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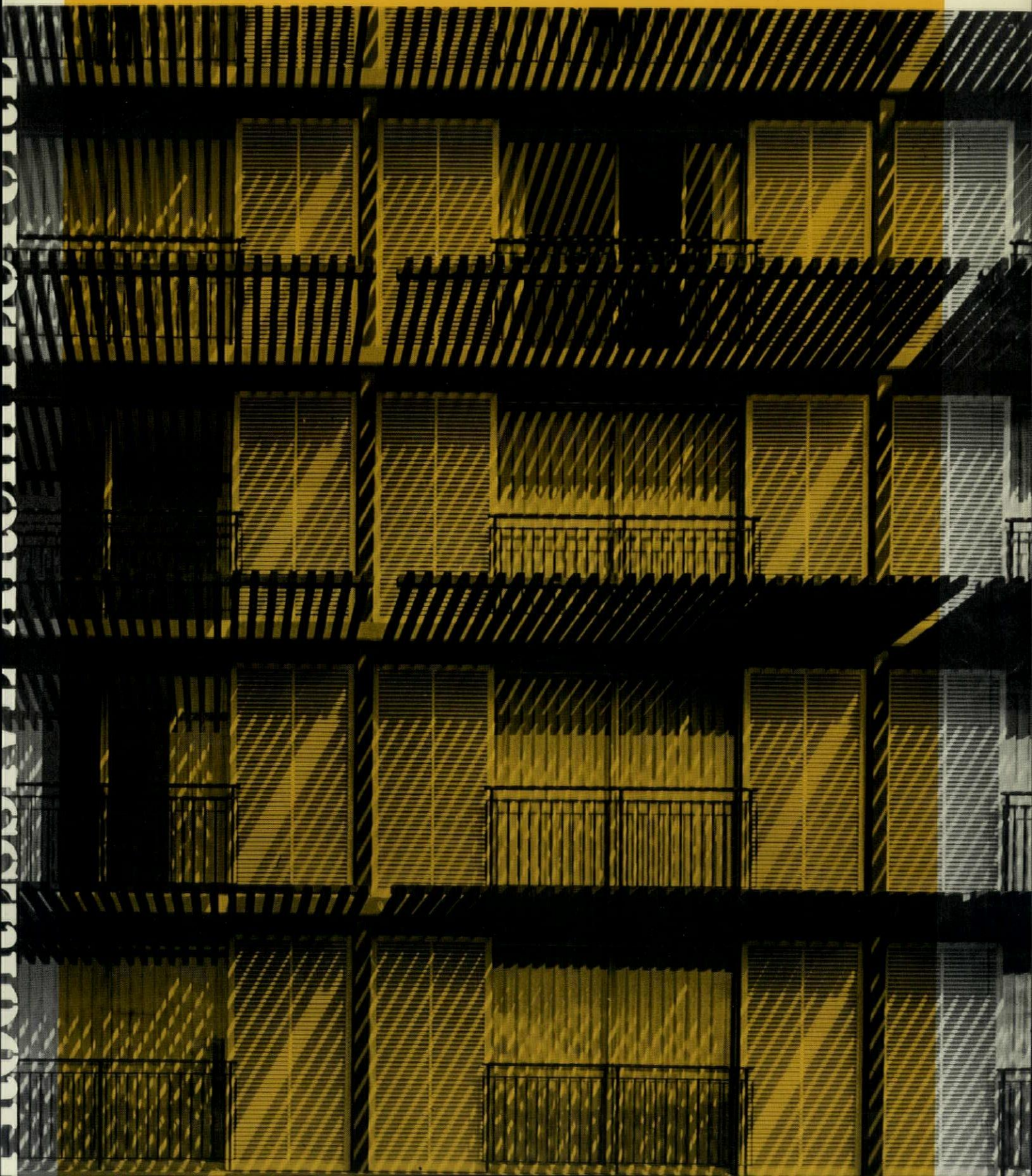

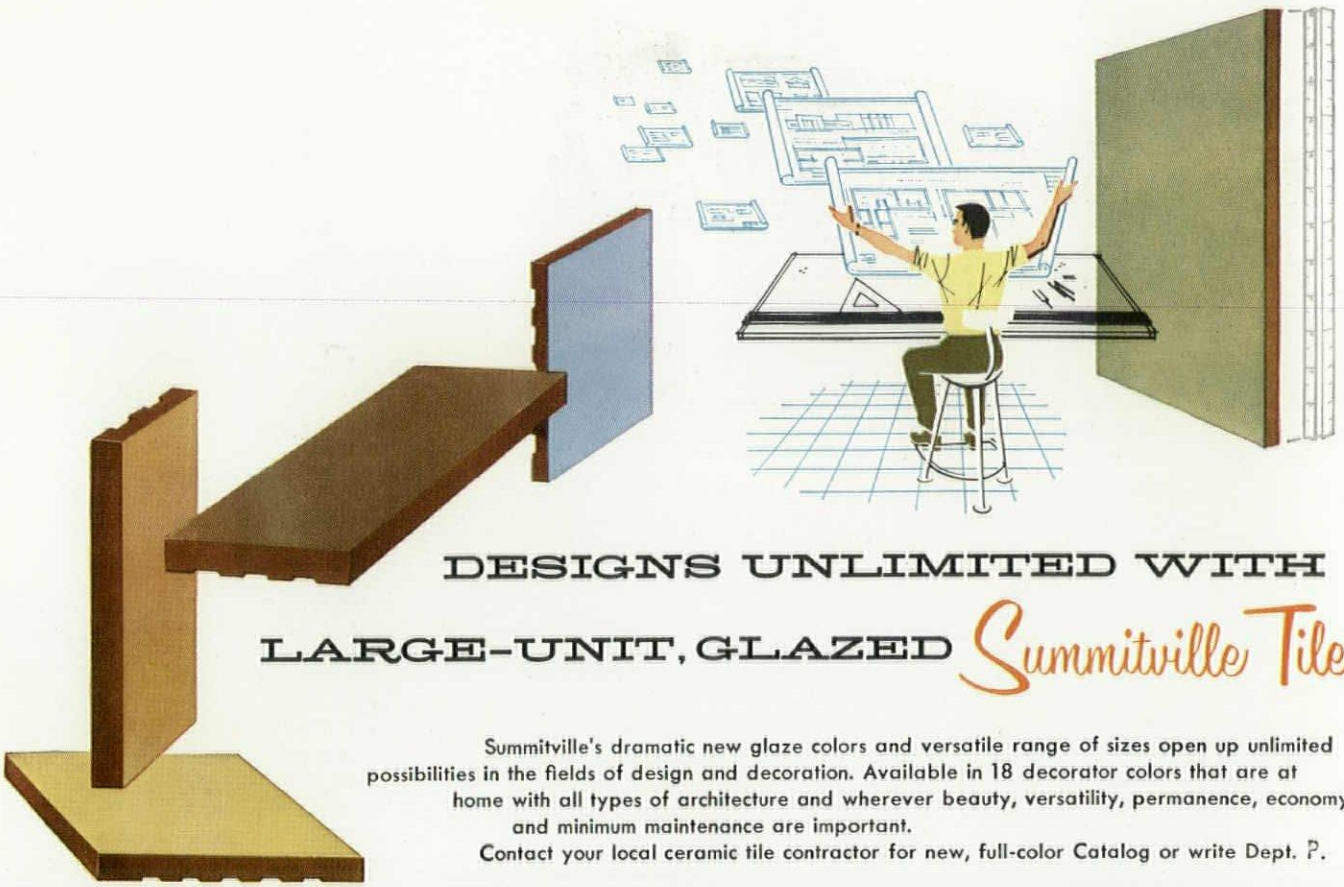

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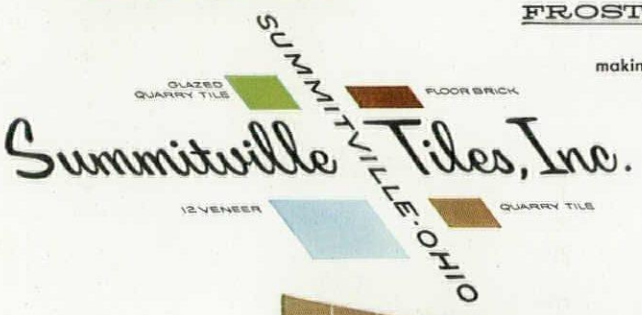

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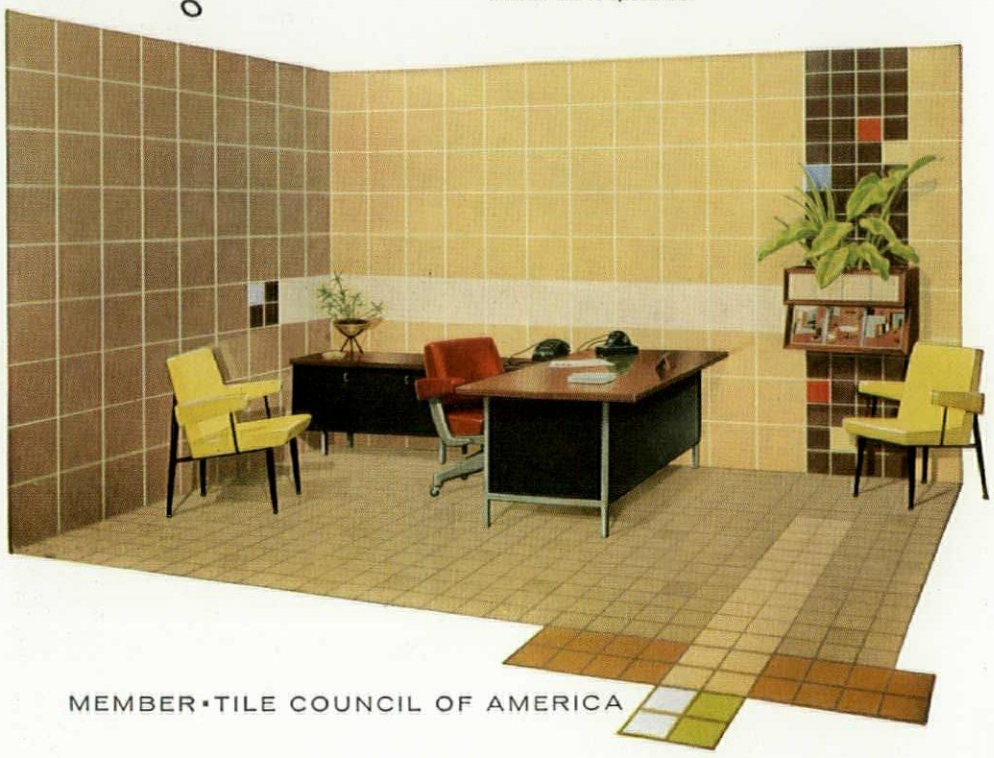

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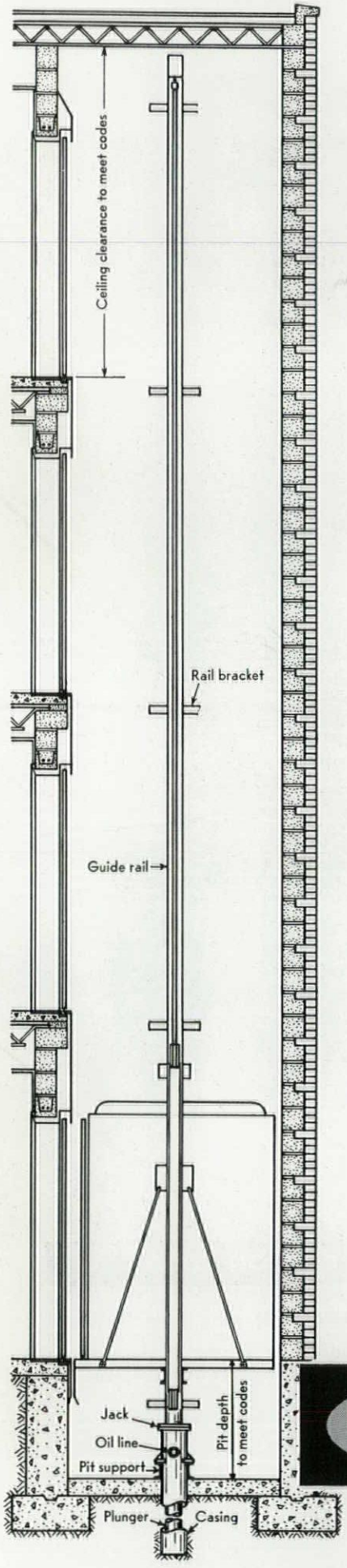

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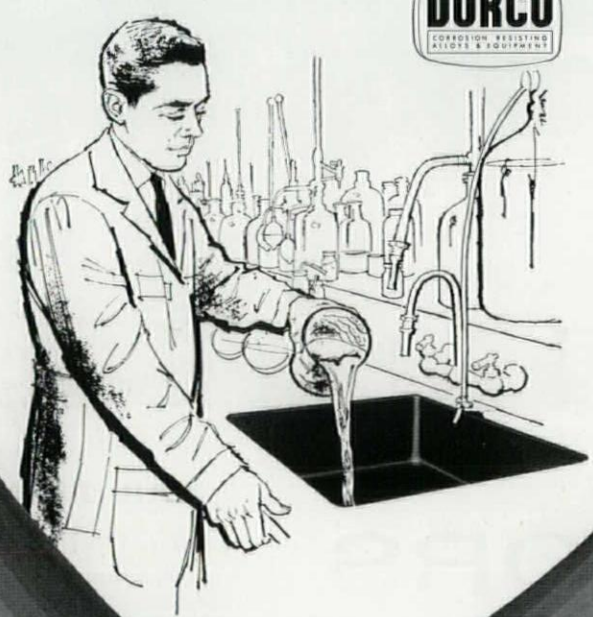

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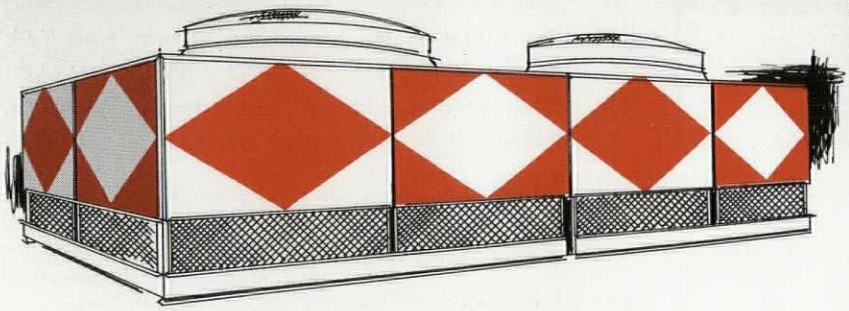

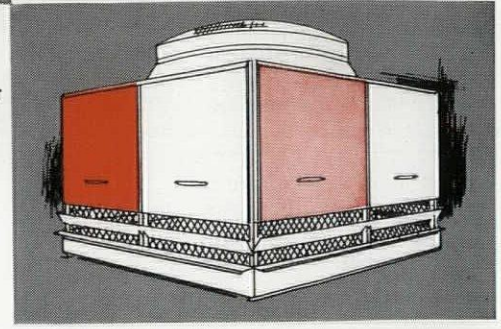

Corporations In Professional Practice—Part 2

It's The Law Column by Bernard Tomson

P/A Practice of Architecture ***article pursuing the discussion started last month with a review of legislative efforts in New York to control practice of architecture and engineering by corporations. Below is an account of arguments for and against bills that have been introduced.***

The opponents to corporate practice contend that the life, health, and property of the public would be jeopardized by corporate professional practice, whereas the proponents of such measures contend that the business benefits of corporate practice can be obtained without jeopardizing the safety or welfare of the public.

Opponents of the professional practice by corporations argue that the furnishing of professional service to the public must depend upon the integrity and responsibility of the individual practitioner. It is the basic premise of licensing laws, they contend that the life, health, and property of the public must be safeguarded by insuring the competence of the professional and by insuring his personal responsibility for the services rendered. This is incompatible with the limited liability of the corporate entity, and would increase the difficulties in effective enforcement of the licensing and regulatory laws which have been adopted for public protection. Corporate practice is a dilution, they contend, of the safeguards implicit in licensing of natural persons, and a perversion of the relationship which should exist between the professional practitioner and client.

It is further asserted that to secure to the public the maximum safeguard of its welfare, the engineer must be in a position to act independently and that corporate practice would subvert that independence. If large corporations carry on professional pursuits, this activity would be, it is contended, subordinated to other business activities and the independence of the engineer or architect might be compromised in respect to the dealings with contractors, owners, and others. There is, say the opponents of corporate practice, a basic inconsistency or conflict in combining the practice of a professional man who owes a special obligation to the public, with business activities, where the responsibility of management to the stockholder is to realize the maximum profit.

The opponents of corporate practice assert that such practice would be dangerous, particularly in relation to hazardous industries. For example, they question whether safety would be the first consideration in approving a site for chemical or atomic processes if that determination was made by corporate management rather than by an individual engineer? Professional ability and integrity are personal attributes not transferable to a corporation, contend the opponents of corporate practice, and the public interest can only be safeguarded in those who have personally pledged themselves to the ethical and legal obligations of their profession.

The subordination of professional control to nonprofessional management is inevitable, say the opponents of corporate practice, even where the executive officers of the corporation are duly licensed. If only the executive officers in charge of professional practice in a corporation are licensed, they are subject to the control of a board of directors; if the officers and board of directors are licensed, they are subject to the control of the stockholders. If corporations were permitted professional practice, provided all of their officers, directors, and stockholders were licensed, then, it is finally argued, such corporate set-up removes the incentive against malpractice because of the limited liability of a corporation as against the unlimited liability of an individual.

On the other hand, proponents of corporate professional practice argue that only by this method can the public receive the full benefit of rapid industrial and technological expansion of our economy. The Committee on Engineering Laws, which supported various bills before the New York State legislature to permit corporate practice of engineering, made the following arguments:

1 The corporate form of organization is the only one which permits accumulation of the capital required to maintain necessary operating, research, and specialized engineering staffs required in the undertaking of huge engineering projects, both for Government and private business.

2 A corporation can undertake large and complex projects which would be impossible for an individual, because of its integrated operation; and can provide superior engineering services, as a consequence.

3 A corporation can furnish continuous un-interrupted services, whereas in the case of individuals or a partnership, the death of the individual or a partner would interrupt the progress of a project being developed.

4 Corporations can offer greater security to corporate employes in such things as pension plans, because of the continuity of its existence.

The proponents of corporate professional practice argue that there is nothing wrong or undignified in this type of operation, and that to oppose it in view of the industrial advances of our society is to be unrealistic and to lack vision. Only through large organizations which can accumulate capital, can research be conducted, new processes developed, and complex and huge industrial projects be properly handled, it is asserted. If the professional services rendered by a corporation are controlled by licensed individuals, why, ask the proponents of corporate practice, isn't the public being protected and at the same time realizing the benefits of the integrated and continuous operation of the corporate form of organization?

If control of a corporation is in the hands of licensed professionals, contend the supporters of corporate practice, there is no inconsistency with such practice and the duties owed by professionals to client and public. As a matter of fact, they argue, it is possible that the public is protected more fully by the resources of a corporation as compared to the assets of an individual practitioner. Corporate practice with proper legislative safeguards will result, they argue, in such business advantages as continuity of operation, tax savings, capital accumulation, security to the employe, and financial responsibility to the client—and at the same time benefit the public. Why sacrifice these benefits, they ask, if the public is properly safeguarded?

The central and fundamental issue in this continuing debate is whether it is possible to have a corporate organization in which control of professional activities remains in the hands of professionals and is not subordinated to some objective of the corporation, which may be inconsistent with the duties owed to public and client. The requirement, for example, that majority of the board of directors of a corporation be licensed professionals may not necessarily solve this dilemma because the professionals on the board might disagree and the decision, in a particular issue in such situation, might be made by the nonprofessionals. Moreover, there does not appear to be much support or enthusiasm, by organizations supporting corporate professional practice, for legislation which would permit such practice only if all stockholders, directors, and officers are licensed.

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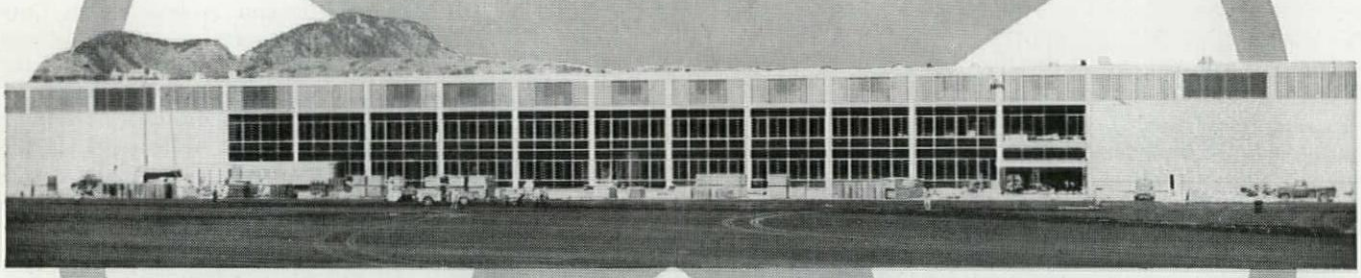

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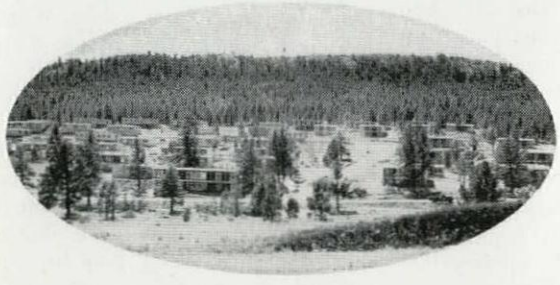

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Architectural Concrete Re-examined—Part 2

Specifications Clinic by Harold J. Rosen

P/A Practice of Architecture ***article concluding the discussion of architectural concrete, which incorporates material from a manual of recommended practice of Concrete Industry Board of New York.***

In the preceding article, the basic concrete materials were discussed, along with concrete forms and accessories. This article contains pertinent information on reinforcement, placing, stripping and curing, and finishing which should be included in the Specifications for Architectural Concrete.

Reinforcement:

a All exposed concrete shall be reinforced in accordance with approved practices.

(Note: Concrete should contain proper amounts of reinforcement to minimize cracking. See Portland Cement Association publication, *Reinforcement for Architectural Concrete Walls.)*

b The minimum clear distance between any bar and the weather side of all surfaces shall be not less than 2″.

(Note: Sufficient concrete cover is essential to prevent seepage of moisture to bars with resultant rusting which will damage concrete.)

c No permanent device for fastening reinforcement shall be left in contact with the exterior form face.

(*Note:* Rusting of metal devices will damage concrete.)

Placing Concrete:

(*Note:* The placing of the concrete is most important and this is the time to minimize honeycomb irregularities, air bubbles, and other surface imperfections. Before work is started, equipment to be used, methods of placing, rate of rise, etc., are to be outlined, discussed, and approved.)

a Forms are to be thoroughly wetted in advance of placing; all surfaces to be left clean and foreign materials removed.

b Immediately before placing new concrete a plastic cement-sand grout (1:3 mix), shall be deposited along the top of the previously placed concrete to insure a thickness of grout of 2 inches.

(Note: The grout is forced up into the fresh concrete and minimizes the tendency for large aggregate, falling to the bottom, to create a characteristic honeycomb.)

c Concrete shall be dropped vertically through suitable hoppers, chutes, or elephant trunks in uniform horizontal layers. A free fall below chutes of 3′-0″ maximum, at a maximum rate of 2′-6″ rise per hour is desirable. Chutes are to be spaced at an approximate 10′-0″ maximum. Avoid building up large piles and consequent segregation by spreading.

(Note: High walls, narrow walls, wide walls—all need special types of chutes and hoppers. Closely spaced reinforcing, sleeves and boxes give special placing problems. Workmanship is critical here.)

d Proper vibration of forms, concrete and steel and adequate hand spading at the face are required.

(Note: Hand spading helps to disperse the air at the contact with the form and reduces pin holes and flaking of the surface.)

e Construction joints for each concrete section must correspond to the plans.

(Note: Normally, the worst blemishes in concrete are at tops, bottoms, and edges. Joining of adjacent sections requires special care.)

f At the top of each section a 1″ x 2″ horizontal strip is to be fastened to the outside form, leveled, and placed to a line established by the Architect. The concreting is to be carried about one-half inch above the underside of the strip. About one hour after the concrete is placed, the strip shall be removed and any irregularities in the joint shall be leveled.

(Note: This is necessary to provide for settlement of concrete and to insure a true horizontal joint.)

Stripping:

a Forms may be removed only with permission of the Architect. A minimum of 36 hours after completion of the pour shall be observed. Concrete must be hard enough to resist breakage. Care is to be exercised and wedges or bars must not be inserted between forms and finished surfaces.

(Note: Temperatures play a very important part in stripping and necessitate periodic review of the timing required. Forms offer the best curing media, but re-use of them dictates removal as soon as practicable. Moreover, concrete must be patched before it is too hard. Stripping is the greatest single source of damaged surfaces and is therefore very critical.)

Curing:

a All exposed surfaces must be properly cured for at least 5 days after placing. A perforated plastic garden hose with continuous water flow down the sides of the wall, curing blankets or burlap, or a combination of both is permissible. Spasmodic wetting will not be allowed. Curing compounds will not be permitted.

(Note: Curing compounds inhibit proper finishing of the concrete surfaces and cause discoloration.)

Finishing:

a *Patching:*

1 As soon as possible after the removal of forms, defective areas and all tie holes shall be patched and cured thoroughly before grout cleaning specified hereinafter. All fins must be carefully removed.

(Note: Patching should be accomplished before concrete is thoroughly dry and before curing.)

2 Patching mortar shall be a mixture of 1 part cement and 2 parts coarse sand. The cement shall be a blend of gray and white and the sand shall be the same as used in the concrete so that the mixture will match the shade of the wall. Only enough water shall be added to produce a stiff consistency.

(Note: Concrete will usually cure out lighter than a grout made of the same sand and cement. It is desirable to make a number of samples of patching mix to determine a suitable proportion of white cement to be added for shade matching.)

3 Tie holes shall be thoroughly wetted and then filled solid with mortar. Holes passing entirely through the wall shall be filled from the back face of the wall. Excess mortar shall be struck off with a cloth.

4 Imperfect areas shall be chipped out to a depth of not less than 1 inch with edges perpendicular to the surface. The area to be patched and adjoining surface shall be wetted and then painted with neat cement. Before this cement has hardened the mortar shall be packed into the patch and left undisturbed for 1 hour before final compaction. The patch shall be finished to match the adjoining surface and then cured.

b Grout Cleaning:

1 Cleaning operations shall not be undertaken, if practical, until all the concrete surfaces have been completed.

(Note: The grout cleandown has a blending effect but when done piecemeal, variances in the color of the cleandown occur and defeat its purpose.)

2 Grout shall be the same as the patching

(Continued on page 11)

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Architectural Concrete Re-examined—Part 2

mortar specified above except that it shall be paint consistency and the sand shall pass a #18 sieve.

3 The following grout-cleaning procedure shall be used on any given area and shall be completed in one day's operation:

(a) Wet the surface of the concrete.

(b) Brush on grout, filling all air bubbles and holes.

(c) Immediately after applying the grout, scour the surface vigorously with a cork float.

(d) Permit the grout to partially set and then remove the excess with a sponge rubber float, when the operation does not pull grout from the holes.

(e) Permit the surface to dry and then rub it vigorously with dry burlap to remove all dried grout from the surface.

SAMPLES:

Before the start of any work, satisfactory full-scale samples are to be prepared for approval. These samples are to incorporate the true mixes; typical section of forms; a sample of reinforcing section; samples of each type of joint and any markings called for by the plans. They shall be properly stripped, cured and finished in accordance with the specifications. The approved sample shall be preserved until final acceptance of all concrete finishes.

(*Note:* Time and care spent by the Owner, Architect, and Contractor in the preparation of these samples should develop the best procedure for subsequent operations.

On important or extensive projects, a special sample should be built and approved and kept as a sample throughout the project. It may be feasible and entirely reasonable to produce a sample wall or panel out of some section of structural concrete to be placed previous to the architectural portions. This procedure should minimize time and material waste and offer an opportunity to produce samples of sufficient size to be significant.)

Structural Inspection of Old Buildings

*by Milo S. Ketchum**

A P/A Practice of Architecture ***article which describes troubles and possible pitfalls in structural-engineering analysis of old buildings, with hints which could be equally helpful to architects.***

Every structural engineer, in the course of his career, is asked to inspect and decide on the adequacy of an old building that has either been condemned by the local building department, or is suspect in some other way. This calls for the highest type of judgment on the part of the engineer. The strength calculations are often meaningless; there are usually no adequate plans; it is difficult to inspect all the structural members; and the type, the condition, and the strength of the materials used cannot be determined with certainty. On top of all this, the fee obtained from the inspection and the report are never commensurate with the responsibility of declaring the old building to be safe.

On the other hand, there are emotional factors brought to bear on the engineer, which may warp his judgment. It seems always to happen that the particular building is owned by a widow and the income from the rental is her sole means of support, so that if the building is condemned she will be destitute.

Even the date of construction may be in doubt. Sometimes the date is visible on a cornerstone or a keystone—or adjacent buildings of the same type are dated. With experience, it is possible to date a building by the general external style and by the method of construction.

It comes as a shock to the structural engineer to discover that buildings do wear out, structurally, if they are improperly built. If the mortar is poor, the walls begin to crack and fall apart. If joists are undersized, they sag and the floors creak. If the joists are not tied into the wall, they begin to work and walls move out. If the foundations are slightly undersized, cracks will show up in 20 years that would otherwise not show in 50 years. Parapets are a particularly vulnerable item, because they are subject alternately to the heat of the sun and to freezing cold. In many cases, the only solution is to order the parapet cut down to minimum size.

To help in the inspection of old buildings we have assembled the following list of equipment. It is given here as needed for the complexity of the inspection problem:

1 Two flashlights, a clipboard and paper, hand mirror, flexible pocket rule.

2 Measuring instruments, including a 50-ft tape, carpenter's rule, hand-level plumb bob.

3 Standard field book.

4 A wood stick ¾"x¾"x7'-0" with a bent nail at the top to hook to the end of the measuring tape, to measure ceilings.

5 Small tools: brace and bits, including a 2"x5/16" electrician's bit, screwdriver, hammer, folding keyhole saw, cold chisel, and outside caliper.

6 For soil borings: a 4" soil auger and four 4' pipe extensions (complete with two pipe wrenches to take it apart).

In an inspection of an old building, it is important to have two working. Four eyes and two minds working together are four times as efficient as two eyes and one mind. Also, remember that inspection takes time. You will see things, when you come back again, that you did not see the first time. Also, inspection seems to require considerable thinking about the structure and trying to decide just what is important and what is not, and what caused certain structural conditions.

In warehouse buildings, a load survey of the floors has sometimes been requested by our local building department. One can easily be fooled on the weight of materials stored. In one warehouse, I remember, we found cardboard boxes piled to the ceiling: but the actual load was only about 10 lbs. per sq ft. (The boxes contained lamp shades.) On the other hand, one can find tremendous weights on rickety wood floors.

The greatest shock occurs when you enter a building and find that it is just ready to fall down. You want to get out of the building as fast as possible—and there may be others working in the building at the same time. You have to decide whether to push the panic button!

Another problem is to gain permission to cut into the floors, to try to obtain sizes for structural members. This may involve considerable cost for the cutting, itself, as well as repairs after the cutting has been completed.

After you have completed your inspection, it is necessary to write a report. The preparation for and the actual writing of the report give one time to think about the problem. These reports are more valuable to the engineer who has written them than to the client who reads them. If the document is impressive, with readable English and good drawings, it will also do much to convince the client—or building department—that the engineer's ideas are sound.

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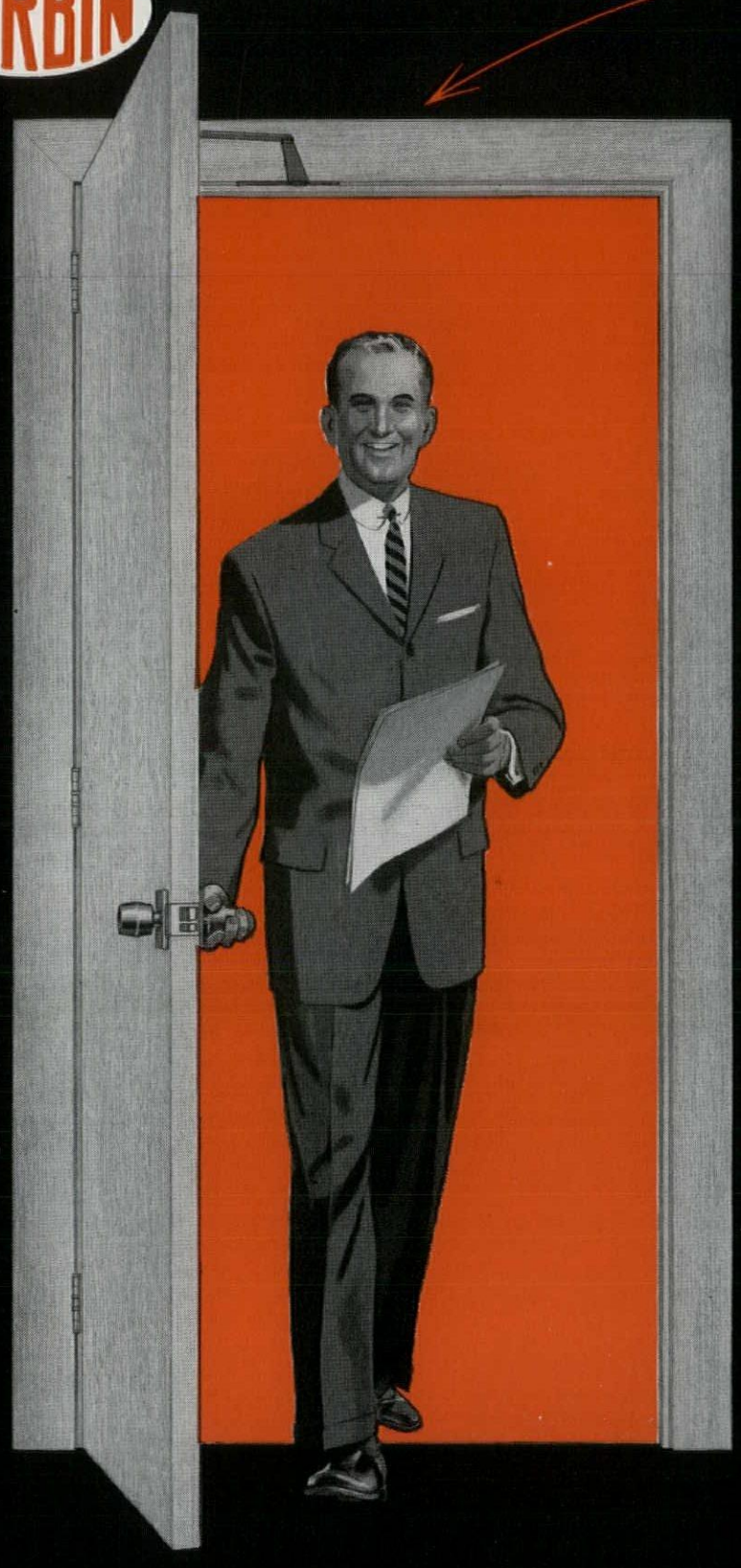

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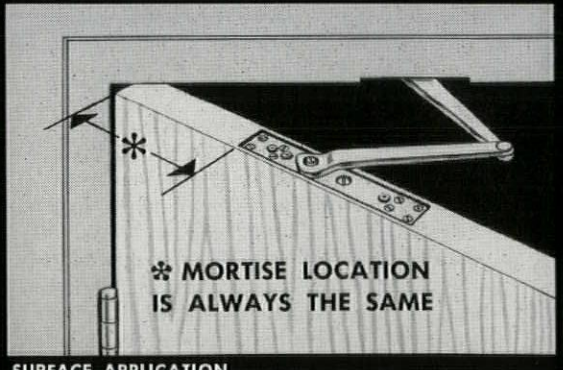

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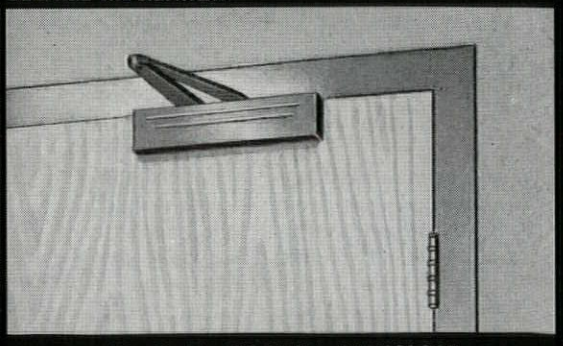

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How to Keep Going Forward

*by William Caudill**

P/A Out of School ***article based on a Seminar talk given at the 1958 Annual Convention, New Jersey Society of Architects and New Jersey Chapter, AIA. P/A Editor Creighton moderated a co-ordinated three-day Seminar on Education (first day, education in the Schools of Architecture; second day, the intermediate years up to registraion; third day, post-registration continuing education). Caudill's talk was on the third-day panel, and is particularly pertinent for the practicing architect who feels a (guilty) need for improving himself.***

I am an aviator, and I flew here to this discussion. I left, of all places, Horseheads, New York (that is where the airport was: they talk about the funny town names in Texas!) and, believe it or not, I closed my flight plan in Colt's Neck, New Jersey. That is real progress. If I keep going in that direction, there is no telling where I will end up. That is sort of the story of my life—my life and some of yours, too. In our post-registration years we are backsliding. I think we make *some* progress. Some of us develop after registration in certain fields. But if our profession really has the desire to make this world a better, more pleasant, more beautiful, more efficient place to live in, then I think we had better take stock right now and examine ourselves as mature architects; and ask ourselves what we have done wrong. Because the large majority of us have gone backwards after registration. Why we do it, I don't know.

I have listed seven ways in which I think we might improve this situation after we have graduated from our registration. Of course, we have a card to prove that we are architects, but we have said that formal education isn't enough—that we would have to continue to develop—and so I have listed ways in which I think that we *can* develop. I am talking about the average architect. None of us wants to be average, but I am talking about the guy who is sitting next to you, not about you.

One way: Have more seminars like this, but have fewer speeches like we are making up here, and more interchange of ideas.

Point two: Take time to read. I am a firm believer that our journals are doing a very fine job, under the situation that we have with the readers that we have. If we all read them, I would say they would be doing a pretty lousy job; but for the readers that we have, I think they are doing a very fine job. If we could find time to read! Most of us can't—not find time, but read.

The third thing: Find time to write. All of us talk of good architecture, but when we try to put it down on paper, our convictions and philosophies are a lot more fuzzy than we think; not because we can't write, but because we are not thinking clearly. I know this to be a fact: that the people who do write, who take time to write, turn out to be better designers.

Number four: Travel. I can really talk now. I just came back from Germany two weeks ago, and I know the whole setup. I am a very broad person. It is the first trip I made over there, but I did come back with my battery charged. We don't have to go to Europe. If we would go into the next county, we would benefit tremendously.

I don't know why we don't like to look at the other guy's work. I spent all morning, this morning, looking at other architects' work, and I had my notebook along.

Someone will probably sue me when he sees his details coming out in our schools, but I wanted to see some buildings. I know that I have benefited tremendously by looking at other schools, examining some of the work of other architects.

Fifth point: Have more interchange of professional information. And I am not just talking about what the magazines do. The greatest benefits that our firm has received have been the teachings of other architects: our friends, our everyday friends.

I have spent many, many hours in other architects' offices. My good friend and your good friend, Jay Van Nuys of your Association, was very, very close. He made two different trips down to Texas. No telling how many I have made up here—just talking about our problems, and seeing how we could make our architecture a little bit better.

I am deeply indebted to my good friends —like Larry Perkins, and John Reid, Alonzo Harriman, Charlie Granger, Henry Blatner, John McLeod, and a whole bunch of other architects who do schools better than I do. That is very important. We should get together like real professionals. We have started a policy of putting things down on paper, particularly the programming—the architectural analysis—and we have given copies to at least 25 other architectural firms.

We have gone to other architectural firms with specific problems to get them to help us. This we could do more of, I think.

Here is the sixth point: Go back to school. I think that under the situation that we are operating in now, because of the terrific change in architectural practice, we old codgers simply must go back to school and take some formal courses. I am not talking about a two or three days' seminar, I am talking about two to six months, or a year.

For instance, as our own practice develops, we have a definite type of man that we need on our team. I have a partner, Willie Pena, who has developed into a new architectural species. If you get right down to it, he is an architectural analyst.

When we get into trouble, we call Willie. During the programming process (someone said that was the most important part of architectural practice) we call Willie Pena in to help us analyze the problem, and he has developed the art of interrogation wherein he puts the right questions at the right time to the clients. Perhaps we need Master's degrees in the study of architectural analysis to be an architectural analyst. I know we don't like specialization; but you are specializing right now, if you get right down to it.

We need some of the designers to go back and study planning. We need to polish up on our design. We need to go back to learn the art of new ideas in writing specifications. We need to develop new methods of simply servicing our clients. In other words, we need to go back to school.

And here is the last point: To help eliminate the situation of our drying up on the vine, we need to develop in-service training. Even within our own organization—I know some of you do it—during the coffee hour we have an outside architect come in as a speaker. We have paid a good number of professionals to conduct seminars within our own organization.

Just before I came up here, I asked one of our really good designers the question: what, in his way of thinking, stimulated him the most? Where has he gained, in the last five years since registration, to make him a better designer? He said he felt that his greatest gains have come from what we call the "squatter's technique."

We have three offices—and you might not be able to do this in one-man offices—but we bring in one of the best designers from each of the offices, to come down and sit some place—either on our client's property, or in some hotel, or in one of our own offices —to concentrate on one design problem. It is sort of a group dynamics; the boys stimulate each other.

This could be done, I think, among the offices, if you have small offices. I know that Eberle Smith, in Detroit, and I have talked for a long time—about getting our designers together on maybe a job that he has, maybe a job that we have. The idea is fuzzy, I know, but I am throwing it out for what it is worth.

*Partner, Caudill, Rowlett & Scott, Architects

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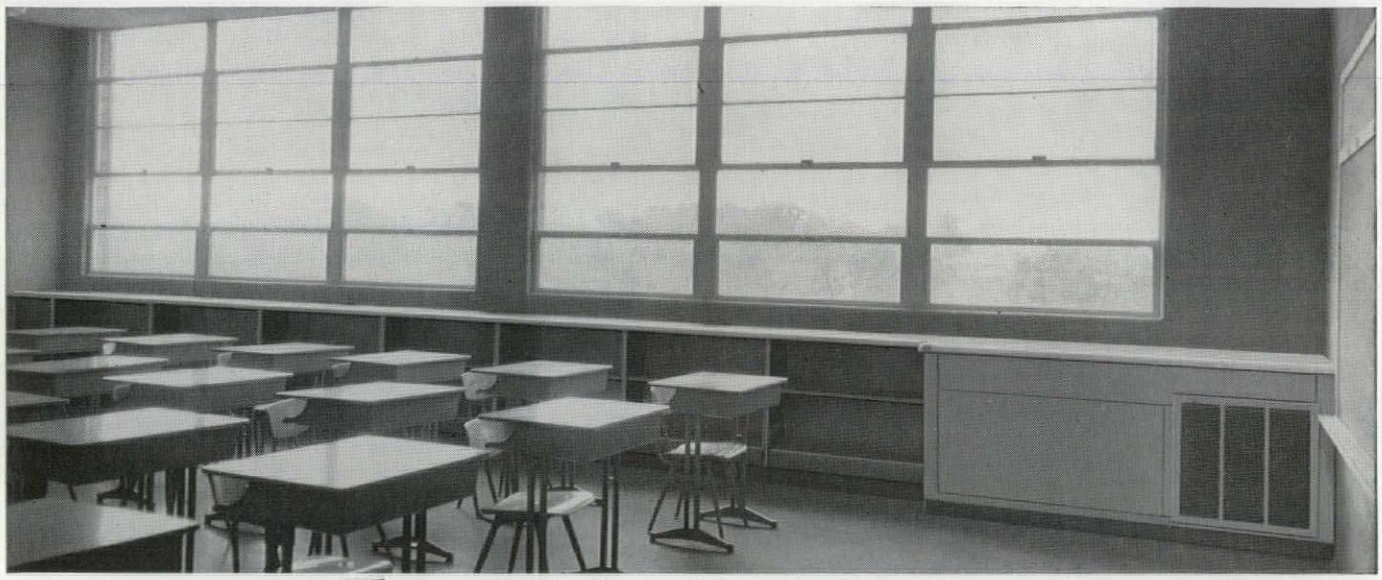

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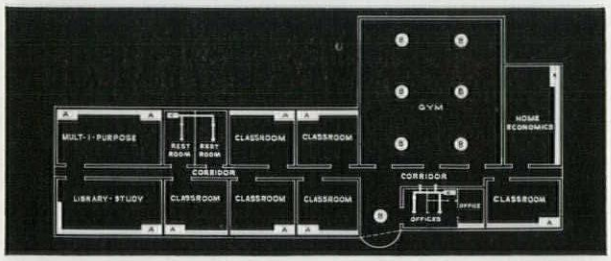

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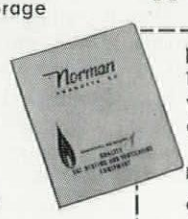

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How to Eliminate Elevated Storage Tanks

Mechanical Engineering Critique by William J. McGuinness

P/A Practice of Architecture ***column on mechanical and electrical design and equipment—devoted this month to devices for eliminating elevated water-storage tanks.***

Elevated storage tanks, rising above large buildings throughout the country have become a traditional part of the American architectural scene. Now, their use appears to be diminishing. Architects—such as Skidmore, Owings & Merrill, in their design for General Mills' new central office building in suburban Minneapolis—are turning to automatically controlled pumping systems that obviate the need for elevated storage.

The purpose of the familiar water tower has always been fourfold: to supply a constant pressure on the distribution lines; to store sufficient water to balance out supply and demand; to prevent excessive pump starting and stopping; and to provide a dependable fire reserve. This last has been of critical significance in the calculation of fire-insurance rates.

Principal objections to the use of tanks have been their unsightly appearance—lowering property values in their vicinity, the ever-increasing cost of steel and steel-construction work, the problem of freezing, and—in the case of large buildings—their tremendous weight. It is possible that for General Mills' building the fire underwriters would have required at least 50,000 gal of residual water in the tank for emergency purposes, which would mean about 100,000 gal of elevated storage. The alternative chosen was a reinforced-concrete structure placed underground to one side of the building and covered with from three to five ft of earth. Small vents rising from this reservoir blend in with the lawn and landscaped shrubbery above.

A comparison of costs would be difficult because of the number of factors involved. Generally, however, the saving in steel tended to make the over-all cost comparable to that of an elevated tank of the same capacity. The saving is made possible chiefly by refined automatic-pump control. The underground reservoir eliminates the problem of appearance and weight, but the other usual advantages of an elevated tank—reliability in case of fire, a minimum starting and stopping of motors, and the maintenance of pressure while balancing supply and demand—must be equalled in the automatic circuitry. This is not as simple as it might seem at first. There are such factors as hourly fluctuations of demand, friction within the pipes, elevations, starting surges from the pumps, and pressure-flow characteristics of the pumps themselves, that must be met. The combinations of these problems, varying as they do from one installation to another, undoubtedly account for the continued use of elevated tanks, to a great extent. Yet, these are problems that can be met efficiently on the drafting board of a controls engineer, rather than in steel mills and contractors' offices where the expense is much greater. Hence, the trend toward the use of more sophisticated pump control.

It will be seen from the accompanying sketch that a continuous flow from the deep-well pumps, through both domestic and fire reservoirs, prevents the water from becoming stale and rancid. The fire reservoir is given the necessary priority over the domestic reservoir by means of a simple weir. Even if the domestic reservoir were completely empty, the fire reservoir would remain full. Pressure for the sprinkler is supplied by a small 20 gpm jockey pump. Signals from the fire apparatus bring in a 750 gpm main pump. If this should fail, a diesel-engine-driven pump of equal capacity automatically takes over.

The circuitry of two 1000 gpm deep-well pumps and two 200 gpm domestic pumps was designed by engineers in the office of Skidmore, Owings & Merrill. Design of the controls was made by the Automatic Control Company of St. Paul. Three sensing units govern the operation of the pumps, bubble-control units in each of the two reservoirs, and a dual-control unit that regulates supply for the pressure tank. All three are connected to a large central cabinet located in an underground pump room next to the reservoir. Pumps are controlled through the cabinet.

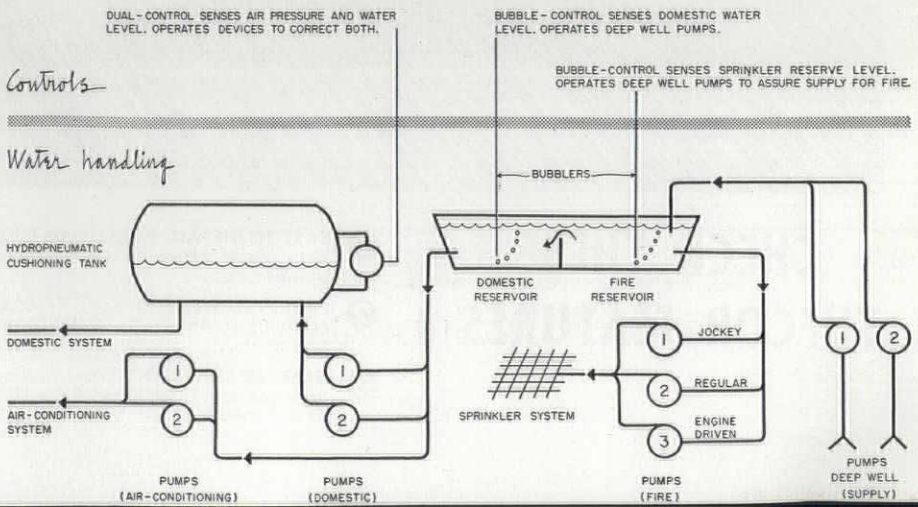
The bubble control uses a small air compressor within the central cabinet to send a flow of air through a ¼ in. tube to the reservoir. Back pressure on this flow, which varies with the level in the reservoir, operates pressure switches within the cabinet.

The hydropneumatic tank is used, not for water storage as is sometimes mistakenly supposed, but to store air under pressure that will balance out surge from the two domestic pumps and reduce the frequency of starting and stopping the pumps. It is a hybrid of the closed system where several pumps are sequenced automatically to supply even pressure. Its advantage is that only two pumps are used.

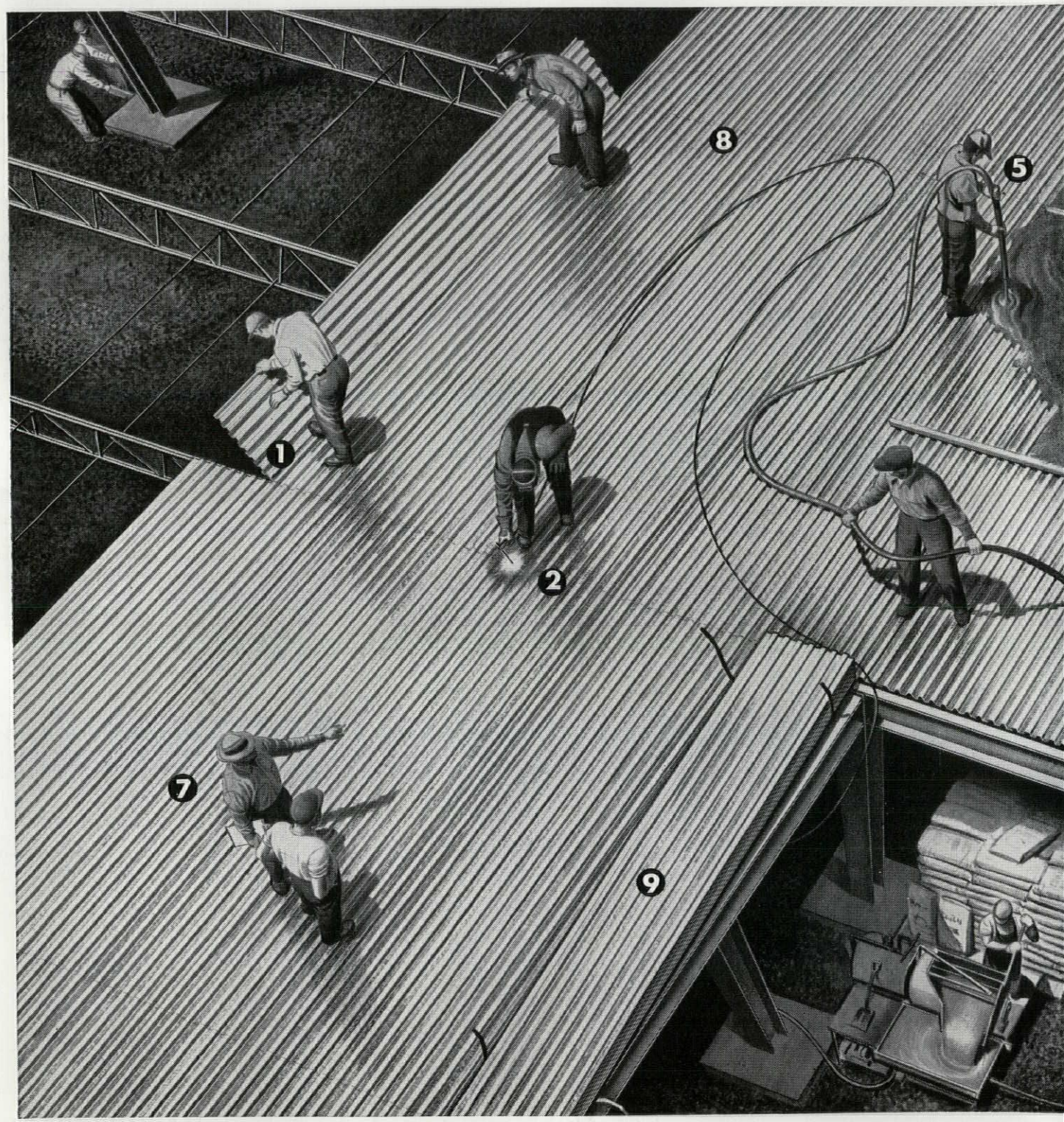
One of the disadvantages in the past has been the difficulty in maintaining the correct ratio of 60 percent air to 40 percent water. Tanks supplied with water from deep wells become air-bound as water stored in them gives up its absorbed air. The dual-control installation in the General Mills system eliminates the need for manual adjustment of this ratio, by employing two sensing devices within a single control. A drop in air pressure in the tank sends signals to start the pump. A rise in water level sends signals to stop it.

The signals from the dual-control and the bubble-control units are processed in the central cabinet for correct time delay through motor-driven relays. The central-control system also alternates the pumps to give them even wear, or runs them together if the demand requires. In the event of low suction, it shuts the pumps off to prevent motor damage. At the same time, it sends an alarm to the office of the maintenance engineer, indicating the location of the trouble.

Normally, the system runs without human attendance to satisfy the heavy demands of air conditioning, fire control, and domestic water supply in this modern, rurally isolated office building.



How a Tufcor® roof system



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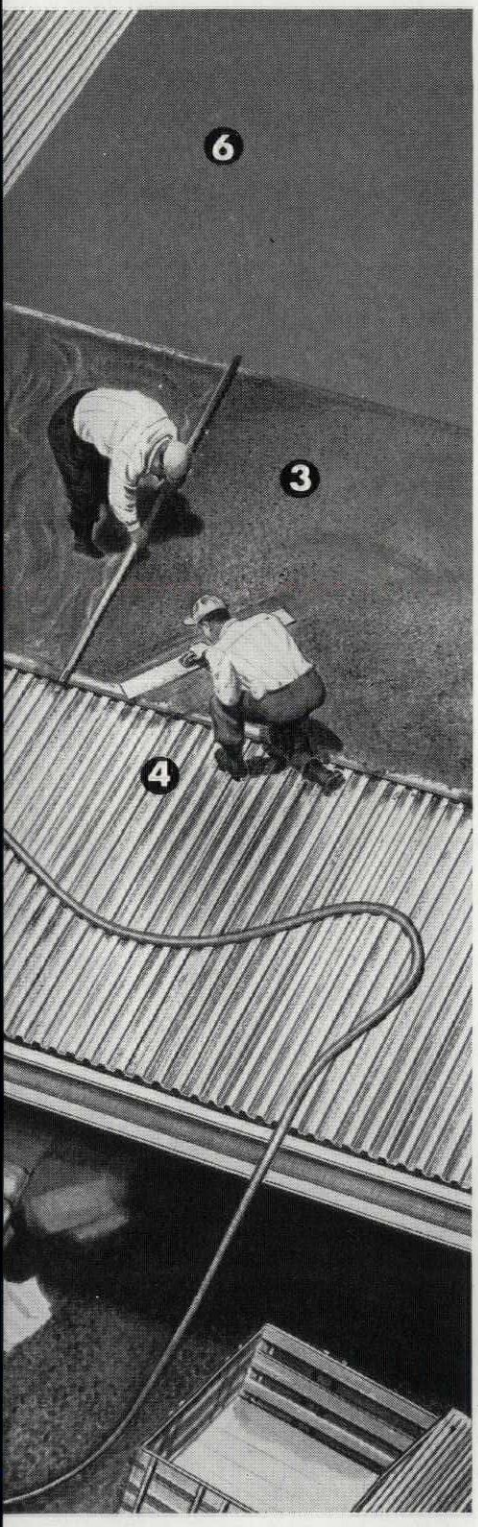

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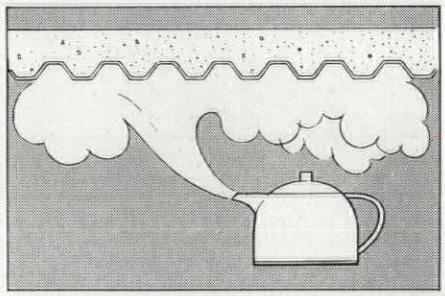

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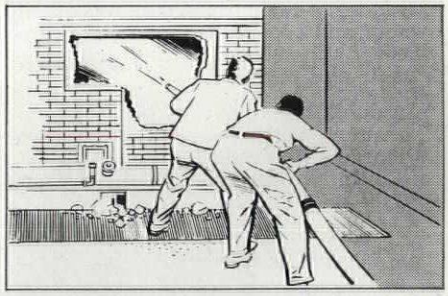

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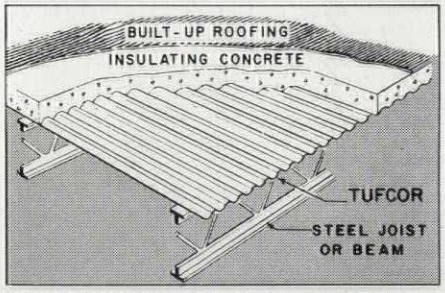

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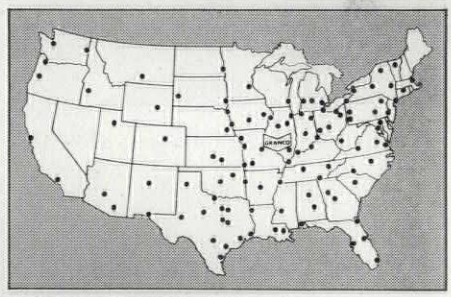

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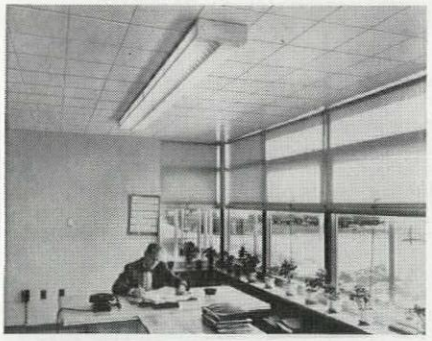
Radiant Ceiling News

With Burgess-Manning Ceilings — Your Building Is Better — Your Building Budget No Bigger

Fuel Cost Lowered, Sickness Absenteeism Reduced... with Radiant Acoustical Ceiling

In 1955, when architects Beatty and Berlenbach recommended a Burgess-Manning Radiant Acoustical Ceiling for the proposed West Middle Island Elementary School of Middle Island, N. Y., the Board of Education of the Union Free School District was frankly sceptical. Only after making an inspection tour of a number of installations and hearing the enthusiastic reports of owners and occupants, were they convinced that such a ceiling could be feasible and practical.

In due time the West Middle Island Elementary School was completed, with its Burgess-Manning Radiant Acoustical Ceiling installed.

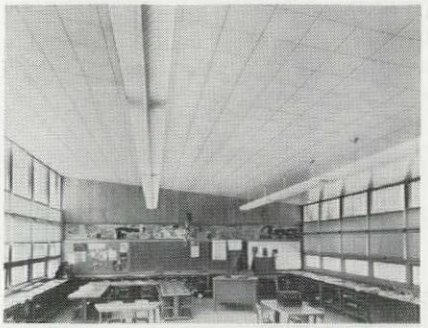


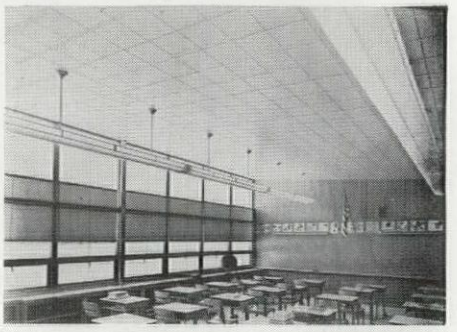
The results — the following excerpts from a letter by Donald H. Fingar, written after a year of operation, will tell the story:

"The system has been efficient, fast, and flexible of control with no uncomfortable areas. Our fuel consumption has been substantially less per cubic volume than neighboring schools with "modern" radiant convectors. — Our kindergarten conducts games and rest periods on the floor, a concrete slab, with no apparent discomfort. Our incidence of lost time due to colds and other respiratory troubles has been considerably less since moving from a building with radiant convectors to our present Burgess-Manning installation.

We believe this to be the ultimate in heating and acoustical comfort —"

Our thanks to Mr. Fingar, — any additional comment would be superfluous.





Radiant Acoustical Ceiling Basically Simple In Design

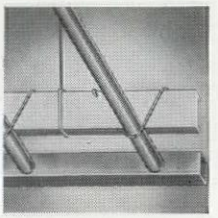
Considering the triple function performed by the Burgess-Manning Radiant Acoustical Ceiling, its construction is amazingly simple and compact, and is easily erected. It consists of only 4 major parts.

1. Suspension Grid

The suspension grid of 1½" channels on 4 ft. centers is not unusual.

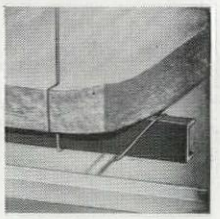
2. Water Circulating Coil

The grid type coil is made from pre-fabricated headers to which ½" laterals are welded. A sinuous type coil can be used where conditions make it desirable. It hangs from the suspension grid.



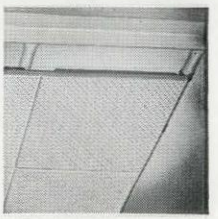
3. Acoustic-Thermal Insulation Blanket

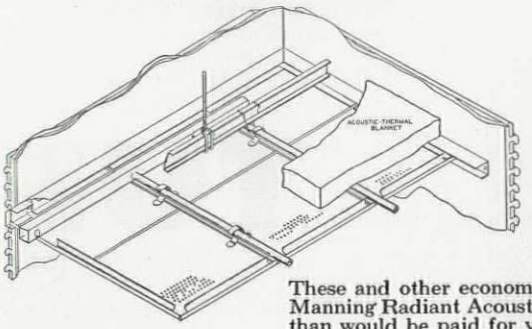
The non-combustible sound-absorbing blanket, with the required noise reduction coefficient, is laid on top of the suspension grid.



4. Snap-On Panels

Heavy gauge perforated aluminum panels of the proper thermal conductivity are attached directly to the water circulating coil.





This isometric drawing shows all 4 parts assembled — a relatively simple construction that replaces the conventional radiators, or hot air ducts used for convectional type heating, and that permits reduction in size of air handling equipment such as blowers, fans, coils, filters, etc.

These and other economies permit installation of Burgess-Manning Radiant Acoustical Ceiling at a cost equal or lower than would be paid for various combinations of convection heating and air cooling, plus a suspended acoustical ceiling.

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3 Heating Cooling Acoustical

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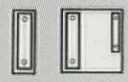
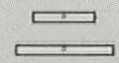
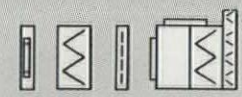
FAN SECTION. This component is the cornerstone of all 39AC arrangements. It provides a choice of discharge directions as well as fan motor locations.



COOLING COIL SECTIONS. Short type assures extreme compactness; standard cooling coil section permits cooling with reheat. Or you may use both coils.

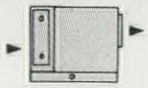


DRIP PANS. Two are available—one long, one short. Note in typical examples below how this choice of pan sizes increases freedom of arrangement.

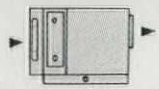


ACCESSORIES. Over a dozen matching accessories make available every function of year-round air conditioning in one compact central station unit.

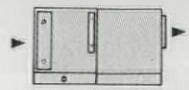
TYPICAL HORIZONTAL ARRANGEMENTS



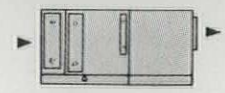
1. Short cooling coil section, fan section and long drip pan. For summer cooling only (DX); or summer cooling and winter heating with water.



2. Auxiliary heating coil section, short cooling coil section, fan section, long drip pan. For summer cooling, winter heating, each with its own coil.

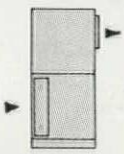


3. Standard cooling coil section fitted with cooling and heating coils, fan section, short drip pan. For summer cooling with reheat, winter heating.

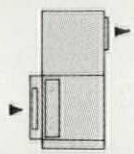


4. Short and standard cooling coil sections, fan section, long drip pan. Extra cooling surface for summer cooling with reheat, winter heating.

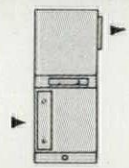
TYPICAL VERTICAL ARRANGEMENTS



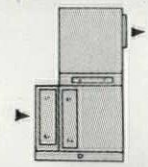
5. Standard cooling coil section, fan section, short drip pan. For summer cooling only (DX); or summer cooling and winter heating with water.



6. Auxiliary heating coil section, standard cooling coil section, fan section, short drip pan. Summer cooling, winter heating, each with its own coil.

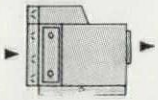


7. Standard cooling coil section, auxiliary heating coil section, fan section, short drip pan. For summer cooling with reheat, winter heating.

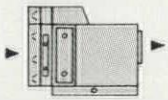


8. Short and standard cooling coil sections, auxiliary heating coil section, long drip pan. Extra cooling surface for same service as Number 7.

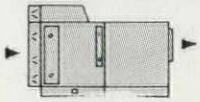
HORIZONTAL (WITH BYPASS)



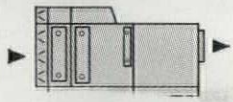
9. Same arrangement and functions as Number 1, but with face and bypass dampers and external duct added to provide this control.



10. Same arrangement and functions as Number 2, but with face and bypass dampers. Note duct permits bypass of both heating, cooling coils.

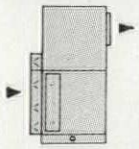


11. Same arrangement and functions as Number 3, but with face and bypass dampers. Duct permits bypass of cooling coil but not heating coil.

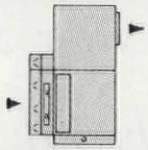


12. Short and standard cooling coil sections, heating coil, long drip pan. Duct permits bypass of cooling coils but not heating coil.

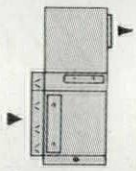
VERTICAL (WITH BYPASS)



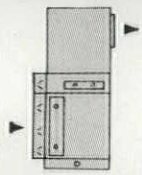
13. Same arrangement and functions as Number 5, but with face and bypass dampers. Note in this setup no external bypass duct is needed.



14. Same arrangement and functions as Number 6. Here a small sheet metal adapter is required to complete the installation of the bypass.

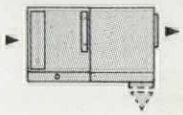


15. Same arrangement and functions as Number 7. Here a special "bypass heating coil section" is required to provide inlet for the bypass air.

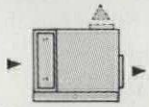


16. Same arrangement and functions as Number 15, except heating and coil position is changed so air will bypass both heating and cooling coils.

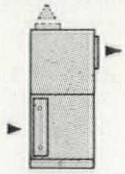
FAN DISCHARGES



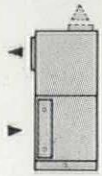
17. Fan section may be rotated about the shaft, or end for end. Drawing here shows top horizontal discharge or alternate downblast.



18. Another variation with short coil section permits either horizontal discharge from bottom of fan section, or alternate true upblast.

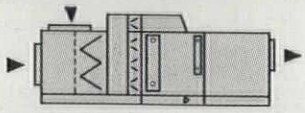


19. Either truly horizontal or truly upward discharges may also be attained with the vertical arrangement of 39AC components, as illustrated.

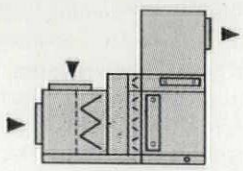


20. In this arrangement of the fan section, the vertical unit provides horizontal discharge and at the same time reverses direction of the air.

ACCESSORIES



21. Typical horizontal arrangement featuring these standard accessories: mixing box assembly with interconnected double acting damper blades and low velocity filters; plenum section; face and bypass damper section and bypass duct assembly. As in all arrangements, spray humidifier section can be inserted ahead of cooling coil.



22. This vertical arrangement features these accessories: mixing box assembly with damper blades and filters; plenum section; face and bypass damper section; auxiliary heating coil section. Note this setup provides full year-round service with excellent control in a package that makes economical use of valuable floor space.

Visitor's Snack Bar, Bishop Clarkson Memorial Hospital, Omaha, Nebraska • Architect: Leo A. Daly Co., Omaha, Nebraska

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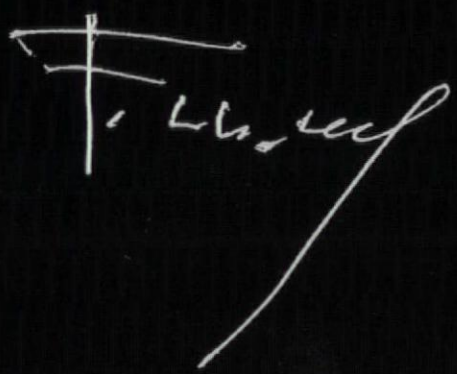
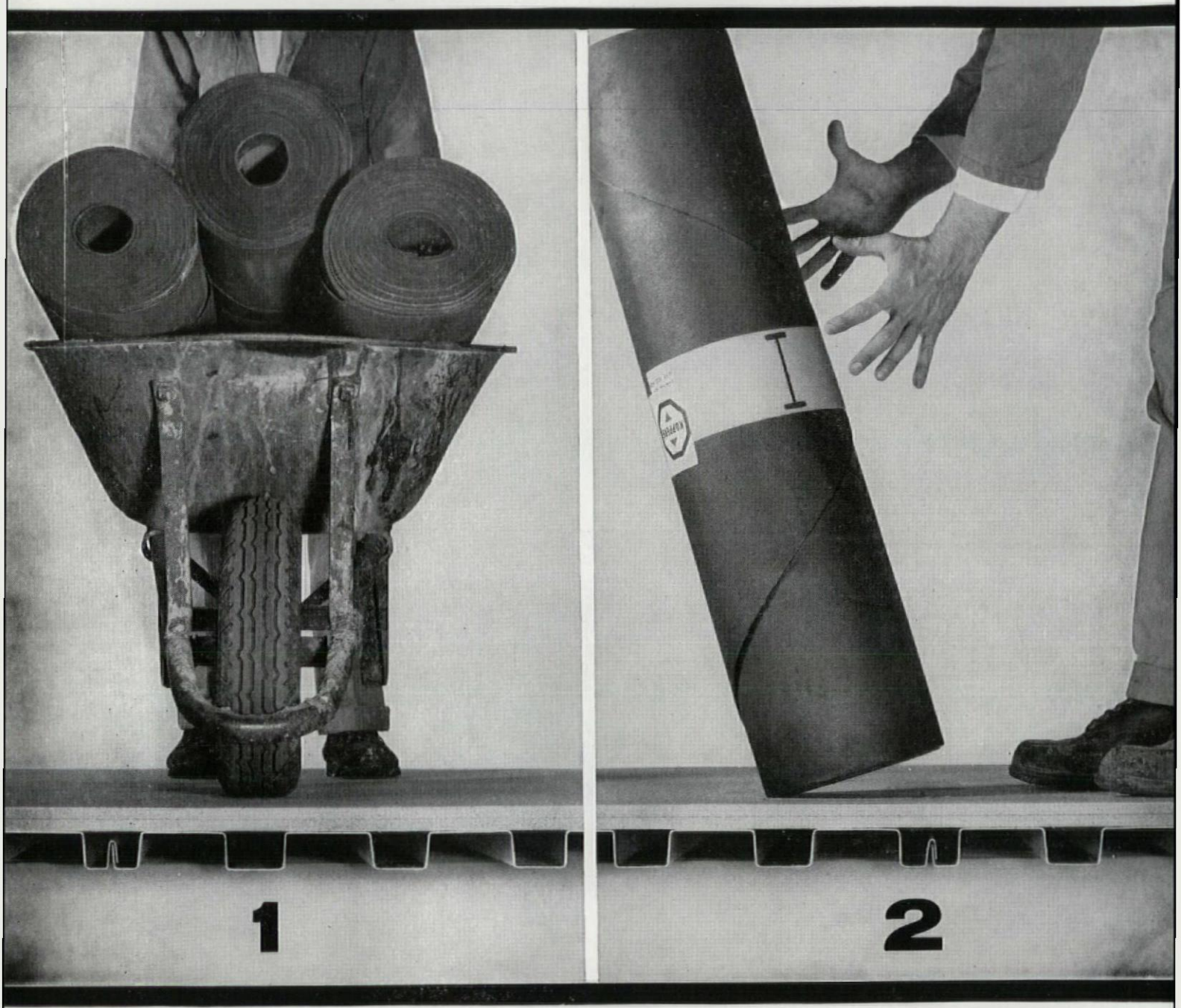


FRANK LLOYD WRIGHT
Sculpture by Eloise Fichter

3 tests of strength



These tests can be made at any roof job: **1.** BARROW TEST. Run heavily loaded barrow on line between support surfaces. **2.** DROP TEST. From height of 12 inches, drop wrapped roll of roofing felt, letting edge strike insulation. **3.** HEEL TEST. Kick the insulation sharply, at any point between flat support surfaces. In these tests, Insulite Roof Insulation will not crack, crush or break through. 1-inch Insulite Roof Insulation was used in tests illustrated.

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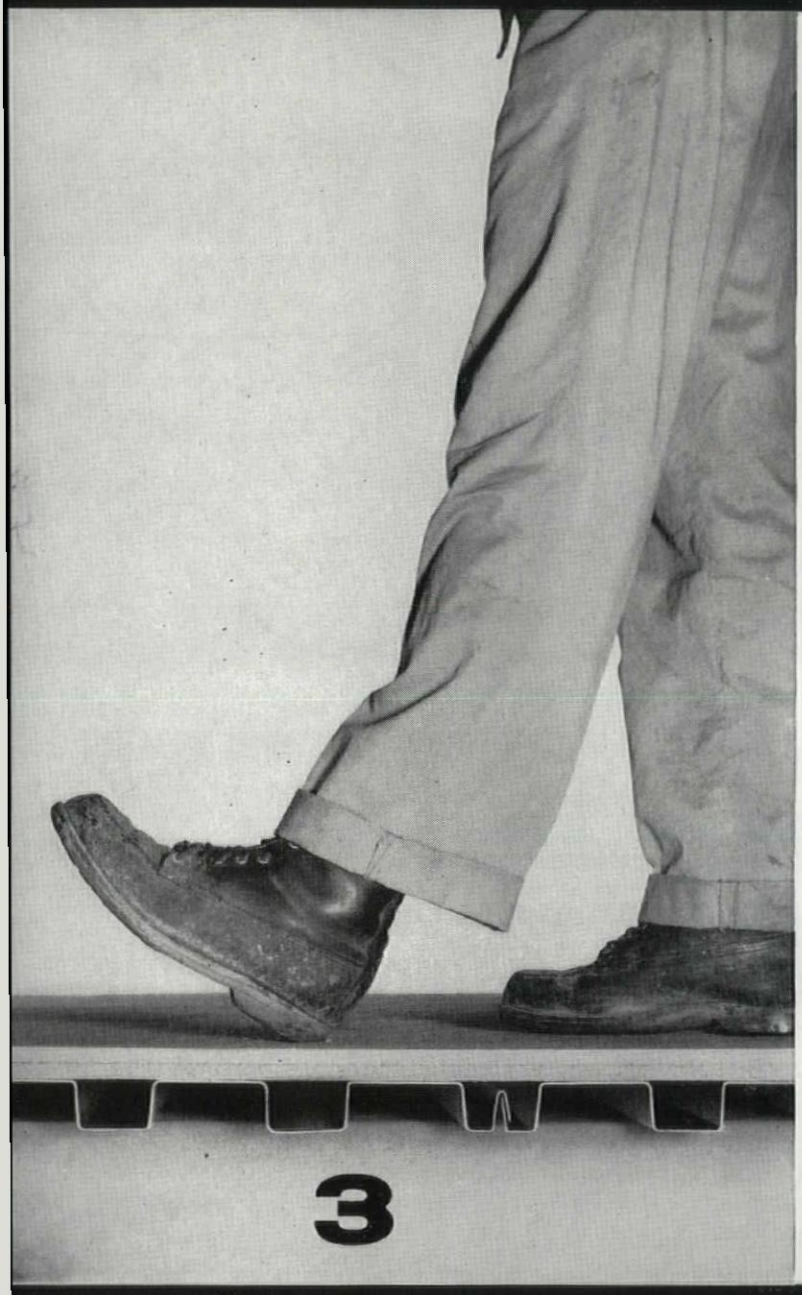
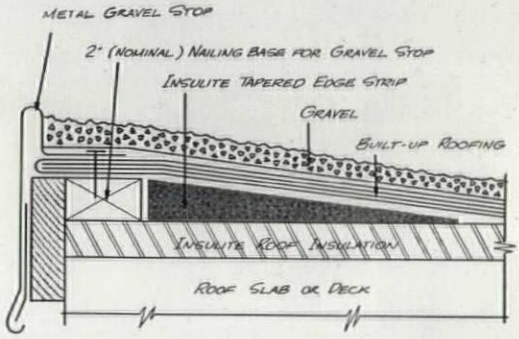
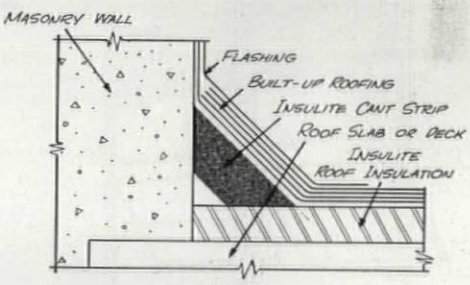
in roof insulation



For better roofs, specify these accessories



Announcing . . . Insulite Tapered Edge Strip! Here is a valuable new product—an important "finishing touch" to make roofs more perfect than ever before. Insulite Tapered Edge Strip is bevel-cut from Graylite Roof Insulation. Used at outer edges of flat roofs, it underlies felt layers, eliminates sharp angles where cracks often develop, carries felt smoothly over edge nailing member. May also be used at any point on flat roof area to channel drainage. Tapered Edge Strip measures 1⅝" at thick edge, tapering to ⅛". Width is 12". Strips are delivered in 4' lengths.



Insulite Cant Strips have long been accepted as the ideal angle-breakers at points where roof surface meets any vertical surface. Made in two sizes, 3"x3" and 4"x4".

Here is practical proof of Insulite's superior strength . . . and the news about Insulite Tapered Edge Strip

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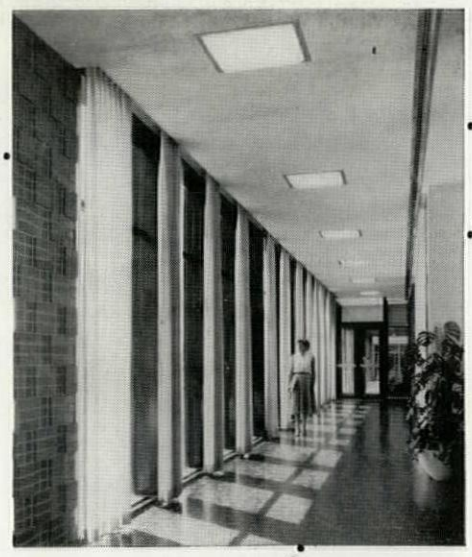

all photos by Hedrich-Blessing, Chicago

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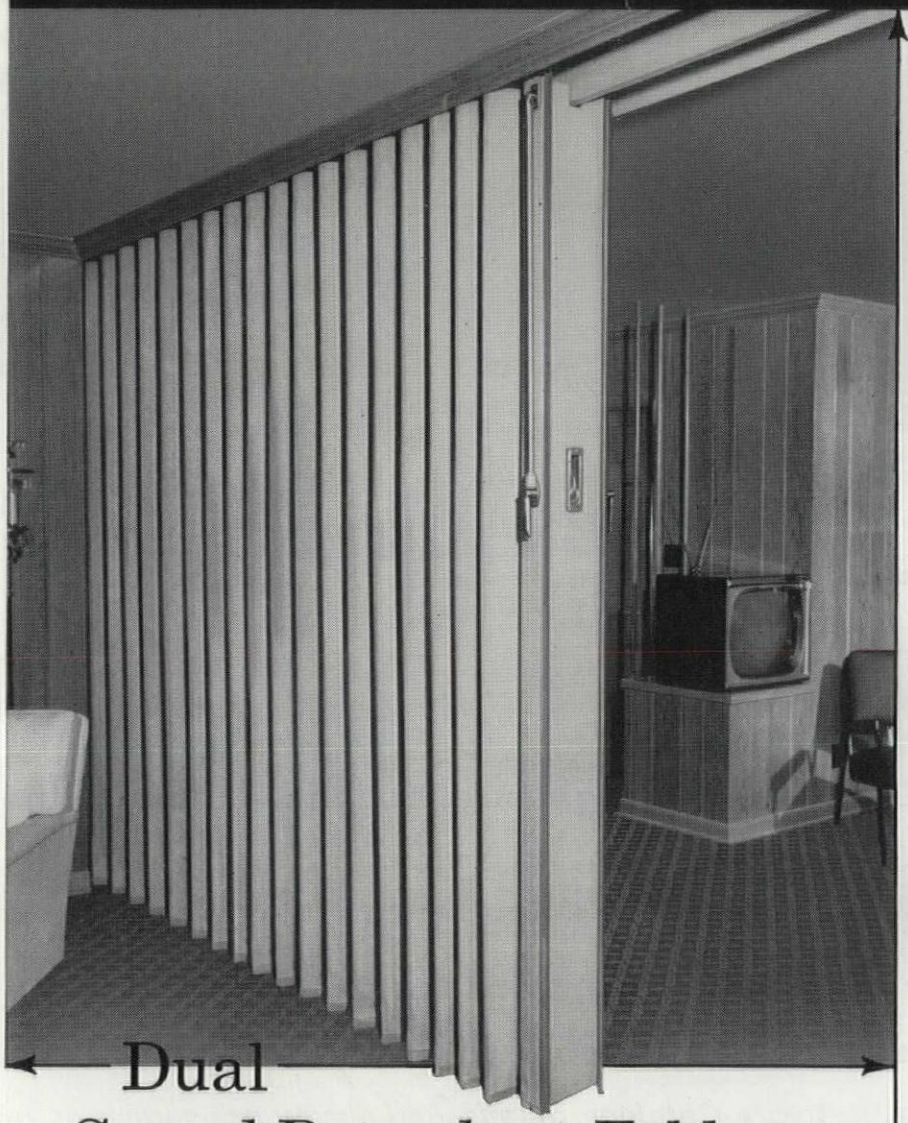

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In Canada: FOLDOOR of CANADA, Montreal 26, Quebec

Photo above from Biltmore Hotel Courts Nashville, Tennessee

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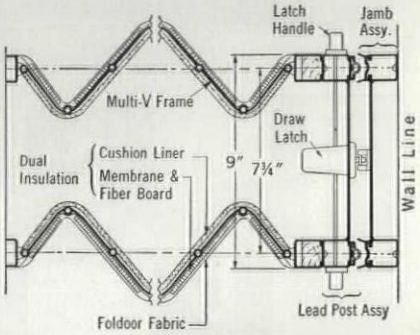

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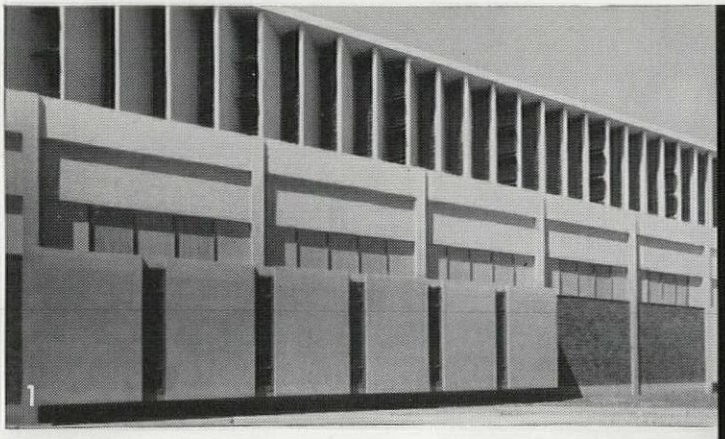

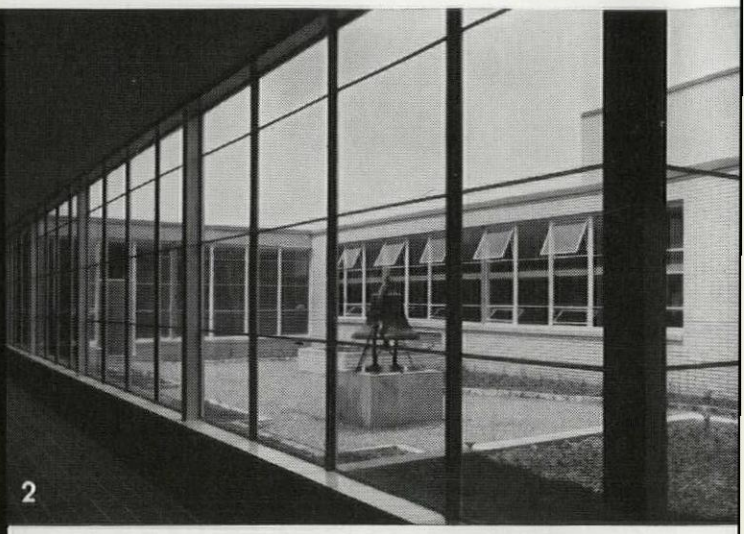

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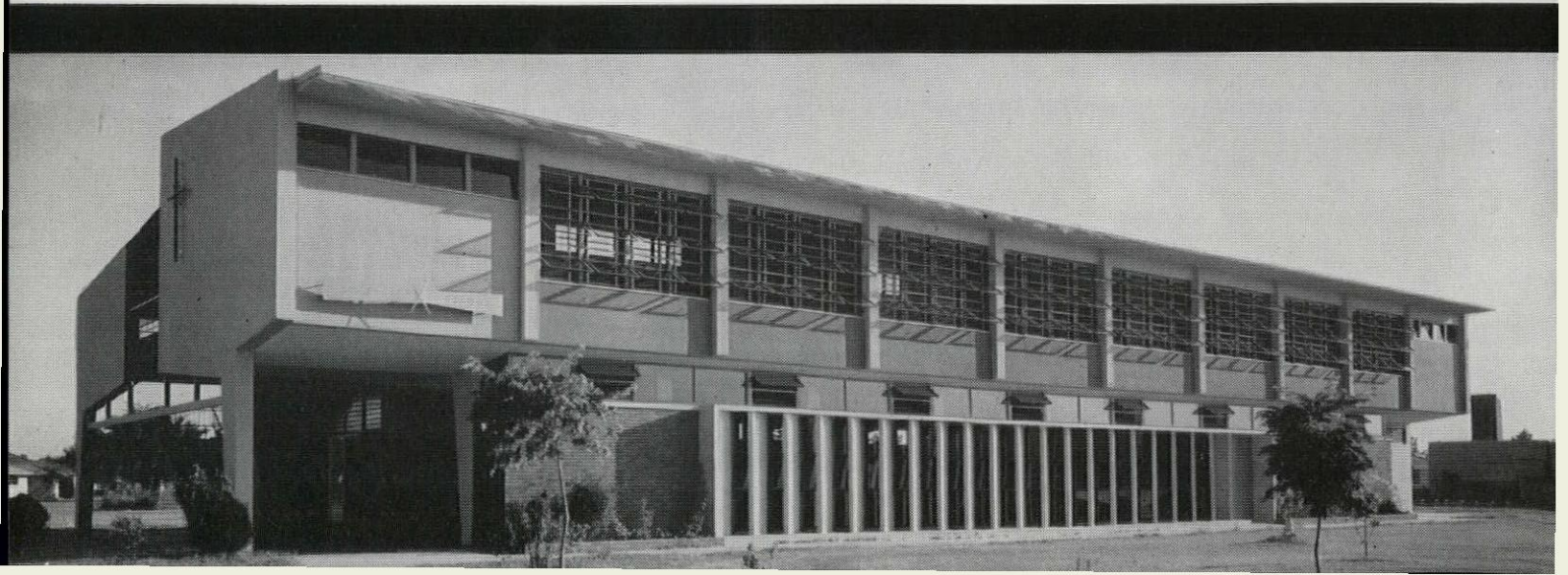
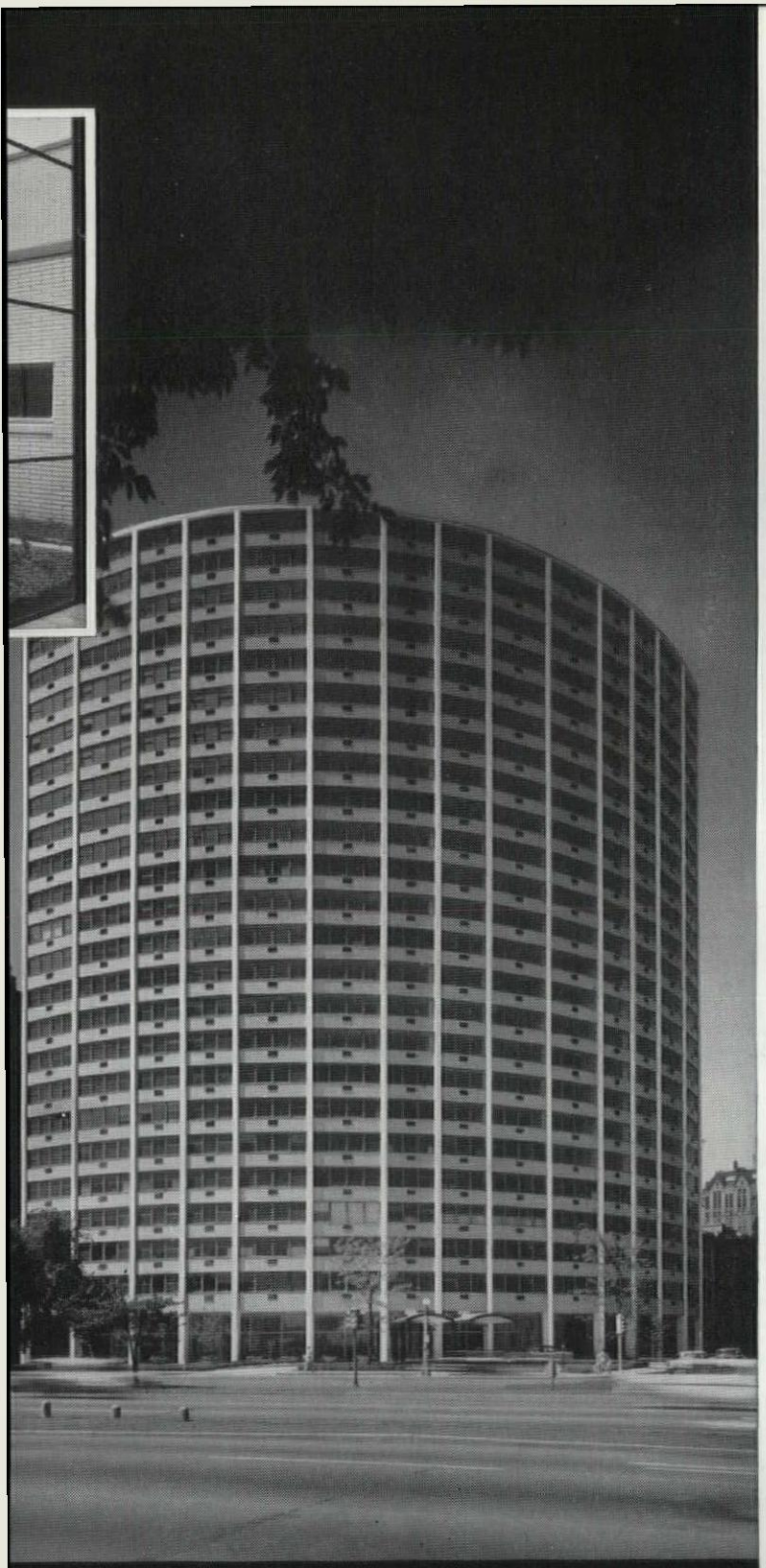


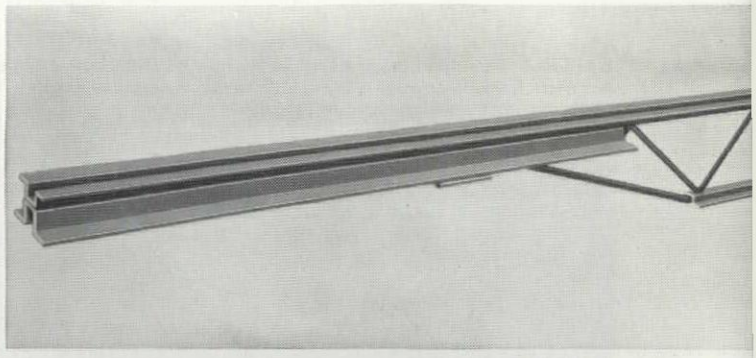


1. Truscon Intermediate Projected and Donovan Steel Windows.
   St. Catherine of Sienna Church, New Orleans, La.
   Burk, Le Breton, and Lamantia, architects.
   Lionel F. Favret, Inc., contractor.

2. Truscon Commercial Projected, Architectural Projected, and Donovan Steel Windows.
   Jefferson-Morgan Junior-Senior High School, Jefferson, Pa.
   Celli and Flynn, architects.
   Graziano Construction Co., contractor.

3. Truscon Series 138 Steel Double-Hung Windows and Screens.
   1150 Lake Shore Drive Apartment, Chicago, Ill.
   Hausner and Macsai, architects.
   Crane Construction Company, contractor.

4. Truscon Donovan Steel Windows.
   Blessed Pius X Church and School Building, New Orleans, La.
   William R. Burk Associates, architects and engineers.
   Perrilliat-Rickey Construction Co., contractors.



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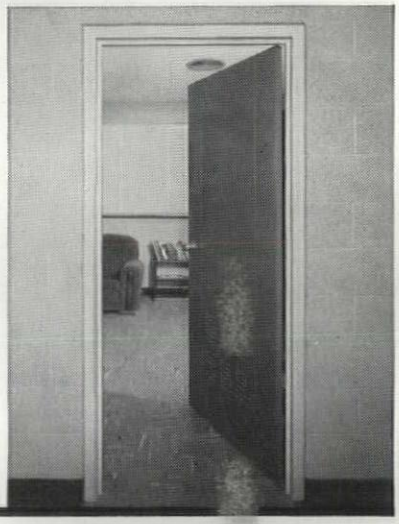

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Gymnasium, Riverside School, Riverside, Ill., floor of First Grade Northern Hard Maple.
Architects: Schmidt, Garden & Erikson, Chicago. Photograph courtesy Hedrich-Blessing, Chicago.

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—by all means for floors meant for feet!

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*Ask for Coaches' Survey Summary, available to all Architectural and School people.

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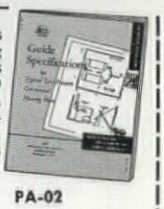

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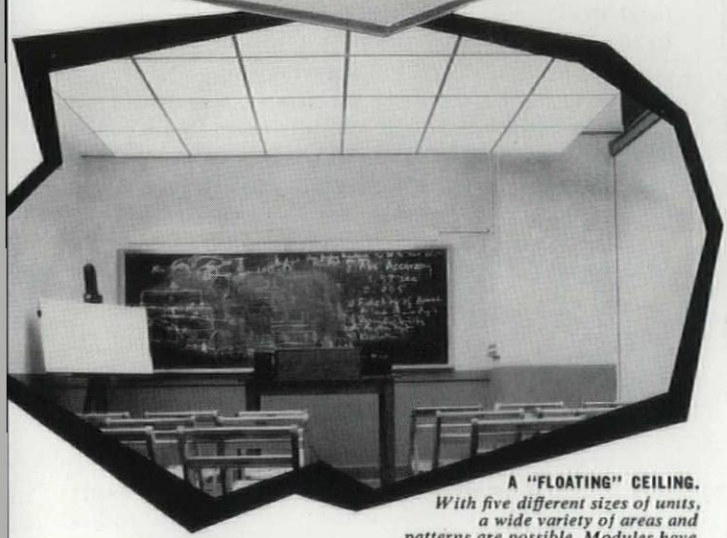

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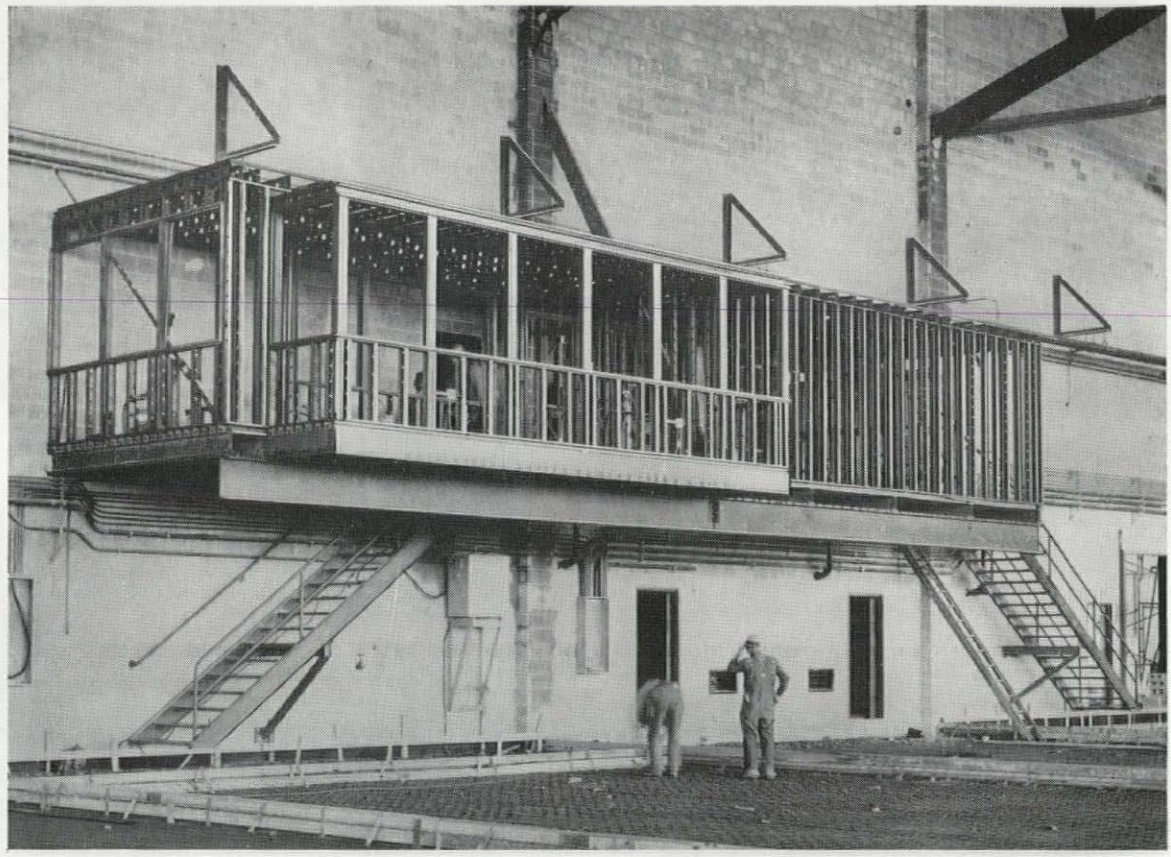
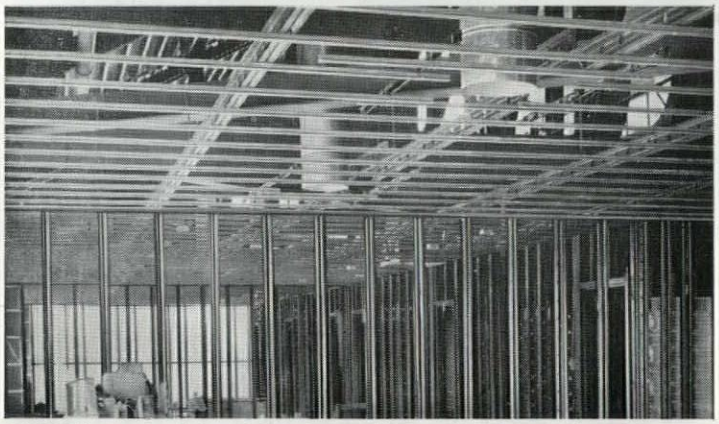


LIGHTSTEEL facilitated construction of suspended offices within hangar area.

Strength combined with light weight makes LIGHTSTEEL the ideal choice for TWA hangar



LIGHTSTEEL was used for all interior partitions and ceilings in the office area.

TWA HANGAR LOT FACILITIES

Architect Engineer: H. K. Ferguson Co., San Francisco
General Contractor: Barrett Construction Company
LIGHTSTEEL **furnished by:** Tayler Products Corp., Millbrae, Calif.
LIGHTSTEEL **erected by:** Jack Dymond Lathing Corporation

Trans World Airlines' hangar lot facilities in San Francisco measure 320 ft. by 176 ft. Most of this is hangar space except for an elevated two-story area in the front of the building—containing offices, commissary, lavatories, etc. The structural system is a single cantilever frame on 32 foot centers.

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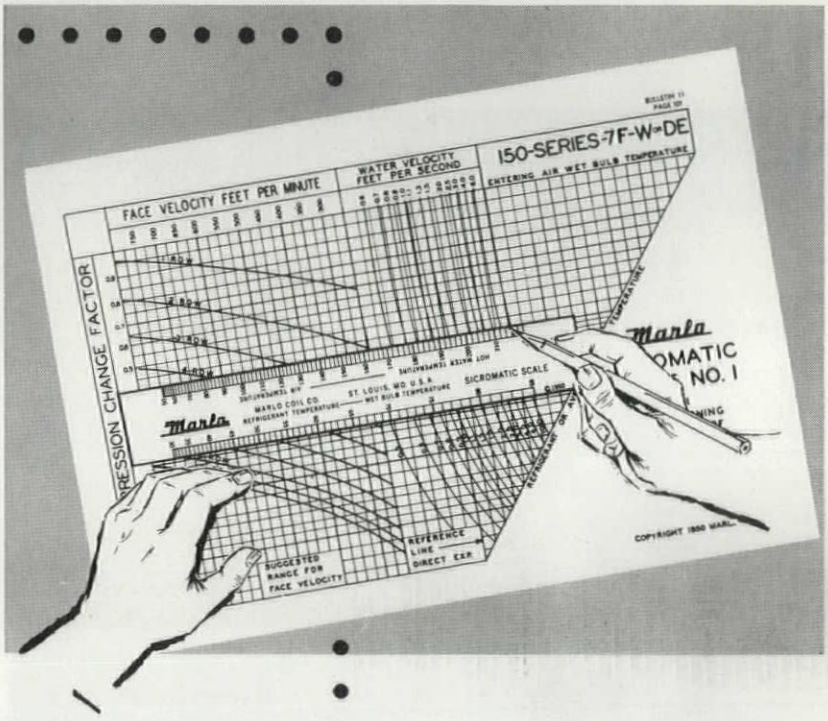

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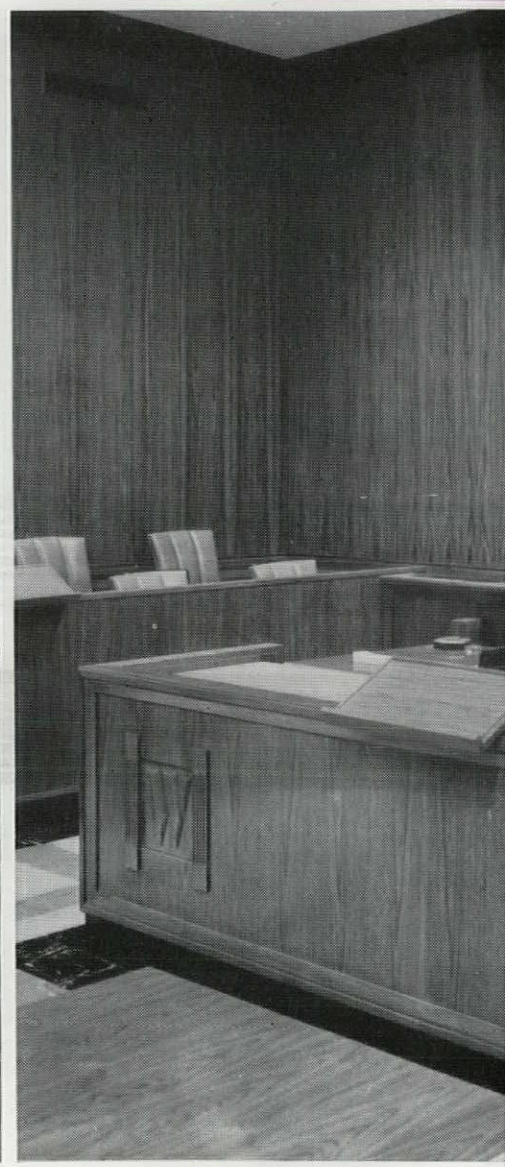

RODDIS DOORS in the Wood County Courthouse, Wisconsin Rapids, Wisconsin (Donn Hougen, Architect) display the rich graining and texture that makes them first choice of many leading architects. Roddis Doors come in a broad variety of imported and domestic woods for any installation . . . institutional, commercial or home. Specify *in the white . . . primed and sealed . . .* or *completely prefinished* to your sample. Roddis offers one source for all your wood door needs—solid and B or C-label fire doors, guaranteed for life; hollow core and X-ray doors.

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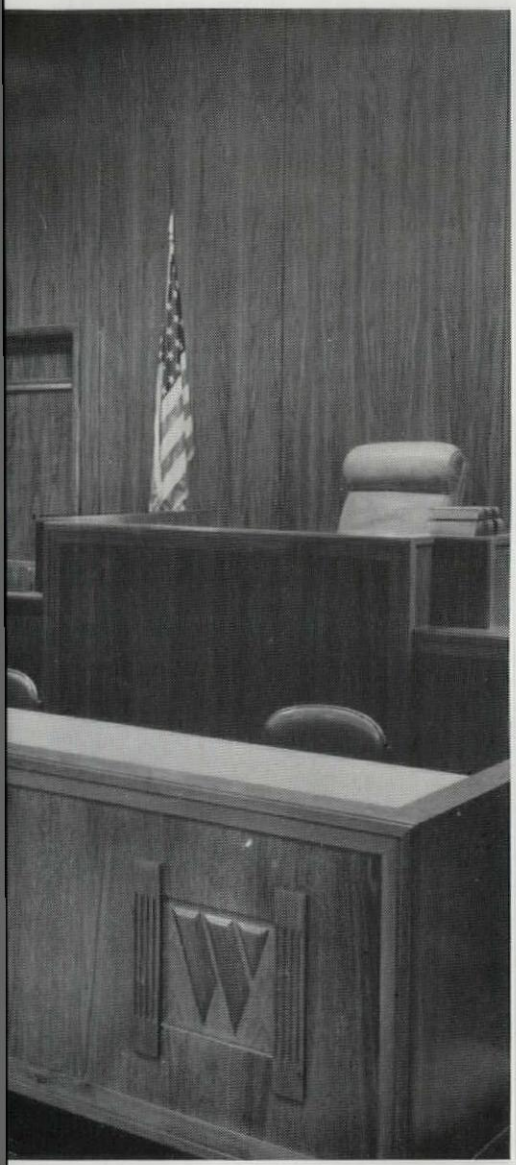

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FOR COMPLETE SPECIFICATIONS, SEE *SWEET'S ARCHITECTURAL FILE,* OR WRITE

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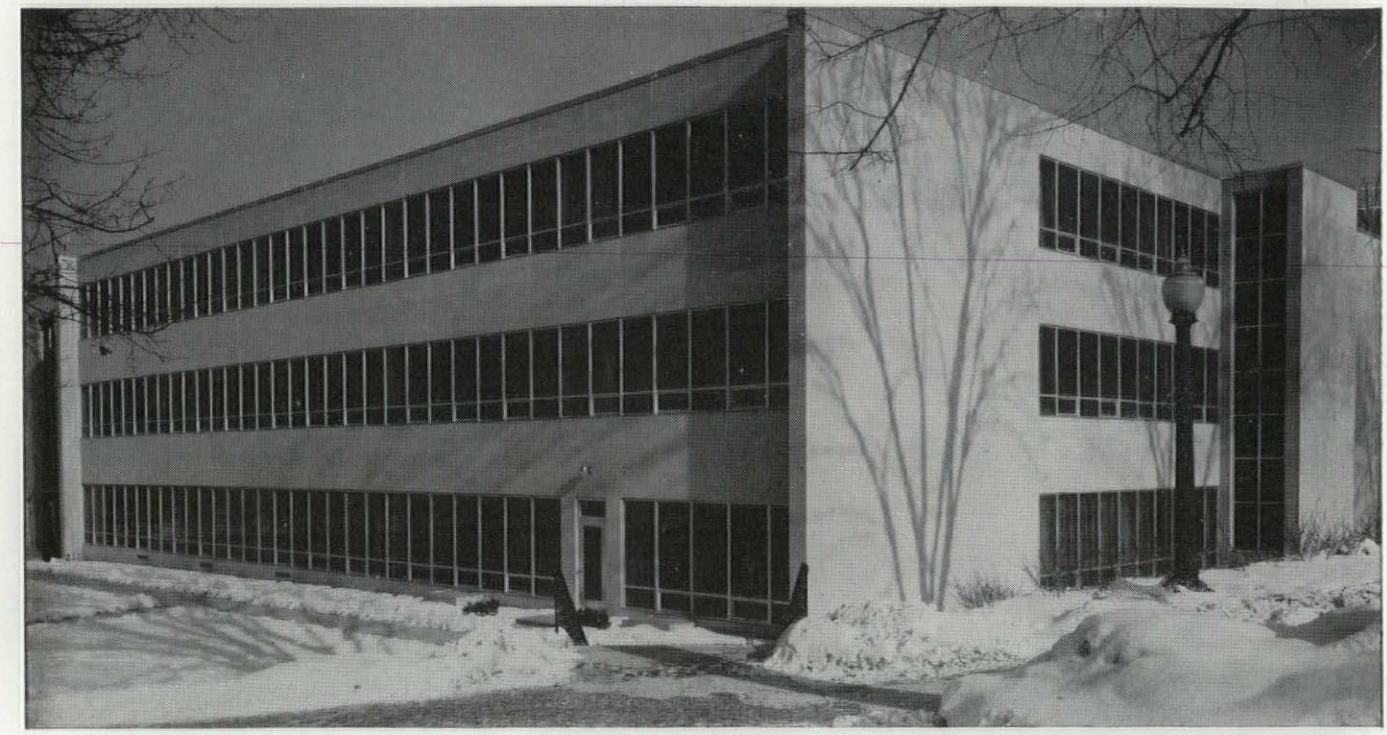
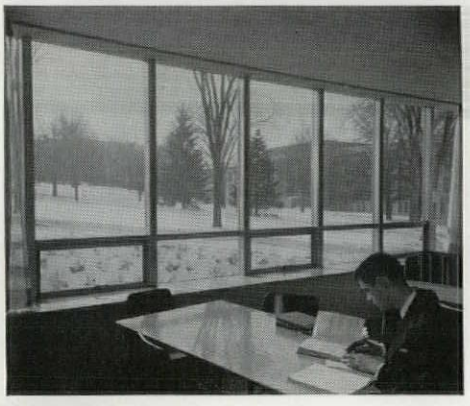
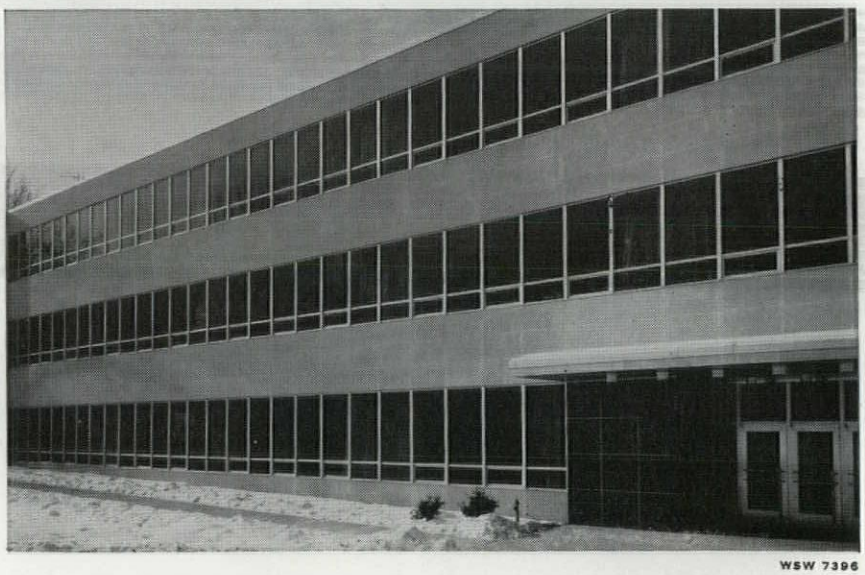


New Library Addition, *Kent State University, Kent, Ohio, has windows of American Lustragray glare reducing glass. Architects: Fulton, Krinsky & Dela Motte, Cleveland. Glazier: Toledo Plate & Window Glass Co., Cleveland.*





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the **glass** that reduces sun glare and heat without sacrificing vision

A modern library is a place for reading—and here at Kent is the ultimate in eye comfort by the use of controlled daylighting through American Lustragray glass. Students say, "It's just like studying out-of-doors in the shade." This gray glass softens glare from the snow; subdues the direct glare and heat of the sun. These same advantages are desirable in classrooms. And that is why American Lustragray is being specified by school architects for their newest buildings. The attractive, highly lustrous appearance Lustragray glass gives to the exterior of new buildings is also a reason for its tremendous acceptance. Lustragray provides all these features economically.

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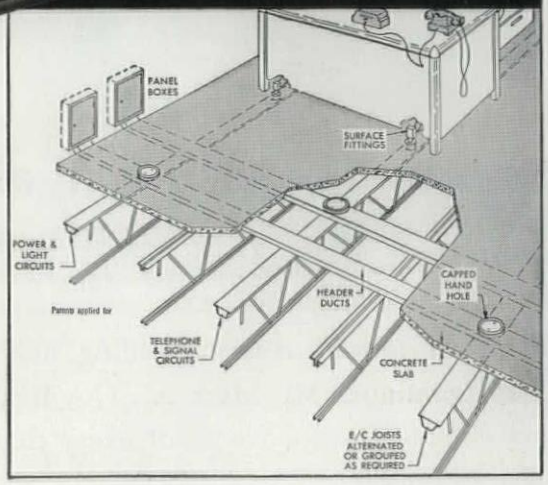
AMERICAN-SAINT GOBAIN CORPORATION is a merger of the former American Window Glass Company, Pittsburgh, Pa., and the former Blue Ridge Glass Corporation, Kingsport, Tenn. (which was a wholly-owned subsidiary of Saint-Gobain of Paris, France). American Window Glass Division plants are located in Arnold, Jeannette, Ellwood City, Pa.; Okmulgee, Okla. Blue Ridge Glass Division plant is located in Kingsport, Tenn.

This open-web steel joist carries two loads... structural and electrical

The E/C Joist is a Standard Open-Web Steel Joist with an electrical raceway substituted for the conventional top chord. Each E/C Joist has the same load-carrying capacity as a comparable standard joist, and the same load table applies.

LISTED BY U.L. Ceco E/C Joists are listed by the Underwriters' Laboratories for use with electrical header ducts and accessories manufactured by General Electric, National Electric Products Corporation and Walker Brothers.



Electrical, telephone and signal wires can be run from the panel boxes down through the header ducts, into the top chord of the E/C Joist and up through the surface fittings to desks located anywhere on the floor. Whenever desks are moved, surface fittings can be placed along the joists to service the new positions.

Now you can provide Underfloor Electrification Raceways for only 50¢ a square foot—half the cost of the next most economical quality system

As everyone knows, Standard Open-Web Steel Joists carry the structural load with utmost economy. And now, for as little as 50¢ a square foot more, Ceco's *Electro-Channel* Open-Web Steel Joists carry the electrical load, too. Cost is half of the next most economical quality system. Included with the Ceco system are header ducts, hand-holes and markers, installed—as well as the E/C Joist integral raceways. The 50¢ buys a two-duct system on 6′ 0″ centers. Comparable savings are offered in three-duct systems. Call your Ceco engineer or send coupon for manual. Ceco Steel Products Corporation. Sales offices, warehouses and fabricating plants in principal cities. General offices: 5601 West 26th Street, Chicago 50, Illinois.

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Says Harry L. Merrick, Sr. President,
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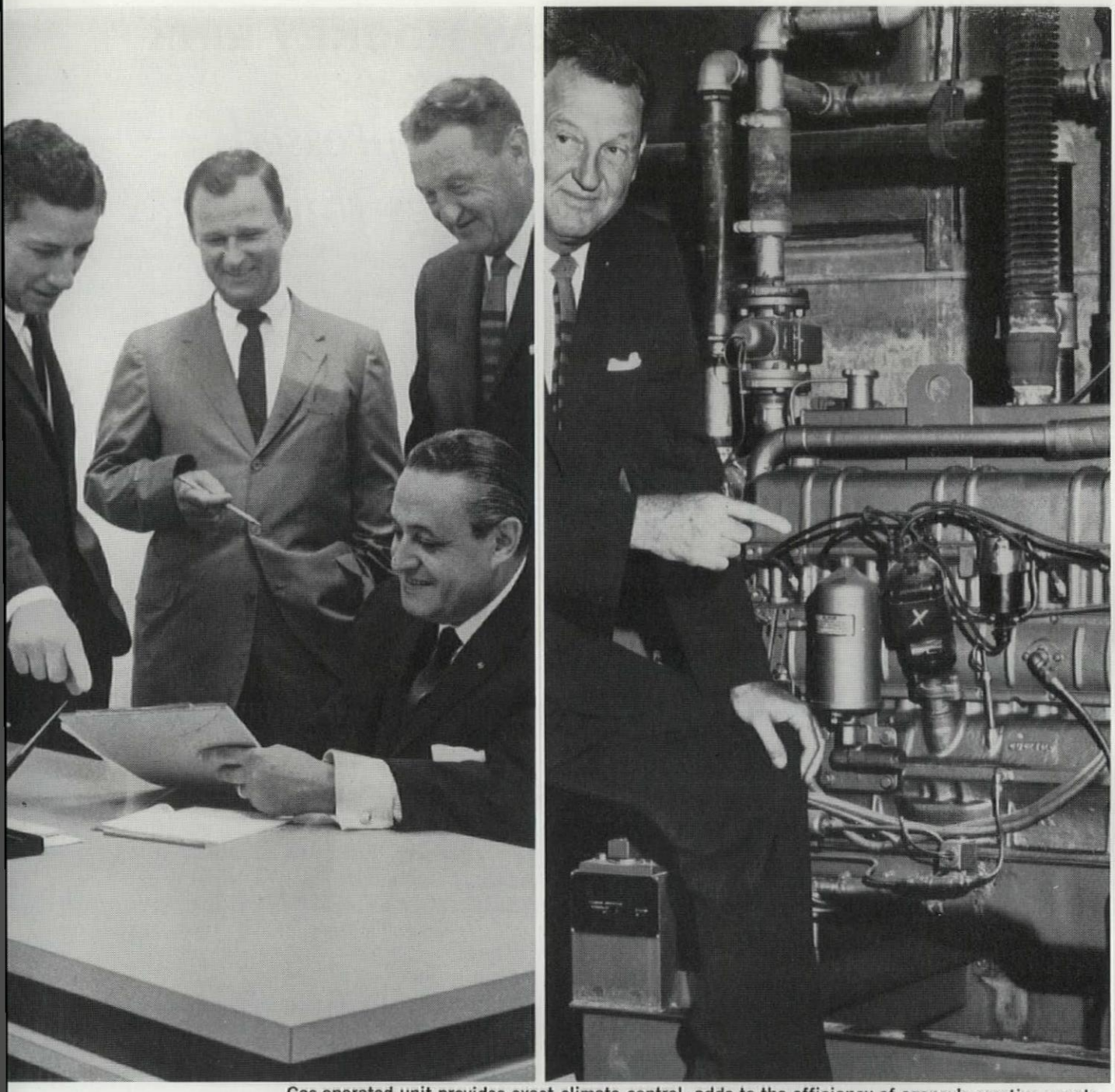

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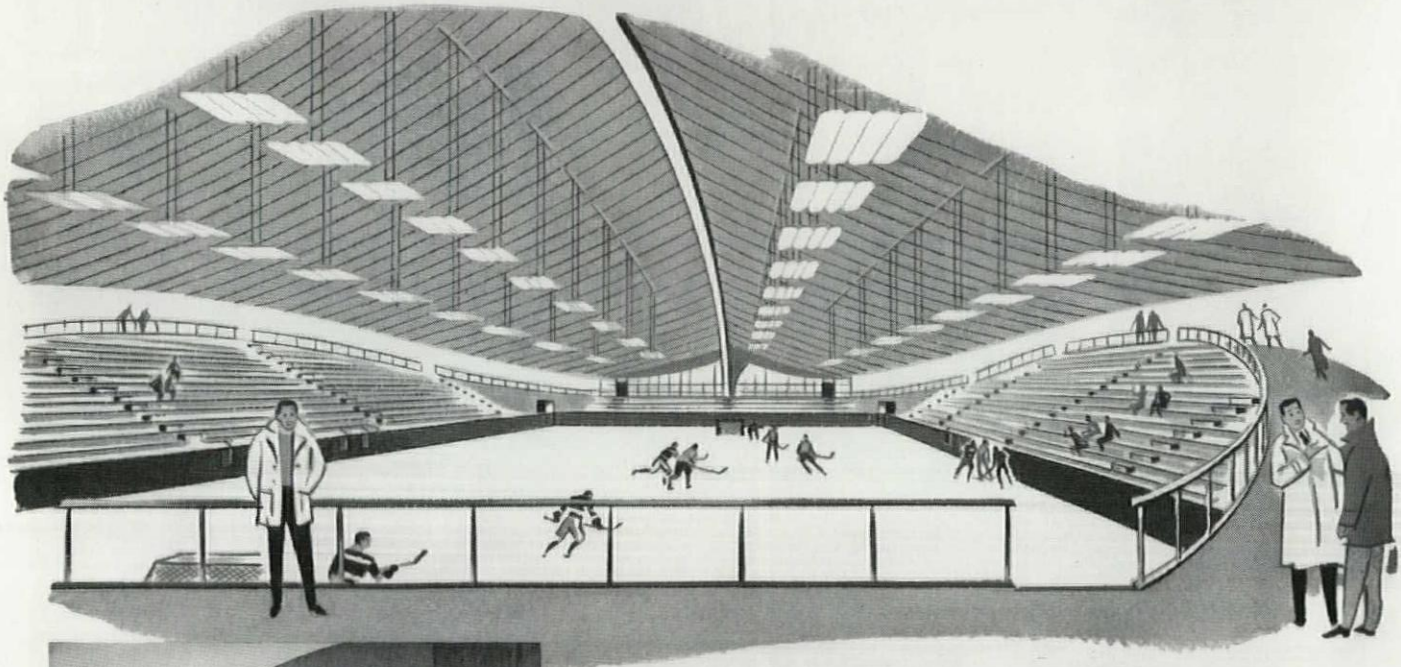
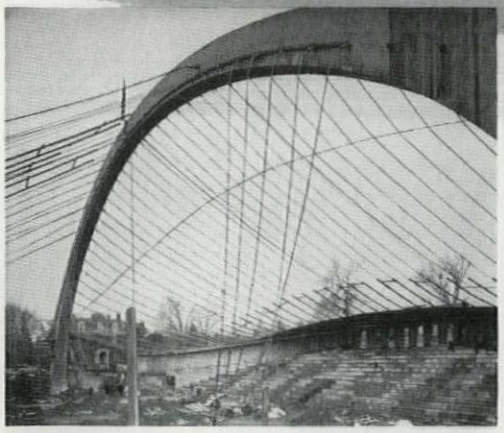
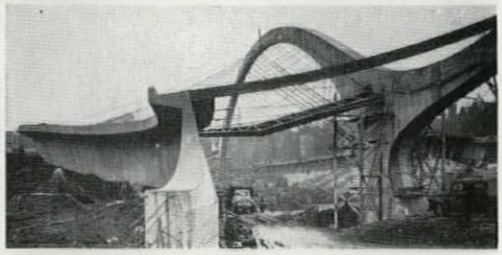
...one of the most clearly expressed suspension roof structures thus far...







Architect: Eero Saarinen and Associates, Bloomfield Hills, Michigan
Consulting Engineers: Severud-Elstad-Krueger, New York City
Contractor: George B. H. Macomber, Boston and New Haven

Designed by architect Eero Saarinen, the David S. Ingalls Ice Hockey Rink at New Haven, Connecticut, is the newest and one of the most breathtakingly beautiful suspended roof structures in existence.

The rink is formed by two tremendous lyre-shaped compression arcs resting on their sides, with a great, upright reinforced-concrete parabolic arch serving as the roof's backbone. The two compression arcs serve a dual purpose as wall and buttress.

All cables for this outstanding example of what can be considered a truly new building principle were supplied by Roebling. Initially, six 1¾" diameter galvanized bridge strand arch bracing cables were put on to support the parabolic arch during erection. Permanently, there are one hundred and twenty 15/16" diameter galvanized bridge strand roof-supporting cables. All strands are of various lengths and were prestretched, and all end fittings were proof loaded. The cables were installed in accordance with theoretical dimensions and no undesirable cable adjustments were found to be necessary, proving the accuracy of cable measurement and socketing.

Roebling's interest and constant activity in all phases of the suspended roof principle stem from its long and invaluable experience in *all phases of steel in tension* in all kinds of structures: bridges, ski lifts, conveying systems and guyed towers are some of the fields in which Roebling has pioneered with significant success. We will be pleased, at any time, to make available to you our findings and discuss with you our activities in this field . . . a field that gives every evidence of becoming one of the most important construction modes of all times. Write Bridge Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

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Indexed in Art Index, Architectural Index.

REINHOLD

officials cost-conscious

Dear Editor: Prof. J. Raymond Carroll of University of Illinois wrote in DECEMBER 1958 P/A about Charles Neergard's recommendations to experiment with various types of insulation for buildings in order to determine the effect they would have on the initial cost of heating elements and cost of operation during the life of the structure.

Professor Carroll, referring to public buildings, ventures an opinion that among public officials concerned with planning, construction and operation ". . . there is seldom anyone that has a direct interest in reducing the cost of the installation or operation of the mechanical equipment." He also states that the "... general reaction is to accept the cost as being a necessary evil."

With the other forceful statements pertaining to architects, engineers, equipment manufacturers we do not wish quarrel at present, but it is a grave injustice to the many civic-minded and dedicated public officials to classify them as indifferent to the spending of the taxpayers' money.

If P/A had published the Interim Report of Commissioner McMurray of June 1958, entitled "*Research Study In The Cost of Housing*," Professor Carroll would have noticed references to Neergard's insulation and heating suggestions, along with a hundred others painstakingly gathered from among architects, engineers, builders, material-men, and representatives of labor. He would have also learned about the several colleges that were engaged to study cost problems in public housing, precisely as he recommends.

Since the Interim Report was issued, Neergard met again with the writer and members of the faculty of Pratt Institute to discuss practical means of implementing the theory of better insulation in public housing.

Shortly thereafter, the School of Architecture of Pratt Institute and the Mechanical Engineering Department of Polytechnic Institute of Brooklyn have collaborated with us on just the kind of a project Professor Carroll writes about. An experimental shed is now under construction with a precise replica of an outside wall of a conventional type and another outside wall using cavity construction with a brick outside wythe and two insulating materials in the inner wythe. Special glazing of insulating values will also be applied. Thus, before long, a scientific record will be made available of the results of this experiment.

We wholeheartedly agree that Neergard and other civic-minded experts who have generously contributed their time, effort and knowledge to the improvements of construction should be highly commended.

JOSHUA D. LOWENFISH, Chief
Bureau of Architectural Research
Division of Housing
State of New York

important crossroad

Dear Editor: I have just finished reading some of my back copies of P/A and, fortunately, I discovered an excellent article on the Architect's Education in Mechanical and Electrical Services of Buildings, by Louis Axelbank (MAY 1958 P/A).

Today, architectural education is at a very important crossroad. Most schools are crowded and are facing the increasingly difficult task of coping with the high standards demanded in architectural education, and the mass teaching techniques required to satisfy the demand. Thus we see too many "adequately trained" graduates being produced, and too few "inspired" graduates entering the field.

Of course, Axelbank has touched on only one of the important phases of architectural training. But in practice how important this phase is! How many good buildings have suffered because of failure in the design of the Mechanical or Electrical systems! Recently Saarinen's beautiful Yale Hockey Rink was criticized for its poor solution to the design of the heating units. Lou Kahn has also demonstrated how beautiful designs could be accomplished by recognizing the mechanical and structural necessities as design controls.

I think Axelbank's teaching outline

(Continued on page 66)

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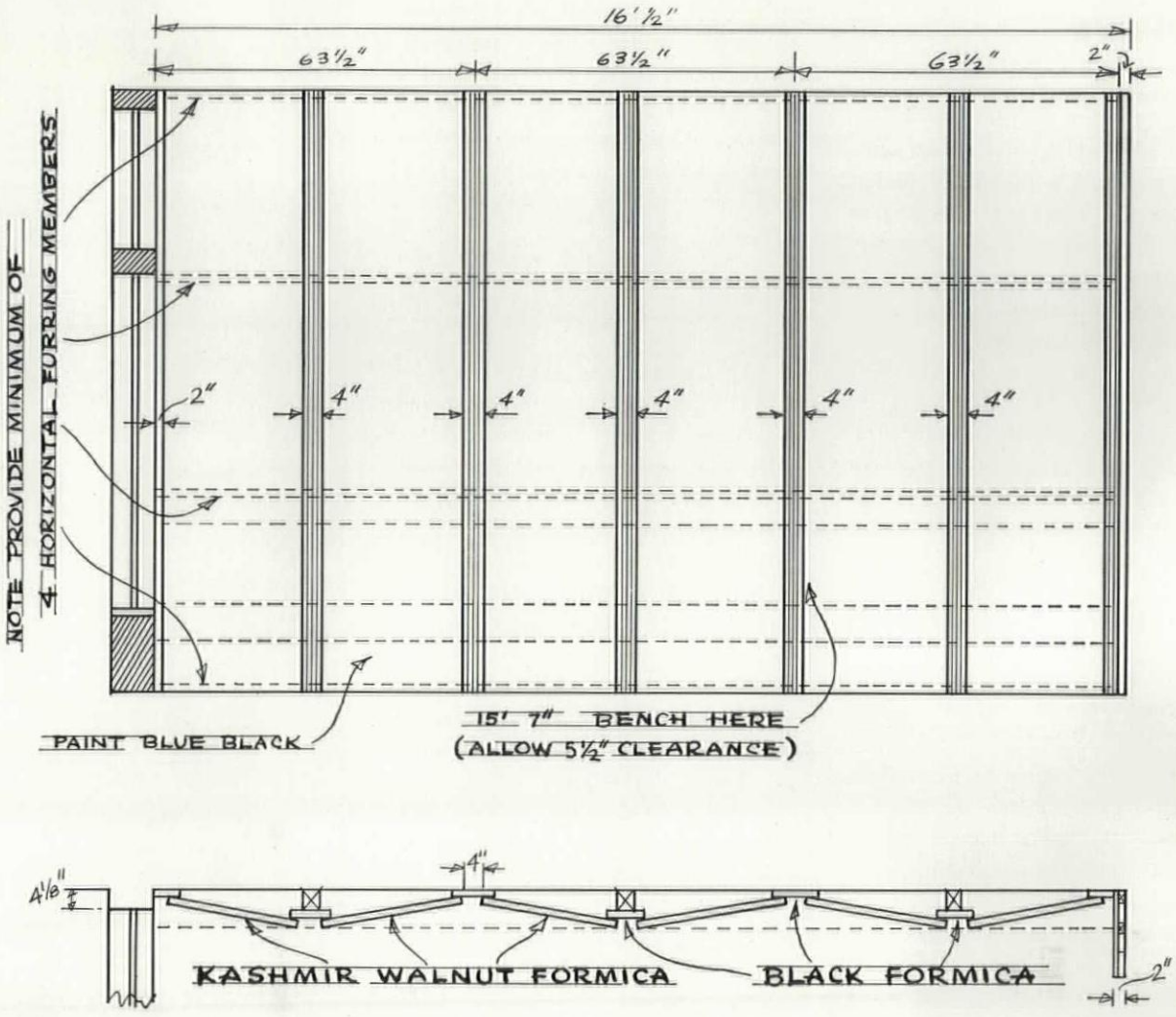

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p/a views

(Continued from page 63)

should be adopted by all schools as a minimum standard required for undergraduate study. Emphasis of this area of study and awareness of new developments in structural design are mandatory to being properly trained.

Too many of us have had to struggle with the on-the-job "make up" of these deficiencies.

Let us hope the schools in their present training evaluations recognize the need for a "fresh approach" to design training by the proper integration of "Axelbank" suggestions.

SIDNEY L. KATZ
Instructor
Pratt Institute

lighting—a vital factor in modern architecture

Dear Editor: The accompanying article, "LIGHTING—a Vital Factor in Modern Architecture," is being forwarded for your consideration for publication.

The composite treatment of this subject which appeared in SEPTEMBER 1958 P/A gave a credible review of present-day thinking in this field. While many phases of the subject were discussed, there was a hidden admission that some part of this work was being omitted. It may be more correct to say that the present practices are incomplete.

The material being presented was gained from a study based on the actual needs of the consumer. After spending two years (1923 to 1925) as a member of Nela Park Engineering Department, where I gained a thorough knowledge of illumination fundamentals, I went to the power company to obtain an understanding of the consumers' requirements. In this latter work, considerable attention was devoted to making note of customer complaints of unsatisfactory lighting. From this source, it was concluded that the consumer desires his lighting to provide a suitable life condition as its basic purpose. In other words, the customer judges his lighting by how he feels.

In the application of these ideas, it is obvious that Quality of Illumination (differences in types of lighting supplied) is an important factor. Then, too, since some people like one type of lighting and others will select another, it is necessary that types of people be duly regarded. In 1948, I published a book, *Lighting To Stimulate People*, as a means of presenting the materials gained. Likewise, I have authored some 50 or more articles for the technical press.

J. LLOYD KAMM
Illumination Consultant
Seattle, Wash.

•

The jet-driven airplane is a far cry from the lowly ox-cart. Likewise, radio and television hold little in common with the runner who carried messages 2000 years ago. In making appraisal of the accomplishments of the modern age, it is significant that speed, massiveness, and complexity do not predominate over the requirements for human comfort. In fact, they are subserviant to it.

In the progress mankind has made in scientific and educational fields in the past 20 centuries, the field of architectural design has enjoyed its share of advancement. Modern building materials and equipment have afforded timely solutions for the perplexing obstacles of yesteryears. And, although outstanding improvements have been made, there is much left to be desired. This situation is particularly true of the field of lighting applications.

The recent presentation of LIGHTING IS ARCHITECTURE by P/A gave a commendable review of present practices and design objectives. While the several papers included in this presentation gave due recognition for the wide array of applications now being made of lighting, they also contained mention of undeveloped fields. However, those meager statements did not define the need for lighting in Modern Architecture.

If one were to make a review of the growth of the field of architecture he would acknowledge that the initial buildings—perhaps a reconstructed cave or a primative lean-to—were merely shelters for the human body. As the scope of building increased, these structures became larger in size but still continued to serve the same purpose. With the passing of years and the growth of culture, the element of decoration became a prominent feature of important buildings. Likewise, the form of the building presented an environmental quality which

(Continued on page 69)

THE HOUSE OF SEAGRAM, NEW YORK CITY
Architects: Mies van der Rohe and Philip Johnson Associate Architects: Kahn and Jacobs
Director of Planning: Mrs. Phyllis B. Lambert General Contractor: George A. Fuller Company
Building Photograph: Ezra Stoller

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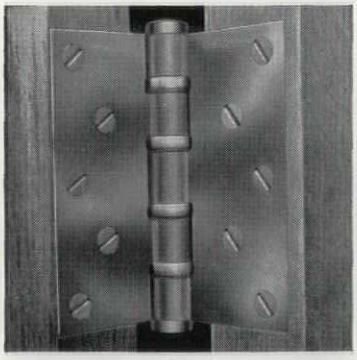

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The Modern Style

p/a views

(Continued from page 66)

found favor as a mental stimulus. And, thus, for peoples of different mental attitudes, architectural styles were established and perpetuated.

In this modern age, especially in our own country, we find peoples in many stages of development. To serve them, wide variations in architectural design must be applied to meet their individual requirements. This fact has been little understood. As a result, the designer has frequently been at loss to know why his creations were not being appreciated. Should his curiosity be aroused regarding this lack of response, he would find that conventional sources of information would afford little assistance. In fact, modern psychology deals very little with the inner nature of man.

In making the above statements, the writer has reviewed his experiences while making a study of people and lighting. As a lighting specialist employed by an electrical power company, he made note of the customers who complained about having "poor lighting." In many of the contacts made, it was found that the customer already had a creditable lighting system which met the requirements for vision. However, the customer did not like the environmental quality it produced. He described the condition as being either "annoying" or "dead." What one customer would accept, another would reject, and vice versa. Frequently it was noted that the lighting which the customer regarded as being satisfactory did not meet the requirements established by the authorities on vision. In this instance, it was my conclusion, as an illuminating engineer, that it was more essential that the customer live than that he see. Follow-up calls made after the installations had been in use for a period of time continually confirmed the merit of the installation. A multitude of these experiences gave assurance that the basic requirements for illumination had not been defined.

With the inadequacy of present practices in mind, attention will now be given to a fact which lighting men regularly ignore, viz: it is the radiant heat energy which puts the "laughter in the morning sunshine." In the engineering zeal for high efficiency in the production of light energy, a marked effort has been made to produce "cold light." However, in 20 years fluorescent lighting has not made the incandescent lamp an obsolete item! Nor will another century!

Further study of this subject has shown that the customer desires his lighting to provide a suitable life condition as its prime function! As such, he requires a mixture of slow-vibrating heat energy and fast-vibrating light energy which will provide a resultant vibration that is in harmony with his individual vibratory rate. As the mental qualities of the individual are evolved, his subjective self takes on a higher rate of vibration. If the rate of vibration of the lighting is of slower order than that of the individual, he will regard the effect to be annoying or irritating. If vibratory rate of the lighting is of higher order than that of the individual, he will find the environment produced to be dull or dead. Accompanying each of the composite lighting effects is a corresponding degree of surface brightness of the luminaire and a center-of-gravity position for the light source. If the lighting is mounted too high, the effect will be dull or lifeless. If too low, the effect will be that of depression. In conclusion, it can aptly be said that the lighting is correct when it feels good, as appraised by the person who is to use it.

To illustrate the merit of application of the above presentation, mention will be made of a recent incident. A customer in a lighting fixture store had overheard some of my remarks about the people who would select certain types of lighting. When an opportunity permitted, this customer said: "I am purchasing a reading lamp having three cone-shaped reflectors attached to an upright post, like this. What type of person am I?" My reply was: "You are very exacting in the manner in which you do things with things. What do you do?"

"I work in a cleaning establishment." Yes, she would find the lamp to be satisfactory.

Modern Architecture must serve the needs of the physical, the mental, and the spiritual components of man! The correct use of lighting will be a vital factor in the accomplishment of that goal.

J. L. K.

The President's Dining Room, Marine Trust Company, Buffalo, N. Y., paneled in Weldwood Algoma Grade Architectural Butternut. Architects: James, Meadows, and Howard, Buffalo, N. Y.

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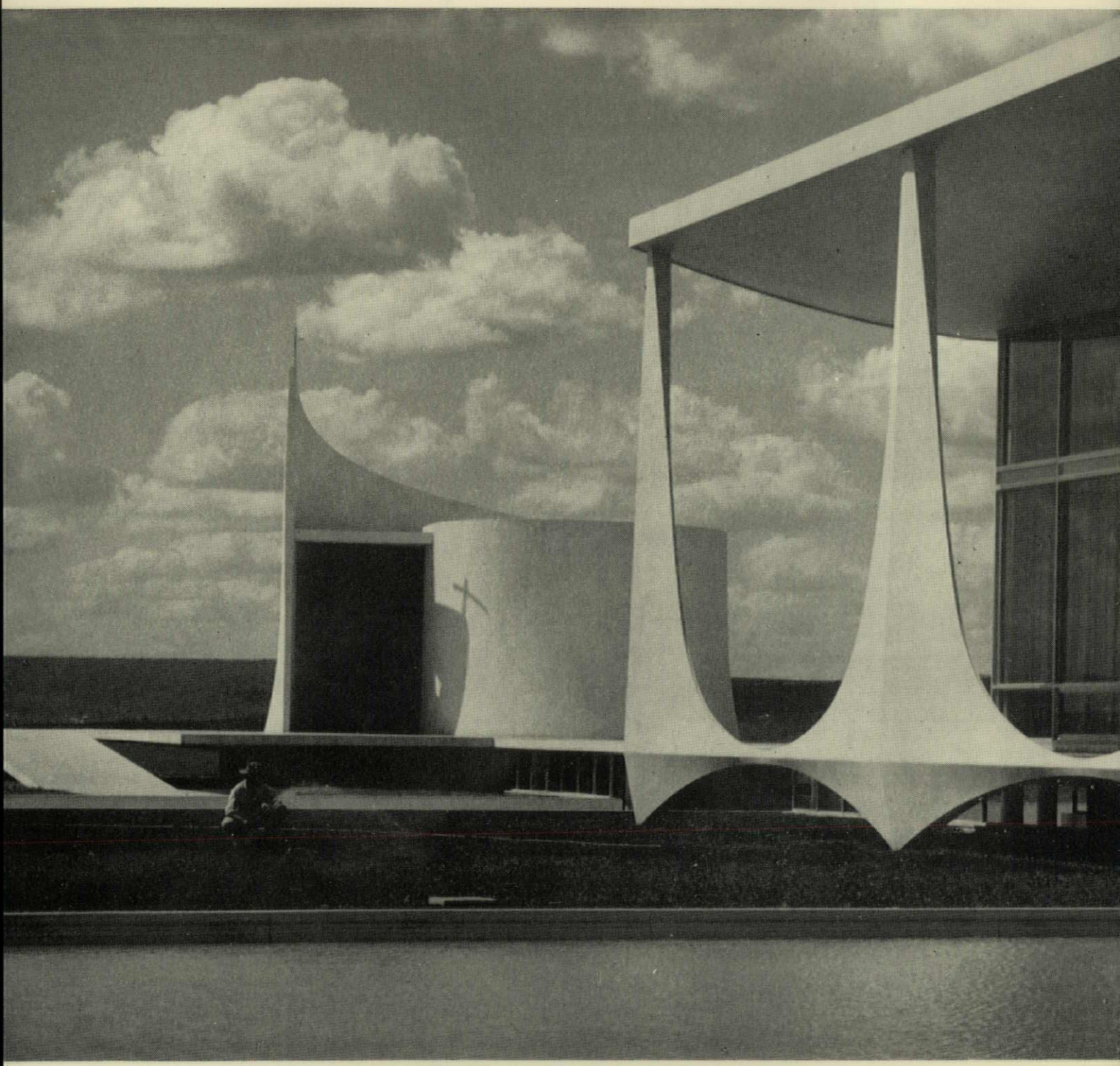
news report



- Presidential Palace, a Hotel, and Housing Rise (above) in Brasilia
- Antonin Raymond Reports Recent Work of Tokyo Office
- Plastic Panels Used for Walls, Roof of California House

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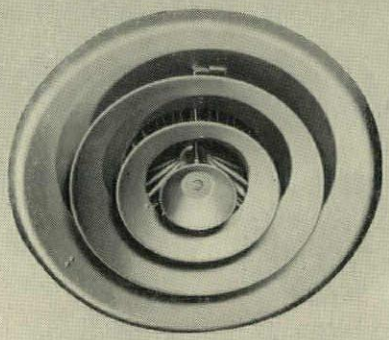

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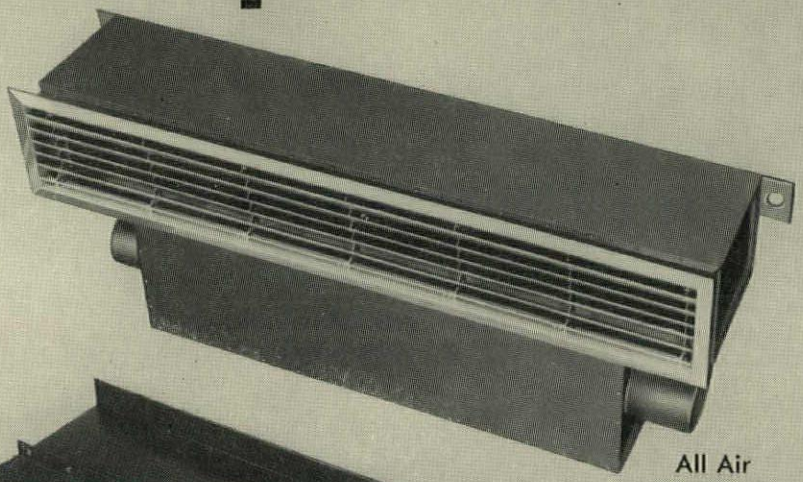

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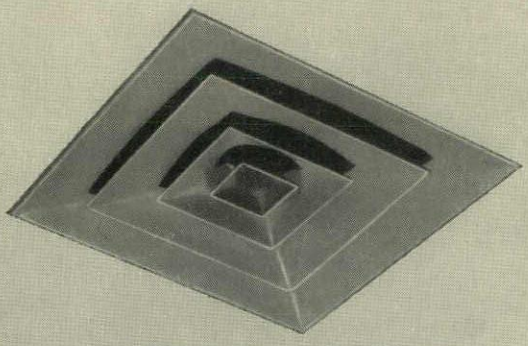

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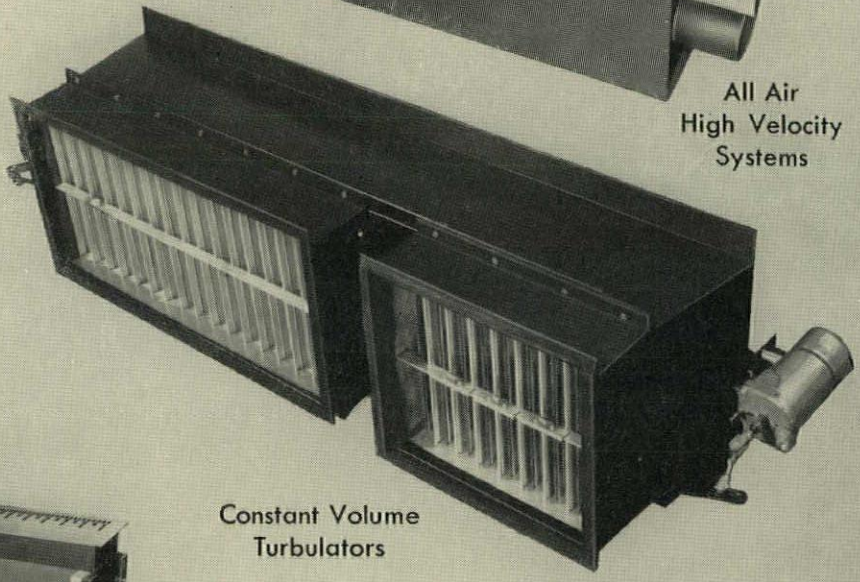

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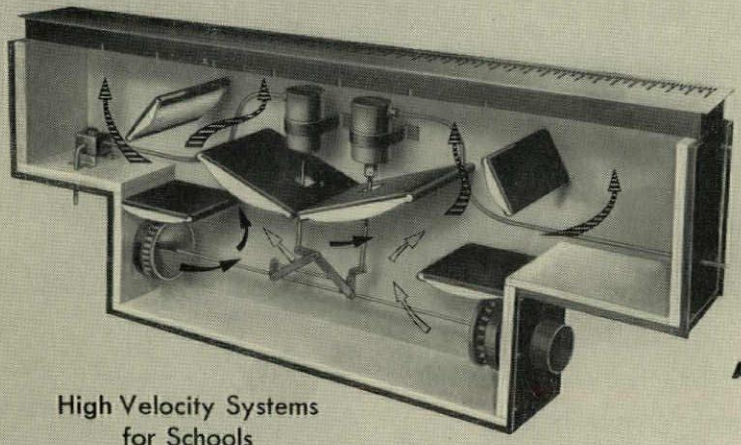

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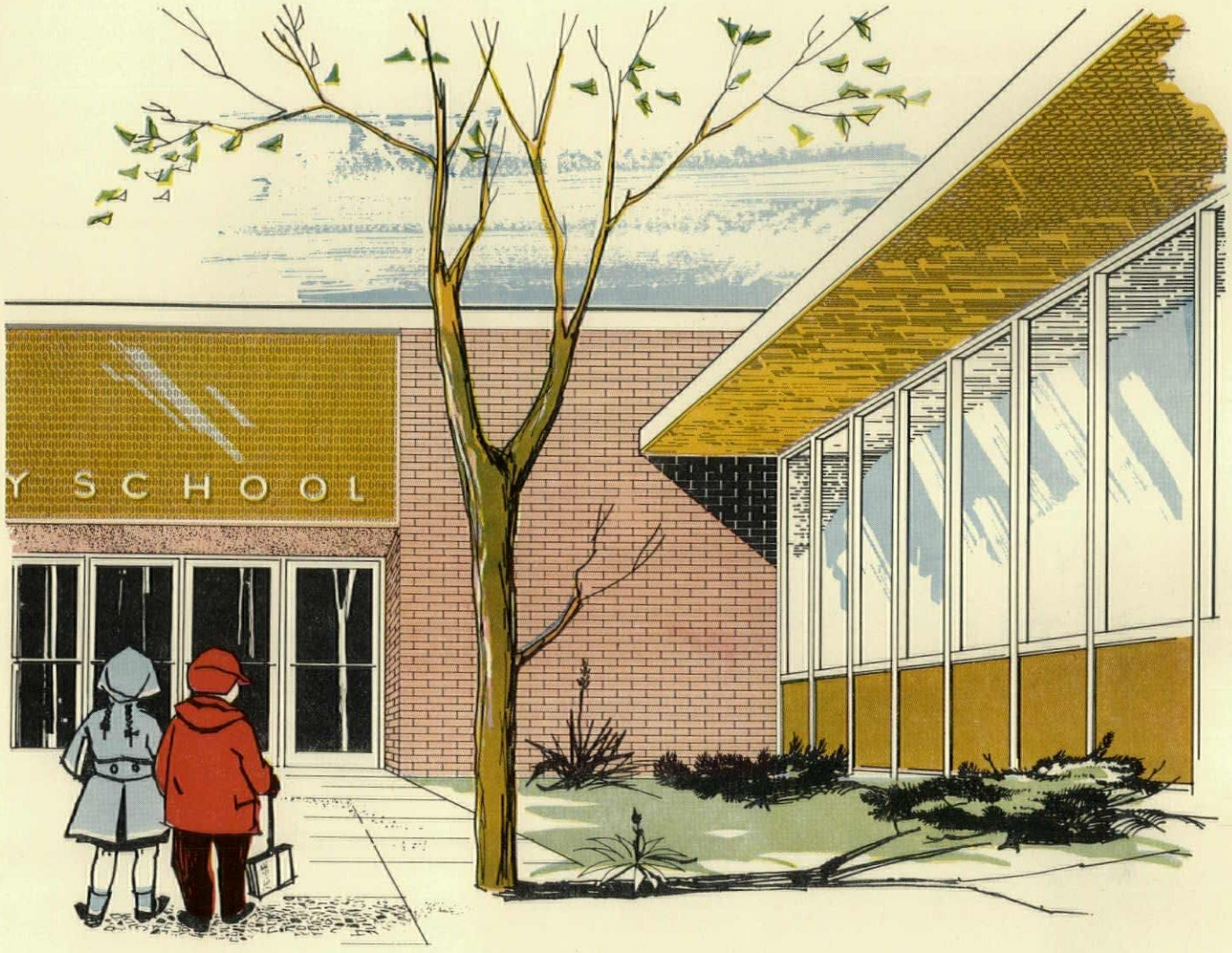

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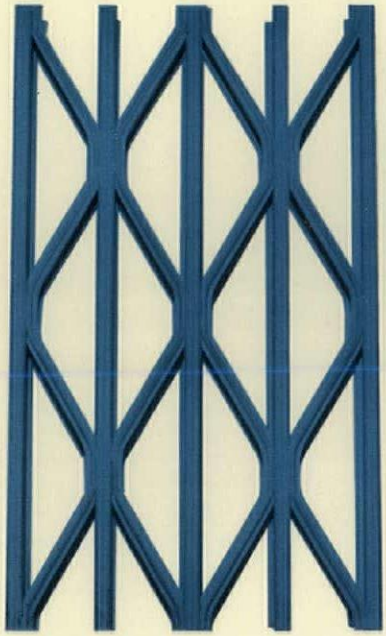

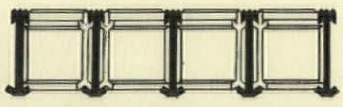

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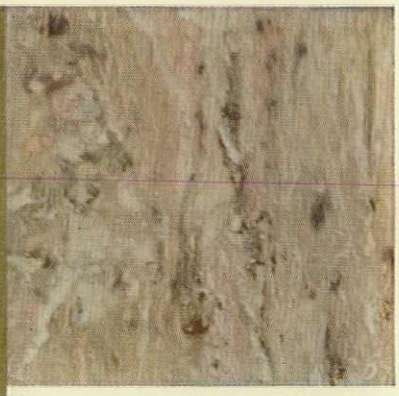

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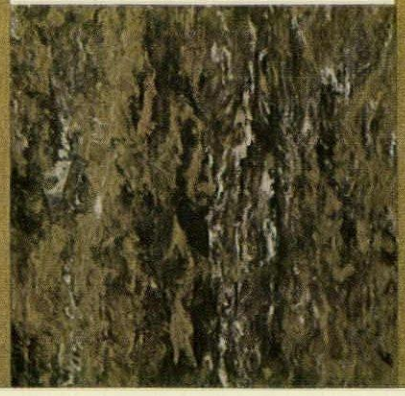

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Photos: Marcel Gautherot

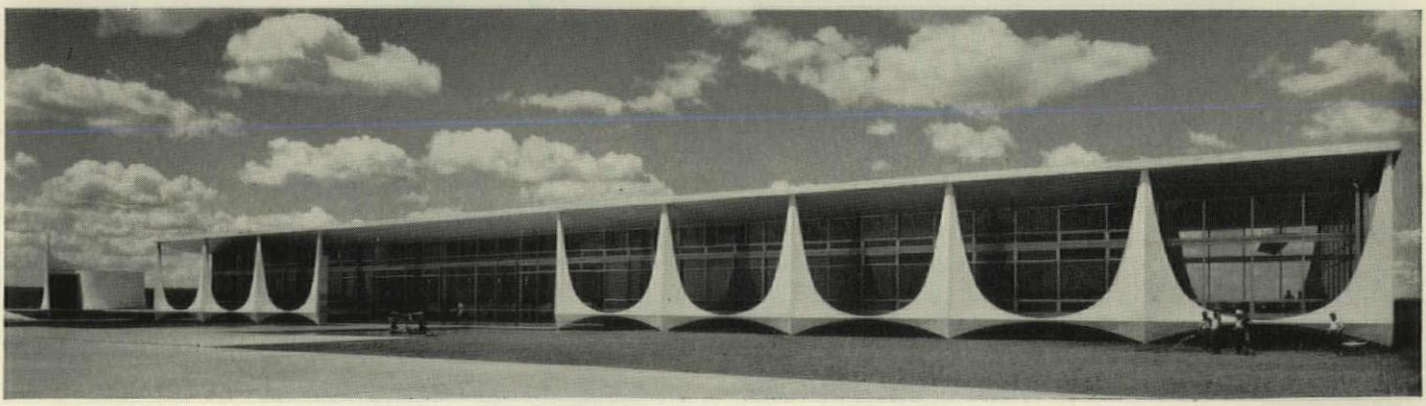
PALACE, HOTEL, AND HOUSING RISE IN BRASILIA

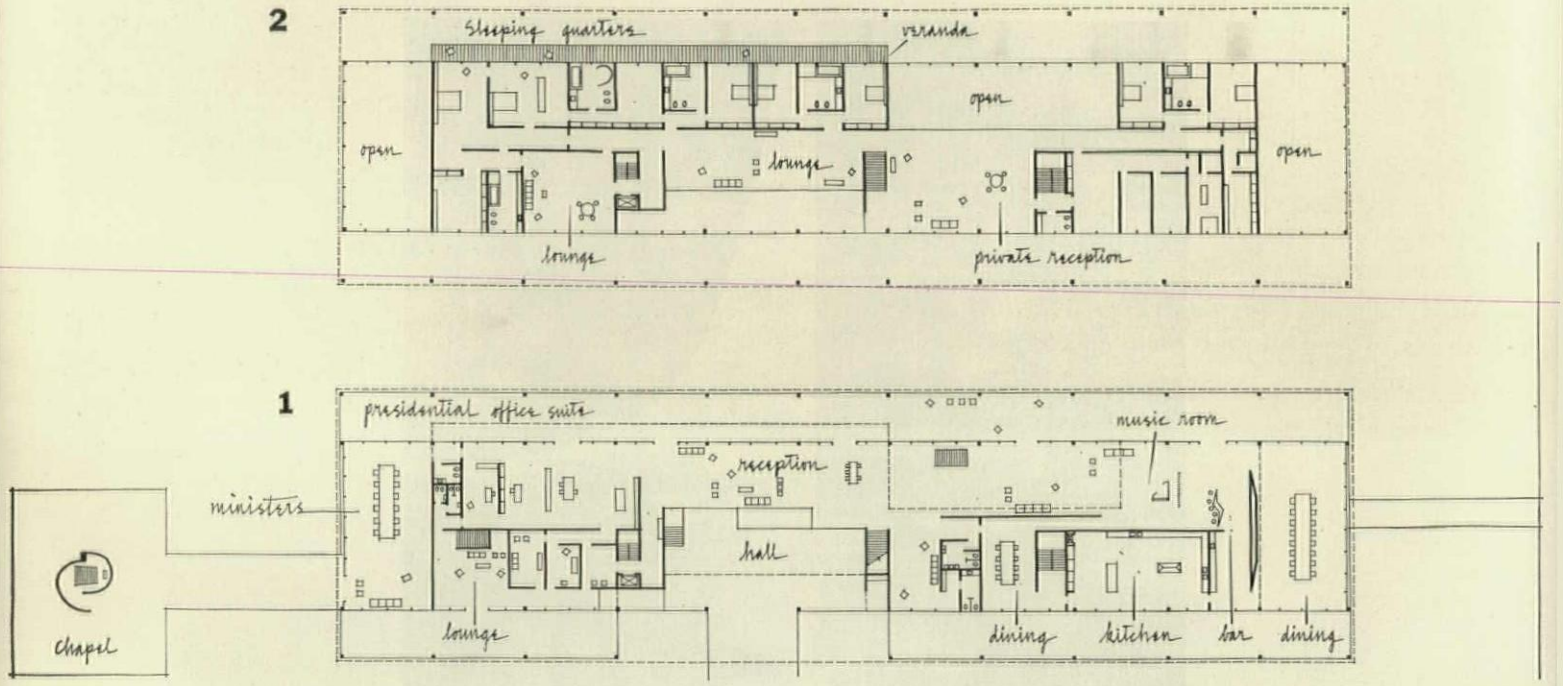
New Capital's First Buildings Completed

BRASILIA, BRAZIL—Six hundred miles from Rio de Janeiro, the new capital of Brazil is rising. On the site of what will be eventually a city of half-a-million people, there exist today the first permanent elements—the Presidential Palace, a tourist hotel, and the initial units of low-cost housing for Government workers.

The Presidential Palace, called "The Palace of Aurora," and all other official buildings have been designed by Architect Oscar Niemeyer; planning of Brasilia is by Architect Lucio Costa. Like Pres. Juscelino Kubitschek, the architects fly in from Rio several times a month to check on progress of the huge project.

The Presidential Palace that Niemeyer has created is a vast, two-story structure with deep, lofty loggias on both long sides. The roof is supported by a series of dramatic, stalagmitic, marble-faced, concrete columns, broken at one point on the main façade to provide an appropriately monumental entrance. At the left of the Palace, and connected by a footbridge to the entrance loggia, is the Palace Chapel (page 71), a conchlike building of the same materials as the columns and decks of the Palace. "Floating," in the reflecting pool before the Palace, is an heroic-scale sculpture, by Alfredo Ceschiatti, of two women drying their hair. To the right of the Palace, connected by a covered walk, is a low, flat-roofed building containing garage, laundry, and dormitories and dining hall for the Palace staff. The rear loggia of the Palace overlooks a new lake, created by the damming of the Paraná River, which surrounds Brasilia on three sides.





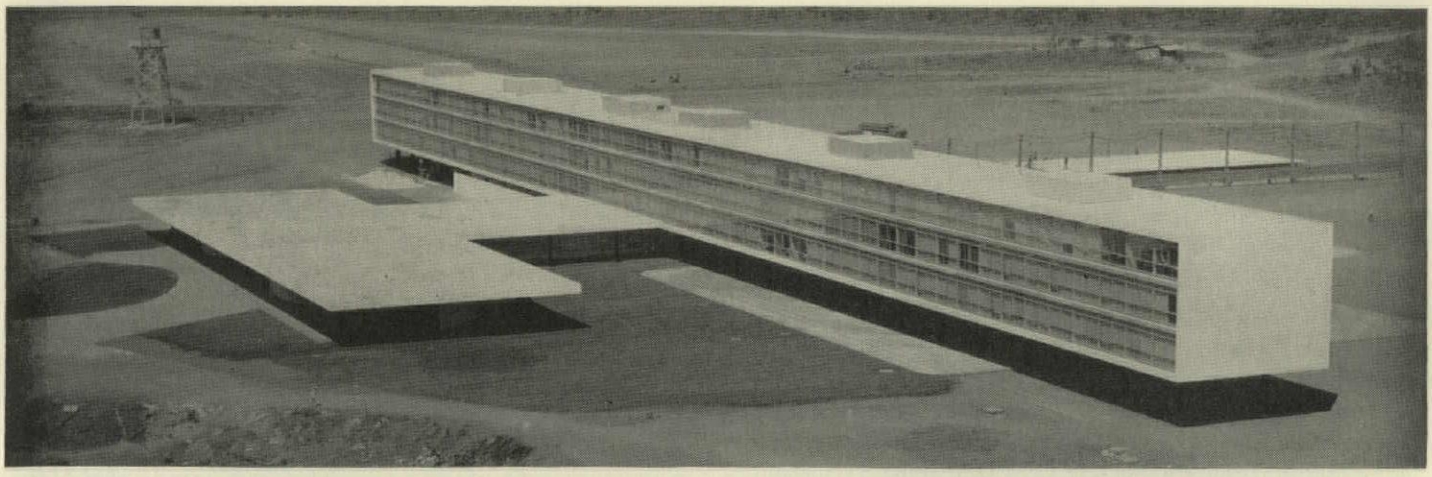
There are a large swimming pool and cabaña between the Palace and the lake.

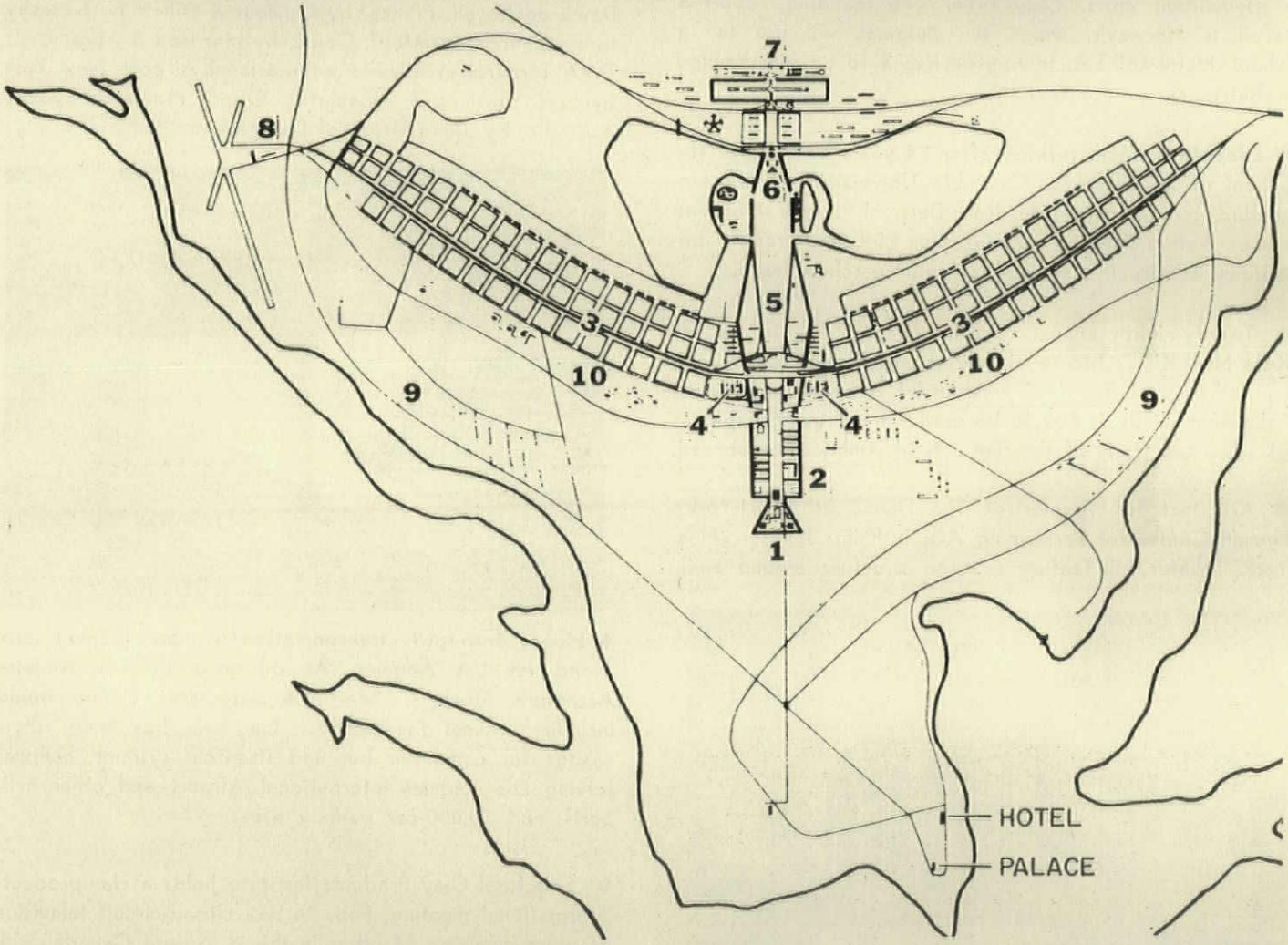
The ground floor of the Palace has, at the chapel end, the Presidential Office Suite, and the Ministers' Conference Chamber (below left). At the opposite end of the building, separated by the entrance hall and the great State Reception Room (below right), are the State Dining Room, music room, bar, a smaller dining room, and kitchen facilities.

The upper floor contains the Presidential living quarters, including a salon for more intimate entertaining of guests, guest rooms, private suite for the President's family, and such conveniences as a barber shop and facilities for turkish bath and massage.

Near the Presidential Palace stands the 180-apartment tourist hotel (acrosspage), a three-story glass-and-concrete structure on piers. The area between the Palace and the hotel will be developed as a park.

The program for completion of Brasilia calls for installation of the Government there in April, 1960. Still to be built is 90% of the main section of the city (acrosspage). The long axis of the city, principally residential superblocks, **3**, will be 7½ miles long. The short axis, beginning at the federal center, **1**, and ending at the military barracks, **7**, will be five miles long. The triangular federal center, called "Plaza of the Three Powers," will contain the Executive, Congress, and Judiciary buildings. Each side of the plaza will be almost 3000 feet long. Lining an esplanade leading away from the plaza will be the administrative buildings of the Government, **2**. The main business district, **4**, will be in two halves, adjacent to the cultural and recreation district





of the capital, **5**. The park and sports section, **6**, will feature a botanical garden and a zoo. The airport, **8**, is already at one terminus of the city. Residences, **9**, will be along the lake front, out from the center of the city, and embassies and legislations, **10**, will be closer in toward the center.

The master plan for Brasilia was approved two years ago (April 1957 P/A), and President Kubitschek immediately gave the order to proceed without delay. In contrast to other solutions advanced, the Brasilia plan provides for a fixed-population city of half-a-million. This rigid number is apparently intended to cut down at least some of the spreading bureaucratic structure which presently burdens the government in Rio. The majority of the 500,000 inhabitants will be housed in superblocks forming the city's main residential sections. These blocks will feature six-story apartments grouped around a court and shielded from traffic by heavy peripheral planting. Pedestrian traffic will be separated from vehicular traffic wherever possible; the superblocks and the center of the city will be served by express roads which will run to the city limits. Rapid-transit bus or trolley lines will also use these roads. A network of subsidiary roads and streets will serve the private residential area between the city core and the lake. Cemeteries will lie at each end of the city. Planned as the visual emblem, or focal point, of the city, is a radio and TV tower, which will rise from the municipal park near the heart of Brasilia.

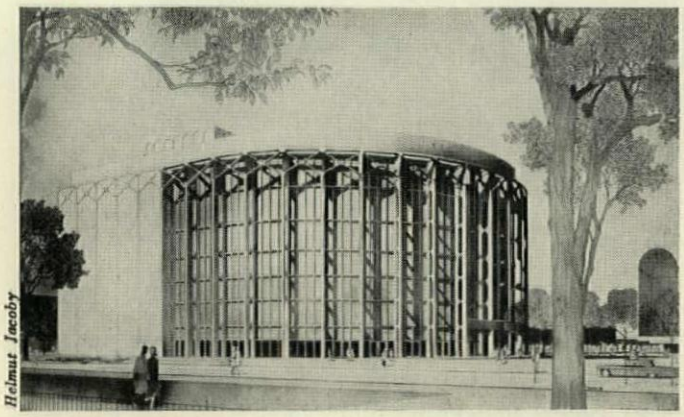
ARCHITECTURAL BULLETINS

● Americans who were proud of Edward D. Stone's dramatic pavilion for Brussels Fair will be pleased that the Belgium Government has accepted it and the nearby theater as permanent additions to the royal park. The theater will be preserved intact but the pavilion will be converted to an exhibition hall by removing structure above the mezzanine and remodeling the spacious main floor, retaining the central court and pool. Dramatic appeal will be lost, but the scheme will save U.S. some $1 millions in demolition costs. Only other Fair building reported saved is Norway's, which the Belgians will use for a school. Huge U.S.S.R. factorylike hall is to be reassembled in Russia as . . . a factory.

● Leopold Arnaud, retiring after 24 years as Dean of the School of Architecture, Columbia University, will be succeeded by James Grote Van Derpool, Avery Librarian named Acting Dean by Pres. Grayson Kirk, who praised "immensely constructive service" of retiring school head.

● Twenty-eighth annual consideration of candidates for Kate Neal Kinley Memorial Fellowship has been announced by authority of Board of Trustees of University of Illinois. Fellowship yields $1,500 to be used for defraying expenses of advanced study of the fine arts in America, or abroad.

● Architect for Theater of The Dance at New York's Lincoln Center for Performing Arts is Philip Johnson, New York. Theater will feature exposed structure around audi-



Helmut Jacoby

torium and lobby areas. Consultant for design of stage and backstage facilities for Theater and also Metropolitan Opera (Wallace Harrison, Architect) is Prof. Walther Unruh, who has performed similar services for theaters and opera houses in Germany, Spain, Belgium, and Australia.

● The International Council for Building Research (CIB) General Assembly to take place Sept. 21-25 in Rotterdam, Netherlands, will organize International Congress which will be open to members of CIB, their representatives, other experts in sphere of building.

● "British Artist-Craftsmen" design show conceived to familiarize public with work of Britain's artist-craftsmen since end of World War II, and recently opened at Smithsonian Institution, is currently on view at Currier Gallery of Art, Manchester, N. H. through Mar. 15, before starting nationwide tour of leading American museums.

● Museum of Modern Art's exhibit of four new buildings, Feb. 11-Apr. 19, shows in models and photographs: Notre Dame de Royan, France, by Guillaume Gillet; First Presbyterian Church, Stamford, Conn., by Harrison & Abramovitz; TWA Terminal at Idlewild International Airport, New York, by Eero Saarinen & Associates; Opera House in Sydney, Australia, by Joern Utzon of Denmark.

● Huge downtown transportation Center (above) proposed for Los Angeles. As designed by Los Angeles Architects Albert C. Martin & Associates, Center would include terminal facilities for long-haul bus lines, interchange for commuter bus and streetcar systems, heliport serving Los Angeles International Airport and other heliports, and 10,000-car parking area.

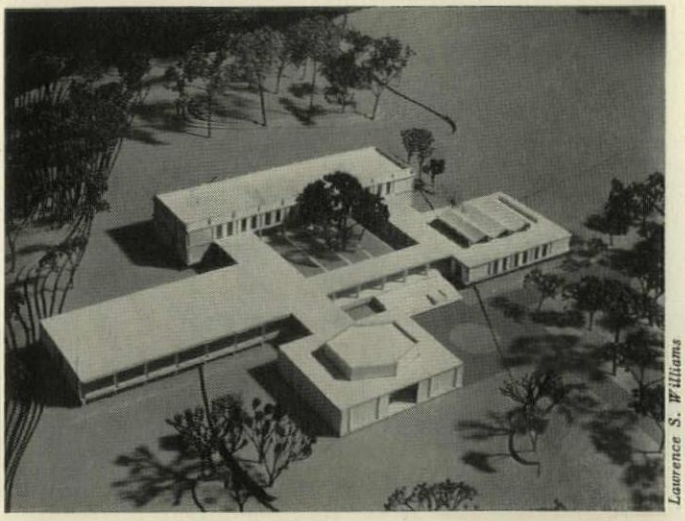
● Structural Clay Products Institute holds a clay-products informational meeting, Feb. 24, via closed-circuit television program involving 14 cities in the U. S. and Canada, with regional SCPI organizations as hosts. Participants will be Paul Rudolph, Chairman, Architectural School, Yale University; Otto L. Nelson, Jr., vice-president in charge of housing, New York Life Insurance Company; Fred N. Severud, Consulting Engineer, Severud-Elstad-Krueger Associates, New York; John B. Kelly, contractor, Philadelphia; Harry C. Bates, president, Bricklayers, Masons & Plasterers' International Union, Washington, D. C.

● National photographic contest focused on Seagram Building, New York, has been announced by Chase Brass & Copper Company. Sixty prizes, totaling $1,500 in cash, will be awarded for winning views—30 in black-and-white

division and 30 in color. First prize for each division will be $300. Second prize $100; third, $50; fourth and fifth prizes, $25 each. In addition, there will be 25 runners-up prizes of $10 in each division. Entry blanks and copies of rules are obtainable at leading photographic stores in New York, New Jersey, and Connecticut, or by writing: Chase Brass & Copper Co., P.O. Box 2611, Grand Central Terminal, New York 17, N. Y. Contest closes Mar. 15, 1959.

● George F. Lamb, Los Angeles specifications writer and president of Southern California Chapter, CSI, has been appointed executive secretary of Construction Specifications Institute. He is the first executive employed by group, since its founding in 1948. . . . John D. Paulus, Jr., a member of St. Louis Chapter, AIA, has been appointed head of Missouri's new Office of Planning and Construction. . . . Arthur F. Schwarz, past president of St. Louis Chapter, AIA, has been elected chairman of the new Planning Agencies Council, created to meet the needs of various planning agencies in Greater St. Louis. Schwarz is Chairman of St. Louis City Plan Commission. . . . John S. Bolles, San Francisco architect, has been elected president of San Francisco Art Association. . . . Joseph L. Young, famed mosaic muralist recently elected Lifetime Fellow of International Institute of Arts & Letters, has been extended joint invitation by National Association of Glass Manufacturers and Foreign Ministry of Trade of Italian Government, to deliver series of lectures in Venice, Ravenna, Florence, and Rome, during February.

● Philadelphia Architect Vincent G. Kling has designed Pierre S. DuPont Science Building for Swarthmore College, Swarthmore, Pa. Building comprises four elements organized around central courtyard: chemistry unit, physics wing, 200-seat lecture hall, and science library. Consultants:



Lawrence S. Williams

Structural Engineers Allabach & Rennis and Mechanical-Electrical Engineers Pennell & Wiltberger.

● Midwest Conference of Building Officials has issued Modern Standard Building Code in bound-book form. Code is result of more than two years' effort by MCBO's Building Code Committee, and contains 490 pages of information covering construction techniques and materials in buildings of all types and occupancies.

● Twenty-story, luxury-apartment tower to rise in Tulsa, Okla., has been designed by Architects Harrell & Hamilton, Dallas, Tex. Building will have 102 one-, two-, and three-bedroom apartments, plus three-unit penthouse. Amenities will include clubroom, heated swimming pool, putting green, and greenhouse.

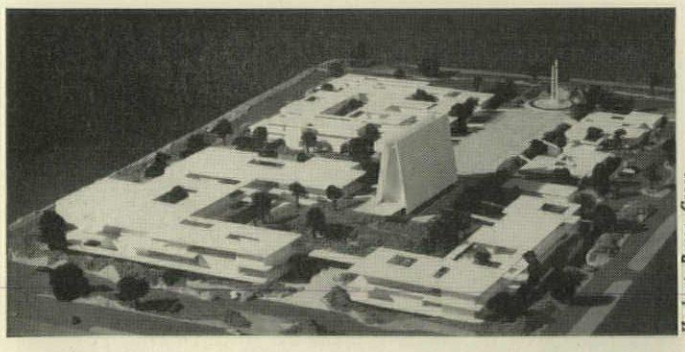
● City of Seattle has retained Paul Thiry as prime architect for its World's Fair-Civic Center, James Chiarelli and B. Marcus Priteca as architects for renovation of auditorium, Fred Bassetti and John Morse as architects for ice arena's alteration.

● National Institute for Architectural Education, 115 E. 40 St., New York, N. Y., has announced election of officers for the coming year: chairman—Esmond Shaw; vice-chairman—Joseph Judge; secretary—Jose A. Fernandez; treasurer—Daniel Schwartzman—all New York architects.

● Northeast Johnson County, Kans., apothecary's establishment is said to be world's largest drug store. Two-level building, designed by Kansas City, Mo., Architects-Engineers Kivett & Meyers & McCallum, offers 38,000 sq ft of merchandising space. Exterior walls are 6'x12' glass panels set in aluminum sash. Porcelain-enamel screen forms wall above windows, which are protected by system of extruded-aluminum louvers (below).

L. D. Jones

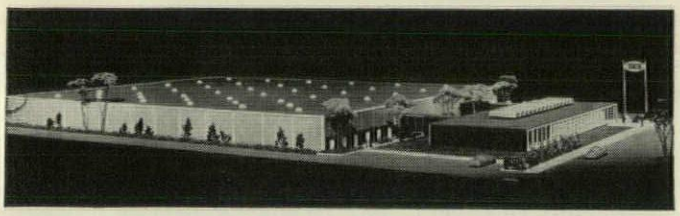
p/a news report: **bulletins**



Herbert Bruce Cross

● New campus plan for Southern California School of Theology, Claremont, includes central sanctuary building; classroom facilities and related areas; administration building; fellowship-building complex, including meeting room, kitchen, and supporting areas; and housing for students, faculty, and visitors. Designed by Los Angeles Architects Charles Luckman & Associates (formerly Pereira & Luckman), with Associated Architects Criley & McDowell.

● Dux, Inc., importers and manufacturers of Swedish furniture, will build new office and plant in Burlingame, Calif. Designed by San Francisco Architects Knorr-Elliott Associates, building includes office element in front of large factory area. Two units link office to factory, one containing employes' dining and lounge facilities, the other design and research departments. Connections also create pleasant courtyard between two main elements. Landscape Architect, Richard Haag.



● Design Engineering Show, expected to attract 400 exhibitors, coincides with fourth annual design engineering conference scheduled for Convention Hall, Philadelphia, May 25-28.

● Ninth Annual Iron & Steel Conference, sponsored by Pittsburgh Section of Instrument Society of America, will be held in Pittsburgh, Mar. 11-12.

● Building Stone Institute holds its 40th annual convention in Atlanta, Ga., Feb. 24-27.

● Twenty-first annual convention of National Association of Architectural Metal Manufacturers will be held Apr. 12-17, at Monteleone Hotel, New Orleans.

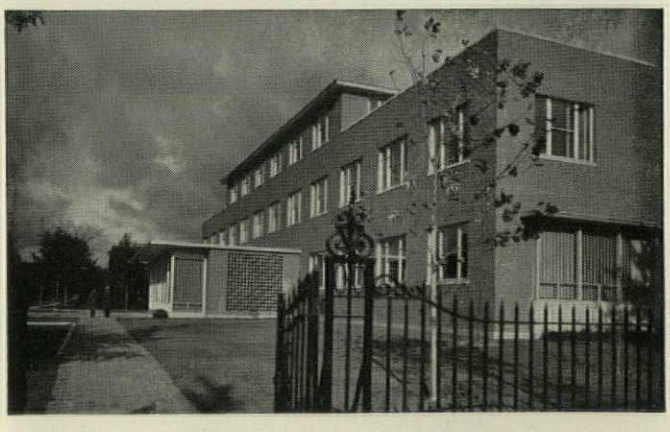
● Building Research Institute has scheduled eighth annual meeting for Apr. 6-8, at Penn-Sheraton Hotel, Pittsburgh. . . . BRI conference on building illumination to be held May 20-21, at Statler-Hilton Hotel, Cleveland—will present findings of 10-year research program conducted by Illuminating Engineering Society, in terms of new IES lighting recommendations.

● Revitalization program for Newark, N. J., central business district brings together a team of five well known city planners: Oscar Stonorov, architect and city planning consultant; Victor Gruen of Victor Gruen Associates, developers of many central business district plans; Robert B. Mitchell, city planner, transportation consultant; Dr. Ernest H. Jurkat, president, Marketers Research Surveys, Inc.; and Wilbur Smith of Wilbur Smith Associates, whose firm recently finished parking study for central business district of Philadelphia.

NYU Photo: Irwin Gooen

● Co-education will reach Bronx campus of New York University with completion of dormitory (above) by Architects Marcel Breuer & Associates of New York. Seven-story dormitory will house both men and women, separated by movable partitions (which will make it possible to shift dividing line according to male-female ratio of students). Bridge corridors connect to common dining hall. Also included in project is Gould Hall of Technology (upper right) with connected lecture-room wing.

● Lamp Research Center at Nela Park, Ohio, was dedicated recently by General Electric Company. Center will house research organization dedicated to "advancing the



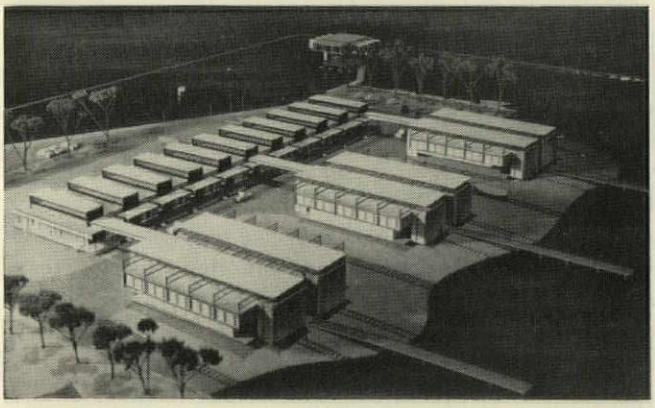
Scott-d'Arasien

frontiers of knowledge of light production and its effect on all living things." Architects for Center were Voorhees, Walker, Smith, Smith & Haines, of New York.

● Exercises preliminary to selection of 70th winner of Rotch Traveling Scholarship will be held in April. Applicants must be American citizens whose architectural record includes study or experience in Massachusetts. Write: William G. Perry, Secretary, 955 Park Square Building, Boston 16, Mass., before Mar. 1, for statement of requirements. All applications are due Monday, Mar. 16, 1959.

● Design by New York Architects Kelly & Gruzen for housing redevelopment overlooking Passaic River in Paterson, N.J., provides four 16-story apartment towers interspaced with open areas and low-rise 2-story duplex apartments. Project will replace 8½ acres of present slums.

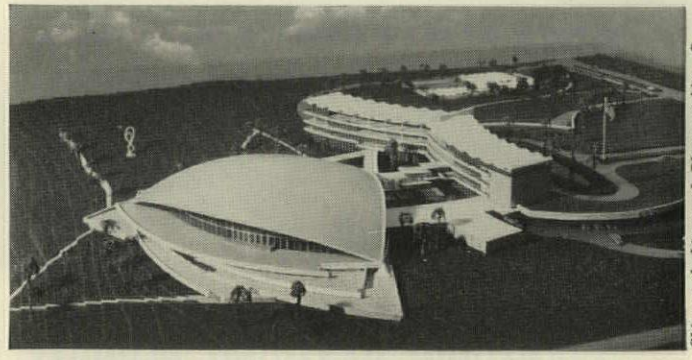
● National Institute for Architectural Education award went to David Bruce Falconer for "Boat Yard for Stamford (Conn.)." Three construction and repair facilities jut toward water (below) from long shop building. Office building is separate and raised from water so that small boats may tie up. Parking facilities and outdoor storage are located on land side of shop element. Falconer is now associated with New Canaan, Conn., Architect Victor Christ-Janer.



● First annual Associated Home Builders of Louisville Metropolitan Home Show architectural competition has been announced, offering a combined total of $1,000 in prizes. Contest is also aimed at project home that will be centerpiece for 1959 Metropolitan Home Show at Louisville, to be held Apr. 5-12, at Kentucky Fair and Exhibition Center.

● American Institute of Architects continues its annual nationwide program of national honor awards for current work. Awards will be made for distinguished accomplishment in architecture by an American architect, for any building in U. S. or abroad, completed since Jan. 1, 1954.

● Design by Marvin Werner, Principal Architect of Stanley Engineering Company, Chicago, Cleveland, and Muscatine, Iowa, has won first prize in international competition for design of Executive Mansion for Republic of Liberia. Four-



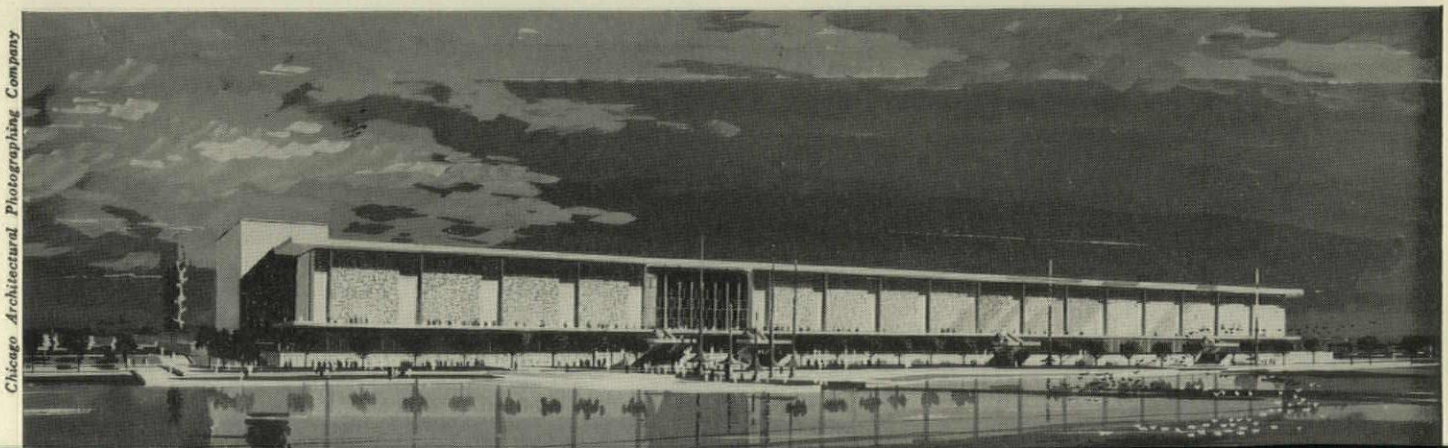
Chicago Architectural Photographing Co.

story structure houses administrative office and service headquarters on two lower floors, presidential living quarters on upper floors. Separate entertainment shell (foreground) contains reception suite, lounges, and 400-capacity dining hall.

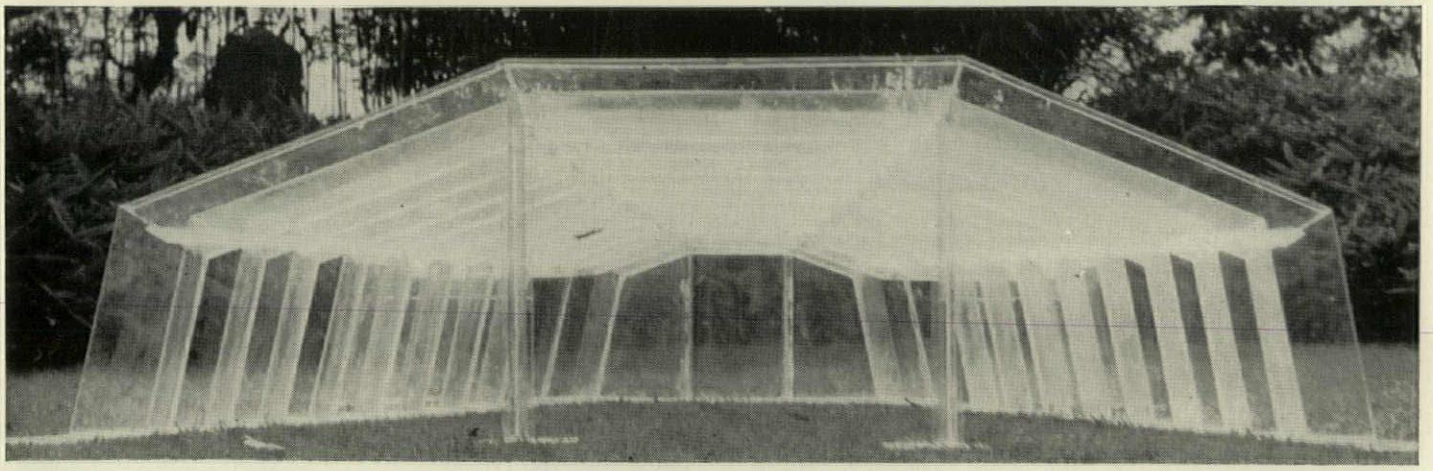
● Friedman, Alschuler & Sincere, Chicago architects-engineers, have acquired drawings of the late Leo Steif—drawings cover years from 1919 to 1953 and involve a total of nearly 500 buildings, predominantly apartment and commercial buildings in the Chicago area. They can be seen at the firm's offices.

● To meet growing demands for information about work of Spanish Architect Antonio Gaudi, an archive and research unit called "Amigos de Gaudi—U.S.A." has been established at Columbia University. Requests for information should be addressed to Prof. George R. Collins, Department of Fine Arts, Columbia University, Broadway-116th St., New York 27, N. Y.

● Chicago Exposition Center will be 1080 ft long and 340 ft wide. Structure (below) will provide 300,000-sq-ft exposition area on upper floor; auditorium, restaurant, cafeteria, meeting rooms on first floor. Folding partitions will permit division of exhibit space into three areas. Associated Architects for Center are: Shaw, Metz & Dolio (Alfred Shaw, Chief Architect; Robert Cantrell, Project Engineer); John Root of Holabird & Root & Burgee; Victor Hofer of Ralph H. Burke, Inc; and Edward D. Stone.

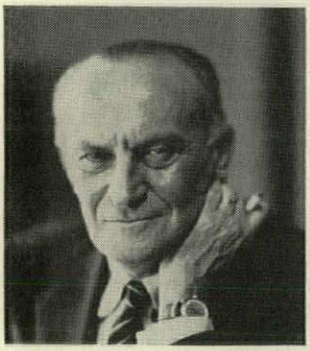


Chicago Architectural Photographing Company



ANTONIN RAYMOND REPORTS RECENT WORK OF TOKYO OFFICE

Noted Architect Interviewed by P/A on New York Visit

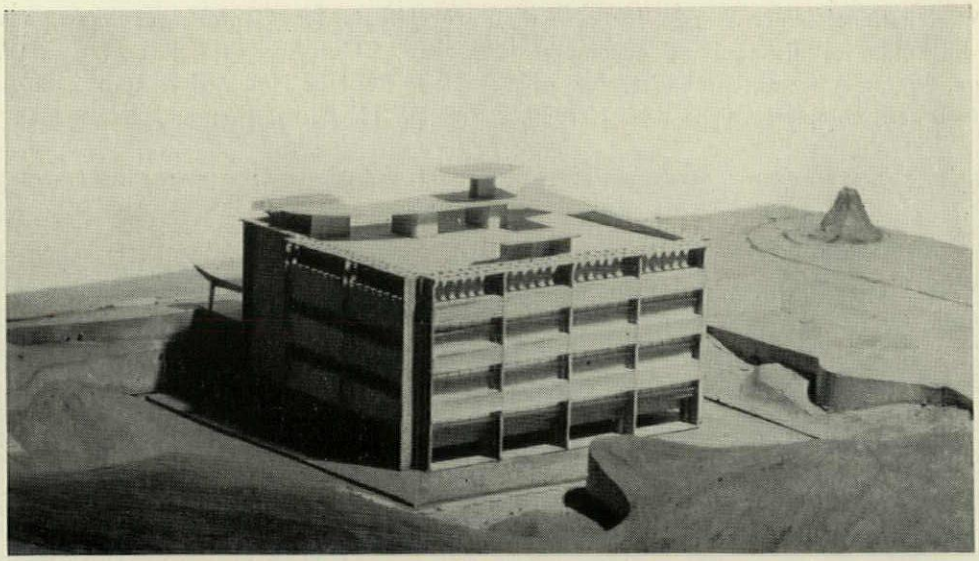


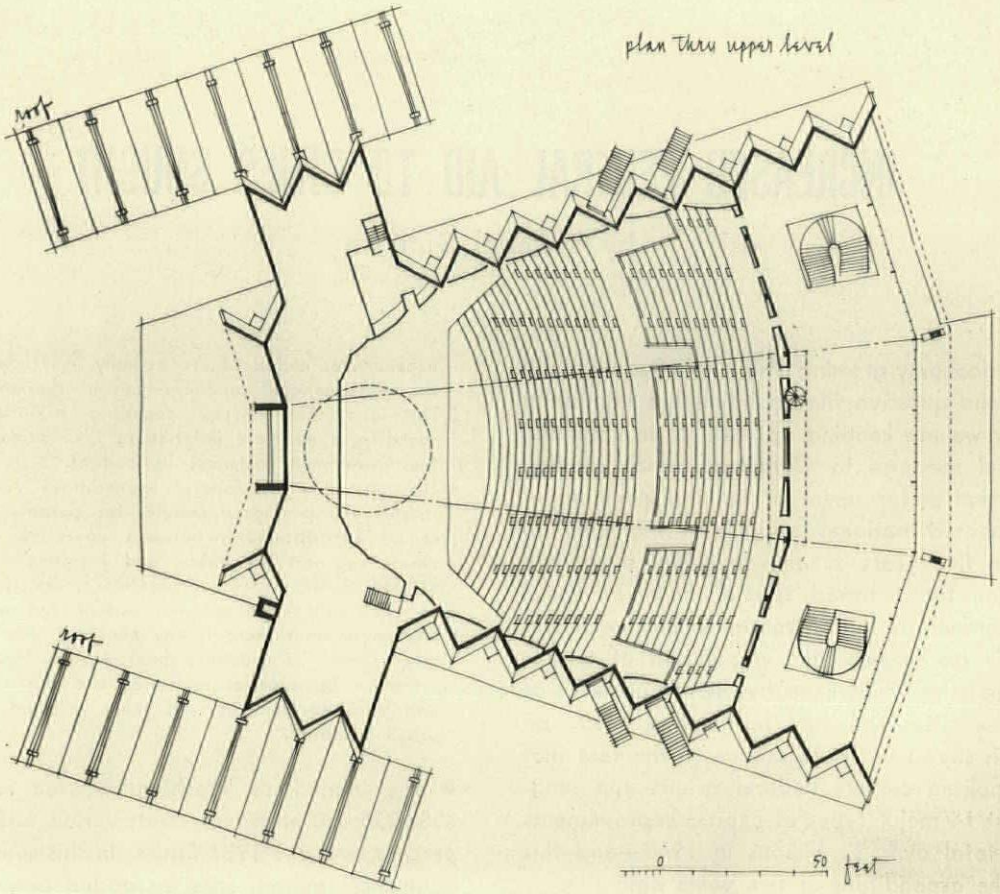
After an absence from this country of a year and a half, Antonin Raymond, of Raymond & Rado, New York and Seoul, Korea, and of Raymond Kenchiku Sekkei Jimusho (Raymond Architectural Design Office), Tokyo, spent a January fortnight in the New York area. He and his artist wife, Noemi, came to the States primarily to see their newest granddaughter in California, but they also managed to visit the New York office and their farm in New Hope, Pennsylvania, and to see a few friends.

The Tokyo office has a staff of 80, and recent work has included many commissions for various branches of the armed services in Japan and Korea, as well as numerous different types of private buildings—houses, a clubhouse, a city hall, and a building for the City of Kochi, that combines bus terminal, hotel, and department store.

Two of the most interesting current projects are illustrated on these pages—a cultural center for the City of Takasaki (above and acrosspage), and a library for Christian University in Tokyo (below), on which Robert O'Connor of New York firm of O'Connor & Kilham, was Consulting Architect. Visiting Japan, O'Connor developed a standard for storage of Japanese and imported books, using a modular system similar to that used in many U. S. libraries.

The Takasaki cultural center has two levels of exhibit galleries on its wide, glazed, entrance front. Beyond is the vast (2000-seat) auditorium, whose stage (with its revolving section) is adaptable for all types of performances—philharmonic orchestra; legitimate theater; movies; and classical theater. In place of a fly loft, generous wings are added at either side. The enclosing structure, of which a plastic model is shown, is a series of bents made up of reinforced concrete folded plates. Paired, longitudinal ties extend from front to rear of the building, leaving the auditorium and stage area free of structural interferences. G. A. S.




plan thru upper level
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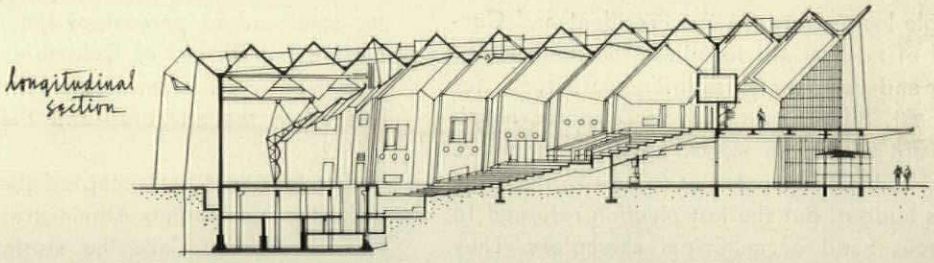
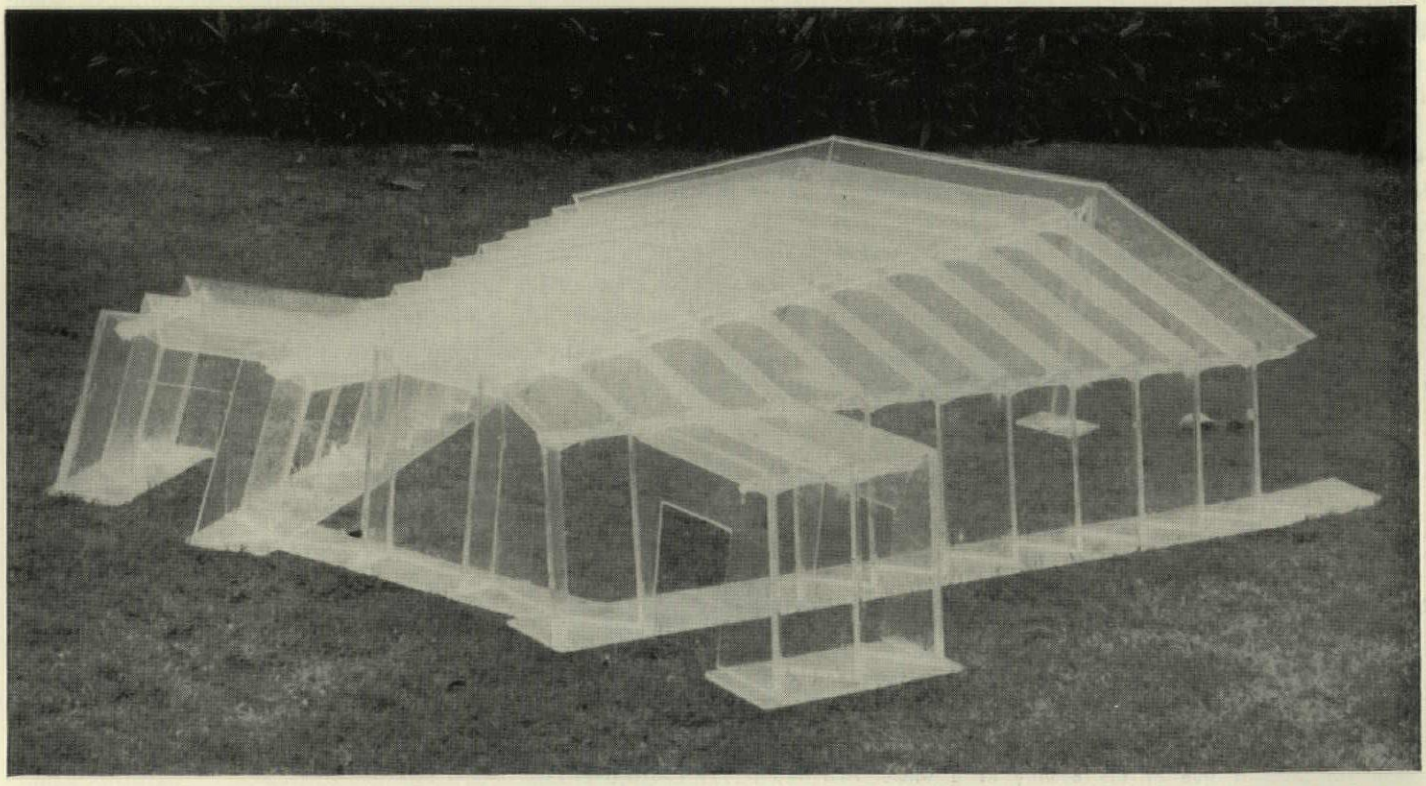
50 feet


longitudinal section



INCREASED FEDERAL AID TO CITIES SOUGHT

by Frederick Gutheim

With the national economy growing at a rate of some seven percent annually, the question that building has constantly to face is whether we are keeping up with it. In President Eisenhower's annual message to Congress—which startled many by its apparent endorsement of national planning!—he cited the expected national population increases to 190,000,000 within five years as one fact that supported his recommendation for a broad special study of social trends. Seventy percent of this increase, as has been frequently noted, will go to swell the population of metropolitan centers. That the Chief Executive is not unaware of the impact of these cities and their burgeoning needs, on the Government, is shown by his reference to the fact that already in metropolitan centers Federal grants and long-term loans to assist 14 major types of capital improvements in our cities will total over $2 billions in 1960—and this figure is double the expenditure of two years ago.

● A major struggle looms between the President and Congress on the level of Federal aid to cities. The demand for increased housing and community facilities, more funds for urban redevelopment, bigger programs for airports, hospitals, and schools are all in the works. Most of them are headed for vetoes, as the President tries to hew to the fiscal line outlined in his budget. But the last election returned to Congress a vigorous band of municipal champions. They can be expected to press for such programs as the $6 billions, 10-year program of housing and urban renewal already endorsed by American Municipal Association, National Housing Conference, and Conference of Mayors.

● In his Boston speech to American Municipal Association, last fall, Sen. Joseph S. Clark, a former Mayor of Philadelphia who appears destined to voice the demands of big cities in Congress, outlined the argument he will probably use to support bigger urban programs. He described the following as the "five main fallacies of public finance":

1 The idea that private spending is inherently good and public spending inherently bad—and therefore should be minimized. This has allowed Governmental spending to be equated with waste. "Taxation and public spending are the means by which we divide resources between the public and private sectors of the economy. Those activities which are in the public sector are there not because they are naughty and ought to be destroyed, but because they are essential and cannot be adequately performed by private enterprise."

2 The idea that the Federal government is crushing the people and endangering the economy with a growing burden of taxes, expenditures and debt—and that this threatens the health of our free enterprise system. "The ability to carry taxes and debt is related to income. Other things being equal, a man making $10,000 can pay at least twice as high taxes and carry without hardship at least twice as large a debt as a man making $5000. And the same is true of the country as a whole. And taxes, expenditures and debt are actually less today—as a proportion of the gross national product—than at the end of World War II."

3 The idea that Federal spending is inflationary. "Government spending is no more inflationary than private spending—provided the Government balances its budget."

4 The idea that all Federal expenditures are alike. "There is no reason why intelligent people, for purposes of public discussion, should not distinguish between operating expenses, loans which create accounts receivable, and investments which are offset by created assets, just as corporations make this distinction, and just as municipalities do between current and capital budgets."

5 The notion that there is any economy when the Federal Government shoves its functions back to the States. "The Federal tax system is far superior in justice and efficiency to those of state and local governments, and there is great merit in using it for urban functions."

● The immediate Washington area rang up a total of $558,225,000 worth of construction last year, to jump 61 percent over the 1957 figure. In this second-fastest growing large metropolitan area (exceeded only by Houston in the period 1930-1956), it is hardly surprising that 63 percent of the total and 83 percent of the residential work was done outside the District of Columbia in the suburban counties. One-third of all Federal employment in the area is already located in the environs—and that's where it's growing.

● The President has accepted the resignation of Albert M. Cole, the outstanding Administrator of Housing and Home Finance Agency since the stormy days of Harold Ickes, and named as his successor, Norman P. Mason, FHA Commissioner. Cole is to become executive vice-president of Reynolds Aluminum Service Corporation, a subsidiary of Reynolds Metals Company.

● Twenty-four columns from the East Front of the Capitol, to be replaced in marble when the new portico rises next year, are candidates for some imaginative architectural project. Today they are lying in the Capitol Plaza, and fears have been publicly expressed that without some appropriate use they will "disappear" as did the columns of the Treasury, not so many years ago. The local chapters of AIA and ASLA are mulling an architectural competition on this theme; and Washington Post & Times Herald is giving it encouragement, so it is to them that any ideas you have should be sent. Dauntless FAIA Horace Peaslee has already offered these suggestions: an enclosing frame for the Great Rose Garden in Potomac Park; spaced accents, vine covered, for the long mall of Meridian Hill Park; stately pylon groupings at bridge ends as city gateways; a feature for one of the great plazas in the redeveloped areas of the city; a Court of Honor (in place of the crossed fire ladders we now set up) for reception of distinguished guests; or one of the "templed hills" about which we have sung so patriotically.

U.S. EXHIBIT BUILDINGS SCHEDULED FOR MOSCOW

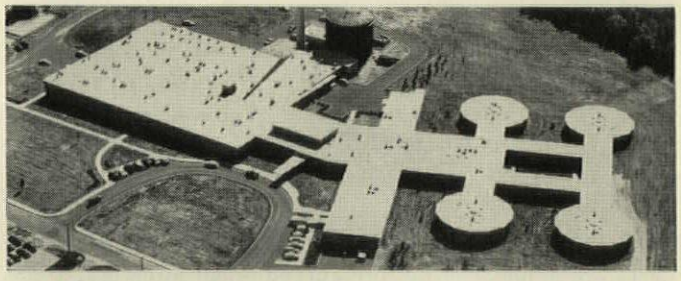
WASHINGTON, D. C.—The U. S. Department of State has announced plans for exhibit buildings in Moscow's Sokolniki Park. The structures, which will house American exhibits at a scientific, cultural, and technological fair next summer, are described as the first modern U. S. buildings to rise behind the Iron Curtain. In line with a U. S.-Russian pact for annual, mutual exhibits, the Soviet will have a similar display at New York's Coliseum.

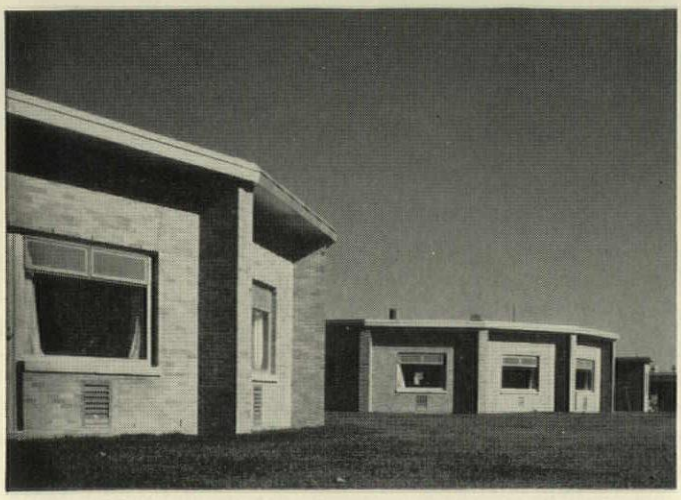
The dominant structure of the group in Moscow will be a 200-foot diameter gold-anodized-aluminum dome. It was developed by R. Buckminster Fuller and will be built by Kaiser Aluminum & Chemical Corporation. A fanlike structure behind the dome, housing a display of products from the U. S., will have an accordion-pleated metal roof 500 feet wide. Other buildings will include a 5500-seat concert shell, a concessions building showing U. S. foodstuffs, and a ciclarama for movies. Welton Becket & Associates, Architects. Displays, exhibits by George Nelson & Company, Inc.

NUCLEAR MEDICAL RESEARCH CENTER OPENS

UPTON, N. Y.—The recently dedicated Medical Research Center at Brookhaven National Laboratory (November 1958 P/A) provides four circular 12-bed nursing units and laboratories for studies on medical applications of atomic energy. The laboratory building includes special facilities such as cold rooms, constant-temperature rooms, areas for handling radioactive materials and for special equipment. The nursing units each have a nursing station (below) located in the center of the unit.

The Medical Research Reactor, to the rear of the laboratory element, is to begin operation early this year. It has two treatment rooms, one for patients and one for experimental animals. Eggers & Higgins, Architects-Engineers of New York; Mechanical Engineers Syska & Hennessy, Inc.; and Structural Engineers Weiskopf & Pickworth were responsible for the Center.





INFLATION SPECTER PERSISTS—ANTIDOTES ARE OFFERED

by William Hurd Hillyer

Echoes of January's discordant economic chorus having died away, one can say with the late Gen. Jephthah Harris, when he paid his quarterly rent in advance, "Now I'm done with it!" Thoughtful observers are voicing a restrained optimism. New York's largest trust company ventures to characterize the outlook for 1959 as "good," finding basic conditions favorable in two major categories. Consumer spending, that proved depression-shortener, is going up at an estimated $12 billions annual-increase rate, without increased consumer borrowing. In the second area, capital expenditure for plant and improvement should by year's end be running "several billion dollars higher than at present"—a healthy prognosis for industrial architects. However, the trust company expects a "leveling out" in residential building.

Arnold Bernhard & Co., private investment advisers, see public construction as continuing to forge ahead with industrial building as a weak spot. Housing starts are expected to exceed the '58 level if interest rates hold at current figures. Should Congress enact additional housing legislation, residential building starts will approximate 1.2 million units in '59—0.3 million under the industry's full capacity for new homes.

● Individuals are saving at a high rate and personal income is rising, as reflected by Securities and Exchange Commission figures. The public is piling up more investment money and liquidating its loans on consumer goods. During the first nine months of '58, individuals' savings totaled about $11 billions, largely in time deposits at banks, plus shares of loan associations, both prime sources of building construction funds. Personal income around year-end, the Department of Commerce discloses, was at the seasonally adjusted annual rate of a record $360 billions.

● Inflation continues to be our Number One problem, four top-rank financial editors agreed when interviewed by American Bankers Association and quoted in its current monthly journal. This problem must be faced "in all its brutal realities," not as a "whether" but to what degree, asks one. He names real estate as a primary inflation hedge, into which banks will channel their depositors' savings; building and architecture should thereby benefit. A second editor boldly advocates a return to the gold standard as the first step toward heading off inflation and decries the current idea that monetary troubles can be cured by "manipulation." Encouragement of thrift is put forward as an antidote for inflation by the third editor. The fourth maintains that inflation can be checked only by an aroused public, supporting conservative Treasury and Reserve Board policies. It is significant that none of the four editors joins in the Government-credit expansion outcry, but all offer sound bases for construction increase.

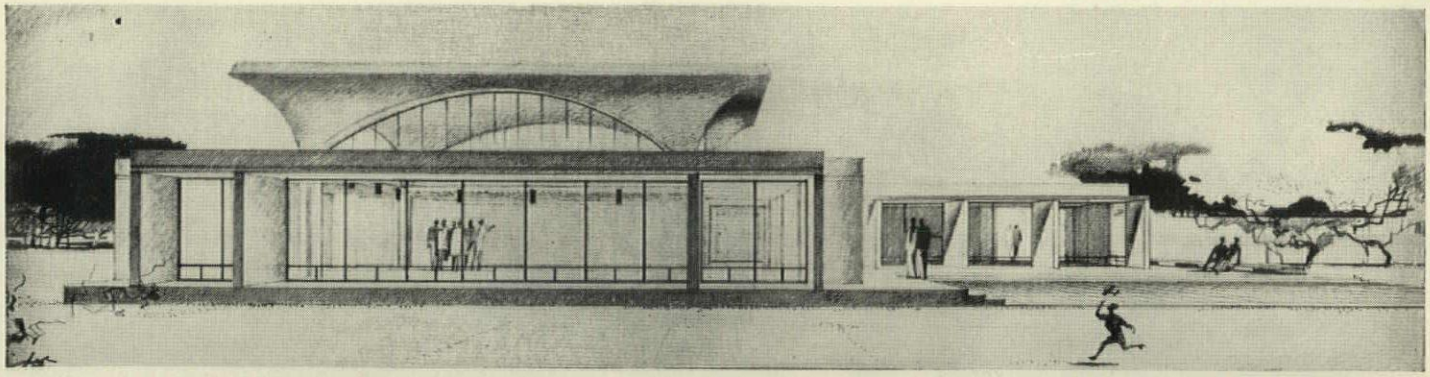
● "Recession without deflation" is hailed by many financial authorities as a 1958 end-product lending strength to '59. Notable among these is the First National City Bank of New York, which states that "for the third time since the war, this nation's economy has demonstrated its ability to carry out substantial adjustments while operating on high levels." Nevertheless, inflation is still seen as a growing specter, which persists in spite of political and pseudo-economic panaceas. The bank puts it this way: "In other words, everybody will spend more for everything. Somehow, miraculously, capacity will spring into place to fulfill all wants."

● Stone, clay, glass, lumber, and wood products have caught up with their '57 pace. Latest available '58 quarterly total was $3.76 billions, compared with $3.61 billions for '57's analogous period. Part of this rise is attributable to mounting costs, Federal Reserve Bank of Dallas points out.

● Havana Province Architects' Collegium (Cuba) released (pre-Castro) impressive figures indicating a $2.5 millions month-to-month rise in new construction for that area, and ticketed the achievement as part of a "record building boom." Building permits issued in the Province during the first 10 months of 1958 totaled $53.3 millions, as compared with $51.4 millions in 1957 and $49.5 millions in 1956. Cuba's Banco National estimates that actual construction costs exceeded these totals by at least 25%.

● State and local public construction, together with residential housing, are cited by Federal Reserve Bank of St. Louis as forms of investment which tend to be curtailed during periods of high business activity; they have increased in each of the postwar recessions. As this page has previously pointed out, building projects are contra-cyclical, alternately cushioning depressionary impacts and stabilizing the impetus of recovery. Granted, therefore, that the economy is in recovery, spectacular rises in construction should not be expected. During a capital investment boom—such as that of '56 and early '57—competition for capital funds drives interest rates high enough to impede the creation of home mortgages and municipal bonds, the same source notes. So far, the rising recovery tide has not swept interest rates much higher and the borrowing market is "steady."

Outlays for construction of all kinds will rise about 7% in 1959, estimates the First National Bank of Chicago—a highly conservative picture when viewed alongside the rocketing construction-outlook chart based on Department of Commerce data and foretracing a steep 1959 climb of $1.4 billion for privately financed undertakings. Said the president of a leading construction company when interviewed by First National: "I do not anticipate boom conditions . . . but better buildings" are going up.

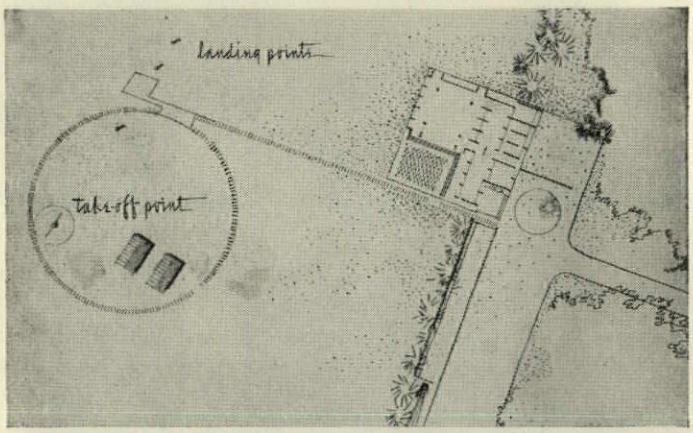


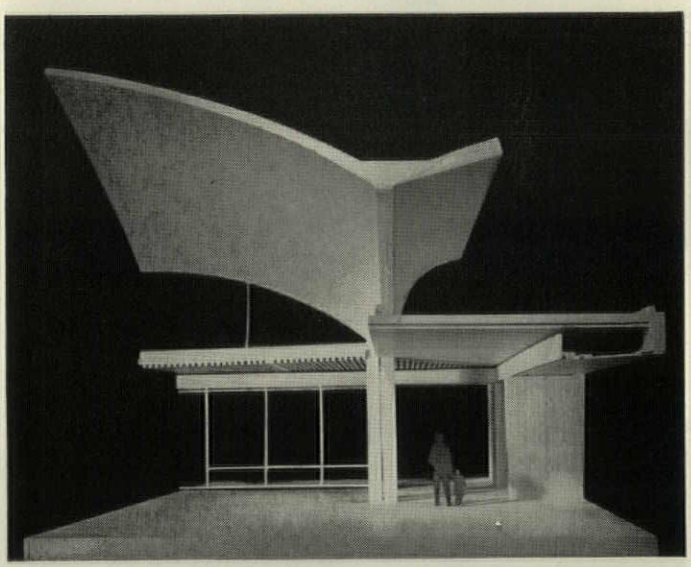
TWO VISITORS' CENTERS EXEMPLIFY NEW PARK ARCHITECTURE

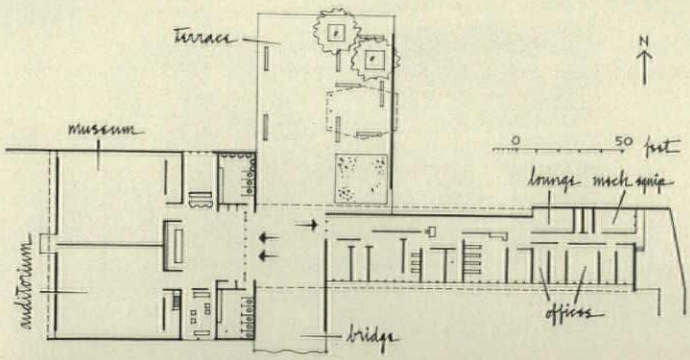
The design of visitors' facilities provided for national tourist attractions seems to be decidedly on the upgrade, at least as far as the work for National Park Service is concerned. Disappearing, one hopes, are the rustic-rock snuggery and giant-size "log cabin" previously favored.

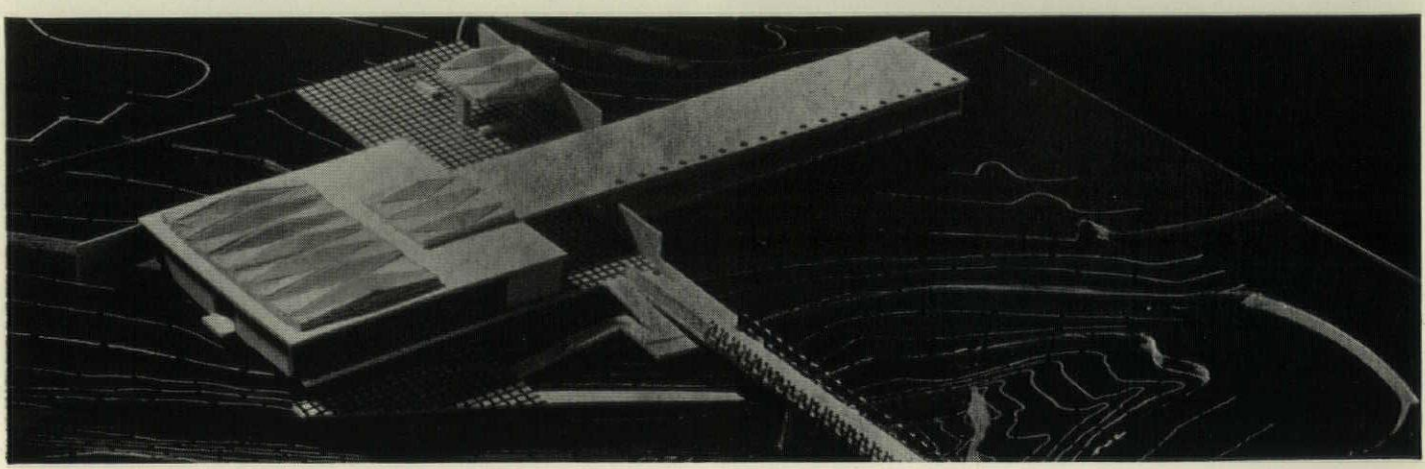
At Kitty Hawk, N. C., the visitors' center (above) for Wright Brothers National Memorial will include a museum, offices, assembly room, usual comfort facilities, and a vaulted memorial room overlooking the historic flight area and the Kill Devil Hill monument. The architects, Mitchell, Cunningham, Giurgola Associates, of Philadelphia, Pa., designed the thin-shell roof formed by arches at right angles, each of 40' span and 6' rise.

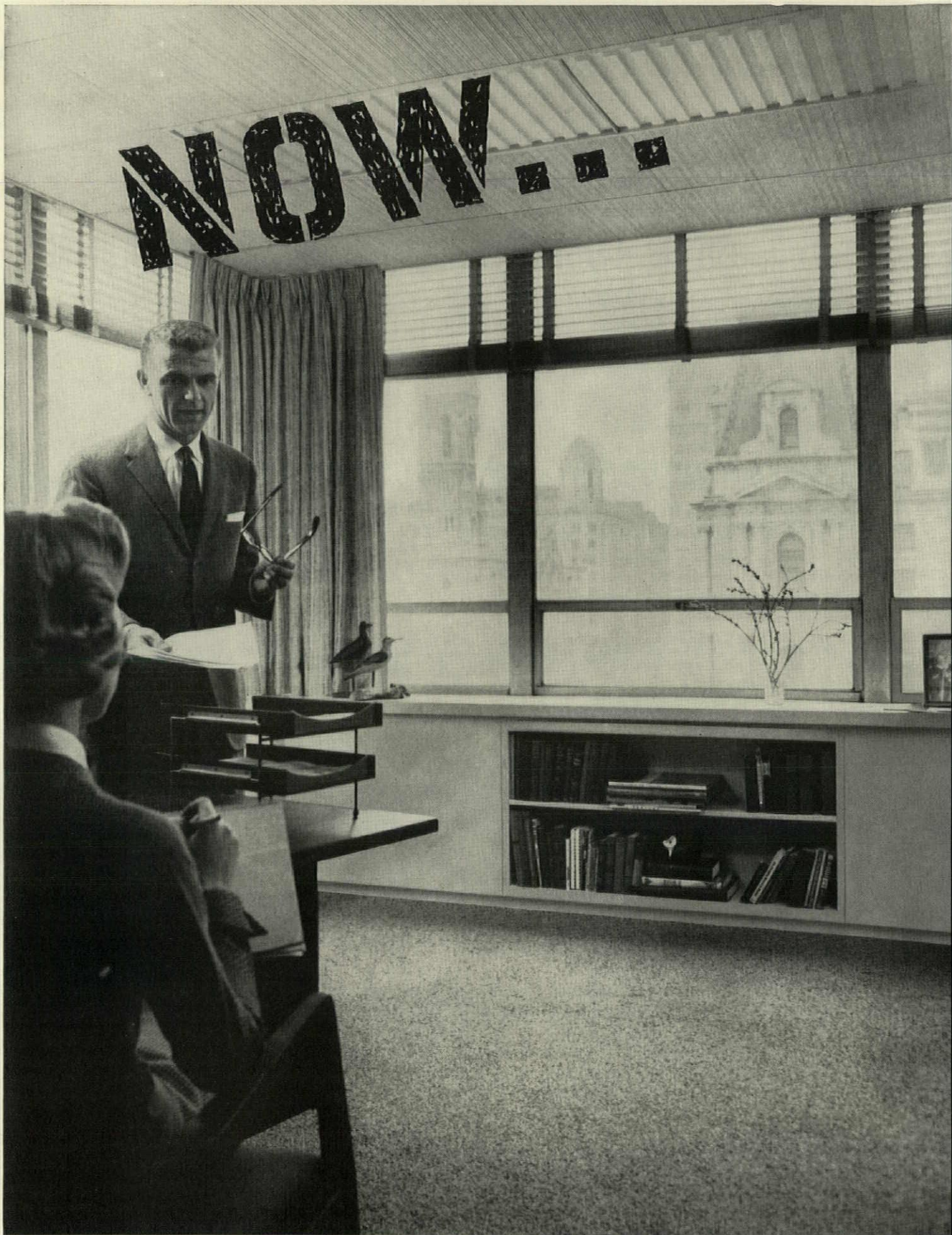
Mammoth Cave National Park visitors' center (below) by Bellante & Clauss, Philadelphia Architects-Engineers, will house a museum, auditorium, comfort facilities, guide and administrative offices. Cool air from the Kentucky cave will be piped up a 200' shaft for air conditioning. The bridge will span a gully, connecting with parking lots, hotels, and motels.





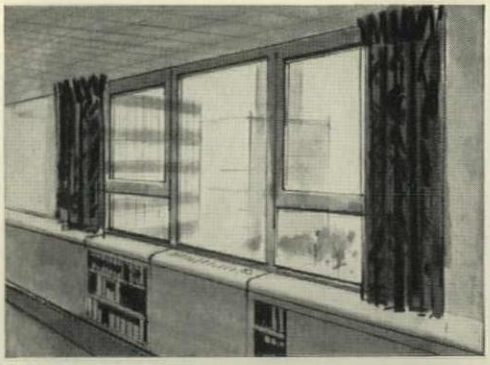






Installed under single responsibility . . . all in one unified system—LUPTON curtain walls, comfort-conditioning units, shelves, and cabinets.

LUPTON makes individually-regulated comfort conditioning an integral part of a curtain-wall system



On the inside, a sill of normal depth tops the compact comfort-conditioning unit as well as its adjacent cabinets—presenting an extremely attractive decor.

Reduces installation costs 40-60% from previous air-conditioning methods for all true "perimeter" buildings

Now that comfort conditioning has been combined with LUPTON curtain-wall systems, you can forget about unsightly, expensive cooling towers . . . bulky, space-eating ductwork and plumbing connections. The only apparatus necessary for LUPTON comfort conditioning is electrical connections.

Skilled LUPTON crews will assemble the units . . . giving you one-source responsibility for outside wall and inside cabinets, shelves, and comfort-conditioning equipment. This eliminates the problems of specifying and coordinating these various parts. The curtain wall and comfort-conditioning system are installed together to form a complete exterior-interior wall.

Two interchangeable units

LUPTON gives you two comfort-conditioning units to work with: heavy-duty for areas with a particularly heavy cooling load, and lighter-duty for average loads. Both units have the same dimensions, and can be interchanged as loads increase or decrease. All components are selected for low noise level and durability. They're precision-balanced for maximum over-all efficiency.

LUPTON comfort conditioning is designed and installed to give room-by-room control of air-conditioning, filtration, ventilation, and exhaust. These advantages, plus the space it saves, are among comfort conditioning's major rental features for building owners.

Another is lower air-conditioning costs. Because temperature is regulated from each unit by the occupant of each room, there's no costly over-air-conditioning. Individual comfort control allows complete variation from room to room.

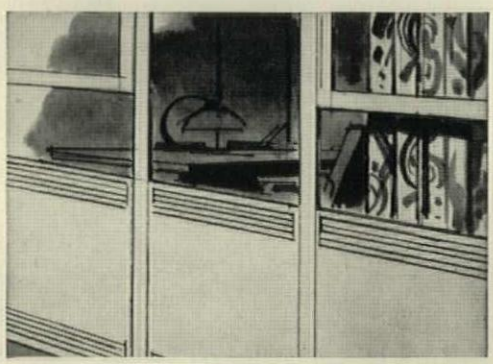
System widely flexible

With advance planning, your LUPTON comfort-conditioning system is simple to re-arrange. You can make changes in the number and location of comfort-conditioning units with ease and speed . . . at relatively small cost.

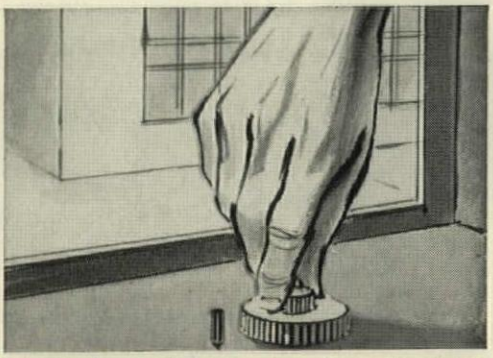
Just treat all exterior panels in a uniform manner to provide for comfort conditioning. Install as many LUPTON Comfort-Conditioning Units as you need at first. Combine them in each office with shelving, bookcases, or storage cabinets. Then, you can replace these latter units, when required, with additional LUPTON comfort conditioners.

You can also conceal or expose the air-circulating function of the panels. This feature allows you endless opportunities for variations in spandrel proportions and surface treatment.

Write today for more information about Comfort Conditioning. Explore the almost unlimited possibilities of LUPTON's newest advance in aluminum curtain-wall design and function.



On the outside, nothing protrudes. Wide separation between air intake and discharge gives faster, more efficient dissipation of heated air, prevents it from re-circulating.



One panel controls temperature, fan, and exhaust for smoke or odor removal . . . allows each occupant individually to regulate comfort conditioning for his office.

Through advance planning, you can readily expand or decrease comfort-conditioning capacity, interchange units quickly, easily, and at small cost.

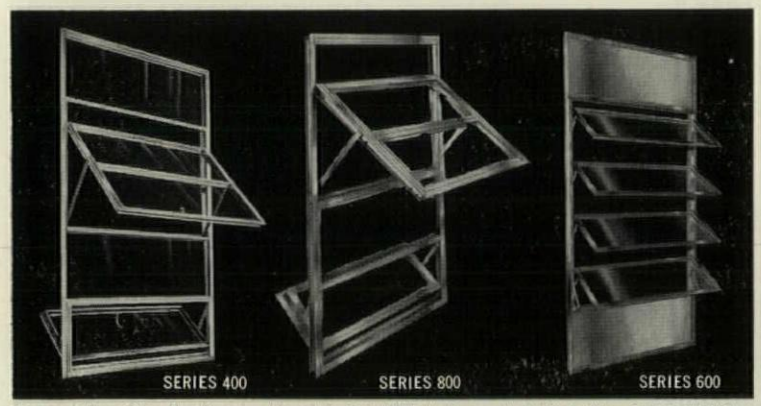
LUPTON®

ALUMINUM CURTAIN WALLS AND WINDOWS

MICHAEL FLYNN MANUFACTURING COMPANY

Main Office and Plant: 700 E. Godfrey Ave., Philadelphia 24, Pa. New York, N. Y.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Los Angeles, Calif.; Stockton, Calif.; Dallas, Texas. Representatives in other principal cities.

You can count on WARE CURTAIN·WALLS



These windows (also the Ware top-hinged Projected Window) are adaptable to Ware Curtain-Wall Systems

University of Miami Women's Dormitory • Robert M. Little, Architect
J. E. Peabody, Norman J. Dignum, Engineers • M. R. Harrison Construction Co., Contractor

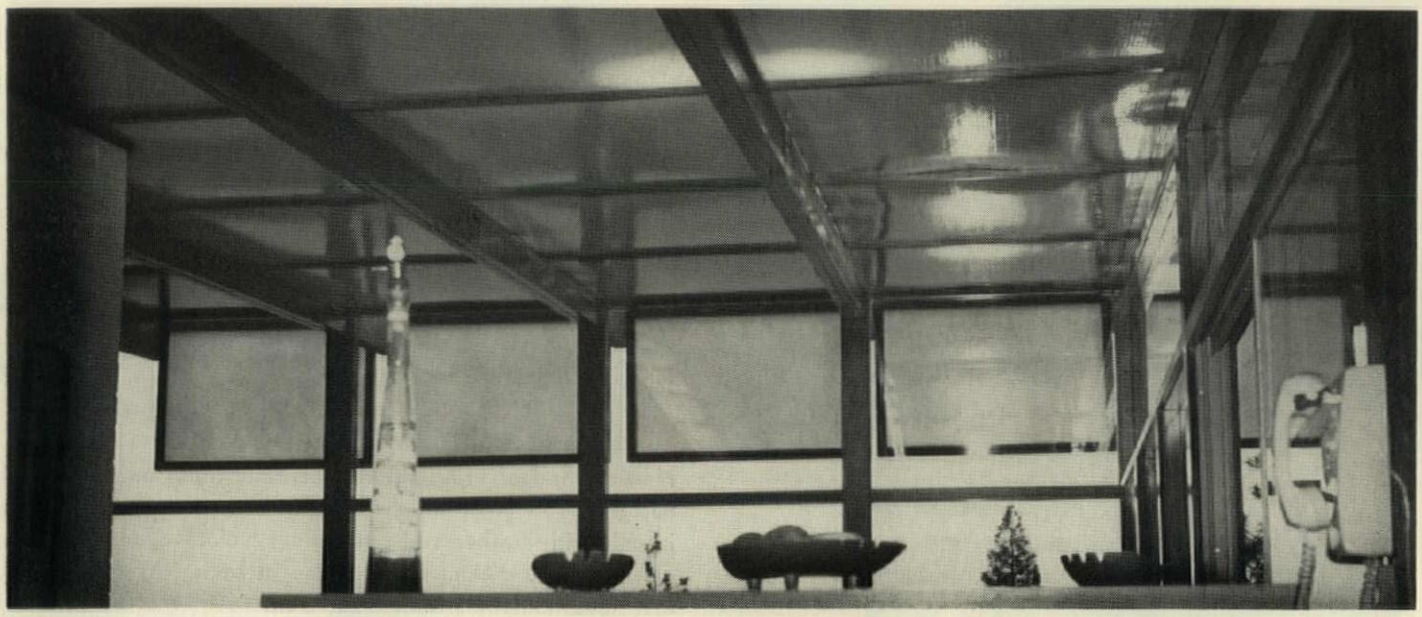
a dependable system for your every need

Whatever curtain-wall treatment you may be planning next, Ware engineers are equipped to help you meet the most challenging requirements. For Ware has developed a *quality* series of curtain-wall systems that you can confidently depend on for weathertightness, structural strength, and simplified installation.

MEMBER
Aluminum WARE *Windows*

Why not send us your full or quarter-scale details and let us show how we can serve you. Or write for our new curtain-wall brochure, Dept. PA-2.

WARE LABORATORIES, Inc. 3700 N.W. 25th St., Miami, Fla.



PLASTIC PANELS USED FOR WALLS, ROOF OF CALIFORNIA HOUSE

System Affords Color, Diffused Daytime Light

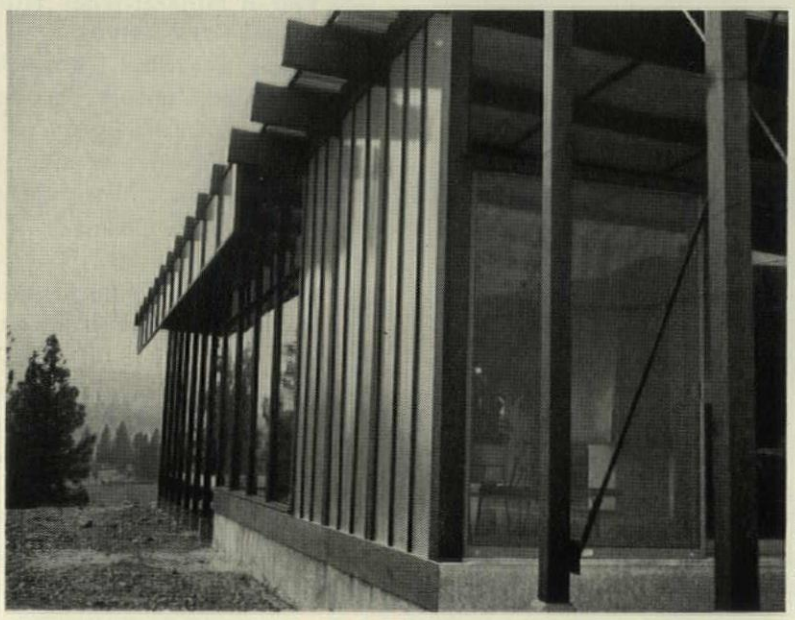
A house recently completed in Yreka, California, by Architect Roger Lee of Berkeley is said to be the world's first all-plastic-panel house designed and built specifically for a private residence. (There have been previous "plastic houses" designed for conventions and expositions.)

The framing and supports of the house are of conventional wood post-and-beam construction. Posts and beams were spaced 4 ft o.c. so that glass-fiber-and-nylon reinforced-plastic panels could be set between them. Panels were installed in two layers on both roof and exterior walls, allowing air space between for thermal insulation. Wiring was laid next to beams and through interior walls (conventional construction faced with lacquered, mahogany plywood), so that it does not show through translucent exterior walls. Air-conditioning, most electric outlets are in floor.

Architect Lee has "for some time been convinced that great benefits (physical and psychological) would derive from diffused light (as provided by plastic) in the home."

Panels used in the house are Filon Plastics Corporation's Type 260; approximately 1/16" thick, weighing 8 oz/sq ft. Roof is of gray corrugated panels, outside, and flat, white for the ceiling surface. Walls are flat, brown panels on exterior and interior. Awning on east side of house is of flat, yellow panels. Inside, tub enclosure and shower door are flat, yellow panels.

Filon Plastics Corporation **100**



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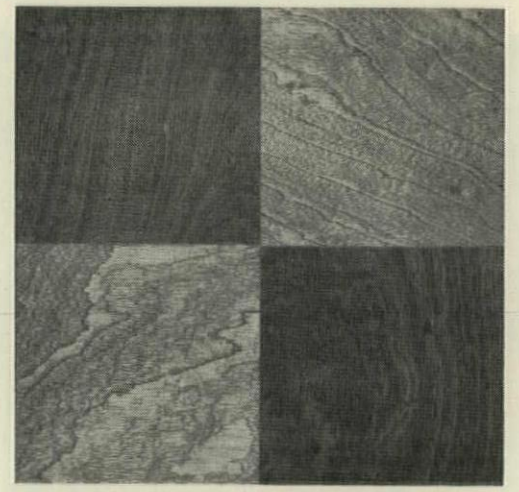
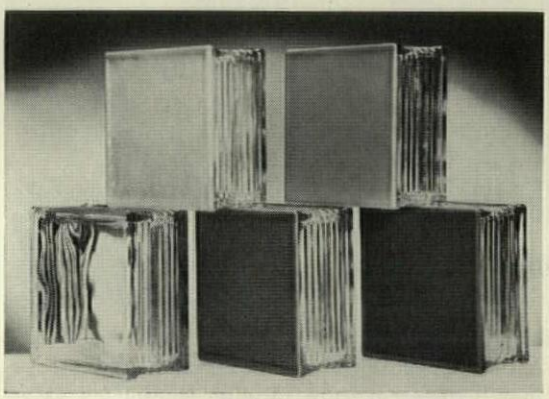


101

New Process Creates Durable, Attractive Wood Tiles

New stretching technique for hardwood tile provides attractive, durable flooring. When stretched and dried, hardwood is larger dimensionally than in natural state. Does not expand further, and millions of "expansion joints" created by stretching process make it impossible for wood to shrink or contract. "Higgins Stretchedwood Tile" is factory prefinished with finish baked-on in hydraulic press so that it virtually becomes part of the wood. Flexible enough to be applied directly over worn, resilient floors, concrete slab, or wood subfloors. Also applicable to walls and other surfaces.
Higgins Industries, Inc. **101**



102

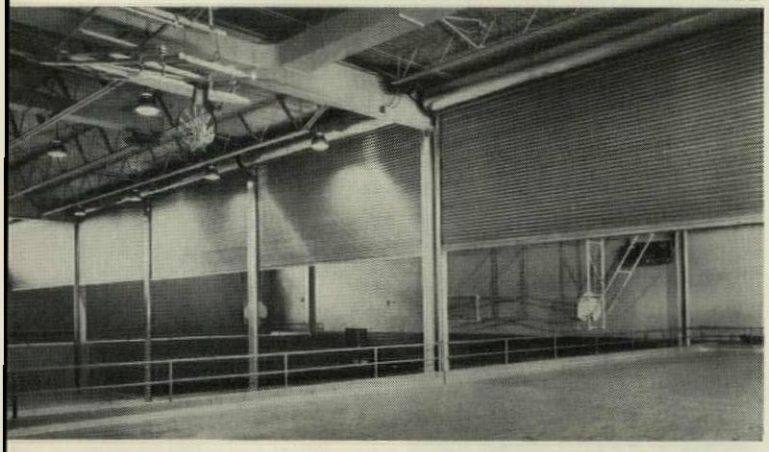
Glass Blocks Feature Permanent Colors

New method of firing colored ceramic finish on glass block has provided color which actually becomes part of block, is chip-and-weather resistant. Four colors available: blue, coral, yellow, green. Blocks come in both 6" and 8" sizes, and have insulation value equivalent to that of 8" masonry wall.
Owens-Illinois Glass Company **102**

Roll-Up Walls Do Not Obscure View

Roll-up walls for gymnasiums, auditoriums, natatoriums, etc., have been designed to disappear completely at ceiling height when desired, providing clear sightlines for spectators. When extra vertical supporting posts or mullions are used, they slide out of way to the side. Curtains of roll-up walls fabricated of curved, interlocking, roll-formed aluminum slats; mullions are of 1/4" aluminum plates. Both are designed to be locked top and bottom, when in position.
R. C. Mahon Company **103**

103



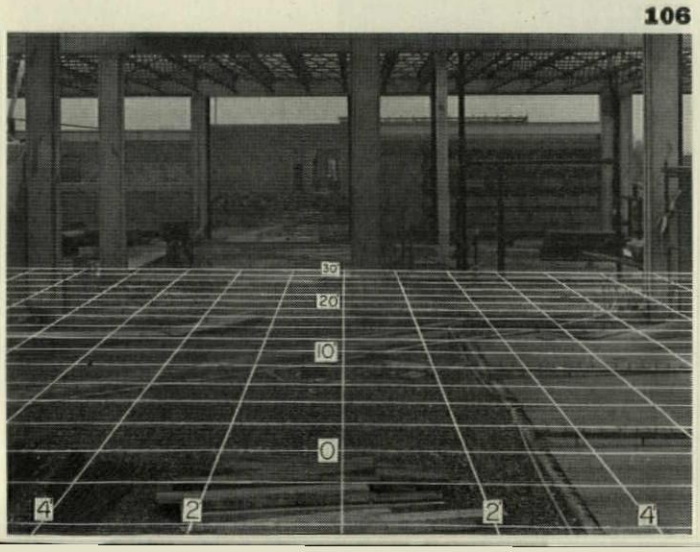
Snap-In Runner-Track Aids Construction

Runner track for floor or ceiling is channel-shaped cold-rolled steel. Stud shoes and wire tying are reduced—parallel notches 2" on center in 1" legs hold studs in place. Track may be cut with tin snips or hacksaw and is fabricated in 8' lengths, three widths.
United States Gypsum Company **104**

Felted Mineral-Wool Tile Provides Sound Conditioning

Acoustiroc, acoustical felted mineral-wool tile ceiling, features striated, smooth, or random perforated surface designs; incombustibility up to 91% light reflectance, resistance to dampness permitting high humidity installation —at reasonable cost. For commercial, institutional buildings.
National Gypsum Company **105**

106



Technique Aids Location of Trouble Spots After Construction

Photographic method of locating junction boxes, drains, pipes, conduits, etc., after floors have been laid and walls put in place applies principles of aerial surveying to building construction. Photo Perspective consists of super-imposing on construction photograph of vital features of building a measuring grid that places points of interest, so that they can be found after completion of building.
Photo Perspective Corporation **106**

Modular Cabinet Units Designed for Home

A line of 18 teak and oak, or walnut, cabinets, including small drawer units, double dressers, buffets are all 32" high, 18" deep, and 32", 54", or 72" long. Most have finished backs for flexible use as room dividers. Bar, hi-fi, and vanity units have inlaid plastic. Buffet (shown) is 72"-long, has 4 drawers, sliding doors which conceal 3 pullout tray-drawers, 2 adjustable shelves; retails for $297. Line, designed by Danish Architect Torben Strandgaard, is characterized by restraint, economy of line, attention to detail.

Pacific Overseas, Inc. **107**

107

Executive Office Chair Adaptable for Home

Comfortable high-backed arm chair has simplicity of line which suits residential seating needs as well as office use. Supported on satin-chrome base, chair is available in fabric or leather, retails for approximately $360.

Cumberland Furniture Corporation **108**

108

Siding Simplifies Exterior Maintenance

Superclad-aluminum house siding, coated on both sides with Geon vinyl resin before fabrication, can be formed, bent, and punched, without affecting the appearance or performance of the finish—panels lock together to form weather-tight V-groove so that there are no exposed nail heads. Available in white and a variety of colors, in 10' lengths with full 8" exposure.

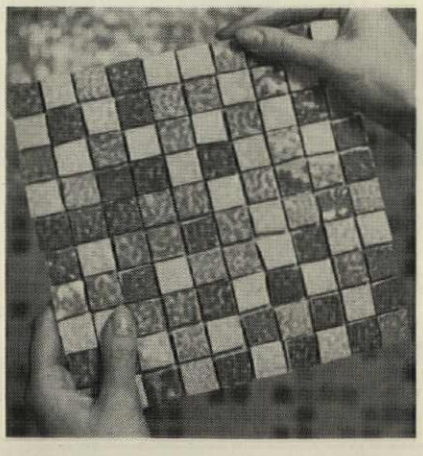
Hastings Aluminum Products, Inc. **109**

Ceramic Tiles Have Irregular Surface, Edges

"Horizon" glazed, ceramic mosaic tiles are available in hand-crafted look featuring irregular surfaces and individual, slight variations in shape. Tiles come in 58 colors styled by Faber Birren; 10 buckshot patterns designed by Harry Macke.

Cambridge Tile Manufacturing Company **110**

110



Clean-Burning Oil Furnace Does Not Need Adjustment

Use of special combustion flow system enables oil furnace to operate cleanly, quietly, and maintenance free. Manufacturer reports fuel savings of up to 33% over conventional oil furnaces. Since furnace depends on mechanical draft, it operates equally well under all chimney conditions. Unit, appropriate for small- and medium-sized buildings, is available in ten sizes, with outputs ranging from 84,000 to 250,000 Btu/hr.

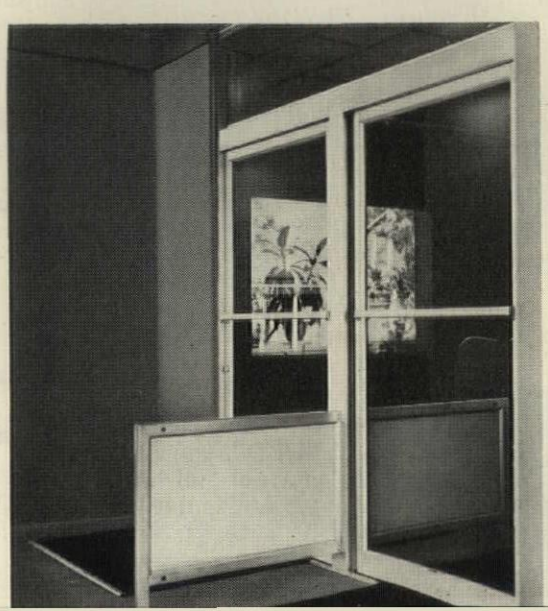
Iron Fireman Manufacturing Company **111**

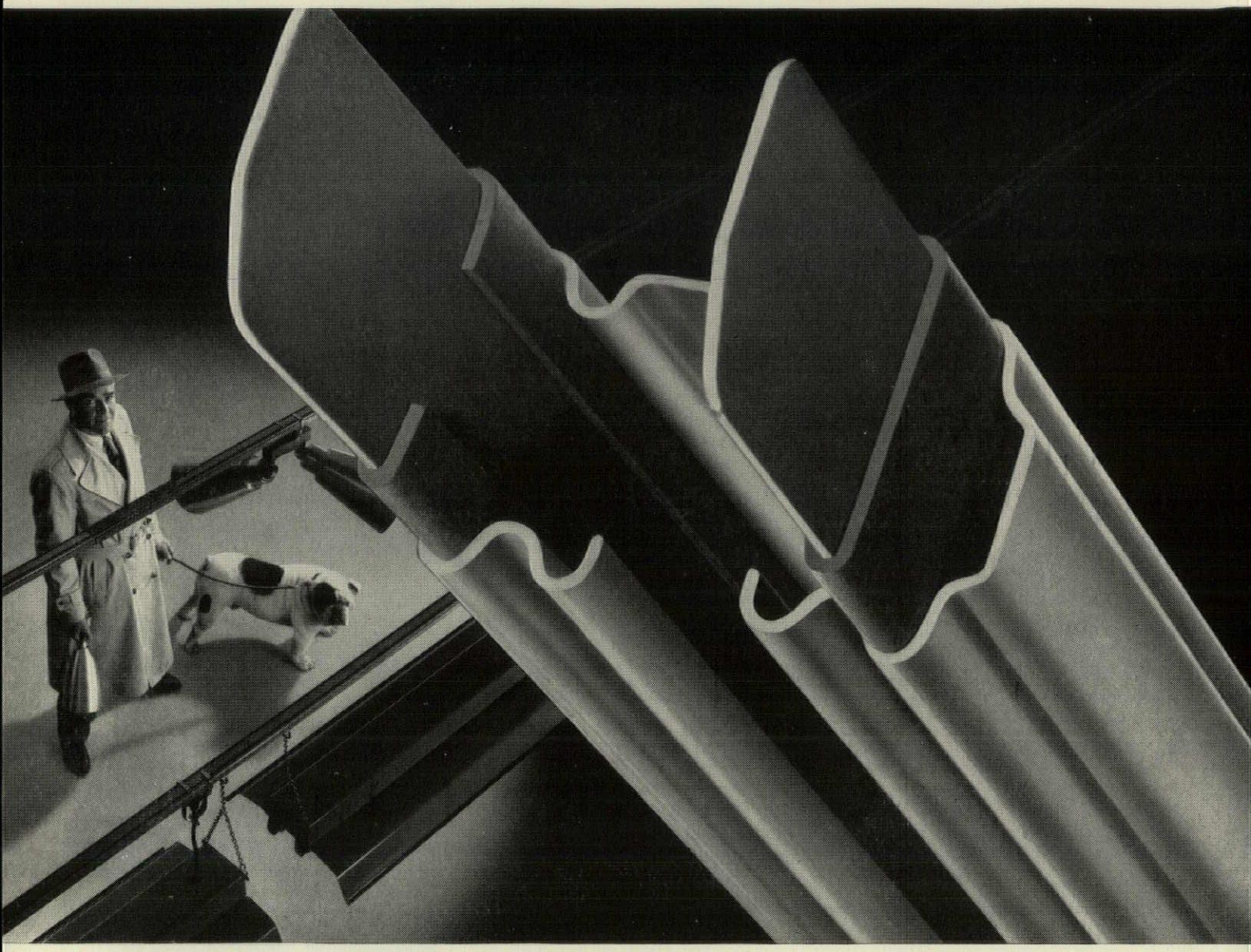
All-Electric Automatic Entrance Comes as Unit

Automatic entrance comes complete with door, frame, and operating mechanism as integral unit. Electrical actuating device is contained within 4½" wide transom bar above door, eliminating need for under-floor or over-ceiling preparation for installation of power units, control units, and compressors. Panic-exit protection is built into unit; door can be opened manually by exerting force enough to overcome electrical power in either direction. Door automatically slows for safety as it reaches end of each opening and closing cycle. Parts easily replaceable.

Kawneer Company **112**

112





NEW FREEDOM OF DESIGN WITH BULLDOG LIGHTING DUCT

Exclusive BullDog features provide complete flexibility in planning lighting layout . . . fixture placement

Modern BullDog 20-amp Universal Lighting Duct forms a continuous outlet which both *feeds* and *supports* lighting fixtures anywhere along its entire length. Exclusive twist-out plugs let you light any area . . . move fixtures or re-arrange layout without time-consuming rewiring and costly downtime.

And it's simple for you to allocate lighting costs with "ULD". You know in advance final material and labor costs. Even changes in lighting arrangements *during installation* present no problem since you can tap in anywhere . . . or relocate the duct quickly and easily.

"ULD" is actually less expensive than pipe and wire, too, because it offers so many time-saving installation features. Parts are standardized and prefabricated . . . sections join easily . . . and you have a choice of five simple installation methods.

Everyone benefits from Universal Lighting Duct! You have full freedom of design. Contractors can bid more accurately, complete installation without hitch . . . and your client gets a lighting system that will meet present and future needs. When you specify lighting material, specify BullDog Universal Lighting Duct. It is, *by far,* the most flexible and economical system ever devised.

BULLDOG

BullDog Electric Products Company, Division of I-T-E Circuit Breaker Company, Detroit 32, Mich. *BullDog Export Division:* 13 East 40th St., New York 16, N.Y.
In Canada: BullDog Electric Products Co. (Canada) Ltd., 80 Clayson Rd., Toronto 15, Ont.

Chair Is Angled for Lounging

Architect Hans Wegner's latest chair design combines rope and steel in composition of triangles and rectangles. Frankly

expressing a machine-made, constructed look, rope is wound on chrome-plated steel tubes; base, white, red, or green steel.

Frederik Lunning, Inc. **113**

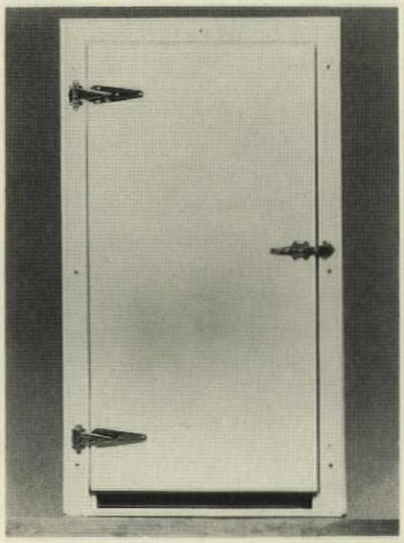
Engineered Pendant-Mounted Luminaire Is Flexible

Indirect lighting system primarily designed for pendant mounting of continuous-row fixtures on suspended ceilings, Hanger CSM7/022 series—adaptable to large span areas—is a single stem system promoting flexibility and ease of alignment. Incorporates a 45% swivel, allowing maximum earthquake resistance—increases safe portability. Lamps are concealed by parallel metal louvers, spaced for air current inducement to minimize ballast and lamp heat. Bonderite-treated and finished in all white durable baked-enamel in all-metal framing. Equipped with automatic snap-type lock for easy closing.

Sunbeam Lighting Company **114**

Cold Storage Door Is Lightweight, Compact

Plastic cold-storage door flush with face of casing, requiring less aisle space for door swing. Light weight permits use of more attractive, less bulky hardware; plastic surface comes



in several colors. Insulation is foamed-in-place polyurethane plastic with thermal insulation K-factor of 0.21 at 75 F. Exterior is glass-cloth-reinforced polyester plastic, both durable and easy-to-clean.

Jamison Cold Storage Door Company **115**

(Continued from page 95)

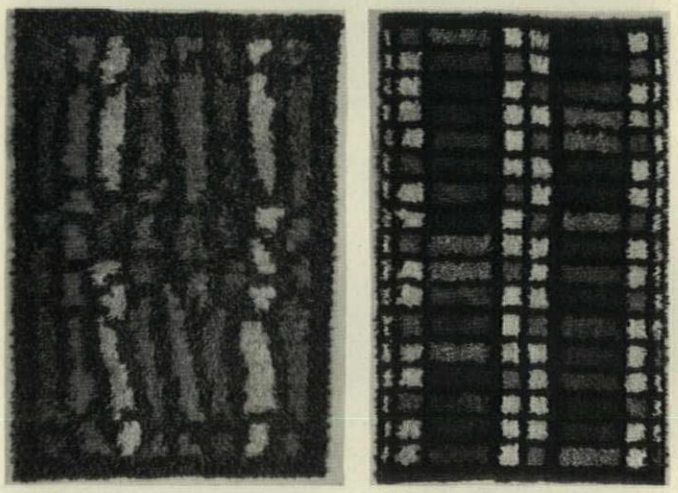
Aluminum Header Trim Set Converts Sliding Doors

Styled aluminum header trim set with clip-on hold-fast nylon clips converts any Stanley 2800 sliding door hardware sets in stock into built-in header trim sets—meeting requirements for both ¾", and 1⅜" doors. Packed for 4', 5', 6', and 8' openings. Prices are $1.65 for 4' size, to $3.05 for 8' size.

Stanley Hardware, Division of The Stanley Works **116**

Swedish Rugs for Floor, Walls Are Imported

Winning designs in competition for graduating rug-weaving students at Stockholm's School for Applied Arts are loom-



woven, hand-finished rugs of extra-long-pile wool for a shaggy look. Sizes range from 26½"x44" to 43"x71½". "Night Glow" designed by Marja Hinders, "Flames" by Ann-Mari Josephson are notable. Prices: to $270 for largest rugs.

George Tanier, Inc. **117**

Hospital Room-Bed Lighting Is Cool, Versatile

Two-panel fixture provides direct and indirect lighting for diffused room illumination, and bed lighting. Lamps, 150-w for upper glass panel, and 75-w for lower Fresnel Lens, are independently operated, or may be used simultaneously. Ventilation around lenses assures cool, long operational life. Fixture, with steel electrical outlet located at side, mounts direct to 3½" or 4" outlet at 7' above floor, or comes with 10' cord for base plug use. Available in cast aluminum with smooth, finely grained finish, or bronze or primer coat for finishing to match room coloring.

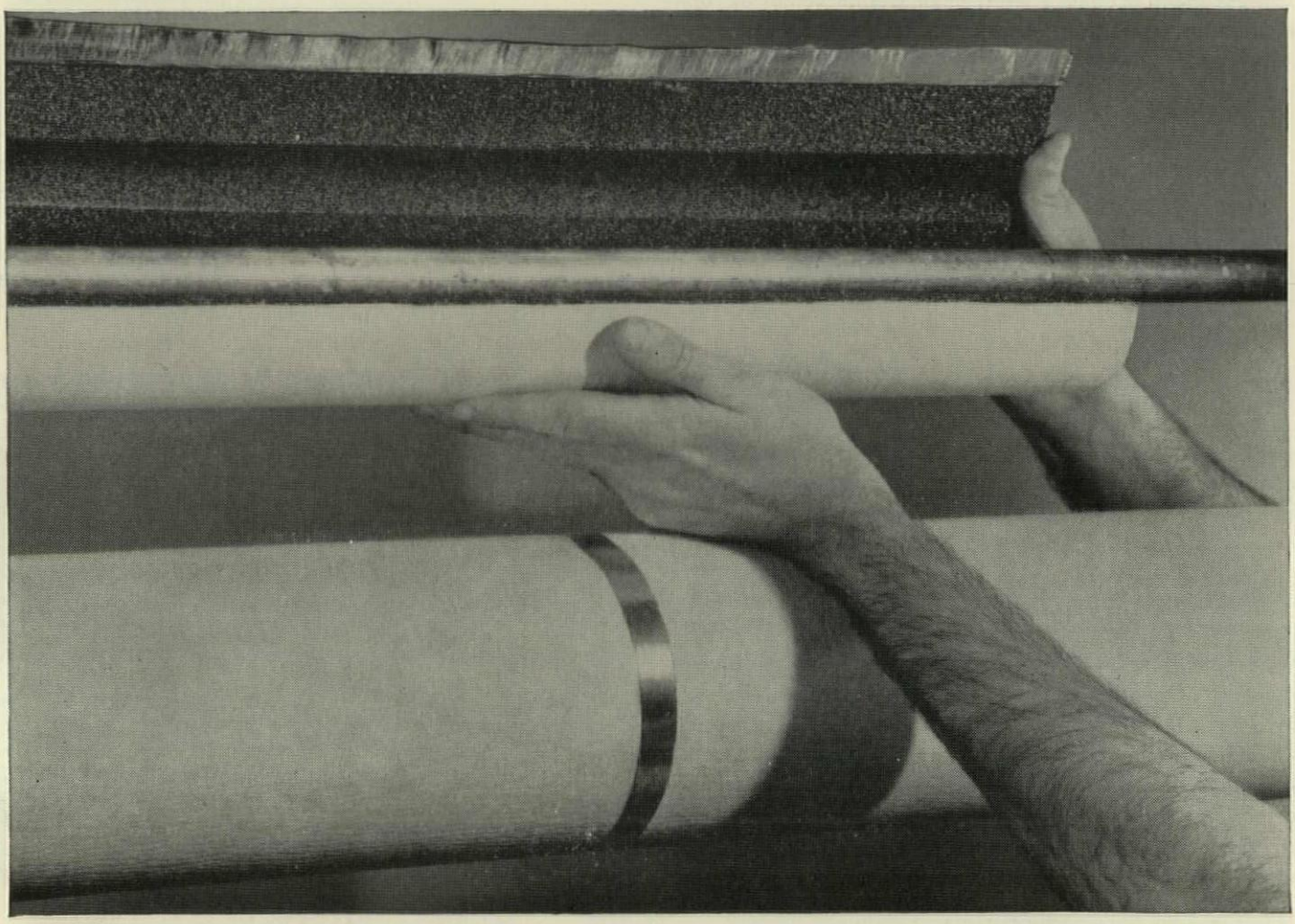
Multi Electric Mfg., Inc. **118**

Spot Heaters Permit Indoor-Outdoor Controlled-Area Heating

Infratube concept of radiant heating uses fused-quartz elements-emitter system of high-energy infra-red rays which do not heat the atmosphere through which they pass, yet reach heat-absorbing materials and humans. Can be concentrated on specific areas, in or outdoors—for efficient heating of grandstands, outdoor waiting-areas, etc., indoor high-ceiling areas. Available in variety of models.

Quartz Prods. Corporation **119**

(Continued on page 99)



NEW FOAMGLAS® STAY-DRY PIPE INSULATION
. . . unique combination of benefits at low cost

Here's a new, low cost way to bring the unique benefits of FOAMGLAS insulation to ice water lines, chilled water lines, low pressure steam or hot water lines and other commercial piping.

It's Pittsburgh Corning's new FOAMGLAS STAY-DRY insulation for commercial piping from +35°F to +300°F . . . at prices comparable with other commercial pipe insulations.

FOAMGLAS STAY-DRY pipe insulation comes with a kraft-foil laminate jacket to provide a tough protective coating and an attractive white outer finish. It is available in nominal thicknesses of 1″ and 1½″ to fit steel pipe or copper tubing from ½″ to 6″ in size. It is furnished in 24″ lengths for quick, easy application. FOAMGLAS is also available as valve and fitting covers.

Only FOAMGLAS STAY-DRY commercial pipe insulation gives you this unique combination of benefits:

Fast, economical installation—without priming the pipe.

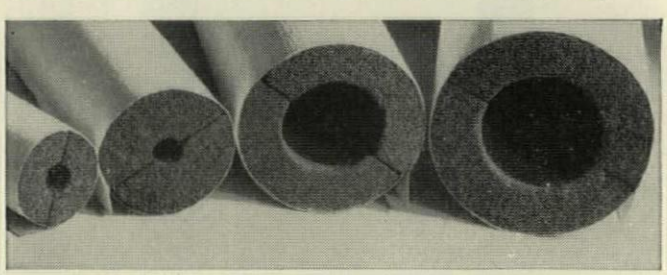
Insulating value can't vary—FOAMGLAS stays dry.

No extra moisture seals or vapor cut-offs—FOAMGLAS is its own vapor barrier.

No costly fire-retardant jackets—FOAMGLAS can't burn.

Pipe can be insulated before hanging—FOAMGLAS is strong enough for hangers to go around an insulated pipe section without compressing the insulation.

Learn more about new FOAMGLAS commercial pipe insulation. Write for bulletin. Pittsburgh Corning Corp., Dept. AB-29, One Gateway Center, Pittsburgh 22, Pa. In Canada: 3333 Cavendish Blvd., Montreal, P. Q.

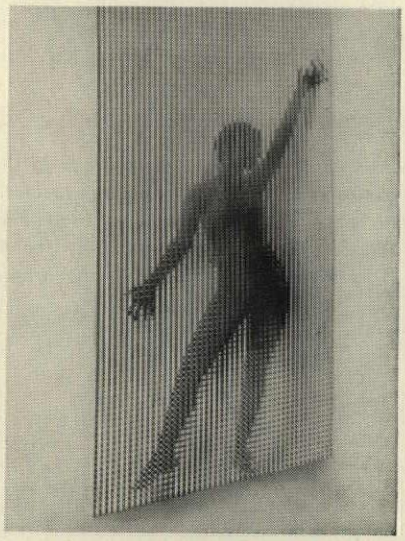


another new product from

PITTSBURGH CORNING

Aluminum Louvers Appear in New Width

Aluminum louvers in 1/2" x 1/2" x 1/2" and 12" x 12" cube cells are available in 4' widths. Greater size is possible be-



cause of Koldbond process which provides increased rigidity and strength. Panels can be produced to any length within reason; are available in wide range of colors. Appropriate for lighting and ceiling applications, also room dividers and other decorator uses.

Columbia Electric & Manufacturing Company **120**

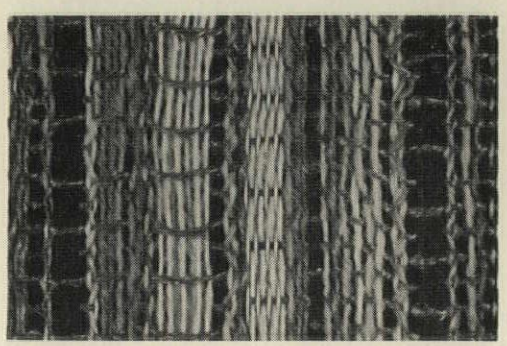
Ceiling Tile is Repaintable Without Sound-Absorpton Loss

Cavity Tile, low cost, incombustible acoustic ceiling tile features frequent repaintability without loss of sound-absorption efficiency. Design utilizes 3/8" gypsum-board assembly to which porous membrane is laminated on the back. Space above suspension system on which tile is applied serves to provide springlike air-action that dissipates sound waves as they are forced through special membrane. Flat wall paint or a low-sheen enamel recommended. Available in 2'x2' size, installed on Celotex "T & T" system.

The Celotex Corporation **121**

Styling Flexibility of Fiberglas Fabrics Extended

Fiberglas casement and drapery fabrics, using Coro-dyed yarns—color is applied before weaving rather than in piece-dyeing or printed patterns—are available in new colors, patterns, textures. Fabric shown is by Lozano-Fisher Studios,



Inc. Other lines are produced by Jack Lenor Larsen, Inc., Knoll Textiles, Inc., Isabel Scott Fabrics Corp., and Marie Nichols Fabrics.

Owens-Corning Fiberglas Corp. **122**

(Continued from page 97)

Moldings for Wall and Counter Panels Are Easily Matched

Easy-to-install, matching, retaining moldings for plastic panels can duplicate any plastic veneer, vinyl, wood, other materials by process of bonding surfacing products to aluminum extrusions from which moldings are made. Nailed to wall, matching moldings hold panels snugly, yet permit them to expand and contract—eliminate buckling, edge curling, or joint separation. In addition to matching any material, color, pattern or texture, moldings are made in every opening size for divider seams, outside corners, end caps, clamp-downs and counter coves. Available for any size panels between 1/16" and 13/16" thickness; shipped in 8' lengths. Installation requires no special skills or tools.

Keller Products **123**

Versatile Storage Units Solve Various Needs

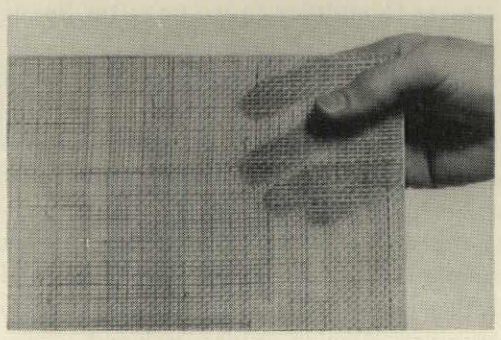
Walnut cabinets, lacquered or oiled, with walnut veneer or laminated plastic tops, will highlight home or office interiors. Photo shows file unit, 80"x21"x29", on chrome-plated steel base; retail, approximately $560. Other cabinets are 18"

deep, include 70" unit with lacquered, sliding doors and four interior compartments which may be flexibly fitted; unit is available as a bookcase with or without sliding doors. George Nelson also has designed secretarial typing-storage unit; unit to fit executive desk for L-shaped arrangement; small unit on casters with two interior compartments.

Herman Miller Furniture Company **124**

Plastic Panel Pattern Has Philippine Origin

"Abaca" pattern in translucent-fiberglass-reinforced panels uses handwoven, natural hemp imported from Philippines.



Suitable for use as shoji screens, room dividers, sliding doors, cabinet doors, dropped ceilings. Neutral pattern blends with surroundings.

Barclite Corporation of America **125**

Brochure illustrates multiple design possibilities in the use of two basic types of cast-concrete or metal-sandwich insulating tile-faced wall panels—finished in Romany-Spartan vitreous-ceramic mosaic. Panels can be tailored to requirements of any framing system—are available in varying sizes, shapes, colors—unglazed, bright, or mat glazed.

Ceramic Tile Panels, Inc. (AIA 17-A, 9-p.) **200**

AIR AND TEMPERATURE CONTROL

Heating and Cooling Equipment

Catalog contains separate 2- and 4-page brochures; each details ratings, dimensions, special features and performance of different types of gas- and oil-fired boiler and heating units, for commercial and domestic use. Also included are sections on baseboard panel heating, summer cooling systems, packaged water chillers. Illustrated to show construction details.

Weil-McLain Company (AIA 30-C-1) **201**

Cooler Built of N-Large-It Units

Bulletin describes reach-in, walk-in refrigerator and cooler Model S—providing extra convenience at cost and space saving. In addition, equipment is expandable for enlarged storage capacity to meet future needs. Available in variety of styles to fit individual requirements exactly. Standard unit contains one walk-in door and three reach-in windows. Size: 5'-8" square—may be enlarged by adding $28\frac{9}{16}$" wide sections.

The Elliott-Williams Co., Inc. (Bulletin 553-4S, AIA 30-F-6, 2-p.) **202**

Dry Steam Humidifier Suits Hospital Needs

Folder explains features of air-operated, dry-steam hospital humidifier: low unit cost—minimum maintenance—quiet performance—no carry-over or drip—immediate response to control—low operating expense. Drawings illustrate typical installations and working parts of DA-32, DA-33 units. DA-34 is an extra high capacity unit for discharge into large volume air streams. Page of selection tables shows most common temperatures and desired relative humidities, plus table for calculating humidity for other temperature conditions. Prices, capacities, shipping weights included.

Armstrong Machine Works (Bulletin 507, 4-p.) **203**

Editor's note: Items starred (★) are particularly noteworthy, due to immediate and widespead 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.

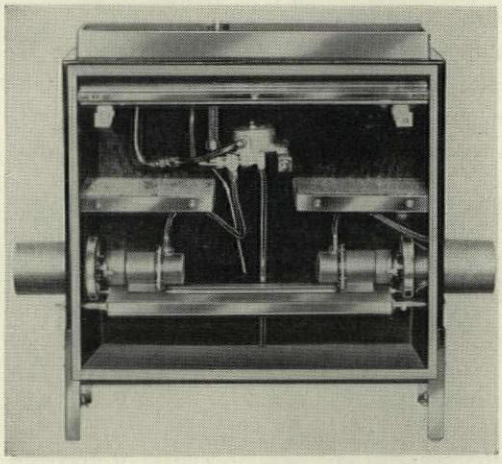
All-Seasons Air Conditioning

Bulletin aids selection of coil-type spray dehumidifiers—includes sections on engineering, dimensional data, coil performance, and psychrometric charts. Designed for washing, cleaning, humidifying, dehumidifying, heating and cooling, units are available in 327 sizes with air volumes from 600 to 76,000 cfm, and in custom models to required specifications. Design specification page includes cutaway drawing with explanation of components. Other drawings show typical arrangement.

Marlo Coil Company (Bulletin 37, AIA 30-F-2-16-p.) **204**

Mixing Boxes Assure Constant Volume

Catalog illustrates simplicity of design and operation of Thermotank perimeter and ceiling high-velocity mixing boxes—equipped with Con-Vol, a special device which assures



precision air volume and temperature control over a wide range of varying inlet pressures without the use of linkage or complicated operating mechanism. Cutaway drawings show unit construction utilizing flow regulators and standard pneumatic motors, mounted on a sliding base.

Air Devices, Inc. (3-p.) **205**

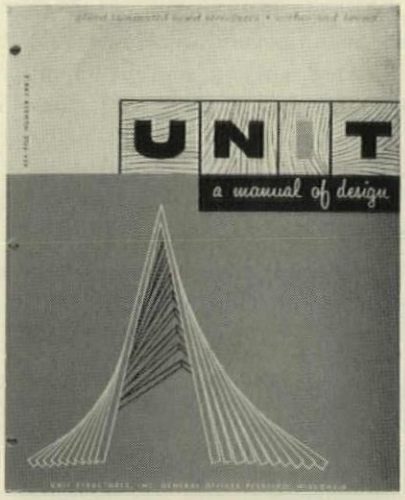
CONSTRUCTION

Automatic Steel Bridging Speeds Construction

Data sheet shows simple time-saving installation of 16" and 24" OC Steel-X automatic bridging for wood joists in residential and commercial building construction. Channel designed and ribbed for structural strength—with anchor prongs per set providing special feature locktite grip—bridging snaps into place by hand with one down-pull (requires no tools). Warp and rust proof; galvanized finish. Specifications and packaging weights given.
Taber Bushnell Co. (AIA 14J, 2-p.) **206**

★ Design Versatility of Laminated Wood

Manual demonstrates design versatility of glued-laminated wood members—provides detailed drawings defining a wealth of possible uses in every type of structural form—also photographs of existing buildings including auditoriums



and churches employing tepee, crossvault, oval, V type forms, and unusual shapes to fit special ground contour conditions—and a free-spanning rigid-frame construction featuring contraflexual located field splices for maximum clearances, optimum economy. Complete specifications, application data, information on types, fabrication, protection, relative strengths and bending properties, color selection chart, included.
Unit Structures, Inc. (AIA 19B-3, 28-p.) **207**

Curtain Wall and Veneer Panels

Brochure presents data on porcelain-enamel curtain wall and veneer panels. Detail-features section shows components of curtain-wall panels, and recommended maximum sq ft area coverage; U-20, with vapor barrier, 1 1/8" thick over-all (modifications to 3")—recommended to 24 sq ft, 48" maximum width; U-16, with special insulating concrete face-fill, 3" thick over-all (modifications to 4")—recommended to 32 sq ft, 48" maximum width. Split panels of various styles are regularly supplied for greater lengths and widths. Also illustrated are plain, formed face, Porock filled, insulated, facing veneer panels. "Complete job" service is offered on engineering, production, delivery and, if required, installation.
The Erie Enameling Company (AIA 17-A, 11-p.) **208**

★ Lightweight Roofing Outlasts Others

Brochure stresses long wearing service of Terne seamless roofing (copper-bearing strip steel with lead-tin alloy coating)—of low expansion coefficient, high tensile strength. An important feature is lightness of weight which eliminates necessity for special loadbearing substructures in construction. Reported to be fireproof, with superior reflectivity of sun's heat when painted white or light color—offers versatility of surface and shadow effects through use of flat lock, standing or batten seams, and horizontal seam Bermuda roof. Complete preparation and application specifications for these types of roofing are presented, with cutaway drawings, and illustrations of existing residential and public building installations. Coverage data on 50-ft rolls also included.
Folansbee Steel Corporation (AIA 12-A-31, 6-p.) **209**

Elastic-Sheet Flashing

Bulletin gives complete application information for quick, easy installation of Salaroy 400 elastic flashing, for all types of building. Conforms to nearly any contour. Adhesive system bonds it to (1) common building materials, (2) hot-melt roofing bitumens, (3) itself by solvent activation. Flexible sheets are available in 36" wide rolls containing 100 sq ft, weighing approximately 50 lb. In black only, but can be painted with ordinary paint.
The Dow Chemical Company (AIA 12-H, 14-p.) **210**

Interlocking Steel Panel Construction

Booklet describes Steelox interlocking panel construction method for quick forming of strong, noncombustible, durable walls and roofs. Discussed and illustrated are four types of buildings using three special types of steel covering materials to suit varying requirements. Also discussed are surface treatments where particular climatic, environmental, appearance factors are considerations. Color photographs of actual installations are included, and specifications.
Armco Drainage & Metal Products, Inc. (AIA 17-A, 16-p.) **211**

Apply Siding and Sheathing in One Operation

Folder presents specifications for Dubl-Bilt heavy-duty panel, which combines siding and sheathing in a single element to provide an efficient, quick-to-erect wall covering—described as a 12-ply welded panel of closely knit cellulose, resistant to rocking and impact stresses; waterproofed and windproof—especially engineered for board and batten construction, but equally sound in many other applications. Thickness is approximately 3/4", with 3/4" ship-lap running the long way of the edges; available in 4'x8' widths—lengths of 9' and 10'. May be had primed on one or both sides.
The Upson Company (4-p.) **212**

Steel Studs for Hollow Non-Bearing Partitions

Folder describes Chan-L-Form metal-lathed steel studs for nonbearing, furring, or doubled partitions. Of open-truss design, studs are described as lightweight, easy to erect, adjustable to uneven construction—offering accommodation to easy duct and other mechanical supply line installation—may be used with wood, metal, glass, other materials. Fire safety and sound isolation data are given, as well as specifi-

cations, weights in lb per sq yd, shipping and packaging information.
The Bostwick Steel Lath Company (AIA 20, 8-p.) **213**

★ **Products for Structural Systems**

Catalog lists four additions to an existing line of steel architectural products: lightweight, 16-gage, loadbearing punched channel studs of open-web design, usable as exposed members, providing more area for conduit clearance, easy attachment of metal lath and collaterals; rigid-frame column and rafter assemblies in spans from 30' to 78', eave heights from 9'-6" to 19'-6", applicable where architecturally pleasing exposed structural section and clear span is desired; combination acoustical ceiling and roof deck in one structural element, in 18- and 20-gage steel; galvanized and painted roof deck in two profiles (standard and wide rib) in 18-, 20-, 22-gage steel. Catalog contains information on entire Stran-Steel line of products. Illustrations and photographs show how each can best be used in a variety of applications.
Stran-Steel Corporation (23-p.) **214**

Underfloor Distribution Systems

Bulletin describes underfloor distribution systems for power, telephone, and intercom. Three types of systems are included—standard underfloor duct for conventional slab construction in commercial buildings; industrial duct with wider ducts for greater wire capacity; and headerduct for coordination with cellular-floor construction. Also covered are duct features that simplify installation and wiring, improve appearance of floor pans and service fittings. Drawings and photos illustrate assembly system.
Spang-Chalfant Division of The National Supply Company (Bulletin 491, AIA 31062, 8-p.) **215**

★ **Building Products and Services**

Technical manual is divided into six separate catalog sections detailing engineering data and specifications for each of the following commercial building elements: metal curtain walls, metalclad fire walls, rolling steel doors, electrified M-floors, long span M-decks, steel roof decks, acoustical and troffer forms, acoustical ceilings, structural steel, steel plate components. Diagrammatic drawings and photographs accompany text; section with construction details for drafting room use is included.
The R. C. Mahon Company (100-p.) **216**

DOORS AND WINDOWS

Grid System for Curtain Walls and Windows

Catalog of aluminum windows and curtain walls explains their basic design and construction—includes photographs of representative installations, scale details, specifications, approximate prices, and recommendations for designing economically through the advantages of a custom-made framing system which provides freedom of grouping and location of structural members into elevation patterns. Glazing procedure, acceptable panel styles, and ventilators are also shown and explained in detail.
E. K. Geyser Company (AIA 17-A, 20-p.) **217**

Custom-Crafted Entrance Door

Catalog illustrates industrial and institutional building entrances with custom-crafted balanced doors—providing easy operation and uninterrupted traffic flow. A shorter traveling arc permits faster opening and closing, minimizes outward projection. Closer spring assembly can be set at varied tensions to give any desired closing pressure—door contains automatic hold-open device. Specifications, construction details, photos of current installations are included. Available in stainless steel, aluminum, bronze, and other metals.
Ellison Bronze Co., Inc. (AIA 16-A-1, 11-p.) **218**

ELECTRICAL EQUIPMENT, LIGHTING

★ **Aluminum in Electrical Systems**

Presentation studies current economics of choosing aluminum for a broad spectrum of electrical applications. Specific topics covered include conduit, wire and cable, armored cables, enclosures and switchgear, light fixtures and accessories, other components such as reactors and transformers. Illustrations and examples are in terms of specific existing installations. Several sections cover technical discussion of accepted working and handling practices with such aluminum electrical products as conduit, wire, and cable.
Aluminum Company of America (32-p.) **219**

★ **Recessed Modular**

Booklet provides information on Lightolier's new 2' x 4' and 2' x 2' modular troffers in three styles: Optiplex, Domex,

and Strialux. "Calculator" charts and candepower-distribution charts shown on each variety: six pages give application and installation data; detailed table simplifies ordering.
Lightolier (AIA 31-F-23, Brochure 25, 20-p.) **220**

INSULATION

Cold Storage Insulation Saves Building Time

Brochure shows several types of cold storage enclosures built of Foamglas cellular all-glass insulation—described as lightweight, strong and rigid, moistureproof, incombustible, dimensionally stable, acid- and vermin-proof insulation, whose physical characteristics permit a one-operation, one-material erection system effecting considerable savings in the

(Continued on page 107)

Kawneer has finally

**YOU CAN'T SEE IT...YOU CAN'T FIND IT...
IT'S COMPLETELY HIDDEN...NOT ON THE DOOR
OR IN THE FLOOR, BUT INSIDE THE TRANSOM BAR!**

HERE IS SHEER ARCHITECTURAL BEAUTY. The dramatically new patented Kawneer ***Concealed Overhead Closer*** entrance unit. First overhead closer totally concealed in a 1¾″ x 4½″ transom and offered as a stock entrance package.

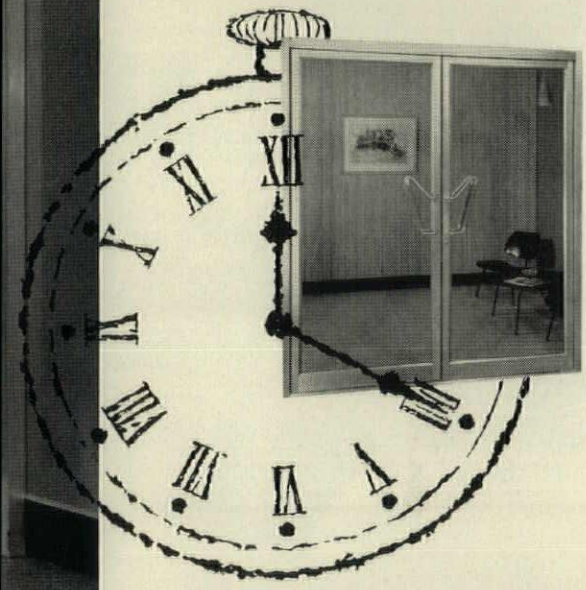
Nothing projects out or down to clash with its crisp, orderly design. There are no surface-mounted checking mechanisms to subtract from the sleek simplicity of classic Narrow Line construction. No jutting arms or butt hinges or exposed offset pivots.

Never before has an overhead closer-controlled entrance been so good to look at—or had so many time and money-saving features.

IN BUSINESS OFFICES, tasteful simplicity of the Concealed Overhead Closer Entrance gives customers their first good impression of the company.

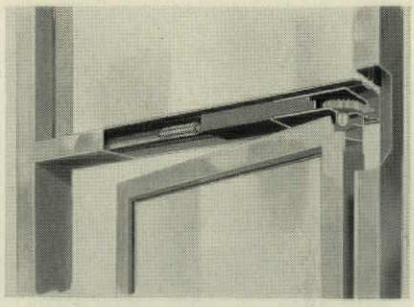
IN STORES, the distinctive, functional appearance of the Kawneer entrance expresses the personality of the owner to passersby, invites them in.

IN HOSPITALS, it imparts an exciting new beauty and utility to doorways. Installs in existing buildings in a minimum time, without noisy air hammers.



INSTALLS IN 20 MINUTES . . . No other closer-controlled door is so easy and inexpensive to install! Mechanic simply uncrates package . . . assembles frame . . . hangs door. No advanced preparation is necessary. No holes to dig. No pivots or conventional hinges to attach.

EASIER SPEED ADJUSTMENTS than with floor-check entrances. Kawneer Concealed Overhead Closer has two closing speeds, and has independent adjustments for both closing speed and latching speed. Also equipped with *spring tension adjustment* for severe wind conditions, independent of the hydraulic action of the other two speeds.



ABILITY TO TAKE IT . . . In addition to clean unblemished lines of the entrance, the new overhead concealed closer is ruggedly built. It is designed to handle several size doors and has proved its ability to take it.

COMES AS A COMPLETE ENTRANCE PACKAGE . . . Ready to put up! Includes Kawneer all-aluminum Narrow Line door, frame, and *first totally concealed overhead checking mechanism.*

put the closer in its place!

another example of the *Kawneer Touch*

Serving Architecture and Industry

Kawneer General Offices NILES, MICHIGAN — ARCHITECTURAL PRODUCTS DIVISION

since 1906

Call your local Kawneer installing dealer or send in coupon for more information.

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Please send complete information about the revolutionary new Kawneer Concealed Overhead Closer Entrance Package.

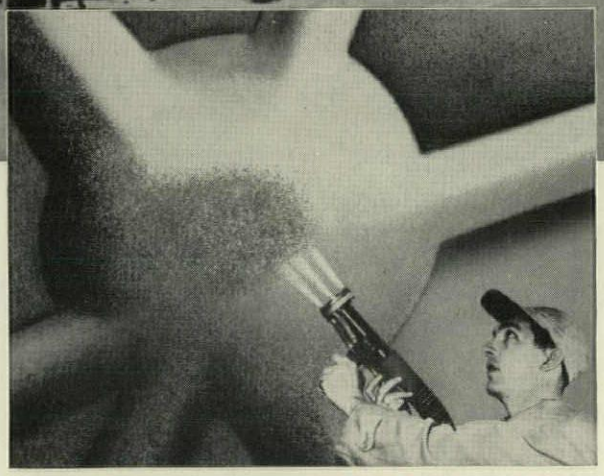
*Name*_____

*Position*_____ *Company*_____

*Address*_____

SPRAYED "LIMPET" ASBESTOS . . . a new concept in insulation for a new concept in building design!

Virginia Beach Auditorium, Virginia Beach, Va.
Architects: Oliver & Smith, Norfolk, Va.



No heavy fireproofing material for this Kaiser Aluminum geodesic dome! Lightweight SPRAYED "LIMPET" ASBESTOS permitted the dome to retain its unique design. When dry, ceiling is an attractive pale beige color.

An asbestos fireproofing insulation you can spray on with a gun . . . that does away with heavy fireproofing materials . . . that can be used in all types of structures! Its name? SPRAYED "LIMPET" ASBESTOS.

It saves you installation time and costs. There's no nailing. No cutting. No fitting. No clipping. And your building gets an evenly textured seamless blanket of protection. SPRAYED "LIMPET" ASBESTOS faithfully follows the contours of any surface. Adheres permanently with a strength of 100 lbs. per sq. ft.

SPRAYED "LIMPET" ASBESTOS meets the incombustible materials requirements of the U.S. Coast Guard and Federal Specification SS-A-111. A 40-minute flame spread test showed no flame, smoke, or fumes during or after the test.

Write today for more information on remarkable SPRAYED "LIMPET" ASBESTOS . . . another fine product distributed by Keasbey & Mattison.

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
Company • Ambler • Pennsylvania

(Continued from page 102)

construction of storage areas. Photographs and descriptions of existing installations are shown.
Pittsburgh Corning Corporation (12-p.) **221**

Insulating Poured Roof Decks

Bulletin illustrates advantages of Mearlcrete insulating concrete for poured roof decks and roof insulation—made by mixing high stability preformed foam with portland cement slurry. It is described as lightweight, quick-drying, weather resistant, fire retardant—providing a permanent economical material for use in slab-on-grade construction, floors, as well as roofing. Photographs and drawings of typical applications accompany recommendation and installation information.
Mearl Chemical Corporation (Bulletin R411, AIA 4-E-13, 7-p.) **222**

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.) **223**

Protected Metal Roofing and Siding

Folder shows Steelbestos protected metal roofing and siding for industrial building—available in 22 colors, in addition to standard black, maroon, and aluminum—in mansard, long-span, and 2½"-width corrugations. Sectionalized view shows seven protective coatings over the steel, including two color coats, to provide a smooth, pin-hole free surface which is unaffected by temperature changes, industrial atmospheres, other environmental conditions. engineering, erection data, and specifications are included.
American Steel Band Company (4-p.) **224**

Roof Insulation Applies Quickly

File sheet photographs demonstrate quick and easy application of puncture and temperature resistant Fiberglas roof insulation. Composition is of inorganic durable glass fibers bonded with stable resin, to which is adhered an asphalt and Kraft mopping surface. Can be applied over wood, noncombustible, or steel deck. Technical data, thermal conductance, materials specifications, deck requirements and preparation, etc., application instructions, included.
Owens-Corning Fiberglas Corporation (AIA 37-B-2, 7-p.) **225**

Aid to Weatherstripping Selection

Brochure aids in proper selection of weatherstripping for both large institutional, small house building—presents numerous types of door and window weatherstripping, combinations of suggested applications, specification data. Full-size black-and-white drawings show engineering details, solutions to specific installation problems. Page reference index itemizes complete line of specialties and equipment. Lists existing installations in civic building, schools, hospitals, other building catergories.
Zero Weatherstripping Co., Inc. (AIA 35-P-6, 27-p.) **226**

Insulating Concrete

Catalog discusses general characteristics of insulating concrete for roof decks and floor fills made with Permalite expanded perlite. Includes specifications for mixing and application—engineering charts provide complete information on composite roof deck systems using Permalite as fill over corrugated steel decking, structural concrete, paper-back wire mesh, formboard systems, rib metal lath (data includes total safe uniform loads and physical properties of finished deck). Fire ratings given for unprotected steel roof decking, other type installations.
Mining and Mineral Products Division of Great Lakes Carbon Corporation (8-p.) **227**

SANITATION, WATER SUPPLY, PLUMBING

Copper Tubing for Long Wear

Booklet contains information on types of copper tube that will give maximum economy, durability, and appearance in plumbing, heating, air-conditioning systems. Included are side-by-side comparisons of different systems to show which offer the greatest benefits to the builder. Suggestions are given on choosing plumbing layouts for one- and two-bath homes including provisions for expansion attics. Specifications for water supply, underground service, oil burner, drainage installation with copper tube, are included.
Chase Brass & Copper Company (24-p.) **228**

SPECIALIZED EQUIPMENT

Sliding Panel Serves as Closet and Chalkboard

Manual presents illustrated data on design and building requirements, precision-engineered features, of Barcol school Wardrobedoor—shows sliding sectional door serving as a walk-through, built-in cloak closet while providing a firm single-surfaced chalkboard, or tackboard mounting space. when open, door leaves floor and aisle unobstructed for traffic and supervision. Of lightweight sturdy honeycomb-core hardboard sandwich construction, panels are said to have highly favorable finishing, scuff-resistant qualities. Requests on letterhead only.
Barber-Colman Company (AIA 35-B 4, 50-p.) **229**

Standard and Styled Metal Lettering

Brochure presents comprehensive data on metal and porcelain sign lettering—photos show existing applications styled to individual requirements. Fabricated letters are of stainless steel, cast or welded aluminum, bronze, porcelain, or baked enamel (chart offers 22 standard colors)—special colors available on order. Space determination information and ordering instructions included.
Nelco Metalcraft, Inc. (Catalog 57-10, AIA 35-H-9, 11-p.) **230**

Template Layout Kits Speed Planning

Manual introduces planning and layout device consisting of three kits. Contents include: (1) black template—white print; (2) white template—black print; (3) transparent template,

(Continued on page 108)

p/a manufacturers' data

(Continued from page 107)

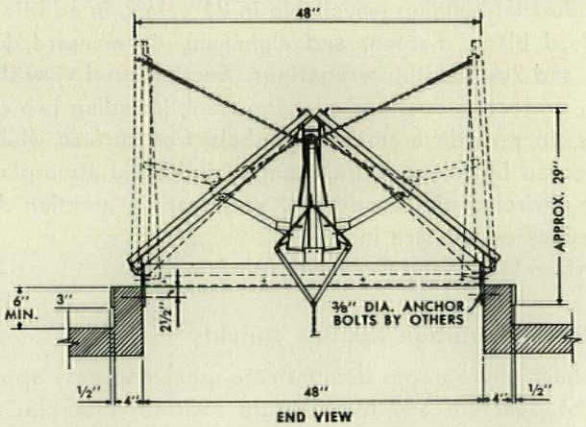
black bordered—black print. "Planoramics" are cut to scale, obviate scissor, pencil, eraser use—produce professional plans, charts, blueprints etc., without drawing. Though described as glueless, they finger-press to plan, and adhere until lifted away. Lack of adhesive allows photo copying machine to make clean prints—ready to roll plans with no disturbance to layout. Prices, illustrations of uses, are given.
Planoramics (14-p.) **231**

Color Kit for Institutional Decoration

Color kit in four sections presents color specifications for institutional and industrial buildings from standpoint of using color to promote most functional and pleasing visual and reflectance atmosphere. Set of recommended color standards, with 36 paint chips, is included to permit specifying colors by number—they comprise three color groups, according to application and function, ranging from grayish tones to bright color hues.
Colorizer Associates (AIA 25A, 16-p.) **232**

Roof-Installed Automatic Heat Release

Folder explains engineering and operating features of Pyrojector roof-installed explosion relief unit, which restricts fire spread through automatic dispelling of heat, smoke, or shock



waves, at 10 lb/sq ft air pressure. Body is 16-gage galvanized steel, with a rigid-steel angle frame. Dampers are double-wall design made of 22-gage galvanized steel with 1" sandwich insulation. Open Pyrojector provides 28 sq ft of free escape area. Total weight, 295 lb.
The Swartout Company (4-p.) **233**

SURFACING MATERIALS

★ Versatile Tile Designs in Walls and Floors

Brochure presents ideas for wall and floor treatments using Crystalline glazes and Scored tiles. Full-color illustrations of actual installations in commercial buildings as well as homes show interior and exterior applications—entrance halls, interior murals, building façades, bathrooms, and kitchens are among subjects covered. Includes illustrations of a number of tile patterns, and a color chart of 13 Crystalline colors and harmonizing colors in bright and mat glazes.
American-Olean Tile Company, Inc. (AIA 23a, 12-p.) **234**

WITH

GENUINE STRUCTURAL CLAY FACING TILE!

You save both time and money with genuine Structural Clay Facing Tile. Remember, only genuine Facing Tile gives you both a sound structural wall and a maintenance-saving finish, *all in one*. Inferior substitute materials do not satisfy the same rigid specifications . . . cost you more in the long run.

Rich, permanent colors with durable, glazed surfaces always clean sparkling new with soap and water. Modular sizes lay up fast with a single trade.

Save money for your clients . . . insist on genuine Structural Clay Facing Tile and stop needless waste.

FTI STRUCTURAL FACING TILE INSTITUTE

This seal is your assurance of highest quality Facing Tile.

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1520 18th Street, N. W., Hudson 3-4200, Washington 6, D. C.
1947 Grand Central Terminal, Murray Hill 9-0270, N. Y. 17, N. Y.
228 N. LaSalle Street, Randolph 6-0578, Chicago 1, Ill.

ese companies contribute to Facing Tile research and development: **ARKETEX CERAMIC CORPORATION,** Brazil, Ind. • **CHARLESTON AY PRODUCTS CO.,** Charleston 22, W. Va. • **THE CLAYCRAFT CO.,** Columbus 16, Ohio • **HANLEY COMPANY, INC.,** Pittsburgh, Pa. **MAPLETON CLAY PRODUCTS CO.,** Canton, Ohio • **METROPOLITAN BRICK, INC.,** Canton 2, Ohio • **McNEES-KITTANNING CO.,** Kittanning, Pa. **NATCO CORPORATION,** Pittsburgh 22, Pa. • **STARK CERAMICS, INC.,** Canton 1, Ohio • **WEST VIRGINIA BRICK CO.,** Charleston 24, W. Va.

Choose handsome, sturdy Modernfolds exactly suited to your purpose

ALL-NEW WOOD LINE—Rich, mellow appearance. Quiet, graceful, easy-gliding. Wide assortment of selected, matched veneers, laminated to solid core for extra stability.

FAMOUS FABRIC LINE—MODERNFOLDS, covered in fabulous fabrics and weaves, all washable. Perfect balance, lifetime service from exclusive double-strength, all steel inner frame.

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BEAUTIFUL HARDWARE—Gracefully executed, yet rugged and practical as can be. MODERNFOLD enhances folding door eye-appeal with specially designed hardware in rich brass or satin finish chrome.

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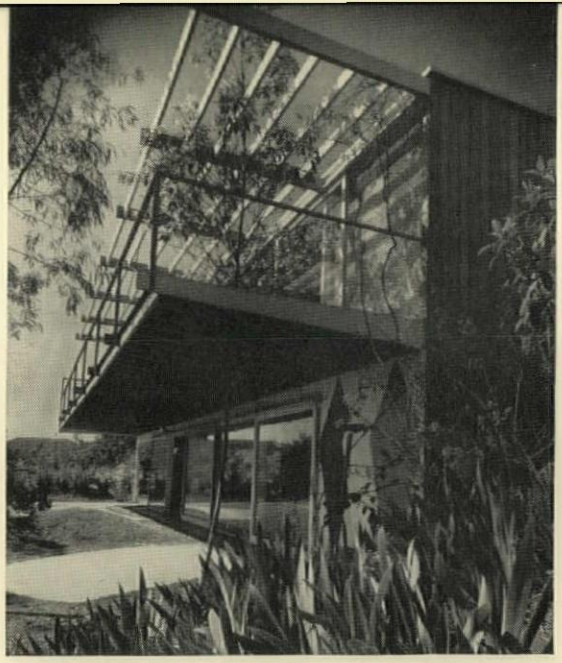
Looking Forward to March PROGRESSIVE ARCHITECTURE



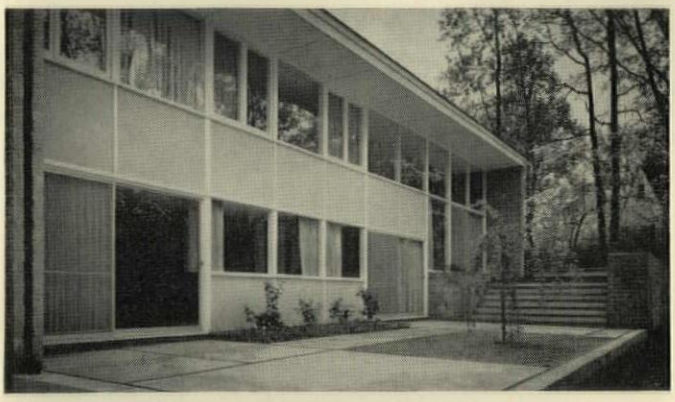
FIELDS OF PRACTICE STUDY: HOUSES

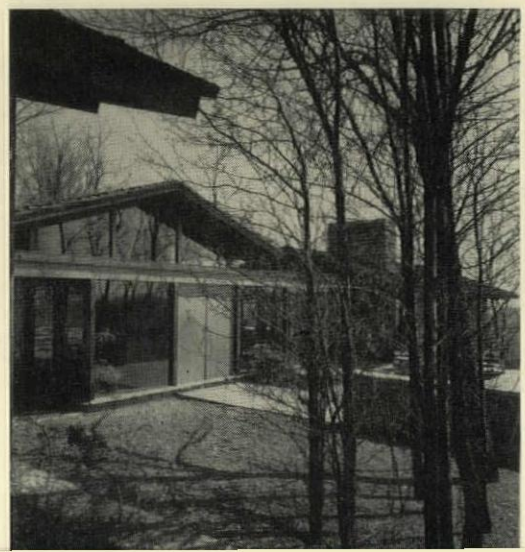
MARCH P/A will be largely devoted to residential design. Leading off will be a FIELDS OF PRACTICE presentation of the residential-design philosophies of six architects and a noted designer. The seven attitudes will be shown, in theory, through a "round-robin" article giving views of each firm, and, in practice, by building presentations showing a house by each practitioner. These professionals and their houses represent a geographical and design cross-section of today's residential construction: James Nessly Porter and John Terence Kelly (Ohio); Bruce Abrahamson (Minnesota); Robert A. Little (Ohio); Craig Ellwood (California); E. H. & M. K. Hunter (New Hampshire); Josef van der Kar (California); and George Matsumoto (Virginia).

There will be two other features of interest in MARCH P/A relating to residential design: INTERIOR DESIGN DATA section will be devoted to a unique New York town house/library by Felix Augenfeld; and the major technical article will be 13-page examination of "Solar Heating for Houses," by Aladar Olgyay and Dr. Maria Telkes.

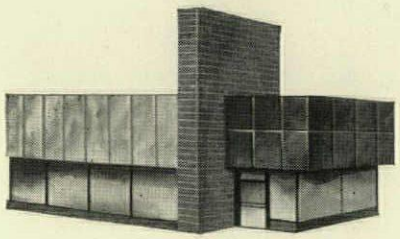
ARCHITECTURAL CRITICISM

The first of a new series of architectural critiques will appear in MARCH P/A. In this issue, Sibyl Moholy-Nagy will offer critical opinions on an outstanding Medical Group Center on Long Island, designed by Basil Yurchenco. Mrs. Moholy-Nagy's observations will pertain not only to the building under consideration, but also to the whole problem of designing small health facilities.





WHAT ABOUT Temperature Controls for Smaller Buildings?



OFFICES
BANKS
CLUBS
RESTAURANTS
CHURCHES
SCHOOLS
CLINICS
HOSPITALS
MOTELS
INDUSTRIAL BUILDINGS

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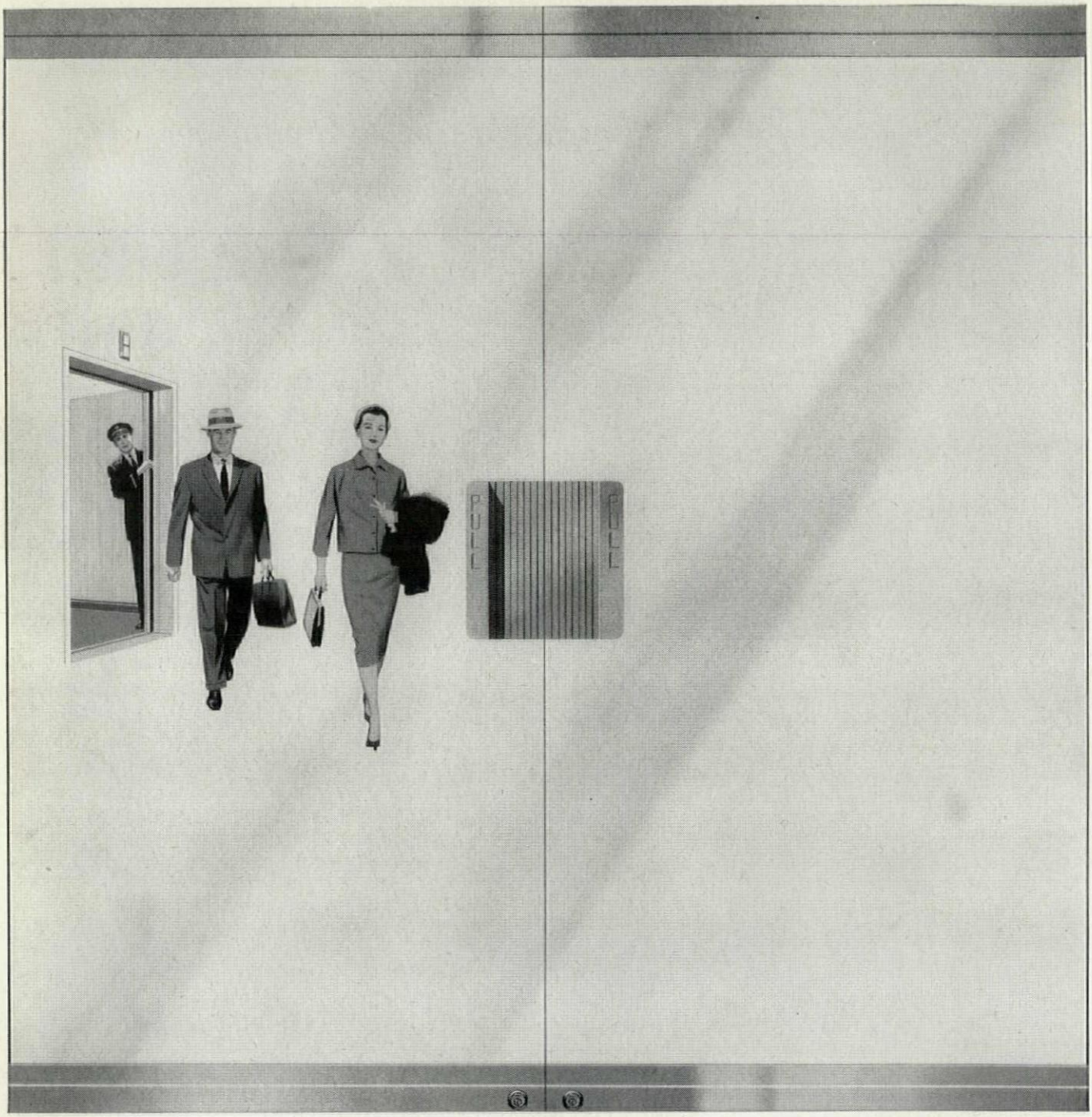

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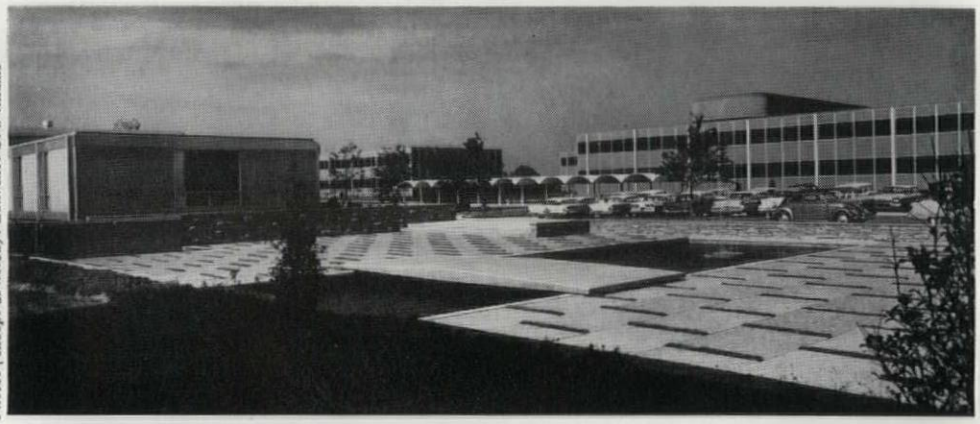
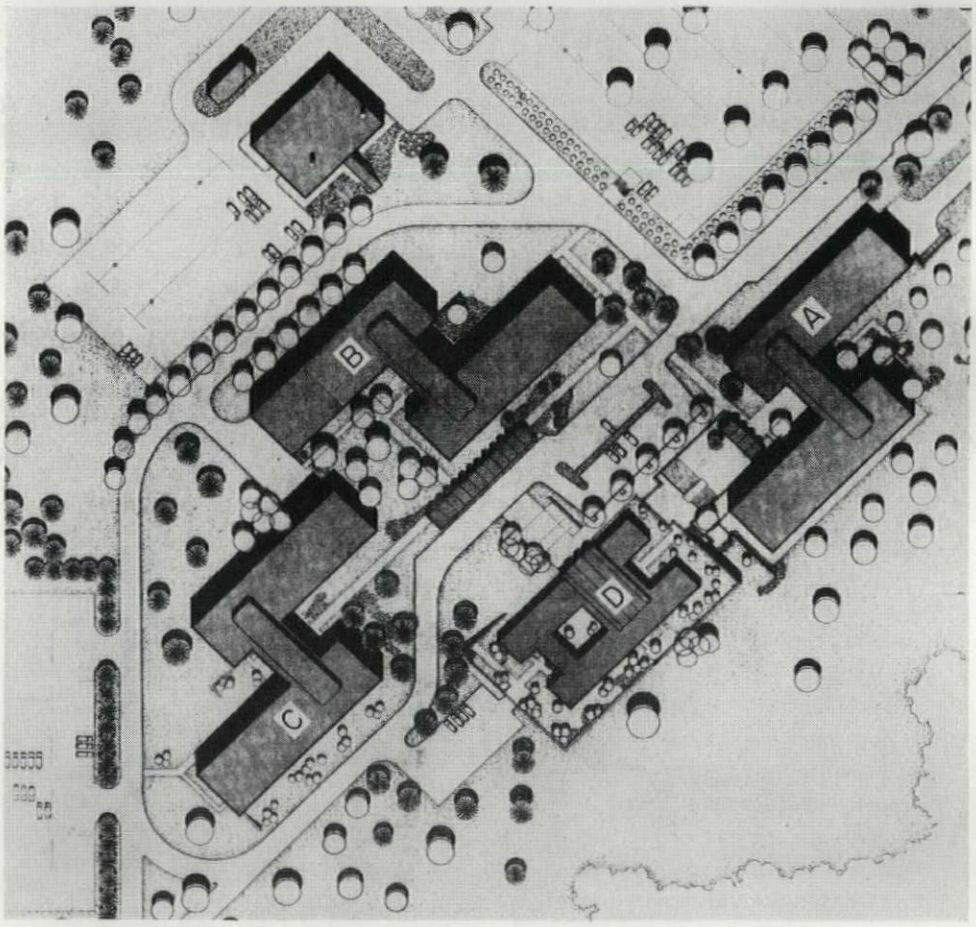
Monsanto's Office Campus

location	St. Louis, Missouri
architect	Vincent G. Kling
staff architect	W. Allen Cleneay

Photos (except as noted): Lawrence S. Williams





Imaginative use of a campus plan for the headquarters of Monsanto Chemical Company earned a P/A Award Citation for this project in January 1956. Since then, the components of the "campus"—three similar office buildings (A, B, C *above*), an executive office building (D), and a power plant—have been capably carried forward to completion. Prior to this publication of the finished project, the architect was asked to comment on the design theories which shaped and governed his planning.

"The size and terrain of the site and the size of the project were responsible," says Kling, "for our basic choice of a

Hedrich-Blessing

campus plan. The land embraces a ridge that is the highest point in St. Louis County, with views reaching in some directions as far as twenty miles. We saw the opportunity to exploit these limitless views without recourse to a tall structure, and at the same time recognized the need to offset them with carefully defined spaces scaled to the human being. Thus, we placed several buildings in such a way as to frame an intimate, comprehensible, central campus, while enjoying the broad vistas roundabout."

Concerning the design of the individual building elements, he writes, "An analysis of Monsanto's operations revealed a consistent pattern of space requirements and functional relationships among the various departments. These, it was found, could be translated schematically into three separate buildings, each consisting of two wings linked by a circulation core. Of the various wing-and-core patterns studied, the Z plan was chosen for its suitability to the sloping terrain, its inherently interesting form, and the character of spaces resulting from the arrangement of several similar building elements. As a result, all moods and aspects of what might be considered a single building design are revealed simultaneously from any given vantage point."

The single-building aspect, that is, the unity of composition, was not only furthered by the homogeneity of building masses, structure, and materials, but also achieved through the consistency of every other architectural detail, from the landscaping and patterning of the exterior spaces (*acrosspage bottom*), to the graphic design of directional signs within the office buildings (*acrosspage top*).

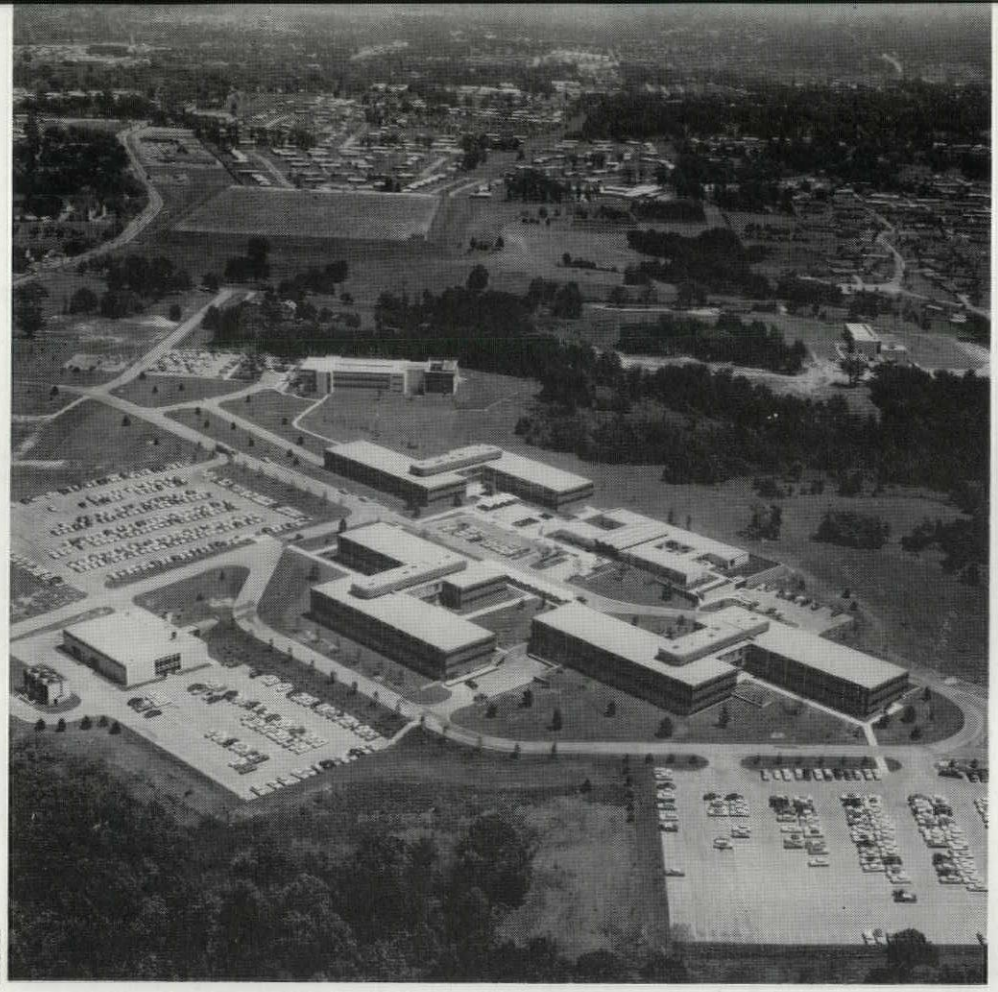
"The central core of each three-story building," continues Kling, "has a second-floor main entrance opening directly on the campus. A half-level below on the opposite side is a secondary entrance on grade with the employes' parking lot. Administrative offices are placed in the wings nearest the core, and beyond these are large open floors adaptable to a variety of uses and arrangements.

The three office buildings are similarly treated to provide a unified, serene background for the spaces that compose the central "campus." The form and treatment of the wings bespeak the general nature of office functions inside. The glazed walls of the core units mark them clearly as entrance and circulation areas.

The executive building (*above*) provides the change of pace necessary to give the group cohesion and focus. Here, a specific program has been realized in highly individual terms. The board room —a space as inviolate as the office pool is flexible—is given the prime position. The inner courtyard, the vertical-slit windows, and the separation of executive and secretarial spaces contribute to an air of privacy, while the glazed lobby asserts that the visitor is no less welcome here.

The vaulted roof of the executive building gives architectural expression to the principal spaces. This motif is repeated elsewhere on the "campus" in the outdoor canopies, where it provides a visual counterpoint to the dominant rectilinear pattern of the office buildings. The long canopy further serves to establish direction, focus, and scale for the campus group."

Others who contributed to the success of this building complex were Severud-Elstad-Krueger Associates, Structural Engineer; A. Ernest D'Ambly, Mechanical-Electrical Engineer; Bolt Beranek & Newman, Inc., Acoustical Engineer; Fruin-Colnon Contracting Company, General Contractor.



McCrea

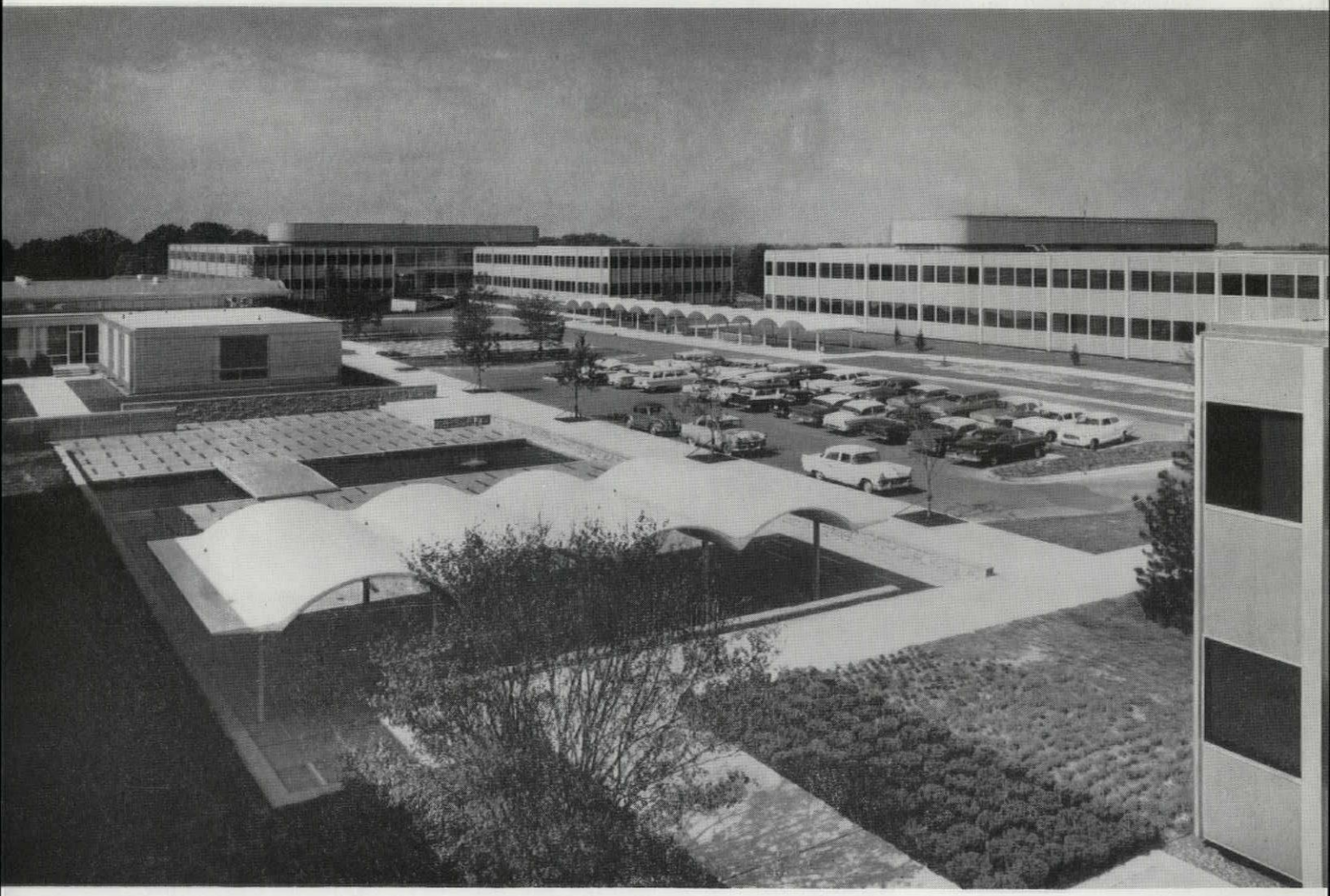
'B' – BUILDING
NORTH WING
FIRST FLOOR

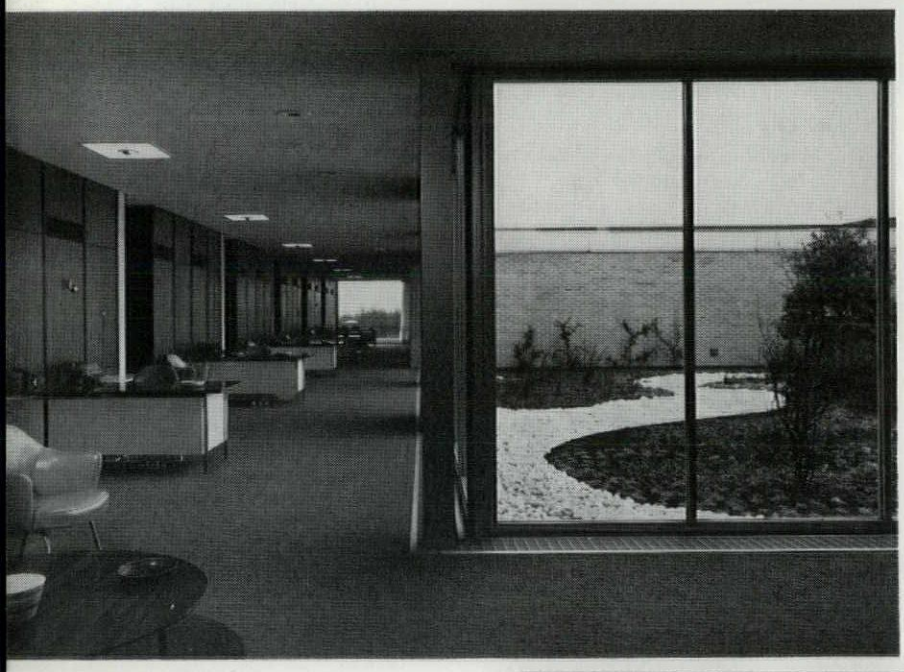
Monsanto

- Employment

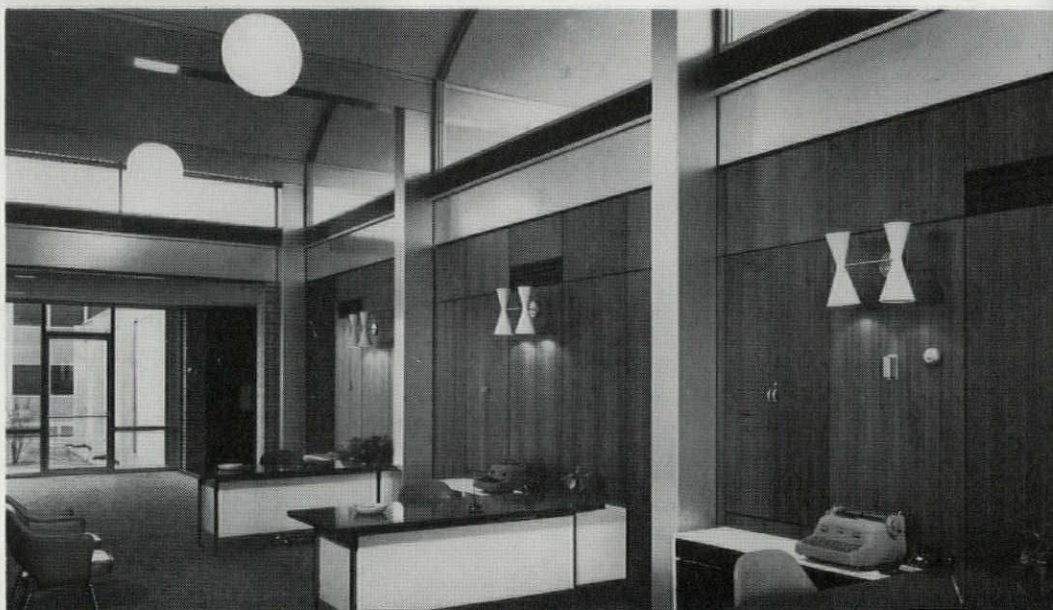
OFFICE MANAGEMENT

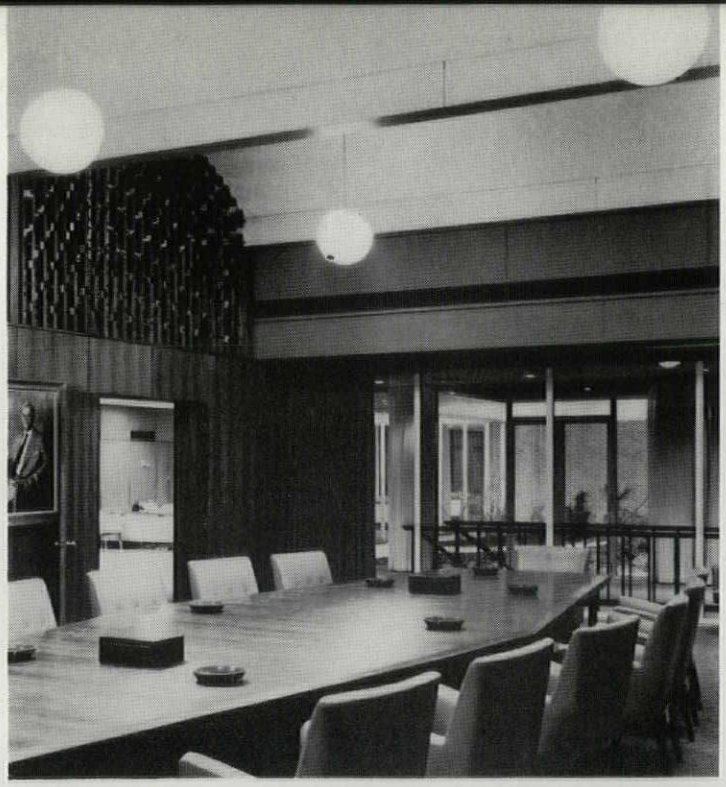
- Administration
- Bldg Maint and Opns
- Methods and Procedures
- Office Supplies
- Receiving
- Research Files
- Switchboard
- Telecommunications



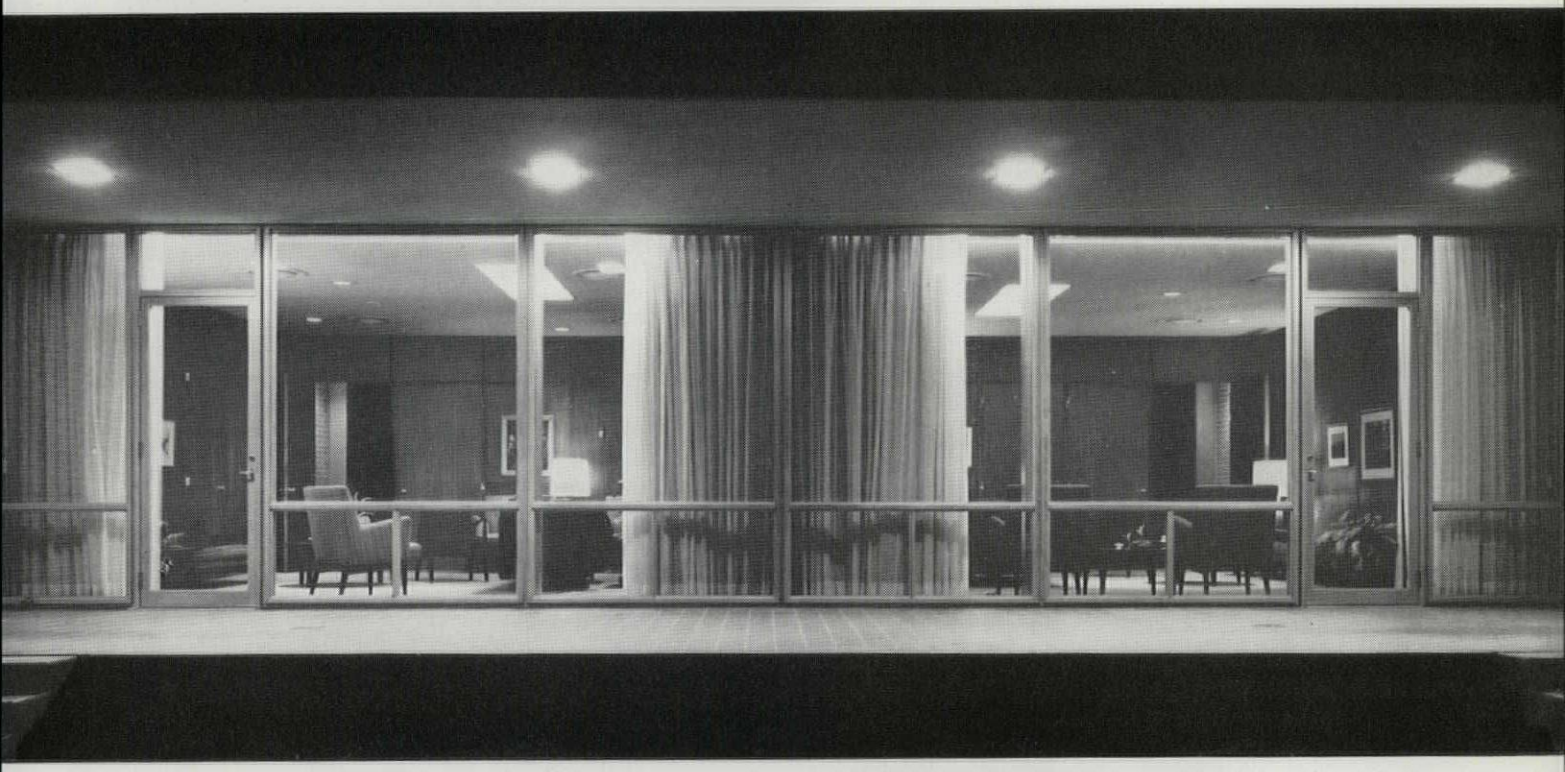


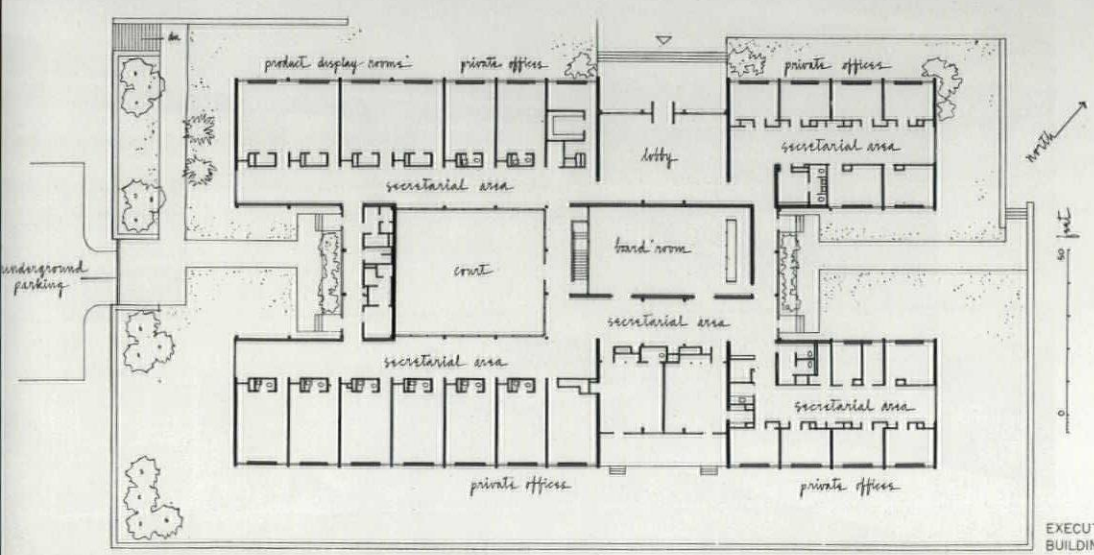
The one-story executive building (shown here *and* acrosspage) *is the focus of the "campus." A vaulted roof over a portion of this building gives particular emphasis to the main entrance lobby* (above), *the board room* (acrosspage top), *and the secretarial space* (below) *which is also the anteroom to offices of the president of the company and the chairman of the board* (acrosspage center). *Other secretarial space of an unusually light and cheerful character surrounds a garden court* (left). *Again, this space serves double duty as control point for the offices and as a circulation passage. Stairs lead to an underground parking garage.*



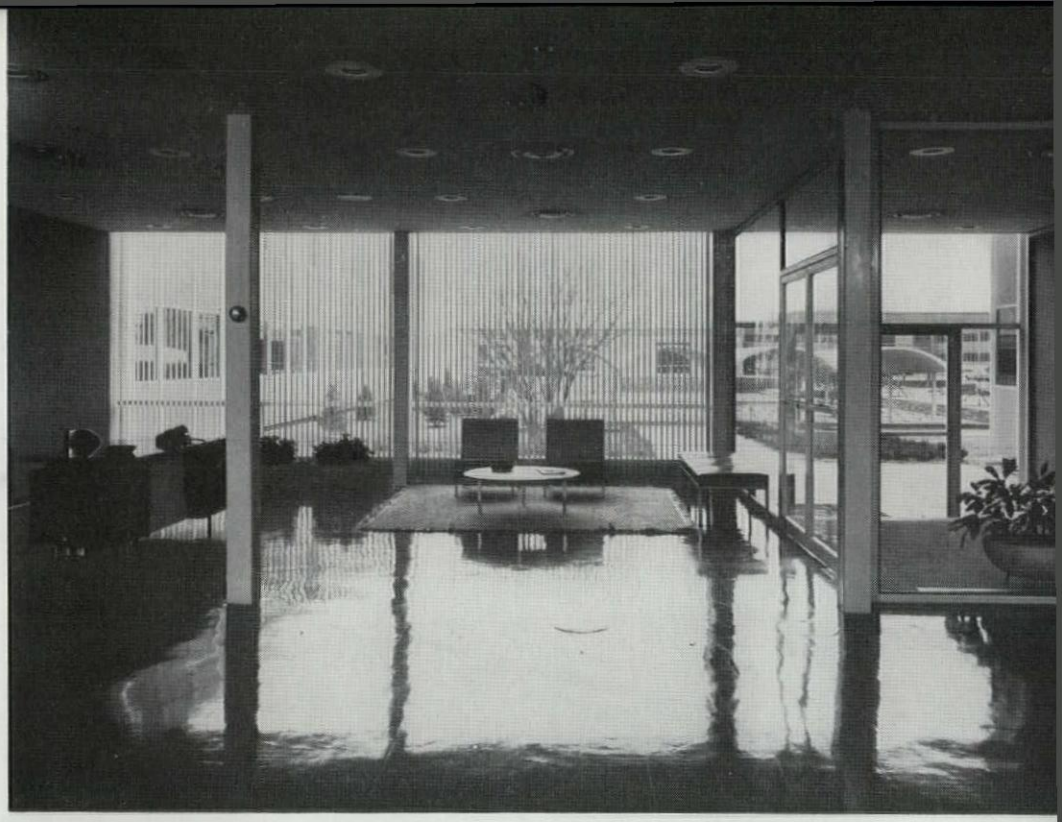


Structurally, this building is a steel frame, used in combination with brick cavity-wall panels, concrete floor, cellular-steel roof. Interior partitions are stud-and-plaster, stud-and-wood panels, or exposed brick.

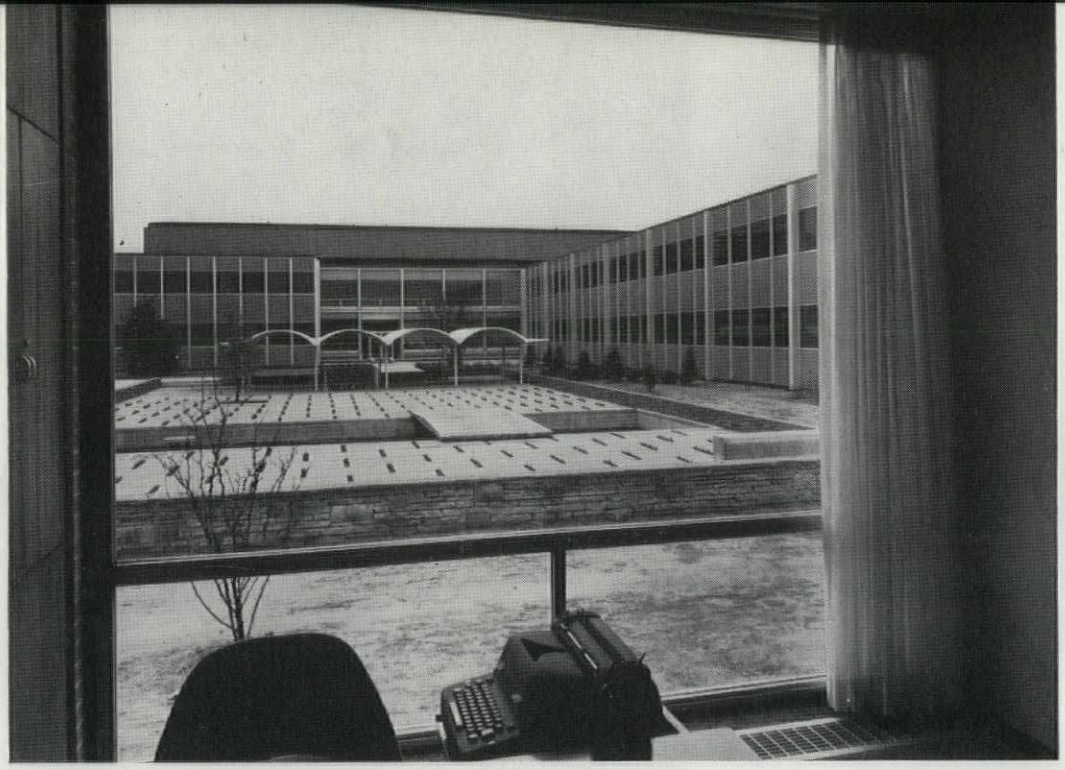


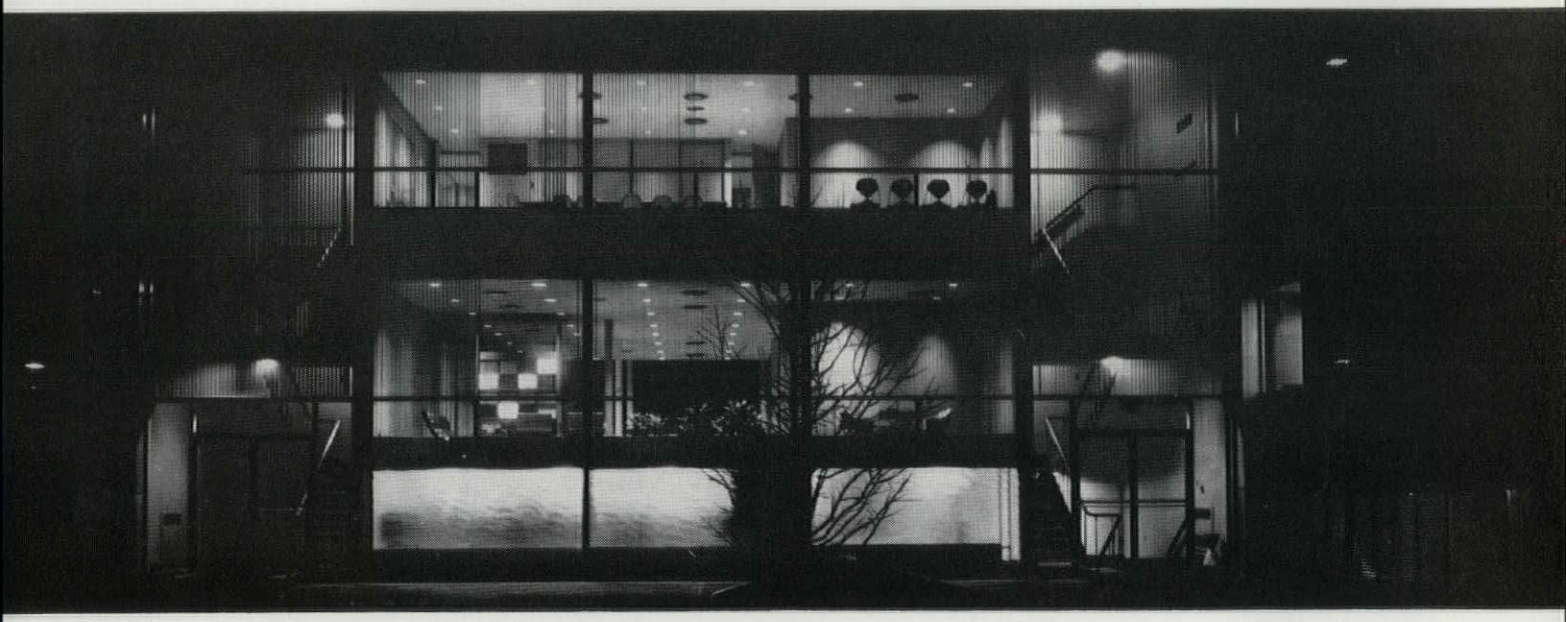


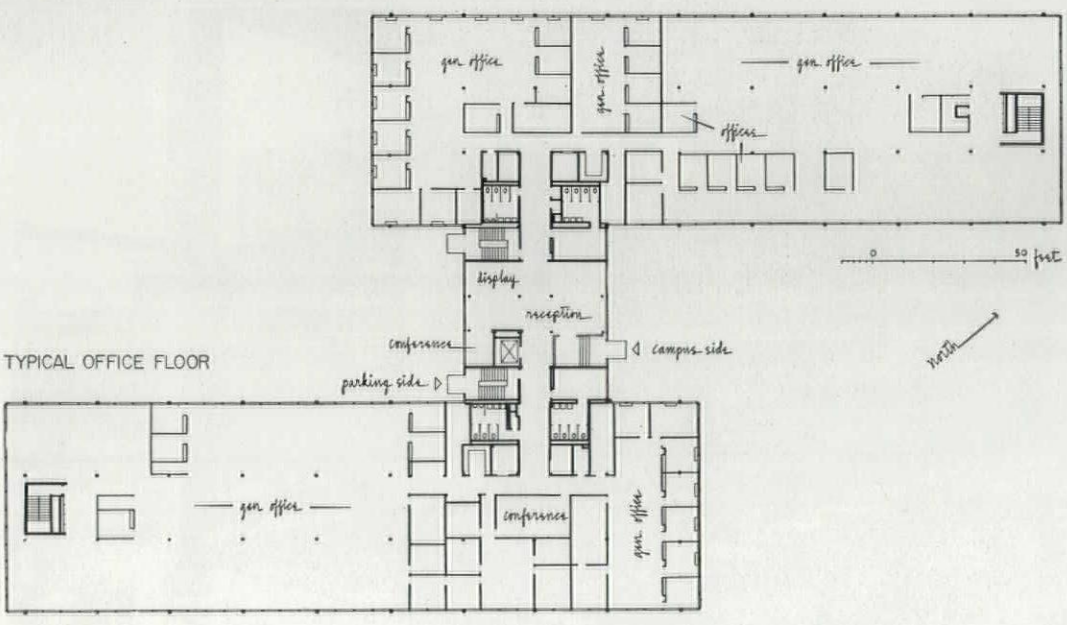
EXECUTIVE BUILDING



Buildings **A, B, C** *are three-story,* **Z***-shaped structures with central cores housing utilities and services, leaving the wings free for flexible office arrangements. Reception areas, display space, and lobbies* (above) *are located in the central cores and are directly accessible from the "campus," and via one-half flight of stairs from the parking areas in the rear of the buildings* (acrosspage center). *Directly above the lobbies are conference rooms and libraries. A number of private offices* (left) *have fixed locations, though the greater part of the office space has been subdivided with storage partitions* (below *and* SELECTED DETAIL, page 165), *which can be rearranged at will.*

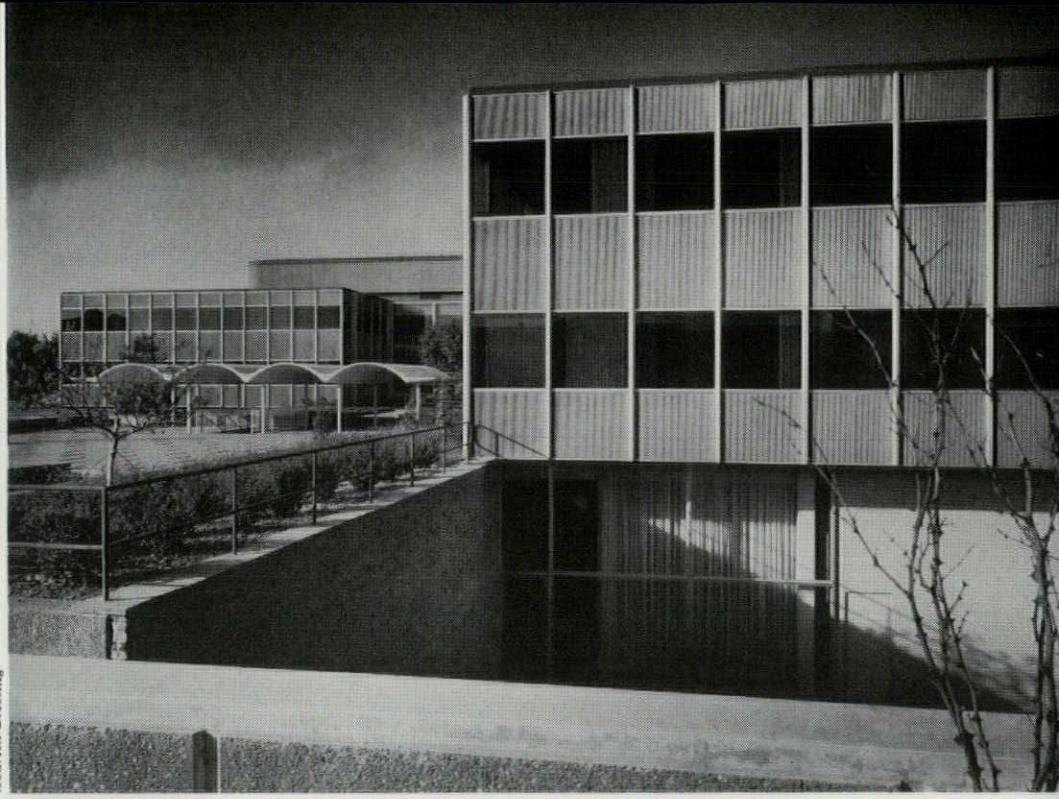






TYPICAL OFFICE FLOOR

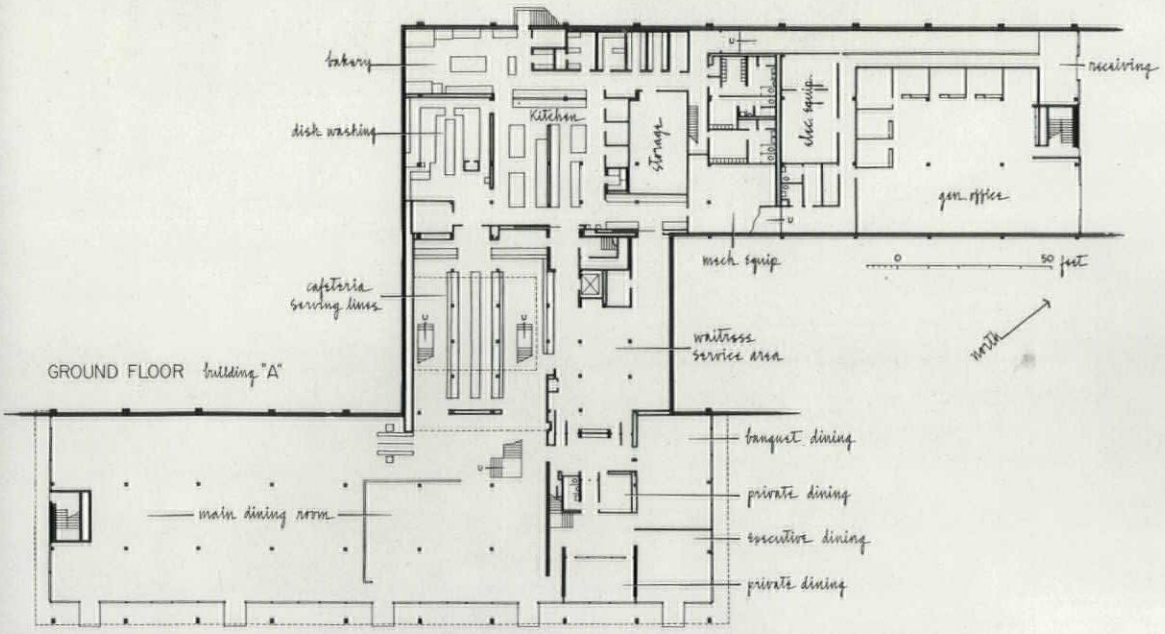
Monsanto's Office Campus



Hedrich-Blessing

Construction of the office wings of buildings **A, B, C** *employs steel frame with reinforced-concrete foundations, metal-cellular floor, and roof deck with concrete fill. Walls are insulated-steel panels, with painted interior and sea-green porcelain-enamel exterior, set in aluminum grids* (SELECTED DETAIL, page 164).

Since building **A** *contains in its ground floor dining facilities for the entire "campus," it has been given special design attention with an abundance of glass, a paved, outdoor gathering place and reflecting pool. One section of the ground floor contains private dining rooms, an executive dining room* (left), *and banquet room* (below).



Bridge and stairs above cafeteria service space (right) *guide luncheon traffic from upper floors and underground passages* (below) *into convenient food-service lines and into main dining room* (above).

resort hotel

location | Montego Bay, Jamaica, B.W.I.
architect | Ballard, Todd & Snibbe
interior design associate | The T. Eaton Company, Ltd.

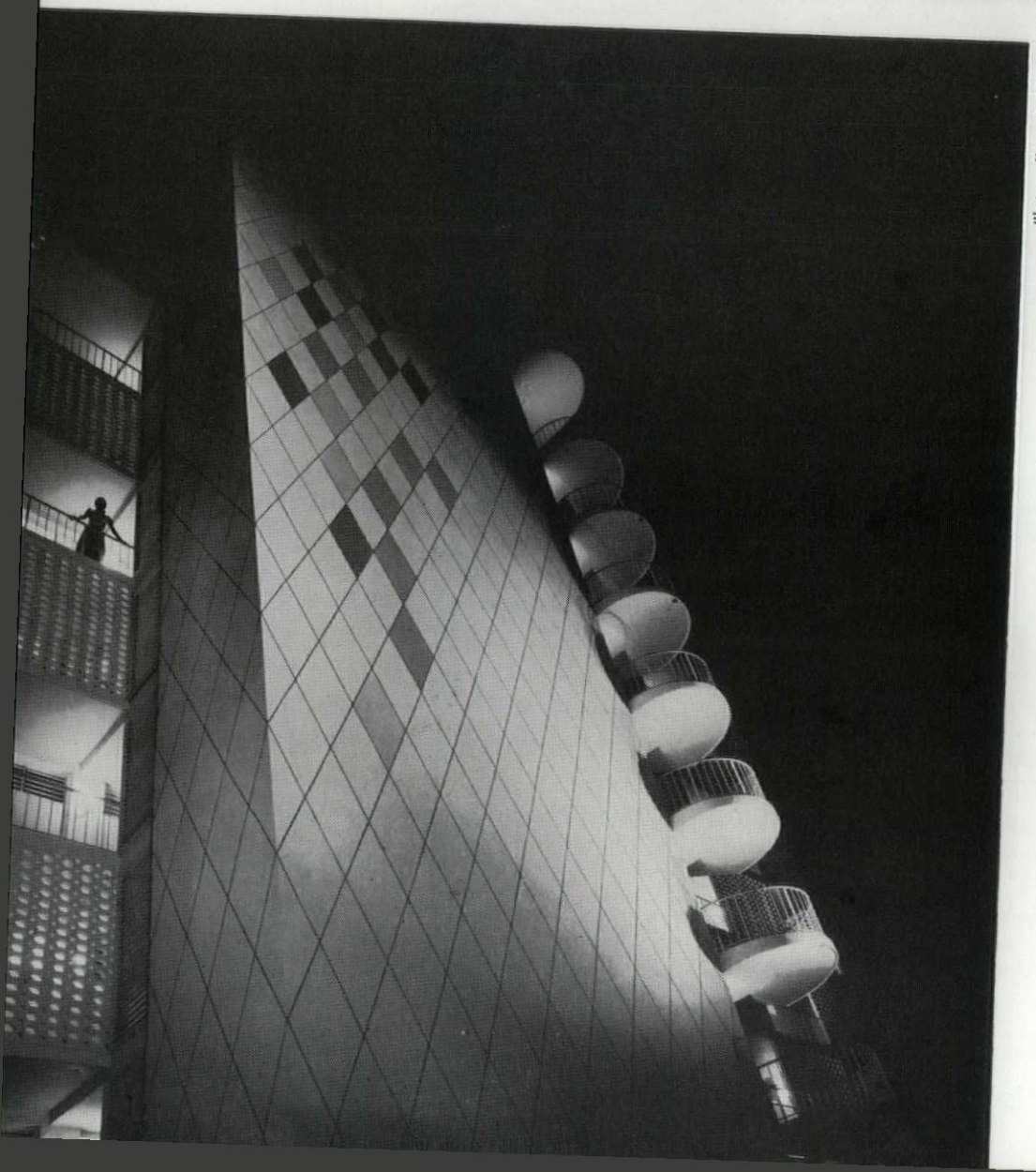
The Casa Montego Hotel, 8 stories high and containing 100 guest rooms, could succeed only in a tropical climate: for, except for a lobby, small card room, and a bar on the ground floor, there are literally *no* public spaces. All lounging, dining, entertainment, or dancing activities take place outdoors, either at the side of the commodious swimming pool or on adjacent terraces at other levels. In a one-story wing at the front of the hotel is a group of specialty shops.

On the typical guest floor, an outside corridor runs the length of the hotel on the east face, with its outer side composed of alternating areas of pierced screen and balcony railing. To the west, facing the approach road and enjoying a dramatic view of the Jamaican coastline, are private, 7-ft-deep terraces. Sliding aluminum-and-glass sash, when opened, make room and terrace essentially one. Adjustable louvered doors on the corridor side provide the desirable cross-ventilation.

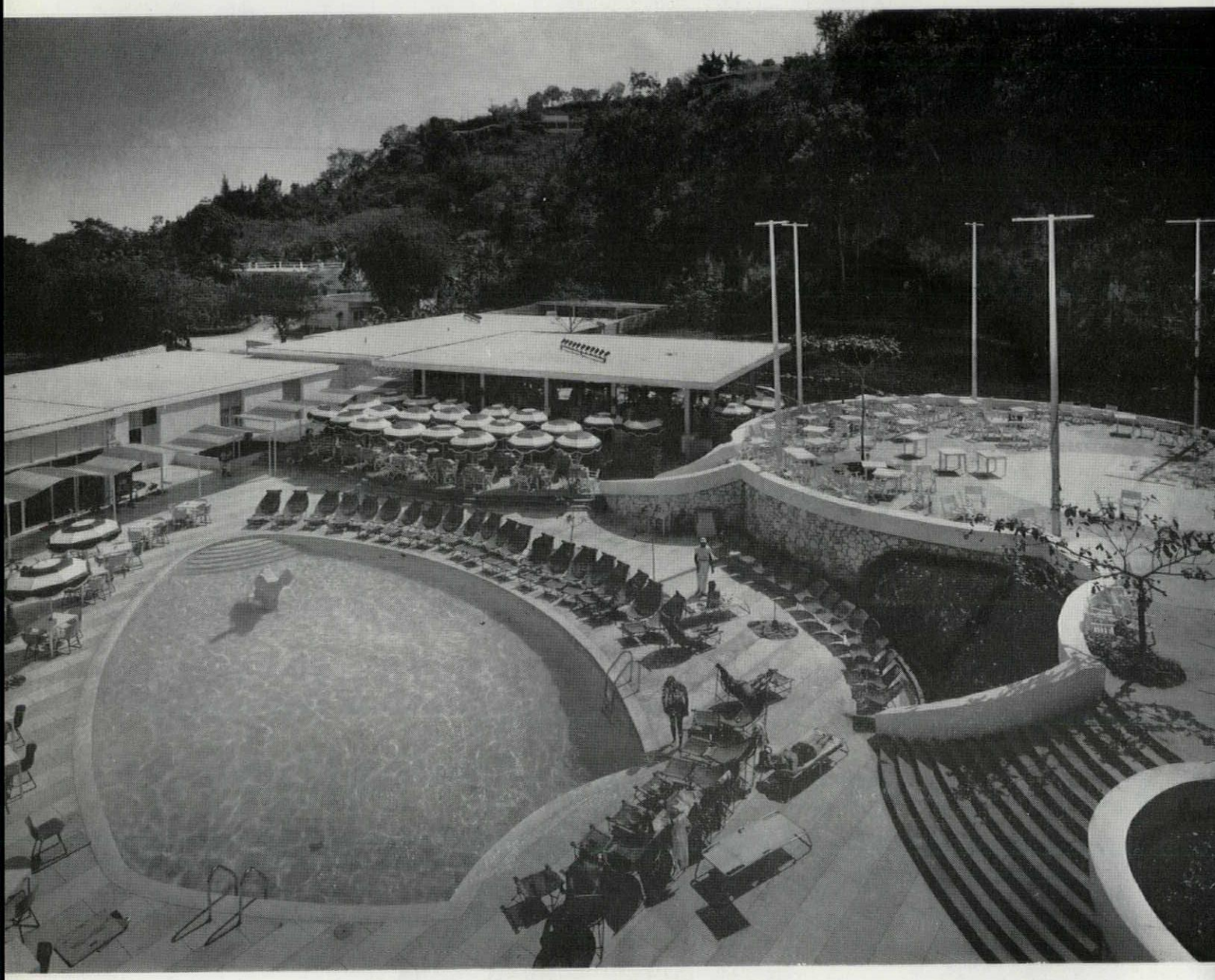
Basic construction is reinforced concrete designed to withstand earthquake or hurricane stresses, with wall surfaces of stucco outside and plaster within. The elevator-shaft area is finished in tile, with a decorative pattern picked out in colored units. Floors are cement tile or terrazzo.

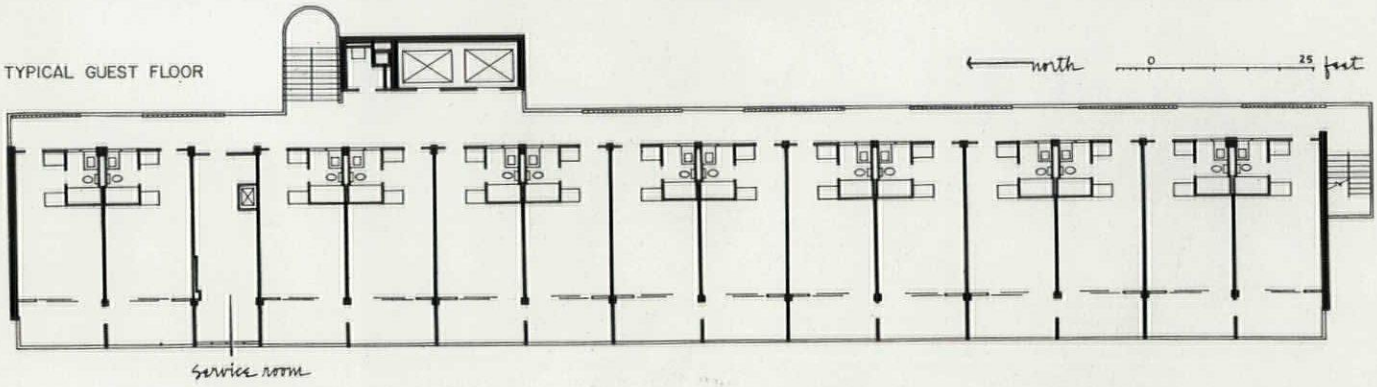
A local law encourages hotel construction by exempting building materials from duty. Hence, the materials come from many sources—reinforcing steel from Belgium; doors from Surinam; plumbing fixtures from West Germany; elevators from the United Kingdom; lumber from British Honduras; hardware from the United States.

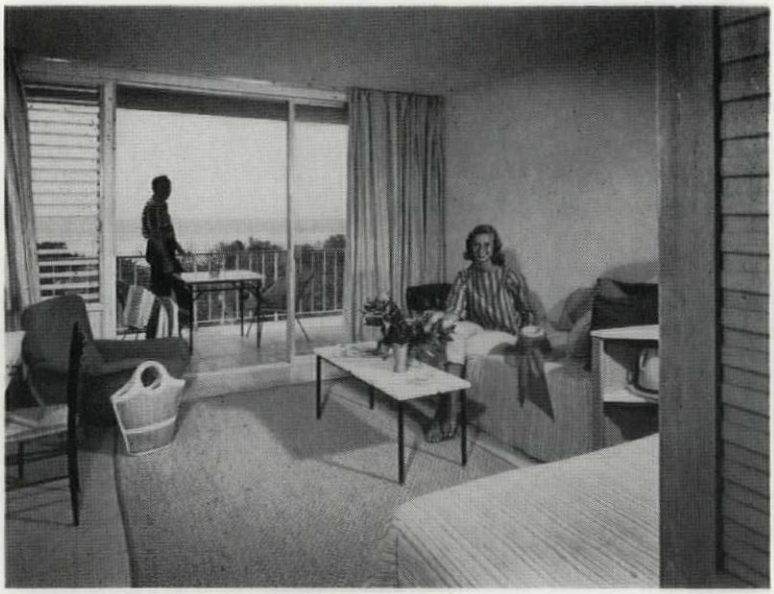
Contributing to the erection of the hotel were Fraioli-Blum-Yesselman, Structural Engineer; Robert Levy Associates, Mechanical Engineer; Thomas Smith Kelly, Exterior Lighting Consultant; The T. Eaton Company, Ltd. (in collaboration with the architects), Interior Design; C. T. R. Kelly & Partners, Quantity Surveyor; and Taylor Construction Company and Sharpe Construction Company, General Contractors.

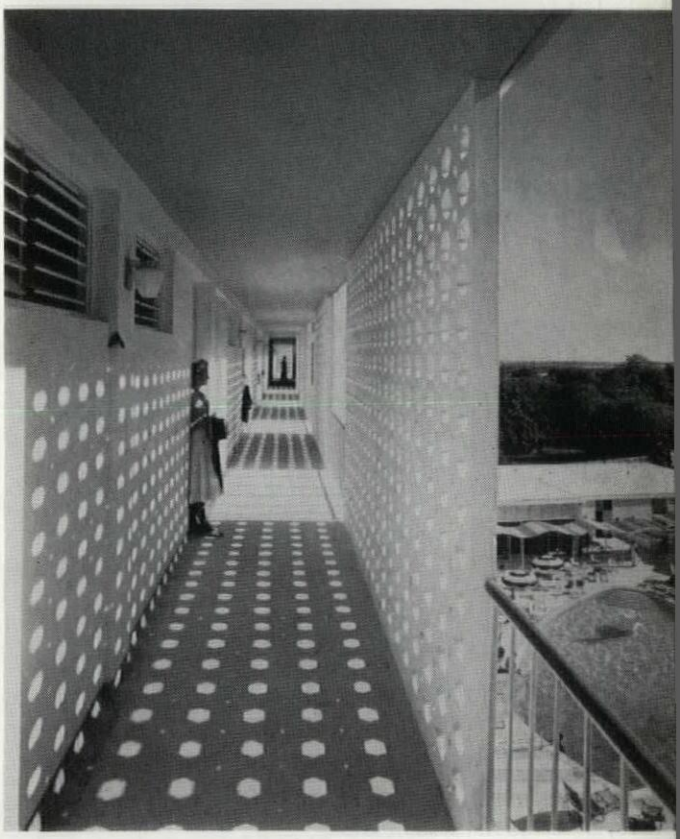


Photos: Alexandre Georges




TYPICAL GUEST FLOOR
north
0
25
feet
service room





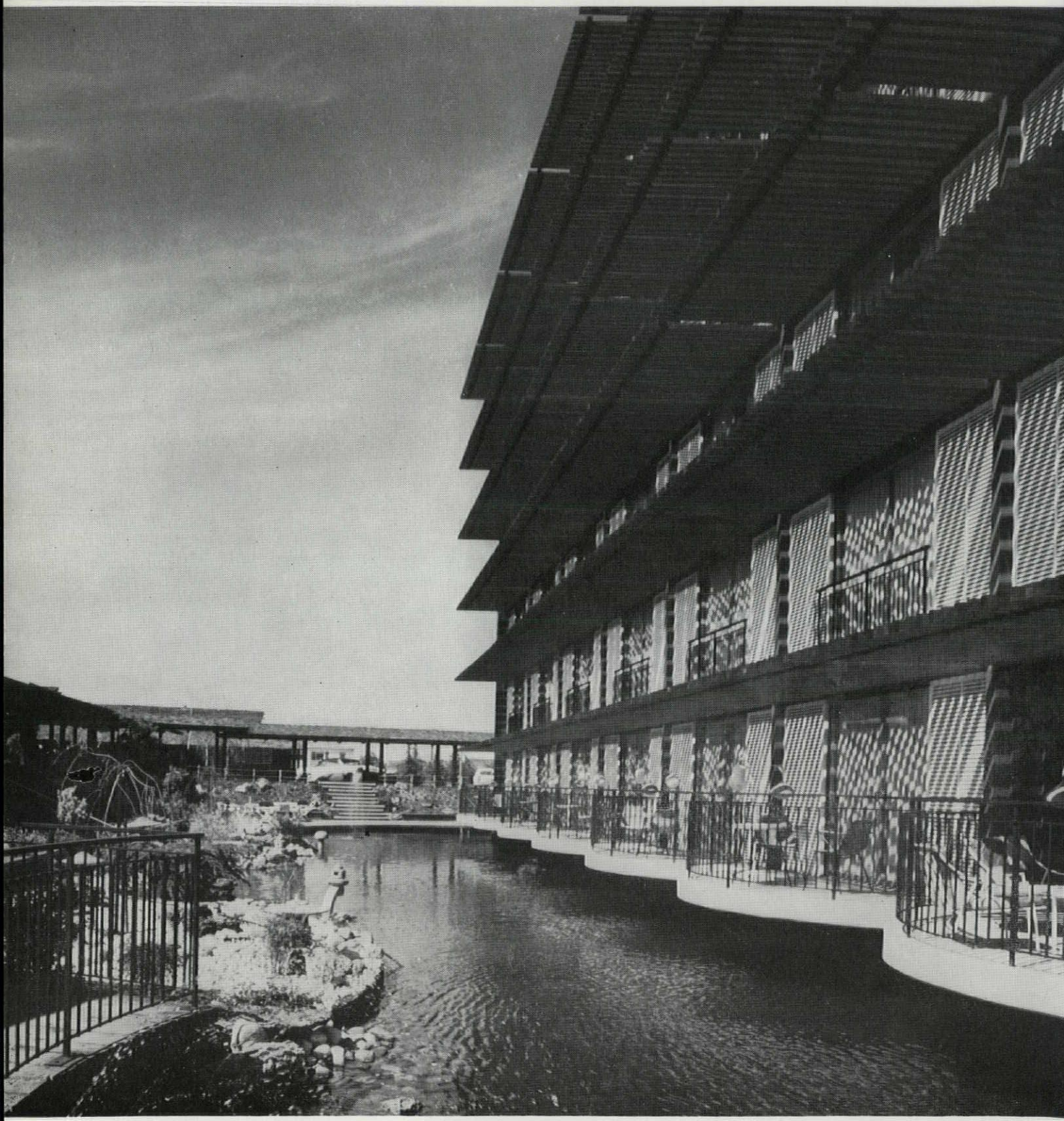
Most public "rooms" at Casa Montego are outdoors (acrosspage *and* below), *with terraces for lounging, swimming, dining, and dancing arranged at different levels.*

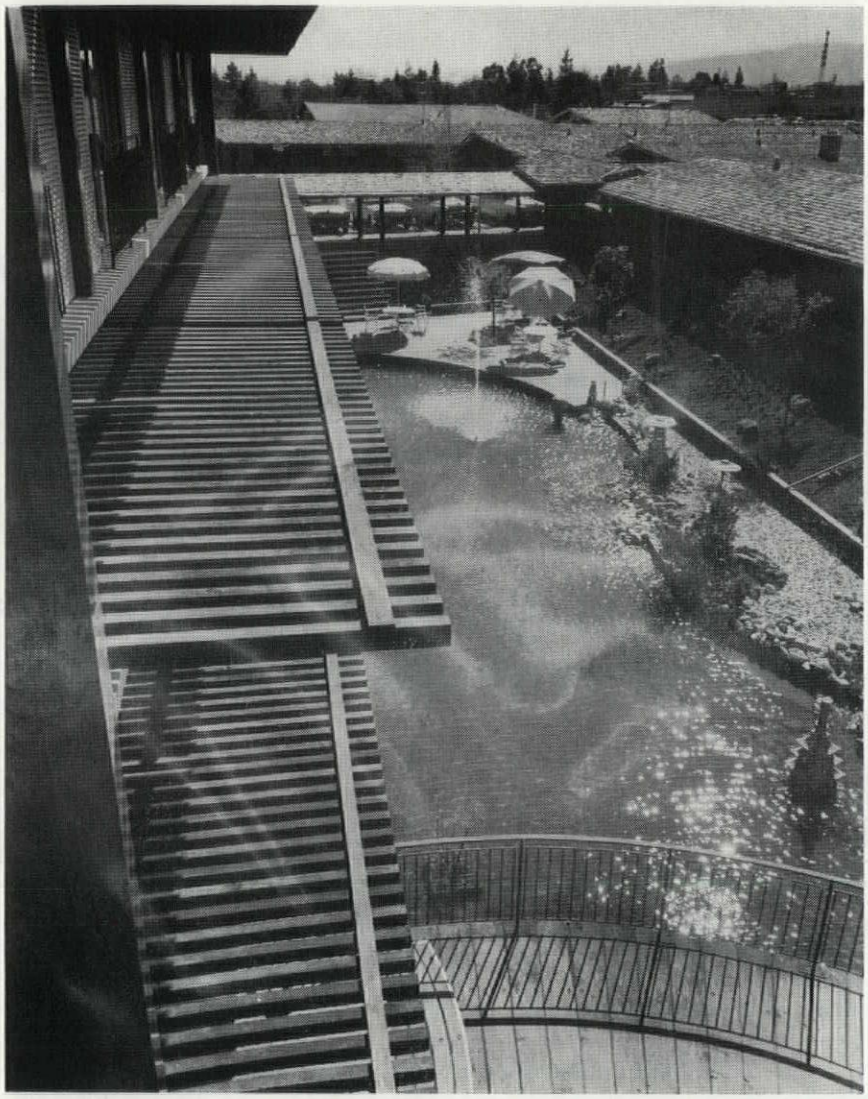
A window wall gives the typical guest room (above) *a great sense of spaciousness. See* INTERIOR DESIGN DATA *for full information.*

Alternating areas of open railing and perforated screen bordering exterior corridors (right) *produce a sparkling pattern of light and shade.*

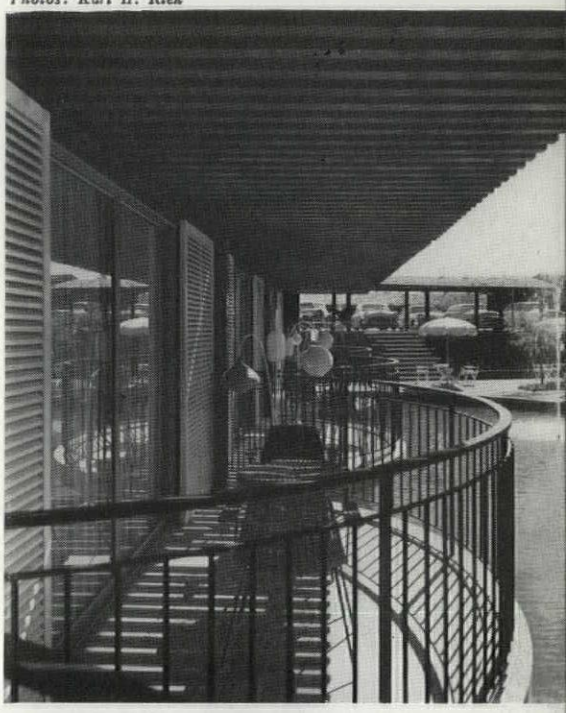
hotel addition

location	Palo Alto, California
architect	Office of Ernest J. Kump
project architect	John C. Worsley
chief designer	Arthur B. Sweetser
landscape architects	Douglas Baylis and Herbert Frank





Photos: Karl H. Riek

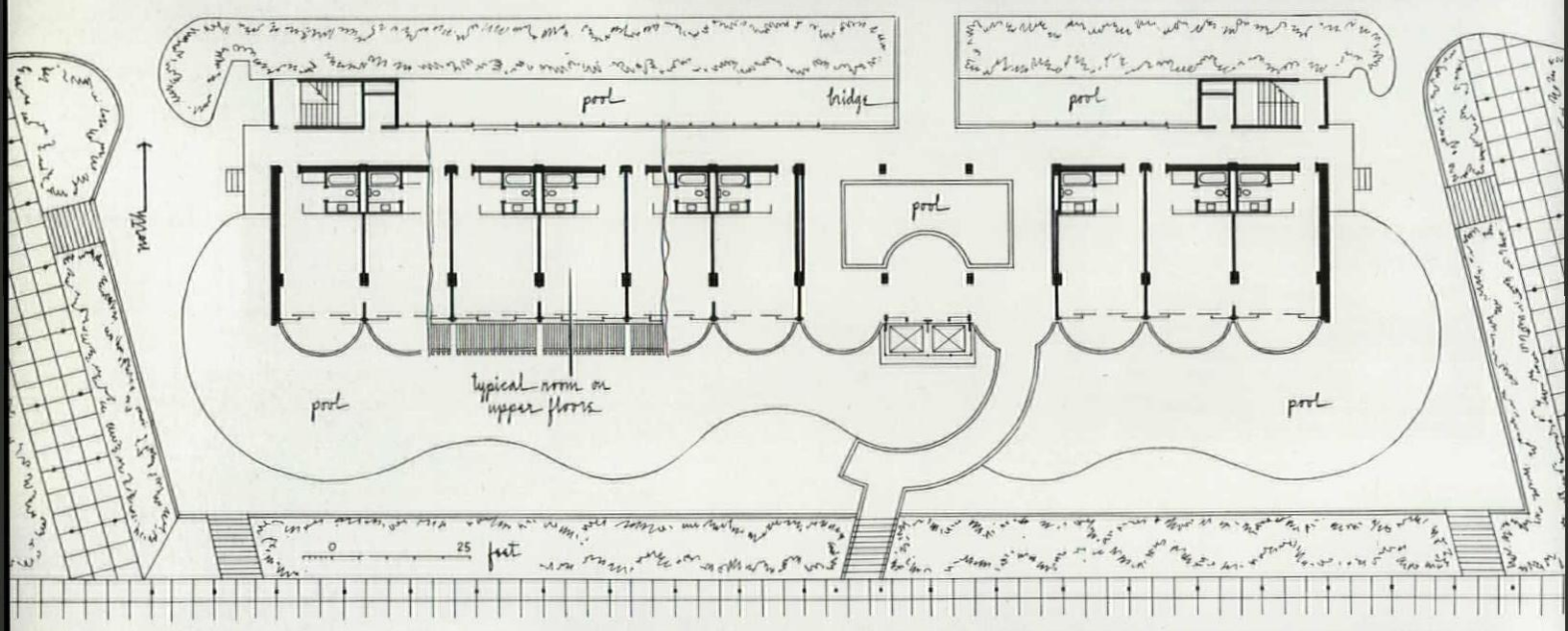


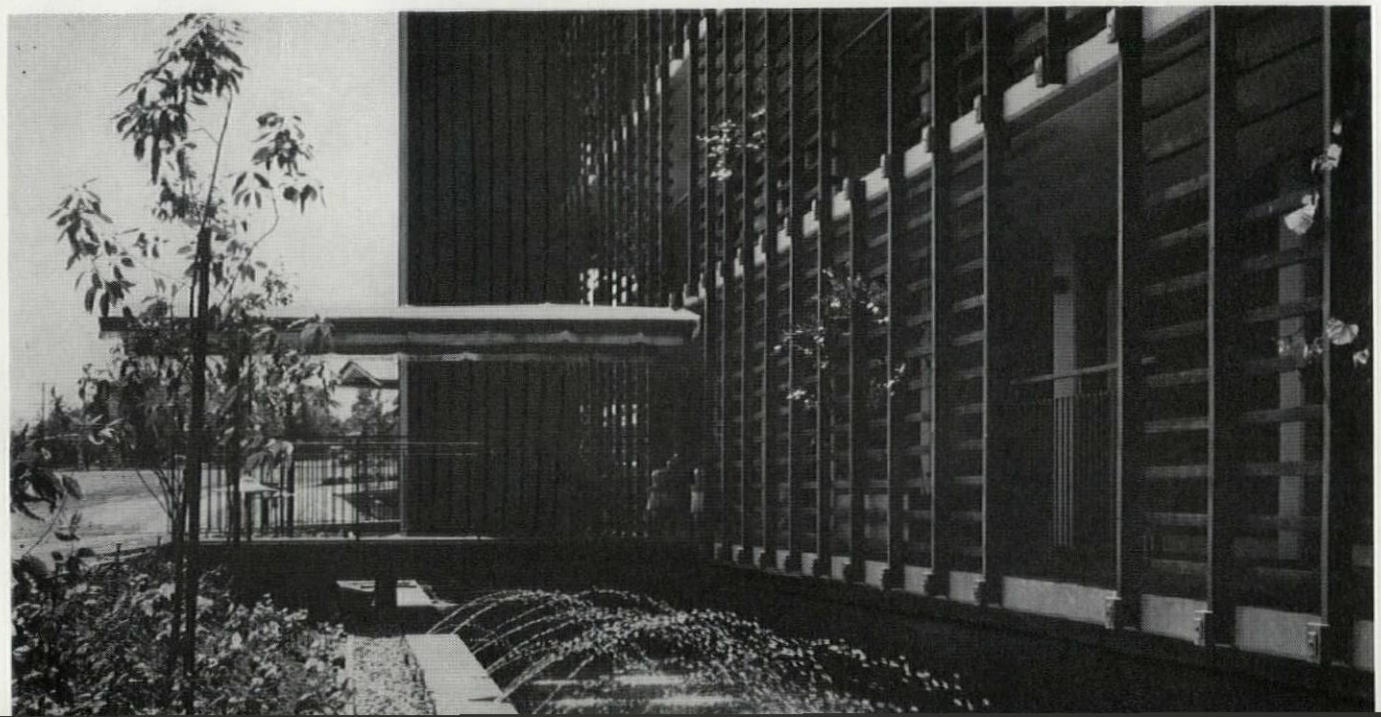
This colorful 6-story building, which won an Award Citation in P/A's Fifth Annual Design Awards Program, is a 64-suite addition to Rickey's Studio Inn Garden Hotel (SEPTEMBER 1954 P/A). The earlier units of the hotel are single-story wood structures disposed among lawns and gardens. Since only a narrow strip of land remained, a multistory solution was required to add the desired number of new guest units. The local code limited building heights to 47 ft above normal grade; so, to gain the height needed for the six floors, the reinforced-concrete building rises out of a sunken pool, excavated far enough to keep the roof top within the allowable height limit. A novel provision is use of outside metal-and-glass-enclosed, hydraulic elevators which glide up and down the southwest wall of the building, providing guests with exceptional views. The suites open off a single-loaded exterior corridor on the northeast side of the building, and have, in addition to a carpeted main room, a dressing alcove, tiled bath, and tile-floored sun-lounging balcony extending out to sliding glass doors and ornamental metal railing at the face of the building. For full details of a guest suite, see INTERIOR DESIGN DATA. Suites on upper floors are identical with those on the first floor, except for the semicircular balconies. The orderly concrete structural system employs columns 16 ft o.c. supporting 8-in.-thick slabs.

Hall, Pregnoff & Matheu was Structural Engineer; Smith & Garthorne, Mechanical-Electrical Engineer; and Barrett Construction Company, General Contractor.

hotel addition

To reconcile the large new structure with the existing, semirustic, one-story, redwood board-and-batten units, story heights in the new building are the same as those of the cottages; horizontal shadow lines, echoing those produced by the board roof overhangs of the small units are provided by the projecting sun screen installed along each floor level. Corridor walls and lobbies are lined with vertical redwood boarding, and the reinforced-concrete ends of the building were cast with batten-lined forms to produce vertical grooves. These walls are painted redwood color.





Recent Work of Mexico's Felix Candela

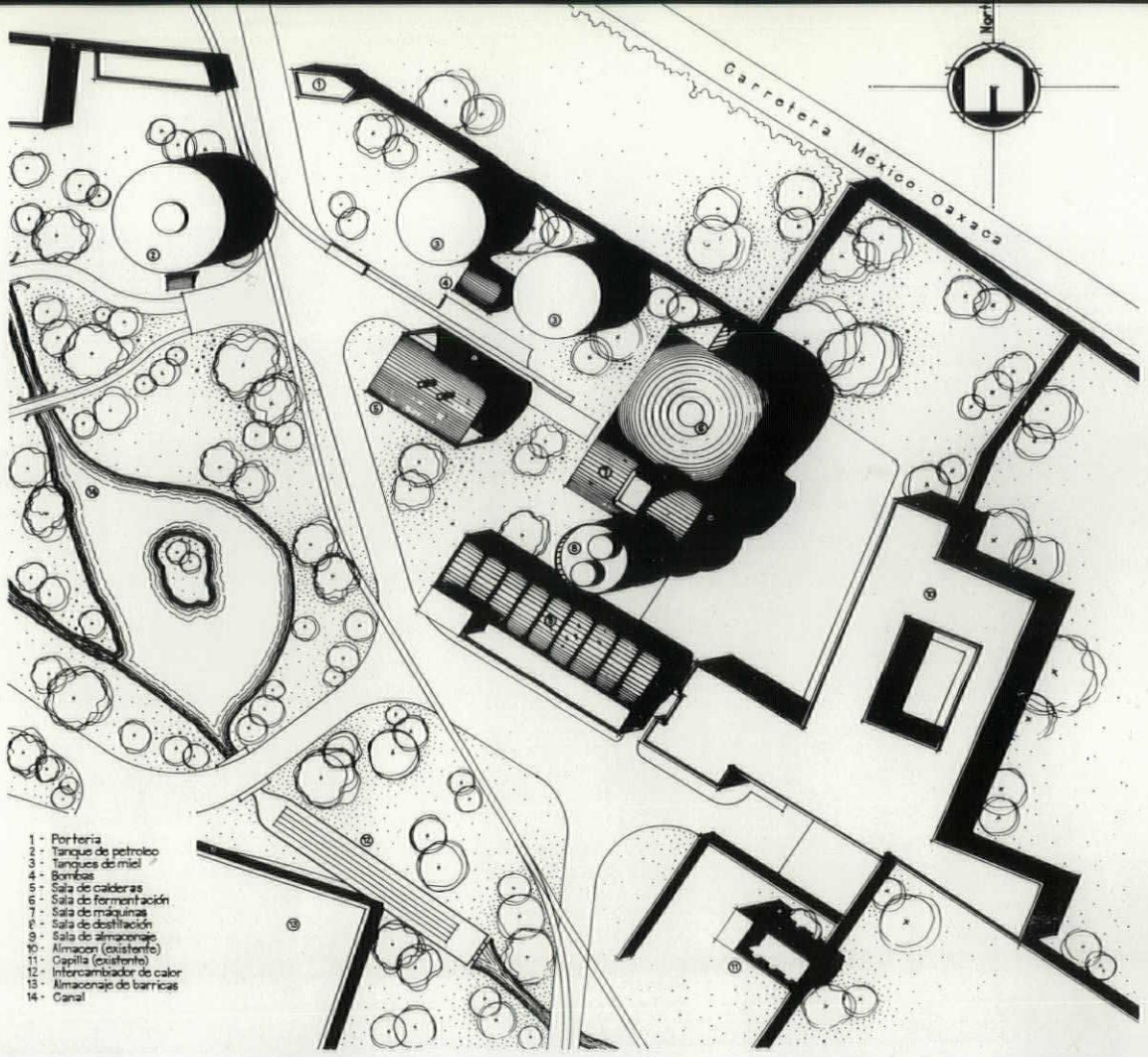
Photos: Erwin Lang

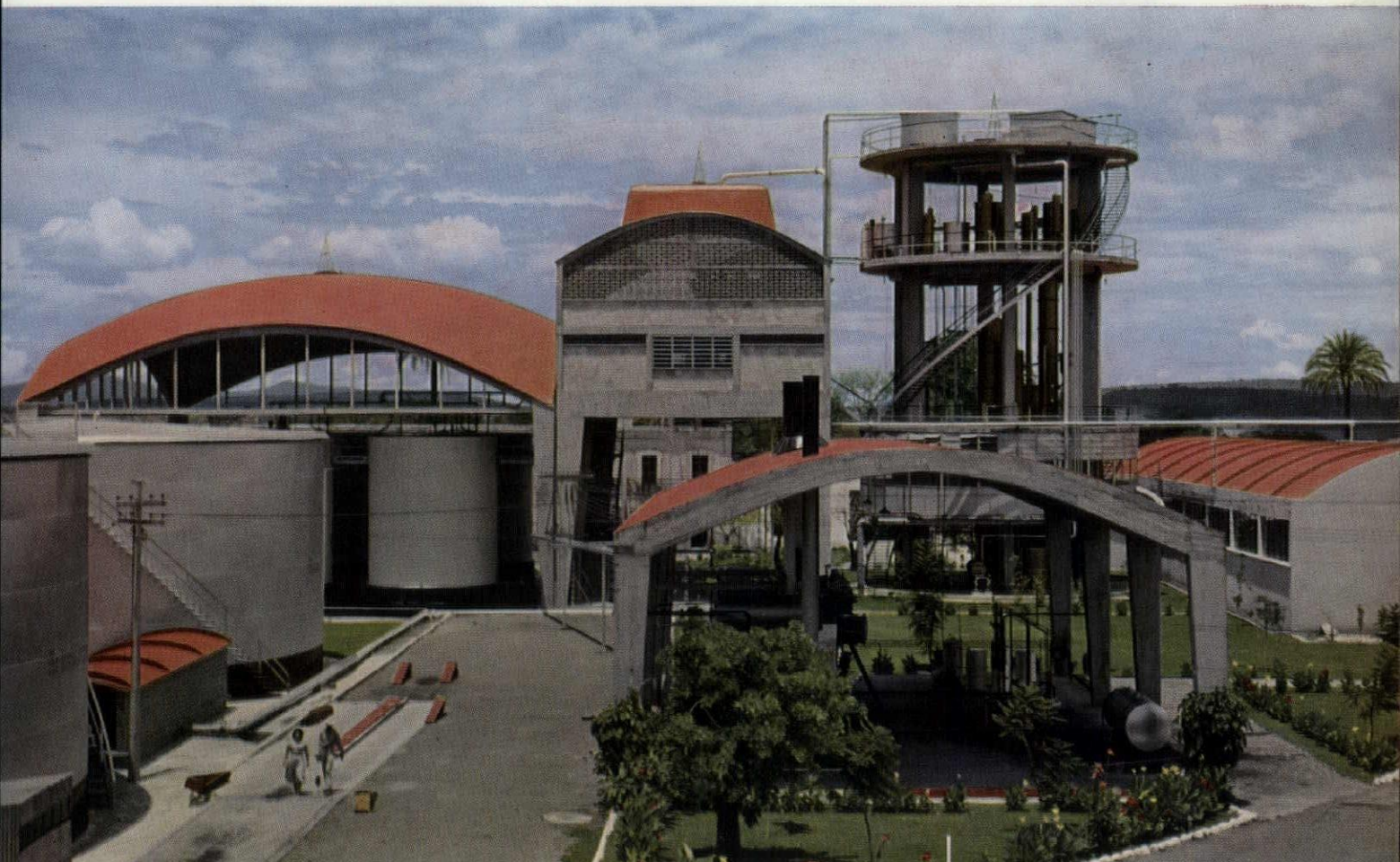
Distillery, State of Puebla

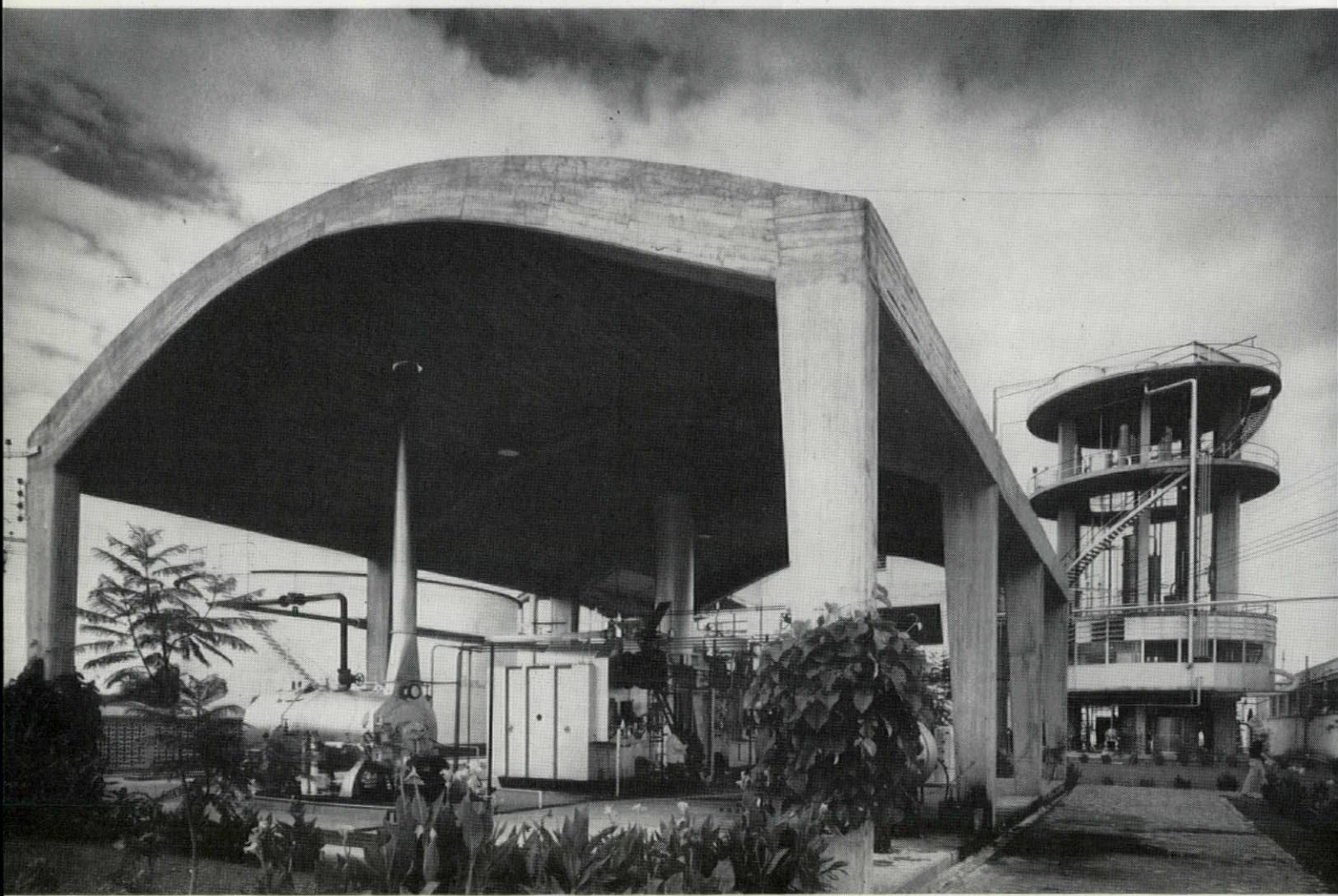
Near the center of Mexico's rich, semi-tropical cane-producing region where there is an abundant water supply from the run-off snows of Mt. Popocatepetl—approximately 125 miles southeast of Mexico City—Bacardi y Cia, S.A., has located one of its newest distilleries. Capable of producing 5000 gal daily, the plant facilities consist of storage tanks for molasses, prefermenting and fermenting tanks, distilling tower with automatic controls, and storage tanks for aging the finished products. Since the climate is warm throughout the year, open planning was permissible, with exception of such components as laboratories, control room, warehouse, and sanitary facilities. From preliminary sketches developed by Bacardi engineers in Cuba, the architects prepared several studies to determine the kind of structure that could be erected most economically and rapidly. With Felix Candela's aid, the solution was found in the concrete shell—answering both economic and esthetic considerations.

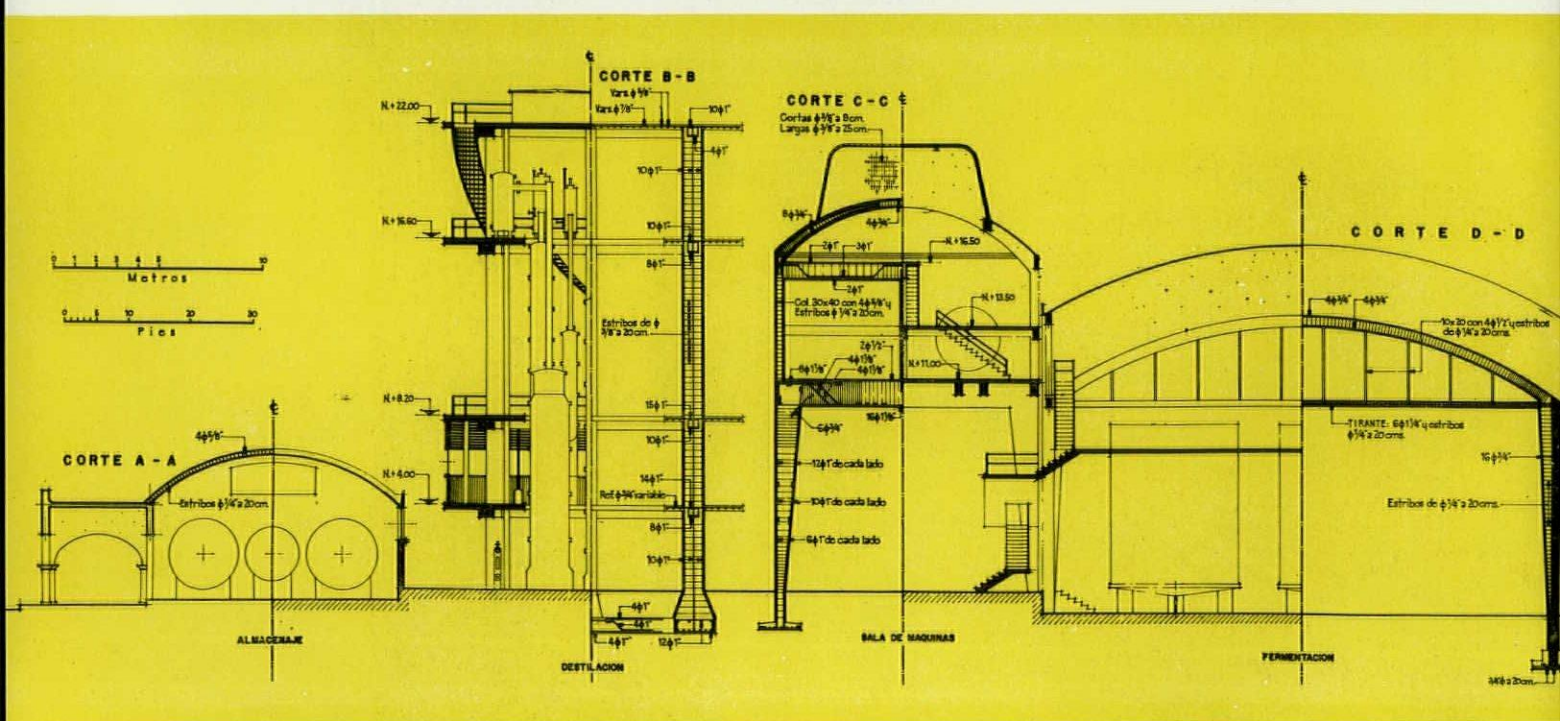
Short cylindrical shells, with tie-rods below, roof most of the structures. In the case of the boiler house, ties were not required since thrusts are taken by the arched, rigid frame. Of particular interest is the large handkerchief dome spanning 79′ x 79′ over a square plan. Reinforcement in the 1½″-thick surface is truly nominal and only a small amount was added to the corners, where the forces are larger. The spherical dome is supported over the perimetral arches solely by means of shear forces tangent to the surface, and contained within the plane of the arch. The pressure line of these shear forces does not coincide with the directrix of the arches, and therefore moments are produced in the latter. These, however, are small so that the section of the arch can be minimal. Ties are covered with concrete insulation and connected by vertical members to the arch, since it was originally planned to suspend a metal catwalk from the ties. The doubly-curved surface—which required a complex and expensive formwork—represents one of Candela's rare excursions into dome construction. Cost of building, excluding mechanical plant, was $7.50 per sq ft.

Architects were Hector Mestre and Manuel de la Colina of Mexico City; general structural and shell designs were by Candela; structural design of distillery tower was by Luis P. Saenz, Havana, consulting engineer.

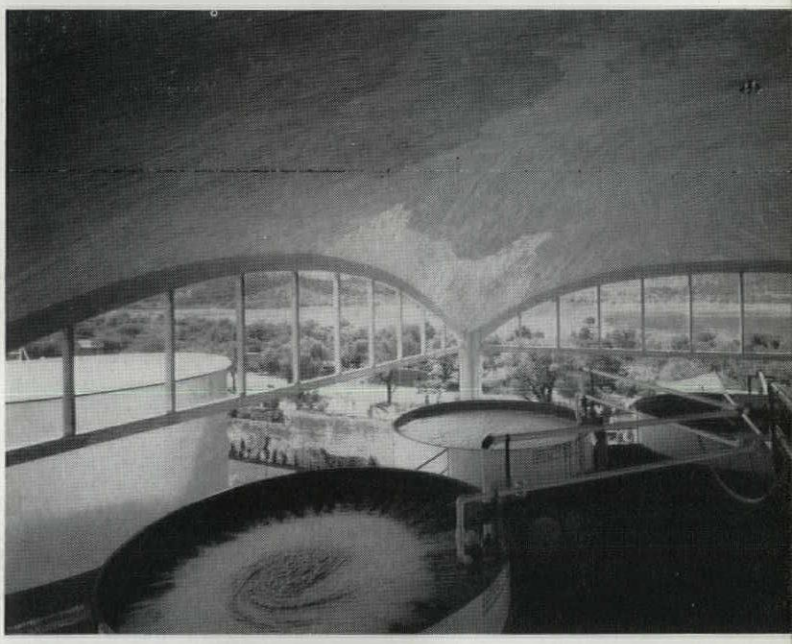

Carretera México-Oaxaca
North
1 - Portería
2 - Tanque de petróleo
3 - Tanques de miel
4 - Bombas
5 - Sala de calderas
6 - Sala de fermentación
7 - Sala de máquinas
8 - Sala de destilación
9 - Sala de almacenaje
10 - Almacen (existente)
11 - Capilla (existente)
12 - Intercambiador de calor
13 - Almacenaje de barricas
14 - Canal

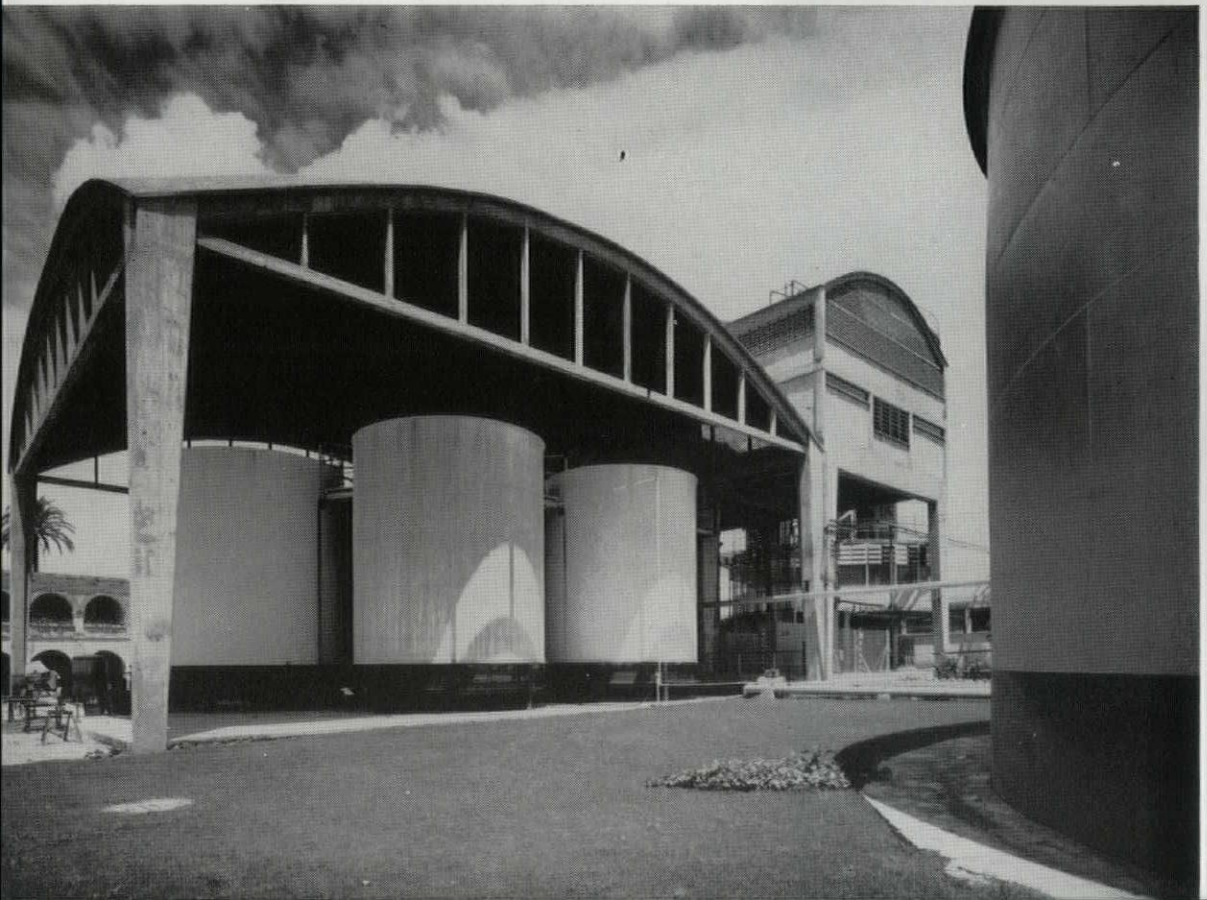


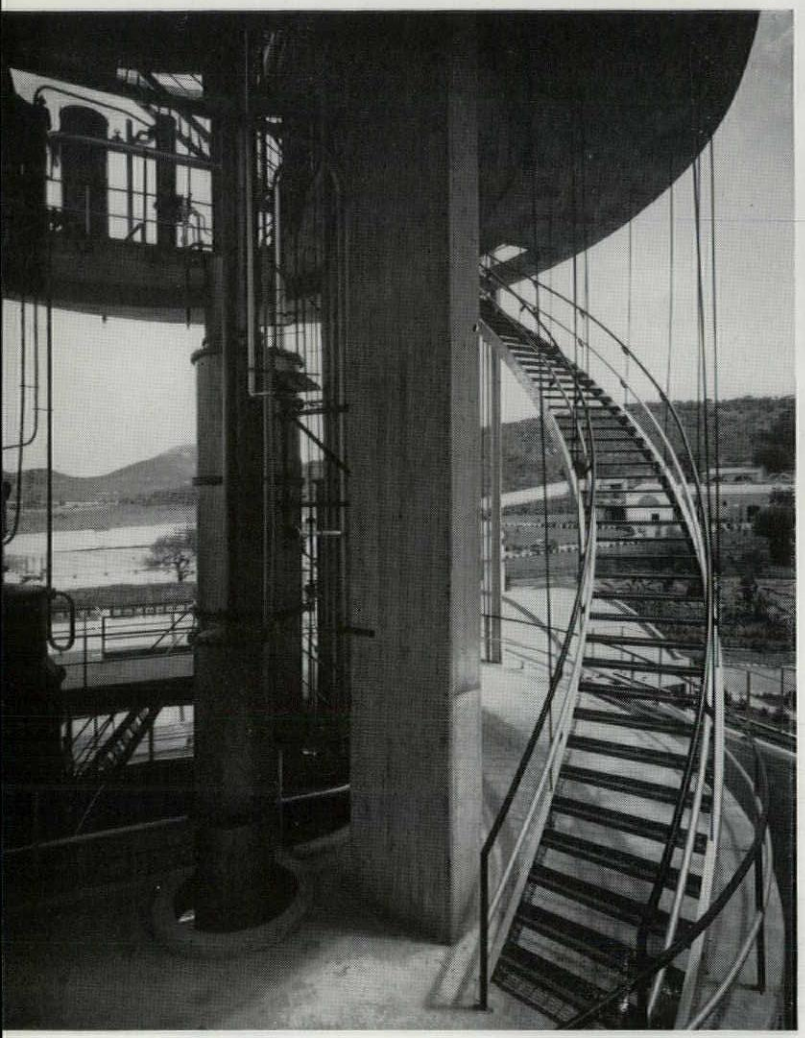


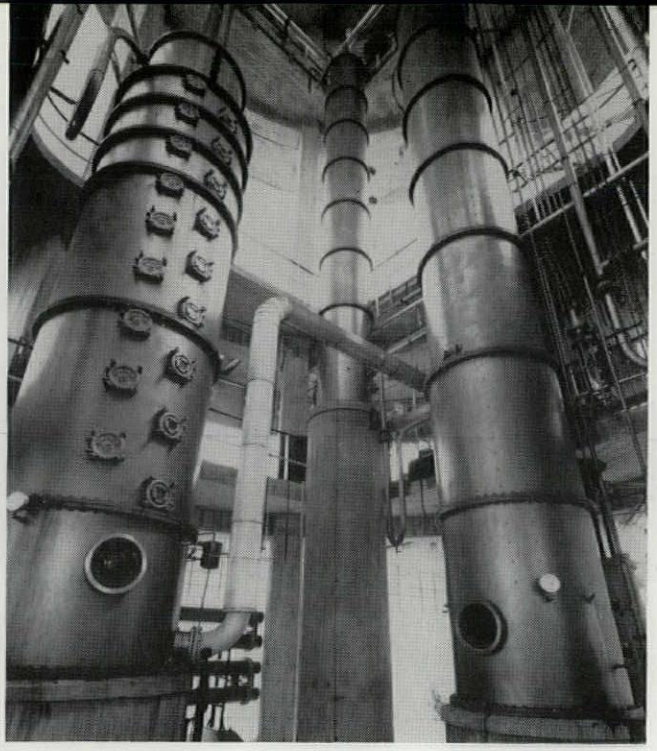

CORTE B - B
CORTE C - C
CORTE D - D
CORTE A - A
Metros
Pies
ALMACENAJE
DESTILACION
SALA DE MAQUINAS
FERMENTACION

All concrete surfaces were left exposed, except for the shell roofs which were waterproofed with paint. Surrounding planting with vivid green lawns, tropical flowers, and artificial lake provide a warmth rarely found in Mexico's industrial architecture. The complex of pipes, vats, tubes, and mechanical connections were painted different colors according to their functions. The blacks, dark greens, whites, reds, and bronze hues are in pleasant contrast with the concrete.

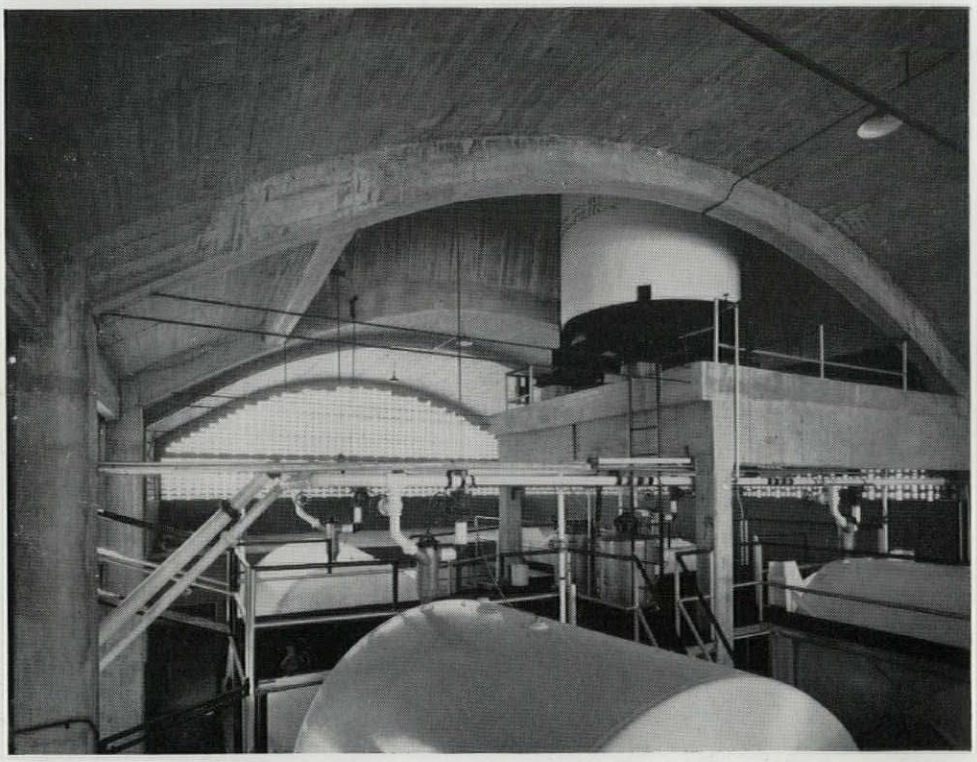


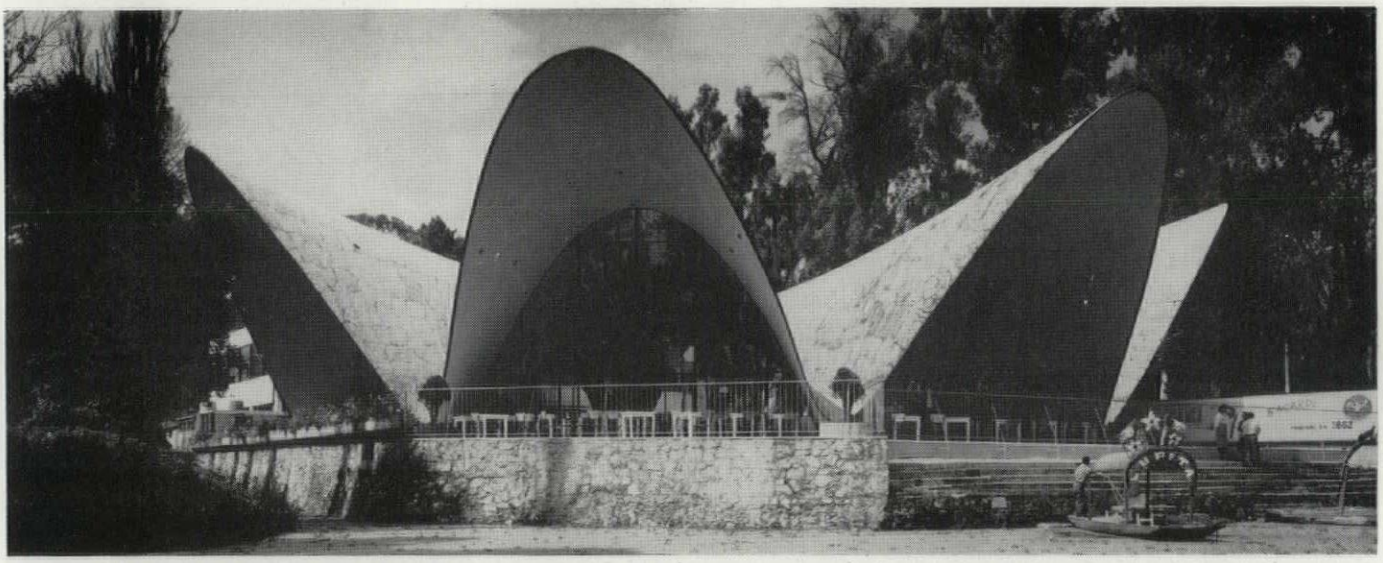






An outstanding difficulty encountered was lack of local labor. Many of the construction crew were taken from Mexico City and housed at the job site. Regarding the design, in retrospect, the architects report: "Undoubtedly most architects learn constantly from their buildings, and perhaps if we were to design this plant again, we would make changes in detail. However, the basic design, under the conditions of the site, we believe was correct."





Restaurant, Xochimilco

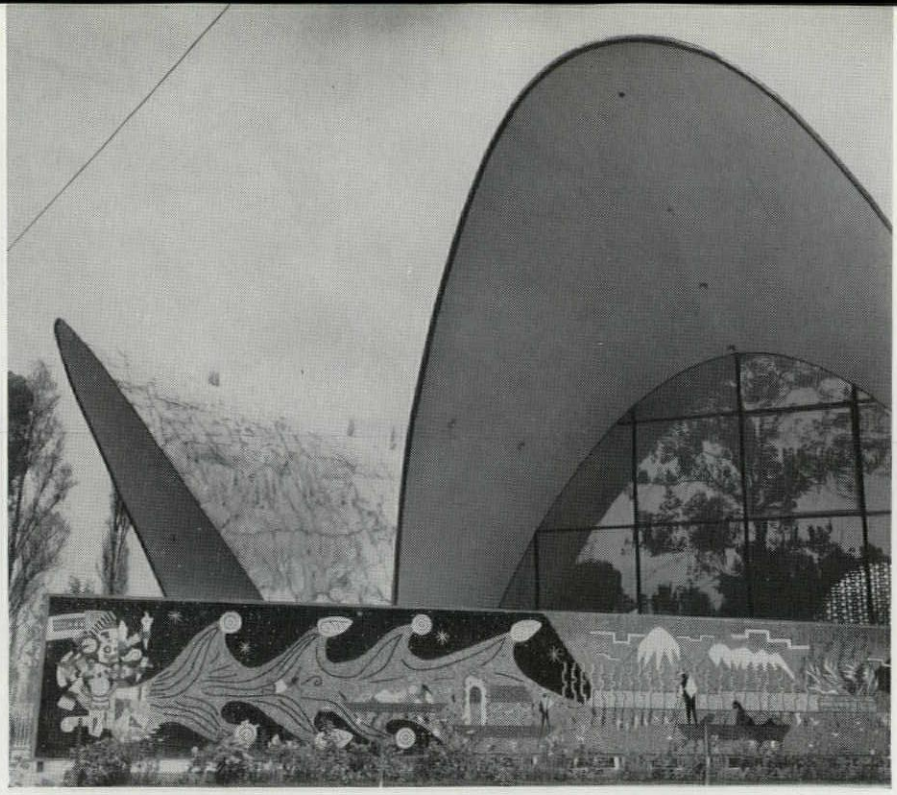
From a small promontory at the Floating Gardens of Xochimilco, surrounded by canals containing gliding, flower-decked boats, leaps Los Manantiales Restaurant. (*Manantiales* in Spanish means spring, source, or fountain.) Replacing an old, wooden restaurant destroyed by fire, the new structure—opened to the public last summer—with its dynamic spread of about 150 ft was designed to accommodate 1000 persons. Since the foundation soil is silt—that typical of Mexico City—and with the only advantage that it has a constant water content, a light structure was indicated.

The structure of the shell over the main salon is an octagonal, groined vault, formed by the intersection of four hyperbolic paraboloids. Edges of the shells were formed by cutting the surfaces in an outward-tilting plane. The resulting perimetral arches have the shape of hyperbolas. As described by Candela, "the structure can work without edge stresses (normal and tangential), and due to the simplicity of the paraboloid's formula, this ability of the structure can be interpreted mathematically. All undesirable stresses at the edges are therefore transferred to the groins through straight generators. Since the structure is symmetrical they result in forces lying in the plane of the groins. The groins themselves work as three-hinged arches; their V-section flattens at the crown to produce what is practically a hinge."

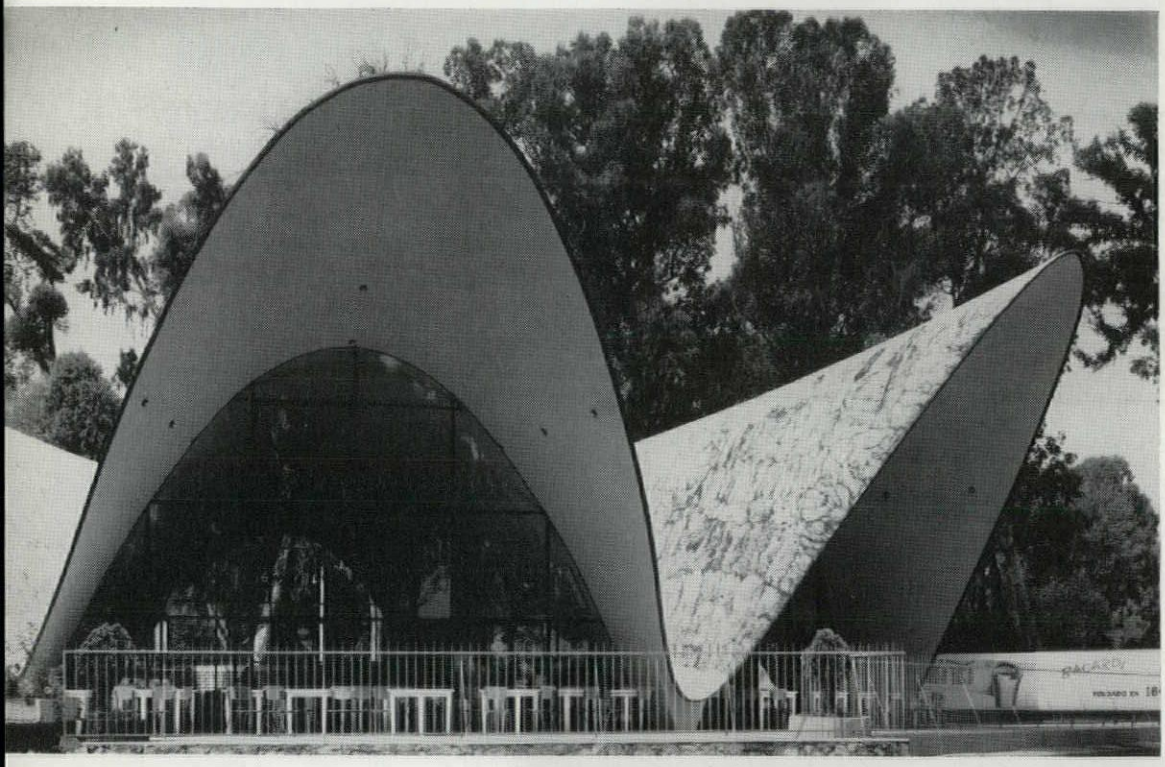
Foundations at the base of the groins are inverted umbrellas. A perimetral tie restrains lateral thrusts from the shell; umbrellas support only vertical loads.

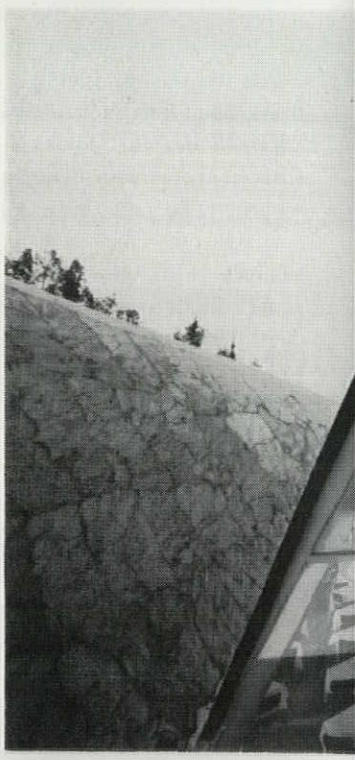
Architects were Joaquin Alvarez Ordonez and Fernando Alvarez Ordonez; structural design and calculation of shell were by Felix Candela; and execution of shell, by Cubiertas Ala, S.A.

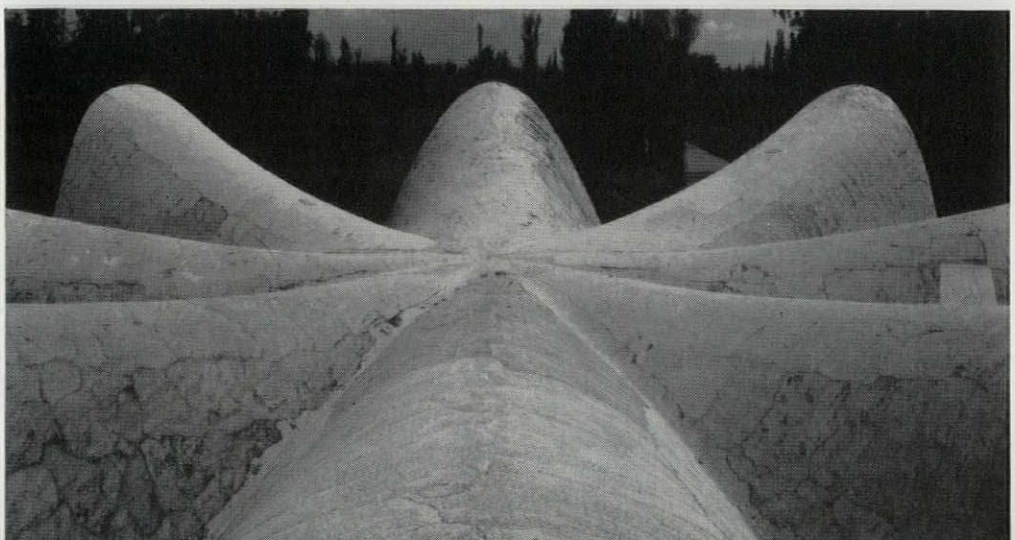
restaurant

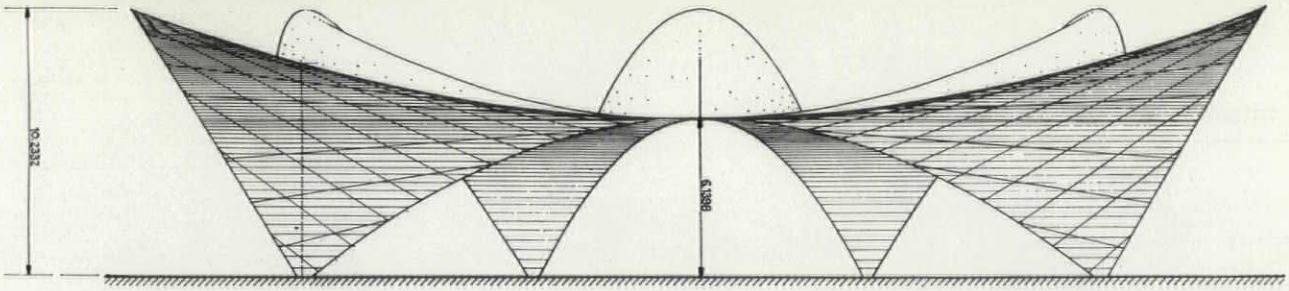


Interior of shell is painted white; window frames are black with red accents; floor is clear, gray granite. Mural at entrance relates history of Xochimilco.



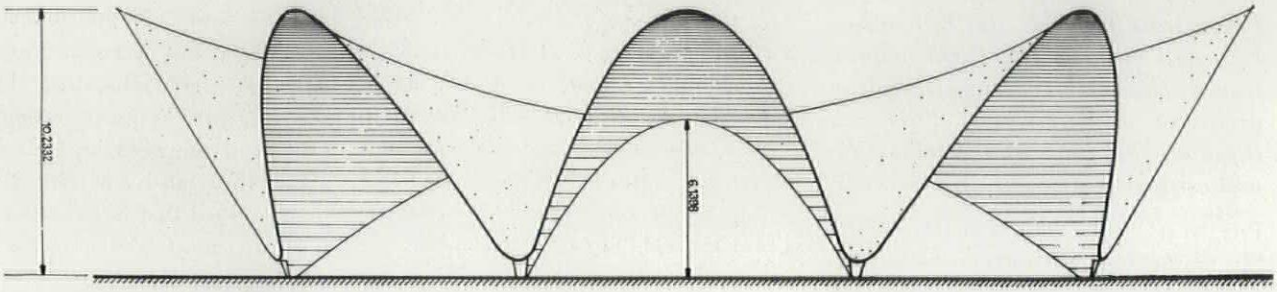






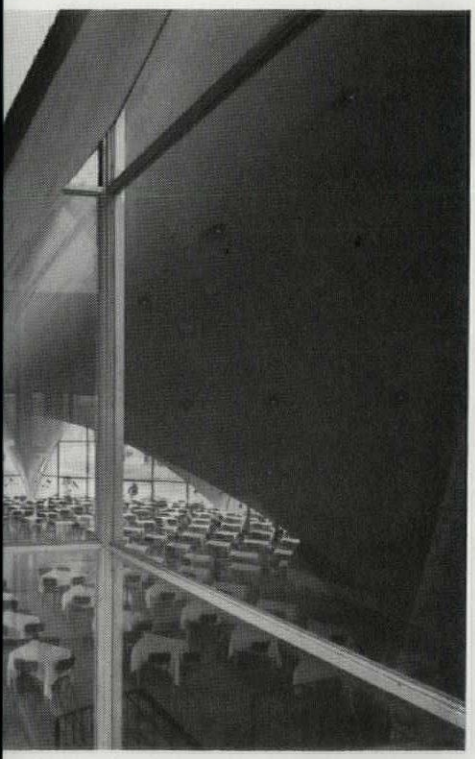
SECCION A - A (ESCALA 1:100)

Las cotas son al origen de las curvas



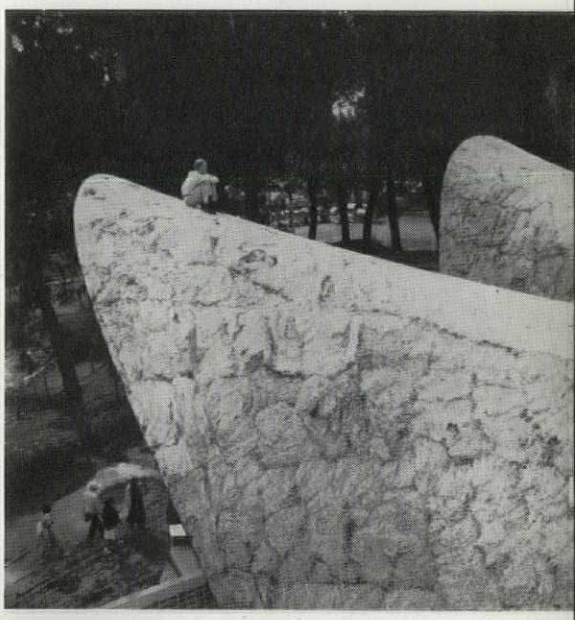
FACHADA B - B (ESCALA 1:100)

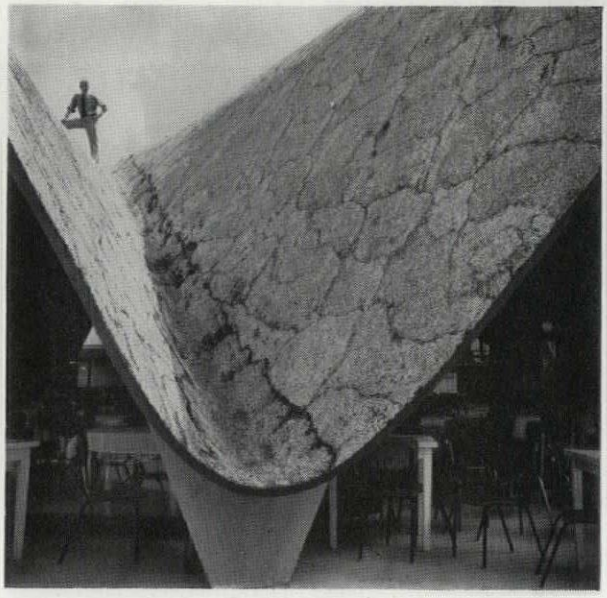
Las cotas son al origen de las curvas



Roof is waterproofed with black-tar paint, sprinkled with chips of white gravel—an inexpensive but satisfactory method. Maximum height of groin is about 34 ft.

Drawings (above, as well as all others in this presentation) were made by Francisco Fuentes, of Candela's office, and have been produced for a forthcoming Reinhold book, The Work of Felix Candela.





Can A Man Be Architect, Engineer, and Builder?

From time to time, the Editors of P/A will attempt a critical evaluation of the work of an outstanding architect or engineer. This critique is the first of a series that will appear in the coming months.

Five years ago, Felix Candela wrote: "In the field of construction, we are fortunately ending a long, analytical period. The ideas that nourished it are fully developed and to continue exploiting them would be senseless. If the symptoms are to be believed, we are on the verge of a new creative epoch. Architects should be pleased with this situation, especially if they manage to regain their lost role as Master Builders, since in order to build at such a time it will perhaps not be necessary to master so much science, but to have some talent." [1]

Although in so short a period as five years we cannot be very far into an epoch —even in this day of ultra-rapid development and advance in matter of scientific domain, Candela has correctly foreseen an extended amount of experimentation in plasticity of form in the recent history of building, or "which amounts to the same thing, the history of the roof." Candela himself has become one of the leading exponents in this search for form and observers all over the world have become intimately aware of his electrifying designs.[2] A few other designers have produced structural achievements that have also received international recognition—particularly for such building types as auditoriums, churches and chapels, airport facilities, bridges, etc. Surely, these too will affect the composite results in the evolution of contemporary form.

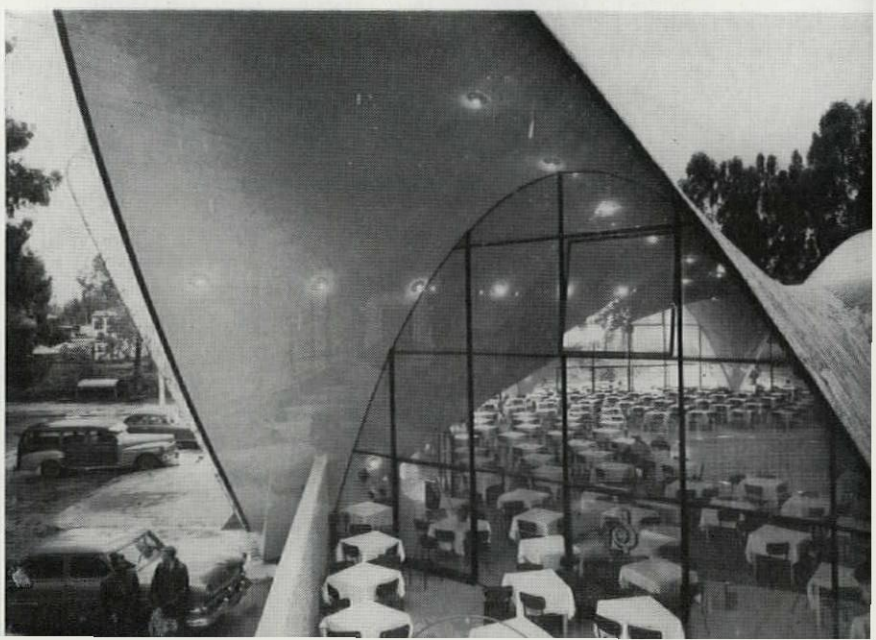
Regarding the architectural profession, as a whole, it would seem to be no nearer a return to the status of Master Builder; nor, indeed, are there observable indications that the architect will ever act in such a role again. Candela's own work does come nearer to this return than that of any of his confreres in this country. (The concept of architect/builder, of course, has acceptance in many Latin American countries while it is considered unsympathetic with the ethics of the profession here.) In addition to being a builder—his firm is known as Cubiertas Ala, S.A., which he operates with his brother, Antonio — Candela serves as an architect/engineer-consultant to many architectural firms, both in his own country and abroad. Principally, he serves these in the capacity of general structural designer. He is much sought after, largely for three reasons: (1) because of his knowledge and genius in thin-shell design; (2) because he can translate thin-shell design into relatively simple erection techniques; (3) and, as he freely admits when speaking before professional audiences, because his structures are not expensive to build in his country. Despite these rather matter-of-fact abilities of Candela's, his work appeals to most because of its thrilling—playful yet spiritual—quality. He has been aptly referred to as a man "of applied imagination." [3]

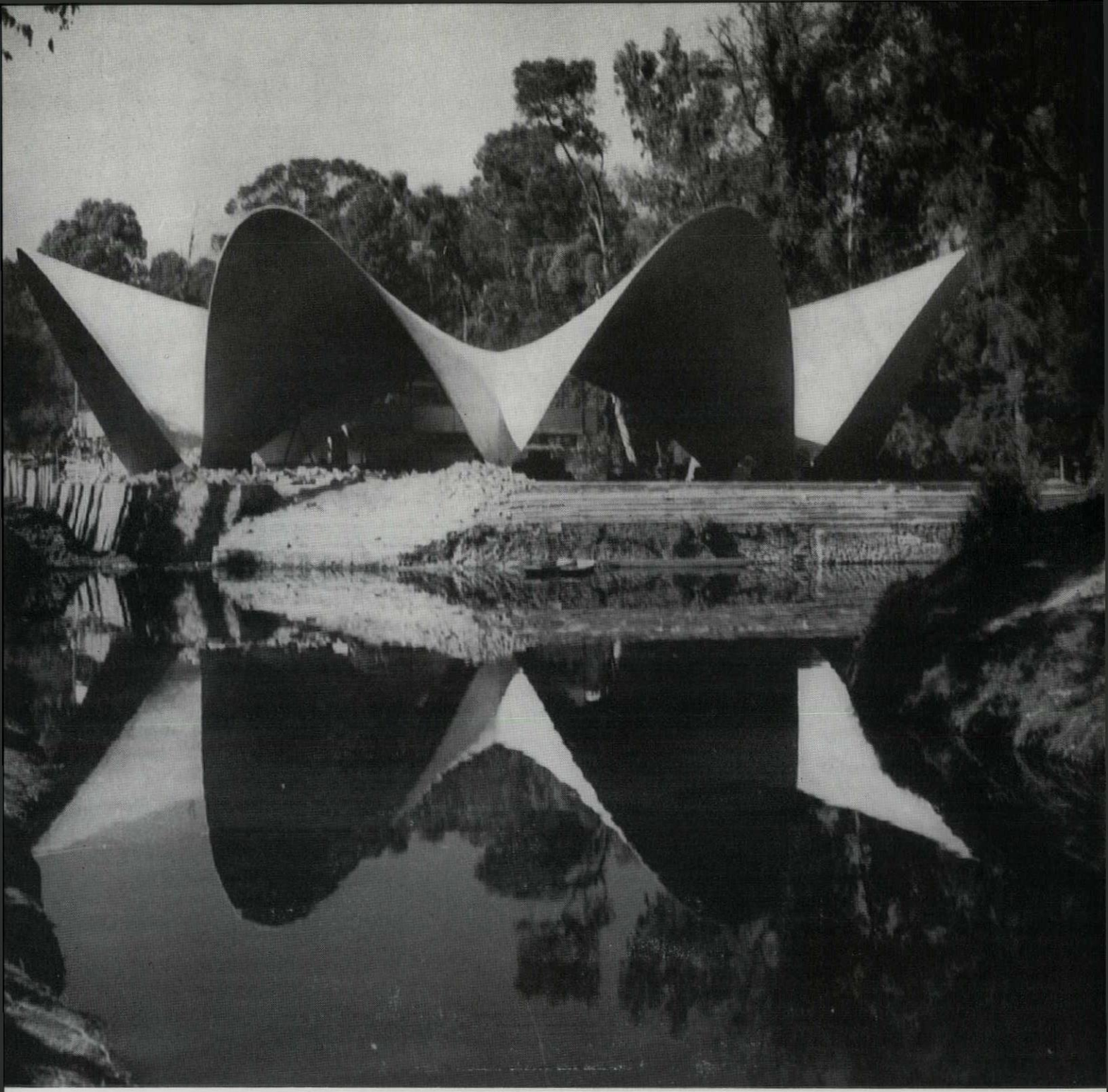
Candela has been a proponent not only of "stereo-structures" but also of the integrated-designer concept. We have spoken of the need he feels for the designer to be also a builder. Beyond this, he has urged that in education and practice we must develop the architect-engineer type. Has this always worked in Candela's case? Regretfully, as good friends, we must report that in our opinion it has not. Too many of the Candela-structured buildings become banal works of architecture when brick and stone enclose the spaces spanned by his exciting roofs. Too many of his warehouses and markets in the Mexico, D. F. area are concrete-block boxes, with the structure evident only during construction. The thrill of his form-concepts, such as the one pictured acrosspage, seldom remains when "architecture" has been added. It is significant that the new residence Candela has designed for himself in the San Angel section of Mexico is a Colonial-type house with conventional, small, punctured windows. While his structural sense overrides and makes very precious-seeming the neo-Aztec architecture of O'Gorman and some others in Mexico,

[1] *Stereo-Structures*, JUNE 1954 P/A.

[2] *His work has been widely published in architectural journals. Among his best known structures, which have appeared in P/A, are: Iglesia de la Virgen Milagrosa*, JULY 1955; *Rios Warehouse*, JULY 1955; *La Capilla de Nuestra Senora de la Soledad*, OCTOBER 1956; *Lederle Laboratories*, SEPTEMBER 1957; *Bacardi Distillery*, FEBRUARY 1959; *Xochimilco Restaurant*, FEBRUARY 1959.

[3] Arts & Architecture, OCTOBER 1958.





his sense of fully developed architecture exploiting these structures seems to need assists from others.

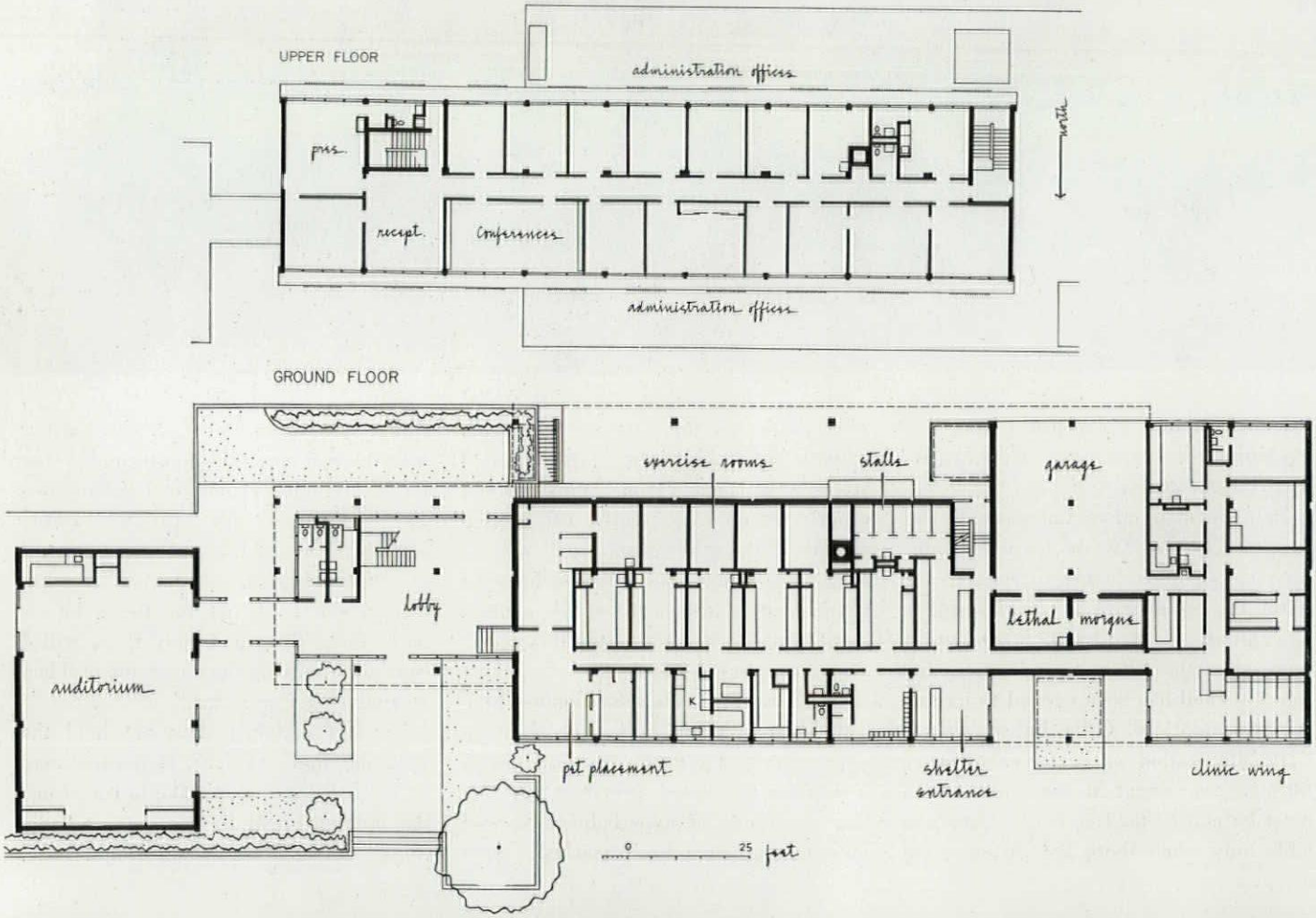
In his own opinion, Candela's restaurant structure at Xochimilco is probably his most significant work to date. He regards the building as the final result of one phase of structural investigation, however, rather than an indication that the thin shell has been carried to its limits. His associate, Colin Faber, writes: "The elimination of edge beams is an ultimate refinement in one sense, but it must be noted that free borders are possible only when there are certain rigid elements within the structure which are capable of taking the unequilibrated stresses—although (as in Xochimilco and other structures presently being constructed) these elements need not be obvious or visible. The criterion for such refinements is always the same—general equilibrium of structure—and this nearly always implies symmetry."

In his work, Candela has limited himself primarily to the hyperbolic parabola —principally due to the ease with which it can be calculated. He does not feel that the limits of hyperbolic-paraboloid investigation have been reached: there still remains room for refinement. Further investigation may lead him to study other forms of simple geometrical definition—whose analyses are still unbearably lengthy and complicated for practical use in building. If satisfactory simplifications can be found for these, he reports that "then, and only then, will I consider attacking the enormous problem of analyzing free forms."

Candela certainly does not hold the viewpoint that *any* form is possible, and he feels that it is a mistake to encourage the opinion—held by some—that "anything" can be built. B.H.H. and T.H.C.

animal rescue center

location | Boston, Massachusetts
architect | Hugh Stubbins & Associates



The site for the Animal Rescue League of Boston is in a rather marginal section of the city, and the sprightly new building and adjacent landscaped areas contribute a noticeable lift to the neighborhood. The program for the building required facilities for the care and disposition of an average of 60,000 animals a year, which are brought here either by individuals or in trucks operated by the League.

Evident in the plan are five separate but interrelated operational areas—the clinic; the animal shelter; the pet-placement department; the educational department; and administrative offices.

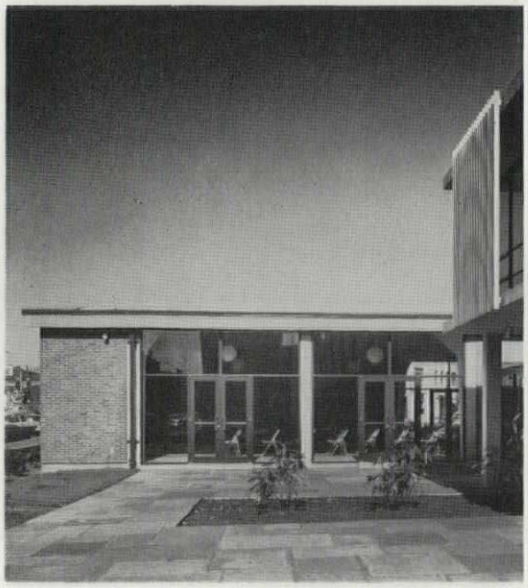
A waiting room is provided as part of the clinic, to which the public is invited to bring pets for veterinary services at a modest fee. Most of the animals, however, are delivered in the League's wire-cage trucks to the rear of the building, either to be disposed of or to be sheltered until they are offered for adoption through the pet-placement department. This latter department is readily accessible to the public from the main lobby. This area also provides access to the offices, which are located on the upper floor, or to the ground-floor auditorium, which is used for public lectures on animal care and related subjects.

Structurally, the building rests on composite piles of reinforced concrete. The frame is reinforced concrete, and exterior walls are either brick or bluestone; floors are of concrete. Interior walls are variously finished—plaster, tile, or cement block. Floorings include both terrazzo and resilient tile. The ceilings have an acoustical-tile surface. Heavy sheet, plate, and obscure glass are all used in the metal window frames. The building is entirely air conditioned and heated by a split hot-water and air system.

Associated with the architects were: Goldberg, LeMessurier & Associates, Structural Engineer; Fred S. Dubin Associates, Mechanical Engineer; and Horn Brothers, Inc., General Contractor.

Photos: Gottscho-Schleisner

In the central lobby area (right *and* below), *the reinforced-concrete frame is clearly articulated, standing 2'-6" in front of the window-wall line. At the second (office) floor level, it supports the vertical, aluminum light screens.*



End walls of the auditorium (above, right, *and* below) *as well as of the upper floor of the central unit are surfaced on the exterior with 18"x48" slabs of bluestone, 1¼" thick; which contrast, in color and texture, with the brick panels used for other walk areas.*

old-line firm with a regionwide practice

Atlanta Chamber of Commerce

The Architect and His Community:

P/A's "Architect and His Community" studies focus on firms (1) whose commissions include numerous building categories; (2) whose work has made a noticeable imprint on their communities; and (3) whose design quality is consistently well above average and not infrequently of award-winning caliber. On all counts, the practice of Stevens & Wilkinson qualifies admirably.

It would be difficult to name any type of building that this firm has not designed at one time or another; and a tour of Atlanta could hardly fail to pass stores, hospitals, churches, libraries, schools, etc., that derived from its drafting tables. Like Atlanta itself, Stevens & Wilkinson serve the entire southeastern region. Their work is found in the Carolinas, Virginia, Alabama, Tennessee, Kentucky, and Florida, as well as throughout the State of Georgia. As for design quality, it is noteworthy that the firm has won a citation in three out of the six annual P/A Design Awards judgments to date, as well as AIA awards and citations, both regional and national.

The practice was founded in 1919, as Burge & Stevens, with Flippen Burge and Preston S. Stevens as the principals. Upon the death of the former in 1946, James R. Wilkinson, who had been an associate, became a full partner, and the name was changed to Stevens & Wilkinson. Stevens, Mississippi-born, received his training at Mississippi College, Georgia Institute of Technology, and from travel and study in Europe. Wilkinson attended the public schools of his home town of Eufala, Alabama, and was graduated from Alabama Polytechnic Institute. There are three associates in the firm (*photo acrosspage*)—William H. Barnett, Chief of Design; Minton V. Braddy, Jr., Chief Architect; and Paul F. Jeffries, Chief of Construction.

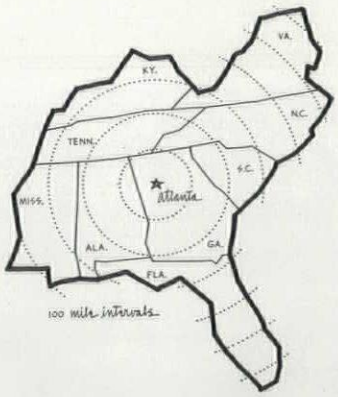
The office, with a total personnel of 75, is organized on a vertical basis, with three divisions, each under supervision of one of the associates. At this writing, the firm has approximately $12 millions of work on the boards. Customary procedure is for the designer and one of the partners to meet with the client and to develop the program and prepare pre-

Galloway Apartments, Atlanta

F. S. Lincoln

Gottscho-Schleisner

Rich's Department Store, Knoxville, Tennessee



Stevens & Wilkinson, Atlanta, Georgia

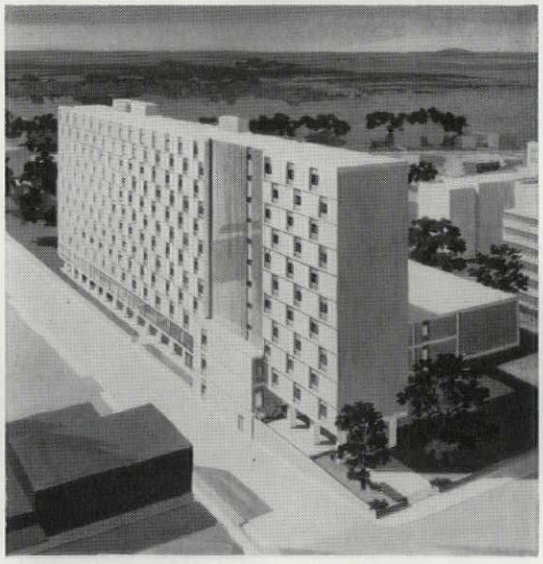
liminary sketches. On reaching a solution satisfactory to the principal and chief designers, it is presented to the client. After the client's approval, the job then goes to the Architectural Department, where an architect is appointed as job captain for the project and informs the chief engineers about any special requirements. The Chief Architect supervises and co-ordinates the work of the design and engineering departments. When working drawings are completed, bidding and letting of the contract ensue, and the Construction Chief takes over the supervision.

The partners are succinct in the statement of their design goals and philosophy. "Perhaps it can best be summed up by saying that, acting as a team, we aim at producing a straightforward building based on a functional plan, structural integrity, and sound use of handsome and lasting materials," they comment, "buildings expressing their use and purpose with beauty and delight, without relying on ornament or archeological details."

Stevens, Wilkinson, and the Associates are all active in professional activities and the civic and social clubs of Atlanta. Both partners hold important posts in their respective alumni organizations, with Stevens representing the School of Architecture in the Georgia Tech Foundation, and Wilkinson serving on the Advisory Committee to the School of Architecture of Alabama Polytechnic Institute.

Left to right: Wilkinson (Partner); Barnett (Associate); Stevens (Partner); Braddy (Associate); and Jeffries (Associate).

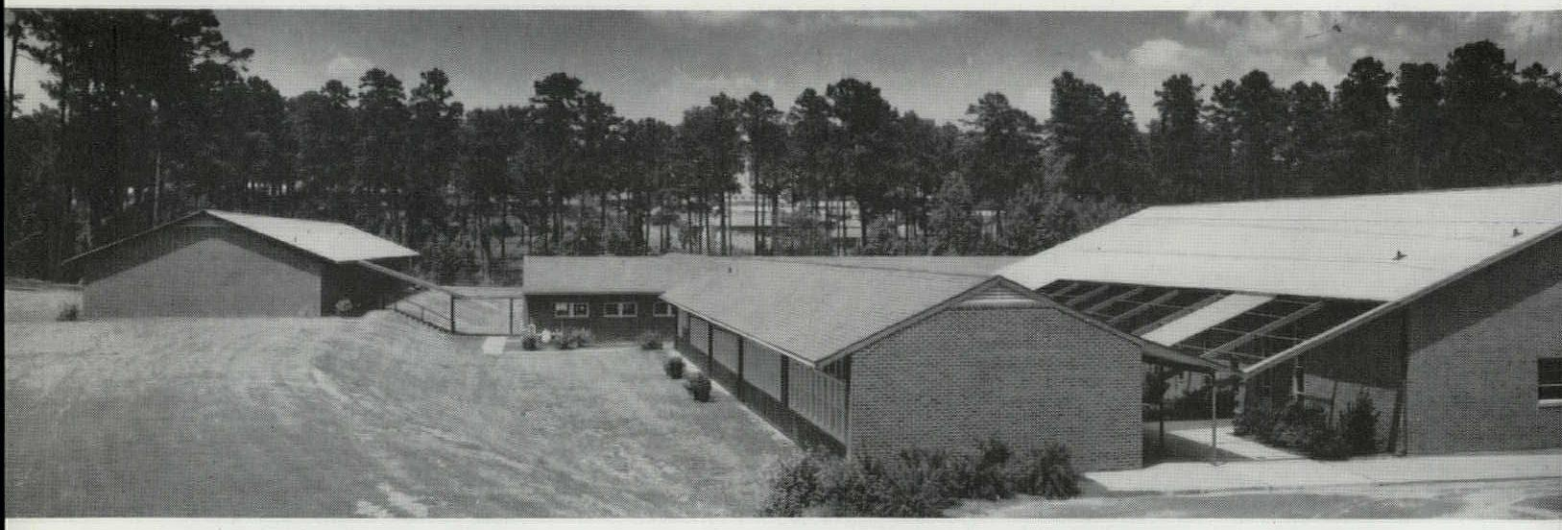
Jerome Drown



School of Nursing, Georgia Baptist Hospital, Atlanta

Sheffield Memorial Building, Atlanta

Jerome Drown

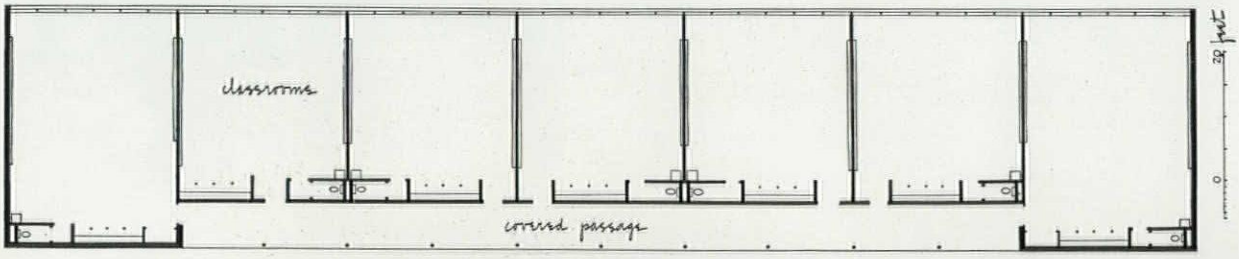


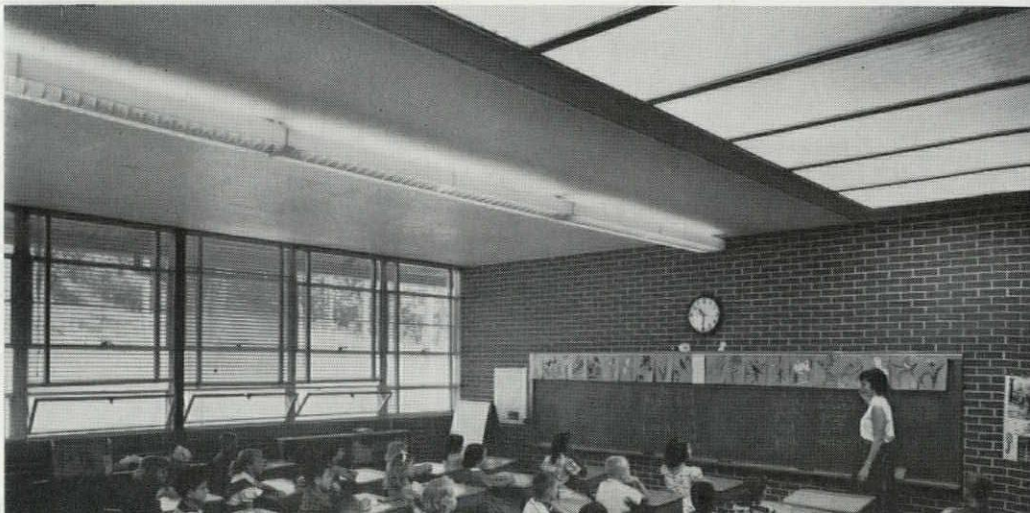
elementary school

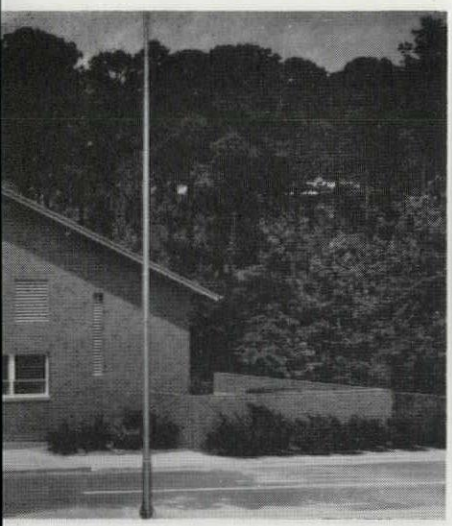
In their work for the Custer Road Terrace Elementary School, at Fort Benning, Columbus, Georgia, the architects were, in effect, faced with the challenge of utilizing field expedients. For not only did several units of the group exist when Stevens & Wilkinson were called in, but the new units—a classroom building and an all-purpose structure—had to be constructed largely from materials that were on hand at the Fort.

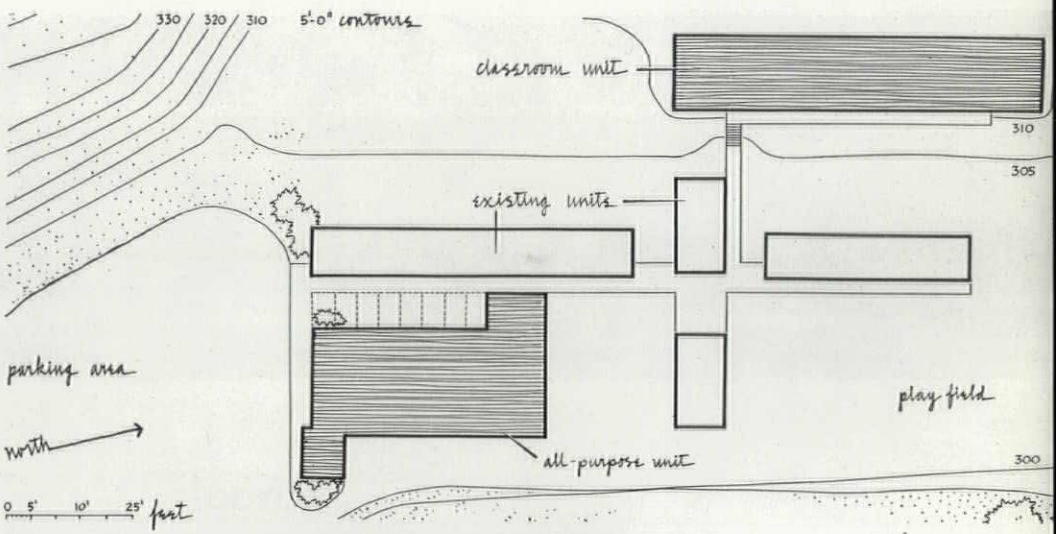
The school, with an enrolment of 450 pupils, is pleasingly disposed on its sloping, wooded site, and the joining of the new multipurpose building to one of the existing classroom units forms a sheltered, landscaped courtyard. An important consideration in the handling of the site was to reserve sufficient, relatively level ground for a playground, and also for automobile access, as most of the pupils come to school by car or bus.

In the use of color on the exterior of the group, choices were made that would harmonize the old and new elements as much as possible. General Contractor for the work was The Jordan Company.









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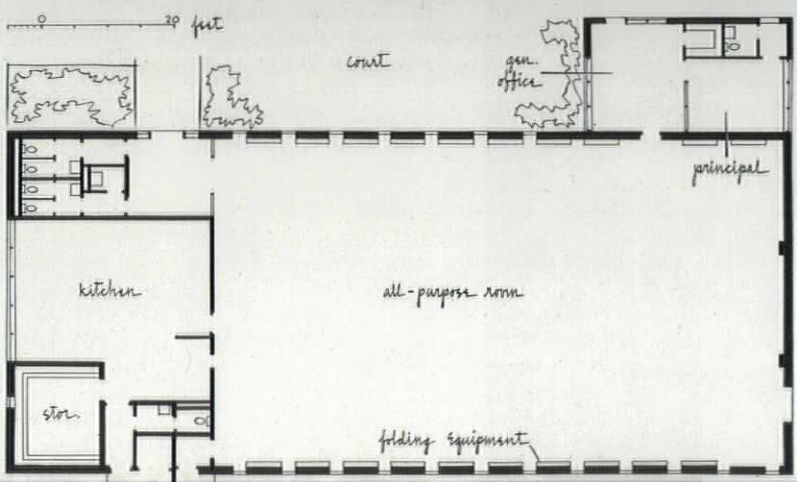
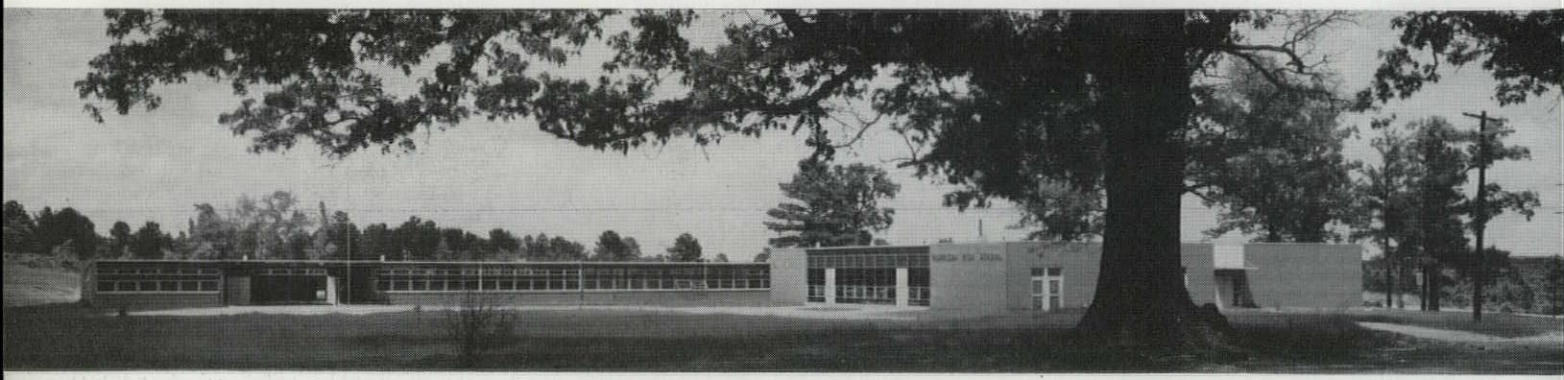
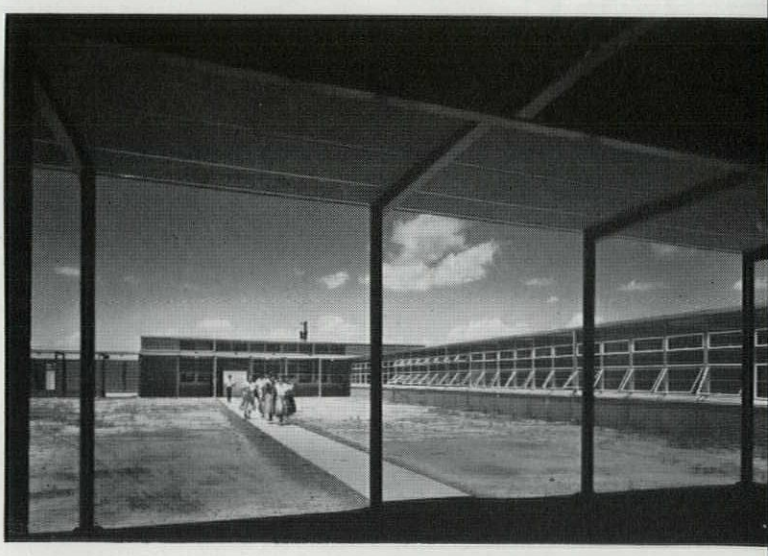
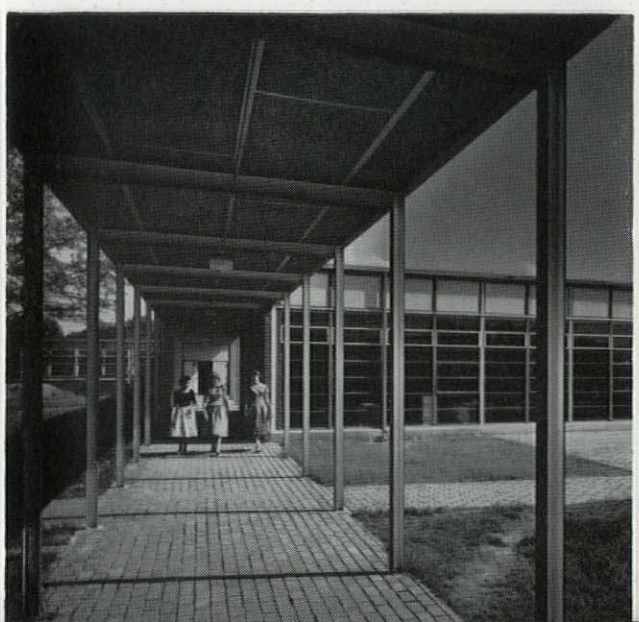




schools

A particularly important segment of Stevens & Wilkinson's practice at the moment is devoted to design of low-cost school buildings, several of which are illustrated here. Currently, they have 150 schools either under construction or being planned for the State of Georgia, alone. This work, totaling some $15 millions in volume, represents contracts with 26 different Georgia counties or communities. Cost of these schools, designed under the State's program for replacing substandard older schools, has to be kept within $7.50 per sq ft, fully equipped. To answer the problem, S&W worked out standard construction techniques, utilizing concrete block, wood fiber slash cement board (for insulation and acoustical correction), a single prefab roof deck, steel beams, and brick. The detailing was refined so that even a poorly equipped rural builder could erect them. Framing involves as little steel as possible, with the steel beams precut to exact size in the shop. From here, they are transported to the site and held in a jig and welded into frames right on the ground. For country builders who do not own a derrick, these welded frames may be readily erected by using an A frame.

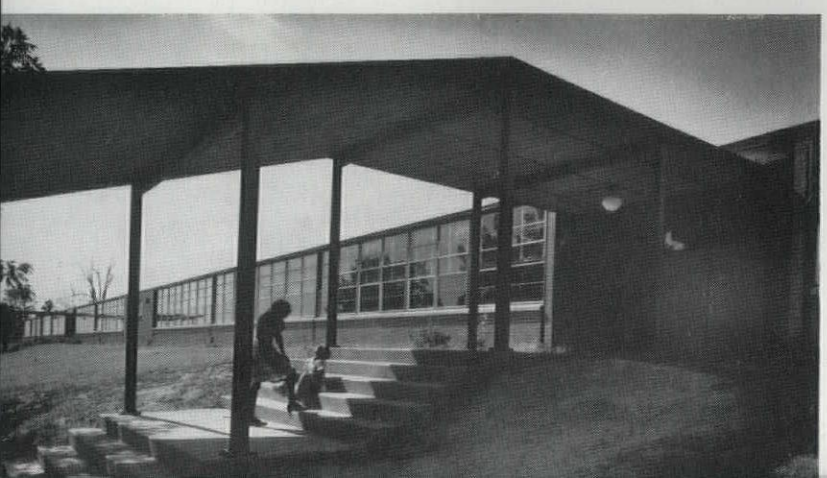




Harrison High School, West Point, Georgia (top); *McCoy Hill Elementary School, Americus, Georgia* (above); *and Baldwin High School, Milledgeville, Georgia* (left).

Dodge County High School, Eastman, Georgia (right); *and River Bend School, Hall County, Georgia* (below).

Photos: Alexandre Georges



City Elementary School, Milledgeville, Georgia (above); *and Carrollton Training School Carrollton, Georgia* (left).

department stores

A lively part of the firm's practice is concerned with the design of retail establishments. Some of the architects' most successful buildings in this category are the stores that they have designed over the years for Sears, Roebuck & Company, two of which are illustrated here—one in Columbia, South Carolina (*this page*); another in Roanoke, Virginia (*acrosspage*). At present, there are three new Sears stores on the S&W boards—to be built in Dothan and Tuscaloosa, Alabama, and in Newport News, Virginia.

There is a basic similarity in the programming and function of the different Sears stores, but, the architects point out, "Sears has happily wished to avoid stereotyped solutions." And they have taken advantage of this good fortune. Considerable variety and individuality are found in the different units, and this derives from a number of factors. Differing site conditions produce different solutions in the disposition of elements and in the shapes of the buildings themselves; and the stores vary widely in the use of materials and in their structural systems.

Photos: Joseph W. Molitor

Photos: Alexandre Georges

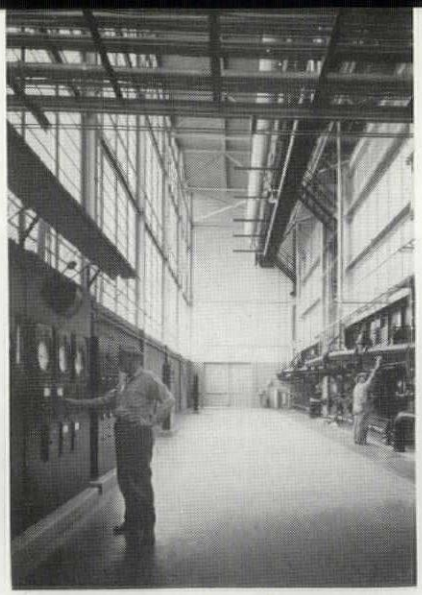
industrial buildings

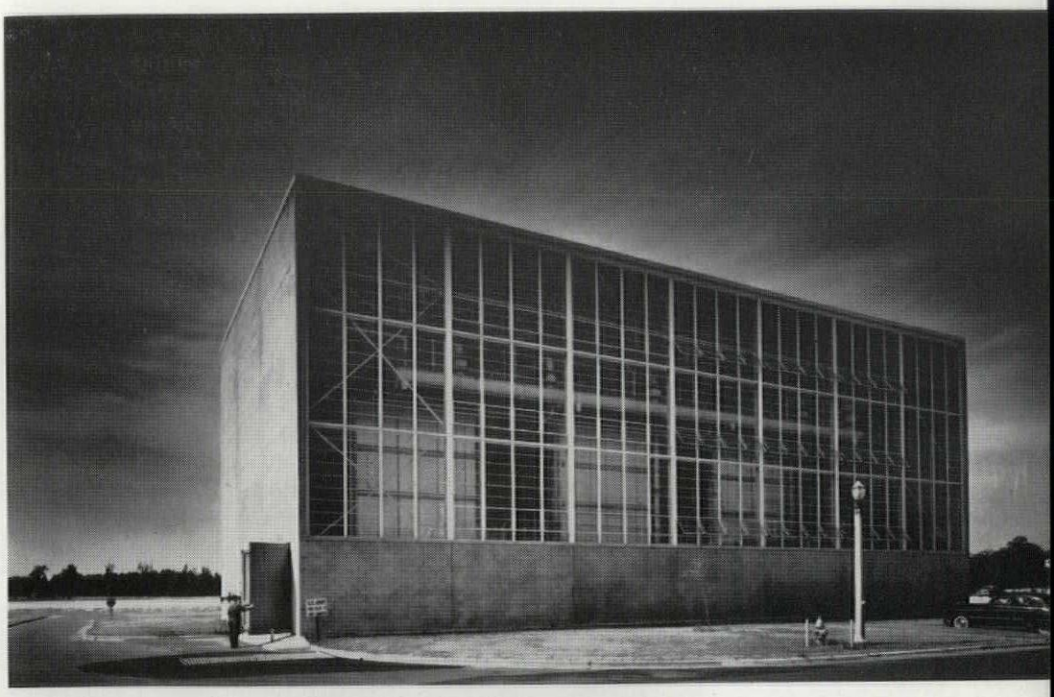
In the area of industrial buildings, Stevens & Wilkinson's work includes factories, warehouses, laboratories, maintenance garages, commercial bakeries, and power plants.

For American Bakeries Company, they have designed more than twenty plants, one of the most recent of which, in Fayetteville, North Carolina, is shown here (*this page* and *acrosspage bottom*). These plants are designed for the receiving of raw materials, processing and baking of bread and cake, and distribution of the finished product. The buildings have steel frames, with clear-span trusses bridging the manufacturing areas.

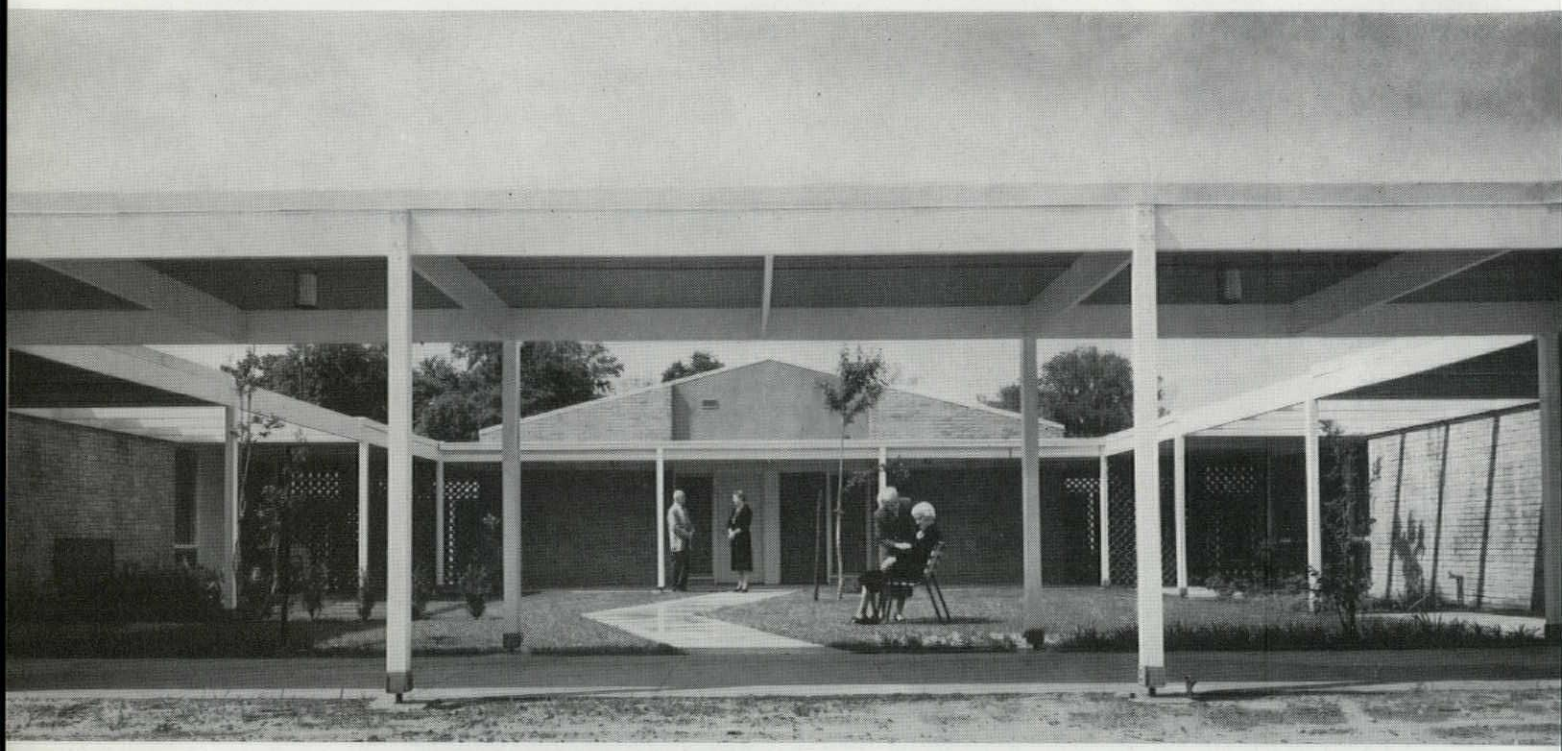
The power plant at Fort Benning, Columbus, Georgia (*acrosspage top*) is only one of many commissions for the Army Engineers for installations at the Fort. These include troop housing, main post exchange, engineer shop; and classrooms.

Other Governmental contracts have been with Department of the Army; Bureau of Yards and Docks, Department of the Navy; Department of the Air Force and Atomic Energy Commission, as well as with the Corps of Engineers in various locations throughout the southeast.



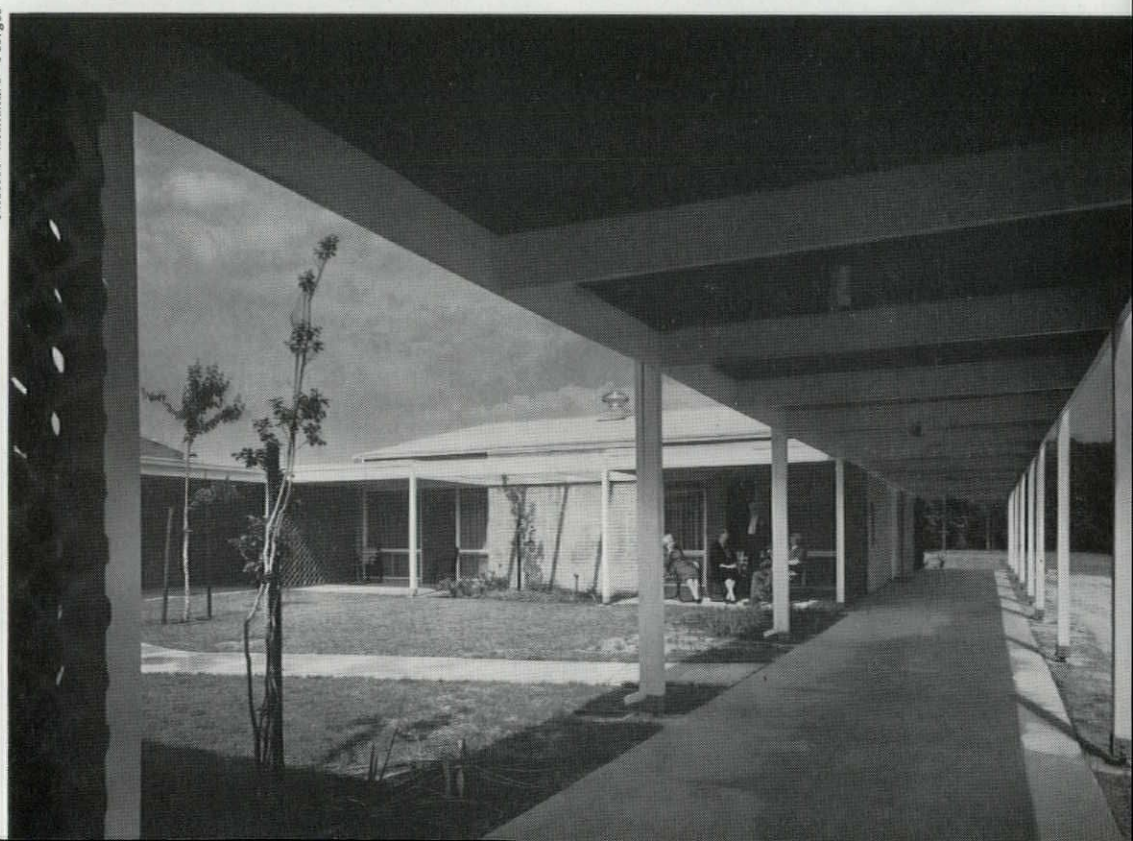


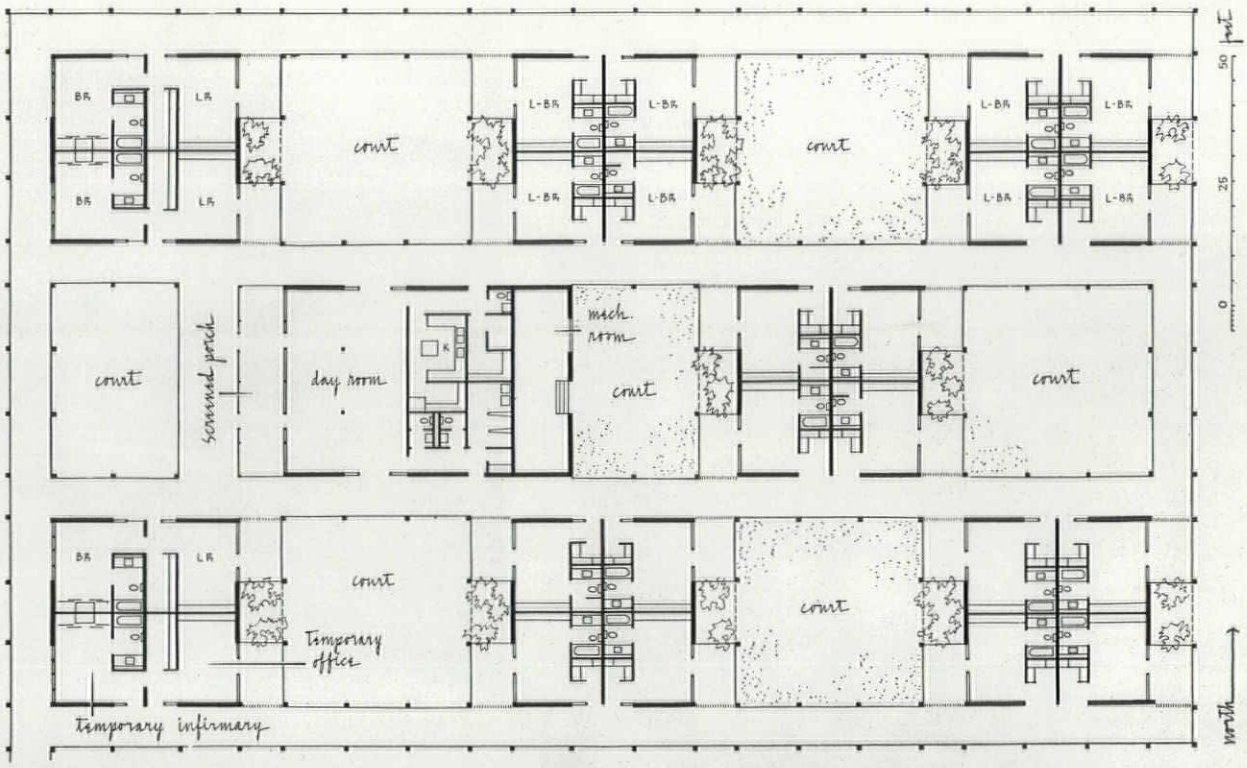
Photos: Alexandre Georges

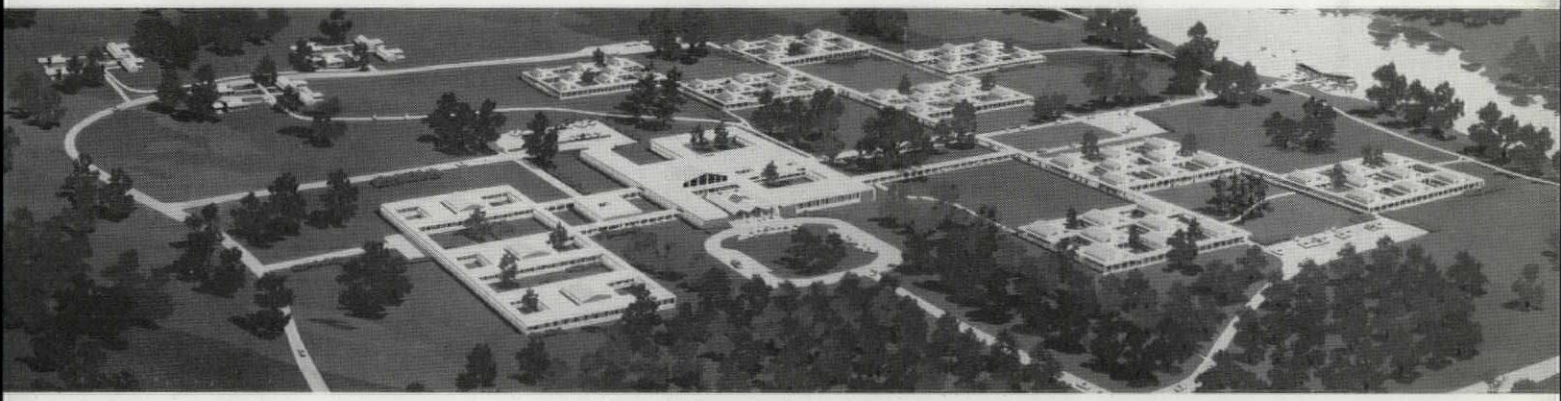


home for retired persons

Photos: Alexandre Georges

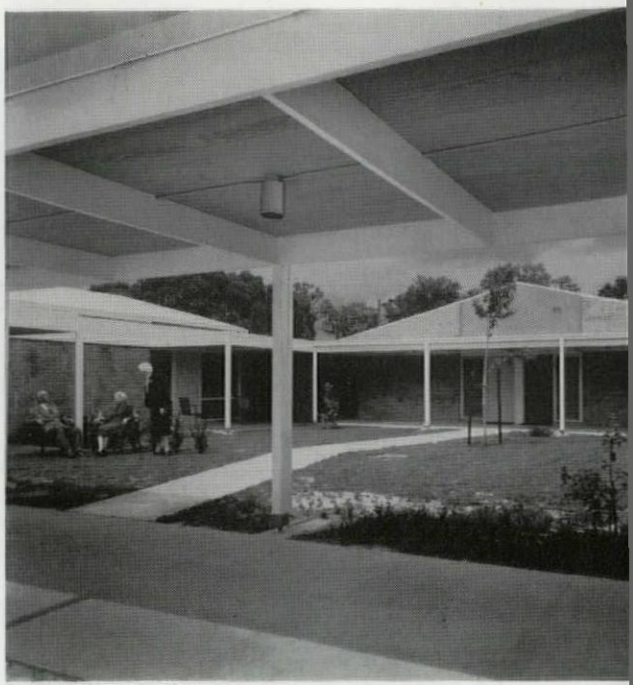


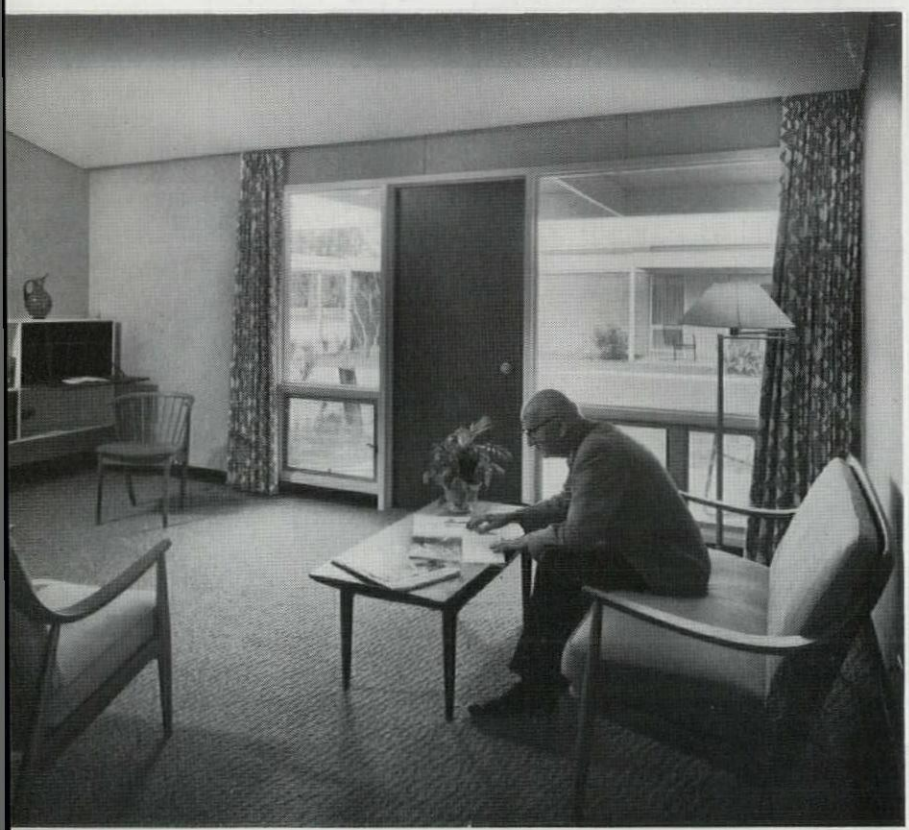




The Baptist Village, in Waycross, Georgia, will ultimitely have accommodations for 300 older men and women, in varying states of health. Emphasis will be on rehabilitative and preventive care, rather than mere shelter. First completed unit, shown here, is an apartment cluster for up to 28 residents. Most units consist of a living-bedroom, walk-in closet, and private bath. There is a central day room, with adjoining kitchen. The 4-unit groups of resident accommodations are organized around courtyards, and all units are air conditioned, with individual control for each apartment. When the full campus scheme is realized, there will be 8 clusters of this type in the 400-acre village. Other types of accommodations to be built range from self-contained cottages with living room, kitchenette, one or two bedrooms, and bath; one-bedroom units with bath for couples; and clusters of single and double bedrooms, each with toilet, for residents requiring more nursing attention. Common-use facilities scheduled include offices, lounges, dining rooms, meeting rooms, library, chapel, occupational therapy rooms, a store, and barber and beauty shops. Covered walkways will join all of the buildings in the single-level layout.

The initial building is framed in light steel with concrete-block and brick walls, concrete floors, and a built-up roof, surfaced with white marble chips. Edward L. Daugherty was Landscape Architect; Jane Kidder, Interior Designer; Watson & Yeargan Company, General Contractor.





Photos: Alexandre Georges

Each air-conditioned apartment looks out on a landscaped courtyard and has its private sitting terrace. Adjoining the day room (left) *is a kitchen, launderette, storage space, toilets, and telephone booth.*

Today, there are more than 3000 automatic snow-melting systems in operation throughout the United States. This discussion has been developed to help the architect and engineer toward a better understanding of the problems involved in the proper design of these systems. Source of data for this article was the Engineering Service Department, A. M. Byers Company, Pittsburgh, Pa.

snow-melting with wrought-iron pipe

While snow has been with us for quite some time, it has only been in recent years that snow melting by the subsurface application of heat has become of practical importance. The oldest recorded installation of a mechanical snow-melting system dates back only to 1925. In that year, Rochester Gas & Electric Corporation, Rochester, New York, placed 1½″ wrought-iron steam pipes parallel to and about 14″ below a concrete sidewalk of one of their new buildings.

While the design and installation of this system were not in keeping with current practices, the system did prove successful and, according to latest reports, is still operating satisfactorily after 34 years. It was not until almost 20 years later, however, when the phenomenal growth of radiant-heating led architects and engineers to adapt radiant-heating techniques to snow and ice removal, that snow melting in the modern sense was born.

Since 1945, the number of snow-melting installations in the United States has steadily increased. Business establishments have found in snow melting a means of promoting customer good will and maintaining public relations, while also keeping their sidewalks free of snow and ice. Both commercial and industrial firms have found snow melting a sure way to keep driveways, ramps, and loading docks open to traffic—regardless of weather conditions. Municipal, state, and federal agencies have also shown interest in the potential applications of a snow-melting system. In fact, the largest snow-melting system in the United States at present serves 14 individual ramps of the multimillion dollar aerial highway in Boston, Massachusetts. Shop-fabricated grids, composed of 1″ wrought-iron pipe welded into 2″ wrought-iron headers, cover more than 139,000 sq ft of ramp area. The piping requirements for this installation ran over 200 tons.

Snow-melting installations are also increasing at military and commercial airports. The use of embedded heating coils for the removal of snow and ice from such areas as passenger ramps, aprons, and hangar doors has proved both efficient and economical. At least one airport-runway snow-melting system was reportedly in use in Germany during World War II. While no runway installations have yet been made in the United States, this possibility is being given careful consideration for both military and commercial airports. In at least one instance, cost studies indicated that the installation and operation of a runway snow-melting system would be less than the labor, equipment, and maintenance cost of conventional snow removal. The advent of high-temperature, high-pressure hot-water heating further increases the practicality and feasibility of runway snow melting.

The popularity of residential snow-melting systems is also on the upswing. Reports indicate that there is hardly a city north of the Mason-Dixon Line that does not have at least one sidewalk or driveway snow-melting system. There can be no doubt that snow melting has come of age and indications are that it will continue to grow.

This acceptance—or increasing popularity—of automatic snow melting is a logical one. There are many advantages. Some of these include:

1 No labor, plows, or loading machines. No chemicals used—eliminating the danger of damage to surfaces and drainage systems.
2 System operates as snow falls—preventing accumulation and eliminating hazards of snow and/or ice.
3 Whole or partial clearing of surface areas—such as sliding door, switches, and walkways in hazardous places.
4 Surface areas dry quickly after freezing rain or snow—preventing moisture or dirt-tracking into lobbies, stores, and reception areas; thereby reducing indoor-maintenance costs.

In addition, automatic snow-removal systems increase safety, by reducing falls on wet or icy pavement, and create good will among passers-by. Lastly, there is no problem of snow disposal.

The design of snow-melting systems involves a number of considerations, such as type of piping, piping layout, heating requirements, heating medium, heating units, controls, and cost.

piping requirements

The most essential requirements of piping used for snow-melting systems are ability to resist corrosion and good

First snow-melting system in the United States was designed for Rochester Gas & Electric Corporation, Rochester, N. Y. Plans called for 1½" wrought-iron pipe running parallel to and about 14" below concrete sidewalk on two sides of the building. Latest reports disclose that the 34-year-old system is operating satisfactorily.

mechanical properties. Even though the piping may be embedded in concrete, the possibility of external corrosion is not eliminated. Internal corrosion is also a possibility, depending upon the type and condition of the heating medium. Since the repair or replacement of snow-melting piping involves considerable expense, the pipe material used should be highly resistant to corrosion.

Its thermal coefficient of expansion should be relatively close to that of the concrete in which it is embedded, so as to hold thermal stresses to a minimum. The material should possess good fabricating qualities, such as bendability and weldability, and should also have sufficient strength and rigidity to withstand abuse during installation.

Wrought-iron pipe has been widely used for snow-melting systems, as it satisfies these requirements exceptionally well. The American Society for Testing Materials defines wrought iron as "a ferrous material, aggregated from a solidifying mass of pasty particles of highly refined metallic iron, with which, without subsequent fusion, is incorporated a minutely and uniformly distributed quantity of slag." This "slag," a glasslike silicate (there are approximately 250,000 silicate fibers in each sq in. of wrought iron), serves to establish an effective barrier to corrosion. The previously cited Rochester Gas & Electric Corporation installation—the first in the United States—is an example of wrought iron's durability.

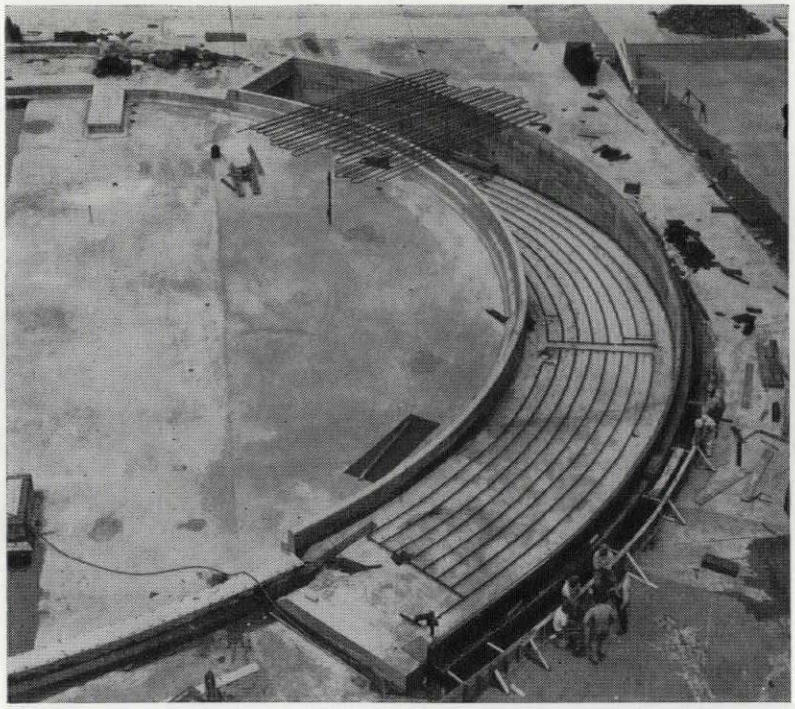
Some 17 years of research recently culminated in the introduction of a wrought iron with superior corrosion resistance. Tests have shown this material, referred to as 4-D wrought iron, to be approximately 25 percent more resitant to corrosion than its predecessor. This material conforms to the requirements of ASTM Specification A 72. It can be readily bent, threaded, and welded by any of the commonly employed welding processes. The 4-D wrought iron offers a combination of corrosion resistance and mechanical properties ideally suited for snow-melting applications.

piping layout

There is no standard piping design for a snow-melting system. Theoretically, for most uniform heat distribution, small-diameter pipe is spaced on close centers. However, larger pipe on wider centers is less expensive. Most snow-melting systems employ 1" or 1¼" pipe on 12" to 18" centers. And ¾" pipe has also been used; however, the welding of ¾" pipe is slightly more complicated due to the possibility of icicle formations which might seriously obstruct flow.

The pipe may be arranged in either a grid- or sinuous-coil pattern, or a combination of the two. The grid pattern, which simply consists of two headers to which are welded at right angles parallel runs of pipe, is well suited to large, regularly shaped areas. It offers comparatively little resistance to flow, can be easily sloped for efficient drainage and venting, and requires less attention to balancing. Sinuous coils are more easily adapted to irregular areas, and offer the further advantages of requiring fewer cuts and welds, and completely utilizing full random lengths of pipe. As compared to the grid pattern, the chief disadvantage of the coil pattern is increased friction loss. When the coil pattern is used, it is usually advisable to minimize the length of the individual coils and rely on a larger number of smaller coils connected in parallel. As a rule, sinuous coils are cheaper to fabricate for small- and medium-sized systems. For large systems, however, where grids can be shop fabricated, the use of the grid pattern may prove more economical.

In a grid layout, the headers should be connected to the supply and return mains so that the circulating medium will enter and leave the grid at points diagonally opposite each other. If, for example, the grid header connects to the supply line at the upper left-hand corner of the grid, the header connec-



Shown during construction stage is the ramp which leads to parking area beneath United Nations Secretariat, New York. This access ramp employs a series of curvilinear wrought-iron pipe grids for snow melting.

tion to the return line should be made at the lower right-hand corner of the grid. Short circuiting is very likely to result if supply and return connections are directly opposite each other. This same rule should be applied where grids are connected in series.

In relatively small systems, grids are installed in series, since the pressure drop through a single grid is usually quite small and there is little danger that the total pressure drop through the system will be materially increased by a series arrangement. However, a series circuit is none too conducive to uniform surface temperatures, since the temperature of the circulating medium through any grid will of necessity be lower than that of the grid immediately preceding. For this reason, it is well to consider the use of a parallel circuit where grids are to serve a large area.

When a parallel circuit is used, the grids or coils should be laid out on a reverse return, rather than as a direct return basis. A reverse-return layout is one of inherent balance and will provide much better flow characteristics than a direct return.

The need for balancing valves depends largely on the layout of the system. In some cases, a system can be made self-balancing by using a reverse-return layout and by the proper sizing of the supply and return mains. In such cases, the absence of balancing valves will normally have no adverse effects. In other cases, however, and particularly if the piping is laid out on a direct-return basis, balancing valves are essential to good flow control. Aside from flow control, balancing valves can also be instrumental in relieving air locks.

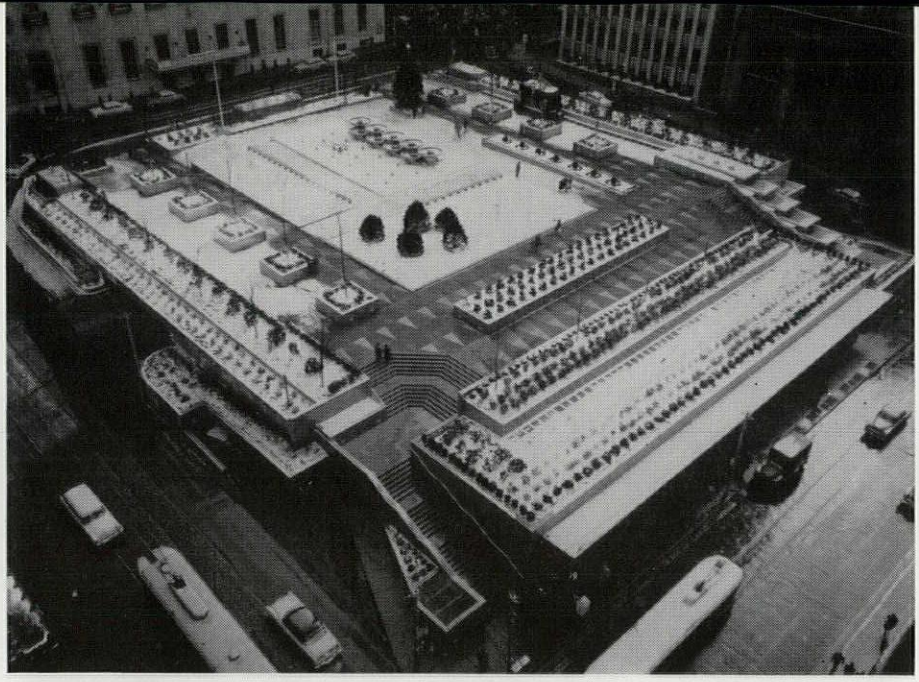
Proper venting of a snow-melting system is also important. Vents are necessary to assure removal of air when filling the system, and to permit escape of any air that might enter the system during operation. Many designers overlook the importance of venting, only to find later that circulation cannot be obtained in one or more coils due to air locks. The exact placement of vents depends on the layout of the system, but in general, they should be located at all high points in the system, or at points where the plane of the system changes. When possible, the grids or coils should be slightly sloped so as to provide a natural collection point for air, and a vent should be located at that point.

Snow-melting piping should be completely embedded in concrete, with a minimum cover of 2″ above the pipe and 1″ to 2″ below. This will assure more uniform heat transfer, lessen the tendency to crack the concrete, and offer additional protection against corrosion.

Snow-melting systems may be installed in asphalt paving as well as in concrete. Many such installations have been made and are performing quite satisfactorily. However, the thermal conductivity of asphalt is lower than that of concrete, so that pipe spacing should be limited to 12″ centers.

Consideration is sometimes given to the use of lightweight, insulating concrete as a subslab for on-grade, snow-melting systems, as a means of reducing reverse-heating losses. Unfortunately, such materials normally absorb water quite readily. Consequently, they can present a serious corrosion threat to the piping of a snow-melting system. For this reason, its use is not recommended for on-grade, snow-melting installations. The addition of calcium chloride to concrete, to accelerate hardening in cold weather, should also be avoided. Such additions, while normally relatively small, can nonetheless be harmful from the corrosion standpoint. The presence of calcium chloride (even as little as .03 percent) has also been found to accentuate the effects of stray-current electrolysis of metals embedded in concrete.

Crushed stone, washed gravel, or similar materials are used as fill beneath the slab of on-grade installations in order to improve drainage. Generally, a fill of 4″ to 6″ in depth is sufficient.



Mellon Square Park (right) *in Pittsburgh also has parking area below. All driveway ramps* (acrosspage) *have wrought-iron coils laid on 12"-concrete slabs, and embedded in additional concrete surfacing of approximately 5". Steps leading to park level have similar system. Circulating hot-water mixed with antifreeze insures safe walkng surfaces in snowy weather.*

Cinders or other sulfur-bearing materials are not suitable for fill, due to their corrosive potential.

heating requirements

Melting requirements vary in different sections of the United States because of wind velocities, air temperatures, rates of snow fall, and relative humidity.

Weather studies reveal that 90 percent of all snowfalls occur at temperatures between 10 and 35 F. At the mean temperature of 26 F, the average density of snow is 6 lb per cu ft. Under normal conditions, a melting capacity of 1" per hr has been found adequate. On this basis, the heat required for melting can then be expressed by the formula:

$$H = a\ s\ w\ qm$$

where: H = required heat, Btu/hr
a = surface area, sq ft
s = rate of snow fall, ft/hr
w = specific weight of snow, lb/ft^3
qm = heat of fusion, 144 Btu/lb

Assuming a melting rate of 1" of snow per sq ft per hr, the heating requirement is 72 Btu at slab surface. Allowance must also be made for energy losses due to vaporization, convection, and radiation, as well as reverse losses, i.e., losses to the earth. Such energy losses are variable and difficult to determine. In general, however, experience indicates that they will normally not exceed 30 percent of the total heat delivered to the system. This will raise the total heat required to 100 Btu/hr sq ft/in. of snow.

Also important is temperature drop. It requires twice as large a circulation flow to supply a given amount of heat at 10 F drop from supply to return temperature, as it requires to supply the same amount of heat when system temperature drop is 20 F.

This formula determines the rate of circulation:

$$G = \frac{H}{(60)\ (8.3)\ (cp)\ (sp\ gr)\ (dt)}$$

where: G = gal/min
H = total heat load, Btu/hr
cp = specific heat of heating fluid, Btu/lb
sp gr = specific gravity of heating fluid
dt = temperature drop through system, F

Using water as a heating medium, the formula is:

$$\frac{\text{Total heat load (Btuh)}}{500 \times \text{temp drop}} = \text{circ. (gal/min)}$$

Assuming a total heat load of 100,000 Btuh and a temperature drop of 10 F, circulation is 20 gal per min. With a variance in temperature drop, the formula's denominator changes as follows:

Temperature drop	Denominator
15 degrees	7,500
20 degrees	10,000
25 degrees	12,500
30 degrees	15,000

Use of the formula determines flow through the entire system. Knowing the flow required by each section, flow through the supply and return mains can be determined. These are usually chosen to limit pumping cost to a level compatible with efficient system operation.

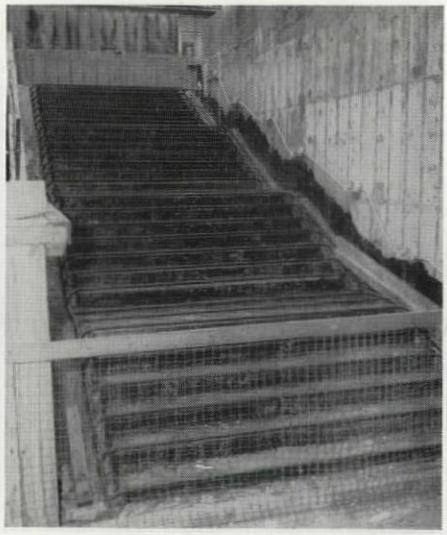
heating mediums

A few of the earlier snow-melting systems employed steam as the heating medium. However, due to the difficulty of control, the potential corrosivity of steam condensate and the possibility of freezing during shut-down periods, steam was soon abandoned in favor of water/anti-freeze solution. A permanent type anti-freeze solution is generally selected. Glycol concentrations usually range between 40 and 50 percent by volume, depending on the freezing point desired. Ethylene-glycol solutions tend to become corrosive in time. Consequently, it is advisable to check the condition of a glycol-water solution on an annual or bi-annual basis.

In recent years, lightweight heat-transfer oil has also come into use as a heating medium for snow-melting systems. Heat-transfer oil appears to have an advantage over glycol-water solutions insofar as stability is concerned. However, its use increases pumping requirements due to its lower specific heat and higher viscosity. Copper and copper-alloy heating components are not recommended for use in oil systems, as they act as catalysts tending to cause oxidation and sludging of the oil.

heating units

Wide latitude in the selection of a heating unit is usually possible. Smaller installations normally use direct-oil or gas-fired heaters. Instantaneous hot-water heaters have been widely used



for smaller systems. Larger systems frequently make use of hot-water boilers. Where steam is available, steam-to-water heat exchangers are usually employed. In a number of industrial installations, waste steam is utilized in conjunction with a heat exchanger to satisfy melting requirements.

In sizing the heating unit, consideration should be given to the lower heat-transfer rate of glycol solutions and oil as compared to water. Since the actual capacity of heat-transfer equipment is above its rated capacity, this difference may not be significant. This is particularly true in the case of smaller systems. In some installations, however, it may be necessary to employ a larger unit in order to compensate for the poorer heat-transfer properties of the circulating medium. Data on the heat-transfer coefficient of these fluids should be obtained from their manufacturer.

boiler accessories

All fluid-heating systems must provide room for the expansion of the heating medium, and snow-melting systems are no exception. Expansion tanks of both the elevated type and the closed, low-pressure type are in use. In this respect standard practices of hot-water heating systems may be followed. Provision should also be made for adding anti-freeze solution or transfer oil to the system. Where ethylene glycol solutions are used, precaution should be taken to avoid any possible back-siphoning of the glycol solution into the potable water supply, as ethylene glycol is poisonous when taken internally.

controls

For smaller systems, including most residential installations, the only controls usually employed are an on-and-off switch and an aquastat to prevent overheating. In larger systems, or those with thicker paving and consequently slower heating, more complicated control systems are normally used. Such systems may incorporate an aquastat to control the fuel valve and/or the circulating pump. When the heat is supplied by a coil in an existing boiler, the proper temperature of the heating fluid in the snow-melting system is obtained by a proportioning valve which by-passes enough of the cold fluid around the heater to bring the resulting mixture to the proper temperature. The out-put temperature of most systems may be varied somewhat according to the demand of the snow-melting system.

costs—installation

It is estimated that a home owner who, for example, merely wants a simple system capable of clearing two tracks on a 50′ driveway, can have a snow-melting system for approximately $300. In most cases, however, it is difficult to generalize where installation costs are concerned, due to the many variables involved.

Such variables include design; pipe; fittings and accessories; heat exchanger or boiler; circulating pumps; controls; field vs. shop fabrication of heating coils or grids; and type of insulating medium. The prevailing labor rate also significantly affects installation cost. Reinforcing, excavation, and other costs are usually considered separately, since—unless the installation requires renovation of existing structures—these costs are present regardless of whether a snow-melting system is installed.

Computation of cost per sq ft is the most common means of placing a price tag on a snow-melting installation. An approximate figure for a small installation is $2 to $3 per sq ft, while a larger installation is sometimes possible at a cost of less than $1 per sq ft.

costs—operational

Actual cost of automatically melting snow is dependent on these factors: installation size, melting rate, type of construction, circulating-water temperature, heat loss, type and cost of fuel, type of controls, and length and periods of operation.

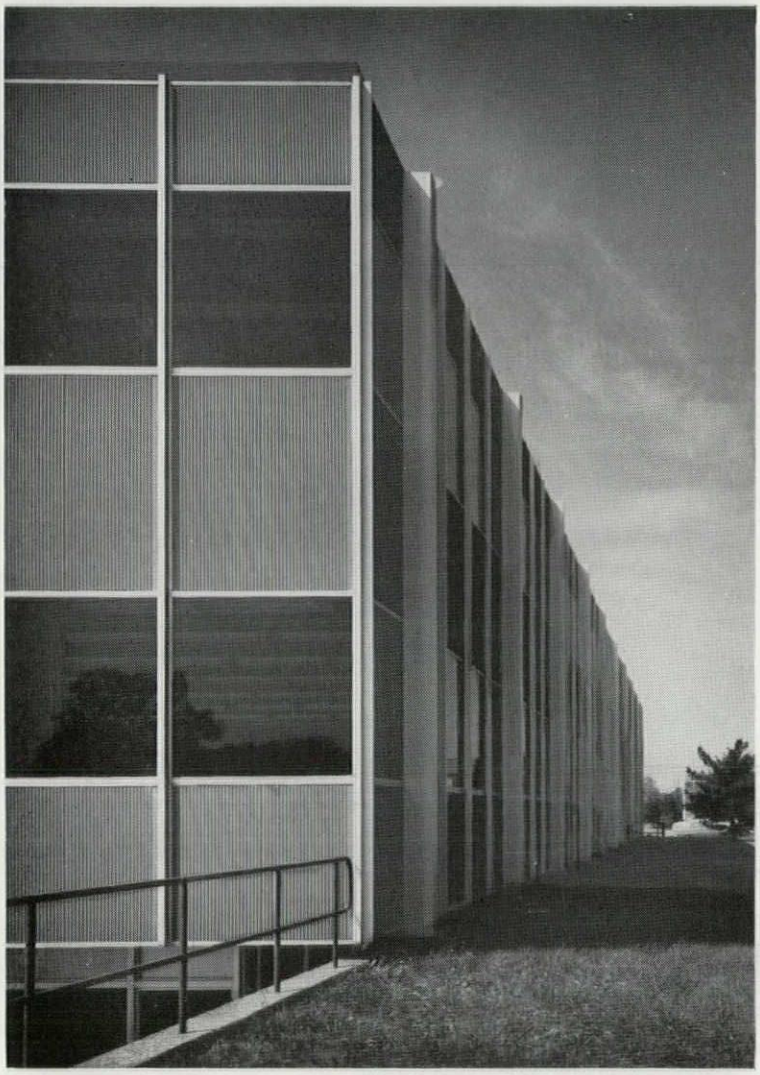
Figures available show one operation costs 5¢ to 7¢ per 1000 sq ft, per in. of snow melted, utilizing 130 F water. Additional data shows metered steam from a central-heating station providing an operating cost for another installation of 11½¢ per 1000 sq ft, per in. of snow melted.

American Iron & Steel Institute reports operating costs range from 7¢ to 15¢ per 1000 sq ft, per in. of snow melted. Using 11¢ as an average, a 10′ x 100′ sidewalk costs 66¢ to clear after a 6″ snowfall.

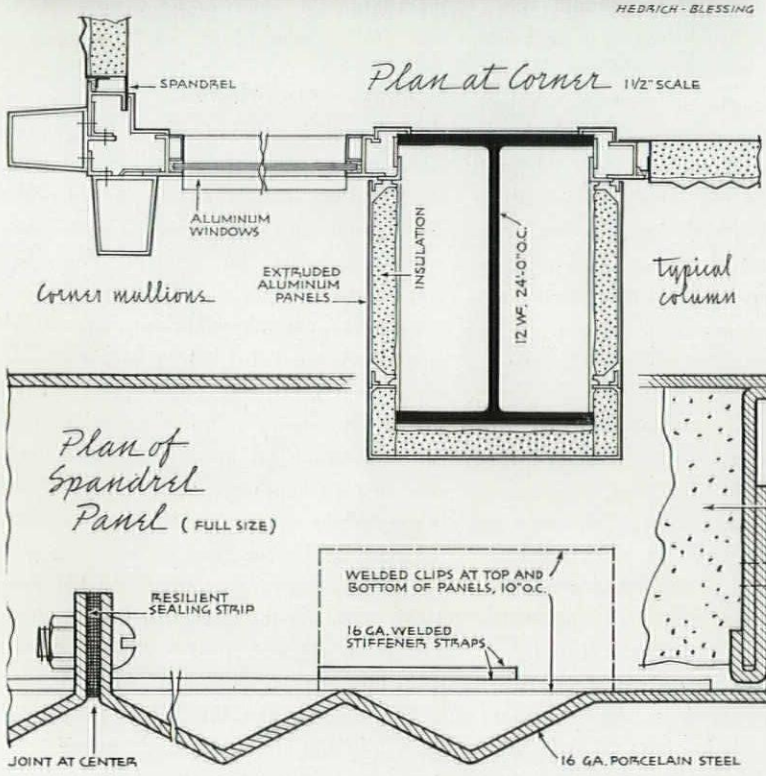
The figures are far below those required to employ a man—and his shovel. Any owner would do well to consider the merits of a snow-melting installation.

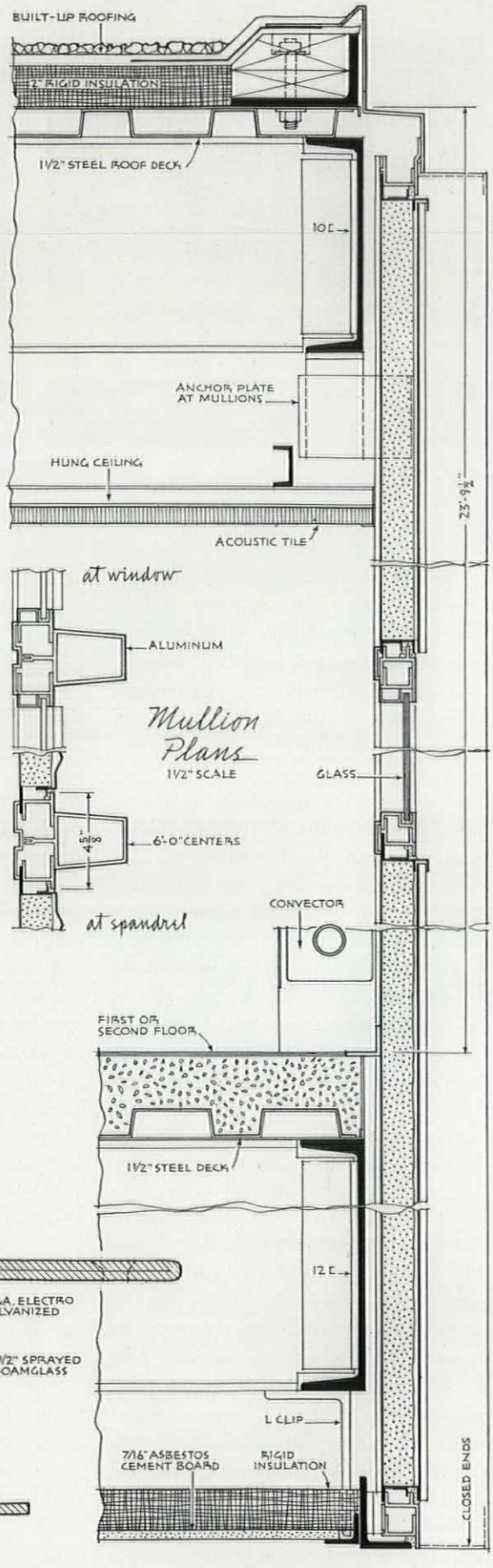
p/a selected detail

wall section



HEDRICH - BLESSING

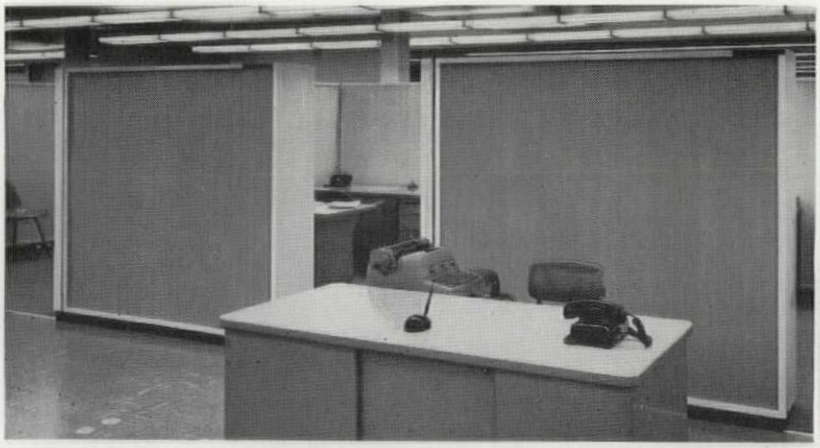


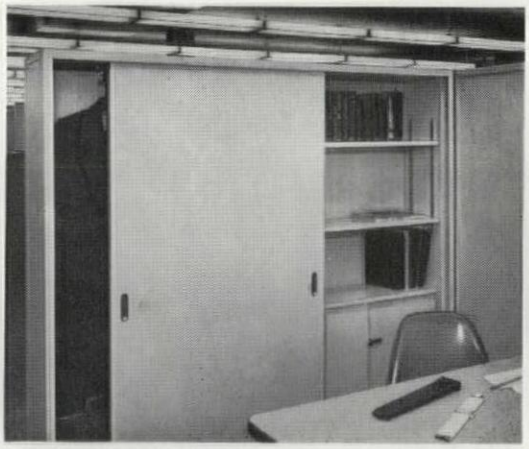


OFFICE HEADQUARTERS, St. Louis, Missouri

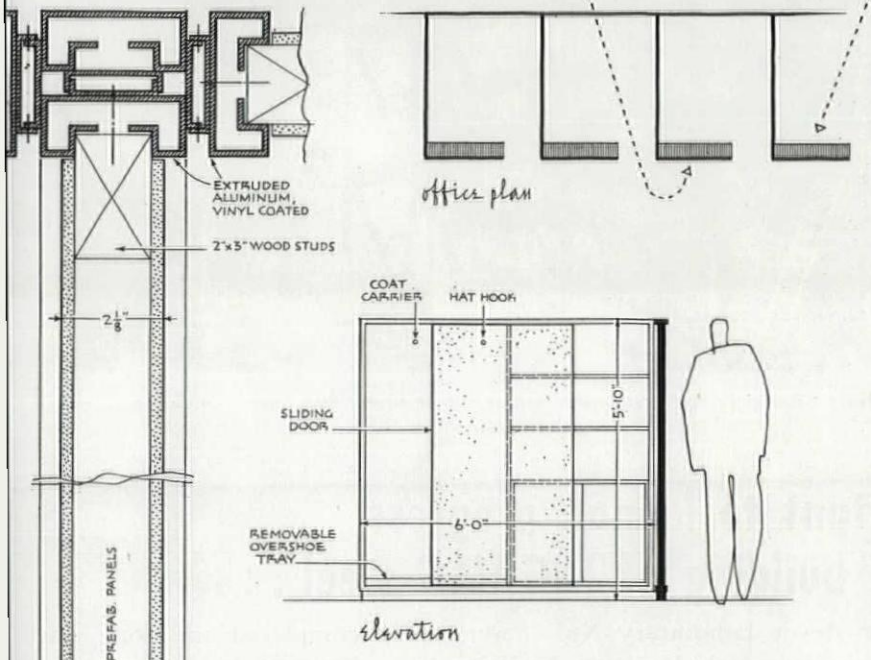
Vincent G. Kling, Architect

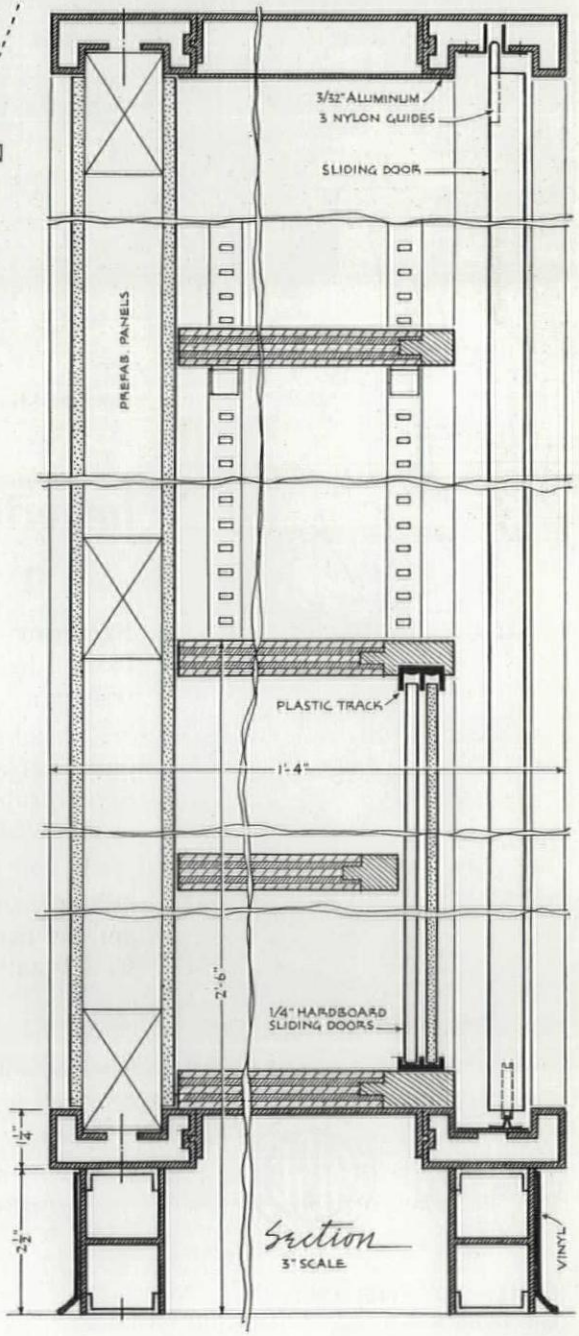
storage wall





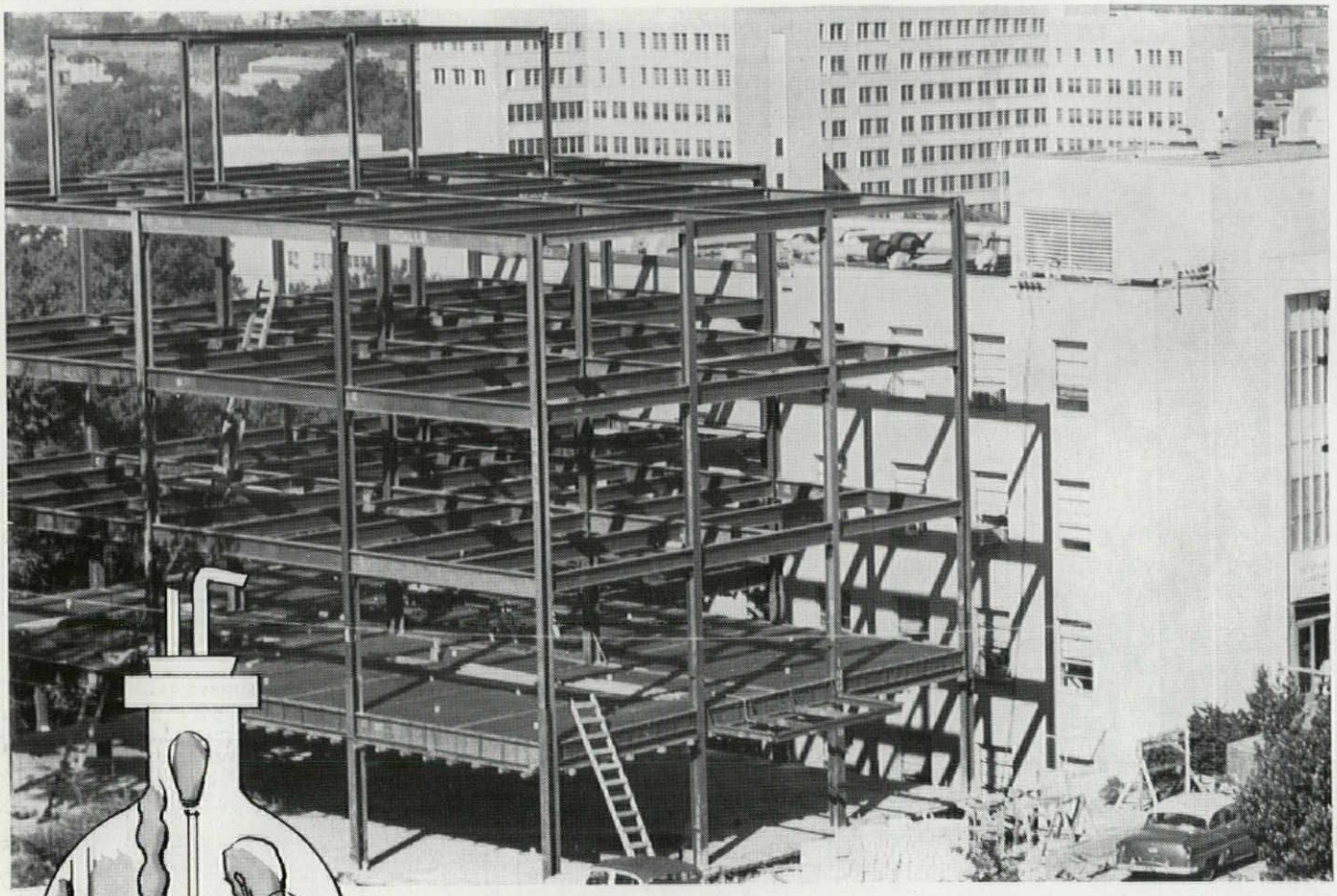
LAWRENCE S. WILLIAMS





OFFICE HEADQUARTERS, St. Louis, Missouri

Vincent G. Kling, Architect



Kettering-Meyer Laboratory No. 2 at Southern Research Institute, Birmingham, Alabama
Shown here under construction.

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The Golden Door Restaurant, New York International Airport Designed by the Knoll Planning Unit. Scott Hyde photograph

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May we send you information on the Knoll office furniture collection and international facilities?

Barbara J. Melnick

hotel and motel guest rooms

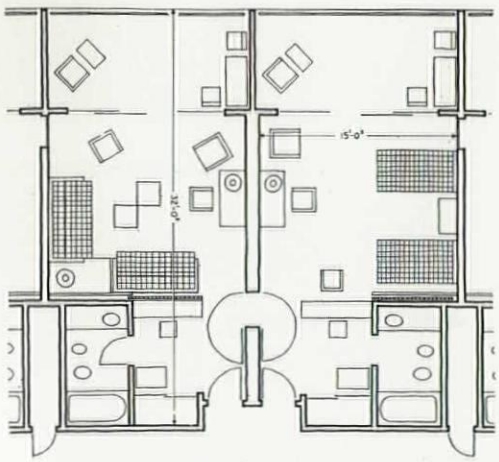
An aura of repose, a place for vacation privacy, is offered the guest in each of the four living-sleeping rooms presented here. These are rooms oriented toward the outdoors, with generous windows or glass walls which open onto balconies, visually and actually extending the rooms themselves. These are self-contained units, the living-room environment undisturbed by bath and dressing facilities visually removed by partitions. Pale, neutral colors provide calm, restful backgrounds; plastic surfaces, metal and wicker furniture ease maintenance; carpeting and natural woods add quiet elegance, the luxury of rich textures without pretentiousness or flamboyance.

At Havana Hilton, the room not only opens through its private balcony to the tropical climate and view but also evokes the Cuban atmosphere of gaiety and brilliance, the love of color and light, by its contrasts: deep blues, greens, turquoise, the solidity of dark-stained furniture—with off-white walls. The studio room doubles as bedroom or sitting room of a two- or three-room suite.

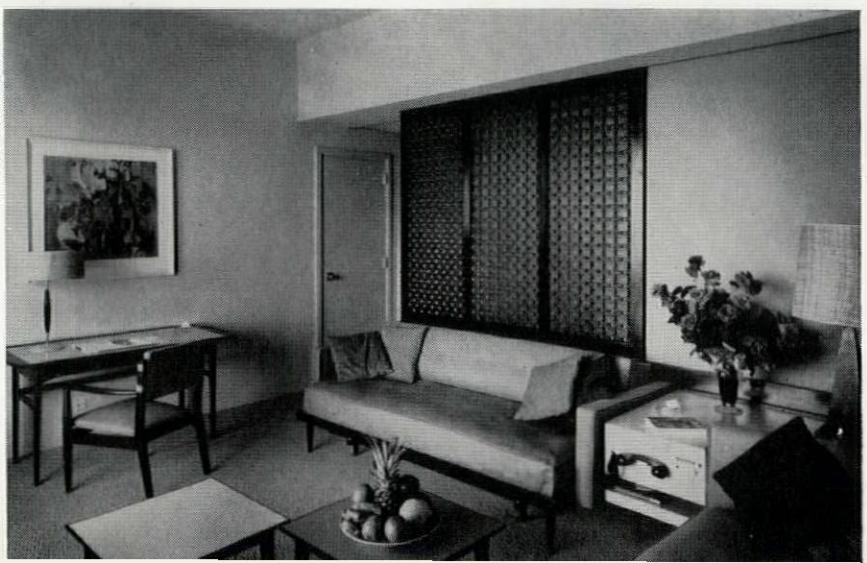
At Rickey's, privacy is provided by combining glass doors with louvers and redwood sunscreens to deflect sound from the garden court (and to filter light in changing patterns). Redwood, rough textures, and earth colors unite rooms with exterior. Ground-floor rooms have balconies; others, enclosed sun-lounging areas.

At Motel on the Mountain, each room in the typical four-unit building has a dramatic view; the inner rooms from balconies, outer ones from corner windows. Special two-unit suite (nearby companies entertain here) shows superior use of easily cared for, inexpensive finishes; wood trim which unites interior and exterior; sense of space created by rising ceiling, built-ins. Subtle, calm colors echo land outside; enriched by woods, stoneware counter tops.

The simple and direct design approach at Casa Montego is discussed on the last page of this section.



Photos: Lionel Freedman



client	Hilton Hotels International, Inc.
location	Havana, Cuba
architect	Welton Becket & Associates
associated architect	Arroyo & Menendez

data

cabinetwork, partitions

Sliding Partition: dark-stained mahogany/particle board/custom-made.

doors, windows

Doors: painted room color. **Balcony Doors:** sliding/glass/imported from England; anodized satin-aluminum frame/Kawneer Co., 1105 N. Front St., Niles, Mich.; custom-made. **Draperies:** turquoise, gold, white/weather-resistant coated outside fabric/David & Dash, 2445 N. Miami Ave., Miami, Fla.; sailcloth/Quaintance Fabrics, 18 E. 53 St., New York, N. Y. **Casements:** linen and cotton/white, green-black print/Gene McDonald, Inc., 601 Madison Ave., New York, N. Y.

equipment

Air Conditioners: Individual room control/concealed in dressing room ceiling/General Electric Co., Appliance Park, Louisville 1, Ky.

furniture, fabrics

Beds: green Spun Saran, gold lurex headboard/olive rayon and cotton spread/Cohn-Hall-Marx Co., 214 Madison Ave., New York, N. Y. **Desk:** stained mahogany/beige plastic top/custom-made. **Chairs:** green Spun Saran, gold lurex/Cohn-Hall-Marx Co.; stained mahogany/Interiors, Havana. **Tables:** stained mahogany/middy blue, yellow cream plastic tops/Knoll International, Havana. **Telephone/Radio Cabinet:** stained-mahogany/beige plastic front, top/custom-made. **Balcony Chairs:** rattan/anodized gold aluminum/Troy Sunshade Co., 1 Park Ave., New York, N. Y.

lighting

Installed: flush Fresnel lens/General Electric Co. Nela Park, Cleveland, Ohio. **Lamps:** beige baked enamel, brass/Lightolier, Inc., 346 Claremont Ave., Jersey City, N. J.; stained-mahogany/Havana; shades/Mutual Sunset Lamp Mfg. Co., Inc., 350 Fifth Ave., New York, N. Y.

walls, ceiling, flooring

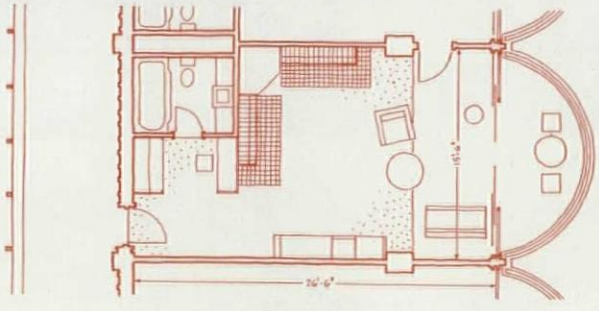
Walls: smooth plaster/painted warm off-white. **Ceiling:** sprayed-on acoustic/mineral acoustic tile/Johns-Manville Corp., 22 E. 40 St., New York, N. Y. **Carpet:** wool/two-pile/turquoise, blue/Bigelow-Sanford Carpet Co., Inc. 140 Madison Ave., New York, N. Y. **Balcony Flooring:** precast terrazzo tiles/black, white, brown/Cuba.

accessories

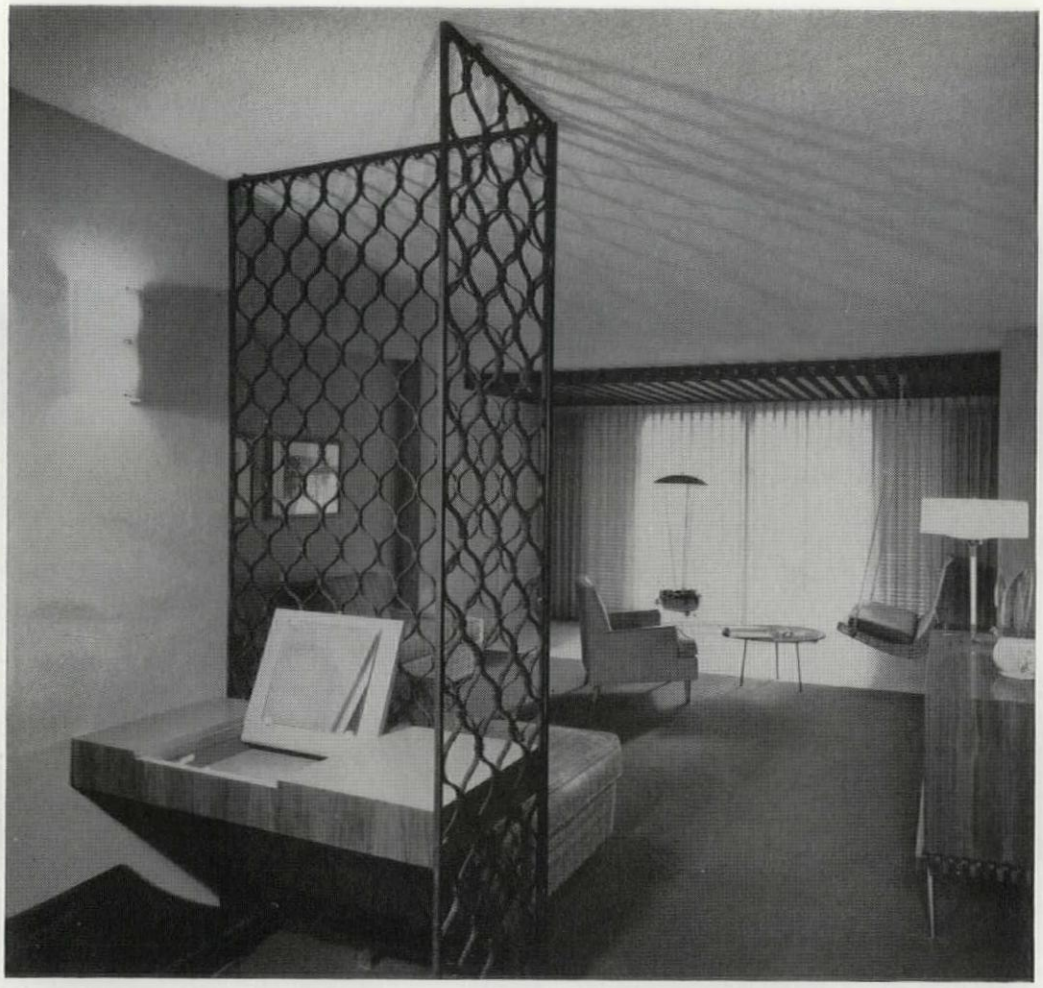
Ashtrays: Ad-Pac Co., 3022 S. Robertson Blvd., Los Angeles 36, Calif. **Wastebaskets, Desk Pads:** Erwyn Products Co., 323 E. 48 St., New York, N. Y. **Vases:** Libbey Glass Div., Owens-Illinois Glass Co., 100 Ash, Toledo, Ohio. **Reproductions:** of Cuban work/National Serigraphic Society, 38 W. 57th St., New York, N. Y. **Ceramics, Pillows:** Havana, Cuba.

guest rooms

Photos: Karl H. Riek



client	Rickey's Studio Inn Garden Hotel
location	Palo Alto, California
architect	Office of Ernest J. Kump
project architect	John C. Worsley
chief designer	Arthur B. Sweetser, Partner
interior furnishings	W. & J. Sloane, San Francisco



data

cabinetwork, screens

Louver Door Closet: vertical grain softwood/stained Driftwood gray/Samuel Cabot, Inc., 141 Milk St., Boston, Mass. **Wrought-Iron Screen:** black/imported from Austria.

doors, windows

Doors: flush wood/stained **Driftwood** gray/Samuel Cabot, Inc. **At Balcony:** sliding/glass/gold-anodized **aluminum** frame/Trimview/W. P. Fuller & Co., 301 Mission St., San Francisco, Calif. **Louvers:** millwork/off-white/screen cloth backing. **Draperies:** beige/outside nubby silk and cotton/inside, casement with gold threads/Cohama Div., Cohn-Hall-Marx Co.

equipment

Balcony Rails: wrought-iron/**black**/Bleiber Iron Works, Palo Alto, Calif.

furniture, fabrics

Wicker Tables, Chairs, Swinging Settee: rattan/black wrought iron/imported from Hong Kong/W. & J. Sloane, 216 Sutter, San Francisco, Calif. **Easy Chair:** red upholstery/Umphred's, 354 Preda St., San Leandro, Calif. **Wood Furniture:** mahogany finish/designed by W. & J. Sloane/custom-made/Charles Pechanec, Pasadena, Calif. **Sofa-bed:** green striped, gray patterned spread/Cohn-Hall-Marx Co. **Dressing Table:** walnut Forica top/designed by W. & J. Sloane/custom-made/Charles Pechanec. **Dresser on Slat Bench:** walnut/designed by W. & J. Sloane/custom-made.

lighting

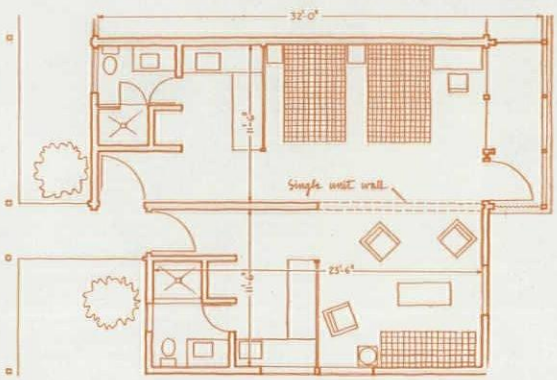
Hanging Fixture: brass/designed by W. & J. Sloane/custom-made/Alfred J. Casella, Custom Lighting, 1243 Sutter, San Francisco, Calif. **Floor Lamp with Planter:** imported from Vienna.

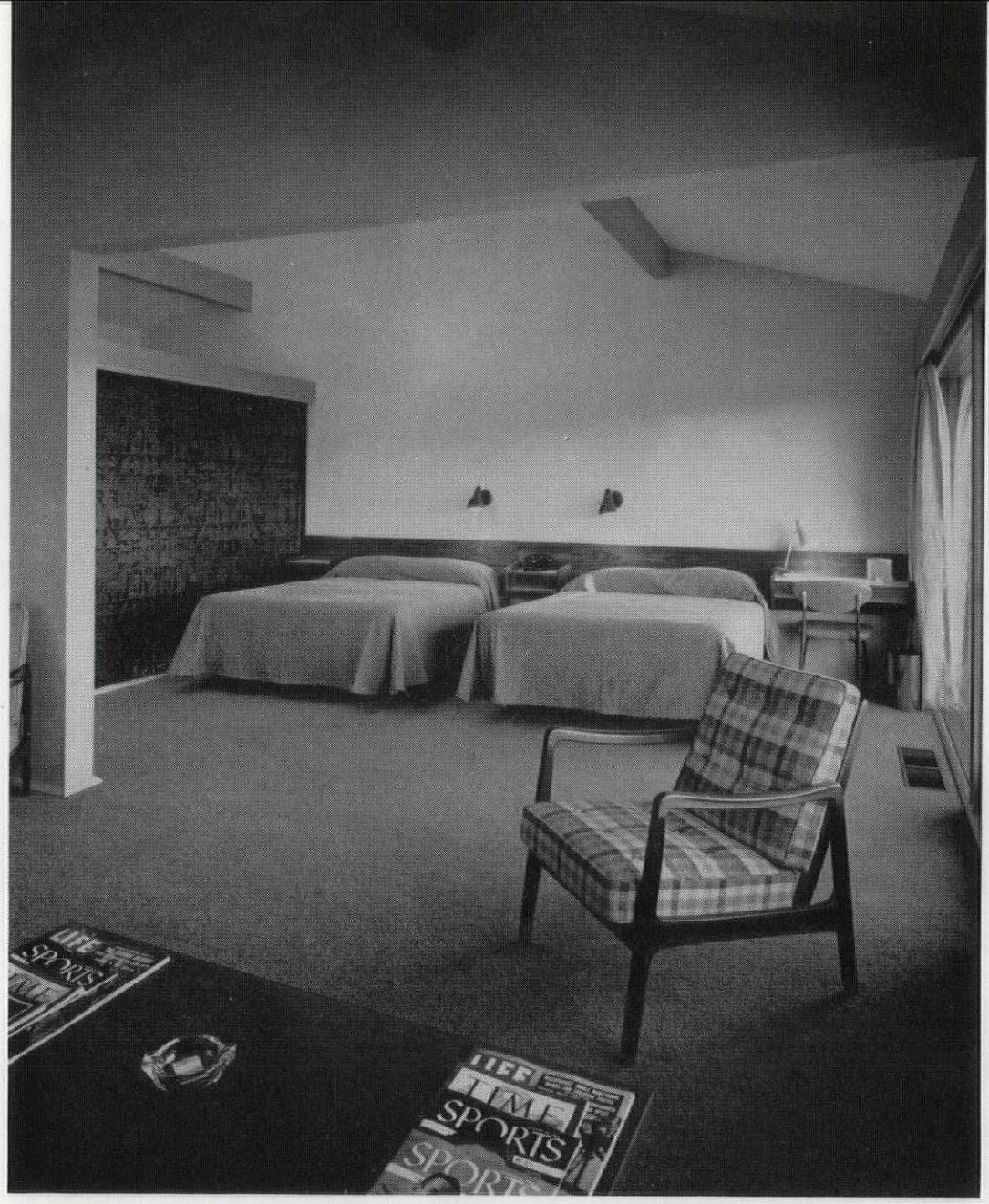
walls, ceiling, flooring

Walls: rough texture plaster/integral color paint, warm tan-gray/California Stucco Products Co., 1850 E. 25 St., Los Angeles, Calif. **Walls Behind Beds:** grasscloth or burlap/Wallpapers, Inc., 1136 Sutter, San Francisco, Calif.; Deco Fabs/Wall Fabrics, Inc., Paterson, N. J.; Fabrikona/Chandler Mfg. Co., Inc., 100 Old Colony Ave., East Taunton, Mass. **Ceiling:** dashcoat plaster/off-white/texture of concrete formboard pattern/California Stucco Products Co. **Sun Lounge Flooring:** ceramic tile, ground floor/pale yellow/handmade; other floors, coco matting/natural color/imported from Holland. **Carpet:** ground floor, red Trendtex; others, gold, bisque, turquoise stripe/custom-made/Mohawk Carpet Mills, Inc., Amsterdam, N. Y.

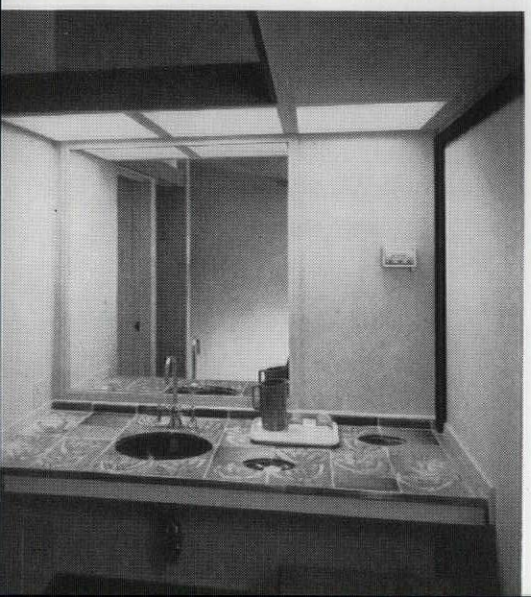
guest rooms

Photos: Alexandre Georges





client — The Motel on the Mountain
location — Suffern, New York
associated architects — Perkins & Will and Harwell Hamilton Harris
interior design associate — Lenore Schwartz



data

cabinetwork, partitions

Built-In Sink Counter: brown-stoneware tiles/custom-made/David Weinrib and Karen Karnes, Stony Point, N. Y.; custom-built/William Hanst, General Contractor, Cresskill, N. J. **Panel Dividing Bedroom, Dressing Room:** wood/covered with Chinese-rubbing wallpaper/Pippin Papers, 515 Madison Ave., New York, N. Y.; custom-built.

doors, windows

Balcony Door: glass/wood sash painted brown-green/Douglas Fir Plywood Assoc., Tacoma 2, Wash.; custom-built. **Balcony:** wood panels, louvers/natural stain/custom-built. **Draperies:** natural linen/Konwiser Fabrics, Rowen, Inc., 1 E. 53 St., New York, N. Y.

equipment

Air Conditioner: individual room control/Carrier Corp., Carrier Bldg., Syracuse 1, N. Y.; Worthington Corp., 426 Worthington Ave., Harrison, N. J.

furniture, fabrics

Headboard/Table/Desk Unit: white Formica/oiled walnut/wall-hung/custom-made/Allan Gould, Revolutionary Rd., Scarborough, N. Y. **Dressing Room Luggage Rack/Bench:** oiled walnut/custom-made/Allan Gould. **Beds:** gray cotton spreads/Cohama Div., Cohn-Hall-Marx Co. **Arm Chairs:** oiled walnut/John Stuart, Inc., Fourth Ave. & 32 St., New York, N. Y.; gold Saran upholstery/L. Anton Maix, 162 S. 59 St., New York, N. Y. **Desk Chair:** steel/black or beige Naugahyde upholstery/Crucible D Products, 67 Vestry St., New York, N. Y.

lighting

Built-In Dressing Room Soffit, Bedroom Valance: Industrex glass diffuser/Blue Ridge Glass Corp., Kingsport, Tenn.; plywood/Douglas Fir Plywood Assoc.; custom-built. **Lamps:** Gotham Lighting Corp., 37-01 31 St., Long Island City, N. Y.; Lightolier, Inc.

walls, ceiling, flooring

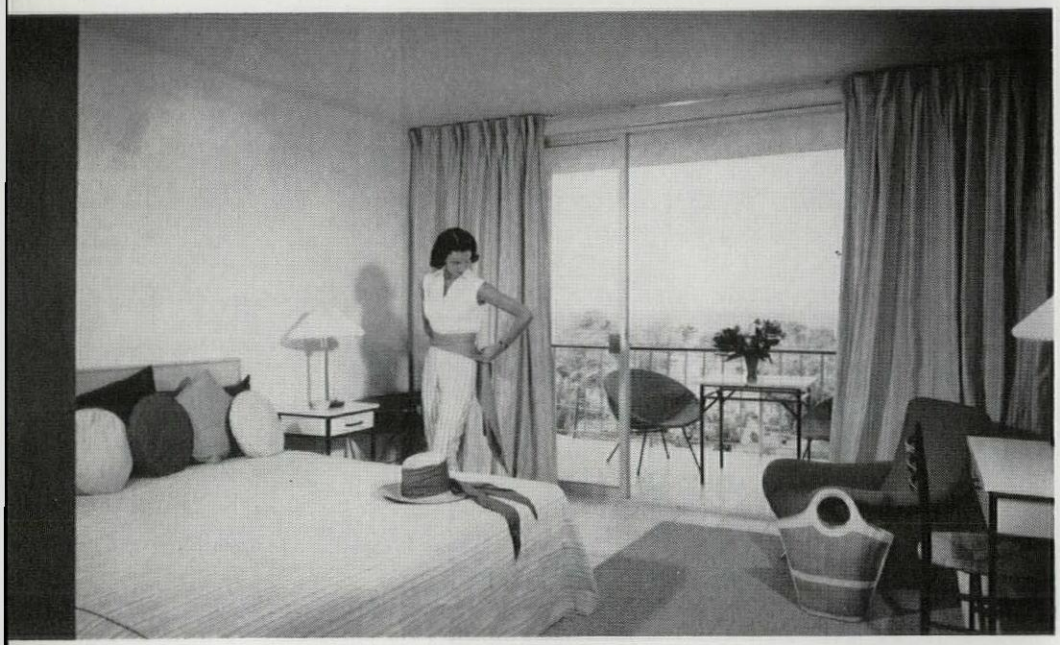
Walls: gypsum board/Plextone spray paint/ivory/speckled surface/National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y.; Plextone Corp. of America, 2141 McCarter Hghwy., Newark, N. J. **Ceiling:** gypsum board/off-white Plextone paint/National Gypsum Co.; Plextone Corp. of America. **Wood Trim, Beams, Soffits:** painted light sienna. **Carpet:** wall-to-wall/orlon and wool/gray/Weil Bros. Textiles, Inc., 1 Park Ave., New York, N. Y.

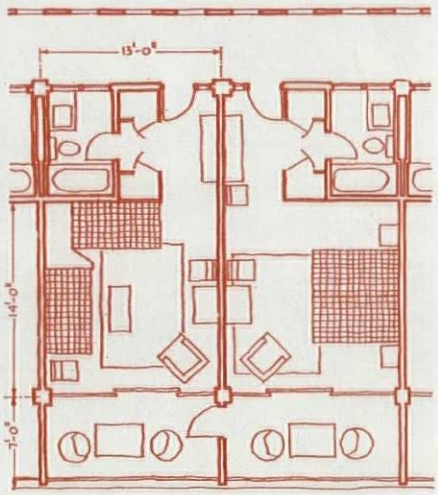
accessories

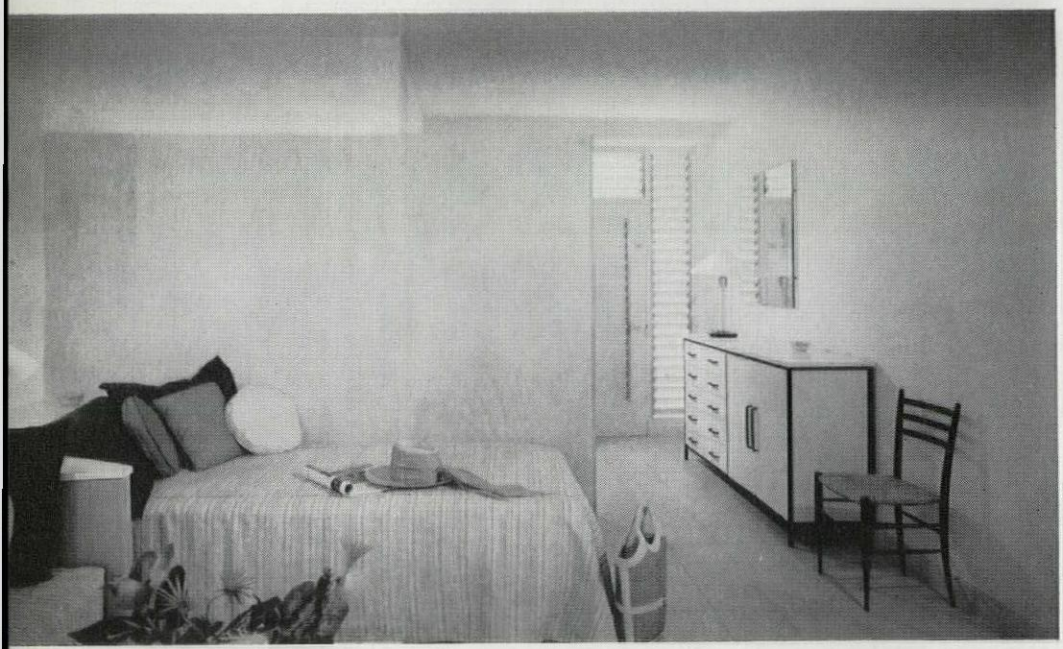
Ashtrays: Straus Duparquet, Inc., 33 E. 17 St., New York, N. Y.

guest rooms

client	Casa Montego Hotel
location	Montego Bay, Jamaica, B.W.I.
architect	Ballard, Todd & Snibbe
interior design associate	The T. Eaton Company, Ltd.







Photos: Alexandre Georges

data

Design Theory: In this pleasant, extremely simple and direct room, the architects have devised an ingenious corner fitting designed to hold luggage. Occupying only 18" of corner space, it separates beds, saves enough space to permit two additional rooms per floor.

Color Plan: Cool white background is accented with multicolored cushions, red telephone, yellow and black in bureau, desk.

cabinetwork, partitions

Headboard/Luggage Storage Unit: white plastic-laminate top/creamy brown African limba/Dominion Metalware Industries Ltd., Port Credit, Ont., Canada. **Partition:** creamy brown plywood panel/African limba/divides bedroom from dressing room.

doors, windows

Doors: wood/painted off-white/custom-made/Jamaica. **Balcony Doors:** sliding/glass/aluminum frame/Daryl Products Corp., 7240 N.E. Fourth Ave., Miami, Fla. **Drapery:** light brown, white custom-weave/designed by The T. Eaton Co., Ltd., 190 Yonge, Toronto, Ont., Canada.

equipment

Hardware: P. & F. Corbin, New Britain, Conn. **Air Conditioner:** individual window units/Carrier Corp.

furniture, fabrics

Side Chairs: wood/painted black/straw color woven seat/E. Delmonte, Chiavari, Italy. **Easy Chair:** muted orange upholstery/Bay & Co. (Arflex), Milan, Italy. **Dresser, Desk, Bedside Table, Terrace Table:** black metal frames/yellow, white metal/dresser holds blankets, desk, liquor storage/Dominion Metalware Industries, Ltd. **Coffee Table:** white marble top/Pisani Bros., Carrara, Italy; wrought-iron legs/Dominion Metalware Industries, Ltd. **Balcony Chairs:** rattan/straw color/imported from Hong Kong. **Bed:** light brown, white custom-weave spread/designed by T. Eaton Co., Ltd.

lighting

Lamps: Ramsay Lamps & Shade Mfg. Co., Ltd., 52 Wellington E., Toronto, Ont., Canada.

walls, ceiling, flooring

Walls: plaster/painted off-white. **Ceiling:** plaster/painted off-white/United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill. **Flooring:** cement tile/off-white pattern/Jamaican-made. **Rugs:** grass/straw color/imported from Hong Kong.

accessories

Cushions, Pillows: multicolored covers/Toronto Feather & Down Co., Ltd., 2154 Dunds W., Toronto, Ont., Canada. **Luggage Stand:** Featherweight Aluminum Products, Montreal, Quebec, Canada.

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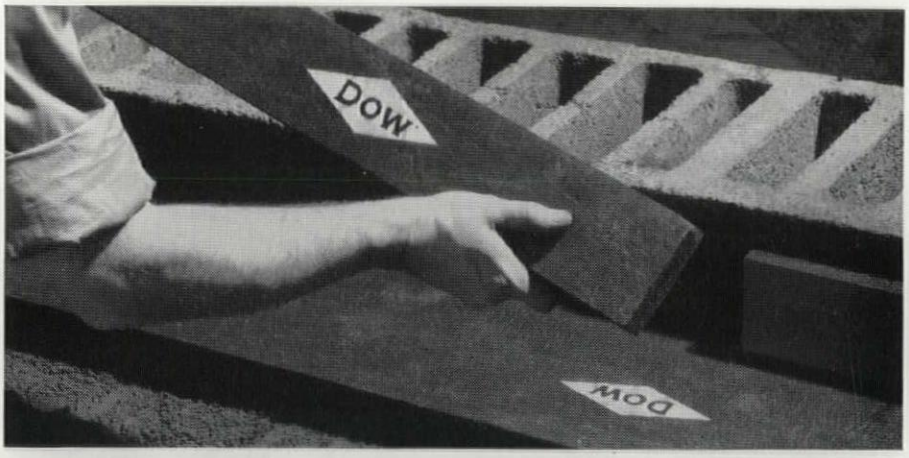

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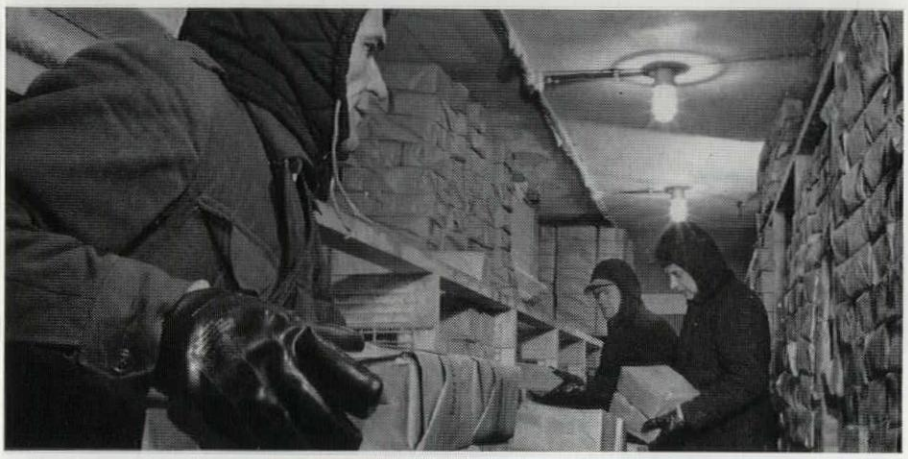
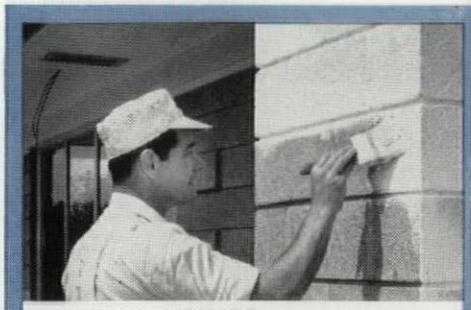
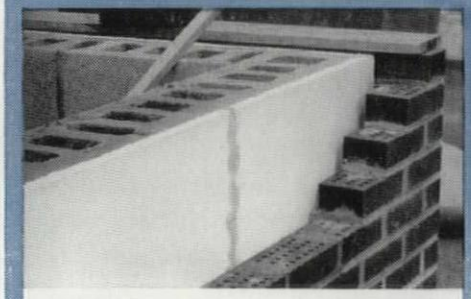
Its lasting, low "K" factor and unique combination of most-wanted properties make Styrofoam an unmatched low-temperature space insulation. This very light and rigid insulating material offers high compressive strength and an ideal surface for bonding or plastering. It is unaffected by water or water vapor and won't sustain mold growth. Styrofoam retains its original insulating value permanently, from 170°F. down through sub-zero temperatures. With Styrofoam you can count on more for your insulating dollar.



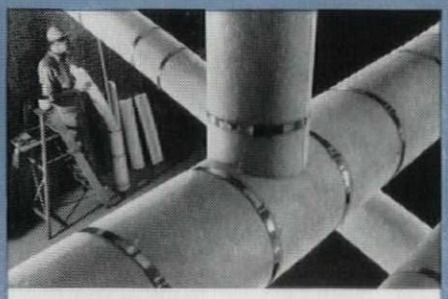


LATEX PAINTS *provide stay-fresh beauty* on exterior masonry surfaces. Controlled chalking makes them self-cleaning. They're colorful, attractive for years. Dow supplies latex to leading paint manufacturers.

PELASPAN 8 *makes an ideal curtain wall insulation.* New Dow polystyrene beads can be expanded by manufacturers. Foam made from Pelaspan 8 offers low "K" factor and light weight that mean handling ease.



STYROFOAM *keeps cavity walls dry* . . . provides all-important vapor seal . . . insulates against extremes in temperature . . . retains its original insulating properties indefinitely for long-term satisfaction.



STYROFOAM *stops costly heat gain* in low-temperature piping systems . . . prevents condensation and dripping . . . stays trim and effective without maintenance . . . assures top performance at surprisingly low cost.

ANY QUESTIONS?

Detailed information on any or all of these Dow building products is readily available. Write to us on your letterhead and let us help you make the most of these products of chemical research for the construction industry.

Specify
DOW BUILDING PRODUCTS
for your designs

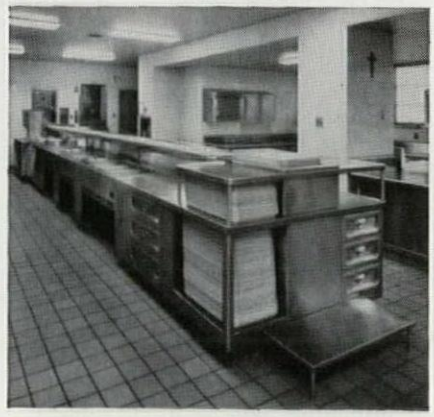
SARALOY* 400 • SCORBORD*
STYROFOAM* • PELASPAN* 8
LATEX • ROOFMATE*
POLYFILM*

*TRADEMARK

THE DOW CHEMICAL COMPANY
Midland, Michigan

DOW

Across The Nation They Specify...



"Custom-Bilt by Southern"

for any

Food Service Operation

For years Southern has led the food serving equipment industry in creating and designing equipment to meet any need. No matter how difficult your food service problem may be, "Custom-Bilt by Southern" can be designed, engineered, fabricated and installed to fit your particular requirements.

Your "Custom-Bilt by Southern" Dealer can give you expert help from initial analysis of your food service problem—through complete installation and dependable maintenance. Consult your "Custom-Bilt by Southern" Dealer today, or write Southern Equipment Co.

"CUSTOM-BILT BY SOUTHERN" DISTRIBUTORS

ALABAMA, BIRMINGHAM—Vulcan Equip. & Supply Co.; MOBILE—Mobile Fixture Co. **ARKANSAS,** LITTLE ROCK—Krebs Bros. Supply Co. **FLORIDA,** DAYTONA BEACH—Ward Morgan Co.; JACKSONVILLE—W. H. Morgan Co.; MIAMI—J. Conkle, Inc.; ORLANDO—Turner-Haack Co.; ST. PETERSBURG—Staff Hotel Supply Co.; TAMPA—Food Service Equip. Co., Inc. **GEORGIA,** ATLANTA—Whitlock Dobbs, Inc. **ILLINOIS,** PEORIA—Hertzel's Equip. Co. **INDIANA,** EVANSVILLE—Weber Equip. Co.; INDIANAPOLIS, MARION—National China & Equip. Corp. **IOWA,** DES MOINES—Bolton & Hay. **KENTUCKY,** LEXINGTON—Heilbron-Matthews Co. **LOUISIANA,** NEW ORLEANS—J. S. Waterman Co., Inc.; SHREVEPORT—Buckelew Hdwe. Co. **MASSACHUSETTS,** BOSTON—Thompson-Winchester Co., Inc. **MICHIGAN,** BAY CITY—Kirchman Bros. Co.; DETROIT—A. J. Marshall Co.; GRAND RAPIDS—Post Fixture Co. **MINNESOTA,** MINNEAPOLIS—Aslesen Co.; ST. PAUL—Joesting & Schilling Co. **MISSOURI,** KANSAS CITY—Greenwood's Inc.; ST LOUIS—Southern Equipment Co. **MONTANA,** BILLINGS—Northwest Fixture Co. **NEBRASKA,** OMAHA—Buller Fixture Co. **NEW YORK,** ALBANY—Lewis Equip. Co. **NORTH CAROLINA,** ASHEVILLE—Asheville Showcase & Fixture Co.; CHARLOTTE—Hood-Gardner Hotel Supply Corp. **NORTH DAKOTA,** FARGO—Fargo Food & Equip Co. **OHIO,** CINCINNATI—H. Lauber & Co.; CLEVELAND—S. S. Kemp Co.; COLUMBUS—General Hotel Supply; TOLEDO—Rowland Equip. Co.; YOUNGSTOWN—W. C. Zabel Co. **OKLAHOMA,** TULSA—Goodner Van Co. **PENNSYLVANIA,** ERIE—A. F. Schultz Co.; PITTSBURGH—Flynn Sales Corp. **SOUTH CAROLINA,** GREENVILLE—Food Equipment Co. **TENNESSEE,** CHATTANOOGA—Mountain City Stove Co.; KNOXVILLE—Scruggs, Inc.; MEMPHIS—House-Bond Co.; NASHVILLE—McKay Cameron Co. **TEXAS,** CORPUS CHRISTI—Southwestern Hotel Supply, Inc.; SAN ANTONIO—Southwestern Hotel Supply, Inc. **UTAH,** SALT LAKE CITY—Restaurant & Store Equipment Co. **VIRGINIA,** RICHMOND—Ezekiel & Weilman Co. **WEST VIRGINIA,** CLARKSBURG—Parson-Souders Co. **WISCONSIN,** MILWAUKEE—S. J. Casper Co. **CUBA,** HAVANA—Equipos de Bar y Cafeteria, S. A. 1

SOUTHERN®

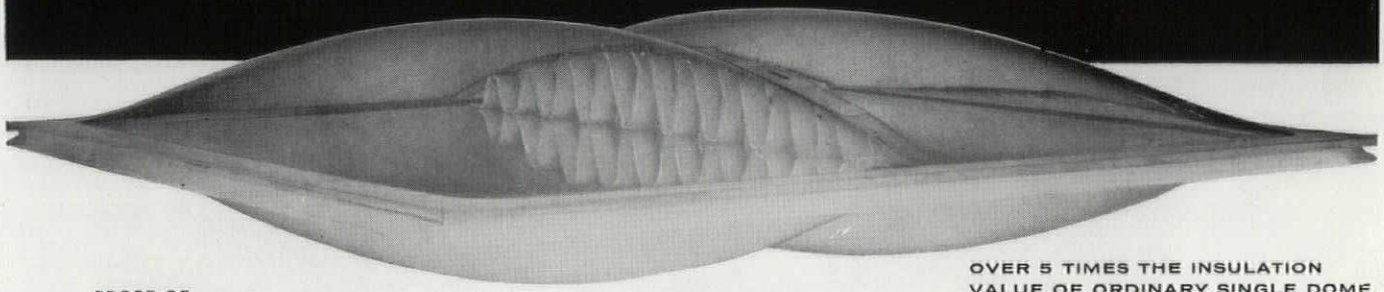
EQUIPMENT COMPANY

4552 GUSTINE

ST. LOUIS 16, MO.

PAM DUBL-DOME SKYLIGHT

eliminates Condensation and Drafts...cuts Heating Bills...reduces Air Conditioning cost



OVER 5 TIMES THE INSULATION VALUE OF ORDINARY SINGLE DOME

PROOF OF Dubl-Dome EFFECTIVENESS

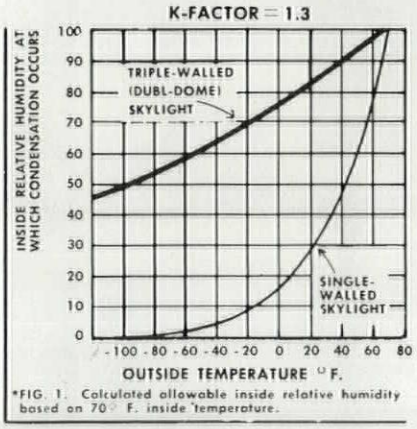


*FIG. 1. Calculated allowable inside relative humidity based on 70° F. inside temperature.

CONDENSATION CURVE

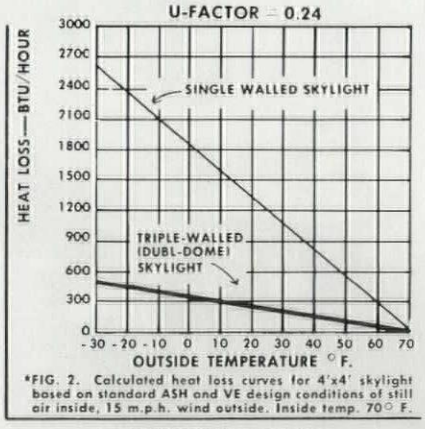


*FIG. 2. Calculated heat loss curves for 4'x4' skylight based on standard ASH and VE design conditions of still air inside, 15 m.p.h. wind outside. Inside temp. 70° F.

HEAT TRANSFER CURVE

These charts show graphically the tremendous effect of the Dubl-Dome skylight in the elimination of condensation and the reduction of heat transfer. Regarding condensation, for example, at a inside temperature of 70° F. and a relative humidity of 45%, condensation would form on a single layer skylight at 38° F. outside temperature. Under like inside conditions, the outside temperature would have to be well under 100° F. below zero before condensation would form on the Dubl-Dome (Triple Layer) skylight.

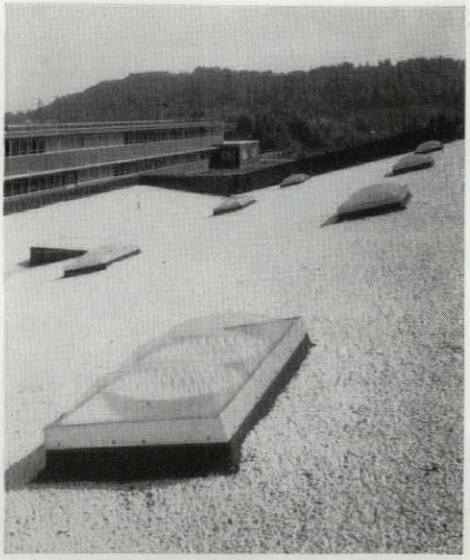
When condensation and heat loss are major factors limiting architectural skylighting design and construction Pam Dubl-Dome Skylights can solve the problem. Constructed of two preformed Plexiglas® domes and a flat center member Dubl-Domes are edge-fused to form a permanently sealed air chamber. The flat center member eliminates the possibility of warping or distortion due to changes in atmospheric pressure. This stress member combined with the truss assures trouble-free performance of even the largest Dubl-Dome units in any climate. All Pam Dubl-Dome skylights are guaranteed against interior condensation.

® Plexiglas is the registered Trade Mark of Rohm and Hass Company

OTHER PROVED ADVANTAGES OF THE PAM SEALED AIR CHAMBER Dubl-Dome SKYLIGHT

- Requires less heating in cold climates
- Requires less air conditioning in hot climates
- Eliminates outside draft and dust because no weepage outlet required
- Provides effective sound barrier
  A very important item in certain types of building such as medical centers and industrial installations in heavy rain areas.
- Mounts on any roof slope

Look for PAM in Sweet's Architectural Catalog 20a
Pa



Showing 8 of 16 Dubl-Domes installed in the James Madison High School.

The Pam Co., 1951 N. W. Wilson St., Portland 9, Oregon

Please Send Me The Following:

- ☐ More detailed information on the Pam Dubl-Dome.
- ☐ Information on the NEW Pam Continuous Plastic Skylight.
- ☐ Send your representative I have a skylighting problem.
- ☐ Send your 1959 catalogue.

NAME_____

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THE **PAM** COMPANY 1951 N. W. WILSON STREET • PORTLAND 9, OREGON • Phone CApitol 8-8321

OFFICE...CLOTHING STORE...BUILDER'S SHOWROOM...

In this elegantly appointed office, the floor is Armstrong Custom Vinyl Cork Tile. So, too, is the wall surfacing in the richly patterned Driftwood Design. **Office in Seagram's Building, NYC. Office architects: J. Gordon Carr & Associates.**

Nowadays, architects can choose from a wide variety of resilient floors. Armstrong is in the unique position of making all types. So, an Armstrong Architectural-Builder Consultant has no bias toward any one type of flooring and can make impartial recommendations for any interior. He can also get you special assistance from the Armstrong Research Center and Bureau of Interior Decoration. Call him at your Armstrong District Office or write to Armstrong Cork Company, 1502 Watson St., Lancaster, Pa.

the flooring spec: Armstrong CUSTOM VINYL CORK TILE

EASY CARE By using Custom Vinyl Cork Tile in this smart men's store (one of the firm's ten), the owners are assured of a spotlessly good-looking floor every minute. The durable vinyl coating makes maintenance easy and economical, eliminates the special care cork tile often needs. And in bad weather during business hours, tracked-in dirt and water can be quickly mopped up. **Broadstreet's, Fifth Avenue, New York City.**

LONG WEAR In this handsome permanent showroom, a home prefabricator displays many different building components side-by-side. Armstrong Custom Vinyl Cork Tile—with its natural luxury—provides an appealing and versatile background. It's highly resistant to indentation from stationary and moving loads and will give many years of excellent service. **Pease Display Center, Pease Woodwork Company, Hamilton, Ohio.**

design features

As its name implies, Armstrong Custom Vinyl Cork Tile combines the natural beauty of cork and the functional advantages of vinyl. An exclusive Armstrong process fuses a thick layer of clear vinyl to the top of a cork mat. This permits the use of much larger pieces of cork than are used in other types of cork tile. The distinctive appearance of this new cork tile creates a feeling of unusual luxury in any interior, commercial or residential. Two stylings are available: the gentle "Natural Design," and the emphatic "Driftwood Design." The latter won an AID First Design Award for 1957.

technical data:

composition: transparent vinyl resins fused with cork

surface resistance: excellent for grease and alkalis

ease of maintenance: superior

underfoot comfort and quiet: very good

static load limits: 125 lbs. per sq. in.

recommended uses: over suspended subfloors and on grade when Armstrong specs are followed

gauge: ⅛"

size: 9" x 9"

design effects: Natural Design 1005 (see floors in accompanying illustrations) and Random Driftwood Design 1006 (see wall in office picture on facing page)

ARMSTRONG FLOORS

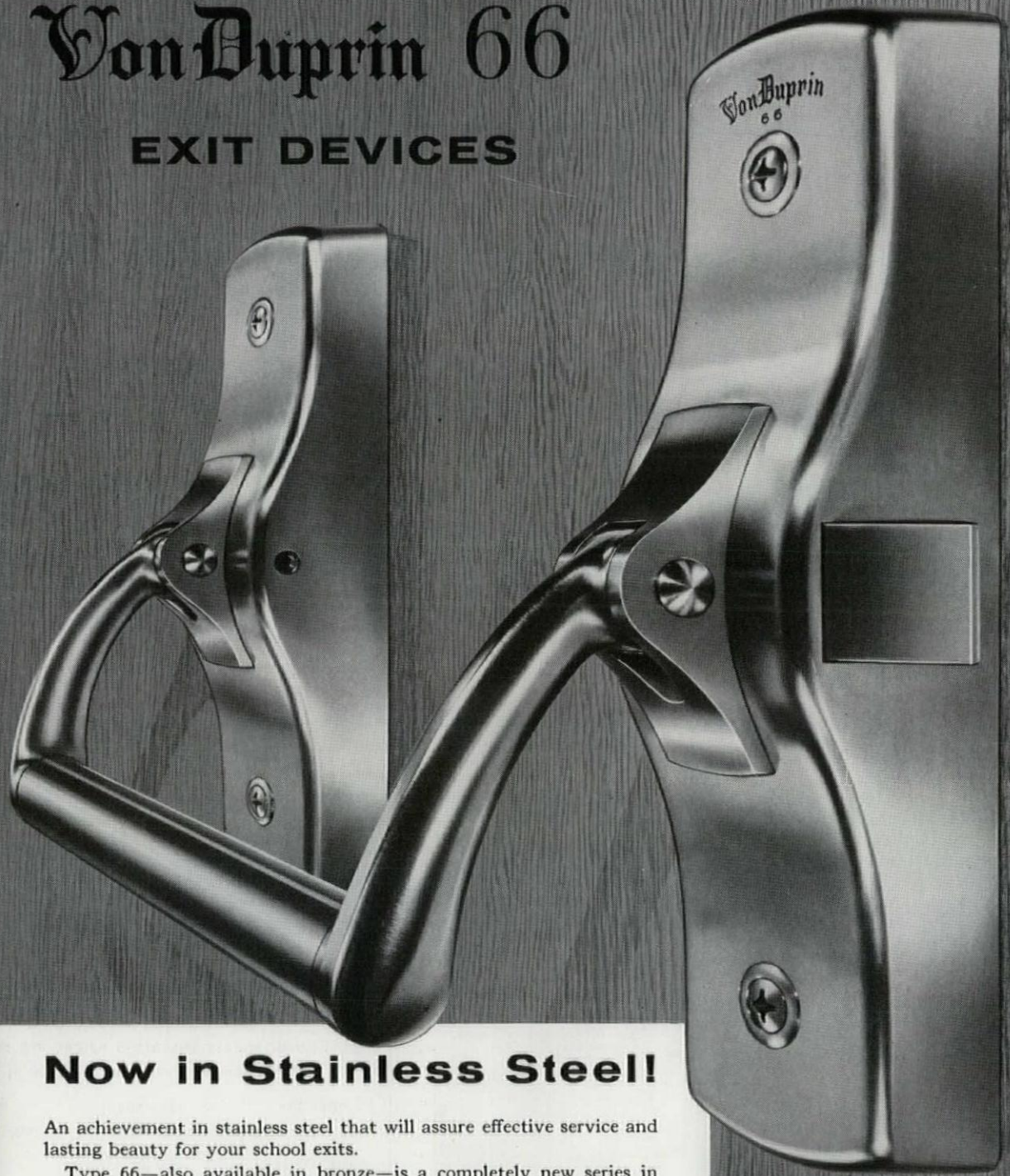
APPROXIMATE INSTALLED PRICES PER SQ. FT.

(Over concrete, minimum area 1000 sq. ft.)

20¢ - 35¢	35¢ - 45¢	45¢ - 60¢
Linoleum Tile	Linoleum Tile	Vinyl Corlon .070"
Asphalt Tile 1/8" (A,B,C,D)	Asphalt Tile 3/16" (C,D)	Linoleum .125"
Asphalt Tile 3/16" (A,B)	Asphalt Tile 1/8", 3/16" (greaseproof)	Cork Tile 1/8"
Linoleum .0625"	Linoleum .125" Battleship	Excelon Tile 1/8" (Vinyl Asbestos)
	Cork Tile 3/32"	
	Excelon Tile .0625" (Vinyl Asbestos)	
60¢ - 70¢	**70¢ - 90¢**	**90¢ and over**
Vinyl Corlon .070" (Hydrocord Back)	Vinyl Corlon .090" (Hydrocord Back)	Custom Corlon Tile 3/32", (Homogeneous Vinyl) 1/8"
Rubber Tile 1/8"	Rubber Tile 3/16"	Custom Vinyl Cork 1/8"
Cork Tile 3/16"	Custom Corlon Tile 3/32", 1/8" (Homogeneous Vinyl)	Opalesq Vinyl Tile 1/8" (Homogeneous Vinyl)
Linotile 1/8"	Cork Tile 5/16"	

Von Duprin 66

EXIT DEVICES



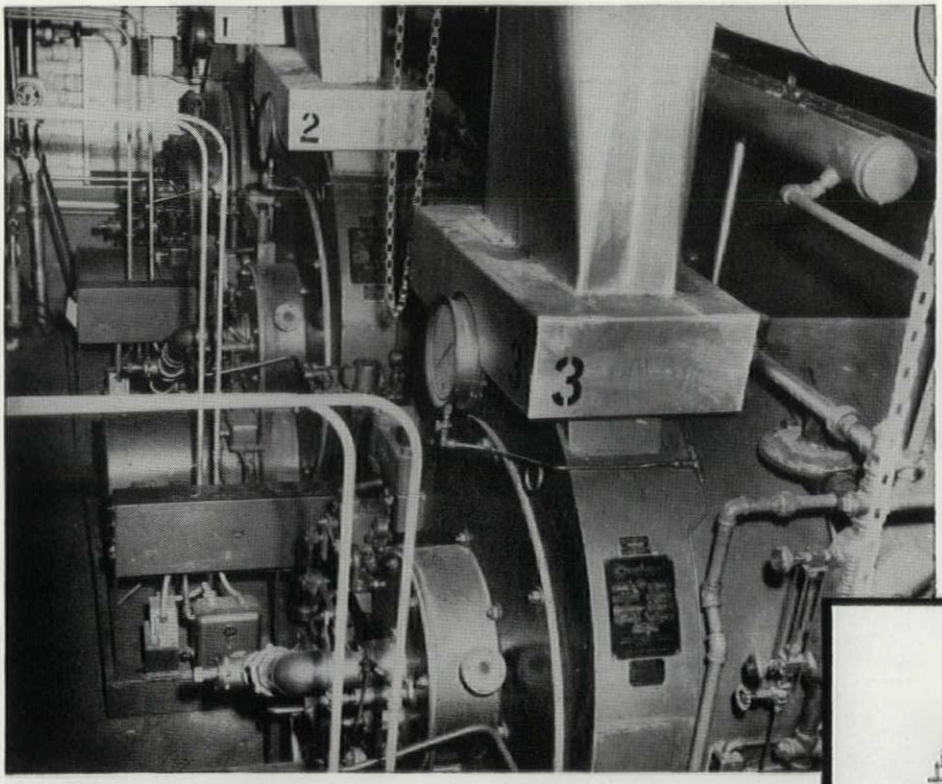
Now in Stainless Steel!

An achievement in stainless steel that will assure effective service and lasting beauty for your school exits.

Type 66—also available in bronze—is a completely new series in rim, mortise lock and vertical rod models, and features a smart new line of matching outside trims.

For the finest expression of "the safe way out!", ask your architect or hardware consultant for full details on the Von Duprin 66. Or write direct for your copy of Bulletin 581.

VONNEGUT HARDWARE CO. • VON DUPRIN DIVISION
INDIANAPOLIS 9, INDIANA

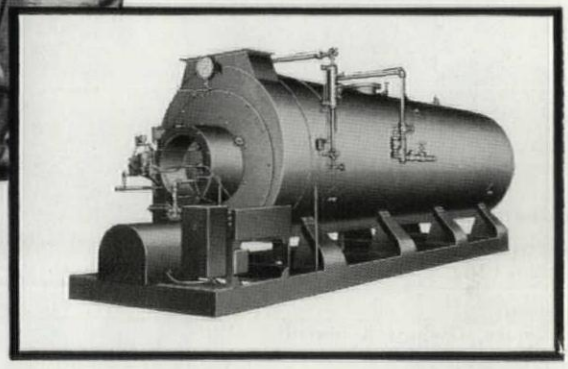


HERCULES-GALION PRODUCTS, Inc., Saves $15,000 Per Year!

Hercules-Galion Products, Inc., of Galion, Ohio, makers of dump truck bodies, ready-mix concrete truck equipment, and steel burial vaults, retired two old style boilers.

To improve heating efficiency, they installed three Cyclotherm 125 h.p. combination light oil/gas package steam generators. The total savings per year comes to $15,000.

As growing production or expanding plant facilities require more steam, Cyclotherms can be added when needed.



CYCLOTHERM

Steam capacity that grows with the plant!

When you recommend Cyclotherm Steam Generators you recommend a steam source that can be quickly and economically expanded to meet plant expansion. For Cyclotherm's wide range of capacities permits the addition of exactly as much new capacity as may be needed at any time. Will 518 lbs. of steam per hr. suit the requirements? That's what a 15 HP Cyclotherm produces. Or are 25,875 more steam lbs. per hour wanted? In that case, a 750 HP Cyclotherm fills the bill. And between these extremes there are sixteen intermediate sizes to choose from.

Compact Cyclotherms are also kind to boiler room space – the Cyclotherm is up to ⅓ smaller than the ordinary package boiler. Installation is easy–no costly stack, no excavation, no foundation. The Cyclotherm is shipped complete – ready to operate. Burner and boiler are built together to work together with *one* manufacturing responsibility back of the entire unit.

Cyclotherm's Cyclonic Combustion guarantees a minimum of 80% efficiency. Larger units operate at from 30% to 100% of rated capacity with no loss of efficiency. Smaller units operate on and off automatically according to load requirements. With simpler design and fewer parts, Cyclotherm reduces maintenance costs by from 30% to 50%. Cyclotherm's world-wide service organization gives prompt service on every call. For full information, write us today.

There are 18 Cyclotherm models, ranging from 15 HP to 750 HP. Burns oil and/or gas. The Cyclotherm meets all state requirements and is built in accordance with A.S.M.E. and National Board Standards and bears the label of Underwriters' Laboratories, Inc. Guaranteed against any defect in materials or workmanship. Cyclotherm also manufactures a complete line of Hot Water Generators in 10 capacities, from 670,000 BTU per hr. to 6,700,000 BTU per hr.

YEARS AHEAD IN STEAM & HOT WATER GENERATION

CYCLOTHERM®

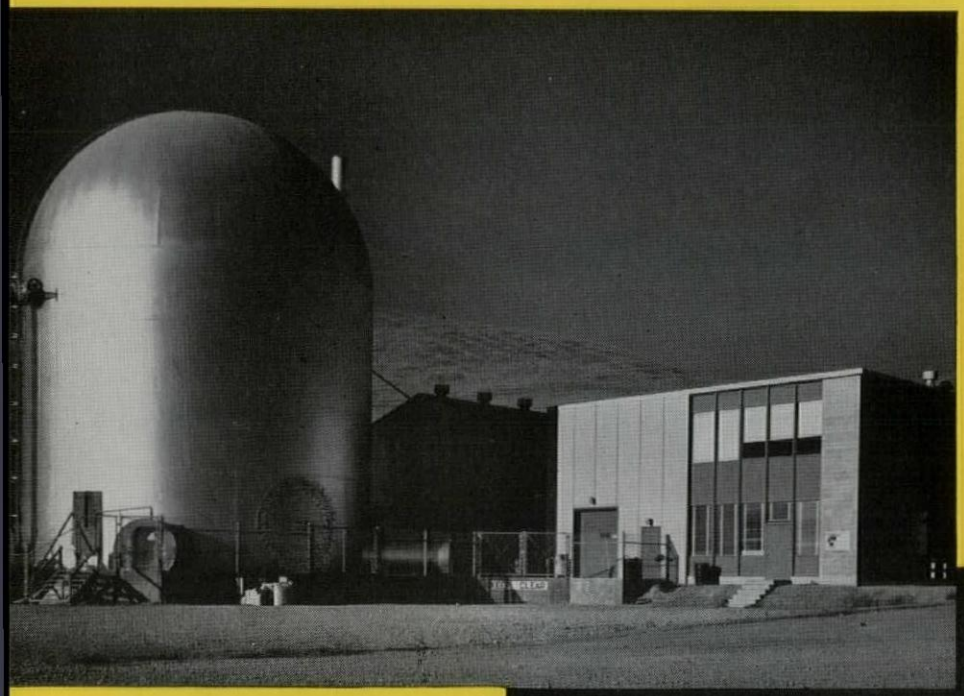
STEAM AND HOT WATER GENERATORS

A Division of National-U.S. Radiator Corp., Oswego, N.Y.

Clip to Your Letterhead

Cyclotherm Division
National-U.S. Radiator Corp.
58 E. First St., Oswego, N. Y.

Please send me your booklet *Cyclotherm Cyclonic Combustion*, also rotogravure copy of *Cyclotherm Sales Steam* with illustrations and descriptions of Cyclotherm installations.



Vallecitos Atomic Power Plant

Pleasanton, California

The first all privately-financed nuclear power plant.

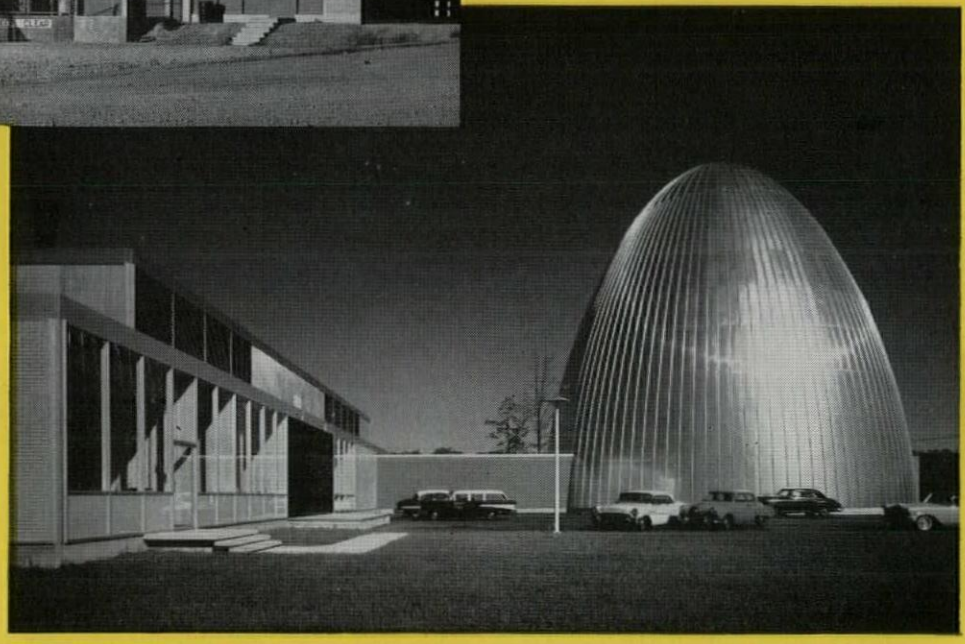
Operated by
Pacific Gas & Electric Co.
and
General Electric Co.

Architects and Engineers:
Bechtel Corp.
all of San Francisco

Mech. Contractor:
Coast Heating and Ventilating Co.
Oakland, Calif.

POWERS CONTROL

here is used in the power plant. It meets the rigid standards required in regulating ventilation supplying personnel with safe, comfortable, uncontaminated air.



Industrial Reactor Laboratories, Inc.

Plainsboro, N. J.

Architects:
Skidmore, Owings & Merrill

Mech. Engineer:
Guy B. Panero

Mech. Contractor:
August Arace, Inc.

General Contractor:
Turner Construction Co.

Prime Contractor **AMF ATOMICS**

POWERS CONTROL

here regulates the heating, ventilating and air conditioning in the reactor and laboratory buildings.

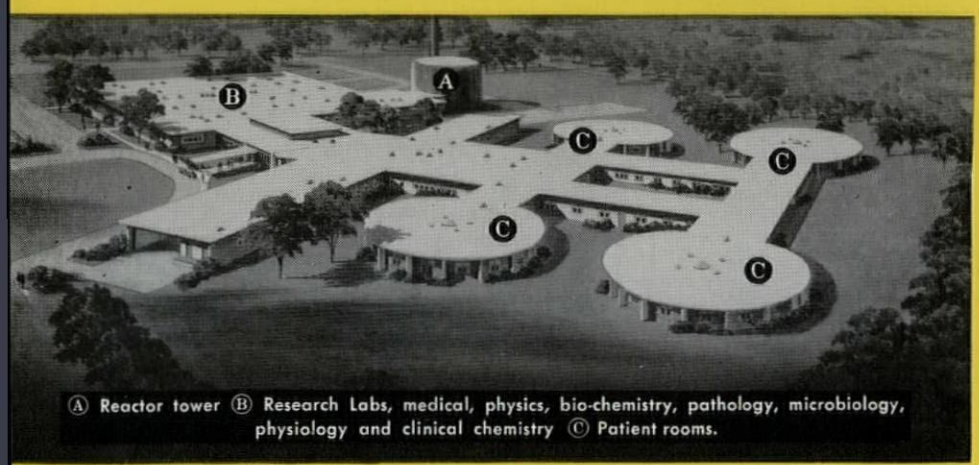
Owner-members of Industrial Reactor Laboratories: American Machine & Fdry. Co., American Tobacco Co., Atlas Powder Co., Continental Can Co., Corning Glass Works, National Distillers & Chem. Corp., National Lead Co., Radio Corp. of America, Socony Mobil Oil Co., U. S. Rubber Co.

Medical Research Center, AEC Brookhaven National Laboratory,

Upton, N. Y. — Nuclear research here will benefit all mankind. The first nuclear reactor (1000 kw) designed specifically and exclusively for medical research and treatment is located in the reactor tower Ⓐ shown below.

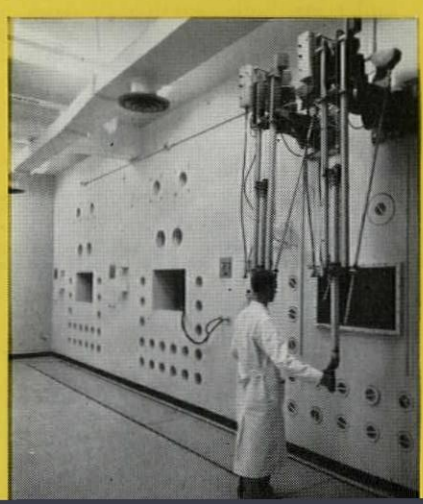
Architects: **Eggers and Higgins** • Mechanical Engineers: **Syska & Hennessy**
Mechanical Contractor: **Malan Construction Corp.** • All in New York City

POWERS CONTROL in these completely air conditioned buildings regulates temperature, humidity and ventilation.



Ⓐ Reactor tower Ⓑ Research Labs, medical, physics, bio-chemistry, pathology, microbiology, physiology and clinical chemistry Ⓒ Patient rooms.

Below: Operators at Industrial Reactor Laboratories, protected by 3 ft. thick viewing windows, conduct experiments with master-slave manipulators shown below.

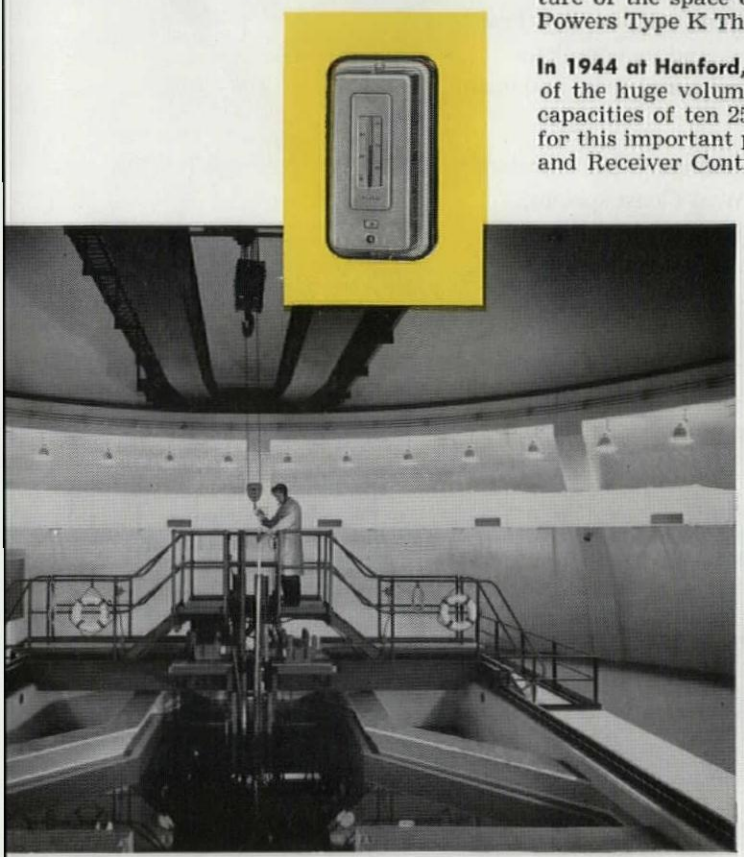


POWERS CONTROL

...keeps pace with the demands of modern science and industry

At the Birth of the Atomic Age in 1942 at the University of Chicago, temperature of the space occupied by "the first nuclear reactor" was controlled by Powers Type K Thermostats installed under the West Stands of Stagg Field.

In 1944 at Hanford, Wash., Powers Transmitter Controls regulated temperature of the huge volume of water required for cooling the nuclear reactors. The capacities of ten 2500 ton YORK refrigeration compressors, made especially for this important project, were regulated by Powers Series 100 Transmitters and Receiver Controllers. They also controlled 24" butterfly valves used to regulate the distribution of refrigerated air.



Inside the dome at **IRL** a crane services reactor pool. Powers control here, regulates the ventilation and air conditioning. Note ducts on circular wall.

Accurate Control of Air Conditioning is Vital in modern nuclear reactor plants. Safety and comfort of employees and reliability of ventilation controls are specially important in radioactive "hot" areas. In the three prominent installations on the opposite page, Powers control is required to meet rigid standards of performance.

Other Users of Powers Controls: Some AEC buildings in Oak Ridge, Tenn.; at Argonne National Laboratory, air conditioning and cooling water for a Cyclotron is regulated by Powers; in AEC plants at Portsmouth and Fernald, Ohio and Weldon Spring, Mo.; in Atomic Energy of Canada Ltd., buildings 145 and 465 at Chalk River, Ont., Powers controls heating and air conditioning.

Nuclear Reactor Research Facility of the U. S. Naval Research Laboratory, Wash., D.C. is air conditioned and Powers controlled.

At Illinois Institute of Technology, Chicago, the first nuclear reactor for private industrial research was installed by the Armour Research Foundation. Powers air conditioning control is installed here in the Physics and Electrical Engineering Research building in which the reactor is located.

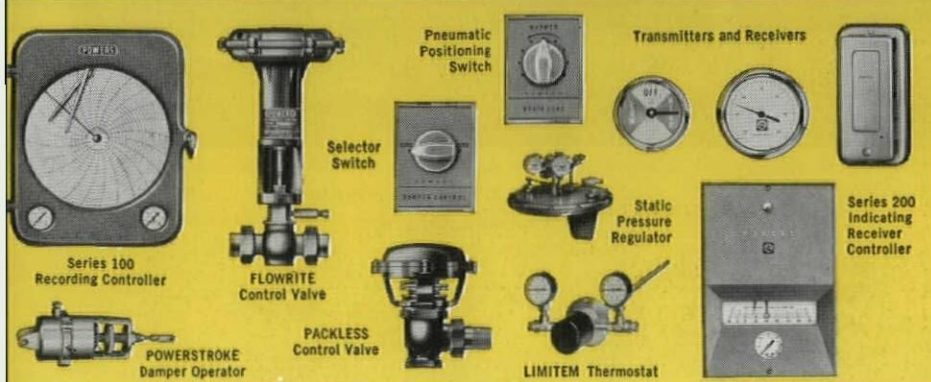
For Your New Building — Whether its a school, hospital, commercial or industrial building, ask your architect or consulting engineer to include a Powers Quality System of Temperature Control. You will benefit from — **Powers complete responsibility** for a correctly engineered control system, proper installation, continuous successful operation and *SERVICE* when required from offices in 85 cities.

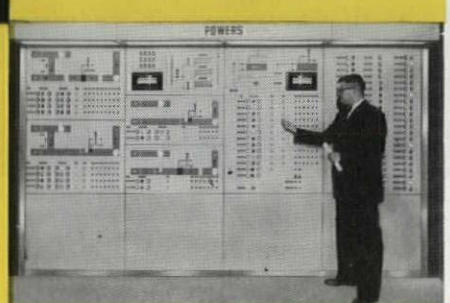
THE POWERS REGULATOR CO.

SKOKIE, ILLINOIS | *Offices in chief cities in U.S.A. and Canada*

65 Years of Automatic Temperature, Humidity Control

A few Powers Temperature . . Humidity . . and Pressure Controls





Powers Graph-O-Matic Control Centers are also available in Console models. All types are custom built to meet the requirements of any comfort or process control system.

Tennessee Valley Authority Observes 25th Anniversary

*by John Oliver**

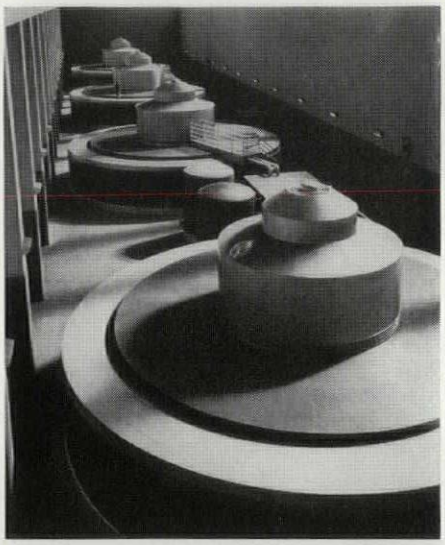
The Building of TVA: An Illustrated History. *John H. Kyle. Louisiana State University Press, Baton Rouge, La., 1958. 176 pp., illus. $7.50*

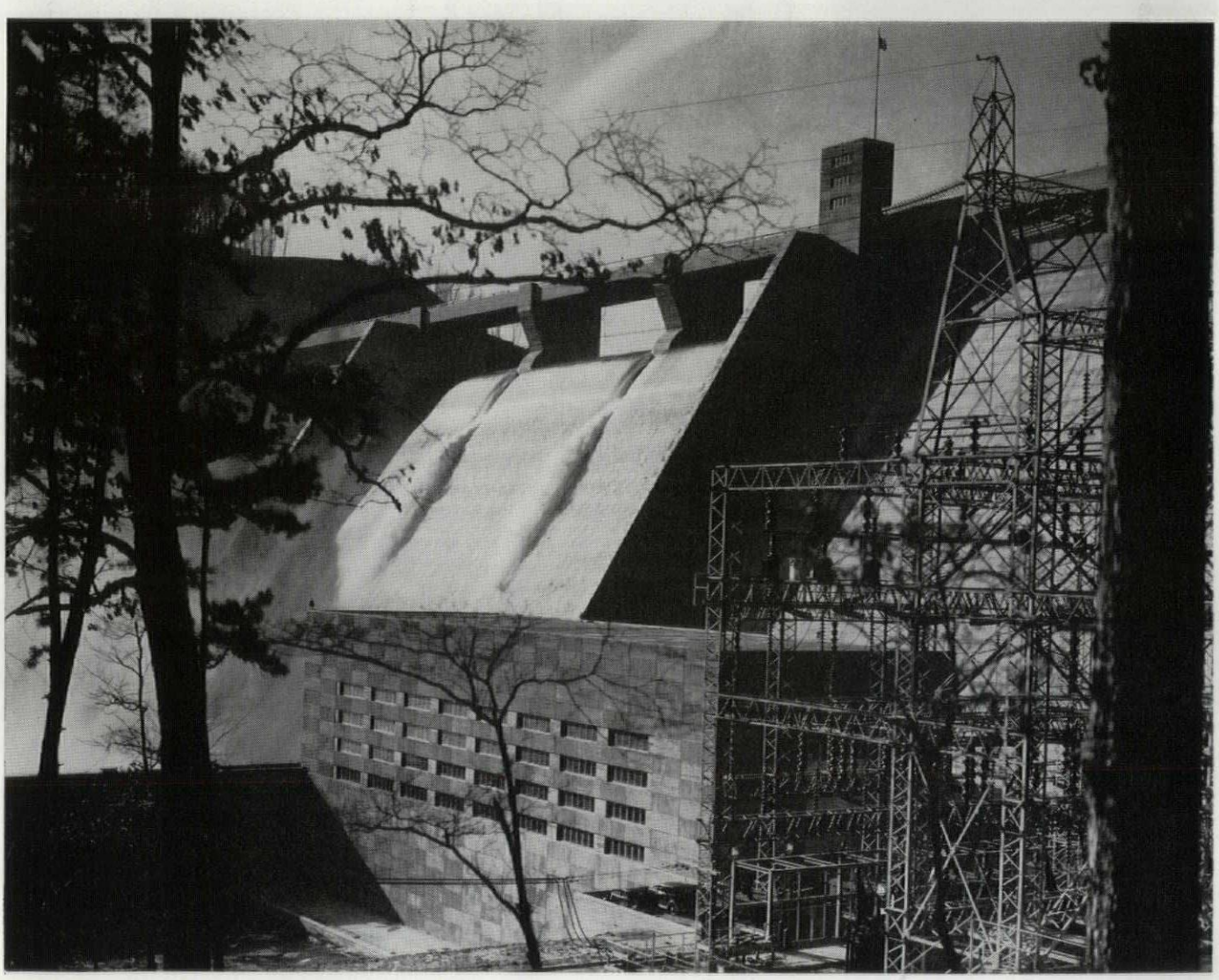
Several years ago *Time* made the following comments regarding the architectural structures of TVA: "The Tennessee Valley Authority, affecting an area as large as England, with an amount of architectural structure that would have made a Roman emperor gasp, is a whopper. Like many a gigantic monument of the past (Egypt's Pyramids, Rome's Forum, China's Great Wall), TVA is built for use as well as looks. Like them, it will go down as one of the most permanent achievements of its civilization, may even remain a landmark long after its usefulness is over."

John Kyle's *The Building of TVA*, issued on its 25th anniversary, brings together over 180 photographs of dams, steam plants, and other TVA projects; and every one is worthy of exhibition.

This new book, handsomely printed on heavy paper, seems admirable to supplement an earlier pictorial presentation, *The Valley and Its People: A Portrait of TVA* (R. L. Duffus, Knopf, New York, 1946). The two works show striking parallels as well as important differences. Nearly

(Continued on page 190)





* *Engineer, New York, former TVA staff member.*

(Continued from page 189)

equal in length, 176 and 167 pages, respectively, each drew upon TVA photographic files for picture material. The latest book has a general subject index, while only an index to illustrations was provided in the previous work.

The differences, of course, are of greater interest and importance than the similarities. As implied by the title, the focus of the Duffus book was upon a description, in words and pictures, of the Tennessee Valley and its people as affected by the TVA river development projects and related program activities. On the other hand, the primary interest of the present author is directed toward the structural aspects of TVA's work, with emphasis upon the architectural design and construction features of dams, steam plants, bridges, and nonpower buildings. This book, in tracing the history of the design and construction of TVA's "physical plant," aims frankly also to stand as a tribute to the planners, architects, and engineers responsible for such accomplishments. Kyle, formerly an associate editor of P/A, became interested in such an undertaking while studying TVA structures in connection with his magazine work.

The book opens with a perceptive account of the historic and political background of the TVA idea of unified river-valley development and some trenchant observations on the place of TVA as a world-wide symbol and example of man's successful conquest of nature. Comments the author, "Strangely enough, just about the only country not hopefully contemplating another TVA is America."

TVA's first major construction project, Norris Dam, is described at some length in text and pictures. This is followed by a briefer treatment of each of the 9 main-river dams, and 13 tributary storage dams. One chapter is devoted to a description and pictures of each of the 8 large steam electric generating plants built by TVA; and another chapter covers a number of bridges, the chemical engineering building at Muscle Shoals, Alabama, and a "proposed office building"—location not specified.

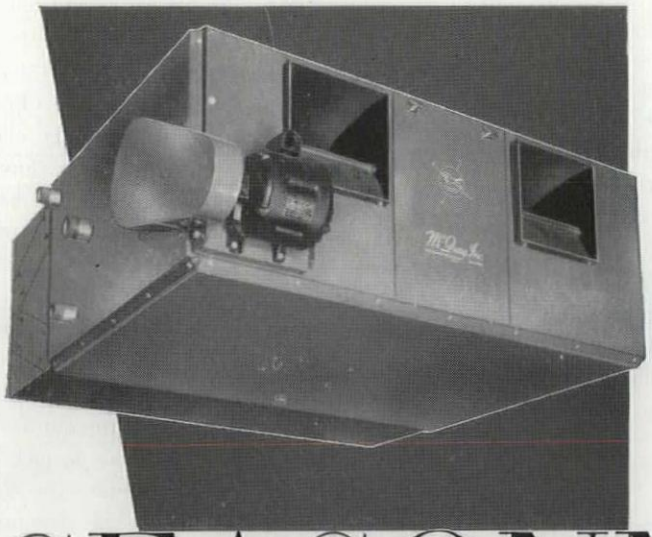
Many books have been written about TVA and many more will be written, but this new volume should find wide appeal: to connoisseurs of photography for the beauty and interest of its pictures; to architects and engineers for design ideas and perspective; to students of regional development for a comprehensive presentation of the building aspects of TVA; and to the general reader for a sensitive portrayal of the physical manifestations of the Nation's investment in the Tennessee Valley.

serene spatial balance

Die Architektonische Grossform: Gebautes und Gedachtes. *Otto Ernst Schweizer. Introduction by Prof. Justus Bier. Verlag G. Braun, Karlsruhe, West Germany, 1957. Distributed by Wittenborn & Co., 1018 Madison Ave., New York, N. Y. 198 pp., illus., German text. $7.50*

German postwar building has become known in this country through periodicals and individual publications, of which

(Continued on page 192)



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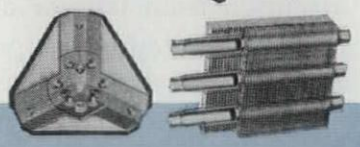

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reviews

(Continued from page 190)

Hubert Hoffmann's *New German Architecture* is the most recent and most instructive. We have seen that each structural type, from youth hostel to church, from office building to theater, has been newly developed, partially in sharp contrast to earlier concepts. The names of such leading German architects as Otto Bartning, Hans Scharoun, Hugo Haering, Egon Eiermann, Wilhelm Riphahn, and Friedrich Wilhelm Kraemer—to mention only a few—have taken definite profiles. The influence of the Northern countries on German architecture, probably the strongest of foreign stimulations, is recognizable and admitted; also, during the last years, that of the United States, especially the buildings of Skidmore, Owings & Merrill. Why, then, should it seem worthwhile to discuss one individual German architect here? Why are his works and philosophy of special interest and importance to American architects of this generation?

There are two specific reasons. First, Otto Ernst Schweizer is the only older German architect who, after a forced leisure during the Hitler regime, has been able to develop further his own style. There are others of his generation, like Haering and Riphahn, who also had the good fortune to continue after the war, but in their work the influence of newer international trends is more evident and not always fully integrated. In contrast to them, Schweizer has been able to pick up from where he had been before the Nazi regime. For in his early big structures (before 1933)—not less "modern" even though he did not fall for specific, then fashionable, architectural elements—he had been so logical and functional that any change of approach after the war would have been completely superfluous for him (e.g., the Nuremberg Stadium; the Milchhof plant, Nuremberg; and Vienna's Stadium, larger than the Colosseum in Rome).

It would be meaningless to enumerate all of Schweizer's projects, before and after the war, discussed and illustrated in this new publication. In contrast to the works of other leading German architects, Schweizer's architecture is best characterized as always being in serene spatial balance, without overemphasizing special functional considerations, and without overplaying individualistic expression. This outspoken subjectivism may be psychologically understandable in view of the excitement derived from the unique opportunity to erect, in bombed-out cities, structures conceived from completely new viewpoints. However, many of these buildings, at present very striking, will certainly age and become outmoded as quickly as those of the *Jugendstil* and *l'art nouveau*, half a century earlier.

A second reason for a discussion of Schweizer's work here is his unique position among the living German architects as the "philosopher" of architecture, who like Fritz Schumacher, Hamburg's *Stadtbaumeister* of one generation ago, has developed his own clearly defined architectural philosophy. Being a professor at the Institute of Technology in Karlsruhe, Schweizer has the rare gift of formulating his ideas with utmost precision, again in

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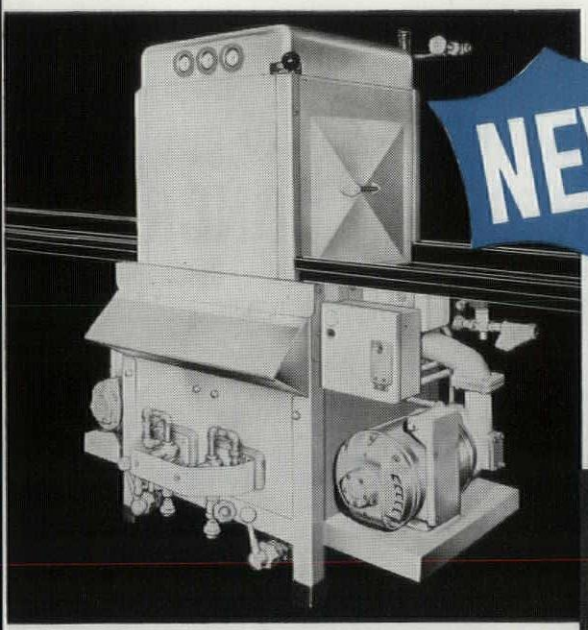

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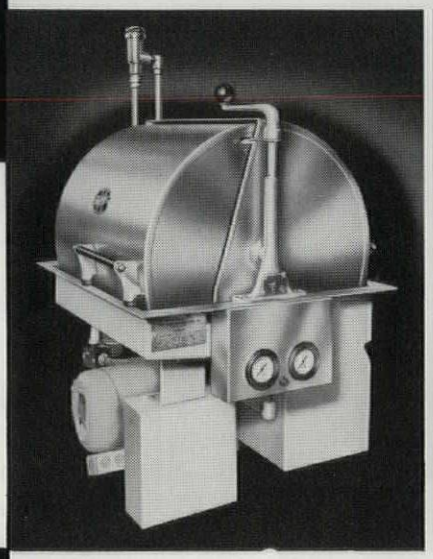

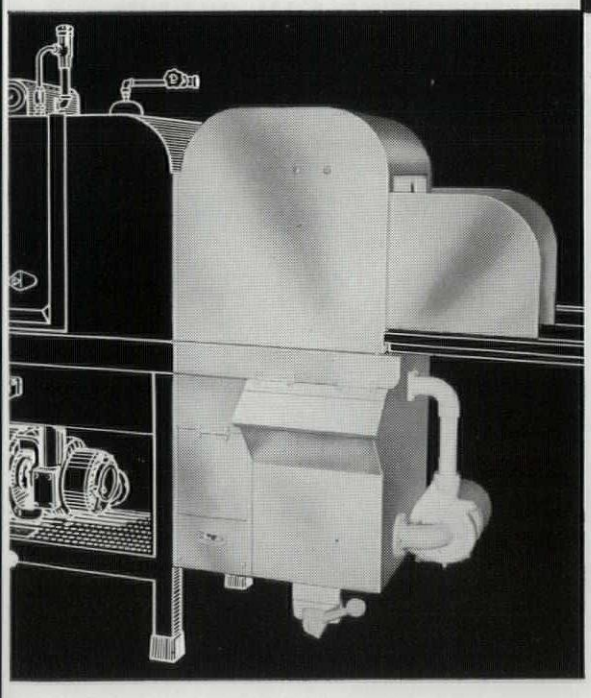

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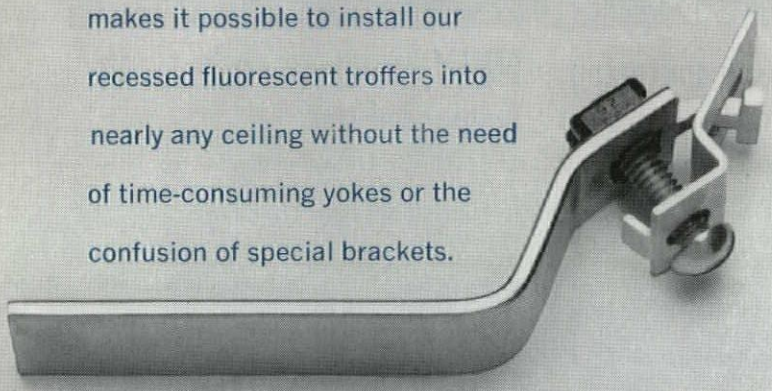

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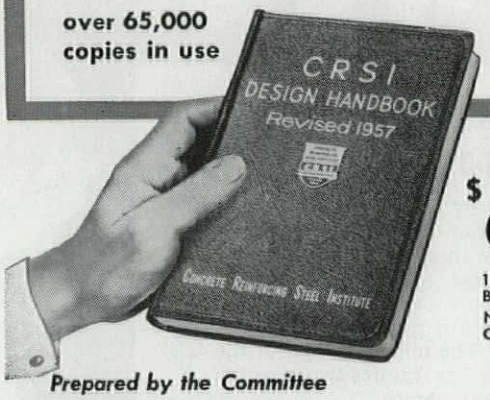

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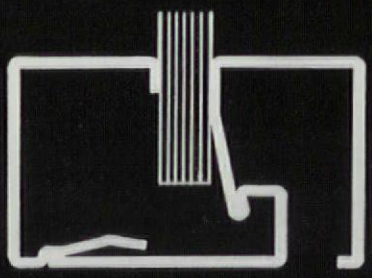

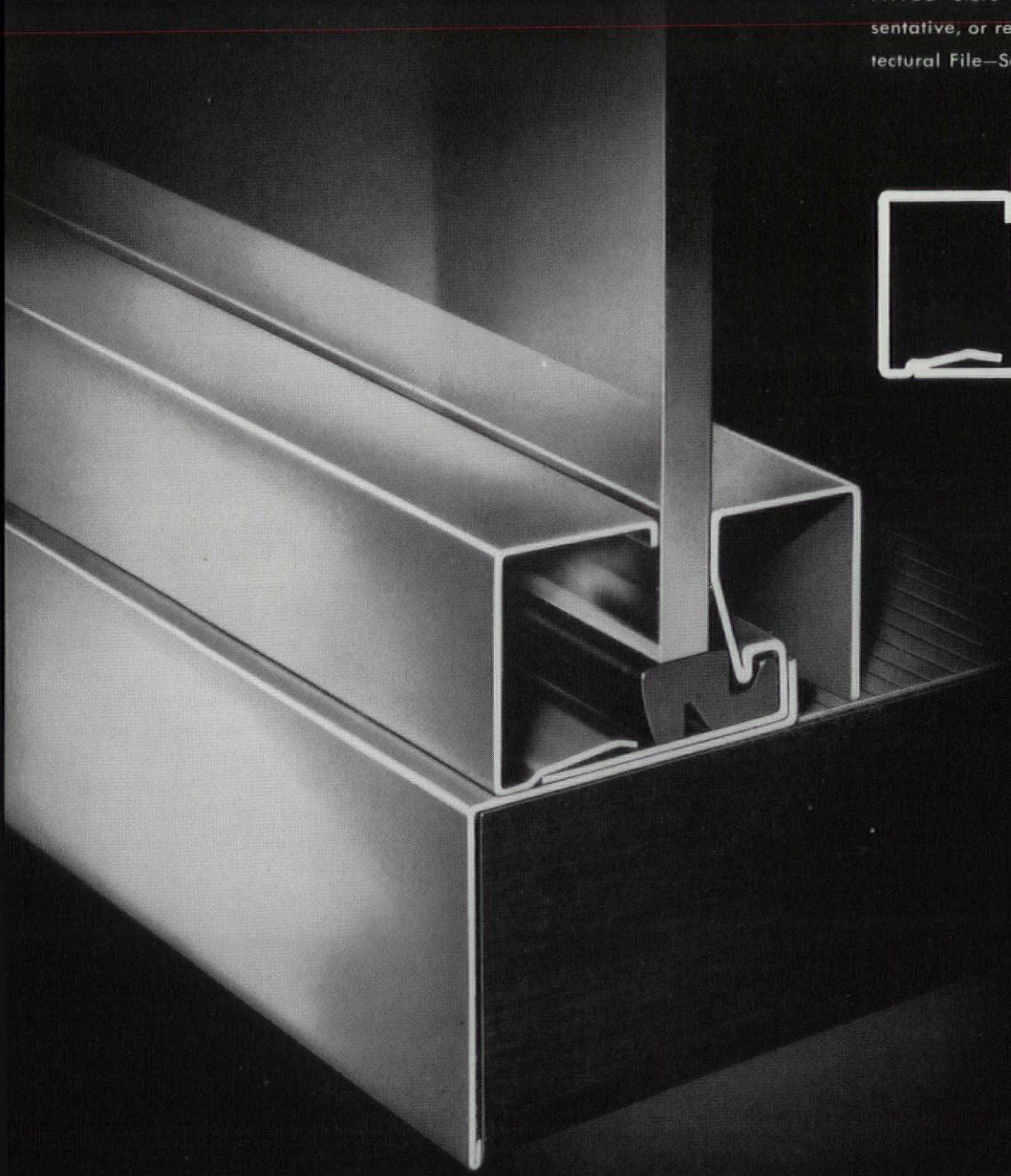

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(Continued from page 192)

contrast to so many German manifestos in this field which indulge in metaphysical generalities. Any condensation of his ideas must necessarily be an oversimplification; may it suffice to say that he, more than any other of his countrymen, thinks in terms of space. Though every architect today does that, it is characteristic of Schweizer's approach that with him it is always the *over-all space concept* which dictates the individual forms of built-up volumes, never allowing a specific architectural form to predominate. Architecture is for him *gestalteter Lebensraum* (shaped living space), never the solution of an isolated task. Dimensions and proportions are organized in reference to human scale and to the possibilities of human movement in contrast to the unlimited expansion of merely technical structures.

The same holds true also for Schweizer's city-planning projects in which each region, whether business center, settlement, or civic center, is subordinated to the eternal man-space relation, in full awareness of the difference between the density of the historic nuclei of European towns and the possibilities of growing expansion.

Schweizer's executed work and his theoretical thinking represent an inseparable unity, which this new publication ably conveys.

PAUL ZUCKER
Architectural Historian, Professor
New York, N. Y.

for bulletin editors

Editing the Small Magazine. *Rowena Ferguson. Columbia University Press, 2960 Broadway, New York, N. Y., 1958. 271 pp. $4.50*

For anyone who takes part in the preparation of small publications, here is an invaluable, step-by-step account of the total procedure; from the solicitation of manuscripts to the design and printing of the magazine. Written by the Associate Editor, Methodist Publishing House, the book is organized in two parts. Part One deals with technical editorial functions and discusses the editorial process, editorial planning, procuring manuscripts, pictures and their uses, processing manuscripts, laying out the pages, and printing the magazine. Part Two, dealing with executive editorial functions, takes up basic editorial policy, basic design, and the relation of the editor to his readers. The professional who helps prepare Chapter bulletins or other organizational publications should find this well indexed manual to be an extremely helpful guide.

G. S.

verities—plus air conditioning

The Weather Conditioned House. *Groff Conklin. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1958. 256 pp., illus. $14.75*

The architect has, in the past, always been master of the techniques of building. This he must continue if he is to be worthy of the great name of Architect. As building techniques grow increasingly complex, the architect of today finds it difficult to maintain his position of mastery. He is forced to rely, to an ever greater extent, upon the

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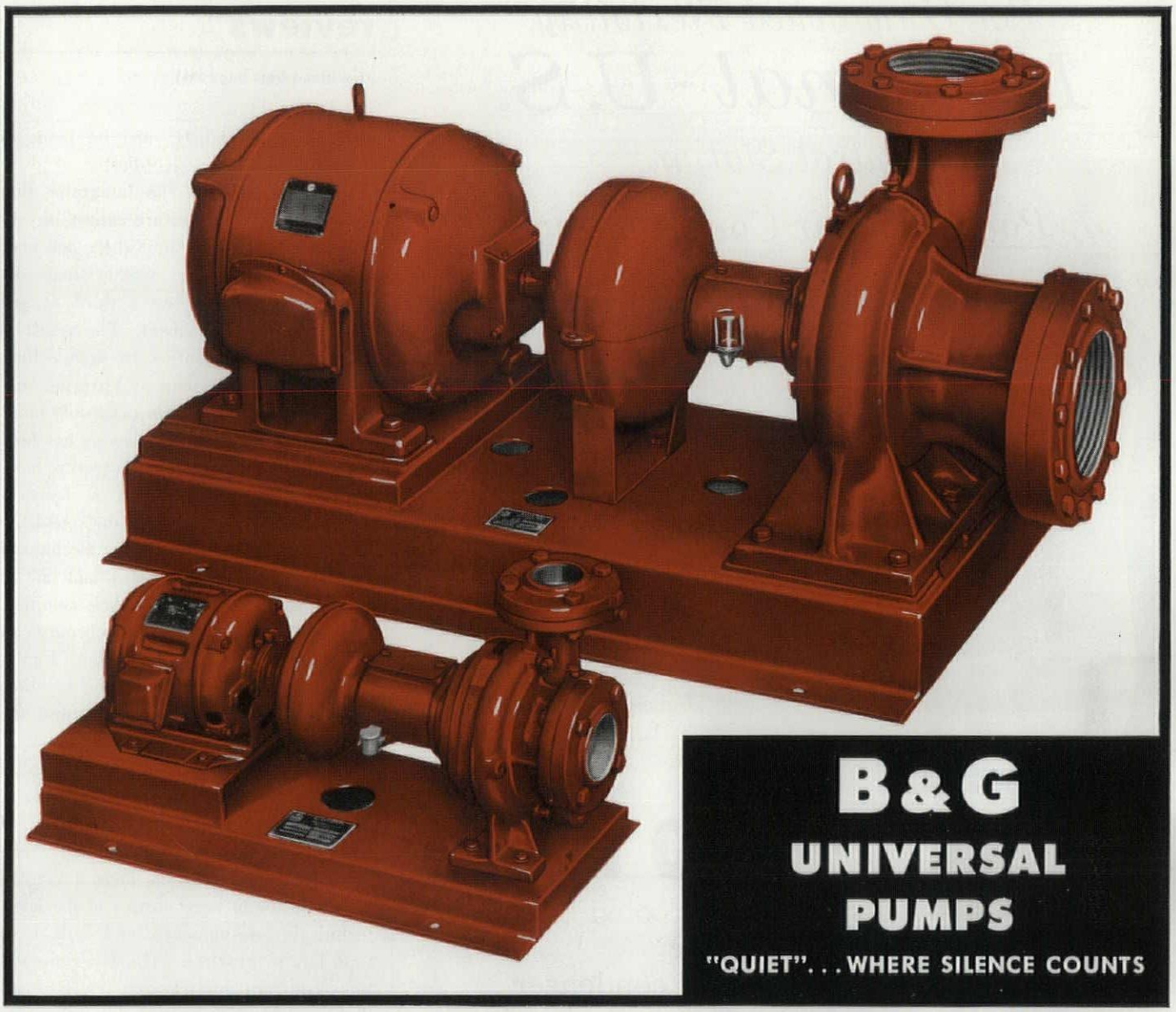

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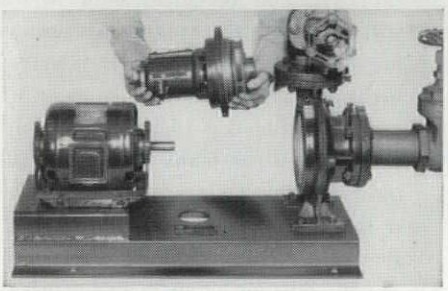

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reviews

(Continued from page 196)

services of specialists; and he tends to become merely the co-ordinator of these experts, rather than the integrator that he should be. Architecture cannot be created on an assembly line, where one man designs the building, another man designs the structure, and a third designs the mechanical equipment. The result is the literal disintegration of architecture. From at least the time of Vitruvius, and probably long before, the indivisible unity of function, structure, and beauty has been recognized. To this Vitruvian trinity, modern architecture must add a fourth—mechanical equipment. If the result is intended to be architecture, the mechanical equipment cannot be added ("laid on" as the British say) to an otherwise complete building design, any more than beauty can be added like a coat of paint. Equipment, like beauty, structure, and function, must be integral in an architectural design from its earliest conception.

The architect who designs houses has generally been able, up to now, to maintain his mastery of the techniques of building—he is perhaps the last "compleat" architect. But he finds it increasingly difficult to keep abreast of the latest technical developments, and still have time left to practice. (His less-conscientious confrere doesn't even try. He uses the same specifications and details year after year, and when his client demands air conditioning, he simply turns the drawings over to an engineer or a manufacturer's representative.) The rapid increase in the demand for air conditioning in houses has confronted the serious architect with a particularly acute problem, because the subject is highly complex and is a field in which new developments occur with more than usual rapidity. The technical data is widely scattered and the reference sources are not generally familiar to architects. The architect caught in this squeeze would welcome a book which would bring together from the many sources all of the technical data he requires, would organize it logically, and present it in clear and readable form.

The Weather Conditioned House, by Groff Conklin, does exactly that, not for

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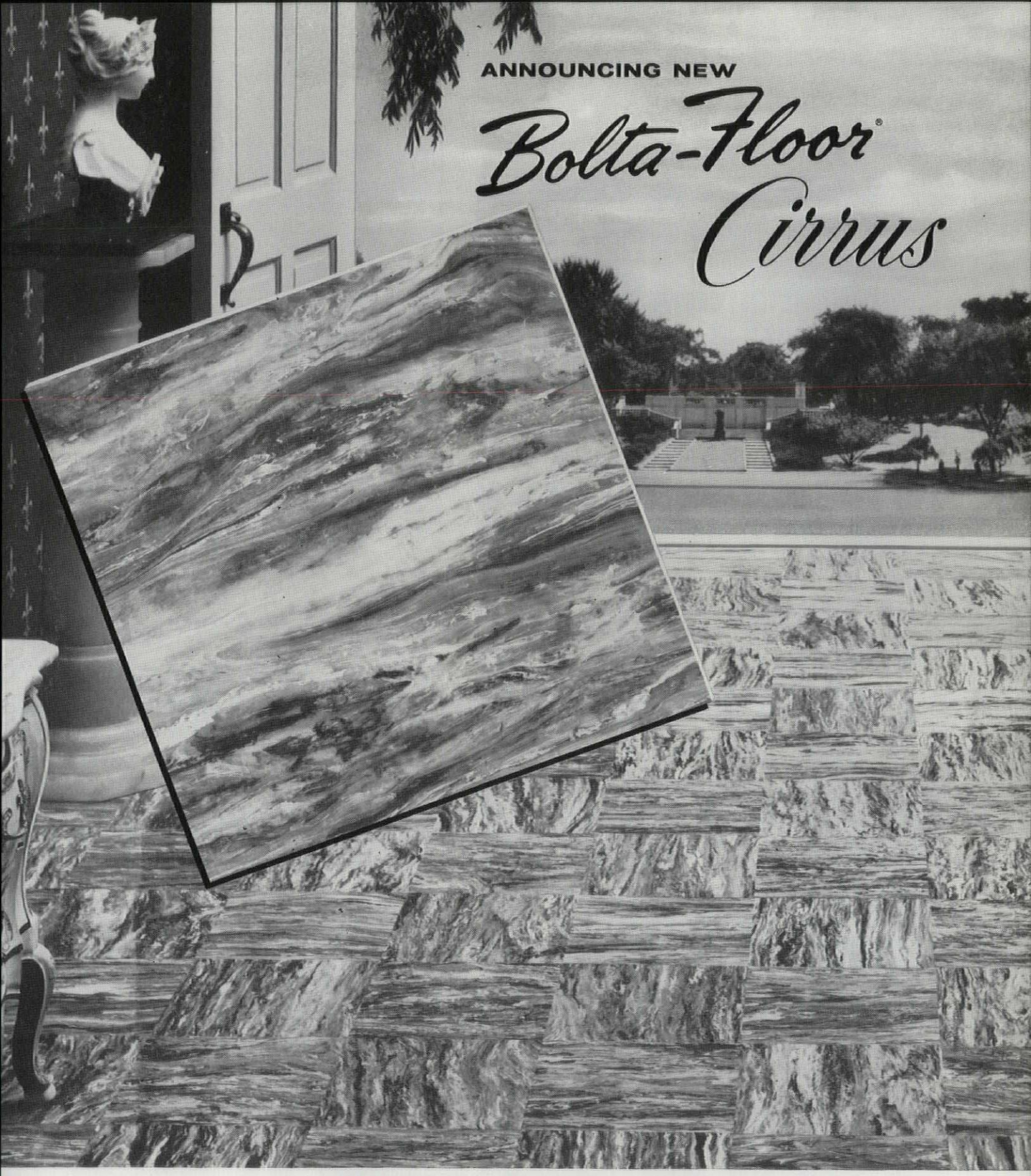

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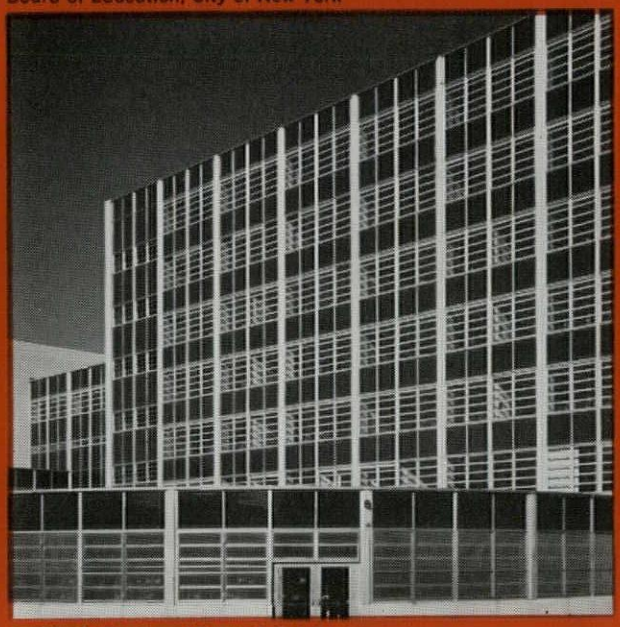

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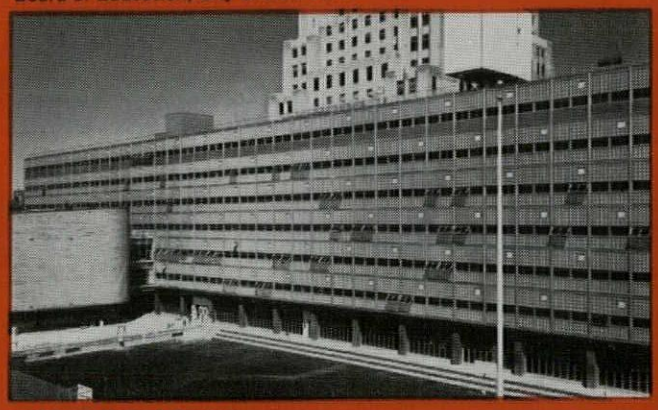

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reviews

(Continued from page 198)

air conditioning alone but for the entire subject of heating and cooling; including such closely related topics as insulation, humidity, condensation, ventilation, and solar radiation. The treatment is not general and superficial, but specific and technical; in the five chapters that constitute the main body of the book, there are 61 tables and some 40 charts and graphs. In spite of this technical burden, the well written text is eminently readable, and is amply illustrated with more than 140 photographs and drawings.

Since there has not previously been any single reference work covering the entire subject of the heating and cooling of houses, *The Weather Conditioned House* fills an important gap on the architect's technical bookshelf, and should be welcomed for that reason alone. But there are other reasons. This book is basically architectural in its approach and is not just an engineering handbook. In an introductory chapter, the author points out that environmental control can be achieved by six different methods: site selection, orientation (the location of the house on the site), planning, construction, landscaping, and mechanical equipment. Although the book naturally gives most of its attention to the last of these six methods, the author never lost sight of the others. The consistent integration of planning, construction, and equipment make this book uniquely valuable for architects.

The Weather Conditioned House is not intended, of course, to replace the services of the mechanical engineer. What it does is to help the architect remain master of his art—to know enough about the complex subject of heating and cooling so that when he designs a house he can keep all the requirements in mind. Most architects will undoubtedly continue to call in a specialist to handle the actual design of all but the simplest mechanical systems.

"It's not so much the heat as the humidity," is a long-established cliché, but this principle is not always carefully observed in practice. "Effective temperatures," combining the effect on human comfort of temperature, relative humidity, and air movement, have been in the handbooks for the last quarter century, but

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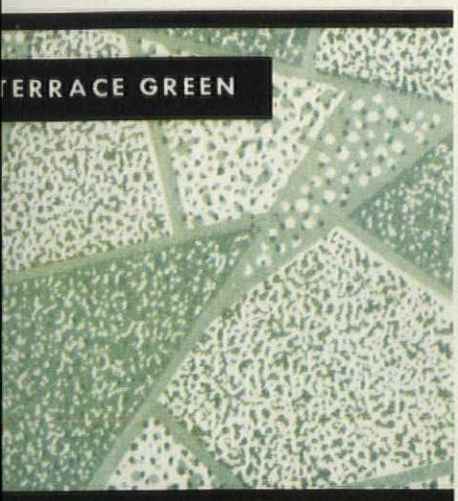

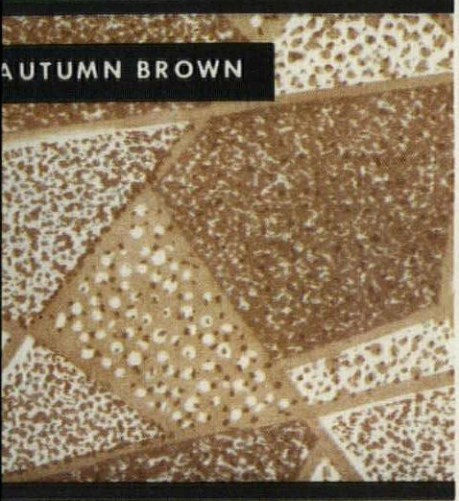

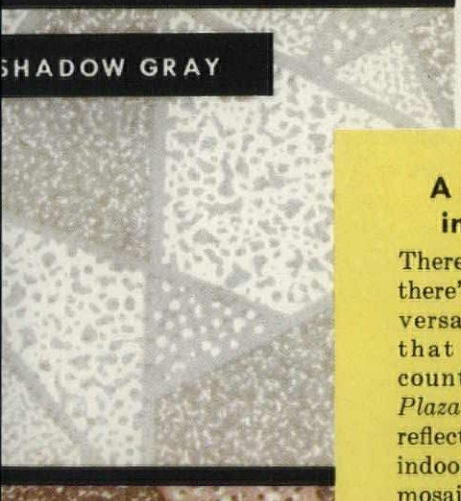

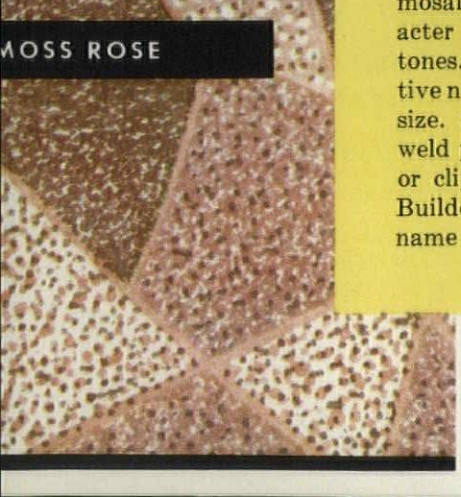

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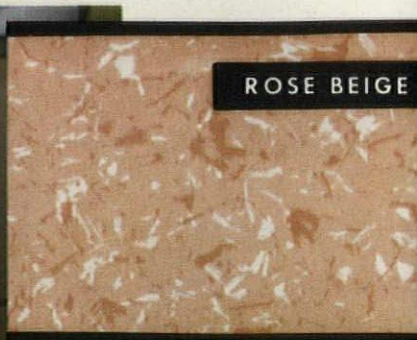

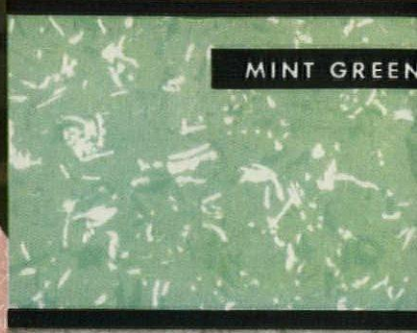

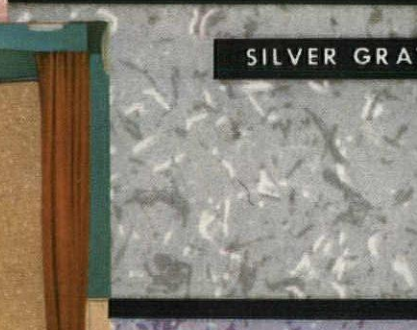

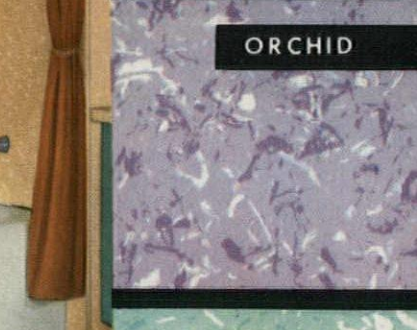

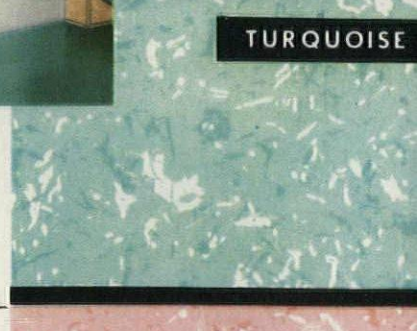

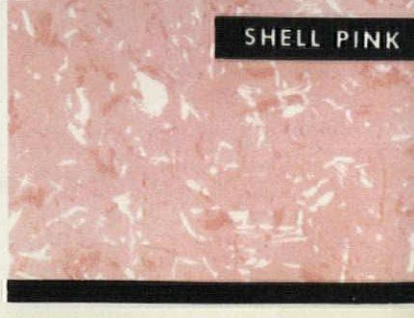

Countertops of Consoweld *Twinkle* really sparkle with color. That's what has made *Twinkle* one of the most popular selections in the Consoweld line. Flecks of gay and cheerful color tones are scattered throughout the design. Consoweld *Twinkle* comes in the 6 bright colors shown actual size. And with *Twinkle* you can add matching walls and wainscoting, too! Consoweld 10 *Twinkle* for walls is available in 5 colors. See *Twinkle* at your dealer's, or send in coupon for Builder Information Kit and name of your nearest supplier.

NEW Twinkle Bathtub Showerwall

Add modern bathroom beauty quickly—and at low cost—with the nationally advertised Bathtub Showerwall Package. Available in 5 bright *Twinkle* colors and 6 luxurious *Marble* colors. Ask your dealer for details.

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(Continued from page 202)

they are still little used in practice. "Effective temperature" degree-day tables for example, should be available for the proper design of cooling systems. Obviously needed for precise control of both heating and cooling systems is an "effective temperature" thermostat. Because of the lack of humidity controls, the author recommends the use of cooling equipment which is undersized and will therefore operate continuously. This will prevent the rise in humidity which occurs between the operating periods of larger sized equipment. For winter conditions, the author presents weighty medical evidence in favor of maintaining interior relative humidities of 40% to 50%. This is probably true, yet it must be considered that many people choose to live, for their health as well as their comfort, in the extremely low humidities of the Arizona and California deserts.

Combined heating and cooling systems cannot be fully efficient. If the system is designed for the most efficient heating, cooling efficiency will suffer; and vice versa. The author recommends that when the winter outdoor design temperature is 15 F or less, the system be designed primarily for heating; at higher design temperatures, the system should be designed principally for cooling.

The higher cost per Btu of cooling as compared to heating puts an even greater economic premium on the use of insulation in the cooled house than in the heated house. A house designed for the maximum economy of cooling would be compact in plan, in order to shorten duct runs and reduce exposed area; it would have glass areas of minimum size and they would be double-glazed, tightly sealed, and shaded from all direct sun; the walls and ceiling would be heavily insulated and further protected by a ventilated attic or some other type of double roof. Such a house, with the attic vents closed and the sun shades removed, would serve equally well for the sub-arctic winter of Canada or Alaska. Man-made interior climate thus tends to eliminate those regional, stylistic characteristics which were the result of adaptation to local climatic conditions.

The success of a nonencyclopedic book is determined as much by what is left out as by what is included. This is naturally a matter of individual opinion, on which no two people are likely to be in complete agreement. This reviewer would have omitted certain data from the present book in favor of some other items that are now missing. But neither this, nor a few minor errors that inevitably occur in a new book of this type, can be considered serious criticisms. The only complaint of this reviewer is against the use of the term "mass insulation" which, with its connotation of massiveness, seems inappropriate for such fluffy stuff.

A long and useful glossary of technical terms and a list of abbreviations have been unaccountably transposed from their normal habitat to the front of the book, where they seem likely to alienate many a reader before he ever gets to Chapter 1. An excellent bibliography and a lengthy index may be found in the usual place, at the back of the book. *The Weather Conditioned House* also includes two chapters on completely unrelated subjects—sound control and "deterioration control" (damage from

(Continued on page 212)

Albert F. Roller, *Architect*

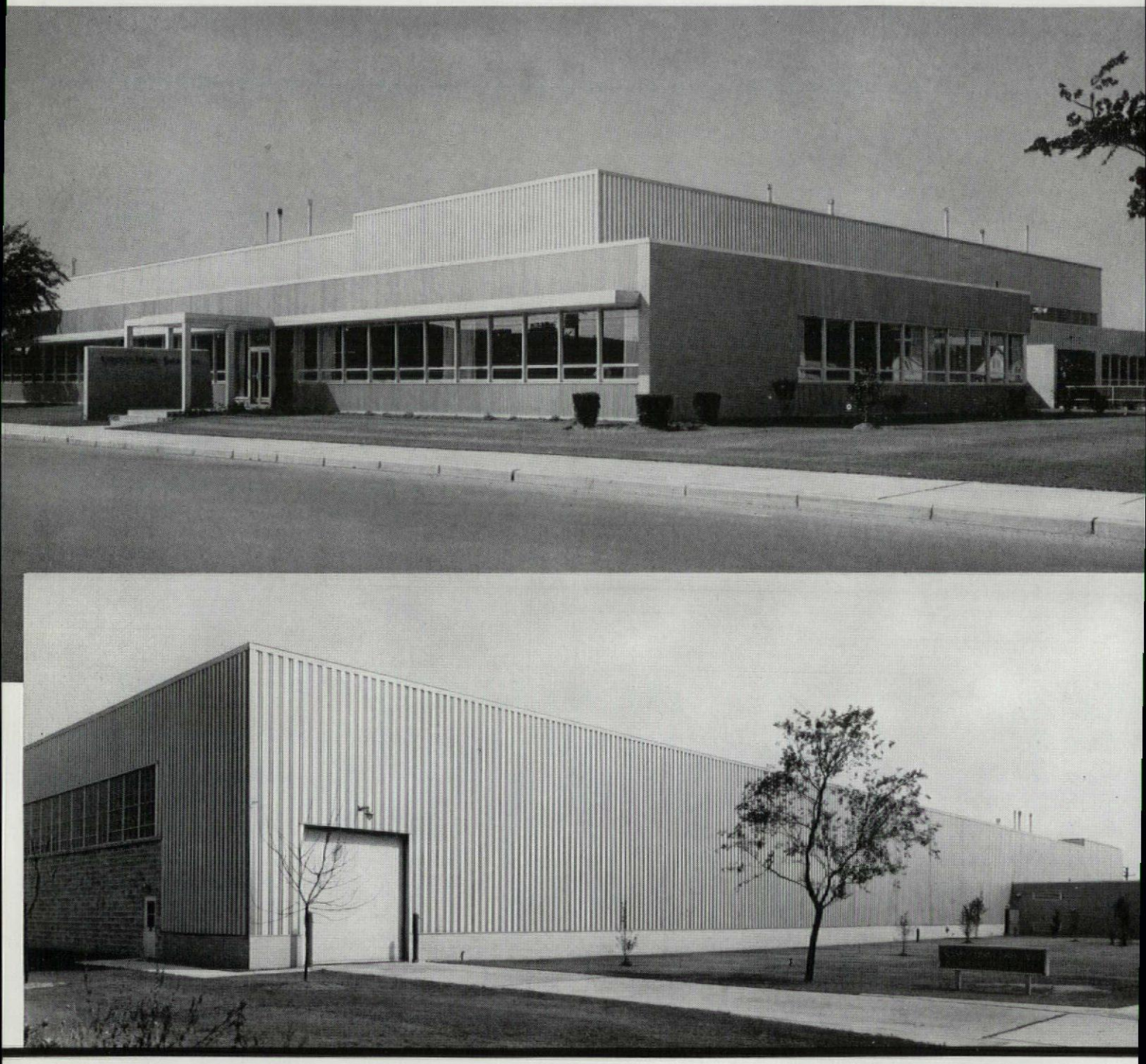
MODERN DOOR CONTROL BY *LCN* Closers Concealed in Head Frame

AUDITORIUM, CALIFORNIA MASONIC MEMORIAL TEMPLE, SAN FRANCISCO

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

Mahon METAL CURTAIN WALLS



New Metals Service Center for Copper & Brass Sales, Inc., Detroit, Michigan. Mahon Aluminum Curtain Walls were effectively employed in the design of this attractive structure. Giffels and Rossetti, Architects-Engineers. Perron Construction Company, General Contractors.

Serving the Construction Industry Through Fabrication of Structural Steel, Steel Plate Components, and Building Products

in Bright Metal or Color Offer Great Latitude in Architectural Treatment!

Vertical Joints are Invisible . . . Symmetry of Pattern is Continuous Across the Wall Surface

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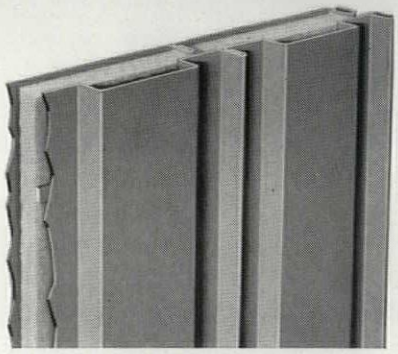
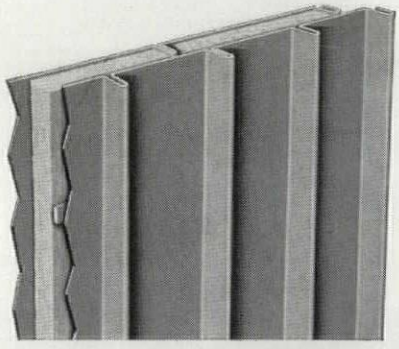
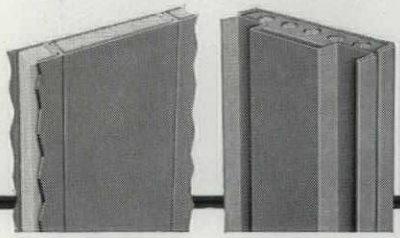
GALVANIZED or PAINTED STEEL



MAHON FLUTED WALL
FIELD CONSTRUCTED



MAHON RIBBED WALL
FIELD CONSTRUCTED



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MAHON PREFAB WALL PANELS

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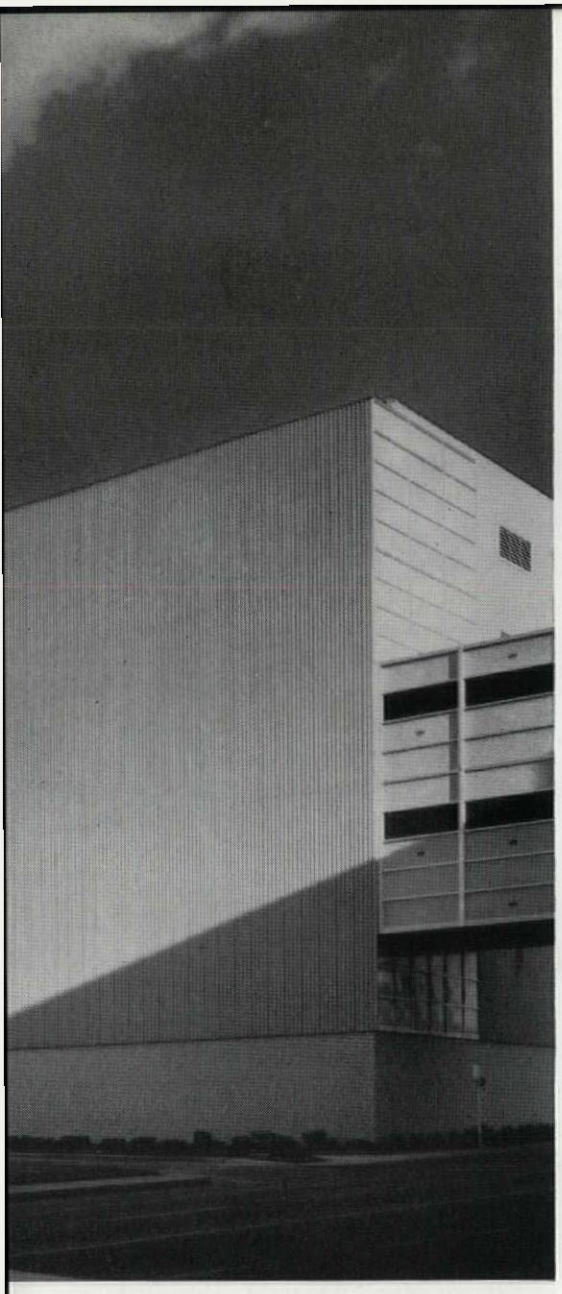
MAHON

■ Hallmark Cards, Kansas City, Mo., where Curtis Visioneers "personalized" the illumination system in keeping with the products of the company. Architect & Consulting Engineer: Welton Becket.

■ Curtis Vari-Spots produce attractive lighting patterns in several lobbies of the Hallmark Cards building. Reception room shown is approximately 45 ft. by 45 ft. Vari-Spots are used here to accent two areas. Each is impressively dramatized.



■ General office. Curtis Alzak aluminum low-brightness troffers assure glare-free illumination throughout the area, combining visual well-being with visual charm.

Curtis Lighting helps Hallmark Cards say "Welcome!"

Special illumination effects in greeting card building . . . accent high visual comfort . . . create a feeling of friendliness

It's only natural that a greeting card company would want to capture the spirit of its product in its headquarters building. And that was done at Hallmark Cards, Kansas City, Missouri. Technically, the lighting problem called for a system that would be uniform throughout the structure, yet provide the same glare-free illumination in rooms of various sizes. The assignment clearly prescribed Curtis Visioneering. The desired result was effected when Curtis designed a lighting system combining Curtis Alzak aluminum low-brightness troffers and Curtis Vari-Spot recessed incandescent units. The careful application of Curtis products completed the theme of visual charm and warm greeting, thus accentuating the aesthetic characteristics of the Hallmark Cards building. For assistance on your lighting problems write for the name of the Curtis Visioneer nearest you. Curtis Lighting, Inc., 6135 W. 65th Street, Chicago 38, Illinois. In Canada: 195 Wicksteed Avenue, Leaside, Toronto 17, Ontario.

CURTIS

Visioneers in Planned Lighting

reviews

(Continued from page 206)

moisture, insects, fire, lightning, etc.). These chapters are, like the rest of the book, interesting and full of useful reference material, but they seem to be out of place in the present work. Perhaps they can form the nucleus for the next Groff Conklin book on building technology, which this reviewer hopes will be forthcoming in the near future.

JOHN HANCOCK CALLENDER
New York, N. Y.

recommend reorganization

Government and Housing in Metropolitan Areas. *Edward C. Banfield and Morton Grodzins. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York, N. Y., 1958. 226 pp. $6.50*

First in a series of ACTION (American Council To Improve Our Neighborhoods) books on the problems of housing and community development, this volume deals with two complex questions: "How does the structure of government in metropolitan areas affect the quality, quantity, and price of housing and related facilities?" and "What changes in this governmental structure would improve the housing situation?" Following a foreword by Martin Meyerson, the book is organized in three parts by Banfield and Grodzins, both professors of political science at the University of Chicago.

Part I presents the existing Problems: Structure of Government in Metropolitan Areas, Logic of Metropolitan Reorganization, and Politics of Metropolitan Reorganization. The following Impediments form Part II: Lack of Metropolitan Planning; Effects of Multiple Zoning, Subdivision, and Building Regulations; Inadequate Legal Power of Local Governments; Tax Deficiencies and Inequalities; and Poverty of Civic Leadership. Suggested Remedies make up the final Part III with a chapter on Current Proposals for Governmental Reorganization and the Conclusions. These ten chapters sum up the existing situations and proposed solutions, gathered in interviews with representatives of the key groups concerned with government and housing in metropolitan areas. The book offers much for thought on a problem gripping America.

A. L.

neglected subject

Decorative Wrought Ironwork in Great Britain. *Raymond Lister. G. Bell and Sons Ltd., London, England, 1957. Distributed by Charles T. Branford Co., 69 Union St., Newton Centre, Mass. 265 pp., illus. $5.95*

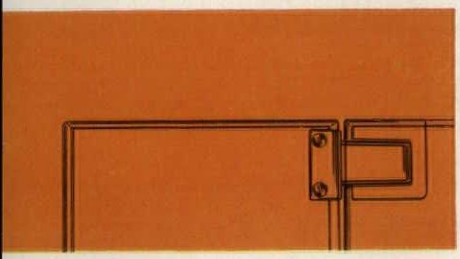
A thorough and sometimes interesting work on a subject that has been sorely neglected in present-day usage. Raymond Lister has described everything—perhaps unfortunately for the layman—relating to wrought ironwork: history, technique, materials, equipment, tools, mechanics, etc. The third chapter is surely the best, giving a comprehensive account of notable examples of architectural wrought ironwork. Another chapter describes all sorts of domestic wrought ironwork; the fifth and final chapter gives a social history of the trade. A full glossary of terms is included, and well chosen photographs add to the interest of the volume.

FRANCIS J. S. HUGHES
New York, N. Y.

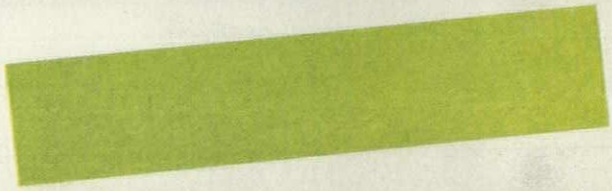
(Continued on page 216)

"WEIS WAS WISER!"

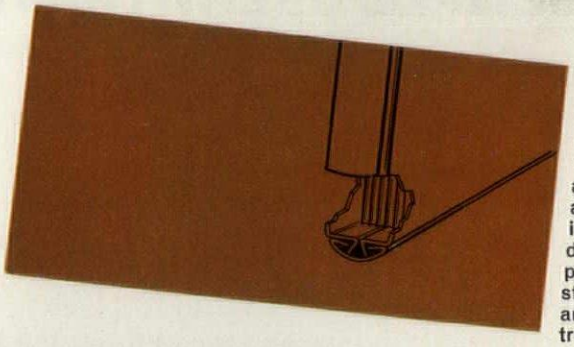
Architects, building owners and tenants become fully aware of WEIS toilet compartment advantages the second or third year after installation. That's when their original choice is confirmed, when they can say with firm conviction, "Our choice of WEIS was wiser!"



FLUSH UPPER HINGE—Newly designed so cover is flush with both faces of door. Door is supported above and below hinge recess. Bearing is nylon, needs no lubrication.



CONCEALED LOWER HINGE—A gravity-type with nylon cams, this new Weistyle hinge never needs lubrication. Pintle is stainless steel.



DOUBLE-LOCKED CONSTRUCTION—Doors, stiles and partitions are now ingeniously double-joined to provide extra sturdiness and long trouble-free life.

WEIS *Vitre-Steel* toilet compartments have the features and construction advantages that make them the standard of comparison where extreme durability and long-lasting good appearance are important. Finished inside and out in vitreous porcelain enamel (fired, not baked), Weis compartments are not subject to breakage and staining. Nor do they present costly installation problems. Available in wide choice of colors . . . both floor-braced and ceiling-hung designs. See Sweet's Architectural File, No. 22b/We—or write for complete information.

Henry Weis Manufacturing Company, Dept. H-1911, Elkhart, Indiana

Weis Vitre-Steel compartments have been selected for prominent buildings designed by the following architects: McGuire & Shook, Indianapolis, Indiana; Wedemeyer & Hecker, St. Louis, Missouri; Raymond H. Weeks, Inc., Durham, North Carolina; Clyde Hufbauer, San Diego, California; Preston M. Geren, Fort Worth, Texas; Broad, Nelson & Corgan, Dallas, Texas; Mies Van de Rohe-Phillip Johnson-Kahn & Jacobs, New York.

WEIS
VITRE-STEEL
PORCELAIN ENAMEL
TOILET COMPARTMENTS

Triple purpose Asplundh Fieldhouse of Academy of the New Church, Bryn Athyn, Pennsylvania, has central wing of 100′ x 150′, framed by glulam timber arches spaced at 18′. Arch height is 24′ at the leg and 30′ at the center. Architects: Thalheimer and Weitz, Philadelphia. Engineers: Valley Forge Engineers Co., Inc., King of Prussia, Pa. Contractor: George Synnestvedt, Bryn Athyn.

MULTIPLE USE WITH MINIMUM BUDGET

The design problem for this handsome fieldhouse required space for gymnasium activities, for convention meetings of up to 2,600 people, and for evening recreation facilities for the community. Good appearance was essential, yet the budget was rigidly restricted.

As frequently happens, glued laminated timber structural framing provided a solution high in satisfaction and low in cost—only $13.30 a square foot!

Arches of 100-foot span support the roof while creating an interior handsome enough for any purpose. 30′ x 150′ wings on either side of the gymnasium are framed by glulam columns and curved roof beams. One wing contains kitchen, serving area and wrestling room which doubles as banquet room; the other wing contains coaches' offices, and dressing and toilet rooms.

If you have a problem in school design it can be solved with equal satisfaction by framing of beautiful, permanent, truly economical glued laminated timbers. For detailed information, see your nearest Timber Structures representative, or write us.

JOB DATA

Exterior walls: gray concrete block with glass end walls. **Interior walls:** painted concrete block; ceramic tile in shower and toilet rooms. **Roof surfaces:** S. I. S. roofing with white mineral surface. **Floor:** maple, with treated surface enabling floor to be used for roller skating. **Heating and ventilating:** two blower units serving 16 grills in gymnasium; radiators in side rooms. Heat supplied by existing boiler plant. **Lighting:** incandescent down lights, indirect light coves, spotlights over stage area. **Ceiling:** one-inch wood fibre insulation on under side of structural roofing. **Area:** 24,026 square feet, including mezzanine floor. **Volume:** 552,000 cubic feet. **Cost per square foot:** $13.30.

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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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reviews

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scientific esthetics

The Golden Number. *M. Borissavlievitch. Philosophical Library, Inc., 15 E. 40 St., New York, N. Y., 1958. 92 pp. $4.75*

The title of this book suggests support for *Le Modulor*. But Le Corbusier's two series with their effervescence of golden-number rectangles receive no justification, although the author considers the ratio beautiful. "It represents the balance between two unequal asymmetrical parts which means that the ratio is neither too big nor too small," but, like the chair of the littlest bear, it is "just right." He maintains that this proportion is valid architecturally only when lying with the largest side horizontal, and goes on to explain why he believes this proportion to belong mainly to Classic and Renaissance architecture. The fact that the larger size does not dwarf the smaller when used as a ratio lends itself to a feeling of calm and balance as opposed to the striking and dynamic feeling which is achieved by the use of longer rectangles, where the dominant overwhelms the minor dimension.

This book is a condensation of Borissavlievitch's *Traité de l'esthétique scientifique de l'architecture* and makes its points briefly and sharply. The author is an advocate of "scientific esthetics" as opposed to mathematical esthetics, whose chief exponent is Matila Ghyka. The scientific esthetician believes in subjective rather than objective reality. Proportions cannot be set out with mathematical accuracy because proportion is seen in perspective and depends on the viewpoint as well as its absolute value. The perfect square differs markedly from the apparent square which is that rectangular shape which, when viewed by the eye, appears to be a square. The esthetic law coined by the author is: "Things are as they appear to us, not as they really are." One of the most significant ideas presented in the book is that minor proportional modifications cannot be perceived by the human eye. Therefore, irrational proportions which cannot be expressed in terms of whole numbers may be rounded off and simplified. This modification makes it possible to incorporate propor-

(Continued on page 220)

Low-cost aluminum mesh beautifies old building

Expanded mesh panels of Alcoa® Aluminum meant three-way savings for Tidewater Natural Gas, when the company decided to modernize an existing structure for its new home office in Wilmington, N. C.

First, no alterations of the original facade were needed; the open web of the mesh freely admits light and air so existing windows can be used.

Second, maintenance of the mesh will never be a problem—no painting, no corrosion, no expensive refurbishing *ever.*

Third, lightweight aluminum sections minimized the need for scaffolding and reduced time and labor of erection.

Besides giving the building a smart, contemporary look, the panels provide excellent solar shading and their remarkable strength was proved last September when they withstood hurricane winds up to 135 mph!

If you're faced with a similar remodeling problem, your nearest Alcoa sales office will be glad to work with you and supply technical help. Or write Aluminum Company of America, 1824-B Alcoa Building, Pittsburgh 19, Pennsylvania.

BUILDING: Tidewater Natural Gas Company, Wilmington, N. C.
ARCHITECT: Ballard and McKim, Wilmington, N. C.
GENERAL CONTRACTOR: Miller Building Corporation, Wilmington, N. C.
ALUMINUM EXPANDED METAL: United States Gypsum Company, Chicago, Ill.

BEFORE . . . Drab, dated structure that Tidewater chose for headquarters was modernized with U. S. Gypsum "Armorweave," aluminum expanded metal made from Alcoa Aluminum.

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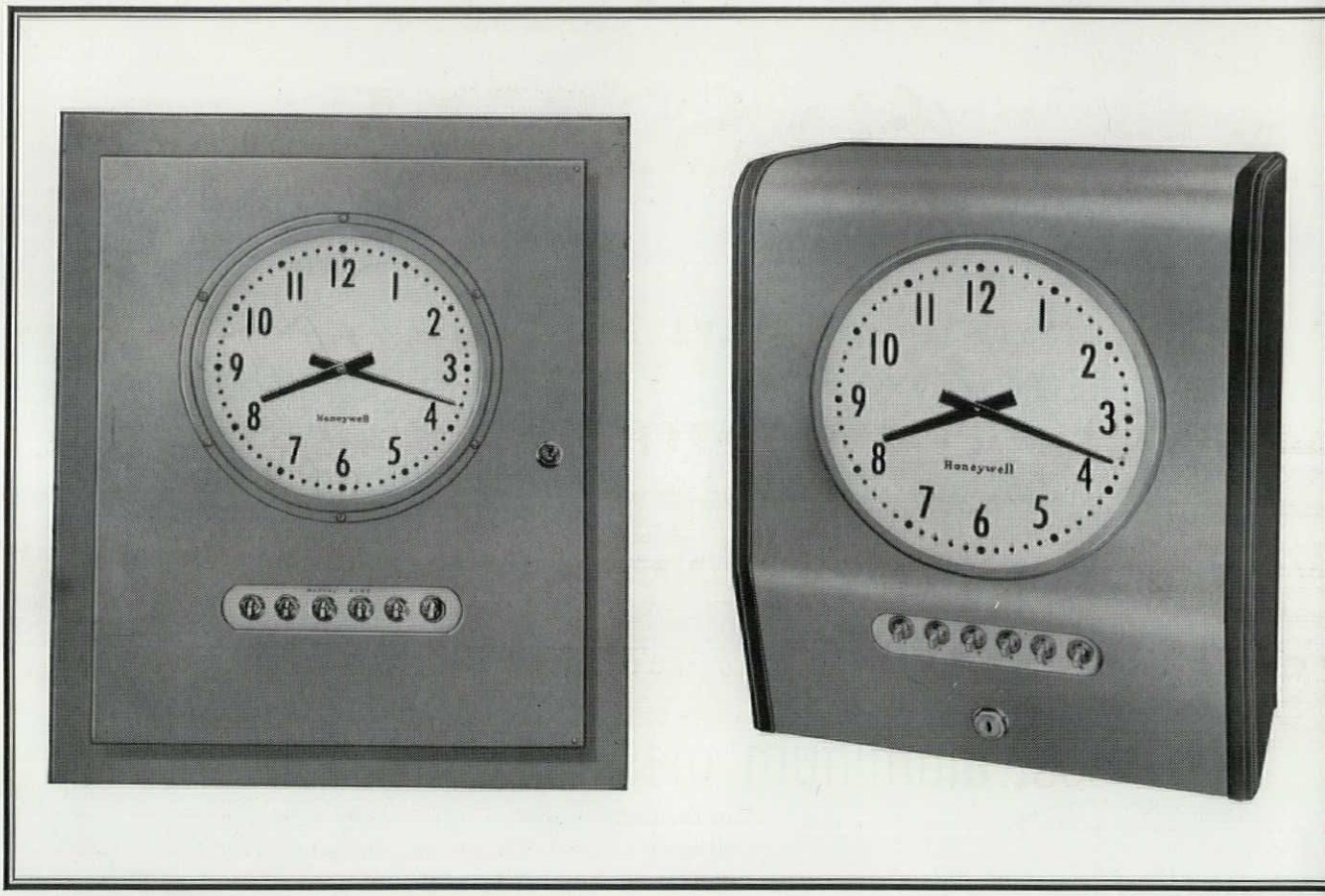
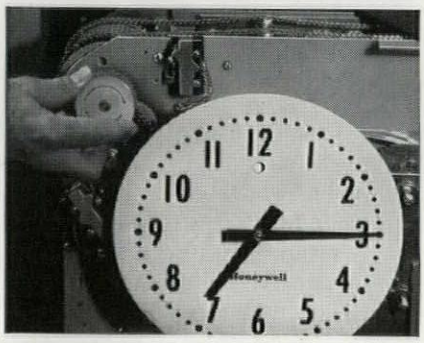
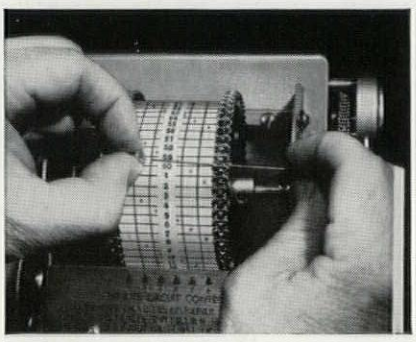


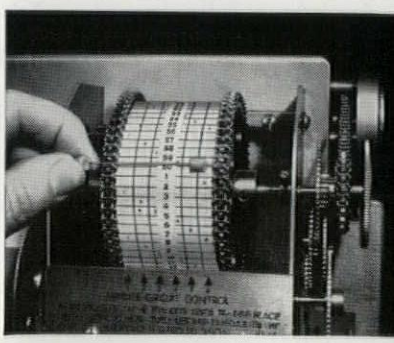
AS AN ADDED BENEFIT TO YOUR CLIENTS—CLOCKMASTER PROGRAMMING IS THE EASIEST TO SE



1 The same setting wheel used for setting master clock to the correct time is used to set the programmer. Time and program bells are always in step with one another.



2 Then, simple, reusable steel pin is inserted in chain link opposite minute mark indicating time signal is to sound. Light section is day, dark section is night.



3 Reusable plastic roller slides onto pi without special tools, to sound progra signal. Any signal can be changed witho affecting any other part of program.

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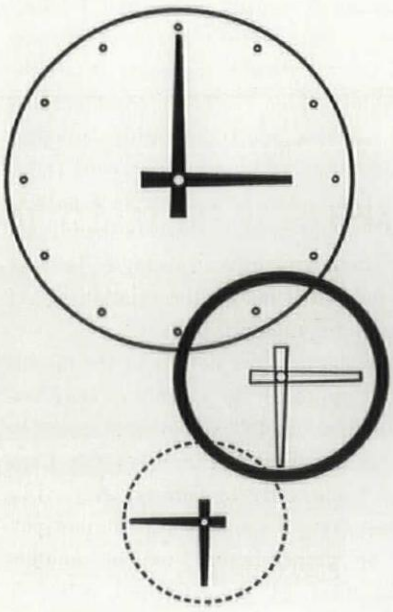

Honeywell sales engineers work closely with architects and engineers in planning a master time and programming system.

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H HONEYWELL *First in Control*

r specification details see Sweet's
chitectural File 33b/Mi.

reviews

(Continued from page 216)

tional theory and make it compatible with mass production and present-day construction methods. It is much easier to work with a window 3′ x 5′ than one which is 3′ x 4.854′ (a golden section), especially when you may wish to fit two, three, or four windows between columns. In a proportional system based on irrational numbers, the parts are not interchangeable with any other system. If the approximation can be made without destroying the validity of the proportional system, then interchangeability of parts can be achieved. This is essential for modern methods of production and construction. The author explains that the golden section offers no answer for architectural design, in that proportions and relationships of building masses must be decided upon according to the structures' function and that the esthetic ratios will vary accordingly. Each ratio tends to find its meaning in the way that it is used and in the effect that is desired. "Art cannot be conceived without freedom. Control is inconceivable in art and we cannot imagine an artist creating with formulae or regulating diagrams. Such recipes may be good for culinary art, but not for architecture." In this case, it is difficult to determine whether the exceptions of Seurat in art and Le Corbusier in architecture prove or dispute the rule. Although agreeing that the horizontal golden rectangle considered by itself is the most beautiful amongst all horizontal rectangles, Borissavlievitch shows that, when considered as a part of a whole, it is neither more beautiful nor uglier than any other rectangle, because the whole depends on the relationship of one part to another.

After showing the defects of the mathematical approach to esthetics, Borissavlievitch goes on to explain what rules he believes important. These are the Laws of the Same and the Similar. According to these laws, diagonal lines running parallel or perpendicular to one another should intersect the principal points in the façade of a building. "Thus, diagonals which are parallel and equal to each other mean that the shapes are identical and that the composition is made in

(Continued on page 224)

Strong, durable, lower in cost

You can now specify windows of sturdy, lasting stainless steel—at a cost much lower than you may think. Reason? Manufacturers now *roll-form* windows from Allegheny Stainless and pass the fabrication economies on to you.

In actual bidding recently, the price of roll-formed Allegheny Stainless windows averaged only about 10% higher than another non-stainless metal.

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.

Stainless steel windows—of all-welded design and tubular construction—are available in Allegheny Stainless Types 202 and 302.

Include Allegheny Stainless in your design-thinking now. Learn how you can get the quality of stainless steel windows for much less than you think. For additional facts, and manufacturers' names, write to *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa. Dept. PA-14.*

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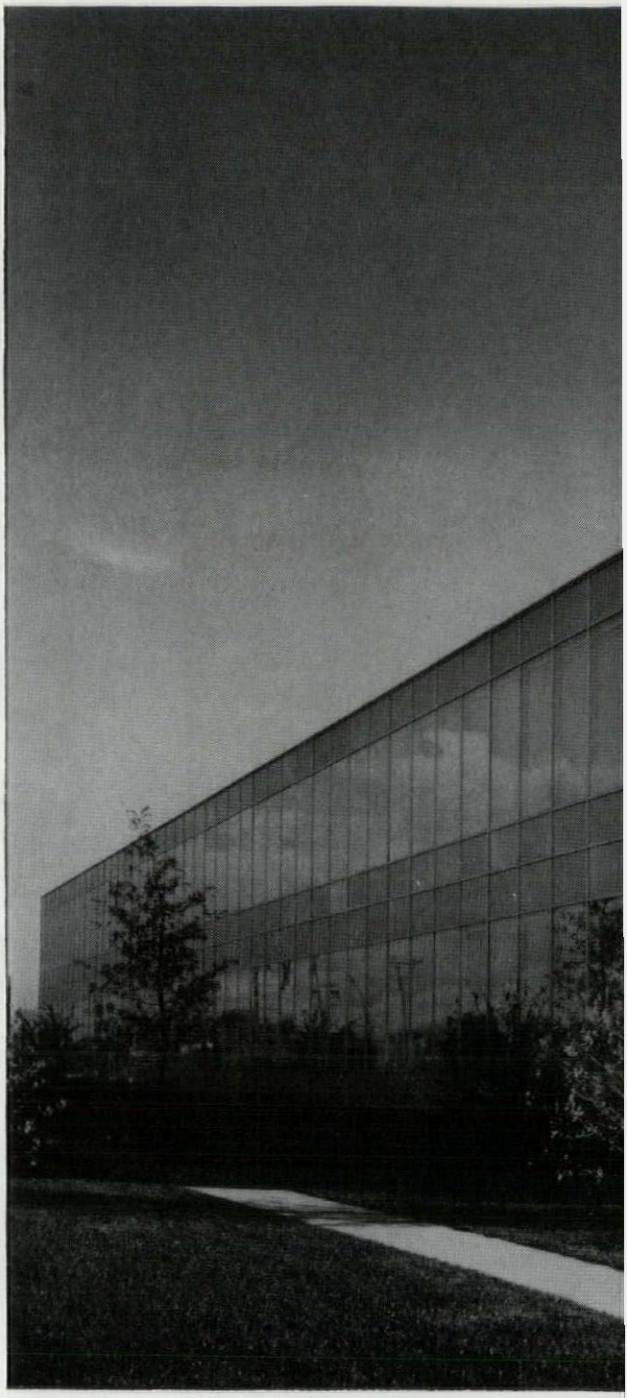

Beautiful building for a beautiful business

Avon Products, Inc., is in the business of beauty . . . specifically, cosmetics. It is understandable that the company should desire to reflect its regard for beauty in its surroundings and appointments. This effect has been realized in a high degree in an office building in Morton Grove, Illinois. The building is 260′ x 80′ x 26′, and is completely glass-clad.

Pittsburgh's 82-X Curtain Wall System is the setting for a special Gray CARRARA Structural Glass in side walls and spandrels, and achieves an extremely attractive decorative effect. Its beauty is permanent, for CARRARA will not stain or fade.

In visual areas both Pittsburgh Polished Plate Glass and TWINDOW are used, the latter where added insulation as well as clear vision is desirable. The clean, simple lines of TUBELITE doors make each entrance inviting. Other metal construction utilizes the grace, strength and beauty of PITTCO Metal.

There are many practical advantages in using Pittsburgh Plate Glass Company products for decorative purposes. Our Architectural Representative nearest you will be glad to assist in the solution of any of your problems. There is no obligation on your part.

PITTSBURGH GLASS

. . . the basic architectural material

Reception rooms seem larger and less confining with full length partitions of Pittsburgh Polished Plate Glass.

This lunchroom is bright and cheerful because of the natural light admitted through the full length Pittsburgh Polished Plate Glass windows.

The beauty of the garden is carried into the lobby with full length windows of Pittsburgh Polished Plate Glass.

Architect: Skidmore, Owings & Merrill, Chicago, Ill. Contractors: Chell & Anderson, Chicago, Ill.

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IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

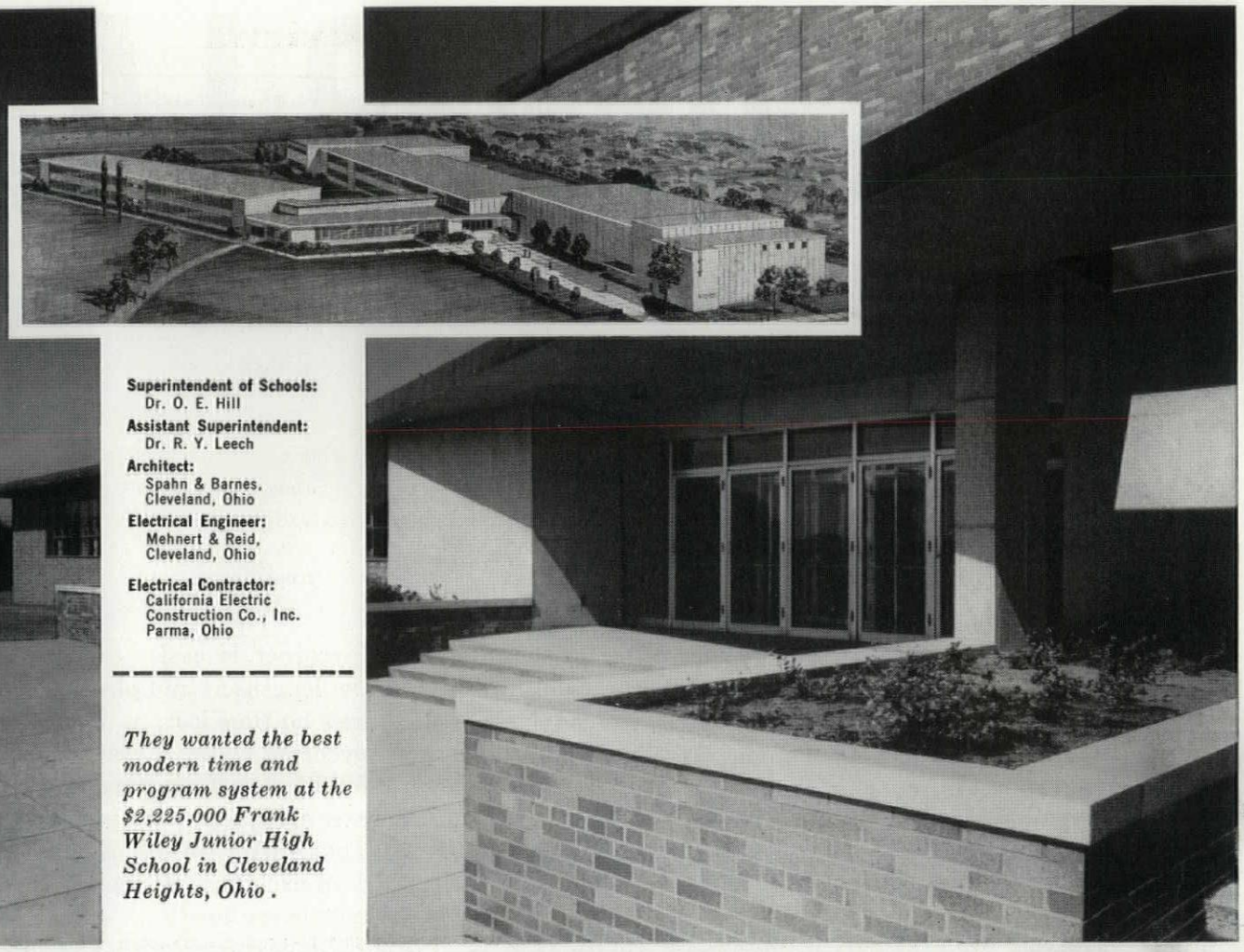
reviews

(Continued from page 220)

agreement with the Law of the Same, whereas diagonals which are parallel but of unequal size, or which meet each other under a 90° angle, show that the shapes are similar and that the composition is made in agreement with the Law of the Similar." These two laws represent the core of the author's positive recommendations. There is no doubt that their use has been extensive in the past and that their application brings a measure of harmony and order to any design. They are so simple and basic, that many architects unwittingly design their buildings according to these principles today. These relationships have a basic validity for, regardless of the angle from which a building is viewed, the relationship of the diagonals remains constant while the apparent proportion of the components varies.

The author misses one important point while explaining the properties of the golden rectangle, and that is that the mathematical relationships of interlocking golden number ratios offer a unique visual property. To see this, one need only draw a rectangle of the shape 1:1.618, and then, by adding squares to the long side, new rectangles of the same proportion are evolved. This is a unique property which may be achieved only with this proportion. While it is true that the initial rectangle may have an imperfect ratio of 3:5, the interlocking relationships which may be achieved by the use of this property are unique. This visual property may be seen in the row houses of Bath. As such, it may be compared to a color on the artist's palette. In the same way the visual relationships which may be achieved by use of the root 2 rectangle are unique. To disregard the relationships which may be obtained by using certain ratios would be like removing red and blue from the artist's palette. In summary, the author maintains that it is impossible to use a single ratio as a guide to design. His demonstration, that refinements must be made between what is actually seen and what it appears to be, is a basic one. The two laws, expounded as guides for harmonious design and as a basis for achitectural

(Continued on page 228)



Superintendent of Schools:
Dr. O. E. Hill

Assistant Superintendent:
Dr. R. Y. Leech

Architect:
Spahn & Barnes,
Cleveland, Ohio

Electrical Engineer:
Mehnert & Reid,
Cleveland, Ohio

Electrical Contractor:
California Electric
Construction Co., Inc.
Parma, Ohio

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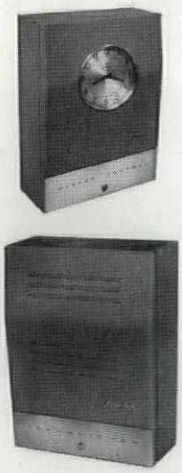

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says A. BERNARD OLSON, president,
The Olson Lathing Co., Chicago, Illinois

"Nobody questions the superiority of lath and plaster where greater fire resistance, lower maintenance costs and lasting beauty are concerned," declares A. Bernard Olson, one of the country's leading lathing contractors.

"Keycorner helps make lath and plaster even better. Our job experience proves what tests* show—that Keycorner almost doubles crack resistance over other corner reinforcements," he explains. "We know the Keycorner ability to fight cracks."

"And Keycorner is easier to use. The preformed 4-foot lengths fit into place with no effort at all. There's no time lost, no waste. The open mesh of Keycorner makes it easy to plaster over—assures full bond with plaster and a better job.

"Keycorner gives this extra protection, yet at a saving. That's why we use Keycorner exclusively!" Olson exclaims. "It lets us give greater satisfaction on every job."

**Tests with Keycorner, as well as other corner reinforcements, conducted by the Research Foundation, University of Toledo. Complete test reports FREE from Keystone Steel & Wire Company.*

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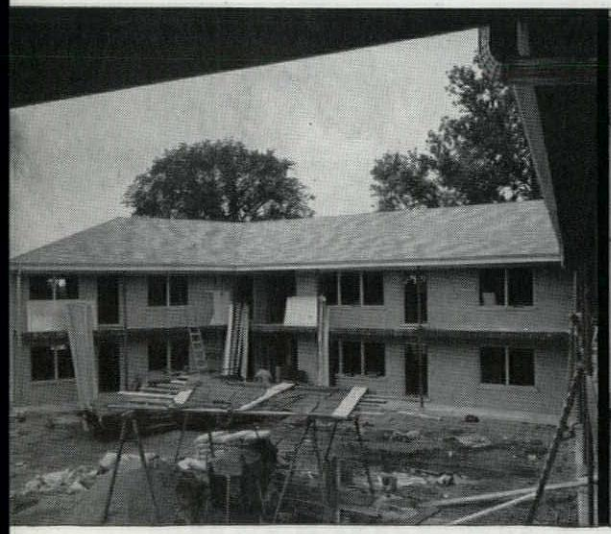
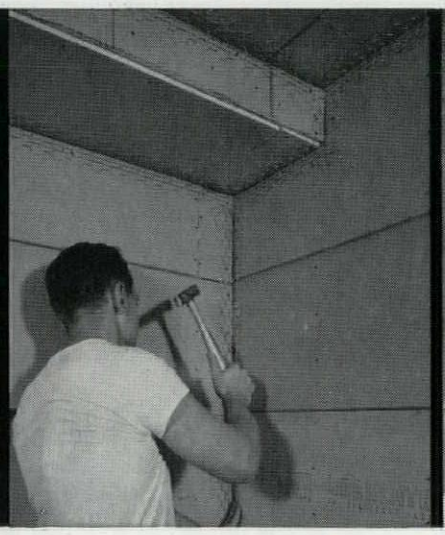
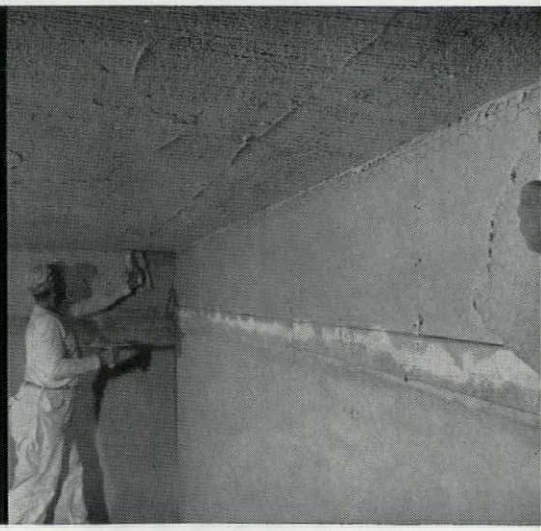


A typical quality Olson Lathing job goes into this 17-flat apartment building in Chicago. Many builders are switching back to lath and plaster because of the increased fire resistance, lower maintenance and permanent beauty that plaster walls provide.



Keycorner is simple to handle and use. This fact assures better workmanship, which adds still further to the superior job you get with Keycorner.



Keycorner gives a better plaster job. The open mesh assures full bond with plaster and gives the strong reinforcement that provides maximum crack resistance. Keycorner is also galvanized to prevent rust.

A. Bernard Olson uses Keycorner because it's part of "A better job at a lower price."

reviews

(Continued from page 224)

criticism, are valid as long as the designer seeks to achieve harmony. The flexibility which the designer may achieve within these laws is commendable. However, one must keep in mind that certain mathematical combinations of parts give unique effects, and these are part of the grammar of design, and, as such, should be available to the designer.

The Golden Number is well worth reading for anyone who is interested in the subject of proportion, as it may be applied to present day design, and also for those who wish additional criteria upon which to evaluate the use of proportion in architectural history.

EZRA D. EHRENKRANTZ
College of Architecture
University of California
Berkeley, Calif.

more small bridges

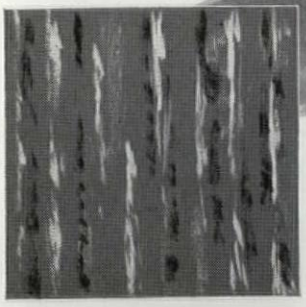
Composite Construction in Steel and Concrete for Bridges and Buildings. *I. M. Viest, R. S. Fountain, and R. C. Singleton. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York, N. Y., 1958. 192 pp., illus. $7.50*

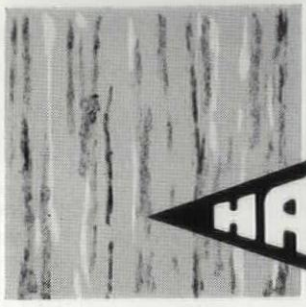
Among other things, the highway construction program now getting into high gear focuses engineering attention on the small- and medium-span bridges. These small bridges are required by the hundreds, and very many of them are economically constructed of composite steel and concrete members. This system utilizes a concrete deck so connected to rolled steel or built-up girders that neither can deform independently. This results in a stiffer, shallower, and more economical structure than would be obtained with either conventional reinforced concrete or structural steel.

This book is a neat engineering manual which covers virtually all aspects of composite construction. Nearly half of it is devoted to discussion and design of shear connectors—the key to composite design. Three commonly used shear connectors are spirals, flexible channels, and studs. In each case, the connector is welded to the top flange of the steel girder and embedded in the concrete deck so that horizontal shear between girder and deck is effectively prevented at all points along the span.

(Continued on page 232)

IN THE MODERN HOSPITAL...





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What happened to 170,000,000 board feet of Tectum®

In our first six years, we have sold over 170 million board feet of roof deck materials. This figure represents an area of about 2500 acres — enough material to cover 2500 good-sized factories or provide decks for the homes in a city of a quarter-million people. This production record, for a relatively new product, attests to its rapid nationwide acceptance as a prime roof deck material.

WHERE DID IT GO?

Millions of feet went into the educational market. Almost half of Tectum's total production each year is used for schools. Millions of feet went into factories, shopping centers, motels and churches. Huge new auditoriums and athletic field houses have incorporated Tectum roof decks and every year sees more Tectum used in home construction. In addition to roof deck applications, it has been adapted also for sidewalls. Tectum, 1″ thick, is becoming popular for suspended acoustical ceilings and is available in good-looking 2′ x 4′ panels. It has been used for many other general purpose applications as well.

WHAT MAKES IT UNIQUE?

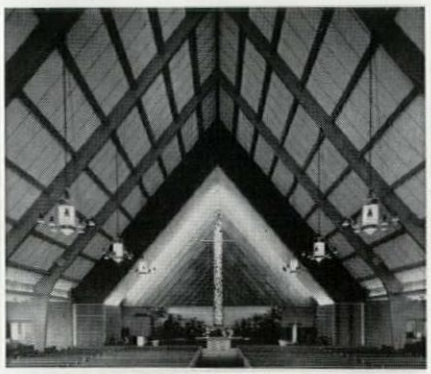
Tectum is composed of live, long-strand wood fibers, compressed into a variety of thicknesses on a long, continuous-belt manufacturing process. When it emerges from the production line, it is ready for use. No curing, no finishing. It has a natural off-white color that blends well with any interior color scheme, and this is an important asset. While Tectum serves primarily as a structural roof deck material, it also serves as the interior ceiling over exposed beam or joist. A single material of factory controlled quality that does the work of several.

Schools

Light-reflective Tectum contributes to bright, cheerful classrooms while complementing other materials in the room. The noise and confusion of busy areas can be lessened effectively by acoustical properties that absorb sound.

Furnace Brook School, Quincy, Mass. Architect: Anderson-Nichols & Co.

Churches



Good acoustics and good appearance go hand in hand in this modern house of worship. Textured Tectum roof decks are warm and inviting and are ideally suited to either high vaulted ceilings or to flat roof construction.

Beulah Presbyterian Church, Pittsburgh. Architect: Hoffman & Crumpton

Factories

Tectum absorbs factory noise when used for roof decks and sidewalls. You can reduce harsh sounds, normally reflected by hard surfaces, as much as 85% with Tectum 3″ material. Better working conditions for your plant.

Bridgeport Thermostat Division, Milford, Connecticut.

WHAT ARE ITS QUALITIES?

Tectum insulates, is structural, noncombustible and acoustical. It is lightweight yet tough and strong supporting roof loads up to 200 psf on economical spans. Its natural, textured surface is the result of compressing thick blankets of tough wood fibers into a rigid board. It is dimensionally stable, may be worked with ordinary wood working tools, resists insects, fungus and rot.

Tectum is supplied in thicknesses from 1" to 3" and the exposed side is protected by a ply of roofing felt, ready for the application of roofing materials as soon as it is erected. This backing also protects the material in handling and shipping and makes an excellent mopping surface for built-up roofing or shingles.

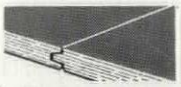
IS IT ECONOMICAL?

As a roof deck material Tectum serves as insulation, structural deck and acoustical board. It has a rich-toned, textured appearance that is both decorative and complementary to other materials within the building. Its light weight reduces the weight and cost of the framing system. Tectum is rated noncombustible by Underwriters Laboratories, assuring favorable insurance rates in most communities. Tectum goes down dry, down quickly, ready for roofing immediately. Add the extra qualities of Tectum to the savings its use makes possible and you'll agree that Tectum is definitely an economical material.

EXPERIENCED DISTRIBUTORS

There is a Tectum distributor or representative in your area — a capable building product specialist who can help with your roof deck, sidewall or acoustical problems. Give him a call before your next project or write Tectum Corporation, Newark, Ohio. Tectum has plants in Newark, Ohio, and Arkadelphia, Arkansas. Regional offices in Philadelphia, Atlanta, Columbus, Chicago, Dallas, Beverly Hills, Seattle and Toronto, Canada.

FIVE EXCLUSIVE ADVANTAGES

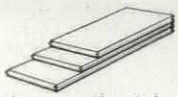


1. Tectum planks, used for roof deck construction, have tongue and groove edges on the long dimension. Nine and ten foot lengths are not unusual. Tongue and groove edges are driven together for strong, tight joints. Tectum makes an effective roof diaphragm for a lifetime of service.

2. Tectum tiles, also used for roof decks, have rabbeted edges on the long dimension and are designed to be erected over bulb-tee framing systems. The rabbeted edge allows plenty of room for grout to seal around the bulb-tee, assuring a firm bond with the framing and adding rigidity to the deck.

3. The exposed edges of Tectum on the "ceiling" side of the board are beveled making each joint neat and attractive with a paneled appearance. Fits better, looks better than square-edge materials.

4. Factory applied felt backing is another Tectum plus factor. Tectum is ready for roofing as it's erected.



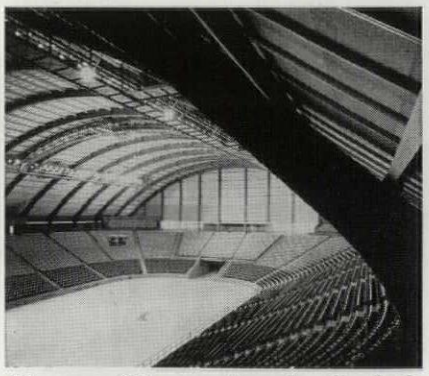
5. Tectum is custom cut to your specifications in special lengths engineered to fit any building module. Saves cutting on the job, saves time and labor, provides flexibility for the designer.

Homes

Studio ceilings for residential construction are gaining in popularity. Wood textured Tectum, with its decorative as well as functional advantages, is enjoying a growing acceptance. Sound conditioning has sales appeal, too.

Stover Residence, Houston, Texas.

Auditoriums



The roar of the crowd can be effectively controlled in buildings like this huge auditorium. Tectum roof decks offer many qualities of incomparable value for structures of this size. This is tongue and groove Tectum plank.

Univ. of Maryland Student Activities Building. Architect: Hall, Border and Donaldson

Commercial Buildings

Large commercial buildings are covered rapidly with minimum cost, minimum labor investment. Tectum is a real contribution to the success of commercial buildings for the investor, the designer, the contractor and the user.

U.S. National Bank, Hillsboro, Ore. Architect: Williams & Martin

reviews

(Continued from page 228)

The basic design method is the familiar "transformed section." Latest AASHO Bridge Specifications are followed. The book discusses shored and un-shored construction, unsymmetrical flanges, effects of creep and shrinkage, deflections, and safety factors. Very complete calculations are given for six representative types of member, and there are fourteen pages of tables and curves to assist the designer.

Composite design is not often seen in building construction, but this book points out some advantages which it offers. Some suggestions are given, and a typical building bay is designed in detail, as an example.

All in all, this book fills a gap in engineering literature and is an excellent addition to one's reference shelf. It is sufficiently complete so that any practicing engineer or student can easily learn from it all he needs to know about this construction method.

DONALD G. RADWAY
Lockwood Greene Engineers, Inc.
New York, N. Y.

BOOKS RECEIVED

The Living City. Frank Lloyd Wright. Horizon Press, Inc., 220 W. 42 St., New York, N. Y., 1958. 224 pp., illus. $7.50

History of Technology. Vol. V. The Late Nineteenth Century. Edited by Charles Singer, E. J. Holmyard, A. R. Hall, and Trevor I. Williams. Oxford University Press, 417 Fifth Ave., New York, N. Y., 1958. 970 pp., illus. $26.90

Brugskunst. *Applied Art.* Birgit and Christian Enevoldsen. Arkitektens Forlag, Bredgade 66, Copenhagen, Denmark, 1958. 108 pp., illus., Danish, English, and German texts. $4.06

Apartments and Dormitories. An *Architectural Record* Book. F. W. Dodge Corp., 119 W. 40 St., New York, N. Y., 1958. 238 pp., illus. $8.95. Collection of 53 building presentations and several articles on multiple dwellings, previously published in the *Architectural Record.*

Saving Dollars In Building Schools. David A. Pierce. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1958. 112 pp. $5.95

American School and University: 1958-59. Volume I, School Plant Reference. Volume II, Purchasing File. American School Publishing Corp., 470 Fourth Ave., New York, N. Y., 1958. Vol. I, 416 pp.; Vol. II, 878 pp.; illus. $10, set.

technical

The Contemporary Curtain Wall: Its Design, Fabrication and Erection. William Dudley Hunt, Jr. F. W. Dodge Corp., 119 W. 40 St., New York, N. Y., 1958. 462 pp., illus. $12.75

Engineering Manual. Edited by John H. Perry and Robert H. Perry. McGraw-Hill Book Co. Inc., 330 W. 42 St., New York, N. Y., 1959. 680 pp., illus. $9.50. A practical reference of data and methods in architectural, chemical, civil, electrical, mechanical, and nuclear engineering.

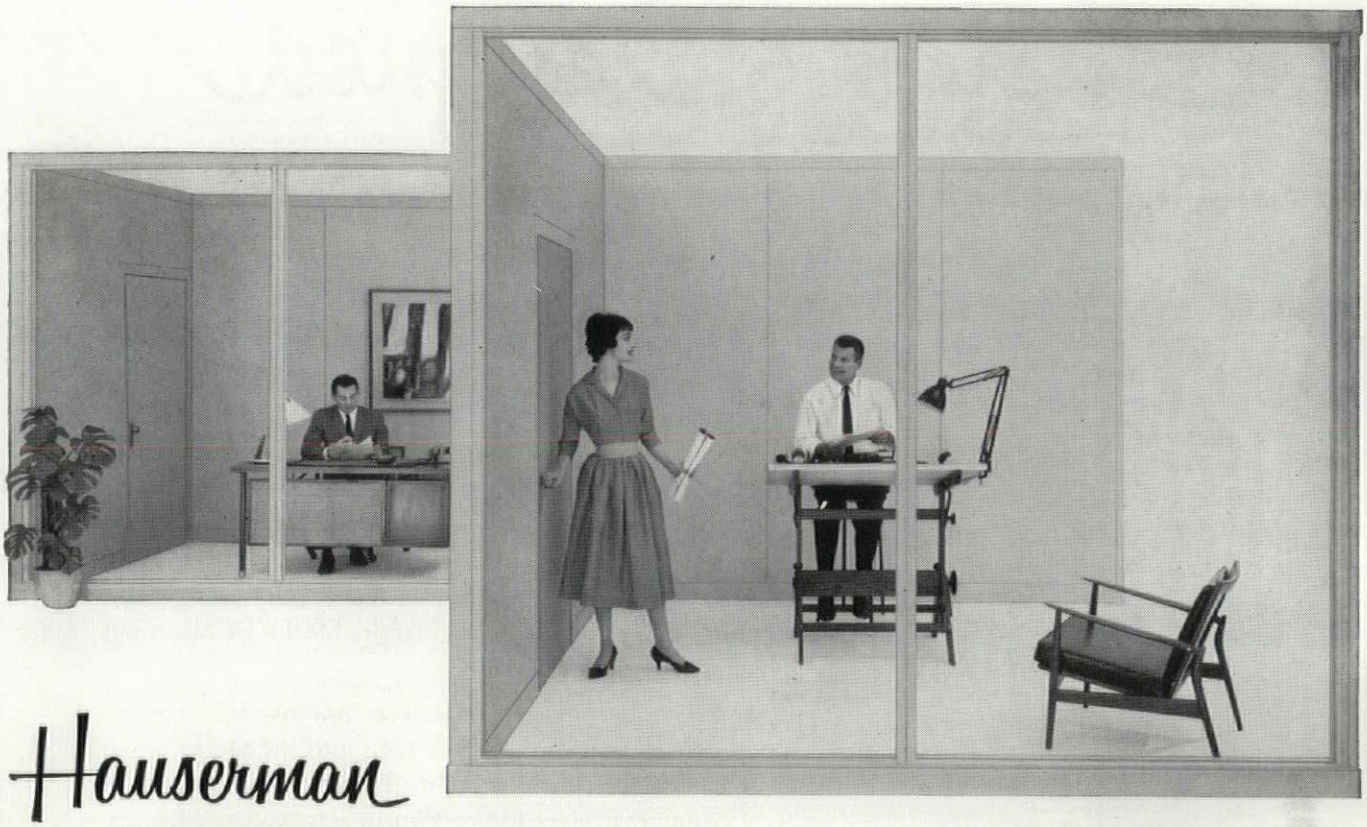
Reinforced Concrete Fundamentals. Phil M. Ferguson. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N. Y., 1958. 604 pp., illus. $9.50

art

The Pelican History of Art. Edited by Nikolaus Pevsner. Volume Z14. *The Art and Architecture of Ancient Egypt.* W. Stevenson Smith. Penguin Books Inc., 3300 Clipper Mill Rd., Baltimore, Md., 1958. 330 pp., 192 plates. $12.50

Jan Vermeer. Ludwig Goldscheider. Phaidon Press, Doubleday & Co., Inc., 575 Madison Ave., New York, N. Y., 1958. 117 plates. $10

Italian Renaissance Sculpture. John Pope-Hennessy Phaidon Press, Doubleday & Co., Inc., 575 Madison Ave., New York, N. Y., 1958. 144 plates. $20



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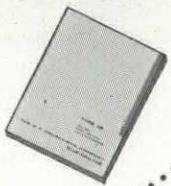

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Light fixtures and air diffusers (which are Acousteel pans with sound absorbing elements removed) snap into the same T-bars as the standard Acousteel units, making an integrated, dead-level ceiling that gives top performance for owners and tenants.

This building is another example of the results that can come from careful ceiling planning. Take advantage of the knowledge your *Acousti-Celotex distributor* has developed in this relatively new field of integrated, multi-function ceiling construction. He has the acoustical products, suspension systems and experience to help you put ceilings to work in new ways to meet your design requirements.

Architects: SKIDMORE, OWINGS & MERRILL
General Contractor: TURNER CONSTRUCTION CO.
Acousti-Celotex installation by: JAMES L. LYON CO.

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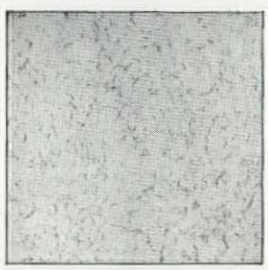

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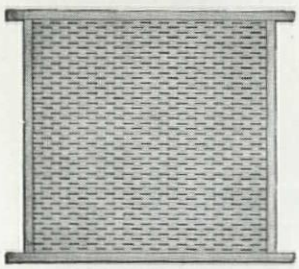
In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec



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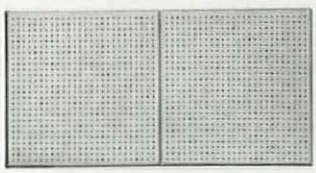

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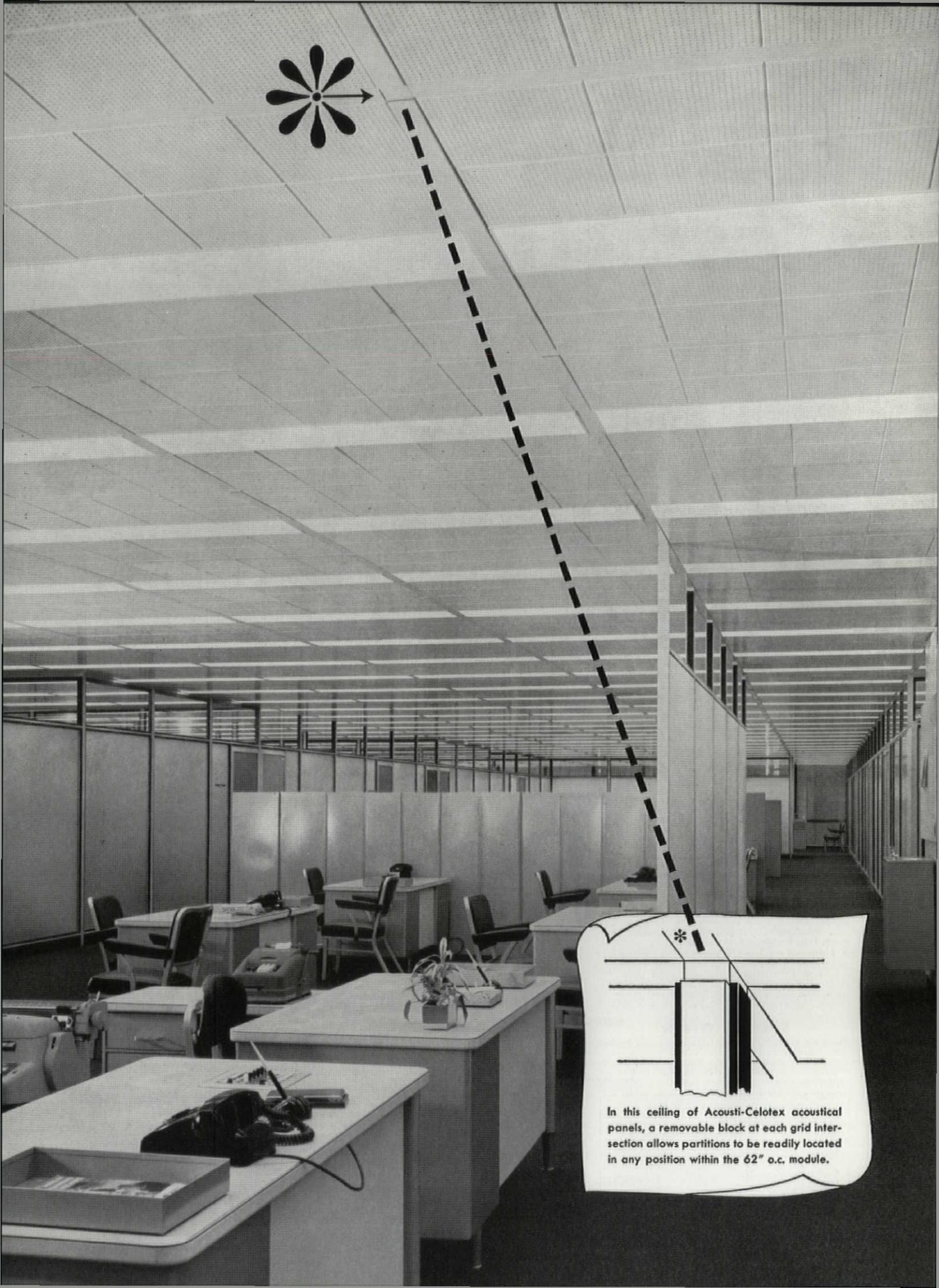

In this ceiling of Acousti-Celotex acoustical panels, a removable block at each grid intersection allows partitions to be readily located in any position within the 62" o.c. module.

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New Project Engineers for KETCHUM & KONKEL, Denver, Colo., announced by Milo S. Ketchum and E. Vernon Konkel: RUDOLPH F. BESIER, Chief Engineer; OLE F. MELLEBY; EUGENE N. CATALANO; EARL F. SORENSEN.

DR. W. D. PAINTER, Partner in the firm of CLARK, DAILY & DIETZ, Consulting Engineers, Memphis, Tenn. New Associates in the firm are: H. W. BYERS; P. W. CLINEBELL; B. C. CONKLIN; D. R. SMITH; M. FUAT TIGRAK; JAMISON VAWTER; A. G. COX; D. J. HENRY.

DAVID H. HUGHES, Partner in the firm of SKIDMORE, OWINGS & MERRILL, Architects, 425 Park Ave., New York 22, N. Y.

FREDERICK JOHNSON and JOSEPH J. YOHANAN, Junior Associates in the firm of A. J. DEL BIANCO & ASSOCIATES, Architects, 5501 Irving Park Rd., Chicago, Ill.

ROBERT S. LOOMIS and RAYMOND H. LOOMIS, Partners in the firm of LOOMIS & LOOMIS, Consulting Engineers, 252 Broad St., Windsor, Conn.

KAMLAH L. JOHNSON, I. MARY MYKOLYK, AUBREY G. CODE, WILLIAM B. SETTOON, Associates in the firm of CURTIS & DAVIS, Architects-Engineers, 2475 Canal St., New Orleans 19, La.

WM. DUDLEY HUNT, JR. and JAMES TRAVIS DENT, Associates in the firm of WM. DUDLEY HUNT, JR. & JAMES TRAVIS DENT, 922 Ursuline St., New Orleans, La.

DANIEL S. DEFENBACHER, Associate in the firm of VICTOR GRUEN ASSOCIATES, 135 South Doheny Dr., Beverly Hills, Calif.

CHARLES C. CAMPBELL and ROBERT B. JARVIS, Members of the firm of MARSHALL & BROWN, Architects-Engineers, 1016 Baltimore Ave., Kansas City, Mo.

new addresses

POMERANCE & BREINES, Architects, 630 Third Ave., New York 17, N. Y.

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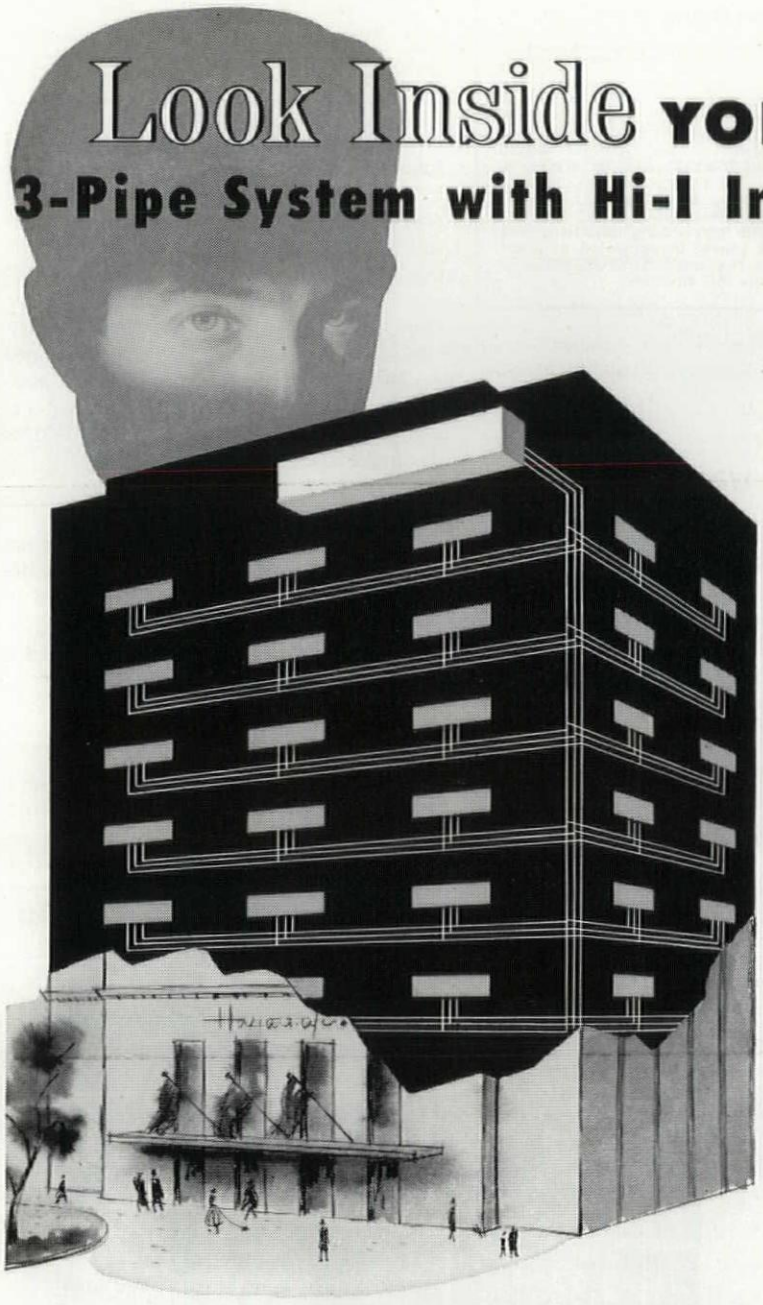

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(Continued on page 242)

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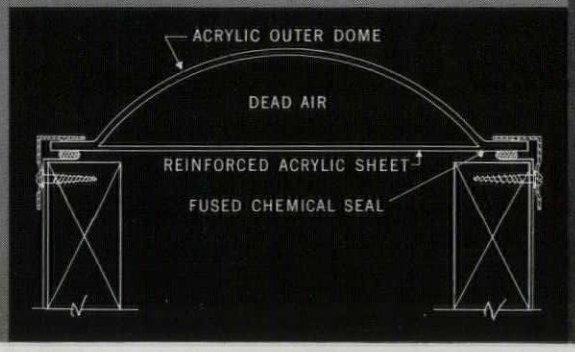

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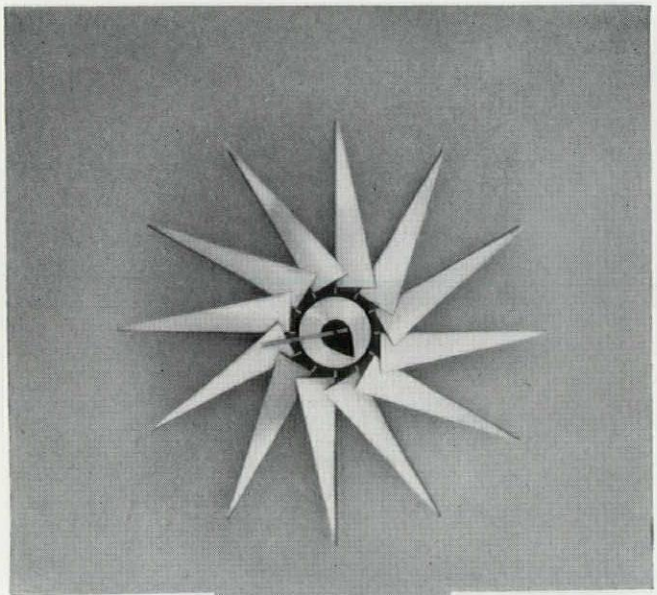

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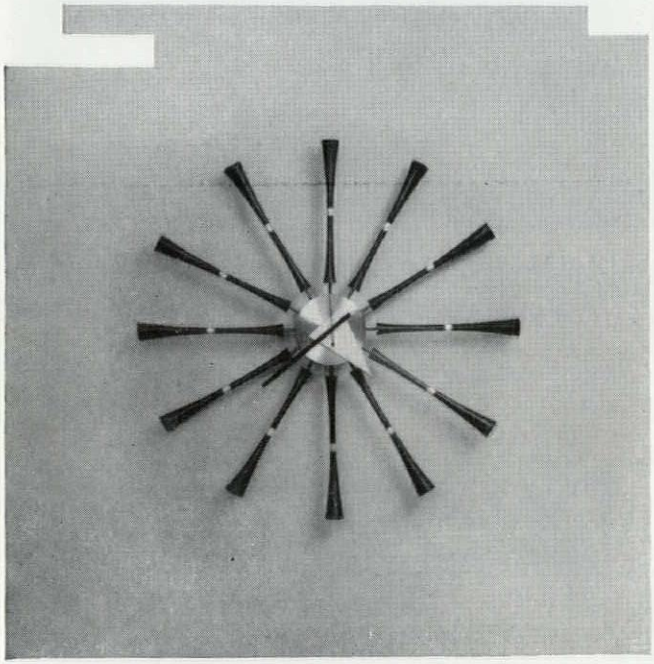

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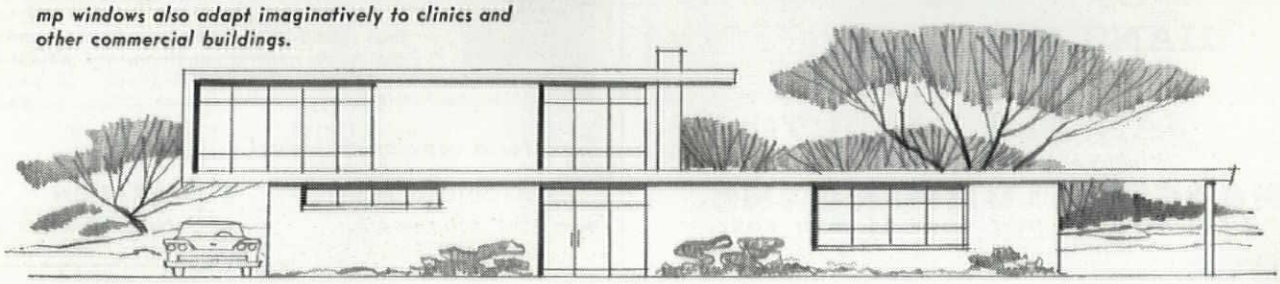

p/a jobs and men

(Continued from page 238)

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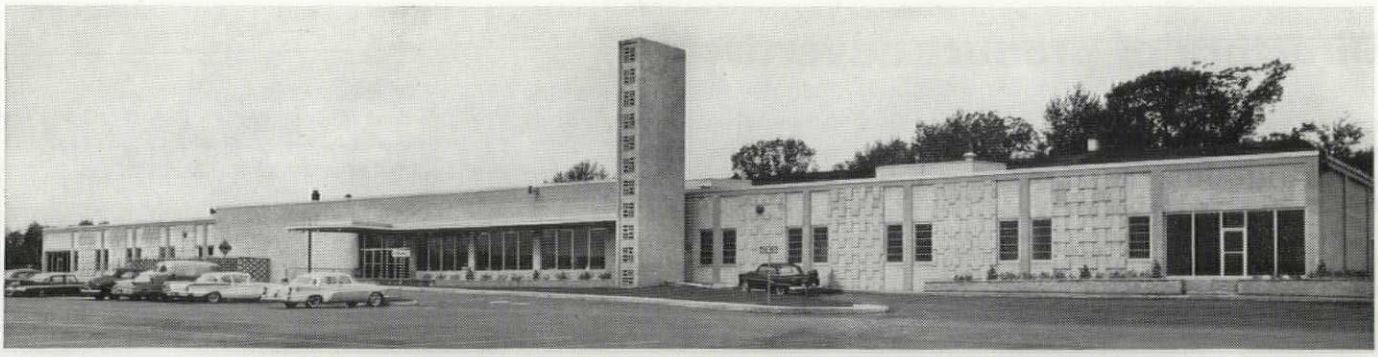

This building, located in Edison, N. J., is said to house the largest number of lanes in a row on one floor in the world. In addition to its 66 lanes, it includes restaurant, office, cocktail lounge, bars, and meeting rooms.

CONCRETE BLOCK "dresses up" new bowling center . . .

All exterior walls are exposed concrete masonry—Waylite block on the front, painted cinder block on sides and back. Shrub beds are bordered with low walls of split block. Best Block Co. used Lehigh Early Strength Cement for all units.

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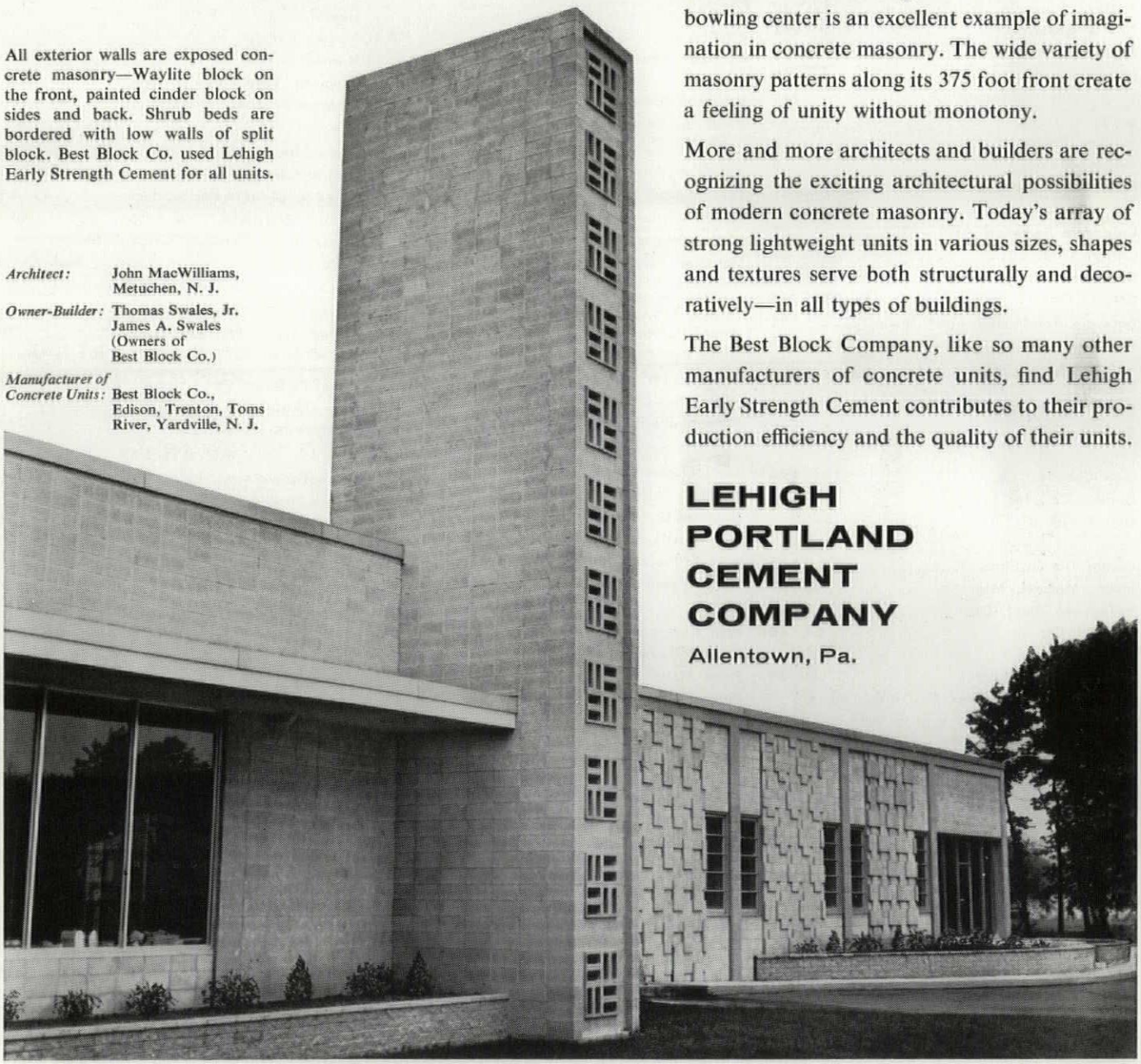

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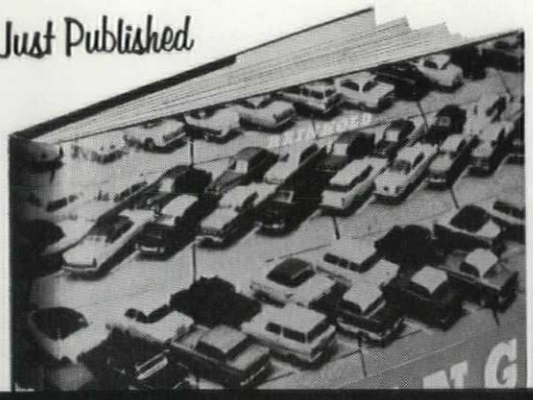

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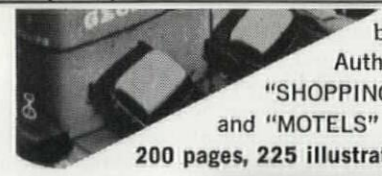
TOTAL WIDTH (including access roads)

STALL WIDTH	AISLE WIDTH	NUMBER OF ROWS 1	2	3	4	5	6	7	8	9
8'0"	19'0"	39'6"	60'0"	95'0"	115'6"	151'0"	171'6"	207'0"	227'0"	262'6"
8'6"	18'6"	39'0"	60'0"	95'0"	115'6"	150'6"	171'6"	206'6"	227'0"	262'0"
9'0"	18'0"	39'0"	60'0"	94'6"	115'6"	150'0"	171'0"	205'6"	226'6"	261'0"
9'6"	18'0"	39'0"	60'6"	95'0"	116'0"	150'6"	172'0"	206'6"	227'6"	262'0"
10'0"	18'0"	39'6"	61'0"	95'6"	117'0"	151'6"	173'0"	207'6"	229'0"	263'6"

TOTAL LENGTH

NO. OF STALLS	SINGLE ROW WIDTH OF STALL: 8'0"	8'6"	9'0"	9'6"	10'0"	OVERLAP WIDTH OF STALL: 8'0"	8'6"	9'0"	9'6"	10'0"
1	16'6"	17'0"	17'6"	17'6"	18'0"					
2	25'6"	26'6"	27'6"	28'6"	29'6"	16'0"	17'0"	18'0"	19'0"	20'0"
3	35'0"	36'6"	38'0"	39'6"	41'0"	25'6"	26'6"	27'6"	28'6"	29'6"
4	44'0"	46'6"	48'6"	50'6"	52'6"	25'6"	27'0"	28'6"	30'0"	31'6"
5	53'0"	56'0"	59'0"	61'6"	64'0"	35'0"	36'6"	38'0"	39'6"	41'0"
6	62'6"	66'0"	69'6"	72'6"	75'6"	34'6"	37'0"	39'0"	41'0"	43'0"
7	71'6"	75'6"	79'6"	83'6"	87'0"	44'0"	46'6"	48'6"	50'6"	52'6"
8	81'0"	85'6"	89'0"	94'6"	98'0"	43'6"	47'6"	49'6"	52'0"	54'6"
9	90'6"	95'6"	99'6"	105'6"	109'6"	53'0"	56'0"	59'0"	61'6"	64'0"
10	100'0"	105'6"	110'0"	116'6"	121'0"	62'6"	66'0"	69'6"	72'6"	75'6"
11	109'6"	115'6"	120'6"	127'6"	132'6"	62'6"	66'0"	69'6"	72'6"	75'6"
12	119'0"	125'6"	131'0"	138'6"	144'0"	72'0"	76'0"	79'6"	83'6"	87'0"
13	128'6"	135'6"	141'6"	149'6"	155'6"	81'0"	85'6"	89'0"	94'6"	98'0"
14	138'0"	145'6"	152'0"	160'6"	167'0"	81'0"	85'6"	89'0"	94'6"	98'0"
15	147'6"	155'6"	162'6"	171'6"	178'6"	90'6"	95'6"	99'6"	105'6"	109'6"
16	157'0"	165'6"	173'0"	182'6"	190'0"	100'0"	105'6"	110'0"	116'6"	121'0"
17	166'6"	175'6"	183'6"	193'6"	201'6"	100'0"	105'6"	110'0"	116'6"	121'0"
18	176'0"	185'6"	194'0"	204'6"	213'0"	109'6"	115'6"	120'6"	127'6"	132'6"
19	185'6"	195'6"	204'6"	215'6"	224'6"	119'0"	125'6"	131'0"	138'6"	144'0"
20	195'0"	205'6"	215'0"	226'6"	236'0"	119'0"	125'6"	131'0"	138'6"	144'0"
21	204'6"	215'6"	225'6"	237'6"	247'6"	128'6"	135'6"	141'6"	149'6"	155'6"
22	214'0"	225'6"	236'0"	248'6"	259'0"	138'0"	145'6"	152'0"	160'6"	167'0"
23	223'6"	235'6"	246'6"	259'6"	270'6"	138'0"	145'6"	152'0"	160'6"	167'0"
24	233'0"	245'6"	257'0"	270'6"	282'0"	147'6"	155'6"	162'6"	171'6"	178'6"
25	242'6"	255'6"	267'6"	281'6"	293'6"	157'0"	165'6"	173'0"	182'6"	190'0"
26	252'0"	265'6"	278'0"	292'6"	305'0"	157'0"	165'6"	173'0"	182'6"	190'0"
27	261'6"	275'6"	288'6"	303'6"	316'6"	166'6"	175'6"	183'6"	193'6"	201'6"
28	271'0"	285'6"	299'0"	314'6"	328'0"	176'0"	185'6"	194'0"	204'6"	213'0"
29	280'6"	295'6"	309'6"	325'6"	339'6"	176'0"	185'6"	194'0"	204'6"	213'0"
30	290'0"	305'6"	320'0"	336'6"	351'0"	185'6"	195'6"	204'6"	215'6"	224'6"
31	299'6"	315'6"	330'6"	347'6"	362'6"	195'0"	205'6"	215'0"	226'6"	236'0"
32	309'0"	325'6"	341'0"	358'6"	374'0"	195'0"	205'6"	215'0"	226'6"	236'0"
33	318'6"	335'6"	351'6"	369'6"	385'6"	204'6"	215'6"	225'6"	237'6"	247'6"
34	328'0"	345'6"	362'0"	380'6"	397'0"	214'0"	225'6"	236'0"	248'6"	259'0"
35	337'6"	355'6"	372'6"	391'6"	408'6"	214'0"	225'6"	236'0"	248'6"	259'0"
36	347'0"	365'6"	383'0"	402'6"	420'0"	223'6"	235'6"	246'6"	259'6"	270'6"
37	356'6"	375'6"	393'6"	413'6"	431'6"	233'0"	245'6"	257'0"	270'6"	282'0"
38	366'0"	385'6"	404'0"	424'6"	443'0"	233'0"	245'6"	257'0"	270'6"	282'0"
39	375'6"	395'6"	414'6"	435'6"	454'6"	242'6"	255'6"	267'6"	281'6"	293'6"
40	385'0"	405'6"	425'0"	446'6"	466'0"	252'0"	265'6"	278'0"	292'6"	305'0"
41	394'6"	415'6"	435'6"	457'6"	477'6"	252'0"	265'6"	278'0"	292'6"	305'0"
42	404'0"	425'6"	446'0"	468'6"	489'0"	261'6"	275'6"	288'6"	303'6"	316'6"
43	413'6"	435'6"	456'6"	479'6"	500'6"	271'0"	285'6"	299'0"	314'6"	328'0"
44	423'0"	445'6"	467'0"	490'6"	512'0"	271'0"	285'6"	299'0"	314'6"	328'0"
45	432'6"	455'6"	477'6"	501'6"	523'6"	280'6"	295'6"	309'6"	325'6"	339'6"
46	442'0"	465'6"	488'0"	512'6"	535'0"	290'0"	305'6"	320'0"	336'6"	351'0"
47	451'6"	475'6"	498'6"	523'6"	546'6"	290'0"	305'6"	320'0"	336'6"	351'0"
48	461'0"	485'6"	509'0"	534'6"	558'0"	299'6"	315'6"	330'6"	347'6"	362'6"
49	470'6"	495'6"	519'6"	545'6"	569'6"	309'0"	325'6"	341'0"	358'6"	374'0"
50	480'0"	505'6"	530'0"	556'6"	581'0"	309'0"	325'6"	341'0"	358'6"	374'0"



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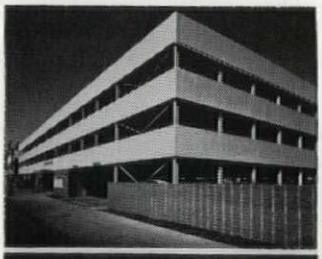
Here are illustrations of parking lots, ramp garages, parking decks, underground garages and elevator garages.

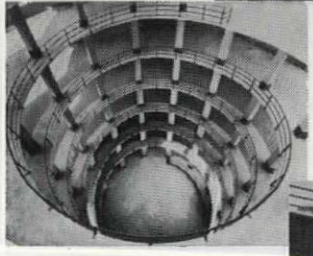
Examples are drawn from large cities and small towns. They range from suburban shopping centers to down-town stores, from hotels to drive-in banks, from office buildings to perimeter parking lots connected by bus to downtown. Special attention is directed to plans for redevelopment of existing cities. There are suggested zoning requirements for parking and freight dock space.

PARKING is an essential handbook for architects, engineers and town planners, for merchants and bankers, for city officials and for members of Planning, Zoning and Park Commissions.

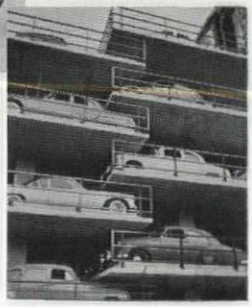


This demountable Steel Parking Deck could reduce garage cost dramatically in places where local building codes will allow non-fireproof construction.

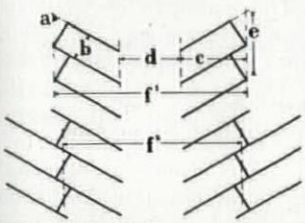
Here's an example of how the architect, through careful planning, was able to save $250,000 by building a one story department store with roof parking. Although reinforcing the roof would cost $10,000 and building two ramps (one shown here) would cost $40,000 there was a saving of $300,000 since the one story building would not need elevators.



The two one-way helical ramps, one at each end of the building are the most striking feature of the Autorimessa outside Venice, Italy. Customers drive their own cars on these ramps. Passenger elevators connect all floors.



A split-level plan with overlapping floors house 210 cars on a corner plot 90 x 100 feet in downtown Atlanta, Georgia. The beamless, reinforced concrete floors are cantilevered on four sides. This reduced the number of columns required and avoided disturbance of buildings on adjacent lots.



ABOUT THE AUTHORS

GEOFFREY BAKER is now engaged on a special research project concerned with urban regional growth. As consultant on commercial site development, traffic and parking he works with architects, developers, retail stores, city officials and universities.

BRUNO FUNARO, because of his untimely death in 1957, was not able to see this book through to completion. He had collaborated with Geoffrey Baker on two other books published by Reinhold—**Shopping Centers** and **Motels.** At the time of his death Mr. Funaro was assistant-Dean of the School of Architecture at Columbia University.

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P.S.

two meetings

Anyone whose name appears in public print regularly, as mine does on this page, for instance, gets himself invited to serve on many committees and to belong to many organizations. After a time, one becomes realistic about this, and begins to resign from as many worthy causes as one joins. I, for one, dislike having my name appear on a membership list, and certainly a letterhead, of an organization in which I take no real part. On the other hand, this business of being invited to serve can result in some very interesting assignments. Two meetings that I have attended this week illustrate what I mean.

I am a trustee (I'm not quite sure what that means in this context) of the *Council for the Advancement of the Negro in Architecture*, and we have just held our annual board meeting. This is a worthwhile organization of both Negroes and whites, functioning for the purpose of encouraging young Negroes to enter the field of architecture, and giving something more than a moral boost to those who are in the profession. Its activities consist principally of vocational guidance, exhibitions of work accomplished, and occasional scholarships. It is in perennial need of funds to carry on this work—principal sources of income are membership dues and occasional larger donations from architects who feel they can afford it.

Last year, a most successful exhibition opened in New York, at the Architectural League (prepared by CANA and sponsored by the League, New York Chapter, AIA, and New York Society of Architects), showing the work of Negro architects from various parts of the country. It is still traveling, I believe, having had a good send-off at its opening by various New York municipal officials, Mrs. Eleanor Roosevelt, and others.

Recently a major story in *Ebony*, a national picture magazine of large circulation, went into some detail on the role of the Negro in architecture in the United States. It seems, according to *Ebony's* research, that there are about 100 Negro architects practicing in the United States and, although only one accredited school granting an architectural degree is predominantly Negro (Howard University) many other ACSA schools have graduated distinguished Negro professionals, and approximately 2000 are enrolled in "some 200 schools offering some type of architectural education." Some of this is good training. Hampton Institute, for instance, has a Department of Architecture & Engineering and gives a B.S. in the field of architecture; one hesitates, however, to think how bad some of it probably is.

The *Ebony* story illustrates the work of 18 architects, all young. However, the situation still remains, in most cases, that young Negroes are advised, as Paul Williams says he was: "Who ever heard of a Negro architect? Don't beat your head against a stone wall. . . ."

From time to time, someone asks me about this organization: "Isn't it wrong to isolate any one group, such as the Negro, for special attention and 'advancement'? Isn't this something like segregation in reverse?" The answer is that there is so much wrong advice being given at the high-school level that only by special effort can more talented, interested, and potentially useful young people of this group be brought into our field. The number now in architecture is sadly disproportionate to the general population ratio.

Marcus Caines, vice-president of the organization, told me of the success he has had in talking to vocational counselors in the New York school system. They have eagerly welcomed a realistic statement of the potentials and difficulties of a career in architecture; Caines has more engagements than he can fill, speaking to groups of both counselors and students on the subject.

The president of CANA is John Louis Wilson, a soft-spoken, middle-aged Columbia architectural graduate who has a practice in the Harlem section of New York. The executive secretary is Dan Watts, an ardent young man in SOM's New York office; other officers are non-Negro. On the board, about half of us are white, the other half, Negro. My point in emphasizing this is to make clear that this is not an organization *of* Negroes in architecture but rather an organization of all interested people to *encourage* the Negro, along with others, in architecture. Dues for active members are $5 a year; for contributing members, $15. The Council's address: 166 West 125th Street, New York.

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My other interesting meeting this week was that of the *Commission on Architecture* of the *Department of Worship and the Arts* of the *Division of Christian Life and Worship* of the *National Council of the Churches of Christ in the U.S.A.* Top that, if you can, for departmentalization. Despite the seemingly unwieldy organizational set-up, these Commissions (there are others on Music, on Art, on Drama, on Literature, and they are all executive-directored by another ardent young man, the Rev. Marvin P. Halversen) do an important job of helping to clarify the relation of the arts to the Church, and of the Church to contemporary developments in the arts.

It must be admitted that most of what is accomplished is talk and some occasional published Statements (there was an attempt by our Commission to influence the basic design of the new Protestant Church headquarters office building —known as the Interfaith Church Center, now going up adjacent to Riverside Church in New York—which was not too successful) but what's the matter with talks and published Statements? Perhaps we have too few of them in this day of immediate search for the practical application of everything to which we give time.

This particular meeting was enlivened by having representatives from the other Commissions there. I learned a great deal about organ music; I had never really understood before the argument for the "classic" organ, as distinguished from the 19th Century orchestra-imitative instrument. This move is closely comparable to the plea for "purity" and elimination of meaningless ornament in architecture, I gather.

Most interesting, however, was the fact that our meeting was held in the premises of Judson Memorial Church, on Washington Square South, and much of our subject was the place (physical and pastoral) of the Church in the urban environment. An interesting article in the November issue of *Harpers*, by Truman B. Douglass, had discussed this subject and had, in fact, used Judson Church as a good example of a city ministry. It serves both a "tough" neighborhood below the Square and the traditional "Village" with its art-conscious, slightly-phoney-Bohemian self-consciously-sophisticated types—and serves them well. Questions discussed were: should an *interesting* but not very *good* McKim, Mead & White structure (dating from 1892) be "preserved" in the face of the encroachments by imitation Georgian and imitation modernistic buildings being spawned by that great center of culture, New York University? Or should the old building be sold and abandoned and a new, inviting, contemporary space be designed (we would hope)? What is the value of a rather badly proportioned nave of the '90s, with certain character and undoubted sentimental attachment, in today's city? In fact, what is likely to be the *program* of the Church, in a few years, in today's city (as the city becomes more and more the dwelling of childless couples with comparatively high incomes)?

Good talk; no conclusions; I think no Statements this time.

Thomas H. Creighton