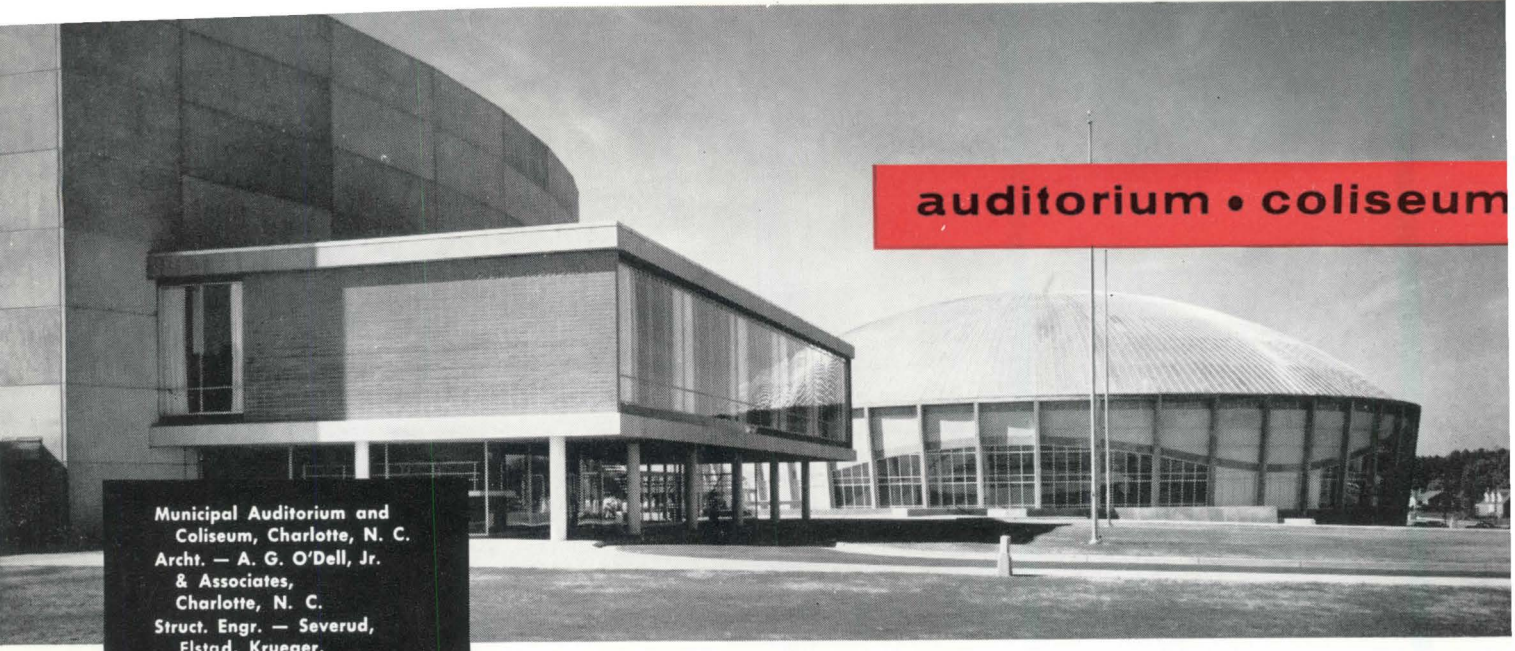
p/a

december 1958

world's largest architectural circulation

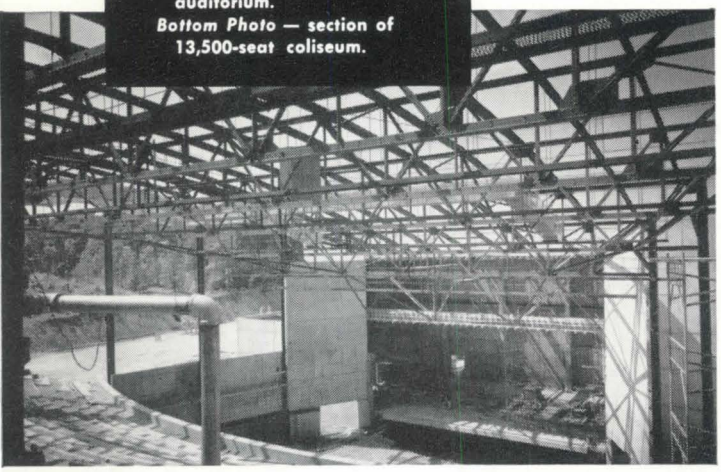
PROGRESSIVE ARCHITECTURE

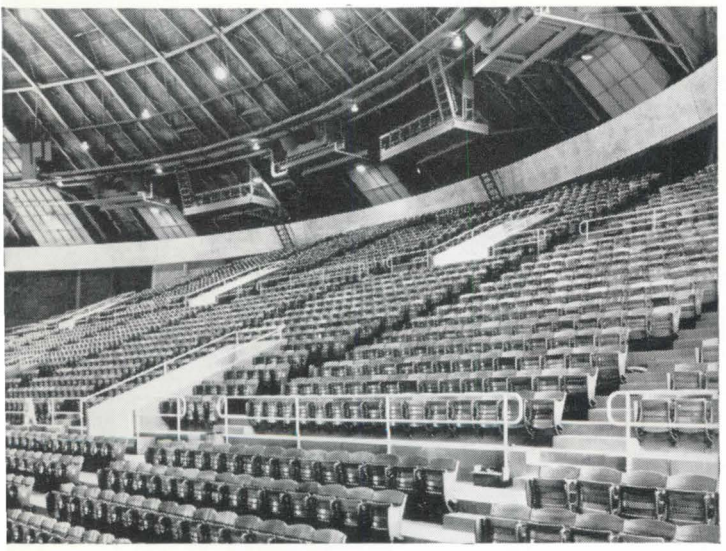
progress report



Municipal Auditorium and Coliseum, Charlotte, N. C.
Archt. — A. G. O'Dell, Jr. & Associates, Charlotte, N. C.
Struct. Engr. — Severud, Elstad, Krueger, New York, N. Y.
Contr. — Thompson & Street Co., Charlotte, N. C.
Pozzolith ready-mixed concrete — Concrete Supply Co., Charlotte, N. C.

Below — view of 2500-seat auditorium.
Bottom Photo — section of 13,500-seat coliseum.





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In the construction of this outstanding municipal auditorium and coliseum — as with many other important projects built since 1932 — Pozzolith proved a valuable aid in improving cohesiveness and plasticity, to enhance the appearance of exposed concrete.

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for Floors · Walls · Counter Tops

New trend to multi-story downtown motels calls for Rotary Oildraulic® Elevators

No-penthouse elevator aids building design, helps economize on construction costs

The vertical building has arrived in the motel field. As locations move downtown, toward the heart of city business activity, multi-story motels become a familiar sight.

Two outstanding mid-town motels are illustrated here. Others rise as high as six stories, often with the first two levels devoted to parking areas.

Less expensive construction

For this new trend in motels there's no elevator more practical than the Rotary Oildraulic. This modern elevator aids exterior appearance because it needs no unsightly elevator machinery penthouse. It's pushed up from below, not pulled from above . . . and the compact power unit can be located wherever convenient, often in a space that otherwise would be wasted.

Less massive (and thus more economical) elevator shaft sidewalls are used since the elevator and its load are supported by the hydraulic jack resting on the pit floor.

In other respects, too, Rotary Oildraulic Elevators are particularly suited to motel use. They're quiet, dependable, economical, with fewer moving parts and less maintenance required. Modern operatorless control systems are available, and distinctive cabs to harmonize with any interior.

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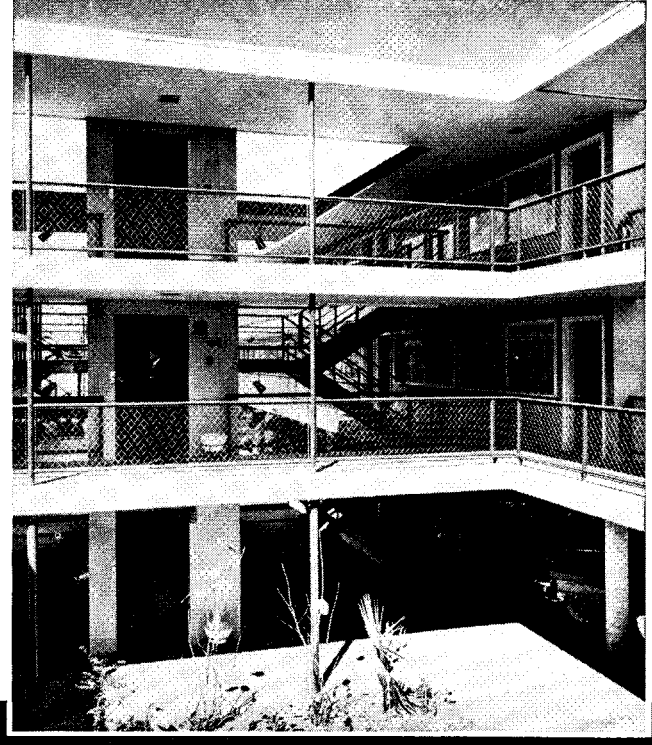
For any building to six stories, the modern oil-hydraulic elevator as perfected by Rotary Lift Company offers the finest in efficient, economical vertical transportation, with many exclusive design and operation features. Rotary Oildraulic Elevators are sold, installed and serviced by franchised elevator contractors who employ factory-trained personnel. The Rotary organization is available for assistance on elevator plans and specifications. For more information, mail the coupon or look for "Rotary Oildraulic" under "Elevators" in the yellow pages of your phone book. *See our catalog in Sweet's.*

Rotary® **Oildraulic®**

Passenger and Freight—the modern elevator for modern buildings

LEFT: Shore Drive Motel, Chicago, Illinois. ARCHITECT: A. Epstein & Sons, Inc. GENERAL CONTRACTOR: Welso Construction Co. Rotary Oildraulic Elevators sold and installed by Gallaher and Speck, Inc., Chicago.

RIGHT: Motel de Ville, New Orleans, Louisiana. ARCHITECT: Charles R. Colbert. GENERAL CONTRACTOR: Shelby Construction Co., Inc. Rotary Oildraulic Elevators sold and installed by Louisiana Elevator Corp., New Orleans.



Elevators

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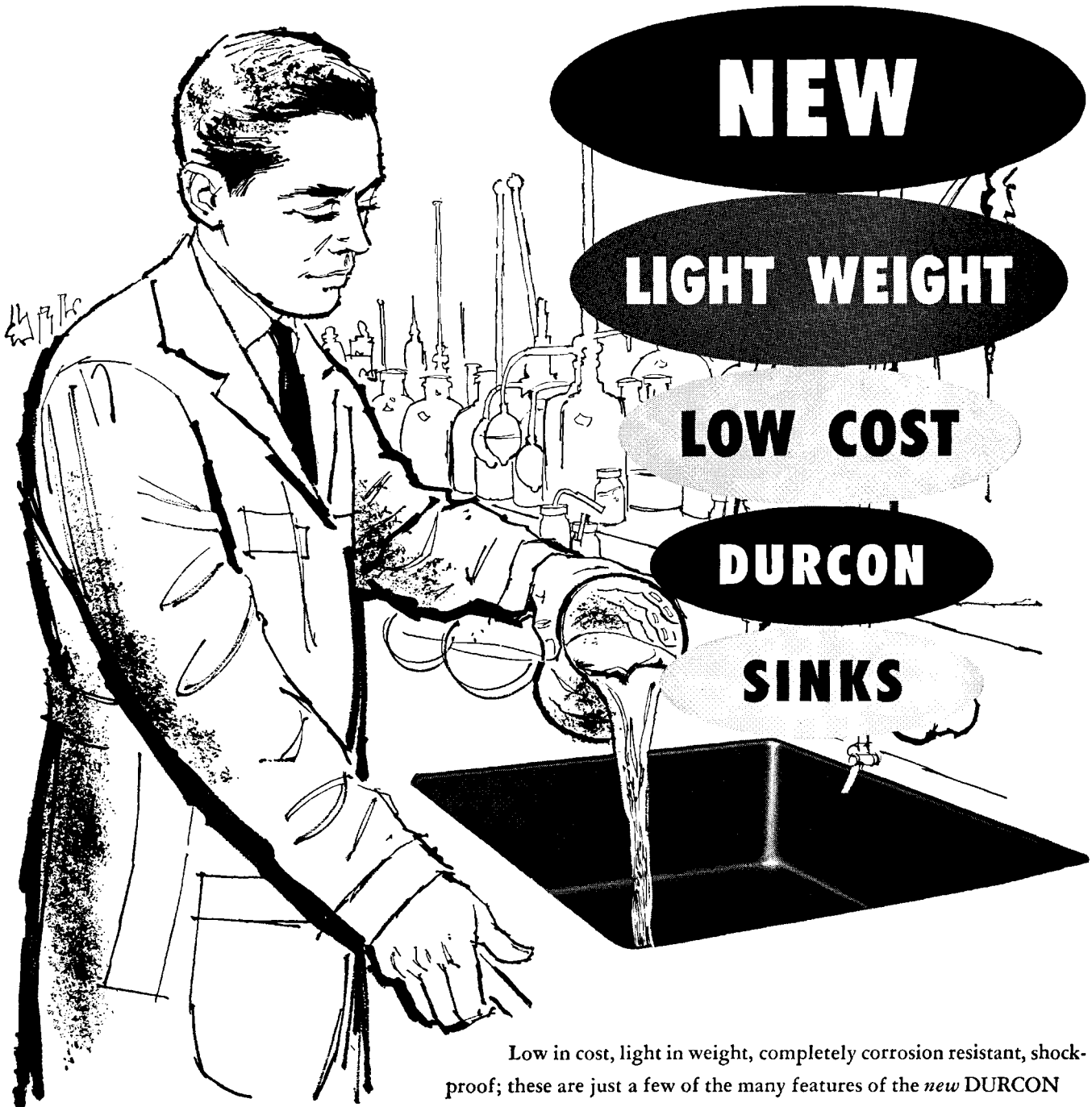

Low in cost, light in weight, completely corrosion resistant, shock-proof; these are just a few of the many features of the *new* DURCON laboratory sinks. Durcon is an epoxy resin, modified by The Duriron Company. DURCON sinks have coved corners and dished bottoms to prevent the accumulation of contaminants. They weigh up to 60% less than competitive materials. Cast DURCON sinks are available *from stock* in twelve standard sizes. Special sizes can be fabricated to meet virtually all requirements.

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PROGRESSIVE ARCHITECTURE

December 1958

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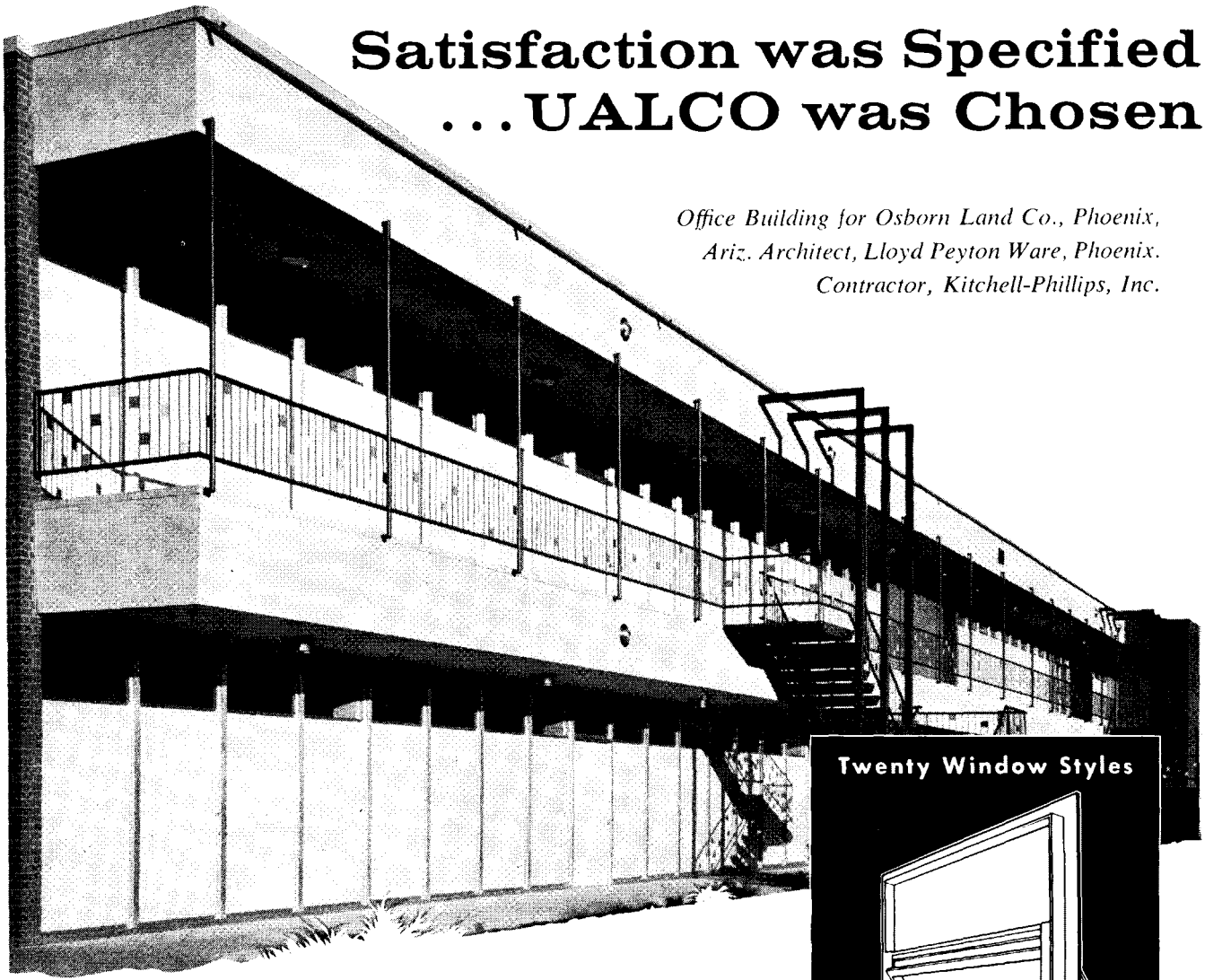
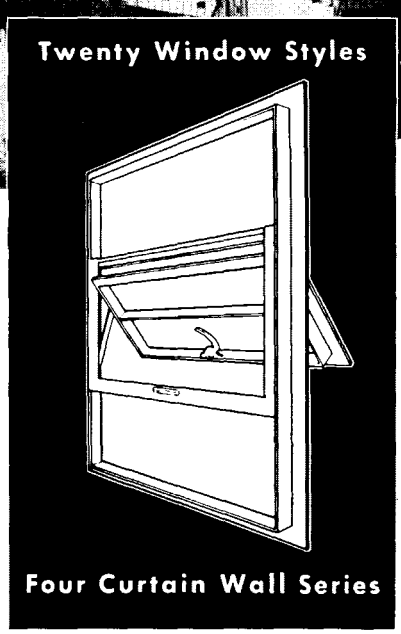
Volume XXXIX, No. 12

Satisfaction was Specified ...UALCO was Chosen

Office Building for Osborn Land Co., Phoenix, Ariz. Architect, Lloyd Peyton Ware, Phoenix. Contractor, Kitchell-Phillips, Inc.





From Floor Slab to Ceiling, These Beautiful Walls Are All Ualco Curtain Wall Products

This provocative design is a perfect example of what an architect and Southern Sash engineers can achieve, working together. Ideally balancing utility and beauty, it combines brick, concrete, and Ualco Curtain Wall with impeccable integrity. Mr. Ware consulted the Engineering Department from early pre-planning stages.

Everything between the concrete floor slabs and ceilings is "by Ualco" — even to tubular aluminum door frames and aluminum subframing. The curtain wall (Series 1000) includes Ualco Intermediate Projected Windows. Ualco Curtain Wall is fabricated complete at the factory in sections up to 22' high, ready for installation. For fine buildings, specify Ualco.

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A Decade of Helpful Legal Commentary

Bernard Tomson's 121st It's The Law Column

The November column of* IT'S THE LAW *marked its 10th anniversary. Much has happened since the first column. All of the first edition of Tomson's book,* Architectural and Engineering Law *(Reinhold 1951) has been sold. He has been a lecturer in Architectural Law at Pratt Institute, and a series of lectures was given by him at Massachusetts Institute of Technology, sponsored by The School of Architecture & Planning, The Department of Building Engineers & Construction, and The Department of Civil & Sanitary Engineering.

Tomson has also addressed the following groups: Florida Association of Architects; Michigan Society of Architects; Pennsylvania Society of Architects; California Council of Architects; Architects League of Northern New Jersey and Bergen County Bar Association; National Convention of National Council of Architectural Registration Boards, Washington, D.C.; and Chapters of the American Institute of Architects including Connecticut, Philadelphia, Central Pennsylvania, Eastern New York, Central New York, Georgia, Massachusetts, North Central States Regional Conference, Central States Conference (Oklahoma, Missouri, Iowa, Nebraska, Kansas), Western Mountain District (Colorado, Utah, Arizona, New Mexico, Wyoming), Cleveland, New York, Rhode Island, South Dakota, Washington-Metropolitan, St. Louis, Virginia, Kansas, New Jersey, Staten Island, Bronx, Southern California, New Jersey. His current schedule includes prospective appearances at the Kansas Northeastern Pennsylvania and Columbus, Ohio, Chapters of AIA.

The profession of architecture has had no stronger advocate or friendlier critic than Bernard Tomson. **T.H.C.**

During this past 10 years, 120 columns have at monthly intervals been first an idea followed by research, a draft, a corrected draft, and then a perfected column.

My primary impression, after 10 years, is that architects individually and collectively are warm and gifted people, devoted to the task of making this world a better place to live in—all this and with a sense of humor, too.

It would be appropriate at this time, in review, to give an indication of some guiding principles to which I hope I have faithfully adhered. I have always been a lawyer and have never tried to be an architect. I have striven mightily to resist the urge to pontificate. I have tried hard to be practical and give concrete suggestions, in an attempt to make simpler the complicated problems in law that face the Architect. I have tried hard to indicate methods by which the Architect could improve his status and his financial reward. Much discussion with many, many architects leads me to the firm conviction that these principles should be followed for the next ten years.

It occurred to me that readers might be interested in the wide variety of subjects that result from selecting one each month for ten years. No attempt was made to list them all, but the topics indicate the variety of problems in law that affect the Architect in his practice:

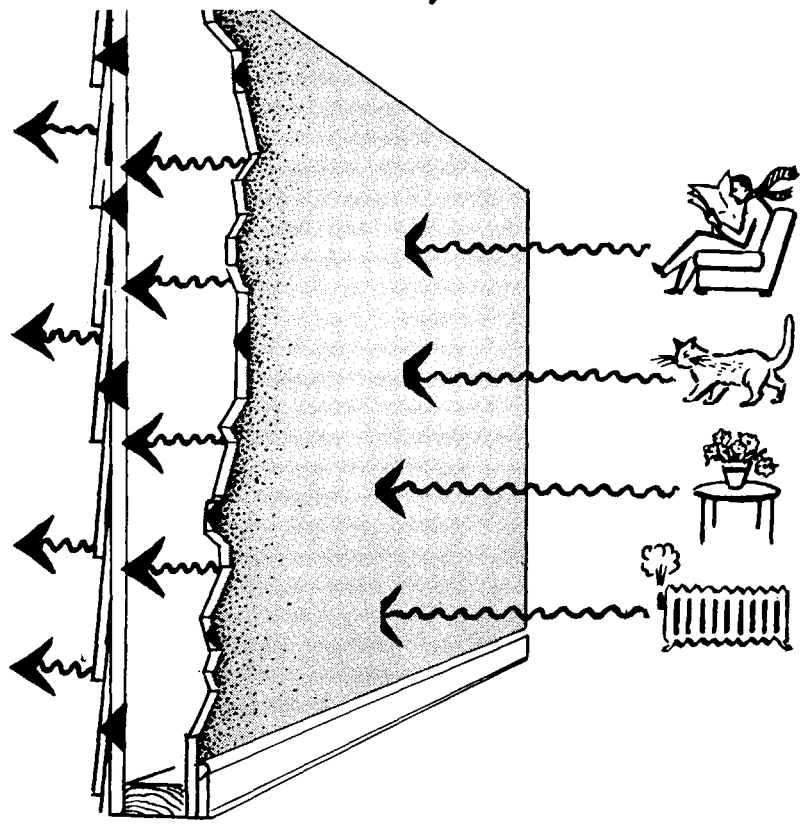
"The Architect's Liability for Negligence" *(May 1949)*
"Architect's Liability Insurance" *(January 1949)*
"Under-Estimation of Costs" *(February 1949 and February 1957)*
"Contract Provisions to Protect the Architect Against Claims for Negligence" *(May 1949)*
"Liability Insurance" *(October 1949)*
"Compensation for Plans Not Used" *(January 1950)*
"Liability of Architect for Failing to Conform to Zoning and Building Laws" *(September 1950)*
"Architect's Compensation When Project Is Abandoned" *(February 1951)*
"The Property Right of the Architect in His Plans" *(June and July 1951)*
"The Liability of an Architect for the Work of Others" *(August 1951)*
"The Issuance of Architect's Certificate Without Proper Documents" *(September and October 1953)*
"The Right to a Mechanic's Lien" *(March 1954 and September 1955)*
"The Architect's Liability for Damages Sustained in Building Which Has Been Accepted by the Owner" *(May 1958)*
"Arbitration Clauses" *(March 1949)*
"Short Form for the Architect-Owner Contract *(April 1949)*
"Contractural Provisions Which Will Protect the Architect's Compensation" *(February and March 1951)*
"Payment and Performance Bonds" *(November and December 1952 and November 1954)*
"Extension of Architect's Role as Arbitrator Between Owner and Contractor" *(November 1957)*
"The AIA Form Contracts and Recommended Changes in These Documents" *(June 1949, November 1953, February 1954, June 1954, August 1954, September, October, November 1956, and December 1957)*
"The 'Disputes Clause' in Federal Construction Contracts" *(March 1950, October and November 1951, February 1952, September and October 1954)*
"The Importance of the Architect's Role as Arbitrator Between the Contractor and Owner in Establishing His Status" *(November and December 1957, July 1958)*
"Ethical Standards of Professional Practice" *(August 1949)*
"The Determination by the Profession of Standards for Licensing Architects" *(March 1958)*
"The Relationship Between Architect and Engineer and the Encroachment of Engineers Upon the Practice of Architecture" *(January 1953 and August 1957)*

Ever Feel a "Draft" in a Warm, Closed Room?

(RADIATION is the transmission through space of invisible heat rays. They have no temperature, only energy. When absorbed by a surface, their energy is transformed to HEAT. The surface of any object warmer than absolute zero—the Sun, You, Clothing, Wood, Plaster, an Iceberg, a Stove, a Chair, Paper, an Animal, will RADIATE to a colder surface.)

(CONDUCTION is the process by which a cooler object or particle is heated by direct physical CONTACT with a warmer one.)

(CONVECTION is the transfer of heat within air caused by the flow of the air itself.)



People often complain of "drafts" in a room with air-tight walls and windows. Why? To a large extent because, by Nature's law, warmth flows to cold by RADIATION as well as by CONDUCTION. Cold walls, too, draw heat out of contacting air by conduction, causing a downward current of cold air.

The exposed skin of people and the outer surfaces of their clothing lose heat as infra red heat rays flow from them with 90% emissivity to a cooler wall surface which has 93% absorptivity (and transforms the heat rays again to heat). If insulation is lacking, or has settled down, most of this heat is transmitted by radiation to the colder outer wall with 93% emissivity, absorbed, and then dissipated to the colder, outer air. So people are uncomfortable, perhaps only in spots. More fuel is then burned.

Multiple layers of aluminum in the wall space would retard convection; turn back heat rays with 97% reflectivity. When plaster is sufficiently warm, no net heat loss radiates from bodies to it; no current of cold air flows along the wall's surface. Comfort is maintained without unduly high temperatures or fuel costs.

In summer, the process is identical except for direction. Heat flow by radiation, conduction and convection is retarded by the multiple sheets of aluminum in the outer wall space. Interiors of rooms stay cooler, and the plaster surfaces are also often cooler than the body. Some heat would then *leave* the body for the colder wall surfaces, increasing body coolness and comfort.

You'll enjoy, as well as profit from reading Alexander Schwartz's recently published manual: "Heat Flow by Radiation in Buildings, Simplified Physics." The scientific background of heat flow, specific information on how to control it, data on the various types of multiple aluminum insulation, ratings of insulation performance, and installation techniques under many conditions are interestingly discussed in this liberally illustrated 48 page manual. A FREE copy is yours for the asking.

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TYPE 6	C .068=4⅘"	C .034=9¾"	7¢ sq. ft.
TYPE 9	C .043=**7¾"**	C .029=**11¼"**	12¢ sq. ft.

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*Determined by method of National Bureau of Standards in H.H.F.A. Research Paper 32.

†Calculated on basis of limiting thermal values cited in Fed. Specs. LLL-f-321b; HH-I-585; HH-I-521c; HH-I-551a.

§Average installation rate is 2000 sq. ft. per day per man.

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Care and Feeding of Architects

by Jay Davis, Jr.

P/A Practice of Architecture ***article based on a talk made by Mr. Davis (Vice-President of Southern Counties Gas Co., Los Angeles, Calif., a subsidiary of Pacific Lighting Co.) at a Division Managers' Meeting on June 26, 1958. This behind-the-scenes discussion of the reason for hiring architects, how they are chosen, and the way their services are utilized seemed to Paul Hunter, Los Angeles architect who has been retained by this client, to be remarkably candid and refreshingly sympathetic to architectural aims. P/A's Editors agreed, and it is here "digested."***

Almost everything new is developed as an attempt to solve some kind of problem. At one time we literally designed (our new buildings) ourselves and then hired an engineering firm to prepare the contract drawings. This practice put us in the position of paying for the work done twice; but this was probably the least objectionable part of the practice. . . . Despite the fact that our buildings were twice-designed, construction costs were hard to control. As to usable floor space, many of our buildings fell short of maximum efficiency. . . . Often we were not exactly proud of the appearance of these buildings. . . . Office sizes in several cases were not consistent or appropriate . . . there were rumblings that the people who were to occupy the buildings were not given the chance to participate in decisions on how they were to be constructed. . . .

All of this has been the long way around to say that it would be desirable to find a satisfactory way to (1) do our work with an architect (and do the work only once); (2) get better buildings at less cost; and (3) get ideas from the people interested in the building.

The problem, then, is how (our construction and design department) can discharge its responsibility for design and keep costs in line when 200 people are eager to contribute ideas. . . . Most employes want to be proud of the plant they occupy . . . the thought process is along the line of: "It is my office. I know what I want, so I am the best qualified person to design the office. Give me a piece of tracing paper and I will do the job."

Most of us will admit that Bernstein is a better musician than we are, that Wood is a better painter, but the poor architect suffers because all of us know we are more proficient than he is, even though he has some technical training in the field and we do not. Experience is the best way for us to learn that we do not know the architect's field, but there isn't time nor money enough for this. Even the relatively simple task of reading drawings requires technical skill. You must be able to look at a plane surface and project this into a three-dimensional concept. I have known only one man who could be considered an expert in this field of space projection. It is work for anyone and fraught with chances for error, even for architects.

If we cannot read drawings or do the design job, what part can we play in developing the building? We can be experts in saying what we want the building to do. Let us agree that any office or base is another tool for us to get work done. It is a very important tool and a multipurpose tool. We should know the kind of impression we want to create on employes and customers, the kind of work to be performed, the flow of work, and the approximate size and cost of the facilities.

The key point seems to be to ask "What do you want the building to do for us?" rather than to ask "What do you want?" In the first case, people are likely to give us objectives or standards for the tool. If we ask "What do you want?" we are likely to find the design sketches flowing in from every direction.

Therefore, *functional specifications* were developed . . . and we continue to improve the material from job to job. We plan to start each building job with a functional-specification package to define what we want the job to do.

We have found that the functional-specifications package gives us a new means of selecting our architects. . . . We interview the architect to get his reaction to the job. We ask for a reply to the functional-specifications package and the interview to find out whether he can do the job at this time and to get a line on whether he understands what we are trying to communicate. All architects interviewed will be technically qualified for the job and we can find out something about the work the firm has done and its size from the interview, the reply letter, and Dun & Bradstreet reports. The final selection will have to be on a subjective basis, so far as we know it now. I believe it is possible for an architect to do a superior job for one client and only so-so for another. The relationship is a personal one and we must get some measure of whether he understands what we are saying and that we understand what he is telling us. The better the rapport, the better the use of everyone's time.

We prefer a flat-fee contract with architects. They prefer their standard format which is a percentage of the cost of the job, usually ranging from 6% to 8% of the low bid. There is a number of reasons why we do not care for the percentage-fee basis. For one thing, the percentage fee does not reward the architect or provide an incentive for the job to come in under the budget. Architects say that no incentive is needed. I will not argue the point, but I do not want to be in the position of fee shopping or having the architect's fee reduced because the job came in under the budget or because we reduced the cost of the project by other means. It is easy to understand why architects suffer from fee shopping. Almost everyone approaches a job knowing that he will have to watch costs but wanting a house as large as possible. This champagne appetite and

(Continued on page 11)

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Care and Feeding of Architects

beer pocketbook puts most clients in the frame of mind that the first place to cut costs is on the architect's fee. We believe that the architect's fee is the last place to try to cut costs. We want the best design job possible for a very important tool; and certainly we want the architect to worry about how the structure wil fit our needs. We do not believe he is likely to give us his best work if he is worrying about how he can come out on his fee at the same time that he is trying to solve our problem. Final costs on the building are the direct result of the design, so the architect's best efforts are likely to produce the best costs and best tool for our use.

While we prefer a flat-fee basis and so inform the architects at the interview, we must be careful to indicate that we do not want to talk about the fee until we have selected the architect for the job. We have refused contracts on the fee suggested by the architect because we thought the fee was too low for the kind of design job we wanted. We may have some routines that save the architect money at the draftsman's level, but we want more of the principal's time than the ordinary client. If we cannot get together on a flat fee, or if the particular job does not lend itself to flat-fee determination, we usually make the contract on an hourly or per-diem rate. The important point to remember is that there can be no discussion of fee until we have selected the architect for the job.

When we have reached the point of having the architect on the job, we could consider that our work is completed. I wish this were true, but it is not. The architect will want to visit our existing plant and meet the people who will use the tool he is going to design. He will want to test the functional-specifications package, and we think he should do so. Design—good design—is not stereotyped and does not occur in a vacuum. Good design may be a function of association and getting a feeling or sense of the organization. The architect usually tries for this point by talking to your people concerned with the job. Here is where all hell can (and usually does) break loose, unless you have conditioned your people. An architect usually sketches, as one means of communication in trying to find out what we want the building to do. As soon as your people see a sketch, out comes the old urge to design and they are likely to take over as amateur technicians with considerably more pride of authorship than the professional. The architect is pained by the takeover, because this obviously is not what he wanted. Your time will be conserved as well as that of the architect's if you will take steps to avoid the takeover. You will spend many more hourse trying to get the show back on the track than will be involved in the preconditioning for the design phase of the job.

Where at one time we went direct to engineering firms, this plan calls for the retention of architects. Why the change? . . . Architects seem to work along the lines of: What are the relationships? What effect do you want to create? Or, in other words, what do you want this tool to do for you Once this question is answered, they have an architectural framework for the total site, including all of the buildings and grounds. They then secure such engineering services as are needed to work out the construction drawings within the architectural planning. We believe this concern with the effect on employes, customers, and work flow is the first order of business toward securing the kind of tool we need. The developmental process we believe preferable is the natural order of work process for the architect; hence we retain architects. Experience indicates that we get better buildings than previously and at less cost.

If we can become sophisticated users of architectural talent, I think the results will be better and more pleasant tools for our business. The prime rules, as I see them, are for us to spend plenty of time in developing functional specifications; leave the design job to the architects; and, above all, be experts only in what we want the tool to do for us.

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goes on fast—with spray or applicator—and that's it! No further labor needed, to rewet, to keep straight, to remove. This initial economy carries on indefinitely, in the form of lowered maintenance time, longer floor wear.

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has proved itself for creating greater floor density, watertightness and protection on warehouse, factory, commercial and industrial floors. It is especially valuable for ramps, docks, aprons, other areas that must withstand weather as well as heavy-duty traffic.

FLOOR HILLYARD TREATMENTS

A-4

SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE

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Accessible Acoustical-Tile Ceiling System

Specifications Clinic by Harold J. Rosen

P/A Practice of Architecture ***article describing a new system of mechanical suspension of acoustical tile with the addition of a concealed, special clip spline.***

A system of mechanical suspension of acoustical tile which utilizes all of the present components of acoustical-tile ceilings together with one additional mechanical device and permits accessibility, efficient air plenums, and fireproof ceilings (one-hour ratings), has been perfected recently by a manufacturer of metal suspension systems. The advantages of such a system are manifold.

The existing components consist of the metal suspension system, gypsum-board backing, and acoustical tile. The additional mechanical device which secures the gypsum board to the tee runners and the acoustical tile to the tee runners is a special clip spline that is concealed in the finished ceiling. This special clip is the heart of the system.

Acoustical ceilings can now be designed to provide better reduction in sound transmission by the utilization of a gypsum-board backing, an efficient air plenum by taping the gypsum-board joints with a pressure-sensitive tape, a one-hour fire rating by using ⅝ in. gypsum fire board, and accessibility and re-use by providing a mechanical clip system for ready removal. The entire assembly can be readily removed by inserting an ice pick or a screw driver into the tee runners and disengaging the clip spline.

The manufacturer of this system is the Famco Division of James A. Phillips Inc., of New York, and the following specification describes the system:

materials

1 *Channel Clamps* shall be Famco No. 250 Channel Clamps or approved equal; metal not less than 0.045 inch thick.

2 *Tee Runners* shall be Famco No. 600-WF Tee Runners or approved equal; metal not less than 0.024 inch thick.

3 *Tee Runner Splices* shall be Famco No. 201 Tee Runner Splices or approved equal; metal not less than 0.027 inch thick.

4 *Clip Splines* for supporting the gypsum board sound cut-offs shall be Famco Clip Spline No. 450-1316 or approved equal; metal not less than 0.024 inch thick.

5 *Removable 'C' Clips* for supporting free edges of acoustical tile to gypsum board shall be Famco Removable 'C' Clip No. 700-1516 or approved equal; metal not less than 0.027 inch thick.

6 *Clip Splines* for supporting the acoustical tile shall be Famco Clip Spline No. 450-1816 or approved equal; metal not less than 0.024 inch thick.

7 *Wall Springs* shall be Famco No. 300 Wall Springs or approved equal; metal not less than 0.018 inch thick and shall be 4 inches long by ⅝ inch wide.

8 *Wall Channels* shall be Famco No. 350 Wall Channels or approved equal; metal not less than 0.025 inch thick. Channels shall be 13/16 inch deep and have a 1½ inch wide upper leg and a 1¼-inch-wide lower leg.

9 *Metal and Finish for Metal Parts:* All metal parts in connection with the mechanically assembled supporting systems shall be of prime steel with suitable temper and provided with Sharon Galvanite special zinc coating as produced by Sharon Steel Corp., or approved equal. In addition, Wall Channels shall be provided with a factory-applied, sprayed-on and baked, dull white enamel finish.

10 *Gypsum Boards* for sound-cut-offs shall be Firestop Bestwall Gypsum Wallboard, ⅝ inch thick, as made by Bestwall Gypsum Company, or approved equal. Boards located between longitudinal sides of adjoining lighting fixtures shall be 24 x 48 inches in size and shall have paper covering on faces and longitudinal edges. Boards between transverse ends of ceiling penetrations and for other special conditions shall be field-cut in an approved manner from boards as specified hereinbefore.

11 *Pressure - Sensitive Sealing Tape* shall be No. 260 Scotch Carton Sealing Tape, 1½ inches wide, as made by Minnesota Mining and Manufacturing Co., or approved equal.

installation of acoustical-tile ceilings

1 Install Tee Runners 2 feet on center on line with the longer sides of the lighting fixtures. Tee Runners shall be connected at each crossing with the channel runners of the furring by a Channel Clamp firmly clamped over said runners. Provide a Tee Runner Splice at each butt joint in the runs of the Tee Runners.

2 Between longer edges of adjoining lighting fixtures install Gypsum Boards (24 x 48 inches) with longer edges of boards parallel with longer edges of such fixtures; the transverse joints in such boarding being staggered 6 inches with the transverse joints in the acoustical tile. Gypsum boarding shall be connected to the Tee Runners by Clip Splines located in the transverse joints of said boarding. Clip Splines shall engage the Tee Runners in a positive manner. In addition, install gypsum boards for the remaining areas of each ceiling, except for ceiling penetrations. Except for joints in the gypsum boarding with Clip Splines, all joints formed by adjoining boards shall be sealed with Pressure Sensitive Sealing Tape firmly and continuously secured in place.

3 Acoustical tile shall be supported at 12-inch intervals by Clip Splines and such splines shall provide supplementary support for the gypsum board. Tile which are located between shorter sides of rectangular ceiling penetrations shall have edges which adjoin such shorter sides secured to the gypsum board by Removable 'C' Clips.

4 Install Wall Channels on vertical surfaces of walls, columns, piers and pilasters at junctures with the acoustical ceilings. Such channels shall be fastened in place at 24-inch intervals.

5 Install Wall Springs at 12-inch intervals between periphery tile and the webs of the Wall Channels.

6 Where access frames occur the acoustical tile shall be cemented to a gypsum-board panel sized to fit Famco access frame which in turn has been snapped into Tee Runners provided to frame such openings.

TOPS IN SCHOOL HEATING . . .

Norman Three-Sixty®

Gas-fired Unit Heaters Radial-Flo models circulate warm air outward through full 360° circle to form an umbrella of comfort. Ideal for corridors, vestibules, large rooms with normal ceiling heights. Down-Blo models provide quick, direct heating for gyms, auditoriums and other high-ceiling rooms.

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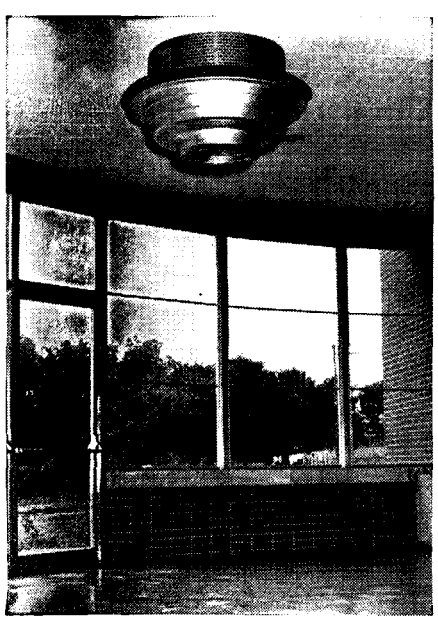

Norman Three-Sixty overhead heating unit in Seventh Day Adventist Elementary School, Lincoln, Nebraska; Vernon S. Dunn, Bus. Mgr., Union College; H. C. Potter, Architect, Beaman's Heating Co., Heating Contractor.

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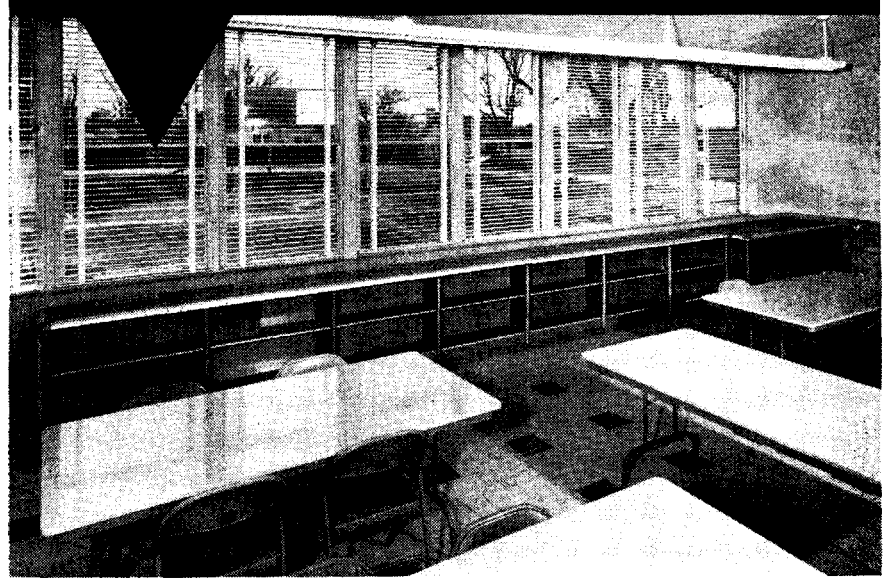

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Photo Illustrates, Mingo School Addition, Tulsa, Okla.; Architect: Koberling and Brandborg A.I.A., Tulsa, Okla.; Mechanical Contractor: Palmer Plumbing and Heating Co., Tulsa, Okla.; Mechanical Sub-Contractor: Sand Springs Sheet Metal Co., Sand Springs, Okla.

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Electrical Metallic Tubing for Houses

Mechanical Engineering Critique by William J. McGuinness

P/A Office Practice *column on mechanical and electrical design and equipment devoted this month to the use of electrical metallic tubing (EMT) in residential electrical systems.*

The use of electrical devices in the home has increased with astonishing rapidity. Utility companies have found it difficult to meet the demand. After making increases in their capacities they have found that a bottleneck often occurs in the limited service chosen by the owner or his representatives and in wholly inadequate wiring within the house. They are urging a correction of these errors. Campaigns by the National Wiring Bureau and awards for adequate wiring by *Medallion Homes* and *Housepower* Programs have made us very casual about accepting 100 to 200 amperes as proper for residences. Some large homes wired for 300 or 400 amperes are not unusual. The need for enough copper within the house to distribute this current is, of course, obvious.

Since the days when two conductors crossed the ceiling on exposed porcelain insulators to serve a single, pear-shaped clear-glass bulb, we have become progressively more serious about handling electricity in the home in a way that is workmanlike, safe, flexible, and suitable for rearrangement and increase. Yet it may be the time to take a new look at house-wiring methods and to take another step forward in their improvement. Perhaps the quality of our home wiring and its protection should begin to resemble the ruggedness and greater workability of those used in commercial and industrial buildings.

There appears to be a number of advantages to the proposition of using insulated wires enclosed in electrical metallic tubing (EMT). This lightweight-steel conduit has been gaining favor in the last two decades in locations where the maximum mechanical protection provided by rigid-steel conduit is not required. Now a great many fireproof and nonfireproof buildings use EMT for all but the most hazardous conditions or where distribution lines are exposed to the possibility of severe mechanical damage. EMT weighs about 60 percent less than heavy-wall conduit and serves the same general function. Connections are made by clamp-type, push-on couplings, obviating the need to turn the couplings and the pipes as in the case of threaded connections. Thus the tubing can be prebent and easily coupled in place. The tubing is installed first and the insulated wires drawn through later. The wires may be drawn out and changed at any time because the end connections are made only in terminal or intermediate boxes, a great advantage after the system is furred and plastered.

The day of single-location control adjacent to the service switch is gone. Two or more remote-control centers located in the living areas of the house are now common. In addition to these centers of control, centers of usage have developed; kitchen, pantry, heater room, TV and hi-fi unit, laundry. Including the service-entry control panel, a house may have eight or nine major electrical centers. Connecting these by runs of tubing provides protection for the conductors and permits power increase or a change of emphasis in power concentration. Slightly oversize tubes are advisable. The decision to use EMT involves some cost increase; using larger-than-needed tubes, however, adds little to cost but much to future freedom. Some installations have been observed in which oversize tubes have been used in conjunction with parallel runs of empty tubing. This, of course, is the ideal in planning for a future in which there may be many uses of electricity now unknown. A prominent electrical contractor who was asked about the suitability of EMT for residences said that he frequently uses many lengths of it, particularly between the major centers already mentioned. Wiring for telephone systems having several jacks or phone locations must be run in tubing by the regulations of many telephone companies.

Branch runs from the control centers in frame houses may require extra care. Cutting or notching studs or joists to receive the straight tube may entail some study. In masonry houses the rigidity is an advantage. The tubing may be installed first and the masonry built to enclose it. Tubing built-in to constitute available raceways would be highly desirable in many contemporary homes where there is often no cellar, crawl-space, or attic in which to install conductors later.

Three years ago utility engineers began discussing the possibility of serving high-use homes at voltages on the order of 265/460. There was much disagreement and some opposition. Today there are some companies that favor trial use of the higher voltages. These impending changes, the widespread increase of air conditioning, plus serious consideration of the use of the heat pump and electric resistance or electric panel heating tend to put the house in a *power* category. Better distribution systems are indicated.

Who is to promote this improvement which will result in cheaper maintenance and more economical changes, but will be greater in first cost? Several electrical contractors have estimated that the use of EMT would increase the cost of their work by about 10 percent. Owners should be desirous of obtaining houses suited to an age of electrical living: their architects may be expected to give the correct advice about facility of distribution. Electrical contractors who have been questioned are in favor of it, because it improves the quality of their work. The development builder might be tempted to avoid EMT, to produce houses at slightly lower sales prices, yet the advertising value of adequate electrical systems is great. It could be a feature of sales promotion.

Let us not forget the largest shareholder in most home purchases—the mortgage lender and sometimes the government if the mortgage is guaranteed. One remembers the strides made in the 1930's by Federal Housing Administration in eliminating substandard heating practices. Perhaps it is now time for lending and guaranteeing agencies to strengthen their attitudes about better electrical installations.

Insurance companies may welcome the use of tubing in homes because it makes a safer installation. Frequently industrial buildings such as lumber yards and mills have earned a reduced insurance rate, because EMT was chosen to protect the wires though legally it was not always required. May we not expect similar reductions in residential fire insurance rates?

◀ OWNER representative W. F. Timoney says, "This is the most economical system we could use to attain a structural floor with under-floor electrification. Placing of E/R Cofar is fast and economical. After the steel frame and stairs were erected, we put in Cofar and had an immediate work platform on every floor of the building. We'll consider this system in all our multi-story buildings. We *know* its good!

CONTRACTOR R. E. ▶ Dailey says, "We like the system because it makes our schedule predictable. We know exactly when we will pour. After we poured the second floor, we made a guess on when we'd 'top out' and how much the whole job would cost. Now we see we're going to meet *or beat* both estimates. It's never happened before! Although these products are new to every man on the job, there's hardly a thing we've had to do over."

◀ COFAR ERECTOR W. DerVartanian of Reinforced Steel Erectors Corp., says, "Usually we place steel over wood forms but this job is much simpler. Cofar was delivered so fast, we didn't know where to put all the bundles. It places easily, makes a good work deck and all the sheets are well marked. You get a list of what each bundle contains. Sheets are uniform, too. Altogether, I'd say it was a real smooth operation!"

Wiring outlets needed everywhere chooses E/R Cofar floor system

Granco's "**E**lectrically **R**eady" floor system provides raceways for wiring, plus forming and reinforcing of slabs—*all in one operation!*

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Difficult to electrify? Costly to install? Not with an E/R Cofar floor system! Heart of the system are two Granco products: Cofar steel units that serve as tight form for wet concrete and main positive reinforcement . . . E/R Cofar units, composed of wide steel troughs capped to form spacious raceways for electrical wiring, and also provide positive reinforcement. E/R units accommodate standard junction boxes and header ducts.

In the finished system, E/R and standard Cofar units work together to provide a reinforced and completely electrified concrete floor with ultimate strength of 7 to 10 times design load. No wood forms! No wasted fill! Construction is fast, easy, economical!

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PLACING units is an easy 10-secon job! E/R Cofar span ranges up to 1 and 1-, 2- or 3-cell E/R units anticipa any future electrical needs. T-wire welded to corrugations provide ten perature reinforcing, mechanical a chorage between concrete and stee

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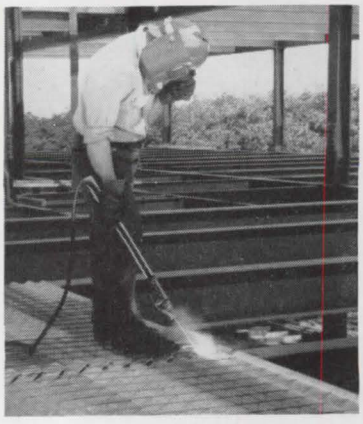
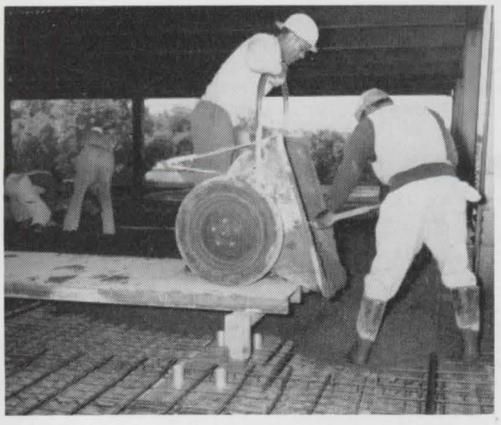


WELDING Cofar and E/R units to framing provides an immediate, strong, safe work platform. No forms to build! Trades move in, days sooner! Wires pulled through E/R raceways can be brought to desks and business machines wherever they are located.



CONCRETING completes the system. Cofar permits wide spans, saves framing, permits earlier occupancy. In a 2-hour UL fire test, Cofar was the first electrified cellular floor system (with header ducts and junction boxes in place) to earn a fire-retardant rating. Optional preset inserts in E/R units eliminate costly concrete drilling. Install floor fittings after building is completed.

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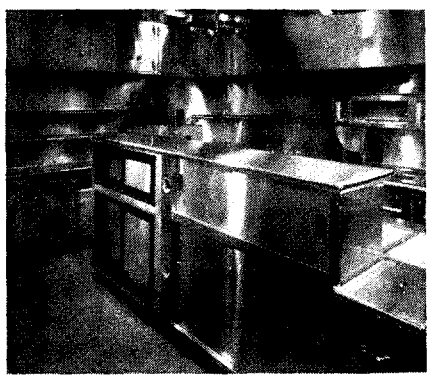

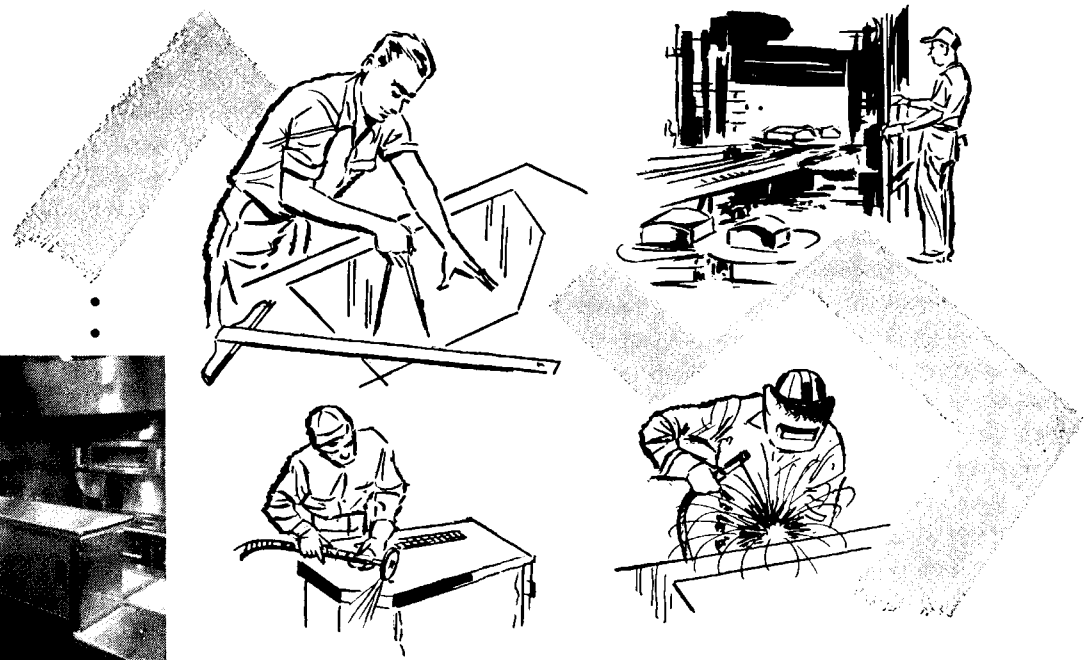

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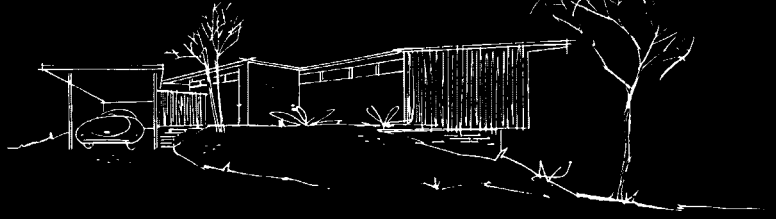

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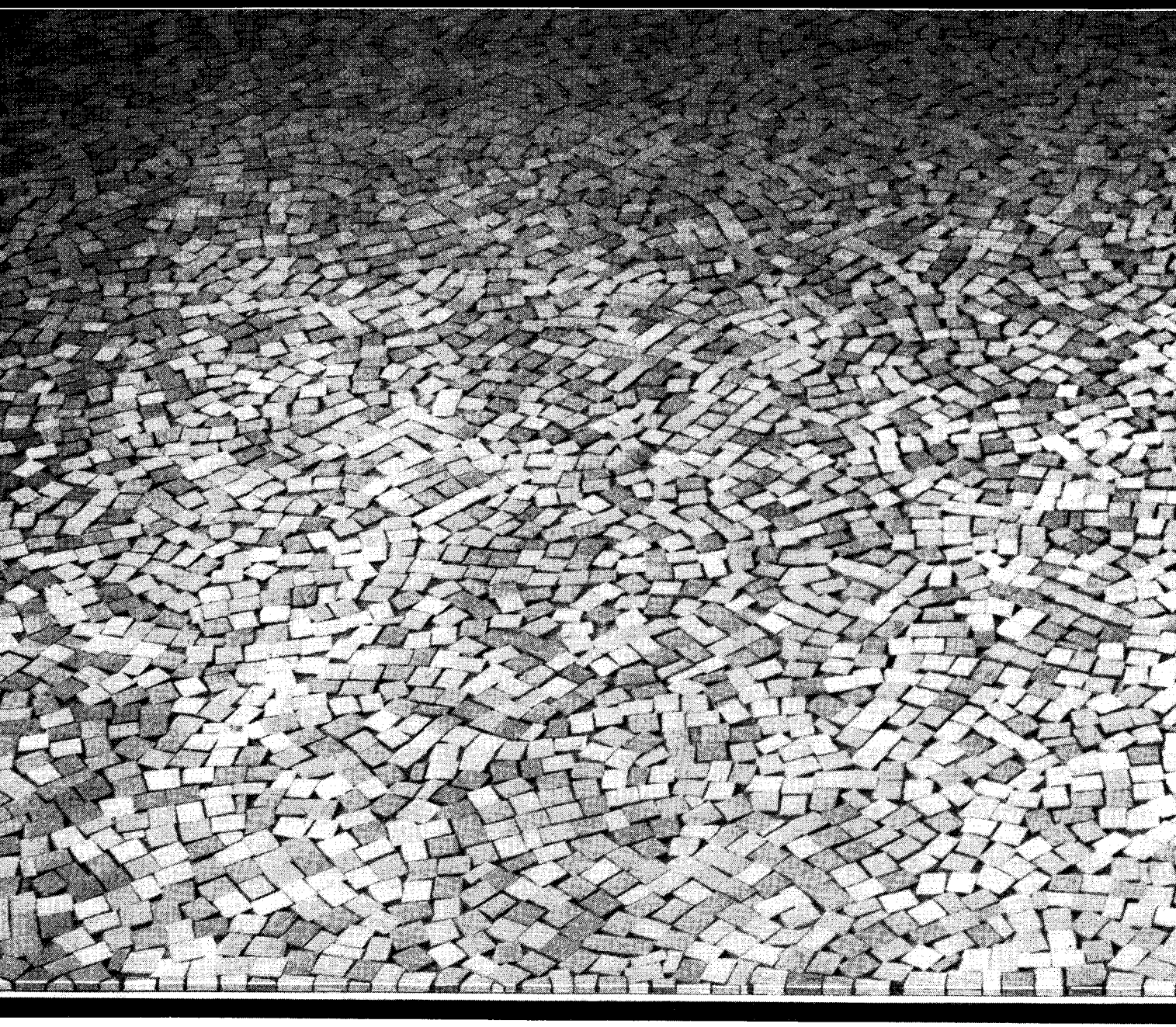

A revolutionary new kind of vinyl floor: the Tessera* Series in Armstrong Vinyl Corlon. This elegant heavy gauge sheet flooring is truly a universal floor; "Tessera" meets the aesthetic and functional requirements of every type of interior. And it can be installed on subfloors at any grade level.

* tă-SAIR'-ă

and commercial areas

Color chips are actual size in foreground of photo. Translucent vinyl grouting gives three-dimensional look to an actually smooth surface. White line beneath chips is alkali-resistant Armstrong Hydrocord Back.

Technical data on the Tessera Series in Armstrong Vinyl Corlon

(for samples and complete specs, contact the Architectural-Builder Consultant at your Armstrong District Office)

composition: chips are tinted, opaque vinyl; grouting is translucent vinyl; **surface resistance:** excellent for grease, alkalis; very good for solvents, detergents; **ease of maintenance:** superior; **static load limit:** 75 lbs. per sq. in.; **underfoot comfort and quietness:** good; **over-all thickness:** .090″; **wearing-surface thickness:** .058″; **available in:** seven monochromatic styles, in 6′ wide rolls; **installed price:** 75-90¢ per sq. ft.

The exclusive, alkali-resistant Armstrong Hydrocord Back permits "Tessera" to be used over below-grade and on-grade subfloors, as well as above grade. "Tessera" may also be installed over lightweight aggregate concrete slabs.

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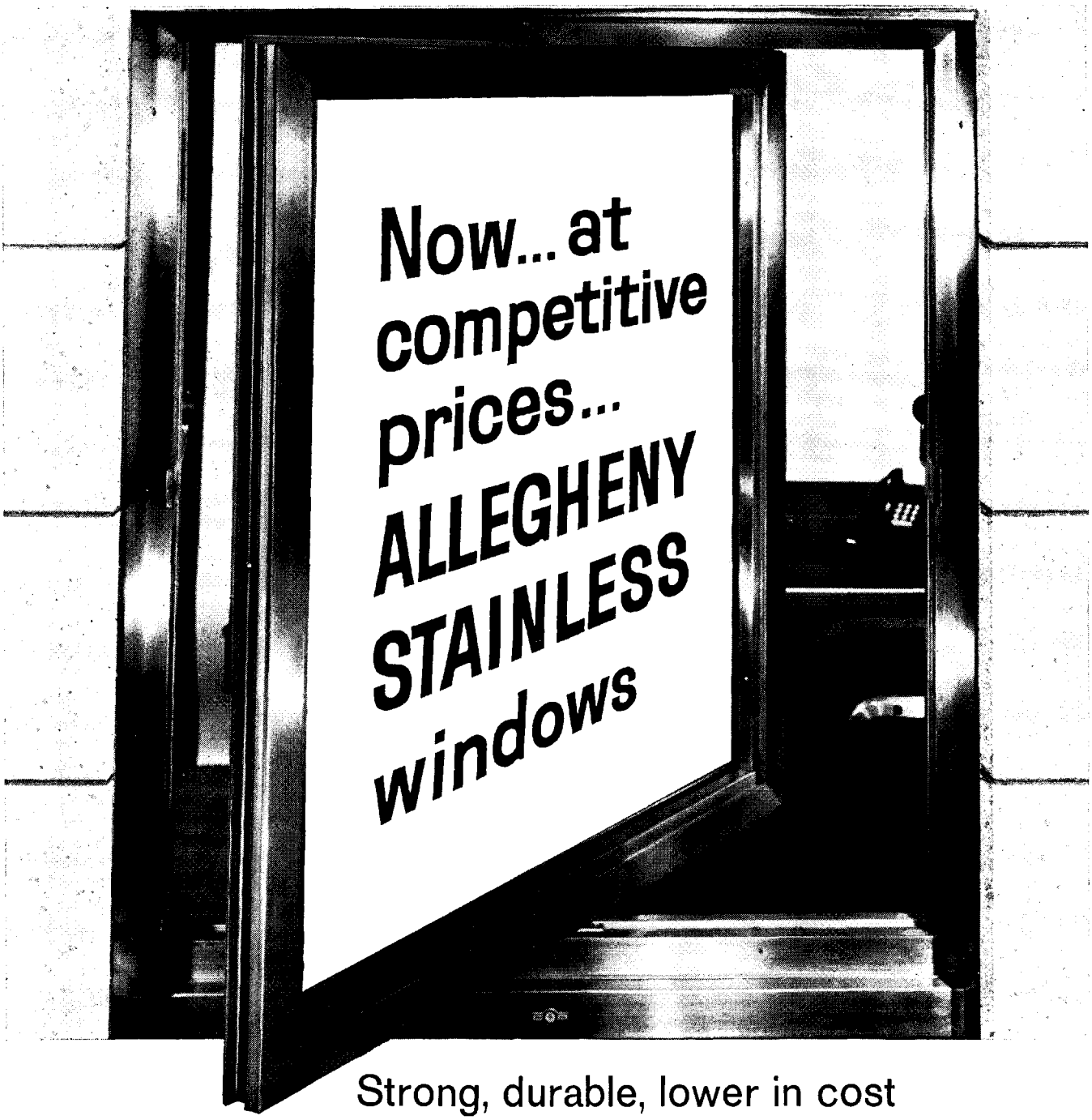

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Vital to architecture, durability and compatibility are inherent in Allegheny Stainless. It never requires chemical films for surface protection, and virtually cleans itself with normal rainfall. Because of an amazing resistance to corrosive atmospheres, the brightness and freedom-from-pitting of Allegheny Stainless are recorded history; yet different patterns, textures and colors make news each day.

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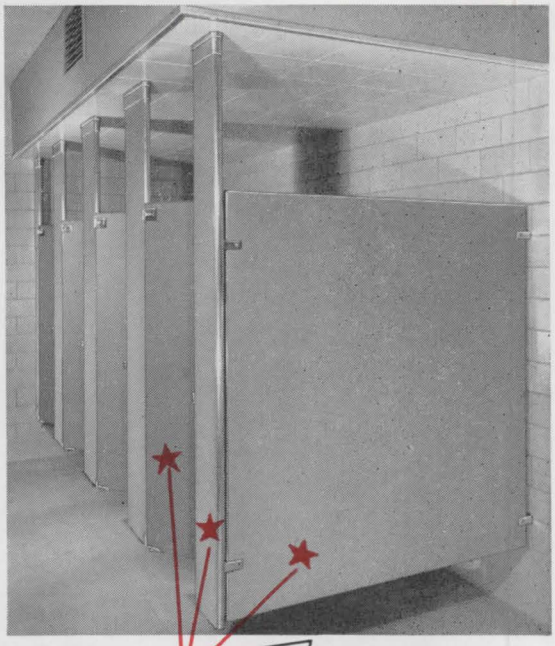
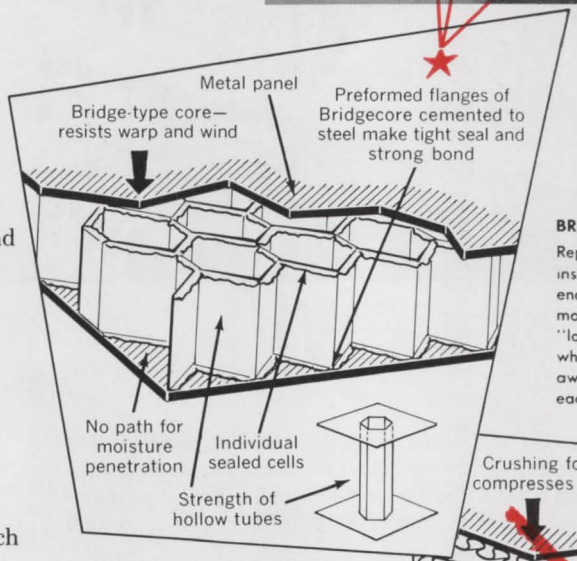
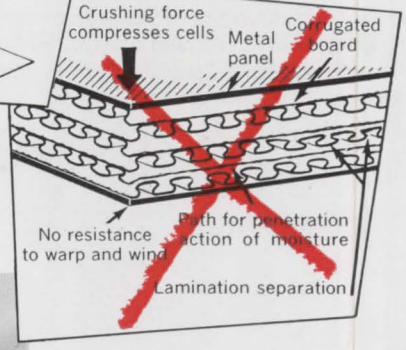


New BRIDGECORE fiber insulation is composed of hexagonal tubular cells at right angles to, and cemented to, face plates of panels, doors, pilasters.



BRIDGECORE WAY

Replacing corrugated board insulation, BRIDGECORE ends structural weakness, moisture penetration, and "lamination separation" in which corrugations pull away from metal or from each other.



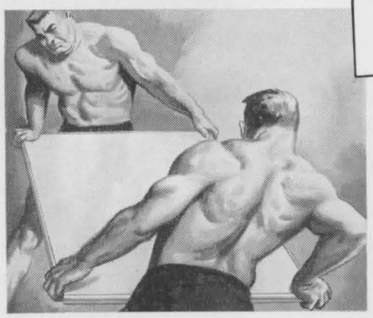
OLD WAY *(Right:)*

Advantages from BRIDGECORE include greater panel strength, less weight (always true of tubular design), and finished surfaces free from buckle and wave.

Using the structural principle employed in modern aircraft wing design, Sanymetal now builds toilet compartment doors, panels, and pilasters *stronger*, and *lighter*, with new Sanymetal BRIDGECORE.

BRIDGECORE provides thousands of hexagonal, tubular fiber cells bridging the space between the metal face plates. Preformed flanges on the edges of each BRIDGECORE cell cemented under pressure directly to the steel, producing an exclusive *compression bond.* Thus the cells rigidly brace the panel sheets like trusses. The cementing permanently seals each individual cell. There is no chance of moisture penetration. This design completely eliminates "lamination separation" which occurs with conventional corrugated board. With BRIDGECORE the panels are stiffer, stronger, and resistant to warp and wind.

This new engineering improvement is one of the many features in Sanymetal construction which make compartments that have flat surfaces free of buckle and wave. To get these advantages specify *Sanymetal.*



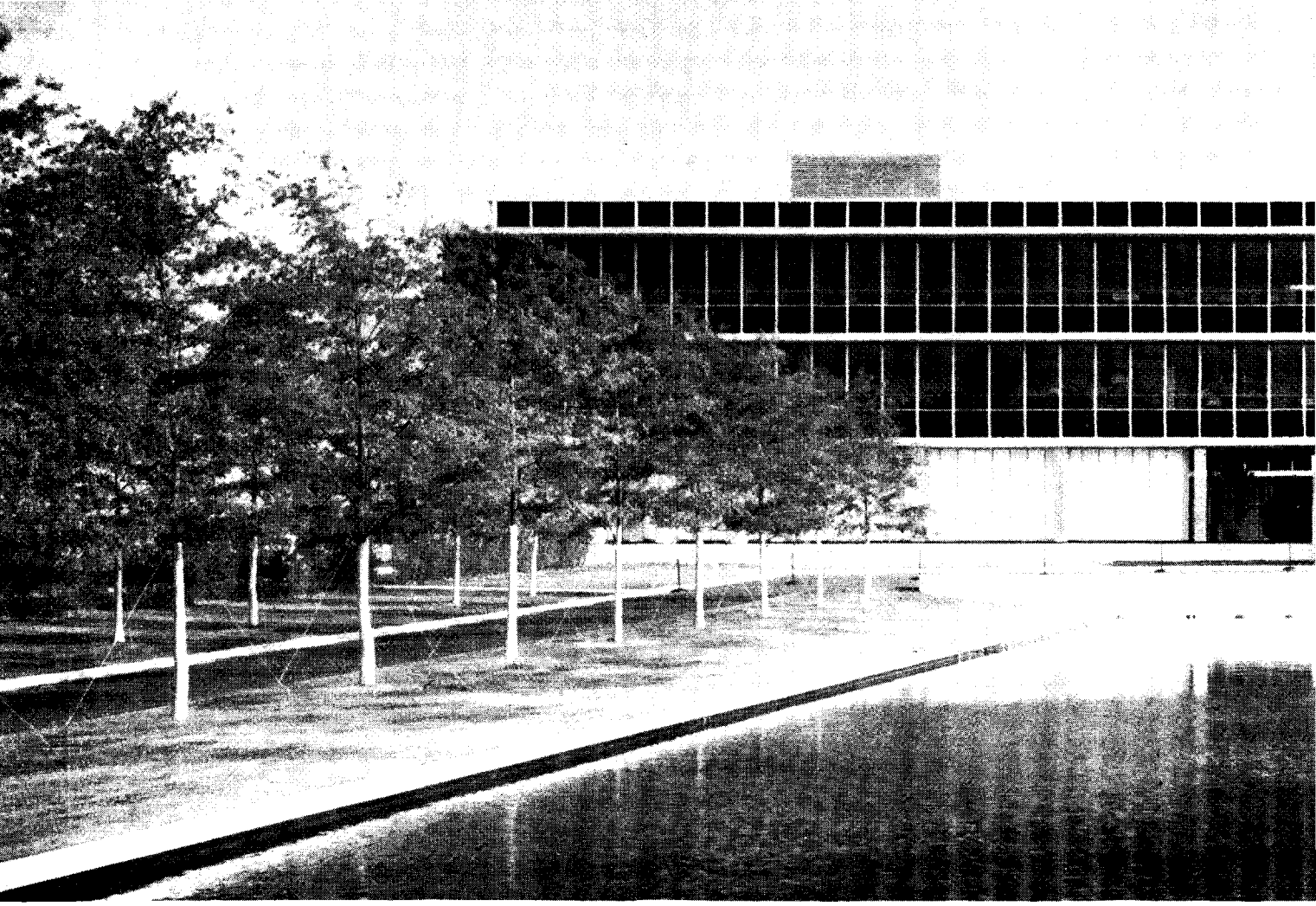
(Left:) BRIDGECORE adds even more strength to Sanymetal construction, already noted for rigidity unaffected by abuse which would cause ordinary panels to warp or wind.

Write for new bulletin on Sanymetal "Bridgecore", and for Sanymetal Catalog 95, which gives other important details of quality toilet compartment construction.

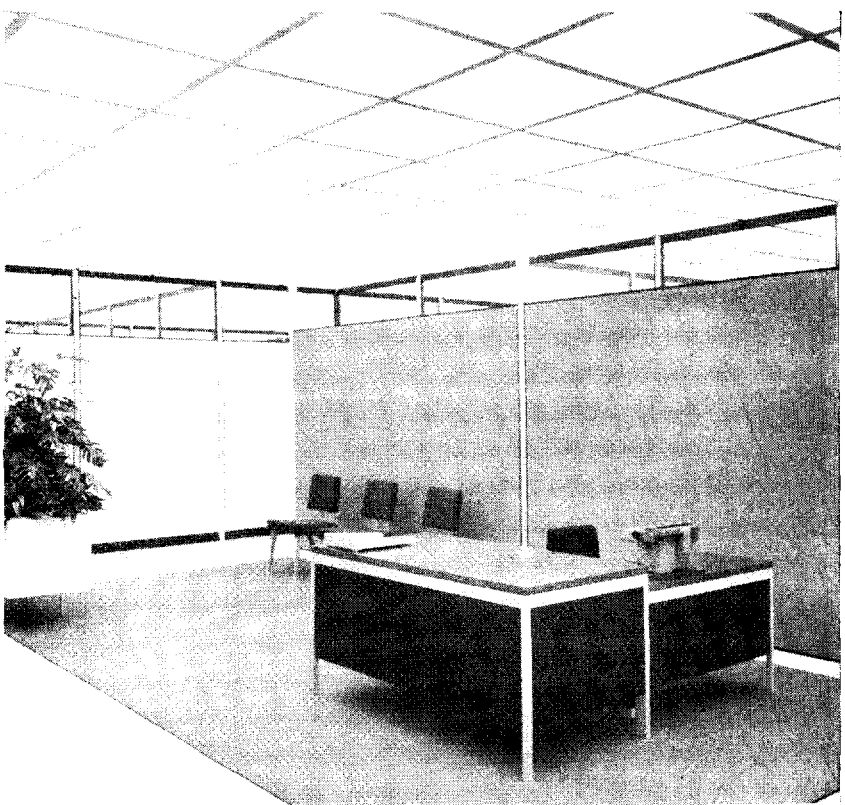
LOOK FOR THIS

NAMEPLATE WHICH IDENTIFIES EVERY SANYMETAL INSTALLATION

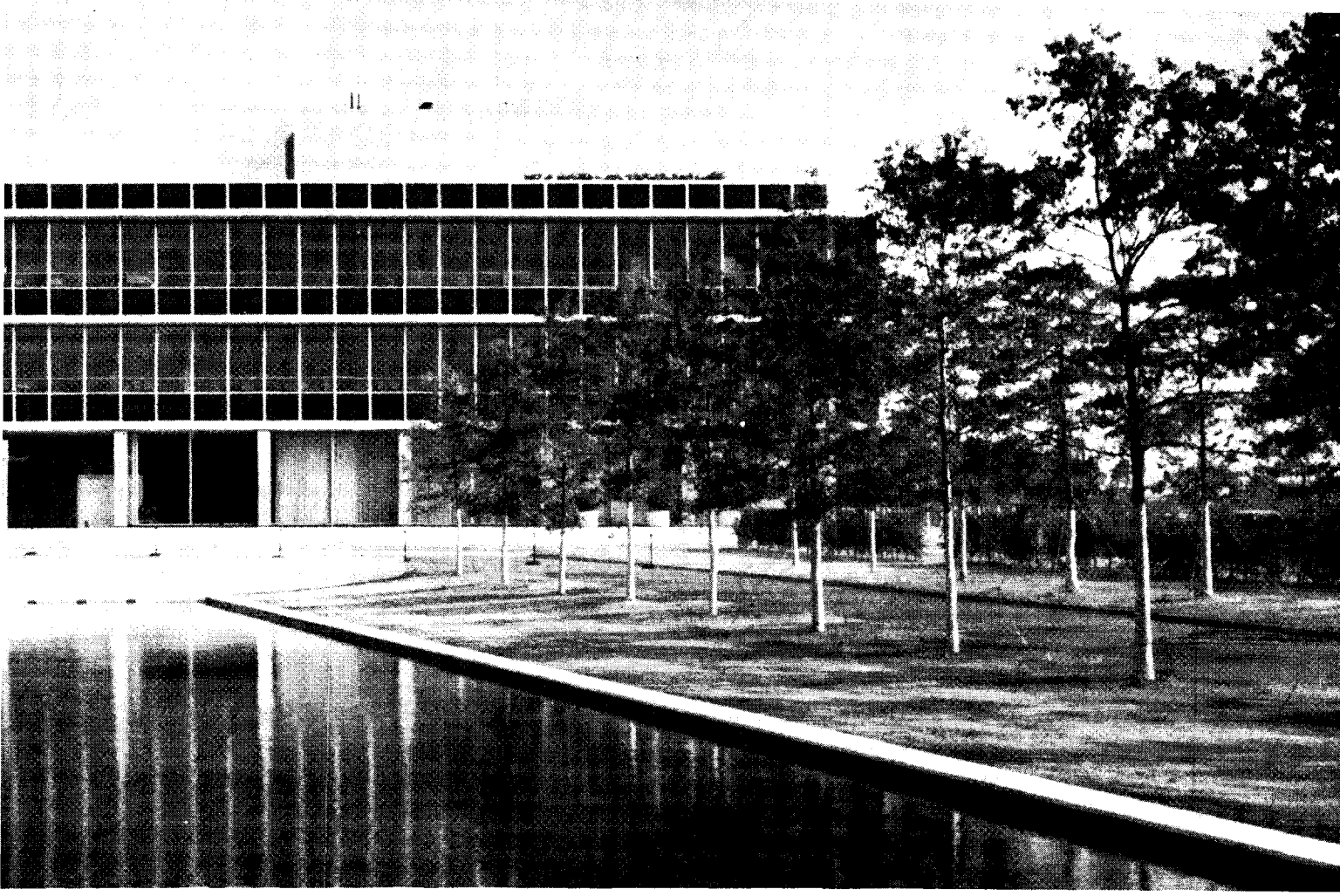
Sanymetal®
PRODUCTS COMPANY, INC.
1683 Urbana Road, Cleveland 12, Ohio



■ Maximum flexibility in space utilization is achieved at Reynolds through partitions that easily can be moved to expand or decrease area sizes. This can be accomplished without making costly changes in the lighting system. The Curtis wall-to-wall ceiling of light provides 80 ft. candles of maintained illumination. Attractive Hexcel Honeylite aluminum diffusers complement the inviting decor.



How a special Curtis Lighting system saved Reynolds Metals $50,000...



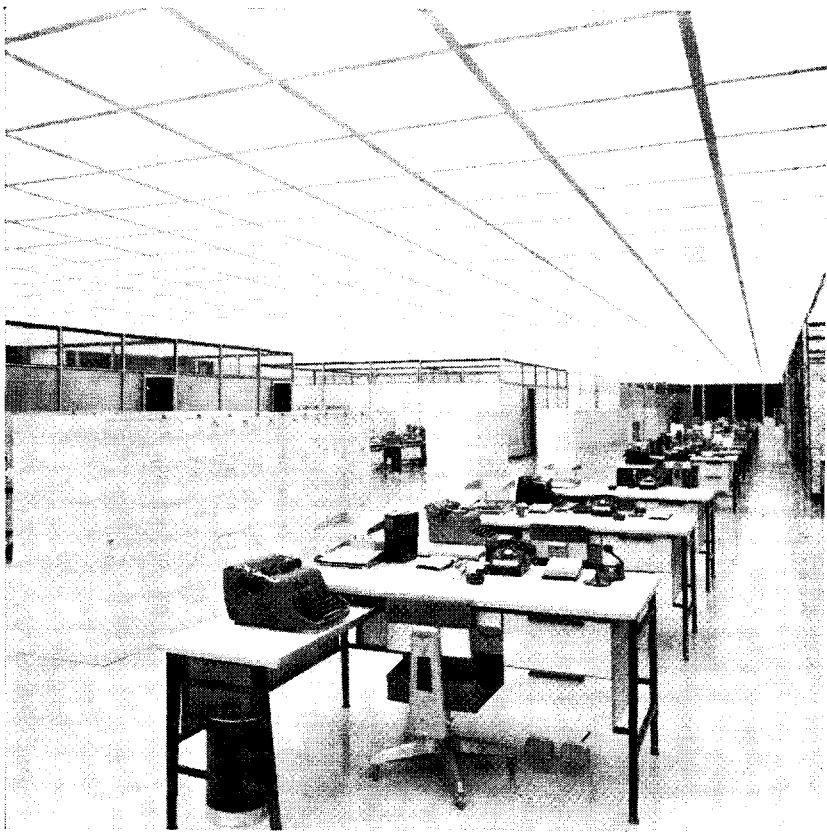
■ Here is the new home of Reynolds Metals Company, Richmond, Virginia. It is dramatically placed at the end of a reflecting pool bordered by willow oaks. The classic beauty of the building is enhanced by this unusual setting. Architect: Skidmore, Owings & Merrill; Consulting Engineer: Ebasco Services, Inc.

Unique all-aluminum folding grids in 100 sq. ft. units cut installation time 8,000 man hours . . . provided wall-to-wall illumination with low brightness quality

Installing a lighting system so flexible it can adapt to any internal building change without relocation is quite a feat. But when that is accomplished at important savings it calls for exceptional engineering ingenuity. That's what Curtis Visioneers achieved with a special custom-made aluminum folding grid system at Reynolds Metals Company, Richmond, Va. The unique folding "packages" made it possible to install 100 sq. ft. of lighting at one time. Result: a saving to Reynolds of an estimated 8,000 man hours, or approximately $50,000. A wall-to-wall ceiling of light was created with a beautiful satiny aluminum lighting tone of low brightness quality. Over-all ceiling illumination solved the problem of how to obtain stationary lighting for a 100,000 sq. ft. area, even though wall partitions would be moved in the future. Write today for the name and address of the Curtis Visioneer in the principal city nearest you. Curtis Lighting, Inc., 6135 West 65th St., Chicago 38, Ill. In Canada: 195 Wicksteed Ave., Toronto 17, Canada.

CURTIS

Visioneers in Planned Lighting



■ Large office areas are as effectively illuminated as small areas with a high degree of visual comfort assured. In this special Curtis grid installation, aluminum materials were used throughout. Maintenance features of the system include ease of relamping, ready access to wiring, and simple replacement of the ballasts.

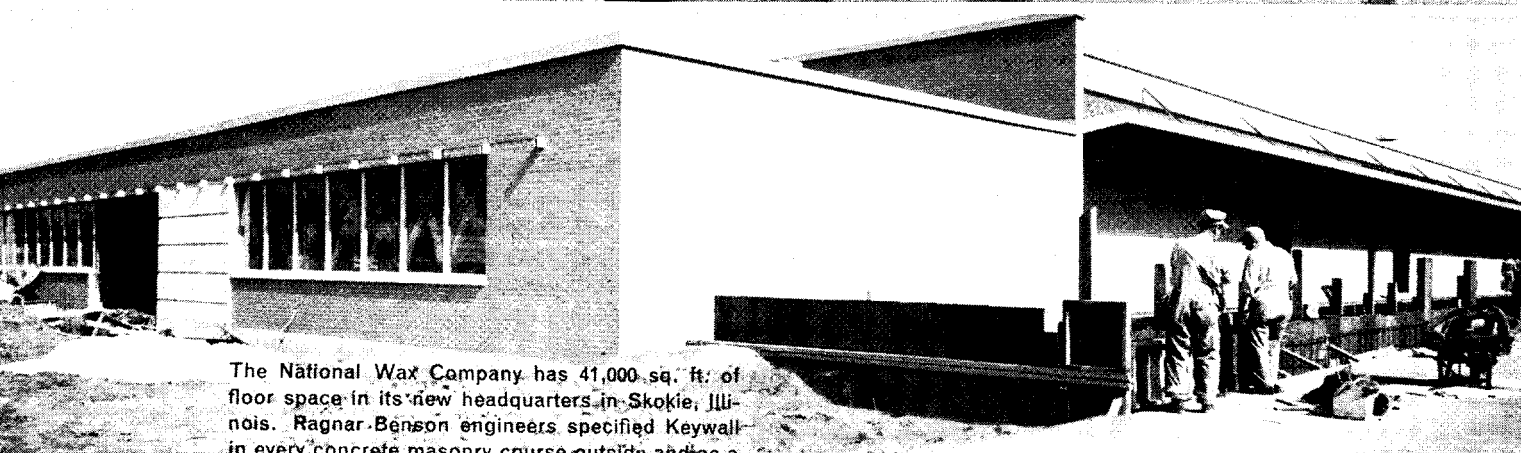
"my masons like

KEYWALL

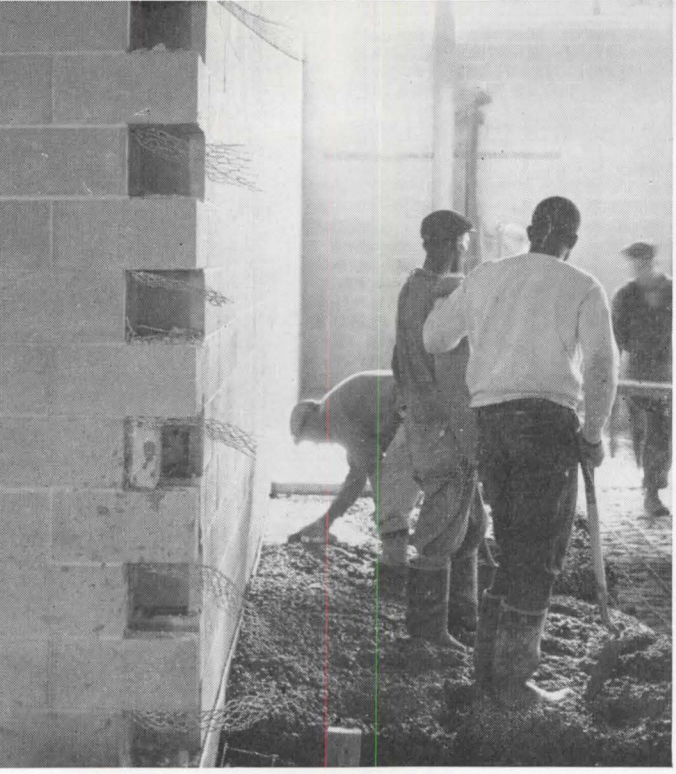
GALVANIZED MASONRY JOINT REINFORCEMENT

best"

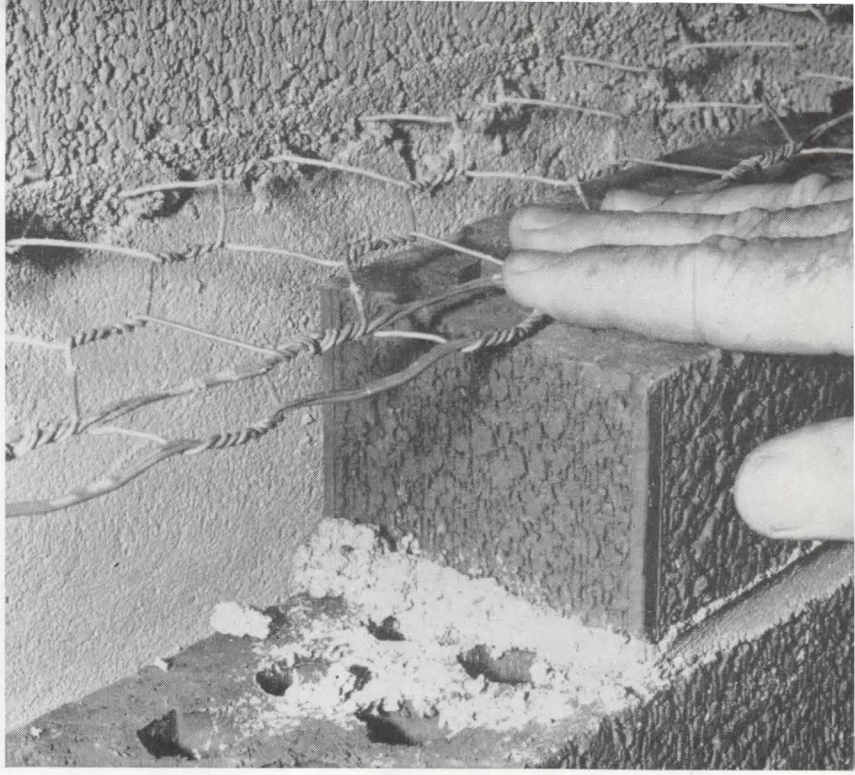
That's the conclusion of



The National Wax Company has 41,000 sq. ft. of floor space in its new headquarters in Skokie, Illinois. Ragnar Benson engineers specified Keywall in every concrete masonry course outside and as a tie for the brick facing. Keywall was specified in every other course for interior walls.



When partition walls are to be built later, Keywall may be cut to extra length to serve as a wall tie. Then Keywall ends may be moved out of the way until needed. Smooth edges of Keywall won't cut or tear hands.



Note how readily Keywall adjusts to variation in brick and masonry courses. Here it serves as tie between brick and block.

Joe Alberti, masonry superintendent, Ragnar Benson, Inc., Chicago Engineers-Builders

Mr. Alberti, as well as his masons, is enthusiastic about this new joint reinforcement. Ask one, Joe Wittye, for his opinion, "I'd use Keywall in my own home." Then ask Ragnar Benson designers, "We're specifying Keywall wherever masonry reinforcement is needed."

You get the same enthusiastic agreement whenever you go on a job where Keywall was used. Architects have seen its superior ability to reduce shrinkage cracks. Its design assures full embedment and strong bond. Masons prefer to use Keywall. They use it as specified. Keywall takes little space on the scaffold. Unrolls in place on the wall. Cuts easily. Installation is fast—without waste. No wonder that on job after job, builders are switching to Keywall.

KEYSTONE STEEL & WIRE COMPANY

Peoria 7, Illinois

Keycorner • Keybead • Keymesh • Keywall • Welded Wire Fabric • Nails • Non-Climbable Fence

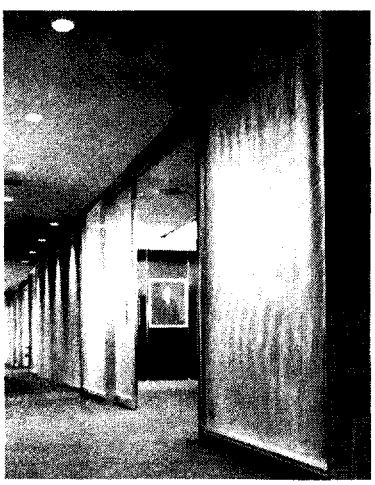
architects:

Because masons like to use Keywall, they apply it as you specify. Keywall is adding strength and reducing cracks—at lower cost—in buildings all over the country.

Keywall is easy to apply. You roll out only as much as needed, cut without waste. Lapping Keywall gives uninterrupted reinforcement without adding to thickness of mortar joints.

How would you answer this challenge?

Design a 19-story office for a famous metropolitan area that hasn't seen a major new building in 20 years. Make every floor column-free so that interior walls will be movable. Build it big . . . build it economically . . . and build it *beautiful.*



Skidmore, Owings & Merrill had that challenge in the design of the Inland Steel Building in Chicago's Loop. Their answer: Curtain walls and glass—Pittsburgh Glass.

Each floor is a 177 by 58-foot clear span because the building's main supports are *outside*—14 graceful columns that rise along the east and west walls. All mechanical service chutes are housed in a separate shaft joined to the east side of the building.

The beauty is obvious. This curtain wall gleams with floor-to-ceiling TWINDOW® units of SOLEX® heat-absorbing glass. PPG polished plate glass encloses the main lobby. HERCULITE® glass doors and panels form handsome reception areas. Offices are partitioned with movable walls of rough plate glass. Beautiful, practical . . . with *glass.*

In *your* next architectural challenge, consult the Pittsburgh Plate Glass Company representative nearest you. He'll be glad to help in any way, and, of course, there's no obligation on your part. Why not make the contact now?

PITTSBURGH GLASS

...the basic architectural material

Inner offices glow with movable partitions of PPG rough plate glass. They give privacy, but not at the sacrifice of light.

The curtain wall has floor-to-ceiling units of TWINDOW—Pittsburgh's twin-pane insulating window—glazed with SOLEX to keep interiors comfortable.

Each reception area has its own handsome entrance with departmental listings mounted in the center of suspended HERCULITE panels.

Architects: Skidmore, Owings & Merrill
General Contractor: Turner Construction Company

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

ON TV...WATCH **THE GARRY MOORE SHOW** EVERY TUESDAY EVENING


Bounce on it!
and Feel the Cushioned Flex of KREOLITE Gym Floors
With apologies to Pepsi-Cola, we are saying "KREOLITE, the floor with more bounce to the ounce".
It so aptly describes KREOLITE FLEXIBLE STRIP End Grain Wood Block Flooring with its built-in cushioning resiliency.
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Liked by players and coaches and preferred by budget conscious school officials, Kreolite will prove to be the most satisfactory floor you ever specified. Write today for performance data and specifications. Take your first step to better floors for gyms, multi-purpose rooms or shops.
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FLEXIBLE STRIP
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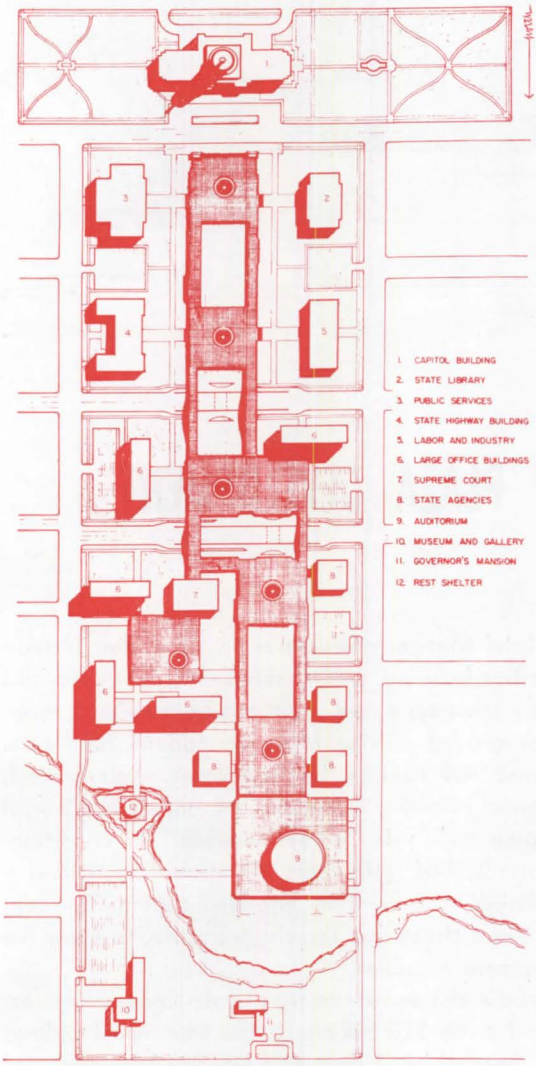
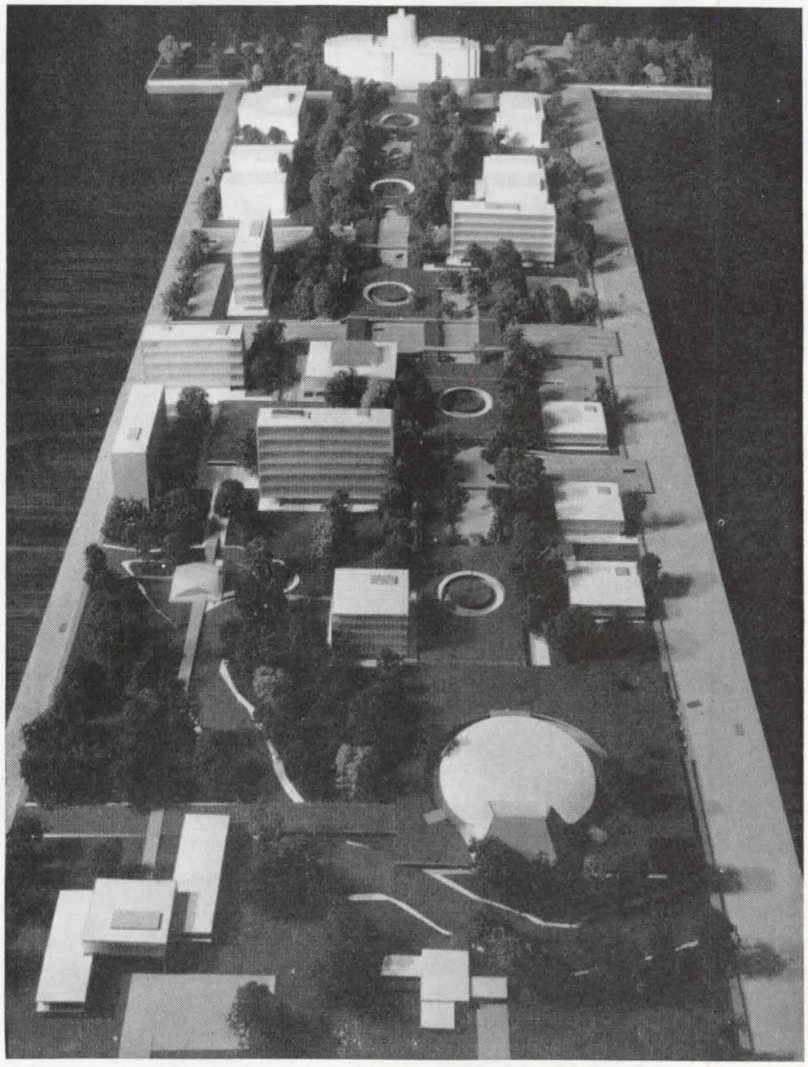




50-YEAR PLAN ANNOUNCED FOR OREGON CAPITOL APPROACH

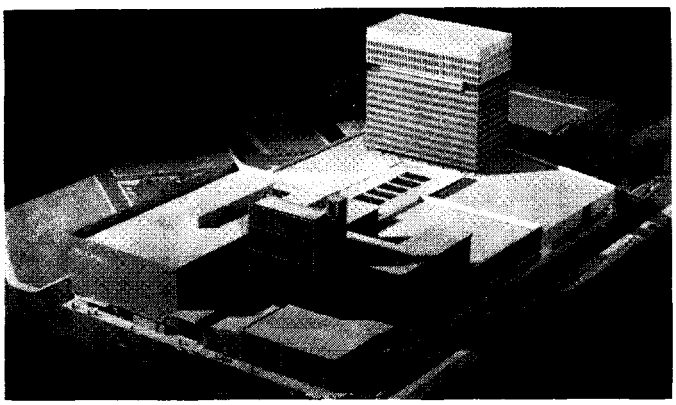
Plans for a six-block Capitol Mall development, to materialize over the next 50 years, have been announced for Oregon. The proposal calls for the addition of 15 new buildings to the capitol group in Salem, and the creation of walks, bridges, rest areas, and plazas connecting the entire scheme.

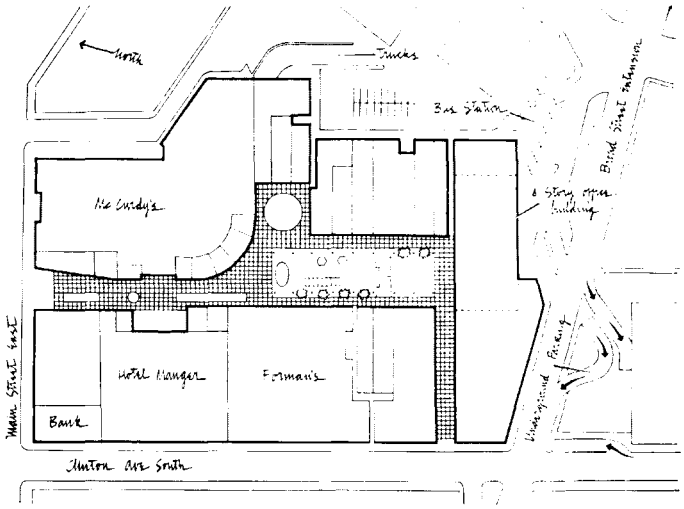
Already constructed on the site are the Capitol Building, State Library, State Highway Building, and Public-Services Building. To these will be added, in five stages, a Labor & Industry Building, Supreme Court, five large Office Buildings, four State Agency Buildings, an Auditorium, a Museum & Gallery, new Governor's Mansion, and an Island Rest Pavilion. The Mall and its buildings will be developed progressively away from the Capitol.

The Mall, itself, will be raised to provide parking space beneath. Upon leaving their cars, motorists will reach the Mall by ramps winding around large fountains which will play overhead. Ancillary parking facilities will occur near the buildings they serve. When completed, the two long axes of the Mall will be staggered, the major element leading from the Capitol to the Supreme Court and the smaller element from the Supreme Court area to the raised plaza surrounding the Auditorium. A detailed program for preservation of existing trees and shrubs and selection and planting of new foliage is included in the Mall plan. Parking areas will be hidden by greenery, and large trees will pierce the Mall at points. Immense planters holding shrubbery also will occur along the Mall. Since the Mall will cross two major streets, access from one side to the other will be by means of pedestrian bridges vaulting the roadways.

The architecture of the buildings to line the Mall in the next 50 years is not suggested in detail, since changes obviously will be made in that period.

The masterplan for Oregon State Capitol Group was prepared by Wilmsen & Endicott, Eugene, Ore.; Herman Brookman, Associate Architect, Portland, Ore.; Lloyd C. Bond, Landscape Architect, Eugene, Ore.; Francis Keally, Consulting Architect, New York, N. Y.; and the Oregon State Capitol Planning Commission. Architect Keally was the Associate with Trowbridge & Livingston in winning the competition for Oregon State Capitol, completed in 1938.



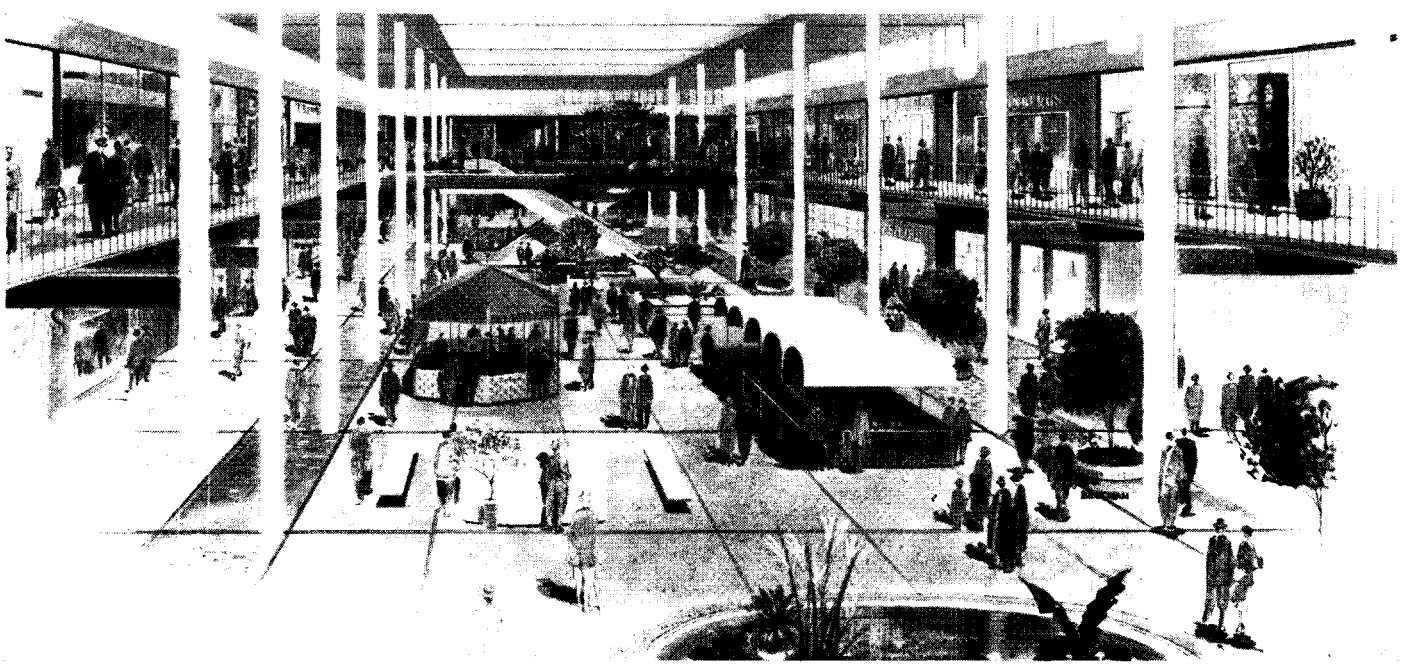


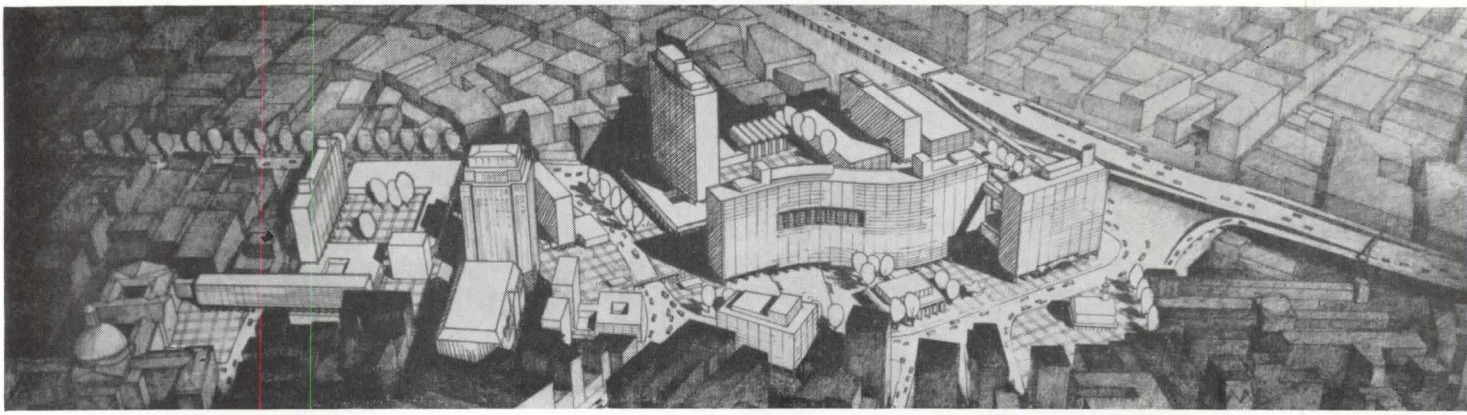
ROCHESTER MERCHANTS BACK MIDTOWN PLAZA DEVELOPMENT

Midtown Plaza, a unique plan for rehabilitation of a central business district, was recently announced for Rochester, N. Y. This is unique in that it will not require any subsidy from federal, state, or city governments; that it was undertaken by local businessmen, themselves; that it will bring to the heart of downtown Rochester a year-round, air-conditioned, skylighted shopping mall; and that there seems to be little doubt that it will be realized. Both City Planning Commission and City Council have indicated approval, and completion is contemplated for 1961. Architects for the project are Victor Gruen Associates, with Edgardo Contini as Partner-in-Charge.

The basic scheme for development involves maintaining, refurbishing, or expanding of numerous enterprises that exist on the 7½-acre site—notably McCurdy & Company department store, B. Forman Company specialty apparel store, and Hotel Manger. Structures to be added include an 18-story office building, several retail establishments, and (to be built by the city) a new union bus terminal and three levels of underground parking to accommodate 2000 cars. Truck deliveries will likewise be completey underground. Possibly the most arresting feature of the plan is the 2-level central shopping mall, with "always summer" air conditioning. Shops, stores, and restaurants will open onto it, and it will be embellished with fountains and landscaping. This central space is now a street that the city will close, to make the Plaza development feasible.

Entrepreneur in this extraordinary private undertaking, expected to cost some $15 millions, is the Midtown Holdings Corporation, headed by Gilbert and Gordon McCurdy and Maurice and Fred Forman, owners, respectively, of McCurdy & Company and B. Forman Company.





TAC PROPOSES GOVERNMENT CENTER FOR BOSTON

One of the oldest sections of downtown Boston will undergo decided change if plans by The Architects Collaborative survive the scrutiny of city fathers and historical-architectural watch-and-ward societies prevalent in the area. The proposal is for a federal-state-city government center combined with a commercial development in the Scollay Square-Dock Square section of the city. TAC's client for the proposal is First Realty Company of Boston, which would manage the commercial units of the project.

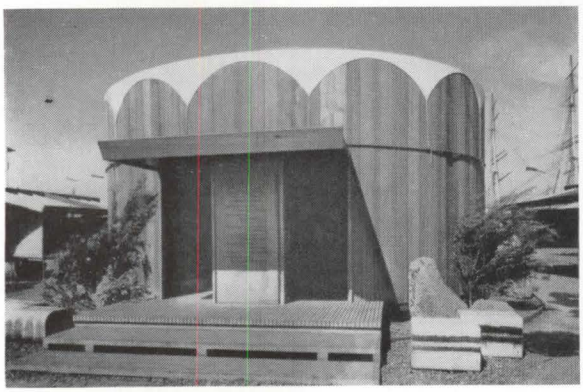
Included in TAC's proposals (above, left to right) are a state office building area near the State House; a private office building (high-rise building) on Federal Square (proposed new name of Scollay Square); a Federal Building (curved building); City Hall (connected to Federal Building); and a Merchandise Mart (rear of Federal Building). In addition, a new plaza is suggested to surround historic Faneuil Hall, which the architects hope would once more be used for civic functions. The Dock Square area facing Faneuil Hall would be renamed Freedom Square. The only remaining section of the city showing the original street pattern of Boston is preserved in the program, along with the oldest building (1660). The entire area slopes from the State House down to ramps leading to a major traffic artery now under construction. Parking in the center will be underground.

PLAYFUL BUILDINGS ENLIVEN ARTS FESTIVAL

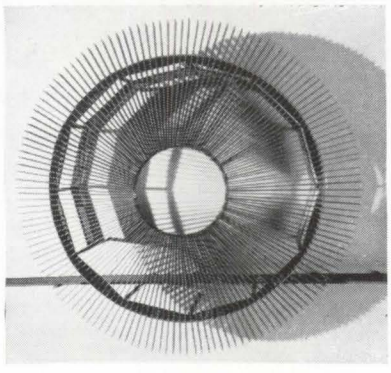
Two unique structures enhanced the recent San Francisco Arts Festival. For the Religious Art Exhibit (below), George & Evelyn Kosmak designed a redwood drum 24 ft in diameter. The circular building is topped with stretched plastic sheet describing a series of "arches" around the sides.

San Francisco Architects Marquis & Stoller provided the Northern California Chapter AIA Exhibit (right) with an ingenious roof made of 252 1"x6" redwood boards on edge, cantilevered from an outer ring (where supports are) to a center compression ring. Extending along one side of the pavilion is an 80-ft-long fence for display purposes. The structure is to be given to the City of San Francisco, which will erect it again next year as a permanent garden pavilion in Golden Gate Park.

George Knight



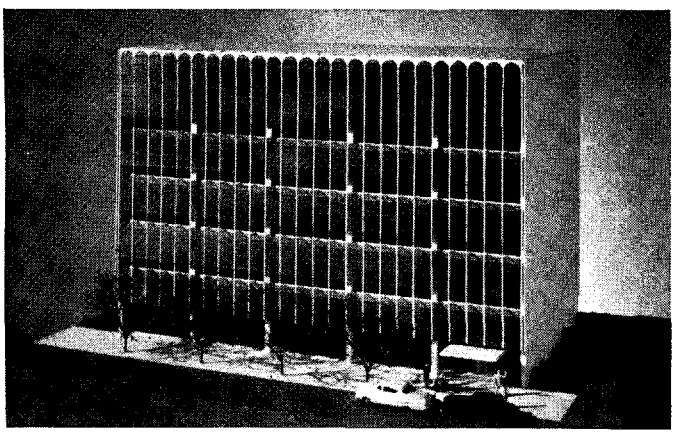
George Windeler Co., Ltd.



A. Gerald Ratto

p/a news bulletins

• Welton Becket & Associates designed new office building for Independence Life Insurance Company of America in Pasadena, Calif. Five-story building will be faced with gold

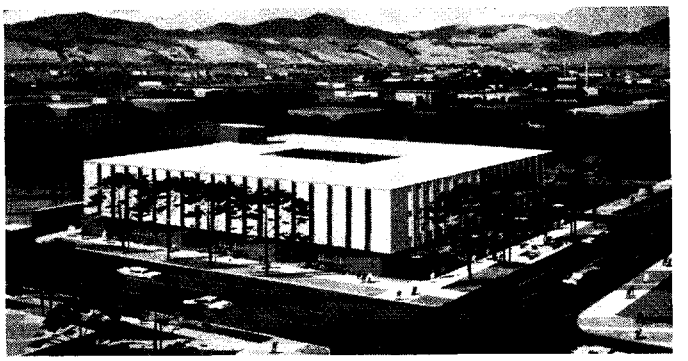


H. B. Cross

anodized-aluminum grillwork rising an extra floor to hide equipment penthouse. (Becket was subject of profile in November 22 Saturday Evening Post.)

• A $25,000 competition for architectural design of tract housing has been announced by Mastic Tile Corporation of America. Pietro Belluschi heads Jury, which includes Architects Edward H. Fickett, George Fred Keck, and Reginald Roberts, with HHFA Official Joseph H. Orendorff. A. Gordon Lorimer is Professional Advisor. Entry kits available: Mastic Tile Corporation of America, Box 128, Vails Gate, N. Y.

• Country's first major Japanese department store has been attracting huge crowds in New York. It was recently designed by New York Architects Steinhardt & Thompson and Junzo Yoshimura, Associated Architect, for Takashimaya of Japan. Front shows dramatic screen of Japanese lanterns in two-story high entrance area; side view reveals details of stair rising from entrance to second level.



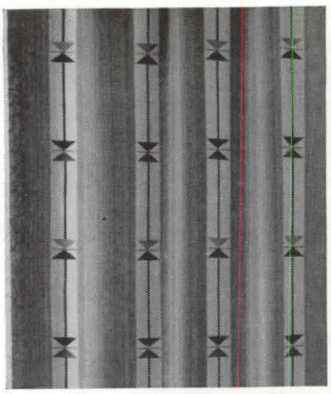
• Law School will occupy proposed three-story building at University of Denver. Designed by Perkins & Will, structure (above) will have an interior court for relaxation and outdoor reading.

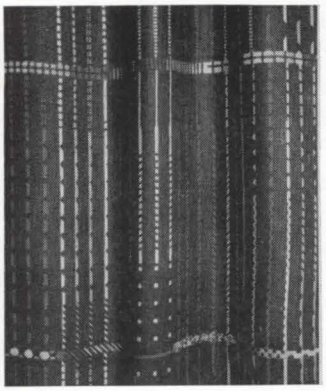
• Architects for six major buildings in New York's Lincoln Center have been announced. Gordon Bunshaft of Skidmore, Owings & Merrill will design Library-Museum for Performing Arts; Eero Saarinen & Associates and Jo Mielziner, Theater for Repertory Drama; Pietro Belluschi, Julliard Music School and Residence Hall; Philip C. Johnson, Theater for the Dance; Wallace K. Harrison, Metropolitan Opera House; Max Abramovitz, Concert Hall (to be used by New York Philharmonic). Harrison, partner in firm of Harrison & Abramovitz, is co-ordinator of Lincoln Center project.

• University of Pennsylvania announces number of Fellowships and Scholarships in Landscape Architecture, graduate level. Grants range from free tuition and board plus $500 per annum to minimum of free tuition. Successful applicants elegible as Fulbright Travel Awards applicants. Address: Ian McHarg, Chairman, Department of Landscape Architecture, University of Pennsylvania, Philadelphia.

• Fifteen-day course in Danish design has been announced. To take place Sept. 1-15, 1959, in Copenhagen and environs, course includes lectures, seminars, tours conducted by Danish architects, artists, craftsmen, including Architect Finn Juhl, Steen Eiler Rasmussen (Professor, Royal Academy of Copenhagen), Bent Salicath (Director, Danish Society of Arts & Crafts). Further information available: Axel Dessau, Director, Danish National Travel Office, 588 Fifth Ave., New York 36, N. Y.

Werner J. Kuhn

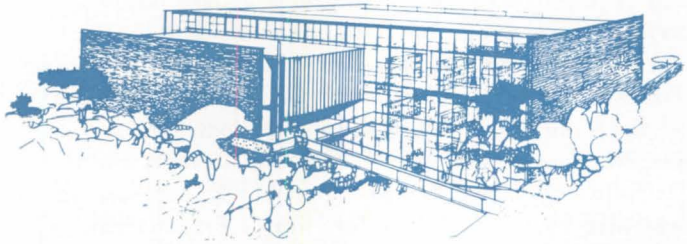




• "Swedish Textiles Today" is exhibit now touring U.S. (Chicago in mid-January; Minneapolis, Los Angeles, elsewhere later). Show of more than 100 noteworthy fabrics touring under auspices of Royal Swedish Embassy and Smithsonian Institution. Two examples shown are by Astrid Sampe, Bengt Lindroos.

• San Francisco has opened a new gallery—The Bolles Gallery, founded by San Francisco Architect John S. Bolles. Purpose of gallery is to enable executives and corporations to see, enjoy, and buy art, and to encourage use of art in architecture. Dr. Grace L. McCann Morley, former director of San Francisco Museum of Art, is gallery consultant.

• Institute of Communicating Arts, Adelphi College, Long Island, N. Y., has been designed by Richard J. Neutra & Robert E. Alexander. Design provides library on two upper floors, TV and radio studios, journalism laboratory, and World-in-Focus Auditorium where off-campus interviews and other events will be viewed via direct TV lines to Manhattan.



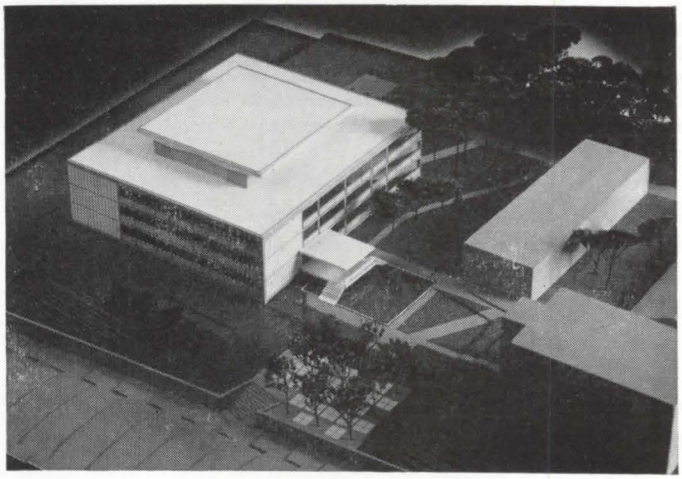
• U.S. Departments of Commerce and Labor predict 1959 will be first construction year to go over $50 billions mark. Total construction expenditures expected to rise 7% next year to a record 52.3 billions—aided by public spending which will leap to $17.1 billions. Current year expected to close with total construction expenditure of $48.8 billions. Robinson Newcomb, Washington, D.C., economic analyst, predicts $93 billions annual-construction dollar-volume by 1980.

• Mars Outstanding Design Contest for 1959 announced. Original architectural and engineering designs selected earn $100, appear in Mars series. For data: J. S. Staedtler, Inc., Hackensack, N. J.

• Frei Otto, young West German architect, appointed visiting lecturer on lightweight building at Washington University School of Architecture. . . . Florida Architect Clinton Gamble named South Atlantic Regional Director, AIA.

• U.S. General Services Administration announces plans to build country's second-largest Government building in New York (largest is Pentagon). Building will be on Foley Square in downtown Manhattan, will cost $68,062,000. To house U.S. Customs Court and 11 Federal agencies, it will have gross floor area of 1,500,000 sq ft. Architects are yet to be named; plans to be completed summer of 1960.

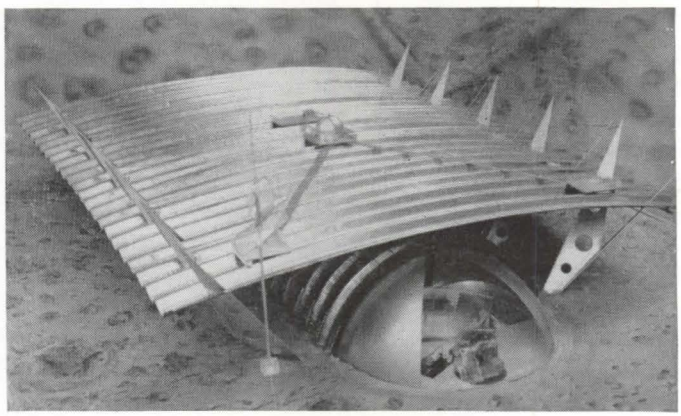
• Proposed LaSalle College Science Building, Philadelphia, by Nolen & Swinburne will contain laboratories and facilities



for physics, chemistry, biology, psychology, metallurgy. Central core of building will be air conditioned and will contain three classrooms and all mechanical services. Entrance treatment employs porch and steps bridging small reflecting pool.

• Executive Board and Committee Room at UNESCO Headquarters, Paris, designed by Philip C. Johnson on commission by International Council of Museum of Modern Art, opened in November. Other UNESCO rooms are by Denmark, West Germany, France, Italy, Netherlands, Sweden, Switzerland.

• Out-of-this-world structure proposed for moon by Wonder Building Corporation of America. Building, "to be transported from Earth in stages," provides for observation of moon goings-on through transparent dome (covered, when not in use, by meteorite-resistant metal), living quarters, laboratories, "garage," auditorium-gymnasium, etc. Designers are not sure whether building will sit on solid surface or float on sea of dust several miles deep, but say it can do both.



Washington report

by Frederick Gutheim

During the past month I have been traveling in Europe, so this column will be largely devoted to a report on embassies. As a group, I believe they remain our most impressive architectural display. I am sorry I cannot do as well as my colleague, George Dixon, who recently reported in Washington Post on our Embassy in Madrid: "The U. S. Embassy is a bright new building that looks as if it might have been designed for the administrative offices of a pickle factory. Ambassador Lodge was concerned about it at first. He was afraid the Spaniards might growl politely that it clashed with the lovely old surrounding architecture. His fears were assuaged when the Jesuits erected a completely functional administrative building next door and the Good Fathers took to calling it the Loyola Hilton."

The place to begin is with Eero Saarinen's London embassy, a design which will be remembered as the result of a limited competition. The walls of this structure are just being completed, and it is possible to get a first look at its relationship to the surrounding space and to study the structural system. I suppose Grosvenor Square is the biggest square in the west end of London. Certainly it is too big for a truly secluded, residential square. It is also the scene of quite a lot of other immediate building activity, and I doubt if the other buildings will even try to match our effort. But I believe our building must serve in both the old and new Grosvenor Squares. The embassy fills one side of the square and, despite its size, it seems neither overwhelming nor out of character. In a single large building, simply because it is of a piece, there is always the danger that it will seem larger than it really is, just as a white building always looks larger. The broken-up façade of the building contributes a lot to the building's satisfactory scale; and so does the setback from the street. The structural system combines a wholly prefabricated, concrete, window-wall unit and an integral floor-ceiling unit. In this stage, the building is indeed a marvellously athletic looking thing, and one hopes something of this working character will survive—perhaps in the ceilings —of the finished structure. It seems probable that this will be the most successful, as well as the largest and most serious, of our new embassies.

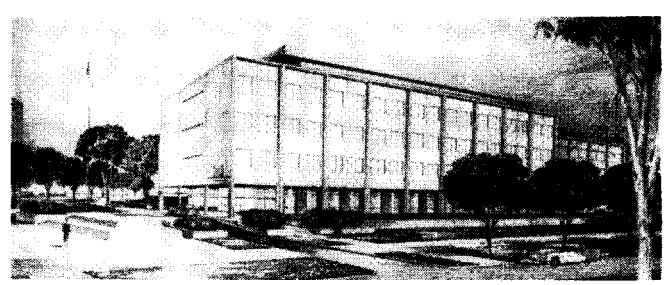
Another look at the Rapson and van der Meulen embassies in Copenhagen and Stockholm prompts the reflection that they are certainly showing their age. Not only do they scream their design year—about 1952—but they are not aging gracefully. But perhaps the most sober second-thought is the importance of site, itself. What is tolerable on a tree-shaded street in Copenhagen is intolerable on the bleak Swedish hillside. This factor is accentuated by the harsh northern light. Hard by our Stockholm embassy, the Italians have just completed a new, highly sophisticated, and thoroughly garbled embassy designed by Gio Ponti. Perhaps this is the beginning of a back-to-the-châlet trend. Its white, concave wall, tiny windows, and heavy wooden overhang breathe the spirit of the Dolomites.

Harwell Hamilton Harris seemed a strange selection as architect for the extension to our embassy in Helsinki; but one look at the site and the earlier embassy building, to say nothing of a little talking with the Finnish architects, changes these doubts to a conviction that the choice was an inspired one. The site is a steep and wooded hillside with spectacular views over the animated waters of the harbor and Gulf of Finland. The immediate surroundings are respectably residential, mainly villas and embassies. We need no ostentation here. The existing embassy building is in excellent taste and scale, something which can be respected and continued. It is all the more important that what we build in Helsinki be distinguished, because the granite neo-classicism of the huge Soviet embassy (built by the Finns as a reparations payment) should and will remain in a constant manifestation of oppression, extortion, and vulgarity.

What we build abroad is propaganda. We are judged by it. We cannot escape it. Our technology is exhibited, our social ideas are expressed in what we build. What we say in our buildings is readily compared to other countries. Whether we are civilized or vulgar is apparent in our architecture. These buildings are weapons in the cold war. I am saying all these obvious things because, although they receive lip service, they are not obvious to us when we see an exhibition of FBO buildings in New York or Washington. There, we are merely conscious of technique, personal style, and a comparison with our own buildings. We do not have the context of the site, locale, circumstances in which these buildings will do their work and be judged by others. Judged by these standards, I find it hard to be complacent about the FBO program. Indeed, we must try still harder to understand the importance of the embassies and foreign buildings in the struggle for prestige and understanding.

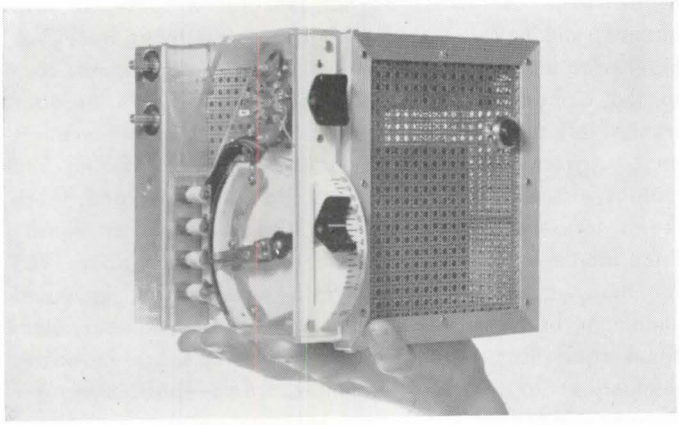
• Architects for the new $35,340,000 Executive Office building to be erected facing Lafayette Square, north of the White House, will be the Boston firms of Perry, Shaw, Hepburn & Dean and Shepley, Bulfinch, Richardson & Abbott. Preliminary plans call for the preservation, within this area, of the historic Blair and Blair-Lee mansions, now serving as the President's Guest House, as well as Decatur House and its adjoining Naval Museum, which will continue to be operated by National Trust for Historic Preservation.

• The latest addition to Washington's labor-union headquarters will be a building facing the Capitol for United Brotherhood of Carpenters & Joiners of America, now the



world's largest craft union, with 839,794 members. Holabird-Root & Burgee, Chicago, architects of the nearby Teamsters Union headquarters, are the architects. Their sketch shows a white, Georgia marble structure occupying the 60,000-square-foot site, and the accompanying press release says that wood and wood products will be used wherever possible.

LIGHT-CONTROL FIELD ADVANCED BY NEW DIMMER



News of the first commercial application of the silicon-controlled rectifier has rocked the dimming-equipment industry and signaled a new era in the method of controlling levels of light intensity. The new control is Kliegl Bros.' S.C.R. Dimmer. So remarkable is this advance, it is claimed that the new method will eventually replace every known type of dimming in existence today—including autotransformer, thyratron, and magnetic amplifier. Extraordinary weight-and-size reductions have been accomplished. A 4000-w S.C.R. Dimmer, for example (photo), weighs but 5 lb and occupies only 1/8 cu ft (figures include control potentiometer). Weight and size comparisons with other dimmers are shown (Table I). Even the most complex of future switchboards will require only the space taken by one or two suitcases. Single dimmers for home or office will easily fit into a 4" wall space. Comparisons of other basic characteristics are also made (Table II). The S.C.R. Dimmer is priced competitively with the magnetic-amplifier type and only slightly higher than the electronic. The autotransformer type of dimmer is the one control that is presently somewhat lower in price on a watt-per-watt basis. Response is instantaneous, efficiency highest (only 50 watts lost per 4000 watts of control), and loading range is infinite. If desired, the S.C.R. Dimmer can be produced so that the light curve closely follows a true straight-line graduation (chart)—a feature not possible with other methods of control. Other outstanding features: periodic adjustments are eliminated and mastering and submastering are easily performed, as well as scene presetting; potentiometer control is only moving part; no interference to TV transmission or reception; no power step-up required (operates on standard 120-v a.c. current). Although a 4000-w S.C.R. Dimmer is the only one currently available, 5000-, 10,000-, and 12,000-w units are in the development stage.

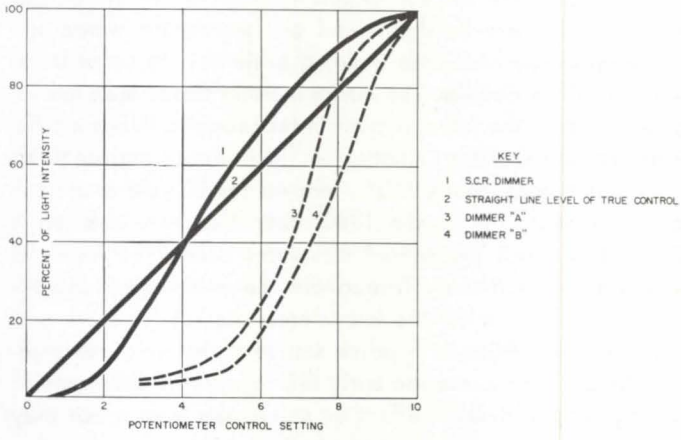


Table I

Type of dimmer component	Data per kw of load capacity	
	Weight, lb	Size, cu ft
Motor-driven autotransformer dimmer	10 to 15	1/4 to 1/2
Magnetic amplifier dimmer	15 to 25	1/6 to 1/2
Electronic (thyratron) dimmer	8 to 10	1/4 to 1/2
S.C.R. dimmer	1-1 1/4	1/32

Table II

Type of dimmer	Efficiency percentage	Response on—off	Loading	Auxiliary apparatus	Approximate dimmerbank ratio (less controls) -percentage	Noise
Motor-driven autotransformer	95-97	Selected speeds available from 6 to 45 sec.	Essentially infinite	None	100	60 n hum
Magnetic amplifier	90-95	.4 to 1 1/4 sec. lag depending upon loading	From 30 to 1 to 100 to 1	Booster transformer	200	60 n and 120 n hum
Electronic (thyratron)	90	virtually instantaneous	Infinite	Auxiliary or booster transformers	175	Tube conduction
S.C.R. dimmer	98.5	virtually instantaneous	Infinite	None	200	None

p/a financial news

by William Hurd Hillyer

Architects were alerted more than a year ago to the steadily mounting tide of inflation. They should now be warned of a subsurface danger which augments the threat to our material economy. Like the hidden coral reef, this danger possesses a vermilion tinge—to amplify the metaphor, it flourishes in a sea of red ink. Fact is, the states and municipalities are hard up, and are wondering where the money for their ambitious building projects is to come from. They face big deficits. The outgo is rising faster than the income, despite the improvement in tax receipts. When a solid borrower like DeKalb County, Ga. (in Atlanta's metropolitan area) has to pay nearly 4¼% interest for 20-year money, it gives us pause. True, the 1960 maturities were sold on a 2½% basis, but permanent structures cannot be financed with short-time money. Throughout the unlamented depression, this page hailed the low-interest market for state and municipal securities as a prime source of building construction funds. Then came the early fall collapse of Government bond prices, with its ill effect on municipals from which they have only partially recovered. As this page sees print, the demand is reported as having "flattened out."

Complicating the uncertainty that menaces future Treasury offerings is the problem of raising more state, city, and county revenue in addition to the $115 billions of state taxes already collected in the 1957-58 fiscal year. The National Tax Association hears that opulent states such as Pennsylvania, New Jersey, and Texas are toying with income-tax ideas to make up their shortages and provide for urgent public-building programs. Voters in all states are suffering from tax phobias and are thinking twice before casting ballots in approval of such undertakings; witness the number of building-bond defeats at recent elections. An example is furnished by Waverly, N. Y., with 6000 population, where school plans, twice cut down, were thrice beaten at the polls.

Less open to uncertainty is another major source of construction money—mutual savings. Deposit gains at mutual-savings banks for the first nine months of 1958 came to $1.8 billion, a record high for any comparable period. Total mortgage holdings of mutuals presently exceed $22.5 billions, nearly two-thirds of these banks' total assets according to their national association.

• Inflation and the national deficit are bracketed together by First National City Bank of New York: "The trouble is with the size of Federal spending and the deficit . . . frightening many potential buyers" of government bonds "into inflation hedges." Ironically, the deficit itself scares away lenders.

• The biggest cloud in the economic firmament is brightening at its edges. Automotive output, though running some 37% less than a year ago, is moving up after a quick gain of 31% spurred by labor settlements (though the installment-finance companies do not look for a spate of auto business and have lowered their borrowing rates by ½%). Steel production, the auto industry's chief dependent, rose to the highest level since October, 1957. On a broader front, National Association of Purchasing Agents expects only a gradual advance in general business during the months ahead: "There is no rush to buy now; and there seems to be even less desire to add to stocks on hand." Price increases are currently ahead of any time since 1955 for many materials that go into construction, including aluminum, brass, copper, lead, steel, tin, zinc, lumber, electrical equipment, wire rope. Machine tools are in better demand as to shipment and new orders—particularly for domestic industrial use.

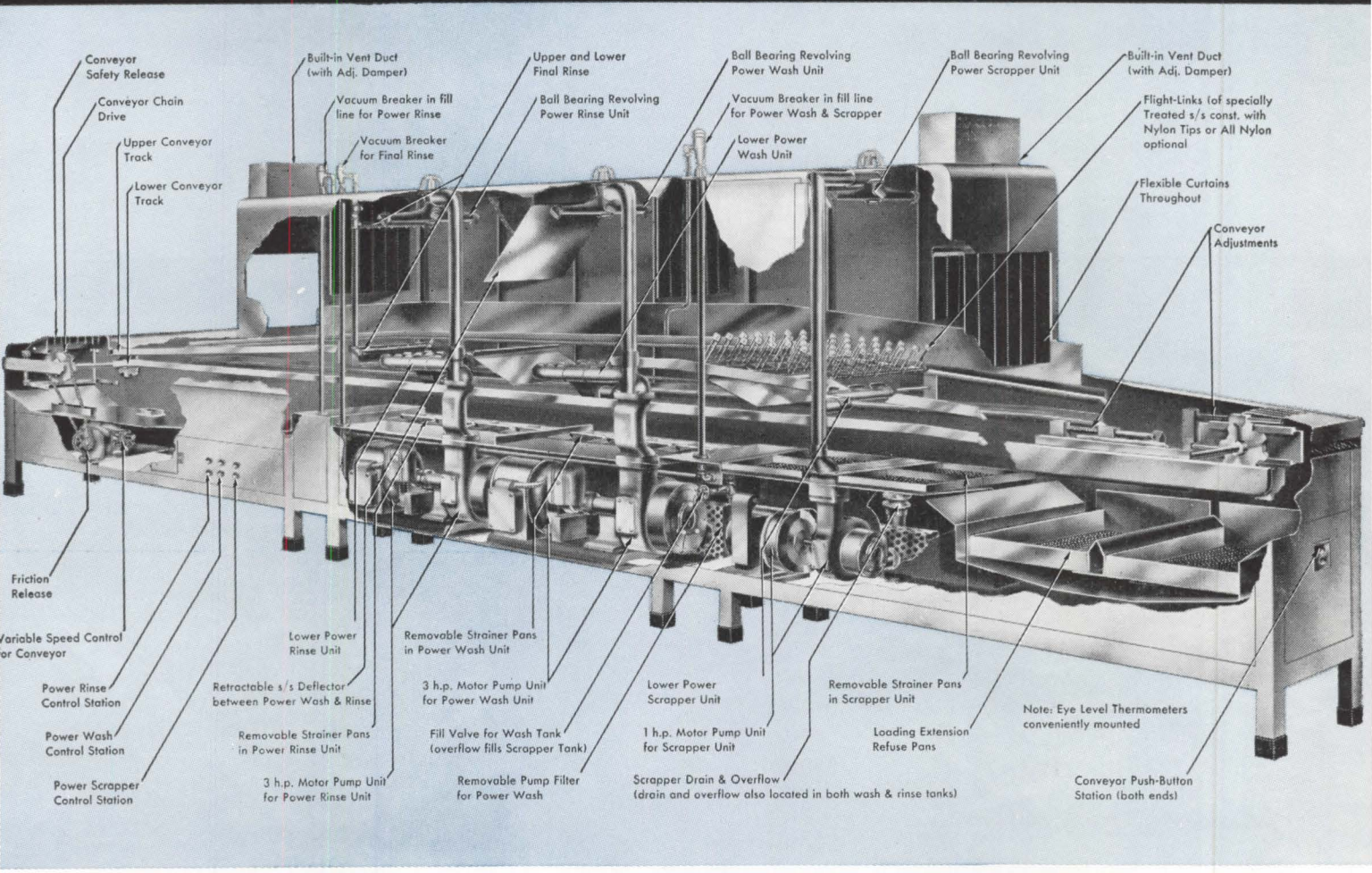
• Since inflation is manmade it can be man-controlled, Julian B. Baird, Under Secretary of Treasury for Monetary Affairs, told the Mortgage Bankers Association's November session. What this control will consist of, and how it is to be applied, he fails to specify. He seems to view inflation as a wicked cause-in-itself that can be combated and tamed, rather than as an ineluctable effect of what man has already done. Common sense inclines to the conclusion that the best way to control the inflated dollar is not to print so many, against nonexistent value. Architects can, meanwhile, enjoy the interim fruits of an inflated prosperity while taking comfort from Under Secretary Baird's assurance that "positive signs of inflation in the near future are fortunately few and far between." On the other hand, hard-boiled bankers like Chairman William A. McDonnell, First National Bank of St. Louis, who is president of U. S. Chamber of Commerce, warned Mortgage Bankers Association that "while the recession is rapidly withering away, the forces which make for inflation continue to flourish." He is constrained to ask, "What price prosperity?" and declares that the nation is on an "inflation ratchet." Nevertheless, he does not share the chronic pessimism that accepts inflation as "a way of life."

• Builders are getting nervous over a possible sales downturn; tighter money has diluted their optimism. Growing concern, says Federal Housing Administration, is noticeable in builders' programs for new housing construction. There's a definite shift downward, that agency reports; the trend is toward ever cheaper homes and away from architecturally important dwellings. Sales of at least one top-ranking home-builder are running 50% below last year. These tendencies have caused many builders to look yearningly toward Washington. "Congress will have to do something," certain of them declare—not a healthy attitude for so salubrious a business. Contrawise, a conservative New England authority thinks "we are on the threshold of the greatest buying boom in history. It should develop and grow all through the 1960's."

• Cheerful candle for Christmas: At Pittsburgh conference on business prospects, top economists representing steel and other basic metals industries predicted a 1959 volume gain of around 20%.

37 reasons

why your kitchen layouts work with Hobart



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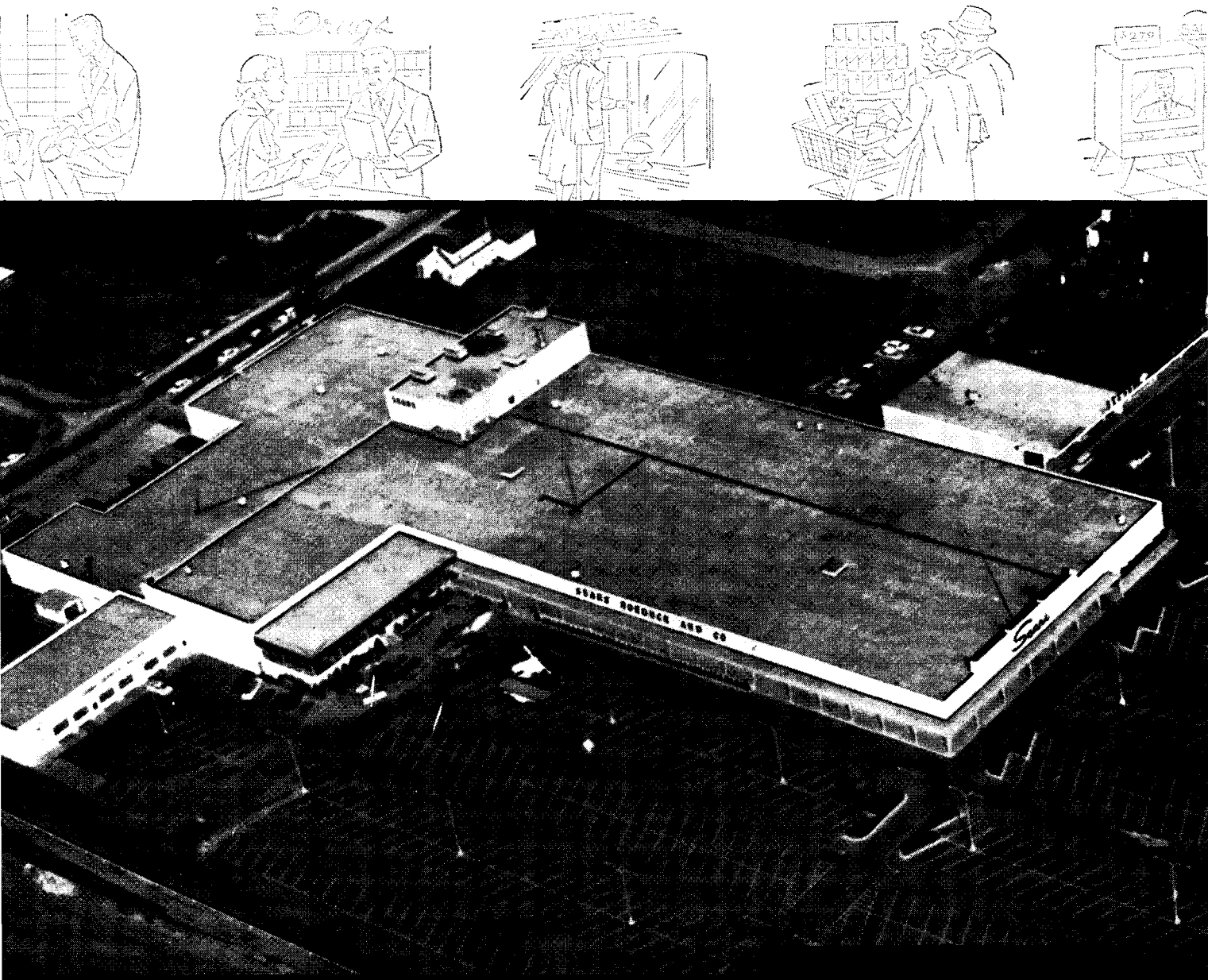

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FLAME SPREAD	20-25
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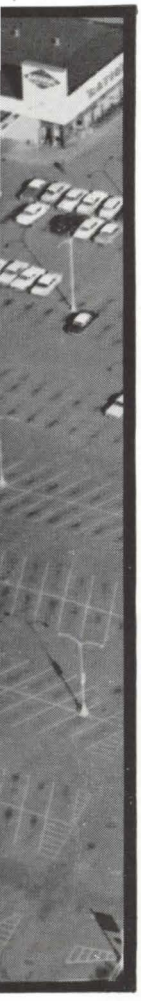

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SEE OUR CATALOG IN SWEET'S INDUSTRIAL CONSTRUCTION FILE OR WRITE FOR COPY

Richmond Memorial Hospital in Richmond, Va.

Architect: Samuel Hannaford & Sons, Cincinnati, Ohio
Associate Architect: Baskervill & Son, Richmond, Va.
Engineer: Watson & Hart, Greensboro, N.C.
General Contractor: John Tester & Son, Washington, D.C.

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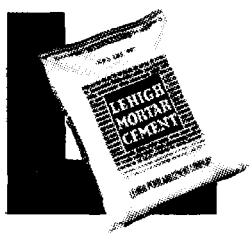
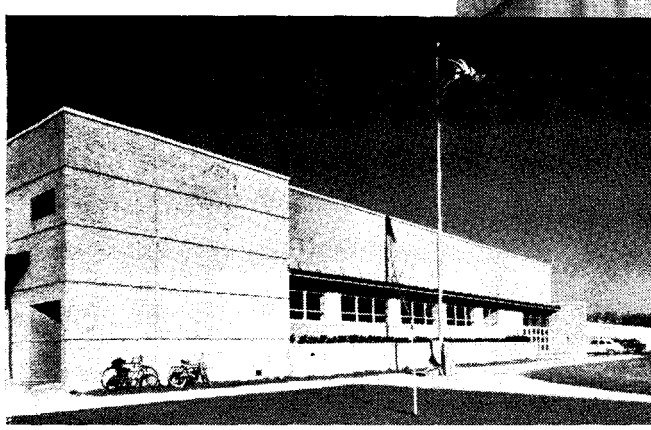
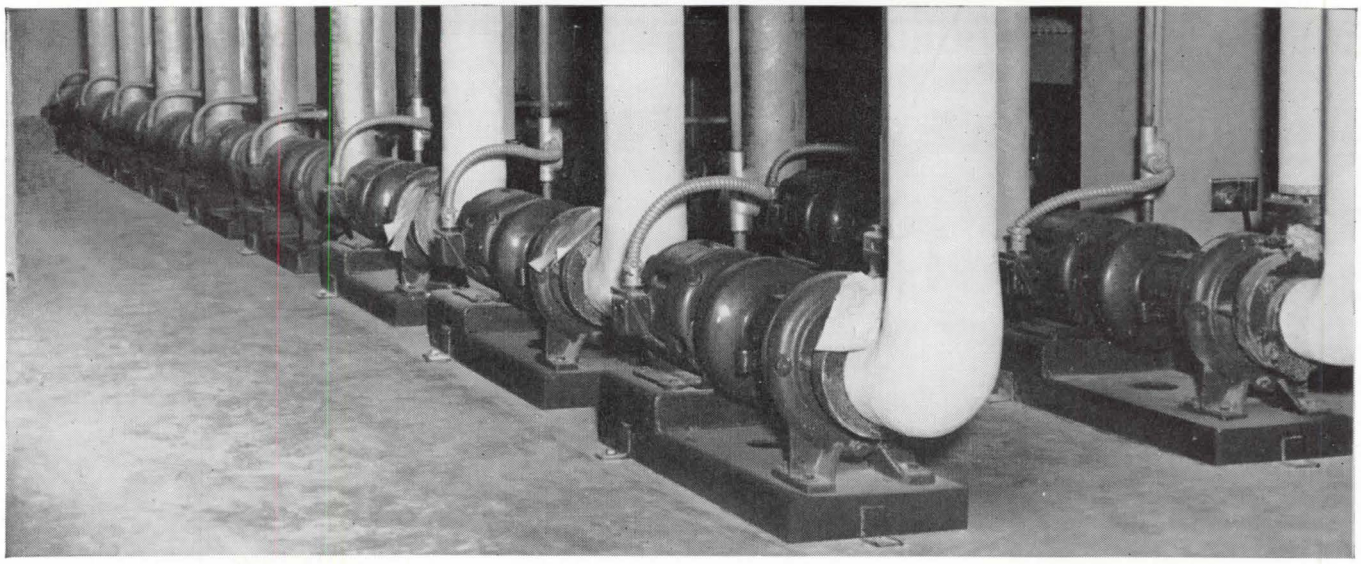


LEHIGH PORTLAND CEMENT COMPANY *Allentown, Pa.*

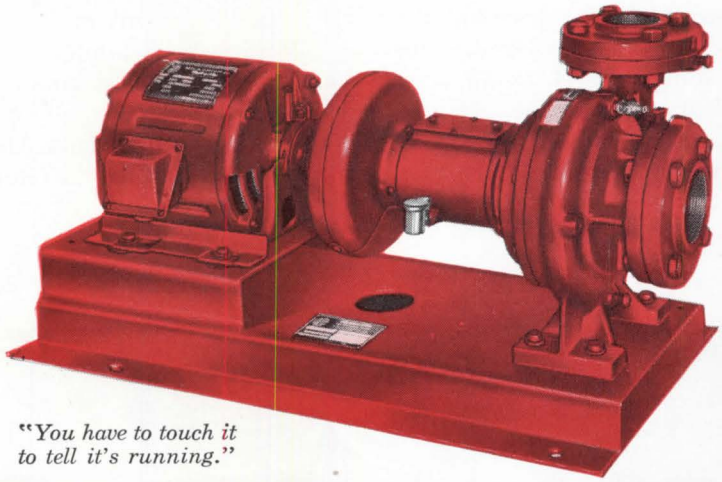


(Above, and at left) The Cora Kelly School in Alexandria, Va.

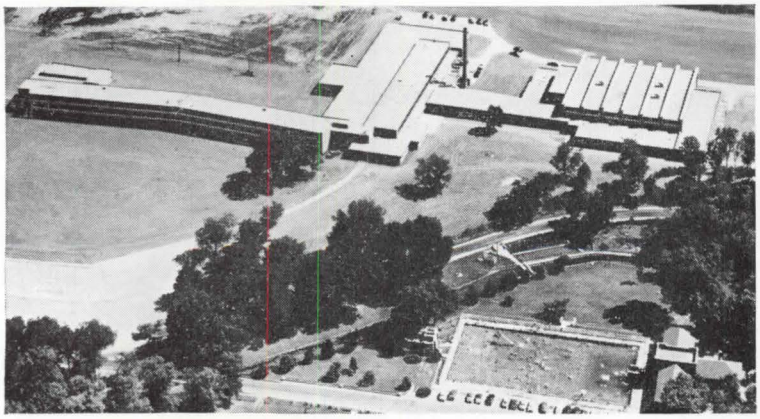
Architects: Robert A. Willgoos, Dwight G. Chase, Alexandria, Va.
General Contractor: John Tester & Son, Washington, D.C.



EIGHTEEN B&G UNIVERSAL PUMPS DELIVER Quiet HEAT



"You have to touch it to tell it's running."



Parkview High School, Springfield, Mo.

Architect: Richard P. Stahl, Springfield, Mo.
Engineer: R. W. Bare, Springfield, Mo.
Contractor: McCarty Co., Springfield, Mo.

Selecting a pump for a circulated water heating or cooling system is not merely a matter of proper head and capacity. *Quiet, vibrationless operation is of major importance!*

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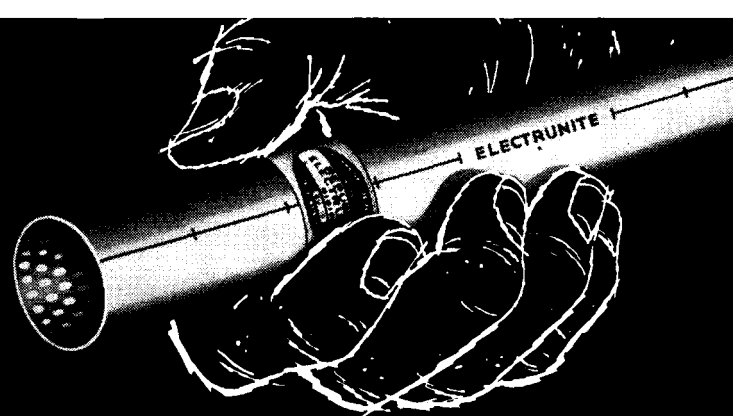
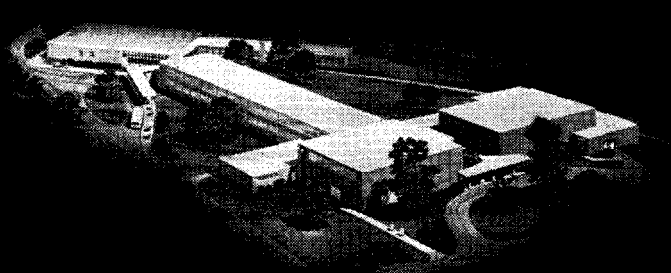
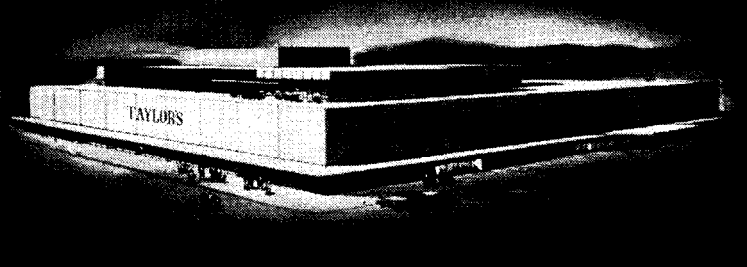
Architect: Herbert E. Duncan, Kansas City, Missouri
Electrical Contractor: Twin City Electric Company
Kansas City, Missouri

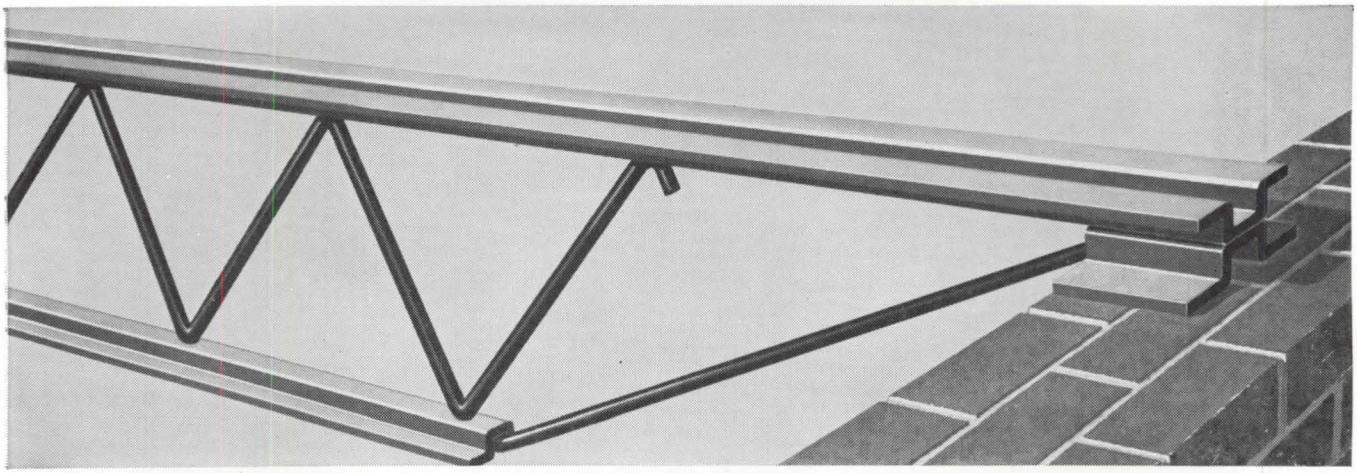




Department Store: Wm. Taylor Son & Company, Cleveland, Ohio
Architect: Welton Becket, F.A.I.A. and Associates, Los Angeles, California



Junior-Senior High School: Hampton Township School District, Allegheny County, Pennsylvania
Architect: Celli-Flynn, McKeesport, Pennsylvania
General Contractor: Perry J. Dick, Inc., Large, Pennsylvania
Electrical Contractor: Reno Electric Company, Pittsburgh, Pennsylvania



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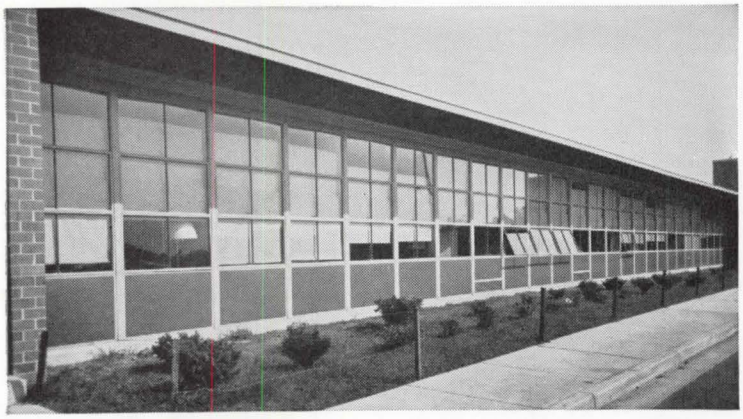

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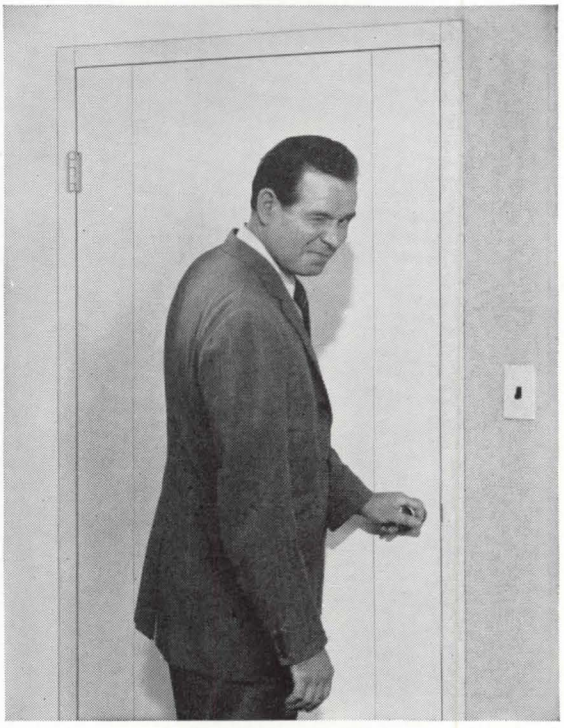

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See Sweet's File, Catalog 12a/In. It gives you complete information on Super-Ex and other Milcor metal-lath products.

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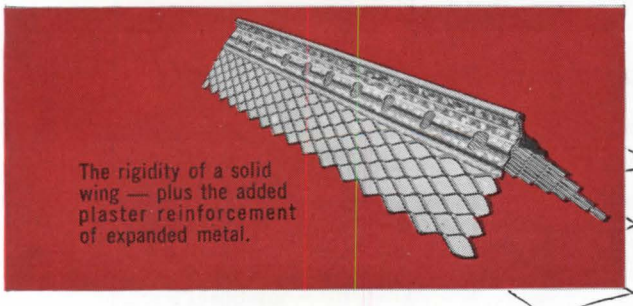

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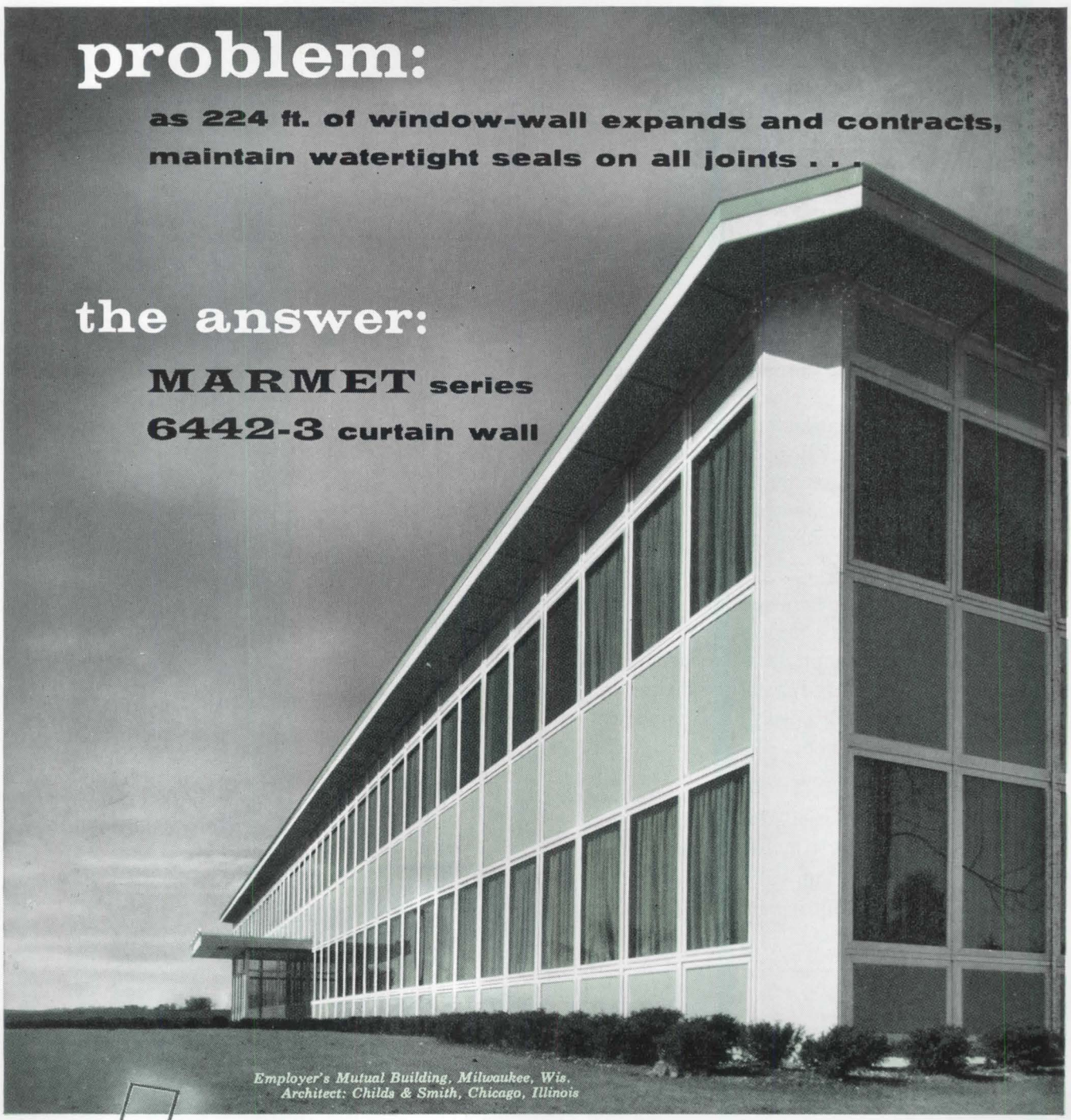
problem:

as 224 ft. of window-wall expands and contracts, maintain watertight seals on all joints . . .

the answer:

MARMET series 6442-3 curtain wall



Employer's Mutual Building, Milwaukee, Wis.
Architect: Childs & Smith, Chicago, Illinois

look how fast it goes up . . . look at the results!

Typical of the single and double level buildings for which the 6442-3 series is designed, this office building has large horizontal dimensions in which the cumulative effect of expansion and contraction is considerable.

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For detailed specifications on the complete line of MARMET products — consult Sweet's Catalog File No. 3a/Mar or write to MARMET for Catalog 59a, 59c, and 59d.

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REINHOLD

study proposed

Dear Editor: Charles Neergard, in his article (JUNE 1958 P/A) pertaining to the value of insulation in building construction, touched upon an interesting and frequently discussed problem of the construction industry. He first asks why it is that interested manufacturers, architects, engineers, public officials, and mortgagees cannot get together to agree on a common solution on how to build better insulated buildings. He then partially answers this question by noting that in the case of residences, the owner has a direct stake in the economical sizing of the heating-and-cooling systems and in their economical operation. However, in the case of large buildings, and particularly public buildings, there is seldom anyone that has a direct interest in reducing the cost of the installation or operation of the mechanical equipment. Of course, everyone involved is indirectly interested but the general reaction is to accept the cost as being a necessary evil.

The equipment manufacturer is typically not interested in reducing the size or cost of operation of equipment. The architect is not interested and is usually not qualified to understand problems pertaining to energy in motion (all of his training pertains to statics). The public official and the mortgagee are both in the same boat in that they may have qualified people to represent them, but they still merely accept the practices of the times (they are not creators). The consulting mechanical engineer is usually the only one that actually understands the interrelationship between the value of insulation and double glazing and the cost of the mechanical equipment. However, here again, since he does not have a direct and personal stake in the result and since he is usually somewhere down the chain of command, his knowledge or desires are not properly transmitted into the finished product. Also, as with the architect, the mechanical engineer makes his most money by allowing the original installation to cost as much as the job will allow. He doesn't usually receive a monetary bonus for doing a good job. The fact that the cost of operation is low does not put money directly in his pocket. He therefore oversizes everything.

What is the solution? I can only touch upon it. *First,* make the mechanical engineer directly responsible to the owner. The architect has no basic interest or control over the mechanical design in any case. *Second,* the mechanical engineer must be involved in deciding the insulation value of the building. He must be directly involved in deciding what type of materials and construction methods are to be used. It is at this point that the greatest possible economies of operation are dictated. *Third,* review and restudy present ventilation codes. There is a tremendous potential reduction in both cost of operation as well as initial cost in this area. *Fourth,* provide some type of compensating reward for excellence in design. A man that spends a large amount of time on methods to save someone else money should be able to share in those savings. *Fifth,* demand that only competently trained and registered engineers actually design mechanical systems. It should follow without saying that optimum designs cannot be produced by nonprofessionally competent people. The construction industry is full of people doing tasks for which they do not have competent training or background.

I am sure that Neergard does not imply in his article that there is *only one* best method of heating and cooling all buildings. Also, he does not imply that every building should be loaded with insulation and double

(Continued on page 62)

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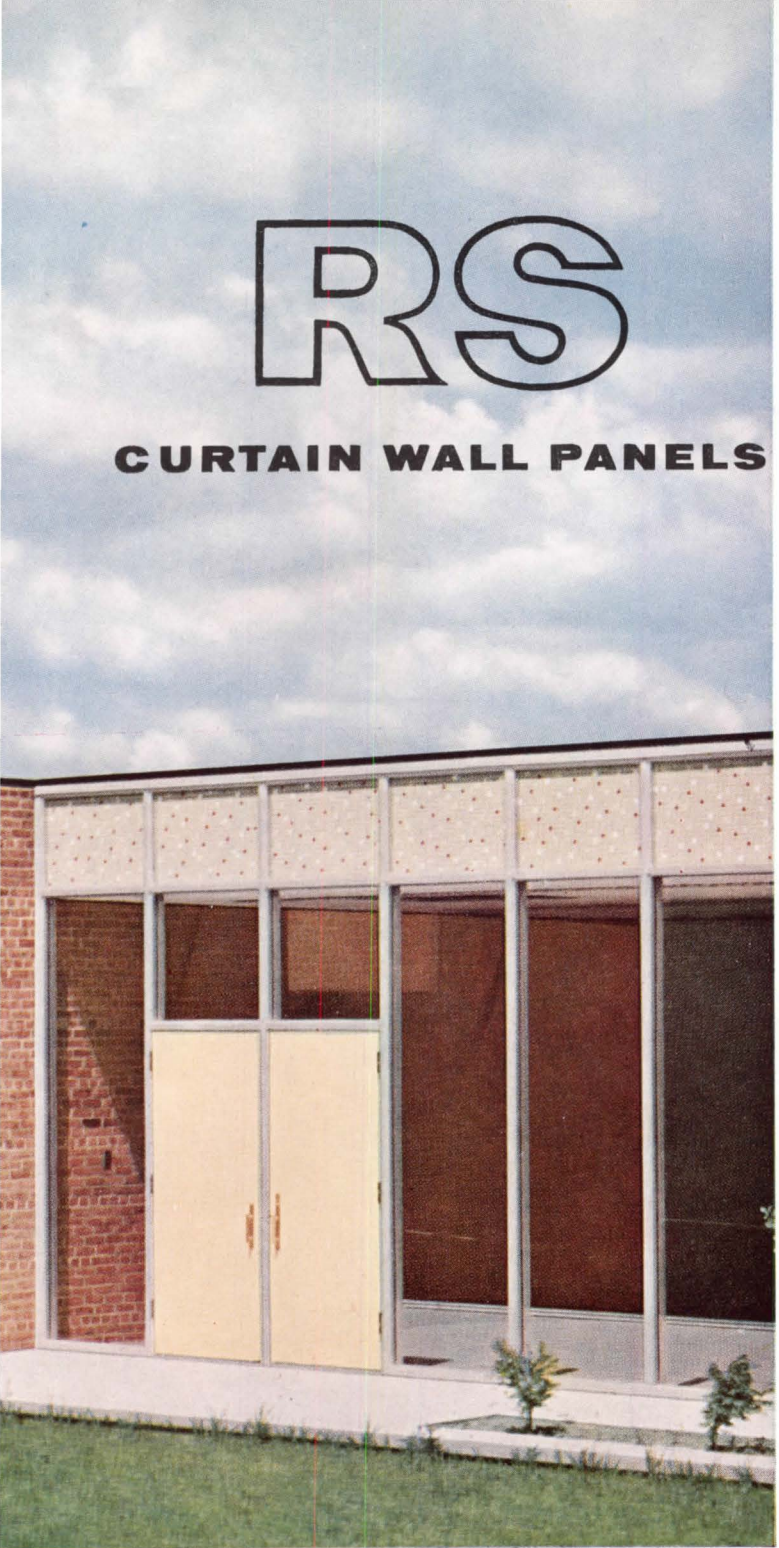
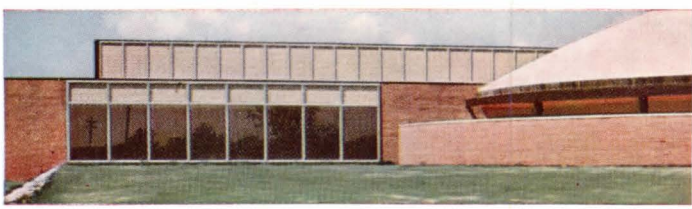


Plate No. 1075

UTICA HIGH SCHOOL, Utica, Mich.
Architects:
SMITH & SMITH, Royal Oak, Mich.
Panel installation:
MOYNAHAN BRONZE CO., Flatrock, Mich.
EMIL VANSILE CO., Detroit, Mich.



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(Continued from page 59)

glazing. What he does say, however, is that more study should be given to these problems in a professional manner and in a way that will forcefully illustrate the results. The literature is full of studies of one nature or another pertaining to this problem. However, such studies have usually been performed in an uncontrolled manner and usually by someone with a proprietary interest in the result. Therefore, there is not available a truly scientific recital of the effects of insulation and double glazing on the cost of mechanical equipment installation and operation.

I propose that the logical place for such a study is at one of our large universities. Our universities should have a basic interest in such studies for the purpose of gaining knowledge. Our large universities (such as the University of Illinois) have tremendous expansion plans due to future enrolments and will be constructing all types of large buildings in exactly the same locality and under the same conditions in the very near future. Our large universities have qualified personnel immediately available to engage in such studies, and can maintain a continuity of effort over a long period of time (and it will take time for a study such as this). Perhaps some general agency such as the Ford Foundation would be a logical source for funds. However, since the results of such a study will benefit all people at sometime in the future, and since public buildings will probably benefit the most, the study should probably be financed with *public funds* rather than private funds.

I believe that Neergard should be highly commended for repeatedly calling this matter to the attention of everyone concerned. His years of faithful and persistent writings on this subject may eventually produce some fruit.

J. RAYMOND CARROLL, PE
Assoc. Prof. of Mechanical Engineering
University of Illinois
Urbana, Ill.

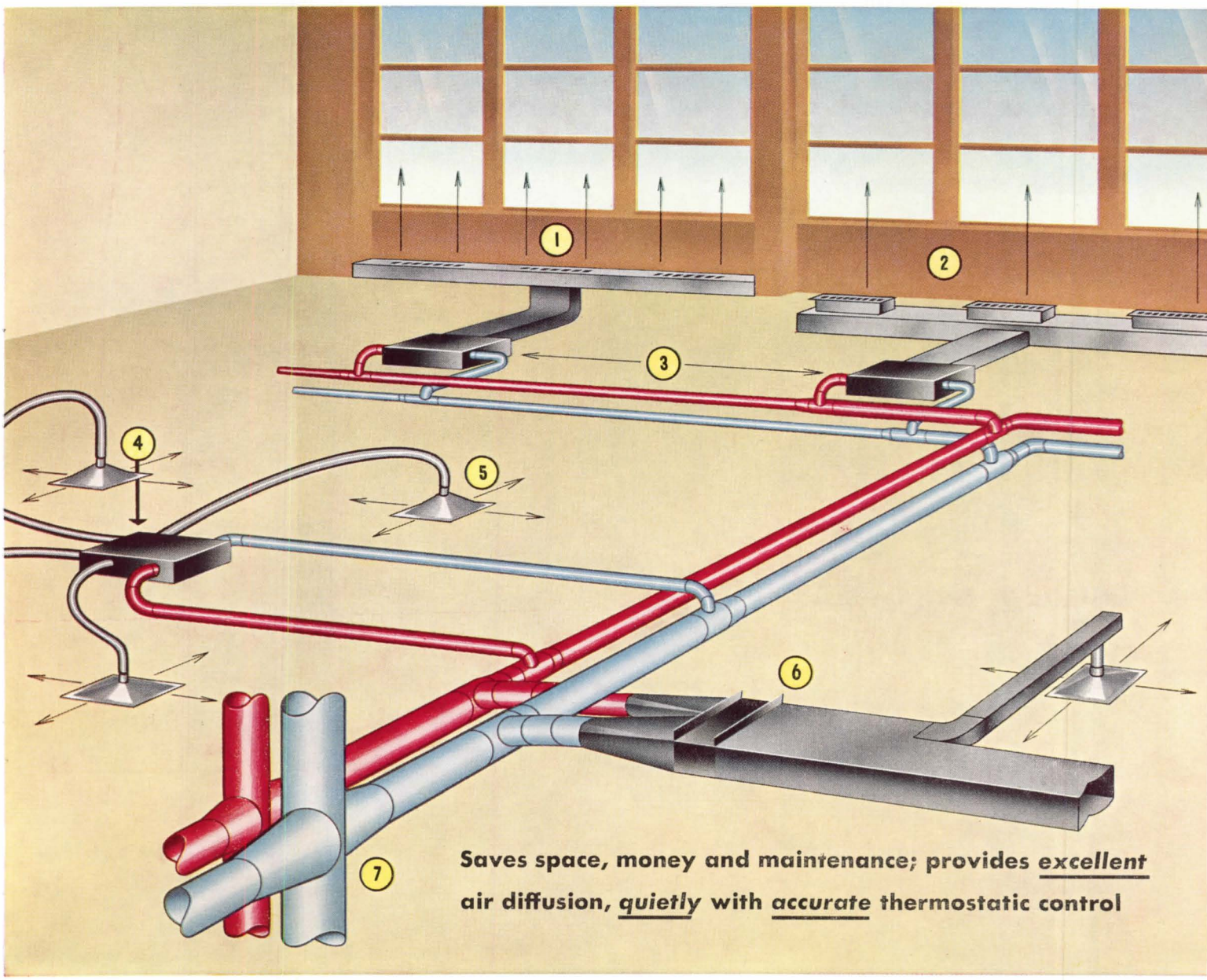
air-pollution hazard

Dear Editor: I recently had the privilege of reading MARCH 1958 P/A ("Man-Made Climate"). I was impressed with the thoroughness with which many of the air-conditioning studies were made, with one exception—toxic gases.

The problem of dust was covered fairly adequately, and sufficient air for handling cigarette smoke. However, I find a very large number of modern, air-conditioned buildings where the ventilator intake is located so that toxic gases enter. Often the source of toxicity is from the building itself, either from heating plants, incinerators, or fume discharge. Occasionally it is from a nearby building. In one new engineering building in which I worked, the sun vaporized tar fumes from the roofing material, which would reduce the

(Continued on page 64)

The New Anemostat "FLEXECONOMY" System for flexible, economical air conditioning



1. The New Anemostat Diffus-A-Curb — A high induction diffuser (4" high x 6" wide) of rugged stainless steel construction. Provides excellent air diffusion throughout 20 foot exterior zone spaces during both cooling and heating seasons.

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2. The New Anemostat Stainless Steel Diffus-A-Plate — Diffusion characteristics and performance same as Diffus-A-Curb. Rugged construction to withstand heavy traffic. Provides more effective rentable area. High velocity air streams minimize dirt accumulation in duct.

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p/a views

(Continued from page 62)

entire building population to a stupor on a hot afternoon.

A huge number of new homes violate the rule that the chimney should be at least two feet above the highest part of the roof. Many large power plants violate the rule that their stacks should be at least 2½ times as high as the surrounding buildings and should have wind-tunnel studies made of the air pollution re-entry problem.

In discussing this matter with a division engineer of The Carrier Corporation, he commented rather sadly, "Many young architects and mechanical engineers design their air-conditioning system so as to have a serious problem of entry of toxic gases."

The forced-draft heating plant in large buildings and homes has not obviated the need for high stacks. They are still needed for air-pollution reasons, if not for natural draft. Many plumbers tell me in despair that with the intermittent operation of oil burners, a proper chimney is more important than ever.

PROGRESSIVE ARCHITECTURE could render a real service to building designers and users by alerting them to the air-pollution hazard inside buildings.

FRANCIS SILVER
Chemical Engineer
Martinsburg, W. Va.

to what purpose?

Dear Editor: A belated comment on Contini's "Structure and Design" in FEBRUARY 1958 P/A.

The criterion of what is/is not architecture applies here as well: Are the new structural forms things loved for themselves or used when appropriate for a richer, more elegant enclosure of space? Are we working from the inside out, or from the outside in?

R. TITUS
Boston, Mass.

notices

new partners, associates

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ALBERT ARTHUR HOOVER, joining the firm of JOHN CARL WARNECKE, Architect, San Francisco, Calif.

ROBERT H. MUTRUX, appointed Senior Staff Architect, in the firm of J. GERALD PHELAN, Architect, Bridgeport, Conn.

(Continued on page 68)

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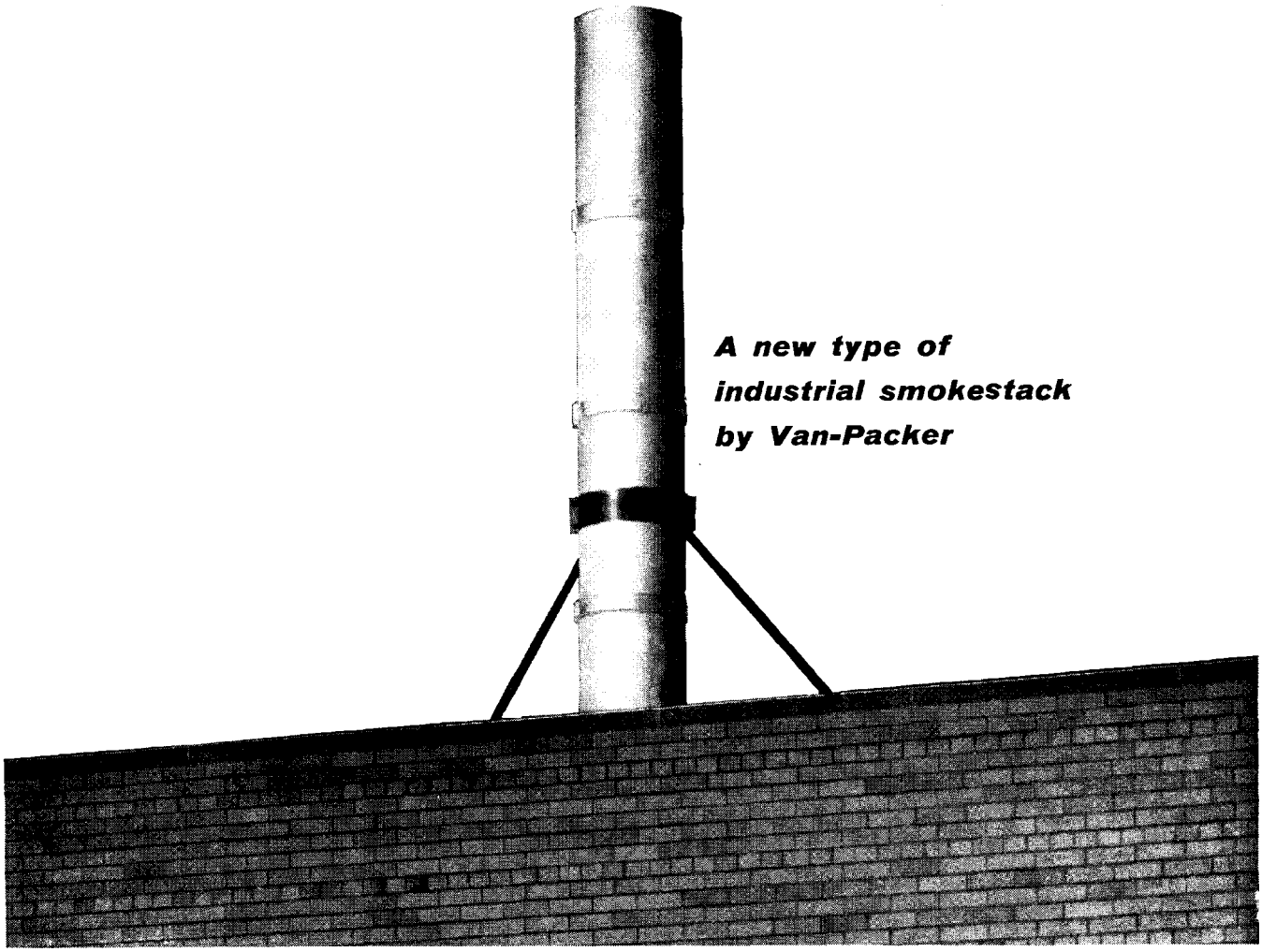

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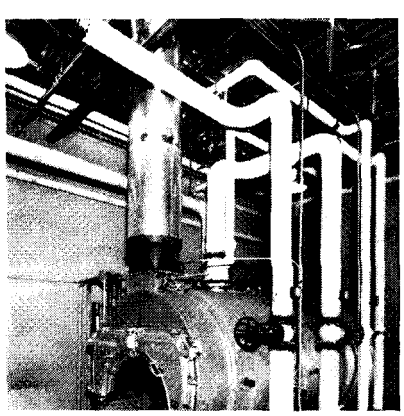
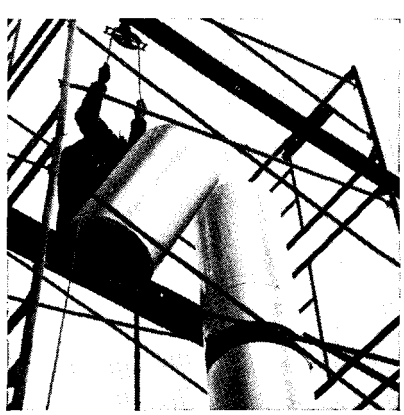
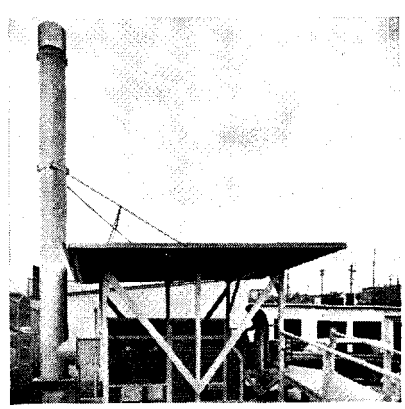
Available nationwide—Van-Packer Stack is available through local Van-Packer Jobbers and Special Representatives. See "Chimneys — Prefabricated" in Yellow Pages, or write Van-Packer for Bulletin IS-32-53.



Van-Packer Stack with Standard Sections handles boilers and furnaces efficiently. Can be superimposed or floor supported.



Installing this stack is quick and easy. Three-foot sections are simply cemented atop one another with acidproof cement.



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notices

(Continued from page 64)

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FREDERICK G. STICKEL, MARK T. JAROSZEWICZ, ANTHONY R. MOODY, Partners in the firm of STICKEL, JAROSZEWICZ & MOODY, Architects, 286 E. Brown St., Birmingham, Mich.

CARTER H. MANNY, JR.; THOMAS J. MULIG; CHARLES F. MURPHY, JR.; and CHARLES G. RUMMEL are new Partners in the firm of NAESS & MURPHY, Architects-Engineers, Chicago, Ill.

MALCOLM G. DUNCAN has joined A. M. KINNEY ASSOCIATES, Engineering - Architectural Consultants, of Cincinnati and New York, as a Project Manager.

WILLIAM G. BROWNIE, named Vice-President in charge of Construction Management, for PEREIRA & LUCKMAN, Planners-Architects-Engineers of New York and Los Angeles.

CARSON M. CORNBROOKS, ALLEN C. HOPKINS, CHARLES H. RICHTER, JR., Partners, in the firm of FISHER, NES, CAMPBELL & ASSOCIATES, Architects, 2120 N. Charles St., Baltimore 18, Md.

Associates in the firm of DEYOUNG, MOSCOWITZ & ROSENBERG, Architects, New York, N.Y., are: LOUIS H. FRIEDHEIM, BENJAMIN MARKOWITZ, IRWIN SAFIER, LEONARD SCHEER.

ROBERT A. LITTLE and GEORGE F. DALTON & ASSOCIATES, Architects, Cleveland, Ohio.

ADOLPH R. SCRIMENTI, JAMES A. SWACKHAMER, J. FRANK PERANTONI, Partners in the firm of SCRIMENTI, SWACKHAMER & PERANTONI, Architects, 205 W. Main St., Somerville, N. J., successors to Jay C. Van Nuys, Architect.

DONALD H. LUTES and JOHN M. AMUNDSON, Partners, Architects-Community Planners, United States National Bank Bldg., Springfield, Ore.

NORMAN G. AEHLE, Associate in the firm of JOHN C. BRYANT, Architect, and ROBERT BUTTERFIELD, Associate, 208 Sager Bldg., Everett, Wash.

JAMES J. MONTALTO and DON W. WILLIAMS, Partners in the firm of MONTALTO & WILLIAMS, Architects, 1701 State Rd., Cuyahoga Falls, Ohio.

LONNIE O. ADKINS, O. REUBEN JOHNSON, Partners in the firm of ADKINS & JOHNSON, Architects-Engineers, Route 1, St. Paul 11, Minn.

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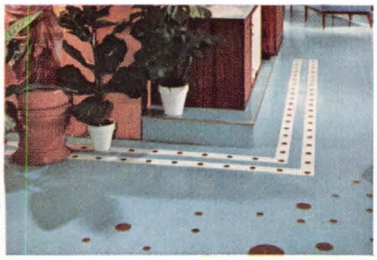
obert Owen Johnson evolves a classic ontemporary look with Amtico Renaisance Vinyl in this garden TV room.



Gold vinyl inserts in Amtico Terrazzo Design Vinyl create an unusual effect in this foyer by Hoffman-Heidrich.

Harlequin insets of Amtico Stardust Vinyl repeat the gay wall pattern in a smart guest room by Albert Thomay.

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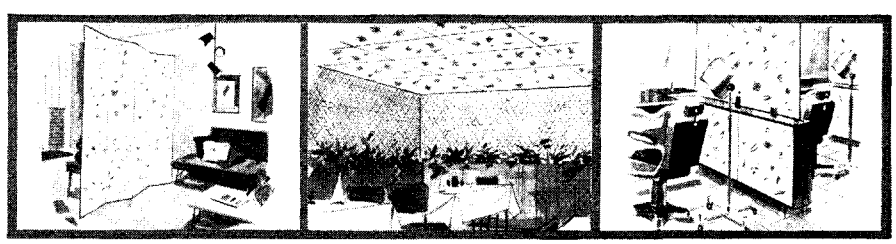

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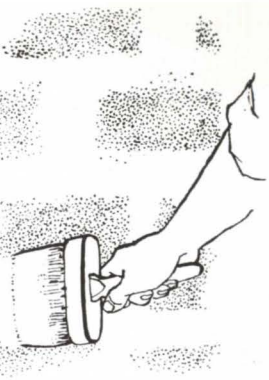

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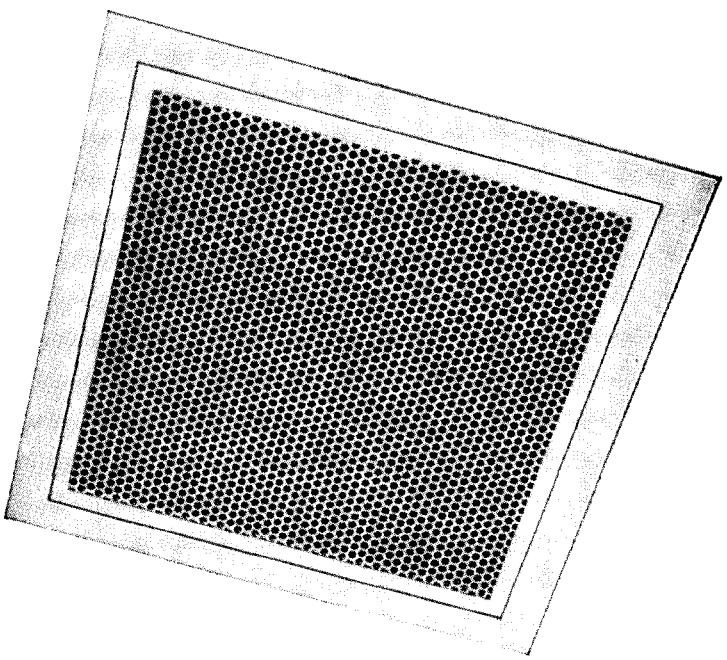

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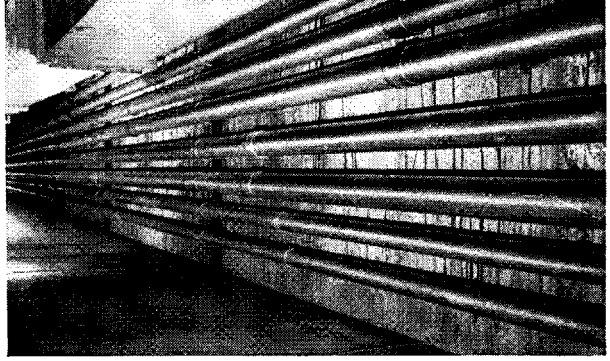

Bank of Youngstown "Buckeye" Steel Conduit in tunnel of Carrier Administration Building will protect important electrical wiring for lifetime of the structure.

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This modern, highly functional Administration and Research Center located at Syracuse, New York was recently completed by Carrier Corporation, leading producer of air conditioning, refrigeration and heating equipment.

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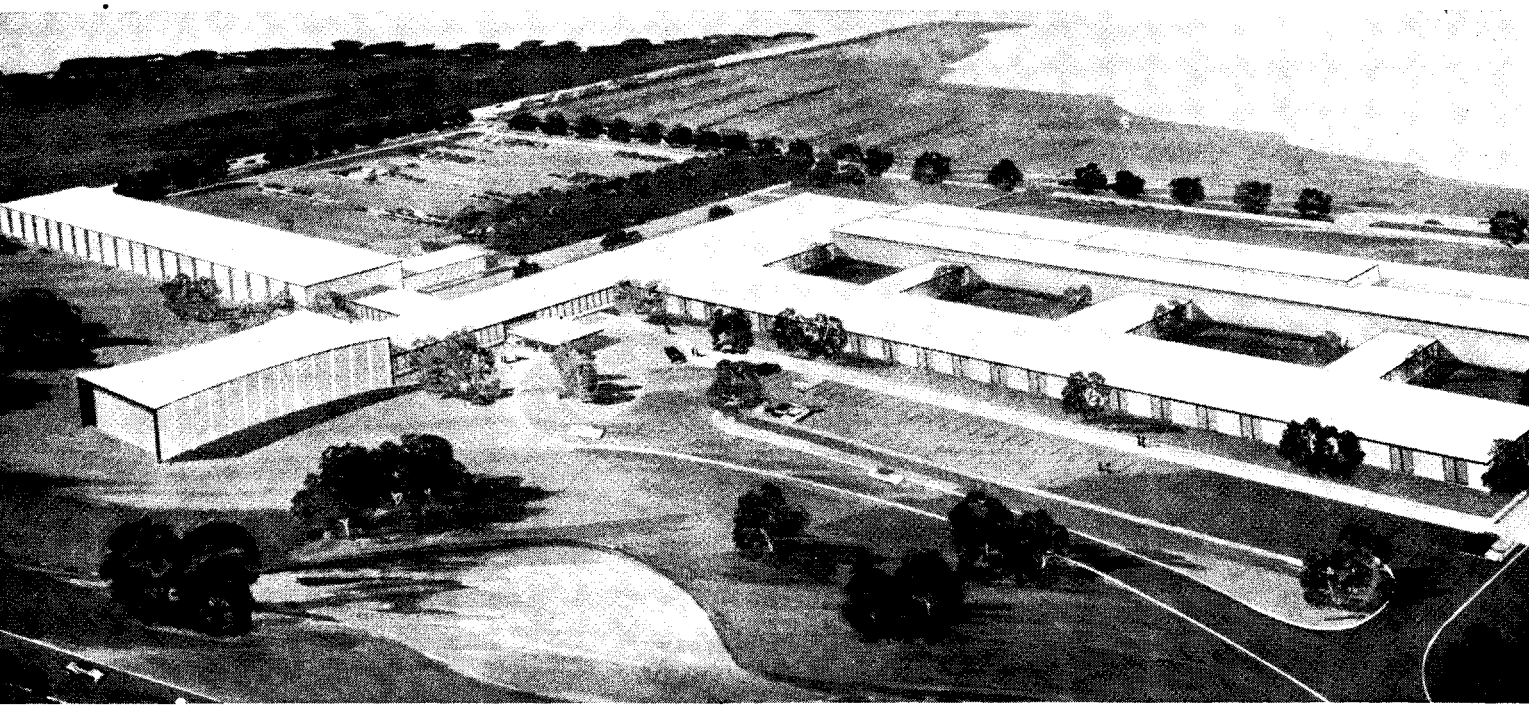

Administration and Research Center, Carrier Corporation, Syracuse, New York

ARCHITECTS AND ENGINEERS: Schmidt, Garden and Erikson
Chicago, Ill.

CONSULTING ARCHITECTS: Carson & Lundin
New York, N.Y.

ELECTRICAL CONTRACTORS: Bec Electric Company
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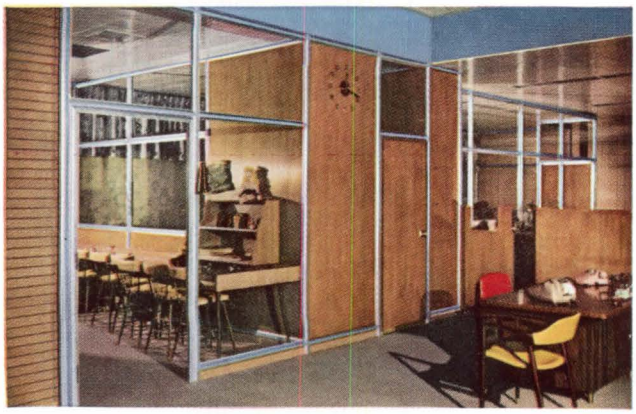

INTERIOR: Lincoln Federal Savings & Loan office, Berwyn, Ill.
ARCHITECT: Frank Velat, Berwyn, Ill.
PARTITIONS: The Mills Company, Cleveland, Ohio

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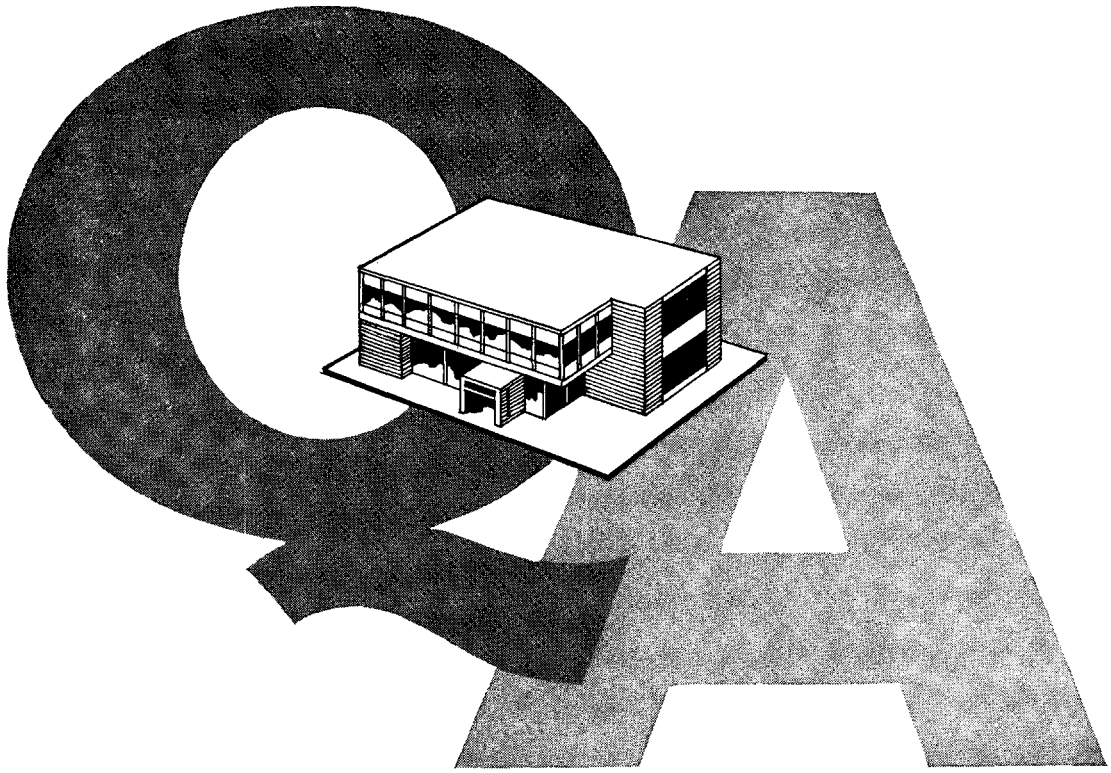

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A Just call your local Johnson branch or write Johnson Service Company, Milwaukee 1, Wisconsin. Better still, on your next project, let a Johnson engineer plan the control system and submit an estimate. No obligation, of course.

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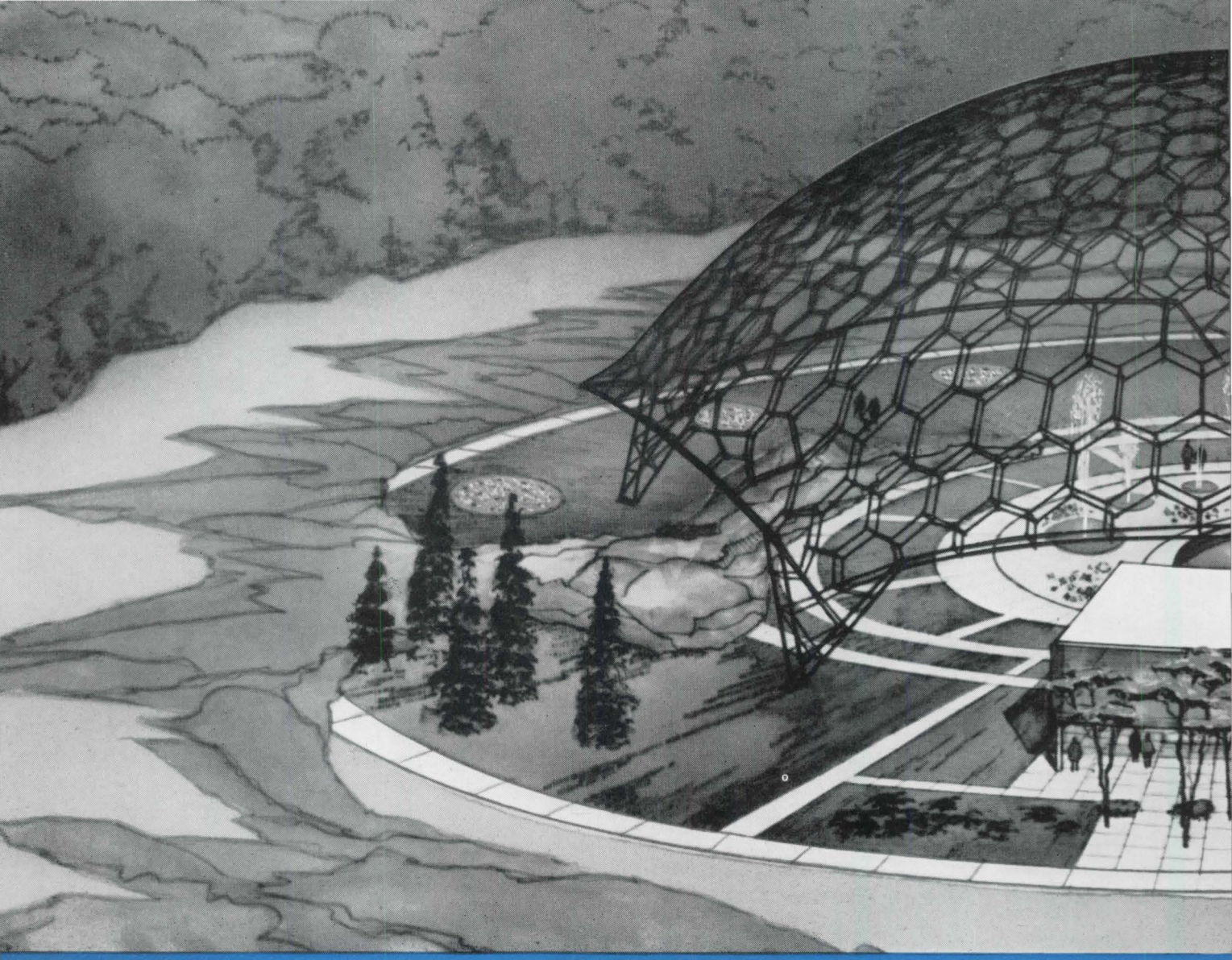

What the architect conceives ... aluminum achieves!

As an expression of what man has achieved through technology in metals, the architect conceived this giant aluminum dome for the new headquarters of the American Society for Metals near Cleveland, Ohio. The double geodesic "space lattice"—a quarter sphere containing over five miles of aluminum tubing—is 103 feet high and 250 feet in diameter.

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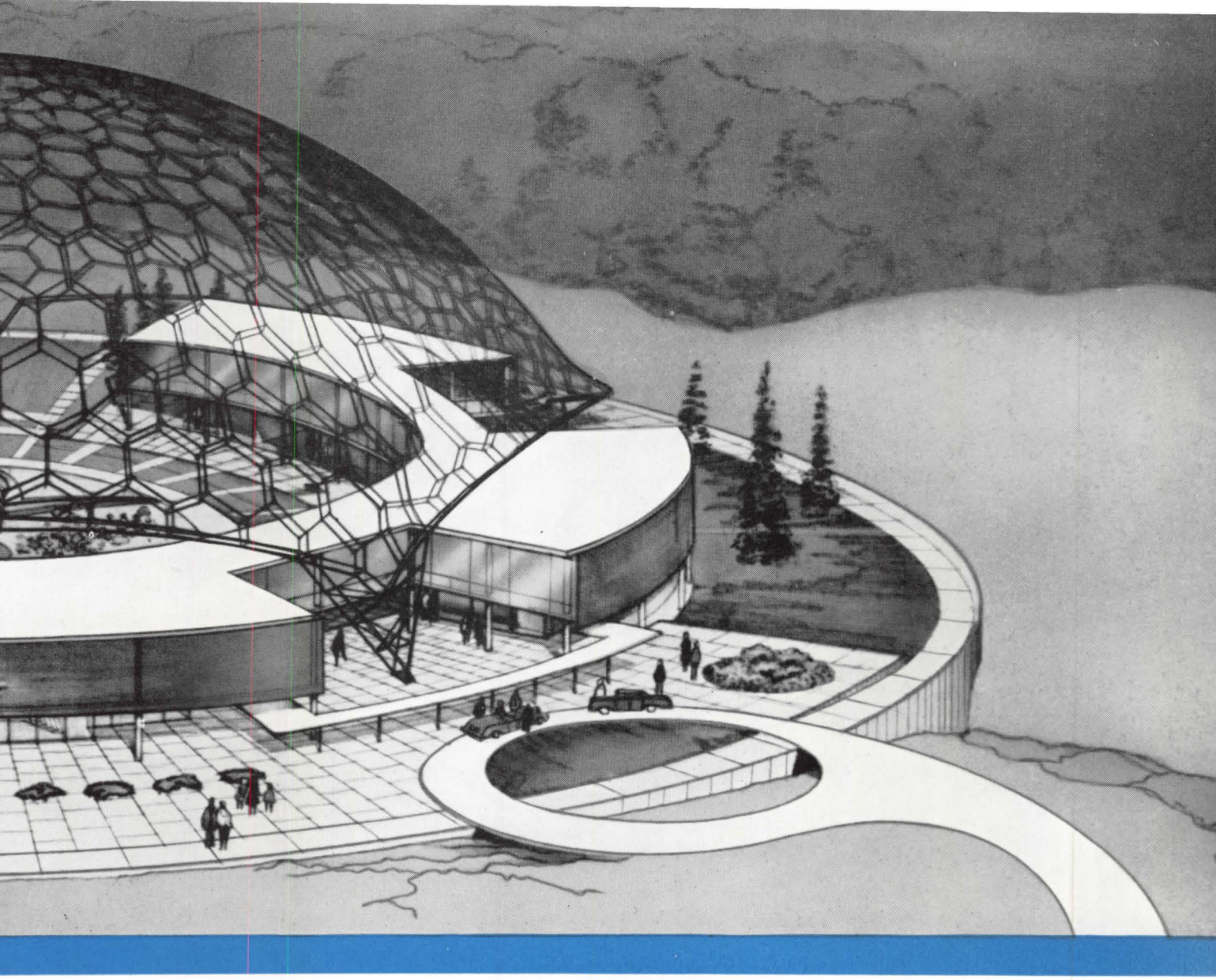


Kaiser Aluminum Architectural Representatives are working closely with architects and fabricators throughout the country to help apply these advantages of aluminum to architecture. Their service is available without obligation to any architect or fabricator who is interested in the opportunities that aluminum offers.

To request these specialists' service at any time, contact the Kaiser Aluminum Sales Office listed in your telephone directory. Kaiser Aluminum & Chemical Sales, Inc., *Executive Office,* Kaiser Bldg., Oakland 12, California; *General Sales Office,* Palmolive Bldg., Chicago 11, Illinois.

Aluminum tubing for the ASM "space lattice" emerges from extrusion press at Kaiser Aluminum's Halethorpe, Maryland plant. About 5¼ miles of tubing were supplied (4 and 6-inch diameters) . . . plus aluminum sheet, castings, forgings and 7¾ miles of extruded tension rod. Total: about 200,000 pounds of aluminum!

ARCHITECT: John Terrence Kelly

GENERAL CONTRACTOR: Gillmore-Olson Company

FABRICATOR: Columbus Division of North American Aviation, Inc.

ERECTOR: Mak Construction Company

KAISER ALUMINUM

p/a design awards seminar V

This is the final presentation of the Case-Study Seminar discussions of the 1958 P/A Design Award winning projects. Four other such critical analyses have been published in recent months, from tape recordings made in January this year at University of Pennsylvania, where the Department of Architecture sponsored the Seminars.

Project: **Student Center**
Client: **University of California**
Location: **Berkeley, California**
Architects: **Donald Hardison and Vernon DeMars, Associated Architects**

Presentation:
Vernon DeMars

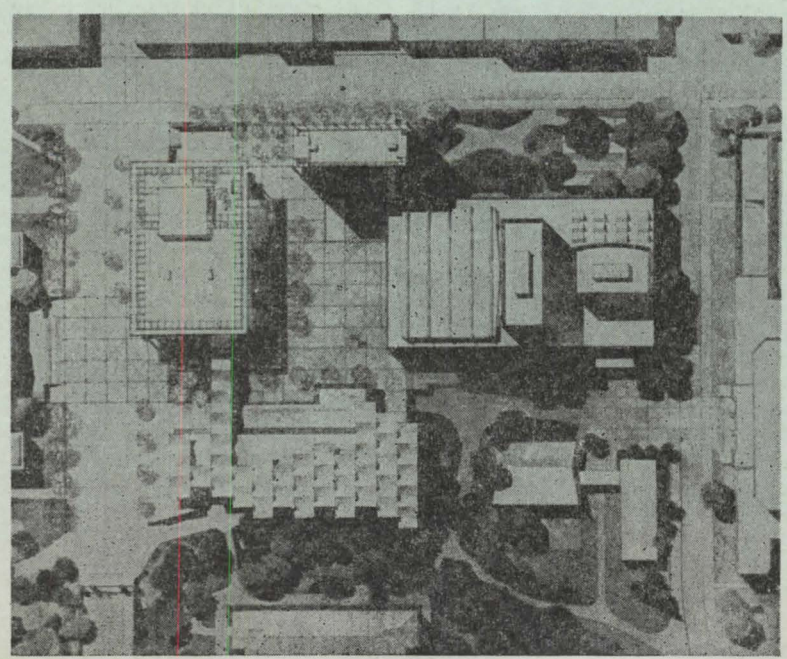
This particular project is rather interesting in that it is the second one in recent times which the University of California has chosen to award on the basis of a competition. Actually, the major portion of the existing campus at the University of California was the result of an international competition, held about 1903, suggested by Bernard Maybeck to Mrs. Hearst at that time. The original competition was won by a Frenchman, Emile Bénard, on a tremendous Beaux Arts scheme. Bénard did come over to visit the site of the University but he declined to take the commission for some reason and went back to France. The second winner was also unavailable, for some other reason. Then it came to the third winner to take the first scheme of Bénard, as well as his own scheme, and do an over-all comprehensive plan of the campus. This was John Galen Howard. The proposal of Howard was Italian Renaissance in concept—the buildings in granite, rather fine, with a great campanile being one of the central features. This is the tower, over 300 ft high, which still is on the campus—inspired perhaps by Verona or Vicenza. Some buildings have a French character, we might say. Then California went through a Spanish period. And of course we had earlier buildings left from the Victorian era. So that the campus is—as many campuses are in this country, Harvard not excluded—a collection of many styles. Of course, in this respect it is just like any city. One of our problems was to bring these buildings into some kind of harmony with each other. I think that this will be done in time; the campus seems to be in constant change.

Of the four buildings in our project one is a Student Union building *(upper left)*, with club rooms, lounges, rooms available for exhibition purposes, a large ballroom and banquet hall, meeting rooms, a contemplation chapel room on the roof, a student store on the lower level, facing on the plaza, and a billiard room, bowling alleys, and so forth.

The dining facilities building *(below the Student Union)* consists of a large cafeteria, which seats 800 at one time, on one level; dining terraces for students, many of whom are commuters and who might bring a lunch, buy coffee, and sit on the terrace; private dining rooms, a small restaurant, with a little more atmosphere of calm, perhaps, than the cafeteria might have. The cafeteria has been roofed with (I'm ashamed to use the words) hyperbolic paraboloids. We really are convinced that this is a very good way to roof it, and it really evolved from more than the notion that we also must have a hyperbolic paraboloid. We started with the large space and we felt that its character should be kind of strange and irrational, and at the same time practical—broken up from being a great army feeding hall. So some effort was made to find a way to break down the scale and finally the idea of holding it up on columns led us to a sort of mushroom conception and from there to hyperbolic paraboloids. The north side faces out on the creek and therefore, in one sense, the lush growth here will serve as an outer wall of the dining space. The other side, facing south, with various terraces stepping down, gives a completely different character, so there's quite a range of choice for people dining.

We are contracted to get those two buildings under construction by June 1958. The other two buildings we hope will come along next. They are closely tied in with the scheme, and must be carefully co-ordinated because, with the underground garage, the circulation and the spacing of the buildings naturally have to tie together. The office building (*rectangular building, upper center*) will house student activities, the yearbook, the newspaper, athletic coaches; in a school of the size of the University of California these activities get rather extensive and an eight-story building will barely hold them. A theater facility has been rather sorely lacking at the University of California. This building, which has been related to the Student Center, contains a 2000 seat auditorium-theater and a smaller "experimental" theater, which shares some of the stage and production facilities of the larger one.

We felt that we didn't want this Student Center to embrace the aca-



demic administration building; we felt it had to be recognized as a major physical existing force, but we wanted to try to screen it off a little so that the students wouldn't feel that they were being dominated by the academic world out there. The whole Student Center itself focuses around its own internal plaza, with a kind of gateway and a bridge, which connect Student Union and the dining facilities, and a rather monumental stair, which takes you from the level opposite the Administration Building to the plaza level, which is a full story-height lower. By this device, we feel we've both recognized the older building and at the same time have prevented it from dominating the area. Also, we finally got what we thought was a rather pleasant, slightly angled, relationship between part of the gymnasium and the new buildings.

We made a conscious effort to propose that this could be a real center for bits of symbolism, things which will be of interest to students of one generation, then to students of another generation. We think it an excellent place for works of art, for gifts from alumni. One of our focal points we are reserving for a golden bear, which we have shown on a rather short triumphal column. We haven't had the alumni coming forward with this particular piece of sculpture yet, but we have hopes that this will be a place where one dark night our rivals, the Stanford Indians, will come up with a ladder and paint it red, just before a big game. And then there'll be frantic screaming the next day as we try to scrub the paint off, but it will be the kind of sculpture that we won't be quite able to get all of it off and there'll be little bits of red that will always remain there, to remind people in future times that this happened, at that time. We hope it will be that kind of an area, where traditions can be started. We won't try to make all the decisions on them, but we think this might provide the climate for that sort of thing to take place. I think perhaps, in another sense, space like this can be based, without any shame or apology, on a kind of past life—as example, the Piazza San Marco in Venice—because this is truly a pedestrian city, a student city. Most of the "city" is very much like the way you approach Venice. If you have driven there in a car you leave your car outside the city and you're put on foot inside. This will be the same; the student, if he's come by car, doesn't get his car inside this city. It's my conviction that many values that affect the pedestrian in any one time in history are still valid for pedestrians in another time. This is in contrast with whatever arguments you want to make about the new scale of the automobile, or the aeroplane. This isn't even a bicycle city, because that custom doesn't seem to have reached our area, to any extent, as yet.

***Discussion:* Carl Koch**

I think my comments will be quite short because I think Vernon's done an excellent job of making this project very alive for all of us, even to the extent of explaining the traditions of a group of buildings before they'd even been built. I think that's a very good thing. It reminds me a little of the way, I understand, Ragnar Ostberg went at designing the City Hall in Stockholm. DeMars has been living in that area and thinking about the problems for a very long time. Henry Kamphoefner has spoken of the fact that so many of us are trying to do too much in too little time. You can't take a look at what Hardison and DeMars have done here without knowing that it isn't a quick, over-all study. I think that had, in the case of the Jury, a couple of adverse aspects. I think partly, however, as Tom Creighton has written, any jury that has to look at a large number of things in a short time likes simplicity and quiet and unity, and I think that the main criticism of the whole Jury on this project was that it was not as unified as it might be. The site planning, everybody agreed, was really very well worked out. I know that several felt that the buildings could relate to each other better. We realized the difficulty of the problem, however, of relating a cafeteria to a student union, to student offices, to a large theater center, and making them all tie in together perfectly. Furthermore, as we discussed this, I couldn't help remembering a visit I'd taken to this University only a short time before and wondered, as we talked about it, to what extent you would be justified in making a little island within a campus—if that is the proper word for it at the University of California. It's certainly not a campus as is Harvard Yard—it reminds me a little bit of downtown San Francisco. I would have liked to see, if it were possible, a little more appreciation of the stream and the trees on the north end of the project. I'm sure Vernon's got a good answer for doing what they have done, and certainly the north side of the cafeteria would look at the green, but I do have the feeling from the site plan that it is somewhat hidden.

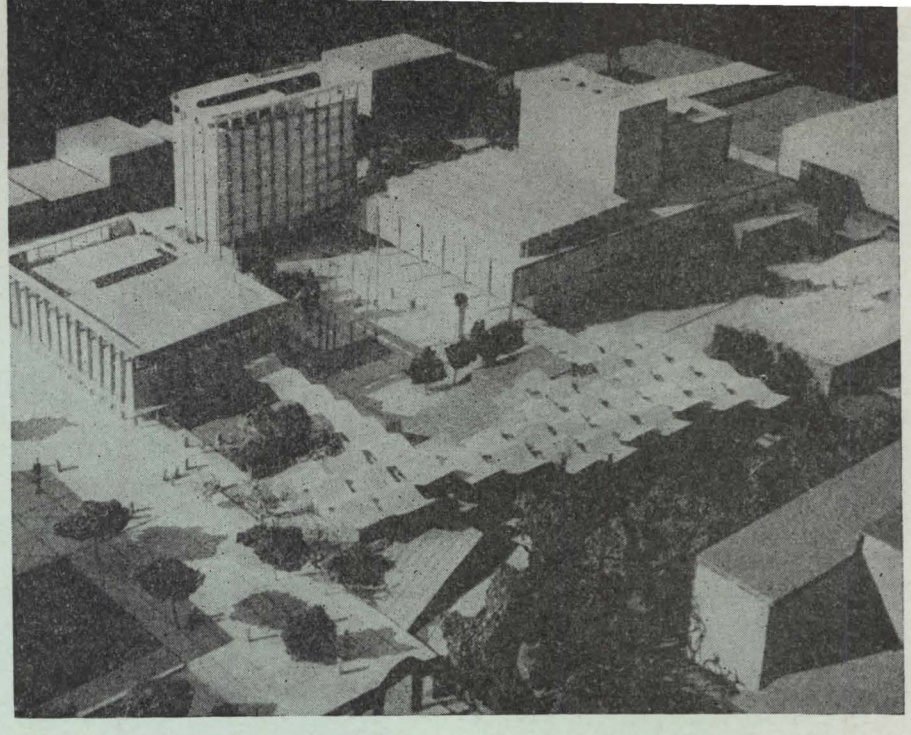
Regarding the cafeteria, I think the paraboloid is a very handsome and playful shape. As a covered walkway between buildings they certainly are going to be effective. I'm just trying to think of them, 20 years from now, as the roof of an eating hall, and of course if they are nice and tight, and there have been no leaks or other problems, they may be just as effective as they look in the photograph of the model. I had a little feeling though, that the effort at obtaining interest in that particular building (thinking a little about what Vernon described as one of the things he was trying to get in the cafeteria — strange, irrational, romantic aspects) that in spite of the very three-dimensional ceiling effect you had a tremendous mass of people all eating in a barracklike room. No break in the room, no way as far as I can see for a young man to get his girl off in a corner and talk about the next five years with her. I wonder if it might be a good thing to put some of the effort going into the ceiling down at the level of providing some screens, so that the big space would be broken up more. I think that Vernon's point about the plaza is worth just a mention. I had a little of the feeling that some more green and trees in the whole area would be a tremendous help. I think the reference to Piazza San Marco is a good one but it immediately occurred to me that at San Marco you've got a view of water. There is very little greenery, but there is that water, which provides somewhat the same relief from pavement and buildings that the greenery does.

DeMars: On the problem of unity, at the beginning I think we approached this in a very positive way. We felt we were in a situation where there were already so many different types and characters of buildings that, simply because we were fortunate enough to be dealing with four new buildings which were being added, there was a question whether these four should be more unified than seven others that already surrounded us. It is my personal philosophy that one of the faults of our present time is that an architect approaches any group planning project as a problem to which he must bring unity to his whole group, somehow, by doing everything as though all were one building. I think that this is one method of approach, certainly, and it takes a bit of convincing of yourself that if you have five buildings, six buildings, ten buildings to do, they need not all be unified by the same architectural treatment. We tried to let each building have

quite a different character — the character appropriate to that building—but to have some flick of recall in various of the elements, one of them being a 24-ft module. The whole complex is built on this module, which divides nicely into three, four, six, eight, and twelve feet. We found that this 24-ft module did somehow, fortuitously, work out for bowling alleys, car parking, seating, and many other things, and this we think will have some unifying force in the complex.

On another question raised, the creek and the trees along it would, to an Easterner, seem like a wonderful cool pool of shade. To a Bay Area-ite it is different: we seek the sun, because it's always just a little too chilly. One of the things which our Southern California competitors who were in the same competition did, many of them, was to put their dining terraces in the shade, facing the creek, so they could get the benefit of the coolness in the middle of the summer. The middle of summer in the Bay Area is likely to be a chilly time, in which we are going around trying to find some little spot of sunshine. We thought this was very important. We can see how this operates on our campus. The library, which has a great entrance on the north side, is almost always devoid of anyone sitting, standing, doing other than moving through it. On the south side, all the buildings will have students sitting on the steps, reading, sometimes eating their lunches; you can see this just by walking about the campus on a sunny day during almost any part of the year. This is a local climatic factor of which we were very conscious in our solution. We have made the trees, in a sense, a green wall of the interior building, rather than making it an area which will be used outdoors.

Carl, we'll both go back in ten or fifteen years and look at those hyperbolic paraboloids. I hope it won't seem too much like the year of the roof, as one of our students said. But, on the other hand, this could be a good way of placing the year of the design: "Oh yes, I remember, 1957! That certainly was a year!" On the other hand, it's interesting how you persuade yourself toward a thing like this. You can see how it would be done in the heat of competition; when we finally got this, we said: "That's it! That'll get 'em!" And I guess it did. Now the trouble is, we like it, and we're convinced that there's nothing better that we can do. I will say that in the sketch that big space perhaps looks bigger than it is. It seats perhaps 250 of the 2300



". . . problem was not to achieve unity, but harmony."

people who will be able to dine at one time throughout the building, and there are all sorts of other nooks and crannies for your fellow and gal who have to talk about the next five years. The outside, some on the north, some facing the creek, some tucked under various terrace levels —I think if you look at the floor plan of the thing, itself, you will see that it's quite broken up.

I won't argue on the San Marco reference; it's very true, certainly, that the water is part of it. We did feel that, inasmuch as large parts of our present campus are of the English parklike variety (and we hope these will be retained) the focal point for this kind of an intense use should be a paved urban-plaza type. Because it is the place on which the theater is built, it is a place of intense pedestrian use, and it seems proper not to have it an area of lawn and planting. However, immediately adjacent, the "water" in this case would be certain areas of greenery that people would look out to, from the terrace.

Henry Kamphoefner: In a discussion of this type I suppose we must always have a problem of getting used to words: semantics. I am willing, reluctantly, to accept your apology for your use of "ranch style house," but the other word—unity—is where I think the discussion didn't really come to grips with the point at issue. I think you brushed off the point at issue a little bit. It seems to me that your problem here was not to achieve unity—I think the thing you had to do was to achieve harmony. I think that's the point we should discuss: whether you achieved harmony or not. Unfortunately I'm not able to needle you any further, because I think you probably did.

DeMars: Thank you; I admit that harmony is the term—and the thing to achieve. But I do feel that there is a premise on many architects' parts that whatever the size project you have (and this is particularly true of housing and has been for a long time—the word "project" has gotten to be almost a nasty word because of this point), you must have unity. You design several hundred houses so that they all look as though they came out of the same doughnut machine and you've got a project, and you have unity. But you also have this unfortunate corollary: not merely monotony, but a kind of *deadly* monotony. Something more subtle needs to be done whenever one is dealing with a large group of buildings; sometimes, I think, you can have them quite closely unified but at other times I think you'd be justified in going quite far in having them disunified.

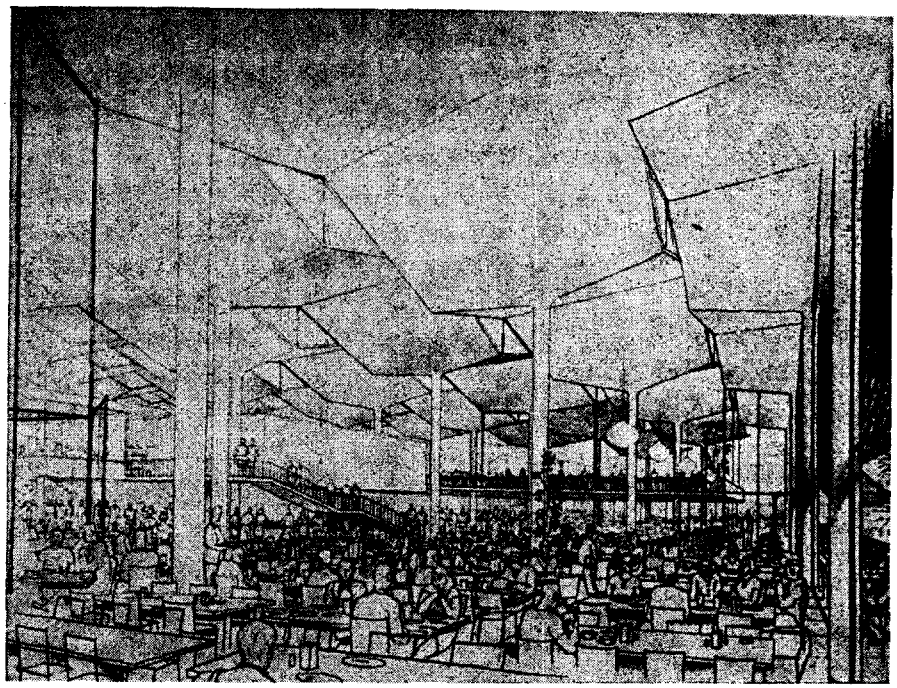
Edmund N. Bacon: If one may be critical of the criticism I would like to address my remarks to Carl Koch as critic. First of all, it seems that he is perturbed by the fact that this is a self-contained unit, closely-knit, planned to look inward. I think that this is the merit of the design and this is why it is eminently significant, and I think it very important to architecture right now that we get a new appreciation of these values. I think for example that some campus plans for government buildings are good examples of the rather uncritical acceptance of the suburban idea of the more space the better—plac-

ing the buildings so far apart that basically they fall apart in composition. I think it a very admirable thing that this group of buildings which are closely related is conceived as an architectural unit, and it is good that they look together into an internal organized space. There is no reason, in a sense, why we shouldn't regard this group of buildings as a single building.

The second point: what is this greenery business? A magnificent example is the redevelopment project for the waterfront in San Francisco, which to my mind is a negation of urbanity—the most complacent, negative statement that one could think of. There's a lot of greenery, which is spread broadcast like a seeded lawn; for the waterfront at San Francisco, in my opinion, nothing could be more inappropriate. I think it's positively wrong to always think you've got to mess architecture and architectural space up with a lot of miscellaneous greenery. I think the space here in the Student Center is in good scale. I think it's a fine, positive statement, with a real contrast. It is a real effort at urban space, with some sculpture and art in it, and some skillfully placed vegetation, but a definite contrast to the green and rolling aspect of the elements outside.

George Qualls: Getting back to the question of unity, I think that part of the problem in this particular scheme may be that the space was a little too well defined geometrically; the buildings attempt to line up too much, creating a very strict rectangle. Maybe if the space had been somewhat exploded—not such a contained space—you would have had a little more freedom of design and you would not have been so conscious of the problem of unity.

DeMars: We really found that the programming of the areas required almost exceeded the possibility of getting it all crammed into this space and still getting an open area in the center. We were really fighting to try to elbow out. The buildings, most of them, are pushed to the extreme of the site allowed us, in order to get this large central plaza. I suppose we would like the plaza larger, if the buildings hadn't precluded that, but I accept your suggestion. We did at one time also consider some nonrectangular things, little angles and so on, but as soon as we drew anything at an angle it looked very wrong on the site. Except for the creek, it's inherited a grid-iron scheme of streets and buildings, and in this particular case there were so many controlling things which had a rectangularity that we found ourselves falling into it, except in the cafeteria. There we got what you might call the nonrectangular edges where they met the creek on the other side, but even this was done within a kind of a grid. We struggled with this problem.



". . . a quiet roof rather than a busy one?"

James Goldstein: With regard to Piazza San Marco: the wonderful character there is partly due to the life in the square—people and pigeons. Aside from that, I want to remark on the roof of the dining hall. It occurs to me that although this is a wonderfully strange and mysterious roof—with the light coming through it will be quite remarkable—it appears to be quite busy. There is clutter and flutter in a great dining hall, with students rushing about and it should be a time for repose, for some quiet. I know you gave this aspect some thought, with the trees and the brook, and I wondered if you had considered and rejected the idea of a quiet roof rather than a busy one.

DeMars: Well, there are certain areas of the plan which have flat ceilings. In fact, a good portion of the main floor, beyond the central area where the roof is two stories high, has flat ceilings. They'll be "quieter." But we felt also that handled in a light color and acoustically treated (unfortunately we won't see these fine stripes of the hyperbolic paraboloids) it won't be overly busy. I think we are not going to paint the individual elements different colors. In one sense we think of this roof as having the same effect as Gothic vaulting. And I think the continuousness of the pattern overhead gives a certain quietness—here is a case perhaps where the unity of a thing might in itself produce quiet.

Donald Hardison: Talking about quietness—some of the students get in and out of here in twenty minutes; there's very little time for quiet repose.

Holmes Perkins: I'd like to say a word in praise of this project. There is a recognition in this design that you have an existing situation and some buildings which you are not, perhaps, too happy about. This you accept; you do not turn your back upon these other buildings, and you do not attempt to make a monument to yourself as an architect. You take these things into the picture and you welcome them as part of the whole composition. And although you still preserve a unity within the central portion you welcome a connection to the existing conditions outside. There are too few of our modern groups which are willing to accept an older building, even when it is in clear view, within a quadrangle of new structures. The fact that you are willing to look at the old campanile and have the students see it from within your own quadrangle is a most commendable notion. We are going to have to live with the architecture of the past, and the future will have to live with our architecture and I hope we can be gentlemen about it.

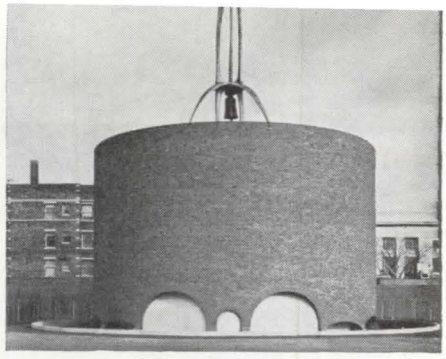
search for form

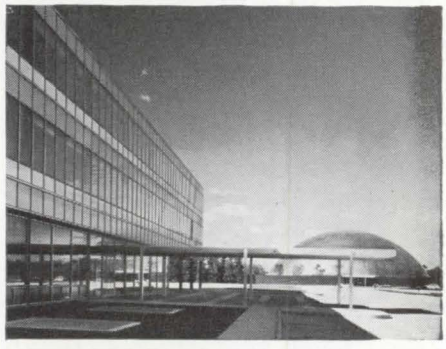
On this and more than thirty subsequent pages, P/A highlights and discusses the ever-present problem of appropriate design expression. Three main elements constitute the presentation—an extended look at Eero Saarinen's Concordia Senior College, Fort Wayne, Indiana; a provocative article entitled "Contemporary Classicism," by Stephen Kliment, a young architect *working with* Skidmore, Owings & Merrill; and a Progress Report on work in housing design that has been carried forward through the years by Carl Koch & Associates. Each of the elements is of interest in its own right; but together, the three illuminate the never-ending Search for Form—the title, incidentally, of a book on this subject written by the late Eliel Saarinen, which was published by Reinhold in 1948.

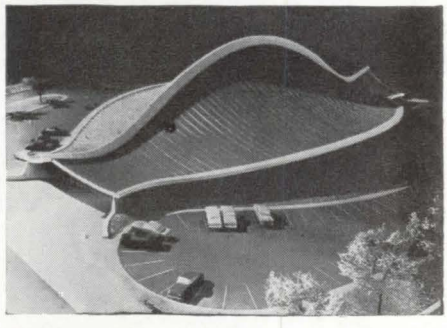
The argument might be outlined something like this: Kliment questions in his article whether it may not be time to stop trying everything under the sun in architectural form and to settle on some basic general approach that can develop into "Classicism" in 20th-Century terms. Only thus, he suggests, can a contemporary architecture be developed, perfected, and refined in terms that the public can understand.

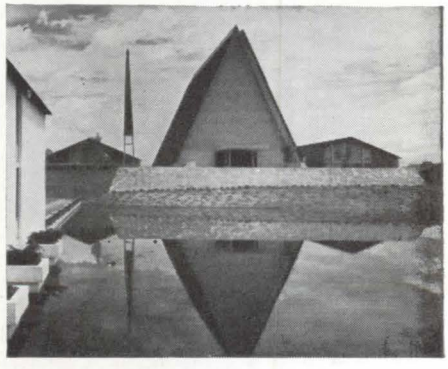
Saarinen exemplifies the architect who undertakes (and executes handsomely) the widest diversity of forms, as witness the small illustrations on this page. (*Top to bottom:* MIT Chapel; MIT Auditorium; GM Technical Center; Yale Skating Rink; Concordia Senior College Chapel; Milwaukee War Memorial; and unit terminal for TWA, at New York International Airport.) Koch, on the other hand, is an architect who has consistently been developing one calm approach to architecture, constantly restudying it and refining it, in a kind of "Classic" approach of his own.

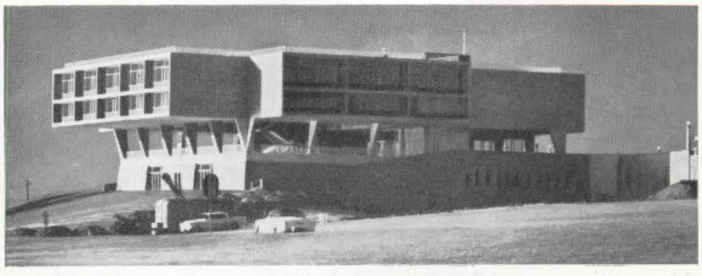
Is one *right?* And the other, *wrong?* What conclusions can be drawn? This argument is not settled in this issue of P/A. But we think that readers who relish criticism and design theory will be highly interested and, we hope, will be moved to express opinions of their own.











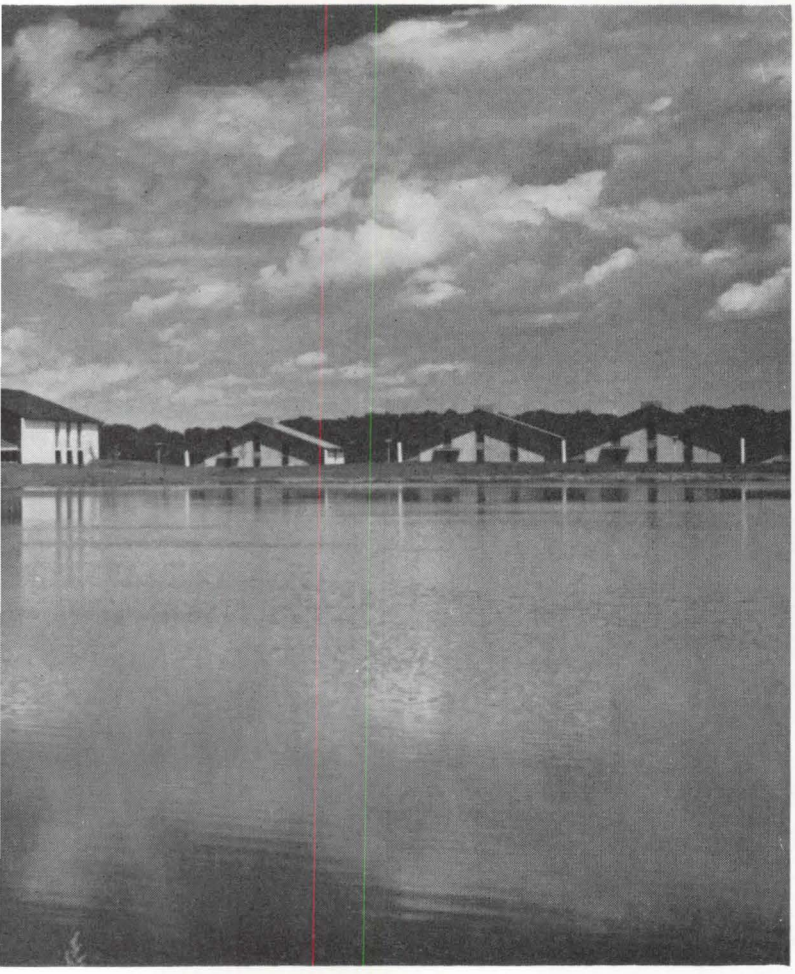
a "village" design for a college campus

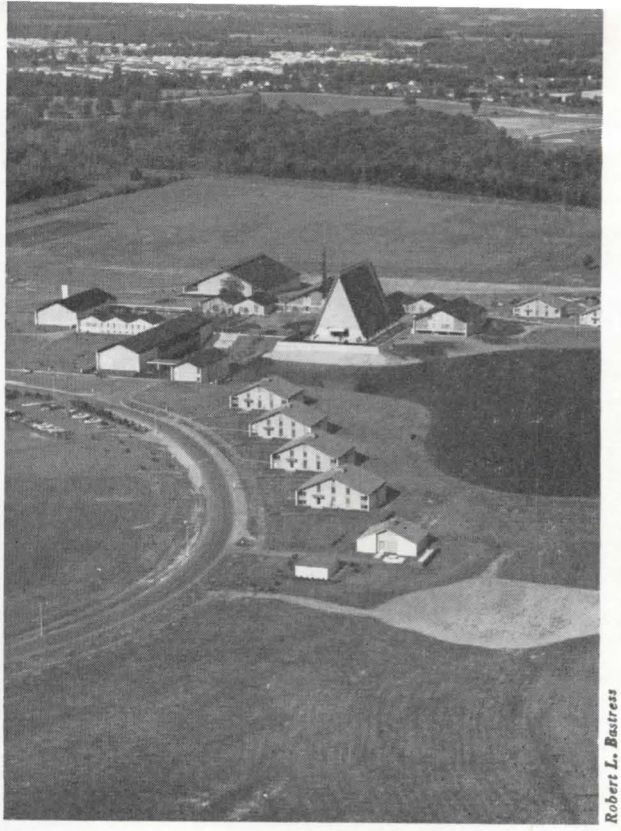
name	Concordia Senior College
location	Fort Wayne, Indiana
owner	The Lutheran Church—Missouri Synod
architects	Eero Saarinen & Associates
landscape architect	Dan Kiley

This entirely new campus—recipient of a Design Award in P/A's Third Annual *Design* Awards Program—is a two-year senior college for 450 students who plan subsequently to train for the Lutheran ministry. Eero Saarinen states the thesis behind the villagelike aspect: "The concept of Concordia Senior College comes from the joint efforts of the Building Committee and the Architects. From the beginning, our common concern was the creation of an architecture which would support and express the idea of the college. We sought the creation of an environment appropriate to the intellectual and spiritual training of young men who would go on to professional studies in theology.

"The strategic question was the relation of the buildings to the world. On the one hand, we all felt that they should not be inward-turning and removed, like medieval monasteries; but, on the other hand, we felt the group must—for its purpose—have a tranquil atmosphere of at least partial self-sufficiency. The solution seemed to lie in the village-concept; a group of buildings which would have a quiet unified environment into which the students could withdraw to find a complete, balanced life and yet one which is related to the outside world.

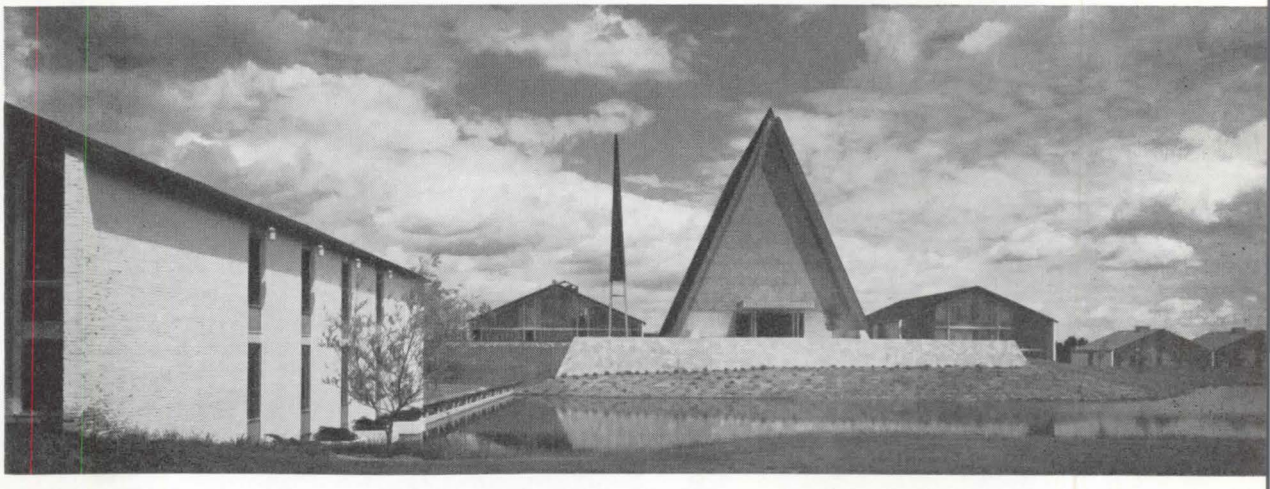
"As in a village of the North European type, the chapel is in the center, placed on the highest spot, with the other buildings grouped around this central and all-





Robert L. Bastress

Photos (except above): Alexandre Georges



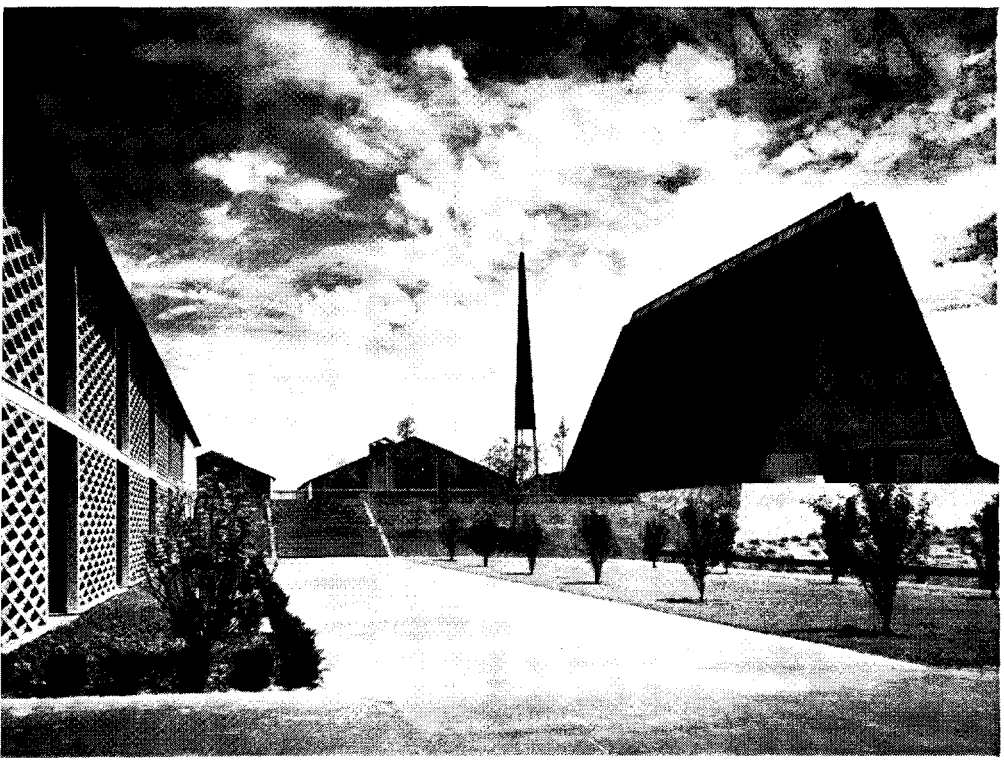
important symbol.

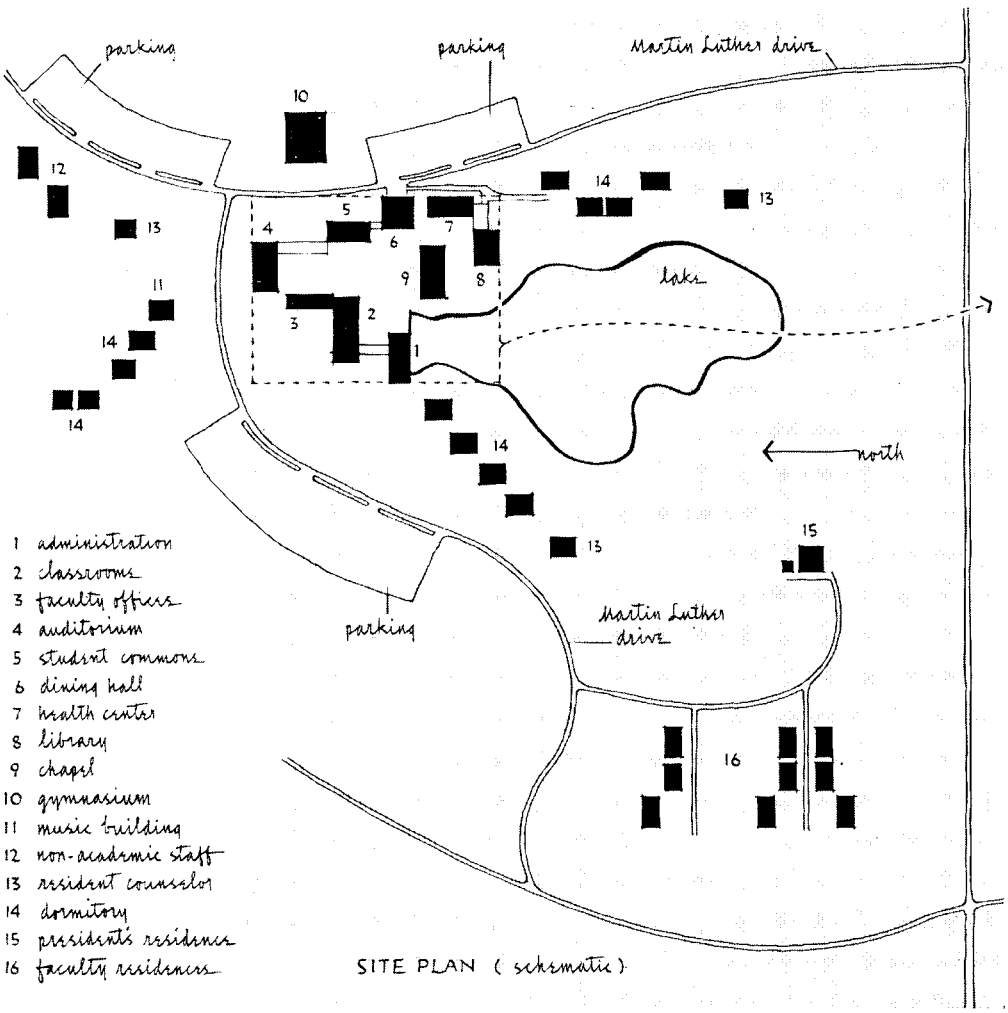
"The pitched roof seemed to give the right architectural expression to the whole complex. This sort of roof is symbolic of the North European church. By using it on all the buildings, the group was united in one spirit. By making the pitch of the roofs of the other buildings lower than on the chapel, the lesser buildings seemed to rise up toward the most significant one."

Basic structure (*see* MATERIALS AND METHOD *listing*) consists of reinforced-concrete foundation walls and slabs to grade supporting welded-steel frames and bents made up of double-channel and/or double-angle box sections. The gable-end walls of diamond-shaped brick and the side walls of whitewashed common brick are nonbearing.

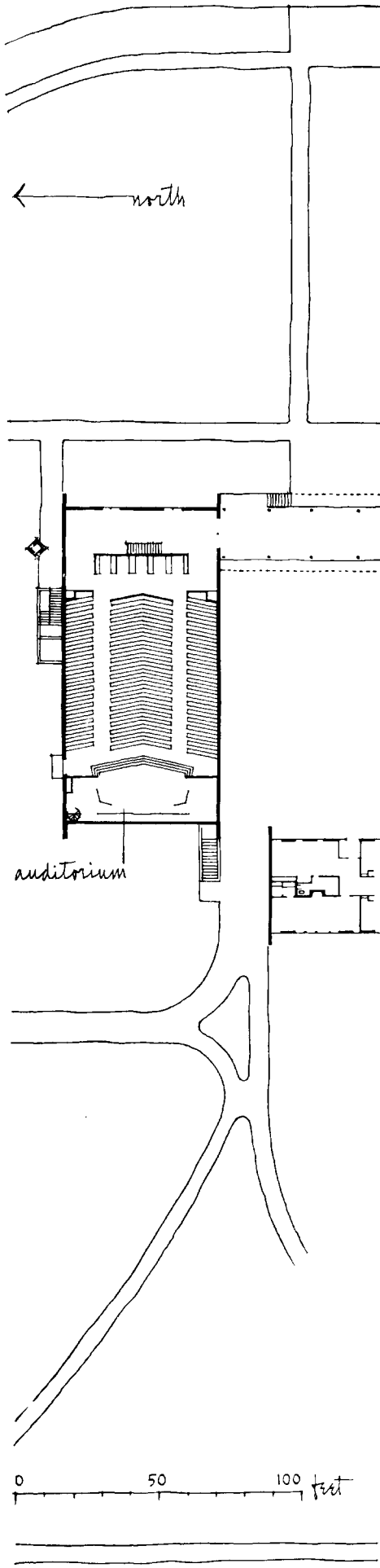
Associated with the architects in the realization of the project were Severud-Elstad-Krueger, Structural Engineers; Samuel R. Lewis & Associates, Mechanical Engineers; MacNamee, Porter & Seeley, Site Engineers. Landscape Architect: Dan Kiley. General Contractors: Wermuth, Inc. (Administration Building; Classroom Building; Faculty Office Building; Auditorium; Commons Building; Dining Hall; Health Center; and Library); Hagerman Construction Corp. (Chapel; Gymnasium; Dormitories; Counselor Houses; Staff Residences; and Water Reservoir); Grewe Contractors. Inc.; (Faculty Houses).

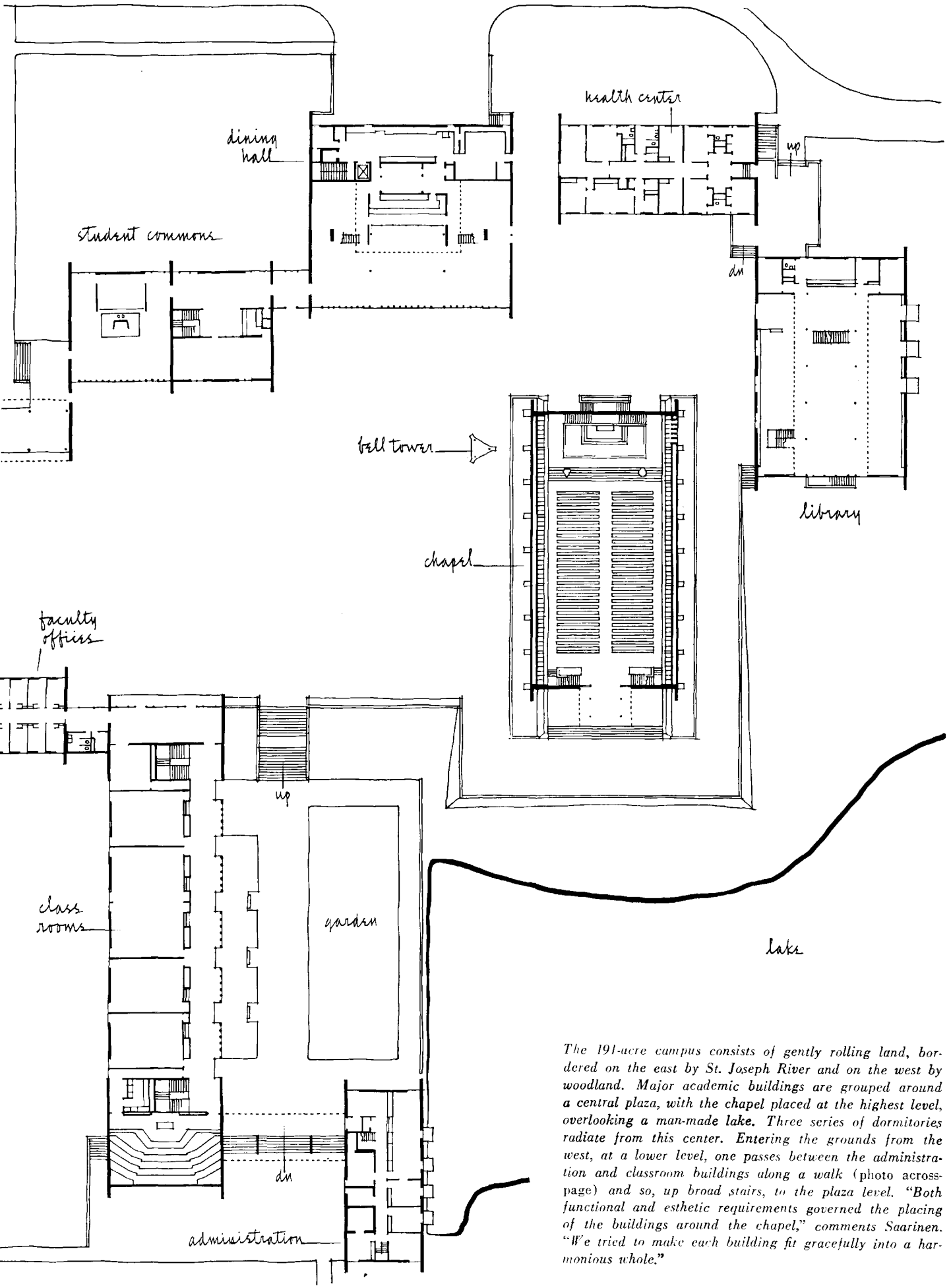
Concordia Senior College





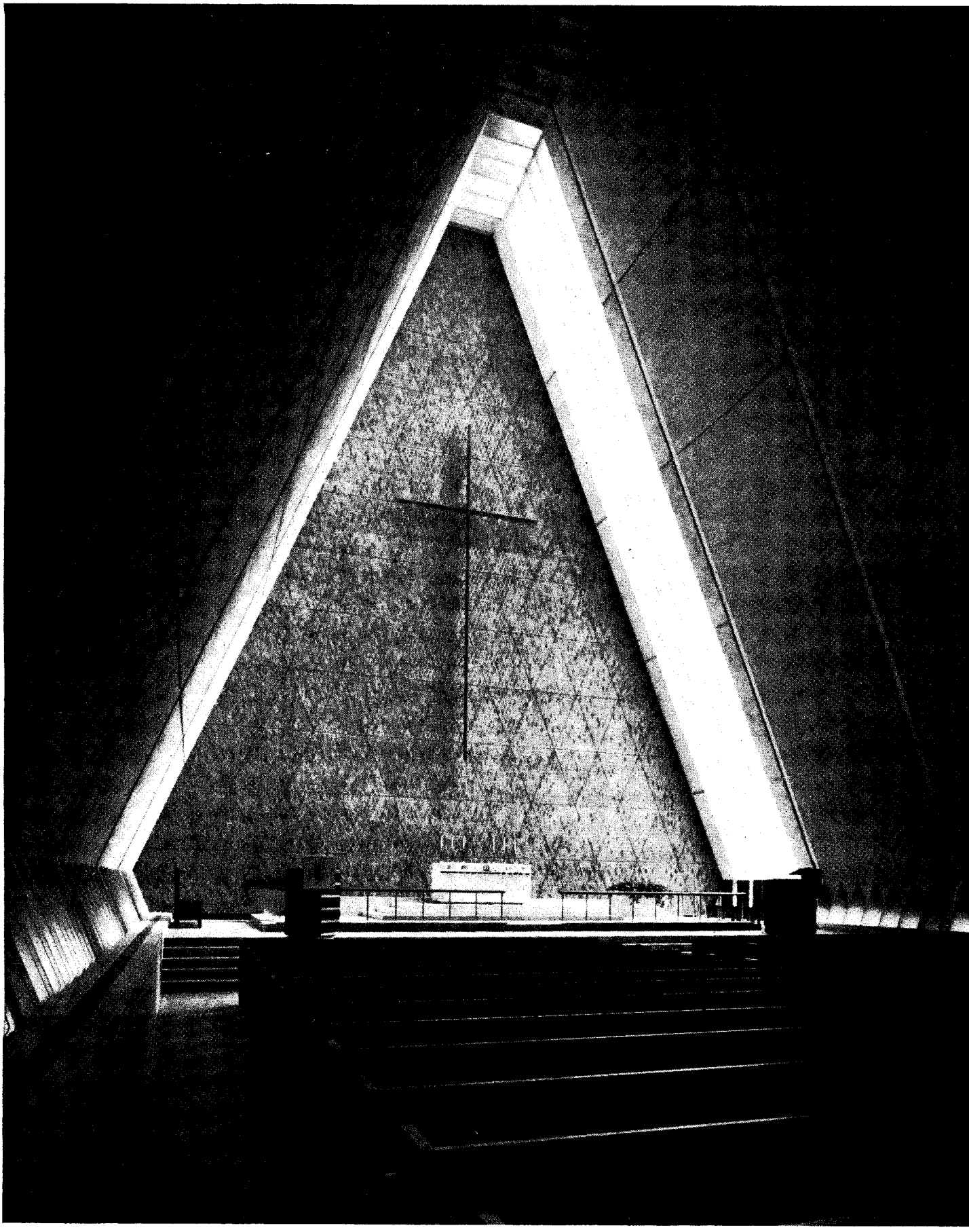
SITE PLAN (schematic)

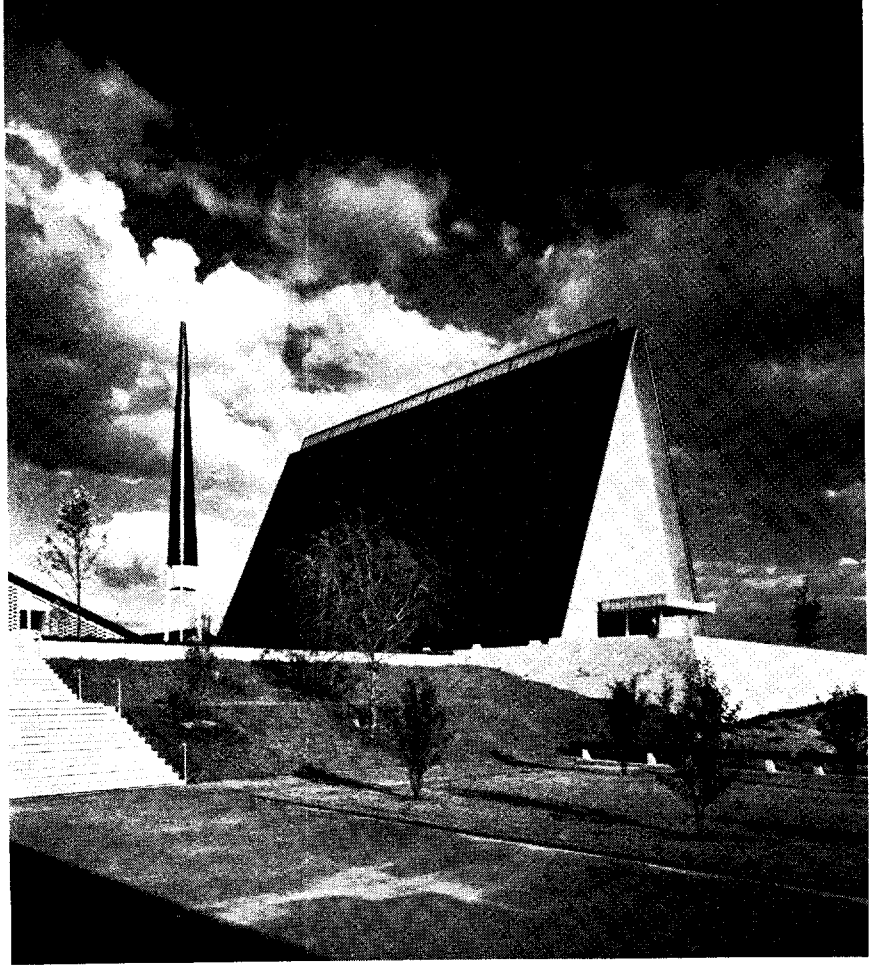


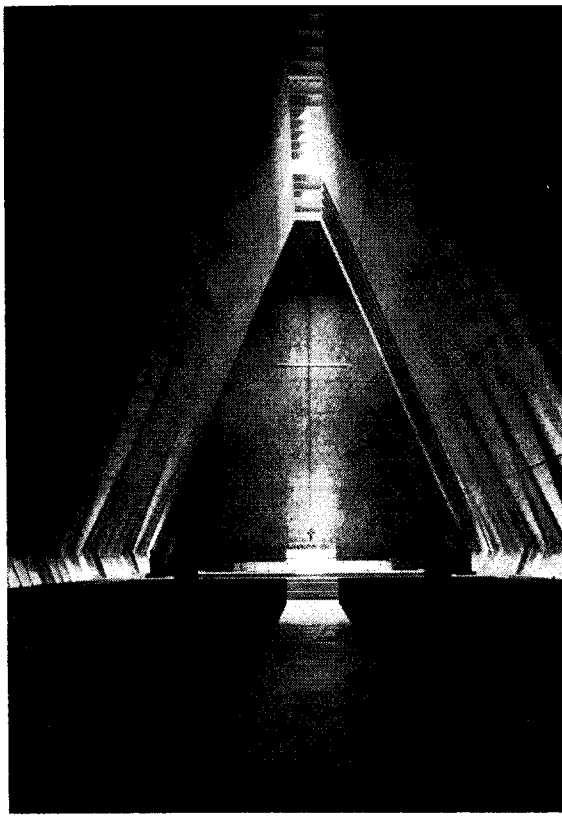


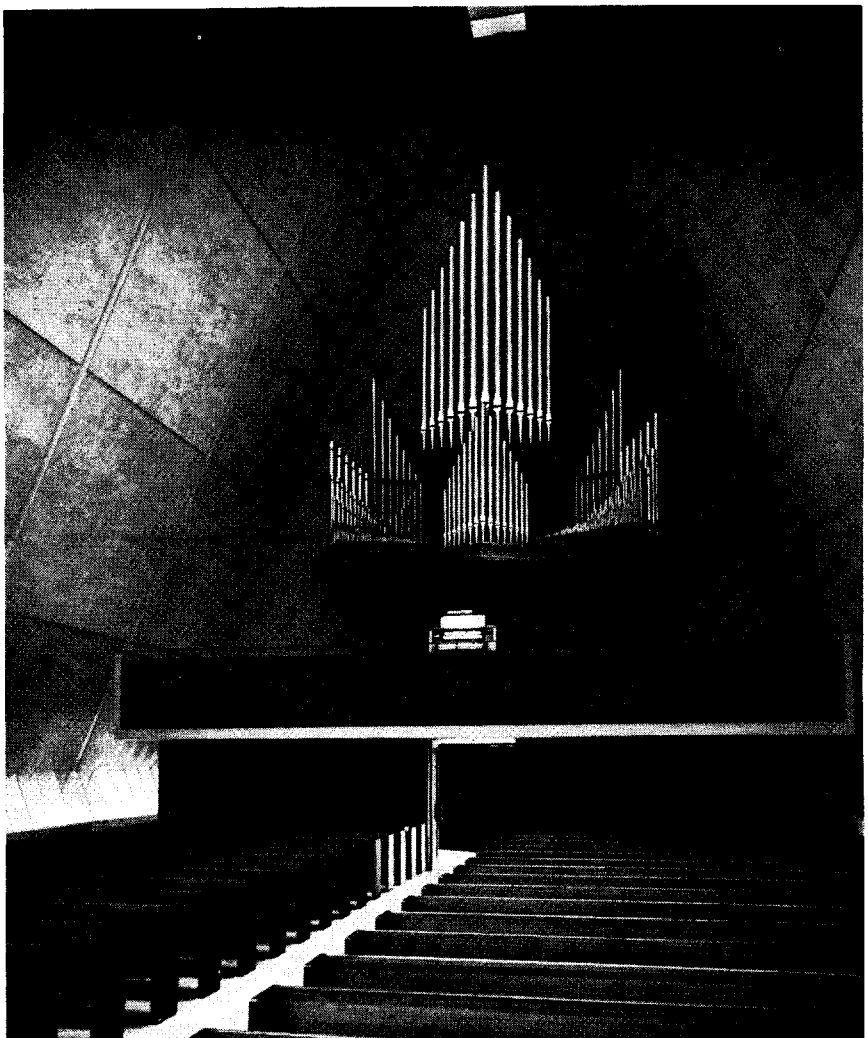
The 191-acre campus consists of gently rolling land, bordered on the east by St. Joseph River and on the west by woodland. Major academic buildings are grouped around a central plaza, with the chapel placed at the highest level, overlooking a man-made lake. Three series of dormitories radiate from this center. Entering the grounds from the west, at a lower level, one passes between the administration and classroom buildings along a walk (photo acrosspage) *and so, up broad stairs, to the plaza level. "Both functional and esthetic requirements governed the placing of the buildings around the chapel," comments Saarinen. "We tried to make each building fit gracefully into a harmonious whole."*

Concordia Senior College



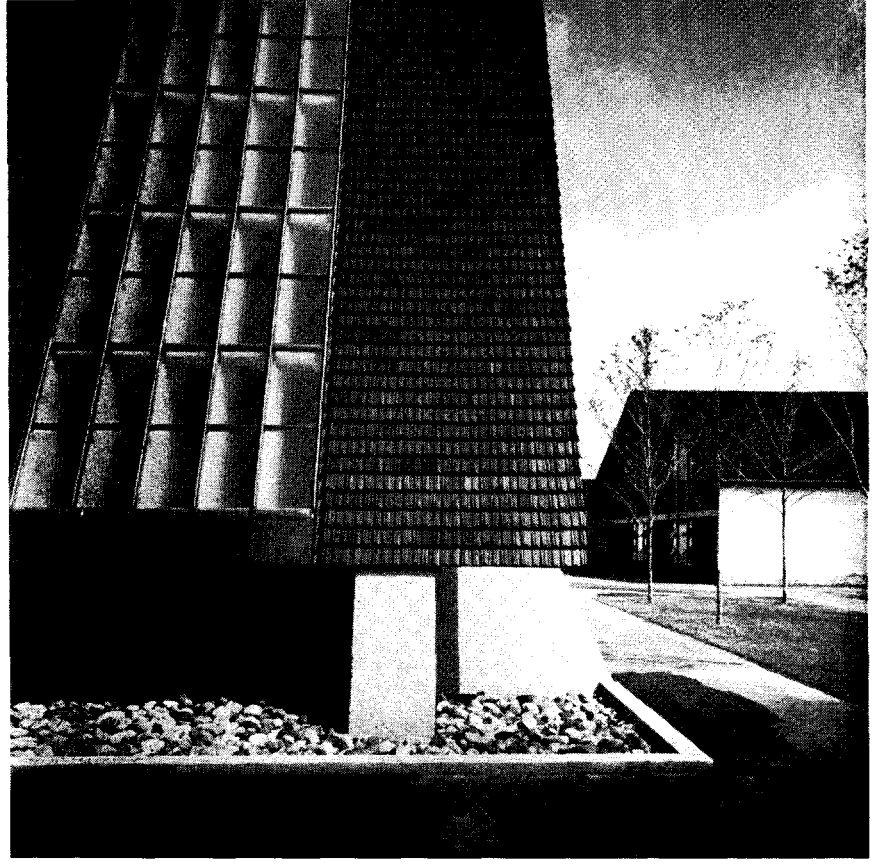






In the all-important chapel, the desired atmosphere for worship was achieved by numerous means—the lofty slope of the enclosing roofs sets the place apart from the outside world; light filters up from below through fixed horizontal sash set between side-aisle baffles; along the full length of the ridge is a continuous peak skylight. Floodlighting the altar and aluminum cross mounted on the diamond-shaped-brick wall at the east end is a full-height roof skylight installed in the south roof slope. The specially designed organ is placed high on the wall at the west end of the chapel.

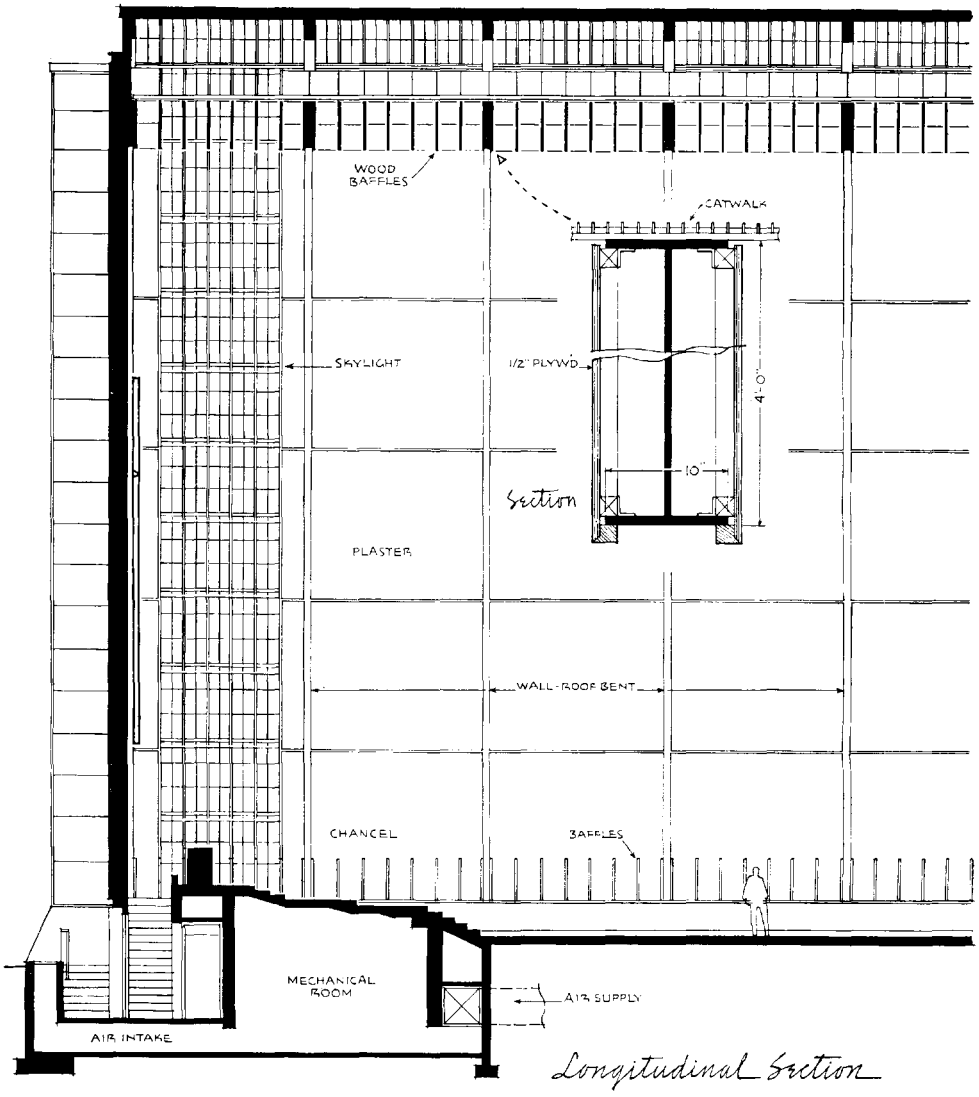
Concordia Senior College

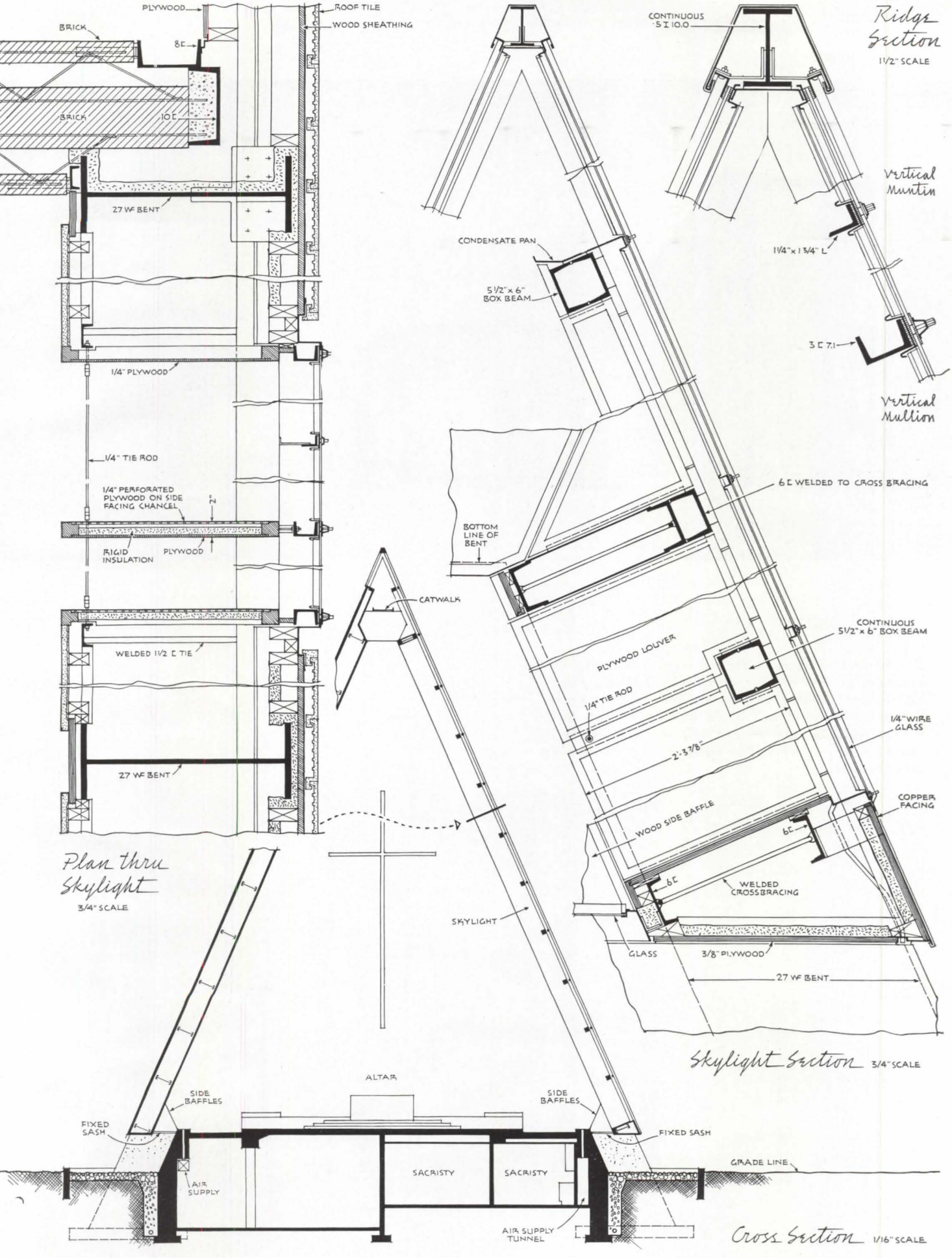


Discussing some of his reasoning behind the design of the chapel, Saarinen points out that "the chapel was the building that required the most thought, consideration, and imagination. This is the building where spiritual values are epitomized—and these are the hardest qualities to express in brick and mortar. We realized that light is an effective agent in creating a spiritual atmosphere. We used very low lighting from above to get the restful, balanced quality we sought. By placing additional windows so that they would highlight the altar, we were able to emphasize this focal point. We wanted to work with the simple chapel shape appropriate to the Lutheran Church and to create an interior in which the relationship of human beings to enclosed space would be appropriate and inspiring. The problem was also to find a shape and the materials which would allow the spoken word to be clearly heard and also one in which the organ could swell to its fullest. We believe the high interior of the chapel has answered these requirements."

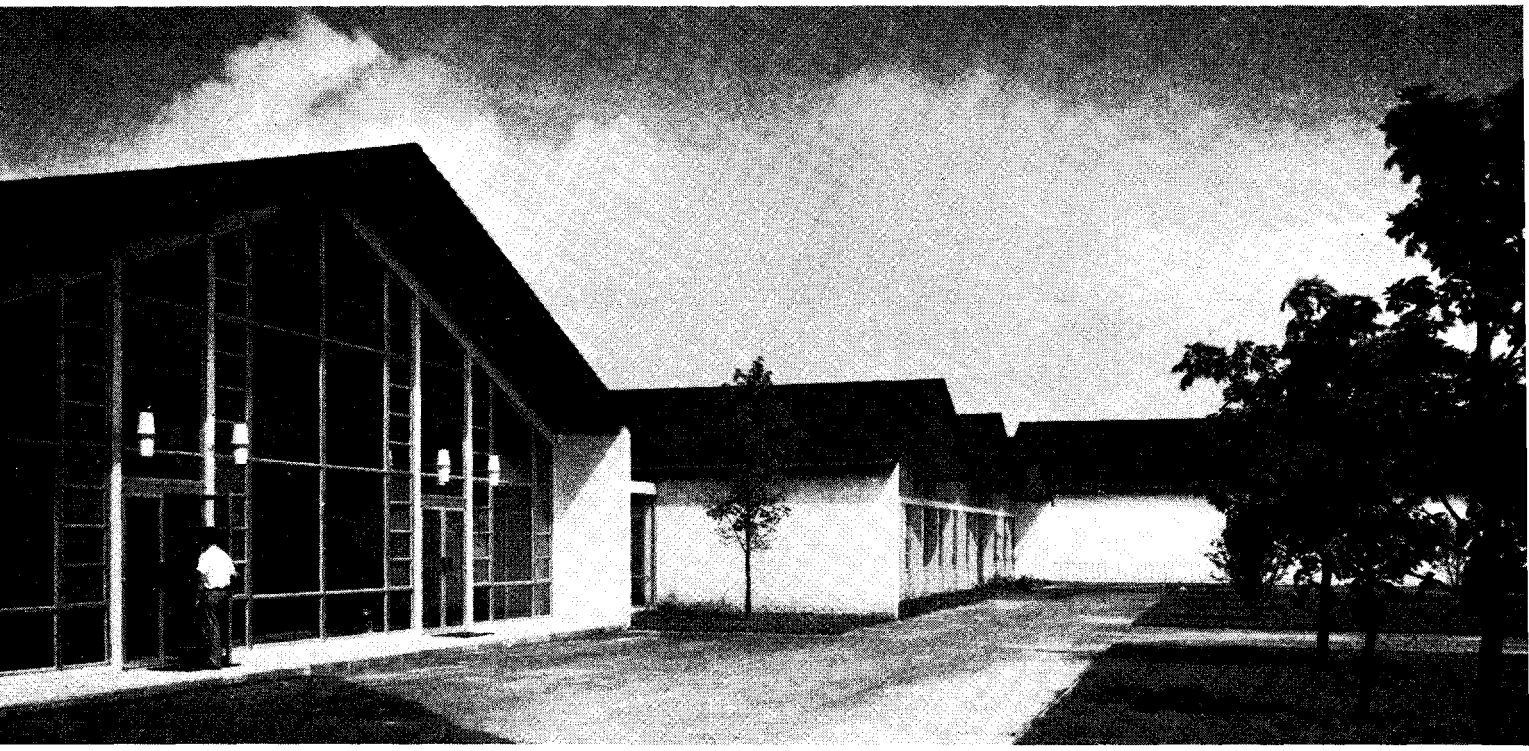
Among the hallmarks that recur throughout the campus buildings, none is more apparent than the dark-gray, textured clay tile used on roofs. This tile, developed over a period of two years by the manufacturer, from original designs by the architect, is now generally available and being marketed as "Concordia Tile."

Details on this and the facing page document the ingenuity that distinguishes the chapel design.

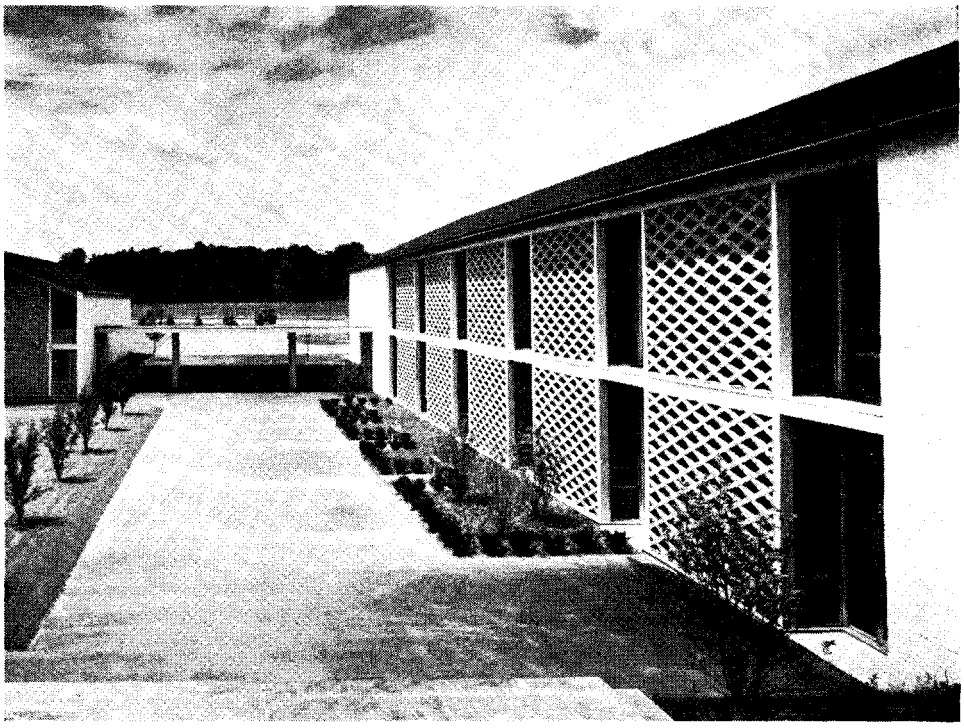


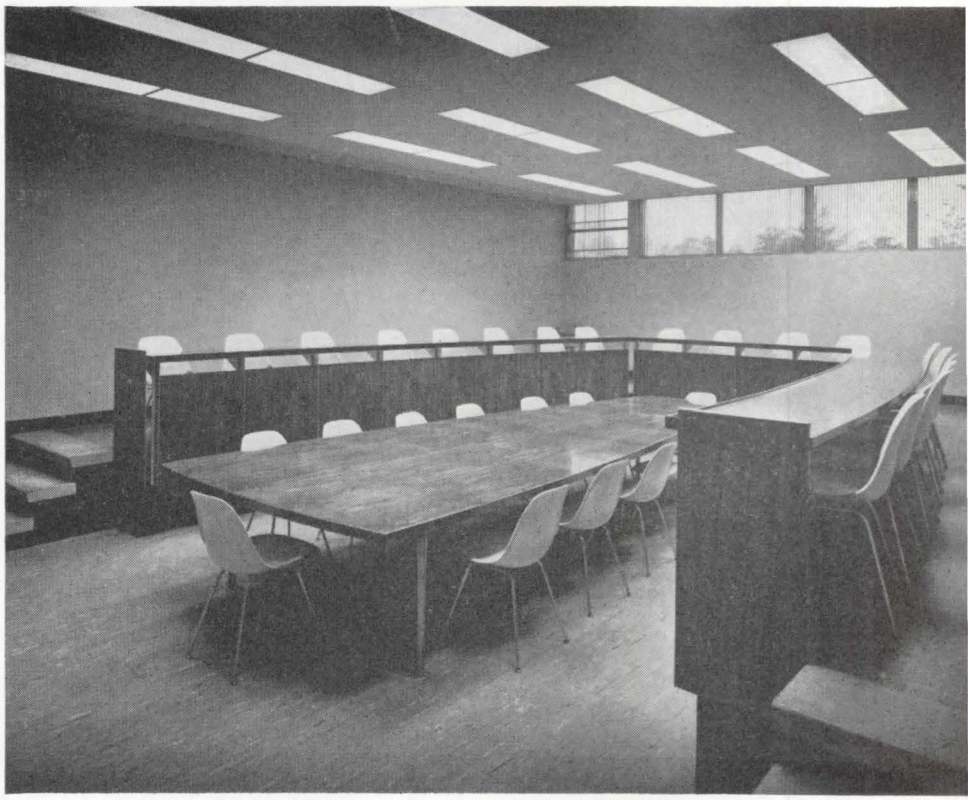

PLYWOOD
ROOF TILE
WOOD SHEATHING
BRICK
8 E
BRICK
10 E
27 WF BENT
1/4" PLYWOOD
1/4" TIE ROD
1/4" PERFORATED PLYWOOD ON SIDE FACING CHANCEL
2"
RIGID INSULATION
PLYWOOD
WELDED 1 1/2 E TIE
27 WF BENT
Plan thru Skylight
3/4" SCALE
CONTINUOUS 5 I 10.0
Ridge Section
1 1/2" SCALE
Vertical Muntin
1 1/4" x 1 3/4" L
3 E 7.1
Vertical Mullion
CONDENSATE PAN
5 1/2" x 6" BOX BEAM
6 E WELDED TO CROSS BRACING
BOTTOM LINE OF BENT
CATWALK
CONTINUOUS 5 1/2" x 6" BOX BEAM
PLYWOOD LOUVER
1/4" TIE ROD
1/4" WIRE GLASS
2'-3 7/8"
COPPER FACING
WOOD SIDE BAFFLE
6 E
6 E
WELDED CROSS BRACING
SKYLIGHT
GLASS
3/8" PLYWOOD
27 WF BENT
Skylight Section 3/4" SCALE
ALTAR
SIDE BAFFLES
SIDE BAFFLES
FIXED SASH
FIXED SASH
GRADE LINE
SACRISTY
SACRISTY
AIR SUPPLY
AIR SUPPLY TUNNEL
Cross Section 1/16" SCALE

Concordia Senior College

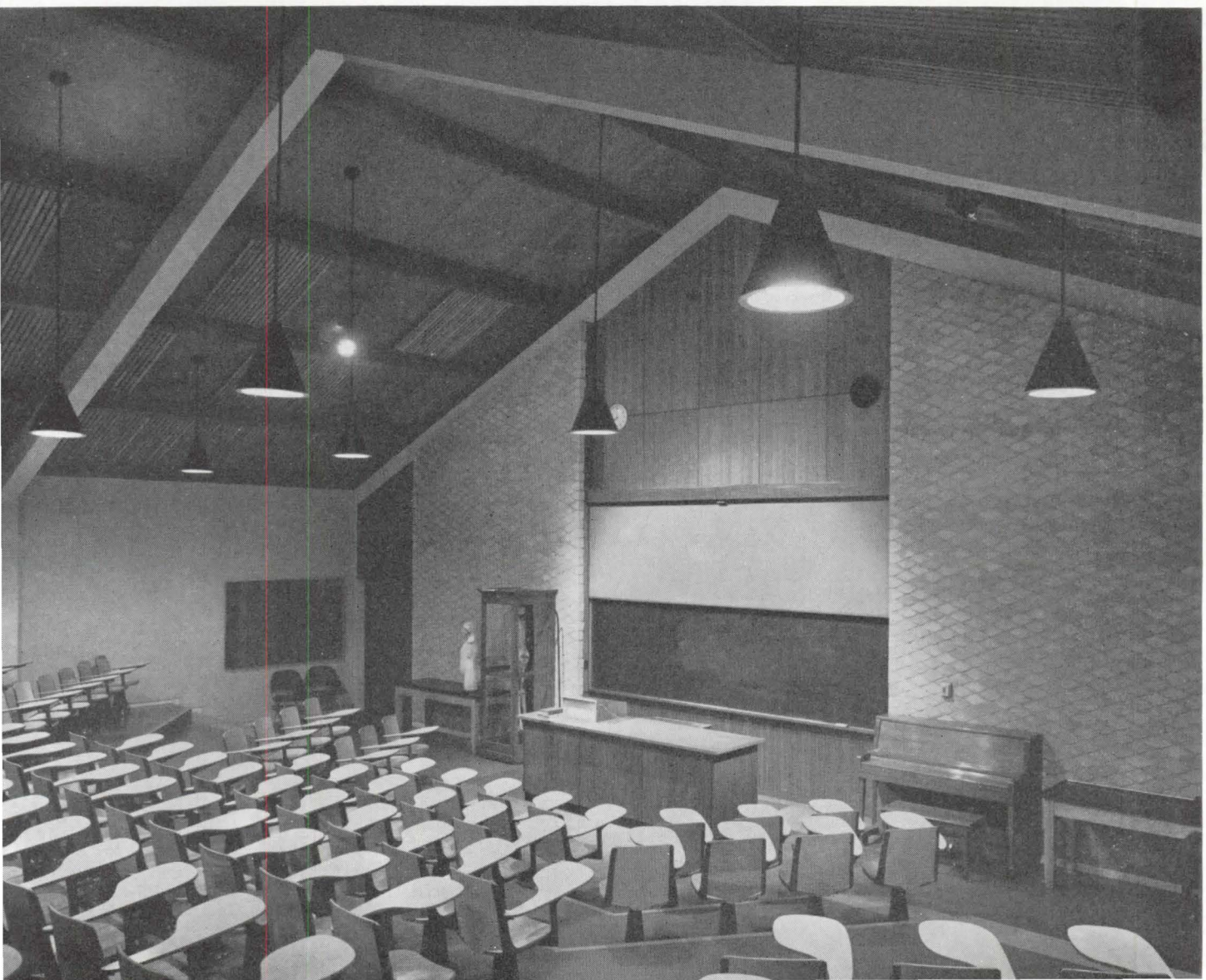


Because of the site slope, the classroom building may be entered at grade from either of its two levels. A fully glazed wall borders the lobby at the plaza level (above). *Corridors along the south wall of the building* (below) *have exterior walls of alternating glazed, recessed bays, and pierced masonry screens. Five regular classrooms occur at each level.*

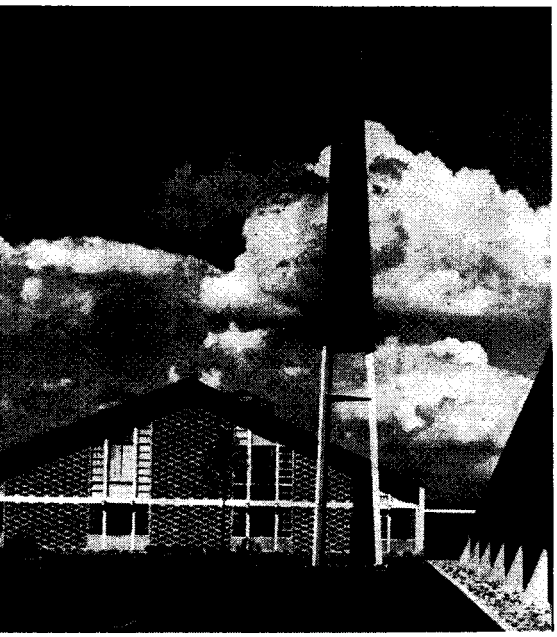




Special-purpose rooms occupy the western end of both floors of the classroom building—a speech classroom arranged on two levels (right) *on the lower floor; and a stepped-down lecture hall* (below) *on the upper floor.*

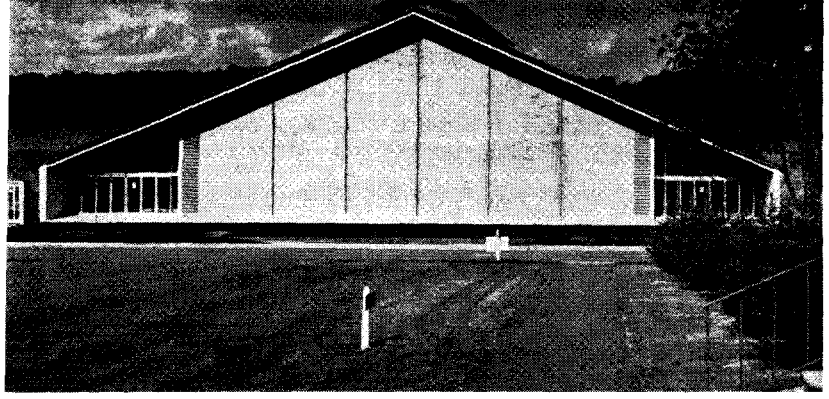


Concordia Senior College



The three-level student dining hall (photos above) *occupies a prominent location at the east end of the academic plaza. A lower level houses the superintendent's office, maintenance shop, and food-storage rooms. On the plaza level are the main dining room and kitchen; additional dining space, a private dining room, and mechanical rooms on the mezzanine.*

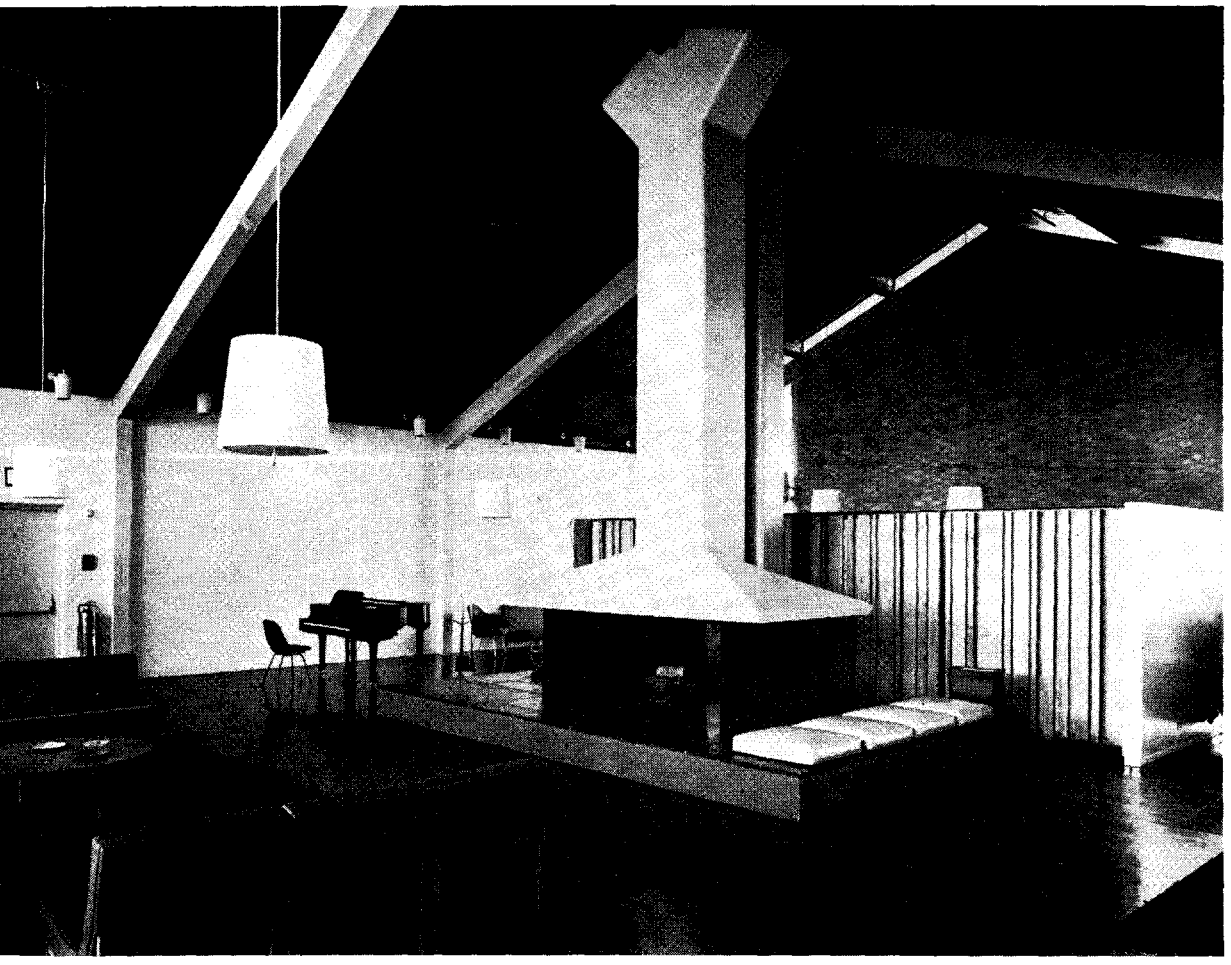
The library (left), *south of the chapel, has a main reading room, work room, and seminar rooms on the main floor; additional reading space and office in a centrally placed mezzanine; and storage and secondary reading room in the basement.*



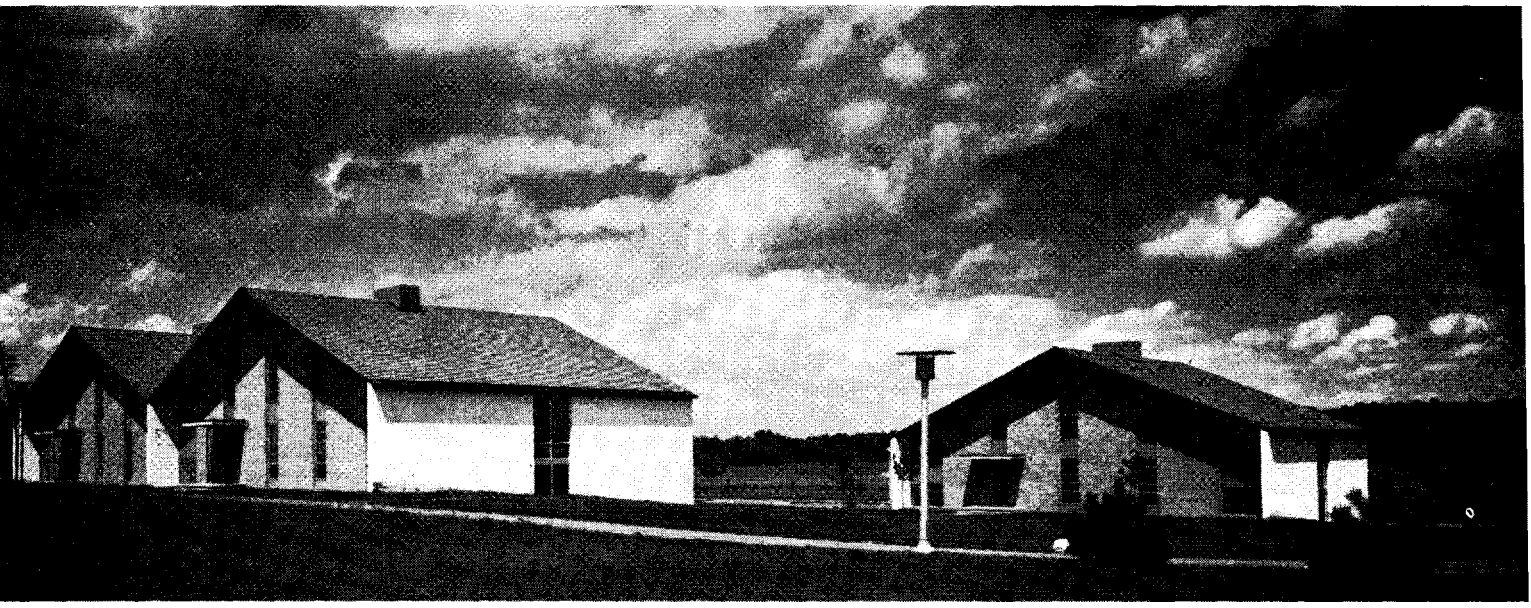
The gymnasium (above) *occupies a site east of the academic center.*

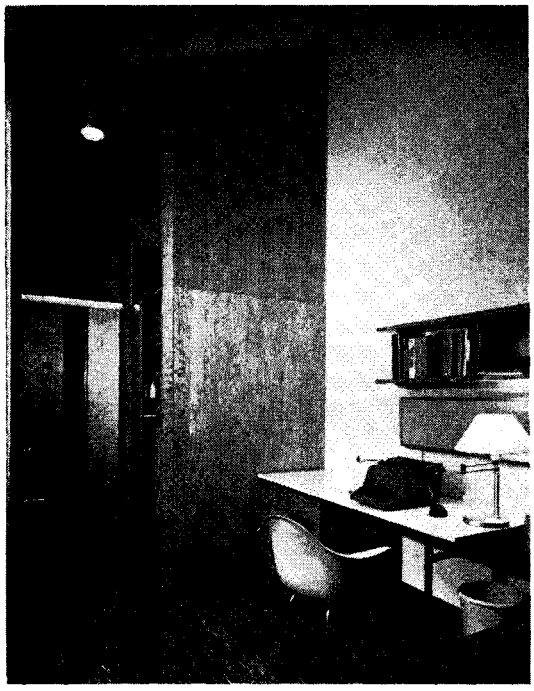
The college auditorium (right) *is the northernmost structure of the academic group and, on its lower level, contains the central heating plant.*

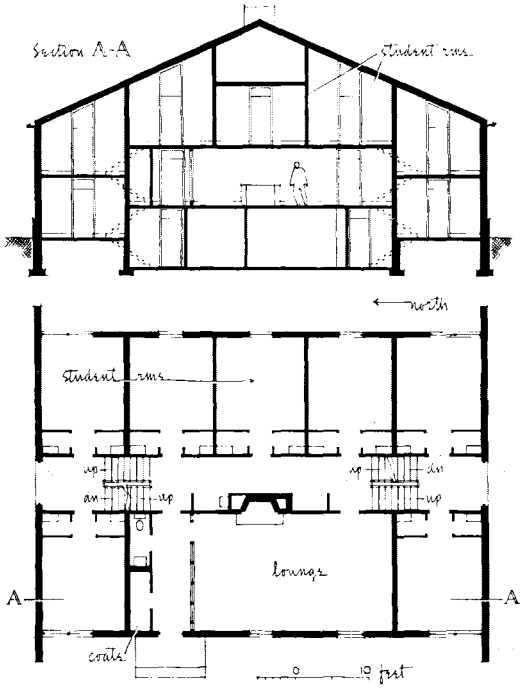
The student commons (below) *includes a two-story-high lounge with freestanding fireplace, bookstore, and coat room on the main level; recreation room and snack room at a lower level.*



Concordia Senior College







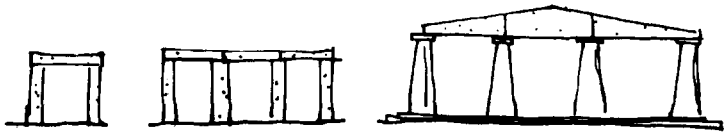
Much thought went into the design of the student dormitories. Should they be large units or small houses? What could be afforded? "The important thing in all this programming and discussion was to evolve a solution which would have the greatest impact on the students at the least expenditure," Saarinen tells us. "We arrived at a student-housing plan where 36 students live together on staggered floors in buildings that are no larger than a large house." Three clusters of four dormitories each, plus a resident counselor's home, are separately disposed on the perimeter of the main academic group.

Materials and Methods

Foundation: reinforced concrete. **Wall Surfacing:** outside and inside, painted and natural brick—Horsehead Brick Co.; rest rooms, toilets, structural facing tile—Natco Corp. **Floor Surfacing:** asphalt tile and concrete—Kentile, Inc., B. G. Goodrich Industrial Products Co.; ceramic tile—American-Olean Tile Co.; stone—Indiana Limestone Co., Inc. **Ceiling Surfacing:** fiber acoustic and metal acoustic tile—Simpson Logging Co. **Roof Surfacing:** clay tile—Ludowici-Celadon Co. **Insulation:** metal and fiber tile—Simpson Logging Co. **Windows:** Security Products Co.; clear glass—Libby-Owens Ford Glass Co.; cathedral glass—Kokomo Opalescent Glass Co.; skylights—Van Noorden Co. **Doors:** interior wood—Roddis Plywood Corp.; metal—Truss Bilt Div., Zeims Bros. Co.; aluminum—International Steel Mfg. Co. **Hardware:** basic supplier—Lockwood Hardware Mfg. Co. **Paint and Stain:** Pratt & Lambert, Inc. **Equipment:** intercom—Executone Systems, Inc.; public bleachers—Wayne Iron Works; auditorium seating—American Seating Co. **Elevators:** Home Elevator Co. **Lighting Fixtures:** special designed and standard fixtures: basic manufacturers—Solar Light Mfg. Co.; Rambusch Decorating Co.; General Electric Co. **Plumbing and Sanitary:** Crane Co.; American Radiator & Standard Sanitary Corp.

classicism in architecture

by Stephen A. Kliment*



Why is modern architecture, in advanced middle age by human measurement, still wading about in a morass of conflicting stylistic theories? Isms are at daggers drawn with other -isms; wood is at war with steel; the vertical with the horizontal; the mortar-and-pestle with the screwdriver. In the meantime, the public watches. It is perplexed, uncertain whether what is built fast is necessarily good, whether the enormous is in consequence beautiful, or whether inclusion in a building of a new gadget (like automatic elevators) is a guarantee of excellence.

How could it be other than bewildered, with members of the profession designing everything from Thin Shell Modern to Contemporary Early English; and with architectural education for the most part either giving no guidance in form whatsoever or, under the vigilant eye of an eminent master, teaching particular theories to the exclusion of all others? We have scorned the rules of the Beaux Arts system to the point of stylistic anarchy.

Is it not time to agree on stylistic principles and, having done this, to proceed to the finer points? Yet, unless circumstances are favorable, there will be no uniformity unless enforced by Governmental order, which in our democracy is not probable. It is a vicious circle.

What, then, is missing? What is it that previous epochs have had to perfection that we are unconsciously groping for? It would not be altogether foolhardy to suggest that what our architectural forebears enjoyed and what we at the moment lack is the leisurely but purposeful environment of a new era of classicism.

Let us, before proceeding, define what precisely is meant by the word "classicism." The first reaction conjures up visions of Blenheim Palace, of symmetrical flowerbeds at Versailles, and of powerful domes over at St. Paul's, St. Peter's, and the Invalides.

This is wrong, or, at least, very incomplete. In reality, classicism in architecture is a series of conditions in which a building will be judged not on the basis of its style, but on the basis of the execution of its style. Its period in history is of no significance whatever.

Now, a state of classicism, new or old, cannot, like other desired ends, be brought about by turning over one's money thrice beneath a new moon and wishing it so.

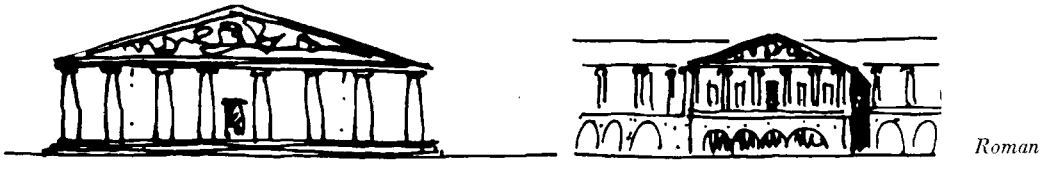
Our theme, then, must necessarily be: Is classicism desirable? And if so, how close are we? John Dewey notwithstanding, we must look to history for significant answers. The record of architectural history has left us trends, patterns, causes and effects which are perpetual in their repetition. It were a foolish man who would ignore this.

Let us first, therefore, in fair retrospect, examine past classicisms and their circumstances.

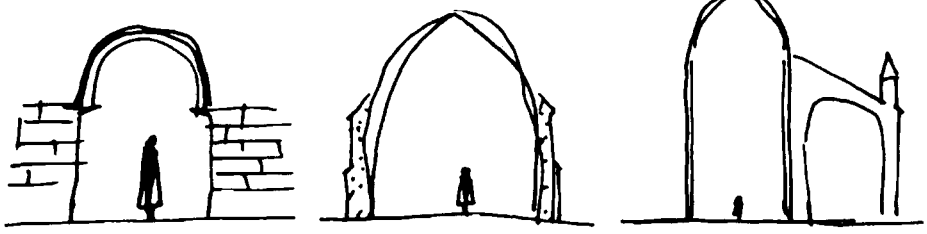
●

If the Greeks did not discover the tree, they at least put it to excellent architectural use when they set up two posts and placed a lintel upon them. When they later replaced wood with stone, they preserved the posts and the lintel, multiplied this unit as need was, called it a temple, and passed the principle on to the Romans who conquered them. There was no question of: "Shall we try a thin shell this time, or a slab?" They were in this respect singularly fortunate, since the many possibilities of reinforced concrete were not yet there to confuse them Furthermore, the Greeks had no ruins among them to lead them astray. As it was, they crossed the Big Pond to Luxor, came back after seeing the Pyramids, and still continued to pile their lintels on their posts. Romanticism was not yet abroad: it was not yet Revival time. Much the same was true of the Roman civilization which followed.

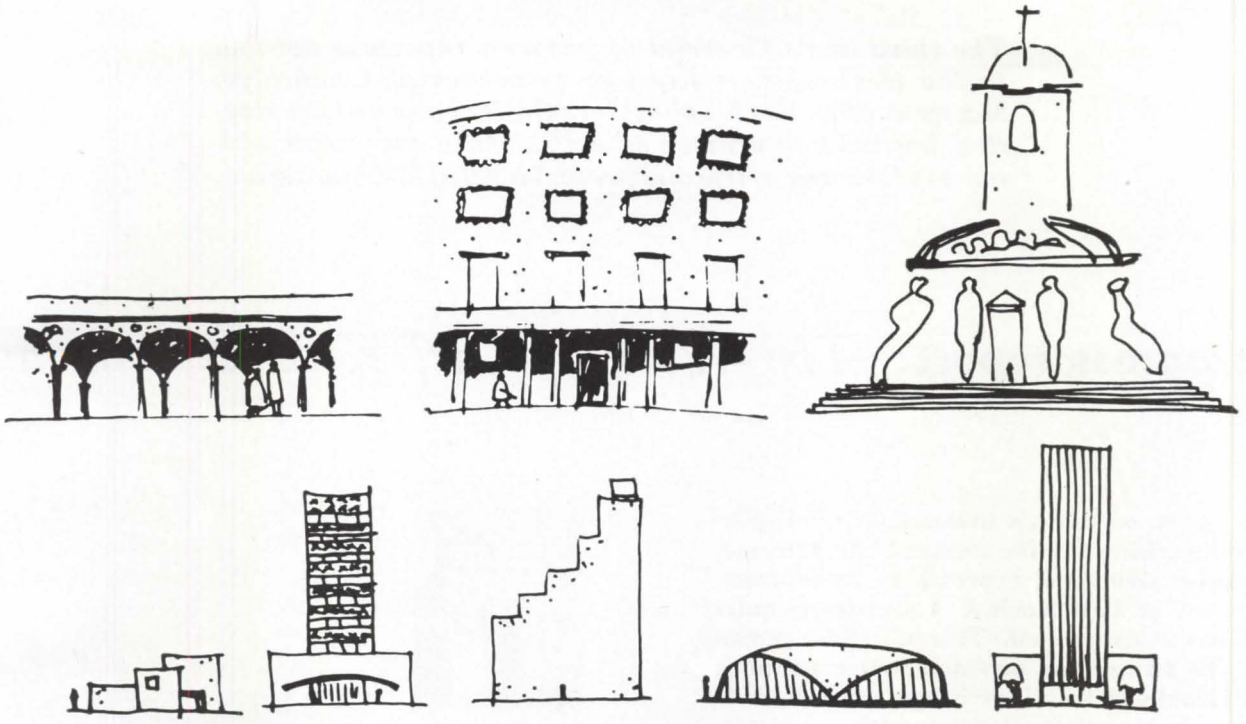
This, then, was one measure of the Greco-Roman classicism: that it was inconceivable that some patrician who wanted a building, and the architect who was to design it for him, should fall out over the matter of style. They had mined the diamond, as it were. The problem thenceforth was how to polish it and



Roman



Medieval



Renaissance/Mannerism/Baroque
Twentieth-Century Approaches/New Classicism

how many facets to give it. Refinement of that rough diamond, the posts-and-lintel, was brought to the highest perfection in the Doric fashion in the Parthenon, to be later newly refined by the Romans in the more recent Tuscan, Ionic, Corinthian, and Composite manners. Even after discovering the arch, they succeeded in integrating this revolutionary structural process into their stylistic language without spoiling its identity.

There was more to account for the classicism of that particular era than a mere uniformity of structural systems and structural materials. Art, after all, is not governed solely by the physical means available. What was the role of religion? How developed was national consciousness in those days? In what way was language a factor? In what way politics? Was the dominant outlook materialistic in the fashion of today, or was it reflective and spiritual in the manner of the Middle Ages?

Let us take religion first. In an age when State and Religion were one, and religious toleration was unheard of, cultural unity in matters metaphysical went without saying and was quite naturally transferred to their physical expression in architecture.

National and racial consciousness? The Romans had it to the utmost; the Greeks, who during the highest purity of their architecture were a medley of small warring states, had it not at all. Yet they both enjoyed classicism in architecture. The evident conclusion is that while a highly developed nationalism is a very likely source of classicism, the absence of nationalism cannot be considered an impediment.

The Greeks had a common language, as did the Romans. Unity of language can be as much a tool of dissension as of harmony. In the main, however, while Babel—in the absence of photography—brings not only discord, which is bad, but also misunderstanding, which is worse, unity of language, on the other hand, has at least the virtue—other factors being propitious—of prompting a beneficial exchange of ideas.

There can be no avoiding the debt which the classicisms of Greece and Rome owed for their existence to their particular types of government. There is, sad to say, no surer guarantee of classicism in architecture than totalitarianism in the government. This was as true of Greece as of Rome, as Socrates, hemlock in hand, had every cause to realize.

Remains the ability of a nationalistic society to integrate progress and beauty. Roman prosperity and technical inventiveness contrasted sharply with the frugal, meditative spirit of the technically backward Greeks. Discovery of the arch must have created a stylistic problem child to rival the thin shell of a much later date. Would this product of Roman ingenuity bring about stylistic embarrassment? Rome used the arch very widely—as in the great Baths—without neglecting the posts-and-lintel. But the language of Roman classicism prevailed. Whether used alone or together, the arch and the lintel gave rise to an uncomplicated structural synthesis. Whatever technical exuberance the arch may have fostered was firmly countered by the harmonizing effects of Roman language, Roman religion, and Roman national consciousnses.

The classicism of Japan and China prospered under analogous political conditions to those in Rome, and survived it by 2000 years as these conditions remained more stable. Similarly, the architecture of the Mayas in Mexico developed from crude beginnings to a high state of sophistication in what corresponded to our Middle Ages, until a new set of conditions imposed by Spain brought about its downfall.

Let us now consider briefly the classicism of Saracenic architecture. That it was classicism there can surely be no doubt. Based on development of the arch, it was adopted as a characteristic style first by early Christianity in the Eastern Roman Empire and then by Islam. Under

(Continued on page 188)

The third in P/A's series of progress reports is devoted to the work of Carl Koch & Associates of Cambridge, Massachusetts. Koch's aim, since the inception of his practice, has been to achieve an architecture consonant with our modern way of life and present level of mechanization.

progress report: *The Work of Carl Koch & Associates*

Too many of today's architects are desperately searching for the unusual, the extreme, the latest structural expression. In contrast, the work of Carl Koch & Associates is quiet and never overstated. This does not mean that the search for new and better methods and structural solutions is not made by this office. It is, but the basis is rather a determination to develop and perfect in logical progression. In *At Home with Tomorrow*, a book written by Carl Koch with Andy Lewis *(recently published by Rinehart & Co., Inc.)*, it is stated: "He (the architect) may find that he moves—and gladly—toward a quietness or even anonymity of design, a conception of design itself as educative rather than didactic, the provision of fair beginnings. That architecture may express, portray, dramatize, or commemorate the business of our living together, is only incidental. First of all it should make it possible."

This point of view is evident in all of Koch & Associates' design but is perhaps most clearly expressed in the three examples shown here, selected by the Associates as their most "satisfying work." That the children for whom the Youth Library (*acrosspage top*) in Fitchburg, Massachusetts, was designed, enjoy and use the building, is more rewarding to Koch than its success as a piece of architecture. The fact that at Conantum (*right*), a 100-house community at Concord, Massachusetts, the landscape plays a greater role than the architecture and that all of the houses, originally stock houses, have been given the impress of the individual owner, proves to him that the architectural planning was sound. And, third, it is to his *satisfaction* that through the versatility and economy of the mass-produced parts of the Techbuilt House (*acrosspage bottom*), many more families have had and will have the benefit of a well designed and adaptable dwelling, than would otherwise be the case.

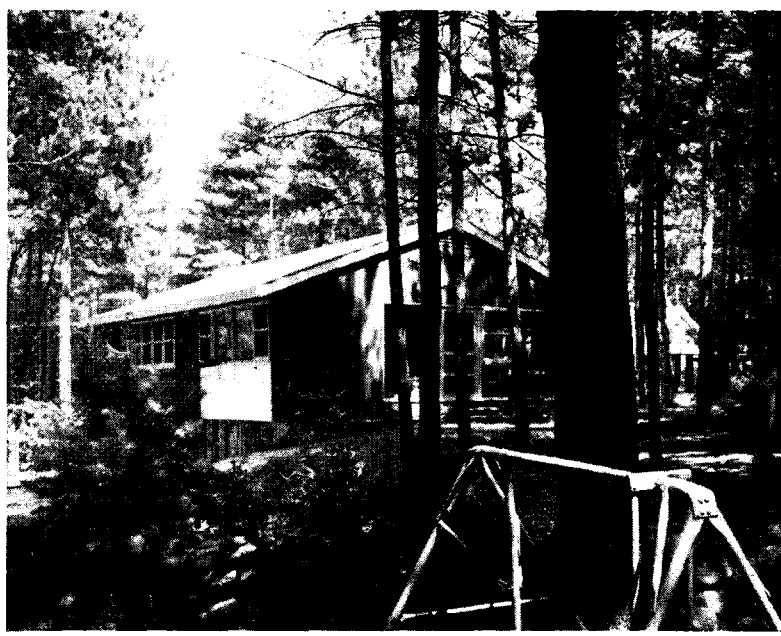
In his work, Koch is ably assisted by his associates (*shown above in garden of historic house used as office*) Frederick L. Day, Jr., Leon Lipshutz, Margaret M. Ross, Gardner Ertman, Edward Diehl, and a staff which has

John Brook

Carl Koch . . .

Creative Photographers, Inc.

. . . & Associates



Ezra Stoller

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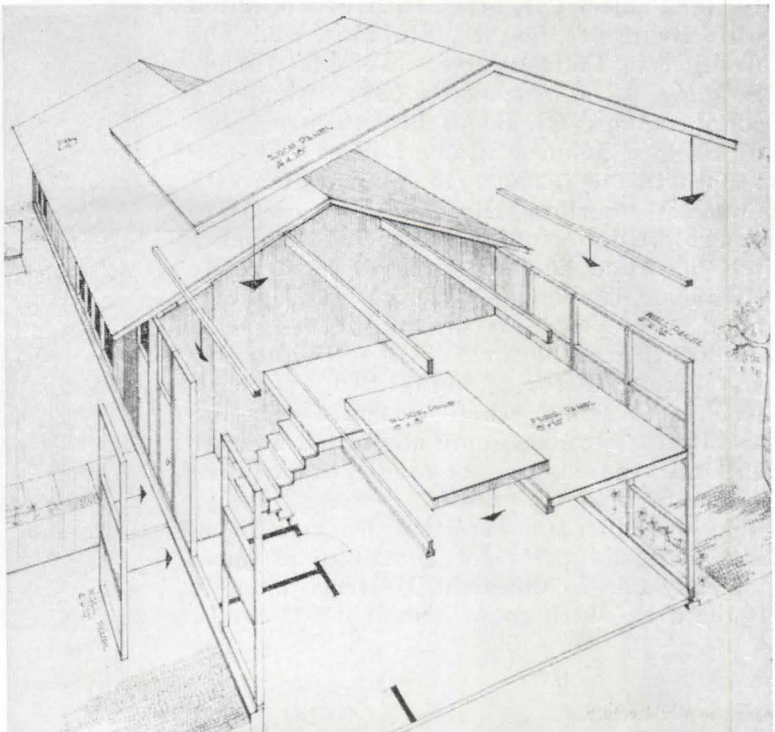
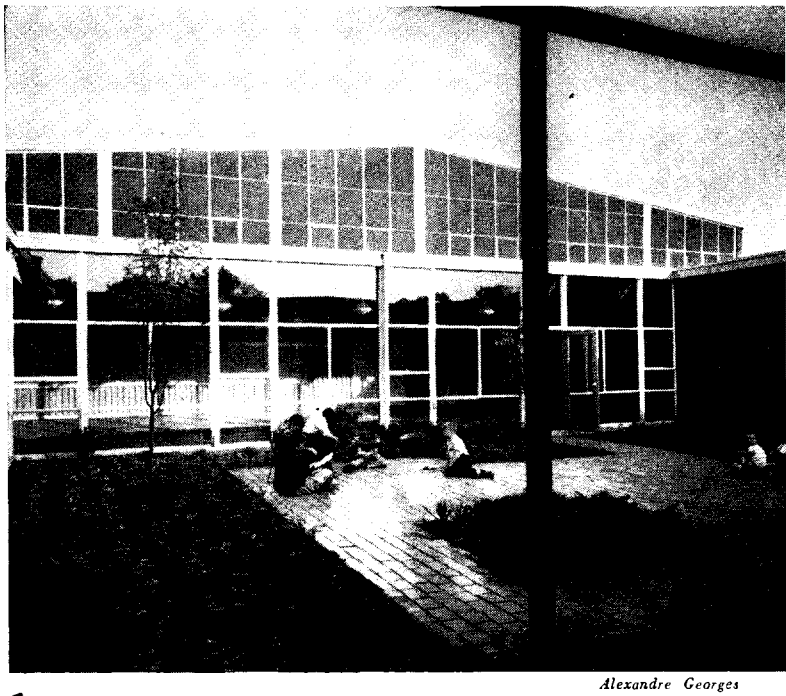


varied in number from 2 to 15. All design decisions ultimately are by CK, though he does not necessarily originate every detail of planning and design. "We believe," say the associates, "in general, too democratic a pooling of ideas is apt to lead to an over-compromised, therefore undistinguished, solution. Thus, in the rare case where in a design discussion there is real disagreement, the impasse is resolved by a Koch decision." General office responsibilities and administrative work are assigned to the Associates. A typical building commission follows roughly this sequence: after a visit to the site, usually by Koch and/or an Associate, research and planning studies follow in sketch form. Preliminaries are carefully presented in color, wherever this helps to clarify the drawings. The office prefers the use of models for study as well as presentation purposes. Next, working drawings are prepared. One Associate is in charge of a job from the very beginning and present at all conferences with the client. Working procedure varies, of course, with each assignment. A cross-section is shown here: an elementary school (1), recently completed for Cambridge, Massachusetts; Boston Center Project (2), designed in collaboration with Belluschi, Bogner, Stubbins, and The Architects Collaborative; Temple Israel, Swampscott, Massachusetts (3), designed in collaboration with Belluschi; and a number of Howard Johnson Motor Lodges (4),—interiors, in this instance, in collaboration with Contract Interiors. His ambition now is to secure the opportunity of carrying through a job of broad enough scope to be a really significant challenge—a campus, a neighborhood plan, a civic or shopping center, even a town. It must be for a client willing to give and take time for planning. "In America," Koch feels, "our whole system forces the architect to produce more and more, quicker and quicker, resulting, of course, in mediocre and unfortunate results."

Koch's chief interest is and has been housing, and his principal contributions have logically lain in this field. He feels that this is the area which could benefit most from a



Alexandre Georges

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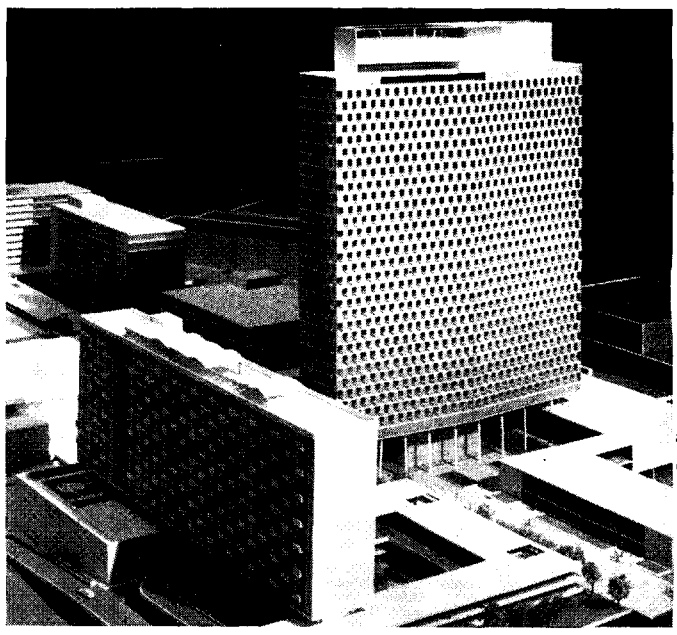
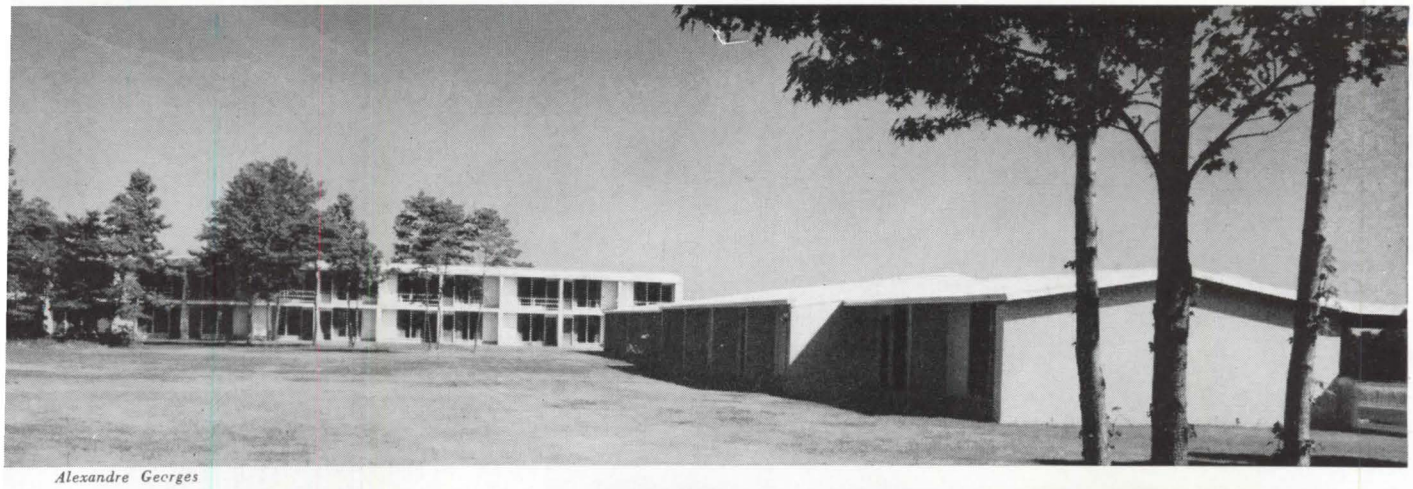


Robert D. Harvey Studio



Alexandre Georges

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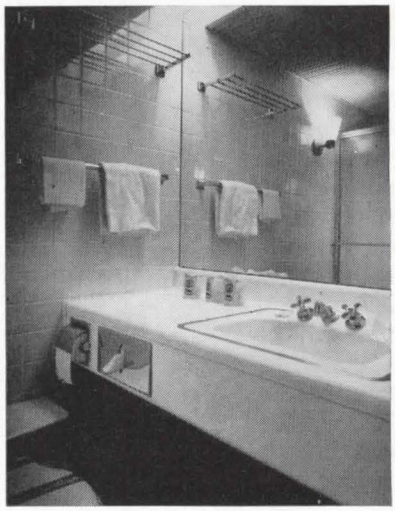

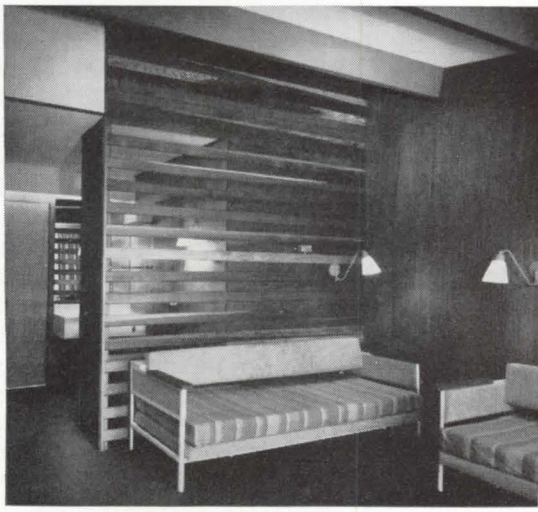

Photos: Louis Reens

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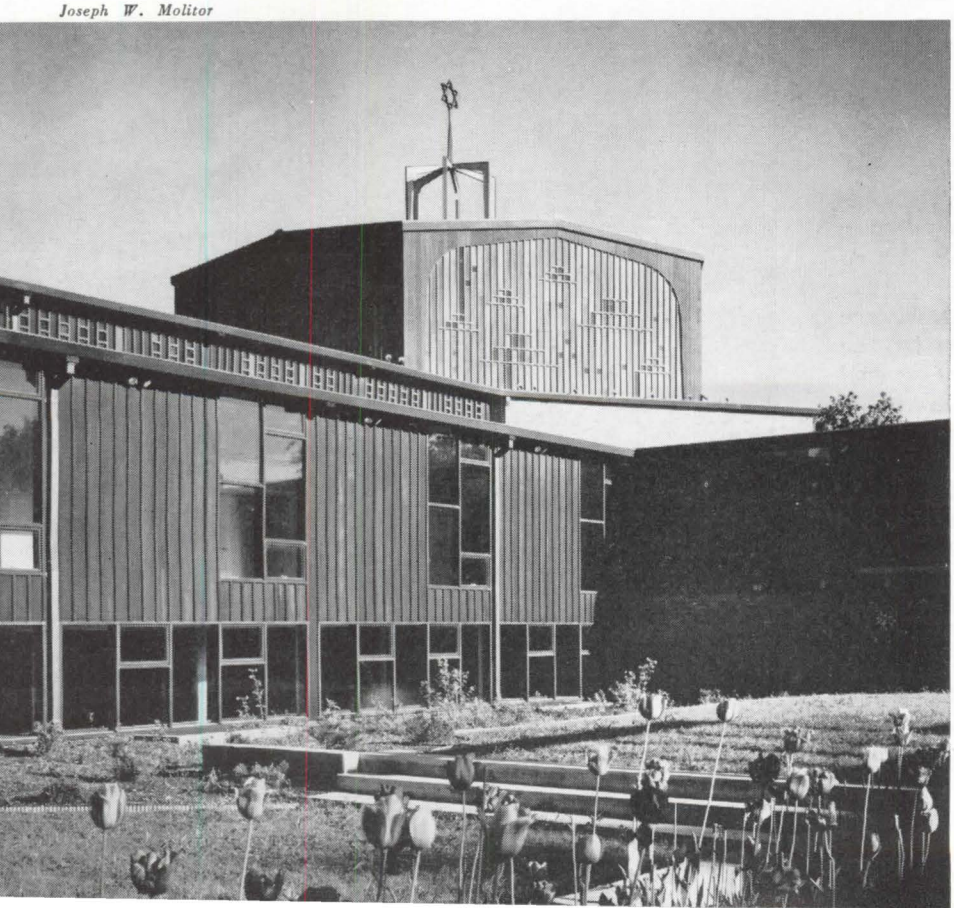
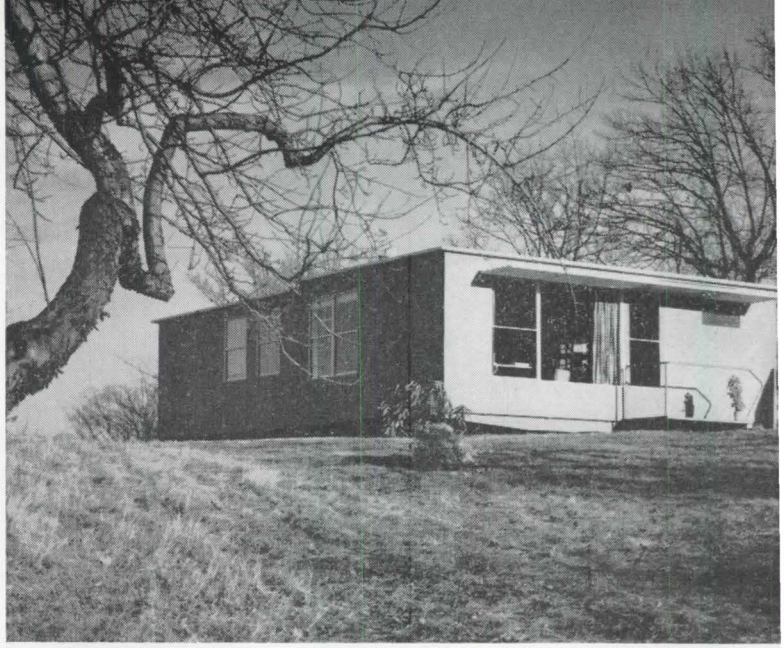
Joseph W. Molitor





1 *Ezra Stoller*

more highly developed and industrialized building process. "In our general progression of skills," he says, "building somehow lags far behind. . . . It goes still by hammer and handsaw—agonizingly slow, inefficient, and more wasteful of money and people than we can any longer afford." To alleviate this situation, Koch envisions the future architect as a designer who skillfully assembles modular parts—building components, bathroom components, furniture components. Still further, he sees the architect in an expanded role as the planner who uses houses and land as the module for a sub-community, and the sub-community as module for an entire town.

toward the industrialized house

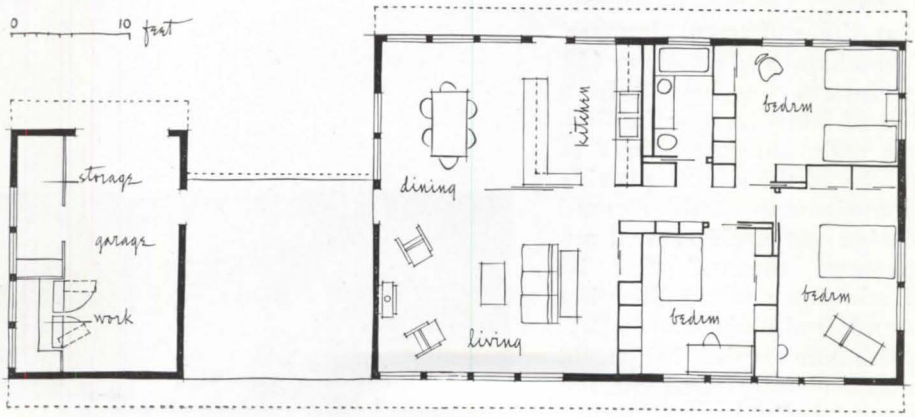
Koch's work in the field of prefabrication began in 1947 with the design of the Acorn House (1) and the formation with John Bemis, of Acorn Houses, Inc. The house was set apart from other prefabrication efforts of the time in three respects: high degree of factory completion; demountability; minimum site-erection expense. None of the prefab houses of today has reached the degree of factory-fabrication of which the Acorn House was capable.

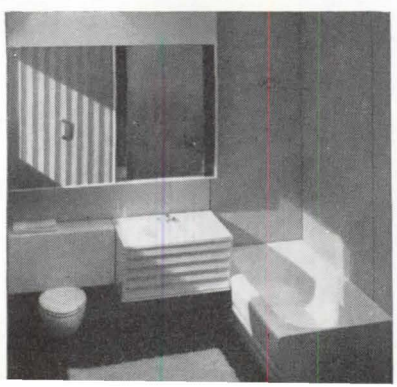
In 1948, Carl Koch & Associates were called in as architectural consultants by the Lustron Corporation for the design of several new models (2) using porcelain-enameled steel. A thorough study of existing equipment, processes, and fabrication methods was conducted, resulting in improvements in structure as well as plan. Unfortunately, the corporation was dissolved before materialization of the new models.

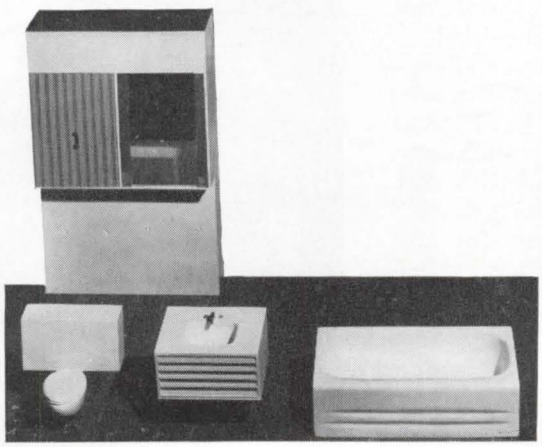
Simultaneously with these efforts in prefabrication and dating back to 1941 are the Snake Hill houses (3) at Belmont, Massachusetts. This was the first venture of the office (with Huson Jackson and Robert Kennedy) into the field of cooperative buying and building.

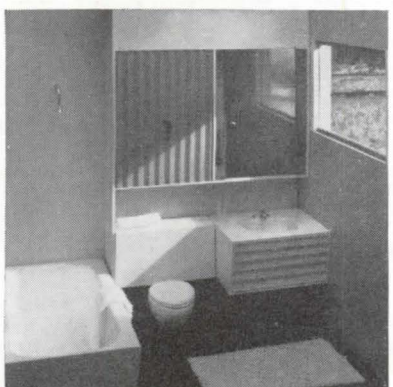
Robert D. Harvey Studio 2

Ezra Stoller









Snake Hill was also the site of the first office-workshop, attached to Koch's own home, "a pleasant environment above the soot and traffic, with a view all the way to Boston Harbor." However, with the growth of the practice, other space near transportation, restaurants, blueprint facilities, etc., had to be found. Brattle Street, Cambridge, provided the central location and many pleasant features, and has "worked out well."

Up to the time of the formation of the office in 1947, Koch's experience had included a Bacon Fellowship which brought him travel and architectural work in Europe. He spent six months in the office of Sven Markelius, working on the Swedish Pavilion for the New York World's Fair. During the war years, Koch completed a defense housing project; was Senior Architect for the NHA; Naval officer in charge of various projects.

1

architectural means—not answers

In 1950, Carl Koch and Associates Day and Lipshutz were given the opportunity not only to apply the experience they had gained in residential work, design of prefabs, co-operative building and buying, but also to demonstrate their skills as site and town planners. A 200-acre site of woodland and meadows (1) in Concord, Massachusetts was bought by a private organization of home buyers. In planning the site, their main concerns were: to retain the rural quality of the site, to provide houses which average-income families could afford, and "to design not architectural answers but architectural means," that is, houses capable of addition and modification by the owners. A number of basic houses (2), all of the same width but varying in length, were developed and carefully sited on the one- and two-acre lots. "Individuality," writes Koch in *At Home with Tomorrow*, should not depend on cupolas. . . . It is in the land, in fact—even in a community of houses alike—that the answers lie: in the different distances from the street; with the addition in different fashions of carports, covered walkways, fences, terraces, and planting; and with care to preserve and add to the natural growth."

Conantum provided the impetus for still another, more important and larger experiment—the Techbuilt House, of which the smallest version is the vacation cottage (3).

2

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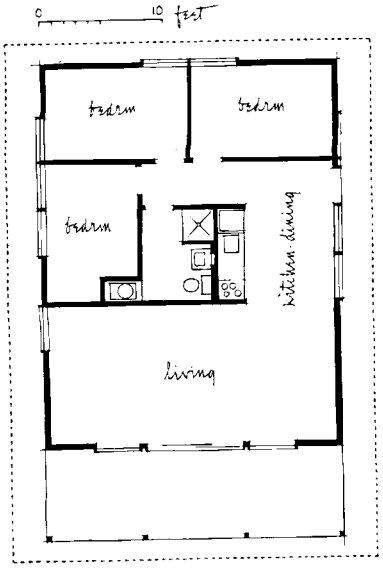
Photos: Lisanti Inc.



3

Carl Koch & Associates

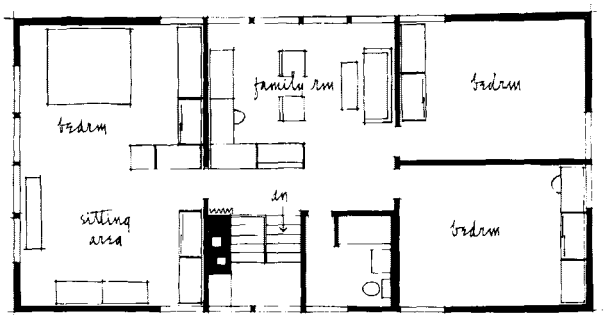
the modular component house

"In 1953 came the Techbuilt House," relates Koch. "And our ten-year record of mishap, rude practical education, and artistic successes qualified by insolvency was spotted unexpectedly by something that worked—and worked well. . . . One model of a house, first planned in spare time, fabricated in an overgrown carpentry shop in Acton, Massachusetts, built speculatively in West Concord, varied and built again in Weston, turned into twenty-two models of house, a corporation, four factories, and a system of ninety franchised builder-dealers from New York to California. By the end of 1957, Techbuilts had been put up by ones, twos, and small communities in thirty-two separate states."

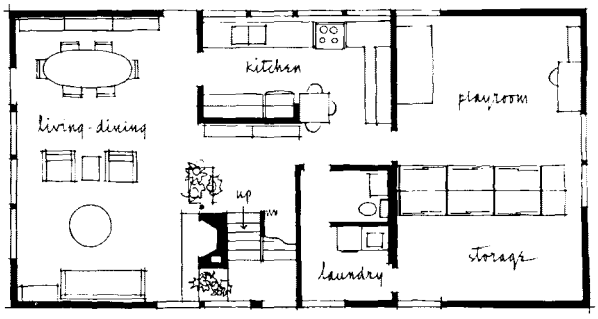
Edward Diehl's own house in Cambridge, Massachusetts, recently completed and built under his supervision (Techbuilt has unfortunately had many serious disappointments with inexperienced dealers) is an excellent example of its esthetic as well as practical success. It further demonstrates the adaptability of the standard-component house to any site, in this case a limited city site; its fitting into the existing neighborhood, in this instance, the traditional New England neighborhood; the surprising amount of privacy possible both indoors and out, through proper siting and landscaping.

The structural system and assembly of the prefabricated parts is, of course, of major interest to architects.

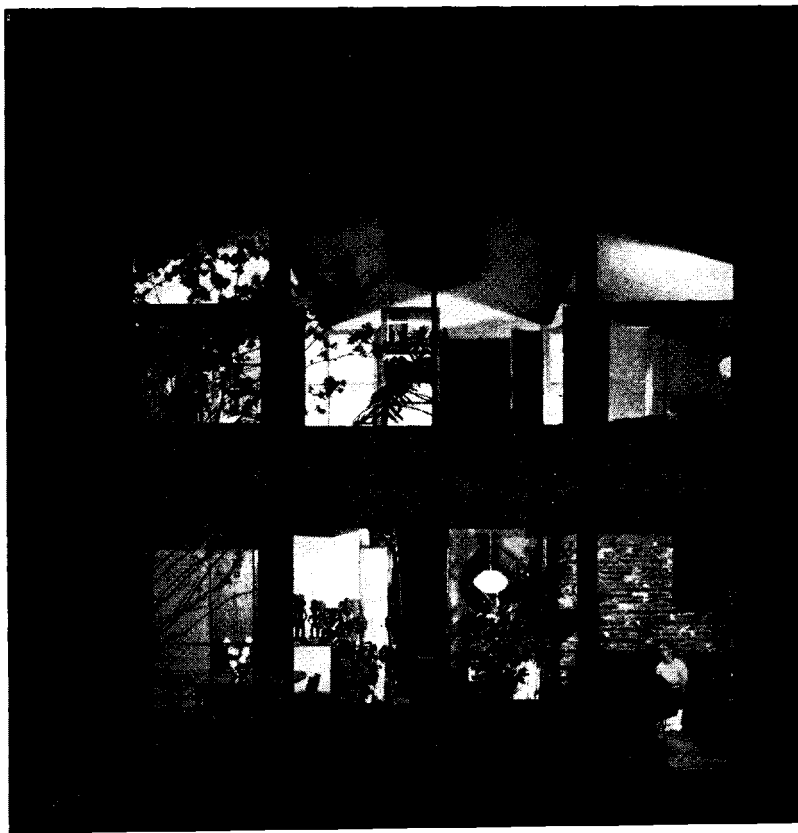
Exterior walls, roof, and second floor are all based on a 4-ft module. Windows and doors also adhere to this measure, permitting variation within the modular grid. Panels are made up of plywood sheets bonded to wood-frame members resulting in stressed skin construction. Method of erection for the two-story version (*shown here and on the next pages*) is roughly as follows: With foundations and first-floor slab in place, two-story-high wall panels are erected around two sides



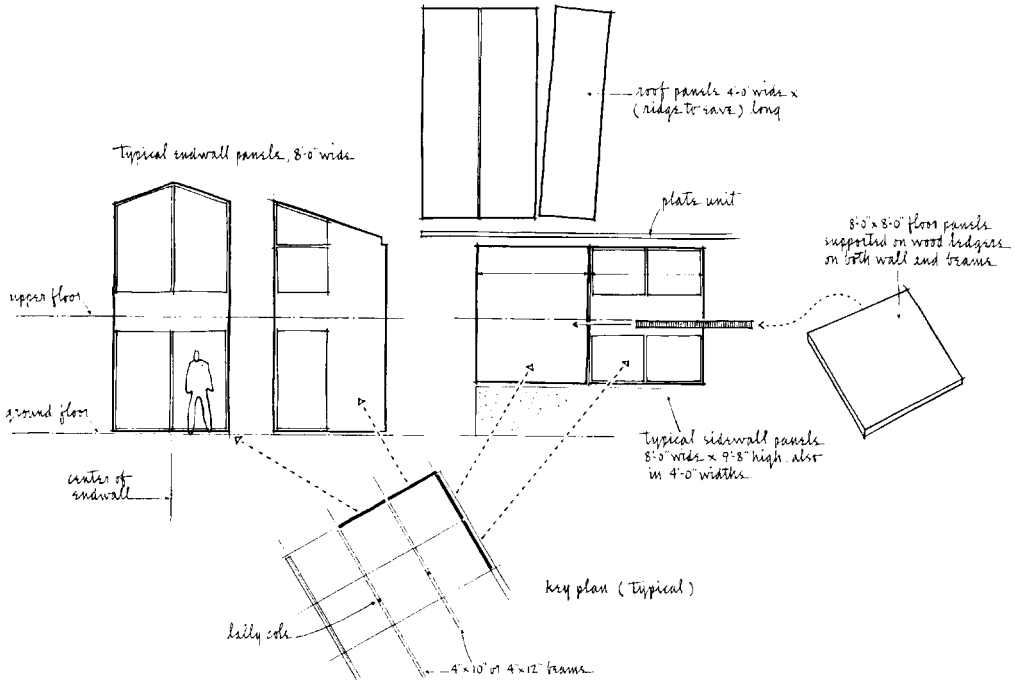
SECOND FLOOR



FIRST FLOOR



Photos: Lisanti Inc.



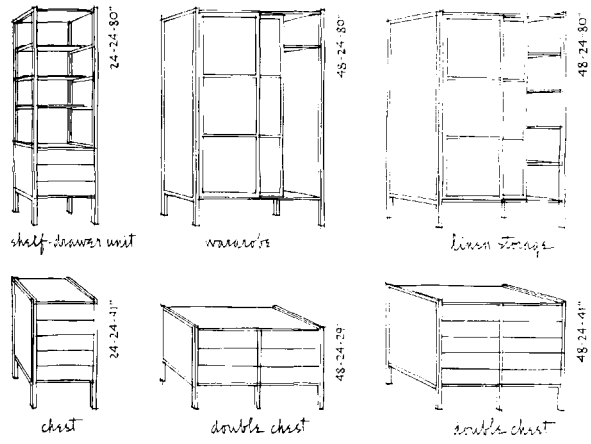
Carl Koch & Associates

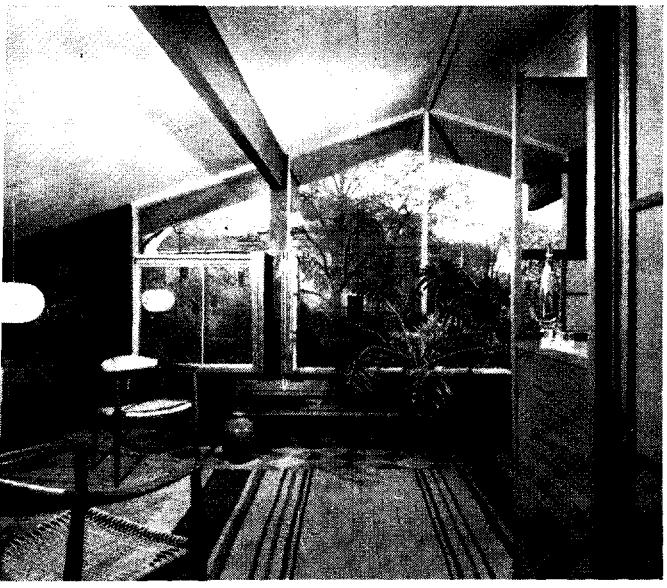
and one end of the building. Then longitudinal beams with ledger members are erected and 8′x8′ floor panels slid into place from the open end of the house. Then upper-floor posts and roof purlins are erected. Foil-insulated roof panels, using two-by-four's 16″ o.c. glued to plywood sheets, are factory-assembled in 4-ft widths. Roof sections are then hoisted to the second floor, the open end of the building receives its panels, and finally roof sections are lifted atop side walls and roof purlins. Using four men, approximately 2½ days are required to complete this operation.

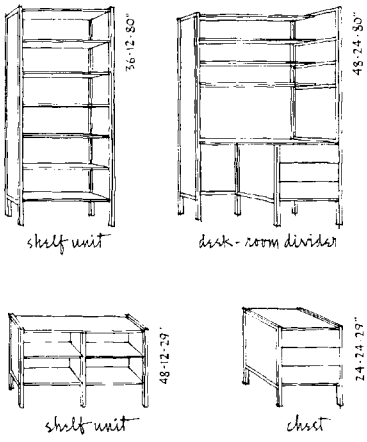
Suggested interior finishes are gypsum board to be painted, in combination with beveled cedar siding. Plywood undersides of roof and second floor come factory-finished with a seal and prime coat. Also of interest is the modular furniture which was specially designed for the Techbuilt House. "Although at the moment no longer in production," says Diehl, "we feel that this furniture adds tremendously to the livability of the house." These chests, wardrobes, and cabinets serve as partitions and room dividers for a floor in which only the stairs and mechanical services are fixed. The result is unique plan flexibility and a spaciousness up to now unknown in prefabs.

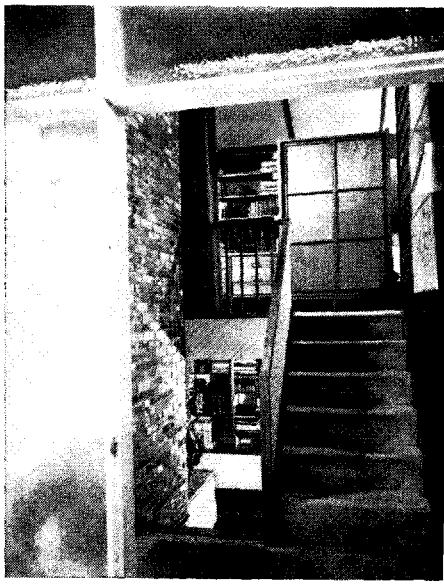
The Techbuilt House represents a definite and significant step forward in the evolution of the prefabricated house. Koch feels that complete acceptance of the well designed, mass-produced house will undoubtedly come and, with it, will have an important effect on the architect's design philosophy. "If the architect responds thoughtfully to the fact that he is designing for volume," he explains, "he will become less concerned with his own virtuosity and more with the possibility of permitting his clients and customers to exercise theirs."

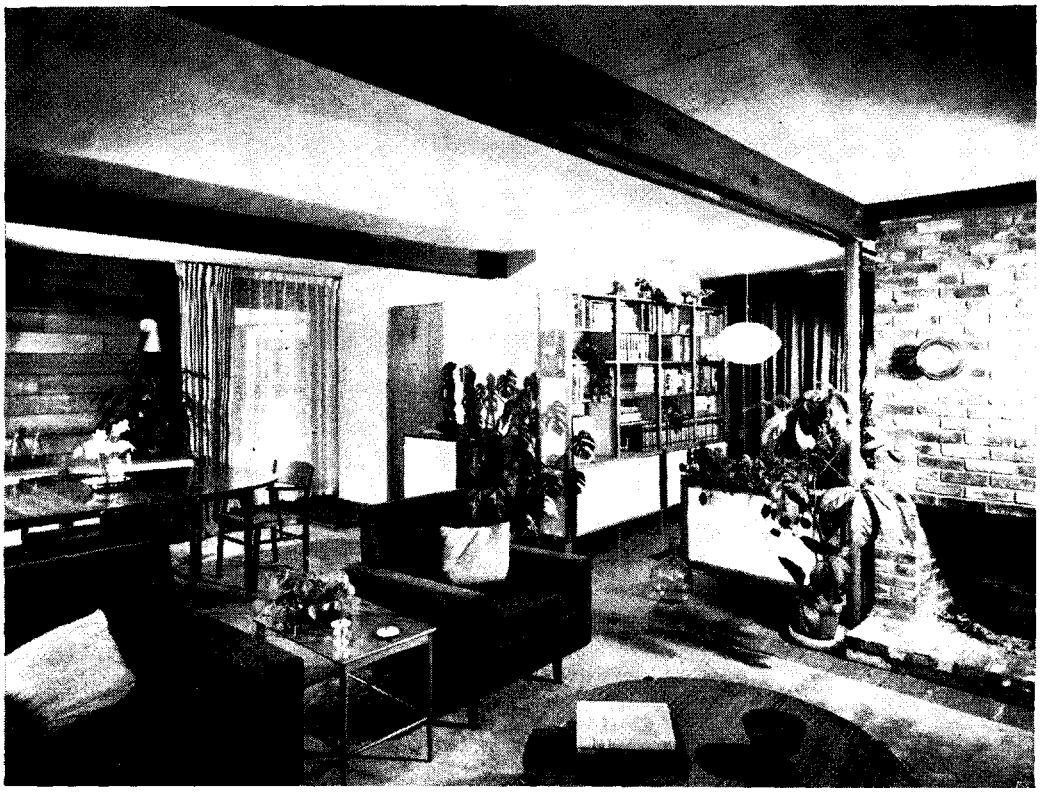
For the house shown here, Edward Diehl was Associate-in-Charge; Robert L. Mackintosh was Landscape Architect; The Design Corporation, Charles F. Mansfield, Interiors; Techbuilt, Incorporated, General Contractors.






36-12-30"
shelf unit
48-24-30"
desk - room divider
48-12-29"
shelf unit
24-24-29"
chest

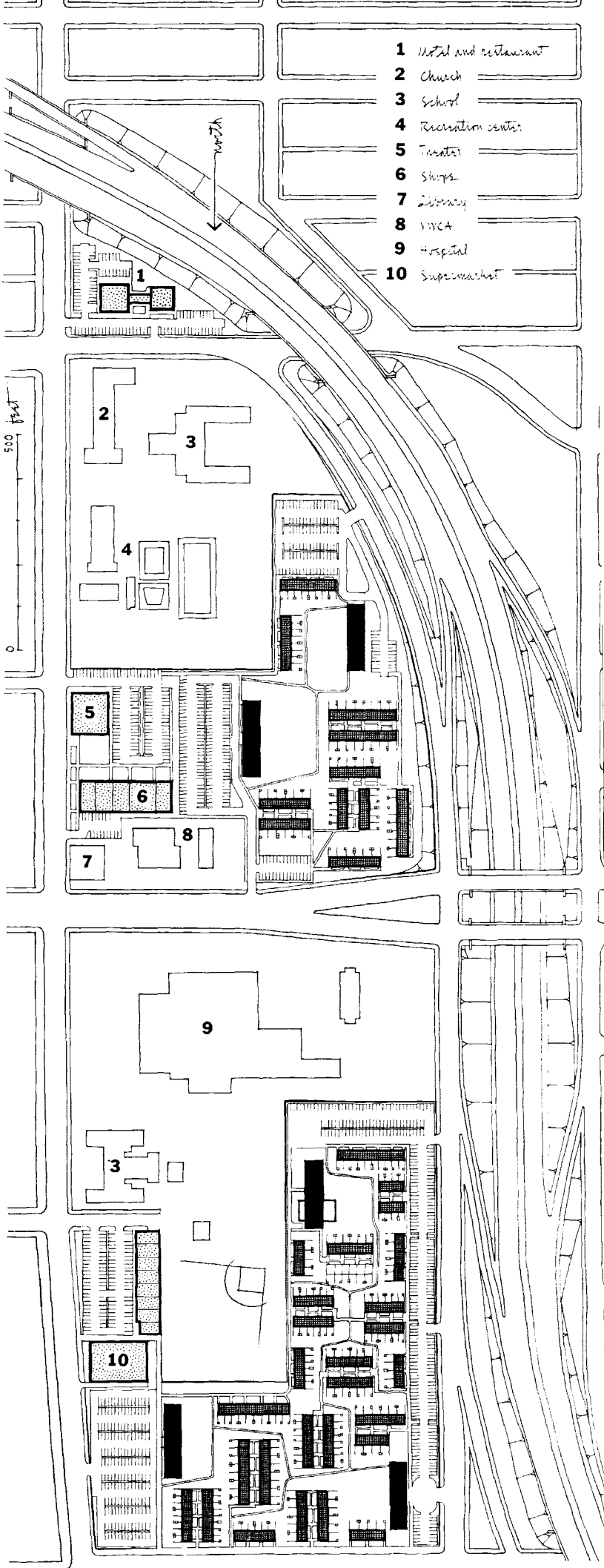


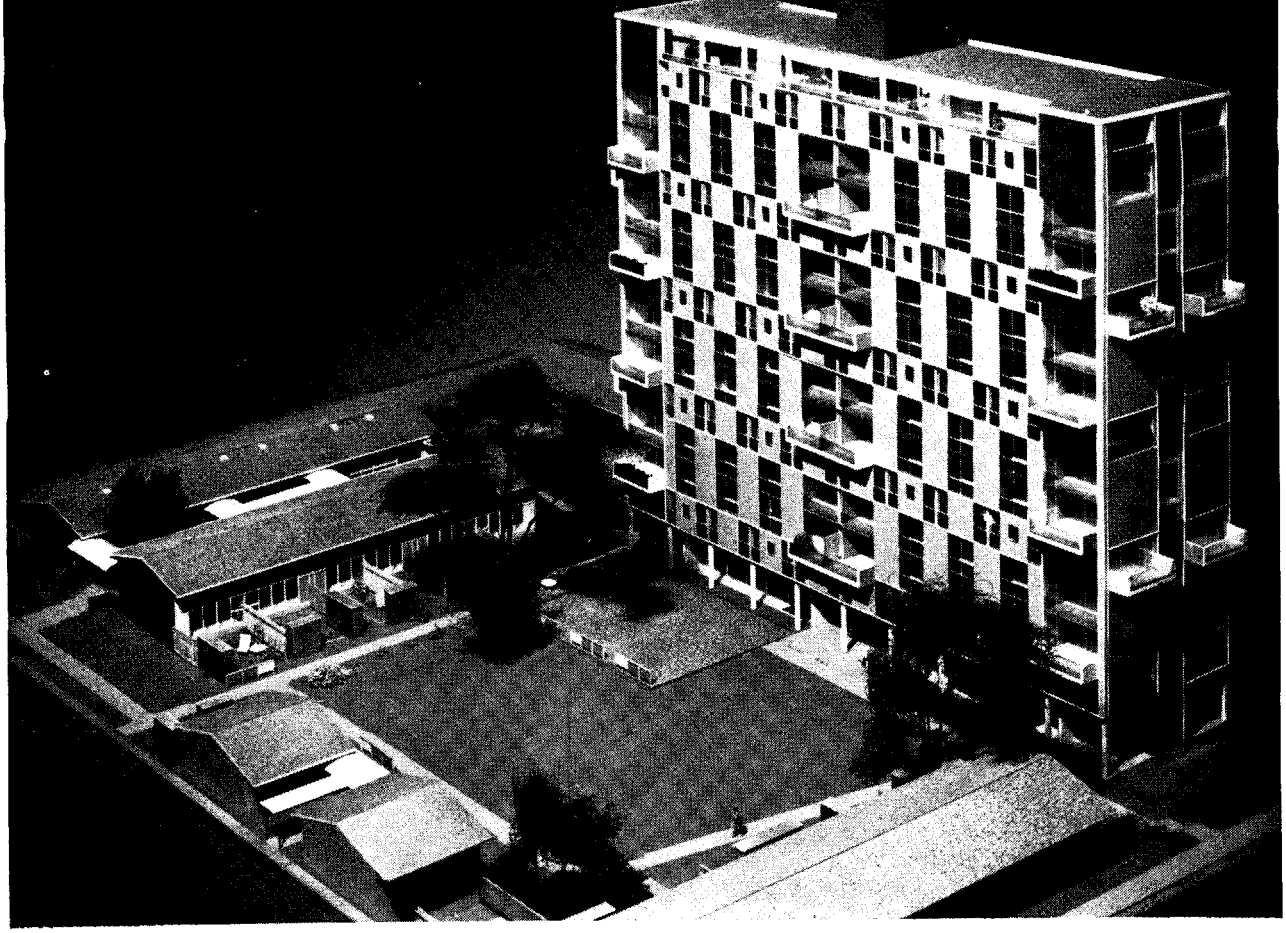


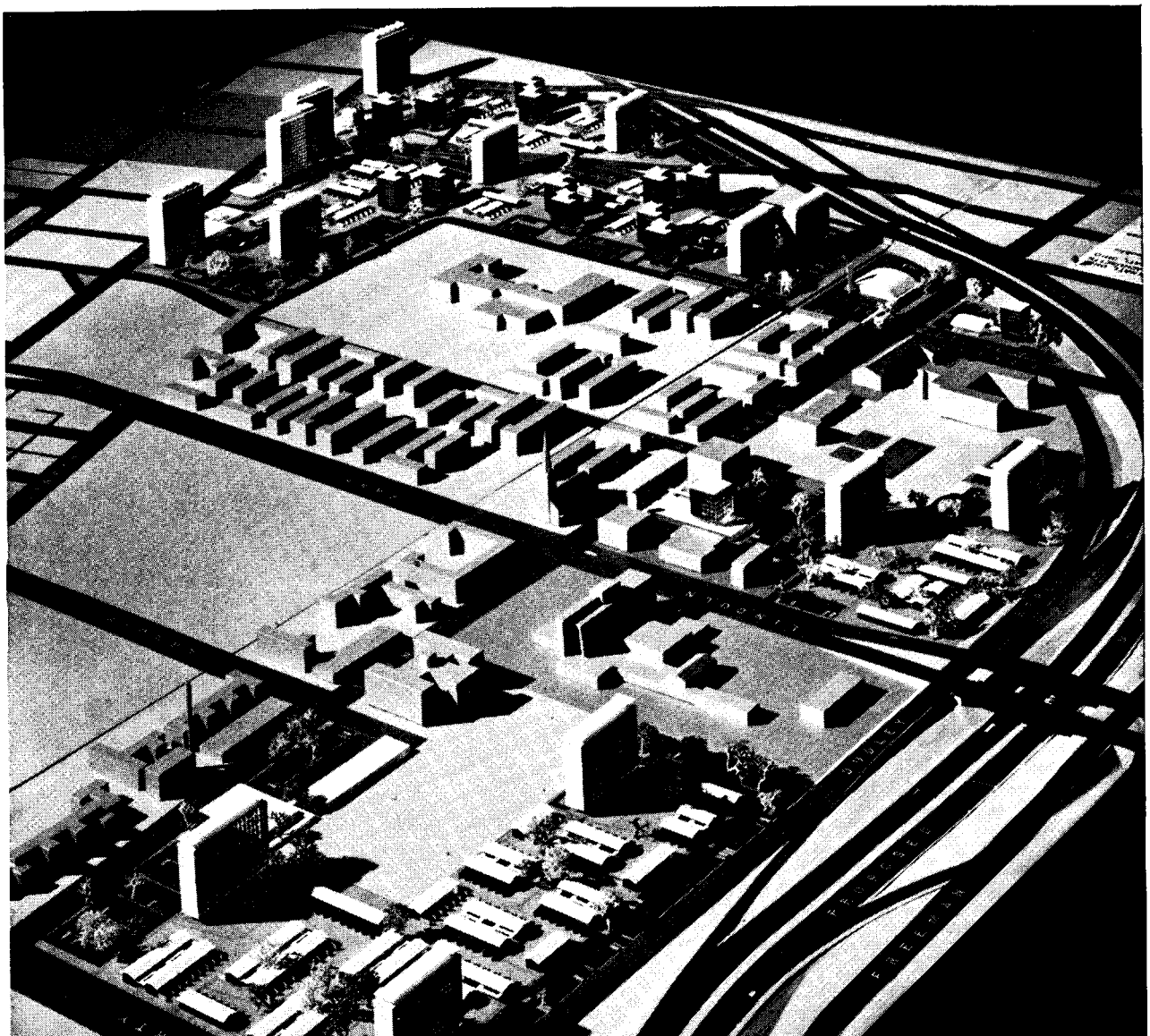
Carl Koch & Associates

new urban patterns

In recent years, Koch & Associates have designed a number of city planning projects for Webb & Knapp Development Corporation. Among them is a subdivision of 185 town houses for Buffalo, New York. FHA approval has been received and construction is scheduled to begin. Techbuilt's factory-made parts will be used for the framing of walls, floors and roofs of the town houses. The components, incidentally, are now also being employed in the building of institutional and light commercial structures, fraternity houses, college dormitories, medical centers, and motels. Webb & Knapp has assisted many cities in forming their urban redevelopment plans by providing civic groups with preliminary sketches, in order to stimulate local activity. Such a proposal was prepared for Hartford, Connecticut. A third is Webb & Knapp's Laurel-Richmond proposal for Cincinnati, Ohio (*shown here*). For this redevelopment of an urban neighborhood, 21 acres were available on the edge of the main downtown shopping area. Koch has provided high-rise efficiency apartments for bachelors, small families, and elderly couples; and houses for families with children. His object in arranging low- and high-rise dwellings was to provide sun, air, and pleasant visual prospects. Of particular interest are the clusters of houses which are grouped around common-entry courts. These clusters are, for the most part, oriented away from the street, facing parkland rather than parking lots. Each house has its private garden *which* opens toward the common green. Pleasant walks interconnect houses and apartment blocks and such existing facilities as a hospital, library, school, recreation center, and shops. A similar community, making use of the town-house cluster with central entry court, has been designed for New Orleans, Louisiana. Koch's ambition to design a project of really large scale—"even a town"—came true at least partially (the plan will not be executed on the site) with the design







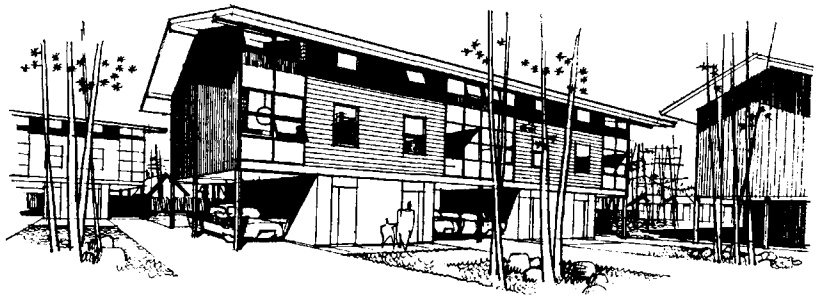
Photos: Robert D. Harvey Studio

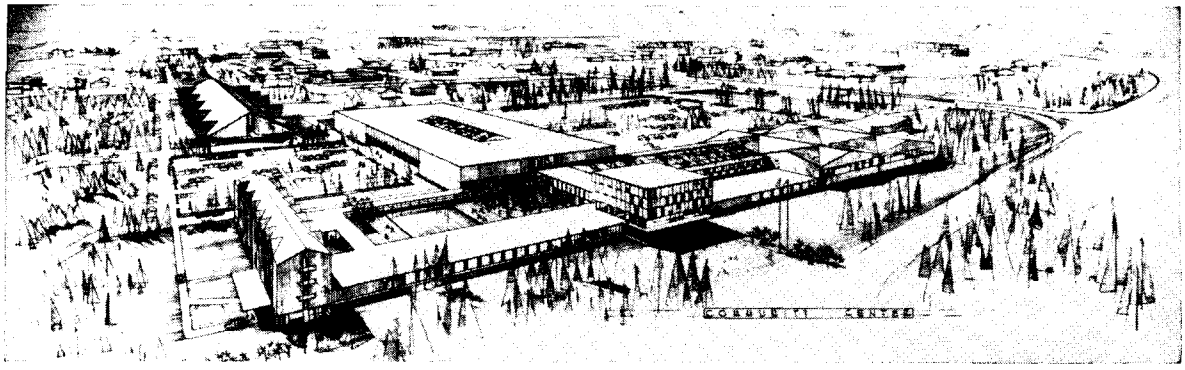
of a new town for Thompson, Manitoba, Canada. The requirement was not only to provide housing for the company's employes in this remote area, but also to construct complete governmental, educational, and recreational structures (*sketches below*). Special sub-arctic ground conditions and the great isolation of the site, presented an unusual challenge. In the plan, the community was divided into four neighborhoods, each provided with its elementary school site, playground, and park area. Civic and commercial centers were placed near the main crossroads within the town, and another central location was chosen for a high school and recreation center. The majority of the houses were designed to be built on concrete piles driven below the perma-frost line. Others were to have full basements using reinforced grade beams. By using several differing housing types, various needs could be met and at the same time, a more lively community plan developed.

Koch feels very strongly that "architects should concentrate less on individual buildings in detail (except where design for mass-production is involved) and more on communities of buildings—a whole environment —for working, living, thinking, and playing. In America, in spite of a tremendous amount of building, far too little of this is being done. Why is it, he asks "that Clarence Stein in bringing his book *Towards New Towns for America*, up to date can find no better example than Greenbelt (1934) and Baldwin Village (1940)? Why did the American Exhibit at the International Union of Architects Exhibition (which Koch visited in Moscow this summer) on the subject of Town Planning have only Levittown, Los Angeles highway planning, and a whole series of distinguished, but isolated, buildings to show?

"The past, very busy years have seen a tremendous proliferation of modern architecture in America—large numbers of individual buildings containing good ideas and exciting forms. I am, nevertheless, increasingly dissatisfied with what I see. I believe that what is lacking in our work today is thoughtfulness.

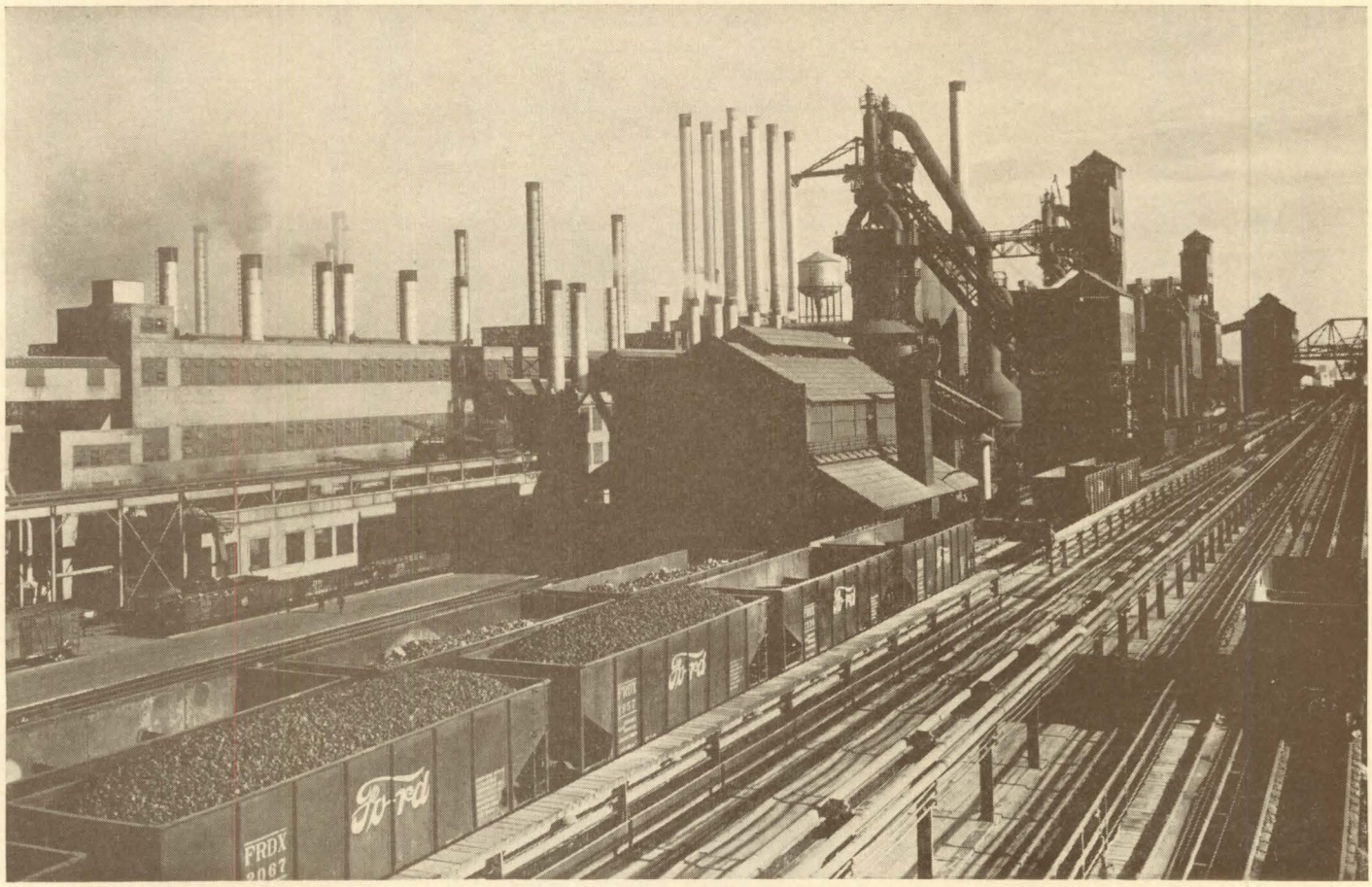
"Most architects are traditionally servants of society and accept willingly the job given them without question. Our customs, our training, the rules and regulations of our professional institute discourage our creating jobs ourselves to do, which, if we are thoughtful, we know need to be done. We need better training, and equipment, and especially more desire to influence our society to give us better and more worthwhile jobs to do."



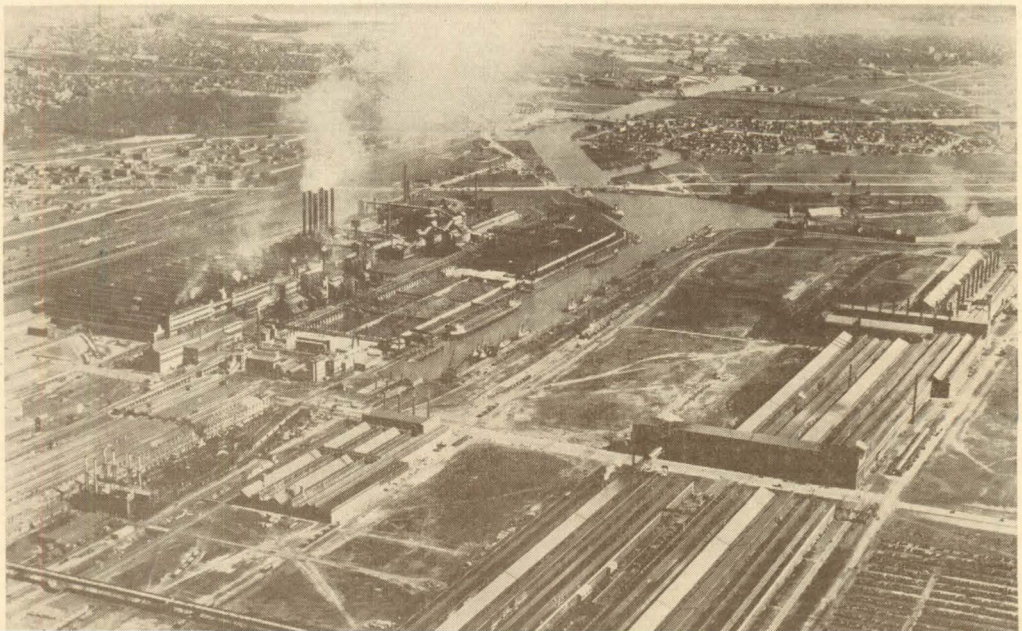


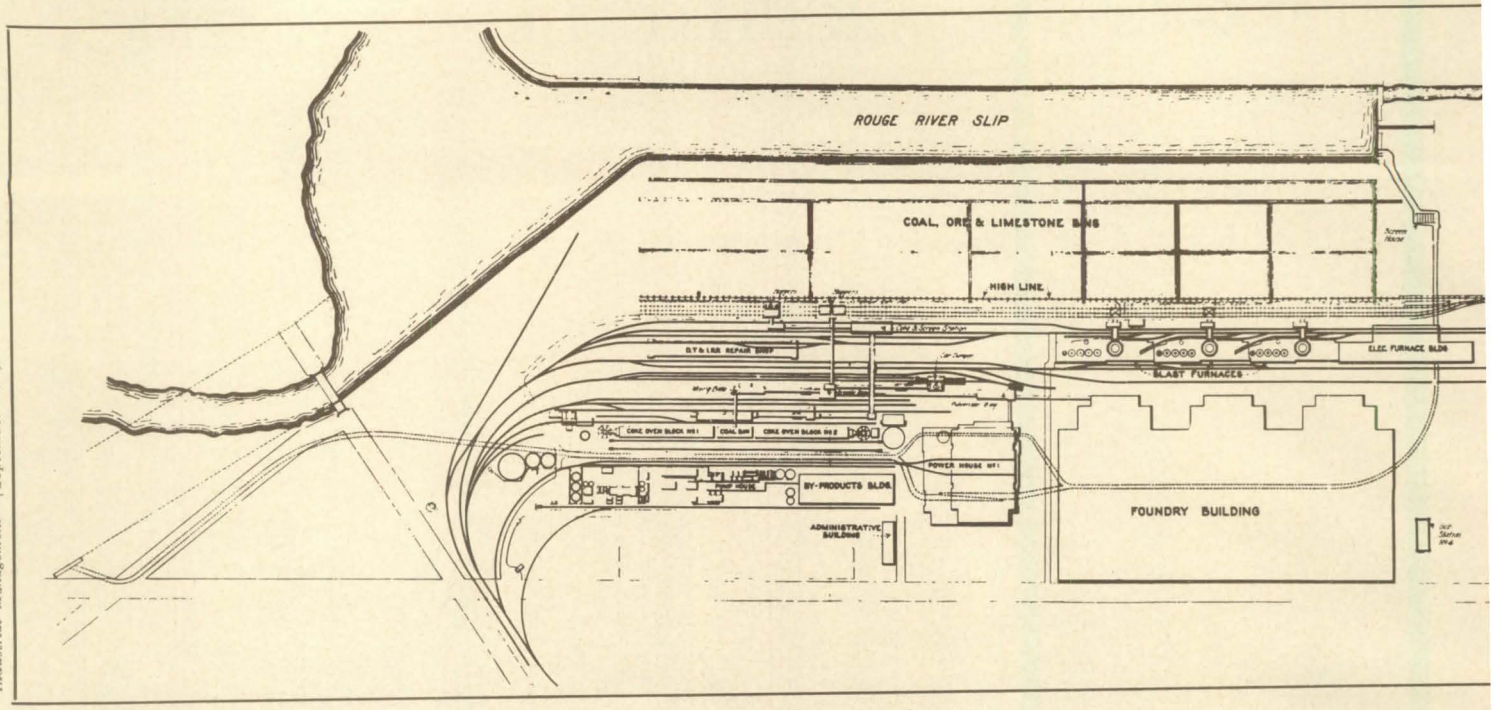
PROGRESSIVE ARCHITECTURE IN AMERICA

RIVER ROUGE PLANT FOR FORD MOTOR COMPANY—1917-
Dearborn, Michigan
Albert Kahn Associates, Architects—Engineers



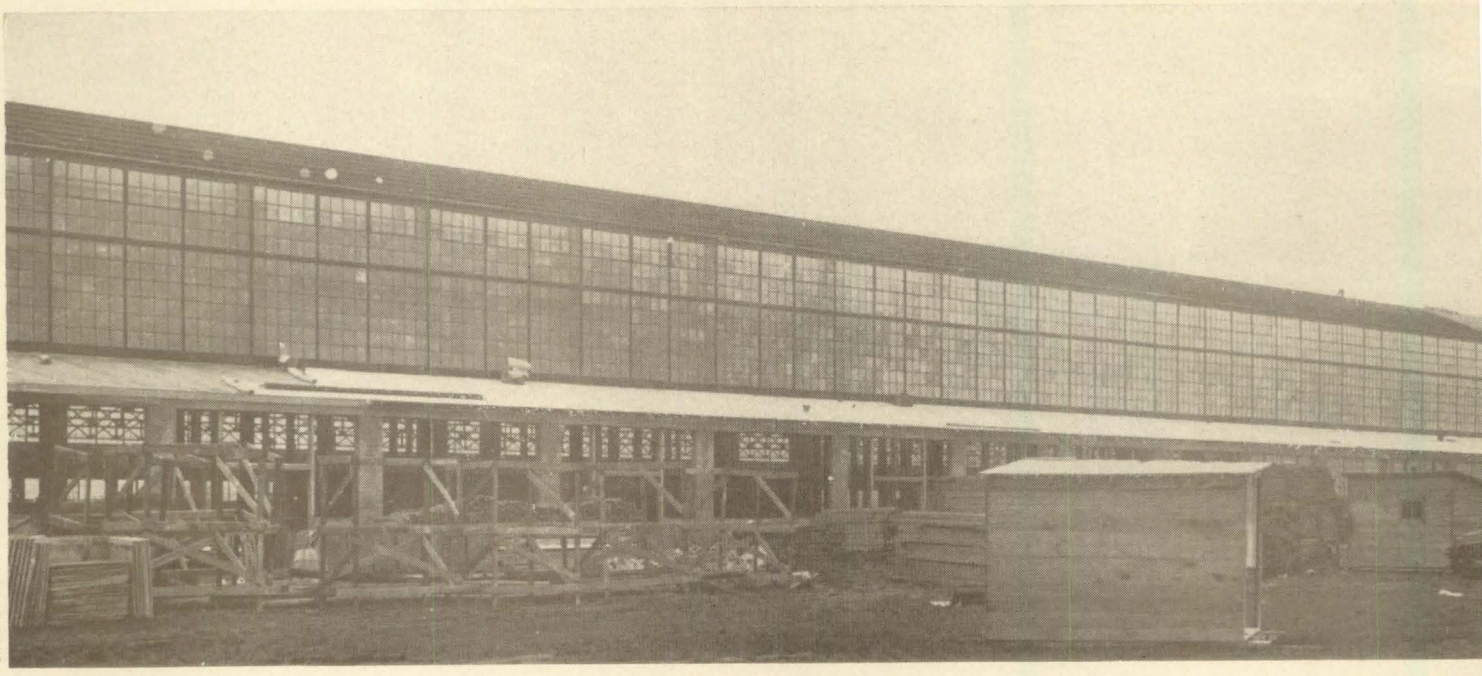
The original unit of the plant, including blast furnaces, power house, and High Line railroad (above and upper left of airview), *had expanded in the late 1930's to include complete steel-making facilities* (far right). Photos: Albert Kahn Associated Architects & Engineers, Inc.





"Industrial Management" (September 1922)

1702'-long "B" Building, first of the Rouge plant structures, erected from April 9 to May 25, 1918;



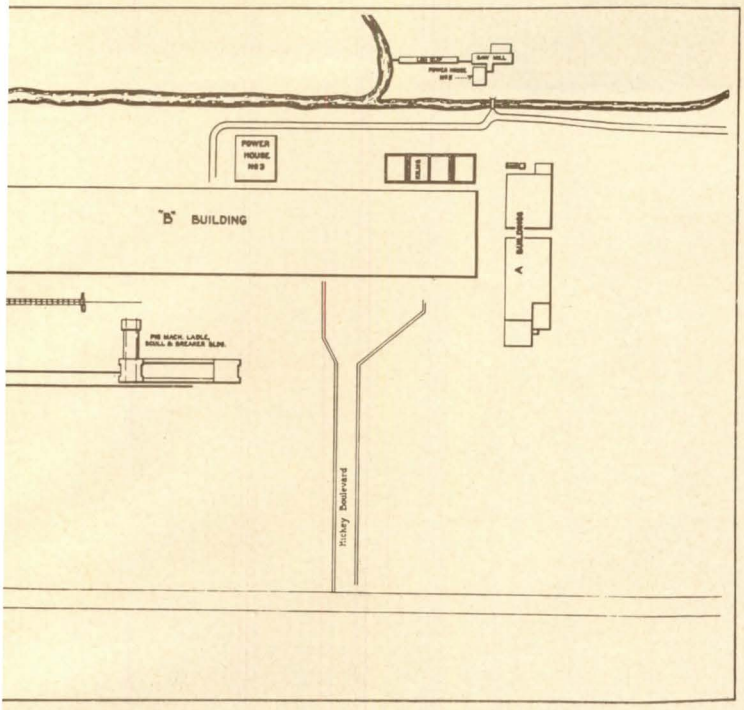
Ford Archives

Incredible as it would have seemed to the world that admired Henry Ford's huge, unprecedented, pace-setting plant at Highland Park in 1912, in less than a decade it was obsolete. So rapid was the progress of American manufacturing in the early years of the century, and so great was Ford's pioneering vision of mass-production, that by World War I a new concept of industry and a new industrial architecture were about to be born. Both were to be realized in the Ford plant at River Rouge—a phenomenon unique in the history of modern manufacturing, and a monument to the practical versatility of American architects and engineers.

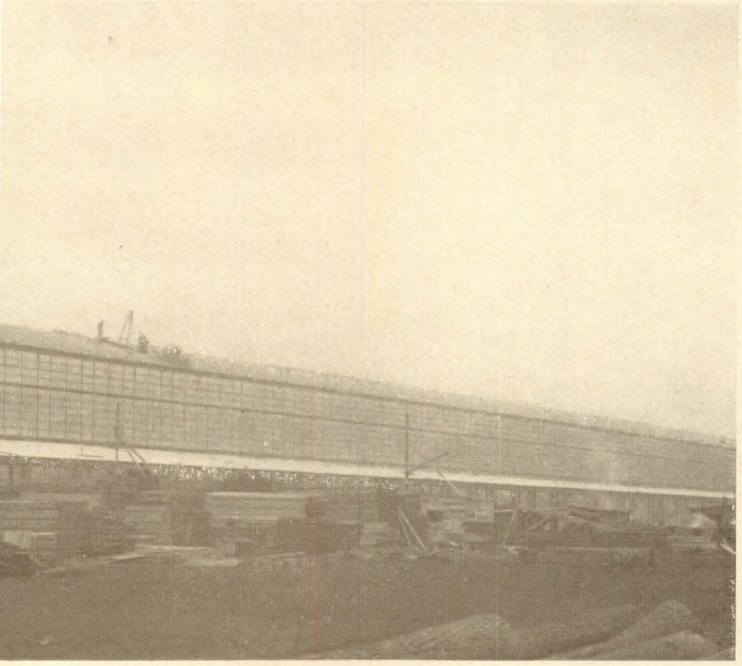
The Rouge plant grew out of Henry Ford's personal obsession with industrial self-sufficiency. Rising prices for materials, dependency on suppliers, threats of shortages and strikes all combined to kindle his idea of a manufacturing center that would function autonomously, controlling everything from raw materials to the finished product. He had envisioned this super-plant as early as 1915, with its own inland port, independent rail and water transportation, stockpiles of supplies, and its unhampered spread of low buildings providing acres of unobstructed space for the free flow of materials and operations.

This all-important "free flow" was the key to Ford's revolutionary industrial processes and to the architectural pattern of the Rouge. The moving assembly line, developed at Highland Park, had dictated a continuous manufacturing operation; what Ford proposed now was the expansion of these methods, the product and process moving from building to building, with provision for change or improvement at any time. The very act of housing this dynamic, large-scale industrial operation was to create a new kind of large-scale architecture, and, as at Highland Park, Albert Kahn was called in to convert the plan into architectural form.

Although important additions were made by other architects and engineers in later years, the Kahn office executed most of the Ford work in this early, formative stage, when



building appears at right of 1922 plan (above).



so much of the specialized, structural efficiency of the American factory was evolved. Largely as a result of this long association, Kahn's name has become synonymous with modern industrial architecture. Although Kahn engineers were indebted to men like Ernest Ransome, whose earlier work in reinforced concrete made the first important break with mill construction, and other sections of the automotive industry were also developing impressive plants, it was not until this mammoth project that American factory architecture reached its full-scale realization. The Rouge outstripped everything before it in mechanization, flexible plan and structural advance. What had been merely big, before, became immense, not only in physical plant, but also in the over-all concept of its design.

The Rouge began with the famous "B" building of 1917, a 1702′-long plant rushed into construction for the manufacture of Eagle boats during World War I. Kahn built a huge steel, glass, and brick shell, using materials and equipment that were still a novelty in factory design: large spans of structural steel, unit heaters, cement tile, steel industrial sash, and the glass-walled façades that gave the bright new industrial buildings the name of "daylight factories." After the war, the foundations were strengthened, additions made, and "B" building became an assembly plant for tractors and automobiles. It is still an assembly plant today.

After "B" building, the growth of the Rouge was rapid and dramatic. Its design was set by Ford and his production engineers, who made detailed studies of functional requirements in scale models (to some it is still a matter of conjecture whether Ford could read blueprints—certainly he preferred models). In 1918 and 1919, the foundry, power house, and coke ovens were added; by 1920, twenty-four miles of railroad track, including the all-important and almost legendary High Line, serviced the buildings and tied them together as a working group. By 1926, there were 93 structures (23 main buildings) on 1115.12 acres, 93 miles of railroad and 27 miles of conveyors, and the project had been described with awe by every important industrial publication and visited by innumerable distinguished observers. In the 30's, Ford realized one of his fondest dreams, adding complete steel-making facilities to the original Rouge scheme. A new press shop also was built by Kahn, almost one-third of a mile long, enclosing nearly a million and a half square feet, and using 47,000 tons of steel in the piles and superstructure—the largest steel order ever given for a single building up to that time.

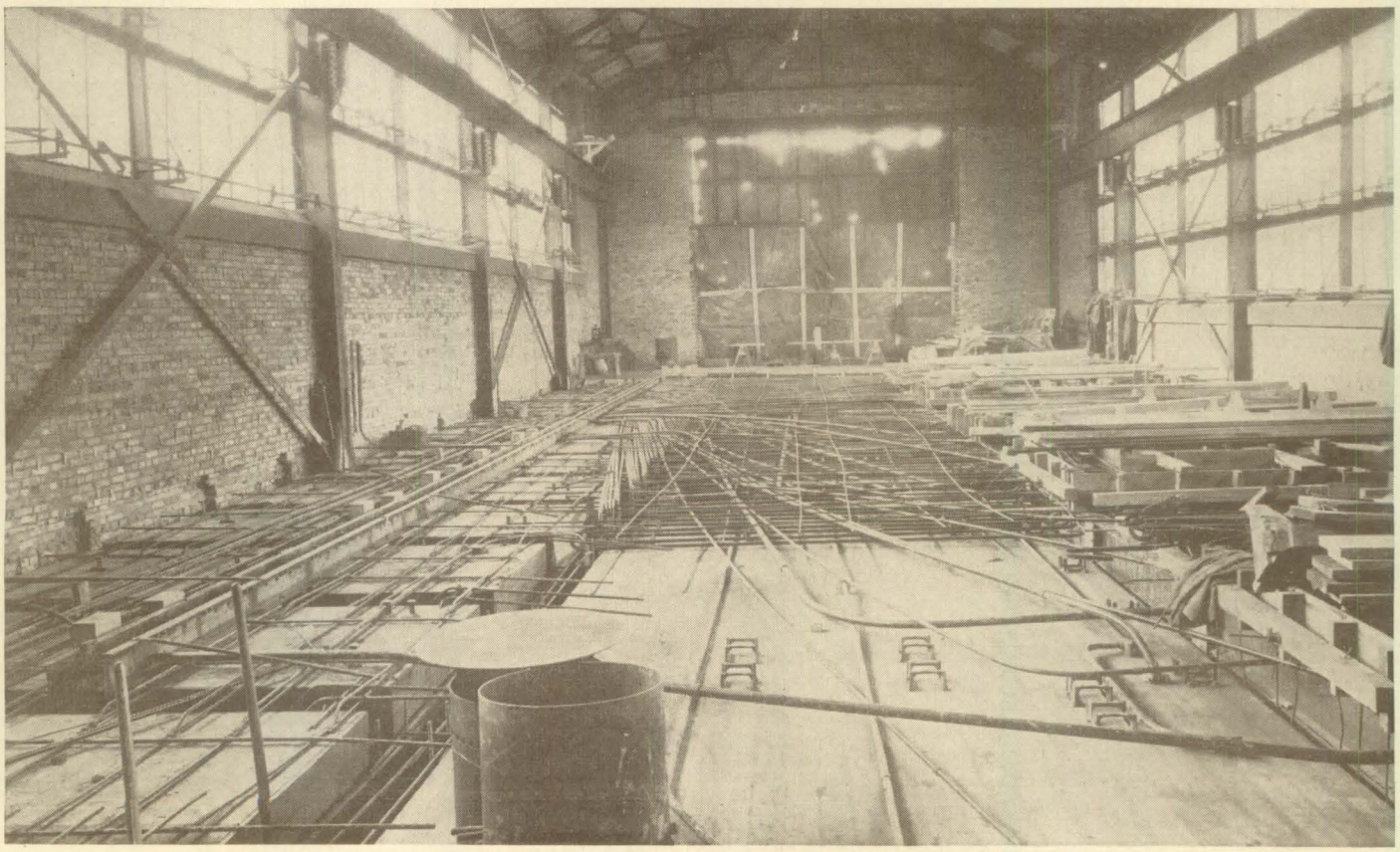
The method of planning and design changed little from the early days. Kahn outlined his part of the procedure as a combination of "functional design and business-like execution." Under functional design he specified provisions for straight-line production, extreme flexibility, generous column spacing for free location of machinery, floors and ceilings strong and high enough to meet all loading requirements, properly located utilities, good lighting and adequate ventilation, low first costs and minimum upkeep. Businesslike execution covered the involved process of erecting the new buildings as quickly and efficiently as possible, since the provision of essential manufacturing facilities at the right time was always a matter of profit or loss on a very large scale. Kahn's businesslike methods impressed his businessmen clients, and it was undoubtedly for them that he pronounced his notorious dictum that architecture was "90% business and 10% art."

To many, however, the esthetic values of the new industrial architecture were immediately apparent. It was a strong and startling architecture, and the appearance of the Rouge at the peak of its fame in the 20's has been well described by Allan Nevins and Frank Ernest Hill in *Ford: The Times, The Man, The Company:* "the forms of the plant had an authority of their own, severely functional. The concrete-lined oblong of the slip; the storage bins with their dark hills of coal or iron ore and white hills of limestone, the sheer bulk of the foundry, the stacks of the blast furnaces and power house, the authentic sweep of the High Line, the covered conveyors twisting like angular snakes from building to building—all give a picture of designed power. . . ." In America, Charles Sheeler made a memorable series of paintings based on its utilitarian geometry. In Europe, architects were quick to appreciate the "machine esthetic" that resulted from the functional expression of the production process. "If absolute completeness and perfect adaptation of means to end justify the word," wrote J. A. Spender, English editor and historian, of the buildings of the Rouge, "they are in their own way works of art." As both art and architecture, they were to have a profound impact on the 20th Century.

ADA LOUISE HUXTABLE

Appreciation for generous assistance is expressed to Frank Ernest Hill, to Albert Kahn Associates and the Archives of Ford Motor Company for information and illustrations, and to Robert E. Kozlow for initial suggestions and bibliography on Albert Kahn.

Early construction: steel of "B" building, 1918 (above); *steel, brick, and reinforced concrete, 1920* (below).
Photos: Ford Archives



steel-frame houses

by J. D. Briggs*

Increasing numbers of houses having steel frames are being constructed. In addition to long-accepted advantages of steel as a structural material, there are other benefits from the use of this material that provide the designer with numerous "extras" in freedom of design and economical use of space. Related components of framing made in part of steel—floors, partitions, and walls—also have attractive advantages. Features of this character are presented in this article.

Throughout the nation, and particularly on the West Coast, more new homes—ranging from the luxury class to the modest tract dwelling—have one thing in common that evokes whole-hearted approval from their owners. These homes are built on structural-steel frames heretofore used mainly for commercial, institutional, and industrial structures. With such frames, architects and designers have moved into a new home-building era. One architect has reported: "Steel framing—shop-fabricated, rigid-steel framing — in residence design has not yet been tapped. It entices the imagination and offers unlimited quality-construction opportunities for the majority of home owners—and at the price of today's conventional small houses."

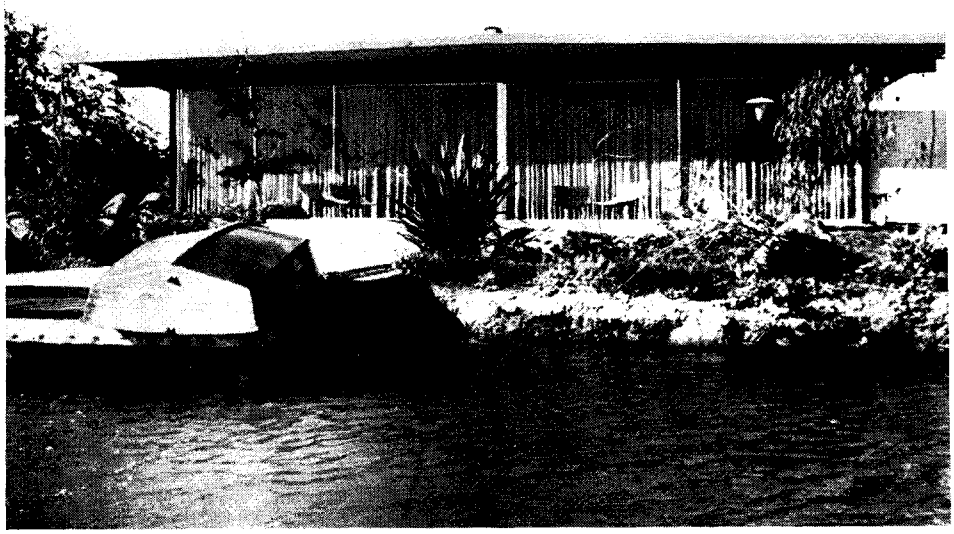
* *Manager, Commercial Research & Industrial Development, Bethlehem Steel Company, Inc.*

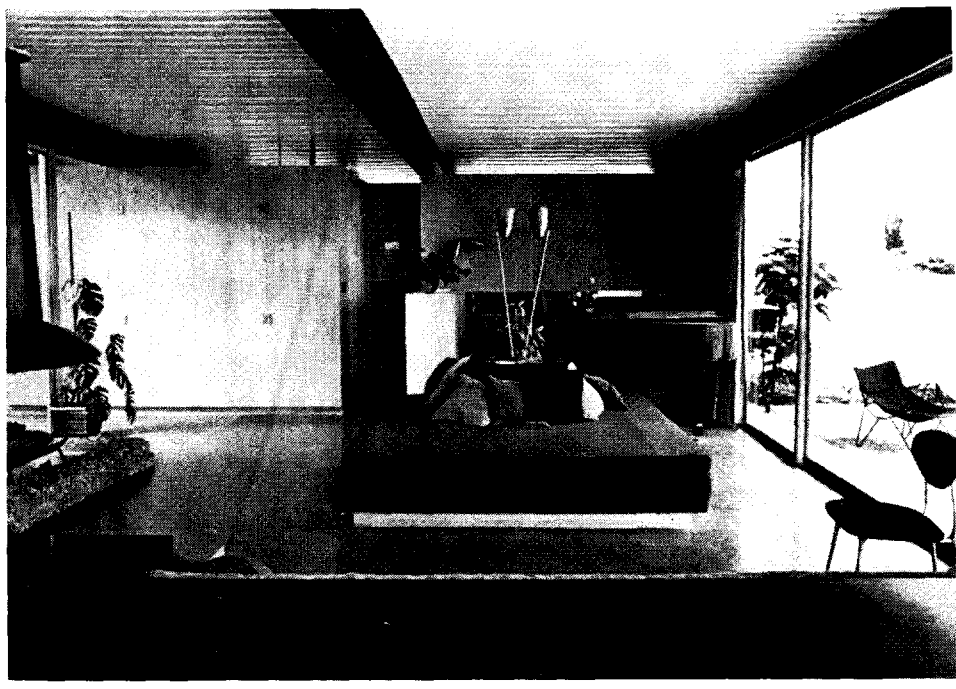
Steel framing is not limited to the mansion. It can successfully compete in cost with "quality" wood framing. Fabrication shops manufacture the steel frames so completely that they need merely be erected and fastened together at the site—in a matter of hours.

Steel's flexibility offers architects unlimited opportunities for design. Lightweight steel beams, for example, can span wide areas without the need for loadbearing walls or interior columns. Architect David Thorne, Berkeley, California, put steel "to work" in one of his designs known as Sequoyah House. Using a 10′ module, he incorporated all supporting elements in a series of six, continuous, rigid, steel-framed bays. These rigid, rectangular frames, set parallel to one another along and overhanging a foundation wall, function as the ribs of a skeleton. Around these ribs he placed a "skin" of lightweight materials to enclose nearly 3000 sq ft of living areas without loadbearing walls. With this type of steel framing, he created a rectangular shell of the desired shape, so adaptable it could be placed on a lot of almost any grade with minimum of excavation. With steel carrying all loads, Thorne used wide expanses of glass in his exterior walls, and teak veneers in the interior. The rigid support of the steel frame made it possible to use the roof as a heliport, on which helicopters could land and take off.

Exciting effects with steel are numerous. Designers have used the following innovations with spectacular success: "Floating" the house, from a rigid framework of steel in the roof; elevating the house to "tree top" level, on a steel platform, to take advantage of view; cantilevering entire living areas **1**; using in-

1 *Architect David Thorne designed this house for Jazz Pianist Dave Brubeck and his family. Because most of the site was a solid mass of rock, Thorne used structural steel to cantilever a large part of the house from its peak. The house has a 360-degree view, yet offers privacy, with wide use of glass.*





2 *Rigid-steel framing as designed by Architect Raphael Soriano* (top) *allows nonbearing glass curtain walls and steel-framed sliding glass doors that provide full, open view of lagoon from living room. Steel decking welded to frame—serving as roof and finished ceiling—provides lateral strength.*

terior walls which can be moved, so that the tenant can adjust to new living conditions.

Architect Raphael Soriano makes an artistic display of the steel framing for his houses by leaving it exposed in bold, straight strokes. One of his designs is an 11-unit apartment building in Los Angeles. The structure is in the premium-rent class, yet Soriano had all types of limitations imposed on him by the building site. With 81,600 lb of steel framework carrying all loads in the two-story structure, Soriano turned to lighter materials for interior and exterior use—luminescent-plastic screens, wide areas of glass, and wood paneling. In a wilderness of conventional houses and apartment buildings, his design stands out, enunciating quality and good taste. The cost of steel? In this design it amounted to 83¢ per sq ft of floor area. "Steel can compete with any quality wood-frame house," according to Soriano.

He also firmly believes that modular construction, as against conventional studding and joists, is the coming "renaissance" in residence design, because it offers the most flexibility. "The module is not a standardization, but a repetitive insistence, like a beat or a note. It preserves the integrity of the structure, which is the most important thing in architecture."

Soriano achieved complete flexibility in a house he designed for Dr. Donovan Cooke in Belvedere, California **2**. For a family including five small girls, his client wanted complete freedom of planning within the enclosed living area. Soriano's solution was simple and practical. With a tapered beam welded to rolled H-section columns, he achieved a 40′ span with a 4′ overhang. These frames were shop-fabricated into a single unit, and shipped to the job site. Nine of them were bolted 10′ o.c. to a continuous footing along each side of the house. Steel decking welded to the frame, serving both as a roof and finished ceiling, provided the necessary lateral strength.

With a rigid structural skeleton, Soriano was able to use nearly all of his interior walls for storage. These too were turned out in a cabinet shop, shipped to the job site, and installed as finished units. Solid interior panels, attached to the steel frame with screws, were made of 1″ marine-grade plywood sandwiched between 1″ layers of insulation cork. Storage walls, solid panels and exterior window walls were uniformly 8′ high. Clear plastic panels were used to fill the remaining space between wall and steel decking. Almost all exterior walls consisted of sliding glass doors opening on screened outdoor areas. Aside from achieving complete flexibility for future space changes, the architect provided privacy for the occupants and

opened up the house to take full advantage of view. From the glass-walled living room, one has an unrestricted view of the distant mountains and the Sausalito Lagoon, with its colorful sail boats.

Besides permitting lengthy spans, without interior columns or loadbearing walls, steel's performance under extreme and sudden loads is superior to that of any other material. Its inherent qualities of strength and rigidity under trying conditions were proved in the Soriano-designed Hollywood Hills home of Julius Shulman, Los Angeles architectural photographer. One night, heavy rains loosened a 100′ section of hill which crashed down upon the house. Trapped under a mountain of rock and debris, Shulman suffered a broken leg: the steel frame of the house, however, held fast! The upper part of the frame was only knocked ¾″ out of line. The plaster ceiling was not even cracked over the area where tons of material had crashed through the patio entry and across a gallery into the living room. Damage to a wood-frame house under similar conditions would have been far more extensive.

Tough building sites pose no problems for steel. Architect John C. Hoops, Sausalito, and Civil Engineer John E. Brown, San Francisco, turned an otherwise useless piece of real estate into a choice view lot, with a few tons of steel. They placed 2000 sq ft of house on a slope of from 50 to 70 percent at a cost of under $25,000. Brown, who has done numerous similar jobs, said the steel frame not only solved the costly problem of under-pinning to elevate the house to street level, but shorter erection time for the steelwork lowered the over-all cost of the building.

In a similar situation, Brown and Designer Felix M. Warburg preserved the natural, steep slope of a lot on Belvedere Island, with a structural-steel frame **3**. Except for a retaining wall on the uphill side, the house touches the ground in only five places. "The beauty of this system is that 48 hours after pouring concrete you can have the steel in place and welded, and start on your subflooring. Conventional post-and-beam construction would take from five days to a week, in addition to requiring considerable scaffolding," according to the designer.

A laminated flooring of two-by-fours was installed over the steel. The wood, set on edge and nailed at frequent intervals, gave additional lateral strength as well as sufficient insulation to eliminate the need for a soffit. Later, the wood was sanded, filled, and varnished to provide finished floor. The engineer estimated that $1000 to $2000 was saved by using the steel frame instead of a conventional foundation. Another $1500 was saved by using the laminated floor instead of a conventional joist system.

3 *Erection of houses on "tough" building sites is simplified by steel construction. Designer Felix M. Warburg and Engineer John E. Brown used a steel platform to elevate this house to tree-top level on a steeply sloped lot. They reported savings in construction time of three to five days before starting subflooring.*

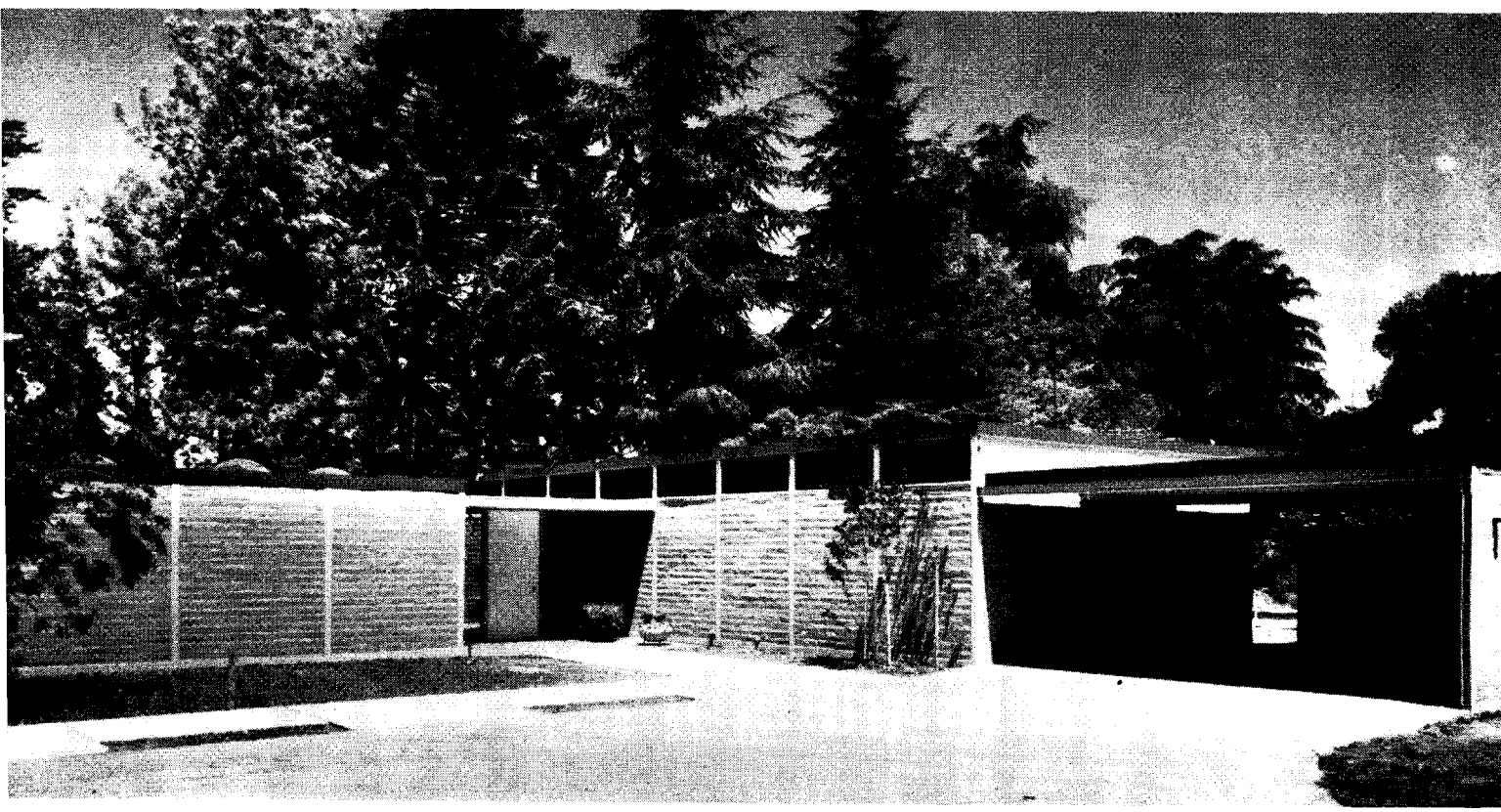
The shortage of steel at the close of the Korean conflict was prolonged by the brisk demand for structural steel. Particularly in the West, where steel framing has become popular, shortages of structural shapes precluded use of steel in many light occupancy structures. Since then, however, the steel industry—thanks to a major expansion program—can provide an ample supply of structural steel in all shapes and sizes to the designer and engineer.

Steel's compatability with other materials and its precision detailing are additional advantages, from a construction-and-cost standpoint. In most current home designs, architects purposely leave the exterior steel exposed, using its straight lines to dramatize further their structures.

Contractors are becoming increasingly familiar with steel for houses. Once they have tried it, most endorse it. One Redwood City contractor, John C. Davenport, who used steel framing for the first time in a two-story house in Atherton, California, said: "It's like getting a three-dimensional blueprint. Not only did rapid erection of steelwork allow us to get the entire house under roof through the rainy season, but also it gave us a firm and squared-up skeleton to work with."

Another important advantage is the ease and speed by which moment-resisting structural connections can be made. Other materials would need to be much larger in cross section to sustain equal loads, and all connections would be complicated by the increased dimensions. A wood post resisting the same forces as a 3" steel-pipe column would have to have

4 *Binuclear-plan house, designed by Don Knorr, has adobe walls between flanges of rolled-steel columns. Steel skeleton permitted use of single, rather than double courses of adobe brick. Construction cost was $11.34 per sq ft.*



10 to 14 times the section, and base connections would be costly and complex. The pipe welded to a steel leveling plate, punched to allow for bolted connections, is a much simpler and more rigid structural element.

Framing up to steel with wood is no problem, either. One builder, Ray D. Nichols, Oakland, used two-by-six wood sills, nailing them directly to wide-flanged steel sections with a power-actuated tool. Another system is to use a threaded stud which is shop-welded to the steel sections before they are shipped to the erection site. Simple, bolted connections or clips of angles are also used.

When the cost of real estate comes high, steel can make design economical. For example, consider the case of Richard Jay Smith, Newport Beach designer. On a 30′ bayfront lot, costing over $1000 per front foot, he designed a multilevel home, containing more than 2000 sq ft floor space. By using an all-steel frame to support the structure, the designer kept costs to $14 per sq ft, while achieving exciting effects. The lower level opens onto a bayfront terrace and yacht slip. The informal living room has a terrazzo floor for dancing, immune to the abrasive wear of sandy feet. Privacy is achieved with wood curtain walls in the second-floor living area. The third level is an open sun deck or "airborne" patio. A penthouse encloses mechanical equipment and serves as a potting shed and center for barbecues and refreshments.

Designer Don Knorr, San Francisco, turned "old Spanish" adobe into a contemporary design by framing adobe bricks between the flanges of H-sections in his Atherton, California, home **4**. The house, covering 3474 sq ft, was built at a cost of $11.34 per sq ft. A structural-steel skeleton permitted the use of a single, rather than a double course of adobe brick. In the patio area and entrance foyer, nonbearing glass curtain walls were used as contrasting material.

Not only has structural steel won its place in homes of quality, but there is increasing use of steel decking, pipe, sheets and tubing, for medium- and low-cost units. Steel decking, for instance, cuts form time in concrete-slab flooring. The ribs of steel in rolled-steel sheets of decking serve to reinforce the concrete further, and the voids created by the folds can be used for electrical conduit or as heating ducts.

Steel manufacturers offer new lines of building materials in roof and wall panels composed of rolled sheet and lighter, insulating, sound-absorbing materials. These are completely fire-resistant and practically maintenance-free. Termites and weathering present no problem. Besides, low cost of these materials offer additional savings in installation time while lending attractiveness to the design.

Walter Steyer, Los Angeles, designed a house to demonstrate what his own steel products can do in a moderately priced dwelling. His residence in San Clemente contains 1700 sq ft of floor area. This house uses an exposed-steel frame of expanded-steel joists. The lower level of the house, containing 600 sq ft, rests on a slab foundation. Steel acoustical decking separates the upper and lower levels. In the upper level, all loads are carried by a series of rigid bays composed of welded expanded-steel joists. The glass walls of the upper level are glazed directly to the steel. The framing system was laid out in 10 sections on a prefabricated basis. It took just two days to assemble and erect. Total cost was $20,000. Joists, spanning 15-ft inside the house, permitted the use of mahogany divider walls with glass-fiber eaves, giving diffused light. Traverse draperies close over the sliding-glass window walls in the upper level for privacy.

Aside from custom-designed houses, steel offers a tremendous potential for the mass-produced housing project. Builder Joseph Eichler's experimental house in San Mateo Highlands represents a big step in the direction of production dwellings. Using steel shapes in stock sizes, Architects Quincy Jones and Frederick Emmons, Los Angeles, designed this original and versatile home for the average pocketbook. All ceilings are exposed-steel decking in standard-size panels. They are crimped to tie panels so that the roof acts as a diaphragm. Steel leveling plates welded to the columns over the concrete footing made erection more rapid.

Designer-Builder Craig Elwood, Los Angeles, employs steel sheets in a new structural form which may set a precedent in the mass-produced house. His structural components were made from hollow steel-tubing made from ¼″ sheets. The sections used in the house are 2″ square columns and 2″x5½″ hollow rectangles serving as beams. These were shop-fabricated into 16′ bents and shipped to the site in one piece. All connections of base plate and beams were field welded. "The house we have here in this experimental form leads the way toward developing new and more exciting uses of what we formerly thought were 'new' building materials for the private home," Elwood says. "The key to mass-produced houses is in development of a modular structural frame to carry all the loads. This greatly simplifies the structure as well as the structural connections. "The segregation of a structure from walls provides a design flexibility not possible otherwise and sets no limitations on the selection of wall panel material. Metal, wood, plastic, or glass panels may be used, each with equal ease," says Elwood. "With the continual increase in on-site labor cost and decrease in craftsmanship, house production must go into the factory. The great challenge to architects," he adds, "is to find inventive structural forms to suit new materials and techniques. This will be our best defense against stereotyped architecture."

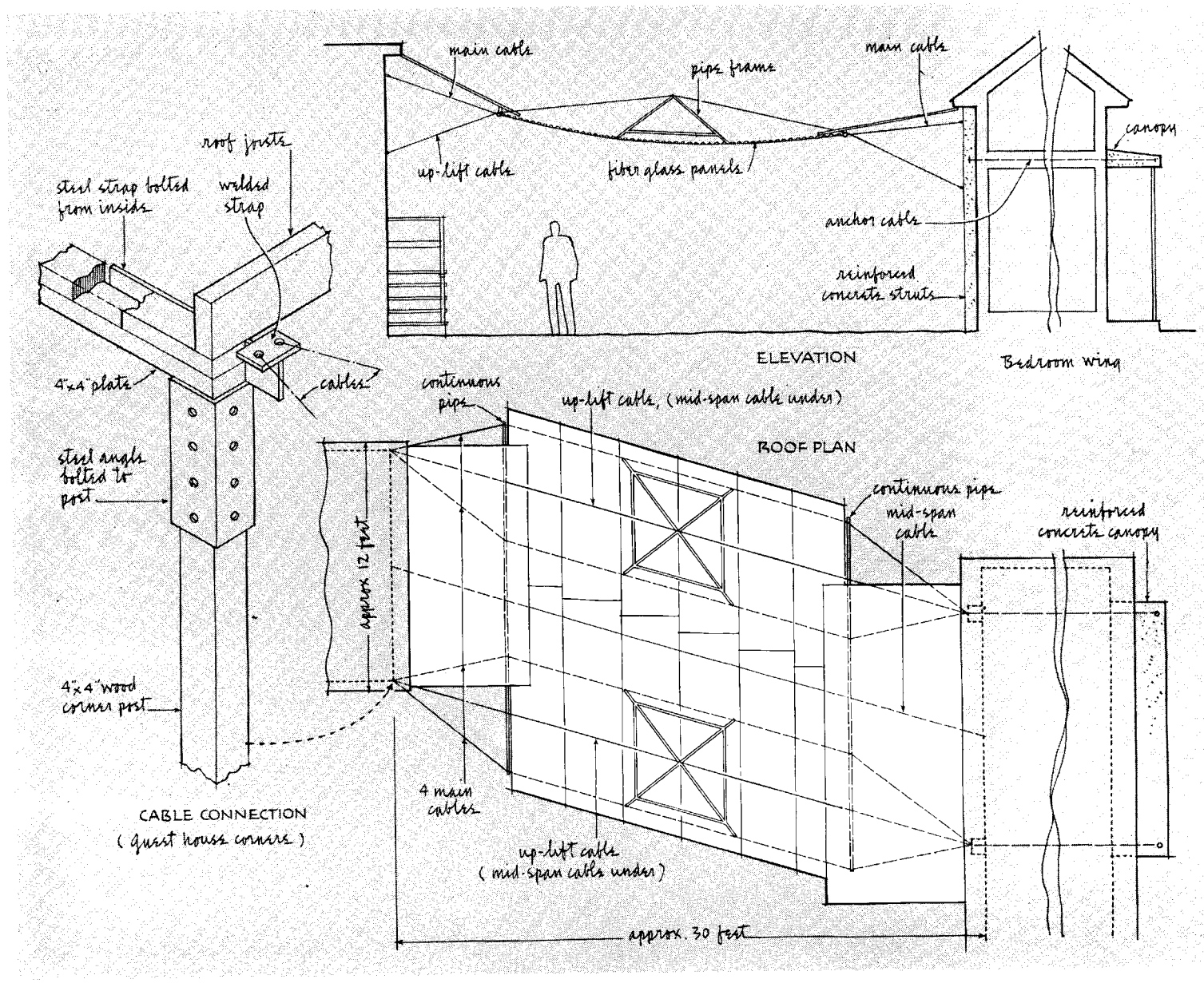
suspended porte-cochere roof

By Fred N. Severud*

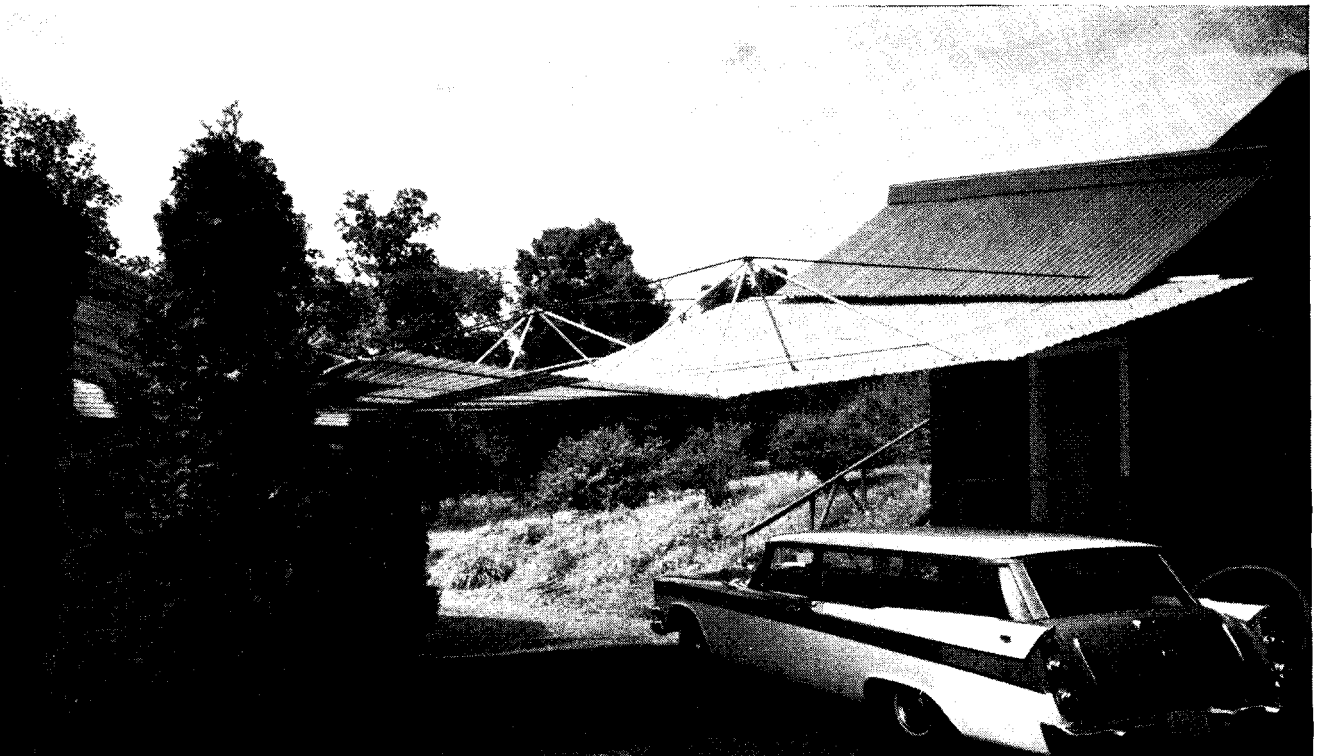
Since the location of our guest cottage is about 30 ft from the main house (*cottage at left, above*), the space between afforded an opportunity to create a novel sheltered entrance. Two conditions were favorable for the erection of a suspended lightweight roof: (1) cable anchorage could readily be provided; (2) like most other structures, the house and cottage had unused strength for lateral loads. It seemed logical, then, that cables could be stretched between the two buildings, directly under the eaves, to produce supports for a warped surface—not a difficult problem with hung structures.

From the plan (*acrosspage*), the main cable system is evident. Four load cables are separated by 3″ pipes to give the assembly stability for horizontal loads. These pipes also provide support for the uplift cables which ride over the pipes and are then given proper lift by light, pyramidal, steel frames placed above the load cables. The pipes also interconnect the two systems so that no twisting can occur. Originally, it was intended to use short pieces of pipe and allow the reinforced-plastic panels to resist the twisting tendency; such a scheme, however, would have required panels of less transparency than desired. Therefore, since the preferred panels—two-oz mat units with ½″ deep corrugations—would not have been

*Partner, Severud-Elstad-Krueger, Consulting Engineers, New York, N. Y.



Photos: Joseph W. Molitor

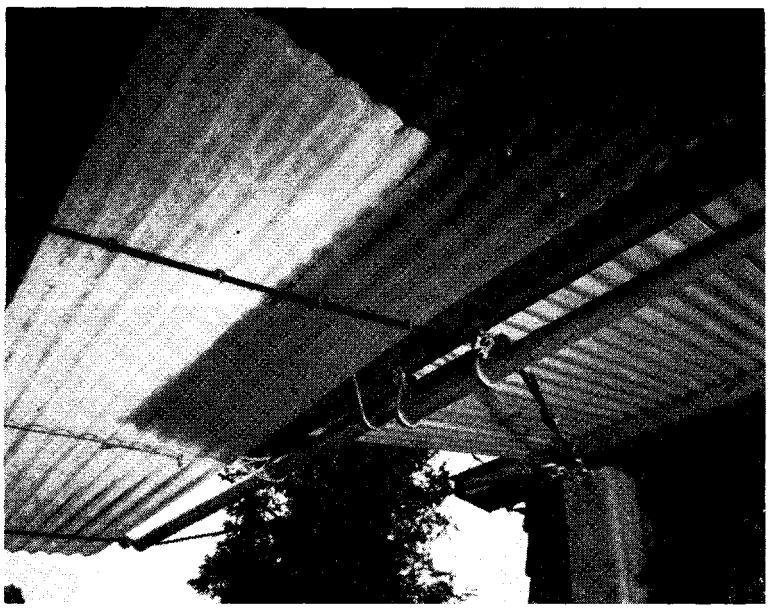


strong enough, it was necessary to make the pipes continuous by welding on extra sections. "Lack of co-ordination?" Let's be charitable and chalk it up to pioneer fumbling. It was also necessary to introduce ¼" cables at mid-spans between load cables to reduce deflection. Spans between pipes and eaves were covered with heavier mat units having 1"-deep corrugations and weighing three oz. These were amply strong to span the gap.

The main cable connection at the guest cottage was made by bolting a steel strap along the double plate supporting the roof planks, and projecting it out beyond the wall. A corner steel angle gave vertical support, being bolted to a double corner stud. A top plate, welded to the strap, formed a T to which the cables were connected.

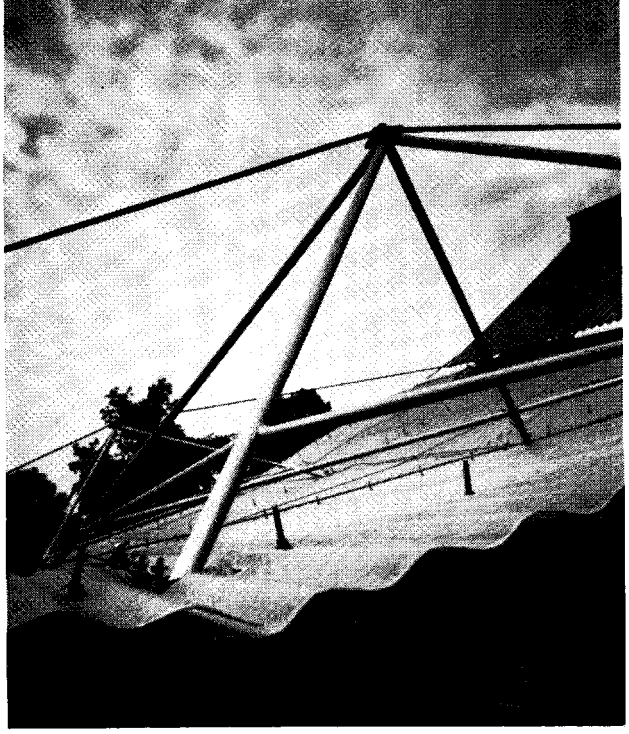
At the main house, the connection was not as easy and more alteration was required. Since the joists ran in the proper direction, holes were bored in the walls, and cables pulled through the bedroom floor to the other side of the house. Anchorage was provided there by running a reinforced-concrete canopy along the outside of the house, at floor level, and connecting it by cable with reinforced-concrete struts erected against the opposite side of the house. These anchor cables were prestressed by pulling them tight through sleeves in the struts. The struts act as cantilevers while supporting the load cables at the top by means of projecting eye bolts. In high winds, no unusual movement or noise has been observed.

Reason for presenting this seeming trifle is that the basic principle is simple, yet effective, and can cover a wide range of possibilities. It furnishes a new tool in a field still only partially explored. Find four points of attachment, and one can cover large areas with a minimum of effort. With four sturdy trees, for example, there is nothing to prevent one from building a summer home with this type of spider web as a festive roof. The same principle also lends itself to large spans, when conditions are favorable for its use.

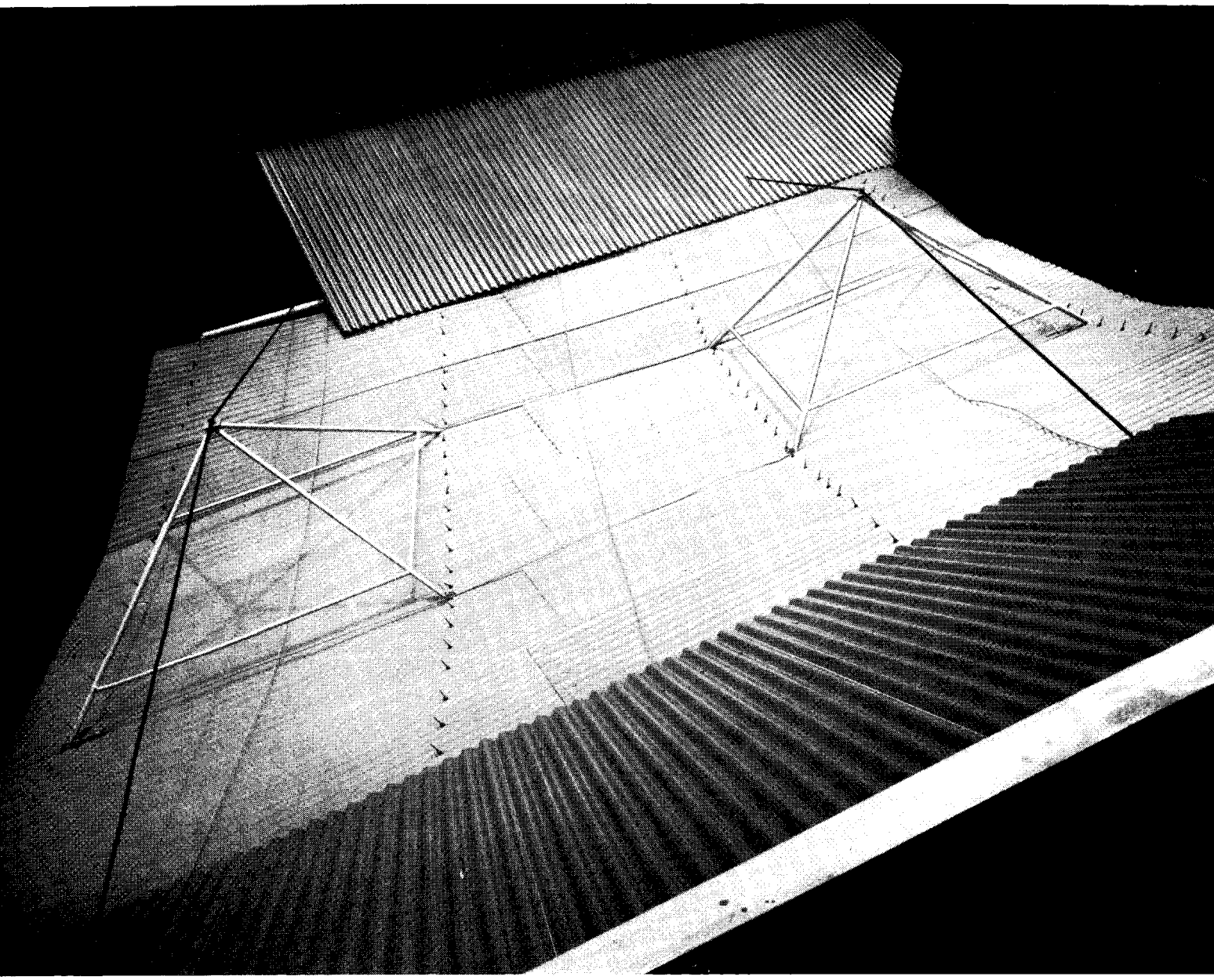


Cables at guest cottage (above left) *are connected to steel* Ts *above corner angles. Continuous pipe separates load cables and provides support for uplift cables.*

Reinforced-concrete struts at main house act as cantilevers while supporting load cables by means of projecting eye bolts (below left).



Light, pyramidal, steel frames, resting on load cables, provide proper lift for uplift cables (left *and* below). *Plastic panels between pipes and eaves have 1" deep corrugations and require no support for bending.*



laminated-timber dome

Structural system of ribs—resulting in a triangular-pattern dome spanning 221 feet—encloses a central auditorium with seating capacity of 5400.

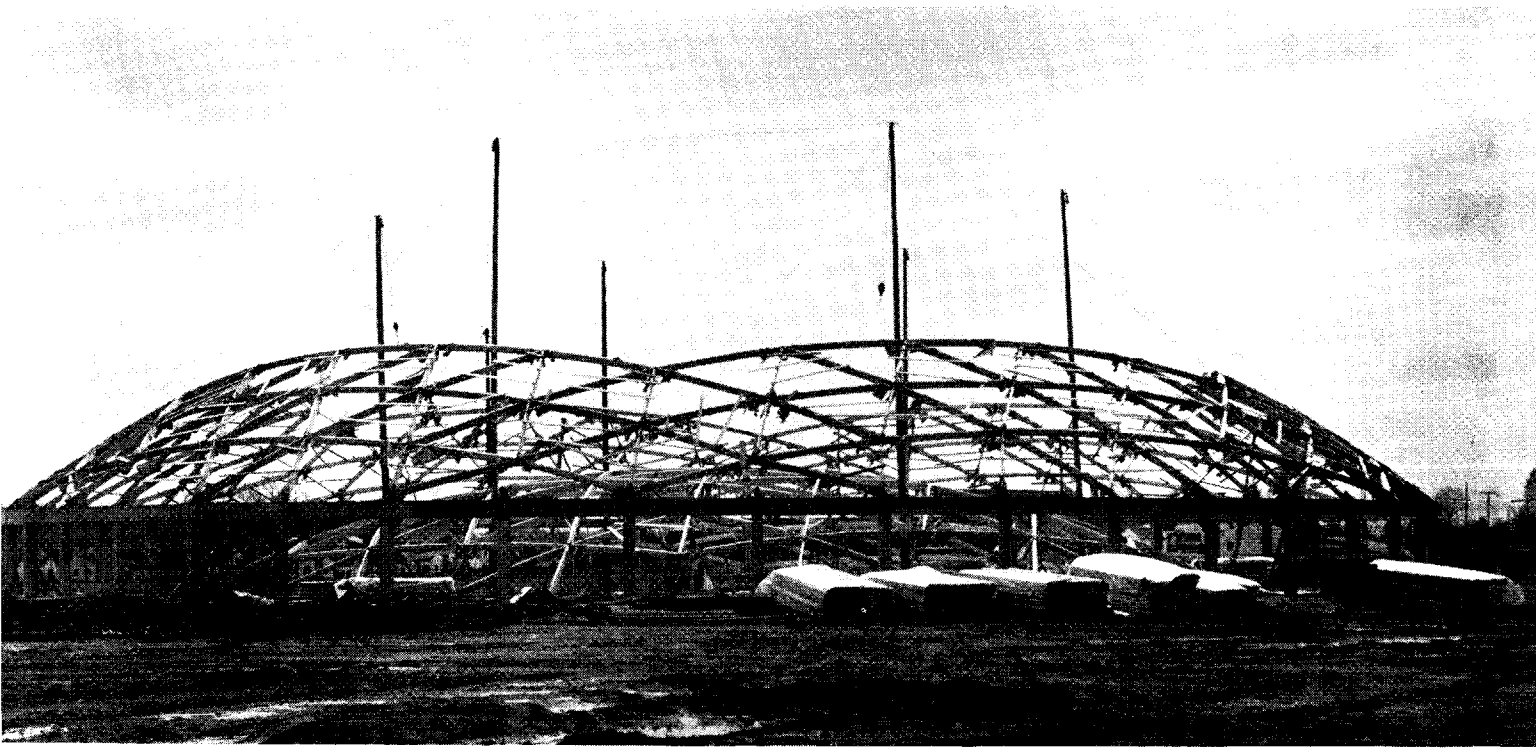
A recently erected dome — expressing a fresh approach to the use of glue-laminated timber members—encloses the Mt. Calvary Church at Cuyahoga Falls, Ohio. Designed by A. L. Salzman & Sons, Inc., Chicago Architects, and developed by Timber Structures, Inc., the dome was built around a central auditorium spanning 221′, capable of seating an audience of 5400. Its height is 180′.

This structural system of ribs is capable of developing all of the dome stresses. In layout, the working plane at the base is divided into equilateral triangles to produce a pattern consisting of a three-way, intermeshing grid of great circle ribs enclosing equilateral, spherical triangles (approximate).

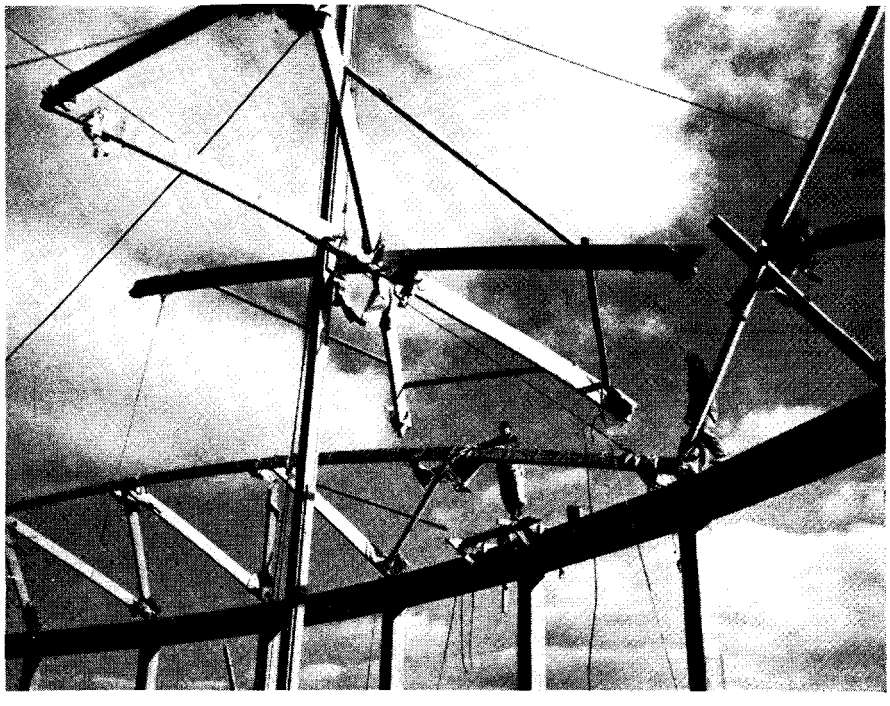
A simple shell-analogy stress analysis was possible since the following conditions existed: (1) the circular tension ring at the base of the dome was vertically supported at every point where dome members were connected to the ring. (2) The tension ring rested on vertical supports and was in a horizontal plane.

Analysis assumed the base ring remaining circular under all conditions of loading. Analysis revealed that all loads applied to the dome resolve into axial compression in the members. Its design used a shell-analogy method wherein the stresses were ascertained as though the dome were a homogeneous shell and then concentrated into the framing members. The National Design Specifications as published by the National Lumber Manufacturers' Association were used as the design basis and all members were sized to meet the requirements of full maximum loading as well as the requirements of unbalanced loading. Live load was 30 psf on the horizontal projection of the dome and dead load was 15 psf on the domical surface. Deflection in a dome does not occur as a result of bending stresses. Any deflection, therefore, must result from the shortening of curved members under compressive forces. This phenomenon then results in a very rigid structure.

When erecting the dome, it was a simple matter to erect a few segments, which are self-supporting with a minimum of shores, on the tension ring. The balance of the structure was then assembled on the interior, by starting at the peak and adding segments around the perimeter, hoisting the structure on gin poles until all segments were assembled. That part of the structure was then lifted up to the segments on walls and the final connection made—thus eliminating all scaffolding and falsework.



Tongue-and-groove sheathing was laid individually onto the six segments of dome proper (above). *First run of sheathing was made from the concrete perimeter beam up to the peak of the dome; balance was applied out to the edges of the pie-shaped segment—working each way from the center of that individual segment.*



Portions of dome rest on circular, concrete, perimeter beam (left acrosspage). *Balance of dome structure, assembled on interior, can be seen behind concrete columns at ground level. Seven poles were used to lift balance of dome to connection points.*

Six-member section is raised to wall for connection to previously erected members.

fireproof framing: cost comparisons

Last summer, Public Housing Administration in Washington, D. C., issued a circular to Regional Directors on the economics of high-rise structural systems. It encouraged them to consider a cost analysis of steel-frame buildings fireproofed with lath-and-plaster, as compared to reinforced-concrete frames which previously had been considered as the lowest cost structural frame. Thus, PHA amended that portion of its circular of February 6, 1958, which discouraged consideration of structural steel in public housing construction.

This action was taken by PHA following receipt of competitive bids on a PHA housing project in East St. Louis, Illinois, and a few days after a meeting with Mace H. Bell and Henry J. Stetina, American Institute of Steel Construction, Inc., and Lloyd H. Yeager, Gypsum Association. During this conference, the East St. Louis project was reviewed as well as three other actual project case histories which also showed the savings effected by steel frame with lath-and-plaster fireproofing, as compared to reinforced concrete. In addition, a recently completed cost estimate for a typical 12-story building in Chicago was presented. Prepared by a professional estimating service, it compared the two forms of frame construction directly.

A change in economic conditions relating to the productivity and delivery of steel also had a strong bearing on the favorable decision by PHA. AISC reported during the meeting that the steel industry had expanded its production facilities for structural shapes by approximately 46 percent since 1956 and, in addition, that local fabricators have greatly increased their capacities, so that deliveries of 90 days are not uncommon.

Cost figures from the four projects in different cities, representing millions of dollars of construction value supported the results obtained in the East St. Louis PHA bidding; that in many instances, a steel frame fireproofed with lath-and-plaster can be more economical than reinforced concrete. The per-square-foot costs are summarized (*below*).

The construction bids for the three, eight-story, low-rent apartment buildings, received by PHA of East St. Louis, showed that savings of 99¢ per square foot, totaling $279,042, could be obtained by an alternate design that utilized gypsum lath-and-plaster membrane fireproofing with a steel frame, as compared to the original reinforced-concrete design.

Low bid for the reinforced-concrete design was $5,236,752; low bid for the steel frame lath-and-plaster design was $4,957,710. Both designs were based on the same conditions. Identical building configurations, live floor load requirements, ceiling heights, apartment layouts, and two-hour ratings.

Similar action has been taken by General Services Administration. It has reported that those portions of its *Structural Engineering Handbook* of January, 1956, which favored reinforced concrete for multistory buildings are being rewritten.

In the future, reports GSA, it will make the choice between a steel frame with lath-and-plaster fireproofing and reinforced concrete on the basis of cost estimates which, henceforth, will be specifically required.

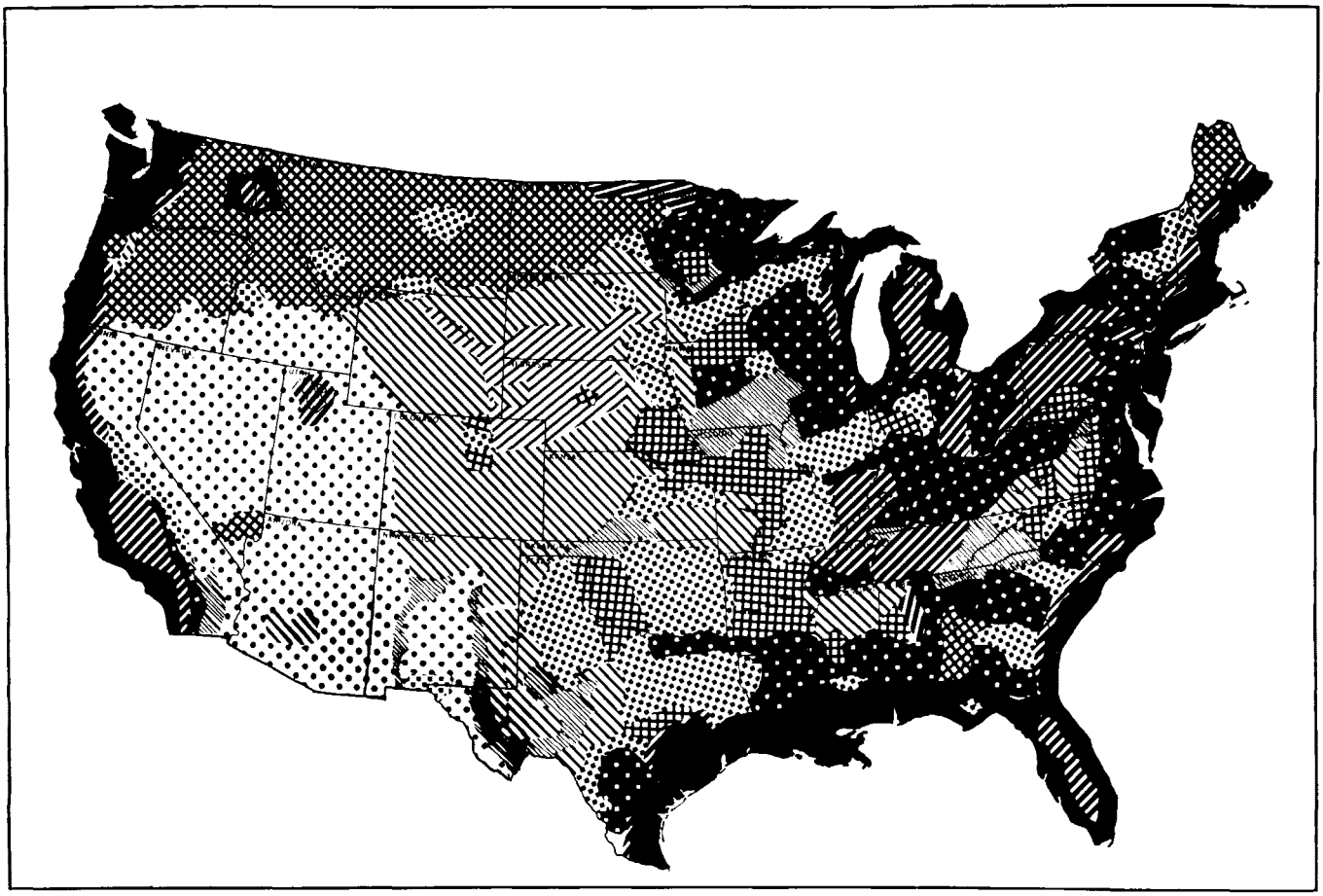
Thus it becomes apparent that architects will have more complete freedom of design on future Federal projects.

PROJECT	FRAME COST PSF		STEEL-FRAME SAVINGS	
	Steel, fireproofed	Reinforced Concrete	Percent	Cost psf
Typical 12-story office building, Chicago	$2.73	$3.65	25.2	$ .92
Forty 8-story apartment buildings, New York	2.50	2.79	10.4	.29
A 2-story hospital building, Long Island	2.59	2.95	12.2	.36
A 12-story apartment building, New York	2.34	3.21	27.0	.87
AVERAGE	$2.54	$3.15	18.7	$ .61

corrosion map of U.S.

In the first rust index of the United States—published by Rust-Oleum Corporation—it was found that it takes three years, the fastest rate in the country, for rust to corrode a standard, uncoated, steel, test panel, the size of an auto license plate, in four different cities—Buffalo and Rochester, New York; Erie, Pennsylvania; and Miami, Florida. Slowest rate, more than 15 years, is in Tuscon, Arizona; Roswell and Santa Fe, New Mexico. In all of the nation's major industrial centers, the rust rate is under four years. Variations in rate result from different amounts of rainfall, wind, corrosive gases, sunlight, and salt water present in each locality.

Currently, the nation's rust bill is about $7½ billions per year, an increase of $2 billions over the annual toll 10 years ago. Of the 523 cities listed, in 221—or 42 percent—test panels rusted in less than four years. In 95 others—18 percent—panels rusted in four to five years. These 316 cities comprise 60 percent of the country's cities with population over 10,000.



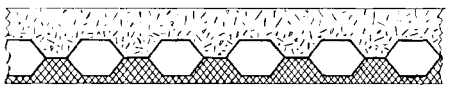
RAND MCNALLY

Legend

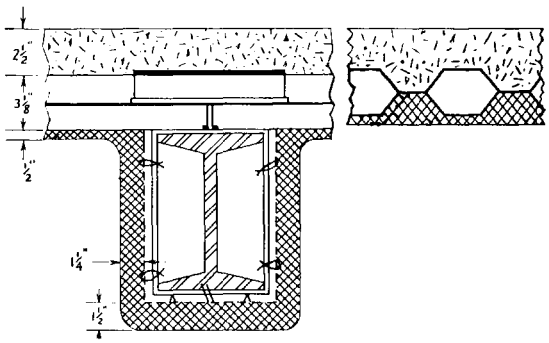
The number of years and months required to corrode an uncoated 28-gauge steel test panel to a severe degree

YEARS AND MONTHS	COLOR CODE	YEARS AND MONTHS	COLOR CODE	YEARS AND MONTHS	COLOR CODE
3.00 – 3.11		6.00 – 6.11		9.00 – 9.11	
4.00 – 4.11		7.00 – 7.11		10.00 – 14.11	
5.00 – 5.11		8.00 – 8.11		15.00 +	

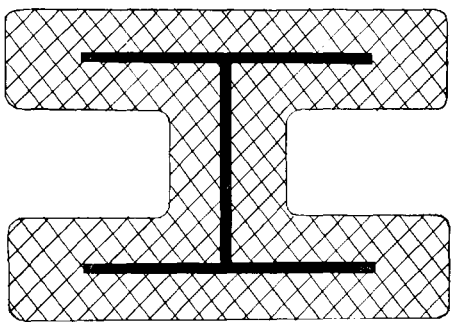
NEW SPRAYED "LIMPET" ASBESTOS



4 hours fire protection for this standard cellular steel floor unit required only a ½" minimum thickness of SPRAYED "LIMPET" ASBESTOS below the steel.



4 hours of fire retardance for this steel beam was received from a 1¼" minimum thickness of SPRAYED "LIMPET" ASBESTOS at the sides, a 1½" thickness at the bottom.



5 hours of fire protection for this steel column took only a 2¾" average thickness of SPRAYED "LIMPET" ASBESTOS . . . sprayed to follow the contour.

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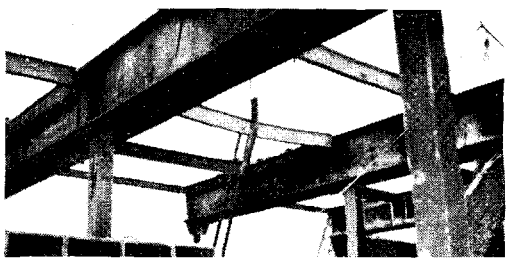
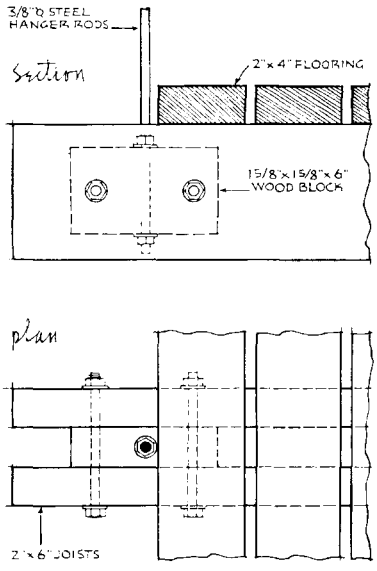


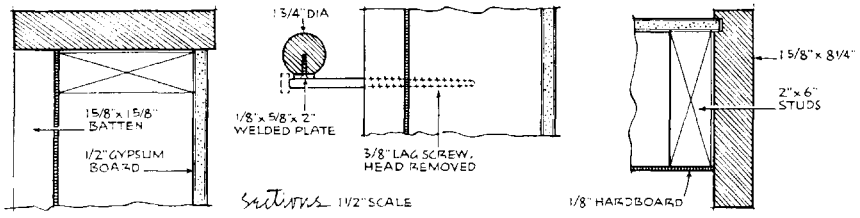
The proof of the pudding! After a fire in this warehouse, primary girders, protected by SPRAYED "LIMPET" ASBESTOS, remain in perfect condition. Unprotected purlins buckled.

stairs

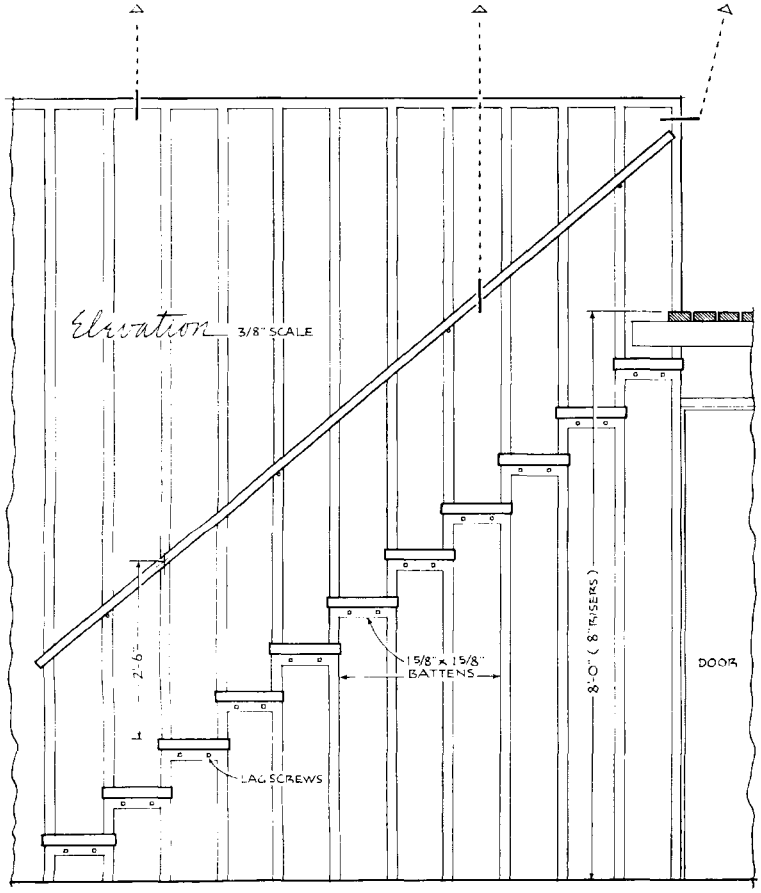


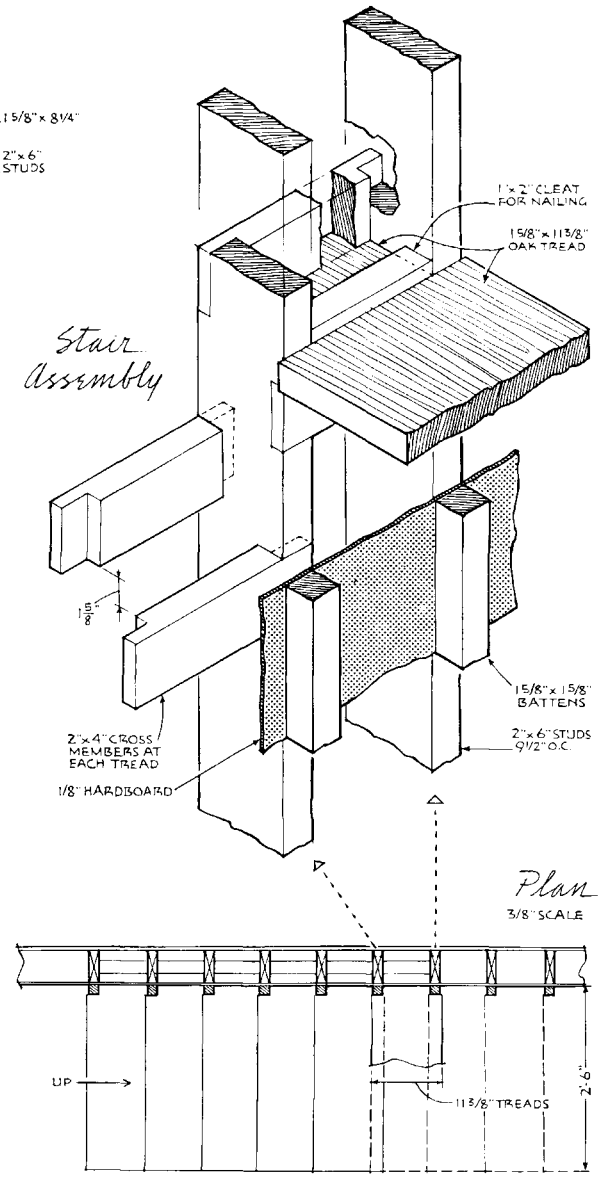
Balcony Hanger 1½" SCALE

C. W. ACKERMAN

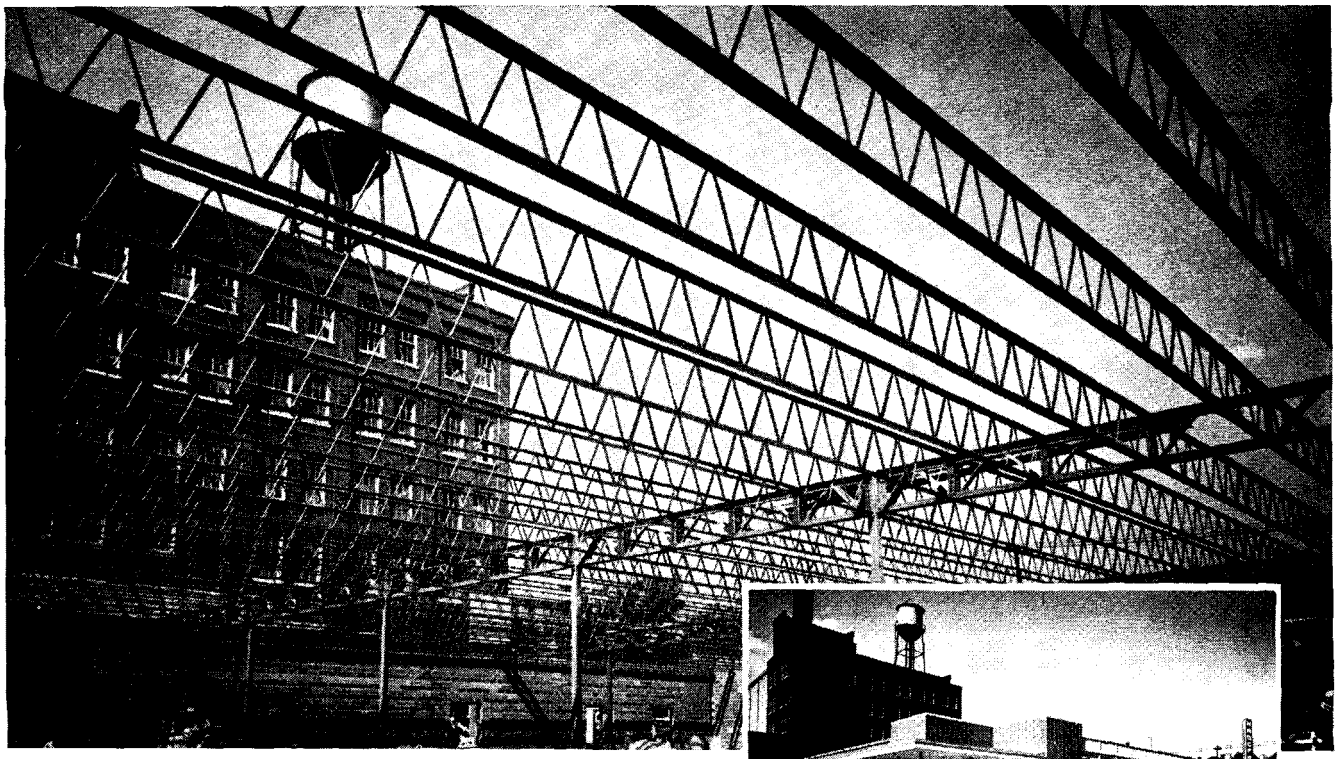


Sections 1½" SCALE





McVEY RESIDENCE, Cleveland, Ohio
Robert A. Little, Architect



Kroger Supermarket, Charleston, W. Va. 145 x 140 foot wall bearing V-LOK frame. Upper photo shows framing completed—only 5 days after delivery of steel.

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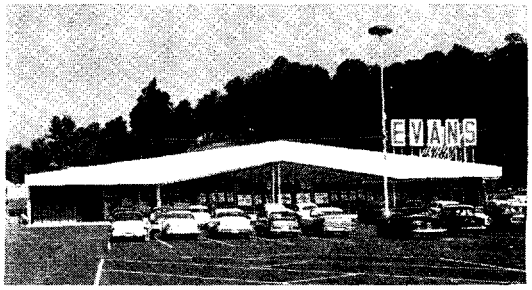
A&P Supermarket, Ashland, Kentucky. 32 x 140 foot wall bearing V-LOK frame. Erection time for steel framing only 4 days.



Evans Supermarket, Ashland, Kentucky. 182 x 184 foot wall bearing V-LOK frame. Erection time for steel framing — one week.

KROGER	A&P	EVANS
Architect: Stewart R. McKalip, South Charleston, W. Va.	**Architect:** A&P Staff Architects	**Architect:** Dean, Dean & Paules, Huntington, W. Va.
Contractor: Bowers & Chilton, Inc., South Charleston, W. Va.	**Contractor:** W. B. Fossen & Son, Ashland, Ky.	**Contractor:** W. B. Fossen & Son, Ashland, Ky.

V-Lok Design Manual is available.

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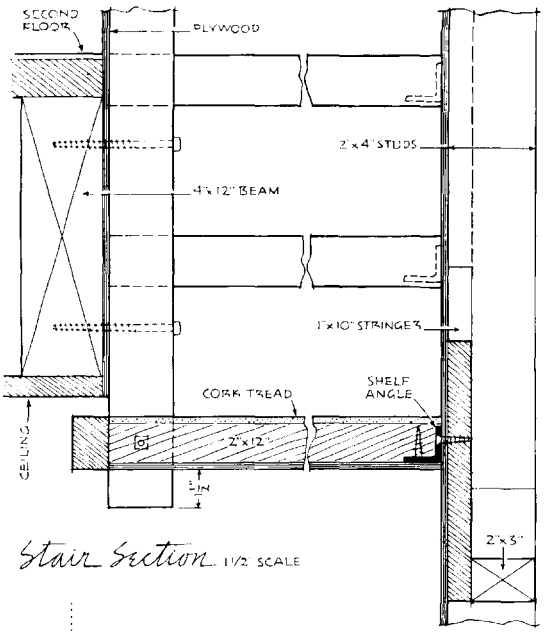
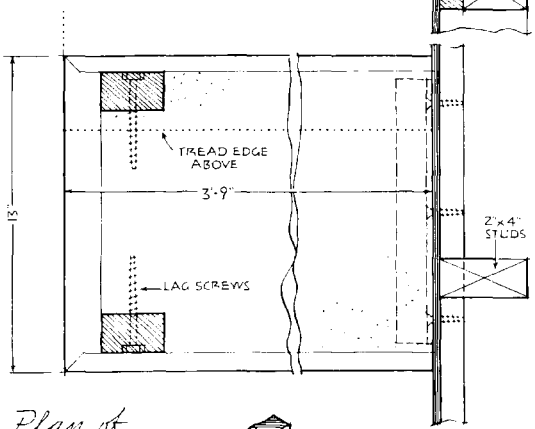
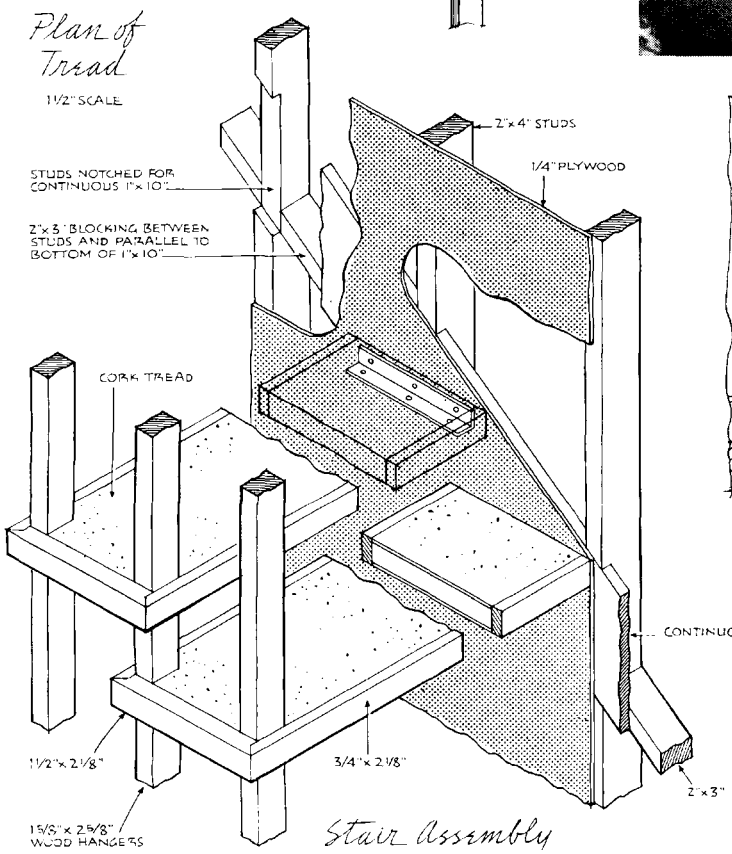
stairs



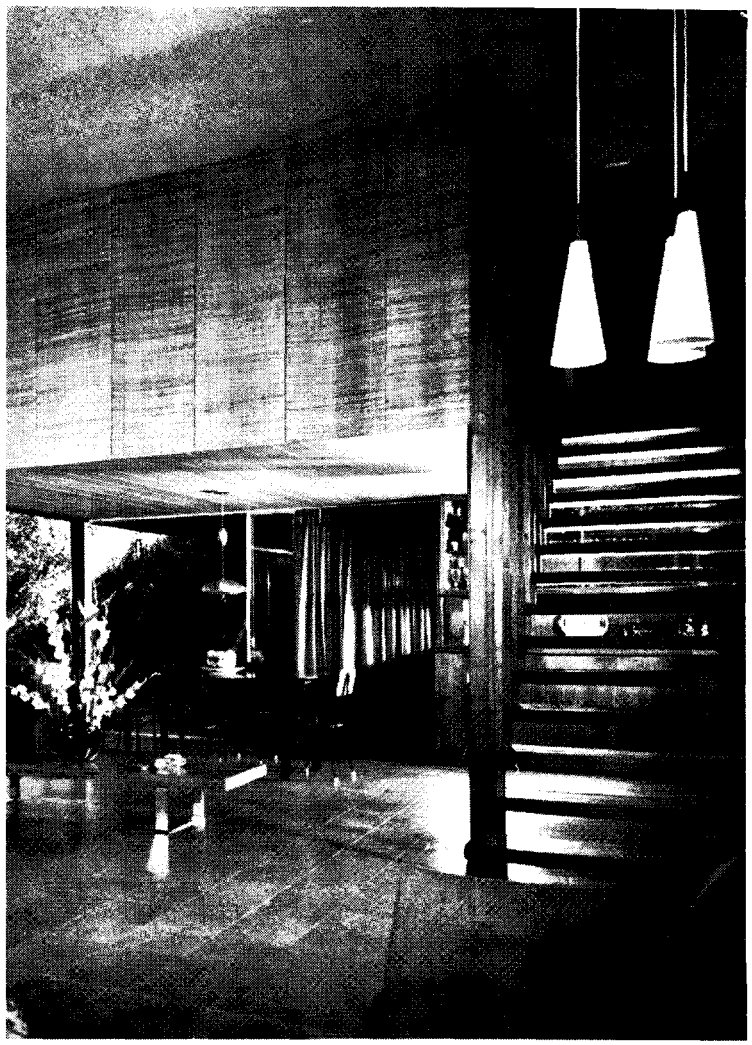
Stair Section 1/2" SCALE



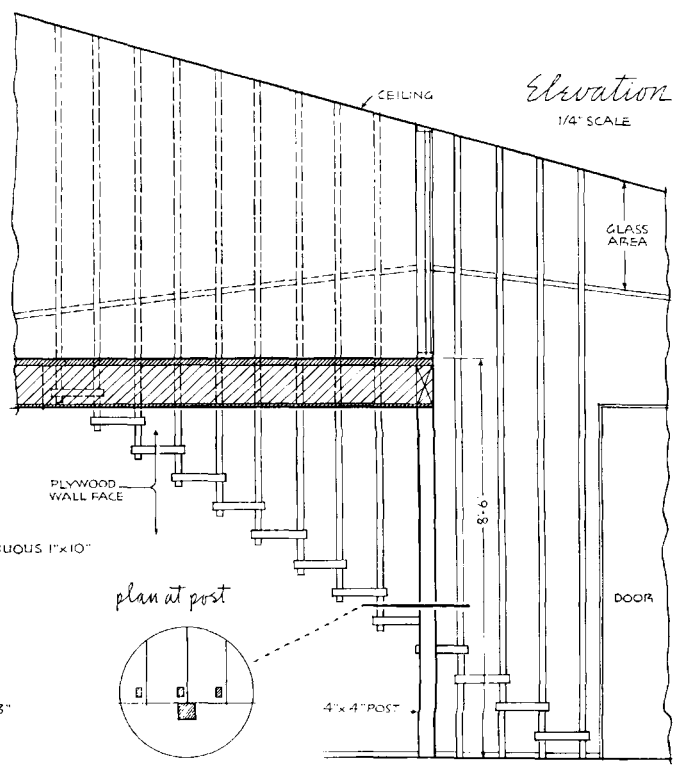
Plan of Tread
1/2" SCALE



Stair Assembly



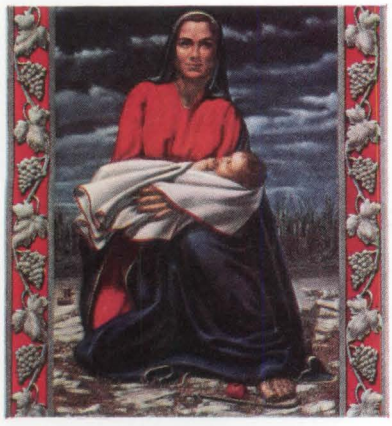
JULIUS SHULMAN



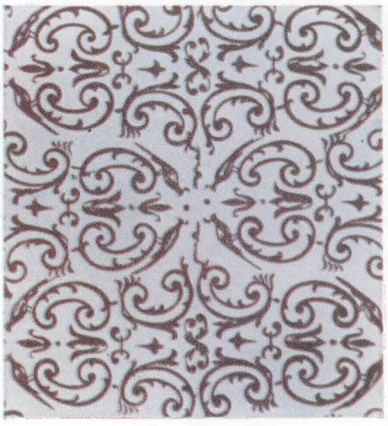
DUNHAM RESIDENCE, Pasadena, Calif.
Carl Maston, Architect

New dimensions

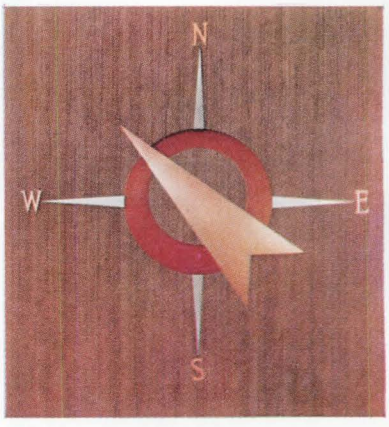
The 3 Techniques of Formica® Decorative Art



ORIGINAL PAINTINGS



ARTLAY



INLAY

in FORMICA® *laminated plastic*

Decorative Art

a custom architectural service of murals, designs and art treatments sealed in durable Formica.

Never before has one proven material offered so many and varied opportunities for you to introduce fresh new ways of interpreting the character and personality of a public, institutional or commercial building. Versatile, flexible, adaptable — Formica Decorative Art is a fusion of Beauty Bonded Formica and artistic imagination — your imagination. The Formica Corporation places at your disposal its vast resources of architectural engineering and production to execute your own designs and color combinations in the permanent and maintenance-free medium of decorative laminate.

Each Decorative Art project is a custom assignment, and requires close cooperation with the customer. The cost of each project is determined as the details are worked out, and is dependent upon the complexity and types of designs and the number of colors used. The three techniques employed are: Original Paintings, Artlay, Inlay. Used individually or in combination with each other, they make possible the creation of truly unique and beautiful designs.

ORIGINAL PAINTINGS

Original Paintings are used in murals or as smaller graphic "key stones" in combination with other techniques, in one-of-a-kind installations. Your artist can create the design and send the finished art work to Cincinnati where Formica specialists will duplicate it using special Formica inks and facilities. Or the artist can come to Cincinnati and work with our Decorative Art Department.

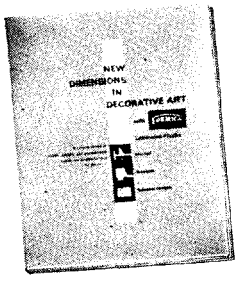
When executed, the finished art is sealed right in the Formica laminated plastic sheet, safe from dirt, fading, or destructive effect of atmospheric acids.

ARTLAY

Formica executed Artlay designs can be as simple or complicated as your imagination dictates. Very nearly any pattern, commercial trademark or new repetitive design can be treated and custom produced in Formica by a printing press.

INLAY

To accomplish special effects in this third "custom" process, decorative sheets of Formica treated paper — pattern or solid color — or plain or anodized aluminum parts are cut to desired shapes and laid into the laminate prior to the final pressing operation.



GET THE FACTS

Write today for the FREE booklet "New Dimensions in Decorative Art" (Form No. 863). Contains photographs of completed Formica Decorative Art treatments. Offers detailed information about the execution and cost of this new art form. There is a Formica district manager near you with a full color slide film on Formica Decorative Art. Showings can be arranged for groups of any size. Formica Corporation, 4604 Spring Grove Ave., Cincinnati 32, Ohio.

FORMICA®
Laminated Plastic
Guaranteed by Good Housekeeping

product of CYANAMID

Louise Sloane

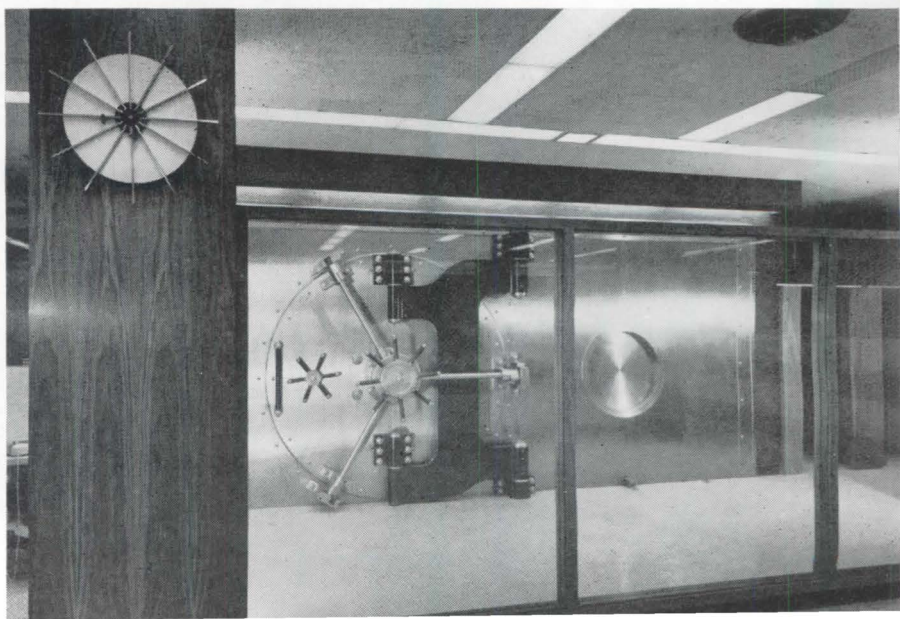
Joliet bank

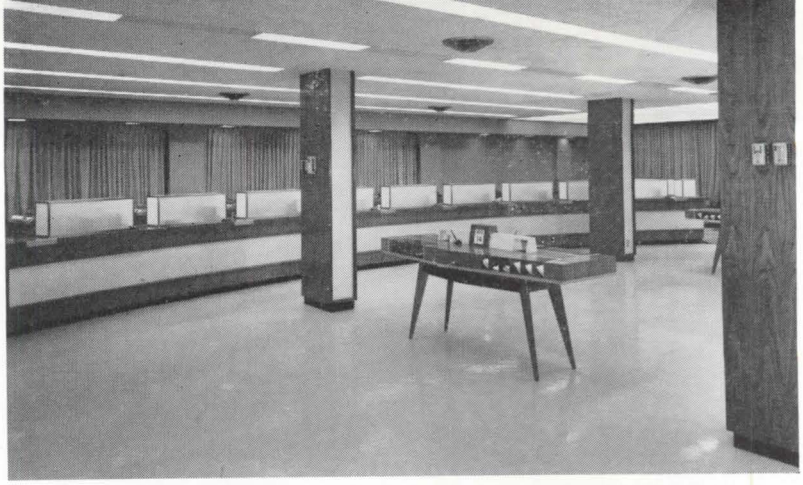
So thoroughly integrated a design job (in terms of exterior and interior, as well as in relation to its neighborhood) that it has won Citations of Merit from both AIA and Chicago Association of Commerce & Industry, this bank is an outstanding example of total architectural design, from broad over-all concept down to the detailed choice of ashtrays.

Architects Cordogan & Kurek assume full responsibility for interior design; find that it must extend from selection of interior-surface materials to the actual design of built-in features for public and private areas; believe that such furniture as check-writing counters, officers' desks, emerges more functional from the architect's office where a special understanding of the requirements exists.

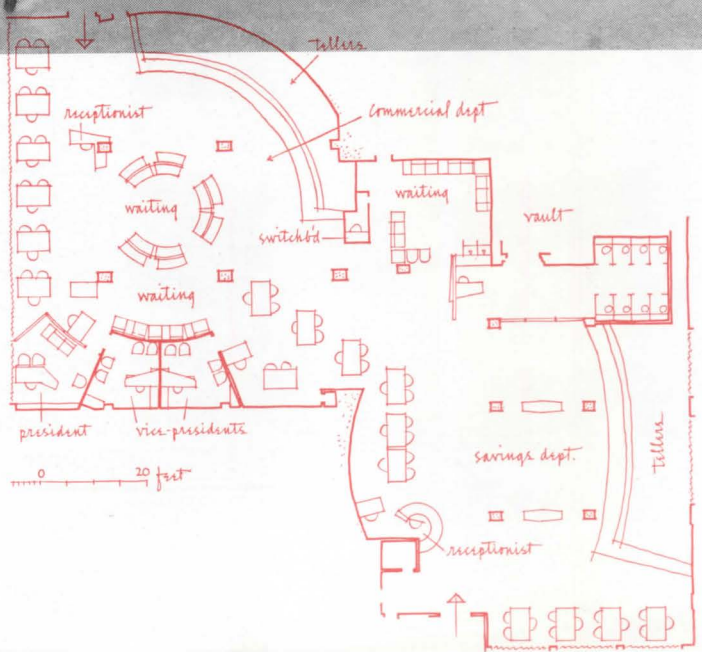
On these pages, remodeled area of the old saving-and-loan section, with vault in "showcase light" twenty-four hours a day, walnut-framed, and set off by adjacent areas of midnight-blue grasscloth; free-standing check-writing desks in walnut, glass, and stainless steel; tellers' cages specially lighted for tellers' visibility, depositors' privacy.

client	Joliet Federal Savings & Loan Association
location	Joliet, Illinois
architect—interior designer	Cordogan & Kurek

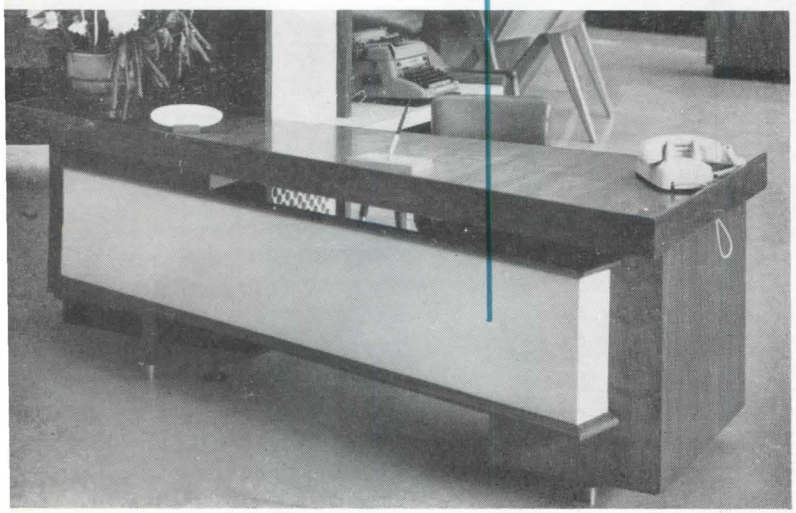




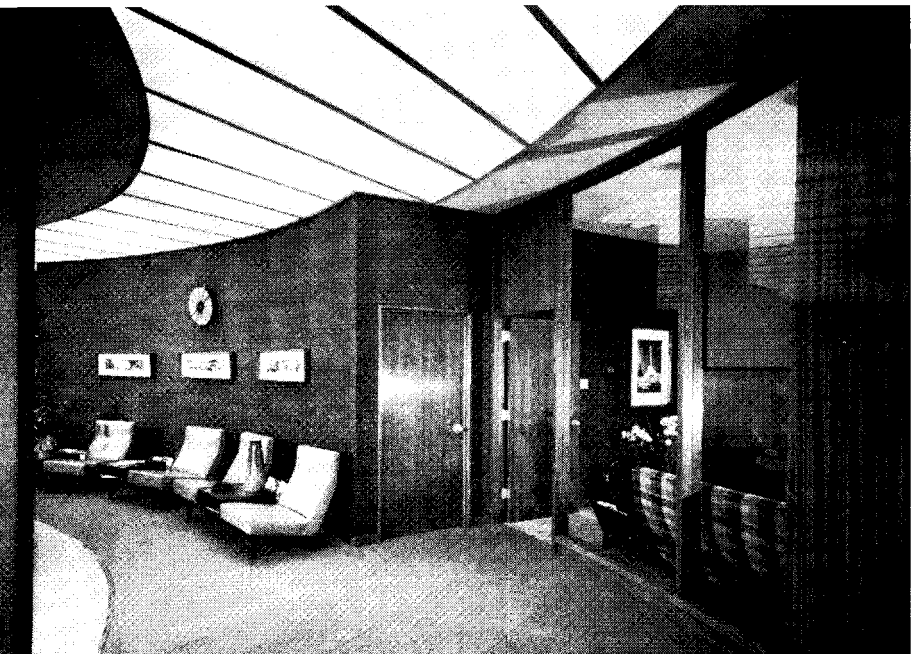
Photos: Carl Ullrich, Inc.



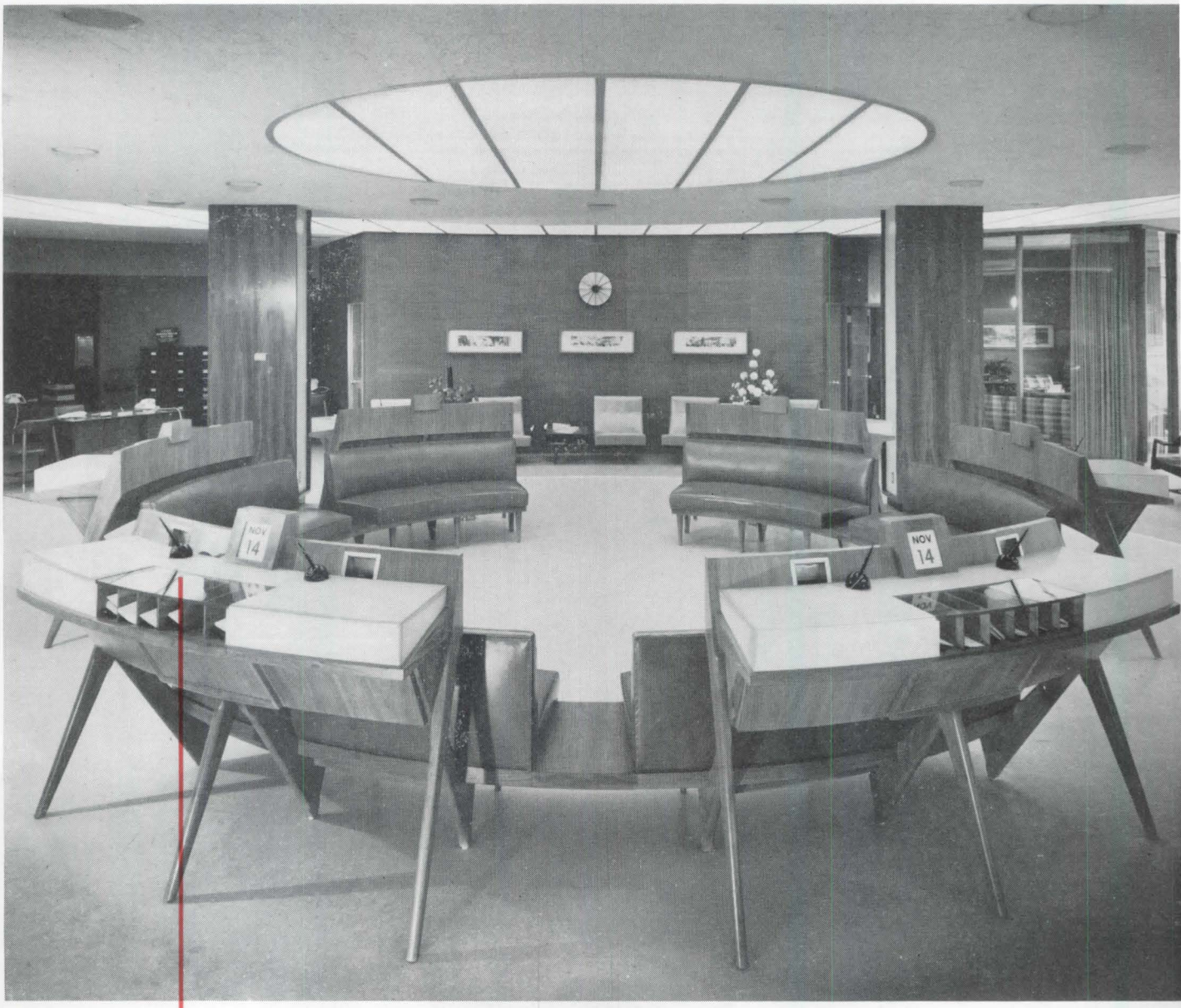
Joliet bank

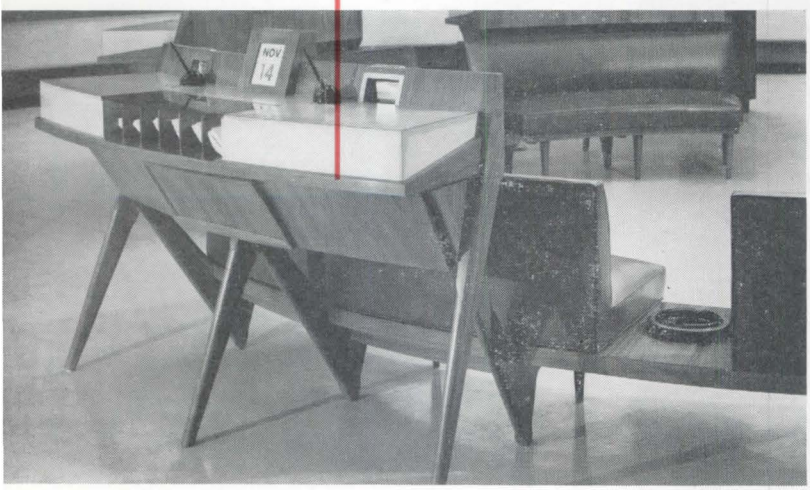


Custom-designed reception desk establishes beige-and-brown scheme; flush-ceiling fixtures supplement luminous ceiling to light row of desks at right. The curved brown-grasscloth-covered wall *(acrosspage)* leads to president's office *(acrosspage top)* where strong color is introduced in a Swedish red wall, armchairs upholstered in persimmon leather. Watercolors on curved wall are framed and matted to architects' specifications.



Joliet bank





Focal design point is the round waiting and check-writing area, with the circular motif expressed in a round vinyl-tile floor edged with textured carpet; custom-designed circular seating in burnt-orange leather, backed by walnut and beige Formica check-writing desks with built-in wastepaper disposal inserts; acoustical ceiling punctuated with circular, plastic, egg-crate lighting, providing 50 ft-c of illumination.

data

Color Plan: Monochromatic beige-and-brown scheme with brilliant complementary color for accent.

banking areas

cabinetwork

Teller's Cages: walnut Formica/Formica Corp., Subsidiary of Cyanimid, 4630 Spring Grove Ave., Cincinnati 32, Ohio; stainless-steel deal plates/satin nickle bonnets enclosed with Fota-Lite glass/Corning Glass Works, Corning, N.Y.; architect-designed/custom-made/Decorator's Supply Corp., 2601 S. Peoria, Chicago, Ill.

Check-Writing Desks: walnut/free-standing/stainless-steel built-in waste-paper disposal receptacles/beige and walnut Formica/Formica Corp.; architect - designed/custom - made/Decorator's Supply Corp.

Vault Screen: walnut frame/Misco wire glass/Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo.; architect-designed/custom - made/Decorator's Supply Corp.

equipment

Air Conditioner: The Trane Co., 206 Cameron Ave., La Crosse, Wis.

furniture, fabrics

Curved-Wall Seating: walnut/Jens Risom Design, Inc., 49 E. 53 St., New York 22, N.Y.; topgrain leather upholstery / Kingfisher blue / Gilford Leather Co., Inc., 515 Madison Ave., New York 22, N.Y.

Circular Settees: topgrain leather upholstery/burnt orange/Gilford Leather Co., Inc., architect-designed/custom-made/Wells Furniture Makers, Inc., 300 W. Hubbard St., Chicago, Ill.

Draperies: sheer Fortisan/sand color/Stapler Town House Fabrics, 1222 Walnut St., Philadelphia, Pa.

lighting

Luminous Ceiling: white plastic egg-crate/Luminous Ceilings, Inc., 2500 W. North Ave., Chicago 47, Ill.

walls, ceiling, flooring

Walls: painted plaster; gypsum block/United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.; grasscloth/deep brown/Kneedler-Fauchere, 451 Jackson Sq., San Francisco 11, Calif.

Vault Walls: grasscloth/deep gunmetal blue/Kneedler-Fauchere.

Columns: enclosed in walnut veneer, beige Formica/custom-made/Decorator's Supply Corp.

Ceiling: acoustical tile/United States Gypsum Co.

Flooring: vinyl tile/beige/resilient/Robbins Floor Products, Inc., Tuscumbia, Ala.

Carpet: wool/beige, brown, sand/Mohawk Carpet Mills, Inc., Amsterdam, N.Y.

accessories

Wall Clock: The Howard Miller Clock Co., Zeeland, Mich.

Ceramics: Eugene Deutch, 1419 Lake St., Wilmette, Ill.

Mural: Robert Sinnott, Carey, Ill.

Watercolors: Antimo Beneduce, 19 E. Pearson St., Chicago, Ill.

president's office

cabinetwork

Built-Ins, Desk, Door: walnut/architect - designed/custom - made/Decorator's Supply Corp.

furniture, fabrics

All Seating: Jens Risom Design, Inc.

Armchairs: leather upholstery/persimmon/Gilford Leather Co., Inc.

Draperies: viscose and cotton/beige, brown/Boris Kroll Fabrics, Inc., 220 E. 51 St., New York 22, N.Y.

lighting

Fixtures: Gotham Lighting Corp., 37-01 31 St., Long Island City 1, N.Y.

walls, ceiling, flooring

Walls: gypsum block/United States Gypsum Co.; plaster/painted Swedish red; grasscloth/brown/Kneedler-Fauchere.

Ceiling: acoustical tile/United States Gypsum Co.

Carpet: wool/deep pile/tan/Mohawk Carpet Mills, Inc.

accessories

Ashtrays: Eugene Deutch.

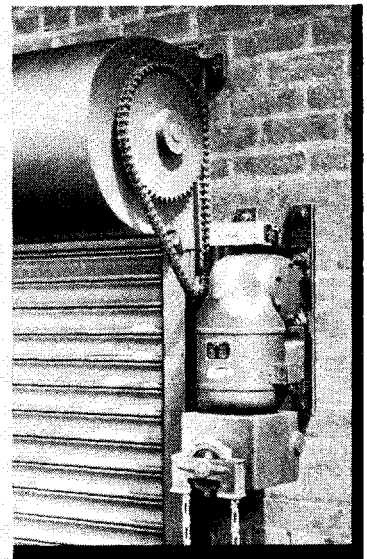
Desk Set: Smith Metal Arts, 1721 Elmwood Ave., Buffalo, N.Y.

Figurine: Modes of the Moment, San Francisco, Calif.

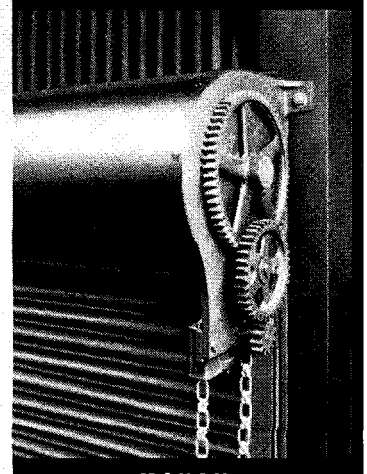
Watercolor: Antimo Beneduce.

Versatile in Application . . . Will Serve You Better in Any Type of Opening!

In Operation, the Fast, Vertical Roll-up Action Saves Valuable Time and Space — No Overhead Tracks to Restrict Headroom



MAHON STANDARD POWER OPERATOR 920-P



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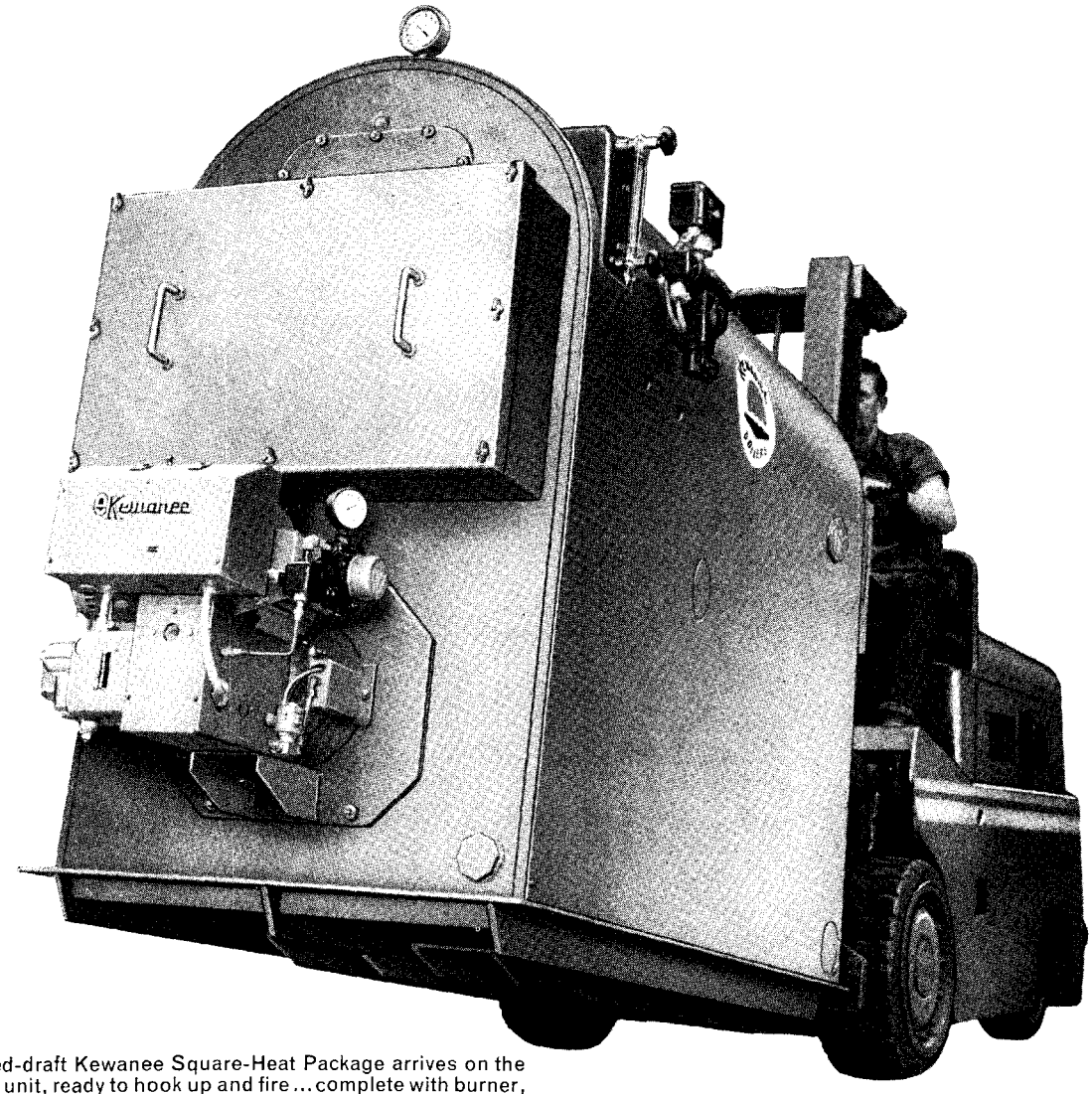
NOW . . . FORCED-DRAFT FIREBOX PACKAGES



Forced-draft Kewanee Square-Heat Package arrives on the job as a unit, ready to hook up and fire... complete with burner, pre-wired control panel, pre-cast refractory chamber and skids. It requires no crating...no job-site insulating.

KEWANEE® SQUARE-HEAT GAS-OIL UNITS

for 15 lb. steam or 30 lb. water, 216,000 to 1,800,000 Btuh

For the first time, Kewanee offers a fire-box package boiler! The new Square-Heat Packages are forced-draft, requiring only a stub vent—no high stack. Kewanee's new combination gas-oil burner fires natural, mixed or L.P. gas . . . No. 1 or 2 fuel oil. One switch changes fuels . . . automatic changeover is available. An exclusive air distribution system pre-mixes gas and air before it enters the combustion chamber, for smoother and more efficient firing.

Along with the new burner is a new pressure-tight front flue cover dogged down by easily removed wing nuts . . . and a new, standard-equipment, wrap-around insulated jacket of heavy-gauge steel. Retained in the new units are Square-Heat's compact design, large firebox, widely spaced 3″ fire tubes, large disengaging area and ample steam space.

For complete facts see your Kewanee Man or write: AMERICAN-STANDARD*, KEWANEE BOILER DIVISION, 107 Franklin Street, Kewanee, Illinois.

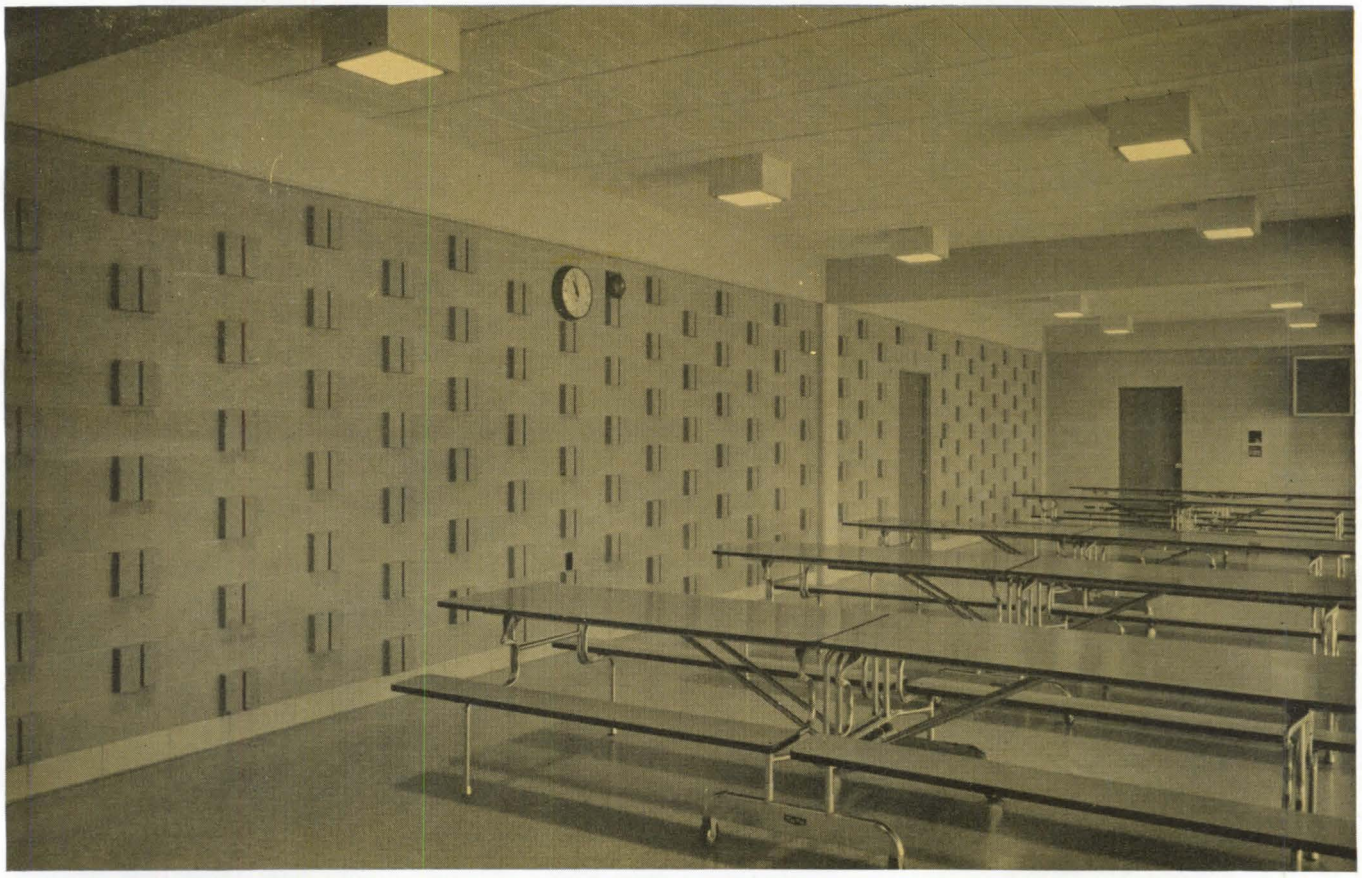
See this new Square-Heat unit among the display of Kewanee forced-draft packages at Booth 63-65-67, ASHAE Show, Philadelphia, January 26-29, 1959.

*American-Standard and Standard ® are trademarks of American Radiator & Standard Sanitary Corporation.

AMERICAN-Standard
KEWANEE BOILER DIVISION

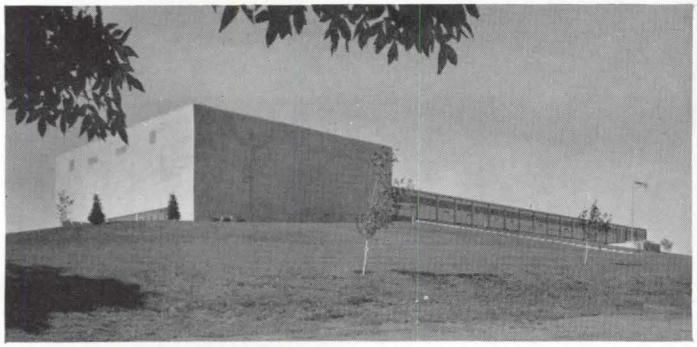
DUR-O-WAL® SAFEGUARDS THE BEAUTY OF MASONRY CONSTRUCTION

Throughout the United States genuine Dur-O-waL Steel Reinforcing is being used in the mortar bed to provide lasting protection for the classic beauty of masonry construction



You can provide timeless protection for the flawless beauty of masonry with *time-tested* Dur-O-waL. This high-tensile steel re-inforcing is trussed designed and custom fabricated to give masonry walls a backbone of steel.

Specifications and Research data available on request.



DUR-O-WAL®

Rigid Backbone of Steel For Every Masonry Wall

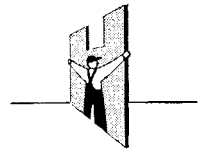
Dur-O-waL Div., Cedar Rapids Block Co., **CEDAR RAPIDS, IA.** Dur-O-waL Prod., Inc., Box 628, **SYRACUSE, N. Y.** Dur-O-waL Div., Frontier Mfg. Co., Box 49, **PHOENIX, ARIZ.** Dur-O-waL Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.** Dur-O-waL of Ill., 119 N. River St., **AURORA, ILL.** Dur-O-waL Prod. of Ala., Inc., Box 5446, **BIRMINGHAM, ALA.** Dur-O-waL of Colorado, 29th and Court St., **PUEBLO, COLORADO** Dur-O-waL Inc., 165 Utah Street, **TOLEDO, OHIO**

For cost-conscious clients . . . design with HAUSERMAN "HP"

Attractive, modern, low cost . . . this office will still be in style and continue to be useful, years from now. That's why the architect chose the distinctive, functional design of the HAUSERMAN "HP" Movable Wall System.

New HAUSERMAN "HP" units, factory-finished in a wide combination of washable decorator colors, will fit *your* client's space-division needs . . . and his budget. As the job goes in, your layout detailing and erection supervision will be cut to a minimum because these tasks are turned over to reliable HAUSERMAN engineering and installation service.

Call in your local HAUSERMAN representative for literature and technical advice about HAUSERMAN "HP" Walls . . . and other systems in HAUSERMAN'S Complete Line. He's listed in the "Yellow Pages" under "Partitions."



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MOVABLE HAUSERMAN INTERIOR WALLS

UL®
APPROVED

Overly corridor smoke screen with ¾ HR (C) label is brand new fire protection equipment. May be specified for corridor fire barriers in hospitals, schools, institutional and public buildings.

OVERLY'S 1958-59 UL test program

Summary Report to Architects, Engineers, and Building Owners:

Overly, pioneer fabricator of hollow metal products to rigid standards, is helping to lower building costs and extend the scope of fire protection. Our extensive testing program at Underwriters' Laboratories began in 1958 with 5 major tests and will continue through 1959 with 3 tests scheduled.

Overly's labeled door frame service has been expanded to permit the use of smoke screens as fire protection equipment, and these will provide 45 minutes of fire resistance. They can now be specified for corridor fire barriers in hospitals, schools, institutions and other public buildings.

Tests have proved that special constructions and expensive hardware are unnecessary for Class A doors. We are authorized to apply the 3 HR (A) label to lighter weight, less expensive doors provided with simpler, single-point hardware. As a further economy, most of our 3 HR (A) label frames may be fabricated in 16 gage.

Our tests have proved also that 20 gage hollow metal doors perform adequately for fire protection. Overly's A-, B-, C-, D-, and E-labeled doors and non-labeled doors are identical in construction — except that 3 HR (A) label requires 18 gage.

Overly frames with removable mullions have been approved, too, for label service where up to 1½ hours of fire resistance is required.

Other authorized modifications of Overly labeled hollow metal doors and frames are:

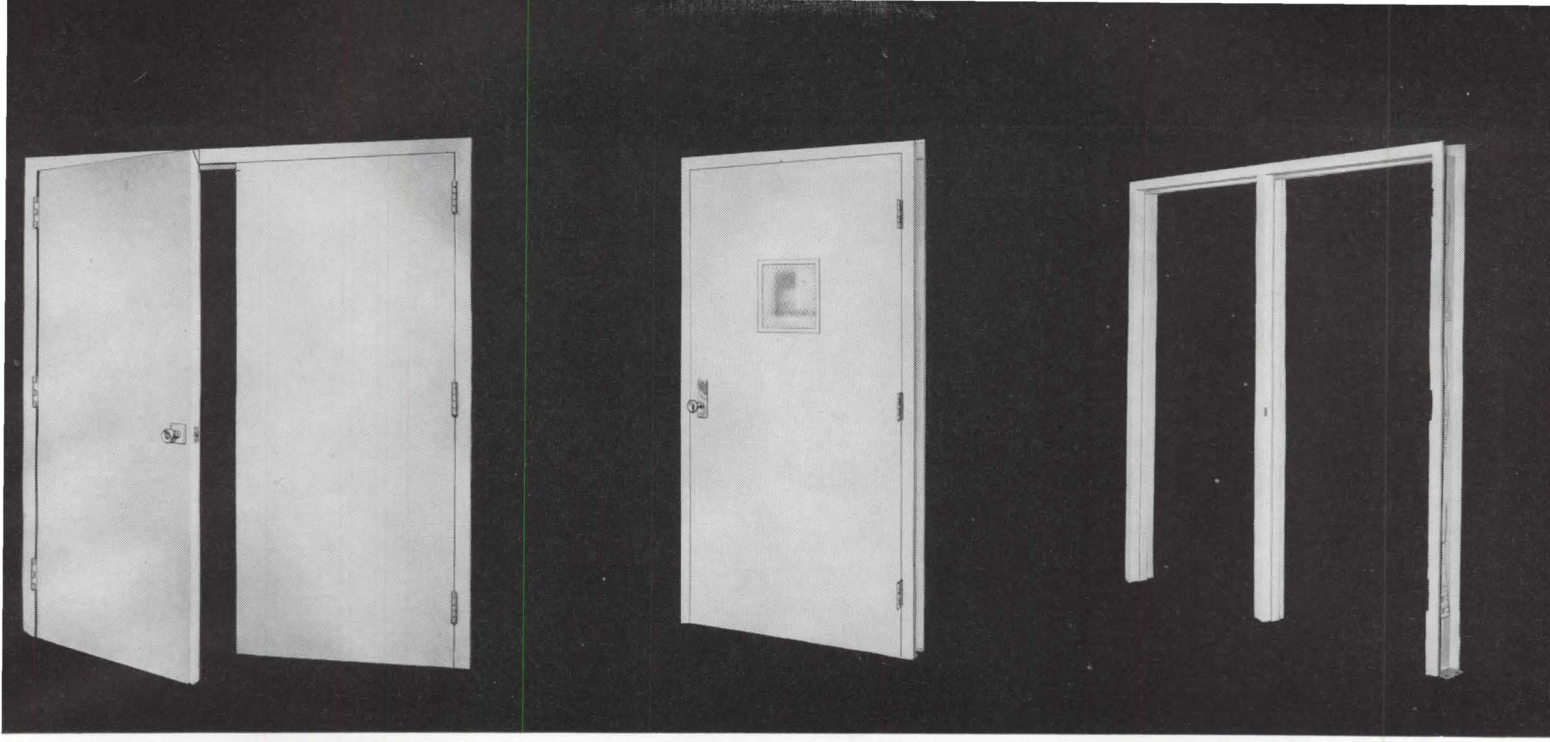
- Preparation of both doors and frames for floor checks and top and intermediate pivots
- Labeled rough bucks and cabinet jambs for use in existing openings or where job progress demands that wall construction proceed before frames can be delivered
- Preparation for GJ#64 rubber bumpers and adjustable floor clips.

As a result of the test program, we have all new specifications for 1959. For details, write us today for our 1959 Door & Frame Catalog, now ready.

OVERLY MANUFACTURING COMPANY

Greensburg, Pa.
Los Angeles 39, Calif.

METAL PRODUCTS SINCE 1888

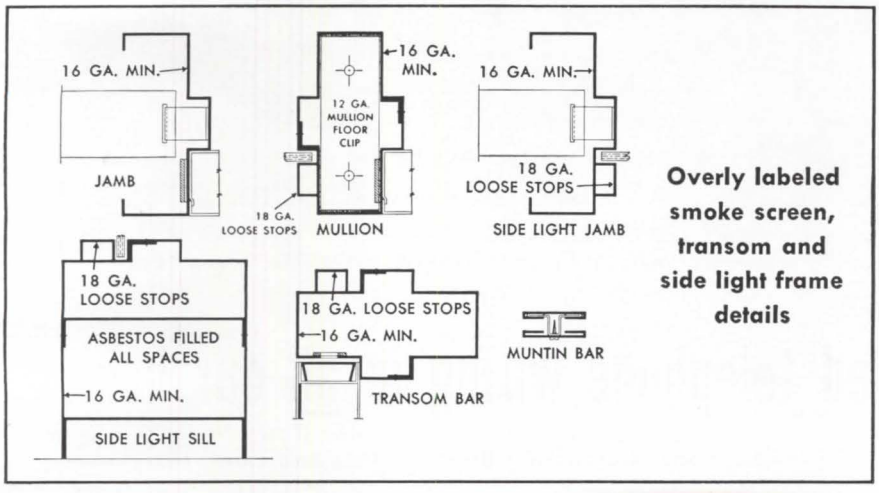


Overly is the first hollow metal producer of A-labeled pairs with single-point locks for doors up to 6′0″ x 7′0″.

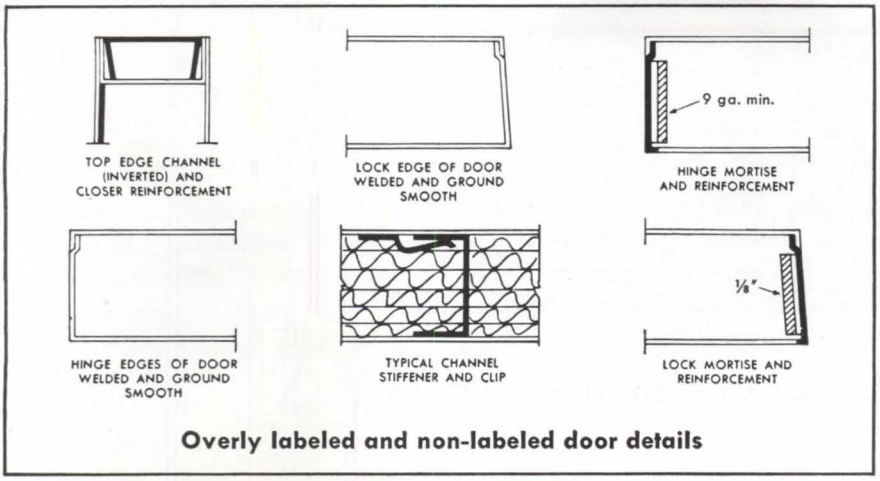
Overly 20 gage, B-labeled door with vision light. Non-labeled door has same construction, except core material is fiberboard instead of air cell asbestos.

Overly 1½ HR labeled frame assembly with removable mullion permits installation of labeled pairs of doors with panic devices and use of full width of opening when necessary.

cuts building costs, adds safety

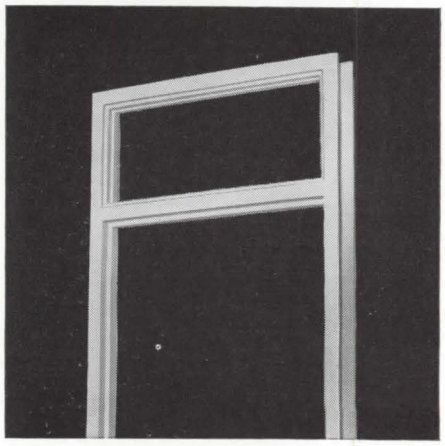


Overly labeled smoke screen, transom and side light frame details

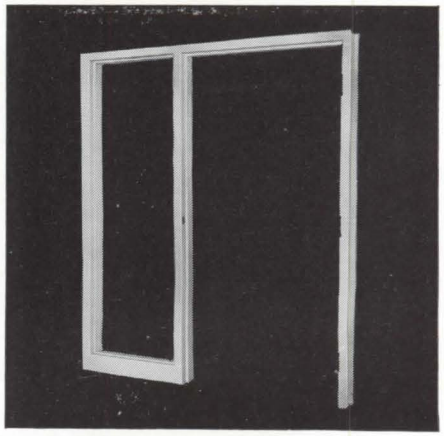


Overly labeled and non-labeled door details

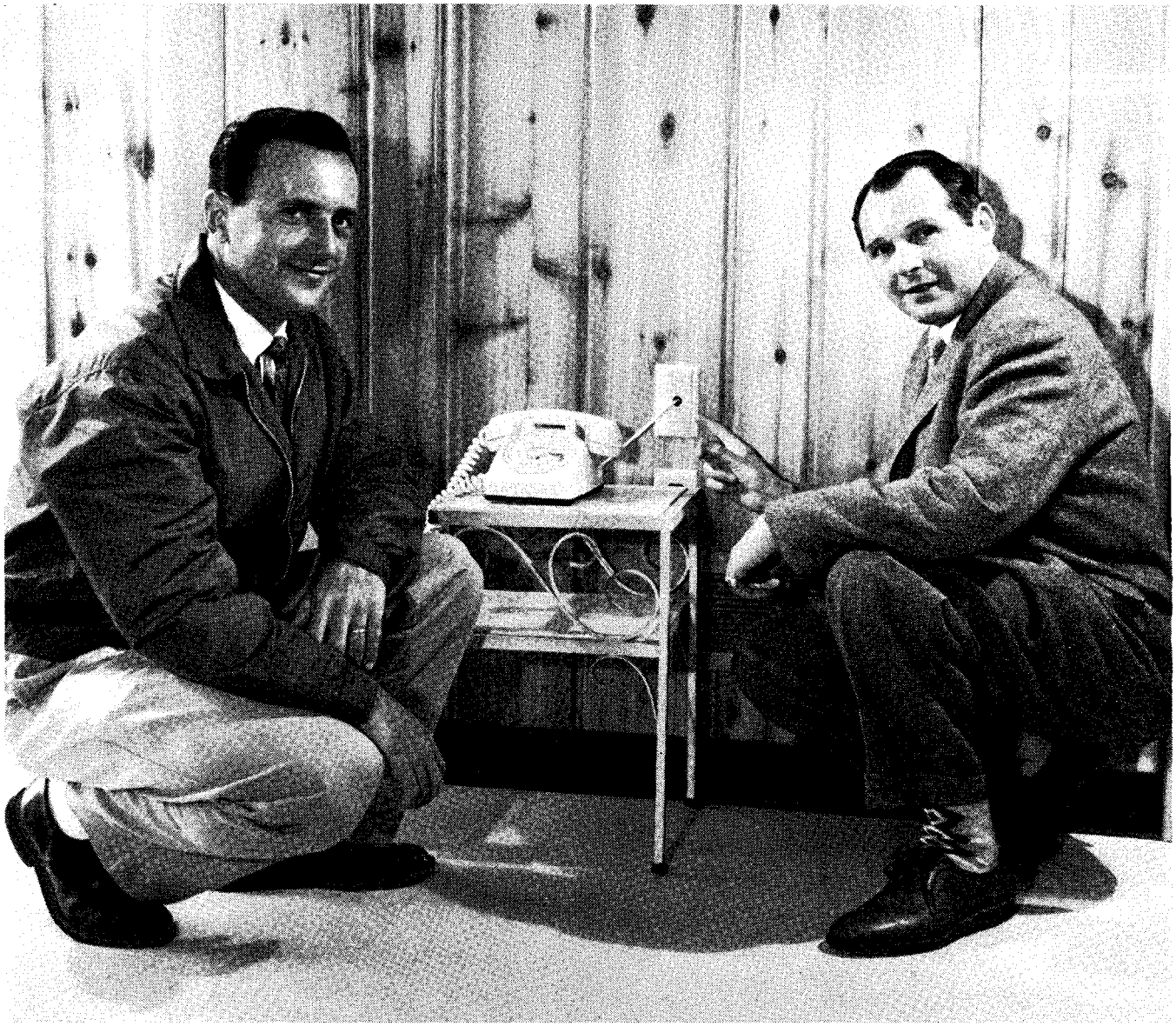
Overly A-, B-, C-, D-, and E-labeled and non-labeled doors are all of the same design, permitting economy of production and lower building costs.



Overly UL labeled frames can now be provided with transoms up to 48″ in height.



Overly UL labeled frames may have up to 30″ wide side lights, one or both sides, and with or without transoms.



Sam (right) and Morty Gorn have built over a thousand homes since they teamed up ten years ago. Each of the 226 "Wellwood" homes they're now constructing near Baltimore contains 4 built-in telephone outlets like the one above.

"We feature concealed telephone wiring in all our homes"

—says Sam Gorn, Gorn Brothers, Inc., Baltimore, Maryland

"Prospects naturally look for convenience and smart planning in a new home," says Sam Gorn. "That's why we always give special attention to interior details—and why we feature concealed telephone wiring in all our homes."

"It's a touch people appreciate," adds Morty Gorn. "They're quick to see how it will eliminate unsightly, exposed wiring, particularly when extension phones are installed. What's more, it costs little and requires little effort on our part, thanks to the telephone company.

"And it *does* help sell homes."

* * *

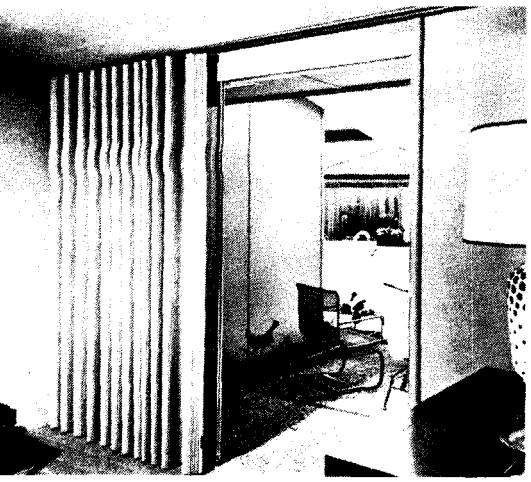
Your local Bell Telephone business office will gladly help you with concealed wiring plans. For details on home telephone wiring, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 32a/Be.

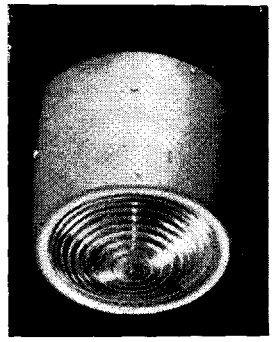
BELL TELEPHONE SYSTEM

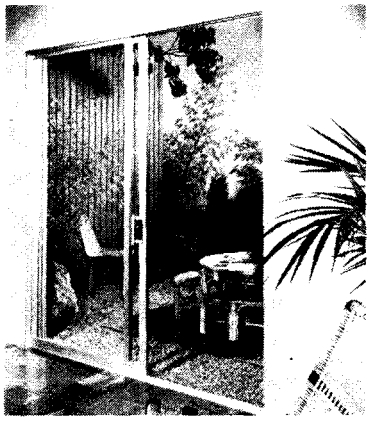
Schools Use Punched-Hardboard/Batt-Type Sound Treatment

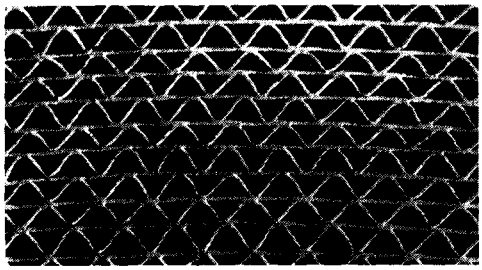
A number of Western schools are now using a new sound-control method which is highly effective, long wearing, and reasonably priced. By combining the best properties of two completely different materials—acoustical-insulating batt and punched-Sandalwood hardboard—a high degree of sound absorption is obtained. The required acoustical batt is a loosely interwoven, felted insulating material—such as rock wool, wood fibers, or glass fibers—having a density of 1—4 lb per cu ft and a thickness of 1" or more. The hardboard is generally 1/8", 3/16", or 1/4" thick, with perforations 1/2" or 1" on centers. A comparison of hole punching on 1/2" and 1" centers reveals that the latter has better absorption at lower frequencies (below 200 cps) while 1/2" center punching is better at 700 to 800 cps, and higher. Insulation can be placed in walls or ceilings, between joists or rafters, with the hardboard applied later, or laid on punched hardboard, held by lumber frames, to produce sound baffles (as shown).

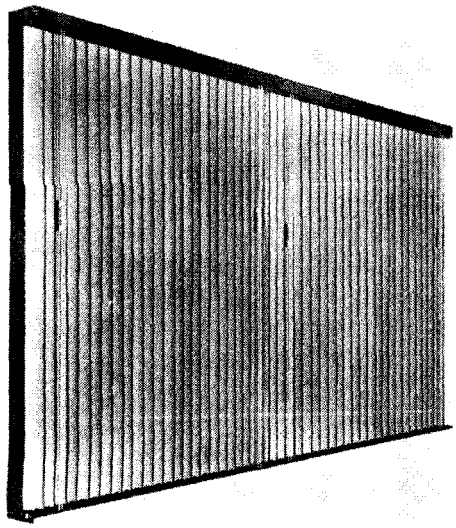
Forest Fiber Products Co., P.O. Box 68, Forest Grove, Ore.











Wood Shade Doubles as Door, Drapery

"Sundor," woven-wood shade for sliding glass doors, combines features of both folding doors and draperies: gliding on its track from either side like a door, it provides privacy; blocks sunlight and glare; open weave diffuses interior illumination and allows circulation of cool air even when shade is drawn. Woven of basswood splints and hard-twisted twine, shade fits 6'x8"- or 8'-high standard sliding glass doors with 4', 6', 8', or 10' opening widths; is available in 12 decorator colors or custom-finished. Price, with operating hardware and rods: about $2 per sq ft.
Consolidated General Products, Inc., 24 & Nicholson Sts., Houston 8, Tex.

Headlight Beam Activates Light Switch

Electronics principle of Switch-A-Light responds to headlight beam to turn on overhead, yard, or patio light—automatically deactivates following a short interval. Mounts easily and quickly on garage or carport walls at headlight level.
Osoco Mfg. Co., P.O. 7268, Fort Worth, Tex.

New Sliding Glass Doors Introduced

Distinctive Series 102 sliding glass doors, framed in lightweight aluminum, have new sill design, built-in weather stripping of wool pile or pliable neoprene sealed with mechanical interlock, and outside slider with 5/8" sill step for weatherproofing. Door features automatic latch; handsome hand-grip pull that does not hamper drapery; nylon rollers and tracks for silent, easy gliding; inside Fiberglas mesh screens (aluminum, optional) that stay clean, slide out of sight, are not exposed to weather. Satin Alumilite finish.
Arcadia Metal Products, 801 S. Acacia Ave., Fullerton, Calif.

Close Corrugation In Thin-Walled Ceramics

Microphotographed section of Cercor-process honeycomb thin-walled ceramics for architectural uses where lightness, thermal-shock resistance, extreme temperature strength are requisites—can withstand temperatures to (1800 F), will operate continuously at (1290 F).
Corning Glass Works, Corning, N.Y.

Rotating Slats Give Curtain Effect

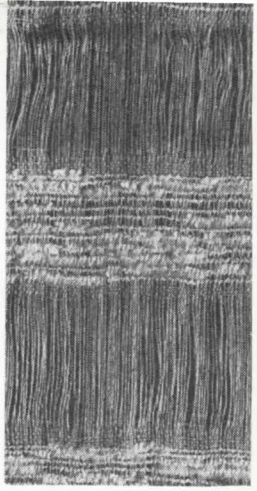
Slats made of extruded aluminum and molded "Fortiflex" by Celanese, feature maximum light control, minimum vibration, ease of maintenance. Available in variable widths up to 8", from 5' to 30' heights—in any colors (white outside).
Des-Mark Corp., 165 O'Farrell St., San Francisco, Calif.

Flexible Concealed Flashing Suits Many Uses

Alum-O-Top is designed for waterproofing, dampproofing, and verminproofing of residential and industrial buildings. Consists of aluminum sheet, bonded with plasticized asphalt to heavy creped kraft paper, and reinforced glass fibers, distributed for maximum strength and tear resistance—chemically treated to prevent corrosion. For drip caps, still flashings, roof, sidewall junctures—hand-folding the flexible flashing around nails and corners eliminates air and moisture seepage. Available in 0.002 and 0.004 mil grades in standard paper backing on one side—and sandwich type with paper on both sides—standard widths from 4" to 48", in 120' rolls, on 3" cores.
Chase Brass & Copper Co., Waterbury 20, Conn.

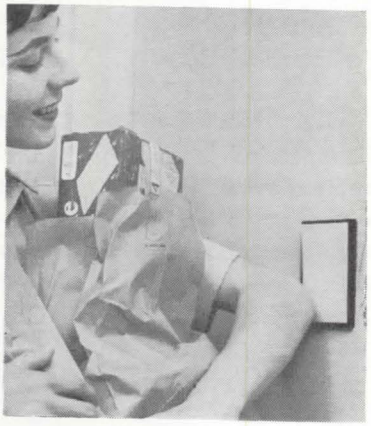
Fabric Offers Textural Interest

Lively surface treatment is created by contrasting linen-and-rayon fibers in "Stringsheer," new drapery fabric. Sheer, open weave produces soft, filtered light through horizontally striped pattern. Available in natural or custom-dyed colors. Designer, Hugo Dreyfuss. Price: $10 a yard.
Kagan-Dreyfuss, Inc., 125 E. 57 St., New York 22, N.Y.



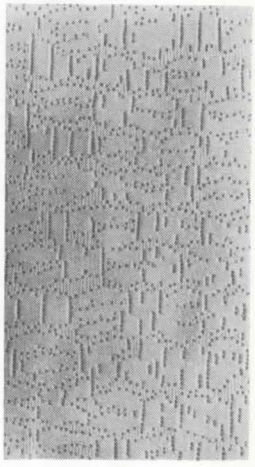
New Styling Revolutionizes Wall Switch

Sleekly styled wall switch, soon to be on market, will add clean lines to interior walls. Fashion Plate wall switch is a straight-sided, rectangular wall plate framing large actuator. Top of actuator is lightly touched for "on"; bottom, for "off." Available at standard household capacity, switch may be mounted, singly or in combination of two or three, in standard wall boxes. Wall plate will be black or white; the actuator, molded opaque-ivory plastic or clear plastic which can be painted or backed with other materials.
Bryant Electric Co., 1421 State, Bridgeport 2, Conn.



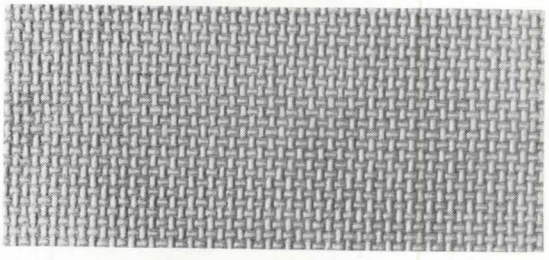
Vinyl-Coated Wall Fabric Has Deep Texture

"Needlepoint" is one of 11 deep-molded textures in Tapistron, new line of vinyl-coated wall fabric. Chip and scratch resistant, Tapistron is easily maintained and washable; easily applied to any clean, smooth, dry, porous wall. Available in 54"-wide, 30- to 35-yd-long rolls. Colors are Bottle Green, Coral Pink, Tigerlily, White, Pistachio, Mocha, Lemon Yellow, Parrot Blue, Chamois, Woodbark, Robin's Egg, Burnt Orange, Henna, Pigeon.
United States Plywood Corp., Flexible Materials Div., Box 85, Shelby Station, 2921 S. Floyd St., Louisville 17, Ky.



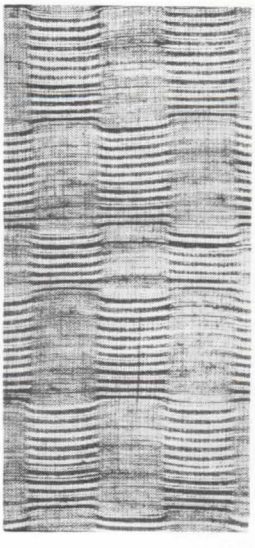
Fiberglas Reinforces Vinyl Fabric

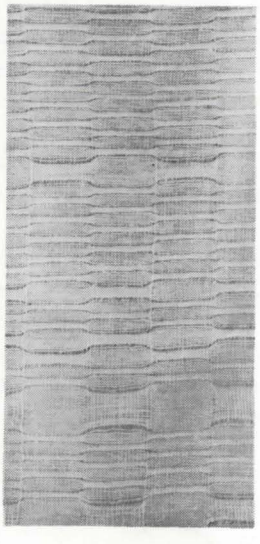
Viking, vinyl wall covering reinforced with Fiberglas, is said to be incombustible; highly stable and impervious to heat, cold, and moisture so that it will not shrink; impervious to mold and mildew; abrasion resistant; fadeproof, stainproof, and waterproof. "String Weave" is one of 6 textured patterns produced in a wide color range. Viking also comes in plain colors which can be silk-screen patterned in vinyl inks.
Greeff Fabrics, Inc., 4 E. 53 St., New York 22, N.Y.; Katzenbach & Warren, Inc., 575 Madison Ave., New York 22, N.Y.



Linen Weave Creates Casement Patterns

Grouping of pure Belgian linen yarns in weaving produces sheerness and richness of pattern in two new fabrics. Block pattern in number 535 (left) has alternate sheer and open areas; natural color. Handsome detail of number 536 (right) shows random pattern of rounded squares and rectangles; available in natural and white. Fabrics, designed by Marie Howell, are 52" wide. Retail: approximately $5 a yard.
Rowen, Inc., 39 W. 17 St., New York 11, N.Y.





Wiring Trough in Variable Lengths

New 2½"x2½" trough by Wadsworth available in 1', 2', 3', 4' and 5' lengths along with fittings—end caps, 90° internal elbow, T and U connectors, etc. Each ft of trough has same knockout arrangement, four ½" and ¾" concentric knockouts, 3" on center, on opposite sides. Covers have keyhole slots—no screws to remove. Finished in durable, baked, blue-gray enamel.
Wadsworth Electric Mfg. Co., Inc., Covington, Ky.

Narrow-Vane Vertical Blind

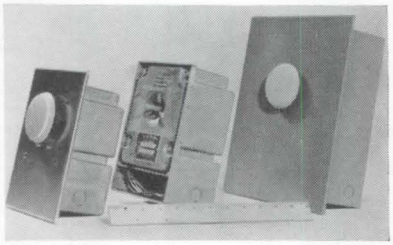
Thru-Vu vertical vinyl-coated fabric vanes, 5" wide, create traversing blind for general building use. Require minimum maintenance. Flexible controls permit operation under any condition, even for high or out-of-reach windows. Holders are molded, white, high-impact polystyrene. Price reduction on 5" and original 7½" Thru-Vu blinds, is in effect. Full color range.

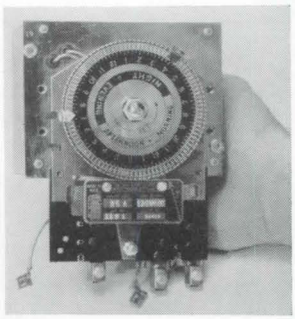
Vertical Blind Corp., P. O. 266, Rye, N. Y.

Brightness Controls Create Many Atmospheres

Dial-operated Luxtrol light-controls handle up to 1800-w—create daylight-flood illumination, or upward- and downward-directed lighting—any degree of brightness. For general application, including homes—small enough for 4" stud walls.

Superior Electric Co., Bristol, Conn.





Time Switch Takes Over When Electricity Fails

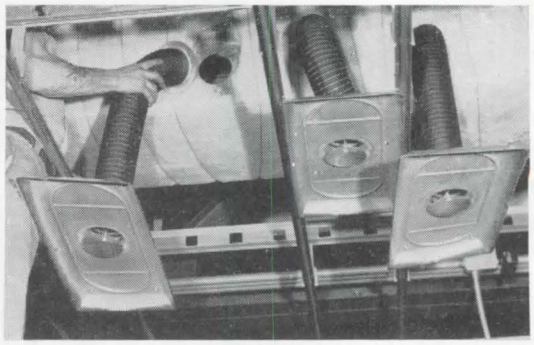
"Reserve Power" time control continues to perform during power failures—maintains operation up to 17 hours, requiring no readjustment of switches following outages—complete atomatic rewinding of power spring takes under 2 hours. Incorporates special release which exercises Reserve daily to insure ready-for-emergency condition.

Tork Time Controls, Inc., Mount Vernon, N. Y.

Versatility, Economy In Curtain Wall Design

Curtain-wall design consists of U shaped structural steel mullions and struts, covered on the outside with porcelain-enamel panels. Inside panels are galvanized, with fiber-glass core. Offers fixed and operating window sash as integrated components. Sections, spring-clamped to steel members, are erected within the building, without scaffolding. System permits varying panel thickness to meet any U value requirements—detailing, fabrication, installation, according to architect's specifications. Units are factory-assembled, shipped in sections.

Erveen Corp., Erie, Pa.



Flexible Duct for Low-Velocity Air Conditioning

Lightweight Flexible Air Duct, diameter 4", is used to lead conditioned air from metal duct to diffusers. By permitting bends and eliminating misalignment, duct simplifies problem of making vertical connections between branch runouts and diffusers.

The Wiremold Co., Hartford 10, Conn.

Wiring Trough Comes In Variable Lengths

New 2½"x2½" trough available in 1', 2', 3', 4' and 5' lengths along with fittings—end caps, 90° internal elbow, T and U connectors, etc. Each ft of trough has same knockout arrangement, four ½" and ¾" concentric knockouts, 3" on center on opposite sides. Covers have keyhole slots—no screws to remove. Finished in durable, baked, blue-gray enamel.

Wadsworth Electric Mfg. Co., Inc., Covington, Ky.

Glass Safeguards Against Fading

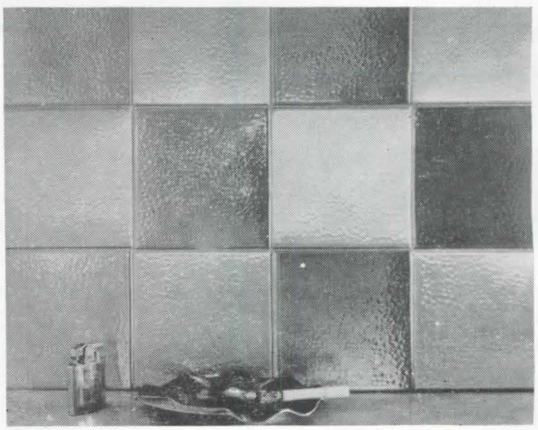
"Fade-Shield" laminated, nonshattering glass screens out over 98% of sun's ultraviolet rays. For application in commercial or other building where protection against fading is desired—for draperies, carpeting, display merchandise, documents, etc. Sizes up to 60"x108", thicknesses of ¼" or more.

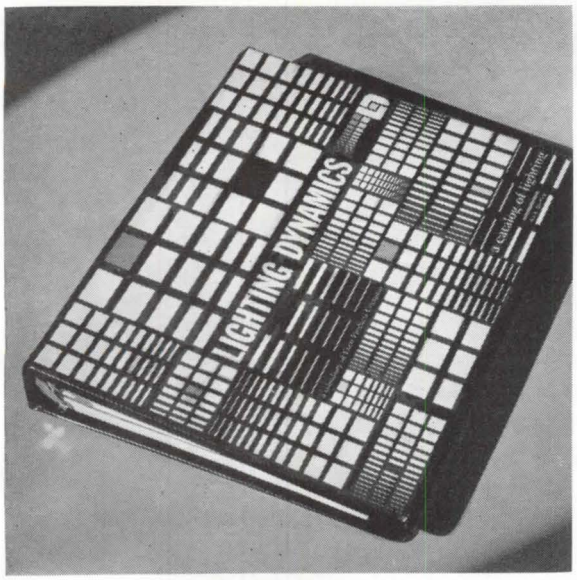
Dearborn Glass Co., 6600 S. Harlem Ave., Bedford Park, Ill.

Enameled Tile Offers Pattern Versatility

"Copper Glaze" (copper-tinted enameled aluminum) and "Brushed Aluminum" hammered tile is an interestingly patterned durable wall covering for home and commercial use—offers variations of arrangement to produce a face of alternating grain tiles, or a combination of grain and smooth surface tiles. Comes 4¼"x4¼", packaged 24 to a box. Sells for $1.20 per sq ft.

Vikon Tile Corp., Washington, N.J.





Horizontally designed flip-card type binder file, 10"x11", provides visual index for facilitating lighting layout—selection of fixtures. Fold-out introduction page, which can be used opened-out for ready reference with other pages, speeds calculating time—includes method of making lighting calculations, working tables of indexes, etc. General presentation in seven sections listed as shielded, unshielded commercials, special types, etc., presents design features, technical tables on converting coefficients, mounting information, cost per lumen output, ordering data. Photographs and drawings—in colors, and black.
Lighting Dynamics (AIA 31-F-2, 73-p.) **486**

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

★

AIR AND TEMPERATURE CONTROL

Automatic Controls For Heating and Ventilating

Catalog describes and illustrates line of electric thermostats, pressure controls, humidistats, motor-operated valves, hot-water controls, electronic controls, control centers, and accessories. Operational and application data incorporated with material.
Barber-Colman Co. (Catalog 26, 52-p.) **102**

Increased Efficiency In Smaller Heater Unit

Folder shows cost and space-saving features of lighter-weight gas-fired heater, for use in commercial and industrial installations, with all gases. Equipped with automatic safety controls—toggle switch for conversion to summer circulating fan operation. Horizontal or vertical individually adjustable louvers provide air-distribution control. Ten models shown, with sound-rating table to suggest selection for environment. Of heavy-gage furniture steel, baked-enamel hammertone gray-green finish. Specifications, dimensions, and weights included.
Grinnell Corp. (Catalog gf-58, 7-p.) **103**

Two-Stage Centrifugal Refrigeration

Bulletin describes compact, economically operated refrigeration compressor, for use with refrigerants 11, 12 and 14, capacities from 125 to 3500 tons. Explains and illustrates complete operation cycle of Worthington-engineered purge system, as well as features of compressor units—mechanical operating and shutdown seals, reduced frictional horsepower, external bearings, casing, vaneless diffuser, etc.—with flow diagram showing relation of component parts of purge system to one another. Contains complete specifications, including information about dimensions, test facilities, and applications.
Worthington Corp. (Bulletin 1100-B14B, 28-p.) **104**

CONSTRUCTION

Designing For Flatness In Porcelain-Enamel Panels

Brochure presents four design studies of representative panel types; (1) laminated panel, involving aluminum honeycomb and rigid insulation; (2) combination laminated-mechanically assembled panel with corrugated face; (3) 4'x12' mechanically-assembled panel; (4) thin-wall panel design, including aluminum honeycomb laminated to front and back sheets of porcelain enamel. Other subjects considered are: Production Factors Affecting Panel Flatness, Flatness in Mechanically-Assembled Panels, Flatness in Veneer Panels, and Specifications for porcelain-enamel on aluminum and steel.
Ingram-Richardson Mfg. Co. (15-p.) **276**

Fact File On Contact Cements

Reference File contains technical bulletins describing Instant-Lok contact cement types—properties, recommended bonding techniques, and handling. Available in eleven grades with different characteristics for custom selection and application, ranging from spray to roller grade, solvent to water-base types. In addition—discussion of types of material that can be bonded, and methods combining them, preparation of surfaces, methods of applications, etc. Data on new Instant-Lok 4300 also included.
Structural Prods. Div., National Starch Prods., Inc. (36-p.) **277**

Decorative Cast-Aluminum Alloy Panels

File cards illustrate how aluminum alloy panel with sand blast background—polished—or colored, may be used in metal curtain-wall systems. Drawings accent surfaces with polished design pattern, for contrasts in shading. Contrast achievement is limitless. Acceptable dimensions are shown. Other designs submitted for consultation, prior to detailing, will be given immediate attention.
Michaels Art Bronze Co. (AIA 17A) **278**

Durability And Versatility Of Timber Construction

Booklet stresses collapse-resistance of lumber construction. Explains and illustrates design versatility of fire-durable pre-

fab lumber and timbers in truss and lamella roofs, and applications of engineered timber construction to commercial, industrial, school, and church building. Also contains information on light roof framing.
Rosboro Lumber Co. (AIA 19B, 11-p.) **279**

Span Roof Trusses Comply to 16" Spacing
Folder explains construction details of clear span roof truss designs to comply with the 16" spacing restriction in some building codes. Trussed rafter series is adaptable for roof spans from 20' to 32', and roof slopes from 4" in 12" to 7" in 12". Web members consist of two 1"x4" tension pieces. Wedge-fit ring connectors automatically align truss members and act as assembly jig. Primarily for residential construction, but usable with economy for light commercial and industrial building. Diagrams, specifications.
Timber Engineering Co. (2-p.) **280**

Recommendations On Year-Round Concreting
Pamphlet summarizes standard recommendations for cold weather concreting. Tells how calcium chloride and other developments aid in placing durable, quality concrete. Includes sections on accelerators, preparation before concreting, objectives, and protection required. Chart illustrates data on effect of 2% calcium chloride at temperatures of 73, 55, 40 and 25F, on Type I and Type 3 cement. Guide specifications included.
Calcium Chloride Institute (AIA 3-B-2, 7-p.) **281**

Grating Manual
Manual designed for permanent libraries contains comprehensive information on grating used in construction and maintenance work—also in decorative architectural applications. Includes safe load tables for welded and riveted gratings—floor armors, bridge deckings, drain grates, etc.; data on aluminum grating; panel width charts; methods of anchoring; tables on stair treads, and methods of ordering.
Klemp Corp. (20-p.) **282**

Extra-Depth Corrugated-Steel Sheets Support Greater Load
Publication describes how Armco deep-corrugation sheets support greater loads than standard corrugated sheets—cut costs, reduce weight, and save purlins. Includes illustrations of comparative safe loads, and purlin spacing chart. Available in Zincgrip steel, and in special Aluminized steel Type 2, for maximum service.
Armco Steel Corp. (3-p.) **283**

Caloric Laminated Panels
Data sheets illustrate eight types of laminated panels for curtain-wall construction by showing details, labeled drawings for each type. Core materials—aluminum honeycomb, glass foam, glass fiber, paper honeycomb—can be used with exterior porcelain-enamel surfacing.
Caloric Corp. (8-p.) **284**

Design and Specification, Watertight Masonry
To obtain watertight masonry, good workmanship and absence of cracks between brick and mortar are musts. This booklet cites six major considerations for water-tight design, including selection of mortar ingredients, types of mortar, importance of shrinkage control, mortar bleeding, mechanical disturbance.
The Master Builders Co. (6-p.) **285**

Stran-Steel Buildings in Factory-Applied Stran-Satin Color
Vinyl-aluminum protective coating on steel panels offered in six colors, as well as standard metal finish. Coating is applied to galvanized-steel panels at the factory—test results show resistance to corrosion, and no loss of adhesion. Guide shows possibilities of applications as well as colors.
Stran-Steel Corp. (4-p.) **286**

Free Porcelain-Enamel Color Samples
A kit containing specimens of standard colors for Monarch Wall Architectural Porcelain Enamel is available to architects free of charge. Twenty-one 2"x3" samples, ranging from pastel to stipples, are packaged in a colorful box. Monarch panels come in a wide range of sizes, for use as facing material or in curtain-wall construction. Write direct to Davidson on letterhead stationery for kit.
Davidson Enamel Products, Inc., Div. MW, 1104 East Kibby Street, Lima, Ohio **287**

DOORS AND WINDOWS

Low-Priced Sliding Glass Door
Brochure describes and illustrates features of Ador aluminum-frame, sliding, glass door: finger-tip control hardware, strong engineered sections, ball-bearing operation, all-around weatherstripping, threshold water barrier, vinyl air barrier, top rolling screens. Allows 3/16" to 1/4" single glazing, or 5/8" dual glazing. Over-all size: 5'-10 5/8"x6'-9". Construction and installation details given.
Ador Sales (AIA 16-E, 3-p.) **375**

Ventilating Picture Window
Folder describes sashless storm window which permits opening to the outside air. Claims high insulating qualities, increased light capacity up to 25% with 3/16" crystal thickness—scientifically engineered for double glazing. Other features are: ease of assembly, cleaning; patented lock which locks window while partially open. All-glass sliding sections eliminate putty, balances, wood, or metal separations. Sizes, construction details shown.
Ernest Pierson Co. (3-p.) **376**

ELECTRICAL EQUIPMENT, LIGHTING

Light-Saver System
Brochure explains multistage system of controlling light for correct balance between day, and artificial light: for incandescent, or fluorescent lamp installations—in schools, offices, etc. Studies show up to 80% saving in use of artificial light. Phototube system measures amounts of daylight entering exposure-zones, can control increasing or decreasing of light by operating ranks of lamps to be turned up or off one at a time, or gradual simultaneous turning up or

dimming of all lights. Manual switch turns off all lights. When switched on again, phototube resumes control.
Honeywell (AIA 20-A, 3-p.) **487**

Outdoor Wall Illumination

Folder describes Fluoresign outdoor luminaire, especially designed for high-output lamps. Joined reflector and socket assemblies form integral unit rotating in relation to mounting arm, assuring correct positioning of lamp to reflector —adjustable while lamps are in place and burning. Degree marking of socket assemblies provides quick adjustment to any angle. Drawings illustrate component parts. Includes specifications, prices.
Revere Electric Mfg. Co. (4-p.) **488**

Low-Voltage Switching Systems

The Touch-Plate system—a master-control system—is particularly adaptable to home systems, offering safe, quiet means of switching electricity. Booklet suggests means of designing a system, provides sections on architectural specifications, planning installation, basic components.
Touch-Plate Mfg. Corp. (18-p.) **489**

FINISHERS AND PROTECTORS

Spray-Applied Finish For Interior Walls

Folder covers preparation information and application specifications for Desco Vitro-Glaze, low cost spray-applied permanent enamel-cement for interior wall surfaces. Finish is marble-hard, of textured appearance, furnishing a continuous unbroken wall surface, free of joints. Sanitary, easy to maintain—especially suited to school, institutional building. Available in variety of stippled color combinations, from pastel to full-strength colors.
Selby, Battersby & Co. (AIA 25-C-2, 28-C, 4-p.) **571**

INSULATION

Fiberglass Insulations For Industrial And Commercial Buildings

Publication illustrates and describes use of Fiberglas rigid and flexible metal building insulations. Discussed are factors such as: heat losses; condensation; accessory materials for metal buildings; reinforced plastic paneling; ceiling board; acoustical tile; perimeter and pipe; duct insulation. Includes tables, installation instructions, sizes, and packaging information.
Owens-Corning Fiberglas Corp. (AIA 37-A, 12-p.) **674**

★ **Roof Insulation And Roof Decks**

Literature describes Zonolite insulating concrete roof systems used with a variety of associated materials: steel roof decks, various formboards, structural concrete, etc.—designed to provide a monolithic, fireproof roof insulation over structural concrete, or over galvanized vented steel roof decks. Specifications, and complete technical, application, information.
Zonolite Co. (AIA 4-E-13 & 37-B-2, 23-p.) **675**

Acoustical-Ceiling Pads

Data sheet presents application specifications for Panatone, noncombustible mineral-wool acoustical ceiling pad. Includes list of materials, directions for installation of pads, and their supporting metal pans. Pad is 26-gage steel, factory finished in baked-on washable white enamel—also washable enamel spattered aluminum painted white—and aluminum, factory finished, unpainted. Line drawings show section and erection details.
Baldwin-Hill Co. (AIA 39-B, 4-p.) **676**

Foamglas, The Cellular-Glass Insulation For Curtain-Wall Construction

Thermal-glass insulation is said to possess both rigidity and compressive strength in a lightweight, rigid-block form. Inorganic material is rot and vermin proof and a constant insulating value. Booklet lists properties and shows applications of finished installation where porcelain and other curtain-wall materials have been laminated to Foam-glas—panel details shown.
Pittsburgh Corning Corp. (AIA 37-B, 12-p.) **677**

SANITATION, PLUMBING, WATER SUPPLY

Tubeless Oil-Fired Boiler

File sheet describes boiler for heating systems using forced-circulation hot water. Packaged boiler is complete with burner, water pump, and all controls, ready for installation. Tubeless design reduces maintenance problems, increases efficiency. Models have ratings of 114,000, or 170,000 BTU per hour input, and are designed for domestic needs. Dimensions, cutaway view, included.
Petro (File Sheet 3415, AIA 30-C-1, 2-p.) **770**

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y.

I should like a copy of each piece of Manufacturers' Literature circled.
Coupon must be used by 2/1/59

102	281	376	676	993
103	282	486	677	994
104	283	487	770	995
276	284	488	771	996
277	285	489	772	77
278	286	571	856	
279	287	674	857	
280	375	675	858	

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Name

Position

Firm

Mailing Address

City *State*

Space-Saving Volume Water Heater

Folder illustrates construction and operation features of compact, gas-fired boiler, suitable for domestic, commercial, institutional, other installation—horizontal arrangement of boiler section assures maximum heat transfer in minimum space with small water content. All cast-iron construction, tested at 250 lb hydrostatic pressure. For use with manufactured, natural, and LP gas. Shipped factory assembled and wired. Capacity range included, along with installation dimensions, prices.

Hydrotherm Inc. (4-p.) **771**

Layouts Save Materials, Time, And Money

Featuring two-bathroom layout used in 1957 NAHB Research Institute "Home of the Year," booklet shows how end outlet bathtub and wall-hung closet combinations can be utilized with built-in lavatory. Dozen layout suggestions are detailed —for single, one-and-a-half, double baths in conventional and slab construction. Units are fabricated from enameled cast-iron, porcelain on steel, vitreous china.

Ingersoll-Humphreys Div., Borg-Warner Corp. (8-p.) **772**

SPECIALIZED EQUIPMENT

Tape-Method System Aids Visualization

Booklet illustrates method of using precision slit and printed pressure-sensitive materials in tape, rectangle and sheet form, for graphic presentation—describes complete line of tapes, easels, templates, other charting materials—offers extensive group of lines, bars, shapes, patterns, symbols used in preparing graphs, maps, and layouts. Time-saving Chart-Pak enables relatively unskilled personnel to do work of professional-looking quality. Includes step-by-step directions for making office and plant layouts, organizations, and flow charts.

Chart-Pak, Inc. (29-p.) **856**

Standard And Custom Swimming-Pool Forming

Booklet offers comprehensive how-to-do-it information on four standard swimming-pool plans for residential installation —also examples of free-form custom pool designs. Includes basic form layouts, detailed drawings, spacing tables, materials breakdown for estimating costs. Panels for standard pools are available prefabricated, ready for use.

Gates & Sons, Inc. (AIA 4-D-3, 7-p.) **857**

Low-Bright Ceiling Shielding Media

File sheet describes Cubex aluminum louvers used as low-bright shielding media with lighting fixtures, or large element ceiling systems. Lightweight, easy to handle—permanently locked at each intersection. Small cells, $\frac{1}{2}''x\frac{1}{2}''x\frac{1}{2}''$, provide 45 x 45 shielding—create textured appearance. May be used in Smithcraft 1′ wide troffers, Gridex 1′ wide troffers for inverted "T" systems, and all types of 2′ wide troffers. Manufactured of aluminumin 2′x2′, 3′x3′, 4′x4′ sizes, finished in nonspecular baked white enamel. Available in wide variety of colors, and aluminum.

Smithcraft Lighting (2-p.) **858**

SURFACING MATERIAL

Guide To Uses of Vinyl-Tile Flooring

Sample kits contain twenty samples of Ultralast tile, and three full-color folders illustrating typical applications. Described as flexible, durable, anti-slipping. First kit shows 18 colors in terrazzo pattern, and samples of solid black and white tiles—second kit presents marbelized and terrazzo styles. Sizes: .125 gage, Micro-squared: 9"x9" and 12"x12", Untrimmed: 18"x36" and 36"x36". Special sizes available on custom order (not Micro-squared): up to 36″x36″. Feature strips and borders available in solid colors. Installation information included.

Vinyl Plastics, Inc. (1-p.) **993**

Self-Adhering Vinyl Wallcovering

Folder contains samples of Clad-on low-upkeep vinyl wallcovering, suitable for all types of interiors. Consists of semi-rigid plastic sheeting with adhesive-coated back—for wood, metal, plaster, hardboards, other flat or curved surfaces. Protective paper at back is simply removed, and covering applied to surface. Samples are arranged to enable ready selection of colors for correlated decorative effects. In rolls of 49″ width.

Masland Duraleather Co. (AIA 23-L, 2-p.) **994**

Color Guide For Porcelain Paneling

Folder presents color chart for Monarch Wall porcelain enamel paneling—for exterior and interior facing, as well as curtain-wall construction. Made of light gage enameling quality sheet steel, chest tempered masonite, with noncorrosive metal moisture barrier. Standard widths: 24″, 36″, 48″. Standard lengths: 6', 8', 10', 12'. Plain colors available in gloss or semi-matte finish. Special colors to match furnished samples, and colors and stipple patterns not shown, can be supplied on special order.

Davidson Enamel Products Inc. (AIA 15-M-1, 3-p.) **995**

Technical Notes, Harris BondWood Flooring And Harris Adhesive Mark 10

Concentrating on the features and properties of BondWood flooring and Adhesive Mark 10 in numerous installations, booklet gives technical data on application of flooring material. Dryness of building interior, subfloor, and testing of concrete dryness discussed, as well as installation over concrete subfloors, resilient tile, and wood subfloors.

Harris Mfg. Co. (AIA 19-E-9, 18-p.) **996**

INTERIOR FURNISHINGS

Furniture For Commercial Interiors

Planbook plates show each basic piece in furniture line adaptable to any type of setting. Scale drawings, $\frac{1}{4}''=1'$, illustrate plan views, front elevations, side elevations, and variations in each piece. Group contains tables, chairs, standard and swivel, sectional seating units, cabinets, and desks. Natural or oil walnut wood finish. Tables have formica, or equal plastic tops. Ordering sheet includes no. and style, dimensions, weights, shipping costs—gives comparative costs of pieces upholstered in fabric, plastic, or leather.

Marden Mfg., Inc. (Planbook 58, 26-p.) **77**

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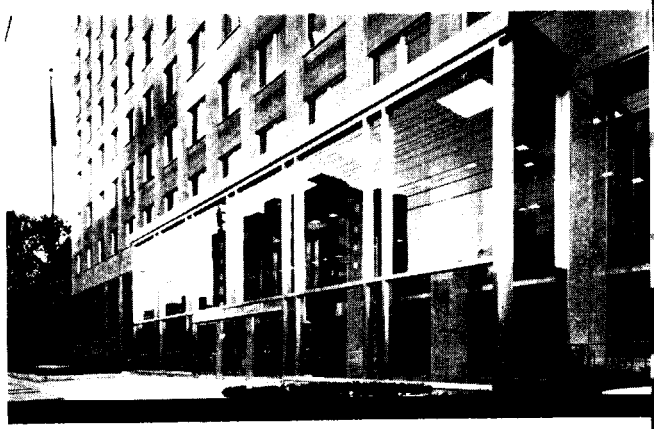

ABOVE: The Imperial Oil Limited Building, Toronto
Architects: Mathers and Maldenby

UPPER RIGHT: The Borg Warner Building, Chicago
Architects: A. Epstein and Sons, Inc.
William Lescaze, FAIA, Consultant

RIGHT: The Procter and Gamble General Offices, Cincinnati
Architects: Voorhees, Walker, Smith and Smith

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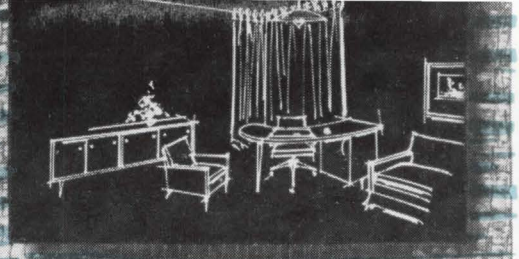

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reviews

(Continued from page 178)

tions) are used. The "opening up" of the plan, pioneered by Wright, adopted by Mies, and parlayed by all of us, is certainly one of the most distinguishing contributions of modern architecture, and the inclusion of even thumbnail sketch plans (and more interior photographs) would have helped.

The omission of such as Banfi, Belgioioso, Peressutti & Rogers; Felix Candela; Buckminster Fuller; Maxwell Fry; Werner Moser; Rudolf Schwarz; and José Louis Sert—and the inclusion of some others—are points of dubious preference. However, the exclusion of Ed Stone and Sven Markelius is particularly regrettable. Stone is producing some of the most elegant buildings in contemporary architecture: he is in some respects opening a new and highly personal chapter in its development; while Markelius has advanced beyond the scale of the pristine masterpiece, and encompasses the neighborhood and the city. Unless we architects are to compound urban anarchy, this, certes, must be our direction too.

Some of the above criticism, particularly regarding the book's organization, can possibly be "explained" by the parlous economy of today's book production in the U.S.A. However, would it not have been wiser to have reduced the extravagantly sized pages and the yawning areas of coated stock, and put each man's biography, statement, buildings, and building descriptions together—so that one could analyze his contribution in a single graspable section, without using three fingers, a thumb, and exasperation?

The material of the book is so admirable, nonetheless, that I would very much like to see its contents reorganized and brought out also in pocket book form. It would make a stimulating companion for the student and a highly valuable stablemate to Jim Richard's Pelican book, *An Introduction to Modern Architecture.*

texture and color

Raum Werkstoff Farbe. *Herta-Maria Witzemann. Deva-Fachverlag, Stuttgart, West Germany, 1957. Distributed by Wittenborn and Company, 1018 Madison Ave., New York, N. Y. 136 pp., illus., German text. $10.50*

"Without the orderly interrelation of texture and color," writes the author in a foreword to her book, "a room cannot become a dynamic interior space, and remains a mere utilitarian solution." In this book, Herta-Maria Witzemann draws on her extensive architectural practice and teaching experience as professor at the Akademie der Bildenden Kuenste in Stuttgart, Germany, to illustrate the important effect which modern materials—particularly their colors and textures—have on the shaping of interior space. Color is abundantly and brilliantly offered in four-color reproductions of interior perspectives as well as color photos of completed installations. Textures of such materials as masonry, fabric, wood, ceramic are brought to life through numerous full-page, full-scale black and white reproductions. In the accompanying captions the author summarizes the original requirements and the desired effects of each example. This handsome volume fulfills an important need in the field of interior design and should be of interest to the layman as well as the professional. To the student of interior design and architecture the book will serve as primer in the elements of design.

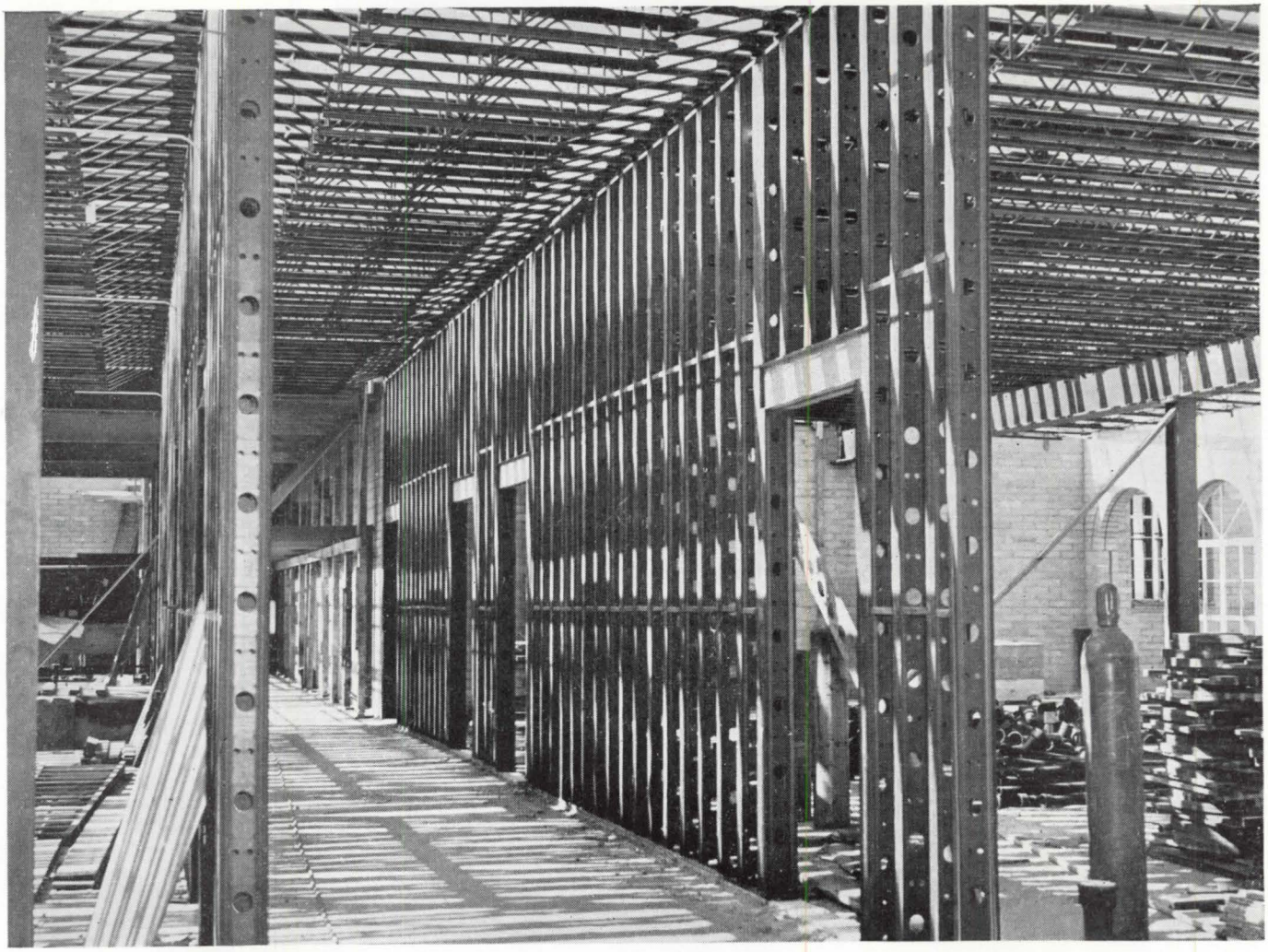
I.M.B.

laboratory design

Buildings For Research. *The editors of Architectural Record. F. W. Dodge Corp., 119 W. 40 St., New York, N. Y., 1958. 232 pp., illus. $9.50*

For the practicing architect, this book presents the design and planning of 44 different research projects in the categories of Nuclear Laboratories; Industrial Laboratories for engineering, biological, electronic, and chemical research; and Institutional Laboratories for

(Continued on page 184)



LIGHTSTEEL cuts dead-weight loads in five-story seminary

Immaculate Heart Seminary, part of the multi-million dollar expansion program at San Diego University, is one of the largest concrete-block structures in the west. Of Spanish Renaissance architecture, the building contains 141,000 sq. ft. of floor space.

Stanley Burne, structural engineer for the job, says, "We used LIGHTSTEEL studs with metal lath and plaster, throughout the interior, with the object of securing lightness with strength, fireproofing, as well as freedom from deterioration and from dry rot. The open-work pattern of these studs, simplified installation of conduits, piping, etc., as well as the fibreglass insulation.

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Structural Engineer: Stanley Burne
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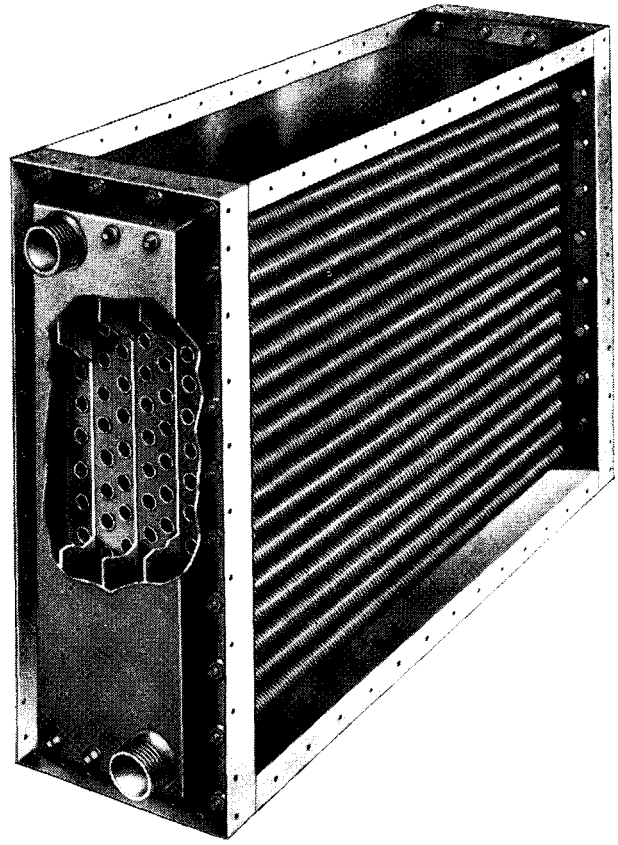

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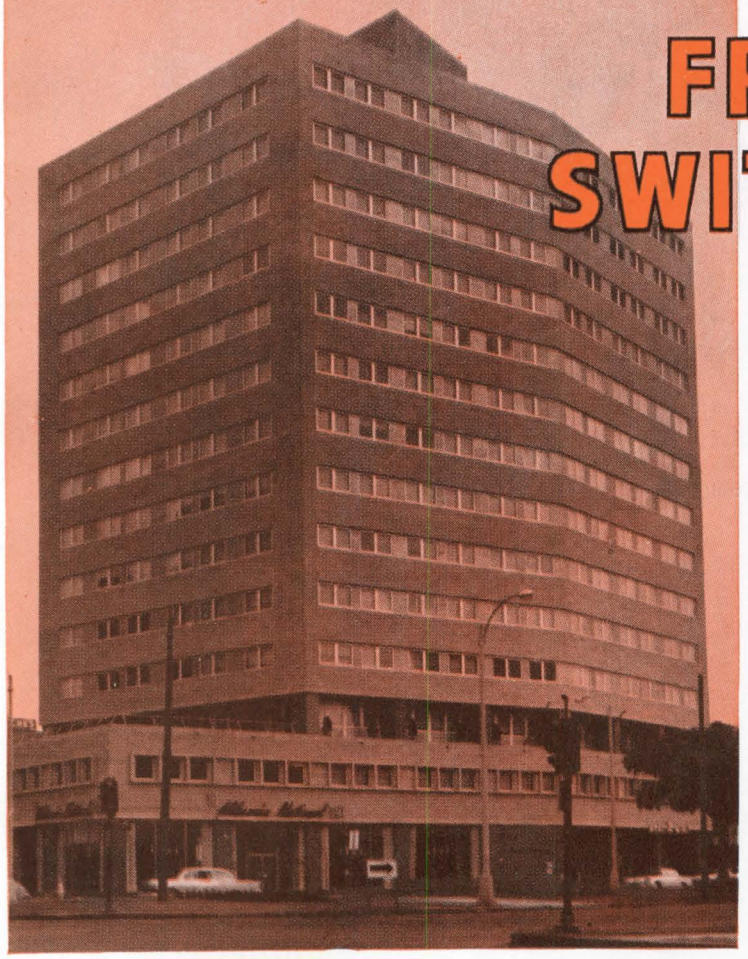

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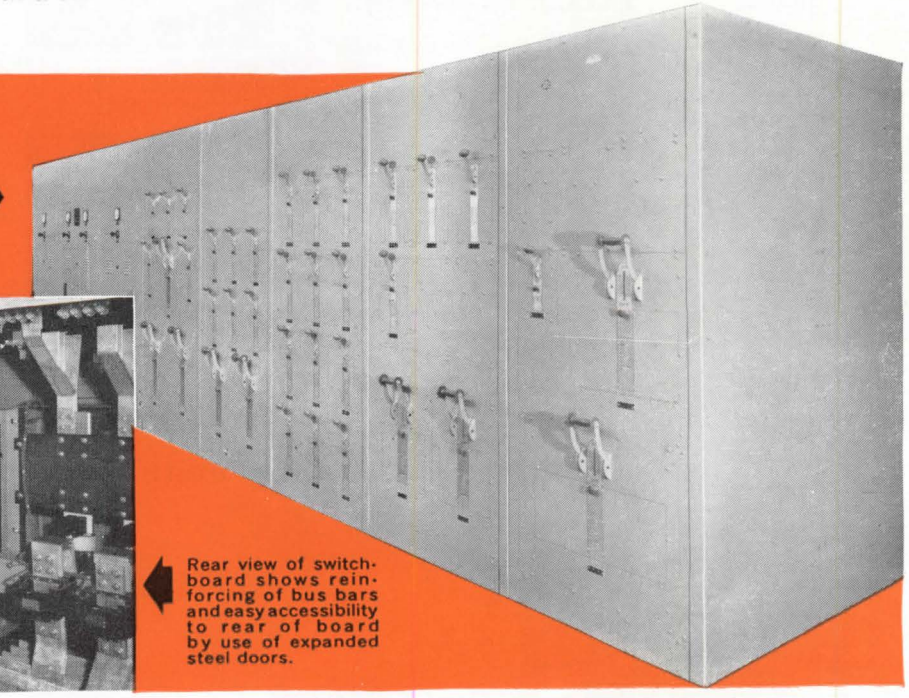
28 feet long! This (FA) switchboard was designed to handle all the service for the 14-story Saratoga Building with ample room for future increased load, including a 2000-amp. main for air conditioning, a 2000-amp. house main, and a 3000-amp. tenant main.



Rear view of switchboard shows reinforcing of bus bars and easy accessibility to rear of board by use of expanded steel doors.

reviews

(Continued from page 180)

university and military use—well illustrated with photographs and plans. An introductory Chapter I includes discussion of the planning and objectives of good laboratory design. All presentations have been previously published in *Architectural Record*, since 1950. A. L.

BOOKS RECEIVED

Architecture and the Church. A Bibliography on Architecture for the Church. Compiled by Herbert W. Johe. Department of Worship and the Arts, National Council of Churches, 297 Fourth Ave., New York, N. Y., 1958. 20 pp. 35¢ (paperbound)

Home Builders Manual For Land Development. Second Revised Edition. National Association of Home Builders, 1625 L St., N.W., Washington, D. C., 1958. 264 pp., illus. $5 (paperbound)

The Building of TVA. John H. Kyle, Louisiana State University Press, Baton Rouge, La., 1958. 176 pp., illus. $7.50

The Church Incarnate: The Sacred Function of Christian Architecture. Rudolf Schwarz. Translated by Cynthia Harris. Henry Regnery Co., 64 E. Jackson Blvd., Chicago, Ill., 1958. 232 pp. $7.50

Gaudi. Preface by Le Corbusier. Photographs by Joaquín Gomis. Editorial R M, Barcelona, Spain, 1958. Distributed by Wittenborn and Co., 1018 Madison Ave., New York, N. Y. 57 plates, English translations and index $5.75

Horizon, A Magazine of the Arts. American Heritage Publishing Co., Inc., 551 Fifth Ave., New York, N. Y., 1958. 152 pp., illus. $3.95, each; $18 per year (six issues).

Parking. Geoffrey Baker and Bruno Funaro. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1958. 208 pp., illus. $9.50

1957-58 Publication of the National Association of Organizations of Students of Architecture. The American Institute of Architects, 1735 New York Ave., N.W., Washington, D. C., 1958. 102 pp., illus. $2 to students and libraries; $3 to all others. (Paperbound.) Illustrating the work of students in 51 schools of architecture in the U. S.

Engineering Consultants. Directory of the AICE. American Institute of Consulting Engineers, 33 W. 39 St., New York, N. Y., 1958. $2.50, clothbound; $1.50, paperbound.

Materials and Methods of Architectural Construction. Third Edition. Harry Parker, Charles M. Gay, and John W. MacGuire. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N. Y., 1958. 736 pp. $12

Plastics in Building Illumination. BRI Plastics Study Group. Building Research Institute, 2101 Constitution Ave., Washington, D. C., 1958. 99 pp., illus. $3

Pre-Stressed Concrete: Theory and Design. R. H. Evans and E. W. Bennett. John Wiley & Sons Inc., 440 Fourth Ave., New York, N. Y., 1958. 310 pp. $10

Fautrier. Michel Ragon. Arts, Inc., 667 Madison Ave., New York, N. Y., 1958. 60 pp., illus., 12 full-color plates $2.95

Poliakoff. Michel Ragon. Arts, Inc., 667 Madison Ave., New York, N. Y., 1958. 48 pp., illus., 12 full-color plates $2.95

Techniques of Painting. Henry Gasser. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1958. 128 pp., illus. $6.95

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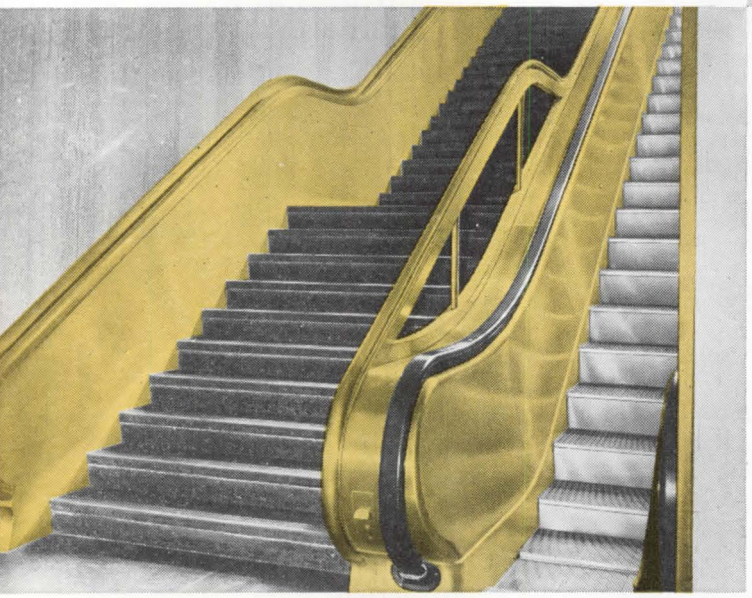
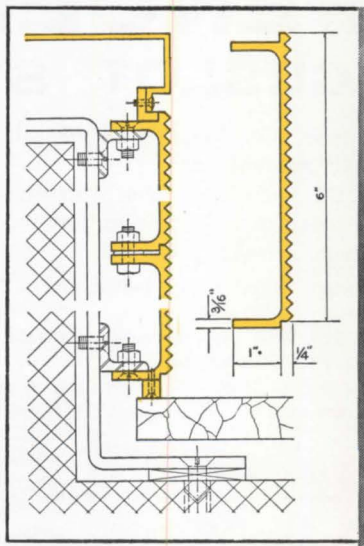
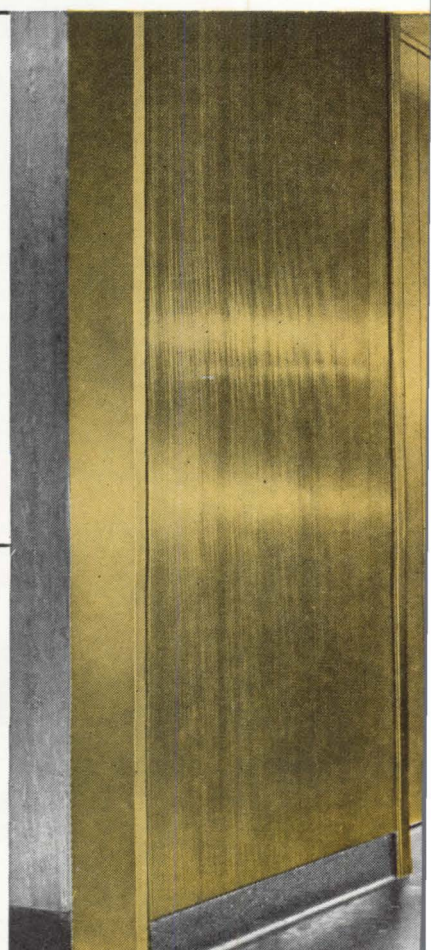


The main entrance (above) of the Sinclair Oil Building. Architectural bronze forms the door openings and housings, and frames the glass panels above.

Escalator and stairs (left) from lower-level concourse have architectural bronze paneling and trim.

Architects: Carson & Lundin, New York. **Engineers:** Edwards & Hjorth, New York, and Jaros, Baum & Boles, New York. **General Contractor:** Turner Construction Co., New York. **Ornamental Bronze Fabricator:** C. E. Halback & Co., Brooklyn, N. Y.





Elevator lobby (left) has an extremely interesting wall treatment. To complement the marble, the wall surrounding the elevator doors is composed of serrated architectural bronze extrusions. Detail drawing (above) shows how extrusions are fastened to the wall construction. Close-up photo (right) indicates the pleasing vertical striated effect.

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(Continued from page 103)

the latter, it reached a high point of uniformity in character and much variety in detail from Granada, in Spain, all the way to Agra, in India. There was no centralized dictatorship here along Roman lines; we see rather the Greek pattern of many states, each under their king, emir, or caliph. The unifying force came from structure—which became highly refined—and, to an even greater degree, from a common religion. The influence of the Koran as a classicizing factor extended even to ornament, limiting it, as it did, entirely to stylized material of non-animal sources.

It would have been unthinkable 150 years ago to call medieval architecture classical, and even today such a statement may raise some eyebrows. Yet the classicist character of medieval architecture is very evident, despite the frequent asymmetry and highly individual ornament.

The rounded arch was the architectural starting point: the Church was the motive force, spiritually and physically; stone, the common material; Latin, the common language. The diversifying influences of the feudal estates were of little avail against this array. With consensus reached on basic tenets of plan and structure, the masons of the Middle Ages were free to refine their architecture from the timid Romanesque bulk of Poitiers Cathedral to the lofty Gothic arches of Amiens and Lincoln.

By dint of generations of experience, these builders developed their vaults, their columns, and their buttresses into a superb harmony of strength and grandeur. The same refining process went into sculpture and the making of stained glass, not only from the point-of-view of design but also, more important, from the point-of-view of integration with architecture. No era, before or since, has seen such total popular participation in architecture; no other epoch has seen all the various requisites of architectural classicism act together in such concert.

As the Reformation approached, and the Age of Humanism, the nature of classicism became more complex. Religion, far from bringing unity, produced war and uncertainty. The revival of the old Orders in the new Renaissance architecture—in the 16th Century a reasoned decision—foreshadowed that well known emotional phenomenon of the 19th Century, the copying of styles. But the outcome was the same: new variations upon an old theme. The rise of the national states (e.g., England, France, and Spain) and the substitution of their languages for Latin were soon to create an obstacle in the way of common language as a classicizing factor.

Yet architecture during the Renaissance did without a doubt achieve a classicism of no small im-

(Continued on page 188)

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School Executive: "I left out economy. Let's put it back in."

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classicism

(Continued from page 186)

pact. But this was classicism of a new nature. It was the expression of stylistic self-consciousness, of style for style's sake. The re-publication of the books of Vitruvius, the publication of Vignola's *Five Orders*, of Palladio's *Four Books* on architecture, and Alberti's *Ten* served both as an expression of this self-consciousness and as a standard for it. Invention of the printing press at about this time spread both word and engraving to four continents. Some of these books—Vitruvius, for example—were translated into the new national languages for the benefit of the growing number of those who did not know Latin. They were followed by others, written in these languages originally, as, for instance, John Shute's *First and Chief Groundes of Architecture.*

But in architecture, style for style's sake can become a blind alley, if not supported by any new challenge of structure or function. In the cinquecento, High Renaissance soon degenerated into Mannerism. Mannerism was not a refinement within an accepted style; it was rather an elaboration at a given level of refinement. Everybody was trying too hard to be different from everybody else. The *Art Nouveau* of the 1890's was a good example of this. It is a malady not unknown to us today.

This state of affairs did not last for very long. The classicism of the High Renaissance, besieged by stylistic opportunism and conflicts in religious thinking, split in two.

On the one hand, it was adopted by the Protestant peoples of Northern and Western Europe—including, to some extent, France, with its sizable Huguenot population—and was developed in palaces, country houses, and urban developments to reflect the restrained and dignified elegance of the landed aristocracy. It was this particular brand of architecture that has become generally known as "classicism," in its very narrow sense.

On the other hand, High Renaissance gave way to the style of the Counter Reformation, known to us as Baroque. But where the architecture of medieval classicism was the work of clergy and common people as an agent of common religious expression, that of the Baroque evolved more as an expedient of the clergy carrying out the resolutions of the Council of Trent, and as a device of emperors cultivating the reverence of their peoples.

The dual European classicism of Baroque and "Classical" lasted until the close of the 18th Century. Until that time, it had been possible to judge architectural style on an almost continental basis. National states had, certainly, been on the rise since about 1400, and although political thinking had crystallized along national lines, architecture was

(Continued on page 192)

Eero Saarinen and Associates, *Architects*

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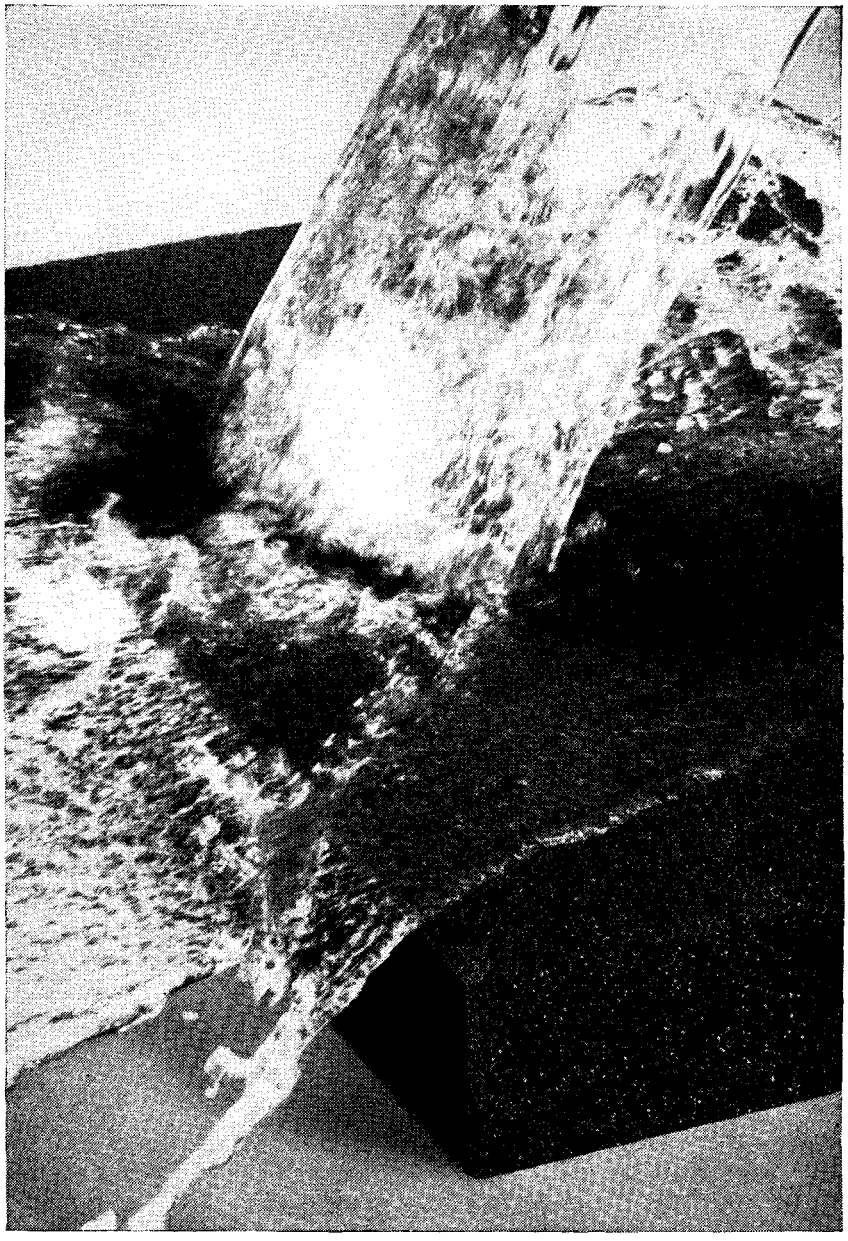

Whether you insulate building roofs and walls, piping or equipment, you can seldom anticipate *all* of the conditions to which your insulation will be exposed after installation. Humidity conditions change. Temperature control needs vary. Even the original use for insulated space or equipment may alter. That's why the ideal thermal insulation must give you a *combination* of key benefits . . . in order to serve satisfactorily under all possible conditions.

Most important, the ideal insulation must be impervious to water vapor as well as liquids—in order to insure constant performance under all humidity exposures. It should be proof against acids and acid vapors. It should be incombustible . . . dimensionally stable . . . impervious to vermin . . . strong enough for a variety of structural uses. Just one insulation—cellular glass—meets all of these qualifications.

FOAMGLAS is the only cellular glass insulation.

FOAMGLAS may well be the one satisfactory solution to all your insulating problems. For detailed literature, write—specifying your particular insulation requirements—to Pittsburgh Corning Corporation, Dept. AB-128, One Gateway Center, Pittsburgh 22, Pennsylvania.

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gives you all these key benefits

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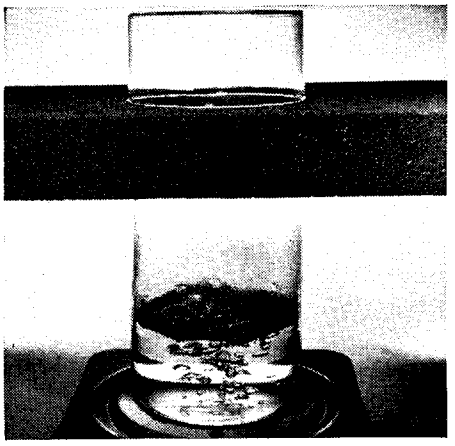
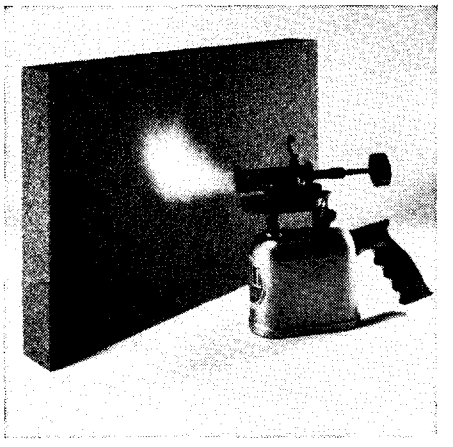
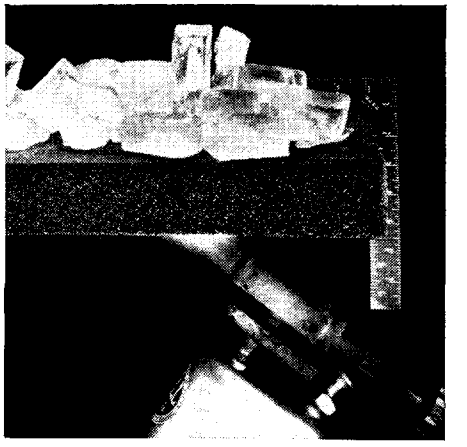


Moisture-proof! The minute liquid or vapor enters an insulation, it begins to lose its insulating value because moisture conducts heat. FOAMGLAS, a material composed entirely of sealed glass cells, is completely impervious to all moisture. Its K factor—measure of insulating performance—never varies.



Can't Burn! Smoldering insulation in walls or roof of a building is a deadly fire hazard, hard to detect, difficult to control once detected. FOAMGLAS eliminates this hazard because it is the only insulation composed entirely of incombustible glass. This may even mean lower fire insurance rates in some cases.



Dimensionally Stable! Most insulations tend to warp, swell, shrink or slump after they are installed. This causes open joints in the insulation . . . insulation voids that create a serious loss of efficiency. There is no such difficulty with FOAMGLAS. This all-glass insulation always maintains absolute dimensional stability.

Vermin-proof! Most insulations offer no protection at all against vermin in food processing, storage or handling operations. Rats and other vermin gnaw right through them. FOAMGLAS, on the other hand, affords an excellent vermin barrier. Its all-glass composition offers no food or nesting materials for vermin.

Strongest! FOAMGLAS has a compressive strength of over 7 tons per square foot (av. ult.). It forms a solid base for built-up roofing. It makes possible the placing of insulation beneath heavily loaded floors. And high strength FOAMGLAS permits such cost saving design innovations as free standing walls and partitions.

Acid-proof! There is often a lot of acid around a processing operation. Even the atmosphere around processing plants frequently has a high acid content. Acids will attack and destroy most thermal insulating materials, but they won't harm FOAMGLAS. This unique all-glass material is completely impervious to all common acids.

CORNING

(Continued from page 188)

still of a supra-national character, though not exempt—as we have seen —from the influence of religion.

Romanticism, however, appearing at first in the subtle guise of the Greek Revival (paradoxically enough), was to change all this.

The Greek revival was, to be sure, international in outlook. But it was hardly a classical style, in the sense that it grew finer as it grew older. It was in reality an insistent repetition of the various multistyle, peripteral, or prostyle motifs of the Greek temple. There was variety, not evolution.

The Romantic movement sought to reproduce antique monuments, not to refine them.

Simultaneously and for the first time, each nation, in the aftermath of the Napoleonic wars, set about examining its own artistic and architectural past, and the outcome has made any attempt at identifying architectural classicism of a European nature a futile task. Henceforth and for a long time the study of architecture would have to be narrowed down to a nationwide basis.

It is in the nature of classicism to require a common principle—be it structural, religious, racial, political, artistic, or moral—to enforce on architecture a discipline within which it can mature. The 19th Century had none save one: architecture had to be national. But no one quite knew what was meant by this. In England, Ruskin proposed Gothic as being not only a national but also the only moral style. William Morris advocated English Rustic. Others were in favor of Renaissance, symbolizing dignity, grace, and harmony. The government see-sawed between the "Classical" of its Whitehall Office Buildings and the "Gothic" of the Houses of Parliament. There was not even agreement among the proponents of Gothic as to which of its stages was the most desirable.

The constant rewarming of innumerable architectural dishes finally bred exhaustion. There was, in fact, an attempt made in Belgium at introducing a new style (viz. *Art Nouveau*) but this could never become in any way classical, since it had no basis in any new nationwide movement of ideas, no new structural impulse, and no authoritative government sanction which might have assured its survival. It became decorative, in the main, rather than architectural, and soon succumbed to another cycle of Gothic-Renaissance jousting. There was quite evidently need for a change.

Which brings us to our own era.

●

Any study of the nature of classicism must sooner or later come to grips with the fundamental question: is it really desirable?

The first and immediate objection is its latent academicism. This first

(Continued on page 198)

Lobby of the Fontainebleau Hotel • Architect: Maurice Lapidus, AIA, Miami Beach, Fla.

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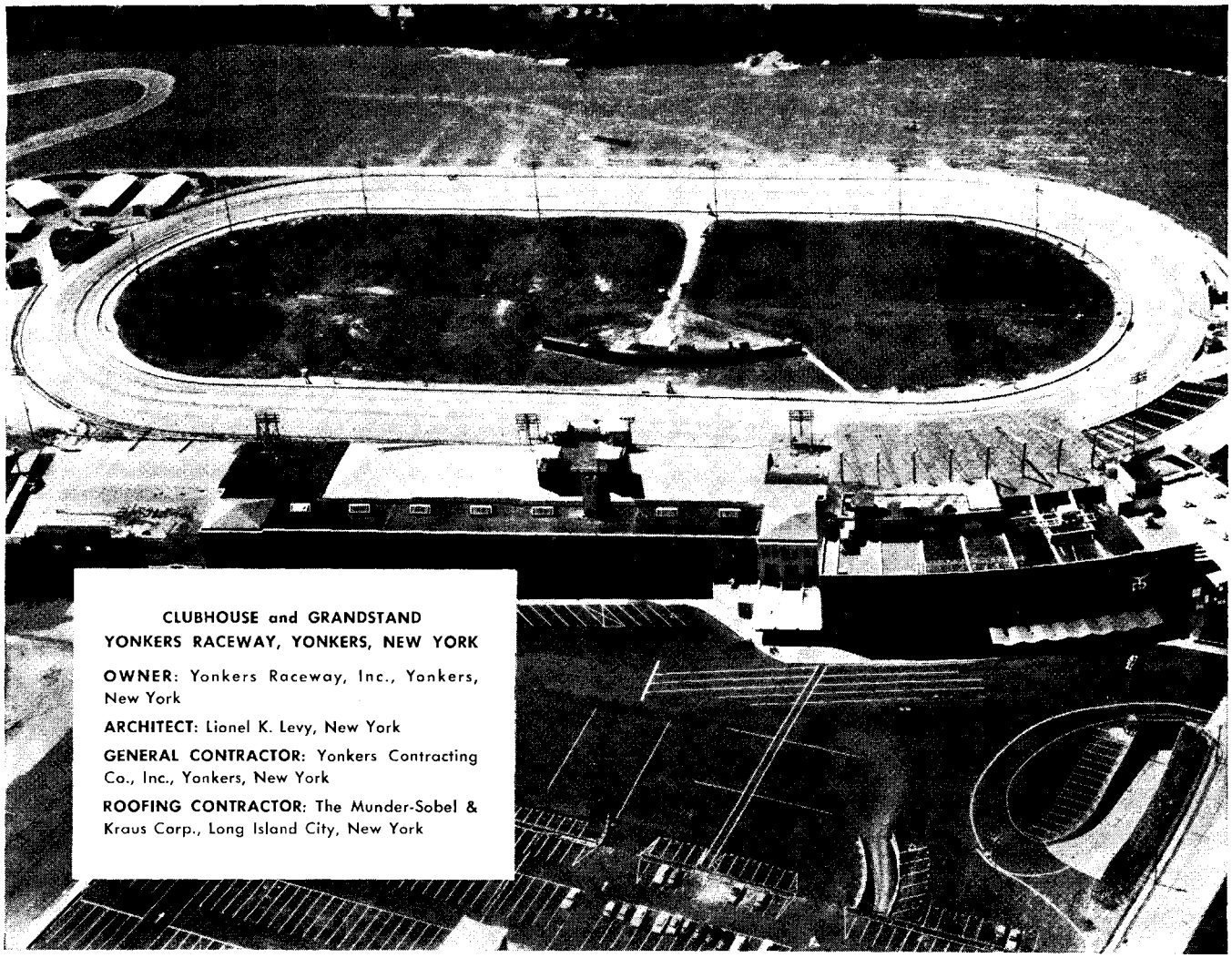

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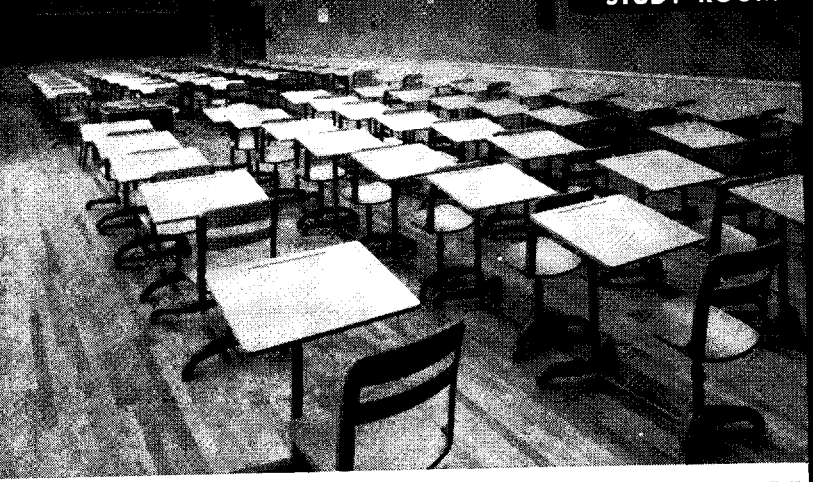

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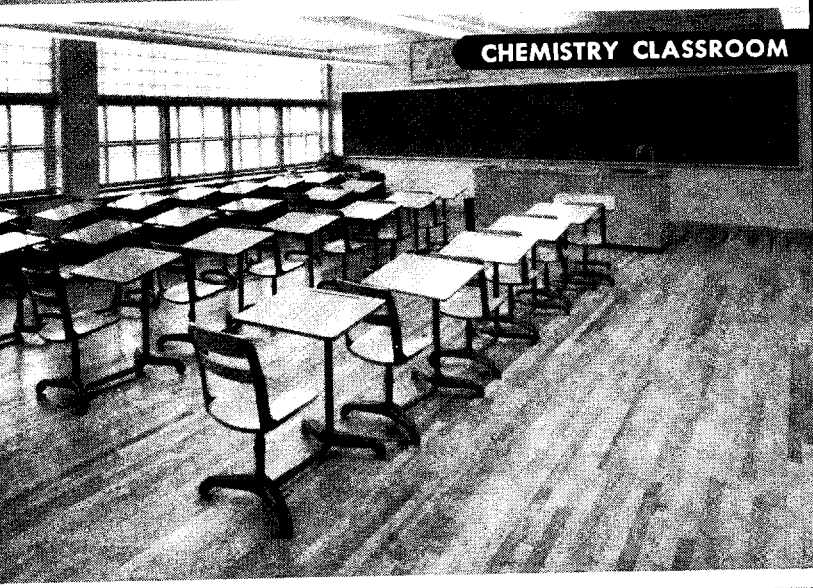

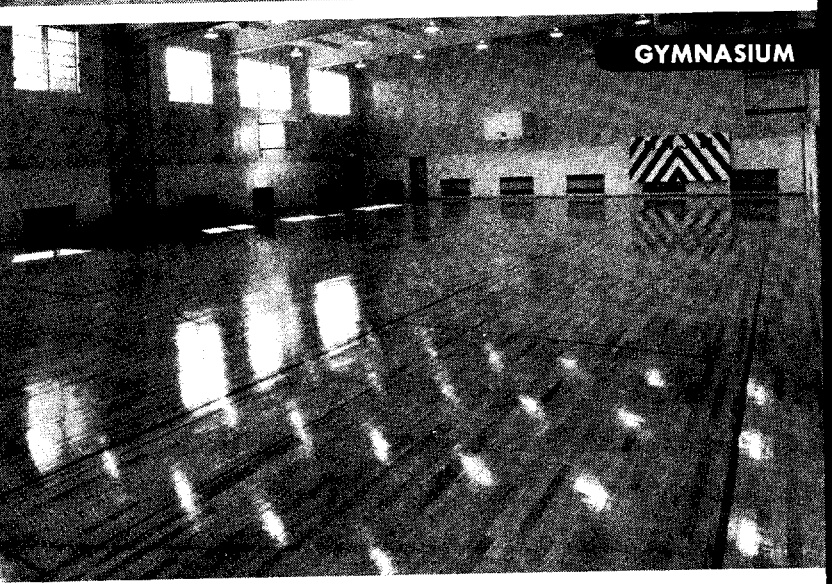

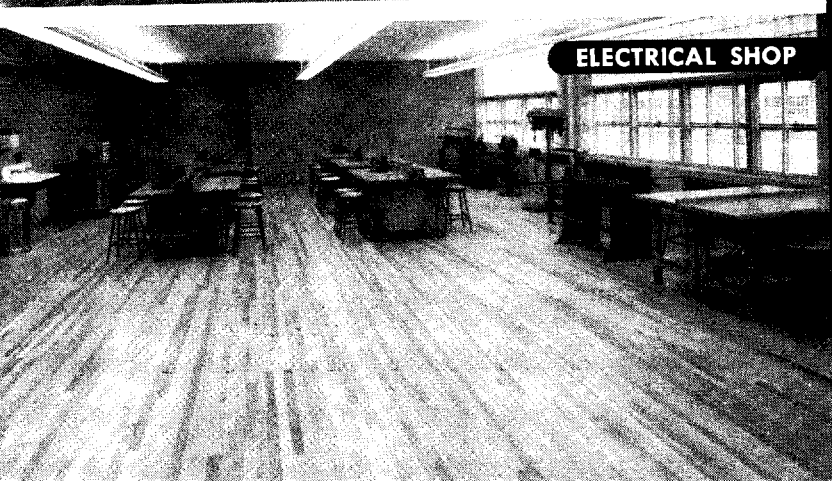

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above · Spacious atrium on lushly planted lower floor where employees dine

right · Bridged entry over a long fountain pool dotted with planted islands

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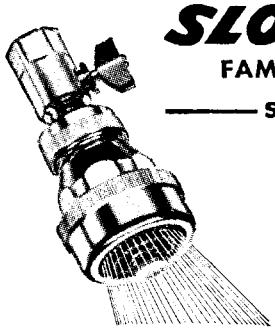

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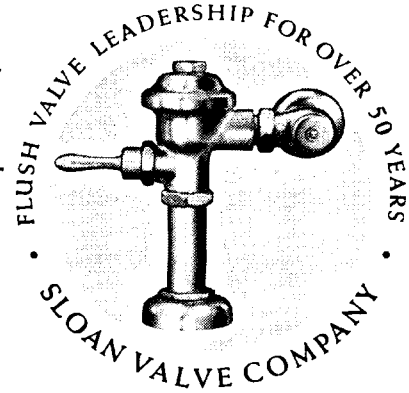

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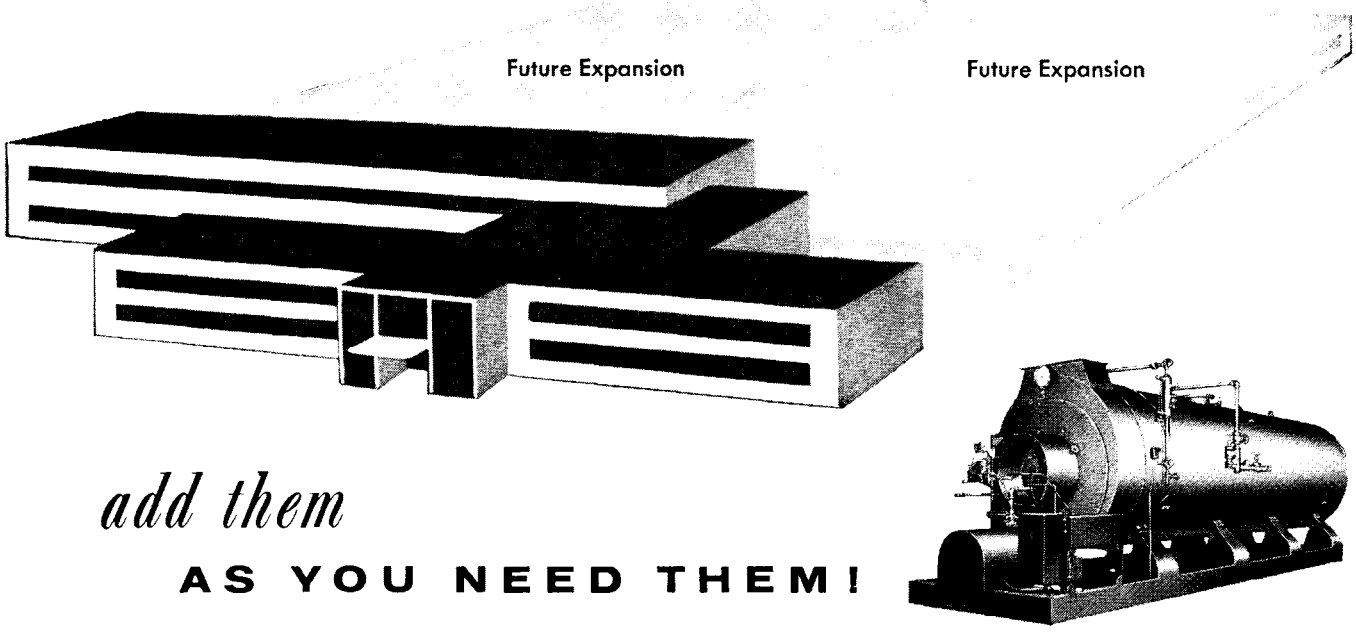

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P.S. why should people see architecture?

Last month I wrote on the subject of "seeing" architecture, asking the question, "Why *don't* people see architecture?"

This month, class, let us examine the question of whether—since they don't—they *should*. I think that there are several reasons why the man in the street should look critically—or at least analytically—at our buildings.

First, because a tremendous *volume* of architecture, which we tend to call building construction, is being accomplished in our time (in our decade, our generation, our century). Much can be gained in a social, cultural, and economic sense if this preponderantly good architecture, with more than an occasional example of *fine* architecture. On the other hand, most of this activity can be a conspicuous waste of economic and social effort and cultural opportunity if it is bad architecture. Most of it, in fact, *is* rather bad right now! Today, we are likely to accept architectural results on the basis of physical criteria: we have added so-many-hundred hospital beds; we have built so-many new houses with air conditioning. If the "public" knew more about architecture it might demand better results in the full sense of architecture as an art which *includes* but *is not limited to* functional-technical characteristics; and thus gain, as a society, through an improved physical environment.

The "physical environment" in which modern man lives becomes constantly more an *urban* environment. Now, the city as physical—and social, and cultural—environment worries a great many people. For one thing, it is not an easy environment to adjust to. Many social ills are ascribed to urban living—not only the obvious ones of poverty, delinquency, and crime, but also the psychosomatic troubles of the tension diseases, quickened tempers, decreasing ability to relax—and foster the arts of relaxation—and the various frustrations, and impotencies, which accompany nervous-tension fatigues and the inability of the individual to adjust to the community. Further, the city, as environment, tends to deteriorate. It is a constantly changing environment, subject to real-estate whims and economic cycles, much more than the rural or small-town, more permanent, family rooted-environment did.

So the urban place to live and work has to be well designed if it is going to make people happy who live in it; and it has to be particularly well designed if it is going to have any sense and reality of permanence and not become, rather quickly, an over-ripened, quickly neglected fruit, with rotting spots which spread ultimately through the whole flesh of the urban society.

Sigfried Giedion says, in his recent book, *Architecture You and Me:* "... if we look at the city as a meeting place in which private life and community life find a meeting place, then the mark of a truce city is the balance between *you and me.* It is this *you and me* relationship that we must build again . . . to enable this to occur, special receptacles are required . . . what is needed to bring these into being is imagination on the side of the planners, and a sensitive understanding on the part of the clients."

Second, the establishment of a set of critical criteria by means of which an informed public might evaluate its buildings could be, just now, a most healthy restraint and limitation on architecture. There is danger in public acceptance of academic "rules" by means of which an art may be evaluated, when that art has reached a mature stage of development. Then conservatism, repetition, copyism, and eclecticism—the arbitrary rule of an academy, in short—can easily and harmfully result. On the other hand, in the earlier periods of the development of an art form, one looks for the emergence of certain characteristics. Especially in architecture, since it is a social art with technical overtones, imagination seems to flourish best under a set of limitations and certain restraints and disciplines. A teacher of architecture recently observed:

"Space without limits is unimaginable. Distance without limit is unconquerable. A task without definition is insurmountable . . ."

When a client says to an architect, "Design me a house," good architecture is not likely to result. When an architect is told, "I have a hilly site, my budget is small, there are three children in my family, we entertain a great deal, I have an important collection of sea shells," an *architectural* solution can begin to emerge. Architecture is, in fact, the solution of a given set of problems and requirements.

Similarly, in a technical sense, only if an architect works within a given set of premises with regard to materials, construction methods, and the control of the enclosed environment can a brilliant technical solution become possible. This has been true historically (it was within the limitation of self-supporting masonry construction that the arch, the dome, and the vault were developed) and it has been true in contemporary times (war limitations on materials and methods resulted in a great architectural advance during the early 1940's) and it is sharply true now (the entire Miesian-SOM idiom, the curtain wall, the development of modular assemblies—and, in fact, the perfection of the steel frame and the elevator—result from the limitations and disciplines imposed by mass-production and industrialized construction methods).

Thus the situation facing architecture today—almost no limitations, restraints, or disciplines—is a peculiar one:

1 The old *esthetic* disciplines (based largely on the classic styles of architecture) have been removed.

2 New esthetic disciplines are extremely vague (time-space relationships; interpenetration of spaces and relationships of planes defining spaces) so that a great range of work, from highly romantic (Frank Lloyd Wright), through extremely personal (Le Corbusier), purely plastic (Candela), expository constructivist (Mies), to refinement of industrial assembly (SOM), can all be justified on new esthetic grounds. In fact one man (Saarinen) can, with apparent justification, leap from one mood to another. And personal whims (Stone) can be rationalized ad infinitum.

3 Technically, anything is possible. In the availability of materials, our palette ranges through the woods, the masonries, the metals, and the synthetics. In a structural sense, our engineers can make reasonable static frames, continuous frames, shells, geometrical forms, free three-dimensional forms, armatures covered, reinforced surfaces, and whatever any designer, designing as a sculptor, might decide he desired.

This could result in complete, wonderful, design freedom. (We have gloried in this so far.) On the other hand, it could mean complete design anarchy. (Which we are beginning to experience.) What does finaly result from an unlimited-possibility situation like this must be determined by:

a Generally accepted disciplines becoming *norms,* perhaps gradually evolving.

b Self-imposed disciplines of the designers, growing with ability and restraint.

c Disciplines resulting from educated critical understanding of the public.

Various "formulas" resulting from the interplay of these three factors can produce a number of possible results:

Satisfaction with bad design. (Little accepted discipline; weak self-restraint; small public understanding.)

Anarchy, pleasure in anything. (No accepted disciplines; self-restraint less than desire to experiment; popular confusion.)

Academicism, lack of originality and growth. (Rigid disciplines; too much self-restraint; popular understanding replaced by controls.)

Progressive design development. (Few, basic disciplines; well developed abilities; high degree of critical understanding.)

Thomas H. Creighton