas. An inside row (A) of "OVERHEAD DOORS" is opened after the outer doors (B) have been closed. Trucks or railroad cars are loaded in a protected area, without excessive loss of heated or cooled air.

Movable store front—Stores and markets also utilize movable walls for climate control to stimulate customer traffic. "OVERHEAD DOORS" open the whole store front—attract customers with a store-wide display. At night and in bad weather, doors secure tightly.

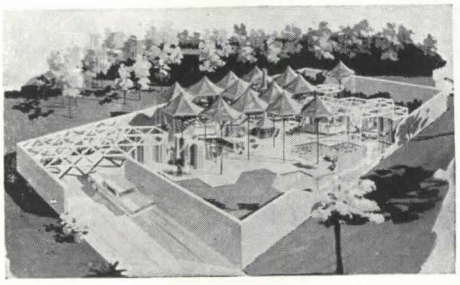
THE "OVERHEAD DOOR" TRADE MARK

the original upward-acting sectional door, made only by

OVERHEAD DOOR CORPORATION

Continued from page 68

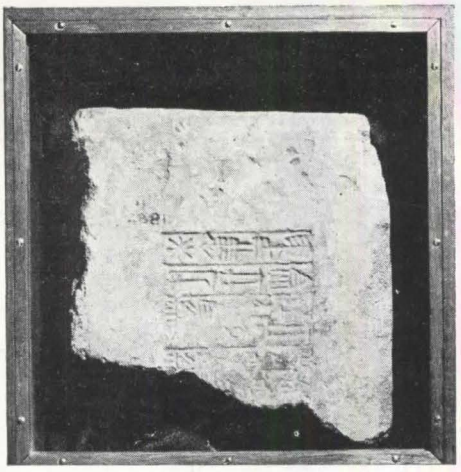
described by the public relations experts as "an out-of-this-world Space Age House, suitable for the World's Fair of 1975." Having put the Cleveland public off its architectural feed with this verbal extravagance, they proceeded to introduce a gracious residence roofed with 15 copper-and-plastic hexagonal umbrellas and in-



cluding a spacious living area around an island fireplace overlooking a pool. Kelly, who designed the house at the behest of the Cleveland AIA chapter's Show Committee, turned the house inward on its lot, making it suitable for an urban or suburban site.

"Skippy" to Octagon: You're a Brick!

Five-thousand-year-old, molded, flat brick from ancient Mesopotamian city of Ur was presented to AIA by Structural Clay Products Institute in observance of SCPI's 25th anniversary. Scene of ceremony was The Octagon,



AIA national headquarters, with SCPI president Paul B. Belden, Jr. as donor and AIA President John Noble Richards, receiver. Belden presented gift in tribute to 25 years of co-operation between brick manufacturers and architects. After stressing product's timelessness and durability, Belden remarked, "no product, regardless of its qualities, has significance unless it is employed by the architect for man's benefit. The brick manufacturer's contribution to society therefore, depends upon the architect."

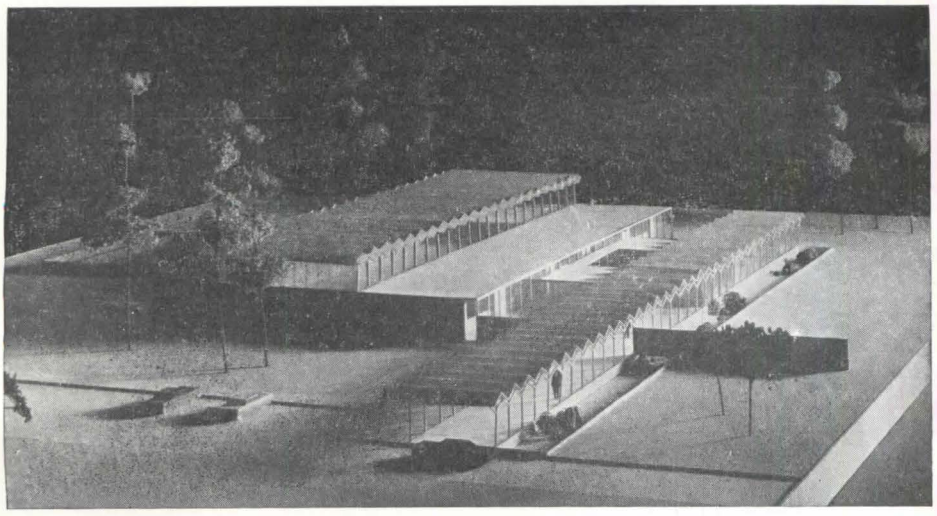
The brick of Ur came from Chaldea in the ancient area of Mesopotamia, now called Iraq. It measures 11½x 8¼x33 inches, weighs 10 pounds, and bears the royal stamp of King Shulgi of the Third Dynasty of Ur, circa 3000 B.C. The stamp reads: "The divine Shulgi, mighty man, King of Ur, King of Sumer and Akkad." The brick has been placed on permanent display in The Octagon Gallery.

Obituaries

HENRY BENDINGER RUST II, vice president and director of The Rust Engineering Company, died January 8 near Fort Walton, Fla. . . . Electrical Engineer BASSETT JONES died January 22. He conceived elevator system of Empire State Building, and also developed lighting of 1939-40 New York World's Fair. . . . SIR GILES GILBERT SCOTT died in a London Hospital on February 8. He received early recognition when his design for Liverpool Cathedral was chosen at the age of 21. That project is still under way, with completion not expected for more than 30 years. Among Sir Giles' other designs were buildings for Magdalen College at Oxford, extension of Oxford's Bodilean Library, new University Library at Cambridge, and the new Chamber of the House of Commons and the restoration of the Guildhall after World War II bombing. . . . Engineer JAROSLAV POLIVKA, who collaborated with Frank Lloyd Wright on a number of structures, including the Guggenheim Museum, died February 9. He had served on the faculties of the University of California and Stanford. . . . Dr. Nicholaus L. Engelhardt, senior partner of Engelhardt, Engelhardt, Leggett & Cornell, educational consultants, died in New York February 24. Dr. Engelhardt was a noted educator, author of books on school planning, and expert on school conditions.

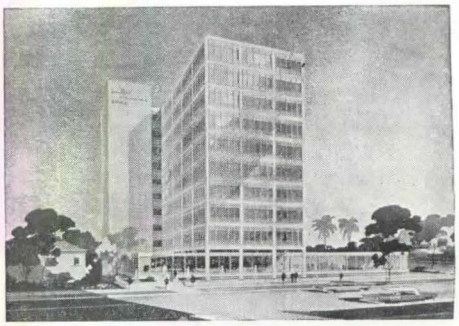
Wood Imaginatively Used for Research Building

Design by Paul Hayden Kirk, Seattle, for the proposed forest products research and development laboratory of Simpson Timber Company near Bellevue, Wash., makes extensive use of wood and wood products. Included in building will be stressed-skin plywood panels, folded plates, box beams, and different types of plywoods. Adjacent to laboratory on 10-acre site will be new United Control Building, also designed by Kirk. Forty scientists, technicians, and project specialists will be employed in the facility.



Podium to Support Insurance Building

Mechanical core and classical elements will be featured in nine-story home office headquarters building in Los

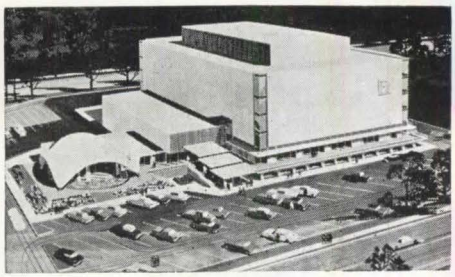


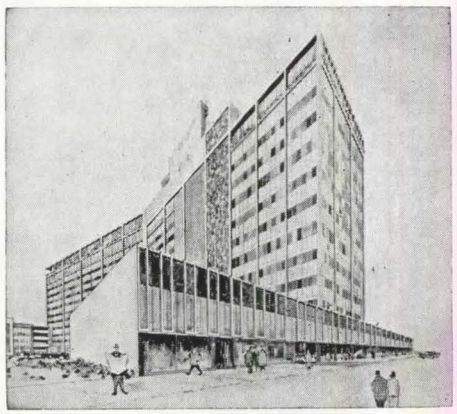
Angeles for Pacific Employers Group of insurance companies. Construction of building, designed by Charles Luckman Associates, is expected to start by May 1960. Outside mechanical core

Continued on page 74

Continued from page 72

containing elevators, utilities, stairs, and lounges will be used for the first time in a building of this size in Los Angeles area. Structure will rest on podium, "reminiscent of classic Greek architecture," according to the architects. Podium will contain reflecting pools and decorative fountains with foot bridges connecting public sidewalks and building entrance. Further features include high velocity double duct air conditioning system, acoustical ceilings, balanced lighting, three high-speed elevators, and glare proof glass. Landscaped parking area for 209 cars will be provided next to building.





Add Construction Display Centers: Dallas, San Juan

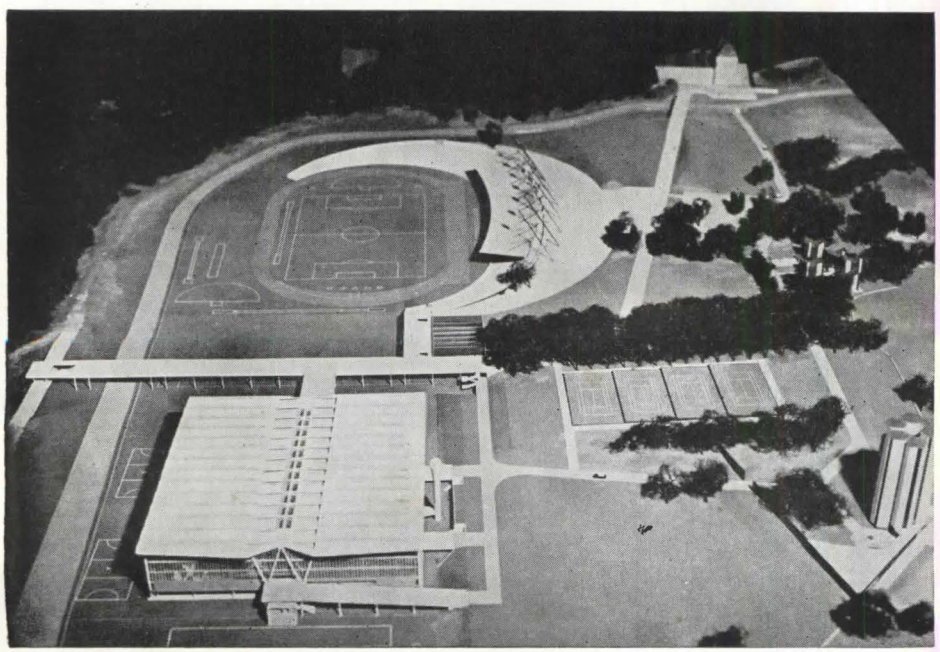
Dallas, Texas, and San Juan, Puerto Rico, join cities having large centers devoted to the building industry. Purpose of projects is to service every phase of construction: architects, builders, engineers, contractors, and decorators.

Fleetwood Square, in Dallas, is a large-scale plan, including multistory office-exhibit building, public restaurant and private club, fully equipped auditorium and banquet hall, auxiliary exhibit and display facilities, technical library, and 126-car underground executive garage supplementing a 250-car public parking lot. Special feature of center is public restaurant with constantly changing patterns of lighted water. Dallas architect George L. Dahl predicts that Fleetwood Square "will become one of the major exhibitaries [sic] in the nation." Builder Edmund G. Peterson expects occupancy in 1961.

San Juan's Caribbean Display and Design Center, which recently opened, includes a single building designed to show exhibits most effectively. Special illumination, air conditioning, piped-in music, and "no sales pressure" policy help create ideal atmosphere for viewing displays. Among special services are technical library and audio-visual service to show film slides of manufacturer's products. Architect: Reinaldo Perez.

Sports Center Set for Crystal Palace Site

The grounds of London's famed Crystal Palace, derelict from the burning of that structure in 1936 until some years after World War II, will soon be once again the scene of construction activity when ground is broken for the proposed National Youth and Sports Center. The center will feature a main sports hall with gymnasia and swimming pools, an open air arena, and the King George VI Memorial Hostel, plus sports "pitches" and practice areas. The swimming and diving facilities and track areas will all be designed to Olympic standards. The public will approach the sports hall, main element of the group, over a bridge which will shelter undercover track areas. The bridge will become the central promenade spine of the building, allowing views down into gymnasium and swimming sections. Architects: Hubert Bennett, Chief Architect to London County Council, and his LCC predecessor, Sir Leslie Martin.



Gold Medal Winners Announced by League

Winners of Gold Medals of The Architectural League of New York were announced in late February. The new Collaborative Medal of Honor went to Mario J. Ciampi, Architect; Paul W. Reiter, Associate Architect; Isadore Thompson, Structural Engineer; Buonaccorsi & Murray, Mechanical Engineers; Harold A. Wright, Electrical Engineer; Lawrence Halprin, Landscape Architect; Anne Knoor, Muralist; and Ernest Mundt, Sculptor, for Westmoor High School, Daly City, Calif. Winners of the Gold Medal of Honor for Architecture were AIA Gold Medalist Ludwig Mies van der Rohe and Philip Johnson, for New York's Seagram House. Isadore Thompson also received a second medal, for the Daly City school: the Gold Medal of Honor for Engineering. His gigantic mobile for UNESCO Headquarters in Paris won the Gold Medal of Honor for Sculpture for Alexander Calder. A joint award in landscape architecture was made: the Gold Medal of Honor in this category went to Skidmore, Owings & Merrill as Architects-Landscape Architects and to Isamu Noguchi as Sculptor-Landscape Architect for the Connecticut General Life Insurance Building, Hartford, Conn. Gold Medal of Honor for Design and Craftsmanship was won by Architects Hervey Parke Clark and John F. Beuttler for hand craftsmanship in building Christ Church, Portola Valley, Calif. For more news of the League, see PERSONALITIES, on page 67.

Professional Consultants' Federal Work Under Fire

Highway Engineers Under Gun, Architects Next?

By E. E. Halmos, Jr.

Without question, the biggest developing story in Washington for professionals is the increasingly heavy attack on the use of consultants in Government construction programs.

So far, the attack has been confined, in general, to consulting civil engineers — not architects as such — and has centered around the huge Interstate Highway Program.

But there's no doubt that repercussions will reach other Government construction agencies, and other professionals.

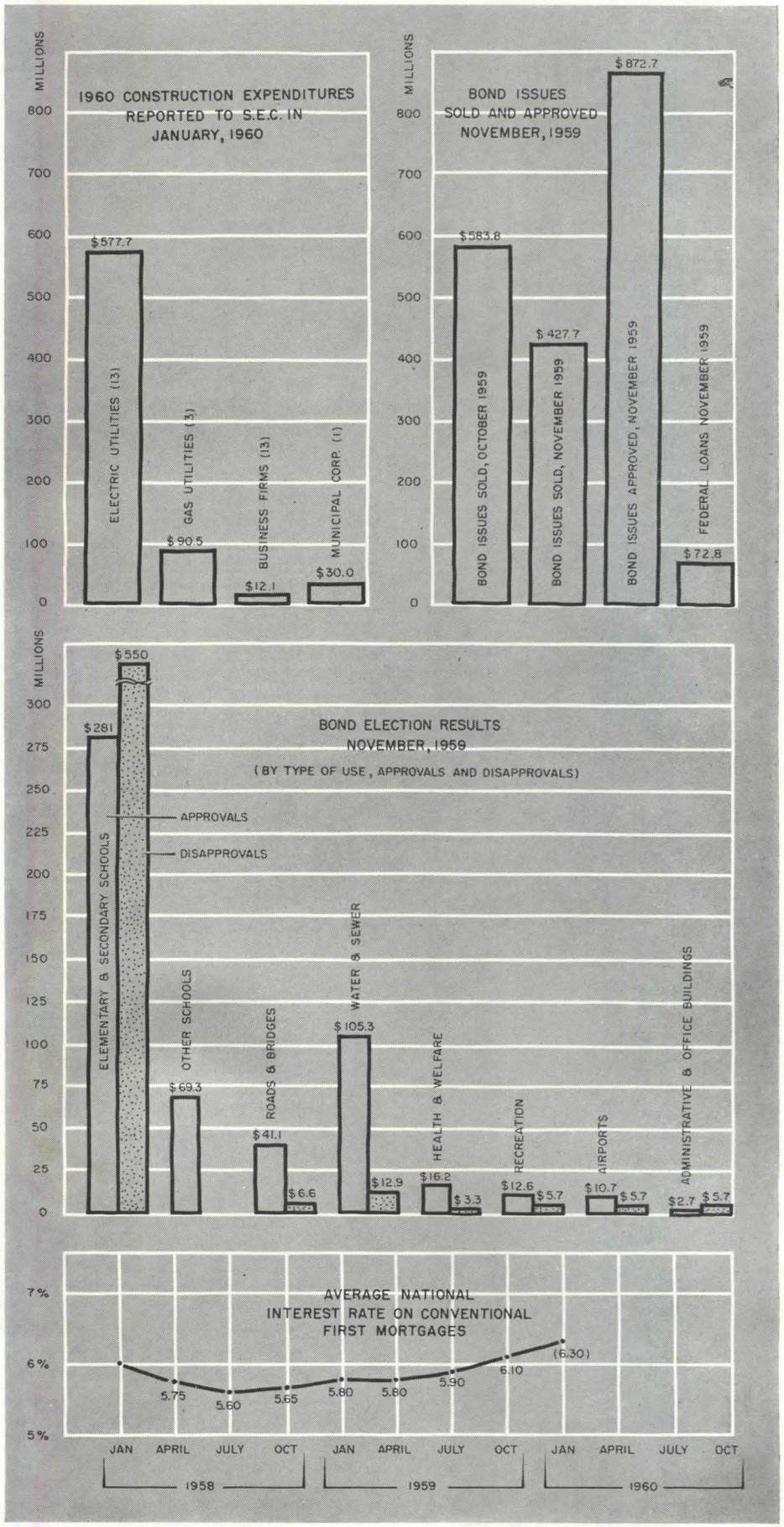
Spearhead has been the General Accounting Office, in its function as watchdog of the treasury. But the attack has been spreading fast—to the floors of Congress, to committee rooms, even to State legislatures and city councils.

Basic reason is quite apparent: the construction professional—be he architect or civil engineer—isn't well understood by the public in his role as a professional. When it comes to purchasing services for a Governmental unit, the politicians—and the public—tend to equate him with all suppliers. Thus his refusal to bid, and insistence on negotiation, somehow smack of hanky-panky.

Measurable start of the current campaign was a report issued by GAO last fall, concerning the highway program. GAO pointedly remarked on the great use of consulting engineers in highway work, and pointedly commented that contracts based on percentages of total cost are open invitations to over-design, in an effort to increase fees.

The report caused little stir at the time. But in December, Virginia's respected Sen. Harry F. Byrd released an exchange of letters with the Commerce Department, in which he picked up the GAO criticisms of fees And GAO renewed the attack in more recent scathing reports on the highway program in Maryland, Pennsylvania and other States—again singling out the use of consultants. Quickly, State

Continued on page 78



Continued from page 77

legislatures in Pennsylvania and New York, among others, took up investigations of their own.

You can be certain that a special House committee investigating the road program will get into this subject. And several other committees—in particular those investigating the nation's space program—have already started on this line.

So far, the reaction has come from civil engineering and construction organizations, and individuals. American Society of Civil Engineers and American Institute of Consulting Engineers both took board action condemning the attack as misleading and irresponsible; American Road Builders Association also came to the defense of the consultants. Individuals like Norman Pritchett, Maryland roads engineer, and Harold Aitken, District of Columbia highway chief, also have defended their use.

American Institute of Architects has come into the picture somewhat obliquely. In testimony before the House Subcommittee on Appropriations (concerning Indian affairs) an AIA spokesman objected vigorously to a 1959 policy that has seen all contracts for services of architects canceled, on grounds that it is cheaper to use Government people and stock plans for schools and other structures. Not so, contended George S. Wright, speaking for AIA.

But, to many a Congressman looking for an election-year issue, the construction professionals still seemed a tempting target.

Homebuilding Sick?

The question whether housing is going to be a "sick man" in the economy this year—and just how sick—is still the crux of debates among homebuilders, economists and politicians, as Congress gets down to serious work on various housing measures.

First of the year's crop of housing measures to come up for committee consideration, for instance, was Rep. Albert Rains' Emergency Home Ownership Act (HR 9371) which would pump $1 billion into the housing market by giving that much to Federal National Mortgage Association (FNMA) for purchase, at par, of Government-backed home mortgages of $13,500 or less.

A little surprisingly, the bill has attracted less-than-enthusiastic support, either from National Association of Home Builders or National Association of Real Estate Boards. NAHB, at its Chicago convention, gingerly endorsed something close to the Rains bill, but only as a "last resort";

Continued on page 82

Houston luxury apartment uses Insulite Roof Deck for structural strength, ceiling beauty

It's roof decking, insulation, vapor barrier and pre-finished ceiling—all in one cost-saving package!

Builders Jerry McCall and Henry Hodell chose Insulite Roof Deck and Insulite Sheathing in creating this truly luxurious Hillside apartment on Houston's Memorial Drive.

The exceptional decorative and functional characteristics of Insulite Roof Deck blend perfectly with the overall plan. The open beams provide a striking contrast against the gleaming white surface. Insulite Roof Deck's 4-in-1 functional advantage economically provides a strong, durable roof decking . . . efficient insulation . . . a continuous vapor barrier . . . an attractive, finished ceiling that can be "scrubbed" with soap and water—*all in one simple application.*

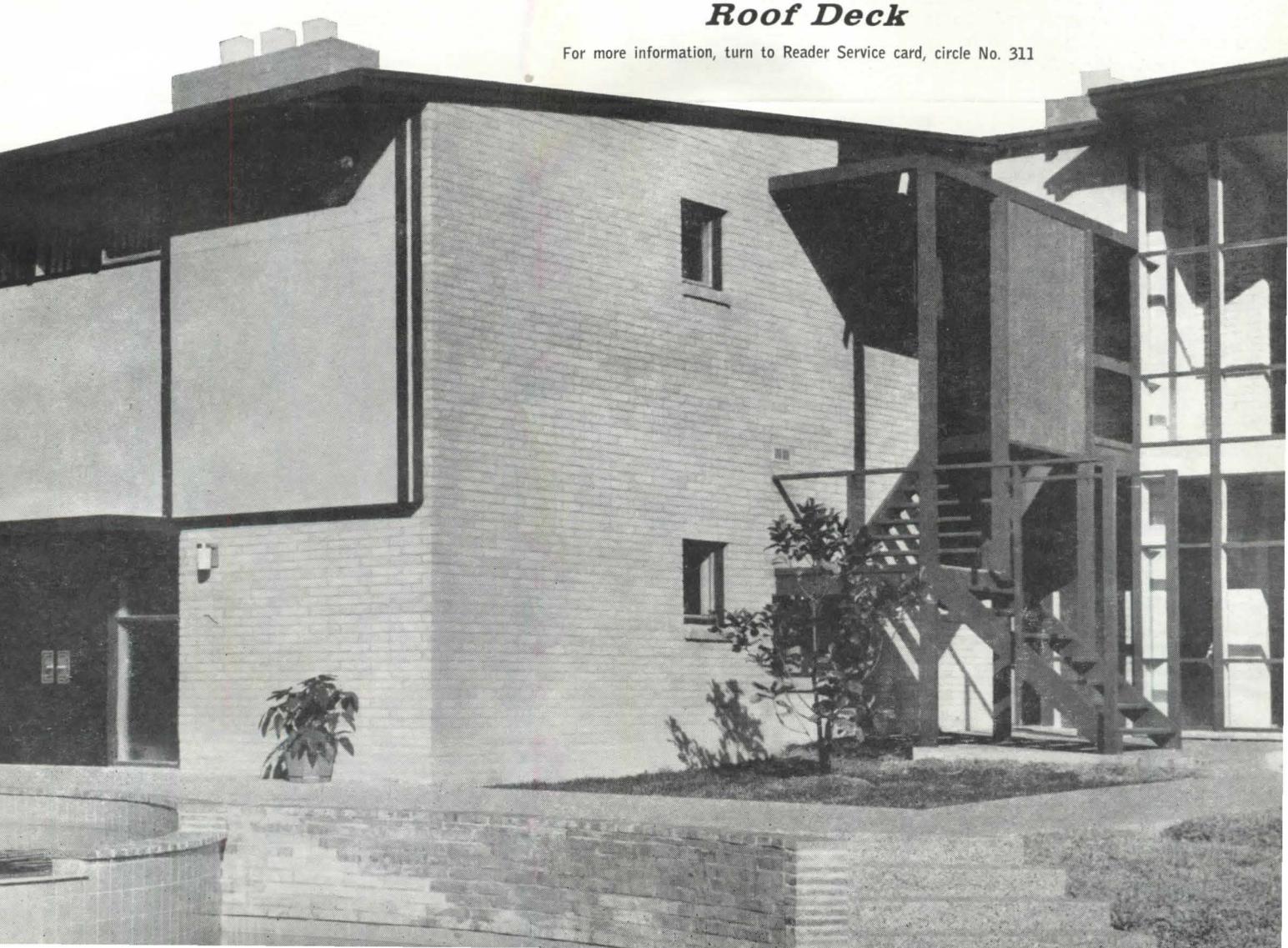
Save money, add beauty like this to your homes, apartments, commercial buildings—with Insulite Roof Deck. Contact your building materials dealer, or write Insulite, Minneapolis 2, Minnesota.

build better with

INSULITE®

Roof Deck

For more information, turn to Reader Service card, circle No. 311



Continued from page 45

NAREB testified against it, on ground the proposal would encourage hasty building, do more harm than good.

The real point of doubt is just how serious the drop in housing will really be. Current predictions now put 1959 starts at a near-record 1,376,000; economists and builders are agreed that 1960 totals may be about 1,200,000—mostly because of tight money, not lack of demand.

But it's a little hard to make out a case of "poor mouth" on the basis of those figures, or to sell Congress on the need for emergency action: when simple arithmetic will produce figures into the billions, based on FHA estimates that "moderate priced homes" now are selling in the $11,900 to $18,000 class.

Building Trades Progress

The facts of election-year life lent more than usual impact to the sixth annual "national legislative conference" early this month of the AFL-CIO's Building Trades Department.

As you may know, the "conference" consists of bringing several thousand building-trades officials to Washington, breaking them up into State and election-district teams, and having them swarm over Capitol Hill to visit Congressmen, seeking face-to-face answers on AFL-CIO legislative demands.

Principal objectives this year were changes in basic labor laws. But the building tradesmen are also pushing for (1) passage of a school aid and construction bill, (2) passage of a housing bill, including "appropriate" public housing and housing for middle-incomers and the elderly, (3) a depressed-areas bill to aid areas of chronic unemployment by public works loans.

Urban, Health References

A couple of additions to your reference shelf:

1 An answer to disappearance of open areas in urban areas through loss to "improvements" might be found in the long-known device of obtaining easements from property owners. The purchase by the community of such easements — permitting "reasonable uses" by the owners (but not subdivision, commercial use or signboards) has been tested legally, according to the Urban Land Institute. The ULI study, *Securing Open Space for Urban America: Conservation Easements* can be purchased from ULI (1200 18th St., N.W., Washington 6) for $3.

2 *Principles of Planning for Future Hospital Systems* is now available from the Department of Health, Education & Welfare, Washington 25. The report is a summary of four regional meetings last year (at Salt Lake City, Chicago, New Orleans and Washington) under joint sponsorship of the American Hospital Association and the Public Health Service. Key point: facilities designed today must also be designed to accommodate uses 10 to 20 years ahead, in the light of predicted community development.

Defend against Defense

The long history of Congressional irritation at employment of ex-military or other Government people, in positions involving their knowledge of Government procedures and people, will get an airing when the House finally gets a new bill designed to bar such people from defense-industry jobs.

Introduced by Louisiana's Rep. F Edward Hebert, Chairman of the House Armed Service Subcommittee, the bill is aimed primarily at suppliers to the military. But architects doing work for the military—or any Government agency—will surely be affected, if the bill is approved.

Meat is in a definition of "selling" (which is not in the bill itself, but in the committee record—thus becomes "the intent of Congress' for court purposes) which includes: "All activities

which bring a contractor and his representatives into contact with officials of the Department of Defense, for the purpose of obtaining contracts from that Department for procurement of tangibles or intangibles. . . ."

Added Hebert: "No excuses, on account of the thing sold . . . will be accepted."

Budget Basis for More Health

Predictions of a continuing boom in construction continue to pour out of Washington and elsewhere. They're bolstered now, of course, by the President's budget message which, as you know, went along with previous levels of spending by the Federal Government.

As you have read, the President asked for nearly $7 billions of construction money—an increase in most areas except urban renewal. And, as you know, Congress this year is inclined to consider President Eisenhower's recommendations as minimum.

For architects, these predictions are cheering, but not specifically useful.

There are, of course, many ways to make up some sort of a measuring stick by which to gage the construction business. Most of those now used are aimed at providing business information to contractors—who get into the picture well after the architect has completed his work, or at least is well along.

Thus for architects (and other who must get their share at the inception of a project) a possibly better measurement would be a record of money being provided for construction work, rather than of contract awards or "shelf" planning now complete.

This service, P/A is attempting to provide, through the charts and tables on page 77.

Principal sources (leaving out all but one phase of housing) are two: Investment Bankers Association, which keeps tabs on all types of less than federal bond issues, sales, and purposes; and Securities and Exchange Commission, to which most private companies must go for authority to issue stock or other financial paper with which they will finance construction work.

A third source—of key interest because it reflects the availability of money—is the quarterly national average of interest rates on home mortgages, prepared by Federal Housing Agency (if the rate is high, as at present, the supply of money is tight, of course).

SEC's reports are made daily, as requests come in, thus can be reported on a current basis. IBA's reports usually lag several months behind the actual date of approval, but since they reflect money about to come out, are still valid as a forecast of business in a given area.

On this foundation, then, here's how the propspects look:

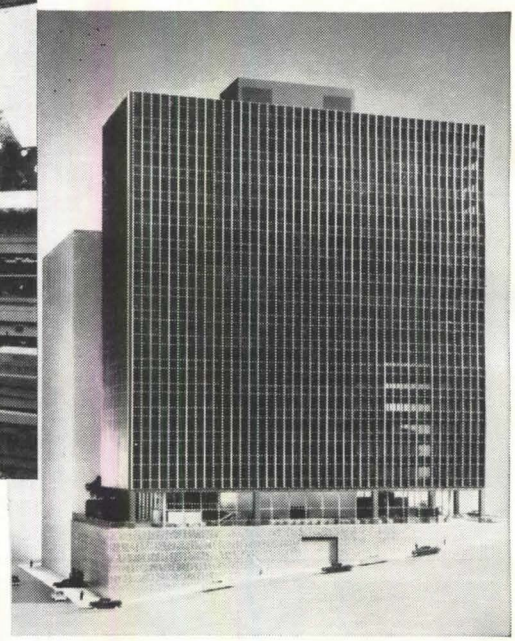
During January, 16 electric and gas utilities reported to SEC that they have plans for more than $668 millions of construction in 1960, on plant, stations, power lines and similar items. In the same month, 13 other business firms reported plans for $12.1 millions worth of construction, expansion and the like. And one public corporation (The Montreal Metropolitan Corporation) sought permission to sell $30 millions worth of bonds to finance construction in that Canadian city.

On bonds (including state, county, city, school district, etc.) IBA reported a total of 360 issues sold in November, 1959, for $427.7 millions. More important, perhaps, was that voters in the same month approved $827.7 millions worth of new bonds—and turned down $597 millions worth. The breakdown of what they approved and what they turned down is worth study by anyone with an eye to future business areas.

And interest rates were high, nationally — highest in nearly three years. FHA said they averaged 6.30 percent, as of January 1.

New Heights for P/S Concrete

Growing Seattle Gets Unique New Skyscraper



Architects: **BINDON & WRIGHT,** Seattle
Consultants: **ANDERSON, BIRKELAND & ANDERSON,** Tacoma
SKIDMORE, OWINGS & MERRILL, San Francisco; **T. Y. LIN,** University of California
General Contractor: **HOWARD S. WRIGHT CONST. CO.,** Seattle
P/S Beams: **CONCRETE TECHNOLOGY CORP.,** Tacoma
Ready-Mix Concrete: **PIONEER SAND & GRAVEL CO.,** Seattle

● Prestressed concrete, virtually unknown a decade ago, has attained new heights in Seattle's 21-story Norton Building, the first U. S. structure over six floors to utilize P/S. The unique design uses 238 P/S beams in combination with a steel perimeter frame to support column-free floors in the 17-story tower. The use of P/S beams with lightweight concrete floors cut the building's dead load 20%.

Each 15-ton beam spans 70′, and is only 37″ deep. Apertures in the web accommodate utilities and ducts. Prestressing was done with pretensioned strands along the bottom flange, and with post-tensioned draped tendons. Designed for 30-ton loading, the beams were tested to 135 tons with only a 9″ deflection.

Dependable, uniform 'Incor'® High Early Strength Cement was used in an 8-sack, low-slump, 9,000-psi concrete, enabling the fabricator to cast in mid-afternoon and strip forms the next dawn with 6,000-psi strength.

* * *

In the brief, brilliant history of prestressed concrete, 'Incor'®—America's *first* high-early—has played an important and growing role.

Davidson Announces Prefab, All-Porcelain Station

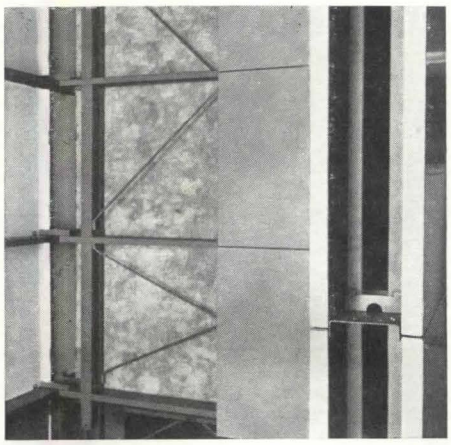
Similar Wall System Passes 5½-Hour Fire Test

LIMA, OHIO—Davidson Enamel Products, Incorporated, has signified its entry into the production of prefab, all-porcelain service stations, using its national distribution organization to supervise construction of stations in their respective local areas. A. C. Weierich, Davidson vice-president, reports that the savings of such a station over other types may average $2500 per station in a 10-year period. They also can be erected in less time and at lower cost than is now possible. Davidson will fabricate the steel framework of walls and ceiling, with porcelain enamel on the ceiling and on both sides of walls, and as well will supply glass and glazing, roof decking, aluminum overhead doors, and steel doors *(construction photos right and below)*. Local labor will be used for foundations, driveways, and erection.

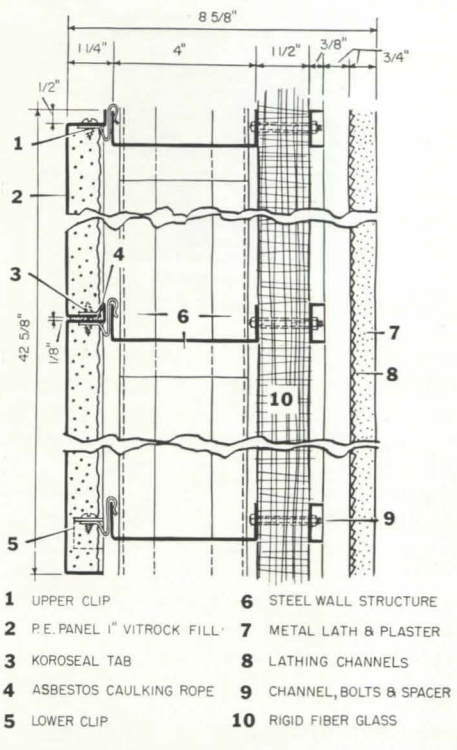
Of special interest to architects is the concurrent news that a variation of Davidson's new curtain-wall system *(see detail drawing)* successfully underwent a State University fire-endurance test of more than 5½ hours. As a result, the St. Louis Building Department will permit a wall of this type to be used on the new multi-story Mill Creek Apartments *(above right)* for which Russell, Mullgardt, Schwarz & Van Hoefen were Architects, with Mayer, Whittlesey & Glass as Architectural Consultants. Hari Van Hoefen reports: "It is encouraging to know how well this system is being received. For years I have wanted to use a porcelain curtain wall with an interior grid system." Julian Whittlesey states: "It is a breakthrough of national significance, because under similar circumstances in other parts of the country such construction has been ruled out, over and over." Davidson Enamel Products, Incorporated.

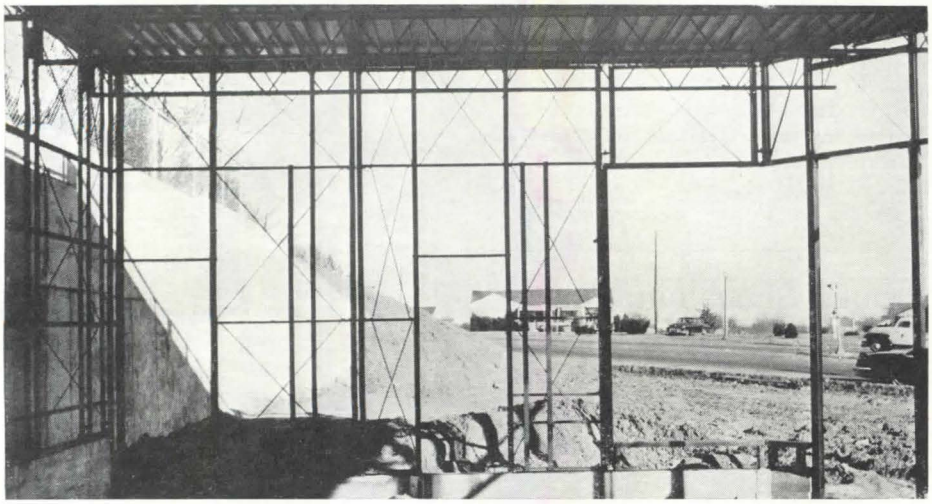
On Free Data Card, Circle **100**

Variation of wall system used to enclose 12-story Mill Creek Apartments

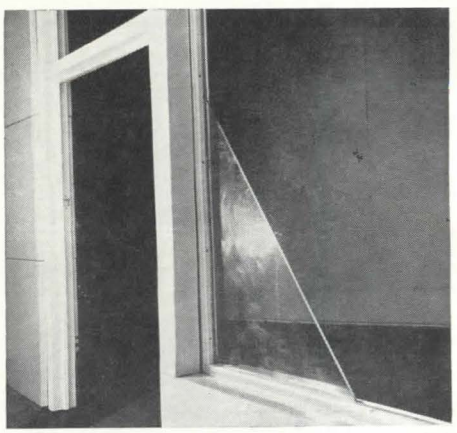


Reduced-scale mock-up of station (above). *Detail of 5½-hour test assembly* (right).





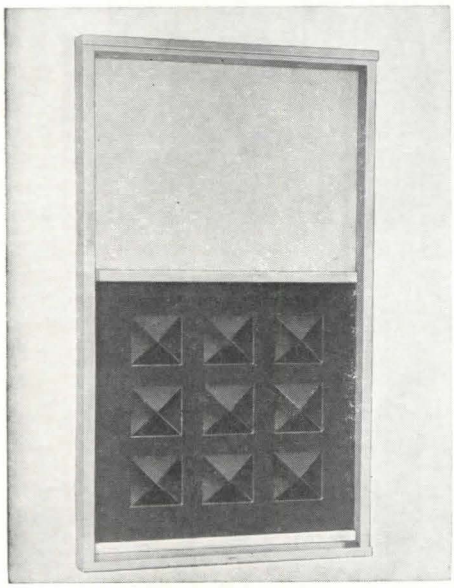
Foundations and erection work (above) *done by local contractors.*



Model of station indicates relationship of porcelain door jamb and window glazing.

Curtain-Wall Panel Has Face of Formed Plexiglas

A new concept in panel manufacture, promising greater creativity in curtain-wall design, is "Syntek Panel," which has a formed facing of colored Plexiglas in front of an insulating core. "Plexiglas," manufactured by the Rohm & Haas Company, has long been used in airplane windows and in many other exposed areas. It is light, strong, and shows little effect of



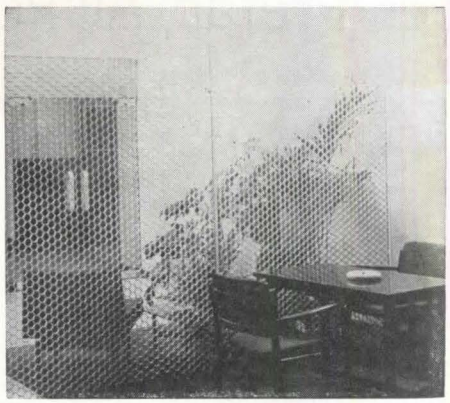
weathering. The 22 colors available in the Syntek line are guaranteed fadeproof.

The insulating component consists of a back-up sheet of anodized aluminum (or asbestos board), a core of compressed, rigid, glass fiber, and a front sheet of black, anodized aluminum. These materials are held rigidly together, with the plastic facing held in a "floating" position relative to them. Over-all panel thickness is approximately 1". The Alumiline Corporation.

On Free Data Card, Circle **101**

Honeycomb Grill Both Rigid and Flexible

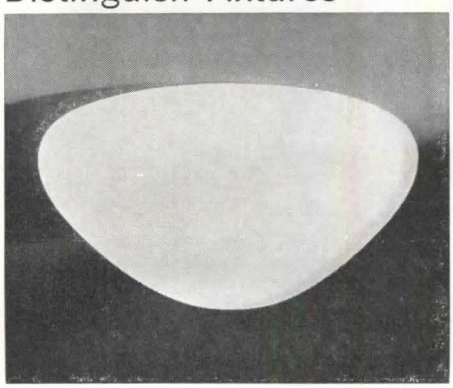
"Aluminum Gridsteel" is a new honeycomb grill that is produced either in rigid or flexible panels for a diversity of flat and curved applications. It may be used as wall panel, canopy, decorative trim, screen, sun deflector, or contoured ceiling. It may also be embedded in floors or ceilings to have the hexagonal pattern suggest a mosaic effect. For curves, it can be formed by hand into various radii down to 1'-9". Product has an inherent third dimension—viewed from right



angle it provides an open appearance, but viewed from other points is gives a textured impression. Depth of aluminum bars is ¾" to 1½". Material can be anodized, painted, or left with a natural aluminum finish. Irving Subway Grating Company, Inc.

On Free Data Card, Circle **102**

Shape, Simple Mounting, Distinguish Fixtures



"Porzeline" group of lighting fixtures combines distinctive sculptural shape with numerous mechanical advantages. Satin-finish opal glass has a threaded colar to screw easily into the canopy without tools, and the canopy is easily mounted to the outlet box with two screws. Glass is without glare or high-spot and makes for excellent soft lighting. The line has been approved for outdoor lighting and each glass comes with a rubber gasket to make it air and watertight. Several tasteful wall-bracket designs are included in the line. A. W. Pistol, Inc.

On Free Data Card, Circle **103**

Ribbed Sheet Aluminum For Rest-Station Model

An all-aluminum rest station, for parks and picnic areas, has been introduced. Measuring 6½′ square, or 6½′x5½′, both models are adaptable to any type of plumbing. Daylight illumination is provided by inserts of green plastic under the eaves. Ribbed-aluminum sheet is used throughout the structure—for siding, roofing, and door. To blend the structure into the landscape, a coarse bark pattern is rolled into the sheet. Finish is an "Autumn Brown" baked enamel coating that incorporates aluminum pig-

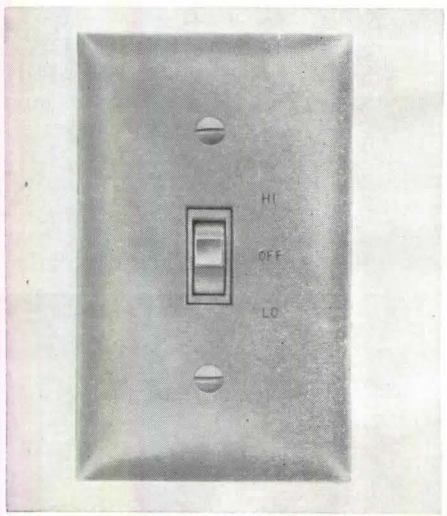
ments for added luster.

Another item in the group of Alcoa structures for park use is an aluminum picnic shelter, measuring 12′ wide x 20′ long. It has structural aluminum posts and ribbed roofing. Aluminum Company of America.

On Free Data Card, Circle **104**

Light-Control Switch Works without Rheostat

Electronic light-control switch offers 30% and 100% of light without using a rheostat. Three toggle positions give

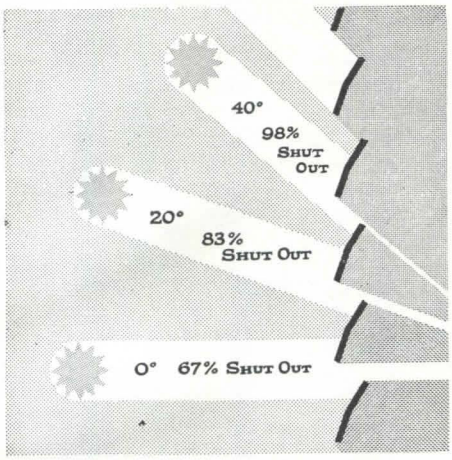


finger-tip control for "Hi," "Lo," and "Off" positions. Current used is in proportion to light, with Lo position increasing lamp life up to 20 times the normal time. "Hi-Lo Dimswitch" quickly replaces any existing switch for incandescent lamps, without additional wiring, to give substantial savings in power consumption. Slater Electronics Corporation.

On Free Data Card, Circle **105**

Expanded Metals Boast Large Scale

Created especially for architectural market, 4-in. "Armorweave" decorative expanded metal answers demand for larger sizes in this material. It can be suspended easily on frame-

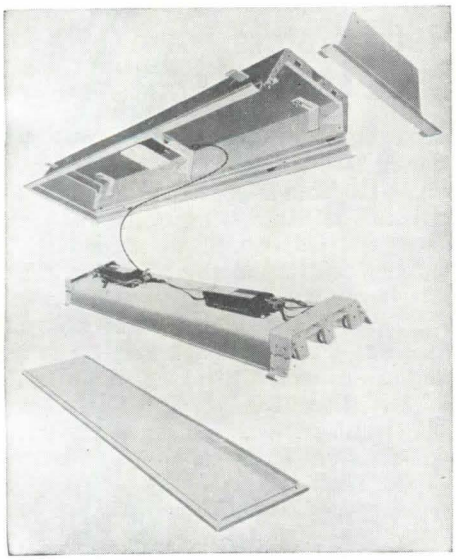


work of angles, tees, or channels. Blind-riveting methods make it simple to fabricate large panels. Mesh may be finished with many processes, including porcelain enamel, anodizing, and plastics. United States Gypsum Company.

On Free Data Card, Circle **106**

Luminaire Demounts for Checking, Replacement

Recessed lighting fixture has plug-in electrical assembly which can easily be replaced at ceiling by tested spare in less than a minute. Defective unit is then bench-serviced and becomes, itself, a tested spare. Fixture recesses into 5½″ plenum, is available in series of 11 diffuser types. Integral

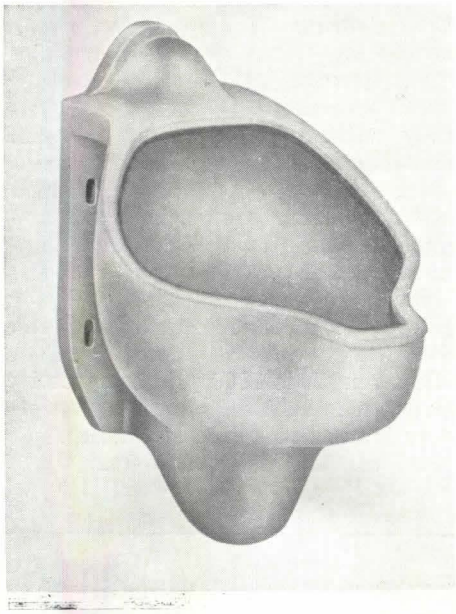


mounting brackets, withdrawn into housing during installation, emerge to support unit. Globe Illumination Company.

On Free Data Card, Circle **107**

Unbreakable Urinal Ideal For Institutions

Wall-hung urinal is made of unbreakable cast aluminum, making it suitable for use in institutions, schools,

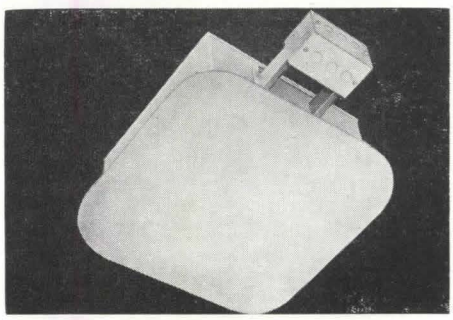


and public buildings. New design flushing gives "positive" scour to walls of fixture. Available in white and pastel colors. Aluminum Plumbing Fixture Corporation.

On Free Data Card, Circle **108**

Frameless Recessed Lights Increase Light Surface

Unique frameless fixtures combine a recessed box with the beauty and simplicity of glare-free opal blown glass. "Glass-Lites" are suspended from recessed box without use of frames, and project only 2¼″ from ceiling. Up to 300 percent more lighting surface is provided than by a conventional re-



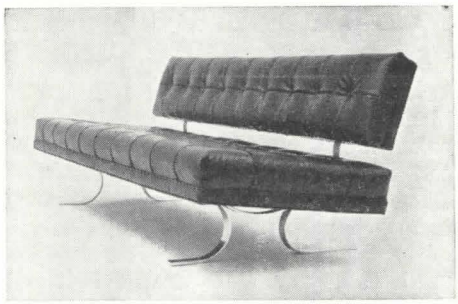
cessed fixture. Distinctive appearance is suited to any interior; exterior use is also appropriate, as there are no exposed metal surfaces to rust or discolor. Markstone Manufacturing Company.

On Free Data Card, Circle **109**

Acoustical Board for Walls, Factory Finished

Acoustical efficiency, structural strength, decoration, and insulation are combined in a new fiberboard for interior walls. With these qualities, "Classic Cushiontone Plank" is ideal for areas requiring acoustical treatment in addition to that provided by the ceiling. It is manufactured in 12″ tongue-and-groove widths, 8′ or 10′ lengths. An attractive lace-like arrangement of tiny sound-absorbent perforations decorates the surface, which is factory-finished with two coats of washable white paint. Repainting without loss of acoustical properties is also possible. Armstrong Cork Company.

On Free Data Card, Circle **110**



Miesian Sofa Heads 1960 Furniture Collection

Black glove-leather-upholstered sofa designed by Darrell Landrum rests on supports of resilient stainless-steel bends with mirror finish. Piece is 32″ x 72″ x 28″ (high). Approximate retail price in leather, $1345; in muslin, $1130. May be custom ordered in various lengths. Avard.

On Free Data Card, Circle **111**

Flooring Adhesive Is Non-Flammable

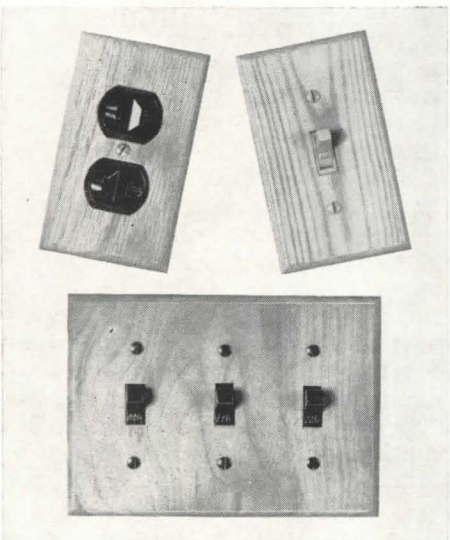
New non-flammable waterproof adhesive bonds rubber or vinyl tile to on-grade concrete, and linoleum to steel, terrazzo, ceramic tile, and other non-porous surfaces. Further uses for

Continued on page 90

Continued from page 89

"Cure-Set" are in bonding metal stair nosings, trim, trackless carpet strips, and other floor accessories. Tiles may be set within 10 minutes after spreading the adhesive. Working life is about 30 minutes; full setting time is 24 hours. The Borden Chemical Company.

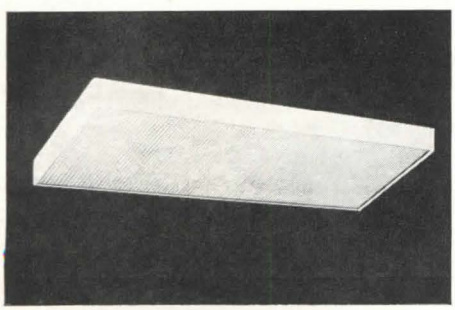
On Free Data Card, Circle **112**



Switch Plates Designed To Blend with Walls

Electrical switch and plug plates in a variety of woods may be specified to blend with paneled walls. Stocked in oak, walnut, gum, and redwood, plates can also be ordered in custom lots. They are cut from hand-selected stock to match paneling. Grain runs length of plate; no veneer or plywood is used. Ends and sides are beveled and smoothed. Superior Panel Plate Company.

On Free Data Card, Circle **113**



Fully-Luminous Fixture Shown in New Line

New one-piece "Prismalux" lens diffuser, introduced with other items in latest Lightolier line, provides fully luminous light form—ends and sides glow when current is on. Also introduced are "Calculites," 96 basic housings and interchangeable diffuser flanges which combine to make 202 different recessed downlights. Calculites are available in round or square units, with lens or diffuser flush, recessed, or extending below ceiling plane. Lightolier Inc.

On Free Data Card, Circle **114**

High-Strength Flooring Is Corrosion Resistant

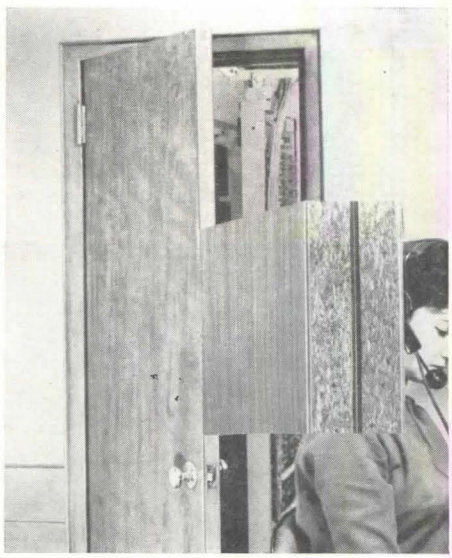
New flooring material combines beauty of terrazzo with unusually-high strength and corrosion resistance. "Corocrete Terrazzo" is physically superior to ordinary terrazzo and concrete floors in affording maximum resistance to two common causes of damage—thermal shock and impact. For utmost corrosion resistance, silica chips are used; for less severe conditions, marble chips; for rigorous load requirements a special membrane minimizes cracking. Tensile strength is 1800 psi; compressive strength is 9200 psi; abrasion resistance is five times greater than that of concrete. The Ceilcote Company.

On Free Data Card, Circle **115**

Economical Acoustical Door on Market Soon

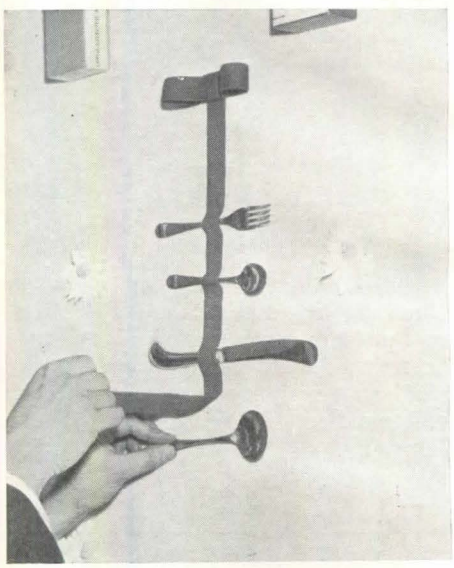
Price of new "Weldwood Acoustical Door" is reasonable because only one material in its manufacture (excluding hardware) is not of company's own materials. Novoply, which makes up most of core, and door skin are made by U. S. Plywood; damping material is manufactured by another concern. Door is said to give sound control performance which American Society of Testing Materials certifies to be consistently more effective than that of other doors in its range. United States Plywood Corporation.

On Free Data Card, Circle **116**



Fabric Permits Invisible Fastening for Exhibits

Simple and flexible fastening of exhibits, pictures, etc., to wall is possible through use of "Velcro" tape fastener and utility pile. Tape, attached to display object, has hook-faced quality and, when applied to wall covered with utility pile, holds object in place. Pile is nylon tricot fabric with doeskin-like finish, comes in five colors, is 38″ wide. Backed with "Curon" for body. Price: $4.75 per yd. Distributed to trade by F. Schumacher & Company.



On Free Data Card, Circle **117**

Refrigerators Have 15% More Storage Space

A high-density, more efficient insulation in 1960 refrigerators and freezers gives 15 percent greater storage capacity in the same exterior shell. Wall thickness is reduced to a low 2⅛″. Other features of the new appliance line are refrigerator-freezers with rugged swing-out shelves capable of holding 90 lbs without sagging; room air conditioner with new shallow depth of less than 12″ (height of less than 14″); and removable oven doors with non-fogging picture windows. Admiral Corporation.

On Free Data Card, Circle **118**

Continued on page 92

Over 160 Hillyard-Trained
FLOOR TREATMENT SPECIALISTS
"On Your Staff, Not Your Payroll"

Typically, a HILLYARD "MAINTAINEER®" has more than 10 years of experience working directly with architects, and with institutional administrators, to choose the one best treatment for a given floor or floor problem. This field experience is supplemented by a continuing program of in-service refresher training, where the architect's problems are thoroughly dealt with. Photo shows Maintaineers gathered at one such Hillyard Seminar at the Home Office.

Let the Hillyard Maintaineer in your area:

- Recommend treatment for each floor on your boards.
- Give you specifications covering treatment, and detailed instructions you can give your contractor.
- Serve as your Job Captain during floor clean-up and initial treatment.
- Draw up a maintenance program you can recommend to your client, to keep beautiful floors beautiful.

Write for Free Hillyard A.I.A. Numbered Files Practical treatment guides with specifications, product information, detailed step-by-step treating instructions.

This service is one more reason why, in specifying treatments for

WOOD, TERRAZZO, CONCRETE, CERAMIC TILE or RESILIENT FLOORS

THE PRODUCERS COUNCIL — AFFILIATED WITH THE AMERICAN INSTITUTE OF ARCHITECTS

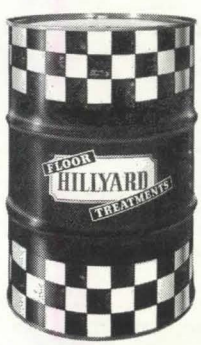
IN SWEET'S ARCHITECTURAL FILE

DEPT A-4

H I L L Y A R D

Passaic N. J. ST. JOSEPH, MO. San Jose, Calif.

Branches and Warehouse Stocks in Principal Cities



You'll Finish Ahead with

HILLYARD

Continued from page 90

New Fire Extinguisher Now Chrome Plated

Dry-chemical fire extinguisher, weighing only 2½ pounds, is now available in gleaming chrome plate. Simple self-evident operation activates this portable device, and recharging is quickly done either from air line or from small pressurized-gas cartridge. Each extinguisher is equal to eight 1-qt carbon tetrachloride extinguishers. Walter Kidde & Company, Inc.

On Free Data Card, Circle **119**

Noise-Reduction Panels Feature Low Cost

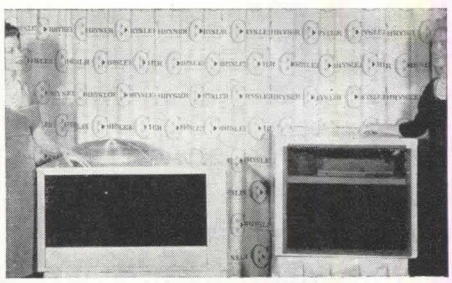
New "Deluxe E H" noise-reduction panels, perforated on one side, have qualities of high sound-absorption (equal to acoustical tile) and low sound-transmission (equal to dry-wall partitions). Light-color veneer-type finish is coated with scuff-resistant lacquer for durability. Standard size is 4′x8′x2⅜″. Installation is either by wood studs or by simple steel-partition system supplied by the manufacturer. Under usual conditions the installed panel should cost as little as the lowest-cost movable dry-wall partition. Acoustical Division, Elof Hansson, Inc.

On Free Data Card, Circle **120**

Heaters for 24″ Walls Require Little Ductwork

Fully-sealed gas heaters, not requiring extensive ductwork, are ideal as replacement units in solid-wall structures, having been approved for installation in walls up to 24″ thick. "Vent-O-Magic" 10,000 Btu unit—like the 25,000 and 35,000 Btu models—utilizes exclusive "Magic Vent" to draw in all necessary combustion air and expel burnt gases. Ohio Foundry and Manufacturing Company.

On Free Data Card, Circle **121**



Condenser Has Prewired Deluxe Control Panel

Among 16 new products in the 1960 line are a 2½-hp air-cooled condensing unit and a 2½-hp packaged air conditioner. Condensing units have deluxe control panels that are completely wired at the factory, and new lightweight aluminum compressor. Units are also available in 3- and 4-hp sizes. The horizontal, air-cooled air conditioner is particularly suited to residential use. Airtemp Division, Chrysler Corporation.

On Free Data Card, Circle **122**

Infra-Red Heat Lamps Warm Window Shoppers

First permanent outdoor installation of quartz, infra-red, heat lamps has been made by Carson, Pirie Scott & Company, Chicago, to warm passers-by and window shoppers in front of its display windows. The lamps have many unique characteristics: they will not break even if coated with ice when turned on, and will give off immediate heat without a waiting warm-up period. Since lamps warm objects rather than surrounding air, heat also is radiated upward from the sidewalk and, as an added advantage, sidewalk tends to stay dry during inclement weather. General Electric Company.

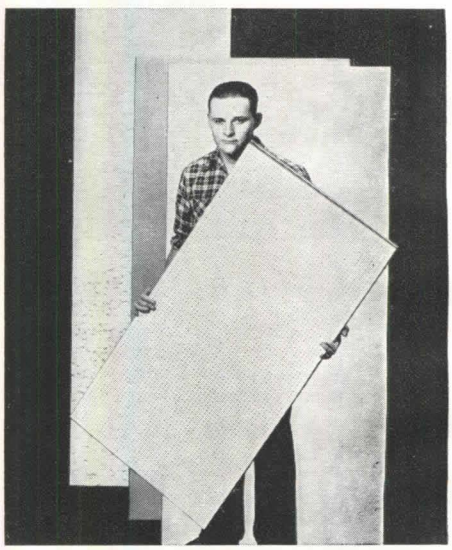
On Free Data Card, Circle **123**

Redesigned Kitchenette Saves Space

Redesigned "Console Kitchen" introduced in 1960 line has many new features for maximum efficiency in minimum space: stainless-steel top, cutlery drawer, pull-out drawer for 6 cu ft refrigerator, magnetic closure

on refrigerator door, and amply-sized stainless-steel sink. Gas and electric models are available. Davis Products Company.

On Free Data Card, Circle **124**



New Formboard Insulates Against Noise, Heat

"Acoustical and Insulating Formboard," designed for vermiculite, perlite, or gypsum poured roof decks, is a multi-purpose product, providing low-cost noise control, high thermal insulation, and economical finished interior. Painted or unpainted, perforated or unperforated, it is available in widths of 32″ and in lengths from 72″ to 120″ (in increases of ½″). Its 1″ thickness consists of a ½″ natural board laminated to a ½″ asphalt-impregnated insulation board. Exclusive process gives protection against rot, mildew, and fungi. Simpson Logging Company.

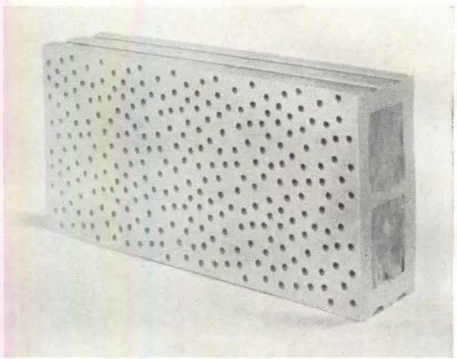
On Free Data Card, Circle **125**

Continued on page 94

Continued from page 92

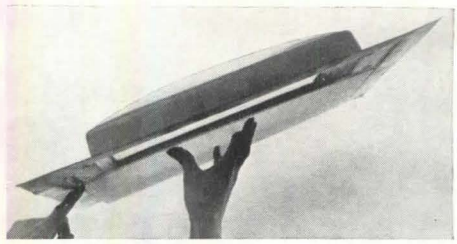
Acoustical Structural Tile Now Available

All-acoustical, load-bearing walls are possible — and economical — with "SoundBar" ceramic-glazed, structural/acoustical tiles. Units combine principle of the "Helmholtz Resonator" (a sound-box testing technique) and cells filled with glass fiber to provide high sound absorption and efficient sound insulation. Tests conducted by Riverbank Acoustical Labo-



ratories of Armour Research Foundation give tiles a noise-reduction coefficient of .65. Ohio State University tests indicate that a wall of tiles will have fire rating of over one hour. Tiles come in wide range of colors selected by Raymond Loewy Associates. Arketex Ceramic Corporation.

On Free Data Card, Circle **126**



Double-Dome Skylight Has Flat Inner Sheet

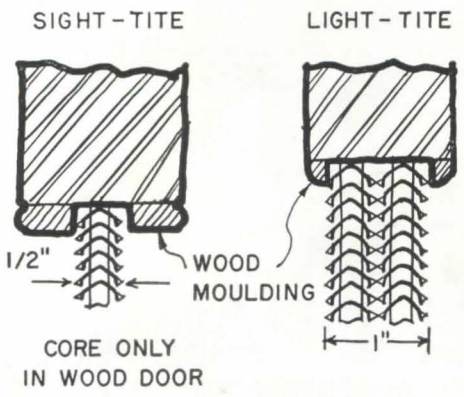
A new series of "Consolite Double Dome" skylights has been developed. Major new feature is an inner "dome," a flat sheet of colorless embossed glass fiber integrally bonded to the outer rounded dome. Result is a more finished appearance to the interior ceiling well. The sealed-in air space between outer and inner domes is condensation-free, thus eliminating the need for condensation traps. A wide range of sizes includes self-flashing and curb-mounted models. Consolidated General Products, Inc.

On Free Data Card, Circle **127**

AIR AND TEMPERATURE

Door Grills Are Vision- and Light-Proof

Inconspicuous ventilating grills that allow free movement of air through wood or metal doors are illustrated in 8-page catalog. Complete information on "Site-Tite" and "Lite-Tite" door



grills—dimensions sizing charts, and applications—is given for all types in the "Uni-Flo" line. Barber-Colman Company.

On Free Data Card, Circle **200**

Gas Unit Heaters Are Versatile and Economic

Versatile gas-fired unit heaters can be suspended from the ceiling or mounted on the floor, and used with or without a duct system. They are compact and completely automatic, dependable and economical. 16-page brochure presents all types—propeller, duct, blower, and heavy-duty—and gives information on Btu ratings, dimensions, air delivery, and loudness. Factors influencing selection, sizing, and location of heaters are discussed. Janitrol Heating & Air Conditioning Division, Surface Combustion Corporation.

On Free Data Card, Circle **201**

Complete Data on Industrial Fans

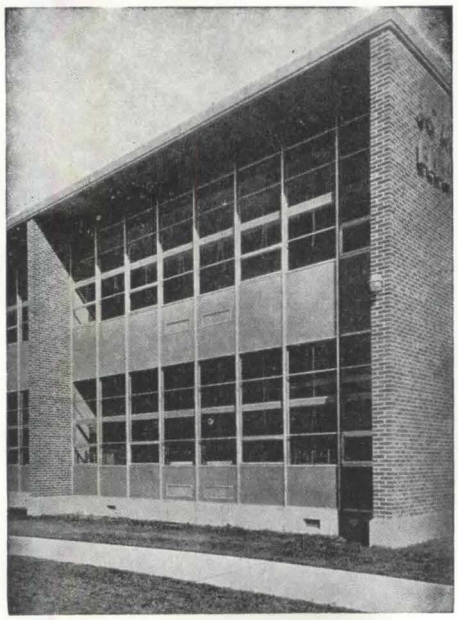
Fundamental data on industrial fans —including rating tables for the complete line—are presented in 28-page bulletin. Information includes tables, for correcting deviation from standard sea-level atmospheric conditions, and diagrams, for principles of good ducting practice. A discussion of fan laws (showing relationship between changes in the delivery of air and other factors in an existing system) is helpful in planning alterations. Lehigh Fan & Blower Division, Fuller Company.

On Free Data Card, Circle **202**

CONSTRUCTION

Porcelain Enameling Of Aluminum

"Porcelain Enameling of Aluminum" is a 22-page guidebook covering the properties and advantages of this process. Applications where porcelain enamel on aluminum provides superior service over anodized aluminum are discussed. Many qualities are compared with those of porcelain-enameled steel. Interesting material on the historical background and method of



manufacture is included. A glossary defines commonly-used terms. Reynolds Metals Company.

On Free Data Card, Circle **203**

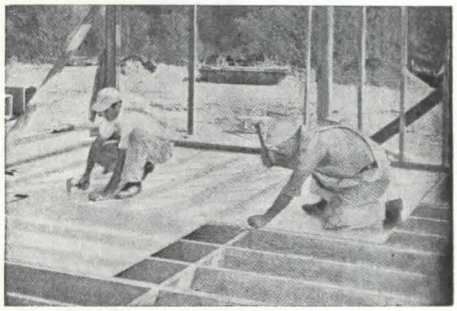
New Epoxy Compounds For Concrete Projects

Applications of six new epoxy compounds, each specifically designed for particular building or maintenance problems, are discussed in 6-page bulletin. The compounds include joint sealing, crack sealing, bonding, patching, skid-resistant surfacing for highways, and corrosion-resistant surfacing for floors. The materials exhibit high bond to structural materials, stability over a wide range of temperatures, compatibility to all concrete and masonry, and rapid curing. Manufacturer states that their development makes possible many new construction techniques and repairs previously considered difficult or impractical. Sika Chemical Corporation.

On Free Data Card, Circle **204**

New Grade Markings, New Sheathing Available

Grade trademarks have been newly-redesigned in order to improve legibility and assist in the quick recognition of plywood. Facsimiles of the new "DFPA tested quality" trade-



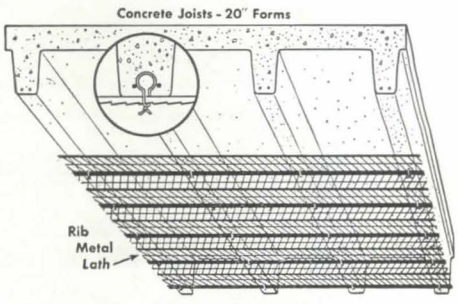
marks, and notes on their interpretation, are contained in 7-page brochure.

Literature is also available on a new sheathing product, "WSP (Western softwood plywood) PlyScord." Special panel-construction features permit its use interchangeably with the more familiar Douglas fir PlyScord in normal sheathing and subflooring applications, where stiffness along the grain is required. In addition, stiffness across the grain gives WSP PlyScord advantages for engineered plywood structures such as sheer walls, gusset plates, beams, and stressed-skin panels. Douglas Fir Plywood Association.

On Free Data Card, Circle **205**

Comprehensive Specs For Metal Lathing

"Specifications for Metal Lathing and Furring" is a valuable 20-page reference booklet—containing fire-resistive



ratings, design tables, and specifications—on hollow partitions, solid par-

Continued on page 101

NOW YOU CAN INSTALL laboratory drainline that is guaranteed against corrosion and leakage for the life of the building in which it is installed.

We mean what we say. The only exception is the understandable one of corrosion from massive volumes of hydrofluoric acid or hot alkalies.

The guarantee covers all other acids, alkalies, or what have you.

PYREX® LIFETIME DRAINLINE

Continued from page 97
titions, sound-insulating partitions, ceilings, vertical furring, and reinforcing. Sections describing materials and defining terms are also included. Metal Lath Manufacturers Association.

On Free Data Card, Circle **206**

List of Research Studies Is Now Available

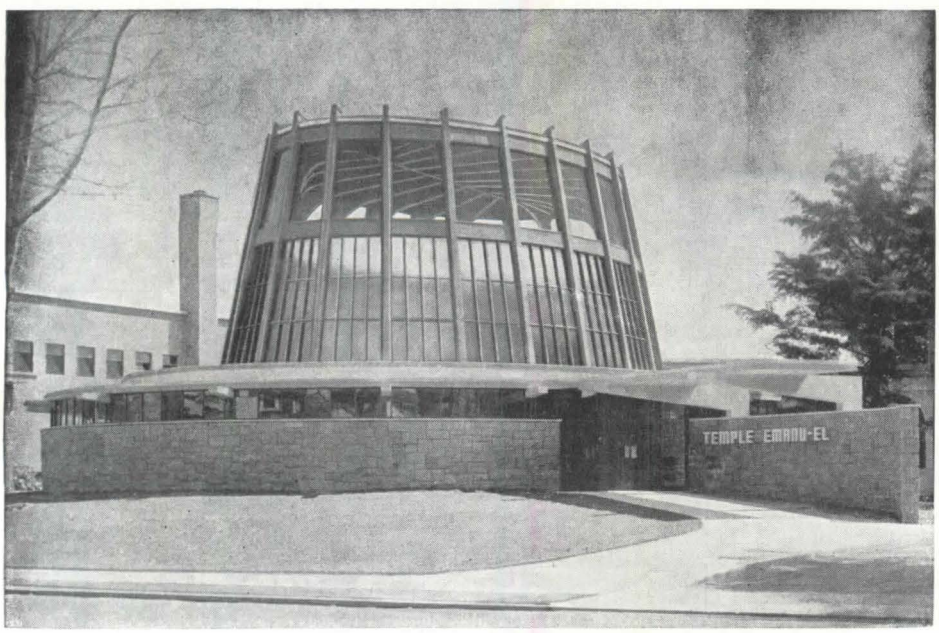
The first complete list of current BRAB publications is now available. Included on the list are several conference proceedings and many technical reports of the FHA and Federal Construction Council. Each publication results from a comprehensive project exploring a particular material type of equipment, or construction system, and provides excellent background information for those in the building industry. Building Research Advisory Board.

On Free Data Card, Circle **207**

Design Manual for Glued, Laminated Wood

Glued, laminated structures are discussed in new design manual. Principles, design procedures, and load tables are clearly presented for three-hinged V arch, two-hinged arch, segment-tied arch, buttressed-segment arch, tepee frame, variable-section laminated beam, straight laminated beam, and structural roof deck. Color selection chart and standard specifications are also given. Photographs of distinctive buildings that have used laminated-wood space framing show the versatility of this structural method. Illustrated: Temple Emanu-El, by Kelly & Gruzen. Unit Structures, Inc.

On Free Data Card, Circle **208**



DOORS AND WINDOWS

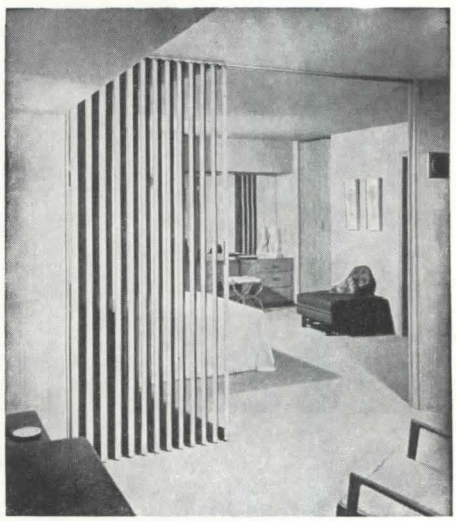
Rolling Steel Doors Suit Any Requirement

Rolling steel doors to meet any industrial and commercial requirements are described in Catalog G-60. Features and engineering specifications for hand-, mechanical-, and power-operated doors (both U. L. labeled and non-labeled types) are given. Besides discussing installation and operating devices, to aid in selecting doors, the 16-page publication outlines requirements and suggestions for special weathering, windlocks, and transparent windows. Building Products Division, R. C. Mahon Company.

On Free Data Card, Circle **209**

Folding Door Is Formica Paneled

A new line of Formica-paneled doors has been added to the "Louver-Fold" folding door collection of fine wood doors, marking the first use of Formica for folding doors. Six of the most popular satin-finish wood grains are available on standard doors, and all Formica patterns will be available on special order. The Formica panels are formed to the patented "Air Foil" louver design under heat and pressure, and are edge-bonded into panels. Superior strength and warp-resistance, as well as excellent wearing and cleaning properties, result. The new door is expected to be particularly suitable for commercial and institutional interiors, and its durability also suggests use in certain residential areas. Consolidated General Products, Inc.



On Free Data Card, Circle **210**

ELECTRICAL EQUIPMENT AND LIGHTING

Lighting Fixtures for Concrete Construction

New prewired recessed lighting fixtures designed exclusively for use in concrete pour construction are presented in a 4-page brochure. Installation of one model by a "spin-up" principle—a new concept in recessed lighting—gives maximum light output and no visible support to the shallow glass globe. Fixtures employ a prewired compartment as an integral part of the housing and are so engineered that wiring may be done either before or after concreting. Prescolite Manufacturing Corporation.

On Free Data Card, Circle **211**

Standard Symbols for Signaling Systems

The development of long-awaited standard symbols for signaling systems, together with a plastic template and explanatory guide for the application of symbols to architectural drawings, has been announced. It is hoped that the nationally-approved symbols, two years in the development, will promote full understanding

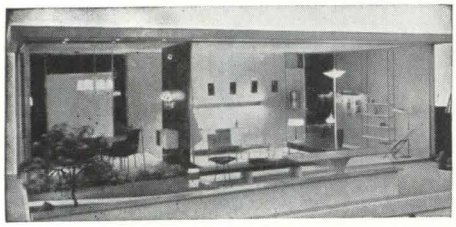
Continued on page 103

Continued from page 101
of desired installations among designers, suppliers, and installers. The explanatory card accompanying each template provides easy-to-follow instructions for numerically keying the basic symbols to various components of a signaling system. Signaling apparatus is installed in a wide variety of systems—nurse call, paging, fire alarm, sprinkler alarm, public and private telephone, watchman, and sound. Signaling Apparatus Section, National Electrical Manufacturers Association.

On Free Data Card, Circle **212**

Frameless Diffuser Comes With Recessed Fixture

A completely new and boldly-scaled light form, "Circulite," is a surface mounted, fully enclosed fixture with a built-in appearance. Its housing is specially regressed so that only the frameless diffuser is visible. The dif-



fuser's form, either round or square, 18″ or 24″ in diameter, is softly sculptured and lends itself well to a variety of commercial and residential uses. Diffuser swings down on hidden flexible strap for easy cleaning. 4-page brochure presents complete information. Photo shows mock-up installation. Lightolier, Inc.

On Free Data Card, Circle **213**

Shallow Troffer Has Unitized Assembly

New "Shallotroffer" lighting fixture series with plug-in unitized electrical assembly is illustrated in 32-page brochure. Unitized assembly removes for maintenance, and can be replaced by a spare in seconds. Lighting can be increased, decreased, or rearranged by the "plug-in" feature. Construction and installation details, including methods for mounting into various ceiling systems, are presented. Eleven different diffusing elements are available in the series, and each is fully discussed, with data on brightness values, lighting curve, and "luminarea" estimator. Globe Illumination Company.

On Free Data Card, Circle **214**

PROTECTORS AND FINISHERS

Painting Costs Discussed

Economic factors of painting are discussed in a 12-page guidebook entitled "How to Reduce Painting Costs." It is mentioned that cost-per-gallon figures are deceptive, since the crucial costs are for labor and for adequate coverage of the particular surface. Spray, brush, and roller methods are discussed briefly, and a simple formula for comparing paint costs is presented. Barreled Sunlight Paint Company.

On Free Data Card, Circle **215**

Principles of Anodizing

Small 8-page folder presents "Questions and Answers about Anodizing," discussing such subjects as the cost of anodizing aluminum, the forming of anodized parts, the heat resistance of anodic films, dimension changes from anodizing, and the difference between anodizing and alumiliting. One brief paragraph outlines the general method for specifying anodizing and assuring that work is done according to specifications. Reynolds Metals Company.

On Free Data Card, Circle **216**

Superior Metal Primer Penetrates, Retards Rust

New metal primer dries in 20 minutes and is compatible with almost any finish coat. Its phenolic-resin penetrant carries the pigment and vehicle through rust and locks itself to the subsurface. Complete penetration seals the surface against further rust development, while saturating action neutralizes porous rust and makes it an actual ingredient of the paint film. Elasticity of "Rust Magic" permits expansion and contraction in metal surfaces. Krylon, Inc.

On Free Data Card, Circle **217**

Rust-Protection System Includes Color Coat

Comprehensive treatise on rust and corrosion control presents new "Color Horizons System" of protective coating. This is a complete system combining colorful surfacing with maximum protection on metal, wood, and masonry. It includes a suitable primer for the particular material and a top coat in one of 67 colors. The manual also describes other systems by the manufacturer—for water resistance, heat resistance, floor coating, heavy-duty chemical resistance, galvanized metal coating, and wire fence roller coating. "Speedy-Dry System," another new development, is specially formulated for production operations where fast air-drying is necessary; coatings dry to the touch in less than 30 minutes. A glossary of terms is a valuable addition to technical information. Rust-Oleum Corporation.

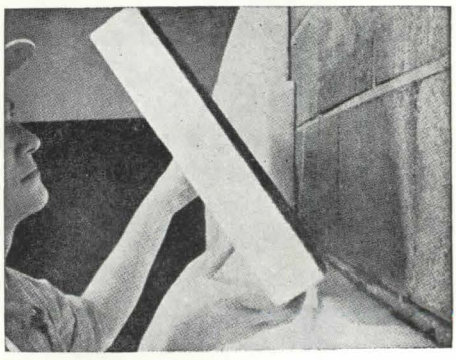
On Free Data Card, Circle **218**

INSULATION

Foamed Insulation for Floors, Walls, Ceilings

"A Guide to Comfort Insulation" introduces a trio of building products developed from expanded polystyrene to provide permanent insulating effectiveness. Cellular structure of the material, effectively resisting the passage of heat, cold, and water vapor, is common to the three products, but each is pre-engineered to meet a particular construction need. Speed and simplicity of installation are primary goals.

"Scorbord," for foundations and floors, is pre-scored at convenient intervals to snap off easily into a variety of sizes. The board lasts indefinitely, since it has no food value to support plant or animal parasites. "Styrofoam," for walls, serves either as



cavity-wall insulation or as a combination insulation-plasterbase. "Roofmate," for built-up roofs, has asphalt-laminated kraft paper wrapped around a board of Styrofoam. By staying dry it reduces blistering and resultant roof leaks, and insures against loss in insulation efficiency. Technical data, installation details, and brief specifications are presented in 16-page manual. The Dow Chemical Company.

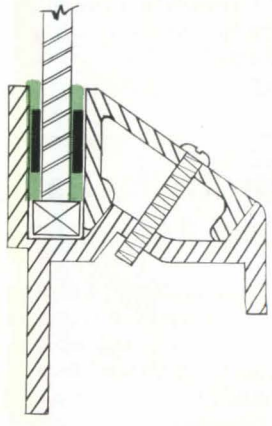
On Free Data Card, Circle **219**

Continued on page 105

New Pressureseal* 162.3 combines two proven products

1. elastic compound tape for intimate bonding

2. neoprene for lasting resiliency



Here at last is double insurance for a positive, lasting seal. New PRESSURESEAL unites . . .

Presstite No. 162 Elastic Compound Tape, already in wide use in the construction field where its excellent plasticity, adhesion and weather resistance are helping to achieve the controlled comfort found in many of today's new skyscrapers, with . . .

Neoprene, PRESSURESEAL's "core", a synthetic rubber well-known for its ability to "give and take" with the contraction and expansion of modern design.

United, these two proven products provide an *elastic bond* to seal . . . and a *resilient cushion* to absorb pressure loads.

WANT A SAMPLE? It's yours on request, along with illustrated literature. Call or write Dept. B-4.

*Patents applied for.

PRESSTITE SEALING COMPOUNDS

PRESSTITE DIVISION
AMERICAN-MARIETTA COMPANY

KAP

3766 CHOUTEAU AVENUE • ST. LOUIS 10, MISSOURI

Continued from page 103

Insulation Fundamentals Compiled in Booklet

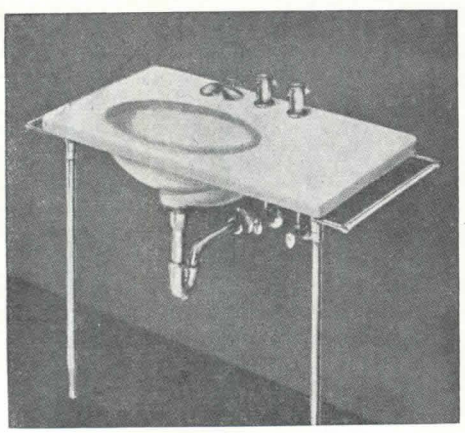
Why building insulation is used, how it is used, and where it should be used, are subjects covered in "Fundamentals of Building Insulation." The 44-page booklet was especially compiled to inform architects, engineers, students, and others in the building industry of basic principles and significant improvements in the design and application of insulation. Although not intended as an exhaustive treatise, the book gives thorough treatment to its subject. An extensive list of references for further study is appended. Insulation Board Institute.

On Free Data Card, Circle **220**

SANITATION, PLUMBING, AND WATER SUPPLY

Plumbing Fixtures Have Sculptured Look

The "Sculptured Look" that is integrated into all its products is illustrated in new 16-page catalog of plumbing fixtures and fittings. Advanced design in bathtubs includes slip-resistant serpentine embossment



and wide rim seat, for maximum safety to bather. New lavatory design has oval bowl located off-center in a wide flat slab. A large variety of other fixtures is illustrated. Briggs Manufacturing Company.

On Free Data Card, Circle **221**

Guide to Fixtures for Educational Facilities

Correct pupil-to-fixture ratios in school washrooms are discussed in 43-page research publication. The number, type, and location of plumbing fixtures can be determined by considering the various factors of traffic load and total educational program. Book is the result of a two-year study, underwritten by the Plumbing Fixture Manufacturers Association and independent manufacturers. Write to: School Planning Laboratory, School of Education, Stanford University, Stanford, Calif. ($2.00).

Marble Designs For Bathrooms

Brochure on use of marble in residential bathrooms illustrates actual installations and shows construction details for a variety of currently-popular designs. Scope of the 24-page brochure ranges from simplest use of small slabs for pullman-type installations to elaborate use of marble on walls, floors, partitions, and countertops. Marble Institute of America, Inc.

On Free Data Card, Circle **222**

SPECIALIZED EQUIPMENT

Conveyor Belts for Use In Congested Areas

Rubber-covered steel conveyor belts, for carrying pedestrians through congested areas, are illustrated in 4-page brochure. Specific information on belt dimensions, permissible inclines, and methods of support is given. General information on inherent features of conveyors — great tensile strength, high wear resistance, stiffness, etc.— is also included. Graphs determine maximum center distances between end pulleys. Suggested building types for the use of this equipment are department stores, subways, railroad stations, airports, sports arenas, shopping centers, and industrial plants. Sandvik Steel, Inc.

On Free Data Card, Circle **223**

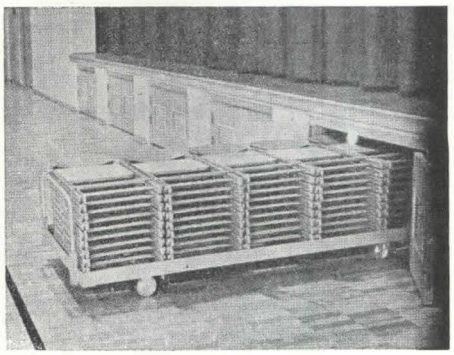
Bleachers Are Sturdy, Yet Fold for Storage

"Ez-A-Way" folded seating is presented in a 16-page illustrated catalog. The line has many unique construction features—square tubing in steel understructure, scissor cross bracing, floating action, and brake mechanism —to give stability and provide easy telescoping. Bleachers can be either mechanically or electrically operated. Also available are folding chair stands, folding wall seats, portable bleachers, and permanent grandstand seating. Berlin Chapman Company.

On Free Data Card, Circle **224**

Chairs Are Stored In Area Under Stage

"Architectural Guide for Understage Chair Storage" gives dimensions and specifications for storing various types of seating with various models of chair trucks. The systems provide maximum accommodation of seating



in understage space; a cut-away drawing of stage floor indicates proper layout for this area. All necessary design information is contained in 4-page folder. Space Saver Truck Company.

On Free Data Card, Circle **225**

Variety of Styles in Metal Letters, Tablets

New catalog of architectural metal letters gives detailed information on methods of fabrication, correct metallurgy, spacing of letters, finishing, and installation. Sixteen alphabets are available and manufacturer has facilities for designing and producing many other special letters. Catalog of 16 pages also contains descriptions and photographs of numerous plaques and tablets, showing possibilities in shape, texture, and lettering style. Materials are bronze, aluminum, brass, and nickel silver. Oregon Brass Works.

On Free Data Card, Circle **226**

Continued on page 106

Continued from page 105

Design Manual For Metal Stairs

All types of metal stairs—circular, monumental, and conventional—are described in this 72-page manual. Design information covers all component stair parts, and is presented according to the particular type of stair. Several pages are devoted to additional railing designs. Load tables are also given a special section. National Association of Architectural Metal Manufacturers.

On Free Data Card, Circle **227**

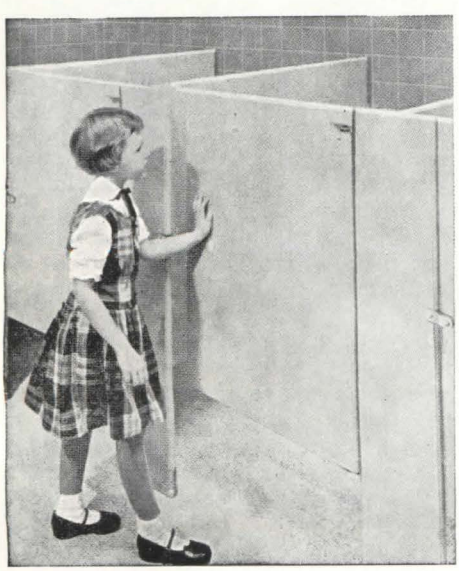
Computers Simplify Parking Operations

Parking ramp computers—giving the garage attendant an instant inventory of available space and directing drivers on to unfilled levels—are discussed in 4-page brochure. Systems can be engineered to any requirements, with basic components (directions to driver and information to attendant) keyed to particular ramp design. Rampark, Inc.

On Free Data Card, Circle **228**

Toilet Compartments Have New Colors, Refinements

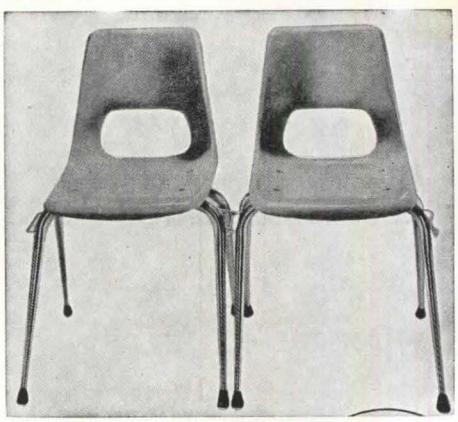
Full line of toilet compartments, shower stalls, and hospital cubicles is presented in new 32-page catalog. Contents include architectural specifications, chart of new colors, description of new metal finish, and details of engineering developments (among them, unique integral hinge brackets and concealed latch). Three basic styles permit ceiling-hung, floor-supported, or overhead-braced installation. Doors and partitions are 1″-thick flush panels and are provided with sound-deadening insulation. Pilasters, also flush, contribute to a clean uncluttered appearance. Sanymetal Products Company, Inc.



On Free Data Card, Circle **229**

Molded Chairs Highlight Contract Furniture Line

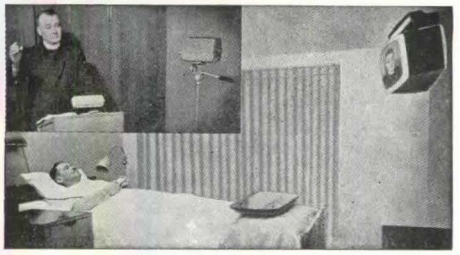
Line of contract furniture features molded "Lifetime Fiberglass" chairs, which have tubular tapered legs for strength, and extended rear legs to prevent chair from marring wall. Deep compound curves in the one-piece seat-and-back, and an open back, provide comfort even after hours of sitting. Chairs stack up to nine high. Other pieces presented in 14-page brochure are sturdy arm chairs, settees, desks, tables, and movable storage cabinets. An exclusive honeycomb construction in table tops and structural panels of cabinets give maximum strength with minimum weight. Brunswick-Balke-Collender Company.



On Free Data Card, Circle **230**

Hospital Communications Are an Integrated System

Comprehensive loose-leaf file of integrated hospital communications is now available. All equipment of the Nurse Call/Television/Radio systems can be integrated into a single installation by using the unique pillow speaker as nurse-call microphone and as TV/radio remote-control unit. The use of a single instrument to serve varied purposes is an obvious economy. Further advantages in this integrated system: the TV unit is wall-mounted and has no wires or furniture to clutter the room, and once the TV antenna system is installed, the hospital may expand its system (for instance, to add closed-circuit TV) with little remodeling. Complete data on equipment and installation are presented. Dahlberg, Inc.



On Free Data Card, Circle **231**

Office Furniture Is Designed for Executives

An office furniture collection that caters to the executive is presented in handsome 80-page catalog. The items provide not only a thorough flexibility of function, but also afford a refreshing freedom of expression in form and character. Desks consist of innumerable components of working spaces and interior storage spaces, with components assembled right- and left-hand to be practical in any location. Storage cabinets, for use behind desks, are planned for desk height to expand usable working surfaces. Conference tables of various sizes are assembled from six basic tops, as determined by the particular situation. Many chairs, benches, and sofas are also shown. Surfaces are American walnut, sometimes with rosewood accents, plasticized wood, and plain-colored. The collection is designed by Edward Wormley. The Dunbar Furniture Corporation.

On Free Data Card, Circle **232**

Gas Burners Fold Away For Extra Counter Space

Surface cooking burners, which are

Continued on page 109

Continued from page 106

folded out of the way when not in use, are an ingenious solution to the problem of extra counter space. Countertop two-burner cooking unit, counterbalanced to raise and lower at the touch of a finger, folds into its slim square-corner cabinet when not in use. Folded away, the unit takes up less than one square foot of counter space. There is no interference with drawer space since the unit is not recessed into counter top. Dixie Products, Inc.

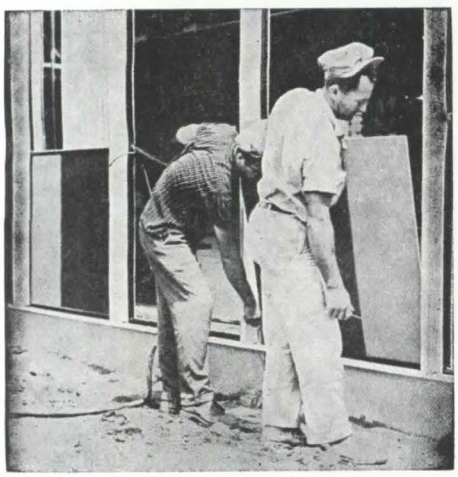
On Free Data Card, Circle 233

SURFACING MATERIALS

Asbestos-Cement Sheet For Interiors, Exteriors

"Micro-Flexboard" is a precision asbestos-cement base sheet that can be economically used both for outside panels and interior walls, according to 6-page brochure. Laminators or finishers can apply porcelain on metal, wood veneer, ceramic tile, textured metal, plastics, or paint finishes. Material also offers strong-as-stone resistance, non-combustibility, and a rigid buckle-free base for the suggested finishes. Physical characteristics and sketches of possible installations are given. Sheet is less than ¼″ thick and is light in weight. Sheet sizes are 4′ wide x 8′, 10′, or 12′ long. Johns-Manville Corporation.

On Free Data Card, Circle 234



Complete Information On Acoustical Ceilings

Catalog of acoustical ceilings gives complete information on line of sound-absorbing tiles. Each product—of wood fiber, mineral fiber, or metal-pan material—is illustrated and fully discussed as to physical qualities, sound-absorption coefficients, and installation methods. Special sections of the 36-page catalog discuss principles of sound transmission and give general guides to the selection of appropriate ceilings. Armstrong Cork Company.

On Free Data Card, Circle 235

Versatile Wall Coverings Of Wood Veneer and Vinyl

Two new booklets, entitled "Weldwood Flexwood" and "Weldwood Kalistron & Kalitex" have been revised to include additional information and new colors. Flexwood, a wood paneling in flexible form, is made of genuine wood veneers permanently laminated to a special backing. Kalistron, a decorative vinyl wall covering, and Kalitex, a textured colored wall covering, are both sturdy materials made by fusing color to the underside of a clear vinyl sheet to which a suede-like backing is applied. The booklets illustrate applications of these products, list their many advantageous qualities, and include brief specifications. United States Plywood Corporation.

On Free Data Card, Circle 236

TRAFFIC

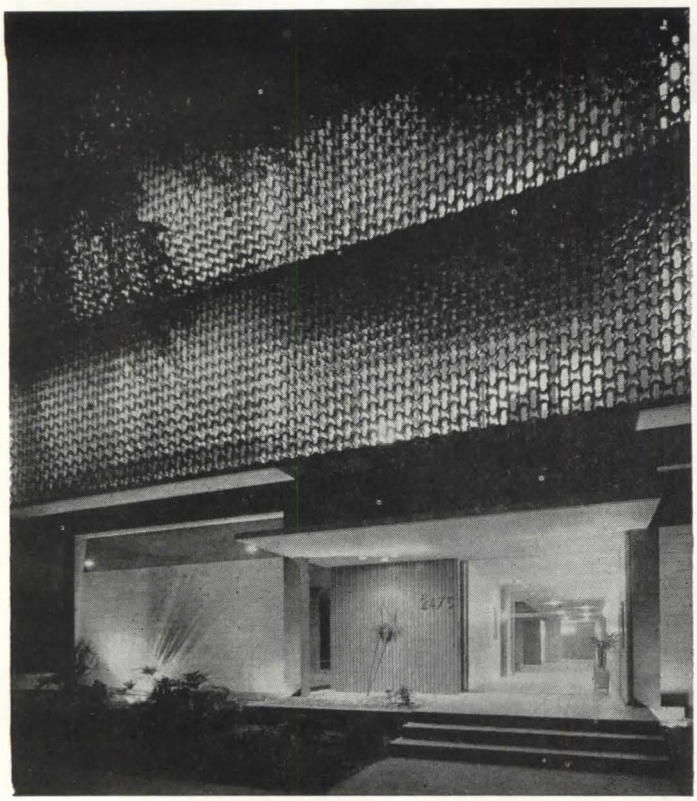
Parking Arrangements Planned with Templates

A series of 6 templates helps to plan any type of parking arrangement—45-, 60-, and 90-degree—and assures safe, convenient placement of maximum number of cars in any area. Scales are 1″ = 20′ and 1″ = 50′. Maintenance, Inc.

On Free Data Card, Circle 237

PROGRESSIVE ARCHITECTURE
NEWS REPORT
REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE NEW YORK 22, N.Y.

Publisher ..... D. Bradford Wilkin
Editor ..... Thomas H. Creighton
News Editor ..... James T. Burns, Jr.



Photos: Frank Lotz Miller

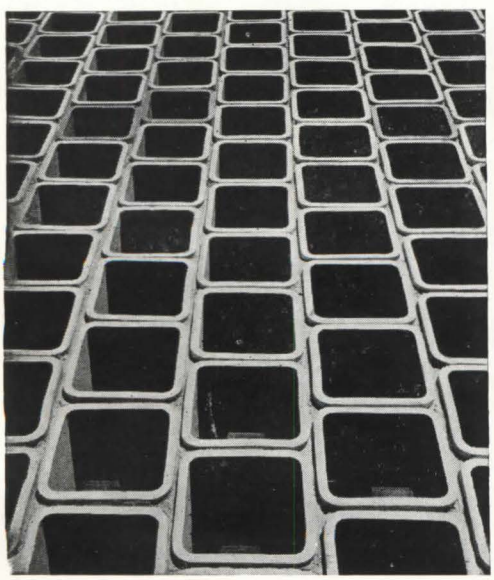
APRIL P/A: ARCHITECT & HIS COMMUNITY, BREUER'S HUNTER BUILDINGS

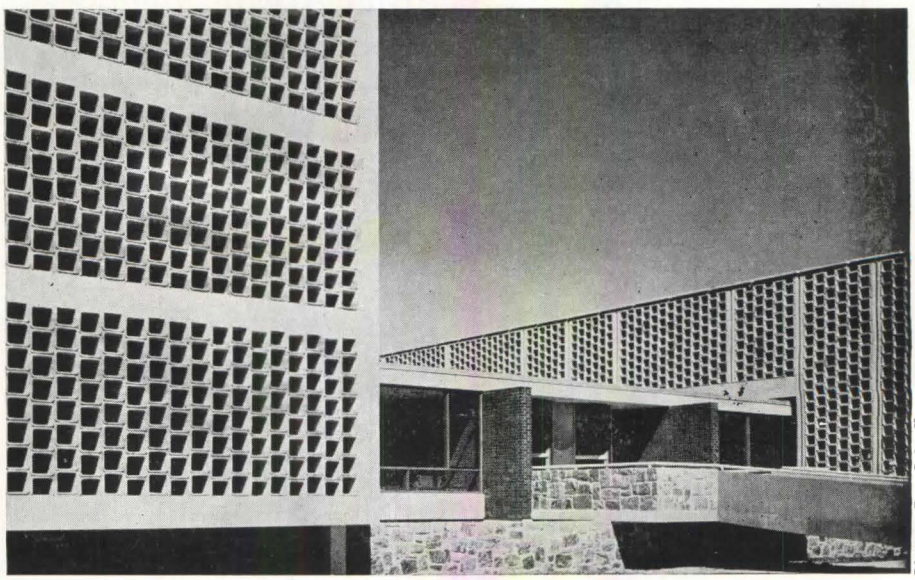
THE ARCHITECT & HIS COMMUNITY: Curtis & Davis, New Orleans. Since P/A published a New Orleans automobile showroom by Curtis & Davis in 1950, this firm has gone on to establish an international practice, with a major medical center in Berlin, an embassy in Saigon, and hotels and motels in Canada and the Carribean. Oftimes winners of P/A Awards, including the First Design Award in 1958, this young firm represents the truly impressive progress which can be made by an active and imaginative organization in the short space of 14 years. In April, P/A's ARCHITECT & HIS COMMUNITY will document this expansion and present a number of notable buildings in Curtis & Davis's home town, including the New Orleans Public Library (another P/A Design Award winner), the Caribe Office Building, and the Tulane Student Center.

HUNTER COLLEGE LIBRARY & CLASSROOM BUILDING. This beautifully-designed structure *(below)* by Marcel Breuer will be examined from standpoints of both design and engineering, showing how the two were combined to produce a remarkable result.

Other buildings to be presented in April P/A include a church institute for seamen, lawyers' offices, a longshoremen's union building, and a car wash. Interiors of two handsome showrooms will be discussed.

Materials and Methods articles will discuss the safety tests recently made on Simon Rodia's fabulous towers in Watts, California. A number of interesting technical facts were learned from the tests, and will be revealed in April P/A. Also to be examined is an Ohio school's welded rigid steel framing system.





Photos: Ben Schnall

BRITISH SCHOOL ARCHITECTS EXAMINE OUR WORK

A REPORT
BY
DAVID L. MEDD
AND
MARY CROWLEY*

In this first review of some of our experiences of schools in the United States we can only pick out and discuss certain aspects, and not all of these fully or with sufficient supporting explanation. We hope, in skating over such a huge subject, without at this time being able to develop our arguments, that our admiration and appreciation of the qualities of American schools are stated with sufficient clarity to dominate, as they certainly do, any criticisms we make of the characteristics with which we are unsympathetic. Our criticisms are a measure only of differences of view and not a judgment of right or wrong. Most important of all, we would like to thank everyone who was so good to us in giving us help and information, hoping they will not find misinterpretation of their ideas, and will recognize, with so many common problems in both our countries, just how valuable our experience in the U.S. has been, and will continue to be.

Background to School Building: Some Comparisons

TODAY both the United States and England are striving to achieve the same educational ideal—education for all children, according to their aptitudes and abilities—although our respective systems have traditions very different in kind and in length. In both countries there is heart-searching and criticism of certain trends, though in England it is true that tradition is more deeply entrenched, and thus more slow-moving, and one is less conscious of nation wide concern than in the United States, where so many people are seeking fresh ways to overcome acknowledged shortcomings.

In spite of the problems both countries have in common, and the extent to which we can learn from each other at the points where our paths cross, it is not surprising that there should be misunderstanding among professional circles on both sides. For example, many people we met as we traveled through the States were convinced that the English school system was dominated by rigid control and uniformity, and saw no distinction between it and the systems of continental Europe. They were surprised, too, to learn that comprehensive high schools are a part of our secondary school life, and that there is no official requirement for children to pass, at 11 years, through the sieve of examination into different types of secondary schools, although this has been the practice in many areas. There was even doubt among some of our American friends as to whether subjects of practical value, such as Industrial Arts and Home Economics, were offered in English schools. On the other hand it may surprise some people in England that the private and specialized, as well as comprehensive high schools, are a part of the American secondary school scene. Therefore, it may be of value, by way of introduction, to make one or two brief comparisons.

The pride and eagerness with which many school districts in the United States pursue their work is remarkable, but the degree to which they treasure their autonomy sometimes makes it difficult to work out schemes of state aid. Aid is needed and wanted, but not control; aid cannot be given, however, without some measure of control. The fear and trepidation which characterizes the Federal Government's participation in education is made very clear by the title "National Defense Act," followed by its apologetic preamble. To outsiders it seems that as state and national resources are inevitably and increasingly used for education, so must the opposing forces of freedom and control be resolved.

The English local education authorities—equivalent to the American school districts—are also autonomous, and in

---

** A husband-and-wife team of architects, both employed by British Ministry of Education, the Medds have spent several months traveling across the U.S.A. under Commonwealth Fund Fellowships, studying our schools. They have returned to England and sent P/A this report from London.*

no way branches of the Ministry of Education. They make their decisions about how they organize their system of education, the kinds of schools they build, and the teachers they employ. The teachers in the schools themselves develop their own methods and curriculums, and select their own text books. In present circumstances, however, a fairly close control is exercised over the authorities' school building programs, to ensure the wisest distribution of the money for this purpose.

History and geography, rather than educational needs, have determined the size, type, and wealth of American School Districts. However, the conditions required for provision of adequate and economic education are leading to consolidation of the multiplicity of small districts at an increasing rate. The extreme variety of school districts means that the much prized equality of status and opportunity is often prejudiced by the unequal readiness or ability to support education. There is not the particular problem of small education authorities in England. Whereas two years ago in the United States only 42 percent of school districts served more than 50 pupils, four years ago the 147 authorities in England and Wales served a total population of approximately 44½ million, and all but the smallest—a group of islands just under 2000 inhabitants and 260 school children—had populations of over 20,000, eight of them serving over a million people.

In theory, the relationship between the community and its school is similar in both countries, although in England the division between lay and professional responsibility seems to be more clearly defined than in the United States. There community participation may affect policy—a possibility regarded as questionable by many. The time and energy which some communities are willing to give to their schools make us in England feel positively lethargic by contrast. This is often matched, however, by the time and energy expended by the school board, superintendent, and others, in securing the support of the community, in order that the educational program may go forward at all. The demands on the superintendent to organize the system, run the building program, and retain the support of the community are so great, that the weight of administration is bound to dominate. In spite of outstanding exceptions where spearhead work is being done, it is not easy to avoid the conclusion that the school superintendent must often put organization before education if he is to survive, and that the kind of person who wishes to devote himself extensively to educational thought and work does not easily find his place in the school system, tending, therefore, to take an appointment in a university or elsewhere. In our search, therefore, for the "growing points" in educational development, we felt that the main influences at work were outside, rather than inside the public school system. Thus the school system has often to supplement its own resources by leaning heavily on the advice of hired consultants and outside experts, and on the literature produced by professional organizations and individuals. This has led, inevitably, to a certain division between theory and practice, and while current ideas are widely spread, the individuality of the school districts—a characteristic of which they are so proud—is, paradoxically, lessened. (This sounds like a typical generalization, and we hasten to add that we were in school districts in which both theory and practice were closely linked.)

We sometimes wondered whether the load of specialists and administrators on top of the teachers might not be felt by some of them to be oppressive. It is, for example, a fundamental difference between our systems that in England the head of a school is the "head teacher," while in the United States he is the "principal" (an administrator). American teachers who seek promotion in their chosen profession find the ceiling low, and are consequently encouraged either to change their role and become specialists of some kind, or to leave the public school system altogether. Influences are beginning to change the accepted pattern of teaching in standard class groups, however. The recommendations of the Trump Report in this connection are most interesting, and the changes in school organization consequent upon them are already beginning radically to affect school design.

Some Trends in Secondary Education

SECONDARY education—its content, its organization and its schools—is under critical review in both our countries, and it is therefore important that architects should be closely identified with the development of educational thinking so that new ideas will not, as so often in the past (in England, at least), be compromised by inadequate spaces, but will grow possibly beyond the imagination of those who first think of them, because they will be interpreted by designers who can understand and—more important—share them.

Amid all the outpouring of criticism (not all of it constructive, and not all based on firsthand experience), and the great tide of books, articles, broadcasts, conventions, and committees offering solutions, the quiet and persistent work of the best educators goes on, undeflected from its main purpose by temporary panics and panaceas. Two of the dominating educational problems are the shortage of teachers and the large number of small schools unable to offer an adequate program. A major contribution to the solution of these is the authoritative Conant Report, published while we were in the United States, which, with its brevity and its clarity, was in marked contrast to much of the educational jargon we read. Coming at a time when the comprehensive school in particular is under fire (partly because it is a convenient scapegoat), the Report shows how this great American institution can, without losing its essential character, develop to meet the shortcomings that have become evident. If in the United States ways can be found of successfully combining general education, courses for specific skills, and high academic pursuits in relatively small schools, a major step will have been taken. This is relevant also to England, where so far it has been widely accepted that a large enrolment is the prerequisite of a successful comprehensive school.

To this end a variety of ideas is being tried in the United States. The redeployment of teachers in the schools, and the development of means of mass communication, such as TV in particular, are already having an effect on school organization and sizes of teaching groups, and thus on the form of the building itself.

The Ford Foundation, through the Fund for the Advancement of Education, has made enormous resources available for educational research, and more recently, through the Educational Facilities Laboratory, for research into physical facilities. Time and again, in our travels, we found examples of work made possible by this Fund, whose influence will undoubtedly accelerate developments and have a lasting effect on education. It is perhaps typical of the United States that whenever a large organization embarks on activities which normally are those undertaken by local bodies, suspicions are aroused. However, the scale of the Ford Foundation operation is certainly not in excess of the need, and surely demands encouragement. We should add that we did, on a number of occasions, hear the view that the Fund and the E.F.L. were prejudiced to the view that team teaching and media for mass communication would be the means of solving the problems of supply and quality of teachers, and had not set out to see, objectively, what openings in education might result from the use of new techniques.

The E.F.L. is of great interest to architects in particular. It is another vehicle for the practical application of educational and technical ideas in school building which, in the

normal cycle of practice, emerge slowly or by chance. With so much separation, already noted, between thought and practice, this opportunity to combine the two is welcome. It is one of our regrets that the work of the E.F.L. was only in its formative stages when we were in the United States. It appeared at that time to be functioning, in contrast to development groups in England, as a source of money to assist existing groups in the field, rather than as a team, or teams, within its own organization. There is no doubt that a number of *ad hoc* projects and exchanges of ideas will, as always, be of some value. But we never fail to be impressed by the handful of schools which have been outstanding in their influence through the years, and these have not been the vehicles for isolated experiments, but the practical realization of an attitude towards education by acknowledged leaders, served by architects who, by understanding and sharing these educational intentions, were able to interpret them in such a way that the schools both served the present and opened the way to the future. Crow Island School, Winnetka, Ill., is a well known example illustrating this, but a more recent one might be the Carl Underwood School, Andrews, Texas, or the new high school at Wayland, Mass. If some of the individual aspects in which the E.F.L. is interested are tried out in the context of the whole plants and in different regions, the interaction of one aspect on another will more readily be assessed, and the relative importance of the parts judged in relation to the whole.

Modular Co-ordination and Prefabrication

WE were surprised not to find more research into the design and building of schools. Out of nearly 200 projects initiated by the federally supported Co-operative Research Program, for example, only two were connected with school building, which seemed inadequate, to say the least—particularly in view of the fact that one of these, on the planning and cost of schools, had apparently floundered, and the other, on the "Development of Standard and Correlated Dimensions of Material Components in School Construction," a study now in hand by the Texas Education Agency, is in our view unlikely to have a very wide influence in the United States.

For this project to restrict its study of modular co-ordination to school building, although this covers a wide range, appears to be a limitation that might prevent the full advantages from being achieved. To establish the range of dimensions that are required in school buildings, from the narrowest to the widest spans, and from the lowest to the highest spaces, with an assessment of the frequency of intermediate dimensions, is important. But it would seem advisable, at that point, to consider other building types similarly, so that a more unified demand could be made upon the building industry, whose co-operation would thus be more easily secured, with consequent economic advantages to the public.

In this context we were impressed by the work of Ezra Ehrenkrantz at the College of Architecture, Berkeley. His work on modular co-ordination, already achieving practical results, is based on the principle of obtaining the maximum number of finished dimensions with the minimum number of component sizes—a principle applicable to any building type. A clear distinction is maintained between the function of the architect, whose main concern is for the dimensional performance of components, and that of the manufacturer, whose responsibility is the means of achieving this.

Modular co-ordination is a loosely used phrase, and unfortunately the more it is used the less clear is its meaning; very often it is believed to be an automatic way of achieving modernity or economy. Prefabrication has not, in spite of piecemeal use of proprietary mullion and panel systems, been developed in the United States in the same way as it has been in England, where architects, with industry, have taken the initiative in designing systems of construction which combine standardization for manufacture with flexibility in design. In this context, the dangers of the failure of the architectural profession in the United States to collaborate with industry can be seen in the development, for example, of the mobile home: is there a possibility that this may enter the school building field, at least in the form of classrooms? If so, is it not important to influence this development rather than to regard it with dismay? It would appear that prefabrication for schools has not gone ahead in the United States partly because the building industry has been able to cope with the demands of new schools, and partly because of the absence of any certain continuity of building program in school districts—although there is no doubt that the largest districts do in fact need so many new schools that advantages would be gained by building them as part of a continuous program rather than as a string of individual jobs. In England, the education authorities, as pointed out earlier, are generally much larger than their American counterparts. Also, a recent development has been the collaboration of several authorities to use a common system of prefabrication, thus further reducing costs by creating a larger organized demand.

English experience has also shown that the successful development of prefabrication for school building depends on the close and continuous association of architect, educator, manufacturer, and builder. This has been possible partly because a large proportion of new educational building in England is designed by architects on the staff of local education authorities. Architects in this position were responsible for 69 percent of the 1958-9 building program in contrast to the United States where the work has virtually all been commissioned to architects in private practice. Also in England the theory of modular co-ordination has tended to follow practice, rather than to precede it as in the United States. This is because practical results have been a necessity, owing to the inadequacy both of conventional building methods and of available materials to meet the situation. Although it might seem that in an industrial age prefabrication would logically develop from necessity to an accepted way of building, in the United States the high cost of labor, and consequently of time, seems to have had a more widespread influence on the building industry as a whole than in England, bringing labor saving organization and methods, and clean and simple procedures on site—in fact, just those qualities sought in England by prefabrication. The achievement and service of the American building industry and its related manufacturers, in terms of speed, cost, and quality, have therefore taken away the imperative necessity which occurred in England, to explore other methods. Prefabrication in the United States consequently appears to be a minor issue beside the main stream of development in the building industry, the results of whose work in school building are so impressive.

Plan and Cost Analysis

THAT the Federally supported investigation into "Planning and Costs of School Construction" should have floundered is not altogether surprising when one considers all the complexities of the subject, and takes into account the tendency in the United States to seek perfection on paper—in spite of the fact that the Federal Authorities are continually improving their methods for obtaining and presenting exhaustive statistics on education for states and school districts.

For observers like ourselves, one of the most baffling problems was to try and find out the real size and cost of schools. There are indeed many figures available, but although each district or firm of architects may have ordered consistent data, we were rarely able to compare figures from

different sources with any confidence. Answers to the same question would vary according to the source of inquiry, or the purpose of the question, and we realized how possible it would be for one school board to satisfy itself that its schools were either cheaper or more expensive, larger or smaller, than those belonging to another school board.

If value for money is an accepted ideal, the need to analyze and compare with precision the efficiency of different plans on a comparable basis is surely essential, so that the architect, the superintendent, or the school board can have a clear understanding of such things as, for example, the proportion of the whole plan occupied by its classrooms or its corridors, or the amount of space of small educational value that has to be paid for. But plan analysis depends on widely accepted definitions, and it is unfortunate that the labors of those who work to establish these should leave so many loopholes for misinterpretation. The different spaces that occur in schools can be defined and categorized, as can a method of measurement, and it would not appear that the size of a country, or the variety of its schools, need prevent the establishment of a technique whereby square feet could be counted as objectively as heads.

Cost analysis is more complicated—but in any circumstances the comparison of cost requires skill and care if the conclusions are to be true and fair. However, the difficulties should in no way prevent an agreed basis, at least, of cost definition, so that even if date of building or quality of building make full comparison complicated, at least the figures that do appear will mean something in themselves. Most existing proposals for cost analysis tend either to be so involved that only the inventors of the system can use them, or to defeat their object by aiming at perfection. (For example, instead of attempting to codify quality, might it not be preferable to publish the facts and let readers make their own comparative judgments?)

The method of cost and plan analysis which comes closest to our own in England is that published and practiced by Frederick C. Wood, in which the number of pupils, the categories of spaces, and the work included in the costs quoted, are all defined.

An architectural journal that pursued a careful and analytical method of presentation could have a useful influence, and give valuable service. We had occasion as we traveled to study a number of journals in which schools have been published, but it seemed that the information given was selected more for those who flick through pages than for serious inquirers. What we were looking for, in addition to clearly drawn plans, was, for example, such basic information as:

(*a*) Number of pupils for whom the school was designed, and the present enrolment.
(*b*) Area of the site.
(*c*) Area of the building (measured to defined limits, e.g. to inside face of external walls, and to center lines of partitions).
(*d*) Area of teaching accommodations (clearly defined, and measured to internal surfaces of walls).
(*e*) Plan analysis showing the percentages of the area of the building taken up by different categories of spaces, each defined, and leaving no ambiguities (for example to which categories the different types of closets belong, or the stage, or spaces used for more than one purpose).
(*f*) Cost of building construction (with date, and defined as estimate, bid, or final cost, and stating the categories of work included).[1]

In spite of the many people who may be clear on this subject, we feel that the absence of a simple, authentic, and widely accepted basis for assessing the facts of school buildings is prejudicial to a common understanding of them, and leaves the door wide open for false interpretations to suit any argument.

[1] *The cost of loose furniture and equipment would also be of considerable interest.*

Toward the Artificial Environment?

THE most noticeable architectural trend in school design seems to be toward an artificial environment. This is a subject for a separate article, but it has such an influence that we would like to express our views briefly here.

The pendulum is swinging from the all-window to the no-window school, and technical arguments connected with heating, lighting, or psychology can be brought up to justify any point between these extremes at which the pendulum may be temporarily arrested. There is here the conflict between the technician, who sees his part of the picture very clearly, and those with broader and more balanced views, whose judgments are based not on theories but on experience and acquired common sense, who remember that human beings are still a part of nature, and therefore begin to wither in some respect or degree when isolated from natural environment. It is interesting that research into life in submarines supports this—but let us not look forward to the day when life in submarines and schools pose the same problems for engineers. There are still in education those who use the outside both visually and physically as part of the teaching process, and who ask architects to allow them to continue to do so, while protecting the inside from the discomfort of excessive brightness and heat. It may seem reactionary to remind ourselves that the problem is not a new one, and that some answers did exist in traditional building—for example in the southern states in the 18th and 19th Centuries, or earlier, in the Mexican villages with their patio planning. The limitation and control of direct light by means of the patio and overhangs, and the reduction of brightness by planting have been accomplished successfully also in some new schools. These are simple solutions that seem to be more in sympathy with the character of a building for education than some of the more elaborate technical tricks employed. One of these solutions might even have satisfied the teacher who said she liked a room with no windows because there were "no distractions," but then admitted that she would have liked still better to look out onto a quiet planted area.

We must say here that while we are certainly out of sympathy with the artificial environment we recognize the advantages, in terms of planning and convenience, of supplementary electric light. We do notice, however, that the mere reduction of window sizes brings with it problems of brightness contrasts different in kind, but just as awkward, as those connected with large window areas—which, with all their difficulties, brought to schools something that distinguished them from their predecessors: lightness and cheerfulness. What does need to be emphasized is that as much research and investigation by engineers and architects is required for the design of daylight as for the design of artificial light, whether the windows are large or small.

Examples of every stage between the all-window to the no-window schools can be collected as one travels from state to state: the school which turns its windows away from the view of cows and sea in order to get a northerly outlook onto an area of hard-top; the school with small horizontal strips of windows (with or without darkened glass); the school with small vertical strips of windows; the school with roof lights only; the school with no windows at all. The same pressure is behind all of them, pushing on toward the complete electric environment. And once a trend becomes established, its momentum gathers speed and force, so that a point is reached when reason is no longer always the guiding factor. "We've been through glass bricks and drapes, and we are getting through 'low tran' and coming to view

windows" and: "We are not psychologically ready yet for artificially lit rooms all the time" show how the mind has been taken off its own feet and put on the wheels of the trend. And the statement "In 1947 . . . we didn't figure artificial light was needed during the day; then we went out with light meters, and the first thing we did was to change the lighting in our schools" shows how faith in the machine can be stronger than faith in the mind—in spite of all reminders to THINK.

Thus in the architectural confusion of the present situation some schools have solid walls, some have glass walls, some have glass walls around solid walls, and some have semi-solid walls around glass walls. (Which should give those of us who analyze elevations in terms of solid to void something to a-void.)

Are Schools Extravagant?

A QUESTION which was frequently put to us was "Don't you think our public schools are palatial and unnecessarily expensive?" The popular press has, of course, had a lot to do with this, and one of the ironies of destructive criticism is that it hurts indiscriminately. Clear lines surely need to be drawn among for example: money spent on educational development; the social requirements of the adult community; extravagant or inefficient design; and competitive prestige.

If it is money spent on educational development that is resented, one would think that those who wish to make a reputation for themselves as money savers would look in more lucrative directions, as the expenditure on education is, nationally, so relatively small, and the cost of school buildings such a small proportion of this, that any cuts would yield little. Moreover, what corporation president or road engineer could afford not to plan for the future?

If it is money spent on the social requirements of the community that is resented, it has to be remembered that the definition of a school in the United States is a wide one, including many community obligations beyond the requirements of the basic curriculum. This tie with the community is often one of its strengths—but if the community wants thousands of spectators in the gymnasium, should it win space for them at the expense of the educational facilities? The separation of financial responsibility into school and community requirements, however regrettable, might in some instance help school boards to get their priorities into the best order.

If, however, it is money spent on inefficient or extravagant design that is queried, a further qualification needs to be made, since extravagance and quality are often confused. Some school boards and their architects have suffered set backs because they have been charged with extravagance, when in fact they were breaking new ground, and setting the pace for the future. In a country in which there is no nationally exercised pressure to achieve equality of expenditure, but in which each community finds its own level (though sometimes with influences from the state), it is easy for critics to spotlight the work of those communities which have more ability and willingness to pay for education than others, and make general charges of extravagance. Nor is the incentive to economize, or to get value for money, likely to be so great when economy or extravagance in one community brings no benefit or hardship to another. The test of central administration is whether it can encourage the raising of low standards on the one hand, and prevent extravagance without discouraging initiative on the other. It would appear, for example, that the system of state aid for school building in Washington State succeeds in doing this. In England, where national cost limits relate to the total amount the Government is prepared to invest in education, differences in school building come only from varying professional intentions and abilities, and not also from varying abilities to pay, as in the United States.

If lastly, it is the money spent on competitive prestige which is criticized, then it must be admitted that in our view there are examples of unnecessary expense. Competition between school boards—as between architects—to "go one better" is an activity more likely to lead to excess than to improve quality. It is important to distinguish between that which is designed merely to draw attention to the client or the architect, and that which does so only by virtue of the way in which it successfully solves the problems set. This distinction could well be emphasized more strongly by the architectural press. The popular press often fails to appreciate it, and by this failure makes the genuine indistinguishable in people's minds from the spurious.

Architectural competition, with its multiplicity of awards within the profession, also often fails to make this distinction. Rightly, the best school plants have an award of some kind; nevertheless an award is not necessarily, in our view, a true measure of the quality of a school, but a measure of its appearance on paper, on which photographic, two-dimensional and formal aspects are likely to dominate. (A leading school administrator admitted to us: "In my 30 years in education, the prize-winning schools have been the greatest curse on me.") If the award system is to become something more than a process of self-congratulation within the profession, judgment needs to be made, it would seem, on "performance" as well as on the degree to which it represents current architectural fashions. A plan may be a perfect circulation diagram, or may appear to be an ingenious and novel solution to a form of educational organization, and yet in fact become a crude, institutional, gloomy, or inconvenient building, giving positive displeasure because the importance of light, color, sound, and heat have not been fully appreciated. These, being physical, not formal attributes of design, probably have as strong an influence on the character and convenience of a building as those attributes that can be shown on paper. Yet most interest and discussion about buildings, among architects, center on appearance, or formal arrangement, rather than on character. Perhaps if character and form could be given equal importance in the design process, solutions might be found which would be neither invention for invention's sake, nor futile attempts to marry preconceived forms to current problems. Unfortunately, however, an architectural reputation is less easily made by solving problems than by creating or following fashion, and given the highly competitive nature of architectural practice in the United States ("One cannot afford to be either behind or ahead of fashion" in the words of one architect) it is regrettable that the qualities which claim public attention are not always those likely to serve best the requirements of a school board—some of which have clearly been sacrificed on the altar of esthetics, however proud they may have felt at the publicity received in the process.

The Architect and School Board

THE various relationships that exist between school boards and architects in the United States semed to us to be legion. At one end of the scale are those boards which take nothing for granted, and really require draftsmen rather than architects to put their detailed specifications into graphic form. (A school board comes to mind which was satisfied that every requirement had been specified except, alas, the depth of fascia for lettering over the library shelving). At the other end of the scale are those boards who take everything for granted, and merely want a building that will put them in the limelight (generally those which have been laboring in the shadows for many years and have decided to make a break—frequently it is the purse which is broken). Between those two extremes there are, of course, the examples of real collaboration between architects and outstanding school boards and superintendents,

when sometimes, by virtue of continuity of association, both sides understand one another well, and the educational program is interpreted to meet the needs of today, without prejudicing the more tentative requirements of tomorrow.

There is, too, a third element very commonly present in the relationship: the educational consultant. The work of this profession has possibly had more influence on new schools than that of any other professional body, although only very few outstanding names have been responsible for any major developments.

With the educational consultant comes a great tide of literature. When discussing the apparent uniformity of many schools, a professor of education said "Oh, it's the literature," and perhaps this comment is more true than it was intended to be, for a great deal of local autonomy does in fact seem to be nullified by the crutches provided for the mental apparatus of school districts and their officers. The widely quoted statement of priorities of school design are listed in this order in many educational specifications: (1) Health, (2) Safety, (3) Educational adequacy, (4) Economy, (5) Flexibility, (6) Expandability and (7) Esthetics. Such an attempt to separate, and to list in order of merit, aspects in the design process is surely futile and dangerous. The lay view that the function of an architect is to add beauty was commonly met, as such comments show: "The lobby is the only place where we spent money on the appearance"; and: "We design from the inside out, and we have to attempt to make it look like something" (in defense of an elaborate stone porch attached to a brick elevation); and "In order to make a building into a building" (an explanation of a strange difference between two blocks of similar classrooms). Although administrators recognize modern architecture, they do not always understand the function of an architect, and for this they may not be entirely to blame.

Apart from platitudes and a general misunderstanding of his functions, the architect has additional troubles: he has very often to take instructions from those who, because they reckon they have some particular knowledge or interest, assume part of the architect's role themselves. The member of the board who is dogmatic about the use of certain materials, the light meter enthusiast, the lady who has a passion for blue—these are typical of the obstacles that may be in the architect's course. Trivial as these examples may appear, they can affect the architect's work fundamentally, and make it impossible for him to pursue the principles of design in which he believes. The architect who had designed a charming school closely related to its surroundings might find it galling to be told that "the district had already been sold on ("low tran" glass) when we were asked to design the building and had become so attached to the concept which makes a poorly oriented building still function after a fashion, that we found we had to go along." School boards may argue that as the client they can exercise their authority as they please, but if they want the full benefit that can be had from architectural service, they will exercise their skills in finding the architect in whom they have real confidence, and having made their choice, give him full responsibility, telling him what will go on in the school, but not how to design it.

We Are Envious of . . .

BECAUSE we bring up for discussion some of the disturbing trends as they affect school design—whether in the United States or in England—we do not underestimate those other trends which seem in our view to point the way forward. In conclusion, therefore, we would like to attempt a brief summary of what appear to us to be the best qualities of American schools, as we both look back on them, and as the qualities of English schools begin to re-focus in our minds.

We are envious of the speed and efficiency with which schools in the United States are designed and built.

We are envious of the quality of construction and finish achieved.

We are envious of the amount of space provided in some of the teaching accommodations.

We are envious of the high quality and variety of equipment of all kinds which industry puts at the disposal of architects and school boards.

The logic of the high degree of specialization in the American architect's office has not been accepted in England, and hence there is evidence in English schools of much amateurism in design. In other words, there is the single hand of the Jack-of-all-trades, compared to the many hands of a multitude of experts. At its best the English approach produces a unity of character between all the small components and the whole, in spite of the possibility of inefficiency in design and practical shortcomings. In the United States the early and complete information received by the contractor from the architect is in marked contrast to much English practice; this is partly traditional, but partly helped by the specialized method by which the information is prepared.

The bald truth about schools in England is that had we built fewer schools of a higher standard of finish, we should now have children in the streets, in spite of having reluctantly accepted a higher pupil-to-teacher ratio than in the United States. This is our dilemma, for in spite of considerable effort, we are likely to regret the maintenance liability we are inevitably incurring.

No visitor from England should fail to gain the general impression from American schools not only of the good workmanship referred to above, but of the durable and robust finishes, hardware and equipment. The widespread belief in responsible circles that the United States cannot afford to build cheap schools will stand communities in good stead in the long run. If there have to be economies, we, as outsiders, could see these more easily made in terms of space than in terms of finishes, (provided that there is adaptability and imagination in the way in which the schools are organized and the pupils taught).

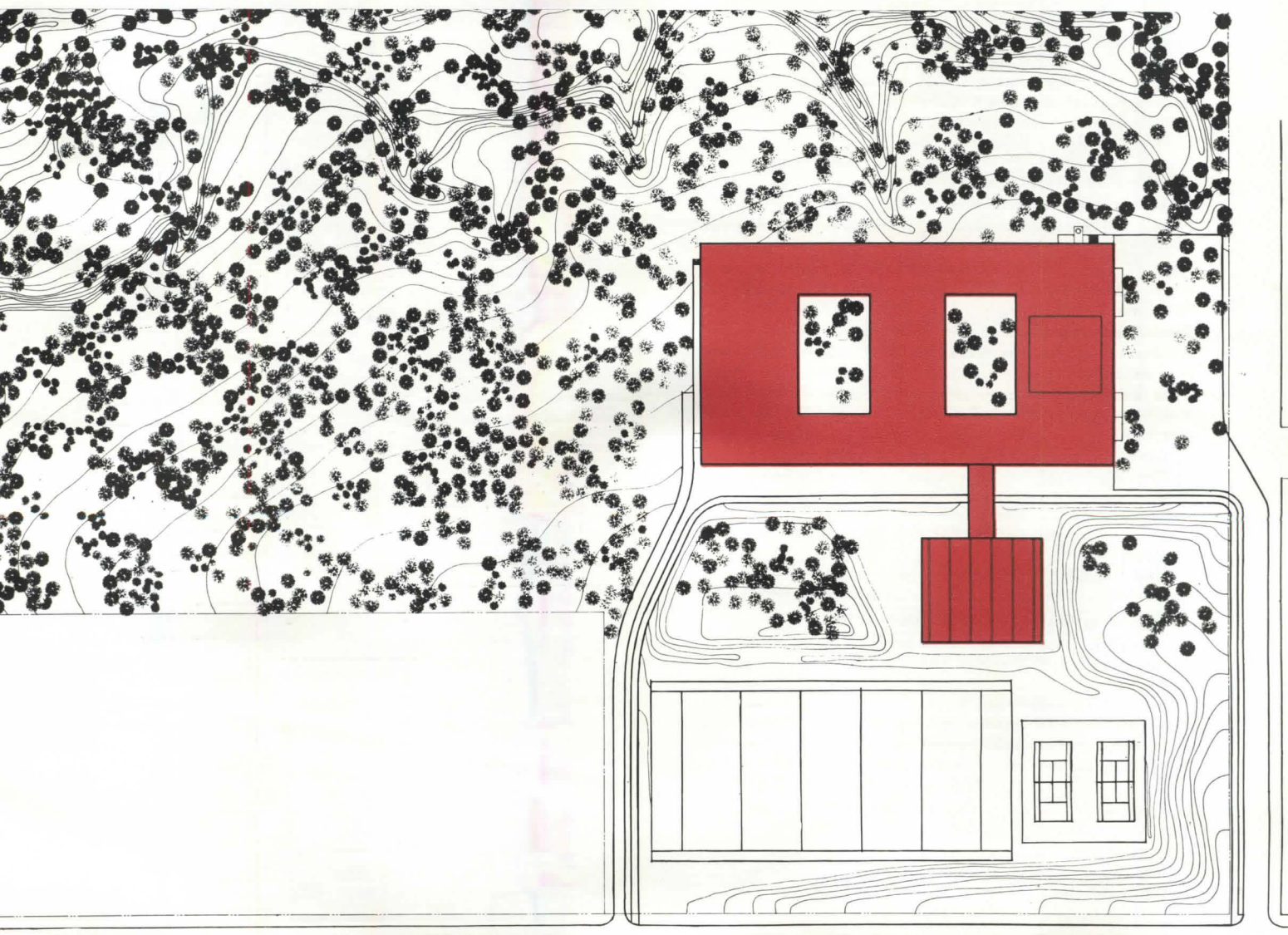
To record that the American elementary schools we saw are more than half as large again, and the secondary schools more than a third as large again, as their English counterparts, in terms of area per pupil, is perhaps to exaggerate the advantages of larger areas, for in England it is hard to believe that our most ambitious fire officers, physical education and drama experts would make a case for such generous corridors, gymnasiums, and auditoriums. However, to provide 30 square feet per pupil in classrooms, with corresponding standards in other teaching rooms is another matter. That we saw only on a few occasions full use being made of the available space is no condemnation of the space. Possibly there is a conflict between loose furniture designed in some cases specifically for its space-saving and non-adaptable characteristics, and 30 square feet per pupil?

The variety, quality and quantity of equipment are most enviable. (Whether the general lavishness of provision, particularly in special rooms, may sometimes discourage initiative, improvisation and self-reliance, is an educational, rather than an architectural question). We have the impression that the hardware and equipment industry is constantly looking for problems to solve, and needs to fulfil—with, of course, the ulterior motive of increased sales. Not only is the architect offered a greater choice, higher quality and better service than he has in England, but he can more easily meet his requirements by an off-the-shelf selection, thereby saving time without sacrificing quality. But the eagerness with which industry undertakes research, and the close contact it maintains with schools for its own interest, however valuable, does not take the place of the independent and Government-sponsored building research which we enjoy in England.

eight schools compared

A Space Analysis Related to the British Approach

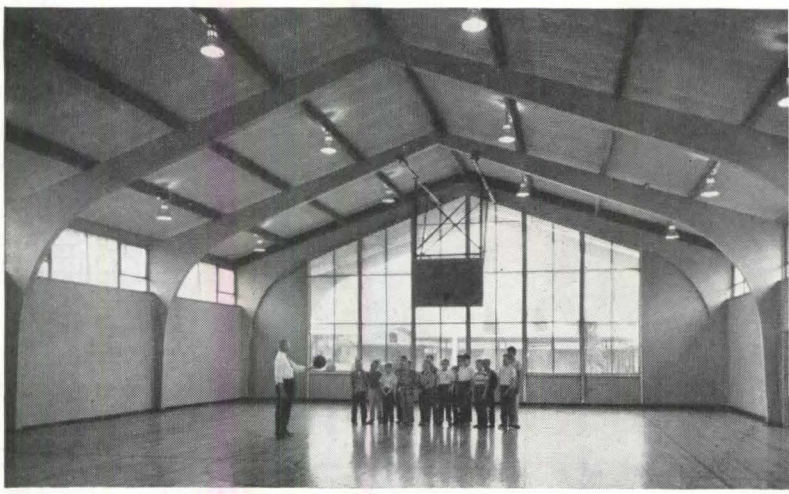
In the preceding article, David Medd and Mary Crowley comment on the fact there is little published comparative data with regard to usable space and other basic plan information in our country, compared with the available analyses of schools in England. ". . . the absence of a simple, authentic and widely accepted basis for assessing the facts of school buildings is prejudicial to a common understanding of them, and leaves the door wide open for false interpretations to suit any argument," they point out; and then go on to say that, "an architectural journal that pursued a careful and analytical method of presentation could have a useful influence. . . ." To follow this suggestion in at least one issue, P/A presents eight schools on the following pages, with comparative data of the sort the Medds ask for. These schools, in addition, illustrate some of the points in the Medd-Crowley article, as several of them were schools that they visited and studied while they were here, and from which they drew some of their conclusions.



Photos (except as noted): Gottscho-Schleisner, Inc.

The multipurpose room, both gymnasium and auditorium (left *and* below), *encloses one end of the partially-covered play and entrance court which separates children from the adjacent public athletic facilities.*

1



John J. Shaugnessy School, Lowell, Massachusetts
Architect: Hugh Stubbins & Associates, Inc.
Job Captain: Gordon Anderson
Structural Engineer: Edward K. True
Mechanical-Electrical Engineer: Fred S. Dubin Associates
Landscape Architect: Chambers & Moriece

School designed to accommodate: 360 pupils.

Present and future enrollment: 360 kindergarten to sixth-grade pupils, future expansion to 720.

Area of site: 5.5 acres of an established playground with existing athletic facilities including tennis courts, baseball fields, a swimming pool.

Special accomodations: multipurpose room, health, administrative offices, teachers' room, city branch library room (now used as classroom).

Basic design problem: to provide school facilities without disturbing existing athletic facilities . . . to provide for future expansion.

Plan solution: creation of a play and entrance court enclosed by three clusters of 4 classrooms each and, on the fourth side, by multipurpose room, administrative offices, and mechanical equipment room . . . partially-enclosed court protects children from adjoining athletic facilities and provides outdoor play space.

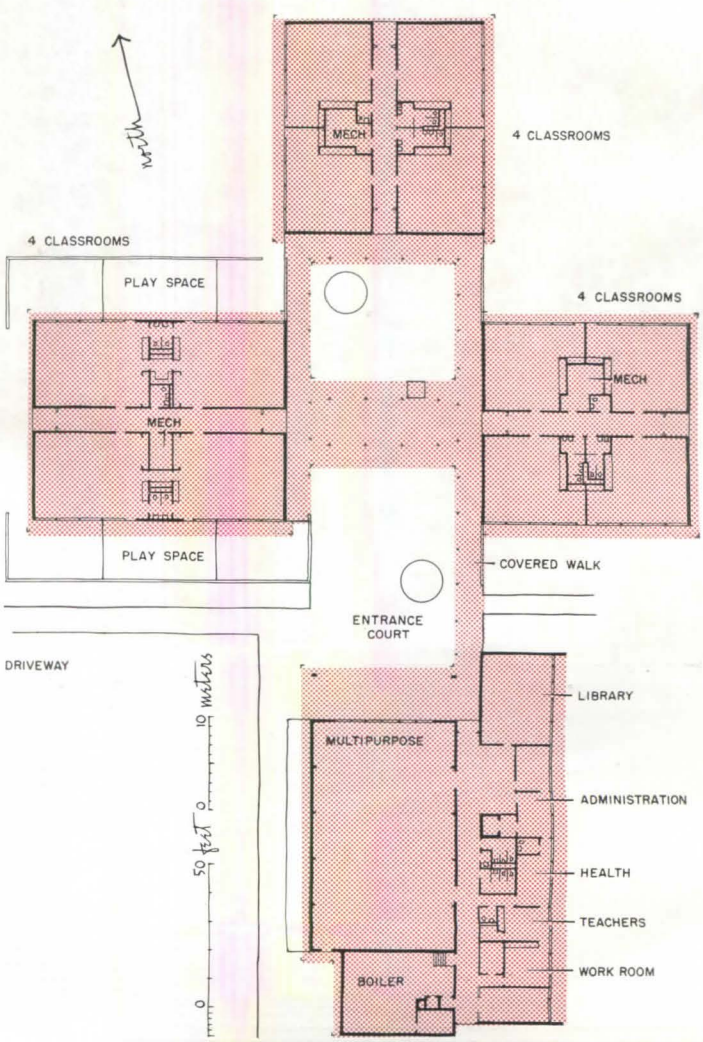
Structural system: laminated-wood beams on steel columns in classrooms . . . laminated-wood arches in multipurpose room.

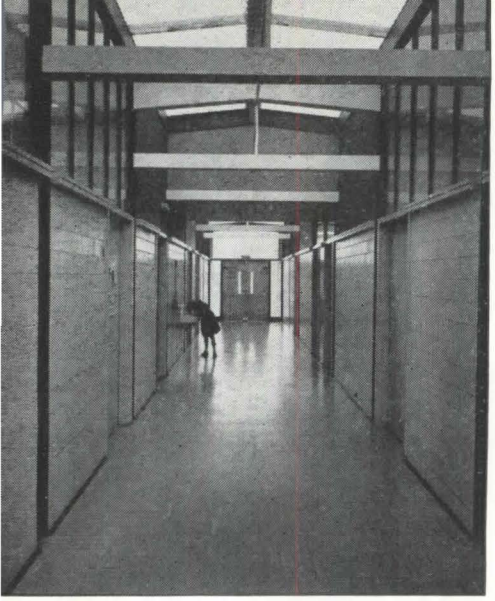
Mechanical system: hot water to unit heaters.

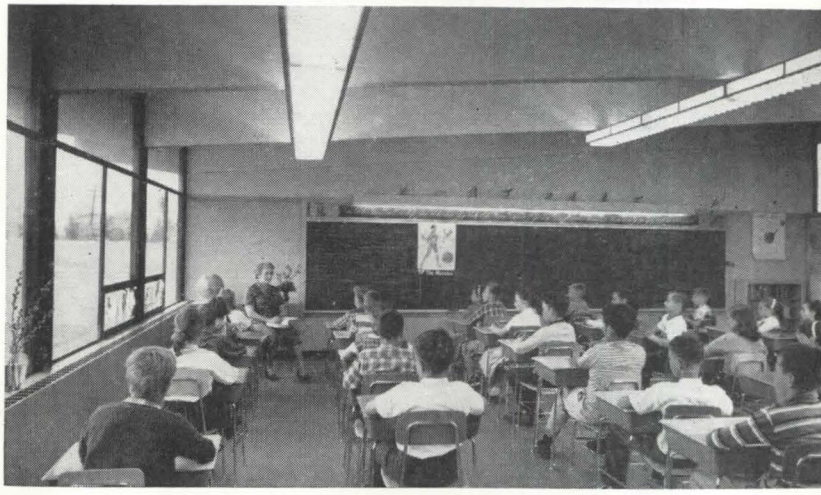
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

Classrooms	12,428— 47%
Other teaching accommodations	5,242— 19%
Administration, staff, service, mechanical, etc.	2,714— 11%
Circulation (covered walks counted as 1/2)	5,173— 19%
Toilet facilities, showers, lockers	1,044— 4%
Total area (sq ft):	26,601=100%

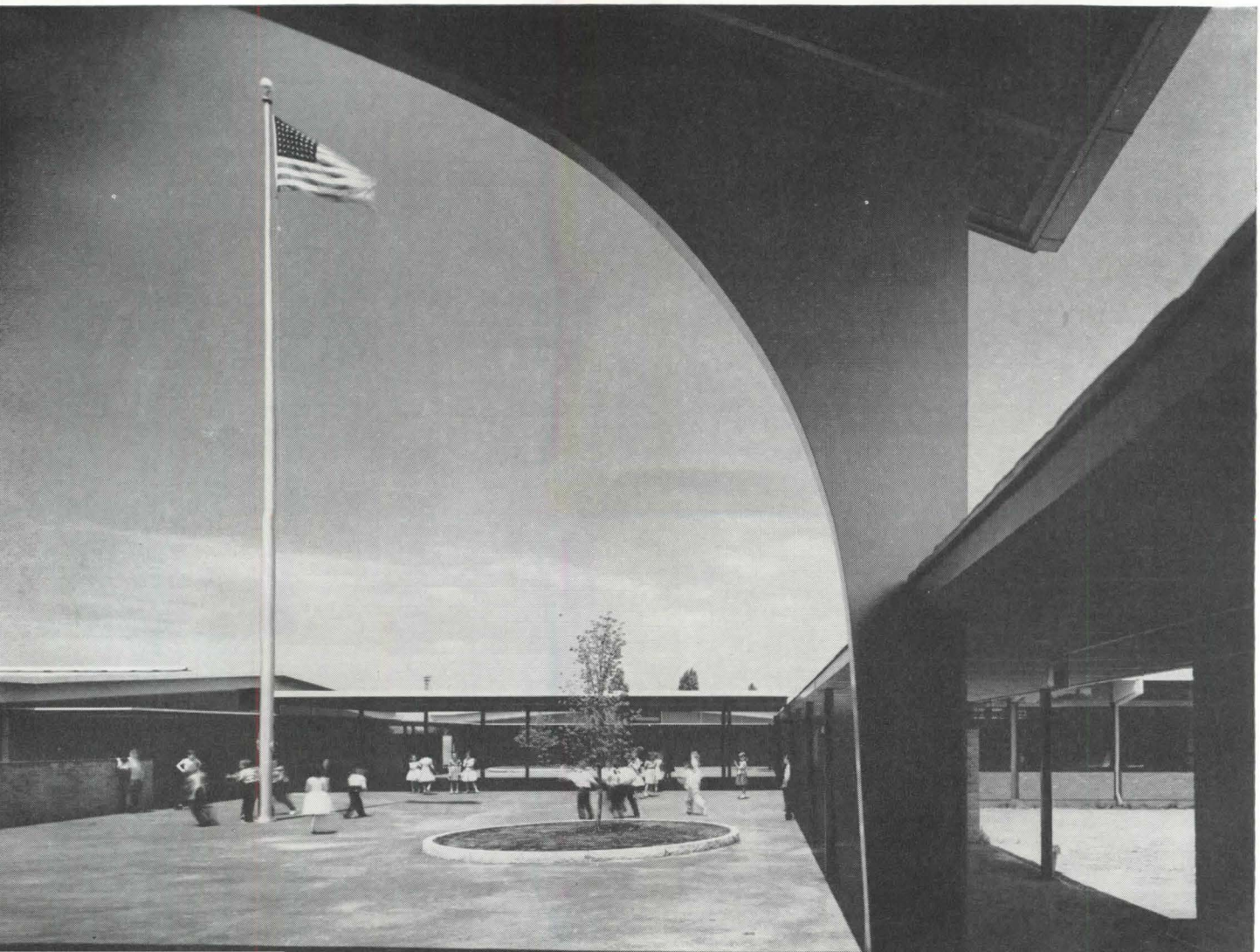
Cost (excludes site, site work, loose furniture): $475,000



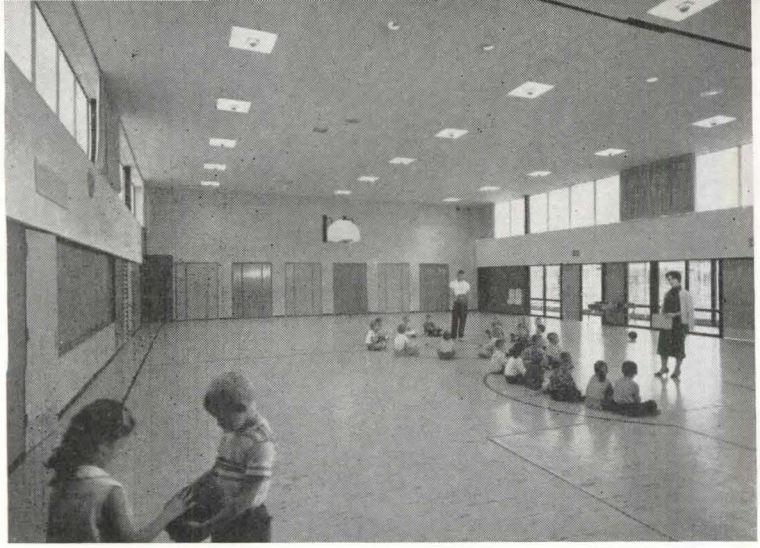




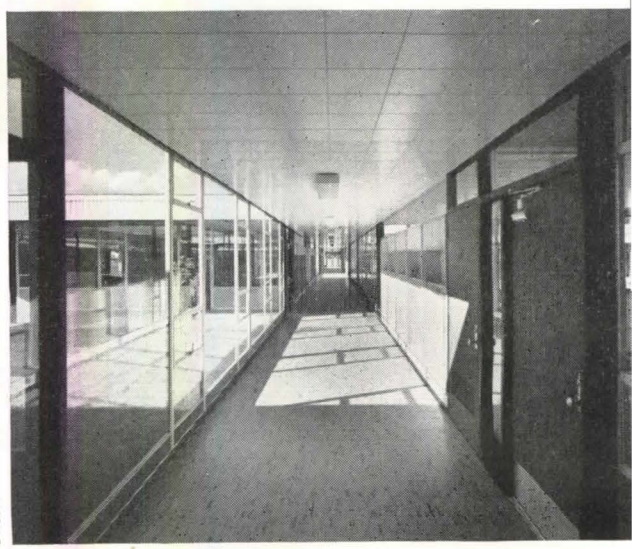
Corridor in each four-classroom building (above) *has plastic skylight admitting light, through fixed sash above masonry-block walls, into classrooms. Exterior walls are brick; most interior walls are glazed-masonry block or gypsum board; flooring is asphalt tile.*



Ezra Stoller

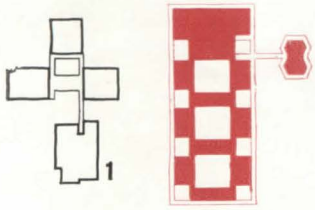


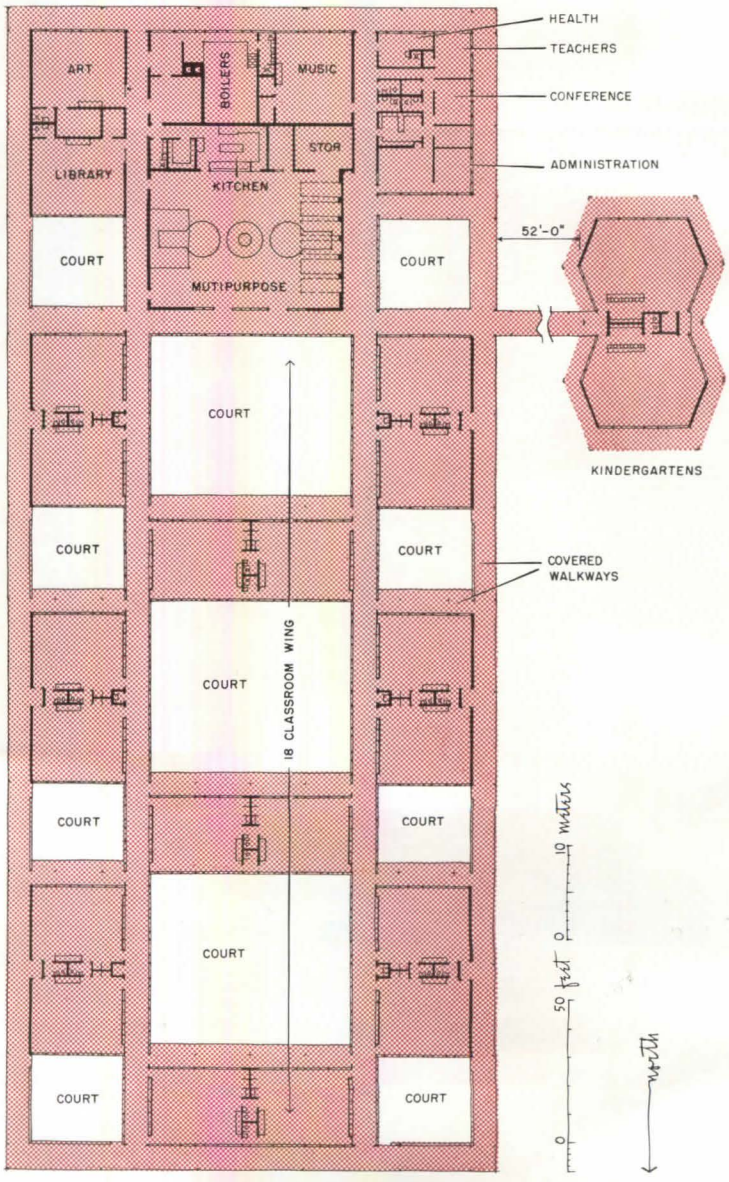
Because the site is flat and treeless, the plan was introverted and the rooms open inward to enclosed or semi-enclosed garden courts. The long north-south axis of the building divides the school into age groups, thus achieving natural separation of play areas.



Photos: Lens-Art Photo

2

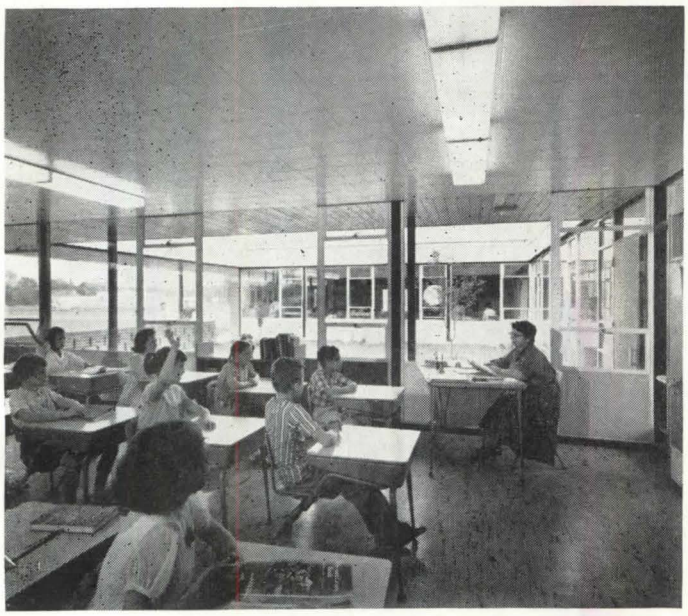


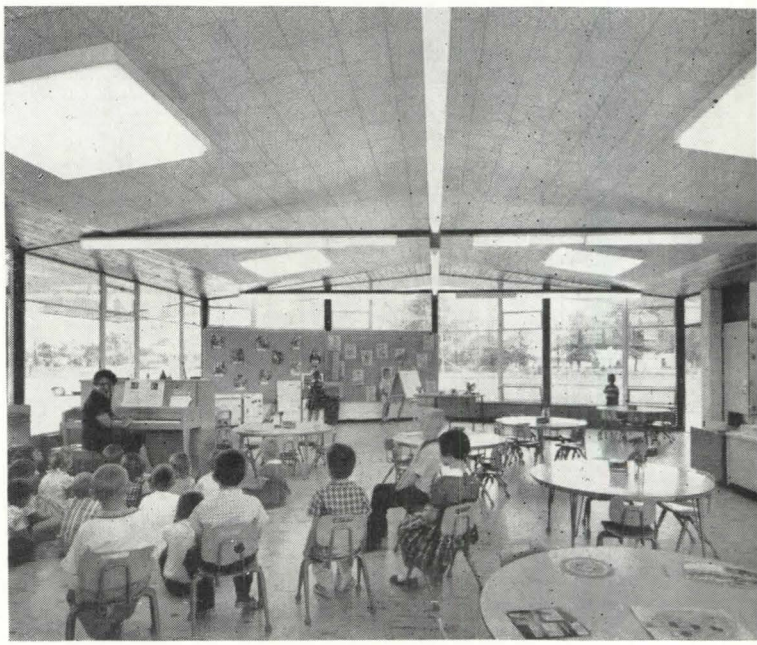


Greenfield Elementary School, Birmingham, Michigan
Architects-Engineers: Eberle M. Smith Associates, Inc.
School designed to accommodate: 650 pupils.
Present and future enrollment: 650 kindergarten to sixth-grade pupils, no expansion anticipated.
Area of site: 10 acres.
Special accommodations: multipurpose, music, and art rooms, library, kitchen, administrative offices, health, and teachers' room.
Basic design problem: 18 classrooms, 2 kindergartens, special accommodations, separate play areas for upper and lower grades, and easy automobile access to kindergartens for mothers of suburban community.
Plan solution: classrooms face inner semi-enclosed and enclosed garden courts which also separate grade groups . . . kindergartens connect to school by covered passageway, also used for car unloading.
Structural system: steel frame with joists and beams same size in 80% of building for economy of structure . . . poured-gypsum roof.
Mechanical system: hot water . . . radiant-acoustic ceilings.
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

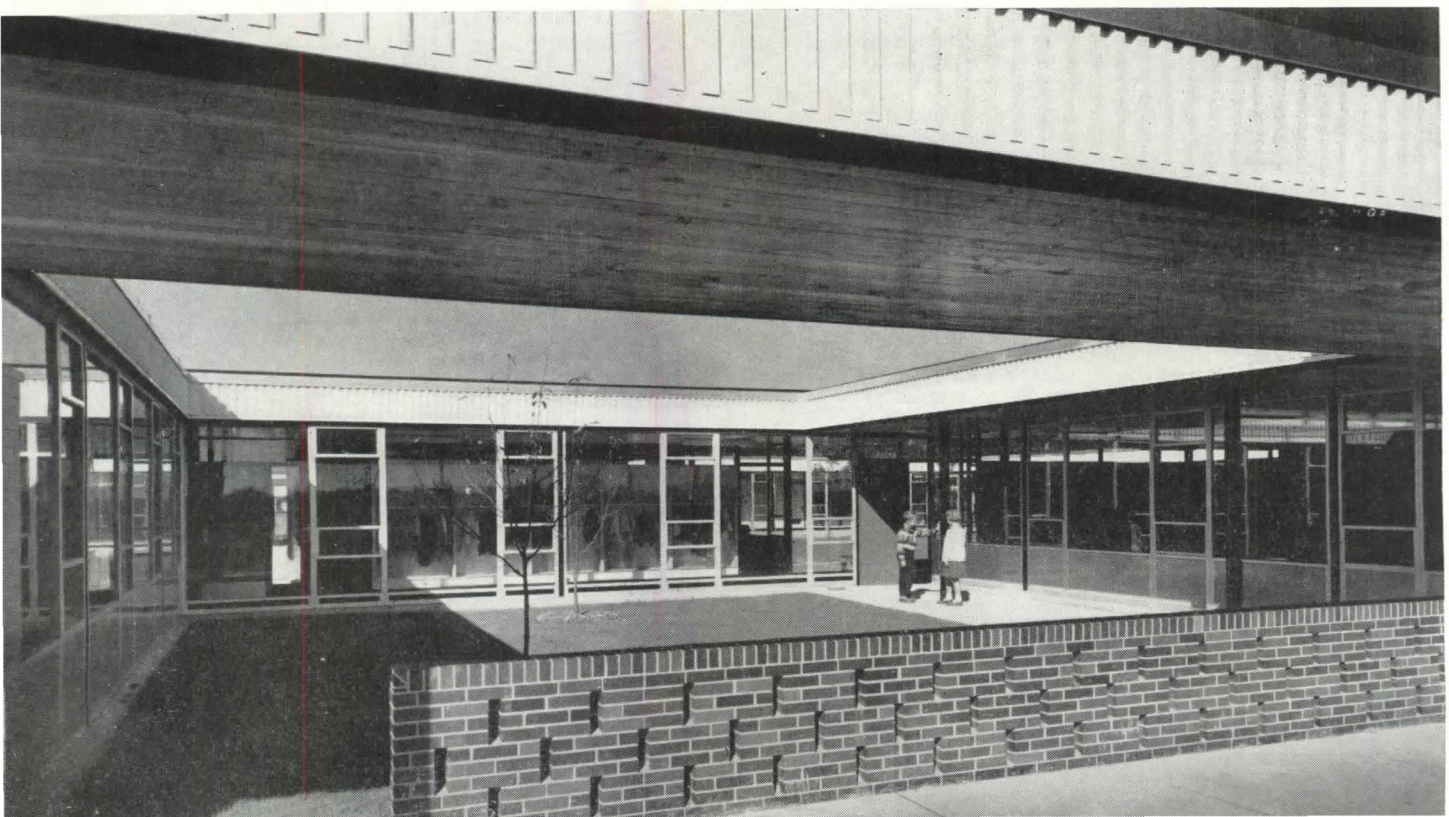
Classrooms	18,856	44%
Other teaching accommodations	2,893	8%
Administration, staff, service, mechanical, etc.	6,946	16%
Circulation (covered walks counted as ½)	13,178	30%
Toilet facilities, showers, lockers	1,140	2%
Total area (sq ft):	43,013	100%

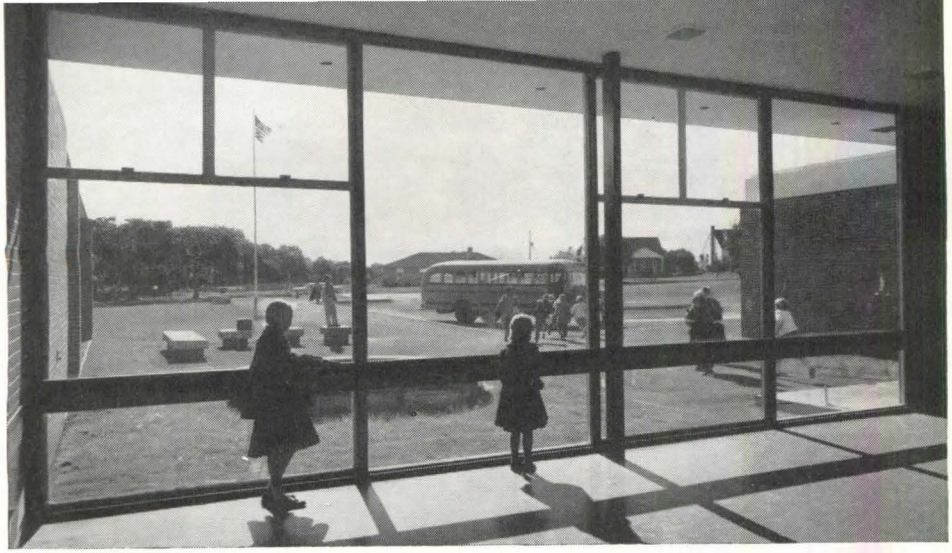
Cost (excludes site, site work, loose furniture): $694,795





Classrooms (above) *and corridors* (acrosspage) *open on the courts. Main glass areas of classrooms face north or south and southerly exposures are protected by an 8-ft. overhang. Exterior walls are brick or insulated-aluminum panels; interior walls are cinder block, glass, or wood cabinetwork; flooring is asphalt tile.*

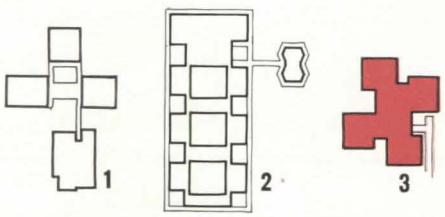




Glass-walled entrance lobby (left *and* below) *has decorative birch wall with bulletin board.*

Photos: Lawrence S. Williams, Inc.

3



Riverview Park Elementary School, Laureldale, Pennsylvania
Architect: Vincent G. Kling
Structural Engineer: McCormick-Taylor Associates
Electrical Engineer: Pennell & Wiltberger

School designed to accommodate: 330 pupils.

Present and future enrollment: 330 kindergarten to sixth-grade pupils, ultimately for 660 kindergarten to eight-grade pupils.

Area of site: 10 acres.

Special accommodations: multipurpose room, kitchen, health, administrative offices, teachers' room.

Basic design problem: to provide facilities expected to double within five years . . . to relate building to residential surroundings.

Plan solution: "pinwheel" plan with central unit (lobby, toilets, storage and all-purpose rooms) planned for maximum enrollment . . . radiating out are service wing and three classroom wings with separate outdoor play areas for different grade groups, capable of future expansion.

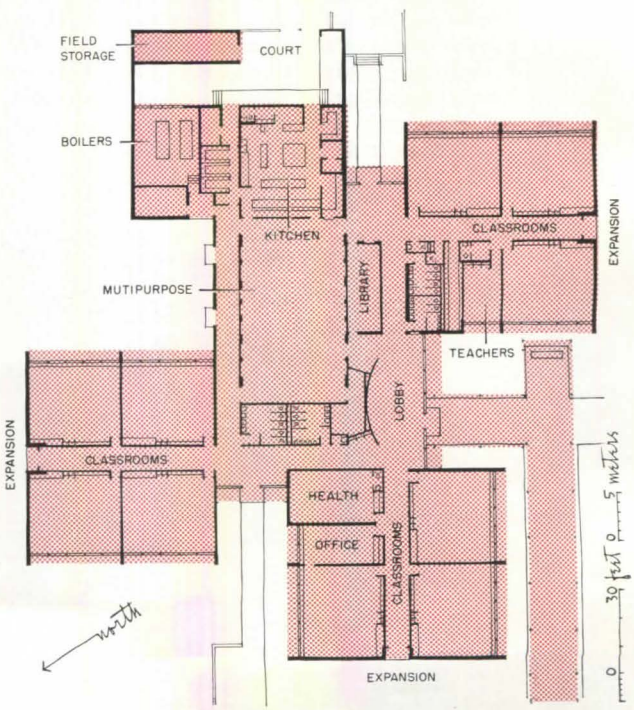
Structural system: masonry-cavity bearing walls and partitions with steel-joist roof construction . . . in multipurpose room a structural-steel frame.

Mechanical system: hot water with fin-tube convectors and unit ventilators at window walls.

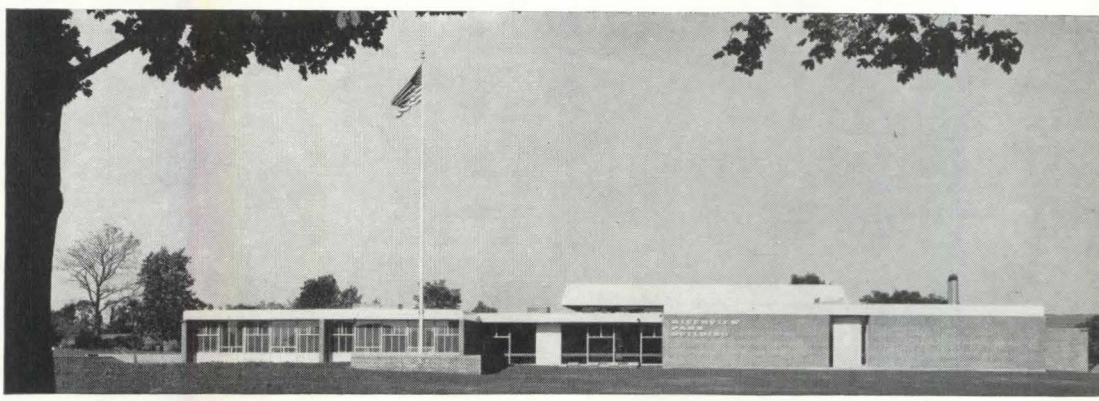
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

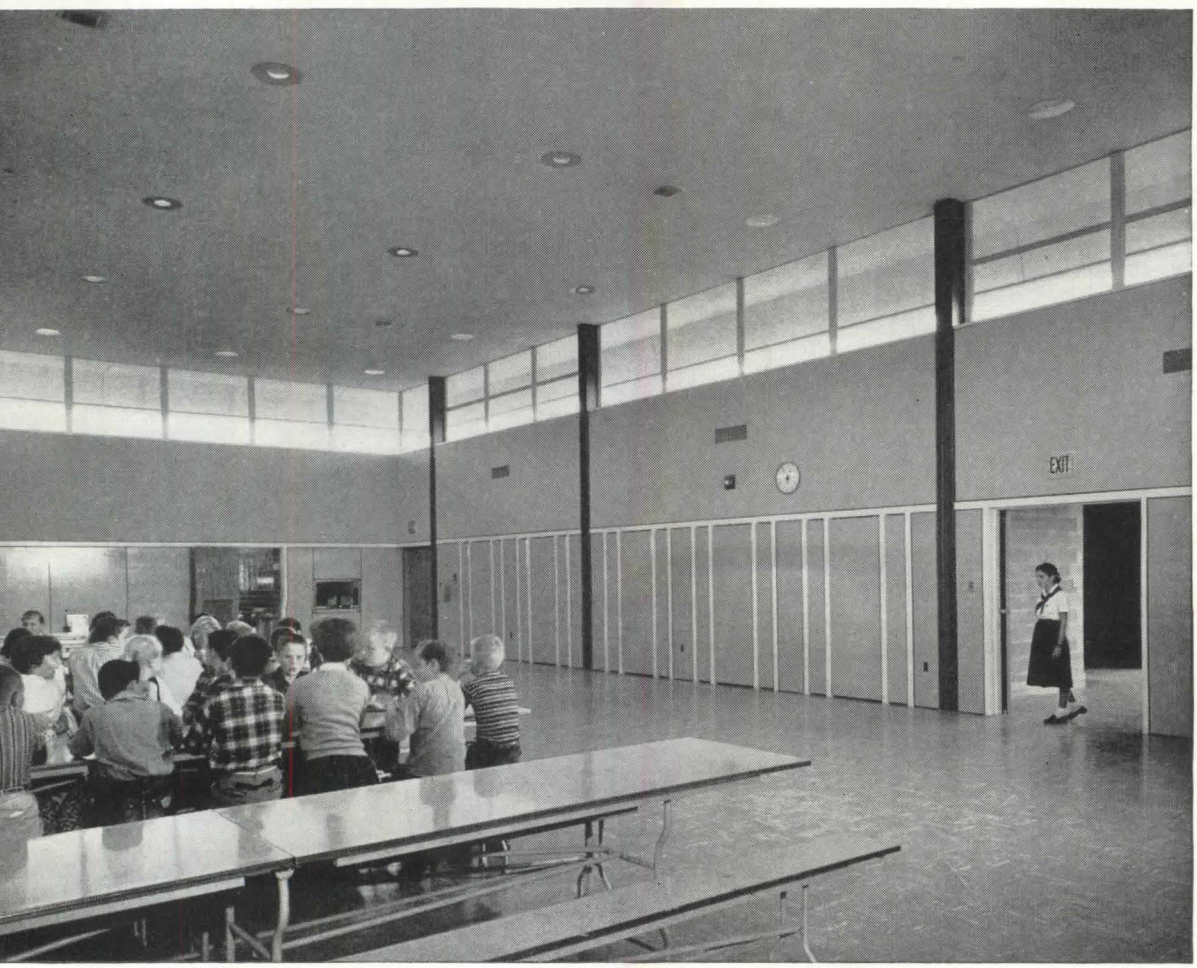
Classrooms	9,406	37%
Other teaching accommodations	2,868	13%
Administration, staff, service, mechanical, etc.	5,065	21%
Circulation (covered walks counted as ½)	5,889	25%
Toilet facilities, showers, lockers	888	4%
Total area (sq ft):	24,116	100%

Cost (excludes site, site work, loose furniture): $518,910

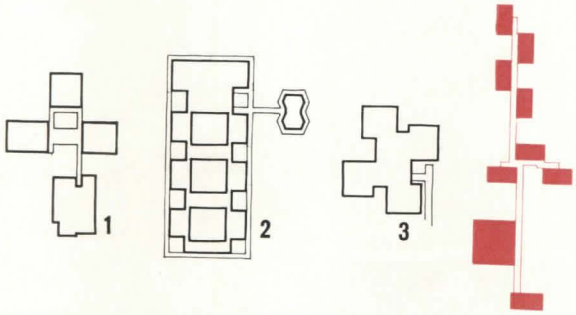


Multipurpose room (below) in *the central unit receives natural light through clerestory windows under elevated roof; used as gymnasium and cafetorium, its folding stage and table-benches recess into the wall. Red brick faces the exterior walls; interior partitions are concrete block; lighting throughout is incandescent.*

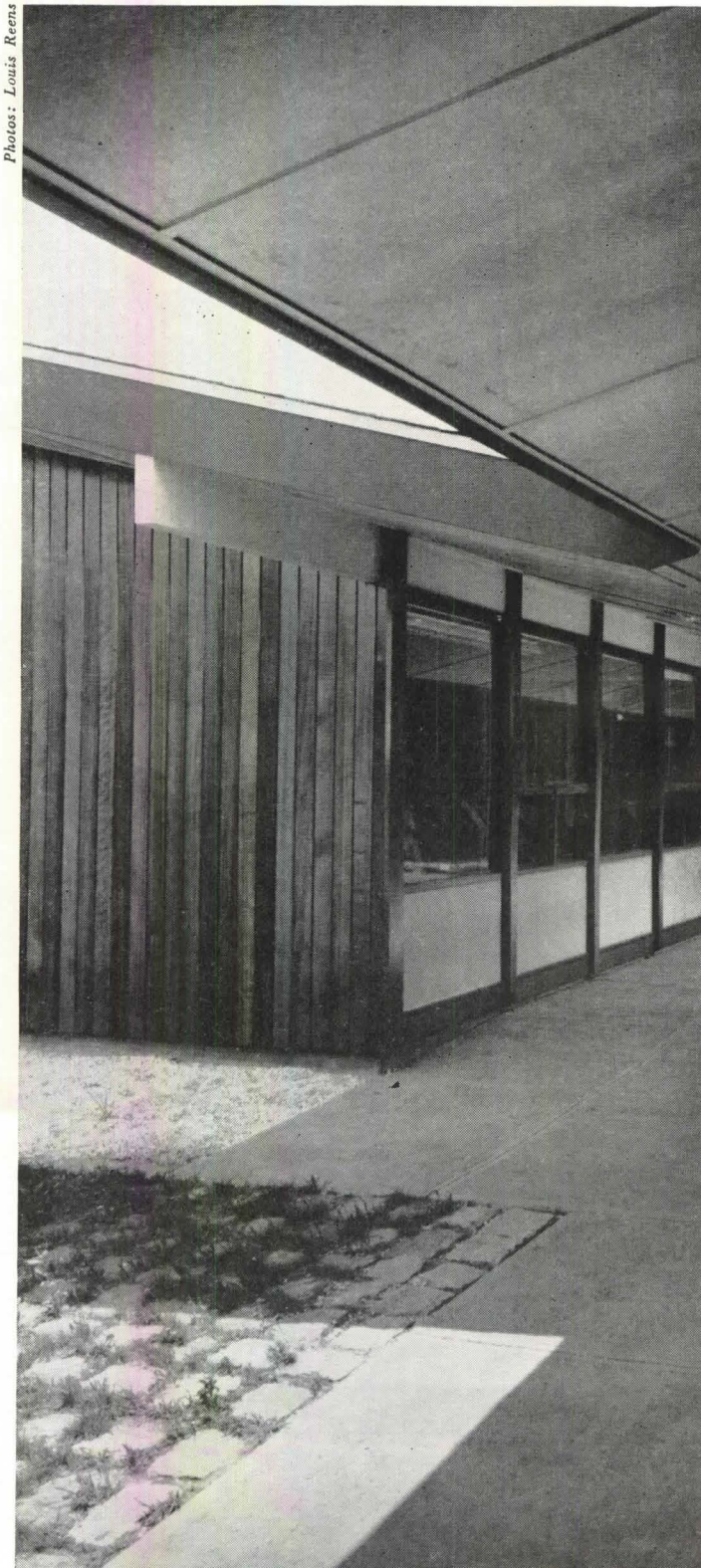




4



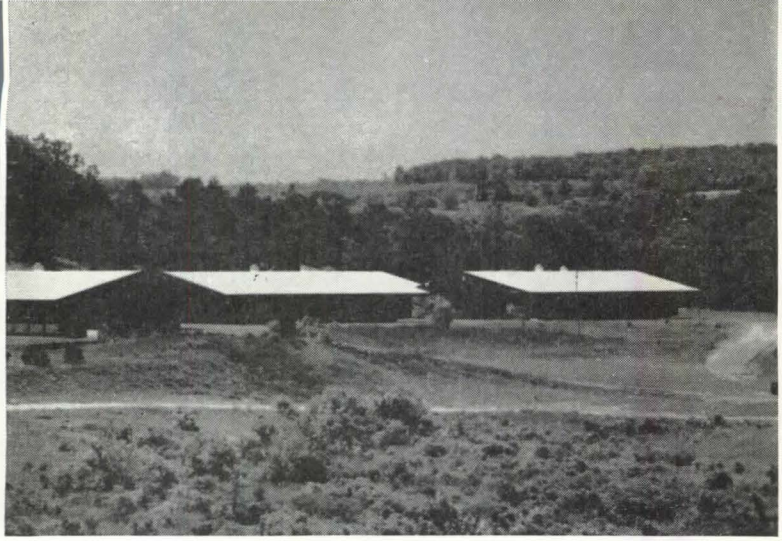
Photos: Louis Reens

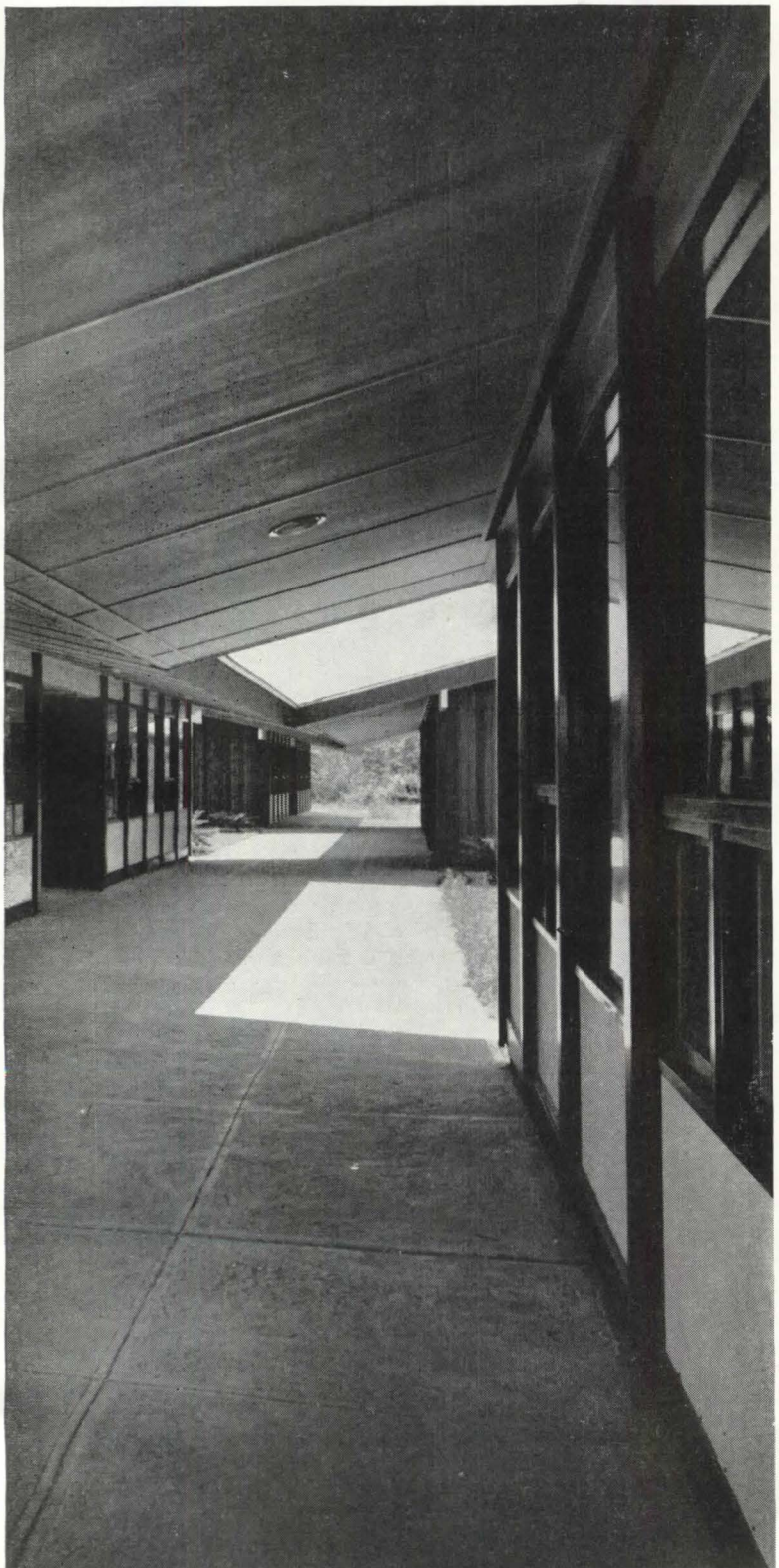


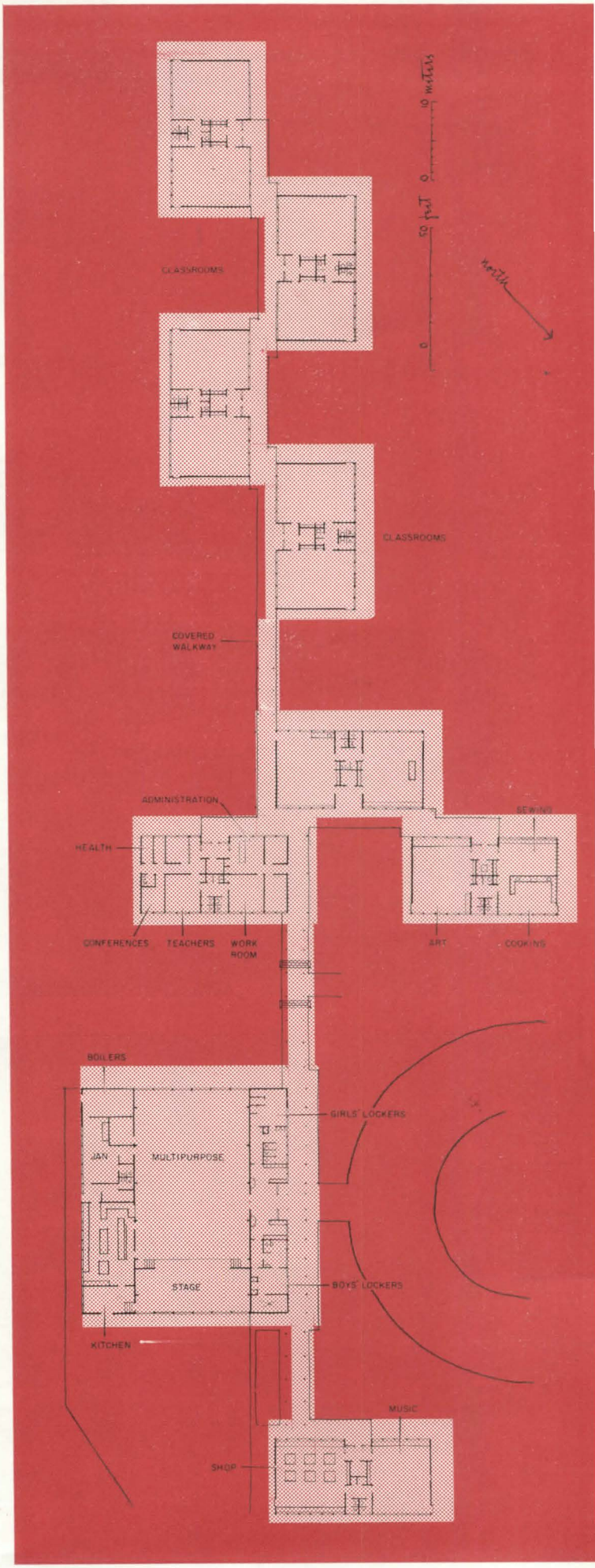
Halliwell Memorial School, North Smithfield, Rhode Island
Architect: Robinson, Green & Beretta
Mechanical Engineer: Fred S. Dubin Associates
Electrical Engineer: John W. King
Landscape Architect: James Graham
School designed to accommodate: 400 pupils.
Present and future enrollment: 340 sixth-, seventh-, and eighth-grade pupils.
Area of site: 4.7 acres (to accommodate future high school).
Special accommodations: library, science, administrative officies, health, teachers' room, home economics, art, music, shop, multipurpose room, kitchen.
Basic design problem: combined elementary and junior high school . . . small budget.
Plan solution: school dispersed on extensive site . . . variation of levels used for south classroom wings and all-purpose room and shop . . . basic 2-classroom unit complete with heating, plumbing, lighting developed from minimum cost and advantages of natural lighting, quiet . . . common materials used for minimum costs.
Structural system: wood framing . . . wood joists span from outside wall to laminated ridge beam . . . in multipurpose room, laminated arches and plank roof.
Mechanical system: under-floor duct at perimeter of exterior walls with return to utility room from coat closet . . . gas-fired warm air unit with individual control for each classroom.
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

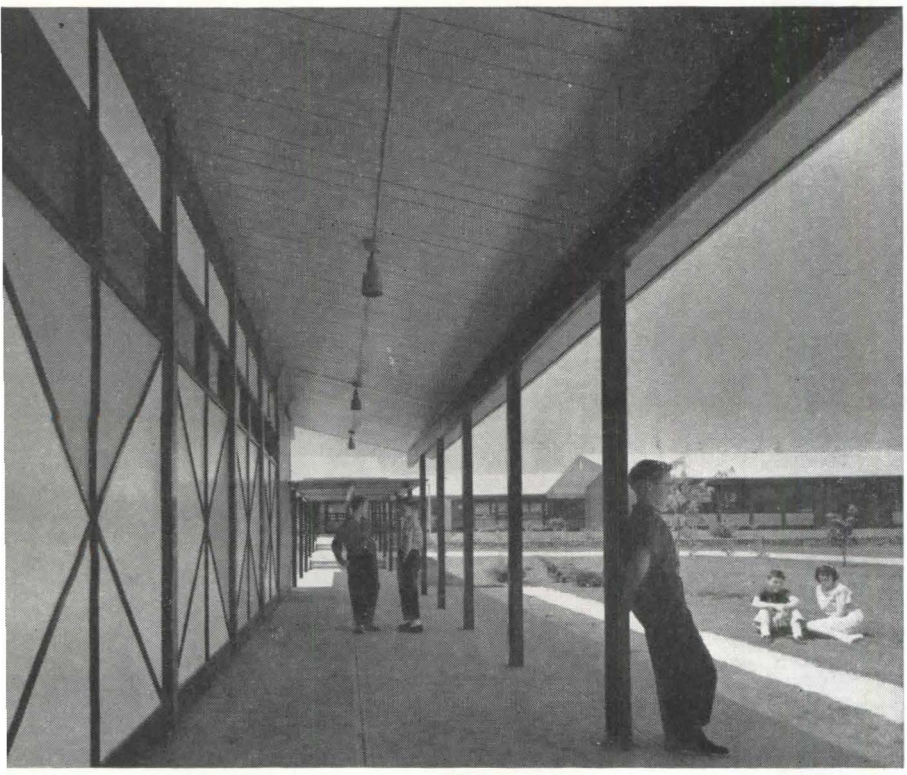
Classrooms.	6,671	25%
Other teaching accommodations.	9,681	34%
Administration, staff, service, mechanical, etc..	3,978	13%
Circulation (covered walks counted as 1/2).	5,619	21%
Toilet facilities, showers, lockers.	2,198	7%
Total area (sq ft):	28,147	100%

Cost (excludes site, site work, loose furniture): $402,795

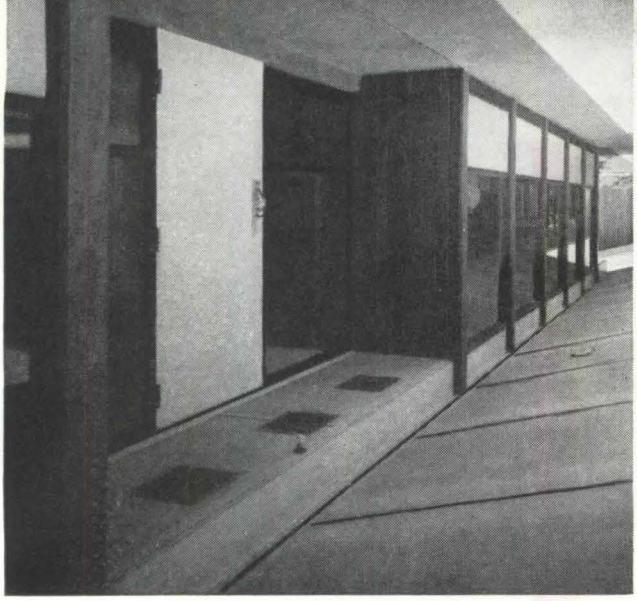




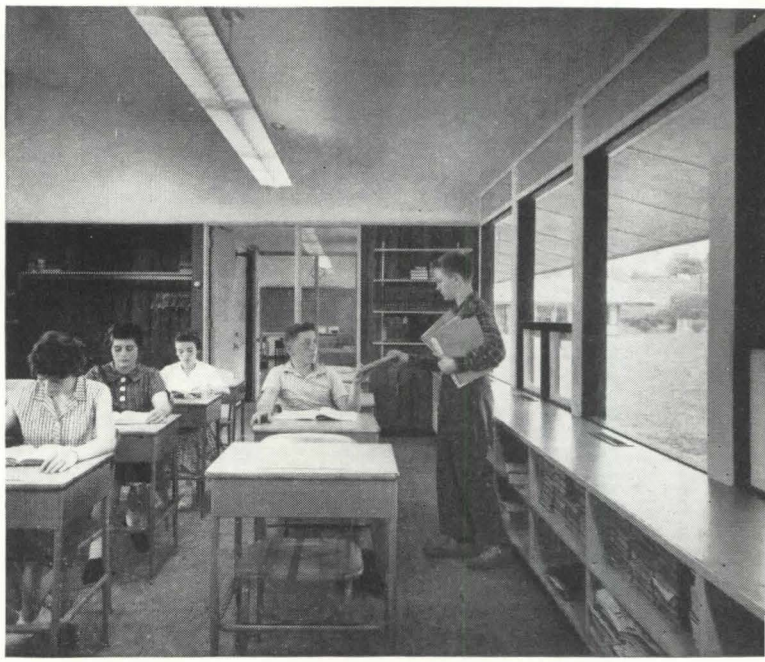

CLASSROOMS
CLASSROOMS
COVERED WALKWAY
ADMINISTRATION
HEALTH
CONFERENCES
TEACHERS
WORK ROOM
SEWING
ART
COOKING
BOILERS
GIRLS' LOCKERS
JAN
MULTIPURPOSE
STAGE
BOYS' LOCKERS
KITCHEN
MUSIC
SHOP
50 feet 0
0 metres
north

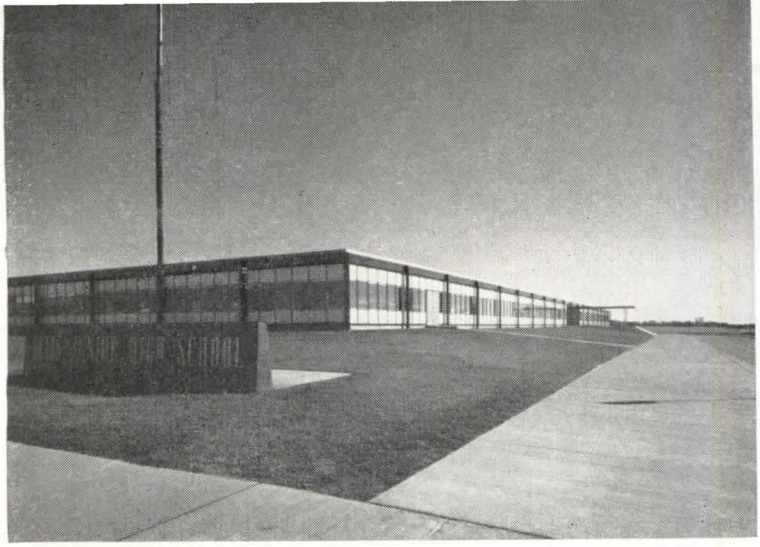


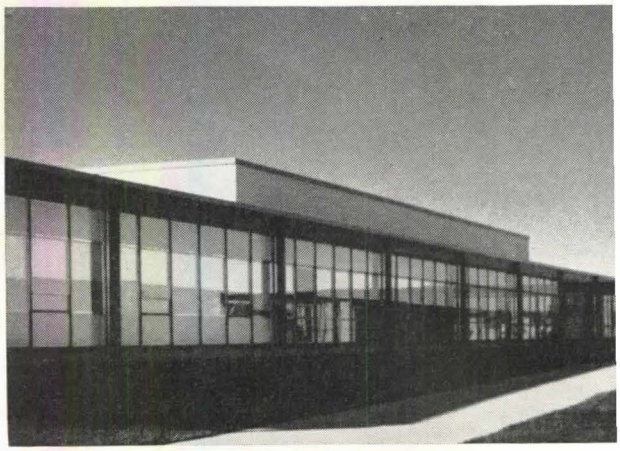
Advantages of the site—its extensive size and varied levels—were used to separate the multipurpose room (above *and* left) *and shop buildings from classroom units to the south. The breath of fresh air for pupils traveling under covered walks and the quiet of isolated classrooms, an experience new to this area, were favorably received. Multipurpose room* (right) *with laminated arches and plank roof has incandescent lighting; classroom lighting is fluorescent.*



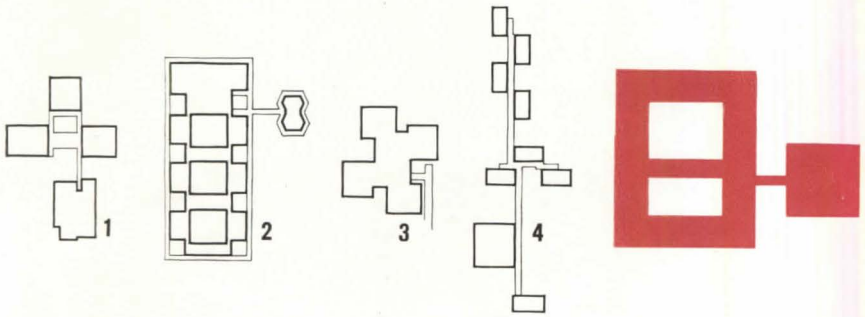
Each double-classroom unit (above *and* right) *has bilateral daylighting and recessed entrances. Walls are of redwood siding and painted plywood; roof of asphalt shingle; flooring is asphalt tile; ceilings, acoustic tile.*







5



Ellis Junior High school, Austin, Minnesota
Architect: Hammel & Green, Inc.
Partner-in-Charge of Design: Hugh G. S. Peacock
Partner-in-Charge of Construction: George F. Klein, Jr.
Consulting Engineer: R. D. Thomas & Associates, Inc.
Structural Engineer: Johnston & Sahlman
Sculptor: John Rood

School designed to accommodate: 1200 pupils.

Present and future enrollment: 720 high-school students and 300 elementary students ultimately to be used by grades 7 through 9.

Area of site: 19.35 acres including parking, recreational and sports facilities.

Special accommodations: library, "cafetorium," kitchen, administrative offices, health, teachers' room, home-economics department, art department with outdoor teaching area, dark room, shops, music rooms, gymnasiums.

Basic design problem: to provide facilities to meet the diversified needs of students from the town and outlying districts, to relate building to surrounding development houses.

Plan solution: creation of a series of exterior and interior spaces, varied by level changes and courtyards . . . simple and flexible teaching areas within the structural system . . . simplicity of structure to provide background for activities of students.

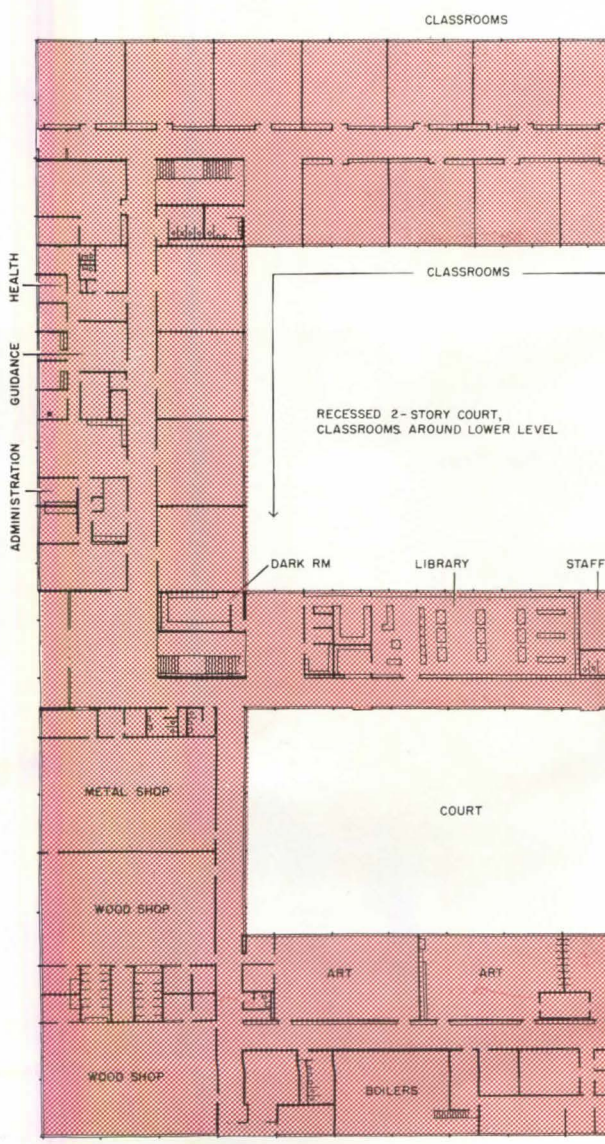
Structural system: exposed steel frame with bar joists and load-bearing brick wall with roof truss.

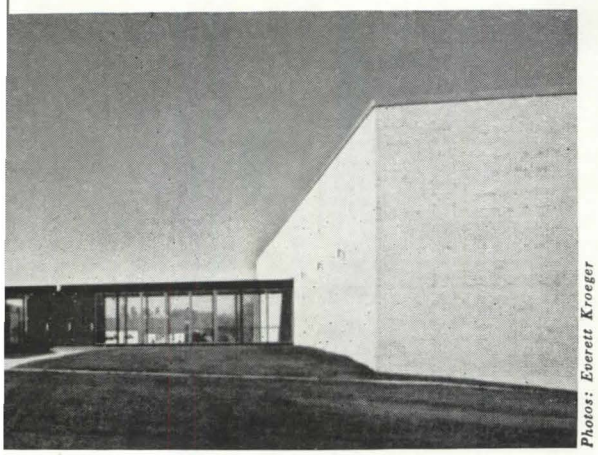
Mechanical system: hot-water system with fin-tube radiation in the exterior wall . . . central fan system.

Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

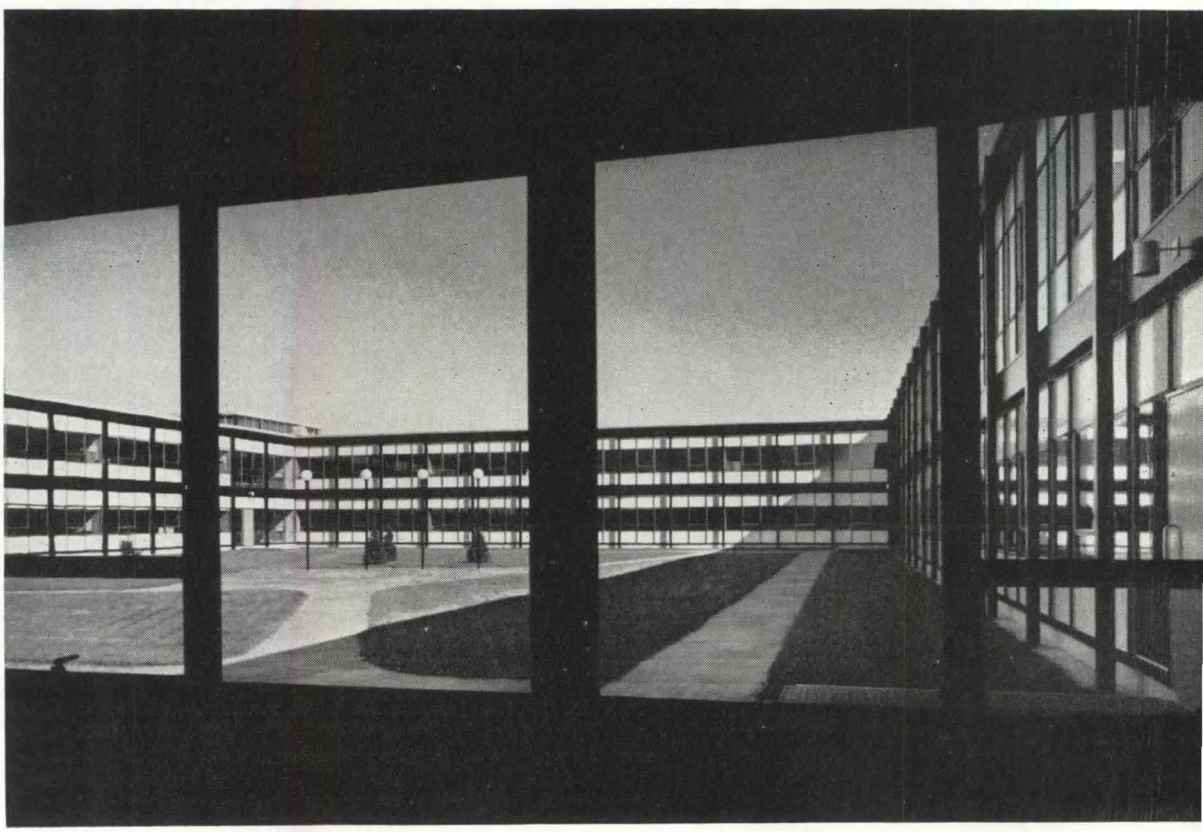
Classrooms.	35,920	24%
Other teaching accommodations.	45,297	29%
Administration, staff, service, mechanical, etc.	16,149	11%
Circulation (covered walks counted as ½)	42,143	28%
Toilet facilities, showers, lockers.	12,030	8%
Total area (sq ft):	151,539	100%

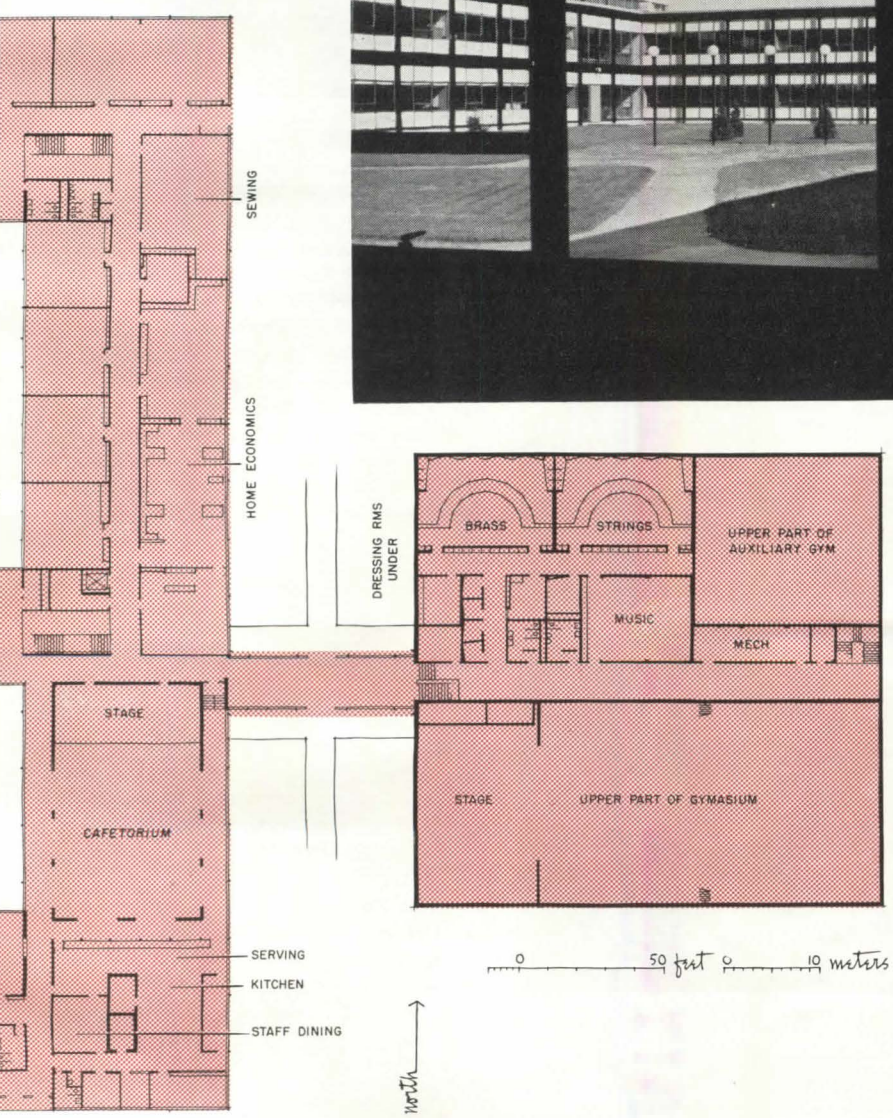
Cost (excludes site, site work, loose furniture): $2,322,303



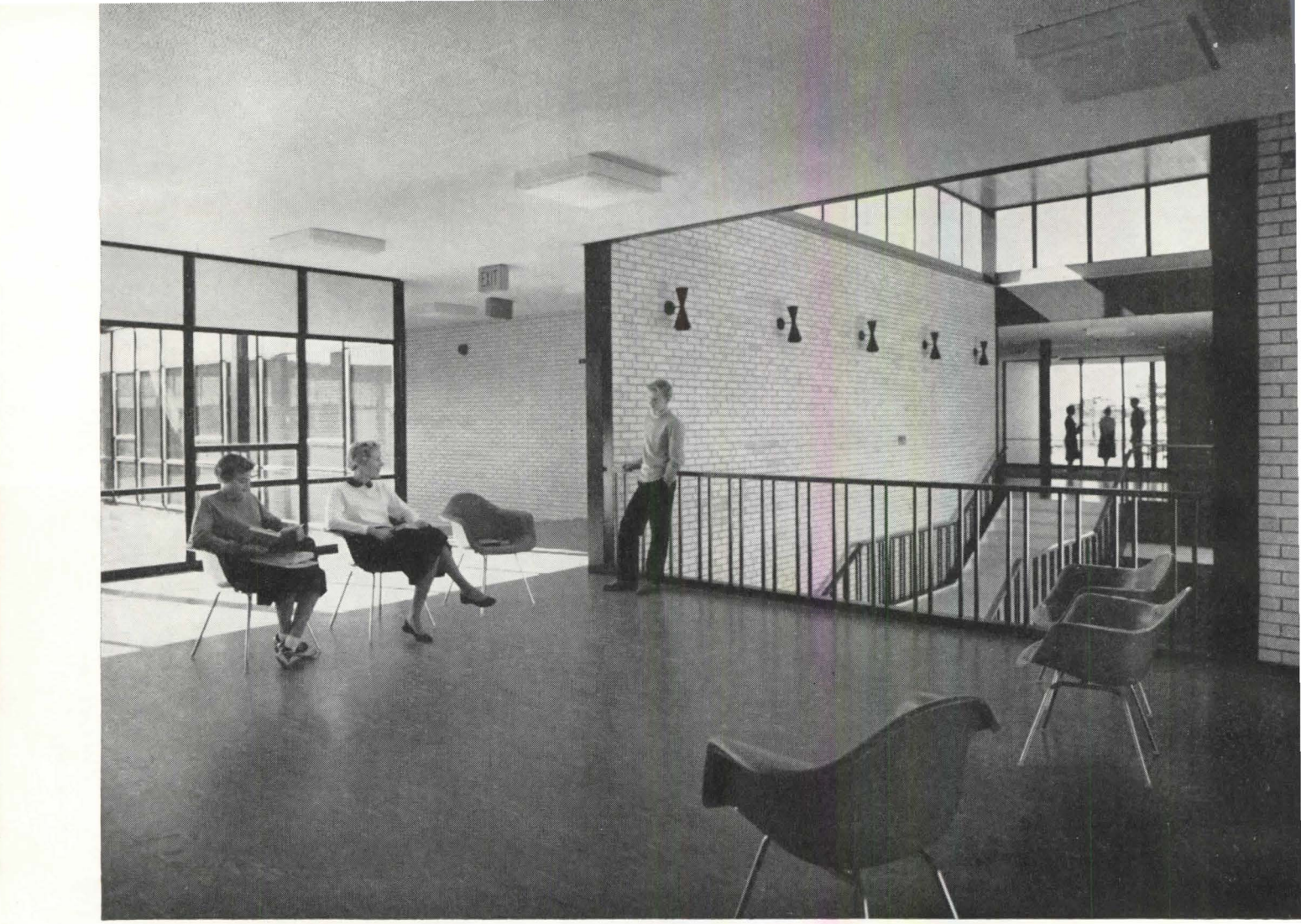


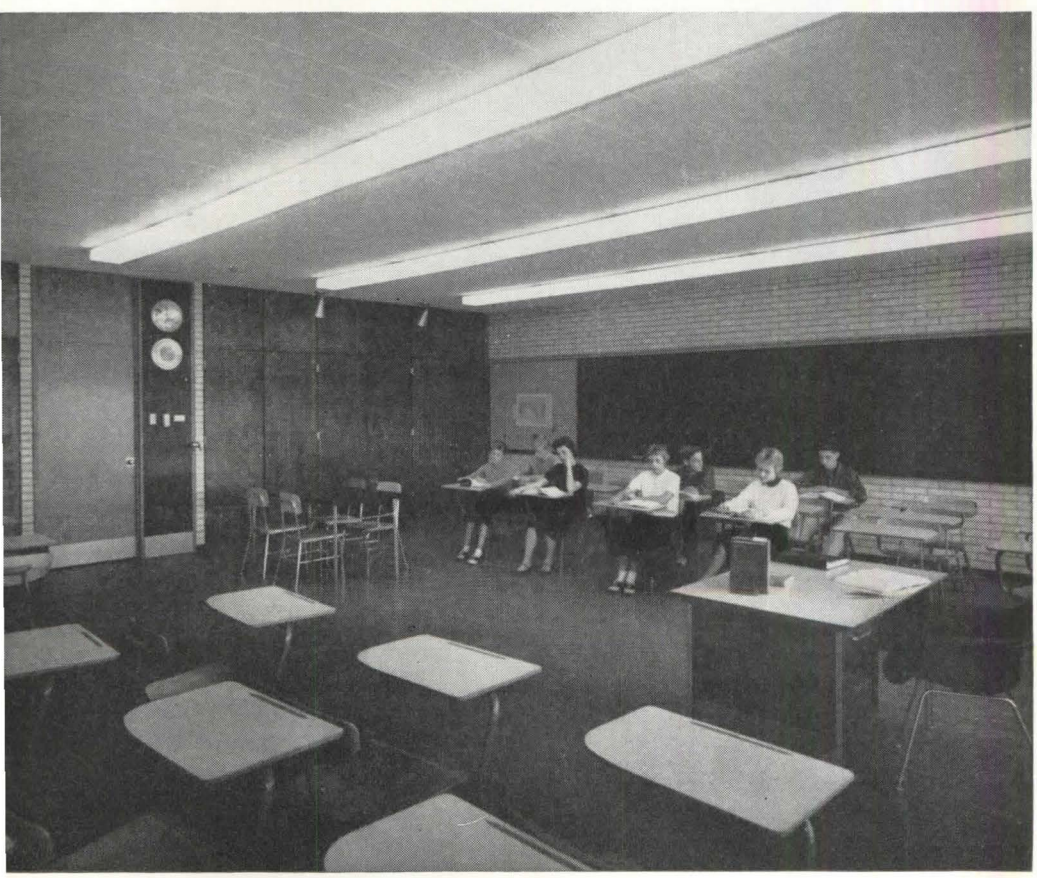
Photos: Everett Kroeger





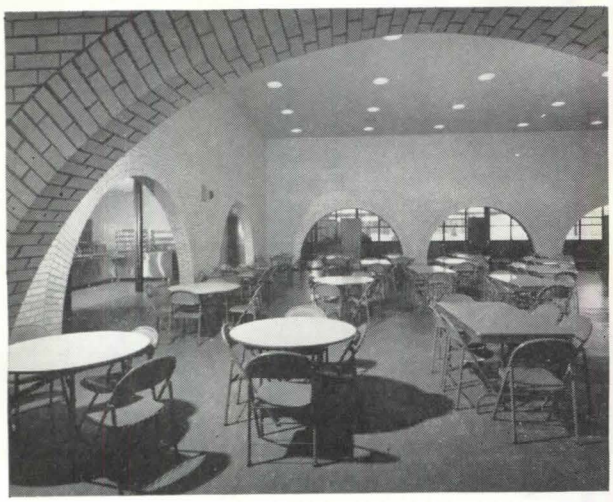
Because the site is flat, the creation of exterior and interior spaces on varied levels was considered most important. The large two-story interior courtyard (above), *on the north, provides light for classrooms on both basement and first-floor levels. Connecting the school to the brick gymnasium building* (center), *a two-level link, glass-walled on the first floor, provides locker space on the basement level. The gymnasium building has two-story-high gyms and one-story-high band, orchestra, and music practice rooms on the first floor level. Only three wall materials, brick, glass, and white porcelain-enamel panels, have been used throughout the school.*

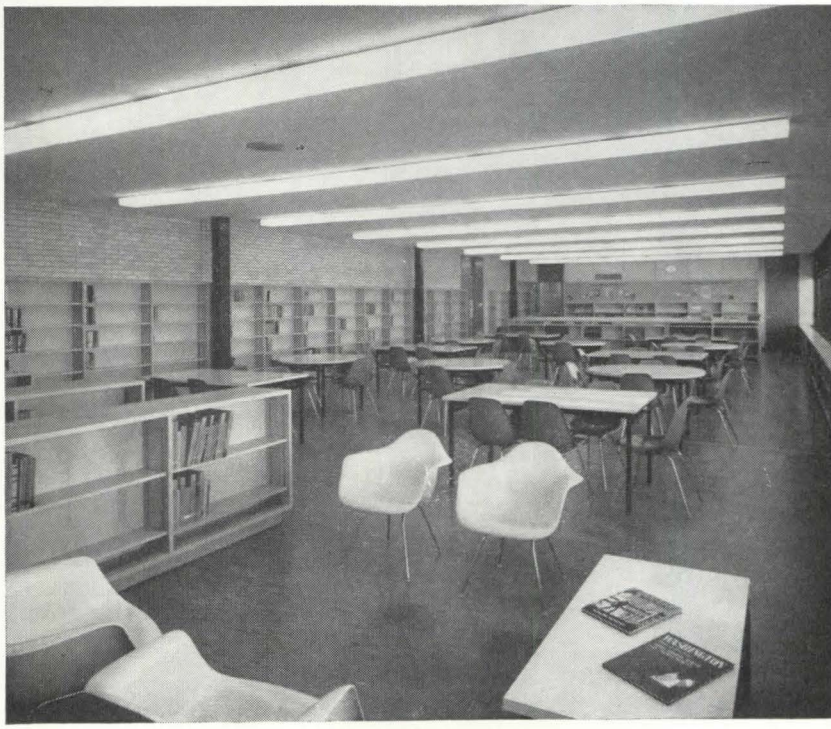




All interior walls are a white-gray brick, chosen for permanence and ease of maintenance; ceilings are acoustic tile, flooring, mainly asphalt tile; lighting, for the most part, is fluorescent. Each of the stairs to basement level (above), *at the corners of the north courtyard, are generously day lighted through clerestory windows. Classrooms* (left) *have generous storage closets; bright color is used only in small areas, at panels and louver doors.*

Practice rooms (right) *for band and orchestra are in the gymnasium building. Splayed brick walls and acoustical-plaster ceiling are used.*

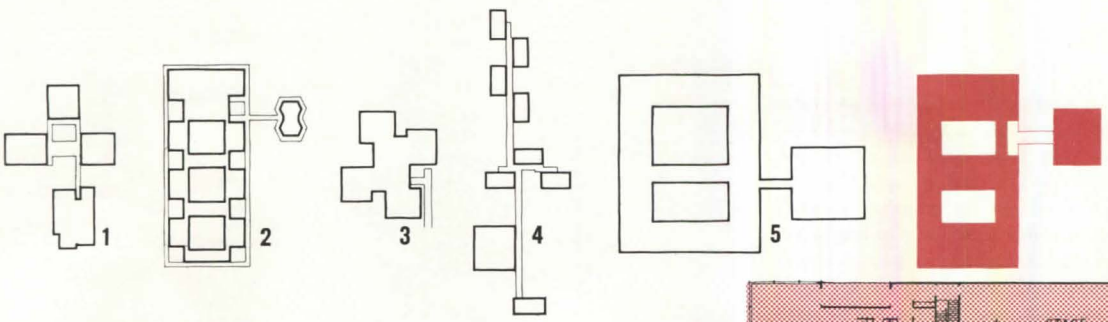


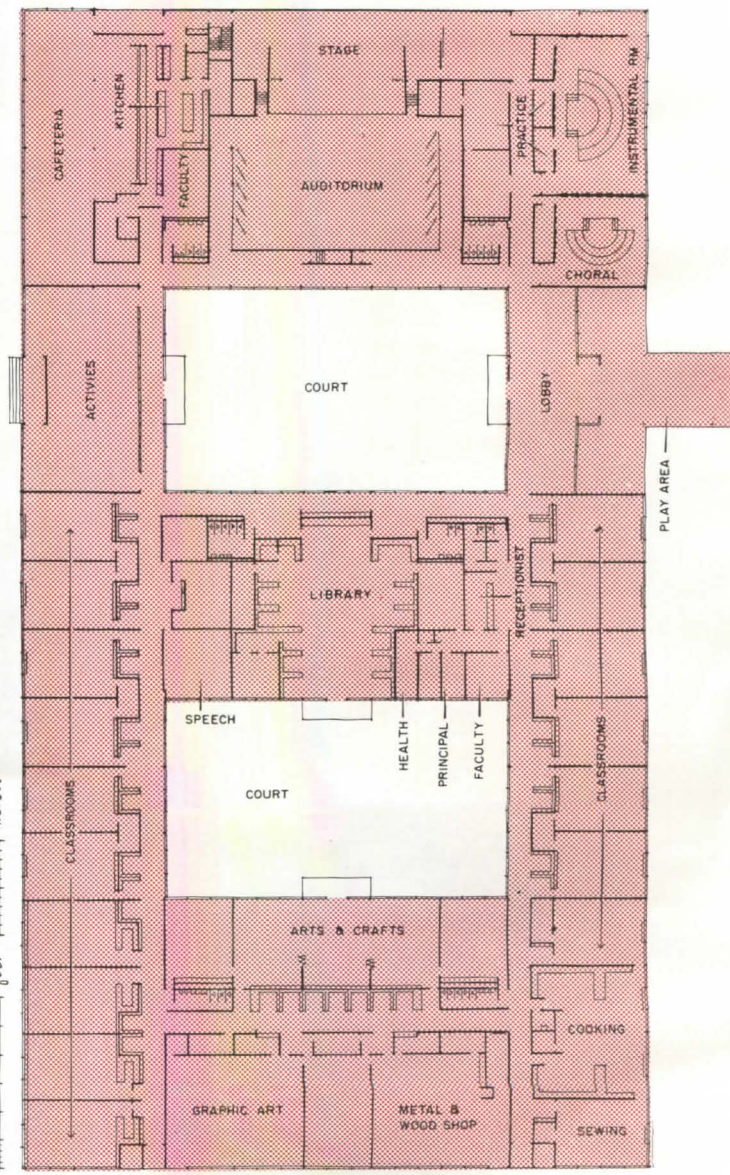


The cafeteria (above) *serves also as auditorium and has a stage opposite the kitchen end. Arches were used as a "logical and fundamental method of spanning an opening in load-bearing masonry walls." In contrast to other areas, the ceiling here is acoustic plaster, lighting is incandescent.*

Centrally-located library (right) *has view to the north court, and is adjacent to staff lounge, small conference, work, and audio-visual rooms.*

6





Gompers Junior High School, Joilet, Illinois
Associated Architects: Skidmore, Owings & Merrill, Chicago and Levon Seron, Joilet

School designed to accommodate: 900 pupils.

Present and future enrollment: 600 seventh- and eighth-grade pupils initially, expansion within two to five years.

Area of site: 25 acres, 5 open acres used for play fields.

Special accommodations: cafeteria, faculty dining, music rooms, auditorium, activities room, library, administrative offices, health, teachers' room, shops, arts and crafts, home economics, conference rooms (each for two classrooms), gymnasium.

Basic design problem: to provide central facilities to be used by the community . . . classroom facilities planned for expansion since a unit district program may be established within two to five years . . . economy of construction.

Plan solution: unusual wooded site suggested glass pavilion surrounded by oak woods with a compact plan for ease of circulation and simplicity of construction . . . creation of two inner courts organizing plan into three zones: east for group assembly and high-level noise (and community use), middle for academic and office facilities, west for noisy and semi-recreational areas . . . separate gymnasium connected by covered passageway which becomes a play area in inclement weather . . . two classrooms share conference room (for group projects) which forms locker alcoves free from corridor circulation . . . mechanical equipment on basement level.

Structural system: exposed steel structure, welded in gymnasium, bolted in school for rapid field erection.

Mechanical system: oil-fired boilers, steam-distribution system to fin-tube radiation and unit ventilators.

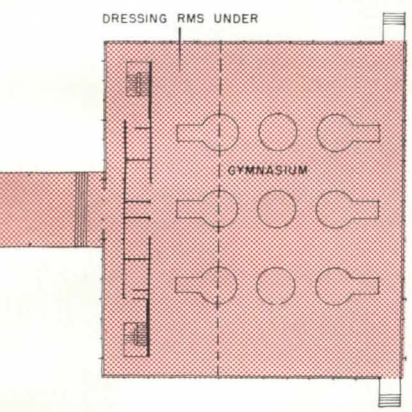
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

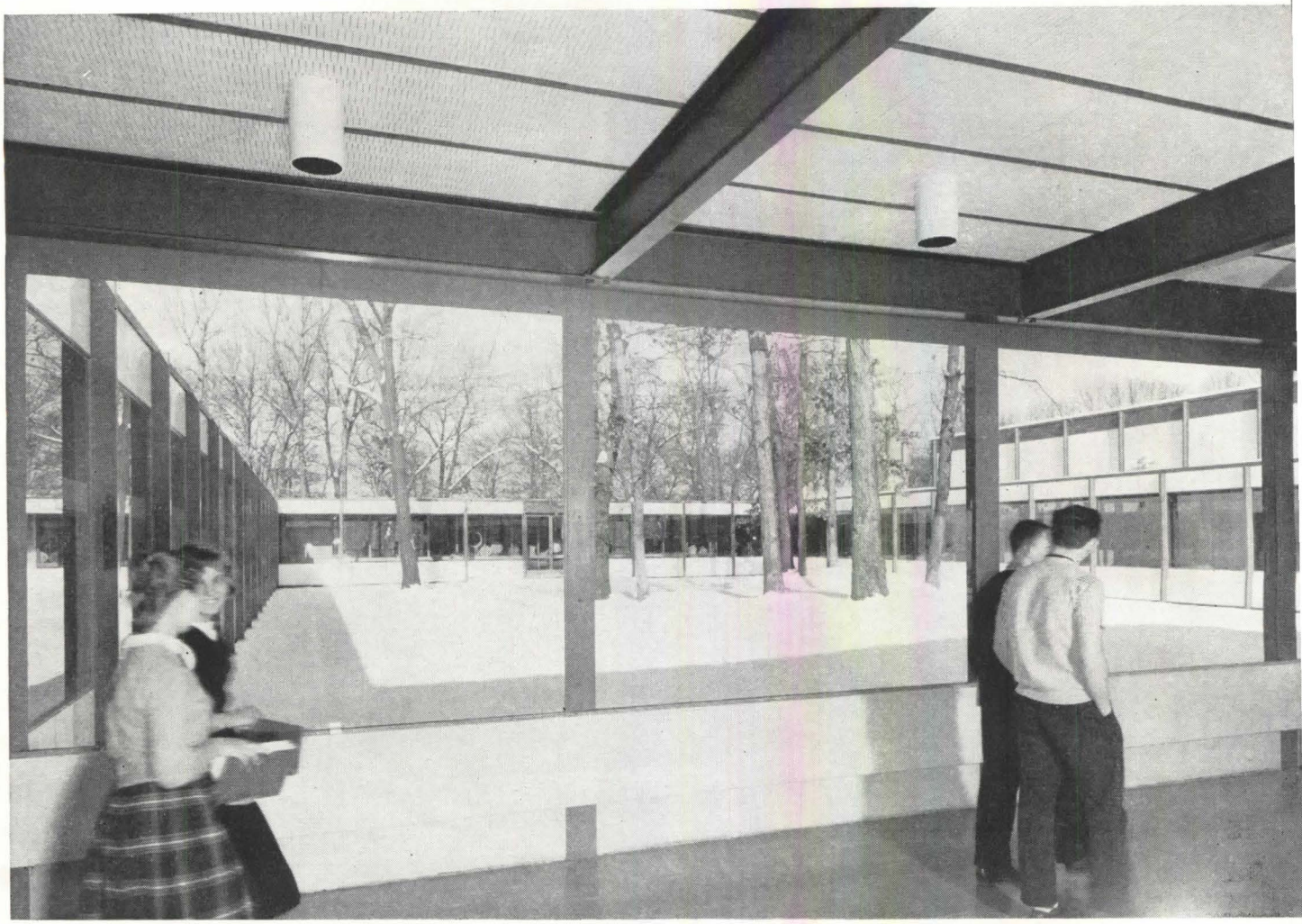
Classrooms.	14,484—	14%
Other teaching accommodations.	39,224—	41%
Administration, staff, service, mechanical, etc..	22,486—	24%
Circulation (covered walks counted as ½)....	17,922—	19%
Toilet facilities, showers, lockers.	1,584—	2%
Total area (sq ft)	95,700=	100%

Cost (excludes site, site work, loose furniture): $1,346,000

Separate gymnasium building (bottom) *is linked by a covered passage to the school's main entrance lobby which faces the east court* (below). *This court isolates noisy facilities (music rooms, auditorium, cafeteria) from quiet zone (classrooms, library, administration). Steel structure is exposed throughout. Walls are 5"-thick precast-concrete sandwich panels with an insulating core and white-quartz exposed-aggregate finish; window walls are glass and white porcelain-enamel panels. Twelve-inch purlins support bulb tees which receive formboards (gypsum, acoustic, or asbestos) for the poured-gypsum roof. The finished ceiling in the corridor* (below) *is acoustic formboard.*

Photos (except as noted): Bill Engdahl, Hedrich-Blessing





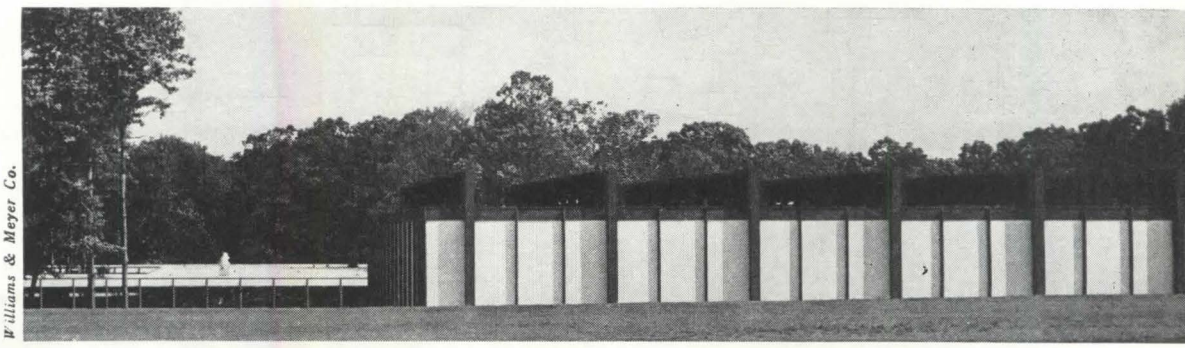
Williams & Meyer Co.

Typical classrooms (left) *and corridors* (above) *evidence the 24-ft-sq bay grid and 8-ft module on which the design was based. Interior walls are plaster, flooring is asphalt tile. Classroom ceilings have alternating reflective and absorptive panels for acoustic control; lighting is supplied by continuous suspended fluorescent troffers. Surface-mounted incandescent downlights light the corridor* (above).

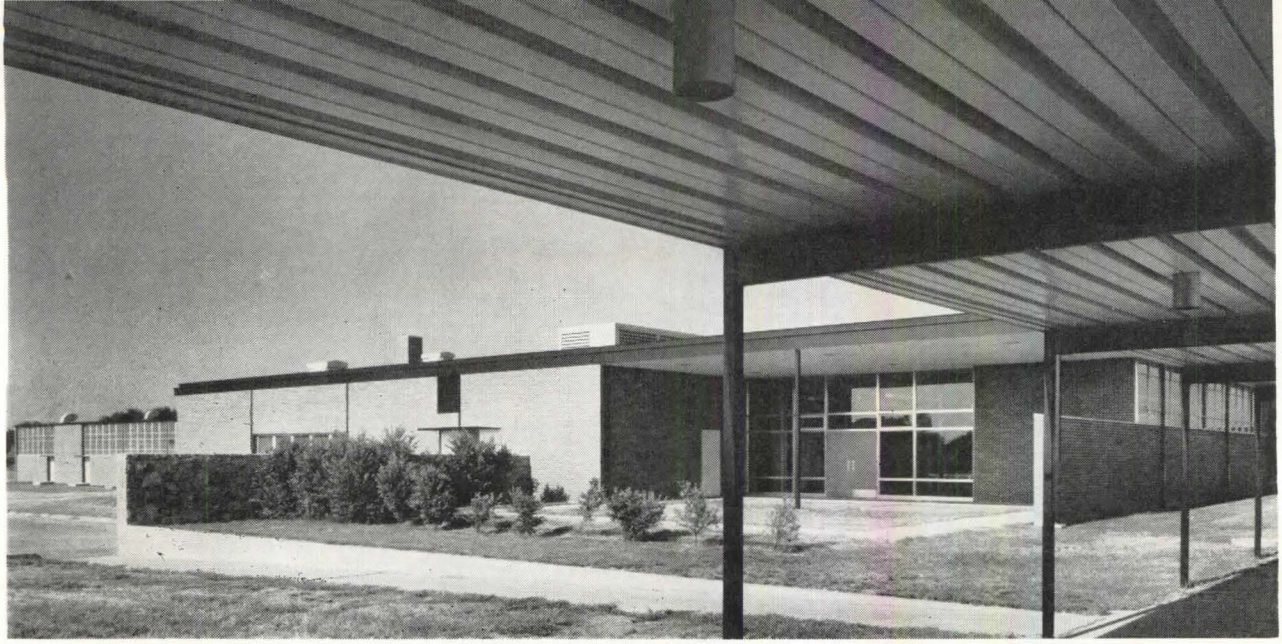
The auditorium (right) *seats 400 enabling half the school to assemble. Lattice walls are birch battens and bronze-mesh screen; sound-reflector louvers are plywood covered with a plastic-impregnated fiber glass cloth. Downlights are recessed in the plywood sound deflecting panels hung from the ceiling.*

Williams & Meyer Co.

In the gymnasium building (below and left), *long-span plate girders were exposed above the roof to allow a smooth ceiling, to cut down on the heated volume inside and to reduce the scale of exterior form. The gymnasium is equipped with a movable stage and bleachers to seat 1200; showers and lockers are at basement level.*

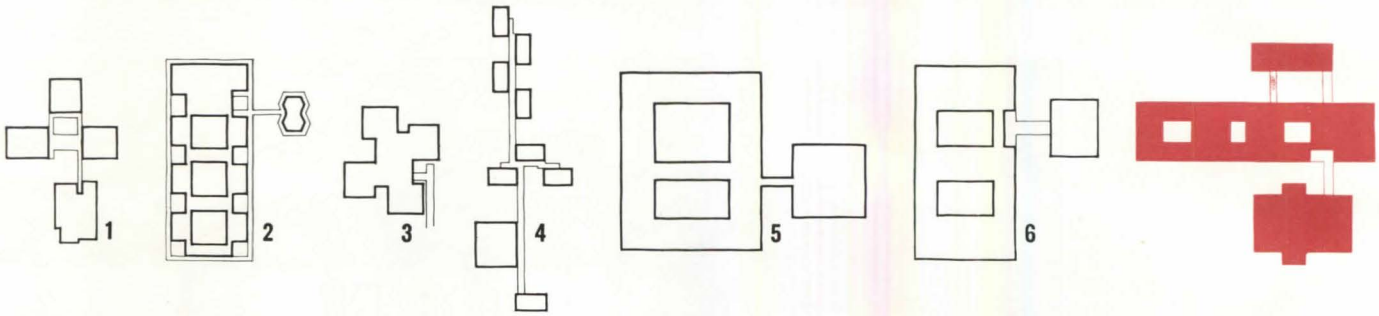


Williams & Meyer Co.



Photos (except as noted): Bob Hawks, Inc.

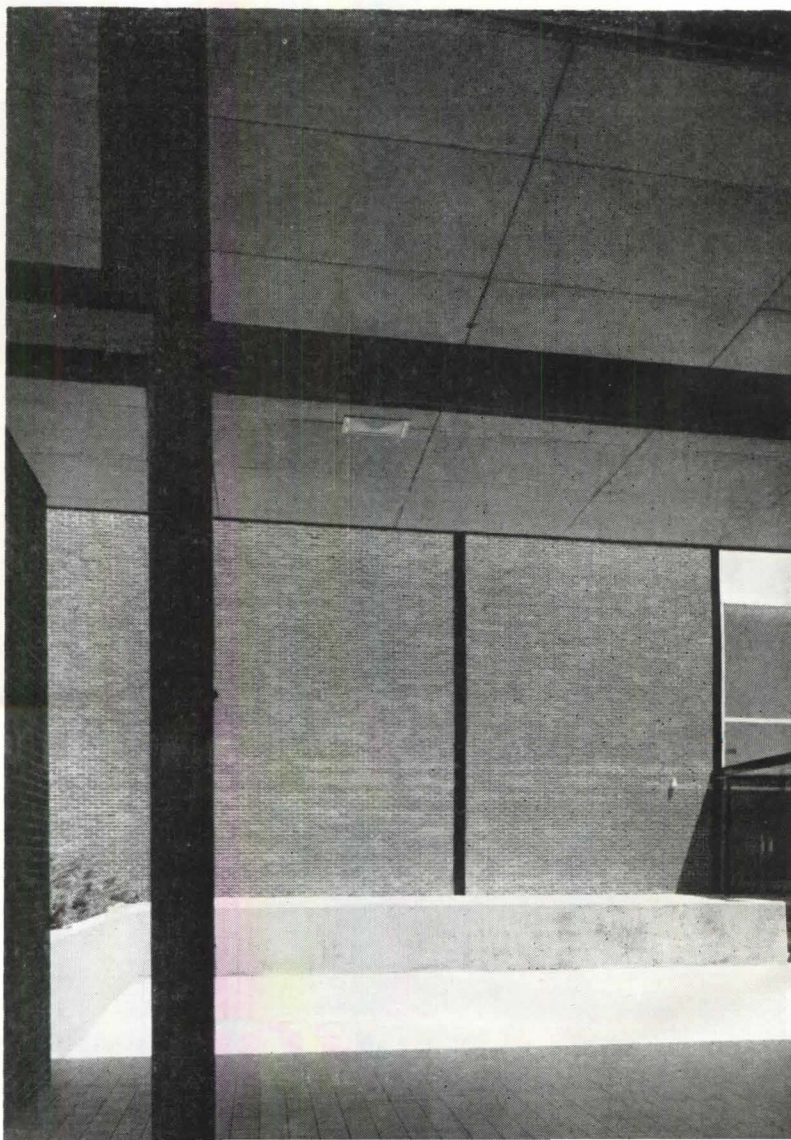
7

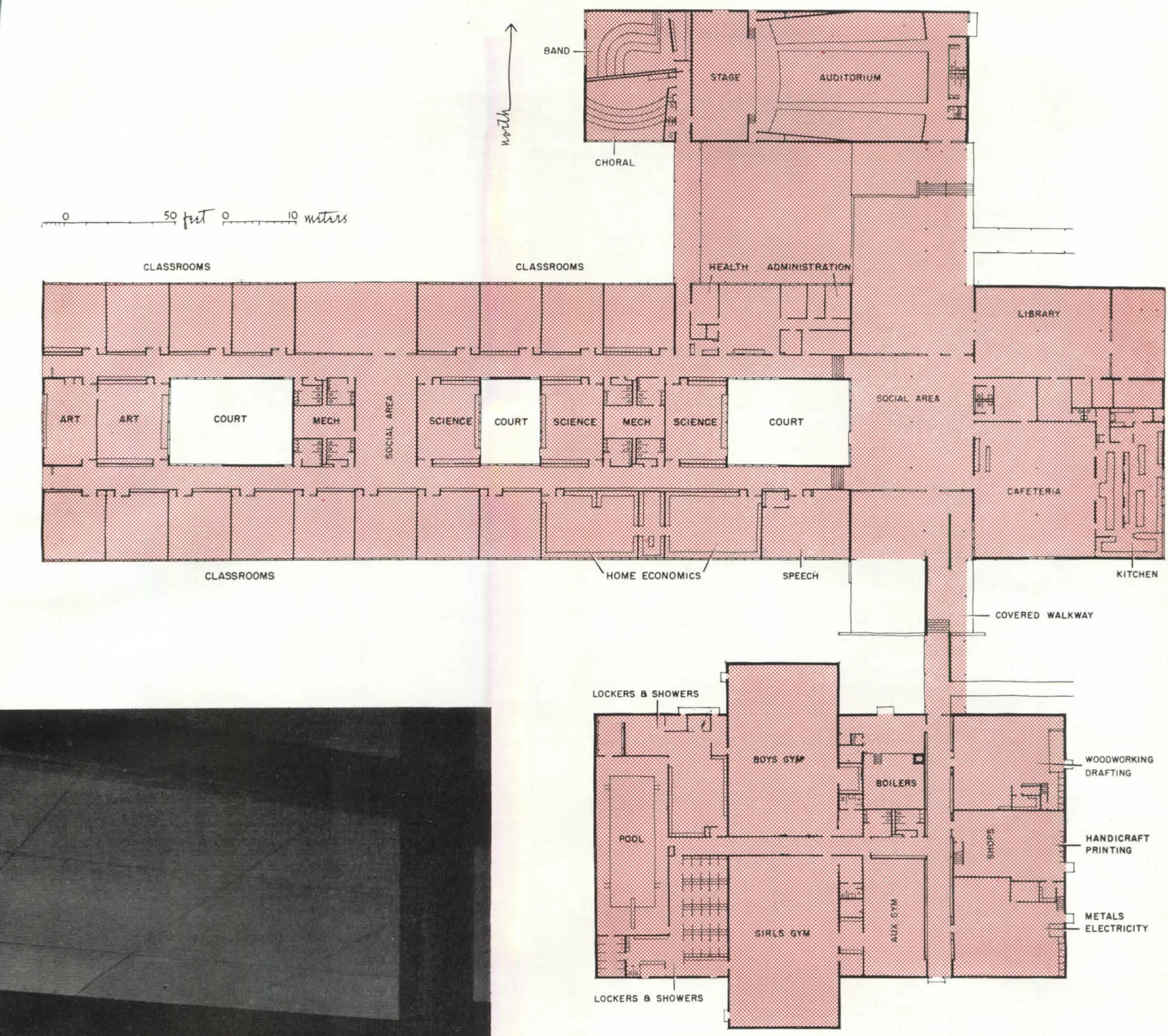


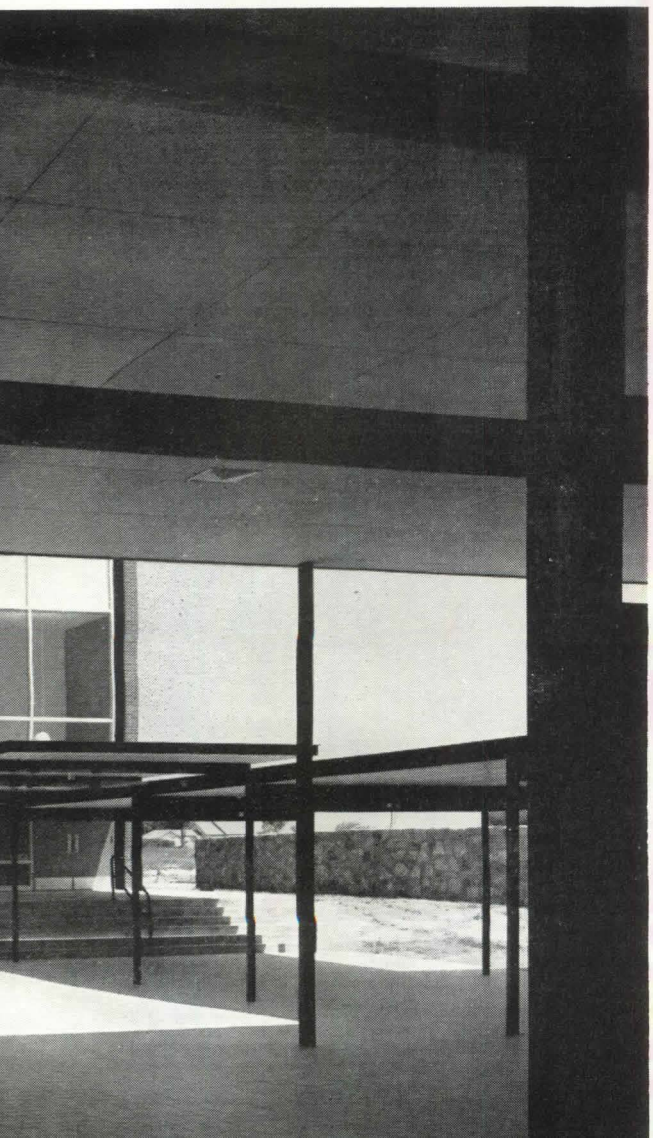
James Monroe Junior High School, Tulsa, Oklahoma
Architect: Murray, Jones & Murray
Mechanical-Electrical Consultant: Netherton, Dollmeyer & Solnok
Acoustical Consultant: Bolt, Beranek & Newman, Inc.
Landscape Consultant: Sasaki, Walker & Associates, Inc.
School designed to accommodate: 960 pupils.
Present and future enrollment: 993 seventh-, eighth-, and ninth-grade pupils.
Area of site: originally 12, now 16 acres of 24-acre site with bus-loading facilities to be shared by a future elementary school.
Special accommodations: auditorium, music rooms, administrative offices, library, cafeteria, kitchen, health, teachers' room, social areas, science, art, typing, home economics, speech room, shops, dark room, gymnasiums, swimming pool.
Basic design problem: low-maintenance facilities avoiding multiuse areas . . . separation of noisy and community-use facilities . . . flexibility for simultaneous occupancy because of heavy night and summer use by different groups.
Plan solution: separation of athletic and assembly facilities used by community from academic unit . . . creation of courts in academic unit to reduce apparent corridor length, provide outdoor art, science teaching spaces . . . one-level-high to avoid monumentality and reduce costs.
Structural system: steel frame with poured-lightweight-concrete deck or precast, acoustical, insulating panels . . . columns outside porcelain-enamel curtain wall and partially-exposed when in masonry.
Mechanical system: central boiler provides steam to decentralized fan units, pneumatic control.
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

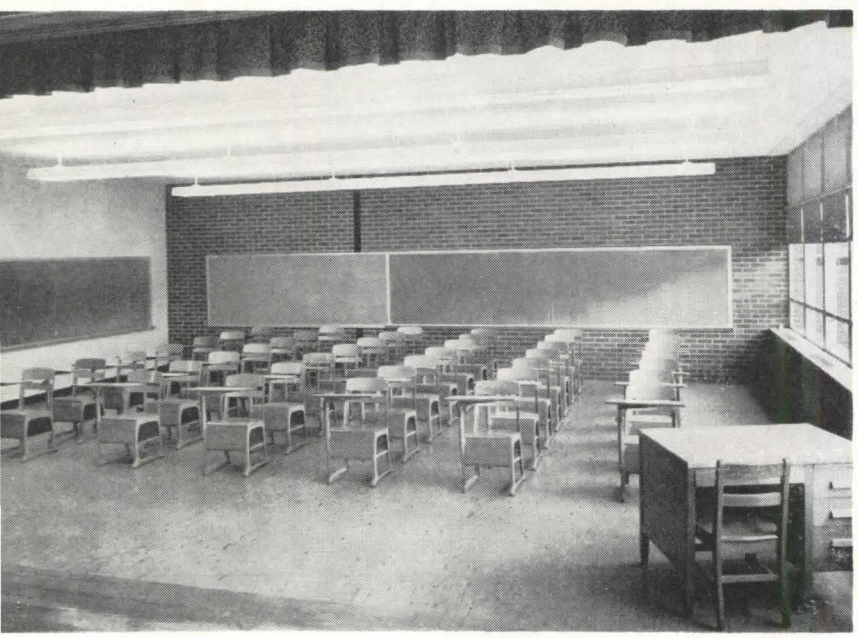
Classrooms	13,333	14%
Other teaching accommodations	45,473	49%
Administration, staff, service, mechanical, etc.	11,435	12%
Circulation (covered walks counted as ½)	16,886	18%
Toilet facilities, showers, lockers	6,889	7%
Total area (sq ft):	94,016	100%

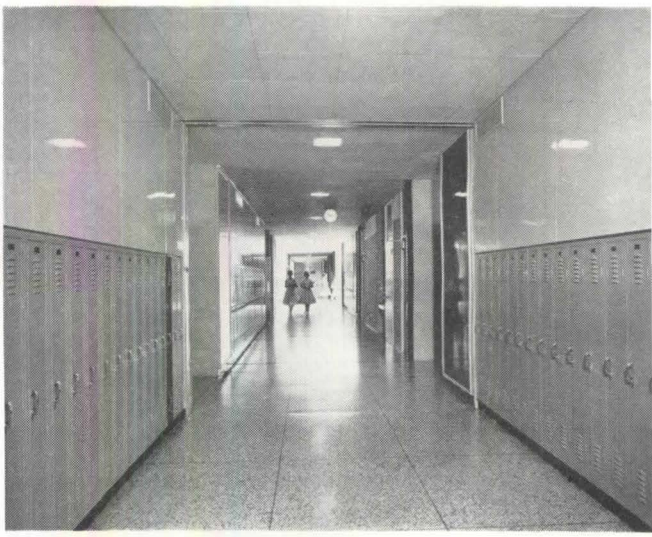
Cost (excludes site, site work, loose furniture): $1,436,835



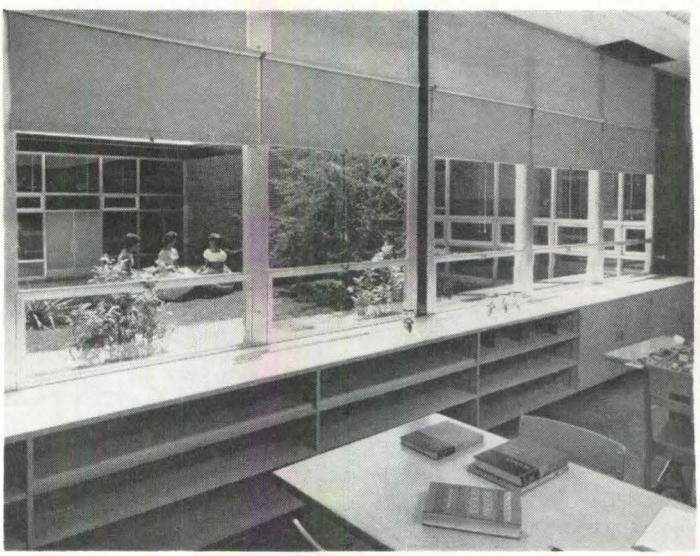

BAND
STAGE
AUDITORIUM
CHORAL
north
0 50 feet 0 10 meters
CLASSROOMS
CLASSROOMS
HEALTH
ADMINISTRATION
LIBRARY
ART
ART
COURT
MECH
SOCIAL AREA
SCIENCE
COURT
SCIENCE
MECH
SCIENCE
COURT
SOCIAL AREA
CAFETERIA
CLASSROOMS
HOME ECONOMICS
SPEECH
KITCHEN
COVERED WALKWAY
LOCKERS & SHOWERS
BOYS GYM
BOILERS
WOODWORKING
DRAFTING
POOL
SHOPS
HANDICRAFT
PRINTING
GIRLS GYM
AUX GYM
METALS
ELECTRICITY
LOCKERS & SHOWERS

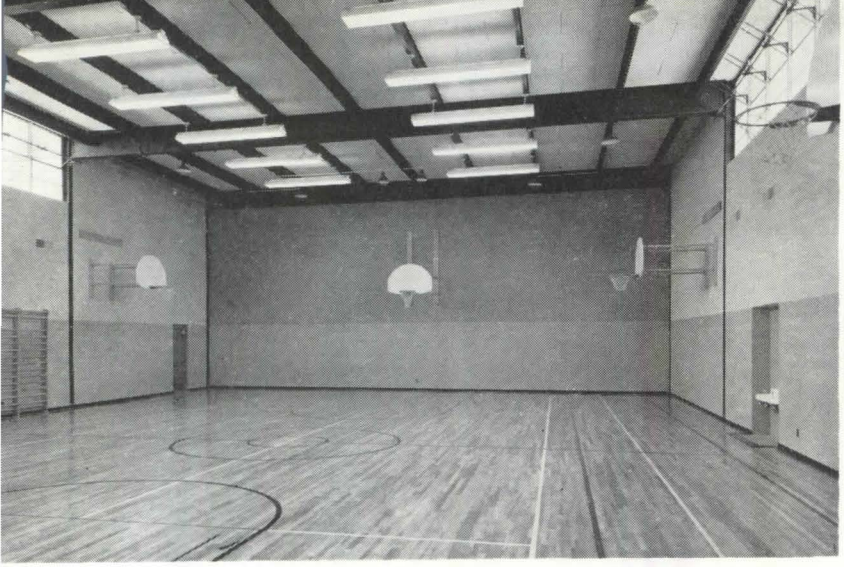






Heat for classrooms, by low-pressure double-duct system, is distributed under floor to diffusers at window stool. Porcelain-faced insulating panels above windows (right) *were selected to "provide maintenance-free, lightweight enclosures with minimum effect on the heating load." Interior walls are brick, ceramic tile, marlite panels, and unglazed vitrified tile. Glass-fiber ceiling tile, 2'-sq, in concealed suspension system minimizes grid in ceiling plane. Lighting in most areas is provided by suspended fluorescent fixtures.*

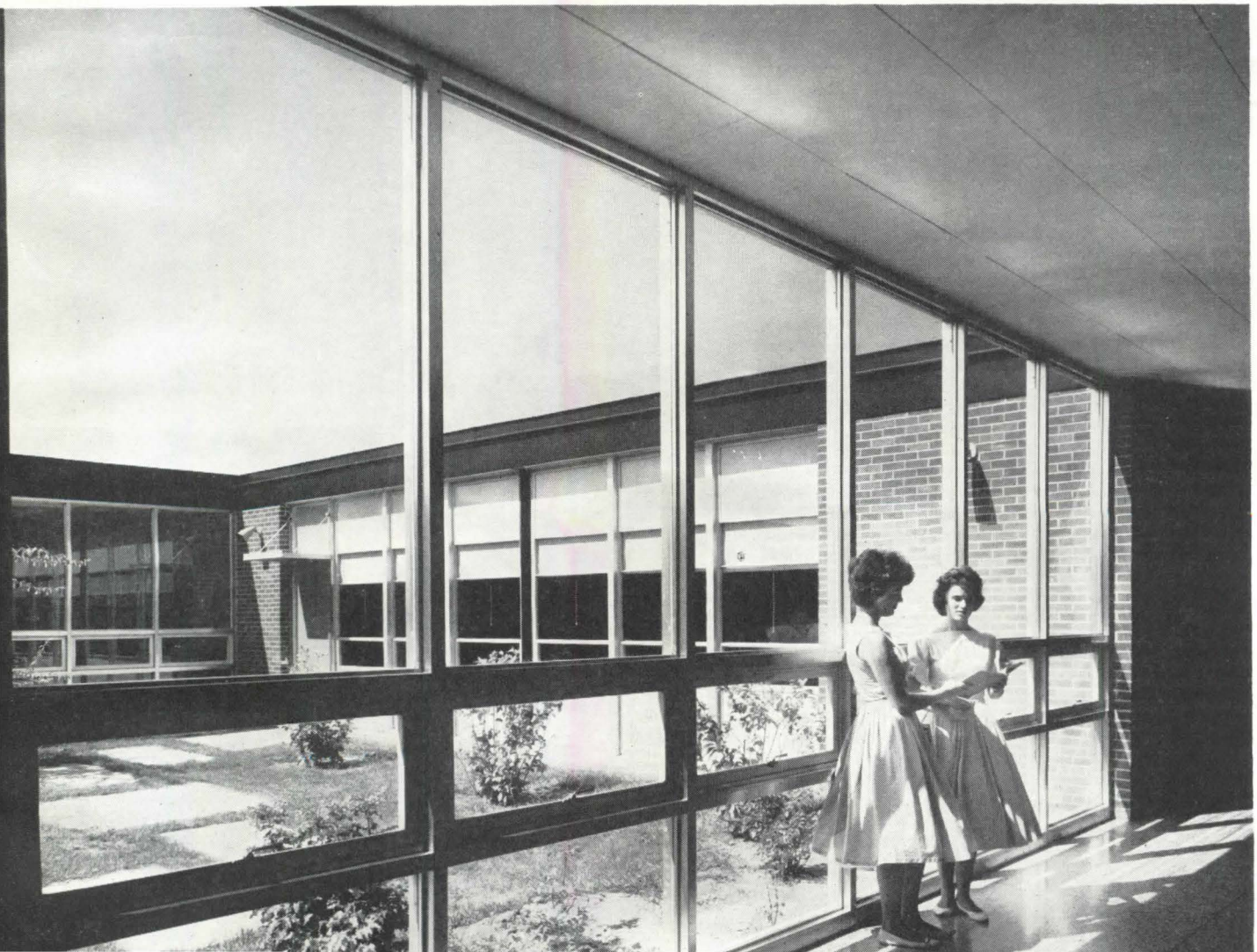


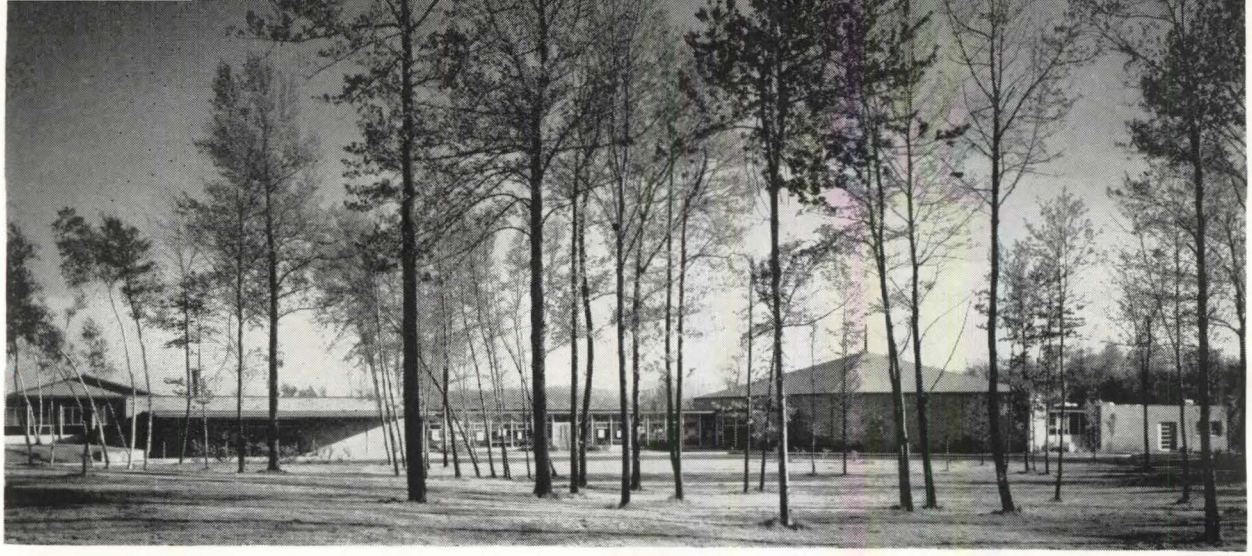


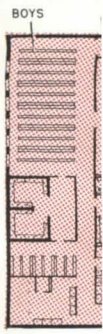
Ben Newby

The gymnasium (above), *auditorium* (right), *and library* (acrosspage top) *are heated by fan-coil units through overhead ducts; fans operate only for areas used after school activities. In the gymnasium, steel columns are exposed; walls are vitreous tile with lightweight block above wainscot.*

The auditorium seats 750. For acoustical control, perforated hardboard over glass fiber was used at the rear wall and in the recesses of the side walls; except for upholstery, other surfaces are reflective. Incandescent lighting fixtures are recessed into ceiling.

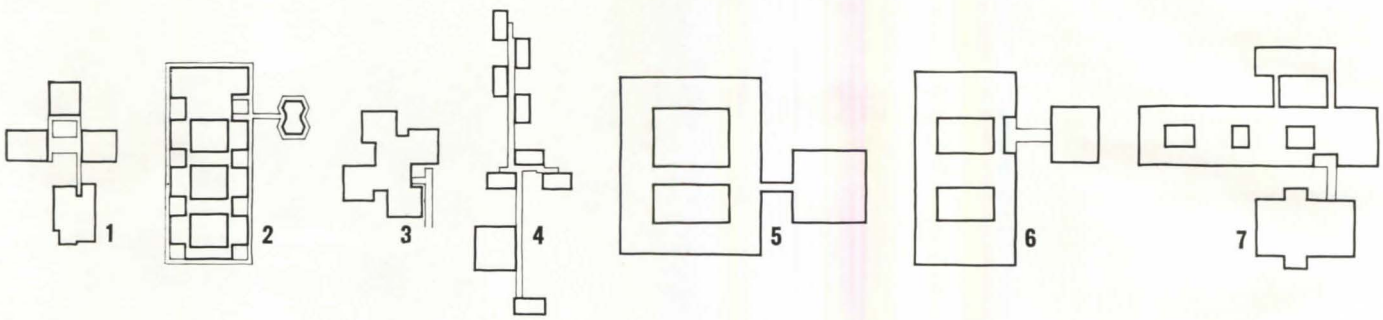






Photos: Joseph W. Molitor

8



Ramapo Regional High school, Franklin Lakes, New Jersey
Architect: Sherwood, Mills & Smith
Educational Consultant: Walter J. Cocking
Mechanical Engineer: Muzzillo & Tizian
Structural Engineer: Fraioli, Blum & Yesselman
Acoustical Engineer: Bolt, Beranek & Newman
Landscape Architect: Bryan J. Lynch

School designed to accommodate: 1080 pupils.

Present and future enrollment: 1100 pupils in grades 9-12, 14 additional classrooms will increase capacity to 1433.

Area of site: 50 acres of rural land near an existing residential street.

Special accommodations: library, administrative offices, gymnasium, health, kitchen, cafeteria, student commons, study hall, student activities, science, business education, home economics, teachers' rooms, auditorium, music rooms, art, shops.

Basic design problem: to provide high school facilities for three towns . . . large outdoor playground for sports and recreation . . . community use of auditorium and gymnasium.

Plan solution: building placed at north of site for easy access, freeing maximum area for sports, recreation development . . . gymnasium and auditorium located for separate and simultaneous community use . . . garden courts separate activities, provide alternate passage, overflow space for large gatherings . . . isolation of noisy facilities.

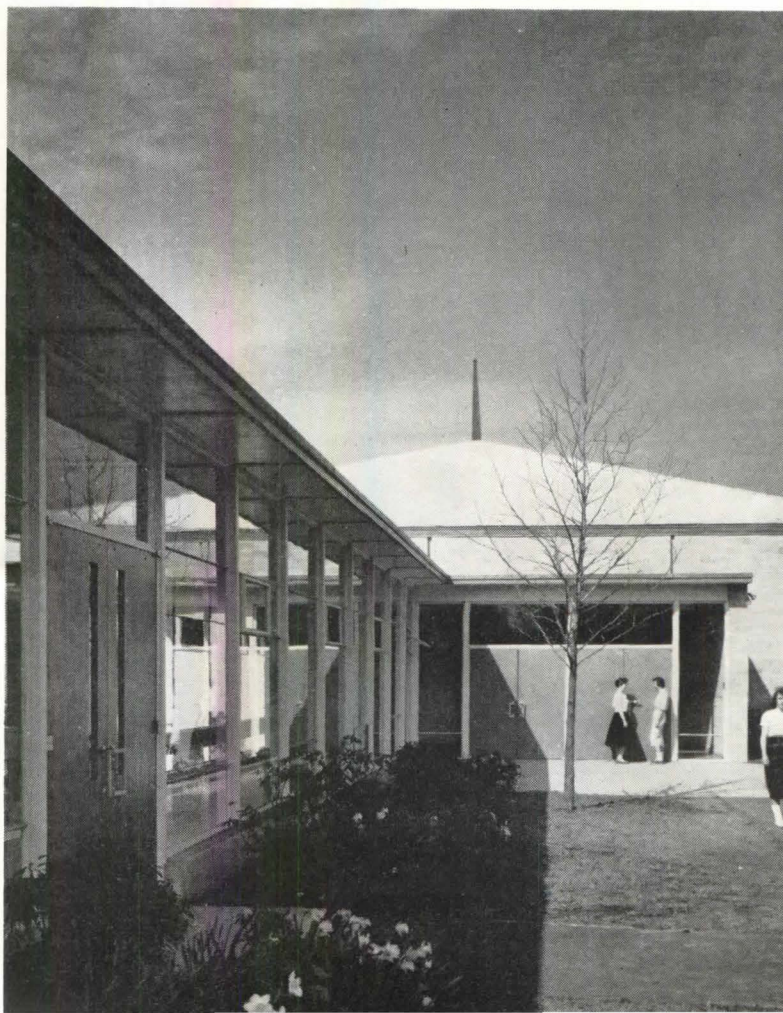
Structural system: steel frame with exposed beams of rolled sections, steel bents in auditorium . . . built-up roof on wood-fiber deck.

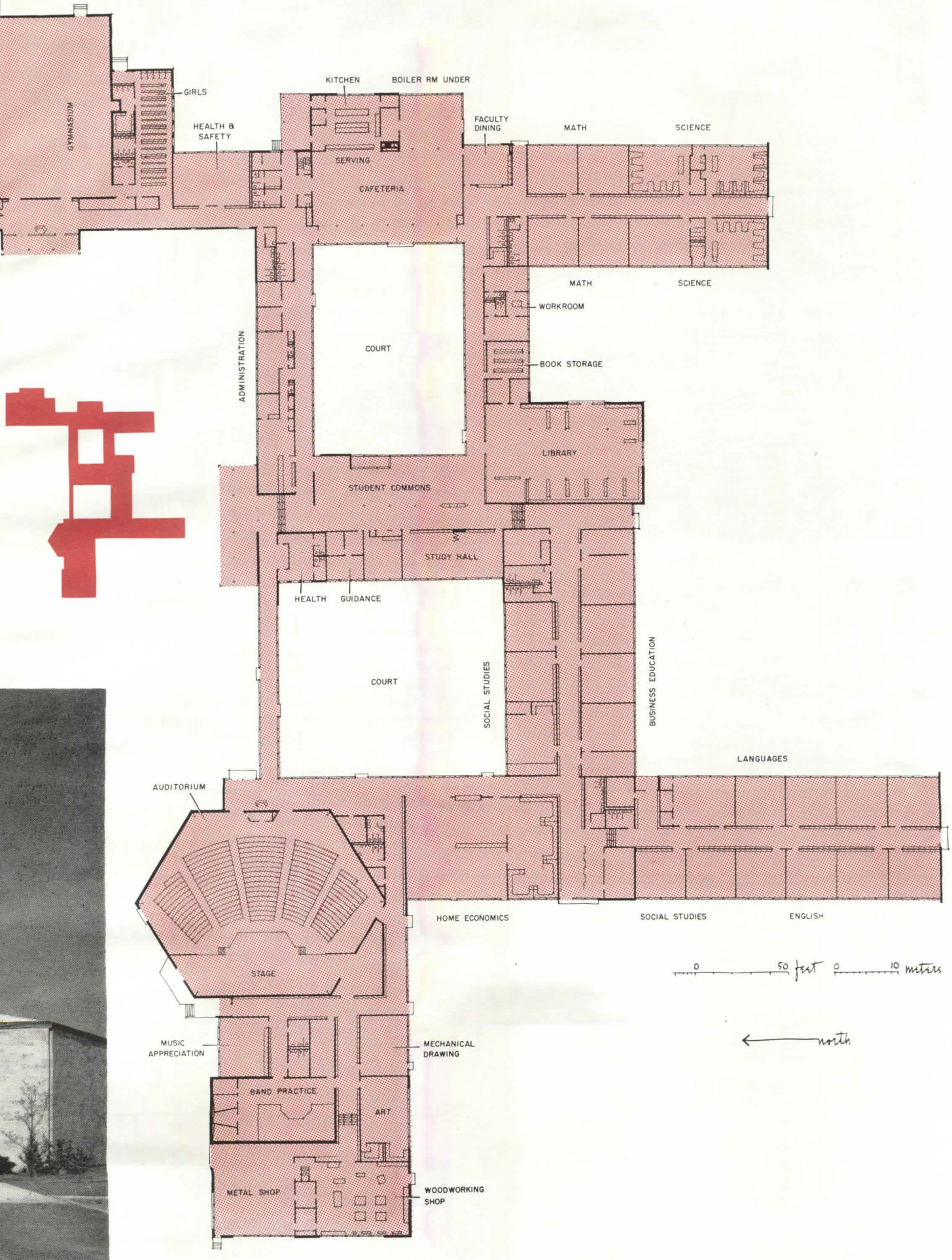
Mechanical system: hot water with convectors and unit ventilators in classrooms.

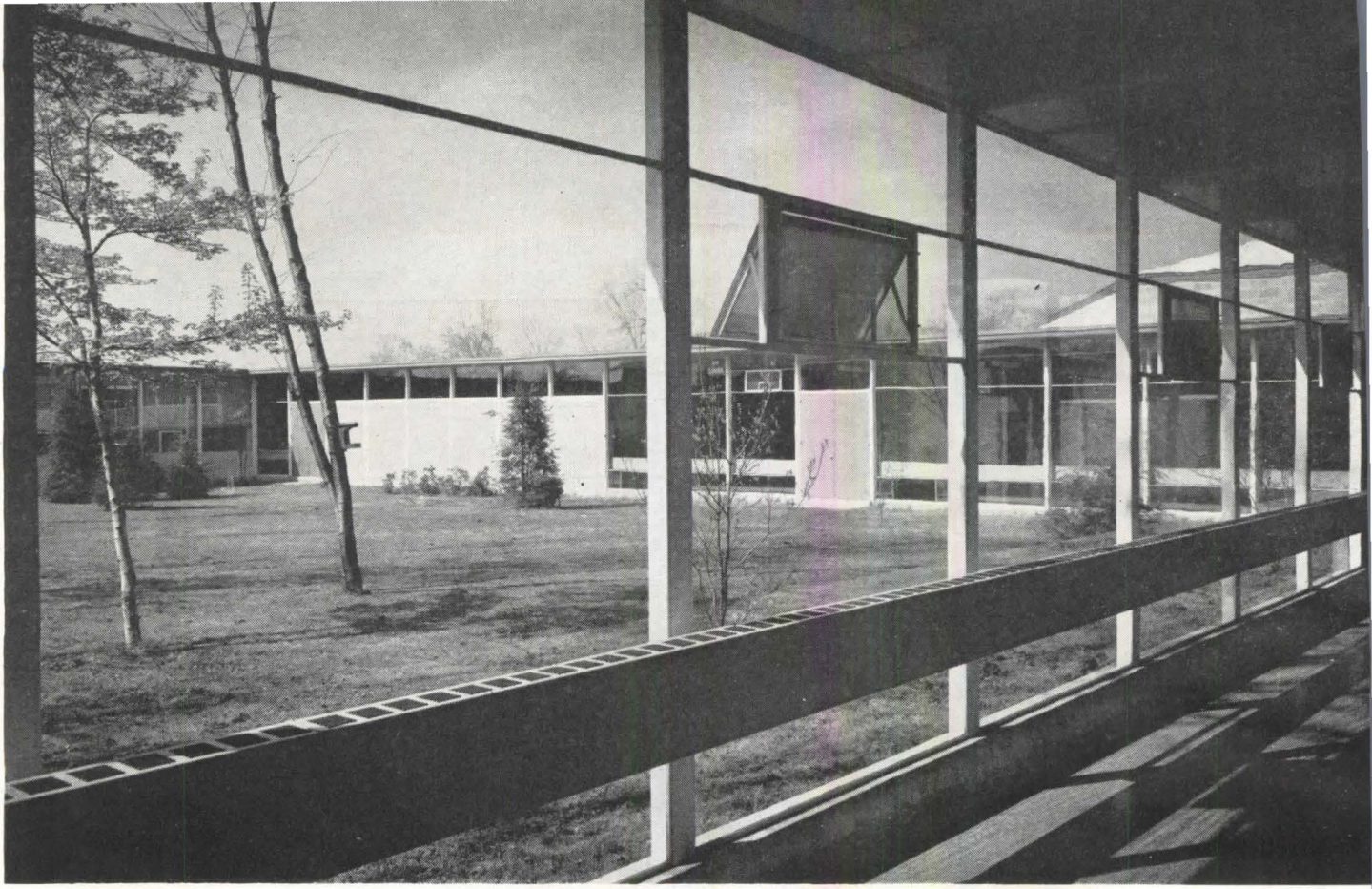
Area analysis (measurement from inside of exterior walls to center lines of partitions; storage included in each category):

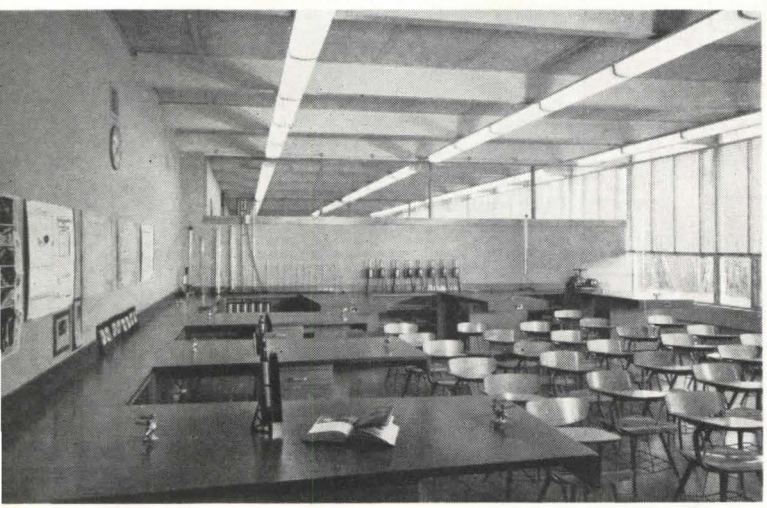
Classrooms.	17,241— 15%
Other teaching accommodations.	47,805— 42%
Administration, staff, service, mechanical, etc.	13,575— 12%
Circulation (covered walks counted as ½) . . .	24,726— 23%
Toilet facilities, showers, lockers.	8,322— 8%
Total area (sq ft):	111,669=100%

Cost (excludes site, site work, loose furniture): $1,718,282



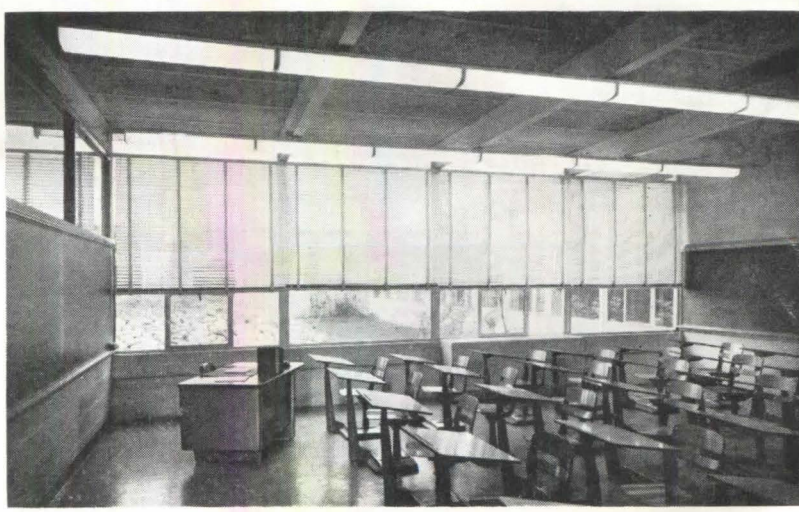

GYMNASIUM
GIRLS
KITCHEN
BOILER RM UNDER
HEALTH & SAFETY
SERVING
CAFETERIA
FACULTY DINING
MATH
SCIENCE
MATH
SCIENCE
WORKROOM
BOOK STORAGE
ADMINISTRATION
COURT
LIBRARY
STUDENT COMMONS
STUDY HALL
HEALTH
GUIDANCE
COURT
SOCIAL STUDIES
BUSINESS EDUCATION
LANGUAGES
AUDITORIUM
HOME ECONOMICS
SOCIAL STUDIES
ENGLISH
STAGE
0 50 feet 0 10 meters
north
MUSIC APPRECIATION
MECHANICAL DRAWING
BAND PRACTICE
ART
METAL SHOP
WOODWORKING SHOP

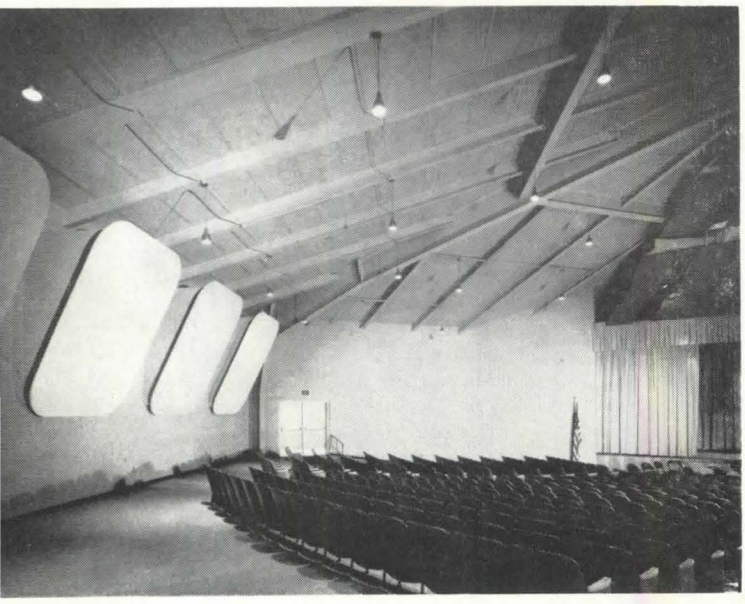




Economy was a major consideration in the selection of materials. Walls are concrete block, unpainted on the exterior, painted on the interior. Ceilings are the exposed wood-fiber roof deck. Corridor flooring is easily-maintained terrazzo; classroom flooring is asphalt tile. Roofing is asphalt shingle. Florescent fixtures provide light in classrooms though skylights are used for natural light in shops, gymnasium, and deep classrooms. Ventilator windows in corridor (above) *are glazed with colored glass for interest and gaiety.*

Heating system uses hot water with convectors at window line. Unit ventilators in classrooms supply tempered outside air with exhaust system. Auditorium, gymnasium, library, and locker rooms have positive air supply and exhaust.





The student commons (above), *at the core of the school just beyond the main entrance, is adjacent to the library, guidance center, and student activities room. Lighting here as well as in the library, gymnasium, and audiorium* (left) *is incandescent.*

The hexagonal auditorium seats 823. The exposed wood-fiber roof deck is made sound-reflective by heavy paint except for a 10-ft-wide perimeter border which is left sound-absorptive. Inclined plywood panels are used on the rear walls and in the band-practice room (below) *to reflect sound and avoid echoes. In the band-practice room, the sp!ayed reflective panels on the ceiling aid in achieving a high degree of reflected-sound diffusion.*

Barbara J. Melnick

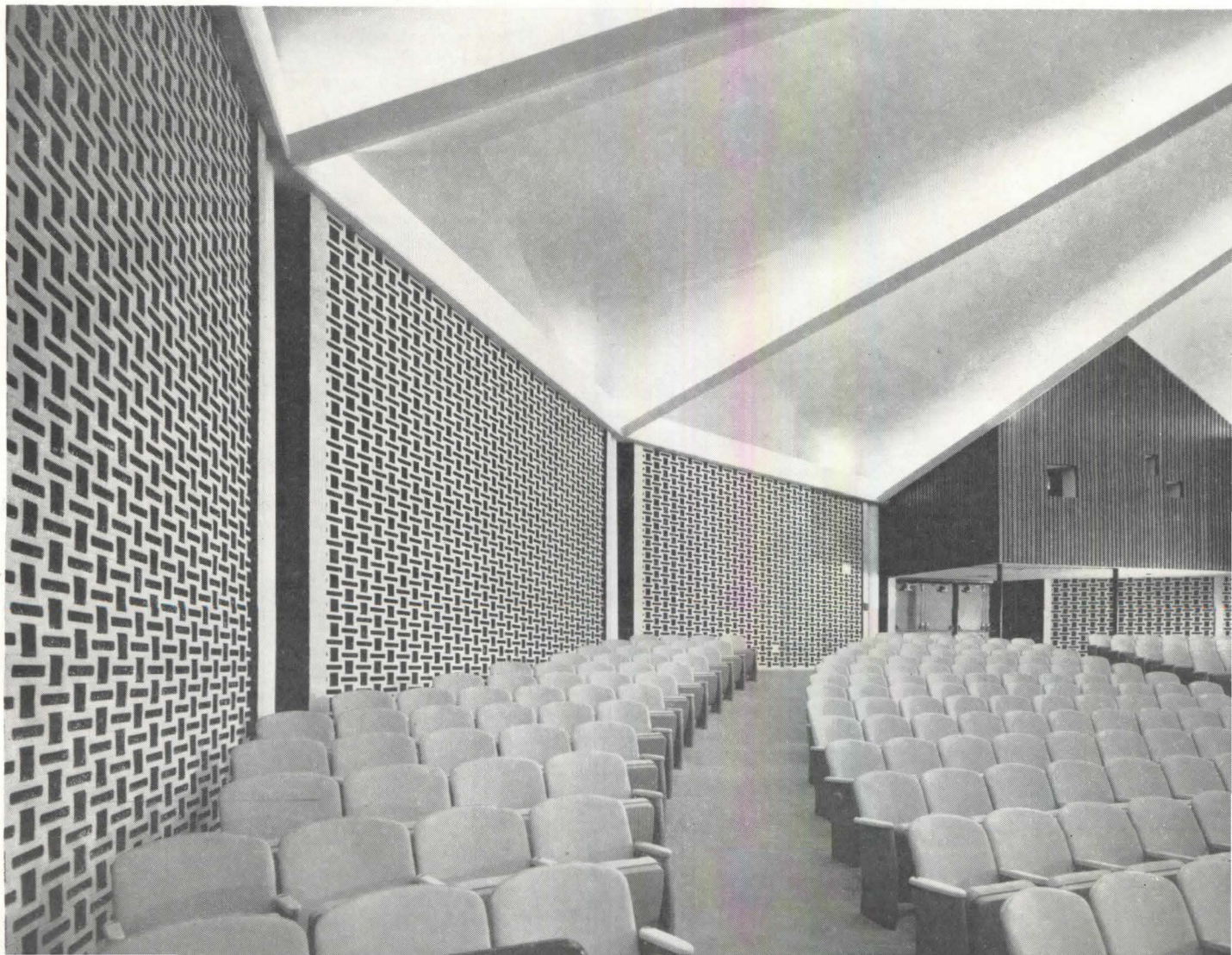
auditoriums

The preceding schools all have some facility for group assembly, though the facilities range from simple multipurpose spaces, doubling as gymnasiums and cafeterias, to more elaborately-equipped auditoriums. A group of particularly well-designed auditoriums has been selected for these pages. With one exception, they are elements of elementary or high schools.

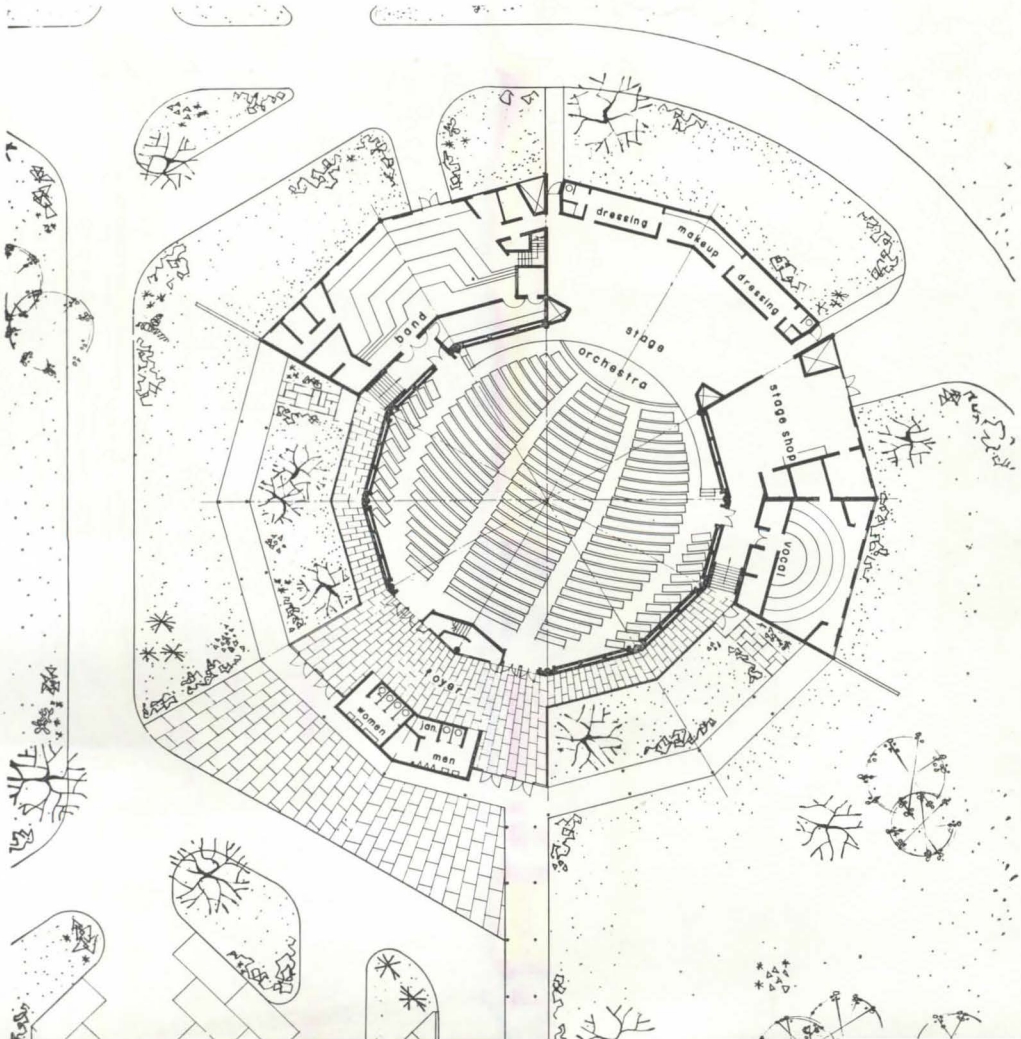
Each—whether a small and intimate auditorium or a large one used by the community—is carefully planned for optimum visual and acoustic conditions. Among the most interesting features to note are the flexibility provided by movable forestages and sliding proscenium walls; the provision of free space between fixed seating and stage for various informal uses; and the intimacy achieved by curving the stage into the audience area.

client	Wayne Memorial High School
location	Wayne, Michigan
architect	Eberle M. Smith Associates, Inc.

Lens-Art Photos



Balthazar Korab



Design Theory: This 939-seat auditorium, used by the community, is independent of the main high school building for easy accessibility to pedestrian and automobile traffic and to express its importance as a community center. Roofed by a reinforced-concrete "folded-plate dome," the auditorium is a polygon about 100-ft-diameter; its floor sloping for better visibility. The stage is extended by curving aprons for large ensembles or pageants. A movable forestage platform covers the lowered orchestra pit.

data

furniture, fabrics

Seating: aqua metal/Irwin Seating Company, Grand Rapids, Mich.; gold upholstery/E. F. Timme & Son, Inc., 1 Park Ave., New York, N.Y. **Stage Curtain:** gold/Pitti Stage, Inc., 2705 N. Charles, Pittsburgh, Pa.

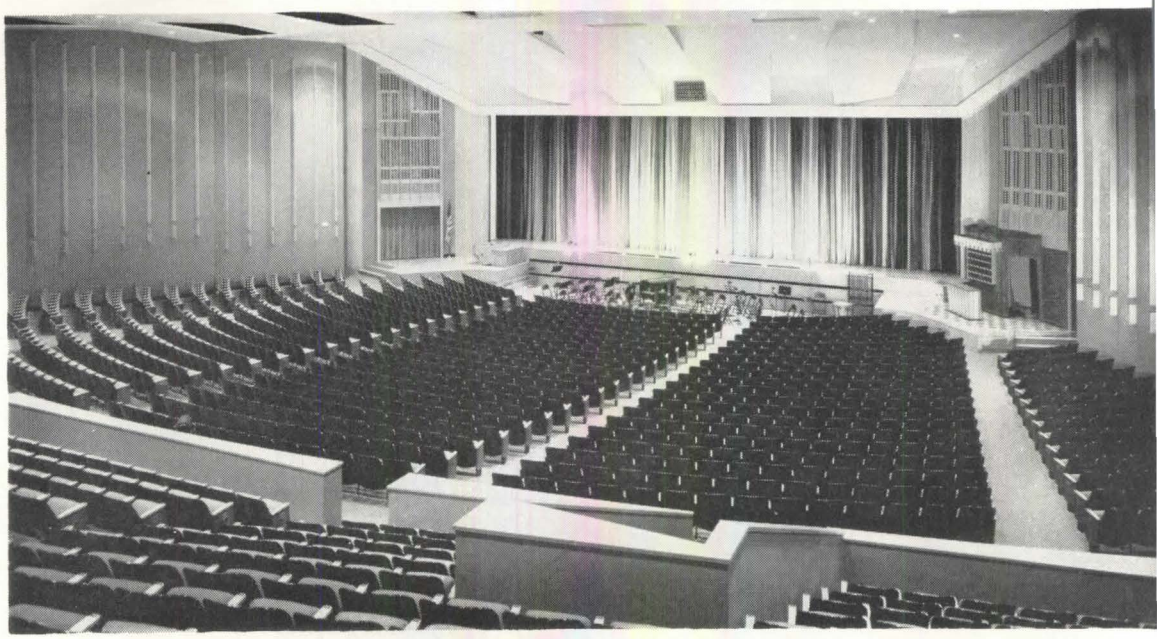
lighting

Coves: on dimmers/Garcy/Garden City Plating & Mfg. Co., 1750 N. Ashland Ave., Chicago, Ill. **Recessed at Exit:** Day-Brite Lighting, Inc., St. Louis 7, Mo.

walls, ceiling, flooring

Walls: gray mercrete block; off-white cast-concrete block/Cinder Block, Inc., 9143 Hubbel, Detroit, Mich. **Ceiling:** acoustic plaster painted pale blue; off-white beams, light troughs. **Flooring:** wood; gray asphalt tile/Kentile, Inc., 58 Second Ave., Brooklyn, N.Y.

auditoriums: flexible stage



Design Theory: Planned for professional events and community and school use, the auditorium seats 1500 or, if the lower forestage is used, 1600. Forestage consists of two rolling platforms under the stage: the lower for additional audience seating; the upper for increased stage depth; an orchestra pit is formed when both are retracted. A wood-slat rolling partition adjusts the width of the 70-ft-wide proscenium.

data

cabinetwork

Rolling Stage Door: butternut-finish wood slats/Coil-Wal/Dubuque Products, Inc., Dyersville, Iowa.

furniture, fabrics

Seating: brown metal/green end panels/American Seating Company, Grand Rapids, Mich.; rust and bittersweet nylon upholstery/ E. F. Timme & Son, Inc. **Stage Curtain:** moss and sage green velour/Peter Albrecht Co., 325 E. Chicago St., Milwaukee, Wis. **Fire Curtain:** Joseph Vasconcellos, Inc., P.O. Box 1035, West Babylon, N.Y.

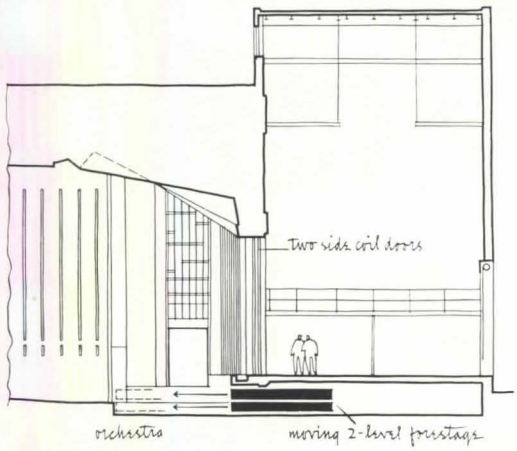
lighting

All: ellipsoidal reflectors in ceiling/ Century Lighting, Inc., 521 W. 43rd St., New York, N.Y.

walls, ceiling, flooring

Walls: plaster painted rust; ivory perforated-metal fins filled with mineral-wool fiber for sound absorption; oak and fir grills conceal organ, organ pipes. **Ceiling:** plaster, painted ivory. **Flooring:** cement; green-carpeted aisles/Mohawk Carpet Mills, Inc., Amsterdam, N.Y.

client — Evanston Township High School
location — Evanston, Illinois
architect — Perkins & Will



Section Thru Stage

Photos: Bill Engdahl, Hedrich-Blessing

Kranzten Studio

Design Theory: This 600-seat auditorium, for community as well as elementary and junior-high school use, required: an open area in front of the stage for orchestra groups or for seating youngsters who could easily reach the stage; and a flexible proscenium for varied uses. Oak panels, which vary the width of the stage, slide into the walls. Economical design gives maximum seating with two aisles, sloping floor, in minimum area.

data

cabinetwork

Sliding Stage Panels: oak/Driftwood stain, varnish/architect-designed.

furniture, fabrics

Seating: green standards, fabric/American Seating Company. **Stage Curtains:** Riverdale Drapery Fabrics, 295 Fifth Ave., New York, N.Y.; Ben Rose, Inc., 1129 W. Sheridan Rd., Chicago, Ill.

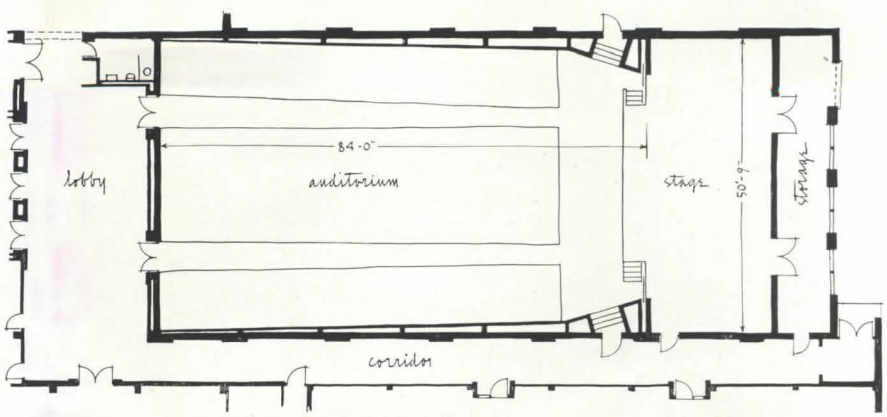
lighting

Recessed Downlights: Hub Electric Company, 2255 W. Grand Ave., Chicago, Ill.

walls, ceiling, flooring

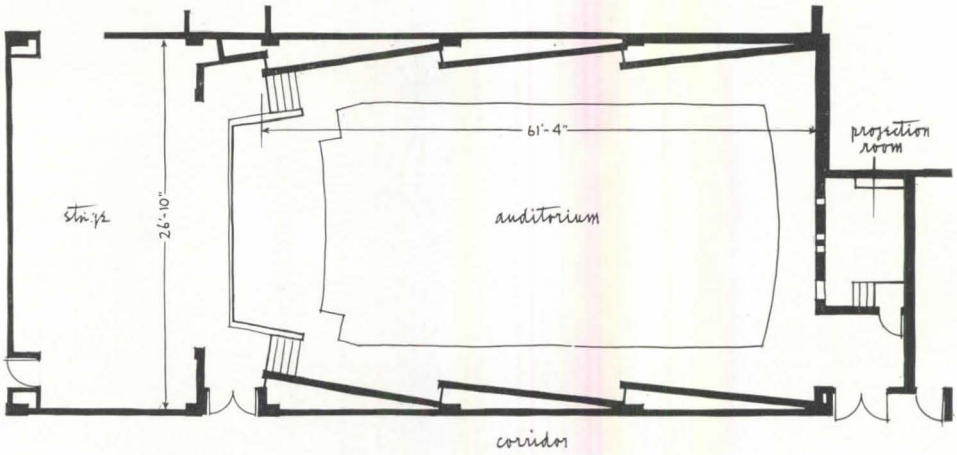
Walls: gray concrete block/The Waylite Co., P.O. Box 30, Bethlehem, Pa.; russet tones of brick, glazed bricks for color accents/Claycraft Co., P.O. Box 866, Taylor System, Columbus 16, Ohio. **Ceiling:** hard-finish plaster, painted ivory; buff acoustic plaster/Kilnoise/Tiger Brands, Div. of Basic, Inc., 845 Hanna Bldg., Cleveland, Ohio.

client	Joseph Sears School
location	Kenilworth, Illinois
architect	Perkins & Will



auditoriums: compactness

Design Theory: Planned for recitals and special visual-aids programs, this little theater seats 248. Ceiling is acoustic plaster, with acoustic tile over side aisles. Walnut paneling is backed with acoustic materials. Bright orange-and-yellow stage curtain and turquoise upholstery are color accents.



data

furniture, fabrics

Seating: beige, ivory metal/turquoise upholstery/American Seating Company. **Stage Curtains:** Ben Rose, Inc.; beige backdrop/Maharam Fabric Corp., 130 W. 46 St., New York, N.Y.

lighting

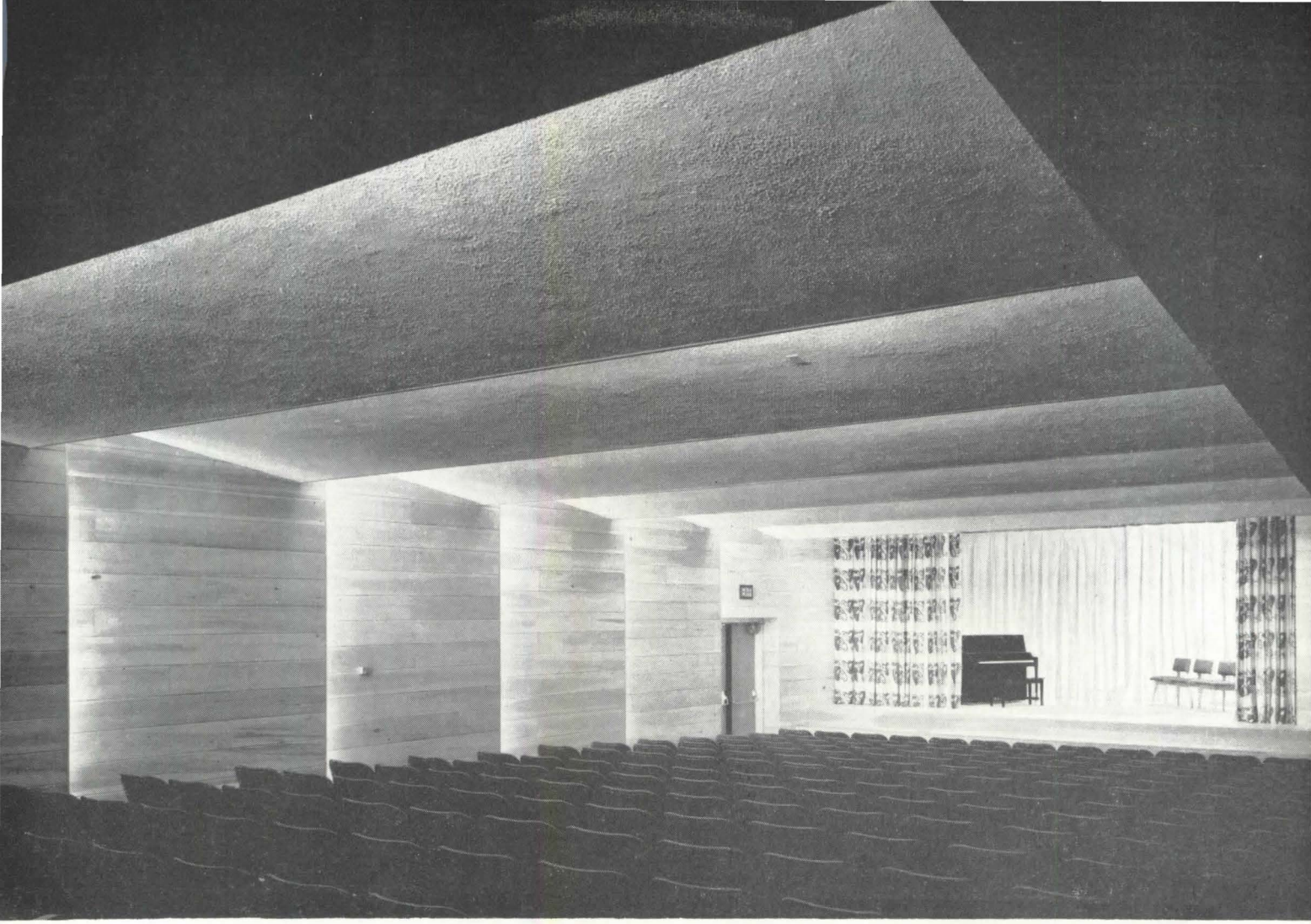
Recessed: Century Lighting, Inc. **Stage:** Hub Electric Co.

flooring

Flooring: concrete; asphalt tile/The Tile-Tex Div., The Flintkote Company, 30 Rockefeller Plaza, New York, N.Y.

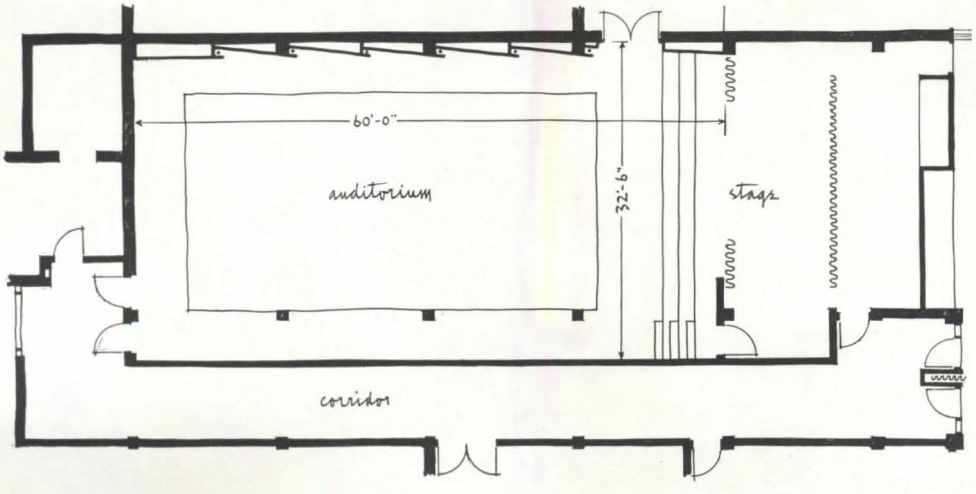
client	Proviso West High School
location	Hillside, Illinois
architect	Perkins & Will

Bill Hedrich, Hedrich-Blessing



Bill Hedrich, Hedrich-Blessing

client | Ralph R. Smith Elementary School
location | Hyde Park, New York
architect | Perkins & Will



Design Theory: This auditorium seating 206 was designed so that all lines focus attention on the stage, which is easily reached from the audience by a stepped apron. Lights are recessed between parallel splayed walls, sections of sloping acoustical-plaster ceiling. Stage curtain is a bright accent; concrete-block walls and asphalt tile are gray; ceiling is white.

data

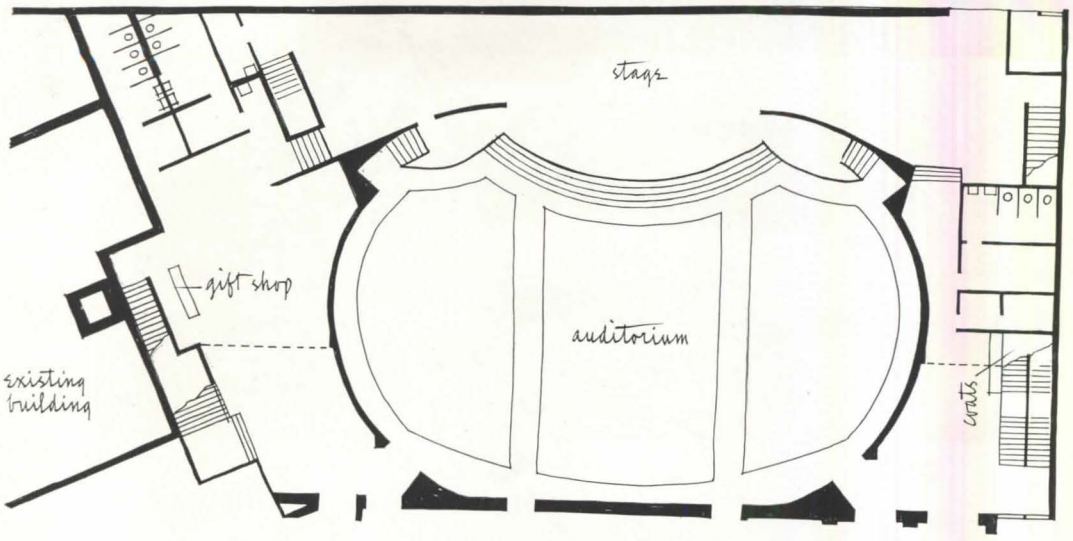
furniture, fabrics

Seating: blue/Heywood-Wakefield Co., Gardner, Mass.
Stage Curtain: blue-and-red print or white/Ben Rose, Inc.

walls, ceiling, flooring

Walls: gray concrete block; splayed-wood walls. **Ceiling:** acoustic plaster/Kilnoise/Tiger Brands, Div. of Basic, Inc. **Flooring:** gray asphalt tile/Armstrong Cork Co., Lancaster, Pa.

auditoriums: curved plan



client: Temple Tifereth Israel
location: Cleveland, Ohio
associated architects: Perkins & Will and Michael Kane

Design Theory: This auditorium seats 550. Used by the entire congregation for lectures, meetings, films, and dramatic presentations, it has complete professional lighting and film projection equipment controlled from a projection booth at the rear. Intimacy between audience and performer is achieved by seating twice as wide as it is deep; by main center stage curving out into the audience. Steps in front of the stage slide under it, allowing space for an orchestra. Side walls—pierced brick panels highlighted by lighting strips—provide for acoustics and ventilation.

data

furniture, fabrics

Seating: birch backs, blue-green upholstery/Heywood-Wakefield Co. **Stage Curtains:** turquoise/Ben Rose, Inc.

lighting

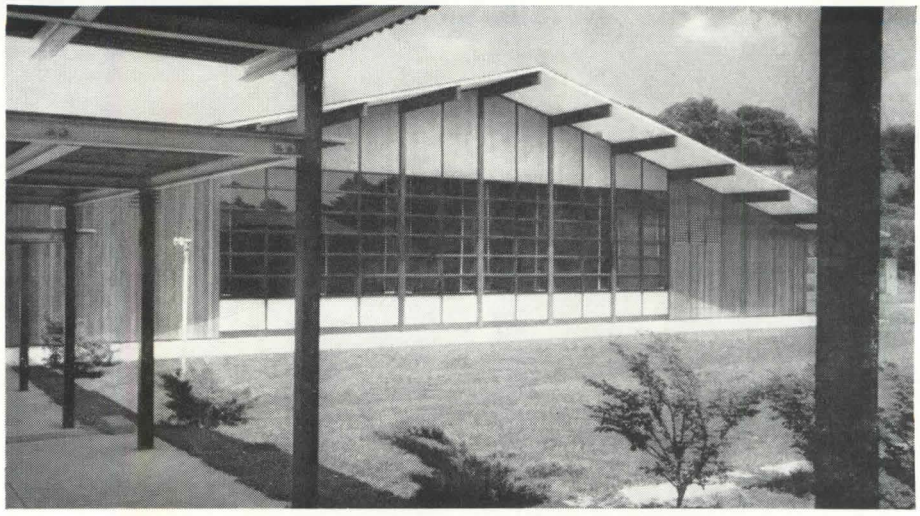
All: vertical light strips, downlights recessed in ceiling/Lightolier, Inc., 346 Claremont Ave., Jersey City, N.J.

walls, ceiling, flooring

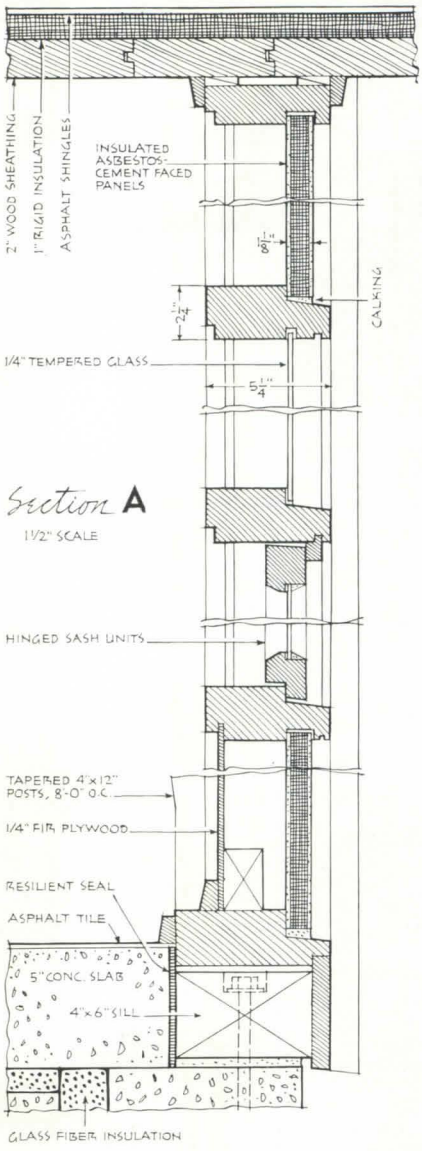
Side Walls: tan brick in pierced pattern. **Ceiling:** plaster painted yellow-gold, turquoise; acoustic plaster at rear/Kilnoise/Tiger Brands, Div. of Basic, Inc. **Flooring:** asphalt tile/Armstrong Cork Co.; turquoise, gold-stippled carpet/Gulistan/A. & M. Karagheusian, Inc., 295 Fifth Ave., New York, N.Y.

Bill Hedrich, Hedrich-Blessing

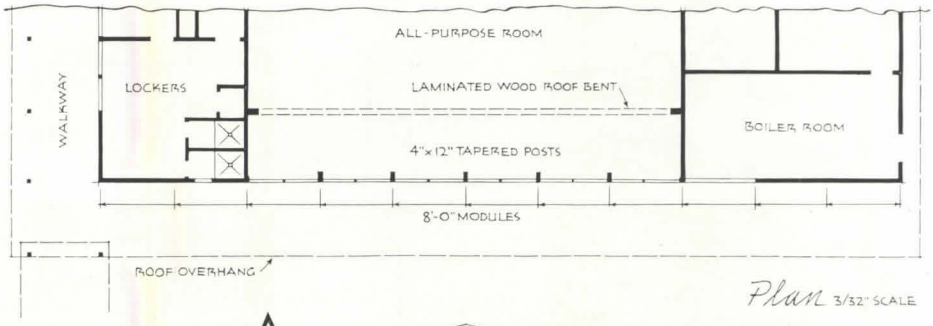
window wall



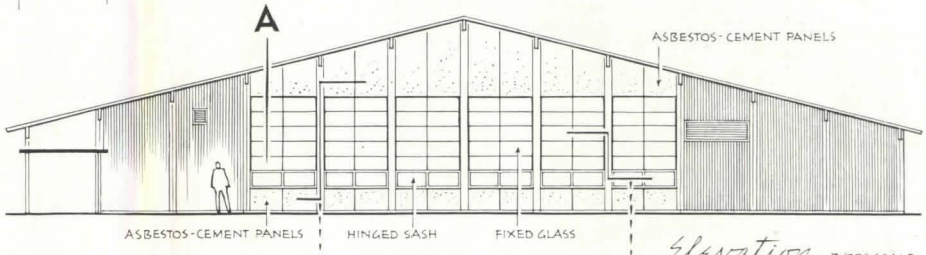
LOUIS REENS



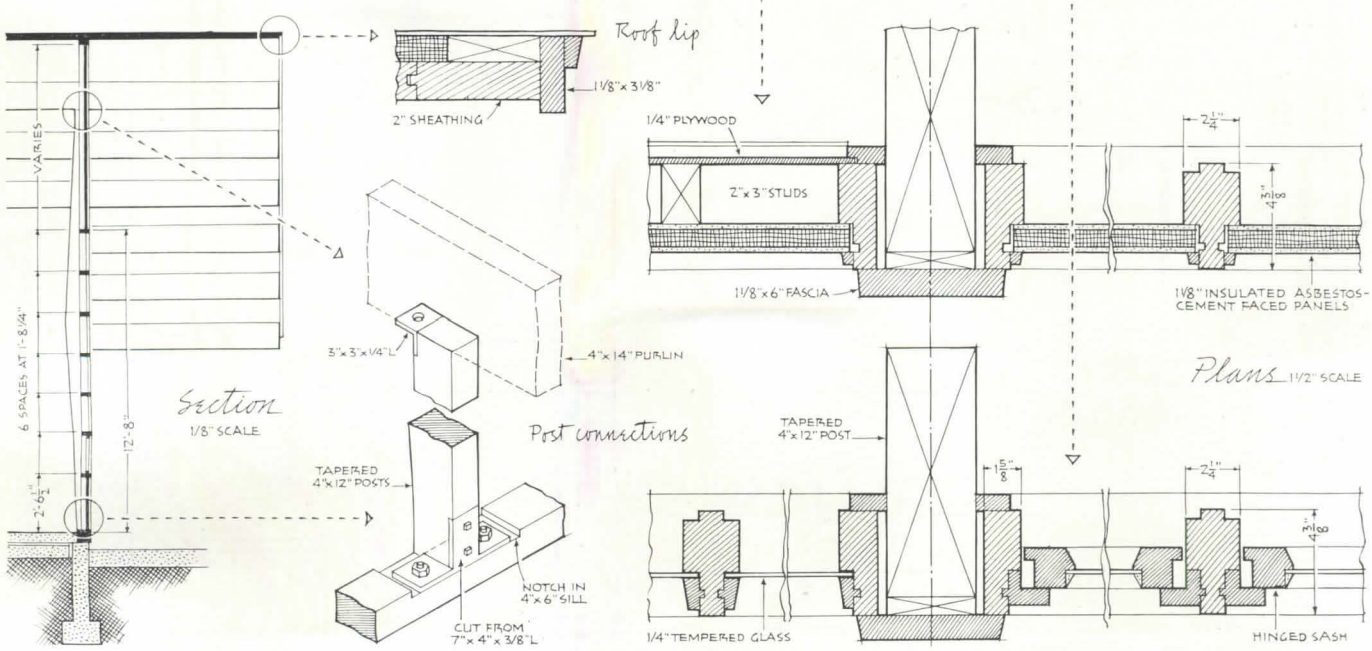
Section A
1 1/2" SCALE



Plan 3/32" SCALE



Elevation 3/32" SCALE



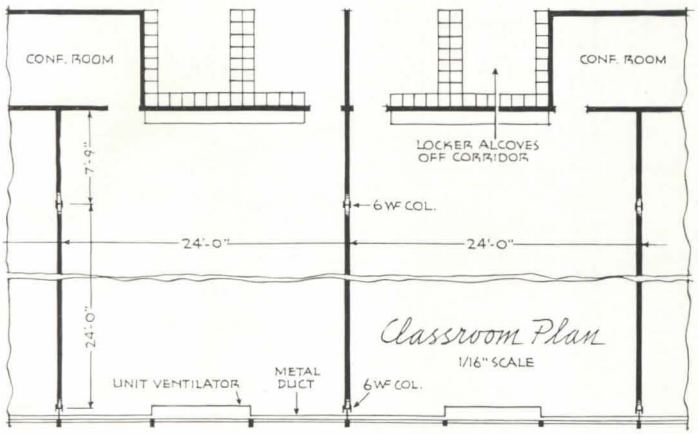
Section
1/8" SCALE

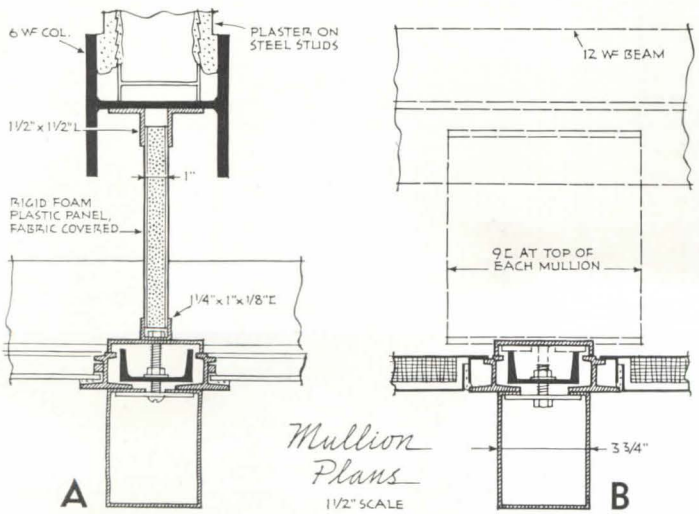
Plans 1 1/2" SCALE

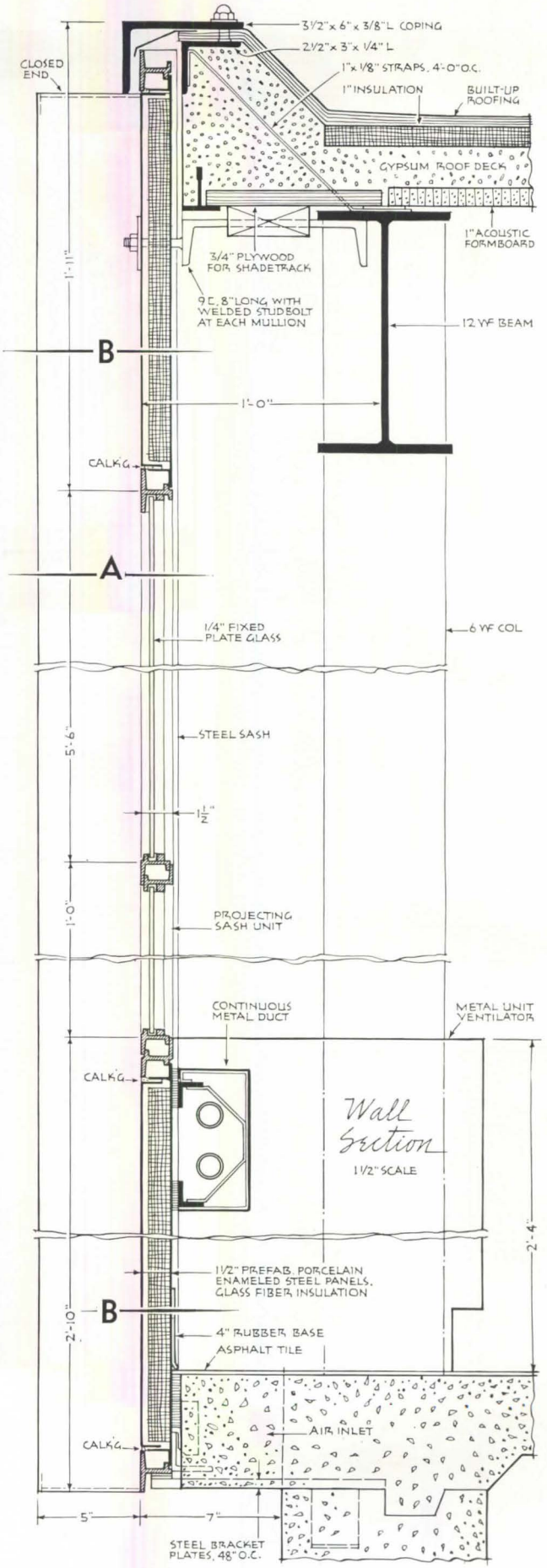
SCHOOL, North Smithfield, Rhode Island

Cull, Robinson & Green, Architects

window wall







SCHOOL, Joliet, Illinois

Levon Seron and Skidmore, Owings & Merrill, Architects

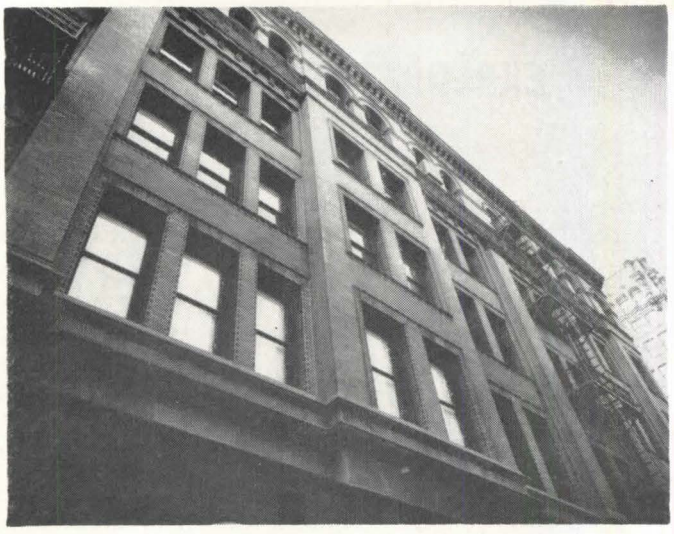
Photographs of Bradbury Building by Julius Shulman

EXPLORATION OF THE METALS

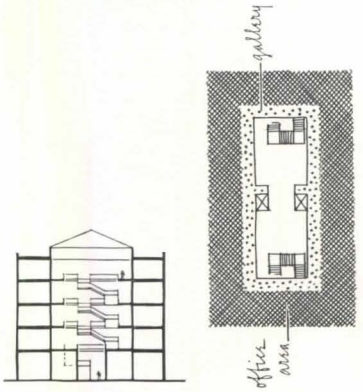
by Ilse Meissner Reese

Materials do influence design. The truth of this aphorism is strikingly evident in the two buildings under study on these pages. Although they were designed 65 years apart, they share the unique quality—light—in the sense of both illumination and weightlessness. No other architectural material but metal could have produced this effect. However, it is not merely the use of metal but also the appropriate application of its properties by two master designers that has significance here. The earlier of the two architects was George Herbert Wyman, who, in 1892, was commissioned by Louis Bradbury to design an office building in Los Angeles that would stand as a significant and enduring structure. Wyman's use of cast iron in the Bradbury Building was extremely skillful and imaginative, even though it occurred at the end of the cast-iron era in our architectural history. The contemporary designer, Minoru Yamasaki, was engaged by the Reynolds Company to design its Great Lakes Sales Region Headquarters Building in Detroit. With taste and restraint Yamasaki has integrated his client's product into the building, effectively demonstrating the value of aluminum both as a structural and as a decorative medium. In the following pages, the influence of metals—in these cases cast iron and aluminum—on building design, is investigated from the viewpoints of metal as an agent of light and space, metal as a structural material, and metal as an ornament.

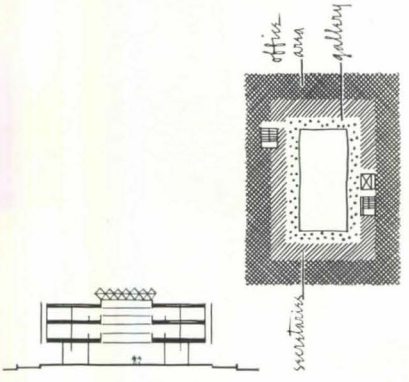
Photographs of Reynolds Building by Baltazar Korab



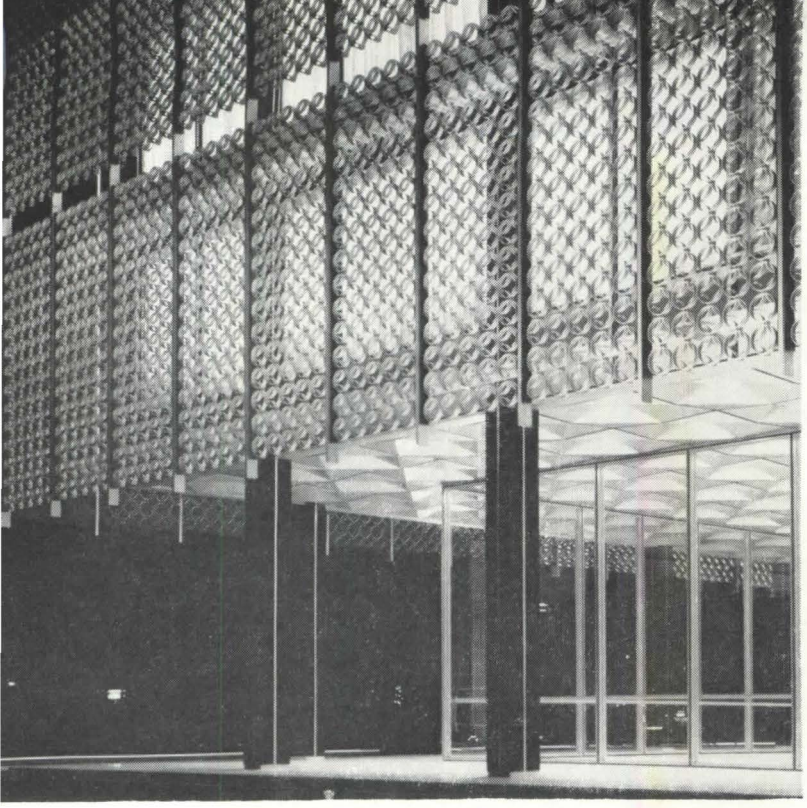
Functionally the two buildings are very much alike. Both are office buildings with central courts providing access and light to surrounding office areas. In the Bradbury Building, at the center of downtown Los Angeles, the light court (*left*) is the principal architectural feature and most dramatic element. Cast iron has here



been used by the architect to dramatize the lofty five-story court, while the remainder of the structure is of heavy masonry. The Reynolds Building was erected on an exposed, open site and focuses inward toward its court, as well as outward toward the surrounding countryside.

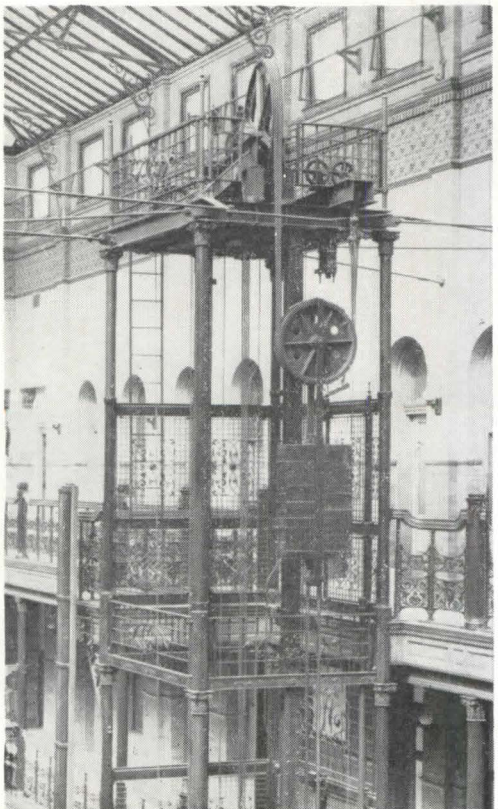


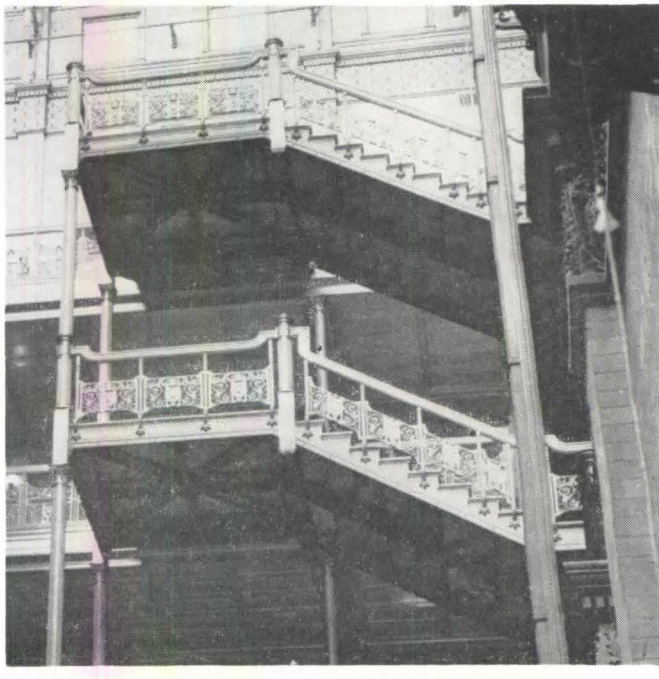
Its two outstanding points of architectural interest are the aluminum space-framed skylight (*acrosspage bottom*) and the exterior screen (*acrosspage top*) surrounding the entire building. Since light enters from above and merges with light from the perimeter walls, the effect in the Reynolds Building is one of exceptional brightness and openness throughout. In contrast, in the Bradbury Building, dark masonry areas open unexpectedly onto the great light shaft. The similarity of effect in both buildings however, is due to the successful use of metal to facilitate the entrance and diffusion of light, at the same time providing necessary structural rigidity with a minimum of obstruction. The Bradbury Building is at its best in strong daylight when the rays of the sun create an infinity of high lights on the crisp plasticity of the cast iron. With the Reynolds Building, designed to be appreciated not only close up but also from the moving automobile passing at a distance, the exterior screens, whether sunlit or lighted artificially, presents a rich, variegated surface pattern. The delicate tracery, seen head-on, changes to an opaque solid from an oblique perspective. Light—in the sense of both weightlessness and

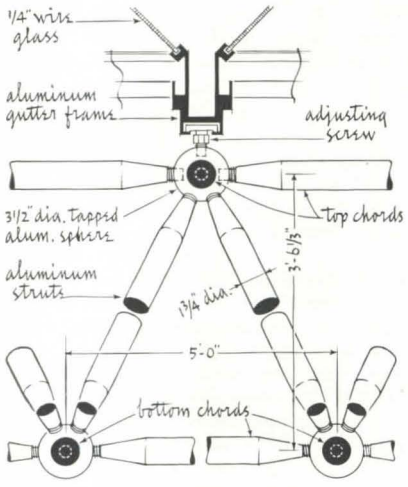


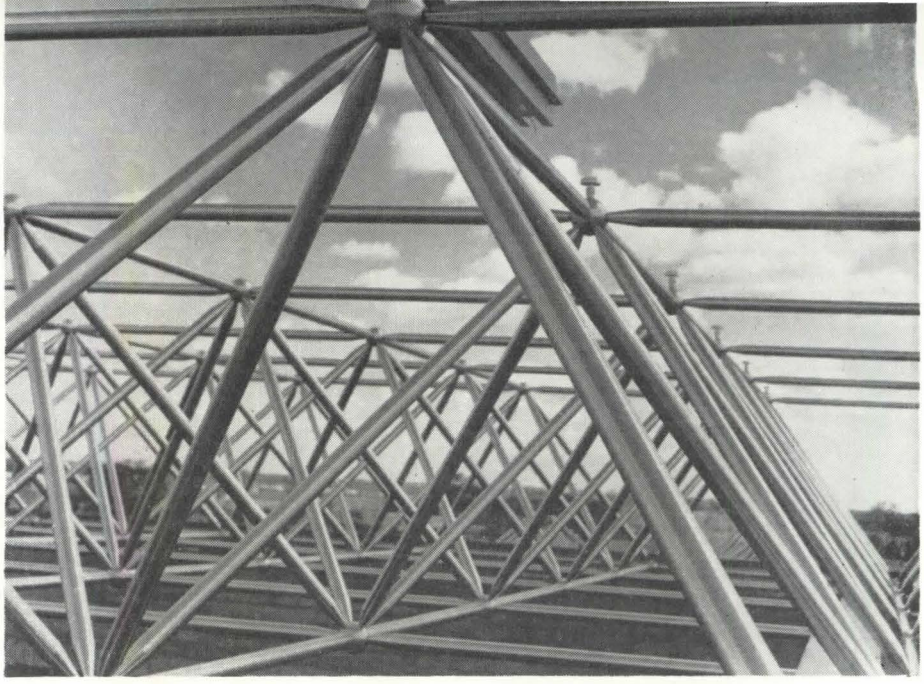
illumination—is the essential attribute of both the clean linearity of the iron castings of the old building and the extrusions and stampings of the modern aluminum structure.

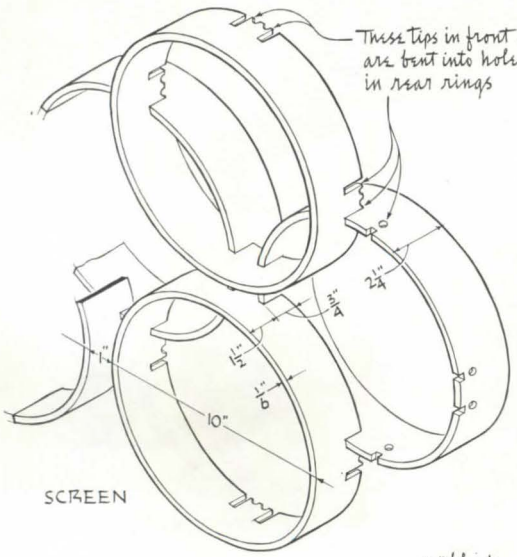
Structurally, cast iron and aluminum have limitations. However, both architects were conscious of the nature of their materials and the two buildings suffered in no way. Though James Bogardus, visionary engineer and early designer of cast-iron structures, explained in 1856 that "such buildings combine unequalled advantages of ornament, strength, durability, and economy; whilst they are, at the same time, absolutely secure against danger from fire, lightning, and imperfect foundations," the crystalline structure of cast iron lacks toughness, melts readily, and passes into a fluid state. In bending, the allowable tensile stress of cast iron is only one-seventh that of structural steel. Therefore, in using masonry for the framing of the Bradbury Building and reserving cast iron for the galleries, elevators, stairs, light fixtures —in other words, for the dramatization of the light court—Wyman recognized the shortcomings and judiciously capitalized on the advantages of cast iron. Yamasaki, equally aware of the properties of his material, used it only where it made absolute structural and economic sense. Aluminum's modulus of elasticity, for example, which governs its deflection, is but one-third that of structural steel. Although the framing of the Reynolds Building is of reinforced concrete, full advantage was taken of the countless opportunities for logical applications of aluminum. Examples are the gold-anodized sun screen made of slices of extruded tubing (*acrosspage*); the black-and-silver aluminum cladding of the columns (*acrosspage*); the special fabrications for railings, doors, gratings, message ducts, louvers, copings; the ductwork, grills, registers, ceiling diffusers; the skylight space frame (*acrosspage*), gutters, pyramid rods; the furniture, including the specially designed reception desk; movable partitions; under-floor-duct fittings, wiring-device plates, lightning rods, lighting fixtures, honeycomb-

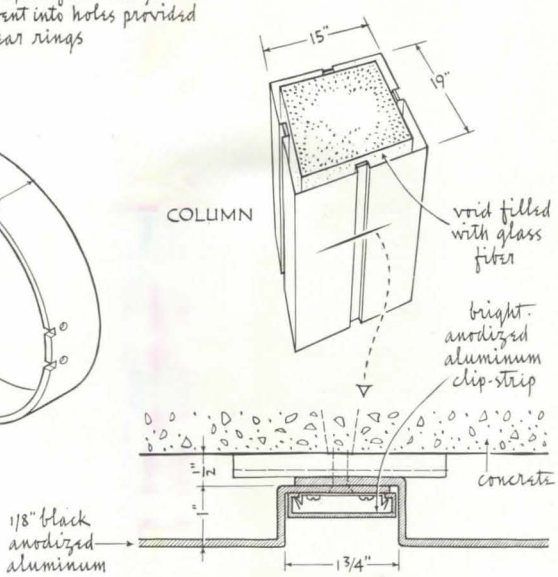


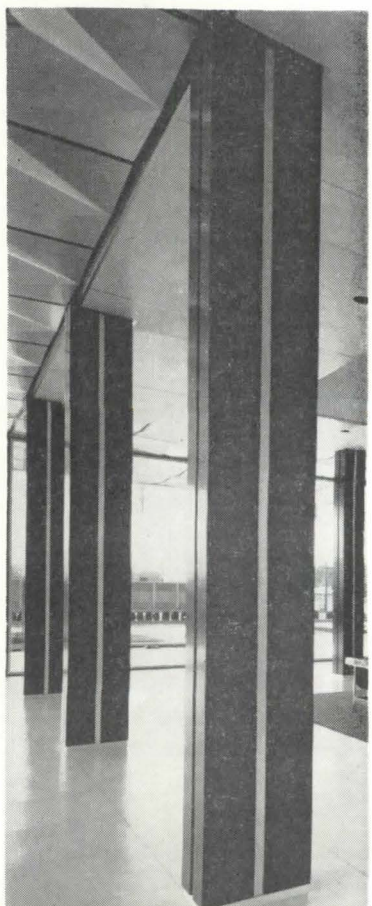



1/4" wire glass
aluminum gutter frame
adjusting screw
3 1/2" dia. tapped alum. sphere
top chords
3'-6 1/3"
aluminum struts
1 3/4" dia.
5'-0"
bottom chords




These tips in front rings are bent into holes provided in rear rings
2 1/4"
1 1/2"
1"
10"
SCREEN

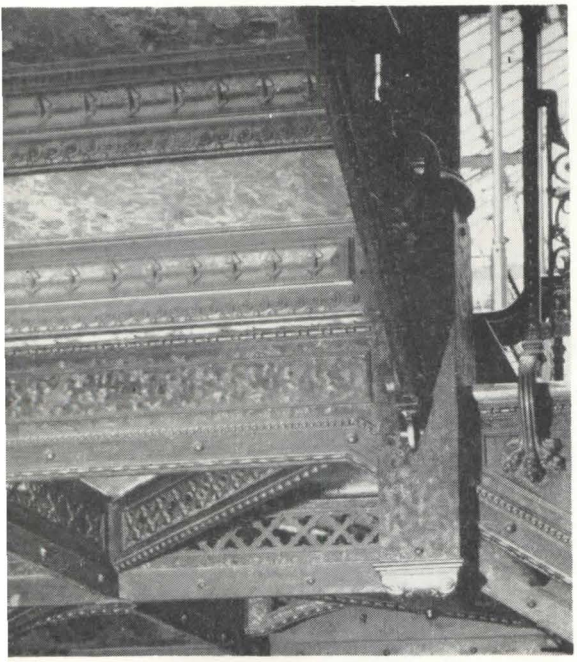

15"
19"
COLUMN
void filled with glass fiber
bright-anodized aluminum clip-strip
concrete
1/8" black anodized aluminum
1 3/4"

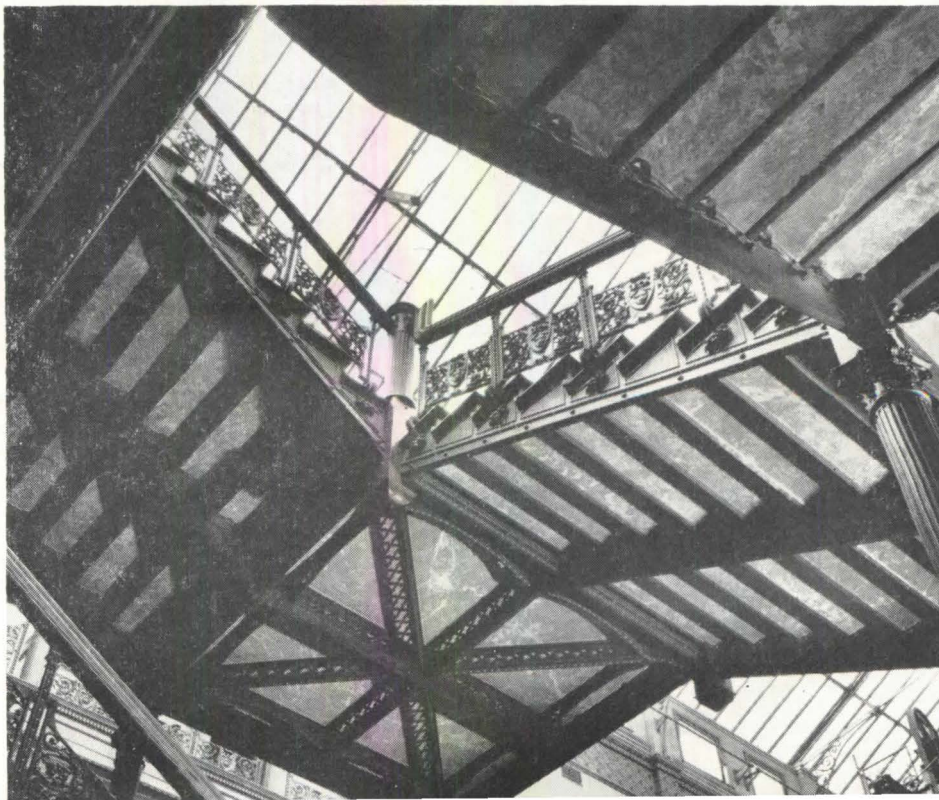


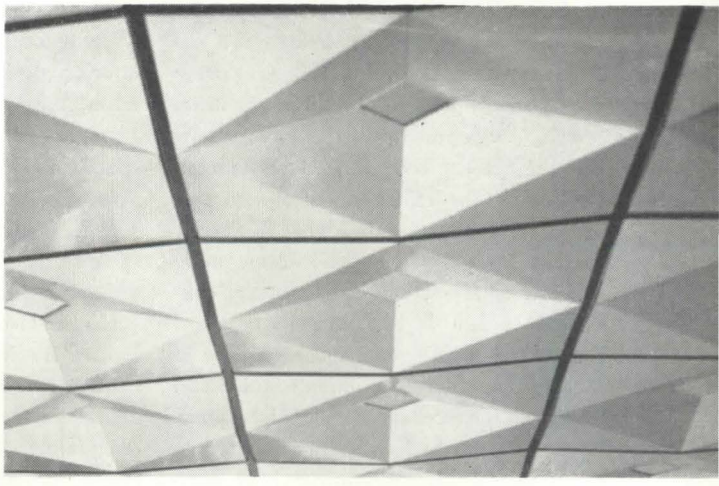
ceiling panels in connection with electrical work; flagpole, signs, and hardware.

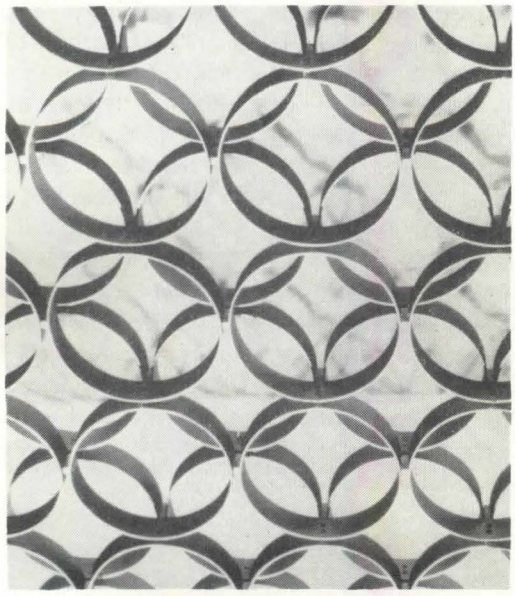
One important recommendation of cast iron, wrote Bogardus, is "its happy adaptability to ornament and decoration. Were a single ornament only required, it might perhaps be executed as cheaply in marble or freestone; but where a multiplicity of the same is needed, they can be cast in iron at an expense not to be named in comparison, even with that of wood; and with this advantage, that they will retain their original fullness and sharpness of outline long after those in stone have decayed and disappeared. Ornamental architecture—which, with our limited means, is apt to be tawdry, because incomplete—thus becomes practicable; and its general introduction would greatly tend to elevate the public taste for the beautiful, and to purify and gratify one of the finest qualities of the human mind." As Bogardus suggested, the processing of metal by die-casting, and later methods of stamping and extruding, automatically provide for a modular order. This is demonstrated in the Bradbury Building, where the gallery railing (*left*) cast in units fom one mold, is repeated throughout the five-story court, and actually determines the module of the entire court. It is true of the Reynolds Building (*acrosspage*) in the repetition of the stamped ceiling pans, or in the 2¼″ slices from 10″ diameter extruded tubing which are fixed into a repeat pattern, not by welding but by an ingenious locking device. In a similar and almost poetic way, Wyman, who had no formal architectural training at the time of this design, solved the problem of supporting the marble stair treads. Marble slabs, faintly penetrated by the intense daylight from above, are cradled in the cast-iron frame work in such a way that no piercing or cutting of the slab was necessary (*below*).

Both Wyman and Yamasaki fully participated in Bogardus' vision of metal as a building material which "furnishes us with new ideas of the proportional fitness of parts, and thus opens a field for new orders of architecture."









Since high-frequency systems have been developing over the last decade (MARCH 1953 and NOVEMBER 1954 P/A carried earlier reports), the reader may wonder how far this improvement in lighting techniques has progressed. Described here is the present status of high-frequency systems and their promise for the immediate future.

progress report: high-frequency fluorescent lighting

by J. L. Tugman*

Architects have been aware of high-frequency lighting systems for more than ten years. The technical literature on the subject has been interesting chiefly for its prospective influence upon advanced fluorescent installations. Recently, as 420-c motor generator sets have become available at lower prices, the cost of lighting (for installations with loads of 50 kw or higher) has decreased. In brief, actual experience, plus the prospective influence of new developments, has indicated the following advantages of high-frequency lighting:

1 Higher lamp and circuit efficiencies.
2 Lower ballast weight and heat loss, with reductions up to 90 percent.[1]
3 Lower fixture weight, permitting the design of substantially lighter ballasts.
4 Greater adaptability to architectural uses, through greatly-reduced ballast size and lower heat dissipation.
5 Greater flexibility in operation.

new attention to cost problems

In general, these are the attractions of high-frequency systems today, just as they were the promise of things to come five years ago. But at this writing, certain developments in the picture now give the subject keen, immediate interest. Previously, the effort to cut the cost of changing 60-c current to higher-frequency current has relied on static or magnetic converters at 360 c, and rotary converters at 420 or 840 c. Both types of converters involve some inconvenience of location in order to eliminate noise and to provide space for easy maintenance. As a result, use has been restricted to comparatively large industrial or commercial installations, and to laboratory applications—such as plant growth chambers.

The manifest attractions of high frequency have, therefore, been awaiting developments that would reduce size and cost of conversion equipment to an economic level. General Electric Lamp Division's J. H. Campbell, who pioneered activity in this field, has in recent years been concentrating on laboratory studies of power-supply improvements that might overcome this problem.

In the meantime, Q. D. Dobras, General Electric industrial lighting engineer, has been studying progress in an increasing number of installations. He is currently appraising new developments from a cost-of-light standpoint.

advance of lighting practice

This work, in the laboratory and with actual installations, has been given new incentive with the swift advance of lighting practice. Today, the techniques available for comfortable delivery of hundreds of footcandles presage new concepts in interior design. Window locations, for example, so long regarded as preferential areas, are balanced in attraction by inside space that is part of an advanced lighting plan. (In SEPTEMBER 1958 P/A, Henry Wright presented the idea that "Lighting Is Architecture" with several supporting articles.)

Higher-level lighting, with its possibilities for integration with temperature control and air conditioning, provides a challenge to economics of the past. The adequately light- and air-conditioned space may be the most economical, with a reconsideration of the goals sought. (That is, if work space is conceived as a conditioned environment designed to release energy for co-operative effort, economic factors have a new meaning.)

Into this context of new circumstances, the most recent work on high frequency brings bright new promise: to overcome past delay at the cost barrier, and thereby to enter the advanced lighting trend as a prominent factor in its realization.

progress and prospects

In a recent paper[2] at 1959 IES Technical Conference in San Francisco, J. H. Campbell reviewed progress on the subject of high-frequency lighting. He suggested that the main cost obstacle in the past has been the lack of an economical means for generating and distributing power in the frequencies ranging from 1000 to 10,000 c. The advantages of frequencies above 1000 c (and, perhaps, at 3000 as a maximum), lie in the possibilities of extremely lightweight conversion equipment. Significant gains in over-all system efficiency would be the ultimate goal to be realized by using semi conductors.

Laboratory models of transistorized conversion equipment, derived from recent experiments, indicate that the new, lightweight design available at 3000 c offers a considerable pound-for-pound advantage in efficiency. (The advantage may be as much as 10 lbs per kw for the new, compared with 60 lbs for the old.) Substantially lower cost conversion could result from the work on transistor and controlled rectifier inverters.

The fulfillment of this promising line of investigation will improve the prospects for applications previously realized at lower-cycle operations. The possibility of fixtures much lighter in weight is entirely reasonable. Pursuing this line of speculation, the prospect of a reflector that could be discarded with the source

*Associated with General Electric Company, Nela Park, Cleveland, Ohio. Formerly, Editor of Light magazine.

[1] *90 percent applies to capacitor balance and excluded power-factor-correction choke coils.*

[2] *"New Parameters for High-Frequency Lighting systems."*

(on group relamping) is realistic. Because maintenance is an important factor of lighting systems of 100 ft-c and above, a throwaway fixture could be a great economy.

Comparison of the over-all savings afforded by high-frequency systems with the equipment costs for higher-level lighting at the conventional 60-c operation, would show a real breakthrough for high frequency.

effect on ballast size and weight

An example of what the high-frequency systems might offer, a few years hence, is outlined in the following:

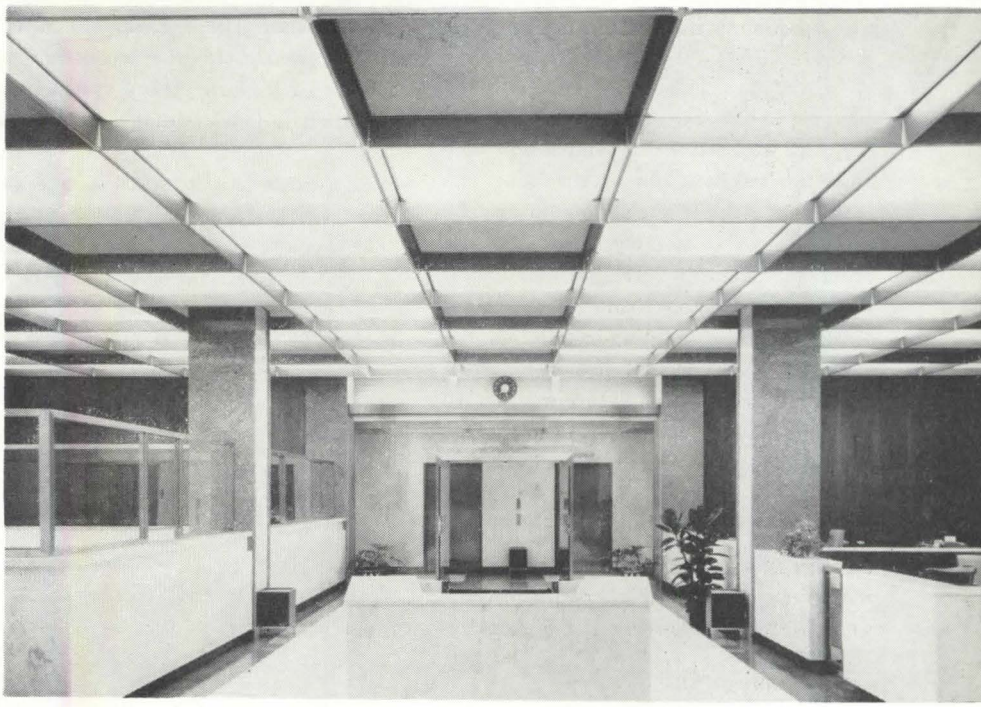
A large, enclosed space (a factory or a convention hall), with 500,000 sq ft of space, lighted to just 100 ft-c with Power Groove lamps at 60-c operation, must now support 65 tons of ballasts. At 3000-c operation, however, the same lighting level might be provided with only 10 percent of the ballast weight, or about 6.5 tons. Savings in construction costs (of roof cross members and of cables to suspend the weight of a present conventional system) would be significant.

While the promise of things to come with high-frequency systems suggests a large order of change with attractive economy, the present situation offers good opportunities in the same direction. The following observations have been emphasized by Q. D. Dobras in his cost studies.

One major area where substantial savings can now be achieved with high-frequency lighting equipment is in the cost of fixtures.

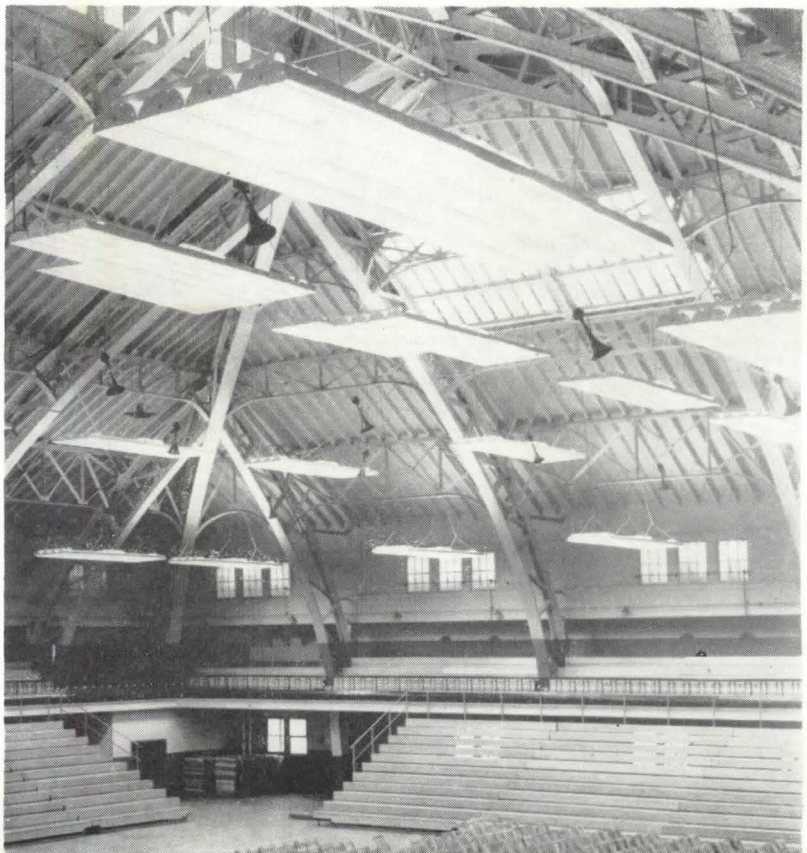
available 420-c h-f systems

With a high-frequency system, ballasts are considerably smaller, as well as lighter. A two-lamp ballast for 420 c



The Federal Reserve Bank in Houston contains a high-frequency lighting system of 840 c. For this fully air-conditioned building, the higher operating efficiency of the fluorescent lighting offers substantial economy. In main work areas 80 ft-c are provided, either from luminous ceiling equipment or from recessed troffers.

A remodeled armory serves as a convention hall for Camden, N. J. With its 420-c system, the 40,000 sq ft area has a thrifty 70 ft-c lighting level. The lighting requires only 30 amps of electric current, as compared with 200 amps that would have been required for a 60-c, 208-v incandescent system typical for such areas.



may be about one-half the weight and one-third the size of a comparable 60-c ballast. These size and weight reductions mean that lightweight aluminum may be used; large 8- to 16-lamp fixtures become practical from a weight standpoint. Dramatically emphasizing these weight differences, one lighting-installation design study showed that if a 60-c system was used, one 14-lamp fixture would have weighed 300 lbs. By changing to a 420-c system, fixture weight was cut in half.

effect on distribution system

Savings possible on distribution-system wiring are related to higher-voltage (600-v) power accompanying the higher frequency itself. These savings can contribute greatly to the economic advantages of high-frequency systems over conventional, lower voltage, 60-c installations.

For a given kva load, as voltage goes higher (within practical limits), current is correspondingly reduced, thereby making distribution more economical. A length of cable can deliver up to three times as much power at 600 v as it can at 208 v. The reason for this is that the current-carrying requirements of the cable (one of the main characteristics limiting the size of the load that can be served) are much smaller at 600 v; less current and higher voltage serve the load.

Voltage drop is reduced and held to a minimum by distributing at 600 v. (A lower-voltage system would require larger-size wiring to keep drop within maximum limits, since voltage drop is inversely proportional to the ratio of the voltages squared.)

As frequency increases up to 20,000 c, the efficiency of fluorescent lamps also increases. However, this gain alone is not sufficient to justify the cost of generating and distributing power in the kilocycle ranges. General Electric engineers have determined that, with available equipment, 360 to 1000 c is the optimum frequency range for obtaining major benefits of high-frequency lighting while incurring the minimum generating and distributing costs. At these frequencies or above, and with equal loading, standard instant-start lamps provide more light for the same power consumed at 60 c.

effect on light output

Of greater importance, however, is the fact that lamps operating at higher frequencies can be loaded to higher wattage at the same efficiency as for lower-wattage 60-c operation. This makes it possible for each lamp to give much more light. For example, a 96T12 slimline lamp is normally rated at 74 w for 60-c ballasts, but at 420 c it can be operated at 87 w, increasing light output 22 percent. To obtain this increase at 60 c would require an increase in ballast size, and lamp efficiency would be lower. But the increase in a 420-c system is possible because lamps maintain a higher efficiency, and much of the ballast weight and wattage loss are removed from the lighting fixture and placed in the power supply.

These benefits can be applied in two ways: a given level of light can be furnished with fewer lamps and fixtures (saving on initial and replacement costs), or the same number of lamps and fixtures can be used to provide higher illumination.

Demand for higher level illumination has been stimulated by the continuing development of high-lumen output lamps and systems. This, in turn, has created an increasing need for a fluorescent lighting system of maximum efficiency for the higher wattage levels, and maximum flexibility to accept the still higher lumen-output lamp design certain to follow. High frequency power systems appear to qualify for this role.

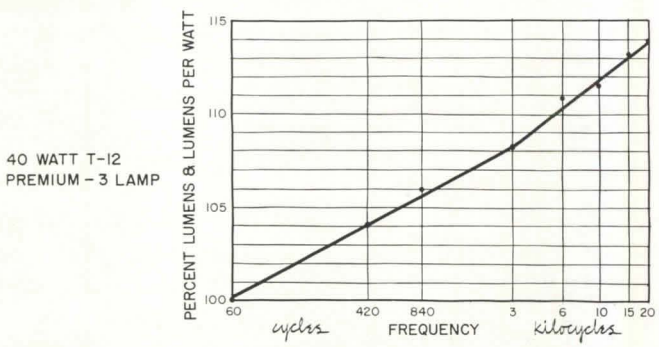
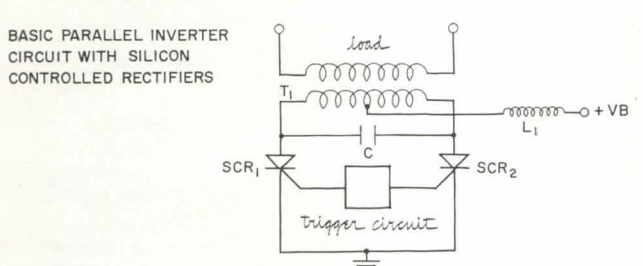


Figure 1—Recent rise in lumen output and efficiency of 40-w lamps with 60-c operation is further increased at higher frequencies. Graph (above) *illustrates this characteristic. Although 2800 lm in a 40-w lamp rating seemed difficult to obtain a short time ago, changes in phosphors, filling gas mixture, and pressure, along with the use of large anodes, has increased light output to a point above 3000 lm. The same lamps operated at higher frequencies produce presentage increases shown.*

Figure 2—Basic silicon-controlled rectifier, parallel inverter circuit. The controlled rectifier is designed to have characteristics similar to those of a gas thyratron, but the forward drop is only 1/10 that of a thyratron and the deionization time is considerably less. Short deionization time permits the device to be turned on and off at a higher rate than would a thyratron tube, and the lower drop allows the device to pass a high current with less loss. These characteristics coupled with the elimination of a filament transformer permit a design for high-frequency output at high efficiency.



Unplasticized polyvinyl chloride, although well established in the industrial field, has yet to be exploited to its fullest potential. This article reports on a year-long test program that investigated this piping's special qualities in handling corrosive wastes of chemical laboratories.

upvc for handling corrosive waste

by C. A. Plank*

In the ten-odd years since its introduction in this country, unplasticized polyvinyl chloride (UPVC) has firmly established itself in the industrial piping field. Present uses include chemical process lines, pharmaceuticals manufacturing, food and beverage processing, and many other applications requiring excellent chemical resistance and a high degree of product protection.

Despite its general acceptance as a piping material, however, the potential of UPVC as an effective, economical replacement for alloys and non-metallics has not been fully exploited; a more critical appreciation of its significant properties would permit the use of UPVC pipe in many special fields. To this end, the author conducted a year-long test program to investigate the suitability of UPVC for handling corrosive wastes of institutional and industrial chemical laboratories. Evaluation of data thus developed indicates that UPVC pipe and fittings offer numerous advantages and justify a strong recommendation for use in laboratory drainage systems.

It should be emphasized that this paper refers specifically and solely to unplasticized polyvinyl chloride and not to the wide range of man-made materials commonly grouped together as "plastics." All too often, this word is used indiscriminately to describe everything from hardwares to wearing apparel, thus ignoring the important differences of composition and characteristics among the various resins. Merely to specify "plastic pipe" for any given installation is as unrealistic as to specify only "metal pipe" and could lead to improper design and service failures. Plastic materials other than UPVC have been suggested as being suitable for laboratory drainage applications, for instance, but have quite often been unsatisfactory when subjected to test conditions similar to those described below.

* *Associate Professor of Chemical Engineering, Speed Scientific School, University of Louisville, Kentucky.*

outline of test procedures

A 1½″ p-trap fabricated from stock UPVC fittings molded by Tube Turns Plastics, Inc., of Louisville, Kentucky, was installed in the drain line serving a general purpose laboratory bench at the University of Louisville's Institute of Industrial Research. A hole was drilled in the side of the trap, then tapped and plugged with a 1″ UPVC plug. Attached to this plug was a removable sample of UPVC sheet material, so positioned that it was constantly submerged in the liquid seal (*Figure 1*).

From March 1, 1958, through January 20, 1959, the trap was subjected to various acids and bases employed in routine chemical analysis. In addition, several chemicals were selectively passed through the drain to subject the trap to conditions over and above normal bench duty. A partial list of these chemicals includes: 4N. Na_2CO_3, 4% NaOH, 3N. NH_4OH, 1N. sodium acetate, 1N. acetic acid, HCl in various strengths to 8N., isopropyl alcohol, fish oils, H_2SO_4 in dilution to 8N., ethylene dichloride, various fatty acids, ethanol, diethyl ether, acetone, and toluene. In accordance with normal laboratory procedure, the chemicals and analysis wastes were flushed through the trap with copious quantities of water; no special precautions likely to mitigate conditions were followed.

The trap was visually inspected periodically. The sample was removed once a month and measured to determine dimensional stability and weight change, as outlined in ASTM Test D545-52T. On two occasions, the trap and adjacent pipe were removed, observed, and then reinstalled.

impressive test results

Results of these tests were highly satisfactory. At no time was there any evidence of leakage at joints or fittings, even though the screwed elements were only hand-tight. There was no indication of "bleeding" through the pipe, despite extended exposure to acetone, toluene, and other hydrocarbon solvents. Evaluated in accordance with the accepted methods of determining chemical resistance of plastics, the weight and thickness changes of the sample during normal usage were insignificant.

At the conclusion of the tests, the UPVC pipe and trap were essentially clean, showing no signs of deterioration due to direct chemical attack or to solvation. The entire assembly had given completely satisfactory service and could be expected to continue doing so.

significant results with hydrocarbons

The experience with acetone and toluene is significant since these compounds are normally considered to be poor risks for UPVC piping. On one occasion a quantity of pure acetone, sufficient to form the liquid seal in the trap, was poured into the drain and allowed to remain overnight. The trap and connected pipe were then removed and examined. Both were essentially unaffected. The trap assembly was then re-installed and returned to service. Shortly afterward, concentrated toluene was placed in the trap and retained for several days, during which time no other material was allowed to pass through the drain. Subsequent use of the trap over a period of several months indicated no adverse result of this severe service. A cutaway view of the trap as it appeared at the completion of the testing program is shown (*Figure 2*).

Thus, these tests clearly indicate that

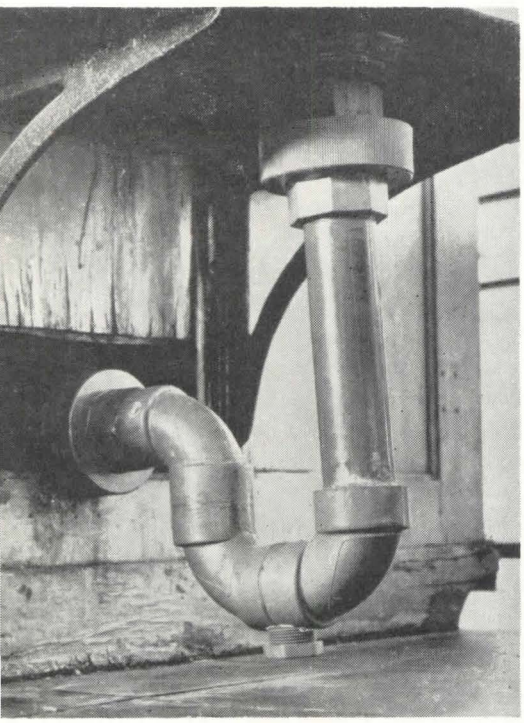
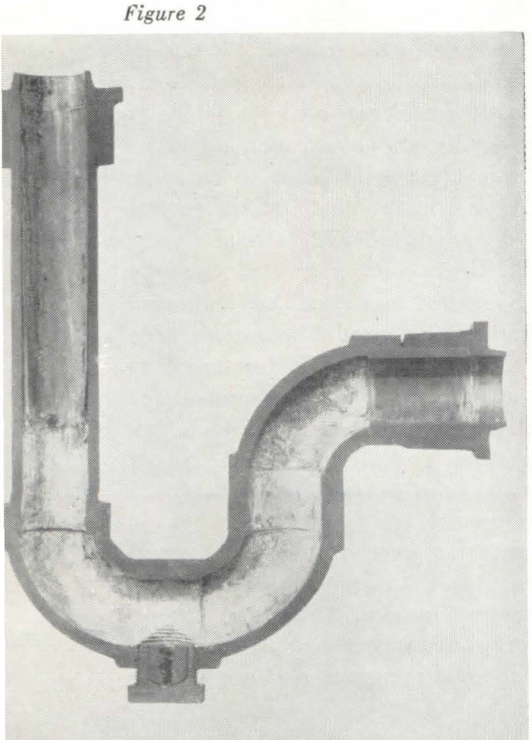


Figure 1

Figure 2



UPVC may be safely used in laboratory drainage piping or similar installations where acetone, toluene, and other aromatics will be occasionally encountered or where these hydrocarbons are used extensively in dilute solutions.

different corrosion mechanism

Turning now from the general to the specific, several observations may be made concerning the specific advantages of UPVC for corrosive waste handling, particularly in laboratory drainage applications.

It is difficult to compare the corrosion resistance of plastics to that of metals, for the mechanisms are entirely different and are generally caused by different types of compounds.

The basic nature of metallic corrosion is electrochemical action and usually involves an electrolytic environment that may range from plain water (even moisture condensed from the air) to strong acids and bases. The result is a loss of metal, normally at a fairly consistent rate. Corrosion damage to metal pipe may appear as a general, uniform thinning of the pipe wall or as highly localized pitting. Corrosion often occurs preferentially near the junction of two dissimilar metals and such action is accelerated wherever H^+ ions are present —an unfortunate circumstance for the contractor who must lay pipe in acid soils or in the presence of cinders.

In contrast, plastics are not affected by electrolytic environments and have none of the foregoing disadvantages. "Corrosion," if it may be called that, is either by direct chemical reaction (chiefly involving concentrated acids or strong oxidizing agents) or by solvation. The latter phenomenon occurs when the action of a solvent penetrating inside the material causes a dissociation of the long-chain molecules, resulting in swelling and partial or complete solution of the material. Solvation usually arises from extensive contact with ketones, aromatics, or chloro compounds. Deterioration is either quite rapid or virtually non-existent. In general, the material will resist a chemical permanently or it will be completely non-resistant and fail quickly. Thus, predictability of service life is improved.

excellent chemical resistance

Resistance tests determining susceptibility to direct chemical attack or solvation are far more reliable in evaluating plastics than conventional corrosion rates. The wide variety of industrial applications is evidence of UPVC's excellent resistance to most chemicals.

Normally, application data for UPVC assumes conditions not applicable to laboratory piping: 1) prolonged residence time of the chemical in the pipe, and 2) temperature and pressure requirements. Most tables of chemical resistance, therefore, are not always accurate guides for assessing the value of UPVC for this specific service. For instance, it has been pointed out previously that all reputable manufacturers correctly advise against the use of UPVC for process lines carrying acetone. Yet our tests show conclusively that hydrocarbons my be safely handled in the quantities and concentrations normally encountered in general laboratories.

Additionally, it should be remembered that dilute mineral acids and aqueous solutions of acid salts have little effect on UPVC, but are notoriously corrosive to many metals. Again the peculiarities of the laboratory highlight the advantage of using UPVC *in this type of piping*. A vast majority of laboratory work involves the use of four acids: acetic, hydrochloric, nitric, and sulphuric—all particularly corrosive to metal pipe in weak concentrations. As it would be an unusual laboratory that did not flush away its wastes with large quantities of water, these acids are invariably quite diluted

when pasing through the bench drain—the ideal situation for UPVC. A similar situation exists in regard to the bases most frequently used in general chemical analysis—NaOH, NH_4OH, $Ca(OH)_4$, etc.

In other words, typical laboratory conditions (i.e. ambient temperatures, gravity flow, and continuous flushing) permit the use of UPVC on a broad scale in the laboratory.

importance of cost factors

Considering its chemical resistance alone, UPVC has much to offer. Yet, it has other advantages that are equally impressive to the designer, contractor, and user.

For example, initial material cost of UPVC is appreciably below that of other comparable materials. Drainage fittings available in a wide range of types, in sizes 1½″ through 4″, are priced 10 to 20 percent less than conventional materials.

UPVC also has an important edge in installation time and costs. One of the most attractive features of this pipe is the relative ease with which it lends itself to a diversity of fabricating techniques: it can be joined by solvent cementing, by threading, by hot-air-gun welding, and can be jointed to metal or other plastics either directly or by flanged connections. Leaded connections joining UPVC and cast iron are quickly and easily made with conventional materials and methods.

Actual job performance data show that a typical journeyman plumber can make up a socket joint with 2″ UPVC pipe and fitting in less than a fourth of the time required to complete a joint in a conventional piping system. The comparative advantage increases in a geometric ratio as the pipe size increases. When the labor savings per joint is multiplied by the number of joints involved in a complete job, the resulting economies will be substantial.

In addition, the light weight of UPVC makes alignment of pipe and fitting easier, permits faster transportation of materials to the site, and simplifies handling of materials on the job.

UPVC pipe is available in longer lengths than conventional materials, sharply reducing the number of joints required for traversing long distances. In the 4″ size, for example, it is stocked in 10′ and 20′ lengths.

Significantly, a plumbing contractor, installing a drainage system for a new medical school in a southeastern state, estimates that the installed cost for UPVC piping is between 40 and 50 percent below that of other systems.

Maintenance costs are lower, too. The smooth inner bore of UPVC practically eliminates internal crevices that would entrap solutions, build up sludge, and cause odors. There are no leaks, no bad joints. The assembly is light and compact and requires no bulky support. When it is necessary to remove an obstruction (and lab drain traps seem to have an affinity for mercury and broken glass) it is not necessary to call in an outside repairman. The drain plug is easily removed and re-installed by hand; packing, dope, and special tools are not required.

summary of advantages

In summary, UPVC is recommended as a superior, all-purpose material for laboratory drainage piping for the following reasons:

1 It satisfactorily handles all solutions normally used in general chemistry laboratories. More significantly, it is unaffected by mixtures of acids and bases.
2 It has a low fouling tendency and provides optimum flow conditions.
3 It is non-sparking and, therefore, safe when used in the vicinity of the explosive mixtures encountered in most laboratories.
4 It is not subject to galvanic or electrolytic action in itself or in the presence of metals.
5 It does not pit or corrode, therefore, creates no "bacteria traps" or crevices to hold radioactive particles.
6 It is relatively inexpensive, costing considerably less than other drainage piping materials.
7 It shows insignificant deterioration in service and can be expected to last indefinitely.
8 It is light in weight and easy to join, affording substantial savings in installation and maintenance.

suggested areas of application

There are at least three building types that could benefit from the use of UPVC piping in laboratory drainge systems:

1 Schools, colleges, and other institutional buildings (where the architect must look twice at each investment penny).
2 Hospitals (where cost savings must always be considered in light of concurrent requirements for cleanliness and sanitation).
3 Industrial research facilities (where requirements undergo constant changes and versatility of piping is of paramount necessity).

prospect of continued progress

For rapid growth and swift development of new products, few industries can compare with the plastic pipe and fitting industry. Fortunately, the need for additional research is recognized throughout the industry and it is the author's opinion that developments in the next five to ten years will result in further advancements. These developments will come about as a result of the co-operative efforts of the manufacturer, the scientist, and the user, promoting a better understanding of the properties of these man-made materials and an even more efficient utilization of their unique advantages.

Although man has traditionally attempted to make use of natural surroundings in his living, lack of an efficient heat-distribution method has limited the fullest use of light airy structures. An examination of these limitations and an evaluation of how they may be successfully overcome are presented here.

heat for light airy structures

by Ralph Broe Galvin*

Lack of an efficient mode of heat distribution has hampered the fullest use of the light airy shelter. Despite this lack, however, the lightweight structure is rapidly gaining prominence in modern architecture.

Man has always sought the beauty and stimulus of natural surroundings, especially during leisure moments, even as he extends control over his environs for his comfort and health.

Garden shelters, for instance, used since antiquity, are now finding popularity in the Western "garden-home" concept, where the conveniences of the home are brought into the garden, and outdoor enjoyment is extended into the heat of day and the cool of evening.

Top architectural honors have been awarded for elementary schools—characterized by generous use of skylight roofing, movable window walls, and transitional shelter—that allow blending of outdoor and indoor areas as weather permits.

New thin-shell techniques for wide-span structures are likewise changing design criteria. The enclosed building is yielding to the open shelter that can be a part of its environment.

shelters vs. insulated buildings

But economical, lightweight, outdoor-type shelters, adaptable for year-round recreational and other purposes, will only be feasible when a suitable method of distributing heat is perfected. Such shelters would have minimal structure and be capable of free ventilation and direct utilization of solar heat and light. The natural environment therein would be modified only as necessary for comfort and health.

The structural components for the design of this adaptable shelter are already available. Durable, strong, lightweight, and transparent materials can be used for weather protection. Louvers can be used to regulate natural ventilation and admit solar heat and light. Hydraulic accumulators can be used to move linked, louvered sections. Primary elements for sensing sun, rain, wind, and temperature can be used for control.

Yet typically, our recreational and public buildings continue to be insulated boxes designed to meet the stringent limitations of warm-air-heating methods. These buildings are isolated from their surroundings, except for visual access through carefully-allotted window areas. They need artificial light and heat even when the sun shines; they require forced ventilation and air cooling to remove entrapped heat even when outdoor shaded areas are pleasantly cool; and they recirculate filtered air even when outside air is comparatively fresh.

Many of our thin-walled, ventilated, factory-type buildings need more warm-air-heating capacity, per unit of floor area, than the energy expended daily by the sun in a tropical climate.

analysis of various heating methods

Warm-air and quasi-radiant-panel methods of heat distribution (commonly applied to weather-tight, insulated buildings) are not suited to the lightweight, airy shelter. The need for a more efficient means of heat distribution becomes apparent in thin-shelled, high-ceiling, open structures because of their uninsulated construction, their large air volume per unit of floor area, and their frequent air changes. Efficient heat distribution dictates a low air temperature (to reduce building heat load), coupled with a high-temperature effect on surrounding surfaces (to maintain comfort); hence, the heat should be essentially radiant. The following considerations emphasize the inadequacy of other methods.

Warm-air-heated buildings must be thermally insulated to raise the inside surface temperatures as close to the air temperature as practical. Even then, the preponderant heat loss from the occupant is by radiation.

Floor-slab-heated buildings can bring the floor-surface temperature to a level only slightly above that of the body, before provoking contact discomfiture. Here again, the building must be insulated so as to raise the temperature in the larger remaining surfaces of walls and ceiling, and prevent direct loss of the outwardly-directed radiant rays from floor surfaces.

Floor- and non-recessed-panel methods of heating cannot be classified as truly radiant types, since half their heat output is transferred directly to the room air by convection.

Ancient Rome and radiant heating

The Romans evolved the art of heating high-ceiling, open-ventilated buildings to a remarkable degree. Their baths were constructed of masonry, with large unglazed window and door openings for ventilation and admission of sunlight. Hollow flues in the floor, walls, and vaults were used to heat interior surfaces.

Construction cost of the Roman baths was obviously not a consideration; luxury, stimulation, and comfort were the criteria of design. Only by being enveloped with radiant heat could the bather comfortably bask in direct sunlight and be wafted by cool stimulating outdoor air in mid-winter.

Today, radiant heating does not necessarily require expensive masonry construction, nor is it necessary to heat a large proportion of the interior room surfaces to get uniform heat distribution at the occupancy level.

Radiant heat, from properly spaced and insulated, high-temperature, overhead sur-

* *Mechanical Engineer, Seattle, Washington*

faces, is inherently the most efficient form of distributing heat over an area. A modicum of building structure is required when the entire heat output is in the form of downwardly-directed infrared rays. The occupants are exposed between the intense rays coming down and a combination of warm-air and radiant rays returning from the radiantly-heated floor surface. With this mode of heat distribution, the occupant is subjected to a radiant-heat gain despite exposure to surrounding, cold, thin, uninsulated building surfaces.

Efficient propagation of radiant heat in a downward direction is possible from overhead heat sources, since these can be insulated against upward dissipation of heat and can still "see" the floor area.

problem of economical heat energy

Two serious, although not insurmountable, problems arise in connection with radiant heat.

One of these is the development of an efficient, high-temperature heat source that uses an economical form of energy.

Electrical resistance elements are generally limited to occasional spot heating, since they cost from two to four times more to operate than an efficient chemical fuel burner. The heat pump (which relies on atmospheric air for its heat source) does not generate a high enough temperature for radiant heating of uninsulated shelters.

Several types of suspendible radiant gas heaters have been developed in recent years. These are finding an expanding market for "hard-to-heat" places, where downward radiant heat shows up to best advantage. However, considerably-improved efficiency in the generation of downward radiant energy will be necessary to make this type of heater generally competitive with the highly-efficient, and easily-controlled, warm-air heater.

A satisfactory answer to the need for efficient radiant-heat production in chemical fuel burners can be found in a combustion-air preheater and radiant-flame/tube-assemby that will provide high-temperature operation at a reasonable stack efficiency.

problem of heat-source control

The other problem is the selection of a suitable arrangement and control of the heat-source units that will give quick response to a wide range of heat-output modulation. The lightweight structure has *little* thermal storage and is particularly sensitive to sudden changes in weather.

High-ceiling structures will have overlapping of infrared-ray distributing patterns from proximate heat-source units, permitting a degree of modulation by selective on-off control of alternately-spaced heat units. For those applications having a low use factor, simplicity may be paramount to efficiency; in this case, excessive heating could be countered with increased ventilation. In most applications, however the desire to improve seasonal operating efficiency and comfort will warrant a more sophisticated control of the radiant-heat sources. In essence, this can be accomplished by arranging multiple heat-source units into a composite system whereby each unit may be controlled to modify the average heat output over the entire floor area.

uses for radiant-heated shelters

By circumventing the need for insulative construction, the architect will find new freedom for creating light, airy adaptive shelters. A few of the broad and diverse uses for high-intensity, radiant, overhead heating might include the following:

Recreational:

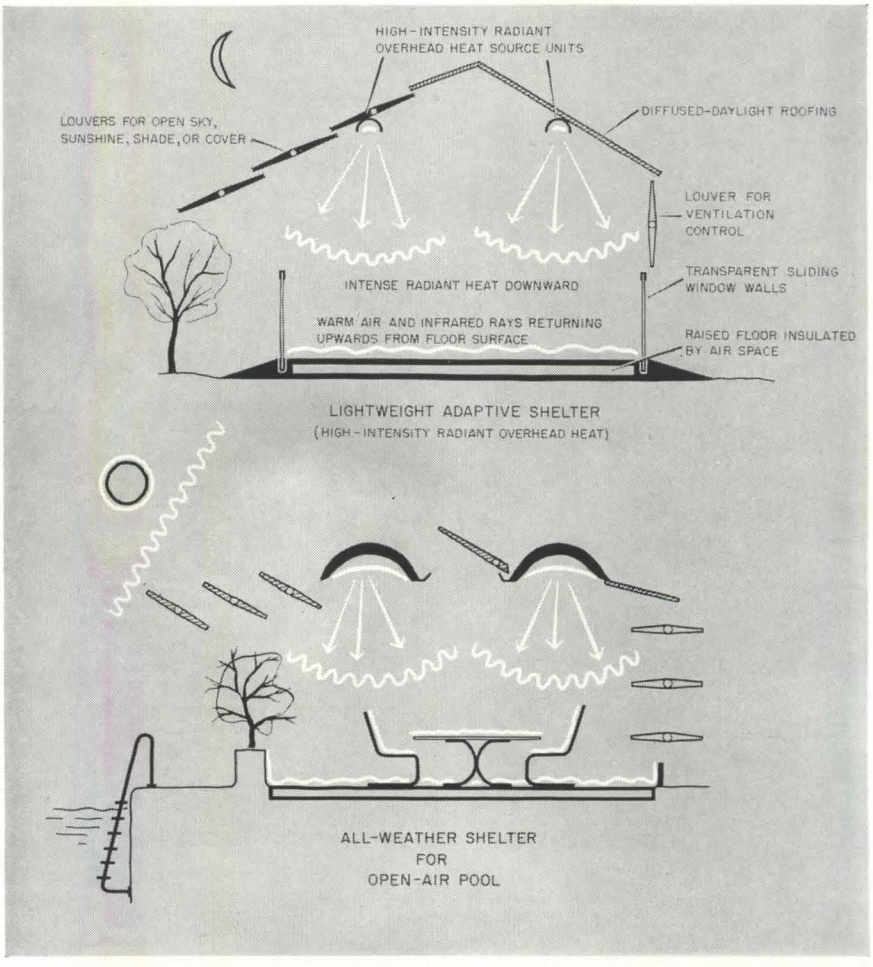
1 Gymnasiums that can be opened to winter sunshine or summer breezes.
2 Cold-weather-sheltered borders around open-air swimming pools.
3 Spectator and bench shelters for open field sports.
4 Dry warming areas for skiers in winter.
5 Year-round garden-patio restaurants.
6 Ventilated greenhouses.

Commercial:

1 Passenger- or freight-loading areas.
2 Marquees for stores, gas stations, and drive-ins.
3 Snow melting for walks and ramps.

Industrial:

1 Heat for high-ceiling ventilated structures.
2 Thawing or frost protection for outdoor machinery.
3 Portable heat for cold-weather-construction work.
4 Perimeter heat around oil-well drill rigs for arctic exploration work.
5 External heat source for explosively-hazardous areas.



Main unit of Health and Physical Education Building at Central Washington College, with a clear-span area of 150′ x 390′, is believed to be first wholly-supported cable structure on West Coast. Principal elements of support for roof are bridge strands, prestressed-concrete pylons, glue-laminated wood girders, and underground cable anchors.

cable/concrete-pylon supported roof

Completely supported by bridge strand on prestressed-concrete pylons, the main roof of the new Health and Physical Education Building at Central Washington College, Ellensburg, is believed to be the West Coast's first wholly-supported cable structure. The Washington State Chapter of the AIA, giving the building an Award of Merit in 1959, commended its "strong experimental structure" and "high degree of architectural unity." Ralph H. Burkhard, of Seattle, was Architect; Anderson, Birkeland & Anderson, of Tacoma, Structural Consultants.

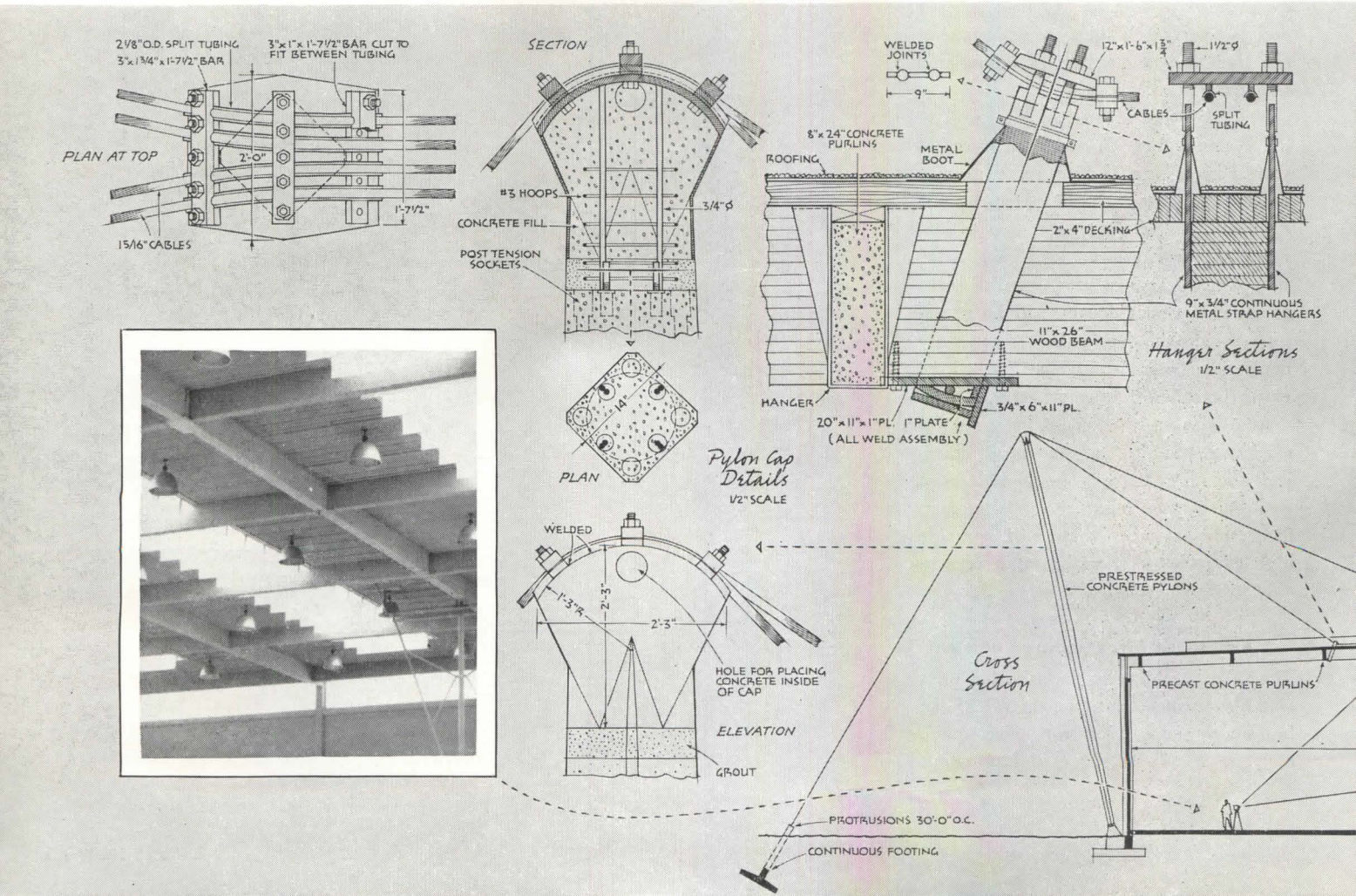
The 150′ x 390′ main unit contains a field house and gymnasium; low flanking units contain an administrative section and a swimming pool. Total cost of the project was $1.4 million, or $12.86/sq ft.

The 14 structures supporting the main roof each comprise four elements: a cable system of four 15/16″-diameter strands, a pair of 80′ prestressed-concrete pylons, an 11″ x 26″ glulam girder (supported at the ends by precast-concrete columns and at intermediate points by cables), and an underground anchor at cable ends.

The cables were designed to withstand vertical dead load and snow load, as well as horizontal loads from 100-mph winds. Deflections in the glulam girders (assumed continuous over their four spans) were analyzed for snow loads, wind uplift, and cable-temperature variations ranging from —20 F to 120 F.

Pylons taper from 30″ square at midpoint to 12″ square at either end. The hollow sections (4″-walled) were cast in halves and joined on a special jig that placed a 4″ concrete diaphragm at the joint. Ducts for post-tension tendons were cast in the pylons, with eccentric location of tendons compensating for the pylon weight's horizontal component.

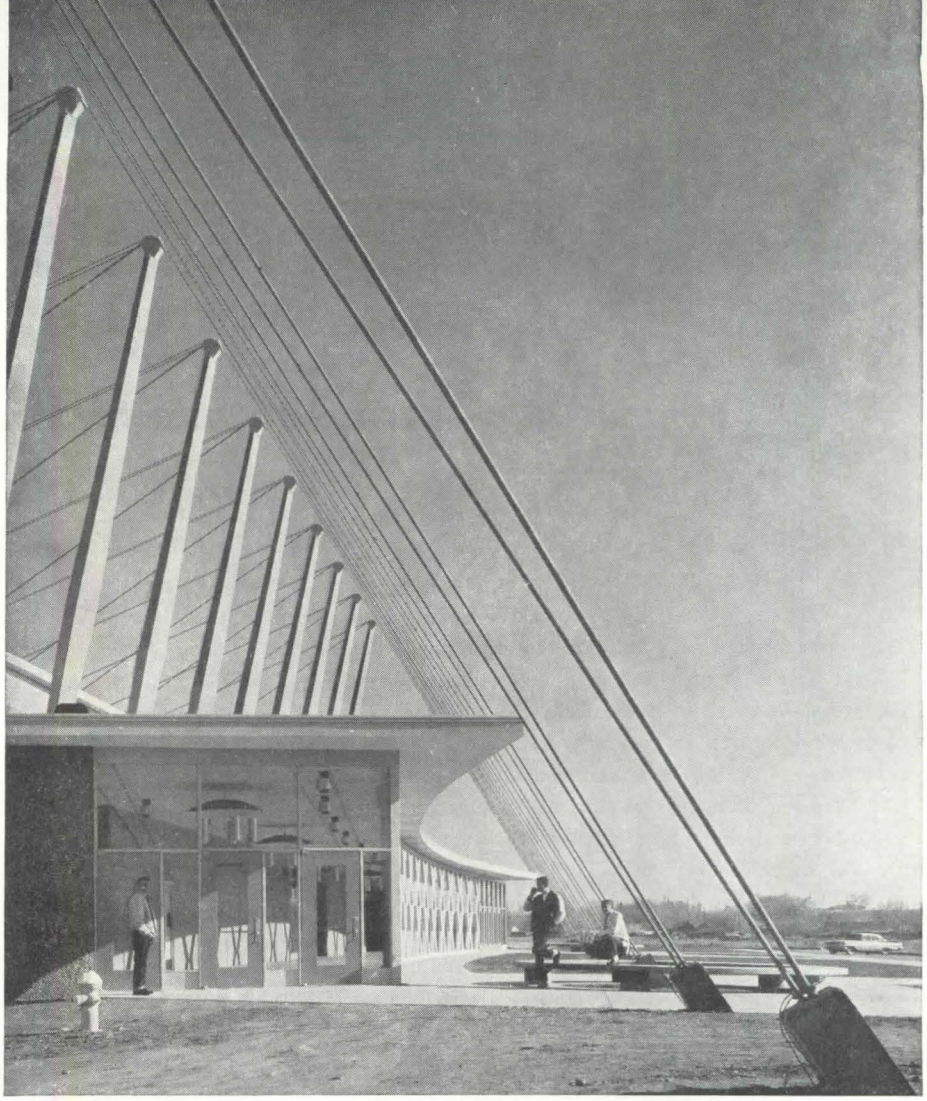
Pylon heads were formed by welding

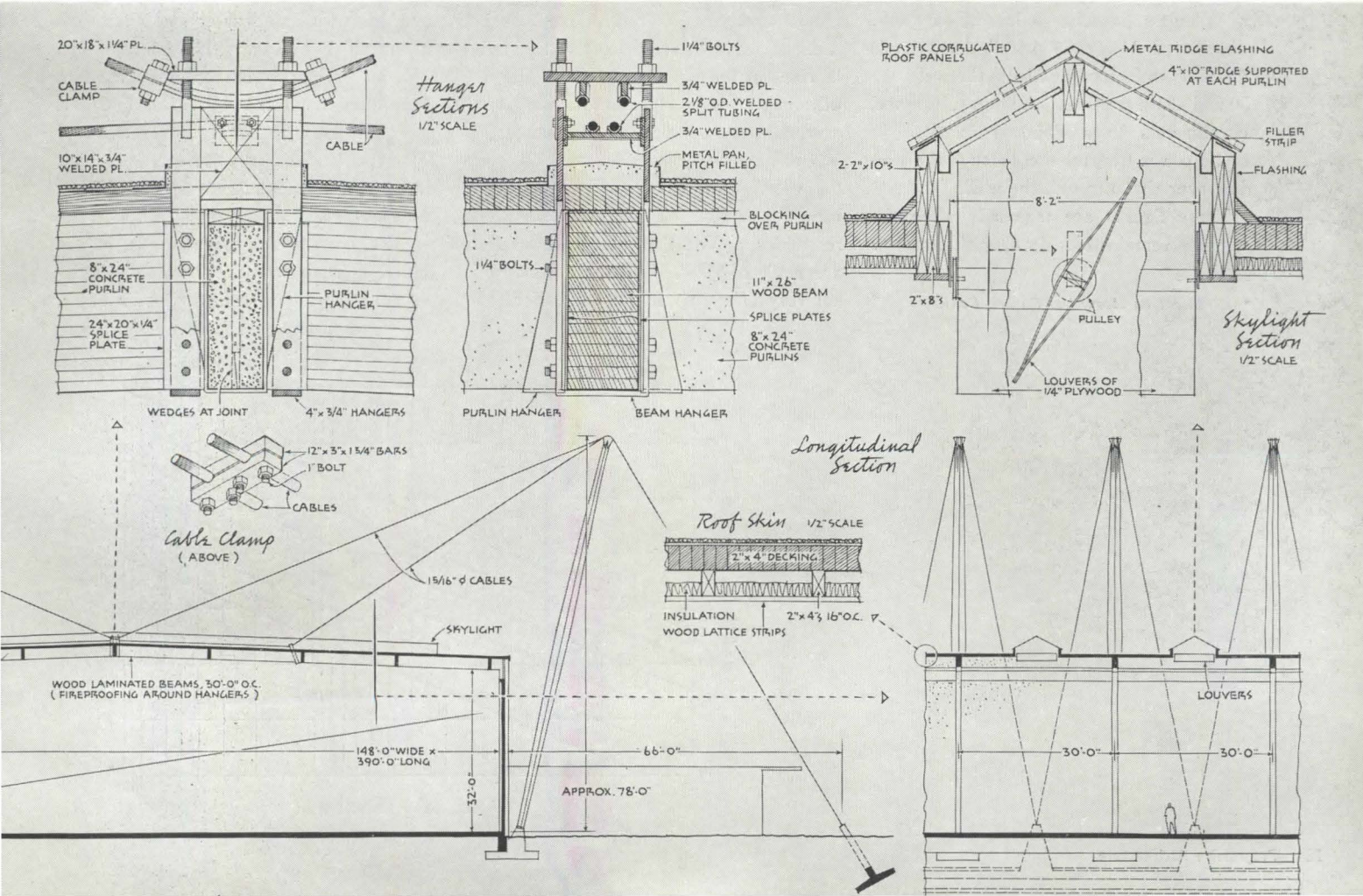


the cast-steel cable saddle to a plate-steel box. This assembly was welded to steel embedded in the pylon, and the box then filled with concrete. Completed pylons were transported 150 miles to the site.

Pylons rest on a steel bearing plate. To control bearing pressure and allow for pylon rotation on its steel pin, a lead pad is located between pylon and plate.

Cable anchors have sleeves and bearing plates to take thrust. After tensioning cables to the designed dead load, the space between cable and anchor sleeve was filled with a flexible, waterproof sealant.





Weakest sound-transmission link in a building's exterior will usually be found in its windows. To overcome this debility, several methods to increase sound transmission of window areas are described. A review of the characteristics of presently available sound-retarding windows is also included.

sound-retarding windows

by M. Rettinger*

Windows are usually the weakest sound-transmission link between the street and the interior of a building, due to the fact that the weight per square foot of the window area is generally less than that of the walls. The variation of sound-transmission loss at various frequencies is a function of the thickness of a wall; a solid concrete wall is shown (*Figure 1*). Because the density of concrete and of glass is not materially different (150 lbs/cu ft), the figures are, with some reservations, applicable also to glass walls and windows.

An examination of the graph shows that, for instance, a 6″ concrete wall has an average transmission loss of 50 db, while a ¼″ glass pane has a loss of only 30.5 db, and a ⅛″ pane 4.5 db less, or 26 db. This difference of 24 db (between the 50 and 26 db transmission losses), however, corresponds to a 256-fold increase in sound-power transmission through the window over that through the wall.

These figures are true only when the window remains closed; after the window has been opened, its sound-insulating quality is reduced almost to zero (although a small opening may attenuate some of the lower-frequency components of a complex noise signal). Of course, in buildings that are completely air-conditioned, very thick windows, or multiple panes structurally isolated from each other as much as possible, may be used in order to approximate the transmission loss of the walls.

devices to raise transmission loss

A frequent question concerns increasing the transmission loss of windows that are intended to be opened on occasion. The recommendation generally made is to put a duct lined with sound-absorbent material in front of the window opening. The disadvantages of such construction, however, almost outweigh the advantages; it is cumbersome, expensive, and obstructs the view. Another recommendation is to use a so-called "Fisk" window, which resembles a Venetian blind whose slats are made of glass. But such a window is not very effective; it does not afford sufficient obstruction to the sound, which, by diffraction, may bend and enter the room almost as easily as it did before.

A device which appears to overcome some of these difficulties is shown (*Figure 2*). The construction may be called a "sound-trap;" not only does the sound have to change its direction three times during its passage from the street to the room, but also the sound that reaches the upper part of its travel by diffraction, becomes absorbed by the acoustic material located between the two outside panes of glass. The hinges connected to the window frames permit cleaning of the panes whenever desired. There is less direct passage of air with this type of sound-retarding window (unless a small fan is installed between the panes) than with an ordinary "double-hung" window. The sound-insulating qualities, however, are quite good. In testing one window of this type (its center pane was ¼″ thick and outside panes were only ⅛″ thick), the average sound-transmission loss of the window, open to the extent shown on the figure, approximated that of a ¼″ single-pane closed window admitting no air at all.

* *Consultant on Acoustics, Encino, Calif.*

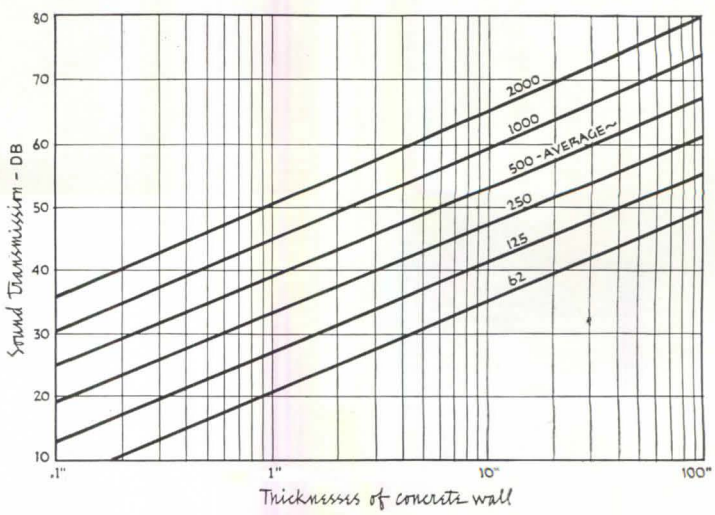


Figure 1

spacing and mounting of panes

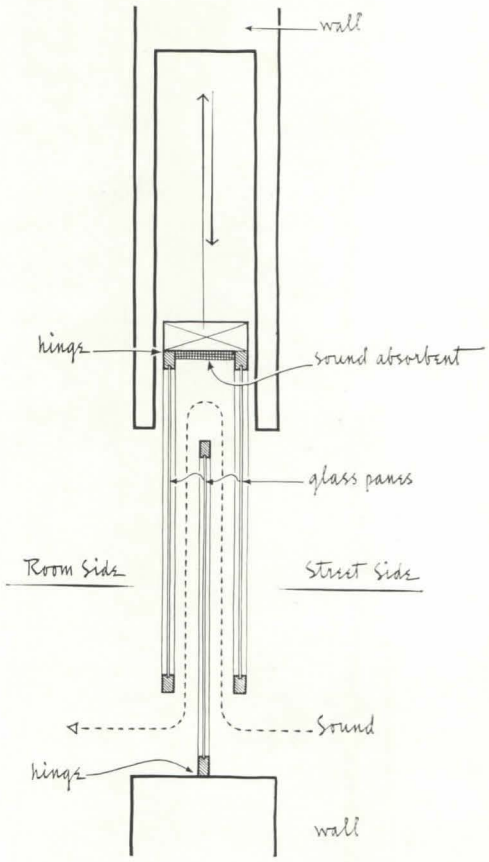
Whenever high values of insulation are required for windows that may remain closed —or from which high insulation is expected only when closed—double- or triple-pane construction is preferable to extremely thick panes. For double-pane windows, the sound-transmission loss depends on the distance of separation between the panes, particularly in the case of the low frequencies. Thus, between 200 and 300 cycles, the transmission loss of a double-pane ⅛″ thick window can be increased from 18 db, with a separation of ¾″ between panes, to 40 db with a separation of 8″. The sound-transmission loss of ⅛″ thick panes, as a function of the separation between the panes, is diagrammed (*Figure 3*).

Wider spacing between the panes increases the transmission loss chiefly because the air stiffness between the panes is reduced. This stiffness may be further lowered by attaching sound-absorbent material to the window reveal—that is, to the interior surface of the framework between the panes. When the walls are sufficiently insulative, it is possible to put holes in the window reveals, in place of the acoustic material, allowing the air to escape into the wall space and thus lowering the stiffness of the air between the panes.

When calculating the transmission loss of single-pane windows, more accurate results are usually obtained when the surface density of the window not only consists of the mass of the glass per unit area, but also includes the mass of the framework of the window. In the case of double- or triple-pane windows, however, the "mass law" (*illustrated in Figure 1*) is no longer applicable; this is shown by the experimental results (*Figure 3*). These results can be further modified by reducing the structural connection of the panes at the framework. Thus, the average transmission loss of a "standard" double-pane window can be increased several decibels by mounting the panes in an elastic material such as Neoprene, cork, felt, etc. (Ordinary rubber, particularly gum-rubber, is too easily injured by sunlight and ozone.)

To avoid condensation of moisture in double- or triple-pane windows, it has

Figure 2



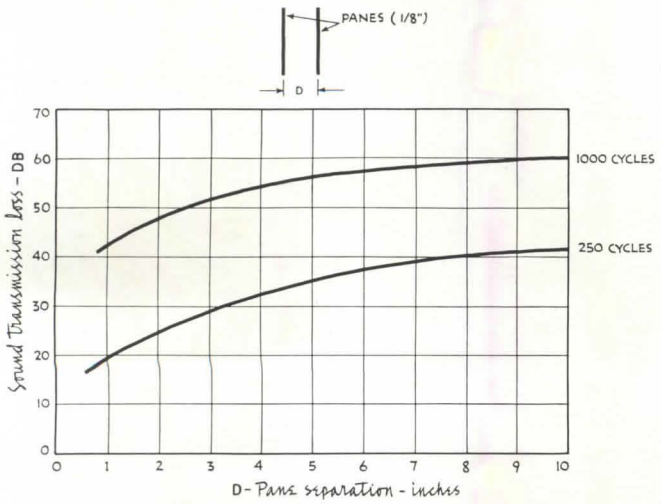
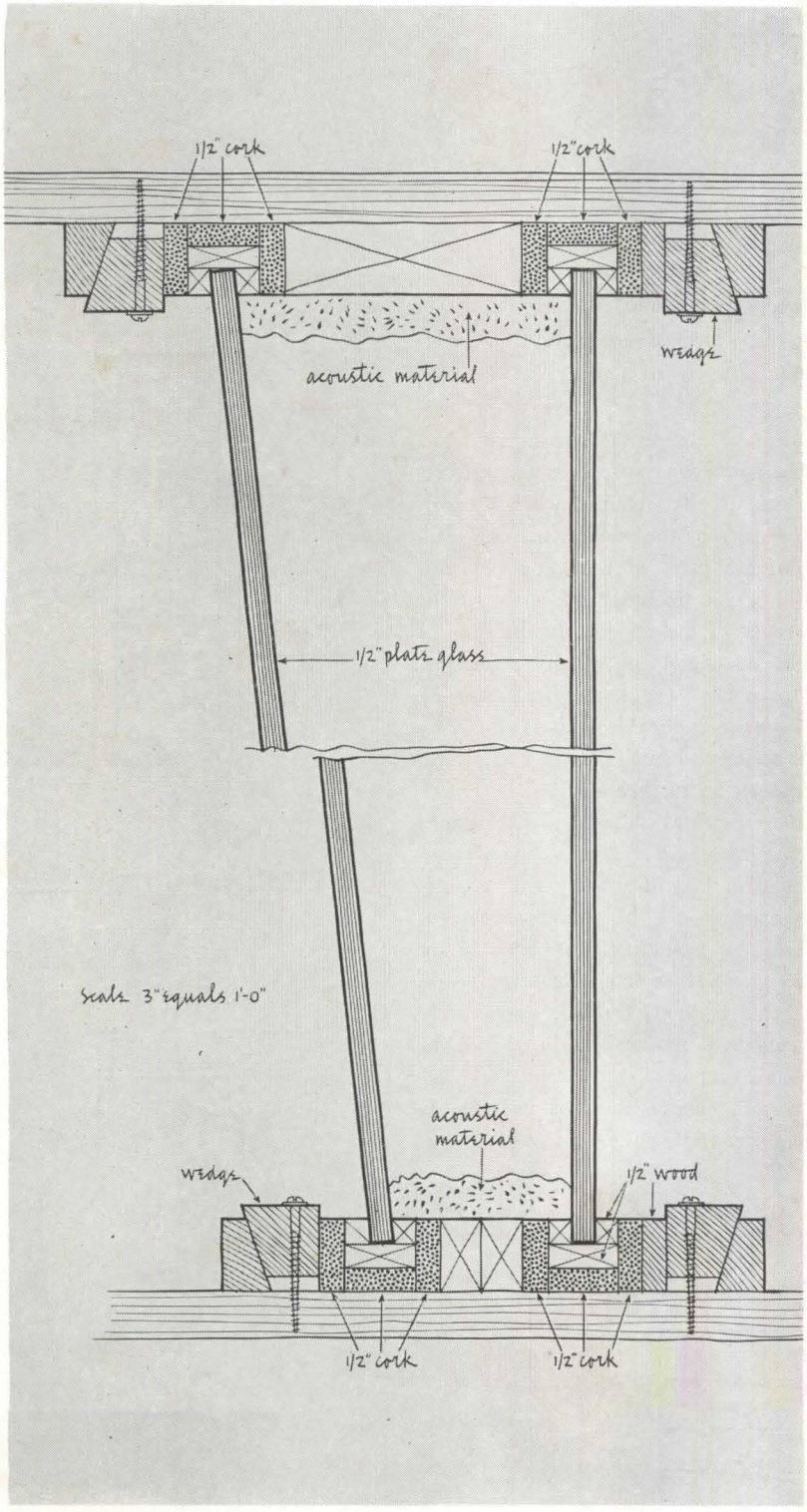


Figure 3

Figure 4



become the practice to install a small jar of silica gel or calcium chloride between the panes. In some cases of double-pane windows, such as are used for monitoring rooms or motion picture projection rooms, the panes should be easily removable for cleaning purposes. A monitoring-room window of this type is shown (*Figure 4*).

types of windows available

There are several sound-retarding windows manufactured in this country. One is trade-named "Thermopane," made by Libby-Owens-Ford; another, "Twindow" (consisting of two pieces of ¼" plate glass separated by a ½" air space), made by the Pittsburgh Plate Glass Company. Little information on their sound-transmission loss characteristics is available. This is true also of the several kinds of "Acoustitherm" windows made by the Tyre Brothers Glass Company. These are double-paned windows, having sheets of glass of various thicknesses and various distances of separation; the panes are fastened to the aluminum channel frame in a quasi-resilient way.

Although the types of glass blocks made by Owens-Illinois and the Pittsburgh Corning Corporation are not generally used for transparent windows, they have occasionally been set in steel casement frames and used as see-through window material. They are not as transparent, and form a number of joints that tend to interfere with vision. Their sound-transmission loss characteristic is quite high, however, as shown by the following table:

Frequency	Transmission Loss
125 cycles	29.0 db
175	29.5
250	31.0
350	37.0
500	39.0
700	42.0
1000	45.0
2000	43.0
4000	43.0
Average	36.0

A patent research conducted by the author of the subject of sound retarding windows disclosed the following U.S. Patent Numbers: 658,935 (P. Abramson, Oct. 2, 1900); 2,118,204 (C. M. Keevil, May 24, 1938); 2,125,669 (E. T. Fisk, Aug. 2, 1938); 2,206,175 (E. T. Fisk, July 2, 1940); 2,225.809 (F. P. Walker, Dec. 24, 1940); 2,559,300 (J. E. Hines, July 3, 1951).

elections, appointments

REAR ADMIRAL WILLIAM O. GALLERY (retired), named assistant to the president of GRAHAM, ANDERSON, PROBST & WHITE, Architects-Engineers, Chicago, Ill.

BERNARD L. MILLER, made vice-president at SMITH, HINCHMAN & GRYLLS, ASSOCIATES, INC., Detroit, Mich. Named as Associates in the firm were RUSSELL F. STEM and ALFRED W. MILLER.

T. CORTLANDT WILLIAMS, elected as chairman of the board, and FRED W. ARGUE succeeding as president at STONE & WEBSTER ENGINEERING CORPORATION. JOHN J. NILAND was named assistant engineering manager.

THEODORE E. CASSELMAN, JR., named manager of the New York office of STONE & WEBSTER ENGINEERING CORPORATION.

WILLIAM SMULL, made executive vice-president of the interior-design firm of SPACE UTILIZATION ANALYSIS, INC.

RICHARD M. LARIMER, appointed assistant to the president of A. M. KINNEY, INC., Consulting Engineers.

ROBERT C. MEISSNER, named president of MEISSNER ENGINEERS, INC.

C. B. WIGTON, JR., elected president of WIGTON-ABBOTT CORPORATION, Engineers-Constructors.

RUDY R. REDMONT, appointed president of ABBOTT-REDMONT THINLITE CORPORATION.

RICHARD S. LATHAM, GEORGE NELSON, and CHARLES T. FISHER, elected to the board of ALUMINUM EXTRUSIONS, INC.

ARTHUR D. PARK, manager of acoustical products research for ARMSTRONG CORK COMPANY, Lancaster, Pa., has been elected a Fellow in the ACOUSTICAL SOCIETY OF AMERICA.

M. R. MCLARY, elected executive vice-president and manager of the INGERSOLL PRODUCTS DIVISION of BORG-WARNER CORPORATION.

MATHIAS C. JUSTIN, named to the newly created position of general manager of the Folding Door Division of CLOPAY CORPORATION.

ALAN G. GREY and CHARLES F. COOPER, appointed assistant general sales managers for KAISER STEEL CORPORATION.

HERBERT W. WEHE, JR., promoted to executive vice-president of OVERLY MANUFACTURING COMPANY.

JAMES C. PICHA, made general sales manager of WASHINGTON STEEL PRODUCTS.

MALCOLM SMITH, appointed to the newly created position of vice-president, foreign division at EKCO PRODUCTS CO.

new partners, associates

HENRY D. DAGIT III, made partner in the firm of HENRY DAGIT & SON, Philadelphia, Pa.

GUNNAR EEMAN, Associate in the firm of RUSSELL S. FLING & ASSOCIATES, Consulting Engineers, Columbus, Ohio.

BENJAMIN BAILYN, JOHN LOUGHNANE, JOHN PINE DELAVAN, ROBERT S. LUNDBERG, LEANDER ECONOMIDES, ALLEN NATHANSON, Associates in the firm of VOORHEES, WALKER, SMITH, SMITH & HAINES, Architects, New York, N. Y.

R. HUDSON, C. M. LABUNSKI, J. NACHBAR, J. S. PETTITT, S. D. POPKIN, Associates in the firm of ALBERT KAHN ASSOCIATED, Architects-Engineers, Detroit, Mich.

A. JACKSON DAVIS, Associate in the firm of DAVID B. LIBERMAN, Architect, Knoxville, Tenn.

BERT LEVINE, joins the firm of JOE JORDAN, KERSEY KINSEY & ASSOCIATES, Architects, as associate-in-charge of production.

OLIVIER DE MESSIERES, made an associate in the firm of KETCHUM & SHARP, Architects, 227 E. 44 St., New York 17, N.Y.

LOUIS A. CUTLER, joins the Omaha staff of HENNINGSON, DURHAM & RICHARDSON, Consulting Architects-Engineers.

BORIS B. ZELMAN, joins WALTER M. BALLARD CORPORATION, New York, as director of the Facilities Planning Division.

EUGENE W. SCHMIEDER, made full partner in the firm of NELSON, GOLDBERG & HEIDT, Architects-Engineers.

B. J. GREULICH, made partner in the firm of HUGH B. BREWSTER, Structural Engineer, Fresno, Calif.

CHARLES L. HENDRICK and DONALD O. PHELPS, principals in the firm of HENDRICK & PHELPS, Architects, 407 Rutland Bldg., Orlando, Fla. Formerly the office of CHARLES L. HENDRICK.

new firms

DEETER & RITCHEY, Architects, 3 Gateway Center, Pittsburgh 22, Pa. The new firm is a merger of the individual practices of RUSSELL O. DEETER (formerly DEETER & KNABE), and DAHLIEN K. RITCHEY (formerly D. K. RITCHEY ASSOCIATES).

JOHN R. DIEHL, and FRANCIS R. STEIN, principals in the firm of DIEHL & STEIN, Architects, 40 Witherspoon St., Princeton, N. J., (formerly, JOHN DIEHL ASSOCIATES).

GUNNAR BIRKERTS and FRANK STRAUB, principals in the firm of BIRKERTS & STRAUB, Architects, 287 E. Maple Rd., Birmingham, Mich.

ALAN W. DERTHICK and CARROLL J. HENLEY, principals in the firm of DERTHICK & HENLEY, Architects, 720 Mississippi Ave., Signal Montain, Tenn.

WARREN GILBERT, Architect, 1807-B Ridge Ave., Santa Clara, Calif.

RALPH BEARDSWORTH and ROBERT C. STEARNS, principals in the firm of BEARDSWORTH & STEARNS, Architects, 1290 Patterson St., Eugene, Ore.

ROBERT THOMAS MARTIN and CHARLES JEN, principals in the firm of MARTIN & JEN, Architects, 23 N. Dunlap St., Memphis, Tenn.

STUART B. MOCKFORD and JOSEPH H. RUDD, partners in the firm of MOCKFORD & RUDD, Architects, 723 Washington St., Oregon City, Ore.

ANTHONY L. PULLARA and WILLIAM A. WATSON, principals in the firm of PULLARA & WATSON, Architects-Engineers, Tampa, Fla., (formerly, PULLARA, BOWEN & WATSON).

JOE B. ROBERTS, Architect, 3113 Sherwood Lane, Wichita Falls, Tex.

CARL A. VOLLMER & EARL J. DRAEGER, Architects, 2032 Hillview Street, Sarasota, Fla.

OMER J. DEBEVER & ASSOCIATES, Electrical Engineers, 2872 Rowena Ave., Los Angeles 39, Calif.

HAMMEL & GREEN, INC., Architects, 2650 University Ave., St. Paul 14, Minn.

FRANCIS E. TELESCA, Architect, 7299 S.W. 79 Ct., Miami, Fla.

NEW MASONRY WATER REPELLENT

An Overnight Sensation in the Building Industry!

HYDROCIDE® S-X HYCON®

The most effective and durable Silicone masonry water repellent available today!

he all-new HYDROCIDE S-X HYCON is the lk of the Building Industry. And no wonder; when ou take an already superior product such as YDROCIDE S-X (one of the first in the field) and ave experienced Sonneborn waterproofing engineers ve that product additional important qualities, ou are bound to have a news-making product.

A Sonneborn development, HYDROCIDE S-X YCON is *far more effective and much longer lasting nder the severest conditions than any silicone water pellent previously available.* Its superior formulation derived from Sonneborn's use of the Hycon Silicone olecule that develops a tighter grip on the masonry rface. Hence these superior qualities:

. LONG LASTING . . . DEEP PENETRATION . . . POS-IVE PROTECTION . . . Tests prove that a single pplication provides complete treatment and imme-ate water repellency on most masonry surfaces for much longer period of time than any previous ater repellent.

. EASY TO APPLY ALL YEAR ROUND . . . YDROCIDE S-X HYCON because of its superior uality is easy and fast to apply by brush or spray l year round. Where subsequent painting of the asonry is desired it can be easily painted over nd does not interfere with the bond of oil base paints.

3. PROTECTS AGAINST DIRT AND EFFLORESCENCE . . . HYDROCIDE S-X HYCON helps preserve the original appearance of exterior walls by excluding atmospheric moisture and minimizing the adhesion of air-borne dirt which stain or darken most surfaces; and helps reduce the possibility of surface salt deposits, spalling and cracking of masonry caused by freezing and thawing.

4. PERMITS "BREATHING" . . . HYDROCIDE S-X HYCON permits masonry to "breathe" since it does not plug or smother the masonry pores. It simply imparts long-term water repellency to the *inner surface of these pores.* Result: Moisture in the liquid phase cannot enter, yet moisture in the wall can easily escape or "breathe" out as water vapor.

5. INSURES DURABILITY OF INTERIOR FINISHES HYDROCIDE S-X HYCON applied to the exterior wall surface minimizes risks of moisture moving through the wall to the interior face. Damages to the interior wall surface such as dampness, peeling of wall paper, blistering of paint and unsightly efflorescence are thereby reduced.

PLEASE NOTE:

The demand is unprecedented. Please place your order now for prompt delivery. If not yet available through your local supplier, write us direct.

Always Consult Your Architect or Engineer

SONNEBORN CHEMICAL AND REFINING CORPORATION

Building Products Division, Dept. P-30

404 Park Avenue South, New York 16, N. Y.

HOUSTON, CHICAGO, LOS ANGELES, TORONTO

notices

JAMES R. PITTMAN, JR., Architect, 108 Highland Ave., Fayetteville, N.C.

WALKER, MCGOUGH & TROGDON, Architects, North Nine Post St., Spokane 1, Wash.

BURTON H. SEXTON, Engineering Consultant, principal in the firm of SEXTON-SEXTON & ASSOCIATES, 4903 Rockmere Ct., Washington 16, D.C.

WILLIAM BURTON ALDERMAN, Architect, Virginia Beach, Va.

WINSTON CORDES, Architect, 649 S. Olive St., Los Angeles 14, Calif.

new addresses

FISHER, TEDMAN & FISHER, Architects, 416 Moore Ave., Box 38, Postal Station R, Toronto 17, Ontario, Canada.

BUILDERS ESTIMATING SERVICE, Construction Cost Consultants, 33 Rector St., New York 6, N. Y.

The affiliated firms of LITCHFIELD, WHITING, BOWNE & ASSOCIATES, Architects-Engineers and LAPIERRE, LITCHFIELD & PARTNERS, Architects, 8 W. 40 St., New York, N. Y.

CHARLES LUCKMAN ASSOCIATES, Planners-Architects-Engineers, Canada House, 680 Fifth Ave., New York 19, N. Y. EDWARD X. TUTTLE joins the firm in the New York office as vice-president.

MANDEVILLE & BERGE, Architects-Engineers, 500 Union St., Seattle, Wash.

FRED S. DUBIN ASSOCIATES, Consulting Engineers, 635 Farmington Ave., Hartford, Conn. Also announced was promotion of JAMES H. QUINLAN to an Associate in the firm.

reorganization

In a move designed to strengthen sales services to customers of their most important product lines, the FORMICA CORPORATION, a subsidiary of AMERICAN CYANAMID COMPANY, has reorganized the national sales force of its industrial and decorative product lines, thus establishing individual sales specialists for both.

FOR THE NEW HARRIS TRUST BUILDING, CHICAGO, ILLINOIS

CURTAIN WALLS

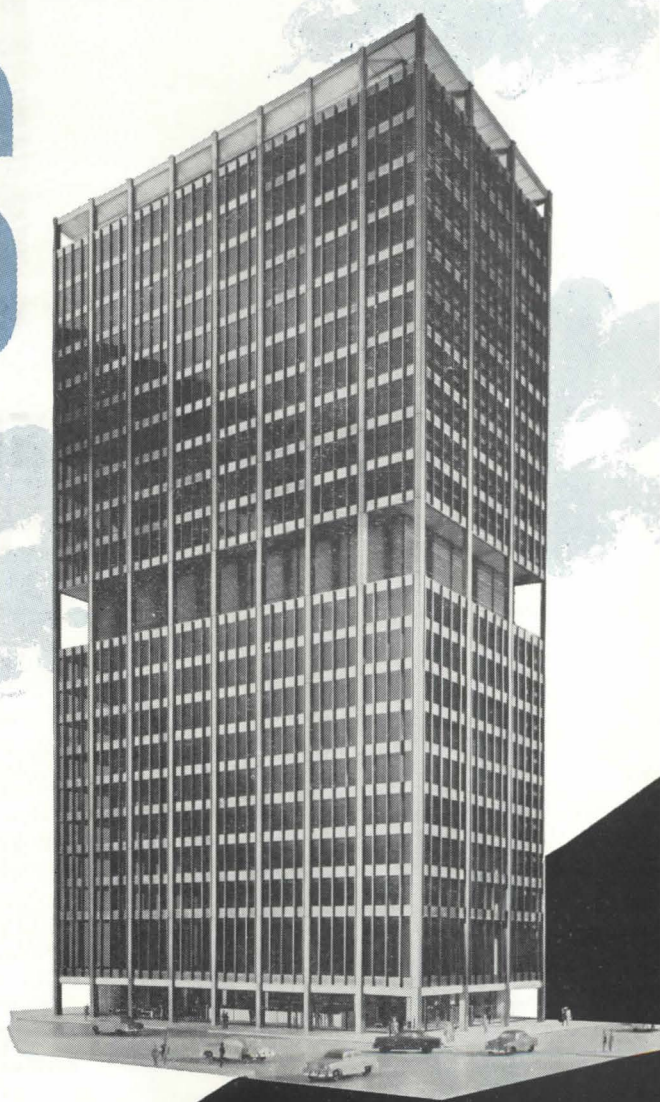
IN STAINLESS STEEL

BY GENERAL BRONZE

Here's one of Chicago's newest and most modern office buildings —the new Harris Trust & Savings Bank Building. With fixed glass windows and stainless steel spandrel panels set within a gleaming stainless steel grid, the architects, Skidmore, Owings & Merrill, have created a building that is both pleasing and spectacular in its appearance.

An interesting effect has been provided by recessing the first, eleventh and twenty-second floors approximately 10 ft. on three sides. Air-conditioning and mechanical equipment is housed on the eleventh floor and is enclosed with stainless steel louvers. The twenty-second floor, used for executive offices, is glass enclosed and also features an interior open court.

As the country's foremost producer of curtain walls, windows and architectural metalwork in aluminum, bronze and stainless steel, General Bronze is also anxious to serve you. Why not call us in on your next job? Whether it be large or small, you'll find us helpful. Our catalogs are filed in Sweet's.



Harris Trust & Savings Bank, Chicago, Ill.
Architects: Skidmore, Owings & Merrill
Contractors: Turner Construction Co.

GENERAL BRONZE
CORPORATION · GARDEN CITY, N.Y.
SALES OFFICE: 100 PARK AVE., NEW YORK 17, N. Y.

GENERAL BRONZE CORPORATION GB

PERMATITE DIVISION—Windows, Curtain Walls, Architectural Metal Work.
ALWINTITE DIVISION—Stock-size Aluminum Windows and Doors.
BRACH MFG. CO. DIVISION—Radio, Television and Electronic Equipment.
STEEL WELDMENTS, INC. DIVISION—Custom fabrication in Steel and Iron.

notices

develops new product line

BARCLAY MANUFACTURERS announce the creation of a new line of simulated fine wood grain, pre-finished panels to be known as BARCWOOD. The new line was created by the company's newly appointed creative head, DRU DUNN.

new subsidiary

To handle expanded activity in its interior design department, SPACE UTILIZATION ANALYSTS, INC., announce the formation of a new Design Division and subsidiary to be known as JACOBS, EYRE & SMULL, ASSOCIATES. Project manager of the new division will be VALENTIN G. EYRE, who becomes, also, vice-president of S.U.A.

reorganization

PITTSBURGH REFLECTOR COMPANY, announces its reorganization under VINCENT E. OSWALD, new president and chairman of the board. Named to post of vice-president are HAROLD SILVER, JOHN S. FRIZZELL, and DONALD M. FINK.

retains design consulting firm

FRANCIS BLOD DESIGN ASSOCIATES, INC., of New York, has been retained by SHARON STEEL CORPORATION as consultant in industrial design.

new acqusition

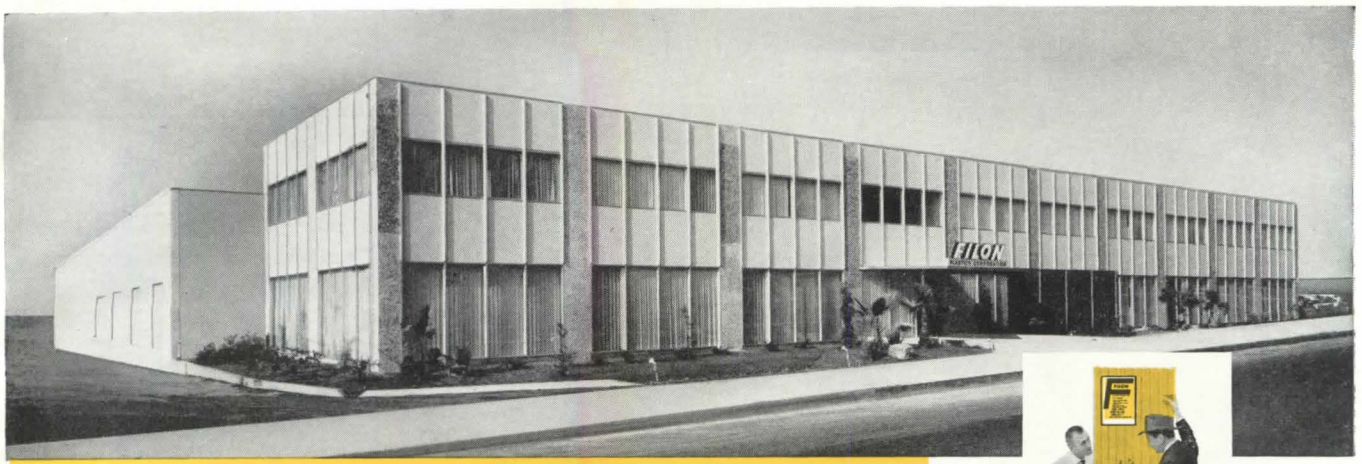
UNITED STATES PLYWOOD CORPORATION, INC., has acquired PANELBILD SYSTEMS, INC., Seattle, Wash., manufacturer of stressed-skin-plywood components. PETER BILDER, founder, will continue as operating head of PANELBILD SYSTEMS.

purchase planned

CRANE COMPANY has announced that it has entered into an agreement to purchase operating assets of NATIONAL-U.S. RADIATOR CORP., THE SWARTWOUT COMPANY. Also announced is election of WESLEY A. SONGER as president and chief administrative officer of CRANE.

new showroom

ELEMENTS OF PLANNED INTERIORS, INC., 162 W. Erie St., Chicago, Ill.



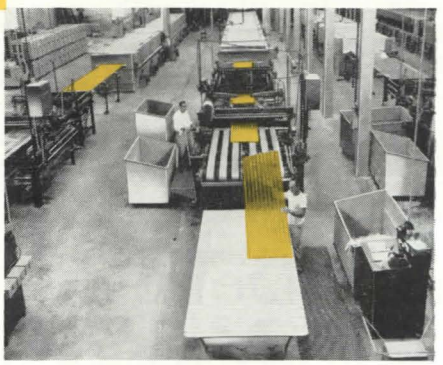
FROM PATIO ROOFS AND FENCES TO ENTIRE HOUSES

FILON® FIBERGLASS PANELS

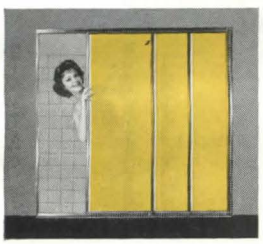
CREATE UNLIMITED USES . . . . . AROUND THE WORLD

Architects, Builders, Designers, Manufacturers — the men who plan and design the structures of our world — build with FILON Fiberglass Panels. A source of unlimited applications, FILON inspires new and exciting ideas in construction, modernization and product development. From patio roofs and fences to entire houses, FILON is finding new calls for its beauty and lightweight strength. The trend is growing, and with the promise of even greater progress, FILON now opens the doors of the world's largest and most modern plant ever to produce fiberglass-and-nylon reinforced plastic panels.

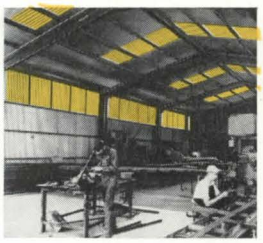
PATENTED PRODUCTION PROCESS — FILON took the lead in developing fiberglass panels of superior and uniform quality. New industry standards were set by FILON's continuous, electronically controlled patented method of production. With built-in quality controls, this FILON manufacturing process is responsible for FILON's uniformity of color, thickness and configuration. FILON's greater strength is the result of reinforcement with Super-Fi Fiberglas and "iron-tough" nylon strands. FILON's Exclusive Guarantee label on every panel assures highest quality.



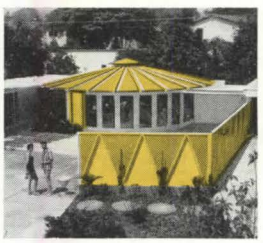
FILON's continuous production process, U.S. Pat. No. 2784763



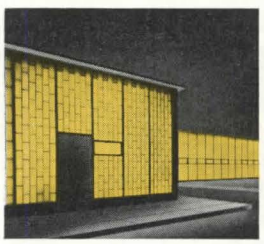
RESIDENTIAL APPLICATIONS
The Conroth Co., Chicago, Ill., and Downey Shower Door Co., Downey, California, feature FILON in their Tub and Shower Enclosures because it is shatterproof, moistureproof and unharmed by soaps. FILON is also used for Patio Roofs, Carports, Fences and Room Dividers.



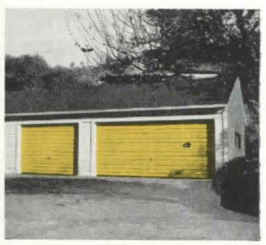
INDUSTRIAL CONSTRUCTION
Industry's choice for Skylighting, Sidelighting, Glazing. When FILON goes up, upkeep goes down. Lets in daylight, shuts out glare. Shatterproof, weatherproof. Never needs replacement; needs no painting. Used by leading metal building erectors throughout the country.



ARCHITECTURAL DESIGN
FILON's vibrant color and translucent beauty inspire dramatic design. So versatile, so functional and easy to work with. The FILON Pavilion, above, exemplifies this trend in all-plastic construction. Design by Roger Lee, A.I.A., Berkeley, California.



FUNCTIONAL BUILDING PRODUCTS
A recent development is the use of FILON skins in sandwich panels and curtain walls for interior and exterior walls, and translucent roofs. Shown above are panels using an aluminum core and FILON skins, manufactured by Kalwall Corporation, Manchester, New Hampshire.



BETTER LIVING IDEAS
The trend to FILON is seen in many new products. The Filuma Translucent Garage Door, pictured above, is a product of Frantz Corporation, Sterling, Illinois, a leading manufacturer who has profitably utilized FILON's translucent beauty and lightweight strength.

IMMEDIATE DELIVERY— FILON is warehoused by over 160 distributors, coast-to-coast in U.S. and Canada. Available almost minutes away from anywhere through 20,000 lumber, building materials, hardware and glass dealers. For additional information or descriptive literature, write FILON PLASTICS CORPORATION 333 N. Van Ness Avenue, Hawthorne 37, California.

Please specify interest: Home Building, Home Remodeling, Architectural, Interior Design, Industrial Uses, Greenhouses, Farm Buildings, Signs, Dealership-Distributorship availabilities, Foreign Distribution or Licensing.

WORLD'S FOREMOST NAME IN FIBERGLASS PANELS

FILON®
PLASTICS CORPORATION

FILON INTERNATIONAL DISTRIBUTION

Filon is also produced and distributed in 6 foreign countries by the following leading companies under exclusive licensing agreements.

BRAZIL
Industrias Reunidas Vidrobras Ltda., Rio de Janeiro

FRANCE . . . . *Societe Des Plastiques S.G.V., Paris VIII*

GERMANY . . *A. G. Fur Zinkindustrie, Duisburg-Hamborn*

GREAT BRITAIN
B. I. P. Reinforced Products Ltd., Sutton Coldfield

ITALY . . . . *P. V. R. Pirelli — Balzaretti Modigliani, Milan*

JAPAN . . . *Nitto Boseki Co., Ltd., Tokyo*

FILON A. G., Zurich, Switzerland; Foreign Service Subsidiary

Sales Offices & Warehouses: LOS ANGELES • CHICAGO • NEW YORK • ATLANTA • *Sales Offices:* DALLAS • DENVER • INDIANAPOLIS • MIAMI • PHILADELPHIA • PITTSBURGH • SAN FRANCISCO • SEATTLE

notices

p/a congratulates . . .

JAY BOYCE, appointed general manager of ADOR CORPORATION, a division of POLY INDUSTRIES, INC.

GRETA DUNSMORE, appointed advertising manager of BESTWALL CERTAIN-TEED CORPORATION.

VERNE W. BOGET, on the board of the Library of Architecture and Allied Arts and a member of the Los Angeles Chamber of Commerce Executive Construction Industries Committee, elected senior vice-president of GLADDING, MCBEAN & COMPANY. ROBERT DORN was appointed to position of general sales manager.

WILLIAM R. HOWELL, made sales manager for perlite ore of Mining and Mineral Products Division of GREAT LAKES CARBON CORPORATION.

ARTHUR W. PETREY, appointed sales promotion manager (for all products other than plywood); and ANDREW J. BASTINE, II, as public information assistant in public relations and advertising department of GEORGIA-PACIFIC CORPORATION.

ROBERT S. FREMONT, president succeeding FREDERIC G. GORDON, elected secretary-treasurer at HALO LIGHTING PRODUCTS, INC.

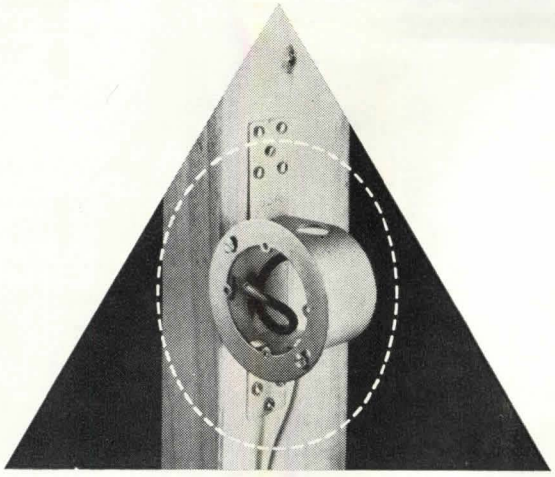
RAND R. HOGAN, named to newly-created position of manager of sales development; and C. LEE EMERSON, elected vice-president in charge of sales at KAISER STEEL CORPORATION.

DOUGLAS C. GARDNER, appointed assistant general sales manager; and JAMES R. STRONG, sales manager of Toledo Sales Division of MEDUSA PORTLAND CEMENT COMPANY.

ROBERT W. RICHARDSON, appointed sales manager; and DAVID H. HUNT, chief engineer at SPENCER TURBINE COMPANY.

ROBERT H. KANE, appointed advertising manager of "POP" RIVET DIVISION of UNITED SHOE MACHINERY CORPORATION.

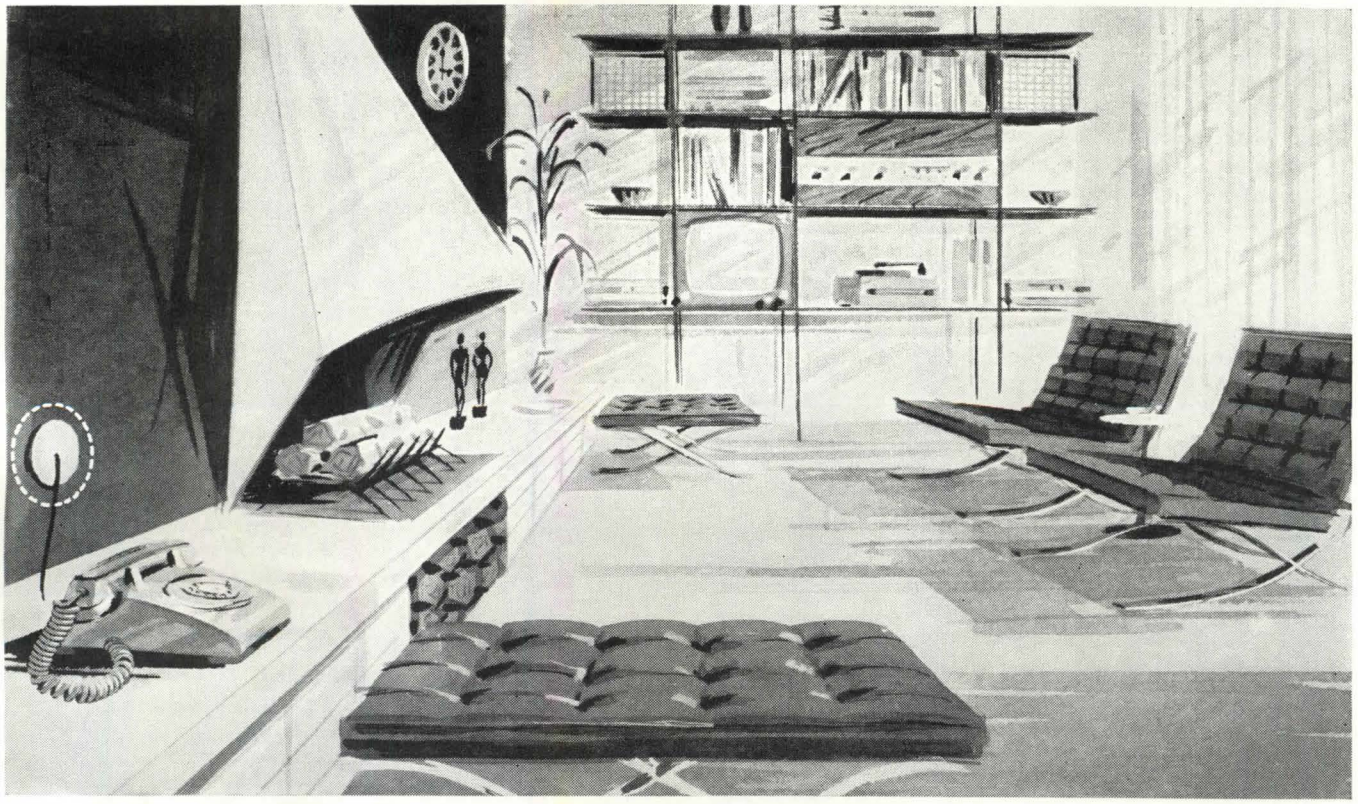
STAN HEYWOOD, appointed to newly-created post of national marketing director, and in charge of setting up regional and national sales meetings with architectural and engineering groups for PRESCOLITE MANUFACTURING CORPORATION.



TELEPHONE PLANNING *makes the homes you design more livable. Built-in outlets, with wiring concealed, keep telephone service flexible and protect the beauty of your home interiors.*

For details of home installations, see Sweet's Light Construction File, 11c/Be.

Bell Telephone System



notices

ALOYSIUS M. TULLE, who becomes a group vice-president; WILLIAM A. FINN, general manager of the Harrison Division; and FREDERICK B. SEEL, general manager of Holyoke Division at WORTHINGTON CORPORATION.

name changes

COMPARETTO & KENNY, Architects-Engineers, 880 Bergen Ave., Jersey City 6, N.J. Formerly, COMPARETTO & ASSOCIATES.

BERNOUDY, MUTRUX & BAUER, Architects, 281 N. Lindbergh Blvd., St. Louis 41, Mo. Formerly, BERNOUDY & MUTRUX, Clayton, Mo

LEONARD, COLANGELO & PETERS, INC., Design Consultants, 22 E. 42 St., New York, N.Y. Formerly LEONARD & COLANGELO.

STEINMAN, BOYNTON, GRONQUIST & LONDON, Consulting Engineers, 117 Liberty St., New York 6, N.Y. Formerly D. B. STEINMAN.

ATCHISON, KLOVERSTROM, SAUL & ATCHISON, Architects, 257 Josephine St., Denver 6, Colo. Formerly ATCHISON & KLOVERSTROM AND MAXWELL L. SAUL.

CORWIN, SEPPANEN & ASSOCIATES, INC., E-818 First National Bank Bldg., St. Paul, Minn. Formerly E. D. CORWIN & ASSOCIATES.

RALF E. DECKER, Architects, formerly DECKER & CHRISTENSON.

WELLS, DENBROOK & ASSOCIATES, INC., Architects, 17th Ave. S. & Cherry, P. O. Box 1440, Grand Forks, N. D. Formerly WELLS & DENBROOK.

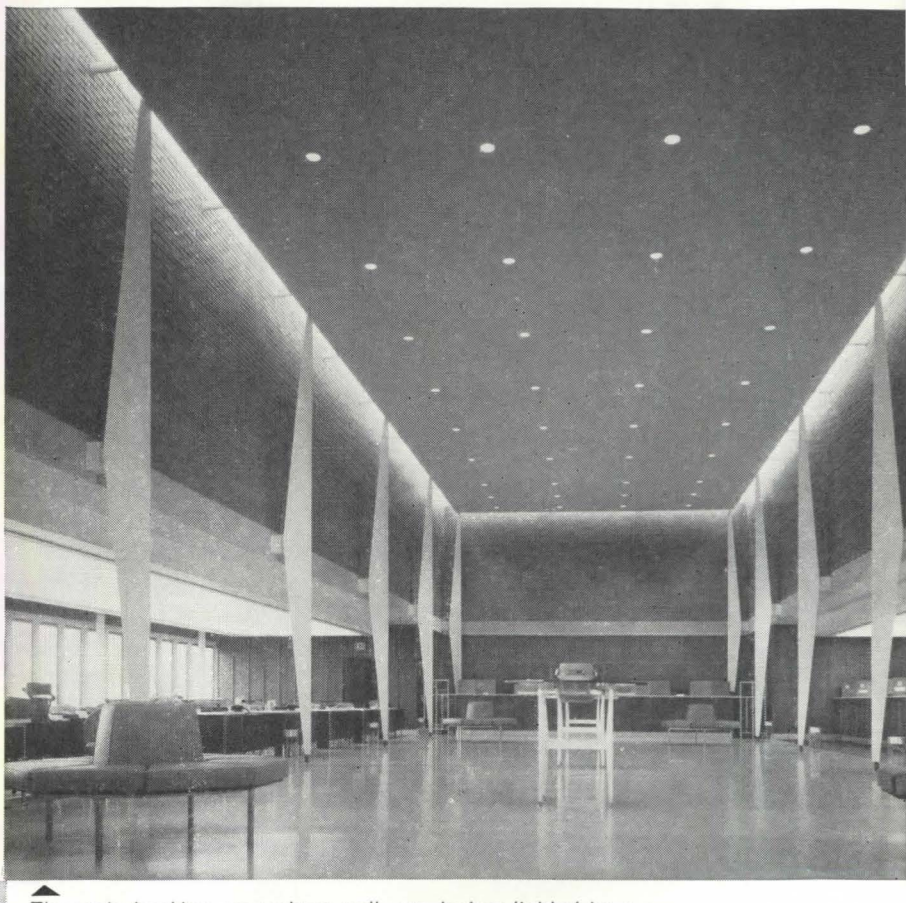
WHEN YOU CHANGE YOUR ADDRESS

Please report both new and old addresses directly to P/A five weeks before you move. The Post Office will not forward your magazine to the new address unless you pay extra postage. Avoid this needless expense by notifying us five weeks in advance.

PROGRESSIVE ARCHITECTURE
Circulation Department
430 Park Ave., New York 22, N. Y.

Banking is serious business, so high visual acuity is necessary in the areas where close work is done. Here the officer area is bathed in a high level of soft, shadowless, glare-free illumination that is accomplished by a Curtis Strato-Lux Luminous Ceiling. Exclusive Curticell Louver-Diffuser panels combine diffusion of light source with proper shielding of the diffusing medium.

State Bank of Clearing, Chicago, Illinois, where an architectural concept and planned lighting bring something new and different in bank design and function. Illumination, both day and night, heightens an atmosphere of friendliness.



The main banking area where walls are texture-lighted by a wash of indirect lighting achieved with Curtistrip. Spotlights in the suspended ceiling add an atmosphere of action and provide high function, too.

Architect: Harry Weese & Associates.

Electrical Engineer: Sam R. Lewis.

Electrical Contractor: Crescent Engineering.

notices

new packaging section

DRAYER-HANSON DIVISION of the NATIONAL-U.S. RADIATOR CORPORATION announces it has formed a Packaged Air-Conditioning Products Section, to be headed by W. F. HENKE, under its Air-Conditioning Sales Department.

new branch offices

The office of D. E. PERKINS, Harlan, Ky., becomes a branch office of SULLIVAN, ISAACS, SULLIVAN & D. E. PERKINS, ASSOCIATE, 1800 Reading Rd., Cincinnati 15, Ohio.

CONLEY ENGINEERING COMPANY, Los Angeles, opens branch office at 3312 Fifth Ave., San Diego, Calif. FRANK B. FINNEY has been appointed vice-president and head of the new office.

p/a views

(Continued from page 44)

stores. Crossing streets will become even more time-consuming and unpleasant than it is now. . . . This will have an adverse effect not only on the business of stores but also on theaters, restaurants, concert halls. hotels, etc.

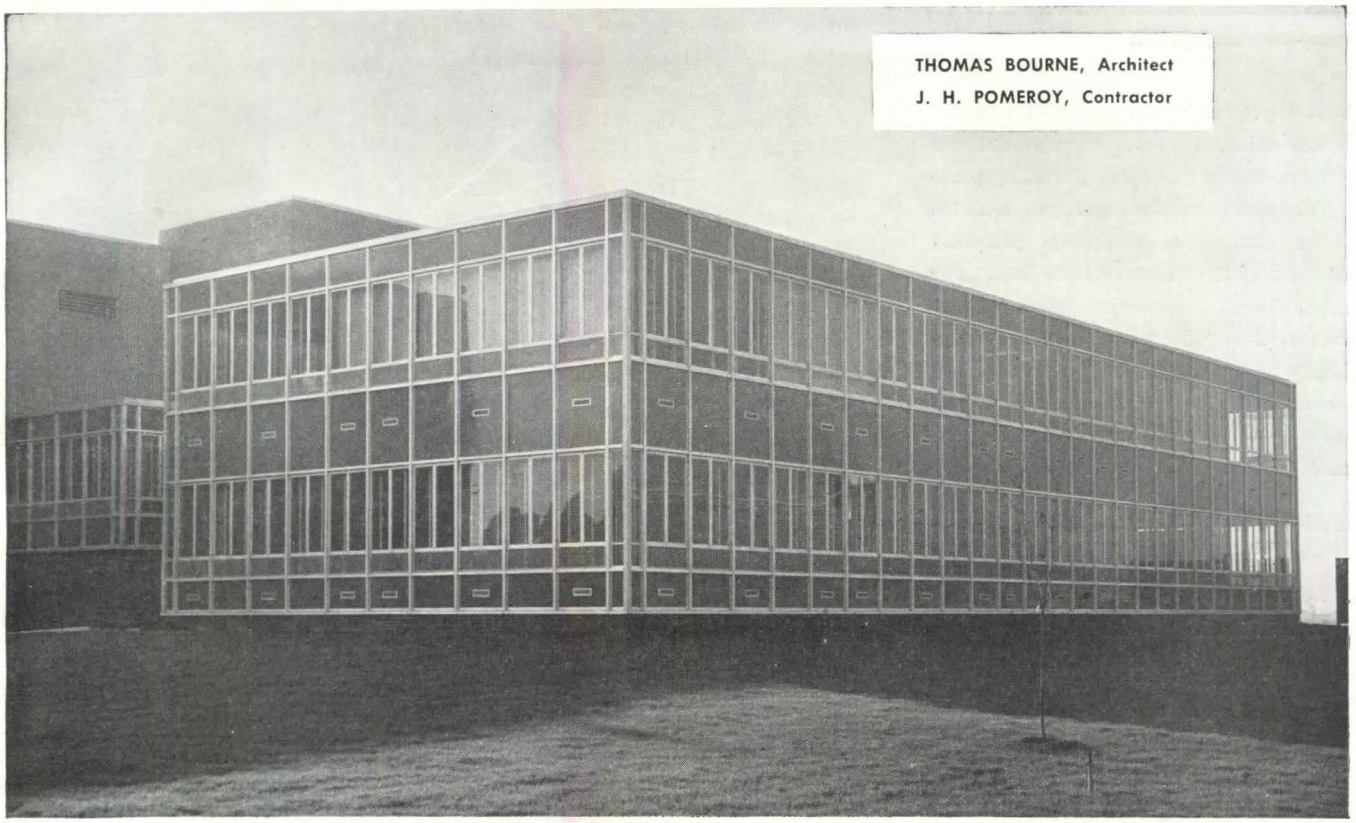
8. *Is it possible to prove that increased automobile traffic has an adverse effect on the number of people entering a downtown area?*

8. The number of cars entering Manhattan has increased between 1948 and 1956 by 36%. The number of persons entering Manhattan during the same time period has decreased by 375,000 per day, or 12%. . . .

9. *What will be the effect of the proposed garage program on the operational efficiency of midtown stores?*

9. Store operations are strongly influenced by the punctuality and morale of the employes and by the efficient functioning of their delivery and shipping services. Increased congestion will have an extremely adverse effect on store operations.

(Continued on page 234)



VAMPCO ALUMINUM WINDOWS, Curtain Walls and Doors add a note of modern beauty to new Air Route Traffic Control Center!

Architects and contractors everywhere are specifying aluminum windows, curtain walls and entrance doors to give new office buildings, institutional buildings, schools, churches, hospitals and industrial plants today's modern streamlined styling and exterior beauty.

The beautiful new Air Route Traffic Control Center, Fremont, California (pictured above) is a fine example of how Vampco aluminum products are being used in thousands of new buildings from coast to coast. It has Vampco Aluminum Curtain Walls 120W Series with Box Mullions, 7000 series Doors and Frames, Manually and Mechanically Operated Ventilators. The panels are of Porcelain Enamel.

Added structural strength, lifetime durability, better lighting and ventilation, lower original and upkeep costs (no painting required), and the speed with which buildings can be erected with Vampco Curtain Walls are but a few of the many added advantages Vampco provides.

Vampco Aluminum Windows include: casement, combination casement, awning, intermediate projected, curtain walls of varying sizes and thicknesses, heavy construction, glass block and custom-designed types. Let VAMPCO'S special designing service help you solve your unusual building problems. Mail coupon below, today!

VALLEY METAL PRODUCTS CO.
PLAINWELL, MICHIGAN
SUBSIDIARY OF
MUELLER BRASS CO.
PORT HURON, MICHIGAN

See Complete File in Your Current Sweet's Catalog

VAMPCO

A NAME THAT MEANS THE VERY FINEST IN LIFELONG ALUMINUM WINDOWS

VALLEY METAL PRODUCTS COMPANY
Dept. PA-30, PLAINWELL, MICH.

- ☐ Send 60-page Industrial-Institutional Window Catalog.
- ☐ Send Light Construction Aluminum Window Catalog.
- ☐ Send Curtain Wall Catalog.
- ☐ Send Entrance-Door Catalog.

NAME .....
COMPANY .....
ADDRESS .....
CITY .....ZONE....STATE.....

p/a views

(Continued from page 228)

Summary: The gains achieved will not be net gains. It seems obvious that for every customer gained by providing parking space in midtown garages, a much larger number of customers presently patronizing the stores will be lost. The significantly increased congestion (Questions 1, 2 and 3) will discourage shopping, will speed up the flight of Manhattan residents to the suburbs, and will make store operation less efficient—and therefore less profitable.

is this a contribution to an over-all solution?

1. *In order to counteract the increased congestion which undeniably will be the effect of the midtown garage program, it will probably be proposed to widen streets in Midtown Manhattan. Is such street widening feasible?*

1. Street widening is of course technically feasible. At present about one third of the land area of Manhattan is occupied by public roads; two thirds are occupied by buildings. In the downtown area of Los Angeles, a city which relies nearly exclusively on automobile traffic, the relationship is the opposite: two thirds of the downtown area is used for transportation and car storage, and only one third is occupied by structures serving productive purposes.

2. *What would be the effects of street widening?*

2. In order to widen streets many buildings, some of which contain the stores which the garage measure is supposed to benefit, would have to be demolished. Sidewalks now serving the throngs of shoppers and other pedestrians would have to be narrowed. Productive and therefore tax producing structures would have to be diminished in size. . . . It is doubtful whether a city which is already confronted with budget difficulties could stand the double strain of reduced taxation and the necessity of expending large amounts for street widening.

3. *What influence will the garage building program have on mass-transportation carriers?*

3. Nearly all of our mass-transportation carriers are in grave financial difficulties. In New York we have followed for years the policy of subventions to traffic in a one-sided manner by spending public funds nearly exclusively for improvements serving private-automobile traffic and devoting hardly any investment funds to mass-transportation carriers. If surface-traffic congestion in midtown Manhattan is increased and if people who up to now have used commuter trains or subways or buses to come into Manhattan cease to use these mass-transportation carriers, operating revenues of commuter lines, bus companies, and subways will further decline. . . .

Summary: The program makes *no* contribution to the over-all solution of New York problems. Quite on the contrary, it increases significantly the difficulties under which the city administration labors at present. It increases public expenditures which have to be made directly or indirectly by the taxpayers of New York.

A. It necessitates the expenditure of public funds for acquisition of expensive land and for the construction of municipal garages.
B. Because it has a tendency to diminish the income of subways and bus lines, it will make increased subvention to these public transportation carriers necessary.
C. Simultaneously it adversely affects tax revenue by taking off the tax roll the land used by municipal garages and by diminishing real estate values of land used for residences, commerce, offices, hotels, theaters, restaurants, because of the deteriorating effects of increased congestion.

is there a better alternate solution?

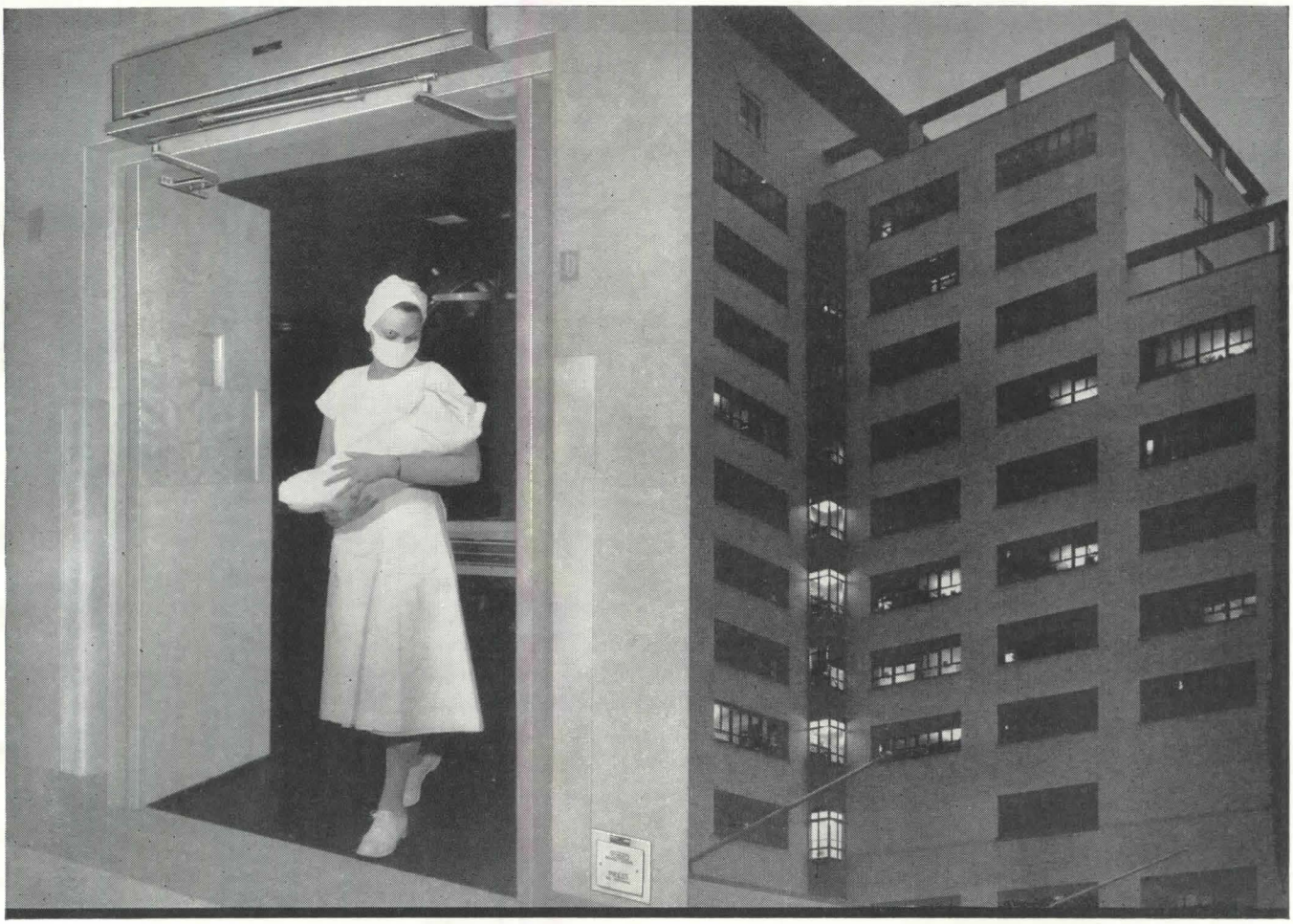
1. *Should additional parking spaces be provided in Manhattan?*

1. Yes! Inasmuch as it has been the policy of city agencies to make great investments in order to bring as many private cars as possible to Manhattan, these arriving vehicles will have to be taken care of.

2. *How many parking spaces should be provided?*

2. The number of parking spaces which should be provided is far in excess of the figure of the 10,000 proposed by Commissioner T. T. Wiley. The number of spaces provided will have to be sufficient to take care, during an initial phase, of all those automo-

(Continued on page 236)



Serve your clients best by specifying

STANLEY MAGIC-DOOR EQUIPMENT

Nowhere is increased efficiency more necessary than at hospital passageways where efficiency can be a matter of life or death. MAGIC-DOOR* Automatic Door Equipment makes that vital extra efficiency possible.

At delivery room entrances, nurses can carry new-born infants with complete safety through doors that open and close automatically. At operating room and emergency entrances, attendants never need to leave their patients to open and close doors manually.

The need for automatic door operation is real.

The name to rely on is STANLEY . . . pioneer in the field of automatic door equipment . . . and the leader for over a quarter-century. Write for free literature and the name of the MAGIC-DOOR distributor in your area to MAGIC-DOOR Sales, Stanley Hardware, Division of The Stanley Works, Dept. C, 78 Lake Street, New Britain, Conn.

Deserving a place in your plans for progress

HARDWARE | AUTOMATIC DOOR EQUIPMENT | ALUMINUM WINDOWS

STANLEY

REG. U. S. PAT. OFF.

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works, New Britain, Conn.—hand tools • electric tools • builders hardware • industrial hardware • drapery hardware • automatic door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany.

CANADIAN OFFICES: ROXTON POND, P. Q. AND HAMILTON, ONT.

p/a views

(Continued from page 234)

biles which are presently parked along the curbs in the core area of Manhattan and, in the final phase, of all cars parked along curbs and in parking garages of the core area of Manhattan.

3. *What type of structures would be most suitable for the purpose?*

3. Multideck garages of considerable capacity so that one structure might contain as many as 3000 parking spaces.

4. *Where should these garages be located?*

4. In locating these garages one should follow the example set by the location of bus terminals and air line terminals, which have been selected following the realization that locations in Manhattan's core area result in costly time losses; thus these facilities were placed *along the rim* of Manhattan Island.

5. *What traffic regulations would have to be established and enforced in order to make the "rim garage program" feasible and meaningful?*

5. During the initial programming phase all curb parking and stopping along curbs in the core area by private cars should be prohibited.

In the final phase all private cars should be prohibited from entering the core area of Manhattan.

Truck traffic in the core area should be regulated by permitting it only during night hours and early morning hours.

6. *What exceptions to these regulations should be provided?*

6. The following types of vehicles should be excepted from the regulations described under 5:

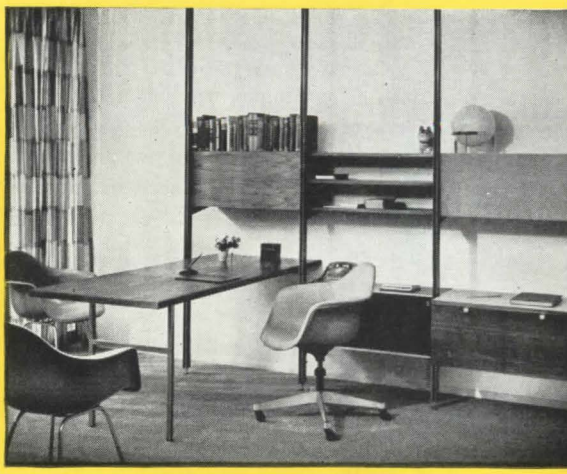
A. Buses

B. Taxicabs

C. Emergency vehicles such as fire equipment, police cars, ambulances, doctors' and nurses' cars when on duty, repair crew vehicles, etc.

(Continued on page 242)

Here is a storage system made up of 23 components created to meet individual working needs in the office, the conference room, and reception area: it is called **Comprehensive Storage System** and was designed for Herman Miller by George Nelson. All units are attached to adjustable aluminum poles and can be arranged horizontally and vertically in hundreds of practical variations. For illustrated folder, please write to Department PA259, Herman Miller Furniture Co., Zeeland, Michigan.



(Continued from page 236)

7. *Would the construction of an increased number of parking spaces greater than the presently proposed 10,000 increase be economically feasible?*

7. If the regulations enumerated under 5 will be enforced, the new garages located in the rim area will have an assurance of patronage.

   If the city, through its agencies, would acquire the needed land by right of eminent domain and lease such land to private enterprise, it can be assumed that private capital would be willing to construct and operate the garages. . . .

8. *How would persons using the garages located in the rim area reach points of destination in the core area?*

8. Such persons would use buses, subways and taxicabs, or, if their destinations are near the rim area, they would walk.

9. *What would be the influence of the rim garage program on public and semi-public transportation?*

9. The influence would be a beneficial one in two directions. The public and semi-public transportation carriers would gain passenger revenue because there would be additional patronage by those who, after leaving the garages, would want to reach points in the core area. This additional revenue would enable them to improve schedules and operational standards. . . .

10. *What will be the effect of the "rim garage program" on the sales volumes of Manhattan stores?*

10. Sales volumes will be markedly increased. Those persons who want to enter Manhattan by private automobile will find an increased number of parking spaces which are easily and swiftly accessible without the necessity of driving through the congested midtown streets. Those customers who walk within the core area of Manhattan in order to do their shopping will be encouraged by the markedly decreased traffic congestion.

Summary: The "midtown garage program," as proposed by Traffic Commissioner T. T. Wiley, would result, if executed, in uncertain and minimal gains for the Manhattan stores, which would be more than offset by definite and substantial losses. Instead of contributing to the solution of Manhattan's traffic problems and of New York's general problems, it would increase them significantly. It is in essence nothing else but a continuation of the mistaken policy of one-sided investments for a single type of transportation, which is the most inefficient one. It is another step on the road to "suicide by automobile."

The "rim garage program," on the other hand, can be expected to bring considerable new sales volume to the Manhattan stores. It makes a most definite contribution to a solution of Manhattan's traffic problems and to the solution of the general problems which beset New York. It would constitute a step toward an effective over-all approach to aimful planning for New York.

Anodized Aluminum ANOTEC*

. . . the new dimension in freedom of design!

Created in **SPECTRA-COLORS** and **GEOMETRIC PATTERNS** that add a new concept to interior and exterior applications

Specify ANOTEC* for new construction or modernization! Ideal for sun deflectors, decorative wall panels, spandrels, column facings, window guards, room-dividers, parapet and terrace railings, swimming pool enclosures, patio screens, grilles, louvers, gates, fences, etc.

Complete information and specifications available upon request.

Klemp KLEMP International

1379 N. North Branch Street • Chicago 22, Illinois • MO-hawk 4-4530

*Trademark

KLEMP INTERNATIONAL PA-3
1379 N. North Branch Street
Chicago 22, Illinois

☐ Please send complete information and specifications on ANOTEC.*

☐ Please have one of your representatives contact me.

Name_____

Firm_____

Address_____

City_____ Zone____ State_____

Telephone_____

P.S.

jury meeting

The Jury for the Annual Awards Judgment of the Central Minnesouri Chapter, AIA, met at nine o'clock in the morning in the Members' Lounge of the Art Museum. There was the Dean of a Prominent Architectural School, relaxed, with a pipe hanging from his lips; there was the Editor of a Prominent Architectural Magazine, tense, groping in his pockets for the package of cigarettes which was always nearly empty; there was the Partner of a Prominent Architectural Firm, striving very hard to appear at ease, but every few minutes sneaking a guilty look at his watch. The Chairman of the Chapter Awards Committee was there to greet them, and charge them, and hope to overhear some of the critical discussion before protocol suggested that he leave.

"I think you should first elect a Chairman of the Jury," he suggested to them, and the three Jury members were quiet, because each would have liked the honor of being named Chairman but none of them wanted the task of writing the Jury Report.

"OK," the Editor finally said (he was very experienced in these matters), "I nominate the Dean as Chairman, and I will write the Jury Report with the advice of you others." So the Dean was elected Chairman, and the Editor prepared to take notes.

"Now I want to explain to you about this Judgment," the Chairman of the Chapter Committee said. "The work submitted has been done by Members of the Chapter during the last three years. We have solicited work by as many Chapter Members as possible, because we want them all to feel that it is *Their* Program. After the Awards have been selected, we have a Luncheon to which all of the Prominent Local Business People are invited, and we get a good deal of publicity in the Local Papers. It is very important to the Chapter that we impress the Community with the high quality of the work being done by our Members."

"What are you leading up to, Joe?" asked the Partner of the Prominent Firm, who needed no publicity in the Local Papers at the moment to keep his busy drafting room active.

"Well," said Joe, "I just want to emphasize that there is no pressure on you people to give any specific number of Awards. That is entirely up to you. But . . ." and he hesitated and coughed slightly, "I would say that the desirable situation from the point of view of the Chapter Committee would be to give about five Awards and maybe, . . . let's say about fifteen Honorable Mentions. That would be desirable."

The Editor looked at the total of perhaps forty submissions mounted on the wall of the Members' Lounge, and considered the unlikely possibility of only a fifty-percent mortality. The Dean puffed at his pipe and looked agreeable; his faculty at State College passing no more than fifty percent of the work in a given problem would have been quite cruel. The Prominent Partner glanced at his watch.

"I think we'd better each take a look at everything separately first," the Dean suggested, "and then we can compare notes." He and the Editor took off their jackets, and began examining the photographs and plans mounted on the walls. The Prominent Partner looked at his watch and said, "I've got to find a Telephone," and left the room.

For the next hour the Dean and the Editor moved from one mounted work of architecture to another. The Partner came into the room occasionally, skipped quickly from mount to mount, and then went out again muttering, "Telephone."

Finally all had seen everything, and the Dean said, "Now let's see how we stand. I think I see three Awards and half a dozen Mentions; that's all, I'm afraid."

"You're optimistic," said the Editor sadly. "But I'm willing to let you persuade me."

"Personally," said the Partner, "I think it's all pretty lousy. But these boys are Trying Hard, and I think they deserve a Lot of Credit in the most conservative part of the country. I think they need a Pat on the Back. I think we ought to give them a Little Boost and Buck Them Up a bit. I've got to find a Telephone. Bond Issue coming up, and I've got to Keep in Touch."

One by one, the submitted jobs were scrutinized, analyzed, considered from the points of view of plan, siting, use of materials, suitability, appropriateness, technique, esthetic result, imagination, originality, and a dozen other criteria. The Dean's three Award candidates were found seriously wanting under careful scrutiny. Others were proposed, and knocked down.

Finally, after much soul-searching ("After all we have a responsibility to Architectural Public Relations") and compromising ("I honestly don't see it, but if you guys want it that way I'll go along. I could be wrong. After all, it's just a Subjective Opinion I have.") they ended up with a recommendation of five Mentions and two Awards—one for a house, one for a church. The decision was reached almost at the moment that Joe, the Chairman of the Chapter Awards Committee, returned to take them to lunch.

It was agreed that after lunch they would go to visit the house and the church: "We want to be very sure," said the Dean, "that we don't make any mistakes in these two top Awards. Photographs can lie, you know. Just go to visit some of those beautiful buildings you see in the magazines," he added. laughing in a friendly way in the direction of the Editor—who looked hurt.

After lunch they first visited the Church. It was very simple, very handsome, very well built. The interior color was a bit garish; the furniture could have been better co-ordinated; but by and large their judgment seemed to be vindicated. "I think, though, we'd better talk to the Pastor," suggested the Dean. and they all agreed.

The Pastor was a charming, intelligent man. He was bitter about the church. "It looks fine," he admitted. "But the acoustics are terrible. No one can hear me preach, and I love to preach. The organ can be heard only in the last three rows, and the choir only in the first two. And the walls sweat. And the roof leaks. And . . ."

Next they drove to the house. As they drew up to it, their hearts sank. A pile of timber lay where the building obviously had stood. "That was a damn smart roof system if it had worked," the Partner remarked with sorrow.

Quietly, the Jury drove back to the Art Museum. Thoughtfully, they entered the room where they had been working. The Editor reached for a cigarette. The Dean lighted his pipe. The Partner looked at his watch and edged toward the door to the Telephone.

The Dean sighed. "OK, boys, let's start all over," he said. "Now I want to bring up that West Side Elementary School again. It has its points. For instance . . ." The Editor took off his jacket and began to take notes.

Thomas H. Creighton