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THIS MONTH IN P/A

Progressive Architecture, August 1965

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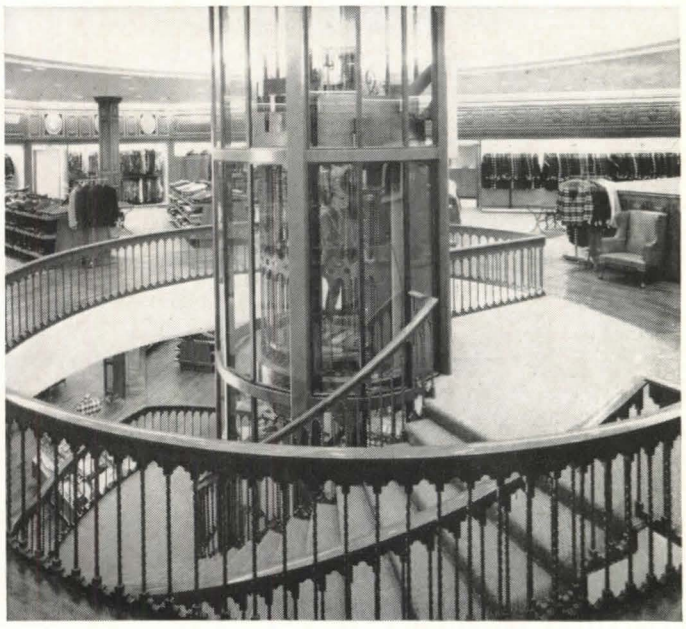

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Reaction to Major Space Issue

Dear Editor: Thank you for "The Major Space" issue (JUNE 1965 P/A), an ambitious project that came off excellently. Reading it after the disgusting experience of the AIA Convention in Washington was to experience the total alienation of architecture as design of human environment from building as a sycophantic branch of politics, speculation, and technology.

It was a delight to find your articles all solid architectural meat without meaningless space-age platitudes and "services to the building industry" rationalizations. Strangely enough, it is the incertitude of a new beginning, running like a leitmotif through all statements, that is so encouraging. There is no deeper commitment than search.

While professional representation has abdicated all architectural responsibility, publications by architects for architects must take its place. You have made a courageous contribution, setting a high standard for the future.

SIBYL MOHOLY-NAGY
Pratt Institute
Brooklyn, N. Y.

Dear Editor: There could be no more ironic caption for the cover of the June issue than the two words that appear in its upper left-hand corner: "Progressive Architecture."

JOHN HUDSON
Atlanta, Georgia

Dear Editor: The issue devoted to "The Major Space" is the most exciting publication I have seen. Congratulations!

MICHAEL BRILL
Pratt Institute
Brooklyn, N. Y.

Dear Editor: Your June issue is extraordinarily interesting and stimulating. But it is also troubling. For too much of the thinking is founded on false premises, which in logic inevitably lead to false conclusions; or, alternatively, it is characterized by the sort of wishful thinking that mistakes the intention for the deed. There are numerous examples of sloppy thinking in the various articles, but two stand out because one would not expect them of their authors.

The first is Dr. Osmond's theory of sociofugal and sociopetal spaces [p. 153, JUNE 1965 P/A], and its translation into architecture by Messrs. Geddes, Brecher, Qualls & Cunningham [p. 159, APRIL 1965 P/A]. Dr. Osmond overextends the theory; while design has its effect, it is by no means absolute. A railroad station seems to Dr. Osmond "the apogee of sociofugality" (lovely word), but to a family group there being reunited, or to a crowd of admirers greeting their returning hero, it is certainly sociopetal. Even that paradigm of sociofugality, the toilet compartment, may have its sociopetal moments, as when a mother pots her child. The truth is that any space that can contain two persons can be sociopetal or sociofugal, depending on the persons and the occasion.

It is true, though, that sociotropic design—here I must acknowledge my indebtedness to Stephen Potter for this

Continued on page 10

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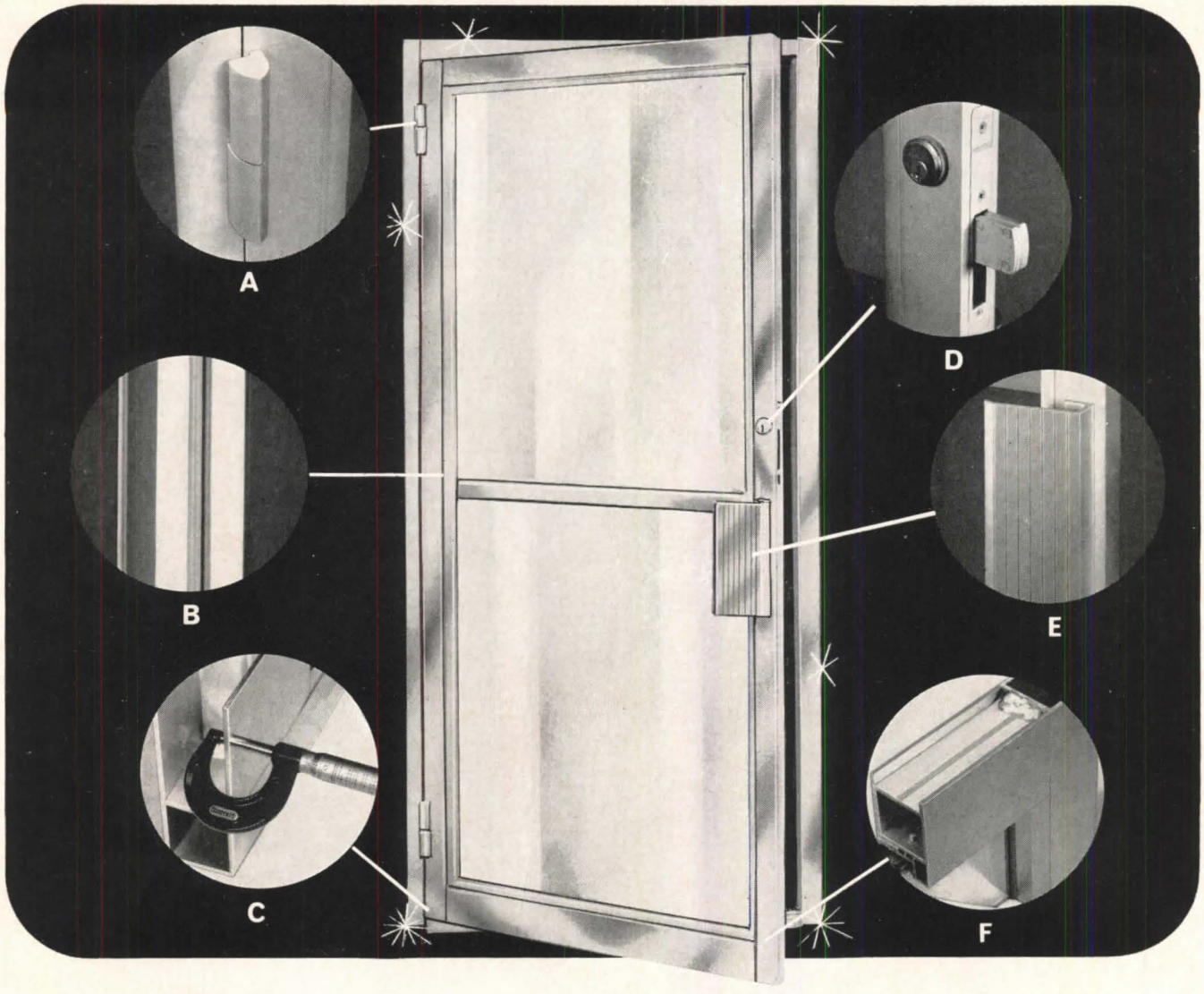

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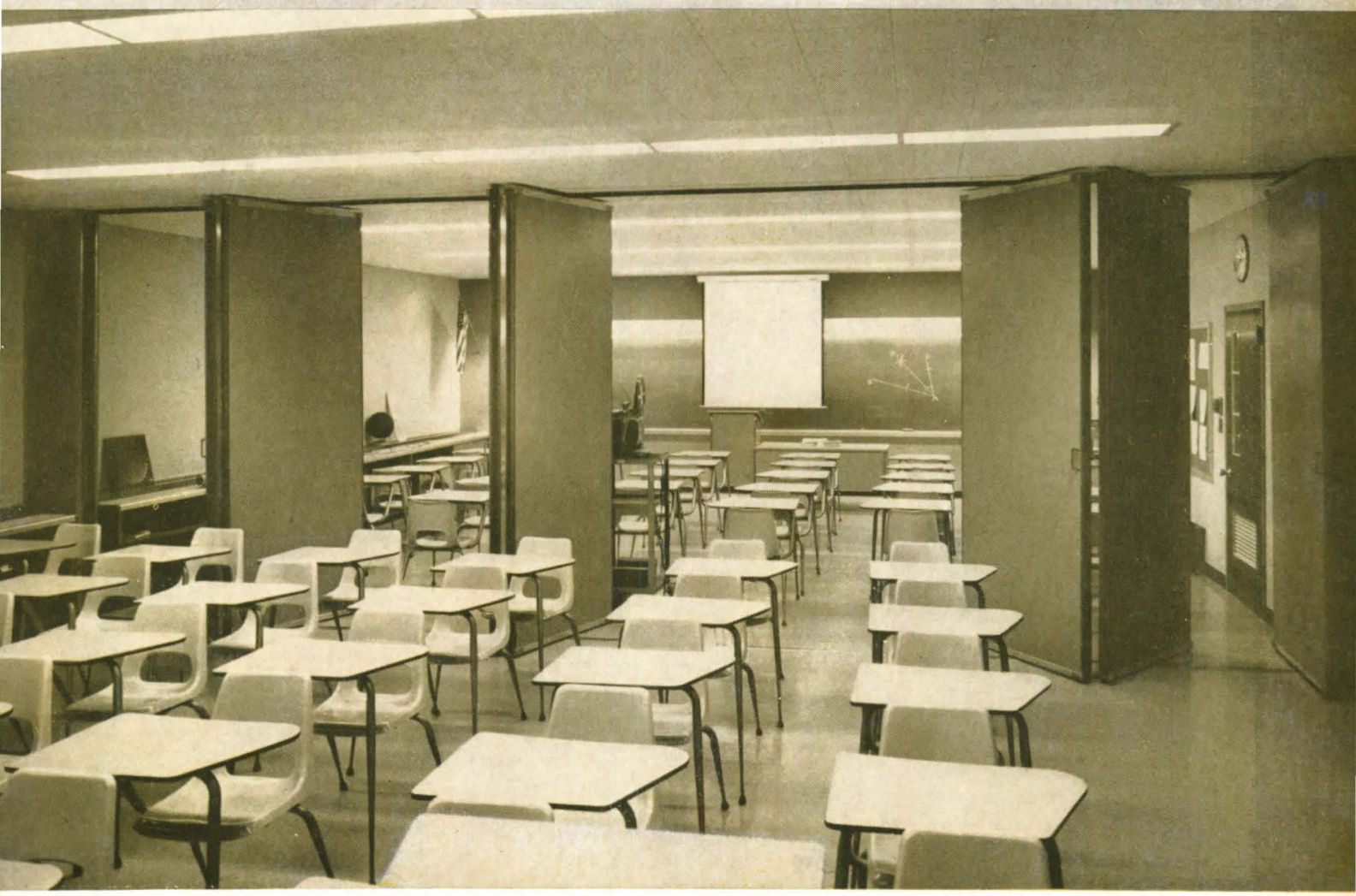

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modest achievement in One-Upmanship—can be important in certain kinds of buildings, particularly *those having to* do with habitation. It is curious, then, that Messrs. Geddes et al. can attend to Dr. Osmond's words on the importance of the "very small society," the "small groups," and then produce their dormitories for the University of Maryland, which strike me as being little different from other current examples and as anthropozenic and sociofugal. The primary locale for casual contacts in residence halls is the washroom. At Delaware, these serve 33 to 37 students, which can hardly be considered a small group. Some of my student years were spent in the then-new Pioneer Hall (Wm. Ingemann, 1934) at the University of Minnesota. It remains my ideal of dormitory design. It was divided into a number of vertical "houses," not interconnecting, four stories high, and with as few as three or four and not more than eight or nine rooms per floor. Each floor had its washroom, serving not more than 12 or 14, and the house itself had no more occupants than in Delaware are served by one "toilet." I found this small-scale society delightful. And it was the direct result of the design, even if *ante* Osmond. Why then, under Dr. Osmond's guidance, the failure at Delaware?

Second is William J. Le Messurier's discussion of structural design and its effect on scale [p. 178, JUNE 1965 P/A]. He admires the 1889 Galerie des Machines for its "hierarchy of elements," which, by expressing his "principle of concentration," give it scale; and he dislikes space-frames because the members are undifferentiated and there is "no hierarchy of scale." Yet, in looking at the photograph, I thought he must be in error in stating that the Galerie arches were spaced 65 ft; they looked 25 ft or 30 ft at the most to me. Then with a start I realized that the tiny strokes sprinkled on the ground were men, and that the spacing could indeed be what he said. But it was the men who gave it scale; without them in the photograph, the building would look less than half its size. It is no better than the Air Force Academy dining hall, which derives its scale from the man-sized tables and chairs. (Incidentally, the space-frame, like all our other great structural "innovations," is a Victorian invention; there are excellent cast-iron versions in the platform shelters of some of the old stations along the northeastern lines of the British Railways.)

Le Messurier believes that the best

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structural design is based on the principle of concentration. Yet he admires domes, which, whether compressive or tensile, are perfect illustrations of the principle of dispersion. (*Here it should* be pointed out that the new Exhibition Palace [21, 22] in Paris is not a dome but a vault.) The truth is, of course, that each principle is valid, depending on factors such as the requirements of the building: If few points of support are necessary, the principle of concentration necessarily holds; if support can be continuous, the principle of dispersion is more logical and probably more economical. A simple historical instance of the routing of the principle of concentration by the greater simplicity and economy of dispersion is the balloon-framed house, which has totally displaced the old post-and-beam framing. The reason lies in that which he curiously regards a fault: the dispersion of the material into hundreds of members, "each carrying loads of (approximately) equal magnitude." And the very multiplicity of the members means that they can perform more than one function; the studs carry the floor and roof loads, and, besides, they are close enough together to receive the exterior and interior wall finishes.

It is disappointing that so much thought should have such dubious result. Probably, it results from the naive but prevalent notion that logic is a sufficient test for truth. But, at best, all logic can do is guarantee that the conclusion is consistent with the premises; if they are false, logic will ensure a false conclusion. Much of the thinking in this issue is not up to that level even; it is approximate logic leading to rationalizations.

EDWARD V. LOFSTROM
Minneapolis, Minn.

Dear Editor: Your current issue on Major Space has given much pleasure, incited a few hot debates, and made a stimulating subject for discussion in our office. Reporting the news and works of architects is necessary, but one sometimes feels it is, by nature of the task, a little perfunctory. I am always pleased to see editorial talk and research about the broad fields as opposed to adulation and justification of the more personal performances of architects. Think up another book of comparable interest and importance. It will be something to preserve and a serious source item.

O'NEIL FORD
San Antonio, Tex.

Dear Editor: Thank you for "The Major

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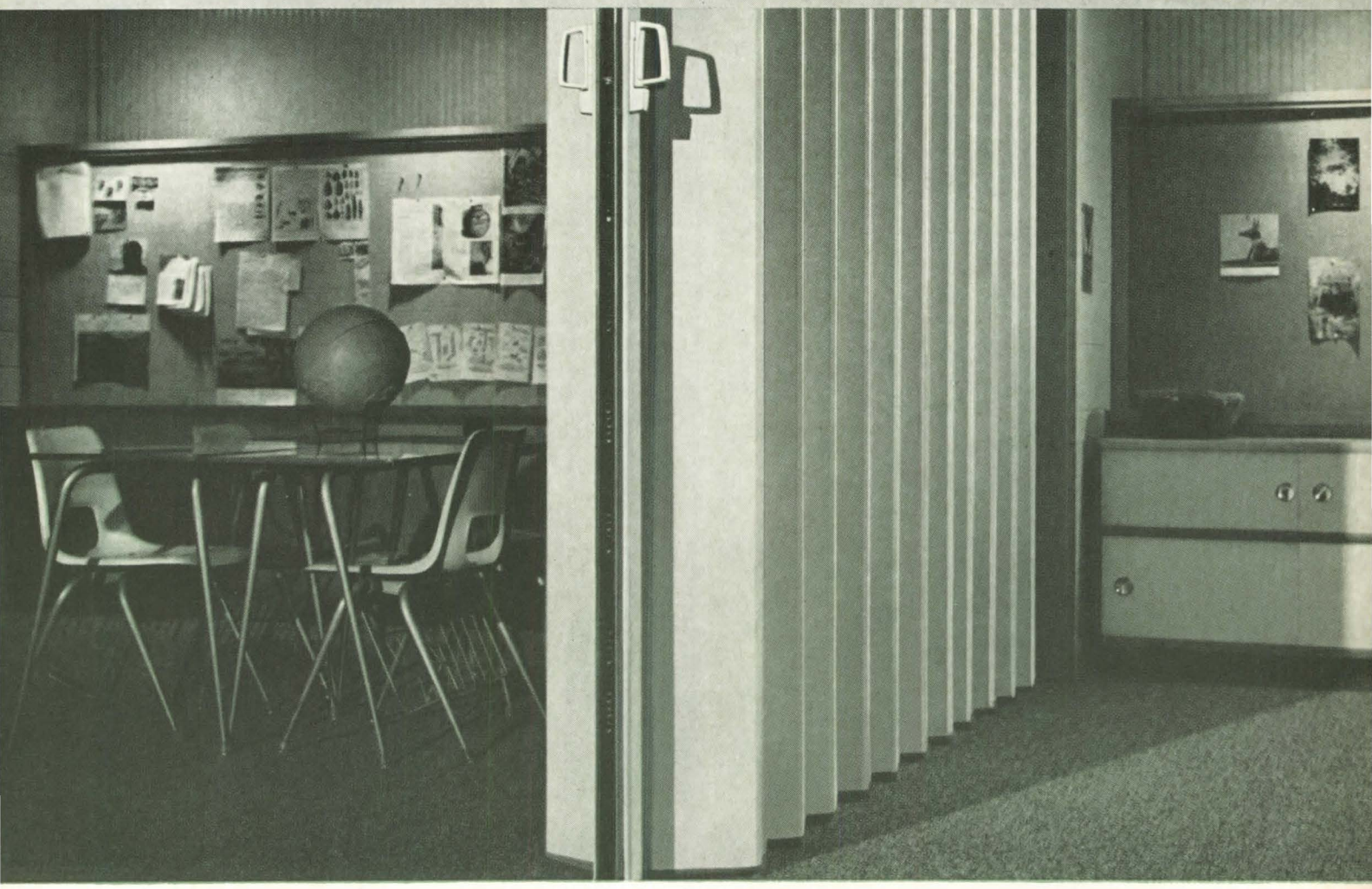

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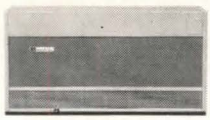

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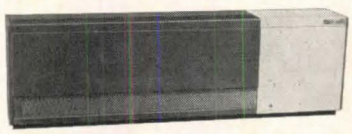

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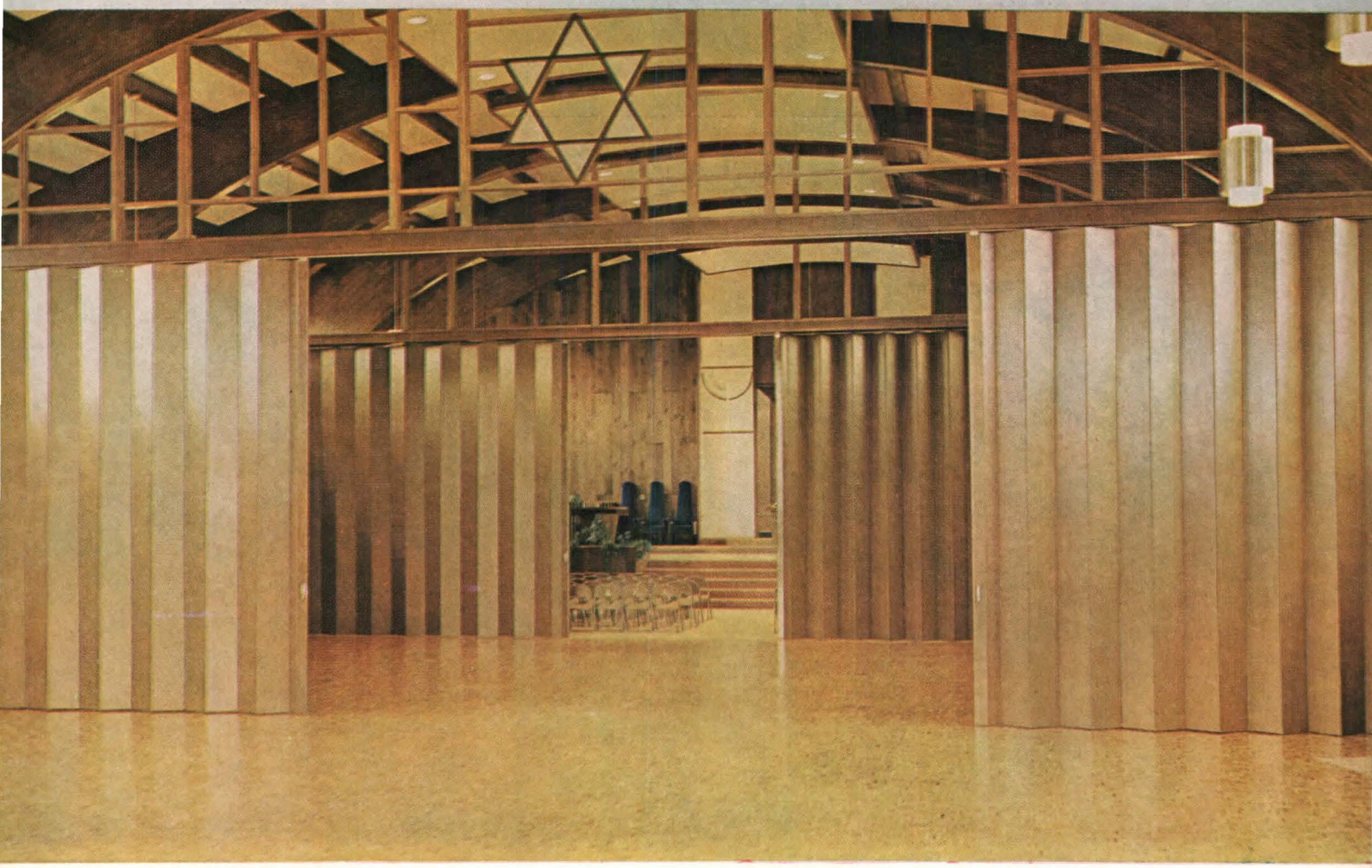

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Space" issue, which was another superb kick out of the routine. I thought this treatment of the subject comprehensive and exciting. Photographs like the reclining Burmese Buddha are more welcome than what "Hum Hum" is doing in California. We are looking forward to some coverage of the recent McDevitt-White trip in terms of architecture.

NORMAN JAFFE
New York, N. Y.

Dear Editor: June P/A engages one in a major and decisive issue, but I think that the most laconic remark was the first quote from Le Corb. This is a masterly aphorism, which clinches the physical aspects of space. If, only for a day, we assiduously used the foot that walks, the eye that sees, and the head that turns in our cities, it would cause a revolution.

The cities and densely built regions of our country are a kind of wasteland with very few oases. This has a desolating effect on the souls of men.

Unity of ideas and action, mainspring of the harmony reflected in the towns of The Middle Ages, is what is needed, but this is a utopian wish at present, crushed under the mass of narrow conflicts reaching through all strata of society. What is needed is to find a higher and unifying aim for the talents of mankind; not the banal and limited concept of freedom of the individual that so far has produced a bewildered and pugnacious society.

But back to architecture—Le Corb. has coined a significant expression—"l'espace indicible," or unfathomable space: a radiant quality manifesting itself by a sublime accord between spaces and objects. We experience it most often among beautiful ruins, when even disjointed elements of a building may signify the dignity and beauty of the whole: or even now and then in a virgin landscape echoing a certain undefinable order. We stand spellbound, aware of a certain mystery of relationships.

These things happen today, but it would be trite to cite even one example: What is important is to keep our eyes fresh and sensitive to this phenomena, so that walking and seeing, hearing and smelling, we can be better equipped to criticize and create.

ROBERT ESDAILE
Bekkestua, Norway

Dear Editor: My first conclusion about the June issue is that it is somewhat overpowering and all-consuming. Although you have divided the major spaces into several categories, it still remains to me somewhat overwhelming. Perhaps upon the third and fourth readings, I would feel less this way. However, this might be the exact goal P/A tried to achieve.

Your stated purpose indicates a very broad study, which I find provocative, if not too illuminating. P/A's excellent presentation of the material lends a great deal of reader interest. As a matter of fact, this one aspect appeals more to me than any other.

I don't know how your other subscribers feel about reading comments of the Philip Johnsons, the Zevis, the Peis, the Rudolphs and the other "fashionable experts," but from this corner we get awfully full of it.

I would suggest now a remedy. Why not get your comments for such a story from some of our more brilliant but quietly operating, expert American architects, "unfashionable" as they may be and probably unknowing of the "Madison Avenue approach"? These might be Alden Dow, Wesley Peters, Harwell Harris, Morgan Yost, and others who are and have for a long time been creating distinguished and worthwhile American architecture. I wish Frank Lloyd Wright were here to comment on the comments

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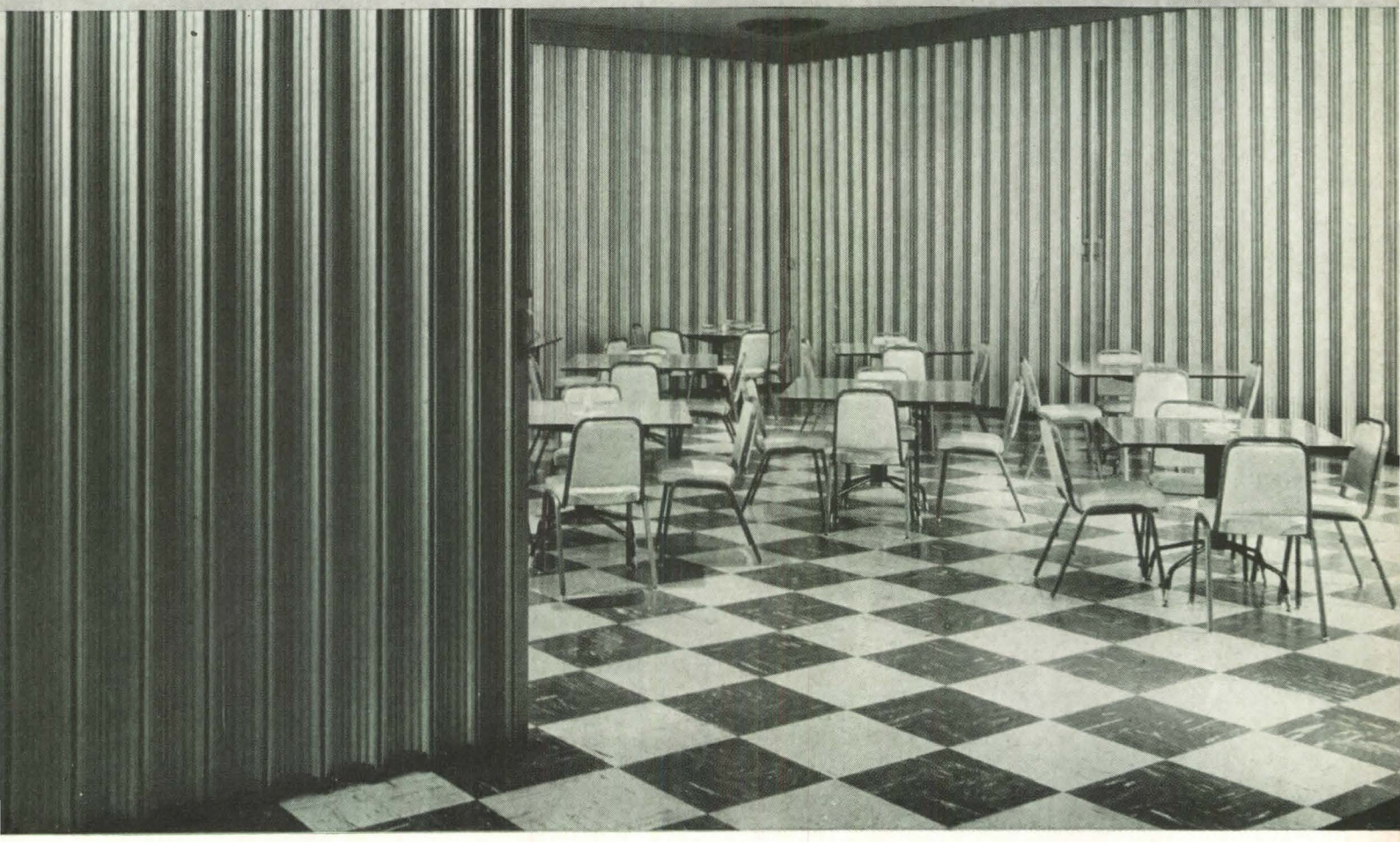

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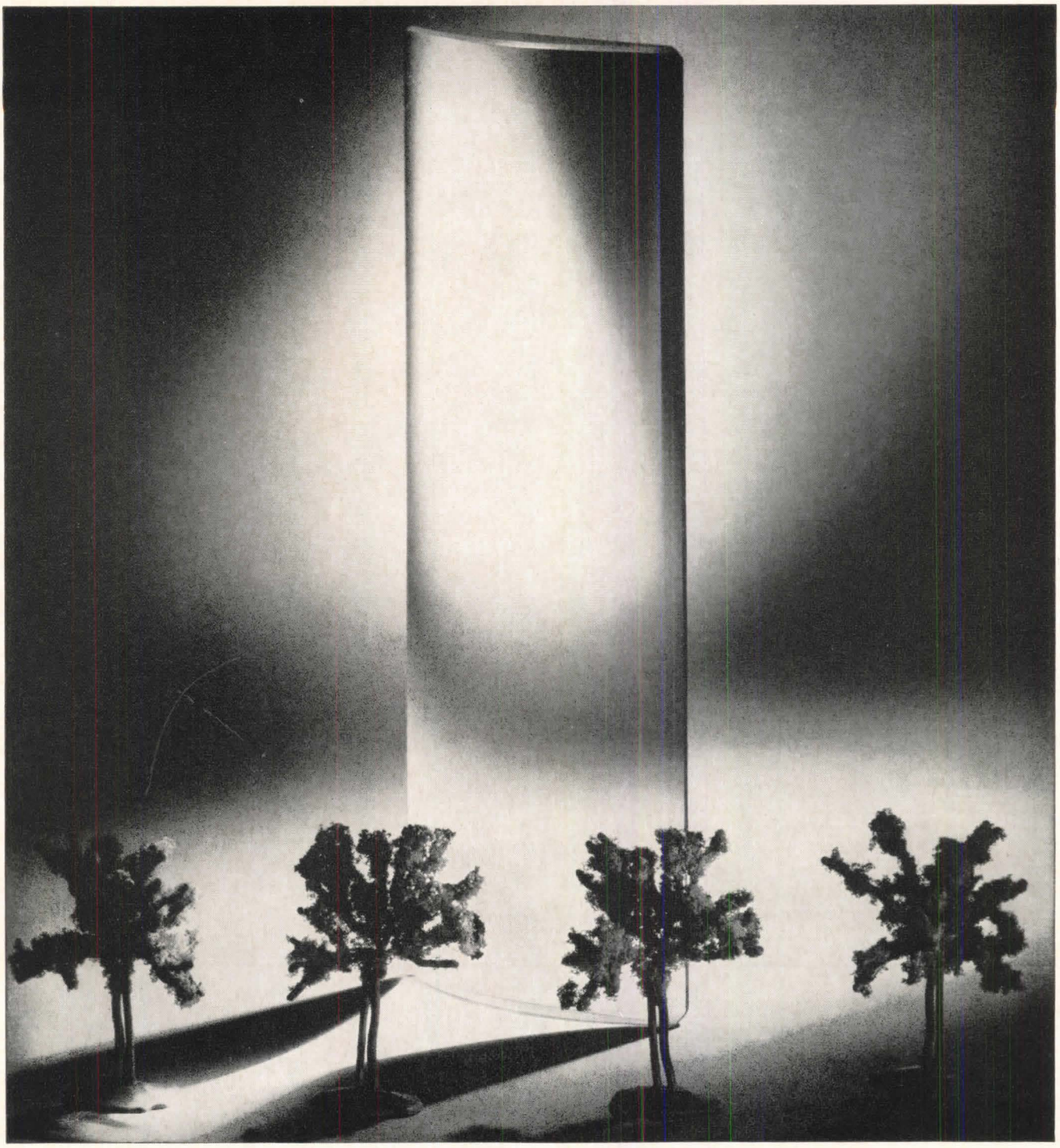


IS YOUR BUILDING A "BURNING GLASS"?

A dazzling expanse of glass can be a giant lens for summer's blazing sun . . . magnifying solar heat input even on October days . . . burdened by an additional refrigeration cost. A hot house at Southern exposures . . . uncomfortably cool at other ones. BUT—not if you've provided indoor solar control in your building with FLEXALUM aluminum venetian blinds.

See how FLEXALUM blinds provide solar control! Unshaded single plate glass transmits 195 total Btu/Sq. Ft.,* while single plate glass with inside aluminum blinds transmits only 110 total Btu/Sq. Ft.* That's a reduction of 43.5%!

FLEXALUM Twi-Nighter Commercial Blinds and FLEXALUM Continental Blinds could make sense, could save dollars for you. For example: in a typical West exposure, New York City . . . reduction in original air conditioning expense with aluminum venetian blinds adds up to $118.80 per *every* 18 Sq. Ft. window plus $12.81 annually in operation savings and financing investment. (That's 7 times the cost of the blinds).

On 100 windows in 10 years there's a saving of $131,610.

Want proof? Send for your copy of the pioneer study: "Cost Analysis of Solar Controls" by Alfred J. Jaros, Jr. of Jaros, Baum and Bolles, Consulting Engineers, New York. This article, from the July 1963 issue of *Buildings Magazine,* explains the most efficient way to handle the large glass in today's modern buildings.

*August 1st (40° N. Lat.), Solar Azimuth 240°, 1600 hrs. "Solar Time."

Flexalum® DIVISION, ALCAN ALUMINUM CORPORATION
111 West 50th Street, New York, N. Y.

ALCAN

of the "fashionable ones." Can you imagine? Wright issued a challenge to the young man in architecture and only a few seem to have the ability, talent, desire, dedication, and courage to carry on.

Wright probably gave us the greatest "major space" yet designed by man. I refer to the graceful "mile-high" building unveiled in Chicago in 1956. Actually, the "major spaces" would then become the spaces between these tall structures. Compare the "mile-high" with the clumsy effort of SOM's 100-story Chicago project, which is not as well designed as its forerunners of 60 years ago, the oil derrick of the Texas plains.

I am optimistic about the future of American architecture. We just have to be optimistic, because there is only one way it can go—better. It can't possibly get worse.

KARL KAMRATH
Houston, Texas

Dear Editor: The issue on "The Major Space" is excellent. I very seldom read an entire issue of a magazine. This one I *did*—and with great interest! Issues of this sort make a major contribution to our continuing education. Congratulations!

HUGH STUBBINS
Cambridge, Mass.

Exceptional Editorial

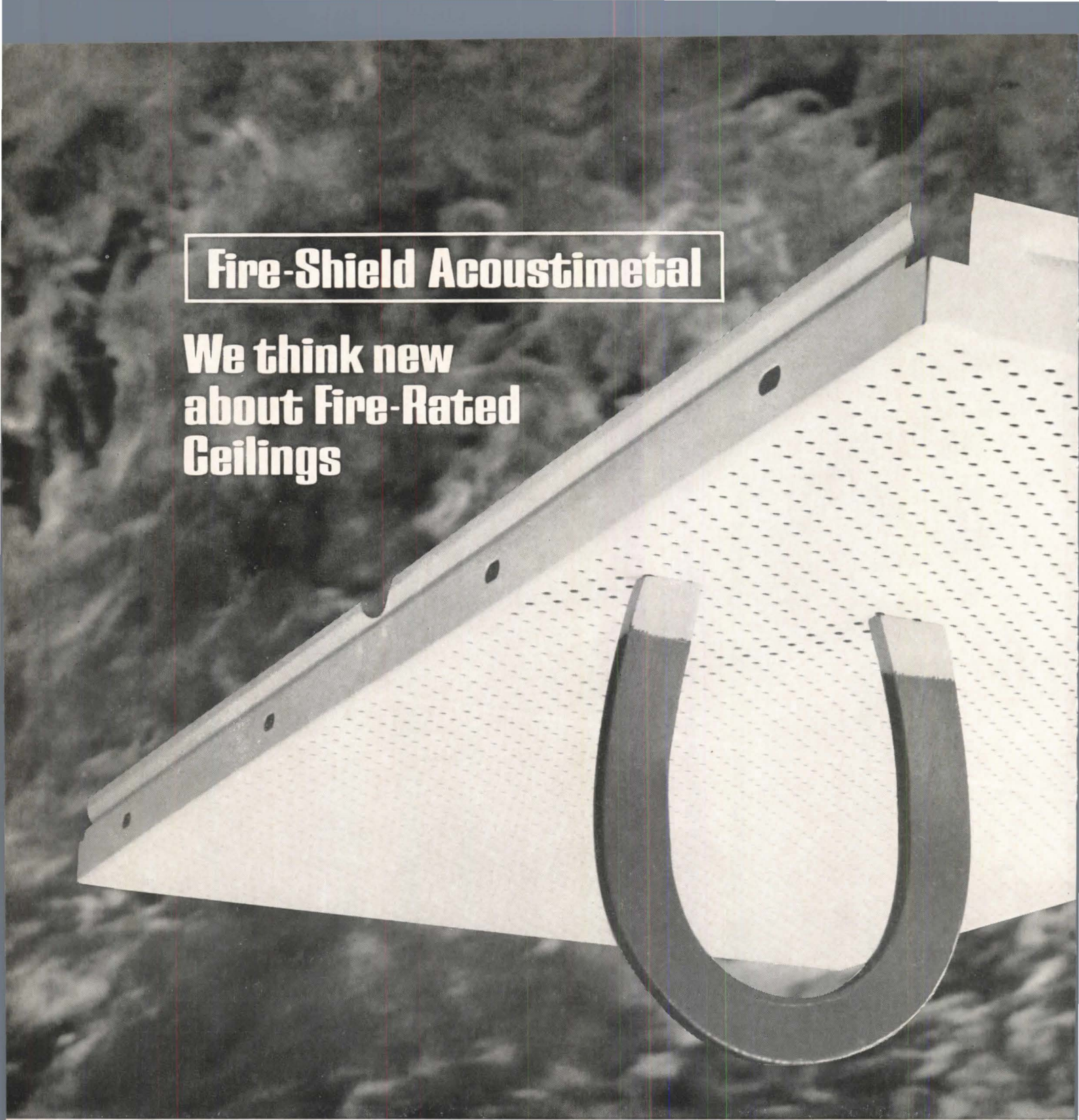
Dear Editor: The Editorial on "Houses" in the MAY 1965 P/A was exceptional in my opinion. Your readers must have been delighted with it. The Frank Lloyd Wright quote was a perfectly suited introduction. Good going.

E. JAMES MURPHY
Chemstrand Company
New York, N. Y.

Psychological Approach to Design

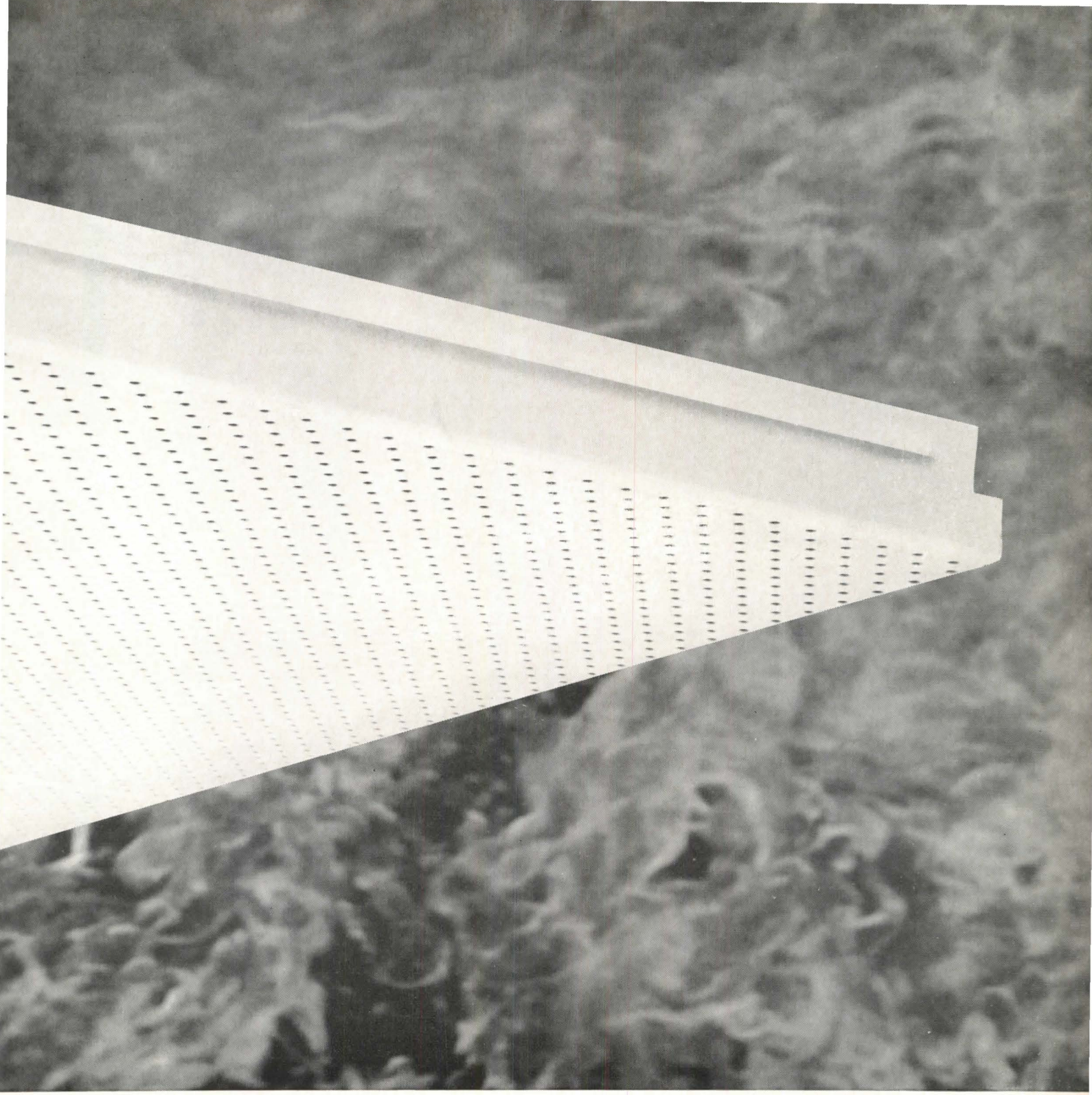
Dear Editor: I have read with great interest in the APRIL 1965 P/A the article "The Psychological Dimension of Architectural Space." The approach is extremely useful if one wants to understand the true meaning of space. As a matter of fact, one of the chapters of a book I am developing now is dedicated to the problems of human scale in architecture. I am myself concerned with a psychological approach to the problem, and many ideas were developed as a result of conversations with many psychiatrists, especially in Paris, where there is a hospital designed with a "therapeutic space." The theories of E. Hall are very important for this kind of problem, of course.

MANFREDI G. NICOLETTI
Rome, Italy



It's metal! Gives you a 2-hour fire rating! Permanence! Low-cost beauty!

New Gold Bond Fire-Shield Acoustimetal is the *only* 2-hour fire-rated metal ceiling material that offers accessibility plus three surface patterns (Needlepoint, Diagonal and Square); two



sizes (1'x1' and 1'x2'); durability, washability, high light reflection and .80-.95 NRC ratings. Cost? Fire-Shield Acoustimetal installed cost compares favorably with other fire-rated concealed tile assemblies. Thinking about distinctive ceilings? Think new with Gold Bond. Your Gold Bond® Representative has literature and samples. Or write to National Gypsum Company, Department PA-85, Buffalo, New York 14225.

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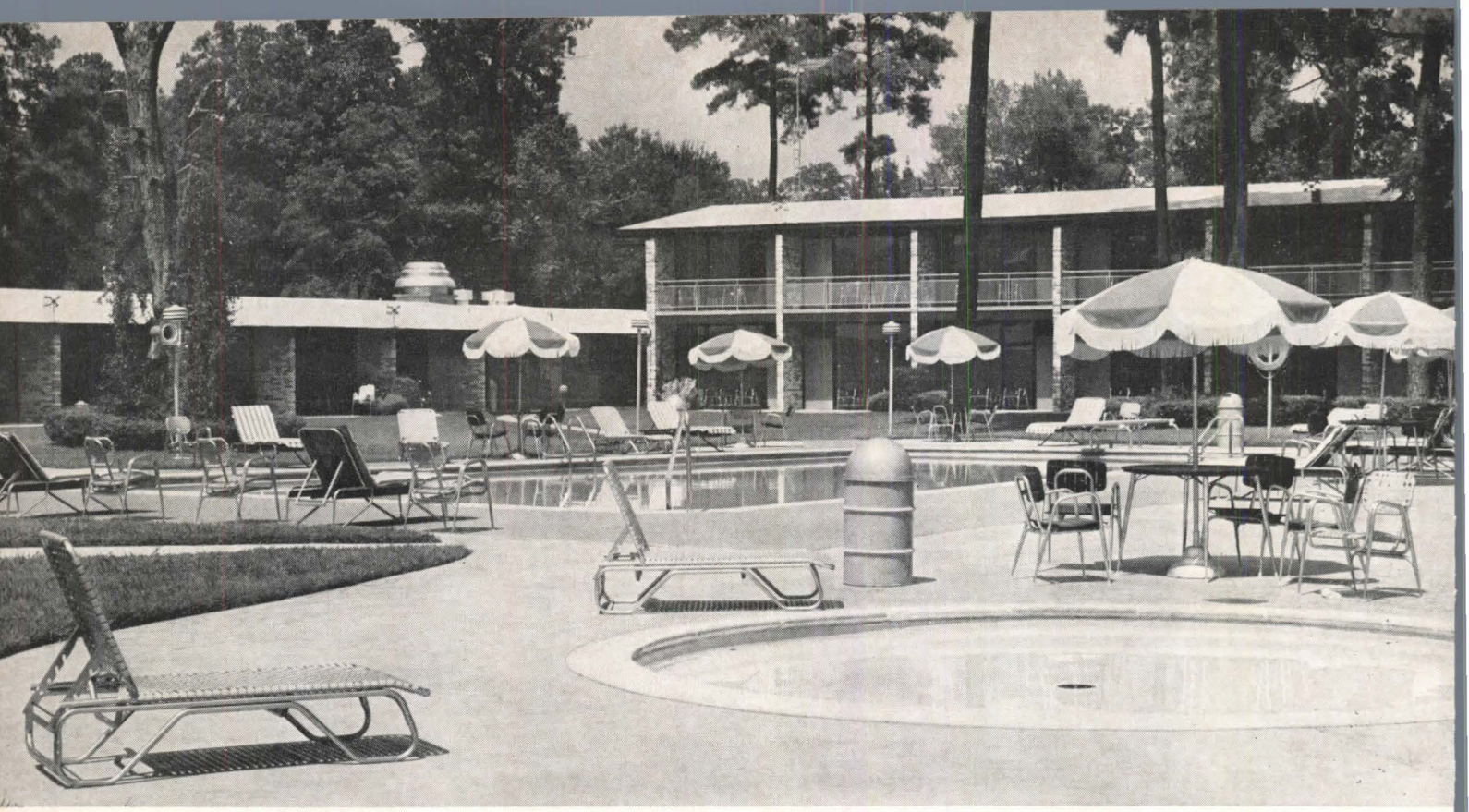
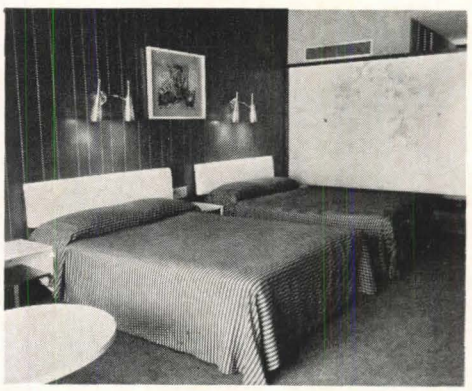


This Howard Johnson's Motor Lodge also treats guests to individual control comfort with an Arkla Gas system.

Comfort is a matter of personal preference at this modern lodge in Texarkana. Arriving guests find their room a cool 75°. Within three minutes, this can be changed to the exact temperature desired. Thermostat controls quickly adjust the amount of circulating chilled or heated water entering the fan coil unit.



What's behind it all? Dependable Arkla direct Gas-fired Chiller-Heaters and steam-fired Chillers. And throughout the lodge complex, a wide variety of flexible Arkla Gas equipment has been added to meet expansion demands. Initial costs have been moderate. And operating costs have been held low by the great economy of Gas Energy.

Year-round air conditioning by Arkla and Gas can benefit you. Call your local Gas Company sales engineer. Or write: Arkla Air Conditioning Company, 810 East Franklin, Evansville, Indiana. AMERICAN GAS ASSOCIATION, INC.

For heating & cooling... Gas is good business

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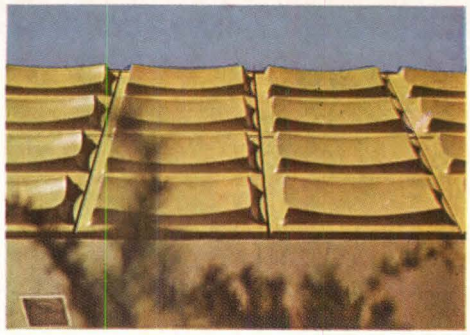

For sculptured facings... PLEXIGLAS

Calumet Shopping Center, Munster, Indiana, is an outstanding example of the form, color and texture effects achieved with formed facings of PLEXIGLAS® acrylic plastic. Because PLEXIGLAS forms easily, panels can be produced economically in sculptural shapes which can't be obtained with most widely-used facing materials.

Note the varying patterns of highlight and shadow on the Calumet Shopping Center panels, caused by the changing position of the sun.

PLEXIGLAS is rigid, strong and weather resistant. It is light in weight and inexpensive to install. PLEXIGLAS is available in a broad range of semi-opaque and translucent colors. Translucent panels may be backlighted for luminous facades.

For further information on the design possibilities with facings of PLEXIGLAS, write for a copy of our brochure, "Plexiglas for Facing Panels."

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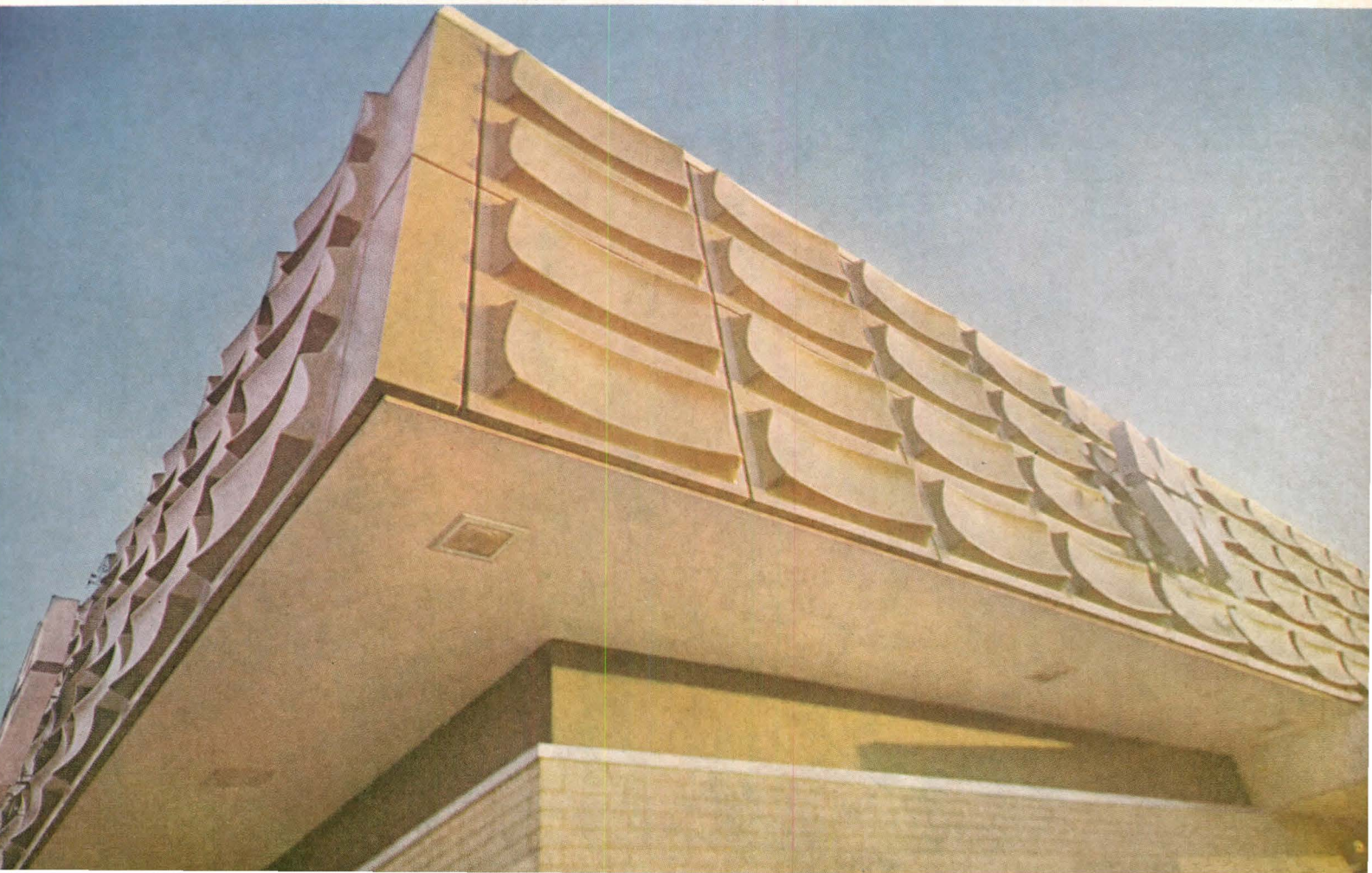

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. . . and get beauty as your bonus!

Russwin Top-Railer® Closers help you solve 99% of your traffic and door control problems.

Their crisp lines never mar the unity of your design. They can be semi-concealed or fully concealed. Even when surface-mounted, they're trim and inconspicuous.

Rugged Russwin Top-Railer Closers are built with strength to spare: they last and last. They offer selective control and adjustable backcheck. They install in one standard location regardless of the degree of opening. They feature socket-type control valves that discourage tampering and all parts are of the finest quality for silent long life.

Have your nearby Russwin supplier show you today's modern Top-Railer series or write direct to Russwin, Division of Emhart Corporation, New Britain, Connecticut.

Unobtrusive Russwin Closers gracefully blend into your overall design.

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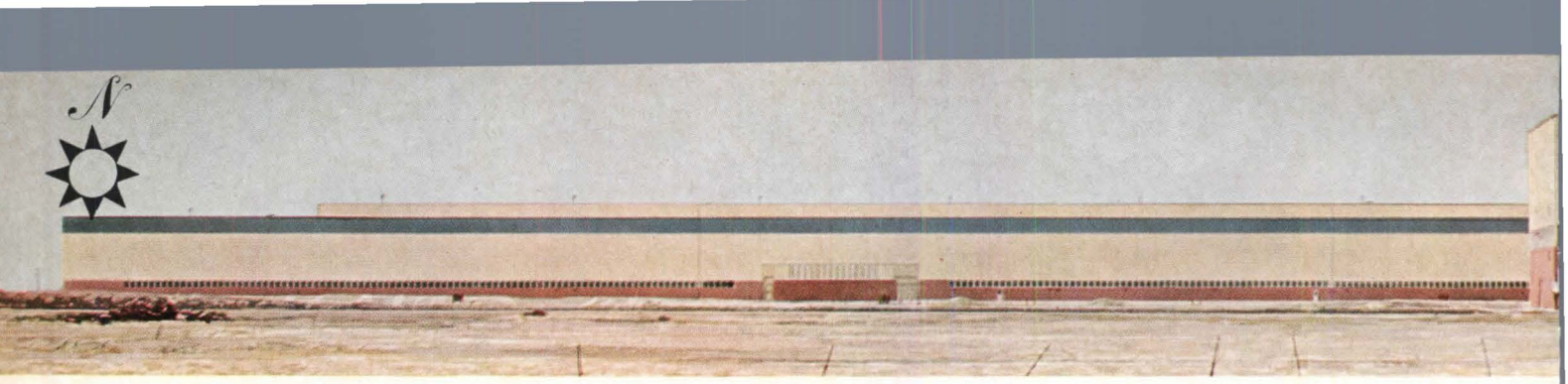
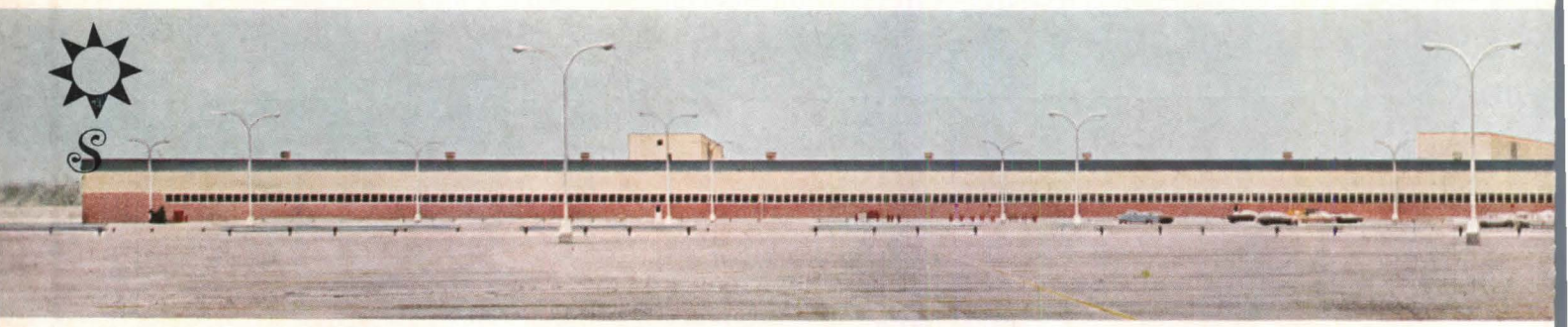
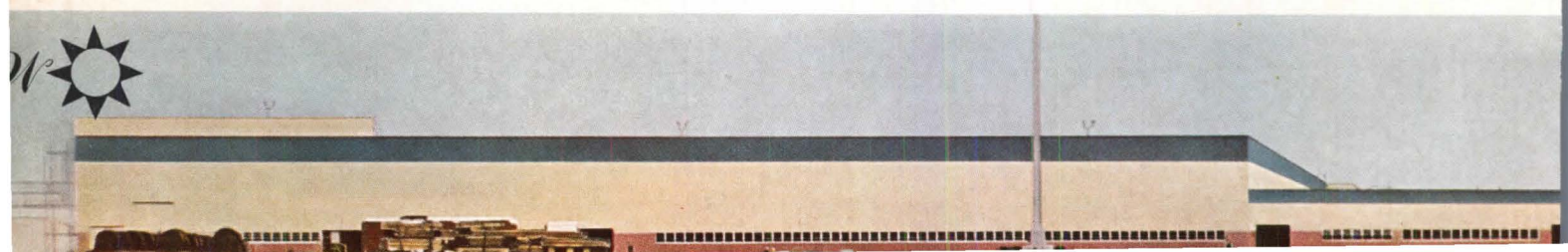


They used panels of Alcoa Aluminum here,

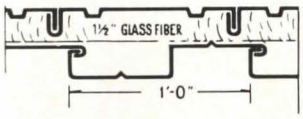


here

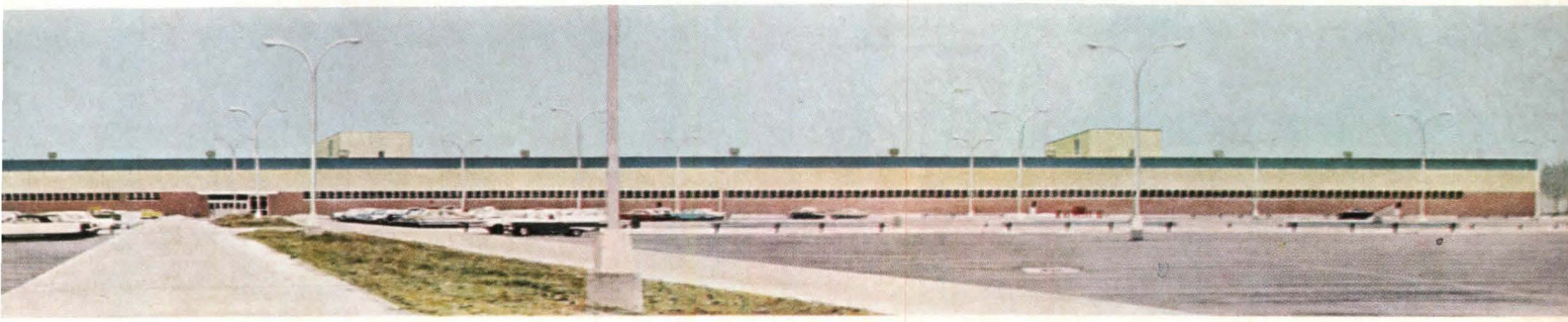
and here, so they could forget about them



The R. C. Mahon Company, Detroit, Mich., installed 308,000 sq ft of Mahon-designed panels of Alcoa Aluminum. Owner: Chrysler Corp.; Architects: Giffels and Rosetti, Detroit.



You might think aluminum panels are used here because they're colorful. Or economical. You're right. More important, this 2,600,000-sq-ft automotive plant is enclosed with panels of aluminum so the owners can forget about them—they won't have to care for them. No repainting. They won't chip, rust, peel or crack. Save money. Aluminum panels install fast—save construction time. Stretch any budget.



The Mahon-designed panels are made from Alcoa * Tone-Cote Sheet–the baked-enamel sheet that forms easily. Gives your ideas colorful, graceful expression. Each of the Tone-Cote colors is community pleasing. Applications are unlimited. These panels are insulated, too, for winter comfort and productively cool summers. Should you expect so many practical advantages from such good-looking building materials? Yes.

Contact an Alcoa sales office and have a specialist review all aluminum's advantages for you. Enjoy a change for the better with Alcoa Aluminum . . . it's a colorful subject.

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ALCOA

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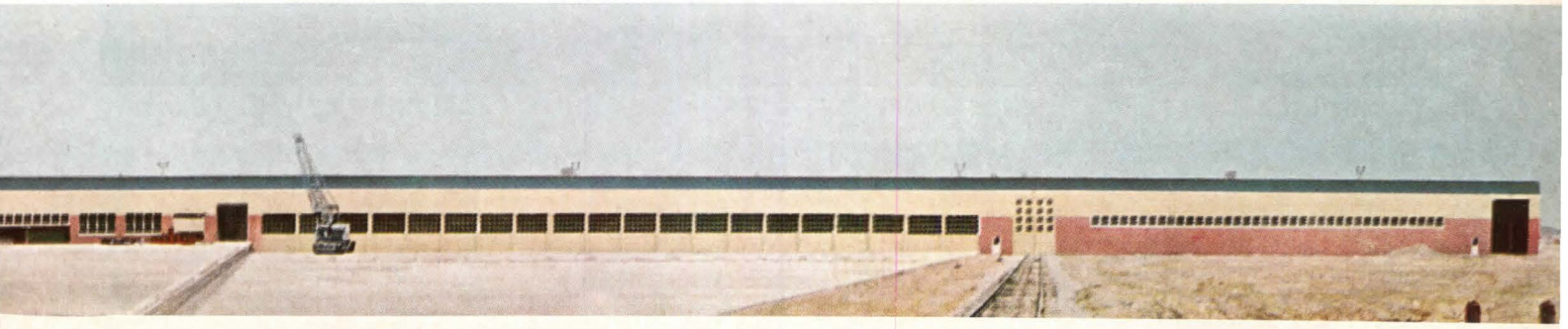

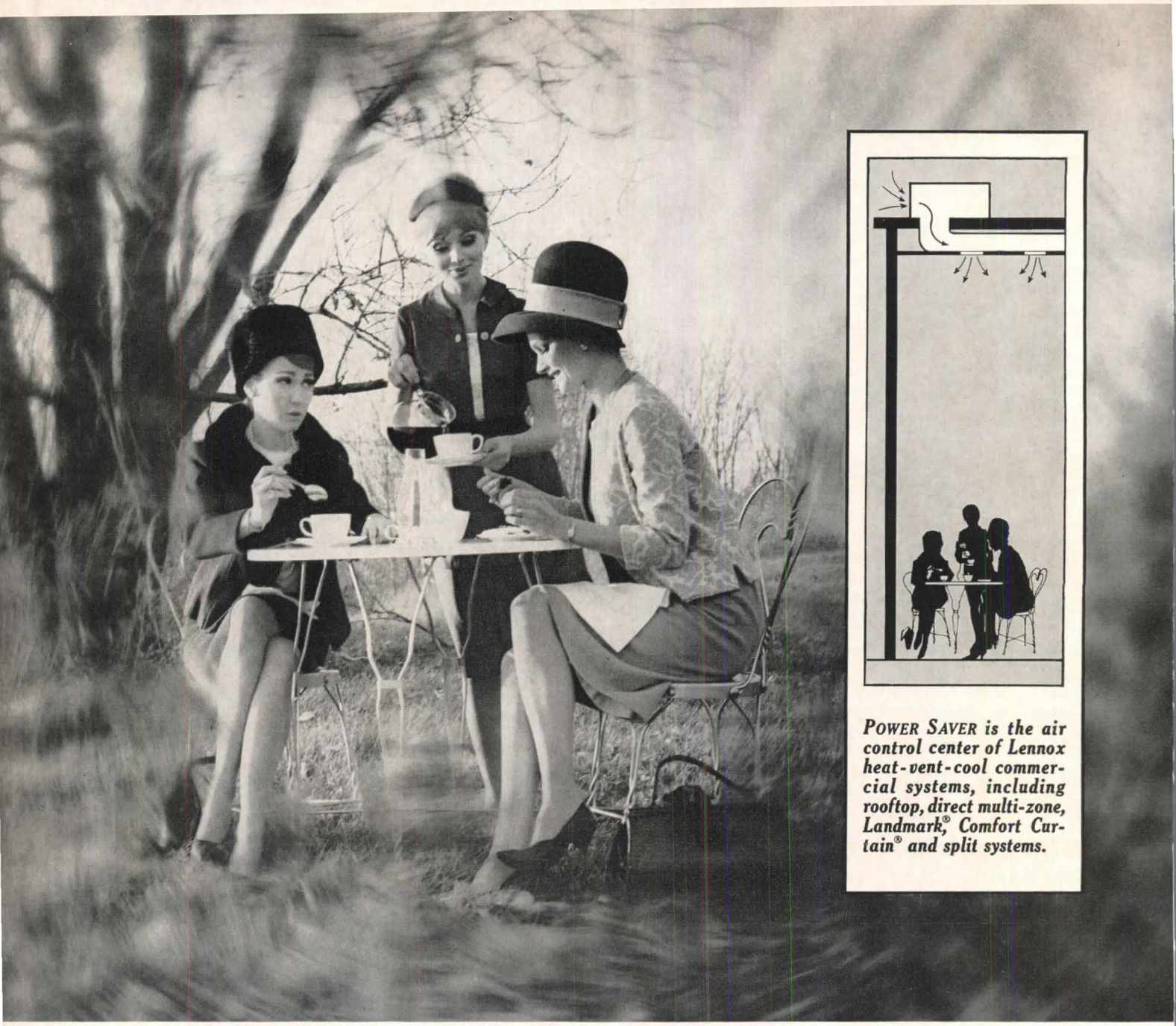

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(Power Saver Weather)

What needs cooling inside when it's crisp and wintry outside?

Answer: Any modern building flooded with bright lights, excited people, humming motors.

And sun on the windows!

There are two ways to cool down a winter heat wave:

Run the cooling compressor, and pay the power costs. Or, air condition free, with Lennox POWER SAVER.™

POWER SAVER cools free at any temperature below 60° F., with fresh, cool outdoor air.

January or June. Without compressor wear or power cost, without low ambient problems.

How much can POWER SAVER save you?

Example: In Chicago-type climate over 4,000 of the year's 8,760 hours are in POWER SAVER's free cooling range: 30° F. to 60° F.

Write for temperature/hour tables on 158 leading cities.

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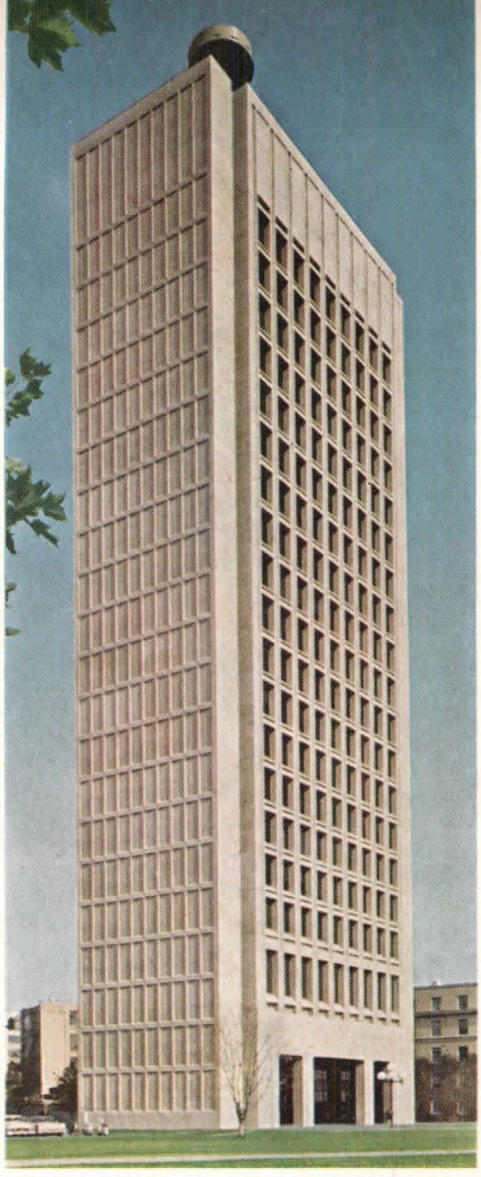

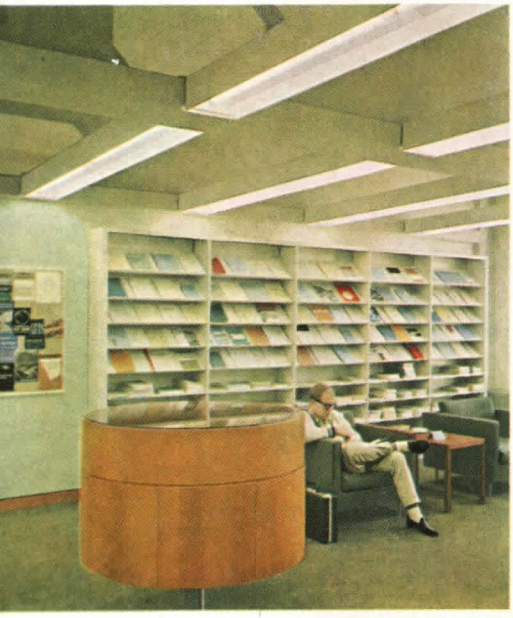

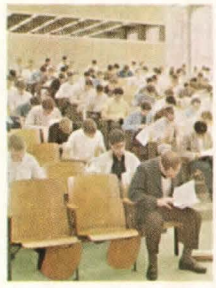

Earth Science Center, M.I.T., Cambridge, Mass.
Architect: I. M. Pei & Associates, New York; Painting Contractor: H. Newton Marshall Co., Inc., Boston Mass.

The reasons top architects specify DEVOE add up to quite a story

It takes only minutes to tell

Here is a case where one of the country's leading architectural firms—I. M. Pei and Associates—specified DEVOE paints for the handsome new Earth Science Center they designed for M.I.T. There is nothing unusual about the paint requirements in either type or color—unless you would consider using top quality paint something unusual. Why, then, was DEVOE the choice?

It's simple: because architects such as I. M. Pei know that DEVOE works *with* them. DEVOE provides the industry's outstanding service—a local representative, known as the Man from DEVOE. This paint expert lends his assistance on product selection. He gives useful advice on proper surface preparation and on application. He can play a valuable part in color choice. What's more, he understands paint performance, costs and special formulations. And he's on the job for any on-site supervision needed.

Backing him up, of course, is the convenience of DEVOE's complete line—the *right* finish for every surface. Plus a network of plants and branches across the country to assure prompt attention and delivery.

It is quite a story, right? To get the full benefits for yourself, call or write our nearest office and talk to your Man from DEVOE.

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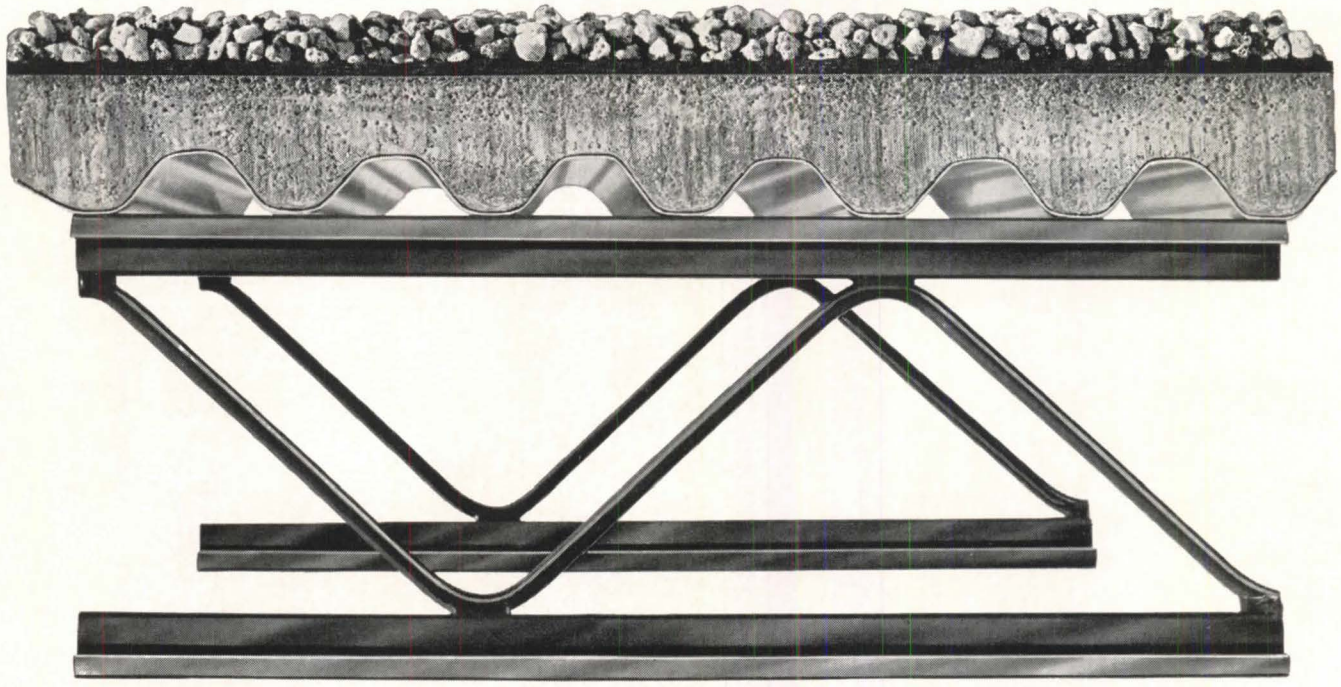
What do you expect for 8¢?



A roof deck like this costs $1.00 per square foot.* Joists 40¢, galvanized steel form 20¢, concrete 22¢, built-up roofing 18¢. This *includes* 8¢ worth of Permalite perlite concrete aggregate.

What does the 8¢ buy?

A better *all-around* deck with actual savings on the entire roof system. Here's how:

INSULATION: Permalite concrete, with a "K" of 0.58, *is* the insulation. Eliminates the need for other insulating materials; cuts heating and air-conditioning costs.

LIGHTWEIGHT STRENGTH: The deck shown, including steel form and concrete, weighs only 6½ pounds, and is stronger than other concretes in its class. Saves steel.

FIREPROOF: Permalite is non-combustible and carries maximum UL approved fire rating when supporting members are protected. Insurance costs less.

PERMANENT: Permalite and Portland cement is *true* concrete. There is no structural loss due to possible leaks; the insulation remains efficient for all the years you design into the building.

Put these and other Permalite features together into *one* roof deck and have a *combination* of advantages you can't get in any other type of roof . . . 8¢ well spent when you specify Permalite.

*Based on 2" of Permalite concrete over top of steel form corrugations, using cost averages of major market areas.

Permalite® LIGHTWEIGHT INSULATING CONCRETE

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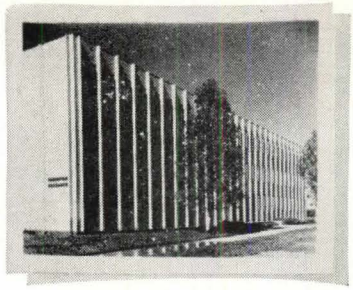
Here are 24 beautiful Decorator colors in Consoweld Laminated Plastic for surfacing wainscotting, walls, cabinet faces, toilet partitions, doors, desks, counters, table tops, fixtures, moveable partitions . . . anywhere you want exciting colors plus the durability of laminated plastic. Each color is designed to blend with the others for complete color harmony throughout the line.

Whether you visualize a dash or a roomful of color, in either vertical or horizontal applications, specify Consoweld Laminated Plastic . . . for offices, schools, airports, restaurants, and all other modern buildings.

Write today for a sample ring to Consoweld Corporation, Wisconsin Rapids, Wisconsin, (AIA File 35-C-12 and 23-L).

22-A



Radiation Research Building

Computing Center

Memorial Library

North Dining Hall

What have these university buildings in common?

These four—and a fifth, the Ave Maria Press—are all air conditioned from a central power plant on the Notre Dame campus.

Two Carrier steam-turbine-driven Centrifugals chill water that is piped 2200 feet to the buildings.

The same pipelines also supply steam for heating.

Central refrigeration using steam-turbine-driven equipment was selected for this job for several reasons.

1. High-pressure steam was available to power the equipment.

2. With steam turbines directly driving the centrifugals, the owning and operating costs were held to a minimum.

3. Proximity of buildings to the power plant made piping chilled water economically feasible.

If you are planning a complex—for campus, urban renewal, government center, industrial park, apartment, airport or hospital—the use of central refrigeration may well be the practical answer to air conditioning.

Whatever the power source, Carrier has the type of refrigeration machine to match it, as well as a background of job experience that can be helpful.

We'll be glad to share this with you. Call a Carrier representative. Or write Syracuse 1, N. Y. *In Canada: Carrier* Air Conditioning (Canada) Ltd., Bramalea, Ontario.

Carrier Air Conditioning Company

More people put their confidence in Carrier air conditioning than in any other make

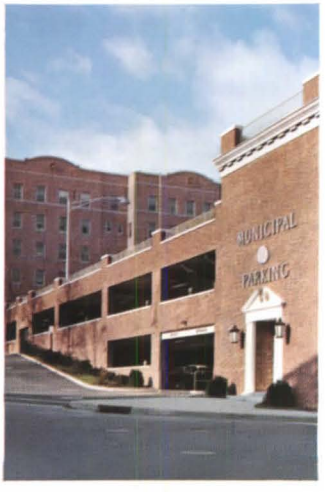
A REPORT ON PARKING STRUCTURES

Steel-framed parking structures, usually with decks and ramps of compositely designed concrete, offer the best solution to parking problems. Here are five examples where designers chose steel framing to provide permanent, functional, and attractive structures for their clients.

FROM BETHLEHEM STEEL

Showcase for steel construction. This split-level, 5-story design in San Francisco presents a striking architectural effect with its use of exposed structural steel columns, beams, angles, and plates as open exterior walls. Solar screen blocks and plantings provide attractive corner wall decor at the ground floor entrances. From the central core of this earthquake-resistant structure, steel beams span the 62-ft wide, 2-deep parking area on one side and the 45-ft wide, single-row parking area on the other. Capacity is 294 cars.

Framed in steel for a light, floating appearance. This four-level parking structure for a Sears Roebuck store in Washington, D.C. can accommodate 1,000 cars. Located in a residential neighborhood, its long, low silhouette blends nicely with its environs. The lightweight colored panels, which hide the cars from passersby, give the building a "finished" look seldom found in parking structures.



Traditional for Mount Vernon, N.Y. The cast-stone trim, wrought iron railings, and brick facade of this parking structure conform to the colonial character of surrounding municipal buildings. The two enclosed levels and exposed upper deck provide a 320-car capacity. Bethlehem V45 steel was used for the framework. This high-strength grade was a major factor in achieving an extremely low per-stall cost.

BETHLEHEM STEEL

Skillful execution of exposed structural steel framing is the key element in the design of the M.I.T. Parking Facility—No. 1, East. Basic structure is a rectangle, 228 ft x 121 ft, within which 425 standard-size cars can be parked on each side of 60-ft-wide inclined ramps. Main parking areas are column-free to make maximum use of space. Mesh enclosure panels between the exterior columns serve as snow fencing and enhance the structure's appearance.

CONSIDER STEEL...*for beauty and economy*

Things have changed. New steels—and new ways of using steel—make possible outstanding designs and the ultimate in economy.

For useful literature and technical assistance, get in touch with any steel fabricator, or call the Bethlehem sales office nearest you.

New deck over existing parking field. It's the Municipal Parking Field in Flushing, N.Y.C. Capacity: 1,130 cars. All structural components are at 8 ft, 6 in. centers; columns are spaced at 62 ft on centers. Main outrigger supports for plastic shelter canopies are 12-in. WF with web horizontal to harmonize with the stepped railings. The New York City Department of Traffic is so pleased with its appearance—and its low cost—that they are planning another structure of similar design.

Bethlehem Steel Corporation, Bethlehem, Pa.

BETHLEHEM STEEL

BETHLEHEM STEEL

CREDITS:

(Page 1)

Operator: Metropolitan Parking Corp.

Architect: A. F. Roller

Structural Engineer: H. J. Brunnier Associates

General Contractor: Louis C. Dunn, Inc.

Steelwork: Bethlehem Steel

(Page 2)

Owner: Sears, Roebuck and Co.

Architect-Engineer: The Ballinger Company

General Contractor: Irons and Reynolds, Inc.

Steelwork: Southern Iron Works, Inc.

Owner: City of Mount Vernon

Consulting Engineers: Zamory and Senor

General Contractor: J. B. Primiano & Son, Inc.

Steelwork: United Iron, Inc.

(Page 3)

Owner: Massachusetts Institute of Technology

Designer: Parking Development Company; Architect: Carleton N. Goff

Structural Engineer: Maurice A. Reidy

General Contractor: John F. Griffin Company

Steelwork: Tower Iron Works

(Page 4)

Owner: New York City Department of Traffic; Design and Construction supervised by the New York City Department of Public Works

Architects-Engineers: Rouse, Dubin and Ventura

General Contractor: Euclid Contracting Corporation

Steelwork: Bethlehem Fabricators, Inc.

Steel

If you're planning a new shopping center, apartment or office building—chances are you can save money by installing a Garrett Total Energy System. Two of America's newest apartments did.

Salt Lake City, Utah

The elegant 12-story, 200-unit David-William apartment/hotel in Coral Gables is a new concept in South Florida living comfort. The Total Energy System, furnished by the City Gas Company of Florida, is designed around two Garrett-AiResearch gas turbines.

In Salt Lake City, 2,545 miles away, the distinctive Canyon Crest condominium also will take advantage of the efficiency and economy of a Garrett Total Energy System. This system, fueled with natural gas supplied by Mountain Fuel Supply Company, will utilize three Garrett-AiResearch gas turbines.

Both of these systems provide all of the electrical power, lighting, air conditioning, heating, and hot water for the buildings.

The heating, cooling and electrical requirements of Salt Lake City and Coral Gables are vastly different yet the versatile gas-turbine Total Energy System is inherently well suited to handle any environmental extreme, efficiently and economically.

Why choose Garrett-AiResearch for a total energy system?

One of the main reasons is total system capability at Garrett. This not only includes combining reliable gas turbines with other system elements, it also assures complete design of an optimum system, single installation responsibility and dependable support service.

The main reason for using a Garrett Total Energy System is *to save money.*

We can make an economic study for your building to show how savings can be achieved. We can also provide information on either leasing or buying of this equipment.

So, if you are planning a building of 50,000 square feet or more—let Garrett-AiResearch show you how a Total Energy System will pay off.

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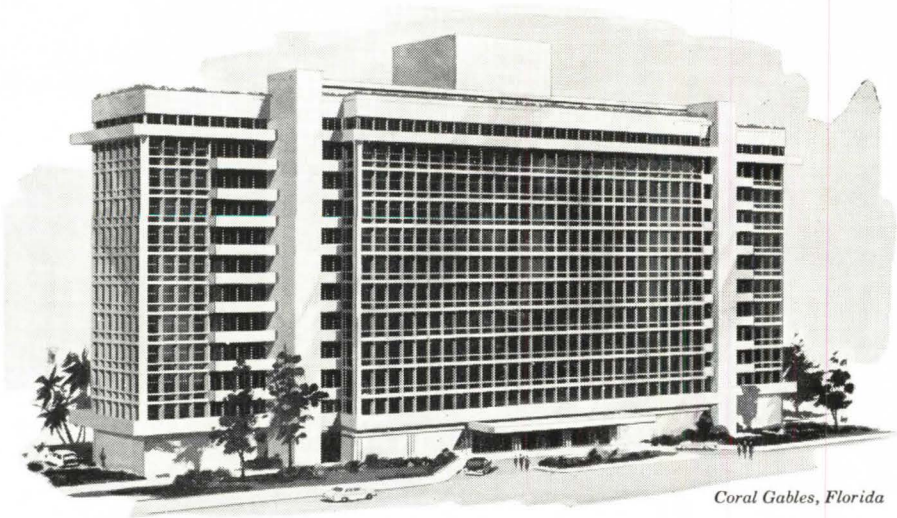

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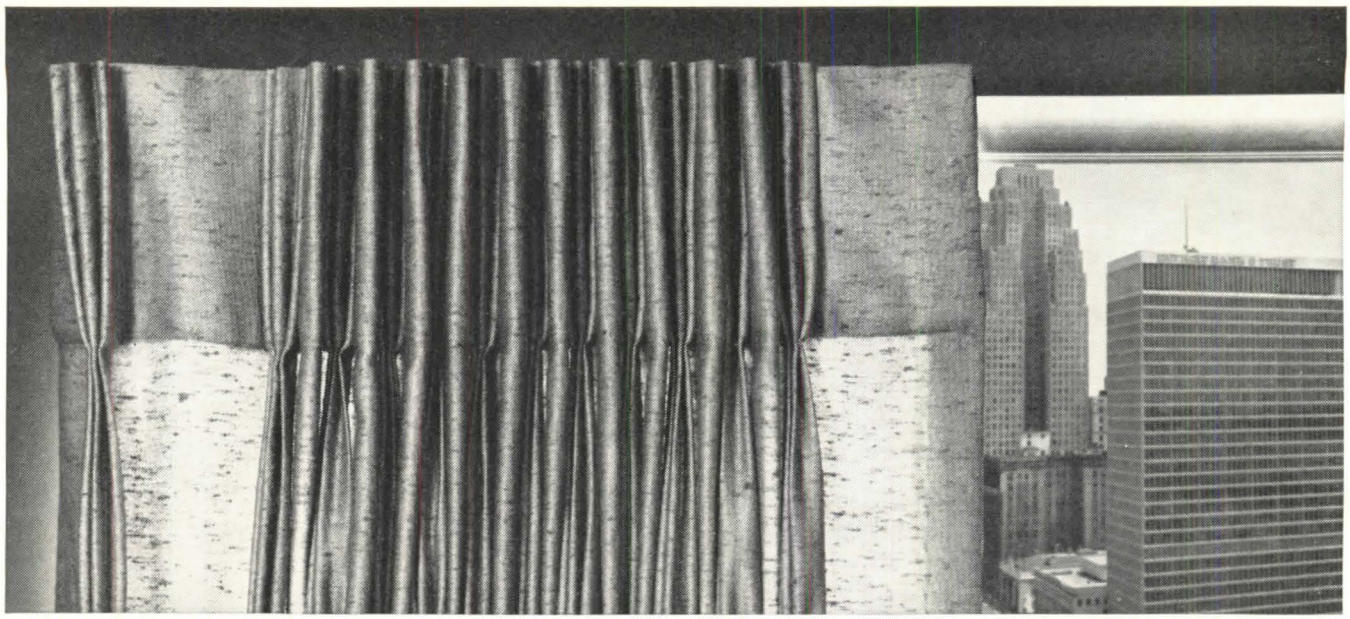

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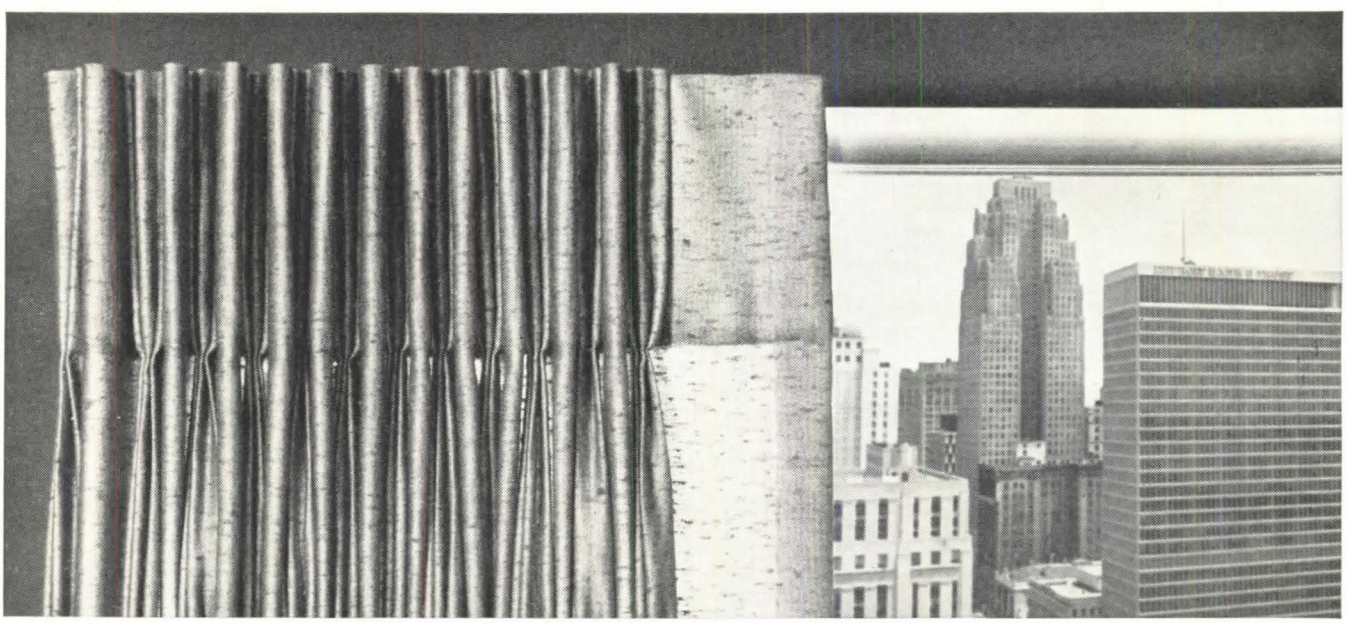

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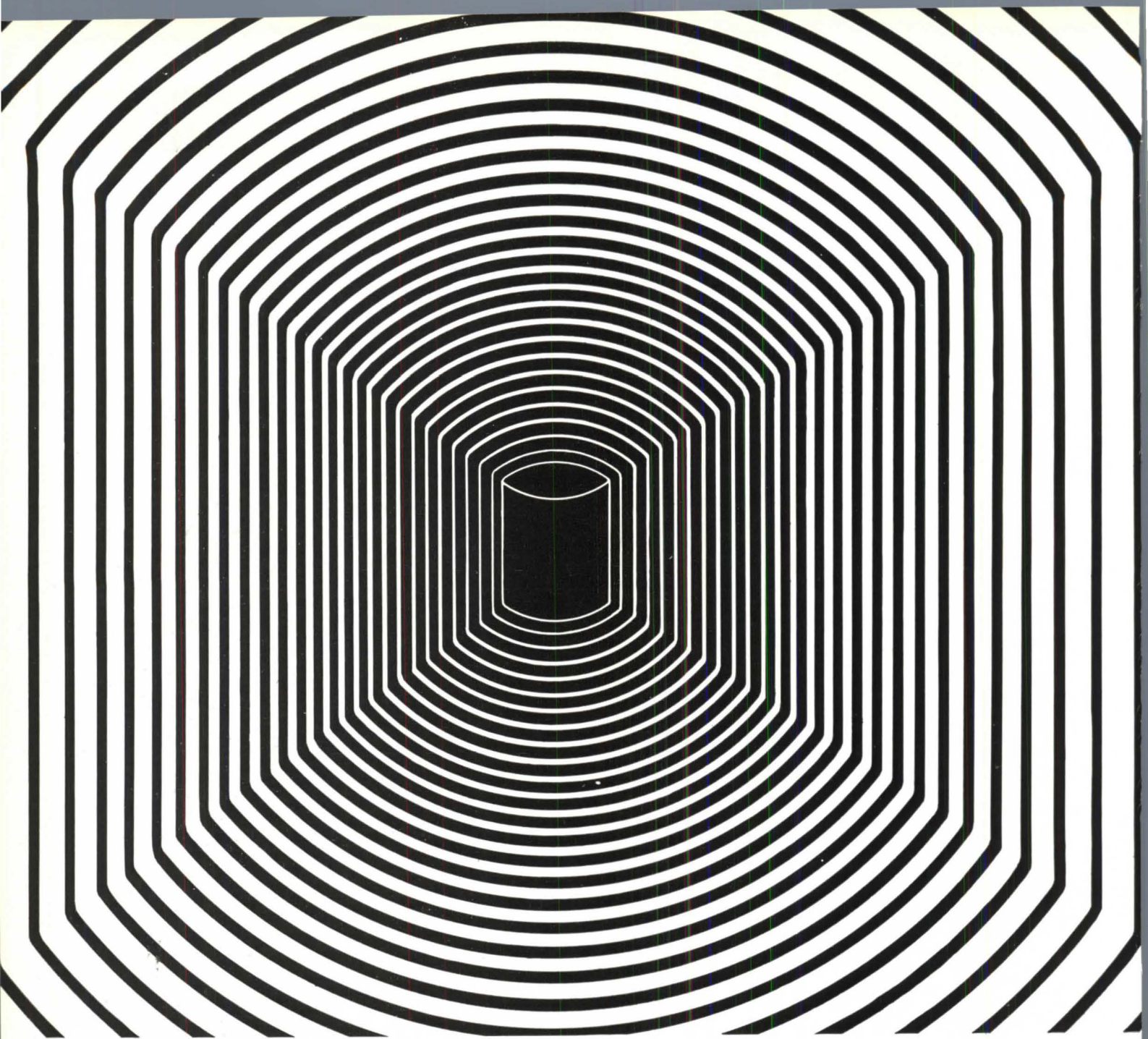

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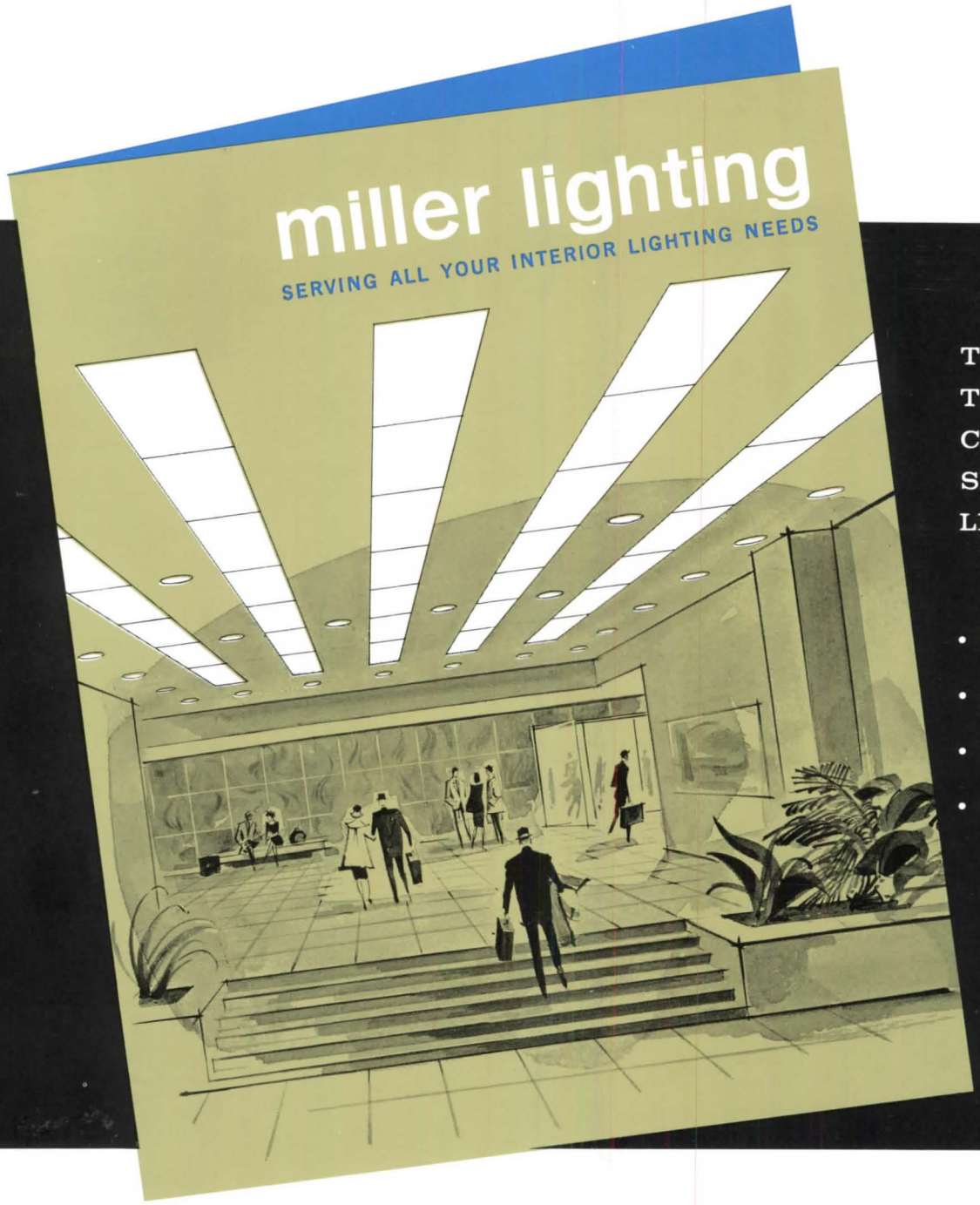

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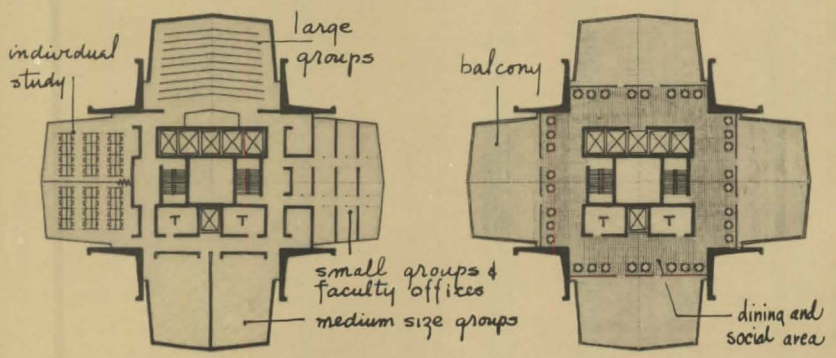

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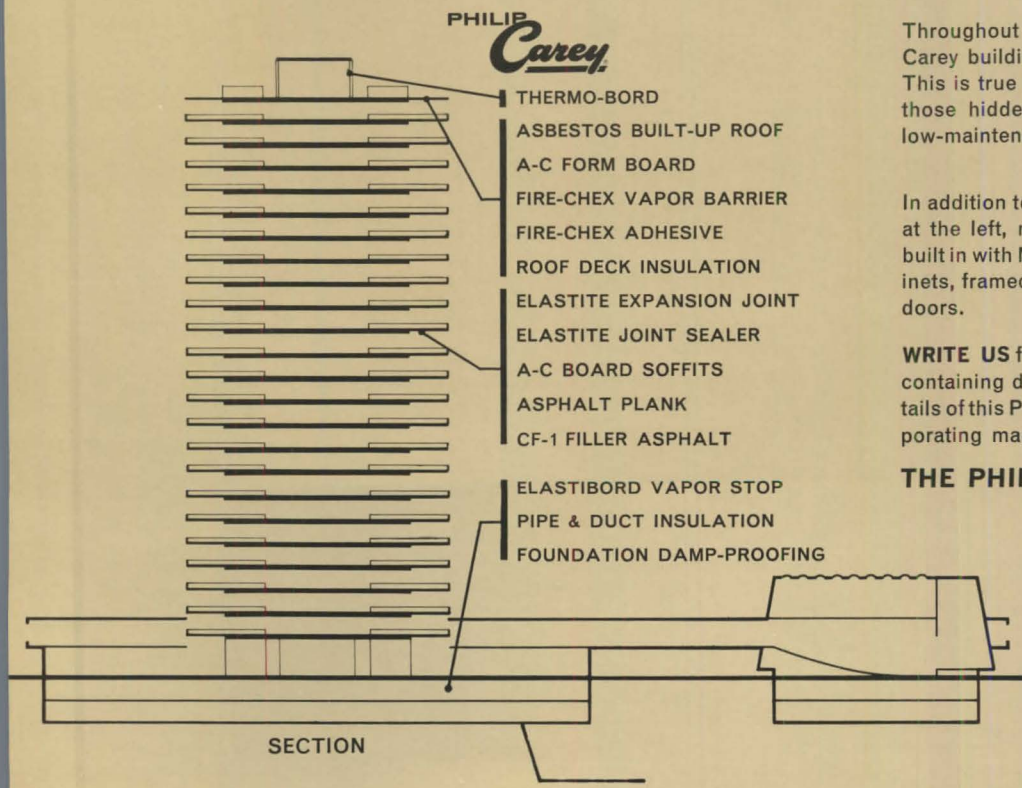

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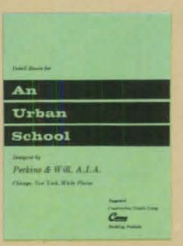

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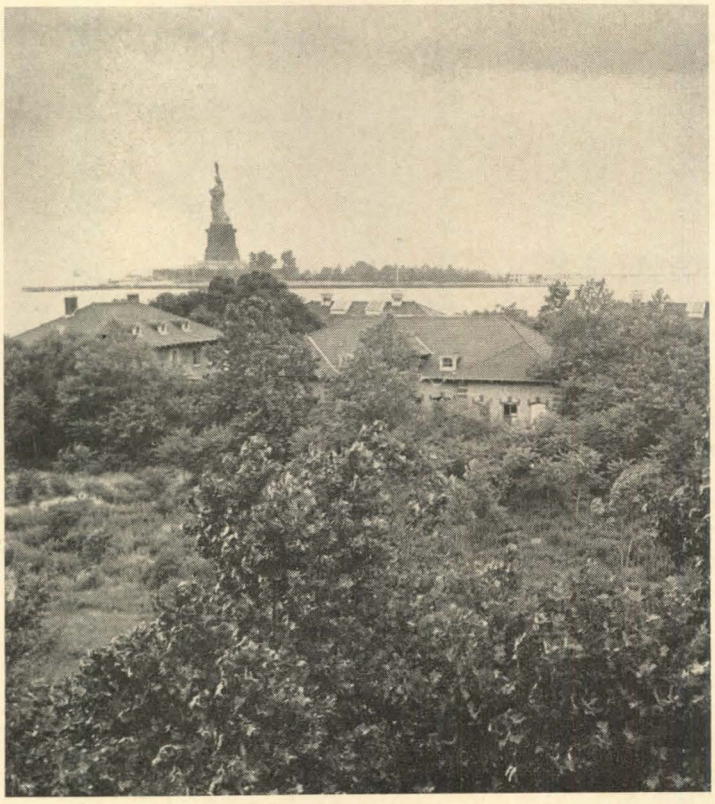
Johnson to Redesign Ellis Island



NEW YORK, N. Y. Almost everyone likes islands. As one wag puts it: "The girls can't get off them," and perhaps for this reason they carry an aura of romance. Ellis Island in New York harbor is no exception. Tiny, dirty, obsolete, decaying, Ellis Island has existed since 1954, when it was closed by the government and declared surplus property, as an anachronism, a stone's throw from the Statute of Liberty. Recently Secretary of the Interior Stewart Udall announced that architect Philip Johnson would redesign the island, turning it into a National Immigration Museum and Park.

Between 1892 and 1954 Ellis Island was the first landfall in the New World for more than 16 million immigrants. Among them were Irving Berlin, Father Flanagan, Felix Frankfurter, Hyman Rickover, Igor Sikorsky and Hubert Humphrey's mother. On Ellis Island they were processed and immunized, and the island still contains 35 buildings (14 of them office buildings) on its 27.5 acres. Today the buildings stand open, partly gutted by harbor pirates, who occasionally come ashore at night and make off with things such as furniture and door frames. A Doberman pinscher named Topper guards them, but he can't be everywhere at once. On May 11 President Johnson turned the island into a National Shrine. Part of the island's renovation will include a 400-acre park carved from the docks and industrial buildings on the New Jersey shore, 1,300 ft away. Island and shore probably will be linked by a causeway. Just what else will be done is uncertain. Architect Johnson is quoted as saying "I've never been to Ellis Island. But I know the old immigration building, and we will take its flavor and use it with its associations, to make the place into something interesting and attractive so people will want to go there." He might have added "again."

Anderson Takes Over at MIT

CAMBRIDGE, MASS. Lawrence B. Anderson took over the deanship of the School of Architecture and Planning at the Massachusetts Institute of Technology last month, succeeding Dean Pietro Belluschi, who retired.

Professor Anderson has been a member of the MIT faculty since 1933 and since 1947 was Head of the Department of Architecture.

Born in Geneva, Minn., in 1906, Professor Anderson received a B.S. degree from the College of Science, Literature, and the Arts of the University of Minnesota in 1926, and a year later from its College of Engineering and Architecture. Following graduation he taught architectural design at the University of Virginia for two years, then did graduate work at MIT, receiving his Master of Architecture degree there in 1930. He won the Paris Prize for study at l'Ecole des Beaux Arts in Paris and in all spent three years abroad before returning to MIT to teach. Among other honors and distinctions, Professor Anderson is an honorary member of the Danish Royal Academy of Fine Arts in Copenhagen and he is on the advisory panel of the State Department's Office of Foreign Buildings.

Convention Time AIA

WASHINGTON, D. C. Across the street from where the Kim Sisters were appearing at Washington's posh Shoreham Hotel, architects of two continents gathered 4100 strong in June. Almost as if the architectural gathering had to compete with the sister act, pageantry was the keynote of the opening day of the 97th Annual Convention of the AIA and the XI Pan American Congress of Architects, held June 14-18 in the Sheraton Park Hotel. Initial ceremonies featured a proud procession of flag-carrying girls in costumes of the countries represented. The U.S. standard bearer was a pretty, well-scrubbed blond wearing a white, sleeveless linen dress (our national costume?). Spotlights cut the air everywhere. They followed the girls onto the stage, then followed the delegates who came after them. Spotlights beamed again at the honor awards (see p. 60 July P/A 1965) luncheon that noon. They sliced across the screen on which color slides of winning projects were being shown, pinpointing winning architects. It was like a world premiere. Or like Gotham at night when the Batman symbol flashes across the sky, calling Bruce Wayne into action.

Drawings by Forrest Wilson

Which Way to the Food?

It is almost axiomatic that the amount of work accomplished at conventions is in inverse proportion to the number of conventioneers. This one was no exception. Despite a rash of

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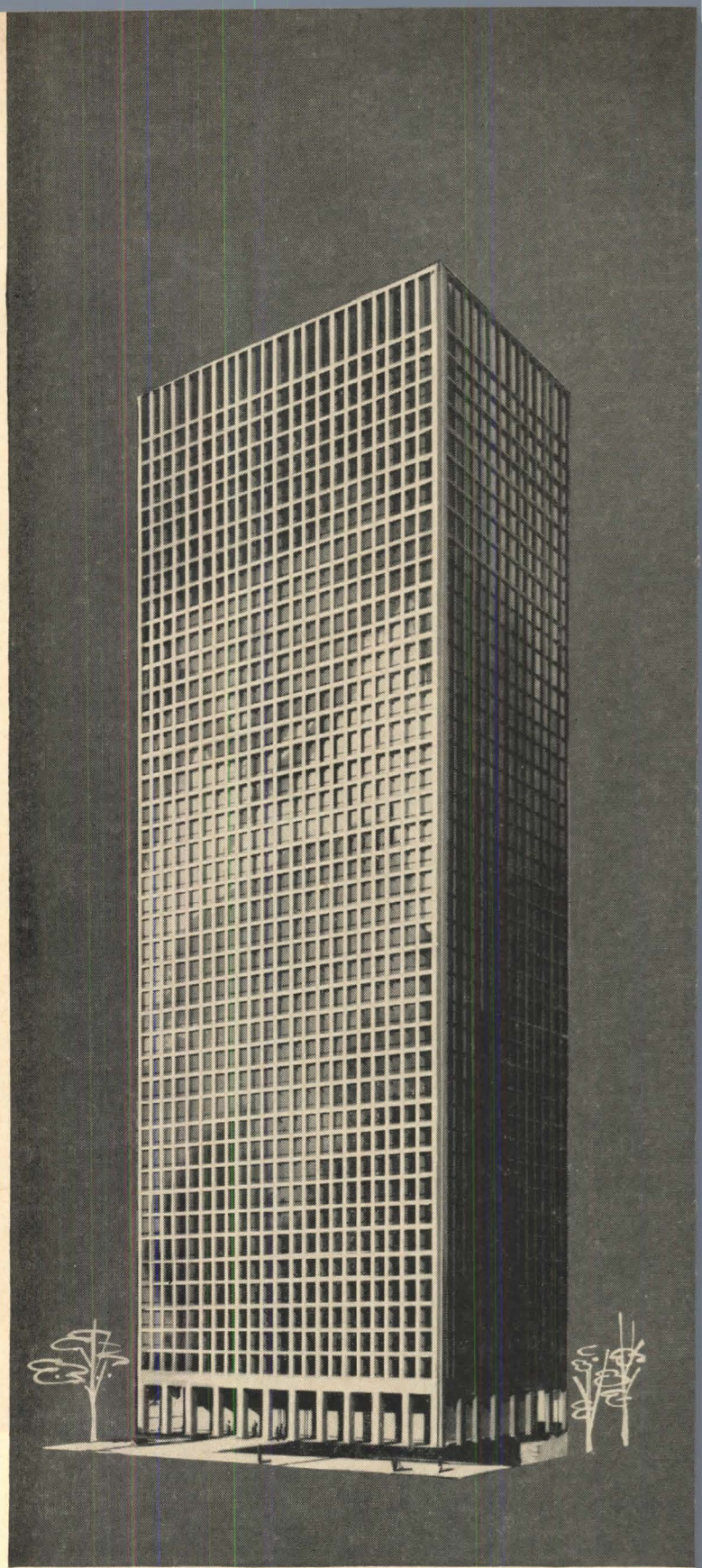

The DeWitt Apartments now under construction at the corner of Chestnut Street and DeWitt Place, Chicago.

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working sessions, which produced some half a dozen resolutions, and despite formal addresses, some of which may have drawn as many as 500 persons, the 4100 conferees found their food for thought, if they found it at all, outside the formal activities.

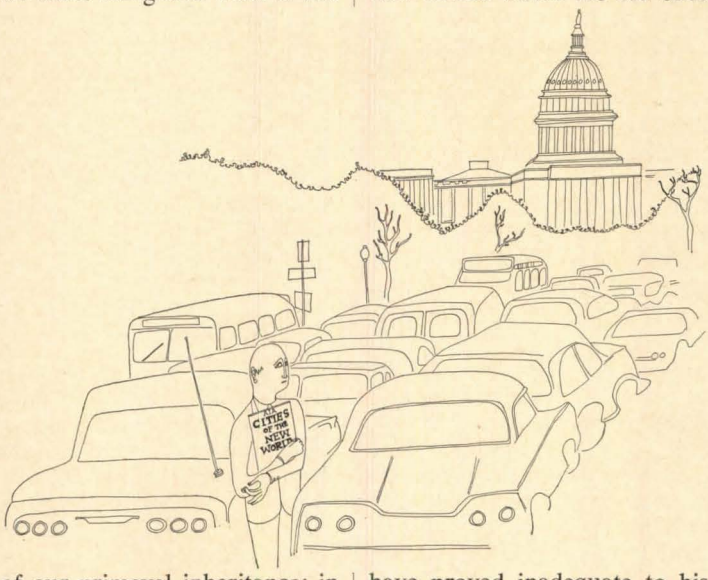
An Awakening

Officially the convention topic was "Cities of the New World," and this, together with much talk of the position of the American architect in this hemisphere, in this globe, even in space, occupied much of the time, if not the attention, of architects from North, Central and South America. In all, the proceedings marked an advance from the 1957 AIA Convention in Washington, when the theme was "A New Century Beckons," the recipient of the especially struck Centennial Gold Medal was Ralph Walker, and the then AIA president had trouble pronouncing the names of foreign guests at the annual banquet. As usual this year rodomontade ran rampant, but beneath all the verbiage seemed to lurk a growing sense of responsibility on the part of the profession as a whole. When we consider that just a few conventions ago we were listening to navel-contemplating treatises on how to expand our practice, the presence of such a controversial figure as Lewis Mumford delivering the first Purves lecture and receiving a splendidly warm reaction at his student lecture was heartening indeed. Perhaps we are beginning to wake up.

Mumford's Reiteration

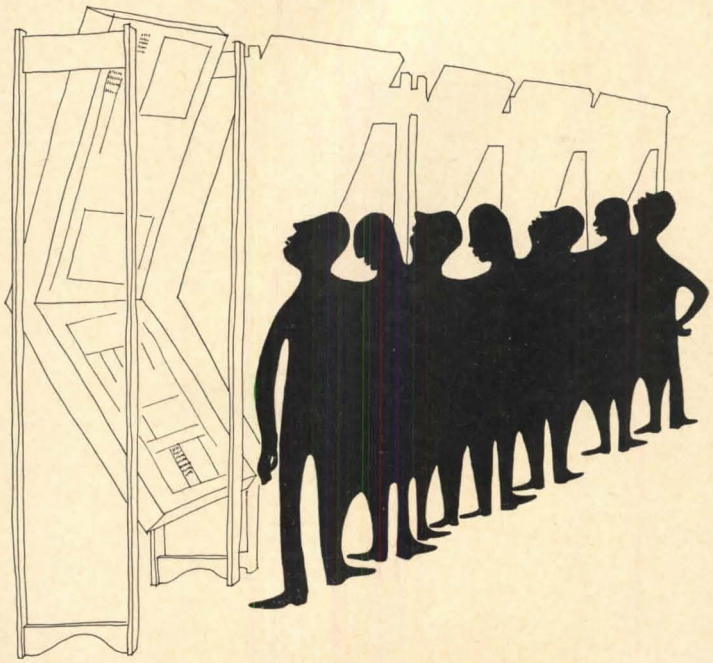
Mumford reminded everyone who listened, as he has been reminding them for 40 years, that humanism must come back into architecture. "The time has come to restore man himself," he reiterated, "in all his cumulative historic richness, his regional individuality, his cultural complexity, to the center of the picture, so that he may play his part once more as dramatist, scenic designer, actor, and spectator in the unfolding drama of life. And the cities we build must give all of their citizens, at every stage of their development, a role to play and a dialogue to participate in.

"To achieve such cities, we must reverse the present order of our thinking, and restore those components of nature and culture that we have neglected in our one-sided preoccupation with financial profits, national aggrandizement, and mechanical power. In nature, we must safeguard what is left of our primeval inheritance; in our culture, we must emphasize continuity as essential to all rational change: and in the depths of the individual soul we must attempt to transcend the limitations of our time and place by seeking what is eternal and divine—addressing ourselves to possibilities still unplumbed and to ideals that have still to emerge. There, and not through rocket trips into outer space, lies the New World that has still to be discovered and domesticated by the spirit of man."



Heckscher: a Seeker of Patterns

But if Mumford sounded slightly mystical, August Heckscher, director of the Twentieth Century Fund, was rational and clear when he sounded this somewhat similar warning: "To shape and reshape living communities—to create for men new homes where the old ones have proved inadequate to his hopes and needs: that is one thing. It is entirely different to build feverishly, under inhuman pressures, communities which lack vital ties with the past. To be compelled to build when the builder no longer knows with any confidence for what purpose he builds, when he has lost the deep instinctual feelings of what makes life satisfying and pleasureable, that is to be in a kind of hell. Such a fate one can indeed imagine as being the fate of the architect in the generations ahead. . . . We are at the point, I suggest, where we must begin to think very seriously about bringing under control the explosive force of modern change, and of making it answer once more to the name of *progress.* In place of driven formless growth, we must seek patterns that make sense to man in terms of his personal fulfillment. In place of things done for their *own* sake, or under compulsion of anonymous forces, we must seek to do the things that minister to human needs. In this new course the architect can—indeed he must—play a crucial role."



Beauty and Government

Unfortunately these pleas for insight and order seem lost on the present Federal administration whose spokesmen called for architects to beautify our cities. In a formal statement from the White House welcoming the architects, President Johnson said, "You determine, in large part, the shape of our cities. Those cities in turn, determine the shape of our lives —so profoundly that future generations will ponder our architecture to learn our deepest values . . . you have a great task . . . to influence men . . . to beautify the earth." The trouble with exhorting architects to beautify our cities is the same trouble latent in most urban renewal. A coat of paint here. A high-rise brick monotony there, replacing a tenement. Window boxes and pocket parks. These are but tokens. Architects must be concerned with the total environment and as Hecksher reminded us: "The true beauty of cities emerges as a kind of by-product from efforts to make them genuinely habitable and answerable to man's needs." In interpreting these needs the architect can be but one of a team.

Leadership by Example

One of the Administration's other spokesmen, Secretary of the Interior Stewart Udall, gave the convention an architectural pep talk, much like a Little League coach trying to inspire his players before a big game. "It is clear that the people appreciate and applaud these attractive new malls and handsome buildings. A new sense of aesthetics shines through—and by the time Mrs. Johnson finishes her work, who knows, the beauty groundswell may engulf everything before it." The trouble, of course, is that Udall wasn't addressing the

Little League. And for this reason alone, perhaps one of the convention's best received talks was William Periera's explanation of his redesign of California—or parts of it. Although Periera's design may be as insidious as the administration's window box campaign, his persuasion was that of a professional leading by example. And coming as it did late in the convention it seemed welcomely refreshing.

Wright House Preserved

Udall, who describes himself as an apostle of conservation, was also on hand, wearing loafers, to speak at the opening of the Pope-Leighey house to the public by the National Trust for Historic Preservation. The Pope-Leighey house is one of the small (4 rooms) homes designed by Frank Lloyd Wright during the late '30s and early '40s, and its dedication was planned to coincide with the AIA convention. Morris Ketchum, incoming AIA president, reminded the gathering that Wright was, after all, a recipient of the AIA Gold Medal—with no hint at how notoriously belated it was.

Latin American Sessions

Meeting concurrently with the AIA were the more spirited sessions of the Pan American Congress. With only 264 registered delegates, the sessions were small enough to encourage active discussions. Perhaps the best paper presented to this group was Leonard J. Currie's comprehensive, scholarly study: "Planning of Central American Campuses." Unfortunately Currie, Dean of the College of Architecture and Art at the University of Illinois, was not present during the discussion of the synopsis he presented.

The paper that elicited the most interest and discussion was entitled "Birth Control and Urban Planning" by José Frias and Nestor R. Sicilano of the Argentine delegation. Although it started out as a condemnation of unplanned population growth, after three sessions of discussion it emerged as a resolution which urged recognition of the problem. It became, according to New York architect Sidney Katz "a cross between a jelly fish and a chameleon." In this it fared as did all other resolutions at the convention. Discussions toward a definite end led to committified meaninglessness. And unfortunately, because of the size of some of the main AIA sessions, discussion following talks and presentations, even panel discussions, never got going. The question and answer system imposed on the participants is too inflexible and restricting. Six panelists and 199 conferees wait while one person asks one panelist one question. Then when it is answered the pressure of all those other waiting questions prohibit a continuing argument. Instead, another subject is raised.

Discussion speeches, and awards seem the mock pagentry which must support a convention, or the pretense of a convention. What is really accomplished is rarely seen—and heard by only a few.

If it is truly thought that speeches and panel discussions must be an integral part of conventions their subject matter should be precise and constricted and the sessions restricted to smaller numbers. Many of the South American delegates, for instance, felt that the real value of their trip to Washington was an opportunity to talk with Jack H. Vaughn, Assistant Secretary of State for Inter-American Affairs. Vaughn, who is, of course, closely connected with the Alliance for Progress, held an informal gripe session in which the delegates told him what was wrong with the aid they were getting through the Alliance. Wrong materials were going to the wrong places, too much to some places, too little to others. And the Alliance's bureaucracy is such that complaints at the receiving end rarely travel to the right ears. All present at this session thought it alone made the trip worthwhile.

And How's the Little Woman?

But with or without the verbiage, a convention is a time for renewing acquaintances, talking about a year's experiences with congenial colleagues. And one week in a year, perhaps this is necessary . . . an end in itself.

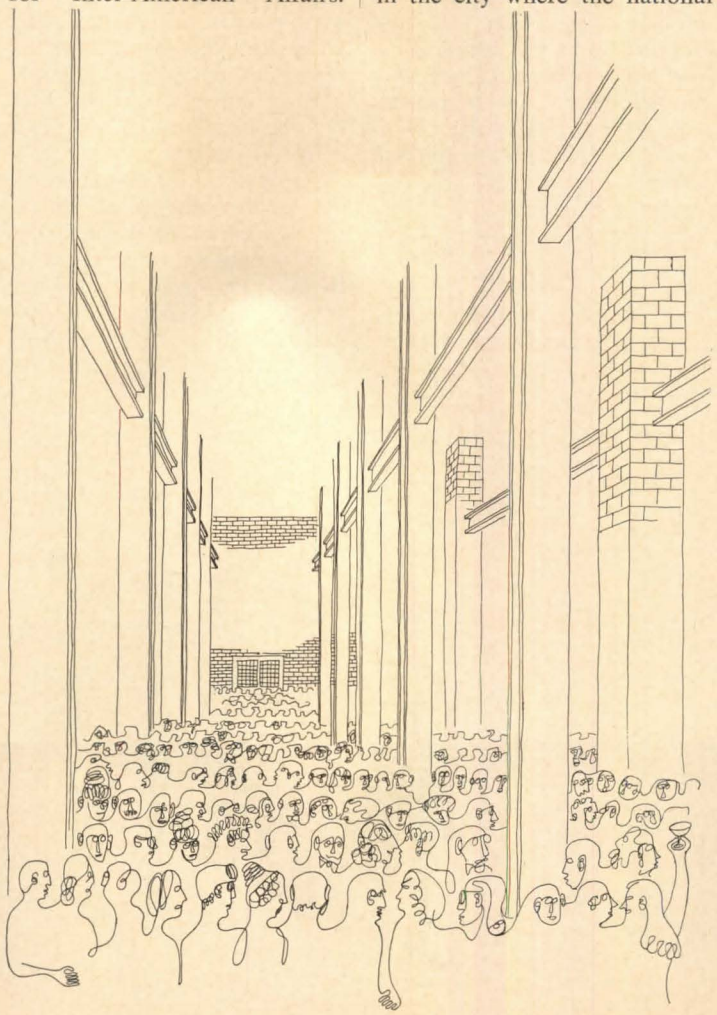
Certainly the social side of an AIA convention is not to be gainsayed. For one thing it takes about 90% of most conventioneers' time. And for another it occupies a large part of the effort of the convention planners. This year, being held in the city where the national organization headquarters is, the convention really had two sponsors — the national office and the local chapter. It is to the credit of both that although there must have been friction between them in planning and execution, nothing but calm showed on the surface. All went smoothly. Alumni lunches, parties at the homes of local chapter members, the ladies' lunches with all those hats, the excursions—these all formed escapes from the constant drone of meetings and seminars.

Undoubtedly the high point —architecturally as well as socially—of this year's convention entertainment was the Power House Ball. The splendid, soaring, gutted space of the old Georgetown power house, which used to supply the electricity for Washington's trolleys (since that night, sadly, smitten by the wrecker's ball) was an exhilarating experience in itself. The effect was heightened by the Power House's transformation, by the addition of small spotlights near the ceiling and two Meyer Davis orchestras, into a Forest of Arden for one night for the revels of the architects of two continents. "This is the best dance I've been to since my junior prom," said one lady we danced with. Her prom must have made quite an impression: the band on that occasion was undoubtedly led by Victor Herbert.

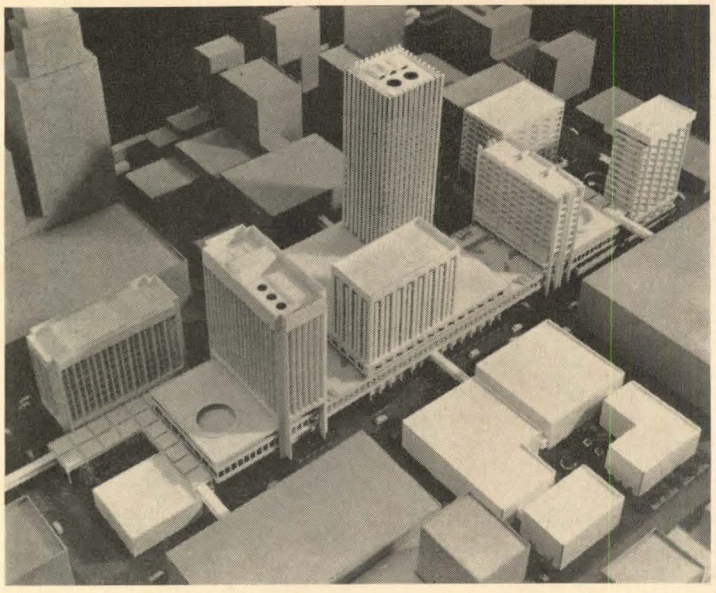
Another stimulating evening for some of us was spent in the sacrosanct confines of the Egg & Dart Club, that congregation of architectural luminaries who some years ago set up their own club within the Institute to escape the maddening convention crowds. One of the E & D members hastened to point out to us, however, that the club is not all cliquish fun and games. Each member is relieved of a goodly sum annually for Egg & Dart to donate to architectural education.

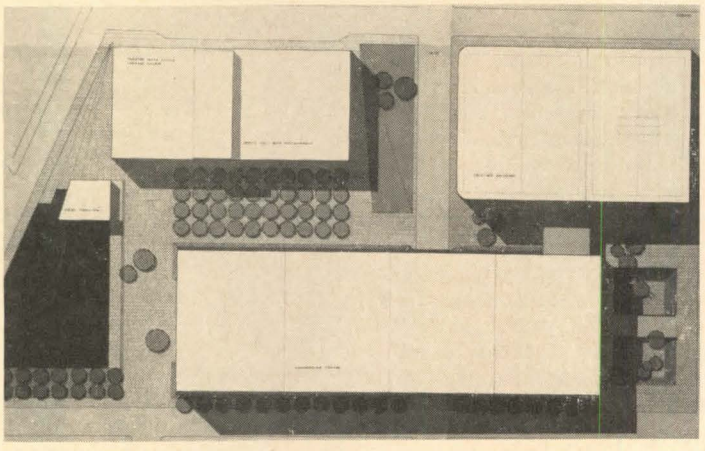
The Beauty Part

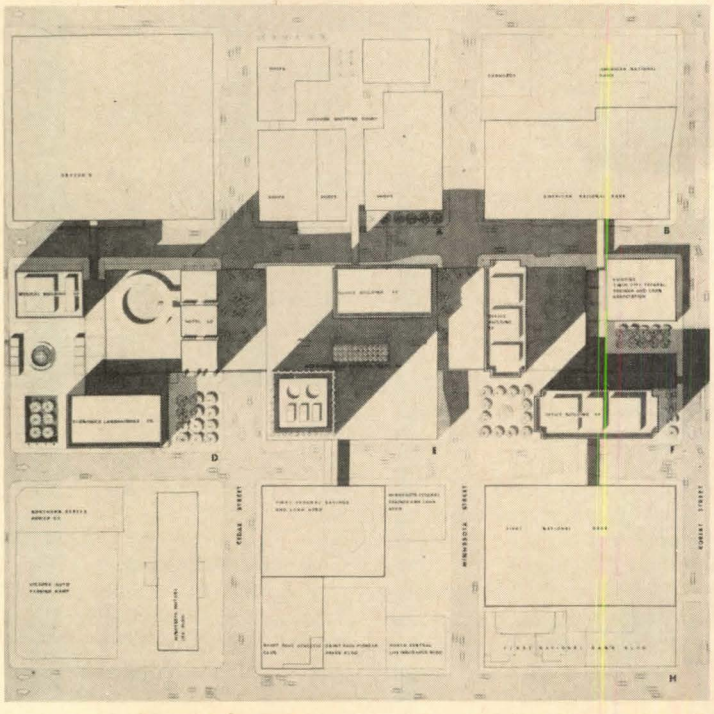
Even though architects may not make our era the Age of Beauty that President Johnson exhorts them to, it was readily apparent that today's architects are deeply concerned with aesthetics. Both at the Power House Ball and at the final banquet, no one could dispute that architects as a professional group have the most beautiful wives of all.



St. Paul Sees the Light







ST. PAUL, MINN. Here, where the Mississippi is just becoming a river, as it passes south, is a city, the capital of Minnesota, which for years has been passed by the building arts as well as by the river. In one nine-by-five block area in downtown St. Paul, a recent survey showed that 44 per cent of the buildings were put up before 1900 and an additional 31 per cent date back to before 1919. In that area only one building in four is less than 45 years old. But all this will change.

Underway now are plans for the rebuilding of a 12-block downtown section, and the Saint Paul Housing and Redevelopment Authority has already purchased more than half the land and buildings there. To be completed by the end of this year, land purchase is being done with the United States Urban Renewal Administration putting up $12 million and the city contributing the remaining $4 million. Of this total $16 million the governments expect to recoup $5.6 million by resale to developers and, of course, the renewed land will pull in more taxes than it did before.

In the 12 block area, known officially as Capital Centre, construction will begin this summer on an $11 milllion U.S. Courthouse and Federal Building on one block and on a $3.5 million Farm Credit Bank building on part of another. In addition, plans are moving ahead for a $10 million apartment complex, the first phase of which will be construction of a 30 story building with 336 apartments.

But the major redevelopment plan so far is for a three block area of Capital Centre on which the Davidson-Baker Co., with architects Grover Dimond Associates, plans a $26.5 million complex of nine buildings, to include five office buildings, a financial institution, a medical building, and a motor hotel. These buildings and indeed eventually all structures in the Capital Centre area and adjacent to it will be connected by enclosed overhead passageways, and the buildings are arranged so that pedestrian circulation occurs in the center of the block. These passageways will both protect pedestrians from the weather, and separate them from vehicular traffic. Some of the rooftop areas on top of these connecting passageways will be landscaped, and possibly used as dining or recreation areas. Escalators will connect the pedestrian concourse with street level. Beneath the concourse will be parking space for 750 cars.

St. Paul's urban renewal program is an outgrowth of the efforts of an Architects' Counseling Committee, made up of four firms: Cavin & Page, the Cerny Associates, Inc., Grover Dimond Associates, Inc., and Haarstick, Lundgren & Associates, Inc. And to review all developer's proposals, to insure coordination of designs for adjoining properties, and to design the second level pedestrian concourse, the Housing and Redevelopment Authority has retained Hammel, Green & Abrahamson, Inc., of St. Paul.

St. Paul dates back to 1830 when "Pig's Eye" Parrant built a saloon a few miles south of Fort Snelling, the one time Army post which today is Minneapolis. It looks as if the citizens of St. Paul are out to correct all that.

The Aspen Papers

ASPEN, COLO. Every summer for 15 years an interested group of architects, designers, educators, and businessmen have retreated to Aspen for the Annual International Design Conference. Featured are the beauty of the Colorado Rockies, an abundance of fresh air, good company, and, usually, stimulating thought. This year's Conference, June 20-25, organized by program chairman George Nelson, seemed particularly stimulating, and the participants seemed particularly well pleased with the experience. Nelson's concern was with the experience as such, rather than with a formal summation or statement of goals and achievements. "It would be so relaxing, so nice, so comforting, and maybe so valuable," he said, "if in some way that can't be measured with all these sensitive tools, if one could think of something once in a while, just a plain, ordinary everyday human experience in which something happens, you listen to people, and the weather is nice, and the tent is cold enough so you stay awake, and we go away and maybe some other time we will do it again."

This year's gathering numbered about 500, and the formal sessions were held in a new air-conditioned tent designed by Herbert Bayer.

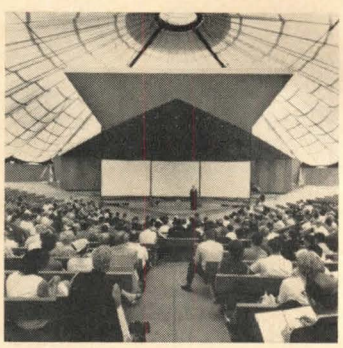
Relaxation there was, but, perhaps because of this and because of the isolated beauty of the setting, attendance at the formal speaking sessions was intense. Most of the conferees gathered to hear—but not to be heard, for Nelson barred formal discussions fol-

lowing any of the talks. Following roughly the conference title: "The New World," or as Nelson called it "The End of the World as We Know It," the 13 speakers gave hints that the world at hand is potentially as frightening as it is complicated.

Dr. Philip Hauser, Director of the Population Research and Training Center at the University of Chicago, for instance, highlighted what must become a major concern of mankind. "I would like to focus on the impact of man on man," he said. "And in doing so may I suggest that many of the problematic aspects of the new world which have been presented to you in word and in picture may be considered as frictions in a transition from the old world of small population size, one of sparcity rather than high density, of homogeneity rather than heterogeneity, to the new world in which we live now by large population size, great densities, and great heterogeneity. In fact, to state my thesis at the outset, I think a basic bit of information for illuminating the problems of the new world, including its physical problems, the problems of structure, the problems of design, in which you are interested, is provided by the prospective of the new world as a function of the old

world manifest in changing population size, density, and heterogeneity." The speed with which world population is expanding staggers the imagination. "We know," Hauser went on to explain, "at the beginning of the seventeenth century, world population approximated half a billion. We know too that although man has been on this planet, or some close kissing cousin to man, for some two million years, that we did not achieve a world population of one billion persons simultaneously alive until about 1850. It took all of that two million years down to 1850 to get one billion persons simultaneously alive. And to get the second billion took only an additional seventy-five years, for this number was approximated in 1925. To get the third billion took only an additional 37 years between 1925 and 1962. With present trends we shall get the fourth billion in about fifteen years and a fifth billion in less than ten years thereafter . . . At present, world population is increasing at a rate of two percent per year . . . It's very easy to demonstrate a two percent per year increase in world population is a fantastically rapid rate of growth . . . a two percent per annum rate of growth if continued into the future from the present time would produce one person for every square foot of surface on this globe in 6½ centuries . . . in 6200 years . . . the mass of human flesh which would be generated would have a radius expanding at the speed of light."

Fantastic as this projection seems, it is typical of the rapidly growing complexity which characterizes the 20th century. Robert Theobold, British socio-economist, sees this increasing complexity leading to a break-down of communications among disciplines. "The thing that shocks me most," he said, "is the different views of reality. The view of the space scientist about reality has nothing to do



with the view of the leader of the poverty program. The view of the designer has nothing, or very little, to do with that of the politician. We do not communicate anymore. We have a fragmented idea of what the world is like, and as a result, we don't understand what the actual forces are."

Secretary of the Interior Steward Udall echoed this concern with communication. "It seems to me, for the architect, the designers in the main, to feel they're concerned solely with the works of man and unconcerned about nature, and on the other hand my conservationist friends have been deeply and religiously and devoutly involved in all kinds of conservation problems involving the natural world and yet altogether too many of them haven't been concerned about the things that man has done. We've got to break down these walls. It's all part of one challenge."

Konrad Wachsmann, who recently created the Research Division of the Graduate School of Architecture at the University of Southern California, is trying to do something about the interdependence of disciplines; and he feels that a good part of the battle is in recognizing the problem. "Man has to learn to recognize the complexity of everything." In Wachsmann's Research Division every student is a research assistant. "We have abolished grades, we have abolished theses, we have abolished individual activity. We bring them all together. But not only all together in one common activity, but together with all other faculties. And strangely enough without the participation of the School of Architecture. In fact, our faculty staff is composed of mathematician, biologist, sociologist, and educational specialist etc., but we have no architects in our small initial group. But we all believe that we are all dealing with the art of building as much as anybody else."

Jan C. Rowan, architect and editor of P/A, sees the isolation of architecture, as a discipline, as a monumental mistake. Speaking of the New York World's Fair, he pointed out that the "Fair is a glaring example of what happens when architects have the problem of designing buildings in isolation, without any reference to a master concept, without any relation to each other —without any disciplining influence whatsoever. What can an architect do when the only influence he has is the client, who tells him to make the design as eye-catching as possible? If the disciplinary framework—such as a strong three-dimensional master plan, clearly articulated circulation routes, a limited choice of materials, and all the other blissfully restraining forces—if such a framework does not exist, a visual chaos is bound to result . . . The great problem, therefore, is how to create a powerful enough framework within which work of lesser quality could happily fit. This is the crying need of architecture today."

At Aspen the framework was set for the communication of various disciplines. One knows that they will do it again—next summer—and one hopes that they are listening to each other.

AISC AWARDS

NEW YORK, N. Y. For six years the American Institute of Steel Construction has singled out examples of outstanding aesthetic design in structural steel. Last month, this year's awards were given to 11 buildings completed since January 1, 1964. A jury of five selected the winners from among 100 entries. Jurists were: architects Arthur G. Odell, Jr., Charlotte, N.C.; John Lyon Reid, San Francisco, Calif.; Hugh A. Stubbins, Cambridge, Mass.; engineer Richard M. Gensert, Cleveland, Ohio; and Dr. Ralph G. Owens, Dean of Engineering and Physical Sciences, Illinois Institute of Technology, Chicago, Ill

Award winners were: Chancery for the Embassy of the Federal Republic of Germany, Washington, D. C., architect:

1

Professor Egon Eiermann, Karlsruhe, Germany; Curtis Residence, New Orleans, La. (1), architect: Curtis & Davis, New Orleans, La.; Deere & Company Administrative Center, Moline, Ill., architect: Eero Saarinen & Assoc., Hamden, Conn., structural engineer: Amman & Whitney, New York, N.Y.; Emery Air Freight Terminal, Chicago, Ill. (2), architect: Hammond & Roesch, Inc., Chicago, Ill., structural engineer: The Engineers Collaborative, Ltd., Chicago, Ill.; First State Bank & Trust Co., Edinburg, Tex., architect: Neu-

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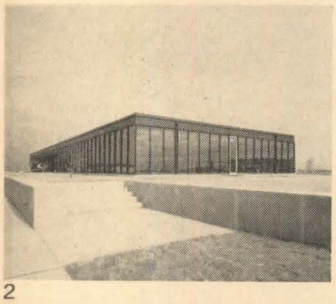
haus & Taylor, Houston, Tex., structural engineer: Vogt & Clouse Engineers, Houston, Tex.; General Electric Progressland Pavilion, New York World's Fair, Flushing Meadows, N.Y., architect: Welton Becket & Associates, Los Angeles, Calif., structural engineer, Richard Bradshaw, Van Nuys, Calif.; New Jersey Tercentenary Pavilion, New York



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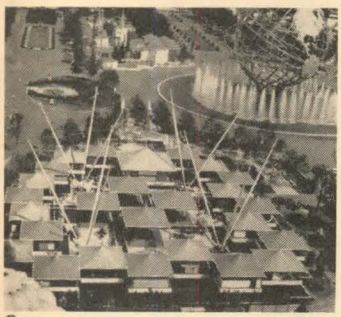

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World's Fair, Flushing Meadows, N.Y. (**3**), architect: Philip Sheridan Collins, Princeton, N.J., structural engineer: Professor Norman J. Sollenberger, Princeton, N.J.; Phoenix Mutual Life Insurance Co., Hartford, Conn., architect: Harrison & Abramovitz, New York, N.Y., structural engineer: Edwards & Hjorth, New York, N.Y.; Rosen House, West Los Angeles, Calif., designer: Craig Ellwood, Los Angeles, Calif., structural engineer: Robert Marks, Los Angeles, Calif.; Seattle Center Coliseum, Seattle, Wash. (**4**), architect: Paul

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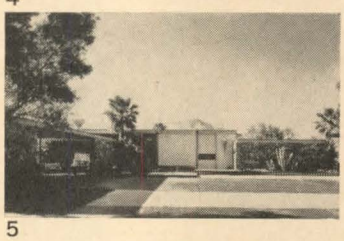

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Thiry, Seattle, Wash.; structural engineer: Peter H. Hostmark & Associates, Seattle, Wash.; Shamel Residence, Palm Desert, Calif. (**5**), architect, William F. Cody, Palm Springs, Calif., structural engineer: William Porush, Los Angeles, Calif.

Prestressed Concrete Institute Awards

CHICAGO, ILL. In its 1965 Awards Program the Prestressed Concrete Institute presented two first place awards and eight merit awards. One first place award went to the 12-story North Carolina Mutual Life Insurance Building **(1)** for what the jury called an "ingenious and imaginative structural concept." The concept involved precasting an entire exposed exterior structural system in short segmental units. As each exterior column (two columns are placed well in from the ends of each façade) rose, trusses were created by threading alternating chord units and verticals on steel tendons. Stressing these tendons supplied the necessary joint rigidity. Then, by alternating truss and non-truss floors, unobstructed window areas were created on every other floor. Precast, prestressed concrete double tee floor units span in opposite directions on alternate floors so that each truss carries only one floor. Architect: Weldon Becket; Associate architect: M. A. Ham, Associates, Inc.; structural engineers: Seelye, Stevenson, Value & Knecht.

The other first prize winner was Canada's Hudson Hope Bridge **(2),** whose "ingenious design made it possible to use native materials in an area remote from railroads and good highways." Thirty-four concrete multi-cell box girder units, each weighing 90 tons, were precast on the banks of a remote Canadian river, then raised and carried into position by a traveling sling riding on the permanent cable system of the bridge. Sections were post-tensioned creating a graceful 680 ft precast prestressed concrete suspension bridge. Engineers: Phillips, Barratt & Partners, Vancouver, B. C.; General contractor: Hans Mordhorst Ltd., New Westminister, B. C.

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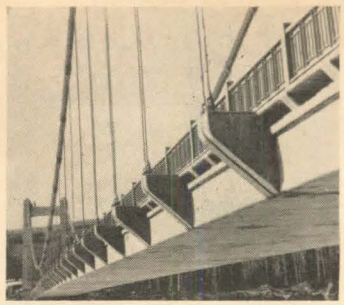

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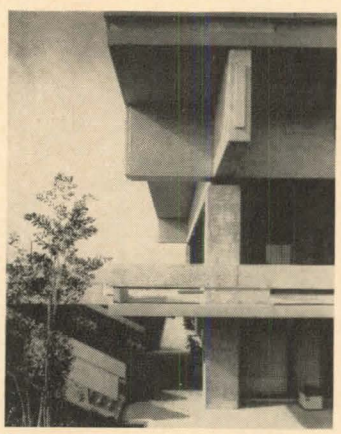

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The eight merit award winners were: MacArthur-Broadway office building, Oakland, Calif.; architect: Irving D. Shapiro & Associates; structural engineers: T. Y. Lin, Kilka, Yang & Associates; S. A. E. Fraternity House, University of Florida, Gainsville, Fla. **(3)**; architect: Gene Leedy. Medical Merchandise Mart, Lincolnwood, Ill.; architect: Fridstein & Fitch; engineers: George Kennedy & Associates. Automobile Club of Southern California, Beverly Hills-Westwood District Office; architect: Welton Becket and Associates; structural engineers: Stacy & Meadville. Ventura Savings and Loan Association Building, Buenaventura, Calif. **(4, 5, 6)**; architect: William L. Pereira & Associates; structural engineers: Woodward Tom Associates. One notable feature of this building is the precast ceiling system (one section of which is shown being hoisted into place); each beam forming the ceiling of the open banking floor is a precast post-tensioned pan joist section.

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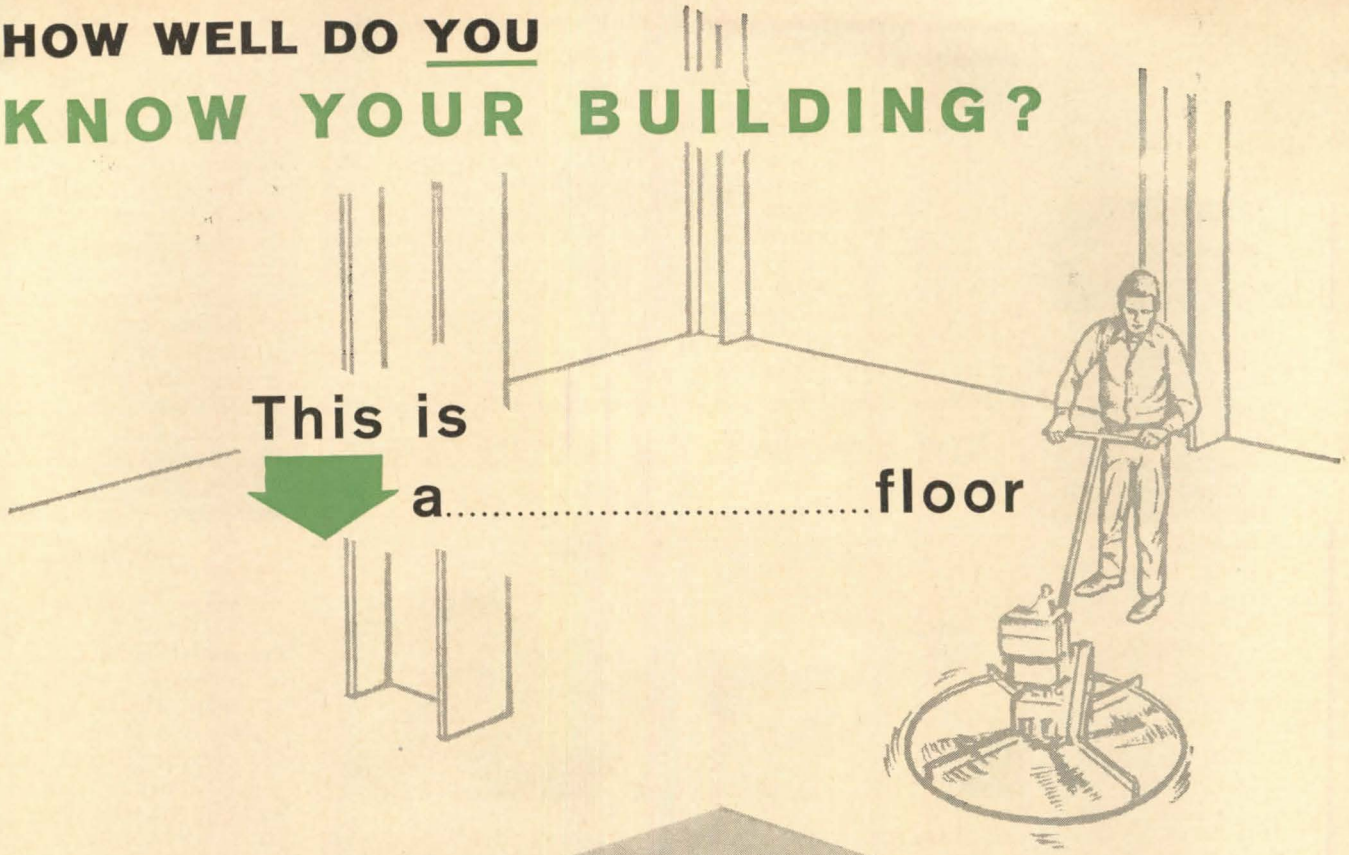

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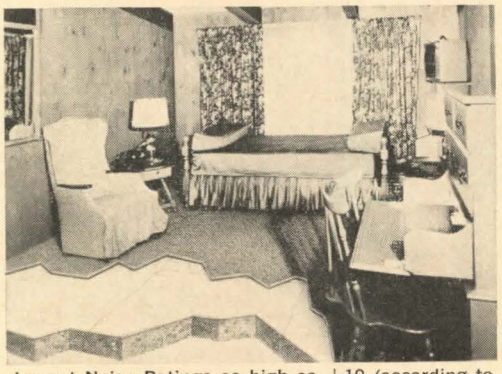

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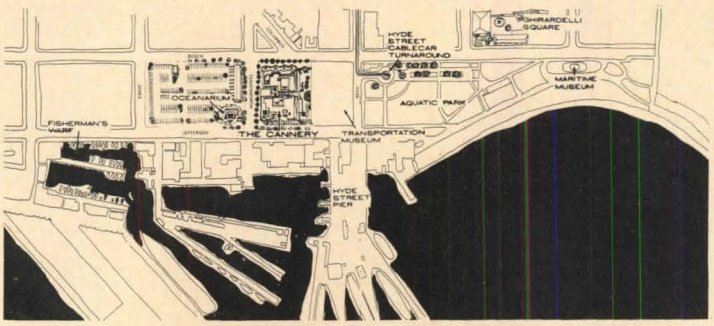
Columbia River Bridge, Kinnaird, B. C., Canada; engineers: Choukalos, Woodburn & McKenzie Ltd.; consulting engineer: Professor R. Morandi. MacKinnon Avenue Overcrossing, San Diego, Calif. and Vicente Creek Bridge, Monterey County, Calif.; both by the California Division of Highways.

Judges for the competition were: Max Abramovitz, New York, chairman; Wallace L. Chadwick, Los Angeles; Edward D. Dart, Chicago; Arthur G. Odell, Jr., Charlotte, N. C.; Murray A. Wilson, Salina, Kansas.

Competitions

AID announces its annual international design awards program. Entry forms are available through AID National Headquarters, 673 Fifth Avenue, New York, N.Y. The Jury will be composed of Tom Lee, Blair Catterton, Mary E. Dunn, Sherman Emery, Cecile Hayward, Emily Malino and George O'Brien, all of New York; Harvey L. Ackerman, Los Angeles; and James Merrick Smith, Coconut Grove, Fla. Categories for consideration are residential furniture, business furniture, drapery fabrics, upholstery fabrics, hard surface floor coverings, lamps and lighting, window shades and blinds, china, glass, silver, decorative accessories, and research and development . . . Quick, send in your entry qualifications request by August 31 if you want to qualify for entrance in Allied Chemical Corporation and Alcoa's contest, "Projections in Design: Furniture Materials." Send in qualification requests to Projections in Design, 1627 Penn Avenue, Pittsburgh, Pa. Entries due: November 30th and judging will follow in December with the winners names announced in January of 1966. Competitors will select one of three rooms and do three pieces from a specified list for that room. The purpose of the contest is to explore the use of aluminum, nylon fibers and products, and urethane products in contemporary interior furnishings designed for mass-production sale to middle income families . . . The City of Fremont, California is conducting a competition to select an architect for the City Government Building for the Hall of Justice and for the Master Plan for a new Civic-Cultural Center. Applications for programs must be received by September 15. Deadline for design submissions is December 15. Jury will be Pietro Belluschi, Paul Rudolph, John Merrill, Lawrence Halprin, and former Mayor Raymond Tucker of St. Louis. Information may be obtained from Professional Advisor, Jacob Robbins, City Hall, Fremont, California, 94538.

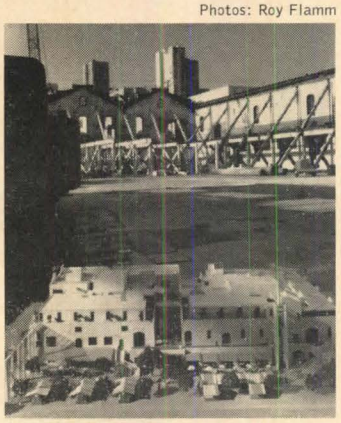
There Should Be No Row About the Cannery



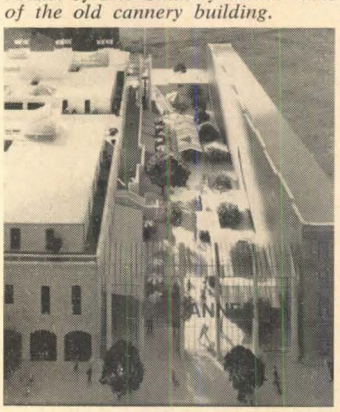
Photos: Roy Flamm

SAN FRANCISCO, CALIF. On the San Francisco waterfront between Fisherman's Wharf and Aquatic Park, stands the now gutted old Del Monte Fruit Cannery. Inside the shell, at 500 Beach Street, foundations are going up, to support what will be known as "The Cannery," a multileveled cornucopia of restaurants, shops, and stores, to open next summer.

Joseph Esherick & Associates is architect of the imaginative renovation, with Thomas D. Church as landscape architect and Marget Larsen as graphic designer. The plan calls for building, within the remaining walls of the old building (a survivor of the 1906 earthquake and fire), a three-story complex of restaurants of various nationalities reflecting the cosmopolitan nature of San Francisco, pubs, cocktail lounges and bars, shops and stores of all types, and even an aviary. These will all be planned around and between an exciting system of stairs, arcades, bridges, escalators, open areas, balconies, elevators, terraces, and sidewalk cafes. The present rail spur for deliveries to Del Monte will become "Cannery Street," featuring vendors' stalls and umbrellaed tables for sitting and drinking or having a snack. On the other side of this promenade will be the Transportation Museum being developed by the State of California. Generous parking will be provided in a landscaped parking lot at the other side of The Cannery (where there will also be an "Oceanarium").



Model of The Cannery within walls of the old cannery building.



Entrance and The Cannery Street of stalls and sidewalk cafes.

Together with the Transportation Museum, the burgeoning Ghirardelli Square, the growing Maritime Museum, the continuing interest (if not action) in redevelopment of Fisherman's Wharf, and the enlivening of the Hyde Street cablecar turn-around near Aquatic Park with a Campbell & Wong pavilion, The Cannery bodes well for the tasteful "refreshment" of this old area by private means, restoring San Francisco in a flavor all visitors associate with it. If all of the City's urban renewal projects and private developments could capture some of this style, those who love San Francisco could concentrate on other worries.

Calendar

September 14-17 are the dates of the annual meeting of **The Producers' Council.** The theme of the meeting, to be held in Louisville, Ky. will be "Many Ways to Market." The announcement promises that the social highlight is a "planned night of entertainment on the Belle of Louisville". . . . **The Building Research Institute** will hold its fall conferences at the Washington Hilton Hotel in Washington, D.C. November 10-12. Further details and registration information may be obtained from Milton C. Coon, Jr., Executive Vice President, Building Research Institute, 1725 De Sales Street, N.W., Washington, D.C. . . . **Prestressed Concrete Institute's Convention** will be held at the Americana Hotel in Miami Beach, Fla. from December 5-10. And for an extra $125 PCI offers special rates for a three-day cruise through the Caribbean. Information is available from PCI: 1965 Convention PCI, 205 W. Wacker Drive, Chicago, Illinois 60606.

Sullivan Drawings

NEW YORK, N.Y. Columbia University's Avery Library has been enriched by 122 sketches and drawings by Louis Sullivan. Three days before his death on April 14, 1924, Sullivan gave the drawings to his star pupil and friend, Frank Lloyd Wright. Wright kept the drawings in his Arizona home until his death in 1959. Wright wrote that "these drawings were the dearest treasure of his heart." They are surely one of Avery's dearest treasures now.

REMINDER

Deadline for mailing
entries to the thirteenth
P/A Design Awards Program
is August 31!
For rules, see p. 63, JULY 1965 P/A.
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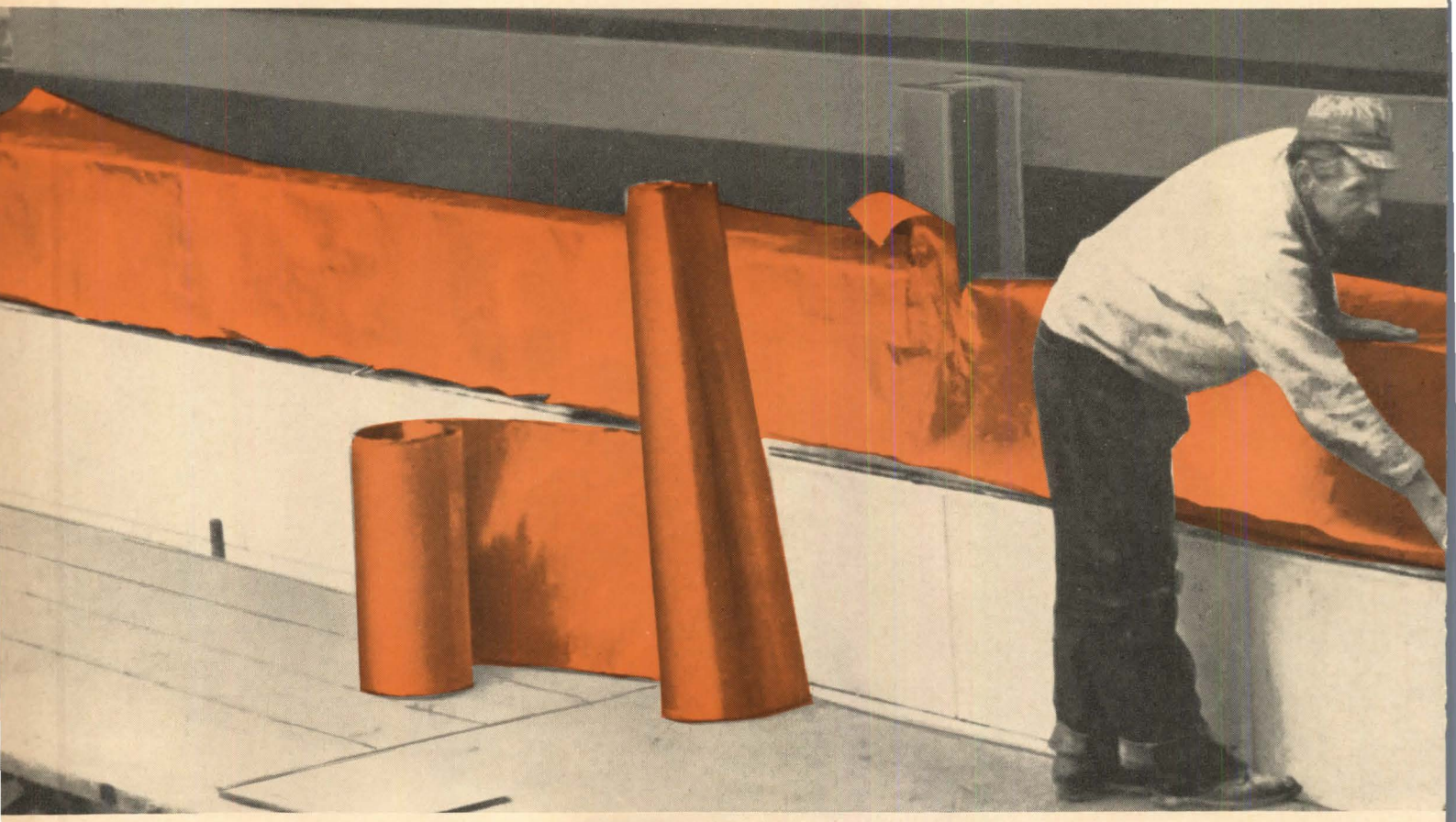

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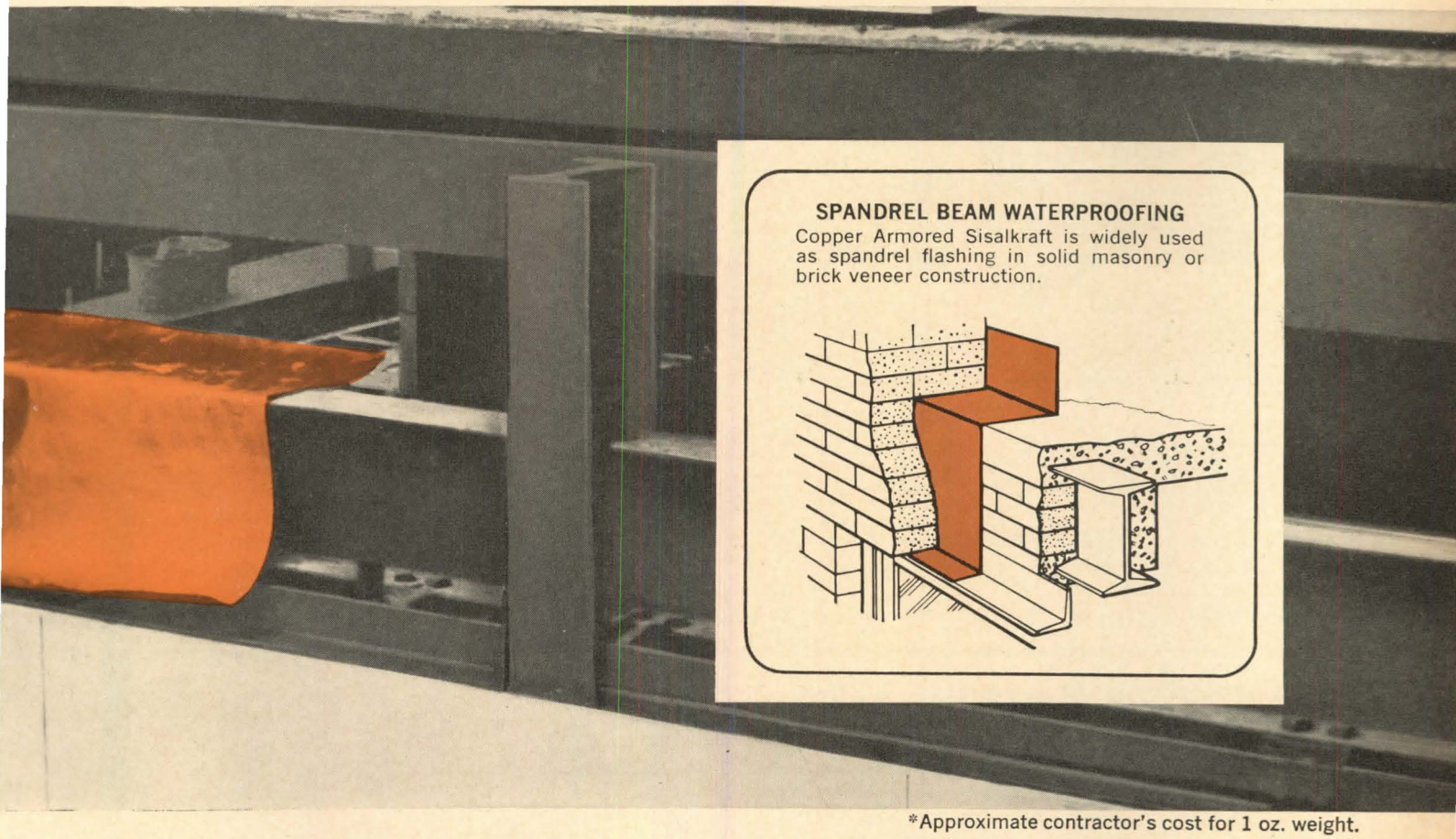

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Copper Armored Sisalkraft, when used as concealed flashing and waterproofing, has all the properties of much heavier gauge copper at just a fraction of its cost! It is permanent and waterproof (0.00 perms) — provides lifelong protection against moisture penetration at vulnerable points in the structure. In addition, unlike synthetic materials, this quality product gives your client the prestige of copper!

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Specify Copper Armored Sisalkraft for all concealed flashings and waterproofing applications such as over spandrel beams, flashing door and window openings, waterproofing shower stalls . . . every place you want the permanence of copper without its high cost. Available in weights of 1, 2, and 3 oz. of pure copper per square foot. Suggested specifications are in Sweet's File 8h/Si.

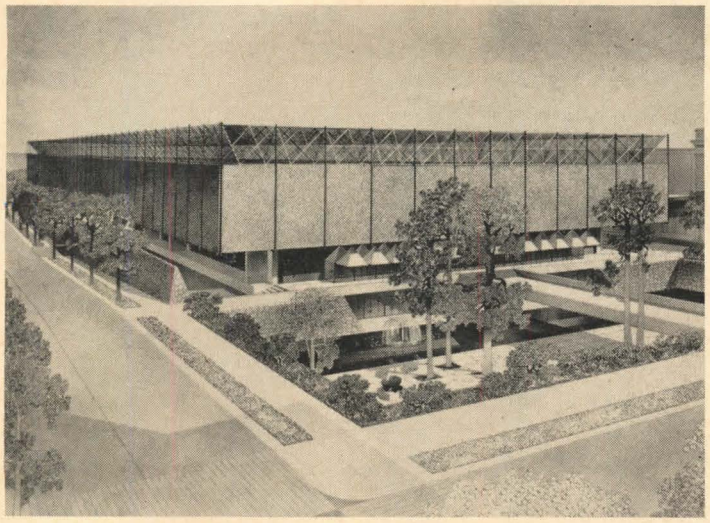
Send for Samples and Information, including physical property data and suggested specifications. Write, today: Sisalkraft, 56 Starkey Avenue, Attleboro, Massachusetts.

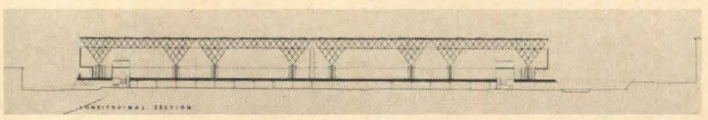
ST REGIS

SISALKRAFT DIVISION

On Readers' Service Card, circle No. 332

Competition-Winning Design Gives Denver a Convention Center





DENVER, COL. Denver's long search for the design of a convention center ended last month with the selection of the competition-winning design shown here. The result of a joint effort of three Denver firms (James Terrill Ream, W. C. Muchow Associates, and Haller & Larson Architects), who formed a single association for the competition, Muchow, Ream and Larson, Architects, the design is reminiscent of both a proposal once made by Mies for a Convention Hall in Chicago and of the Air Force Academy dining hall built by Skidmore, Owings & Merrill (see pp. 181-183, P/A June 1965). Its space frame roof will comprise four steel members, each 180 x 180 ft, on ten foot modules. These will be supported by inverted corner pyramids stretching from 40 x 40 ft at truss to 10 ft square concrete piers at ground level. The perimeter walls (lightweight concrete aggregate panels and glass) will hang by steel rods from the edges of the space frame.

Located in a downtown area, the building will provide 320,000 sq ft of space on three levels: a lower parking and vehicle entrance level, a main exhibition level, and an upper mezzanine area of offices, lounges and concessions.

The design incorporates two avenues down both sides of the exhibit floor for truck circulation. Trucks can enter the building and unload at any of twelve drivein positions, six on each side. These areas are serviced by retractable loading dock sections, which will extend to accommodate the size of load coming in or out, then retract to give the truck room to maneuver.

Although William J. Le Messurier pointed out in his June P/A article that the Air Force Academy dining hall roof truss system was inefficient, the designers of the Denver Convention Center feel that their system will result in rapid construction and in flexible interior exhibit spaces. Pyramid canopies, containing lighting, will nest in the structural grid, and by lowering or raising these varying ceiling heights, individual needs will be accommodated. Construction is expected to begin during the summer of 1966 under a budget of $5.2 million.

WASHINGTON/FINANCIAL NEWS

BY E. E. HALMOS, JR.

Along with the usual hot (but unusually dry) summer weather that hit Washington in early July, the capital's annual silly season seemed to be settling in with a vengeance.

Evidence included a peculiar reversal that only Congress seems able to perform with equanimity: a bill approved by a Senate committee that flatly would bar nonarchitect Architect of the Capitol J. George Stewart from having anything to do with planning of a proposed $70 million Madison Memorial Library building (next to the Library of Congress on Capitol Hill); and a directive from Congressional leaders (including Vice-President Humphrey and House Speaker McCormack) to Stewart to seek funds at once for a possible $30 million refurbishing of the West Front of the Capitol (facing downtown).

Committee hearings of the Madison proposal developed a steady clubbing (verbally) of 75-year-old Stewart's apparently imperturbable head, with many references to the Rayburn House Office Building, the "New" Senate Office building and other unhappy evidences of the builders' art.

But the session with Humphrey, McCormack, and other top Congressional leaders developed no such comment or criticism. All agreed that the West Front (its original sandstone crumbling and cracked) should be fixed (in marble reproduction) — and nobody seemed disturbed that Stewart would do the job.

Another evidence of the permanence of Washington landmarks—however architecturally unhappy—was the announcement that the crumbling, rococo old Court of Claims Building (opposite the newer but almost equally rococo former State-War-Navy building on the White House grounds on Pennsylvania Avenue) would not be torn down, but would revert again to an art gallery (it was built for the Corcoran Collection in 1869) —this time under the aegis of the Smithsonian Institution.

Other evidences of the season: protests by architects and civic groups over the modest memorial to Franklin D. Roosevelt (a slab in front of the classic Archives Building; see p. 54, JUNE 1965 P/A) got some fast action. The city hastily stuck in some flowers, cleaned up debris, sodded the plot and watered it. And the Fine Arts Commission turned its august attention to bus-stop signs, decided that a proposed new one was too tall and unsightly (it was to be atop a 10-ft standard).

On the plus side of the seasonal trend was a move by the Interior Department to name 33 new areas as "national historic landmarks" — including the classic headquarters of the American Red Cross and the Carnegie Institution in Washington. Note also final plans for a new Defense Department Building in the city's southwest area (to be called the Forrestal Building), which will span 10th Street.

Financial

Despite stock market fluctuations and other occasional jitters, the construction indicators kept to a steady course—at least up to latest available figures. For May, according to the Census Bureau, value of new construction put in place was $5.7 billion, up about 4 per cent over April 1965, 2 per it has for months, however, housing lagged behind: in May, the field was operating at an adjusted annual rate of 1.484 million units—down 4 per cent over April 1965, 2 per cent over May 1964.

There was confirmation in the figures, too, for the worries of general contractors: the proportion of public construction was growing fast. New private construction (including housing) was almost unchanged over a year ago, but new public construction was up (at $1.7 billion) 5 per cent over a year ago.

Another disturbing factor was the continued rise of costs, and evidence that this would continue. The key factor seems to be labor, and the high "packages" that are resulting from current labor-contractor negotiations. Three-year contracts (particularly for plumbers, ironworkers, machine operators, and electricians) containing total raises of around $1 an hour, coupled with declining work-weeks seem to be commonplace.

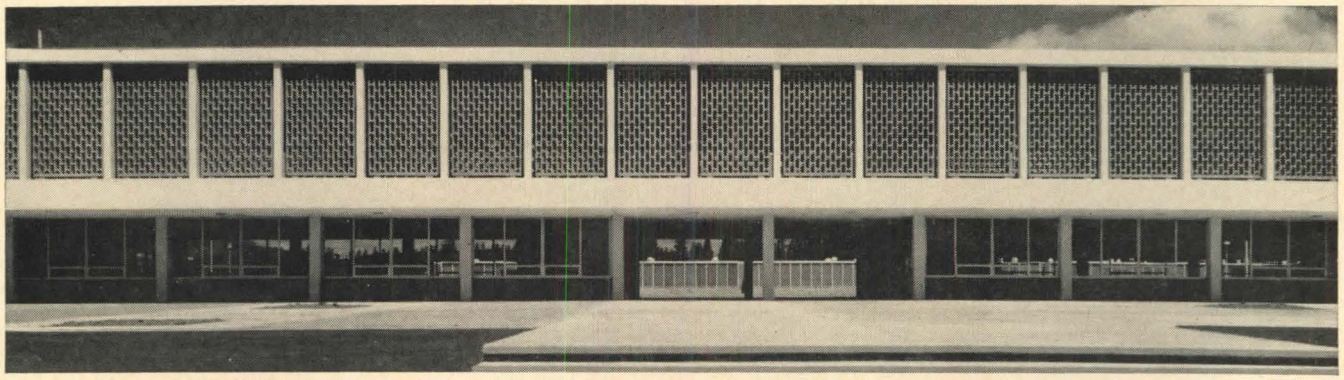
Built to Rehabilitate

...an all-concrete Corrections Center

The spectacular all-concrete Corrections Center at Shelton, Washington looks more like a college campus than a prison. Even the traditional iron bars have been replaced by decorative concrete screen walls. This is in character with the job the new $13-million Center was designed to do—educate and rehabilitate the young adults who are its inmates.

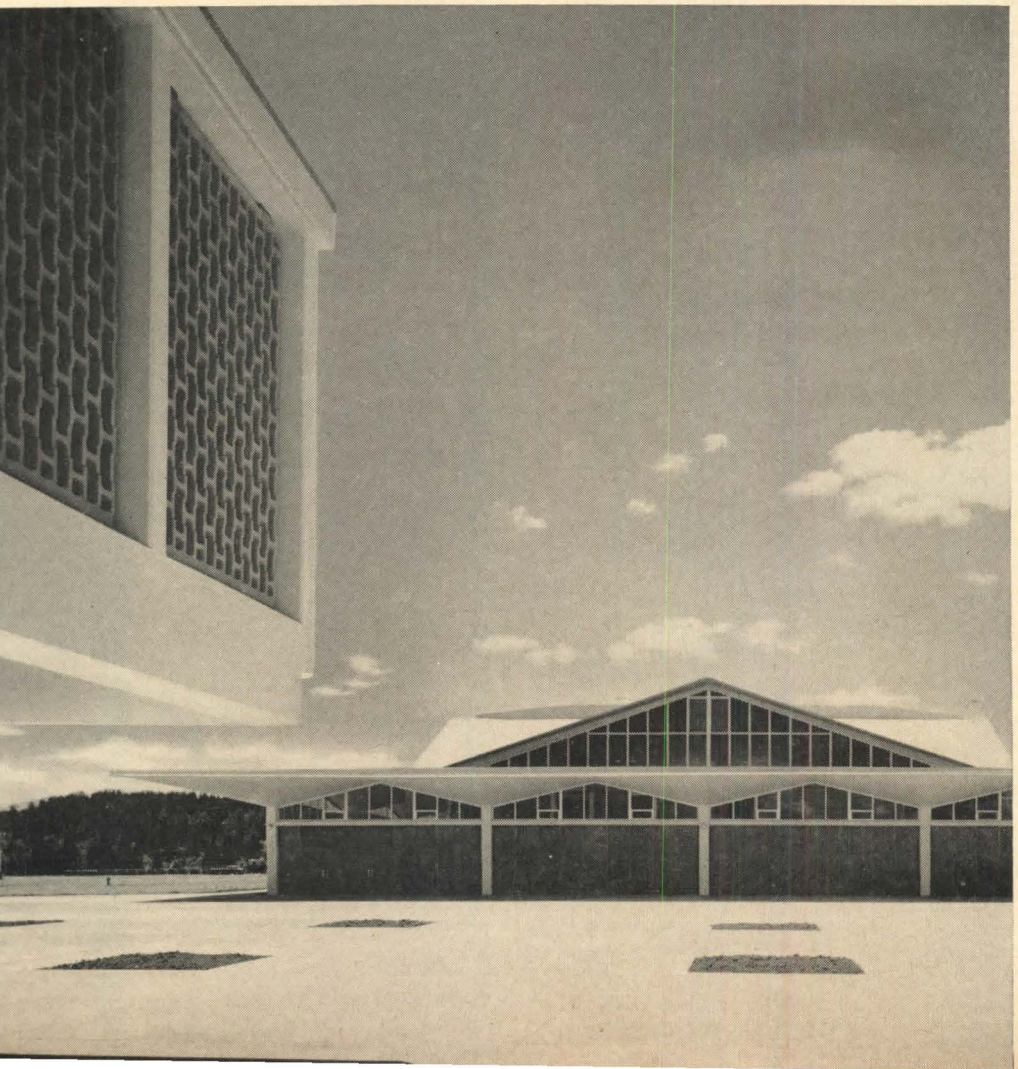
Unique among the 14 structures on the 400-acre site is the Multi-Purpose Building, which boasts its own "wings of an angel"—155 small and three large hyperbolic paraboloid roofs. Measuring 390 by 420 feet, the building houses a huge gymnasium which doubles as an auditorium, a dining room that can accommodate all 720 inmates at once, and a completely-equipped vocational-training center.

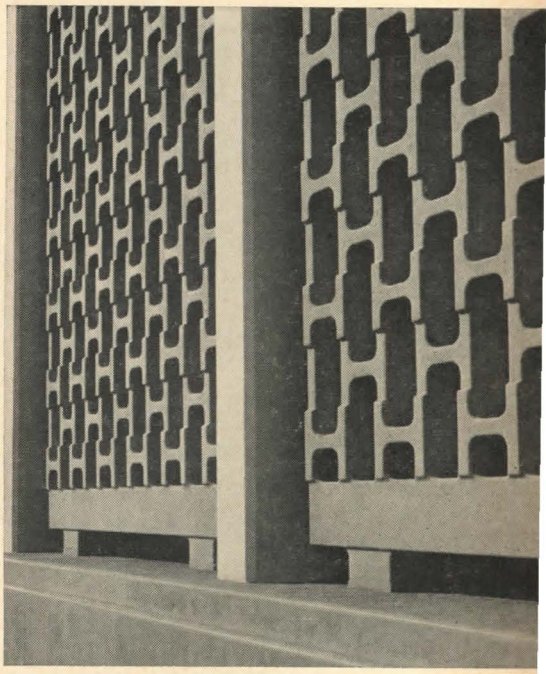
Economical, fire-safe reinforced concrete was the basic structural material for the entire complex, processed and tested for rigid quality control at the construction site. Lone Star Portland Cement was used for all cast-in-place concrete; "Incor," America's first high early strength portland cement, was used for all precast concrete units.



Owner: DEPARTMENT OF INSTITUTIONS, STATE OF WASHINGTON; Architects: BASSETTI & MORSE, Seattle, WALKER AND MCGOUGH, Spokane, CURTIS AND DAVIS, New Orleans; General Contractors (Joint Venture): MUTUAL CONSTRUCTION CO. and HENRIK VALLE CO., Seattle; Ready-Mixed Concrete: MOUNT VERNON SAND & GRAVEL CO., Mt. Vernon, Wash.

The Multi-Purpose Building's 158 hyperbolic paraboloid roof sections were precast with "Incor" cement. Efficient turnover of demountable forms proved highly economical in this multiple use of h/p roof structures.





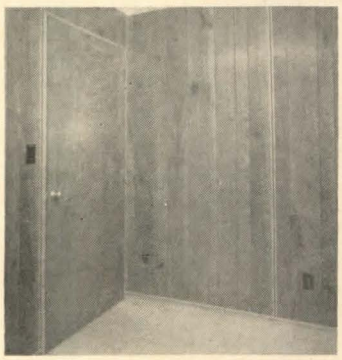
"Iron bars do not a prison make" in the Center's attractive Educational Building (above and below). An open design allows light to filter through the window wall of precast reinforced concrete panels.

LONE STAR CEMENT CORPORATION
100 Park Avenue, New York, N.Y. 10017

INCOR® 24-HOUR CEMENT

Construction

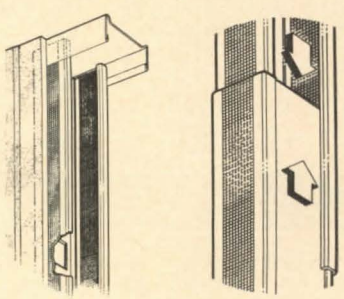
Double-Wall Partition System



"Selectra" double wall partitioning is said to be the first partitioning system to fit a blueprint perfectly without limitations. System can employ any color, any texture, any type wood, wallboard, glass, or plastic, and is available in thicknesses from ¼" to ⅝". Different paneling can be used on each side of a partition wall. Metal skeleton can be completely erected and used before panels are installed and damaged panels can be replaced without disturbing adjacent panels. Average sound transmission loss is 46.6 db. L.A. Darling Co., Workwall Div., Bronson, Mich.

On Readers' Service Card, Circle 100

Telescoping Stud System

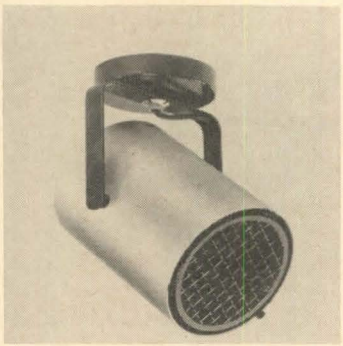


"Rigid-Grip" screwable stud system telescopes to correct ceiling height. Nonwarping system is used for stud walls, ceilings, and side wall furring by applying drywall construction techniques. Rigid-Grip studs require no splicing. Wide knurled faces of these studs and furring runners provide a nonslip surface for entry of metal screws at any point along the entire length. Knockouts are located in web of stud for wiring runs. Self-tensioning stud tracks (12′ lengths) hold studs firmly in place. Steel stud widths are 1⅝," 2½", and 3⅝"; height limits are 9′, 12′, and 16′. Flangeklamp Corp., 119 Abbott Rd., Buffalo, N.Y.

On Readers' Service Card, Circle 101

Electrical Equipment

Par-Lamp Spotlight

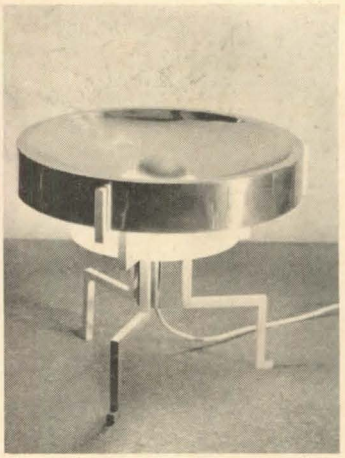


Recently designed spotlight is used for all surface-mounted interior accent lighting applications. By using a convection venting system with heat-reducing "Par-38" lamp, the radiant heat content of the light beam decreases by two-thirds. "C150" series accepts standard R-40 as well as Par-38 lamps, in all wattages. Incident glare and spill light are eliminated by an integral 45° cellular louver. Color toning is achieved with a range of 55 permanent glass accessory color filters. Lighting Services Inc., 77 Park Ave., New York, N.Y.

On Readers' Service Card, Circle 102

Getting Lit With the Italians

The Mediterranean mind seems particularly attuned to lighting design innovation. Gino Sarfatti, of Arteluce, has developed both of the table lamps shown. The "eye ball" **(1)** can rest on an aluminum ring which permits the fixture to rotate in any direction; its sphere, 40 c.m. in diameter, is half glass, half polished steel. The other lamp **(2)** has a ring of opaline plexiglas surmounted by a polished aluminum ring-shade that supports a smoked plexiglas top through which the bulb shines, creating diffused light. Sarfatti says,



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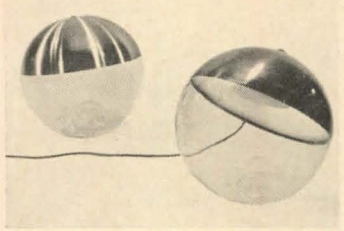


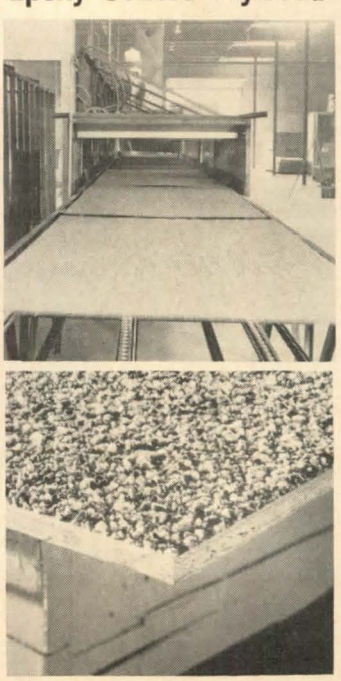
2

"The most important thing to remember is always the space where the design will be used . . . I design for people, not for effect." Arteluce, Via Spiga 23, Milan, Italy.

On Readers' Service Card, Circle 103

Finishes/Protectors

Epoxy Coated Plywood

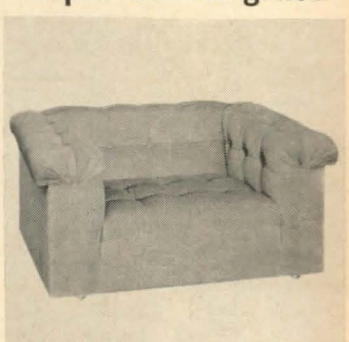


"Hycon 75 Sanspray," an epoxy resin coating with aggregates, is automatically applied to exterior or interior grade softwood plywood panels with a system designed and built by Hodges Chemicals Company of Burlingame, Calif. Hycon 75 epoxy coating, developed by Hodges, is a two-component formulation based on one of Shell Chemical's liquid 'Epon" resins and cured with a proprietary catalyst. Conveyor line preheats the plywood panels, sprays them with single 15 mil thickness of Hycon 75, deposits the colored aggregate evenly on the surface, and delivers cured panels ready for storage, shipment, or construction. Coating has "high" physical strength and "long-term" resistance to tropical and arctic temperatures, salt and fresh water, sunlight and high humidity. Natural stone aggregates—primarily crushed marbles and quartzes—are used. Hycon 75 is also the first epoxy plywood finish qualified by American Plywood Association. Equipment is able to coat all thicknesses and lengths of Douglas fir, Southern pine, asbestos board, particle board, and composition board. Lower grade plywoods can now be upgraded with the coating system. Life expectancy of the epoxy/aggregate coated plywood panels is estimated to be between 20–25 years. Shell Chemical Co., Plastics & Resins Div., 111 West 51st St., New York, N.Y.

On Readers' Service Card, Circle 104

Furnishings

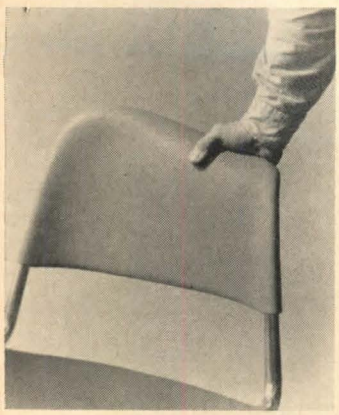
Elephantine Elegance

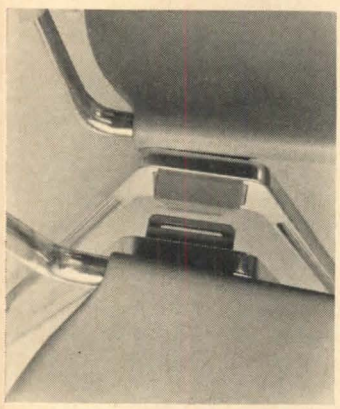


Monumental overstuffed chair, almost wide enough to accommodate two persons, albeit cozily, is comfortable and has an air of personal style that is belied by the illustration. Dimensions: 24" high, 36" deep, 49½" wide. Designed by Edward Wormley for Dunbar Furniture Corp., Berne, Ind.

On Readers' Service Card, Circle 105

Flexible Knoll Stacking Chair



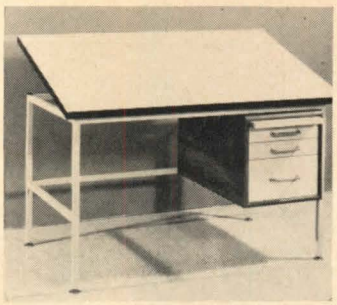


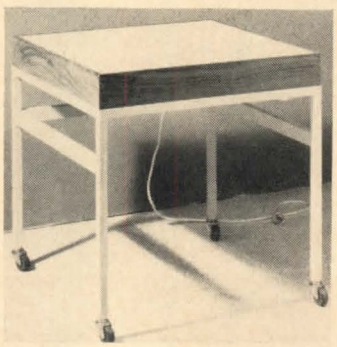
Don Albinson, director of Design Development for Knoll, has recently engineered a durable, lightweight stacking chair (#1601). Flexible seat and back panels of injection-molded plastic gently give with the body so as to be comfortable for long periods. The brightly-burnished, die-cast aluminum frame is neat yet able to carry several optional attachments: molded-plastic ganging clips, plug-in arms, tablet arms, and book racks. In addition, nylon glides on the legs swivel and give in sockets so that the chair levels itself on any floor. Chairs can be stacked in groups of 20 on an aluminum dolly, which occupies only 4 sq. ft. of floor space. Seat and back come in 5 matte colors that will not chip or peel; plastic ganging clips and nylon glides are colored to match. Dimensions: 31″ high x 21½″ deep x 22″ wide. Knoll Associates, 320 Park Ave., New York, N.Y.

On Readers' Service Card, Circle 106

New Furniture for The Drafting Room

Architects willing to make the investment can replace their uncomfortable high stools and

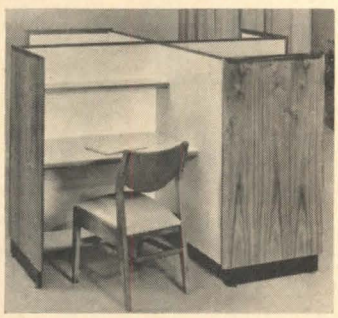




awkward drafting boards with distinguished low furniture that is as functional as it is handsome. Carter Winter has designed a "Designer Group" comprising a desk-height drafting table (illustrated), with three-angle top adjustments, light box (illustrated), file cabinet, and secretary's desk; all have bases of square steel tube, polished or enamel finish, plastic laminate tops, and stainless - steel drawer pulls. (All but the file case have walnut trim.) Janet Rosenblum Inc., 315 E. 62 St., New York, N. Y.

On Readers' Service Card, Circle 107

Free-Standing Carrel



Free-standing study carrel occupies a 75″ square area and can be used as a single, double, or four-place arrangement. Outer surfaces are walnut veneered; inner surfaces are plastic laminated. Drexel Enterprises Inc., Drexel, N.C.

On Readers' Service Card, Circle 108

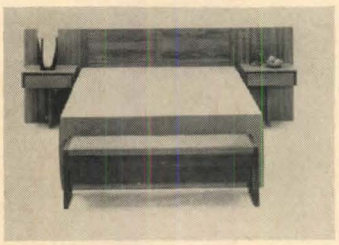
Sling Ottomans

Saddle-leather sling laced to polished chrome steel frame is

16½″ high x 20″ x 20″. Custom color leather to order. Laverne Intl. Ltd., 160 E. 57 St., New York 22, N. Y.

On Readers' Service Card, Circle 109

Headboard



Wood panel headboard may be extended on each side with a nightstand-headboard attachment, giving the headboard an architectural look. Unit is 66″ wide. Designed by John Keal for Brown-Saltman, 1500 S. Figueroa St., Gardena, Calif.

On Readers' Service Card, Circle 110

Mellow Rattan Tones

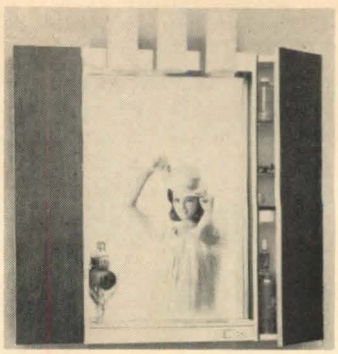
Teak legs and frame contrast with rattan top on both stools and table in dining room furniture group. Plate glass covers table top. Tropi-Cal, 5731 South Alameda St., Los Angeles, Calif.

On Readers' Service Card, Circle 111

Special Equipment

Stylish Washroom Cabinet

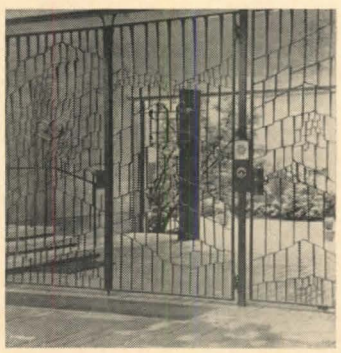
"Design I" washroom cabinet is separated into mirror cabinet space, shelf space, and lighting. Aluminum posts frame entire unit. Three individually



adjustable incandescent lighting fixtures are integrated into the design. Materials used are walnut vinyl, plate mirrors, and specially tempered heat-resistant translucent light shields. All units are wall-hung. Dura-Steel Products Co., Box 54175, Los Angeles, Calif.

On Readers' Service Card, Circle 112

Hand-Forged Ironwork



Guenther Koczorski conceived and executed the spidery design for a church gate in Stamford, Conn. (shown). He hand forges iron in original designs and also copies designs found in European churches and castles. Railings, chandeliers, room dividers, fire screens, hinges and ironwork for houses are among the catalogue of his works. Artistic Iron Works, Noroton Heights, Conn.

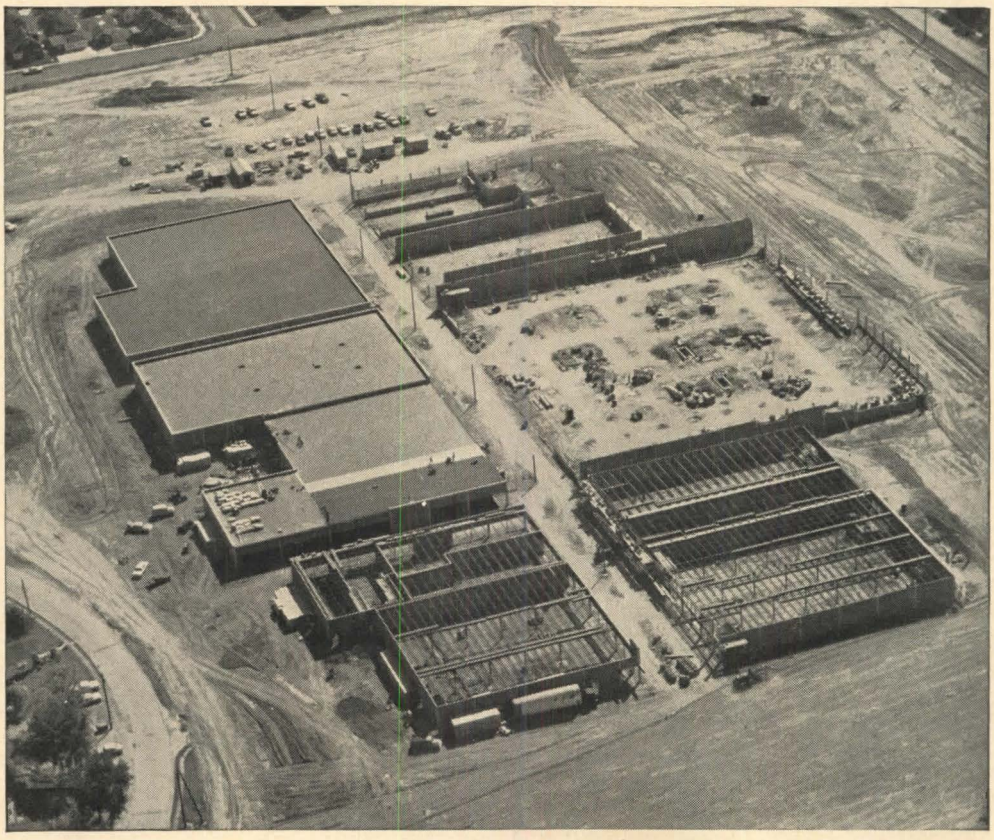
On Readers' Service Card, Circle 113

Surfacing

"Roman Coins"

Six "Ceratile" ceramic wall tiles have been designed by Max Spivak that include "Roman Coins," "Spring Leaves," "Meteor," "Sunburst" (shown), "Persian Carpet," and "Olive Tree." Designs are lightly etched in soft, muted colors on matte background of white. Tiles are produced in standard 4¼″x4¼″ flat units. Cost is a few cents more per sq ft than standard solid color wall tiles. Cambridge Tile Mfg. Co., P.O.

Even the shopping centers themselves come packaged* these days for controlled economy



ARCHITECT: COX & FORSYTHE A.I.A., CANTON, OHIO
CONTRACTOR: GIBBONS-GRABLE COMPANY A.G.C., CANTON, OHIO

All framing—long and short-span steel, joists, composite system, V-LOK, columns—decking and ribbed steel centering—compatible in every way, sold, serviced and shipped from a single source—it's saving builders dollars, time, and headaches everyday.

The latest to take advantage of the benefits of the single source is the Gibbons-Grable Company, general contractors who are putting the finishing touches on the $10,000,000 Mellett Mall (pictured above) a shopping center complex in Canton, Ohio.

More than 965 tons of steel were used in the shopping center—all of it perfectly mated at Macomber with coordinated delivery that permitted most efficient construction. "It cut days off our field labor costs," stated Herbert G. Barth. "One source of responsibility makes sense when you're dealing with a quality house like Macomber."

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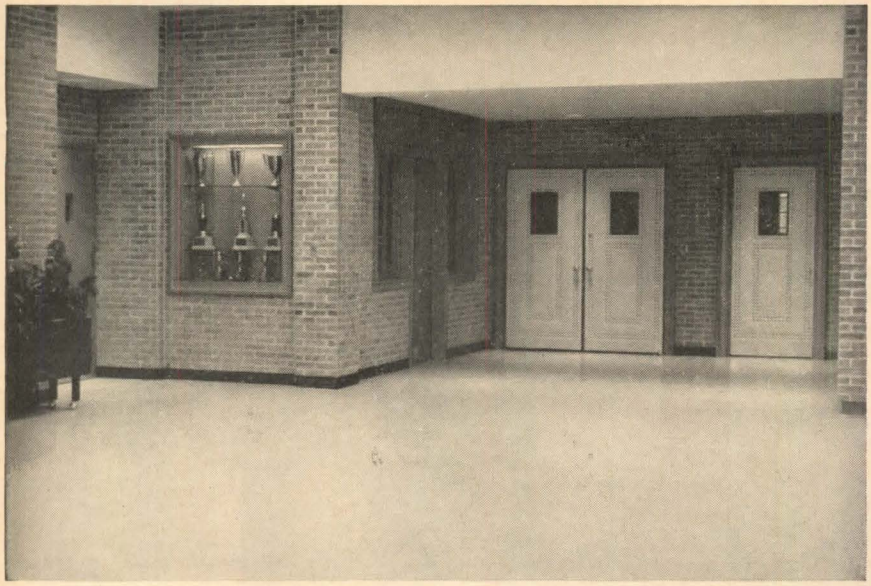


Terrafino

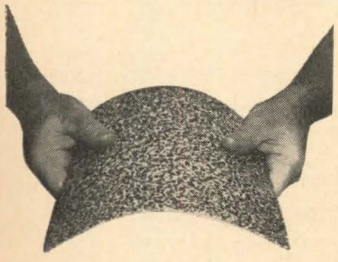
the floor with "the best of both worlds" for school corridors

. . . because

a) it has the beauty, durability and low maintenance requirements of true terrazzo, and

b) it installs in exactly the same manner as resilient tile.

Architects Eggers and Higgins, of New York City, specified some 9,000 square feet of TERRAFINO flexible terrazzo tile for lobby and corridor areas of the Newark Academy (above). As we understand it, the client's only regret concerning TERRAFINO is that it was not used throughout. Other recent installations for achitects Eggers and Higgins include Manhattan College (15,000 sq. ft.) and Syosset High School (23,000 sq. ft.).



Each TERRAFINO tile is a combination of real #1 and #2 marble chips and tough, flexible epoxy resins. Ten terrazzo plates, available in large 12″ x 12″ x ⅛″ size.

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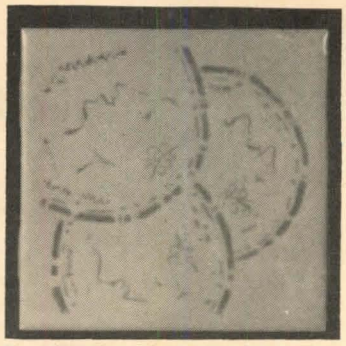
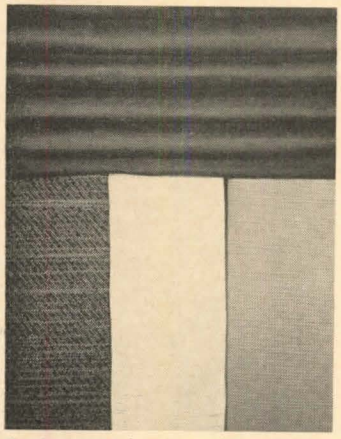


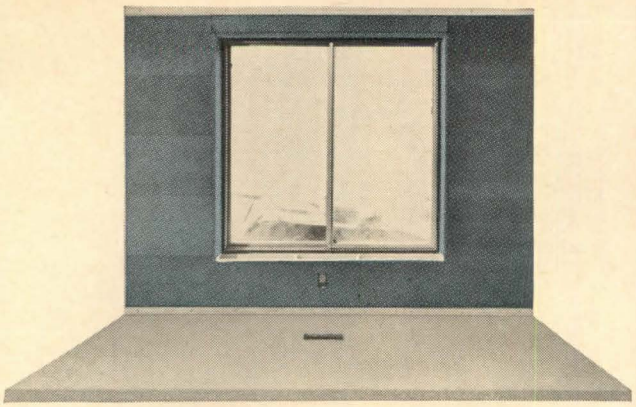
Box 71, Lockland Station, Cincinnati, Ohio.
On Readers' Service Card, Circle 114

Architectural Textiles



Scalamandrè, long known for elaborately decorative silks, has for the past year been offering a collection of drapery and upholstery fabrics selected especially for architects. Included are 18 upholsteries (textured wools and tweeds from Denmark, Belgium, USA, etc.); both blends and synthetics, the fabrics are available in six to seven colorways. Also included is a line of 15 casement cloths (mostly natural colors but a few linen textures in pastel colorings); blends of Rovanna and Verel are also available as casement cloths. Shown are silk taffeta, used for drapery or upholstery (at top), and two upholsteries flanking a casement cloth.

In this year's line of "The Architects' Collection" are six upholstery designs printed on wool and nylon, and blends of the two. Also offered are vertical blinds of richly textured fabrics in narrow widths (5″-6″); woven on a trimming loom, in wool and cotton, the blinds can be dyed or made to order. Also, the firm can make custom fabrics in their mills in this country so as to minimize delivery time. Scalamandrè Silks Inc., 979 Third Ave., New York, N.Y.
On Readers' Service Card, Circle 115



Remember Styrofoam.

(Specify it to insulate masonry walls. Finish with wallboard or plaster.
Costs about the same as furred, uninsulated walls. Good deal?)

You bet! That's one of the things you'll like about Styrofoam® FR brand insulation—its versatility in accepting finishes for masonry walls.
Going to specify wallboard? Easy does it. Styrofoam FR applies quickly to walls with the help of Styrotac® bonding adhesive. No furring. Then wallboard goes up.
No nails to "pop" or holes to fill.
Or if you're specifying plaster, it can be applied directly to Styrofoam FR.
This insulation's textured surface provides an excellent key for wet plaster. And eliminates the need for furring and lathing.
Whichever method you use, Styrofoam FR resists the passage of moisture, eliminates the need for a vapor barrier, keeps its low "k" factor.
Permanently. The result is a solid, insulated wall at nearly the same cost as a furred, uninsulated wall.
For more facts worth remembering, see Sweet's Architectural File 10a/Do and 8a/Dow.
Or write us. The Dow Chemical Company, Plastics Sales Department 1311EB8, Midland, Michigan.
Styrofoam is Dow's registered trademark for expanded polystyrene produced by an exclusive manufacturing process. Accept no substitutes . . . look for this trademark on all Styrofoam brand insulation board.

On Readers' Service Card, circle No. 346

O.K. Now forget it.

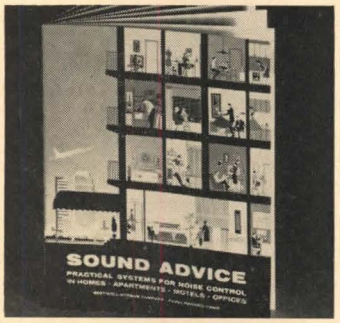
(You'll never have to worry about it again.)

DOW

MANUFACTURERS' DATA

Acoustics

Sound-Control Wall Systems



"Sound Advice," a 20-page booklet, offers information on the use of practical systems employing "Bestwall Wallboard" and "Sound Deadening Board" for noise control in residences, apartments, motels, and offices. Included are sound- and fire-resistance data, lists of materials, application details, and glossary of terms. Bestwall Gypsum Div., Georgia-Pacific Corp., 2 Industrial Blvd., Paoli, Pa.

On Readers' Service Card, Circle 200

Construction

Shot from Guns

"Gunite," a pneumatically placed portland cement mortar, was first used as a fireproofing material on New York's Gothic Eclectic Woolworth Building designed by Cass Gilbert in 1913. Since then, it has been successfully applied to a variety of contemporary structural forms including thin-shell roofs (domes, H-P's, and folded plates). It forms a strong bond to properly prepared surfaces that include concrete, brick, rock, tile, stone, or steel. Photos show how Gunite is used on existing and new constructions. Brochure describes latest field practices, characteristics, mixes, proportions, and placement techniques. Kaiser Cement & Gypsum Corp., 300 Lakeside Drive, Oakland, Calif.

On Readers' Service Card, Circle 201

Plastic Domes

Natural lighting with "Plexiglas" acrylic plastic panels that are integrated with architectural designs are presented in 36-page booklet. Color photos show several existing examples of how Plexiglas panels are used: St. Louis "Climatron," designed by Murphy & Mackey, has 40,000 sq ft of glazed triangular pieces of Plexiglas in a dome that measures 175 ft in diameter and 70 ft in height; Maris County Civic Center near San Rafael, Calif., designed by Frank Lloyd Wright (Taliesin Associated Architects of the Frank Lloyd Wright Foundation), uses arched Plexiglas panels to span 20′-wide courtyard that is 384′ long; and Ambassador Motor Lodge in Minneapolis, designed by Synergetics of Raleigh, N.C., employs 180 domes (90″ sq) of transparent gray Plexiglas. Rohm & Haas Co., Washington Square, Philadelphia, Pa.

On Readers' Service Card, Circle 202

Laminated Wood Street Lighting

High-rise laminated wood light standard, called "Light Riser," is available in 25′ and 30′ mounting heights. Standards are embedded directly into the ground, which eliminates expensive concrete foundations, anchor bolts, and templates. It is said not to rust, oxidize, corrode, tarnish, or crumble. Most importantly, the lighting standard is guaranteed for 20 years. Three models are available (the one shown is the "Venus"). Koppers Co., Inc., Forest Products Div., 1401 Koppers Bldg., Pittsburgh, Pa.

On Readers' Service Card, Circle 203

Insulated Wall Panel Reduces A/C Costs

Test data by three independent research firms point up savings in heating/cooling costs of insulated steel wall system. Findings of two of the research laboratories and calculations by a firm of consulting engineers are given in this report. Heating/cooling costs of a one-story building, 60′x120′, constructed with "Stran-Wall" system are compared with cinder block, clay tile, face brick, concrete block, and tilt-up concrete, all projected over a 10-year period. Study also compares heating/cooling costs of a structure located in Houston, Tex., and Decatur, Ill. Two important tests results are that "Stran-Wall" has a one-hr fire rating and a U-value .11. Stran-Steel Corp., P.O. Box 14205, Houston, Tex.

On Readers' Service Card, Circle 204

Steel Facts

Six "Residential Construction Fact Sheets" deal with steel siding, doors, gutters, downspouts, ductwork, and plumbing. Photos show how these products are used in construction. American Iron and Steel Industries Institute, 633 Third Ave., New York, N.Y.

On Readers' Service Card, Circle 205

Gypsum Systems

Technical folder in chart form describes wallboard, gypsum lath, and plaster systems. Illustrated are load-bearing, non-load-bearing, wall and ceiling assemblies using wood or steel studs. Spec charts include sound transmission class and fire ratings for over 25 different assemblies. Fibreboard Paper Products Corp., Pabco Gypsum Div., 475 Brannan St., San Francisco, Calif.

On Readers' Service Card, Circle 206

Designing with Wood

1965 catalog describes wood building and industrial products. It is divided into seven sections: Decorative Paneling; Overlaid Surfaced and Specialty Plywood; Softwood Plywood; Siding and Sheathing; Hardboards; Composition Boards; and Applalachian and Southern Hardwoods. With color and black-and-white photos, the catalog illustrates the various uses of these products in residential, industrial, and high-rise construction and design. Georgia Pacific, Equitable Bldg., Portland, Ore.

On Readers' Service Card, Circle 207

Doors/Windows

Soundproof Doors

Soundproof doors are produced in two thicknesses. Thickness of 2⅝″, with maximum size of 4′ x 8′-6″, is more soundproof than 3″ gypsum block wall or plasterboard partition on 2″ x 4″ studs, as soundproof as 4″ cinder block or plaster on wire lath on 2″ x 4″ studs, and as soundproof as 8″ brick or cement walls. Any veneer, inlay, molding, or sculptured effect can be achieved. Also described are movable, soundproof partitions at 48 db. These panels, 4″ thick, are available in variety of wood finishes. Munchhausen Soundproofing Co., Inc., 290 Riverside Drive, New York, N.Y.

On Readers' Service Card, Circle 208

Plastic Door Faces

Laminated plastic-face flush doors are illustrated in color in 8-page brochure. Door consists of bonded block core, hardwood edge strip or matching plastic edge banding, ⅛″-thick tempered hardboard cross-band, and $\frac{1}{16}$″-thick "Formica" laminated plastic face. Faces are available in solid colors, simulated wood veneers, or "Citation" series of designed patterns. Brochure contains samples of 44 solid colors and 25 simulated wood grains. Morgan Co., Oshkosh, Wis.

On Readers' Service Card, Circle 209

Electrical Equipment

Eyeball Lighting

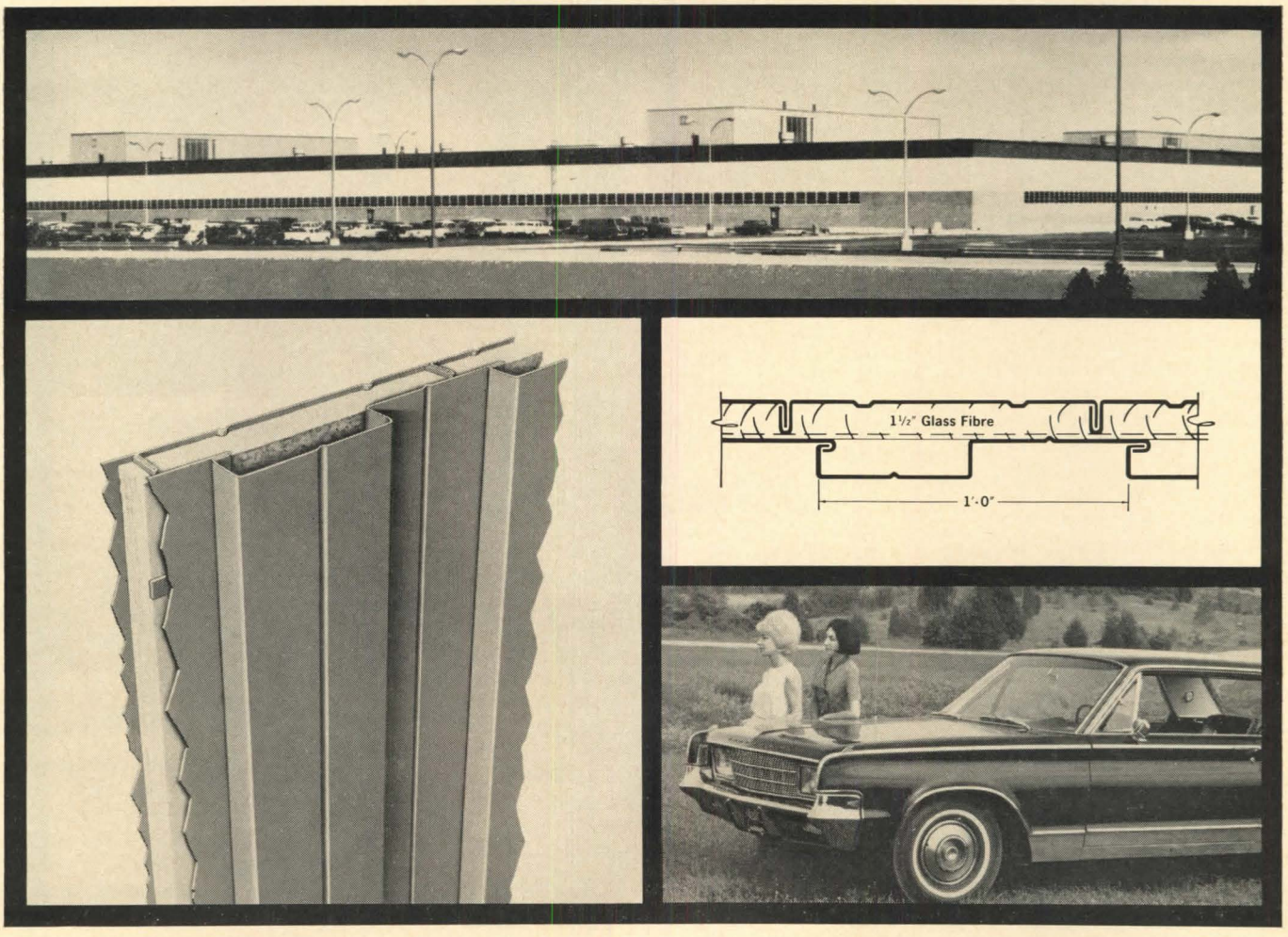
Colorful catalog illustrates "Architectural Series" line of lighting units. Covered are a wide variety of housings and trim frames for recessed, semi-recessed, and surface installations along with recessed eyeballs, round recessed glass-lites, "Alzak" ellipsoidal downlights, recessed baffle and open adjustable downlights, accent lights, standard lamp rounds, regressed rounds, spheres, wall brackets, ceiling fixtures, surface drums, and suspended ceiling mounting accessories. Specs, mounting details, and photometric data are given. Markstone Mfg. Co., 1531 Kingsbury St., Chicago, Ill.

On Readers' Service Card, Circle 210

Garden Lighting

"Emerald" series of garden lights have a "Verdi" patina that simulates weathered copper and bronze. "Spread lights" stand 27″ to 62″ high and cast a pool of light 20′ to 60′ in diameter. "Profile Lights" range

MAHON
IS IDEAS
IN BUILDING PRODUCTS



SEE HOW MAHON SECTION 66 CURTAIN WALL

proves building beauty can be more than "skin deep"

Beauty . . . utility . . . built-in insulation and minimization of sound transferal—these are the benefits available from R. C. Mahon's new Section 66 Curtain Wall.

A prime example is Chrysler Corporation's new 57-acre plant in suburban Detroit. Besides good looks and fast, easy erection, the 306,800 square feet of Section 66 used here have a heat transfer U-factor proved to be 0.15 under "standard" conditions. It also acts as a barrier to noise transmission.

Section 66 joints lie in the plane of the wall and are thus concealed. They provide an attractive series of 6-inch wide high and low flutes . . . are available in 16 to 22 gage painted or galvanized steel and 16 and 18 B&S gage aluminum.

Mahon is ideas in building products. Next time you have a tough construction problem "buck" it to Mahon for a time, space or money-saving idea. Write . . . The R. C. Mahon Company, 6565 East Eight Mile Road, Detroit, Michigan 48234.

On Readers' Service Card, circle No. 439

in height from 18½″ to 43½″. They consist of five fixtures for mounting low to the ground, and two taller, tulip-shaped fixtures with handwrought leaves. "Uplights" consist of 12 fixtures—styles that can be surface-mounted, unmouted, portable, well-lights, or semirecessed. Colored lenses or mercury vapor lamps instead of incandescent lamps can be used. "Tree-Lights" in bird-house design, accepts up to 150 w. Color photos show each type of lighting fixtures. Shalda Lighting Products Co., Subsidiary of Harvey Hubbell, Inc., 156 West Providencia Ave., Burbank, Calif.

On Readers' Service Card, Circle 211

Furnishings

Component Wall System

Furniture catalog features component wall system and library component system. Component wall system includes over 100 individual cabinets (some in traditional and oriental stylings). All styles are shown in separate catalog and price list. Components are available in depths of 14″ and 18½″; widths in 18″, 30″, and 36″; three vertical standard styles at any height up to 95″. Cabinets can be converted to a free-standing base system. Library component system comes in two widths (29¼″ and 35¼″), four finishes, and heights up to 95″. Photos show basic layouts used in commercial, residential, and institutional interiors. Hardwood House, Inc., Div. of Rochester Capital Leasing Corp., 10 St. James St., Rochester, N.Y.

On Readers' Service Card, Circle 212

Finishes/Protectors

Concrete Admixtures

"Zeecon" admixture for concrete is said to "improve the quality of concrete by reducing water requirements, improving workability, and increasing strength and durability." Charts compare Zeecon and plain mix by showing how it increases compressive strength, flexural strength, workability, and durability. Table using ASTM Specification C494-63T shows how Zeecon meets requirements for Type A (water reducing admixtures) and Type D (water-reducing and retarding admixtures) in nonair-entrained and air-entrained concrete mixes. All mixes compared on table contain 5.5 sacks of cement per cu yd. Brochure, photos, 14 pages. Crown-Zellerbach Corp., Chemical Products Div., Camas, Wash.

On Readers' Service Card, Circle 213

Insulation

Calculating Masonry Fill Insulation

Four-page, 8½″ x 11″ computer-booklet estimates total annual savings of a "Zonolite" masonry fill insulated block or cavity wall. Booklet, called "Thermeconomy," enables the architect to calculate amount of insulation needed for a particular type of wall: common brick, face brick, lightweight concrete block, cinder block, and sand and gravel concrete block. Other charts determine coefficients of heat transmission for solid brick, block walls, and concrete block walls. All charts are operated by pull-tabs. W.R. Grace & Co., Zonolite Div., 135 LaSalle St., Chicago, Ill.

On Readers' Service Card, Circle 214

Latest Vermiculite Fire Ratings

Series of loose-leaf specification sheets of latest UL-approved vermiculite fire-resistance ratings are illustrated by more than 50 detail drawings and isometrics. Also included are maximum average temperatures, specs, and fire-resistance ratings. Covered are columns; beams, girders, and trusses; floors and roof decks; walls (bearing and nonbearing) and partitions; and wood construction. Vermiculite Institute, 208 South LaSalle St., Chicago, Ill.

On Readers' Service Card, Circle 215

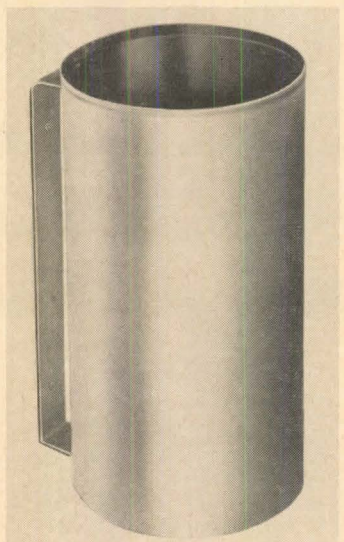
Sanitation/Plumbing

Glass Pipes

"Pyrex" acid-waste "Drainline" pipe, fittings, traps, and accessories are described in a colorful 20-page booklet. Components are made of borosilicate glass, which, according to the manufacturer, is highly resistant to corrosion and scale formation. Photos, specs, and a chart showing materials needed to adapt Pyrex drainage pipe to various types of coupling for glass, metal, and plastic piping are included. Interesting visual effects as seen through the clear glass pipes could be achieved by employing this glass piping in laboratories. Corning Glass Works, Building Products Dept., Corning, N.Y.

On Readers' Service Card, Circle 216

The Waste Dispensers



Dispensers and receptacles for washroom planning are designed to standards of Scott Paper Company. Among those covered are combination towel dispenser/waste receptacle, recessed shelf and soap dispenser cabinet with illuminated mirror, waste containers, surface-mounted two-cup dispenser, and wall mounted sanitary napkin receptacle. Well-designed, wall-mounted waste receptacle for indoors/outdoors (10″ diameter x 18″ high) is shown. It features swivel bracket that is permanently attached. Receptacle is available in choice of satin-finish stainless-steel or electrolytic zinc coated corrosion-resistant steel with baked enamel finish in white, green, or gray. D. J. Alexander Corp., 2944 East Venango St., Philadelphia, Pa.

On Readers' Service Card, Circle 217

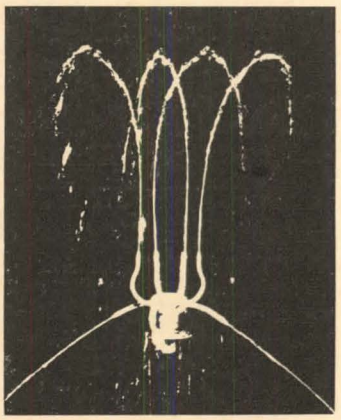
Pipes and Tubes

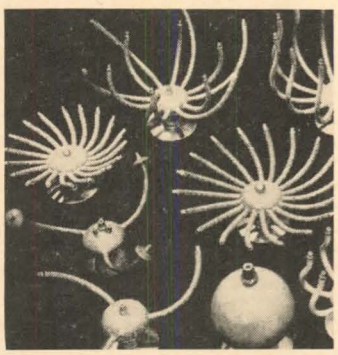
"Pipe and Tube Fittings" is a 54-page booklet that describes copper products for plumbing, heating, and cooling. Among topics covered are sizes and weights, internal working pressures, and advantages of copper tube and solder-type fittings; selection of tube sizes; allowances for friction loss for fittings and valves; sanitary drainage systems; rural water systems; and copper tube for refrigeration and air conditioning. Charts and photos of installations are given. Anaconda American Brass Co., 414 Meadow St., Waterbury, Conn.

On Readers' Service Card, Circle 218

Special Equipment

Sculptural Sprays



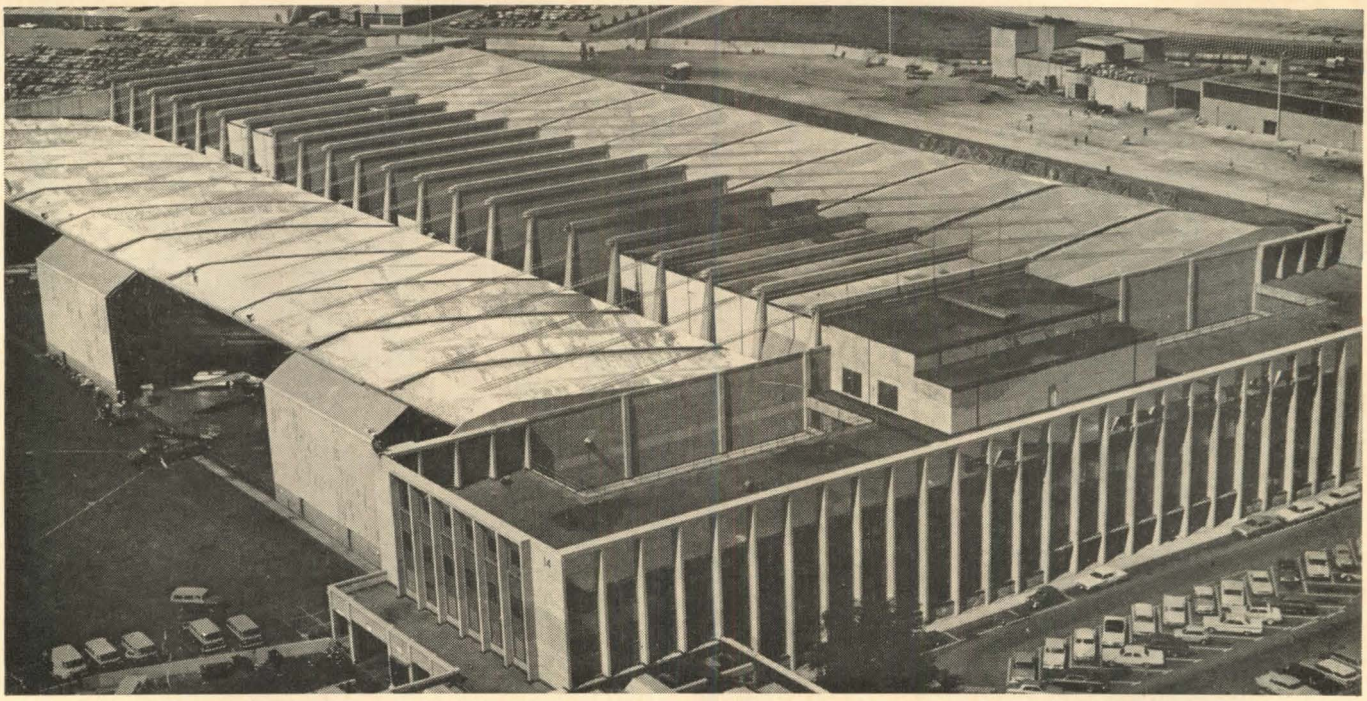


Sculptural fountain spray-heads can be used in any size pool or basin from 3′ to 10′ in diameter or with glass-fiber bowls from 3′ to 6′ in diameter. While some heads are stationary, others rotate by hydraulic turbination. Spray heads are handmade and brazed from solid copper and brass and finished with oxidized bronze finish. Spray patterns vary from 1′ to 7′ in height and diameter depending upon the water pressure and the setting of the control valve. Brochure illustrates 11 spray-head designs and shows their effects in a basin, pool, or bowl. Canal Electric Motor Inc., 310 Canal St., New York, N.Y.

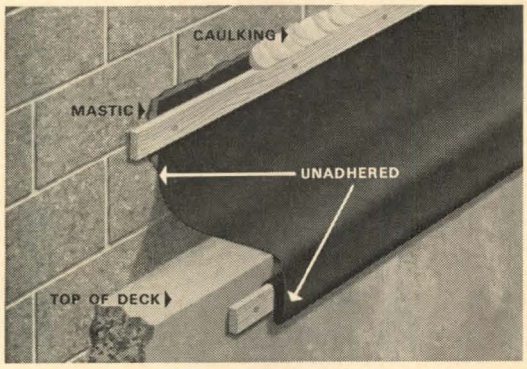
On Readers' Service Card, Circle 219

The Ice Machine Cometh

Manual, 80 pages, aids architects in selecting the proper capacity ice-making equipment. Included are a chart for estimating average daily ice consumption for variety of struc-



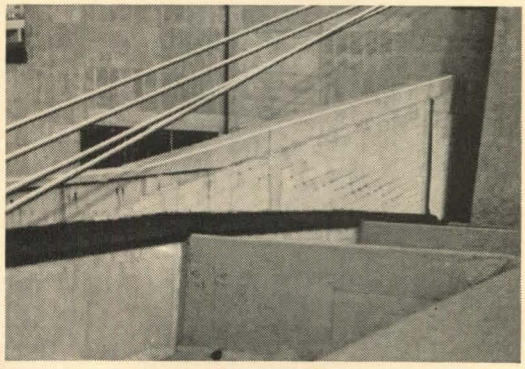
FLOATING ROOF CREATES WATERPROOFING PROBLEM...



TOP: Pan American Airways Hangar 14, John F. Kennedy International Airport, Jamaica, N. Y.

LEFT: Unadhered loop of BFG Flashing, mechanically fastened at top and bottom, spans gap between roof and wall to allow for movement.

RIGHT: The finished job . . . neatly installed and completely watertight regardless of movement.



BFG FLEXIBLE VINYL FLASHING SOLVES IT!

Shown here is one of Pan Am's Hangars at Kennedy International Airport. Its roof, covering nearly five acres, is of folded plate design, suspended by steel cables anchored to center columns. To accommodate anticipated movement, a six-inch opening was provided between deck ends and adjacent walls, creating a hard-to-flash area.

The original flashing, which failed after two years, was replaced with BFG FLEXIBLE VINYL FLASHING. This installation has been completely satisfactory and even now shows no evidence of deterioration. It's easy to understand because BFG Flashing is extra tough, flexible over a wide temperature range and weathers extremely well.

The same desirable characteristics that make BFG Flashing the ideal choice for the "tough" jobs apply equally to everyday applications. Specify and install BFG Flexible Flashing for that extra margin of safety.

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On Readers' Service Card, circle No. 353

tures and specs for over 70 different models of "Crystal Tips" ice-makers. Manual is divided into four sections: air- and water-cooled ice-cubers; and air- and water-cooled ice-flakers. American Automatic Ice Machine Co., 1600 Broadway N.E., Dept. PR-1, Minneapolis, Minn.

On Readers' Service Card, Circle 220

Contemporary Fireplace

"Complete Guide to Fireplaces and Barbecue Grilles" is an 80-page manual that illustrates and describes contemporary fireplace and barbecue grille designs. Among the topics covered are proper fireplace construction, prebuilt fireplaces, warm-air circulator fireplaces, masonry fireplaces, dampers, hoods, gas-fired free-standing fireplaces, and accessories. Manual is available for $1.50 per copy. Majestic Company, Inc., Huntington, Ind.

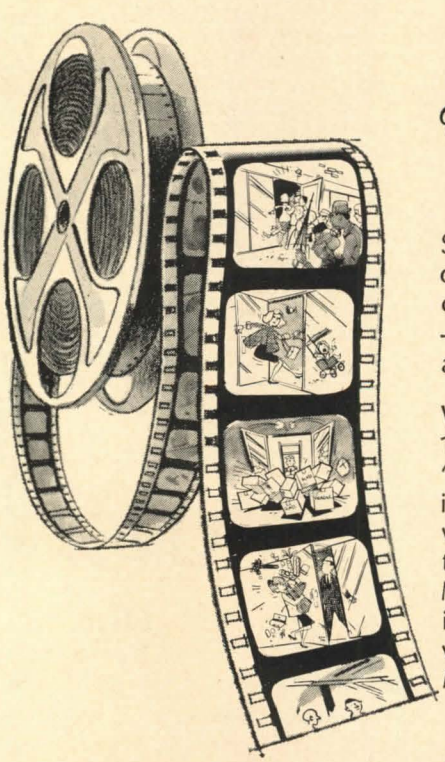
Modular Panel System

Modular partition system uses "Uni-Lock" panel that locks a complete series of wall panels into one unit. System is based upon a 3″ thick honeycomb core panel, 4′ wide with faces in aluminum, steel, vinyl, prefinished wood grains, and laminates. All panels are interchangeable and re-usable. Single panel can be taken from a completed wall and replaced with a panel of another color, a glass unit, or a door. Panel heights vary in size. Elevations, typical isometric drawings, details, and specs are given. U.S. Plastics Inc., 750 W. 18 St., Hialeah, Fla.

On Readers' Service Card, Circle 221

Surfacing Industrial Floors

Five types of wear- and corrosion-resistant industrial floor surfaces are described in 40-page booklet. (1) "Absorption Process" concrete surface is a deferred nondusting topping of high-strength, portland-cement concrete, ¾″ thick, that is bonded to the base slab. (2) Absorption Process concrete topping with nonfading oxide pigment uniformly dispersed throughout the topping cross-section. (3) Absorption Process concrete topping with a



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See our color movie: "MAGIC IN YOUR DOORWAY"

Start modern . . . stay modern . . . with doors that swing or slide automatically. Today's customers are used to — and want — the convenience of automatic door operation.

We invite you to see our exciting, 18-minute documentary movie, "Magic in Your Doorway" . . . showing candid camera studies of doorway congestion problems and how they can be solved with Stanley Magic-Door® Equipment. See "Magic in Your Doorway" in your own office whenever it's convenient for you. Mail coupon today.

Stanley Door Operating Equipment,
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Please arrange to show me
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Company Name

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Address

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City *State* *Zip No.*

THE STANLEY® WORKS

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silver-based bactericidal agent that is uniformly dispersed throughout the topping cross-section. (4) "Monorock" monolithic concrete finish made of low-slump, ready-mix portland-cement concrete. Embedded into the surface of the cement concrete are 1½-2 lbs of cement-coated diabase or basaltic aggregate per sq ft, which range in size from ⅛" to ⅜". (5) Corrosion-resistant topping made of deferred topping, ⅛" to 3/16" thick, bonded to concrete base slab. It consists of a mixture of 100 per cent solids, catalyzed, thermosetting resin, and graded aggregates. Kalman Floor Co., 110 East 42 St., New York, N.Y.

On Readers' Service Card, Circle 222

Architectural Tile

"Ceramic Tile in Architectural Design" is a 24-page booklet that includes tile applications in commercial, religious, and institutional buildings. Shown in color photos are about 100 examples of ceramic tile applications on exteriors, lobbies, and entrances, corridors, stairways, dining rooms and cafeterias, kitchens, washrooms. locker rooms, showers, stores, churches, hospitals, schools, etc. American Olean Tile Co., Lansdale, Pa.

On Readers' Service Card, Circle 223

Terrazzo Specs

Specs and details for installation of terrazzo flooring are presented in 8-page brochure. Among terrazzo applications described are those bonded to concrete, over wood, with radiant heating system, and those used as conductive tile. Use of terrazzo flooring for wainscots, partitions, and stairs are also given. National Terrazzo & Mosaic Assn., Inc., 1420 New York Ave., N.W., Washington, D.C.

On Readers' Service Card, Circle 224

PROGRESSIVE ARCHITECTURE
NEWS REPORT

REINHOLD PUBLISHING CORPORATION
430 Park Avenue, New York, N.Y. 10022

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Lightweight Apartment Structure Has New High-Strength Welded Steel Frame, New Hi-Stress Concrete Decks

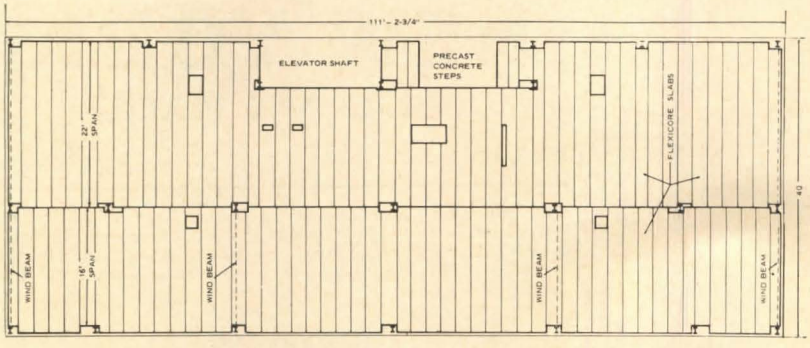
New heat-treated alloy steels were used in the all-welded frame of the Dell House, Baltimore, and, along with lightweight Flexicore decks, cut weight and materials significantly.

Lightweight steel V-60 was used for columns up to the third floor and V-50 from four to nine. A standard structural grade was used for columns from 9 to 16. Welding eliminated bolts and permitted narrower flanges on beams; 10-inch, for example, instead of 12. Also, flanges are thinner because of the high-strength steel.

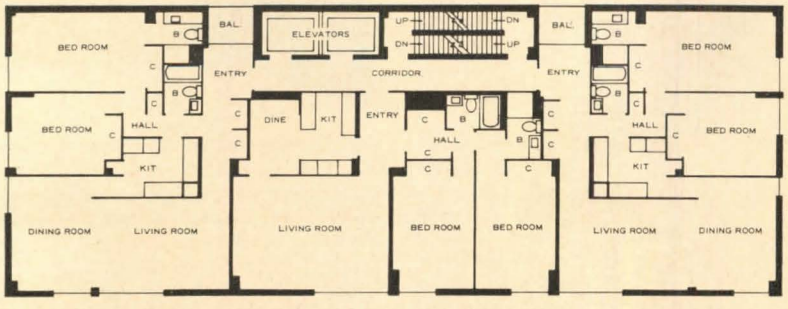
New Hi-Stress Flexicore decks are fully prestressed slabs (f_{si} 175,000 psi) cast in steel forms, with stress-relieved strands tensioned before concrete is poured. The six-inch slabs span up to 22 feet.

Architects are Jewell and Wolf; structural engineers are Perry and Lamprecht; both of Baltimore. For complete technical report on Dell House, FF 103, write The Flexicore Co., Inc., Dayton, Ohio 45401 or look under "Flexicore" in the white pages of your phone book.

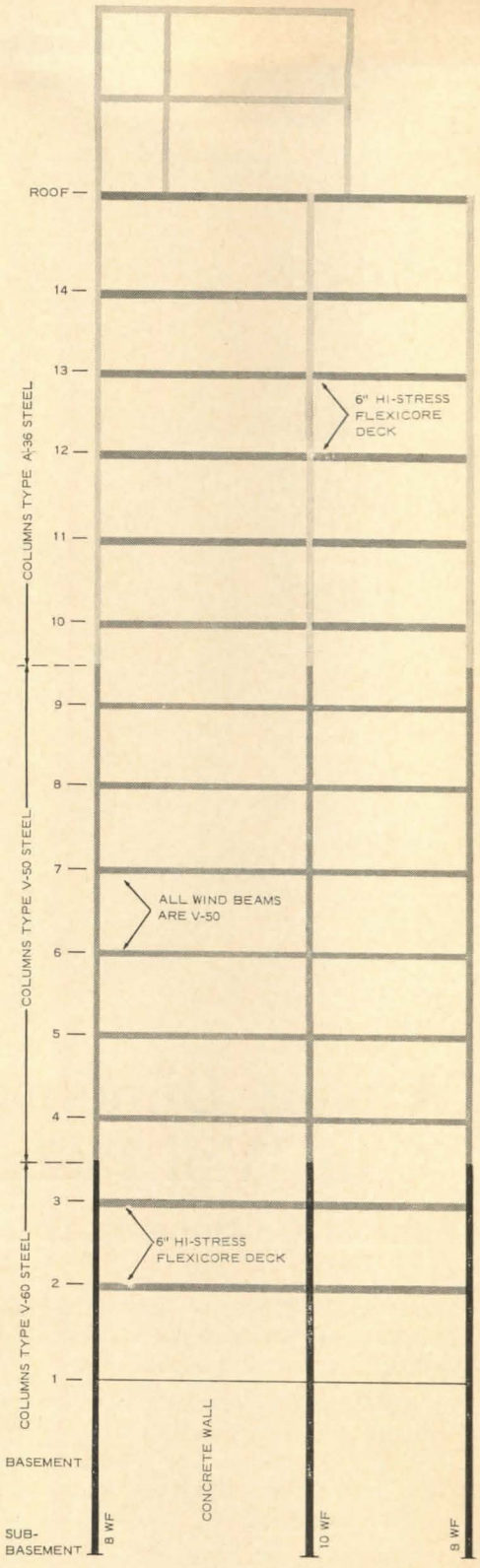
Write for Flexicore Fact 103 on this project.



WIND BEAMS AND FLOOR SLABS. Flexicore framing is identical on all floors. All wind beams are high-strength steel.



FLOOR PLAN. All apartments have two bedrooms and two baths. Rent is about $325 per month. Ceilings are painted Flexicore slabs.



STEEL FRAME AT END BAY
Three types of steel used on columns.

On Readers' Service Card, circle No. 352

NEXT MONTH IN P/A

■ *Variety is the catchword for the September issue of PROGRESSIVE ARCHITECTURE. From a presentation on arc-welded roof framing to an erudite taped interview with the architect of the controversial Shrine of The Book in Israel . . . the scope is broad, the reading excitement intense.*

■ *Highlights of the September issue include picture stories on the charm and whimsy of a unique city-suburb in the Bronx; a unique outside-inside restaurant and a Goethe memorial in Switzerland; a story on the interiors of the Maritime College in New York; an article on the first two post-tensioned high-rise buildings in the U. S.; the lively, timely News Report Section and the personalized critiques of the new P/A Observer.*

■ *Send your $5 check immediately and you will receive the exciting September issue of P/A plus eleven more, including the big Design Awards Issue in January. Address Circulation Department, PROGRESSIVE ARCHITECTURE, Reinhold Publishing Corp., 430 Park Avenue, New York, N. Y. 10022.*

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Bradley

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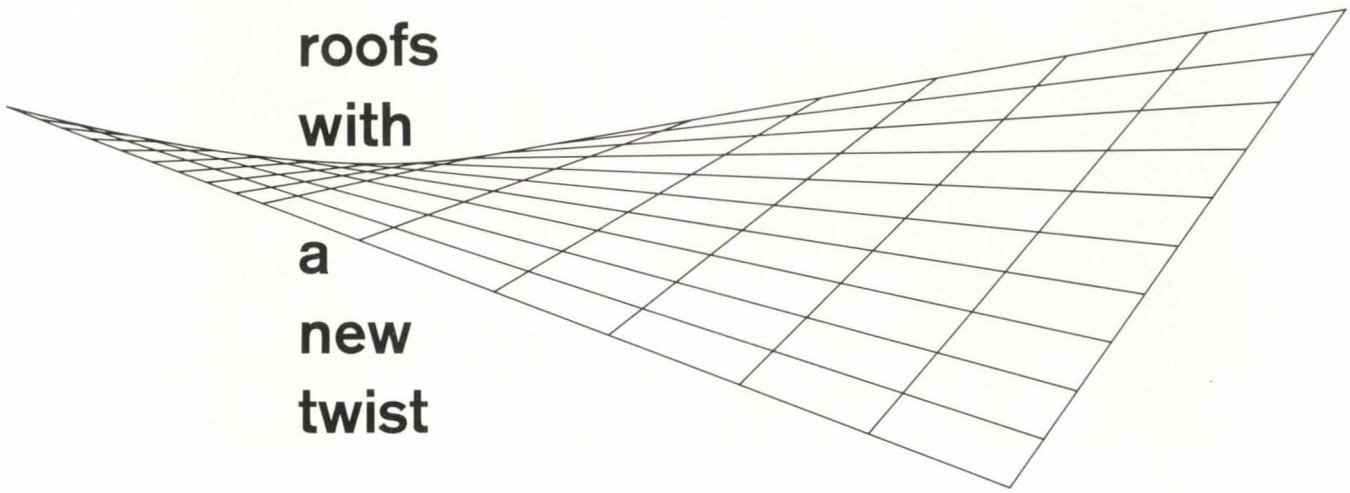
Why did we put our heads together?

TO SAVE MONEY!

Steel roofs with a new twist



(story on next pages)

Private home. A striking playroom and a terrace addition were built using a hyperbolic paraboloid roof. Two panels cover the playroom, and two panels cover the terrace.

Indian Hill School. In this compact, air-conditioned school, steel laminated paraboloids have been used in the sheltered auto entrance canopy, walkway connecting the academic and the commons buildings, art rooms (shown to right under construction) and the cafeteria. In each case the spans, shape and treatment contributed specifically to the purpose, volume, light, shading and economical aesthetic considerations involved. Roof panels in the north-light art room were tilted up for deeper natural light penetration. The three tied paraboloids each cover 33′-4″ x 45′-0″.

Johnson and Hardin Printing Plant (also cover photo). Hyperbolic paraboloids of two thicknesses of 1½″ deck form the office building roof, 106′-8″ x 133′-4″ overall (over 14,000 sq. ft.), supported by but four columns. Each bay is 53′-4″ x 66′-8″. In the bindery, the

Architect shows versatility of hyperbolic paraboloid roof in four welded steel designs

Woodie Garber and Associates, architects of Cincinnati, O., were commissioned to design a new, unique restaurant. They gave the roof a hyperbolic twist . . . with cantilevers which form curved eaves . . . and came up with a prize-winning structure. Since then, they have used hyperbolic paraboloid steel roofs for a printing plant, a high school and a playroom addition for a private home. Each combines striking appearance with reasonable cost, and the designs are light, airy. Here's how they do it.

The roofing shells consist of two layers of formed steel decking laid perpendicular to one another and plug welded at the common junctures of the flat surfaces. The laminated diaphragm structure so formed proves highly versatile in allowing the selection of an almost infinite variety of economical forms where its application is appropriate. The edge members of the quadrants are fabricated from structural shapes or rectangular tubing. Pipe and angle ledges provide convenient continuity members between deck and edge members. Insulation and roofing complete the job. Costs of structure have run from $2.00 to $3.00 per sq. ft.

The fasciae of the school and the plant are bare USS Cor-Ten Steel. The trim plate below the sill on the school job is also bare Cor-Ten.

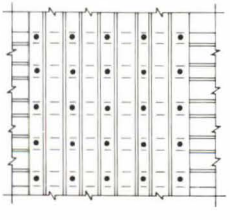
For more information on USS Steels for design, contact a USS Construction Representative at our nearest District Sales Office or write United States Steel, Room 8404, 525 William Penn Place, Pittsburgh, Pennsylvania 15230. USS and Cor-Ten are registered trademarks.

Frisch's Restaurant. On this job, four 33'-6"-square panels, with cantilevers extended past the generators, create a striking roof profile. Here five supports were used for 4,500 sq. ft. of enclosed space.

Architects: Woodie Garber and Associates, Cincinnati, Ohio. Structural Engineers: Truman P. Young & Associates, Cincinnati, Ohio. Erection of the steel roof deck on all four of the structures shown here was done by Imbus Roofing Co., Cincinnati, Ohio. Roof deck: H. H. Robertson Company, Pittsburgh, Pa. Structural Steel Fabricators: Indian Hill Canopy, Restaurant and Residence, George Rehm Co., Inc., Cincinnati, Ohio. Johnson Hardin Printing Plant, C. H. C. Fabricating Corp., Cincinnati, Ohio. Indian Hill Art Room, Southern Ohio Fabricators, Inc., Cincinnati, Ohio.

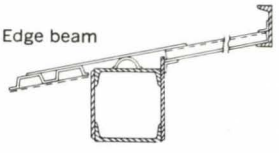
Steel

This mark tells you a product is made of steel.

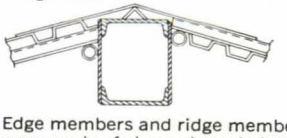


Weld pattern for decking. 18 gage lower layer, 20 gage upper layer of 1½" steel decking, plug welded at each intersection.

Edge beam



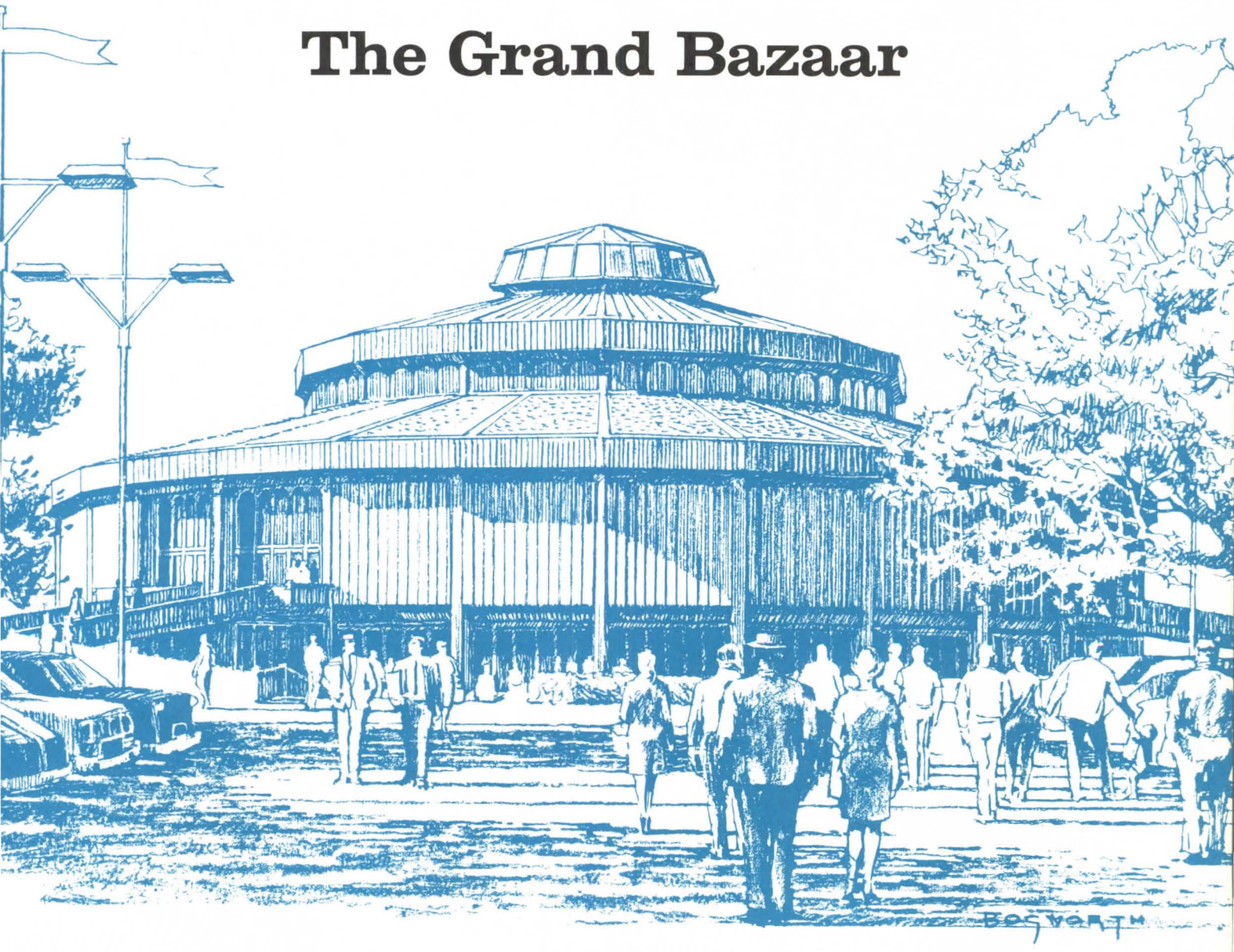
Ridge beam



Edge members and ridge members were made of channels and plates to form box sections. The decking was connected at the beams by welding to pipe sections and angles which formed easy-to-weld seats.

Charles Warren Callister
designs a new kind of shopping center
in wood

The Grand Bazaar



One of a series of design investigations commissioned by Weyerhaeuser Company

"An Old-World Market in a great wooden structured space"

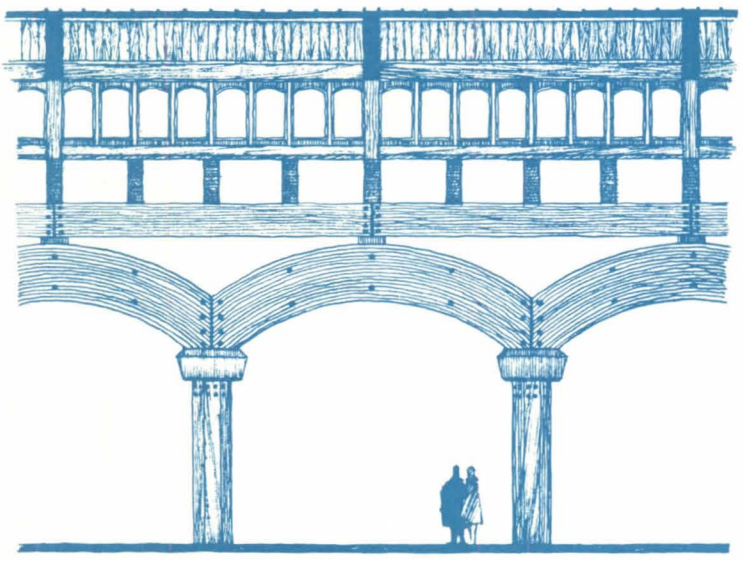
Weyerhaeuser Company has commissioned a number of leading architectural firms to create design innovations which highlight the potential of wood in commercial buildings. This imaginative structure, by Charles Warren Callister of the architectural firm of Callister and Payne, Tiburon, California, is the first of this series.

Warren Callister's comment on the concept:

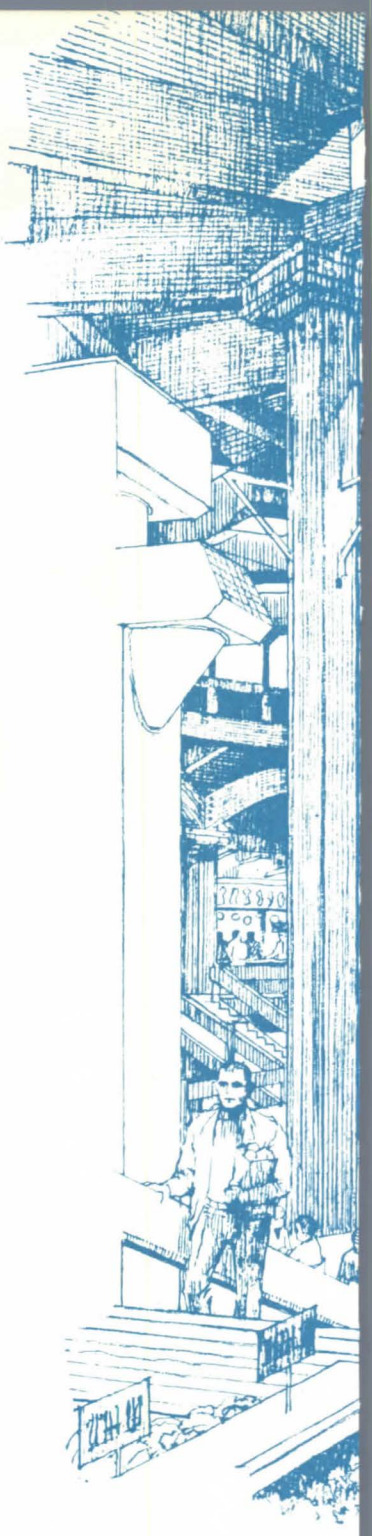
The opportunity to use wood in terms of heavy timber brought about this concept of a vast building and the grand bazaar idea. The scale of laminated wood construction achieves a bold architectural approach. This shopping center in-the-round combines the people excitement of the old-world market place and the western country store with all the practical necessities of modern merchandising. It provides the festival atmosphere of a State Fair exhibit hall or a farmer's market in a great, barnlike structure.

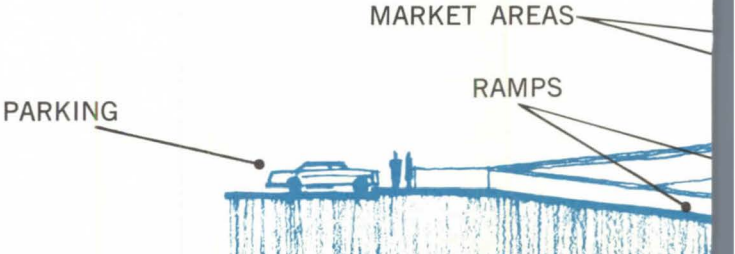
The parking is at the half level between the upper and lower floors and connected by ramps to the selling areas. The sales counters are organized along the lines of a departmentalized variety or grocery store . . . as booths in an exhibition hall. The interior rotunda has a cafe open to the excitement of the activity and the great wooden structured space.

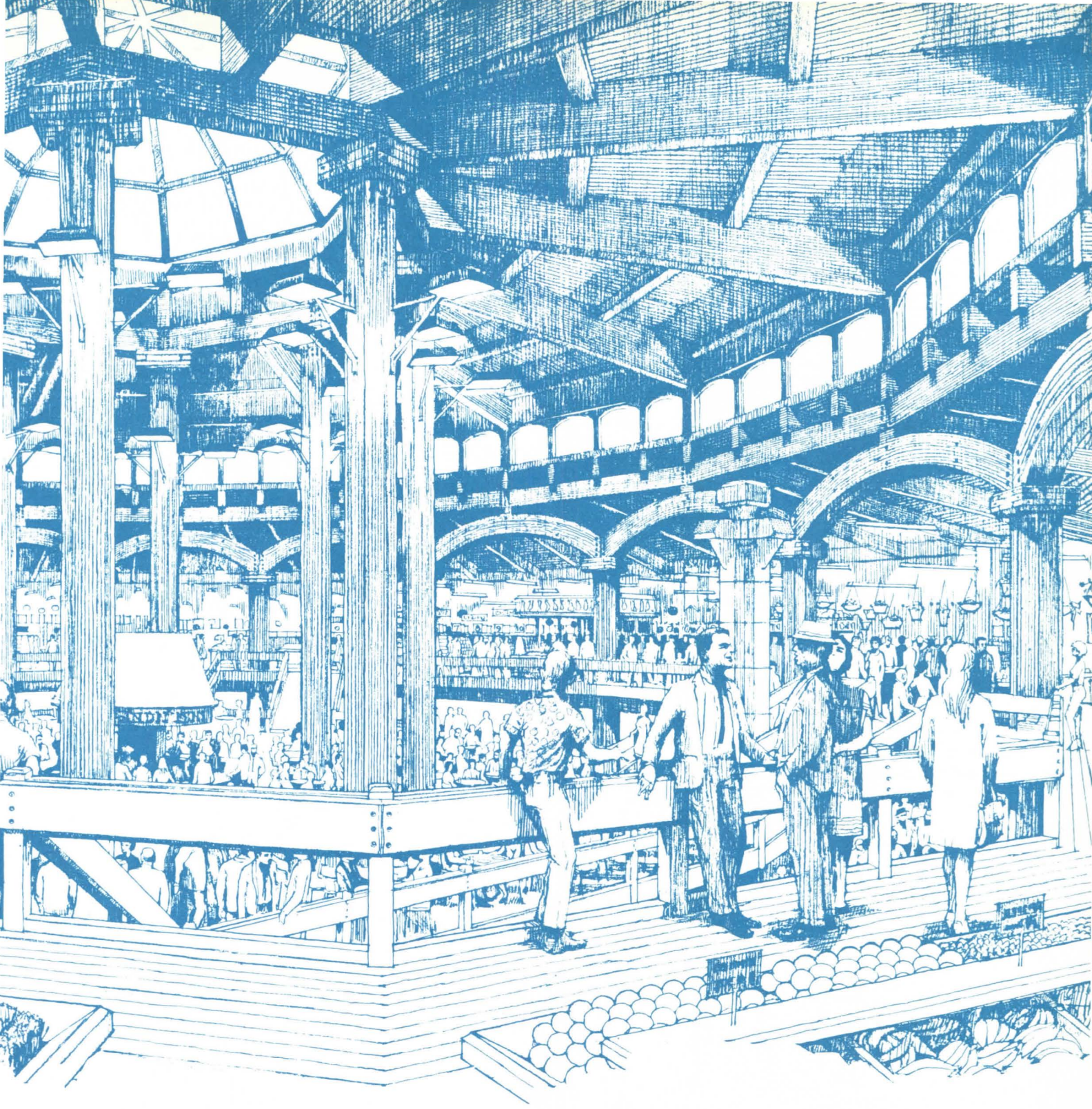
Weyerhaeuser laminated products give the building rugged strength and fire durability. They also produce a warmth and elegance which are enhanced with age and use. A copper sulphate pressure treatment for the exterior surfaces will weather to a soft green, providing a muted counterpoint to the bright colors of the market place.

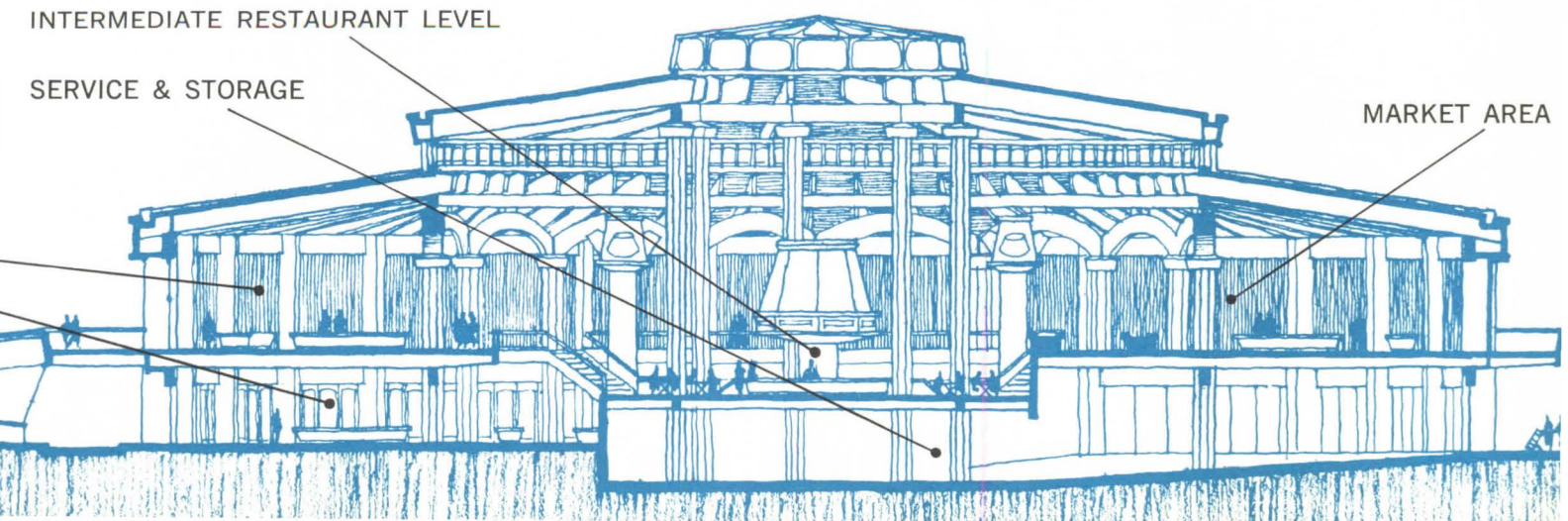


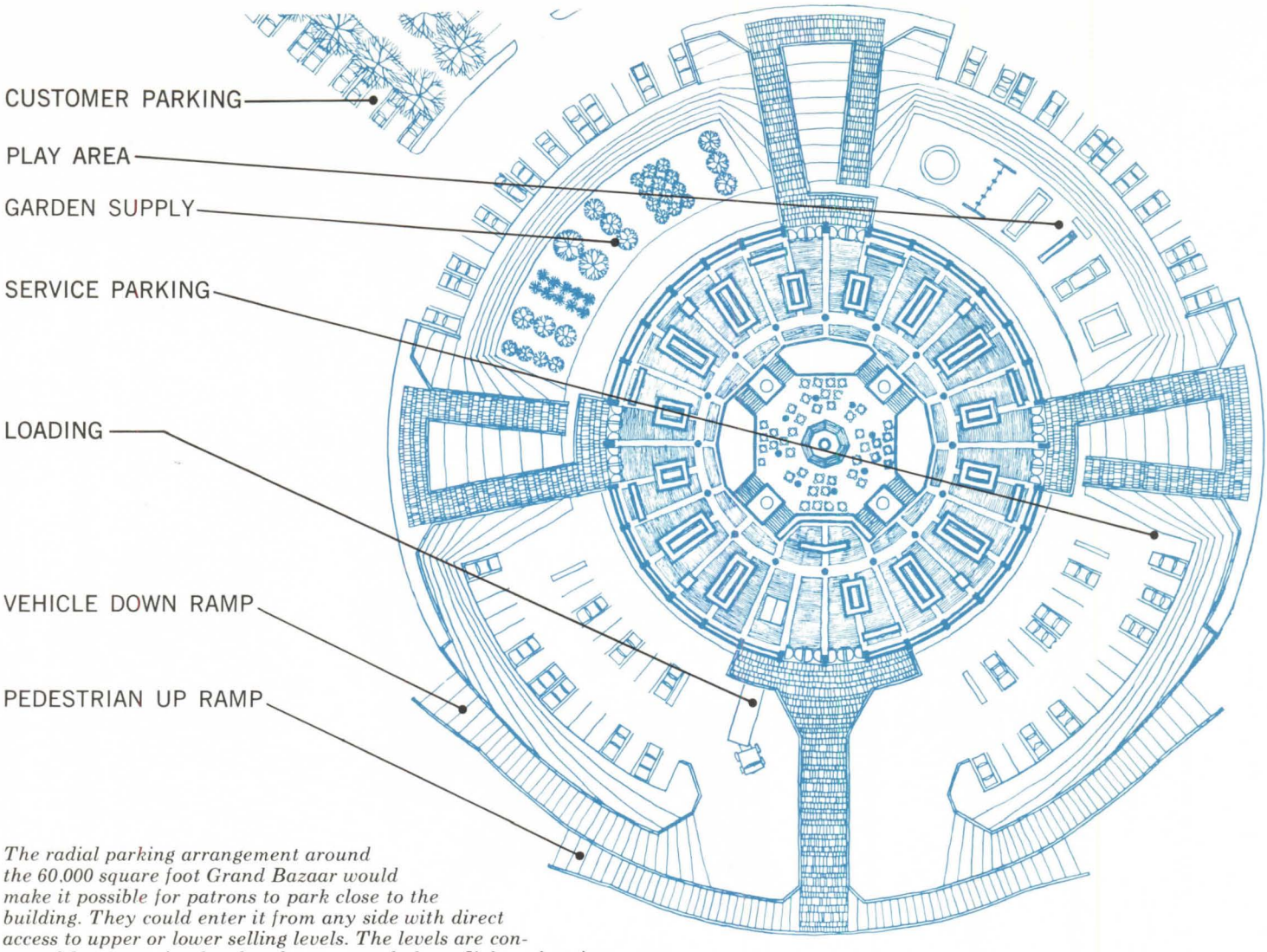
Decking, beams, girders, arches, and octagonal columns in the Grand Bazaar are Weyerhaeuser laminated structural products.








INTERMEDIATE RESTAURANT LEVEL
SERVICE & STORAGE
MARKET AREA



The radial parking arrangement around the 60,000 square foot Grand Bazaar would make it possible for patrons to park close to the building. They could enter it from any side with direct access to upper or lower selling levels. The levels are connected by conveniently placed ramps and short flights of stairs.

"The scale of laminated wood construction achieves a bold architectural approach."

The laminated decking, columns, girders, and arches in the Grand Bazaar are part of Weyerhaeuser's full line of architectural wood products. These structural members are manufactured from kiln-dried lumber and special adhesives to conform with the strict specifications of the American Institute of Timber Construction.

In addition to this complete line of wood products, the new Weyerhaeuser Architectural Services program includes highly trained field representatives, comprehensive technical literature, and a technical services staff to provide technical and engineering data.

Your local Weyerhaeuser architectural representative is your source for all this data. Call him or write us at Box B-113, Tacoma, Washington 98401.

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Knoll's new stacker is a lightweight, but it solves big, tough seating problems: one chair weighs less than 10 pounds, two chairs gang together and stack, and a pile of 20 moves easily on a lightweight dolly. Don Albinson designed them of injection-molded plastic and die-cast aluminum, engineered for commercial and institutional needs. Available in 5 integral colors. May we send you a brochure?

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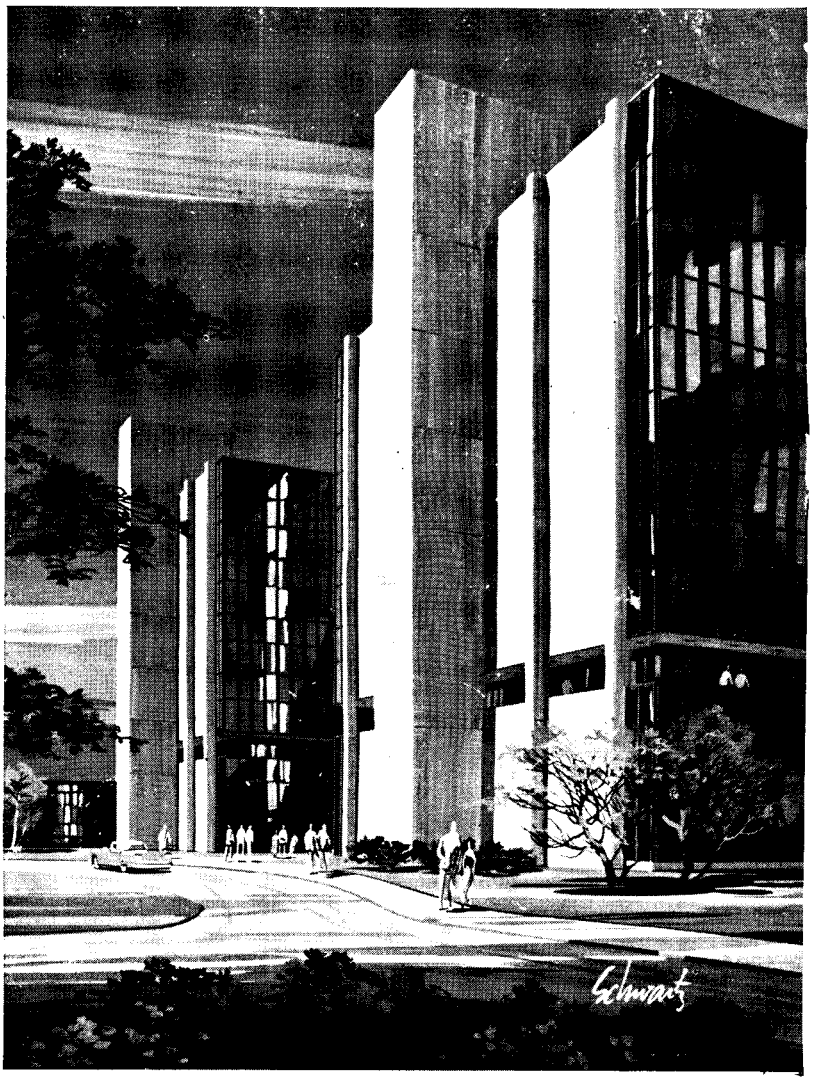

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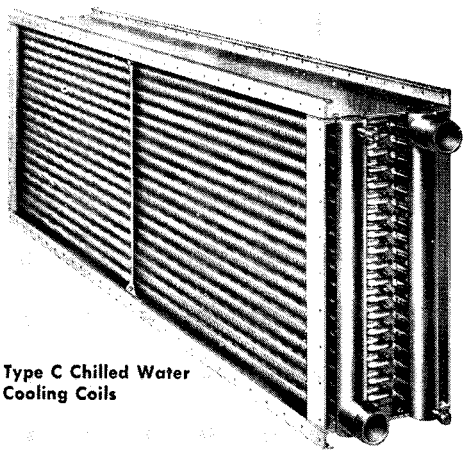
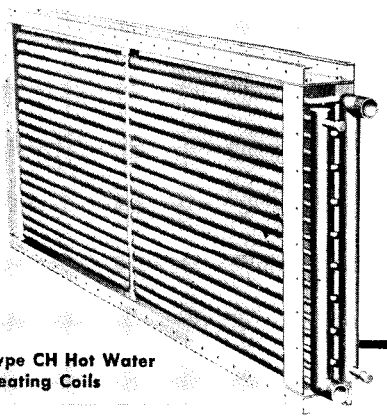


Type C Chilled Water Cooling Coils



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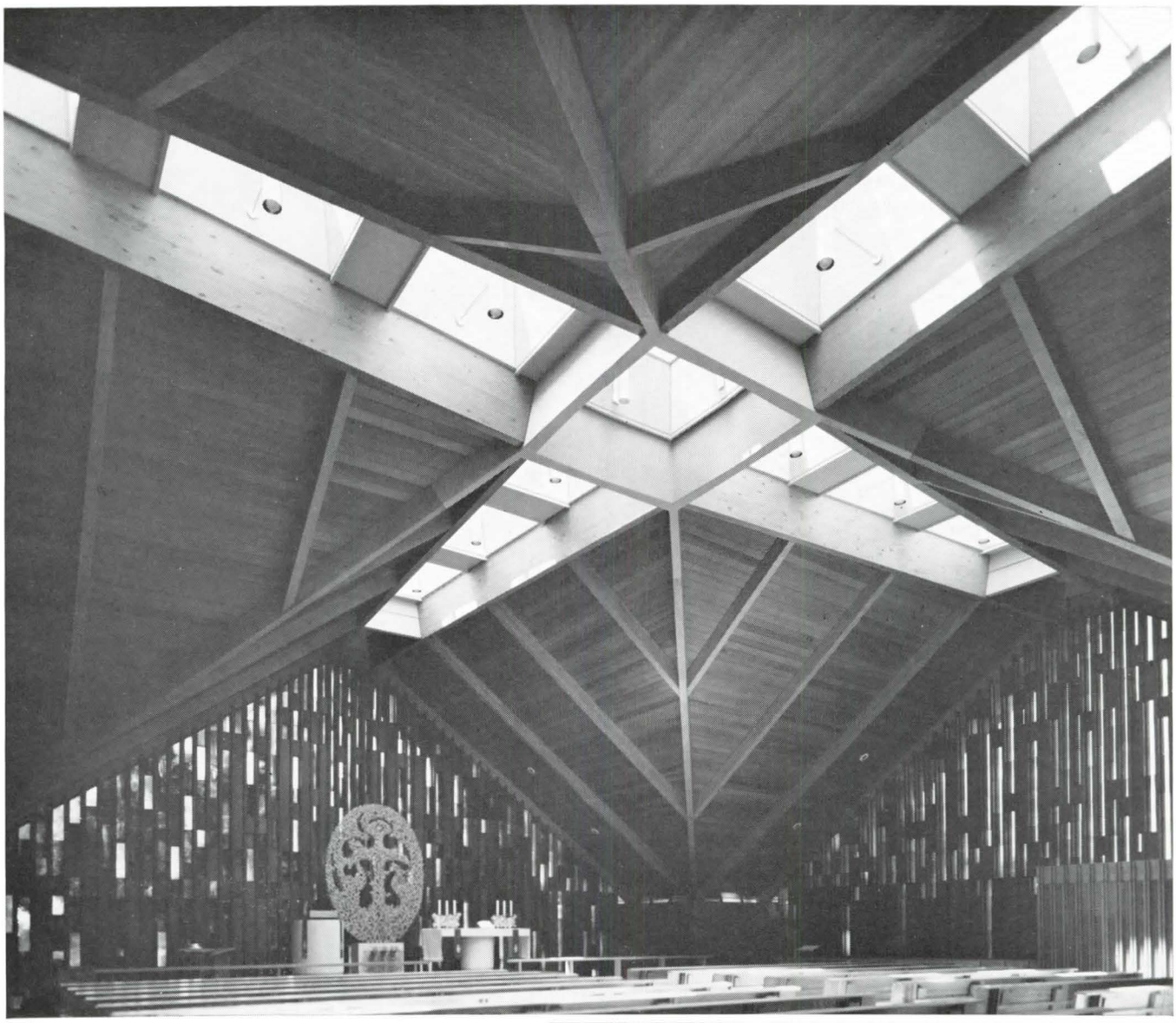

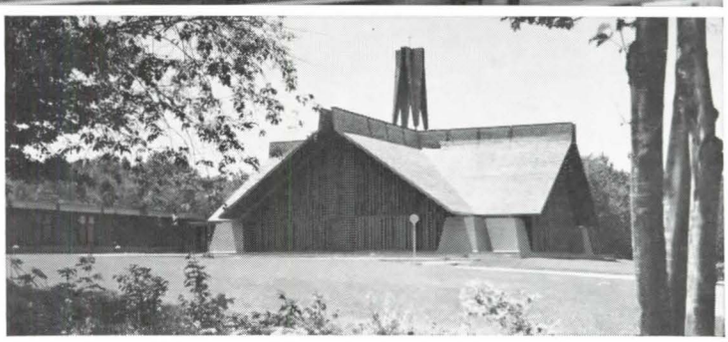

SKYLIGHTING IS AN ARCHITECTURAL FORM

The Trinity Lutheran Church in Chelmsford, Massachusetts offers a good example. Architect Joseph J. Schiffer has used custom ACRYLITE* Skydomes in an integrated design with the cross-shaped form of the church. Glazed with clear ACRYLITE — the weather-proof, shatter-resistant plastic — Skydomes create a strong vertical focus to increase the feeling of height through the pattern of light admitted by the skylights. This has an uplifting effect upon the worshipper and at the same time contributes to the overall design. Cyanamid has the facilities and engineering staff to design ACRYLITE Skydomes in custom shapes for your specific applications. For further information consult Sweet's Architectural File 20a/Am, Industrial Construction File 15c/Am or write American Cyanamid Company.

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Photographed

The beauty of marble...the durability of concrete

Shelby High School, Shelby, North Carolina. Architect: Holland & Riviere, Inc., Shelby

Terrazzo throughout for a new high school

In the new Shelby High School, the architect chose terrazzo, not only for high-traffic areas, but for attractive, low-upkeep floors throughout the entire building. The school was built at a cost of $9.25 per square foot for the building—*and this included terrazzo in the classrooms.*

Few flooring materials have the history of terrazzo. Few can match its beauty. Terrazzo floors laid centuries ago still serve as dramatic tests of time and use. Terrazzo's long life and low maintenance make it a highly desirable flooring material for today's structures.

More and more, architects are choosing terrazzo for its esthetic advantages and remarkable practicality in structures of every size and type.

Portland Cement Association

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An organization to improve and extend the uses of portland cement and concrete, made possible by the financial support of most competing cement manufacturers in the United States and Canada

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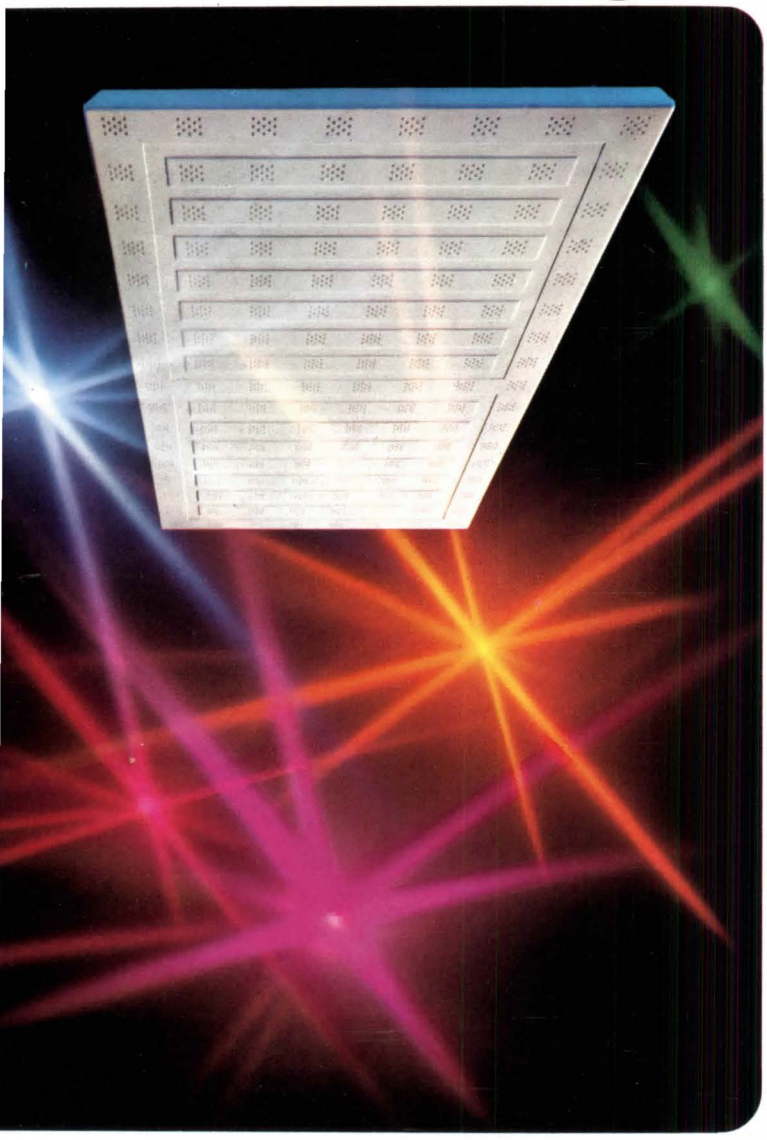


Heating and cooling now built in!

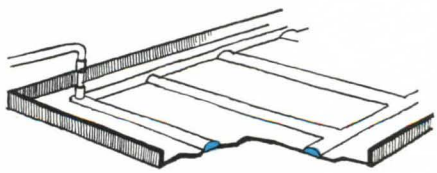
Here, without question, is the most efficient radiant heating and cooling ceiling panel ever designed. The new Inland IRC/HP Hi-Performance Panel cuts conductivity losses to a fraction by eliminating separate pipes, panels and connecting methods. The one-piece IRC/HP contains its own integral water channels.

Because the water which heats or cools the panel is in *direct contact* with the exposed radiant surface, the IRC/HP approaches the theoretically perfect panel in performance. Only a *single* thickness of metal is involved.

This high performance means better comfort control, even in problem areas with large expanses of exterior glass. Intricate zoning of air is virtually eliminated. Savings on mechanical equipment and in erection time are significant.

The exposed surface of an IRC/HP panel presents a sculptured profile which minimizes the pattern of acoustical perforations. Panels are finished in low-gloss white baked enamel.

IRC/HP is one of three types of Inland radiant-ceiling panels. All are described in Catalog 251. Write today for your copy to Inland Steel Products Company, 4400 W. Burnham Street, Milwaukee, Wisconsin 53201.



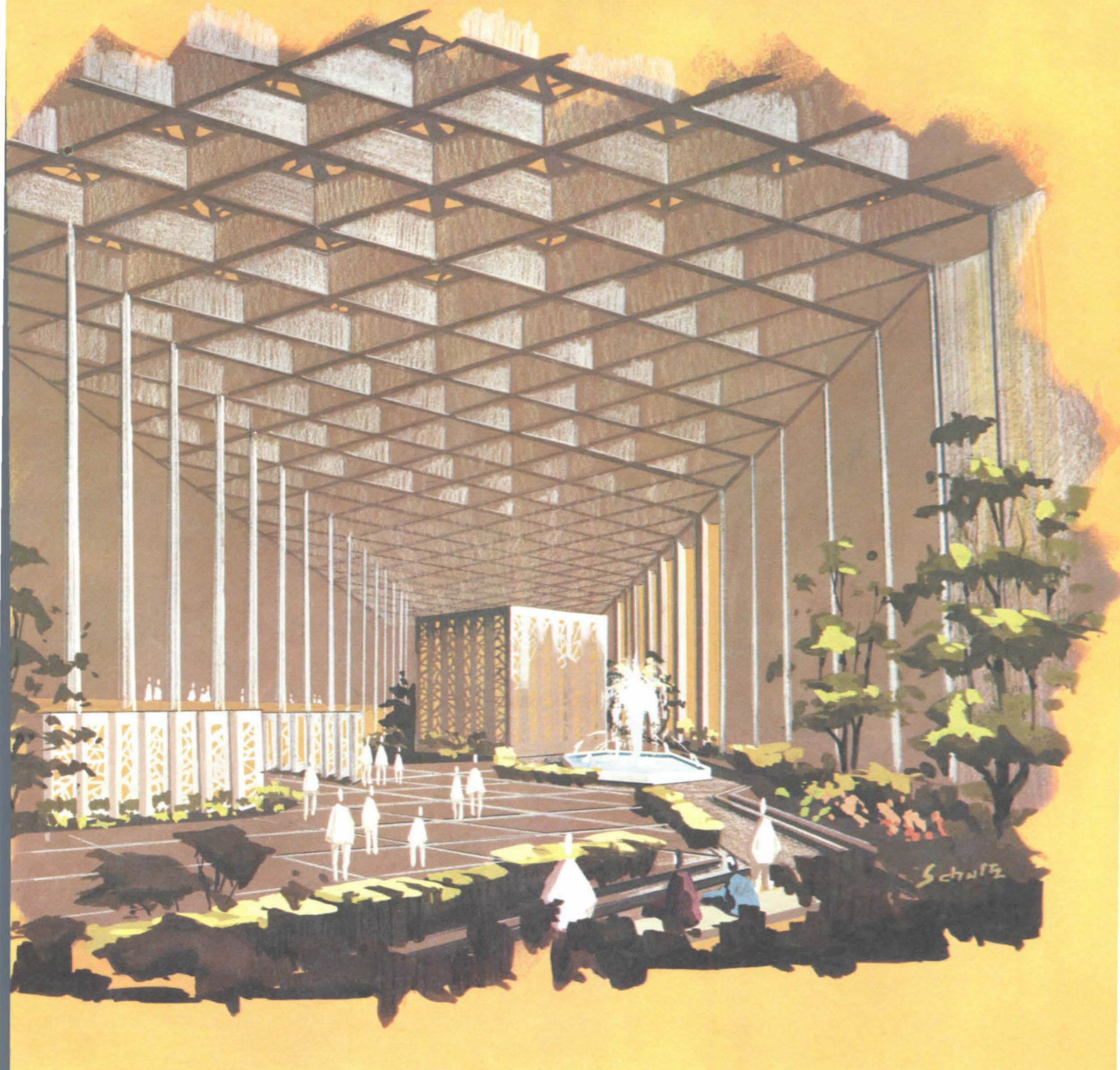
Cross-section of Inland IRC/HP panel shows two layers of heavy-gauge steel brazed together to form water channels across the top surface. 2′ x 4′ modules fit standard lay-in ceiling grids, simplifying integration with lighting panels and partition systems. Self-contained water channels free designer to create imaginative ceiling effects without expensive plumbing installations.

Inland Steel Products

INLAND

EP-47

New design freedom in the **Open World** of L·O·F glass



Ward and Schneider design a unique Religious Center for downtowners

The growing ecumenical movement is creating a need for interdenominational headquarters in large cities to serve several needs: 1. A building where church federations can have central administrative offices and meeting rooms; 2. A quiet retreat where downtowners can meditate, or just sit and relieve tensions by listening to beautiful music; 3. A sanctuary where urban apartment dwellers and transients can worship on Sundays. Libbey·Owens·Ford asked the architectural firm of Ward and Schneider, Cleveland, Ohio, to design such a building.

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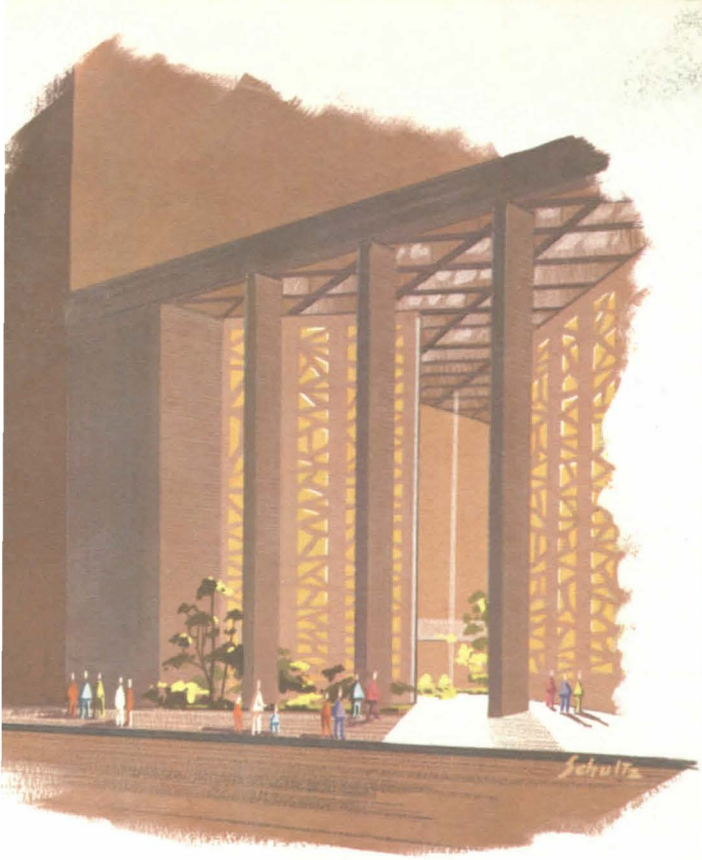
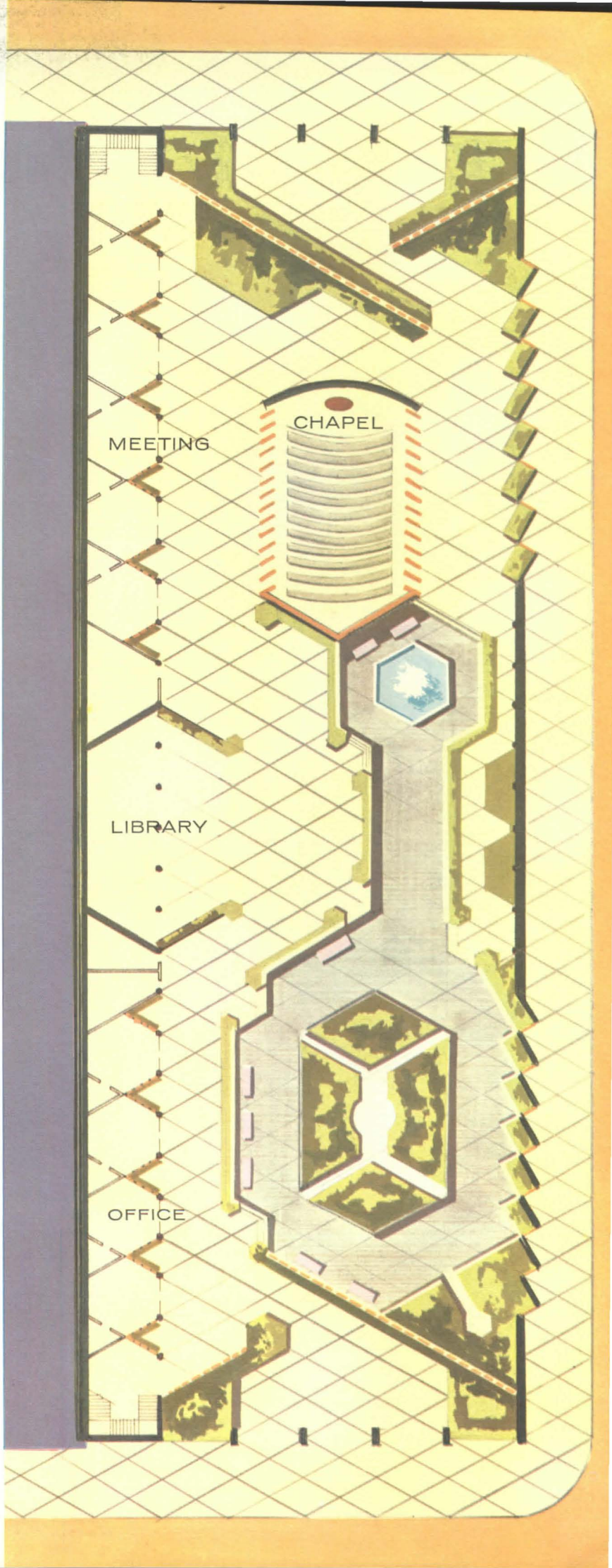
LOF GLASS





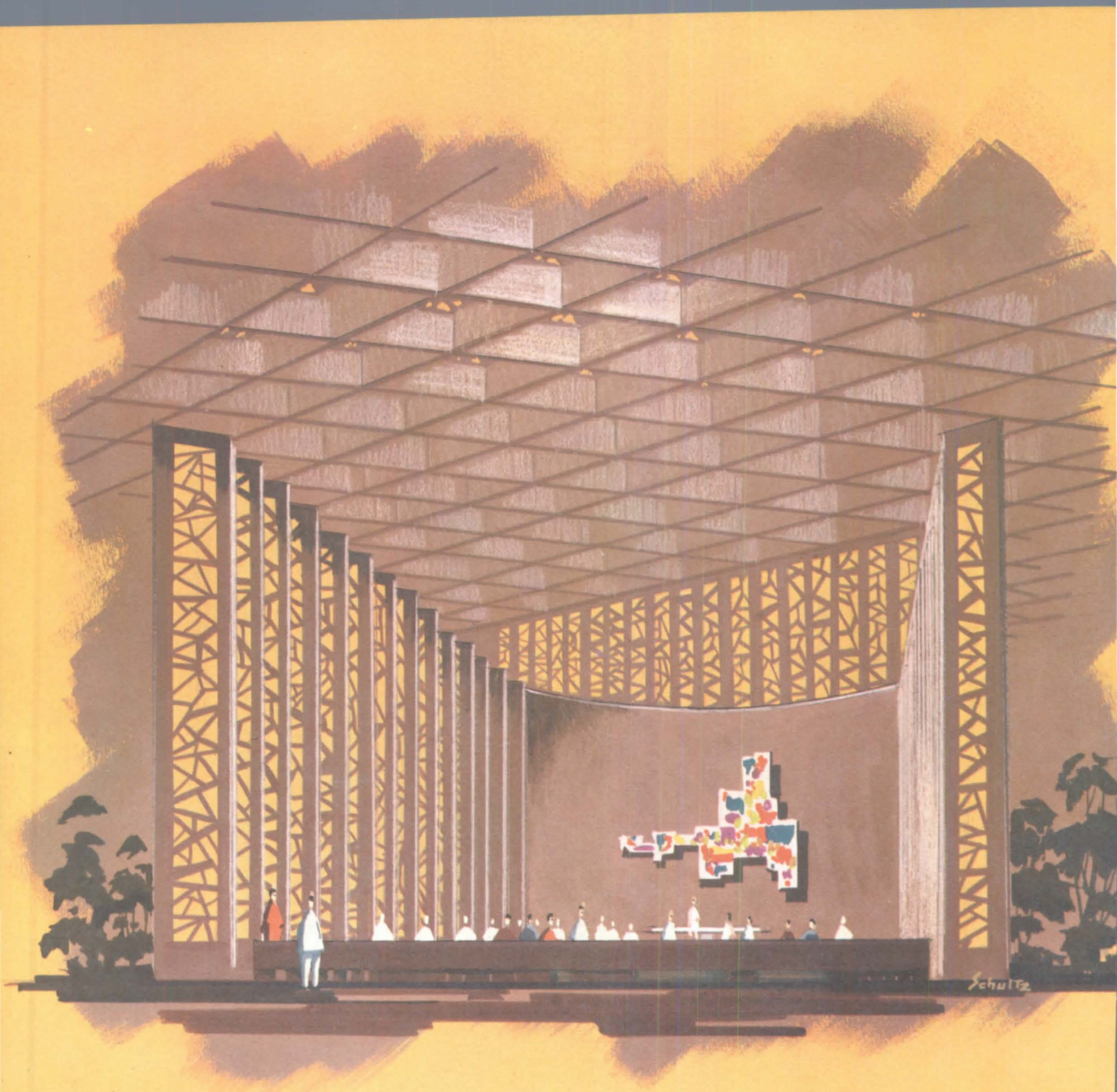
The site envisioned is in an area of multi-story buildings. Facing the street is a facade of pre-cast concrete frames inset with bronze-tinted, rough plate glass—a shimmering and translucent glass to screen out the confusion of the city scene.

Inside is a large landscaped courtyard with winding paths and meditation areas leading to a sanctuary which dominates the court. The entire area is ethereally lighted by daylight filtering through pre-cast roof grids inset with heat absorbing, bronze and grey-tinted, tempered plate glass 65 feet above the floor of the building. One supporting wall is of sawtooth design with floor-to-roof panels of heavy-duty, rough plate glass in the narrow openings. If the site is between two tall buildings, the end walls and ceiling would be sufficient to daylight the interior.

The sanctuary, too, has a pre-cast facade dappled with bronze-tinted, rough plate glass. Enclosing the sides are offset panels of Grasweave patterned glass arranged so that people can enter and leave without disturbing the others. Inside is Continental seating for about 300. A mural of glass behind the chancel table could be *Vitrolux*®.

Church federation offices and related facilities line one side of the courtyard and are one-story high. They have clear plate glass walls and doorways through which the garden courts can be viewed. Overhead is a broad balcony with a tempered plate glass balustrade.

LOF GLASS



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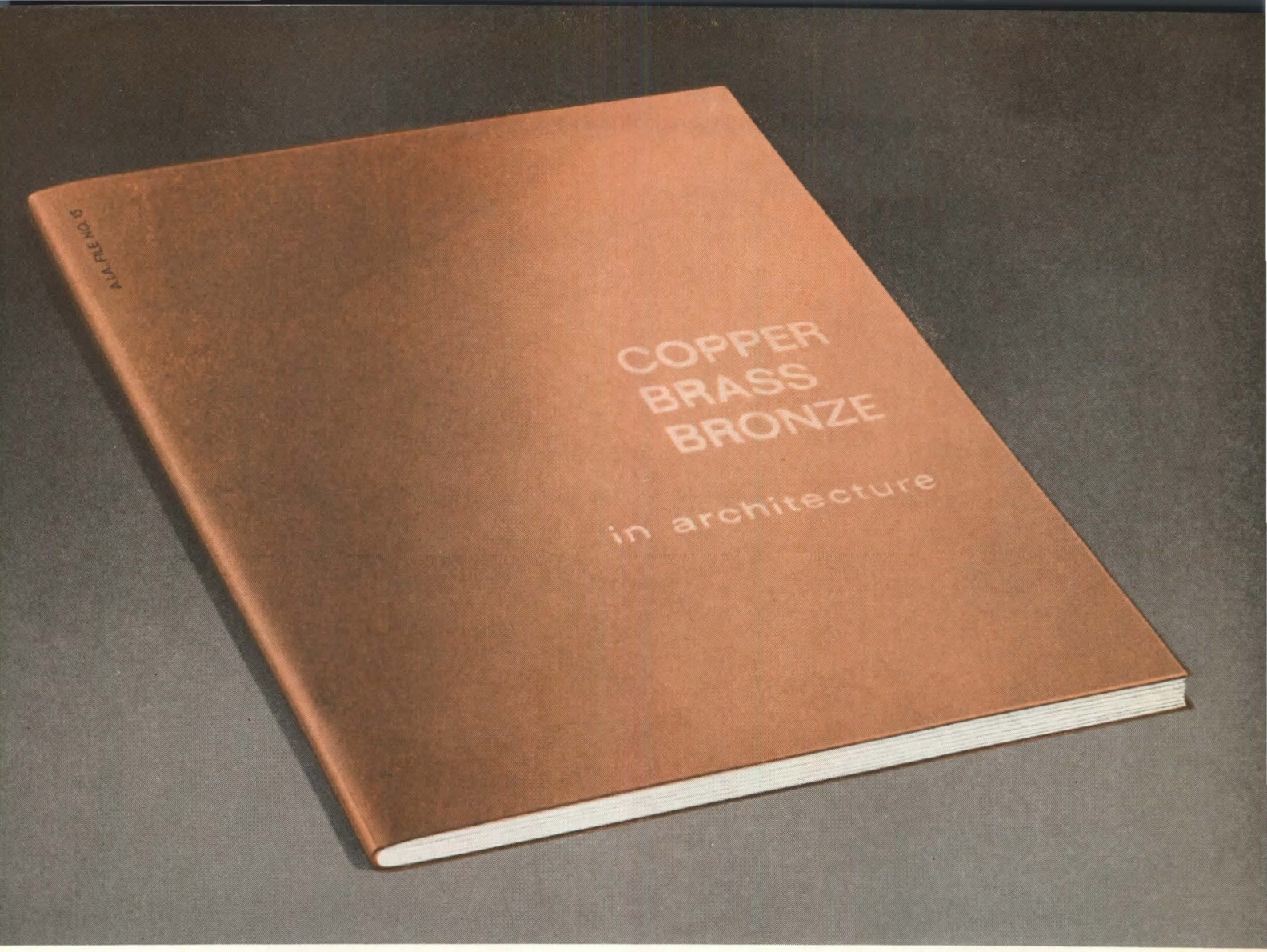

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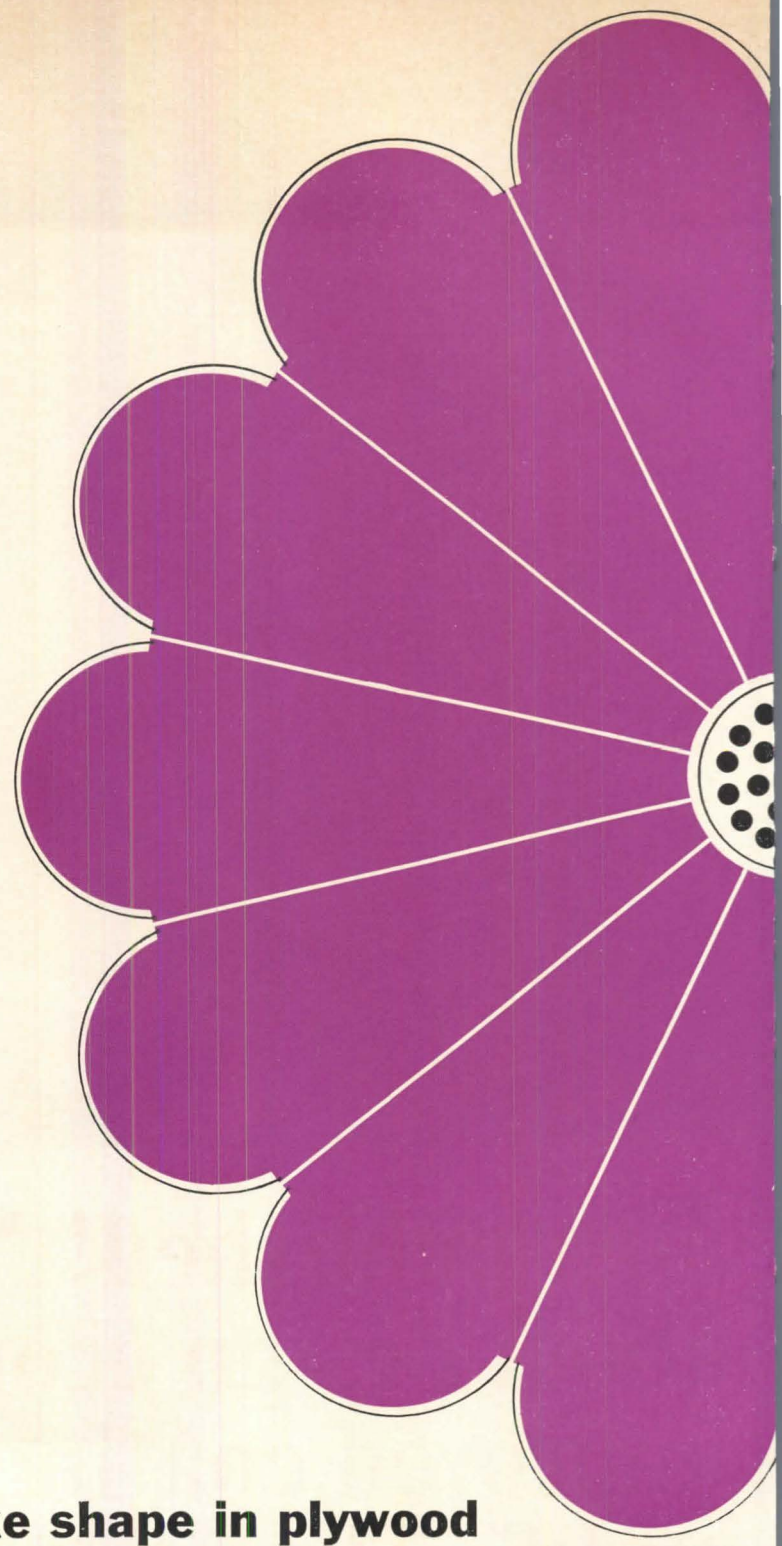
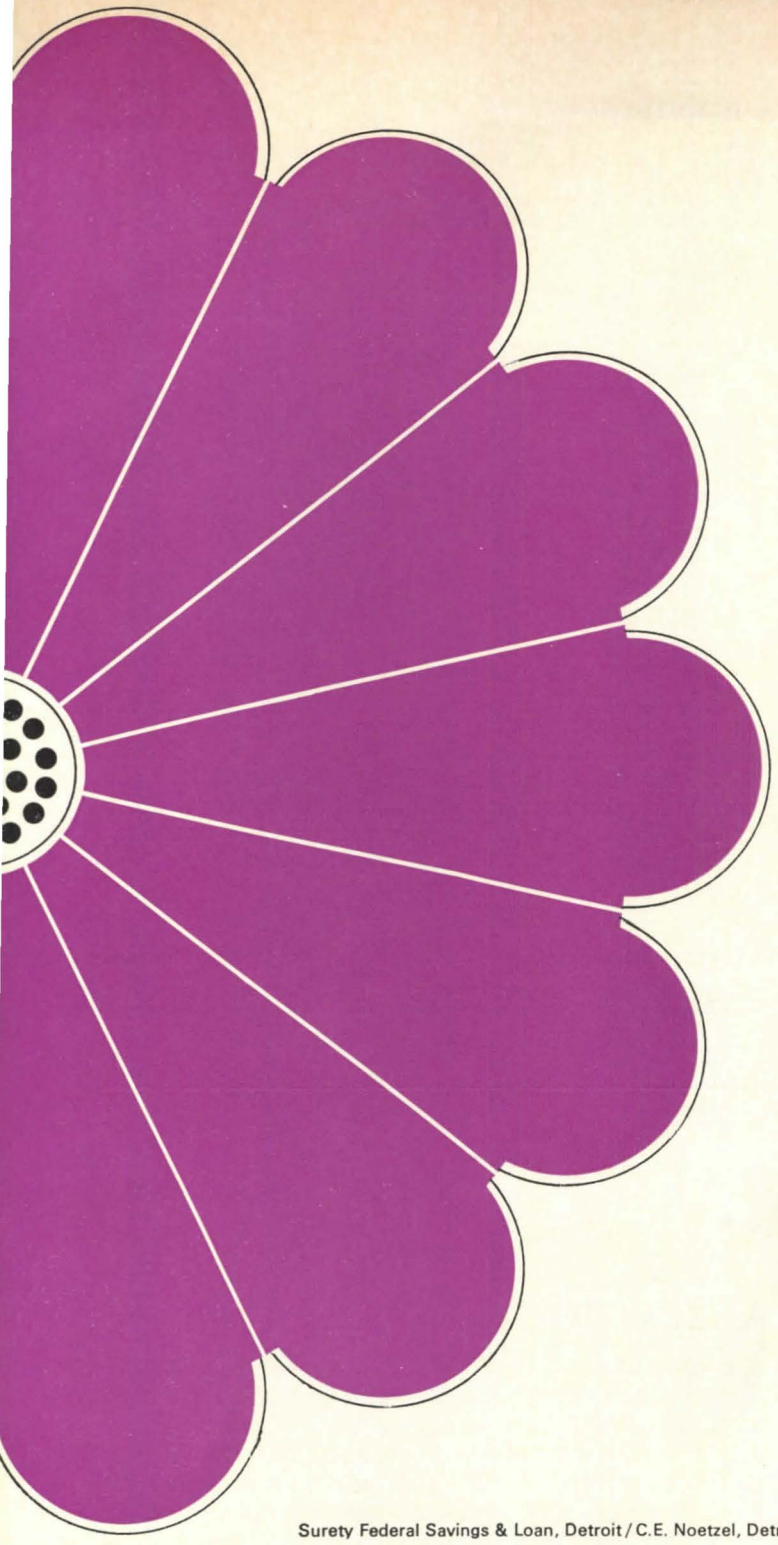


the most exciting ideas take shape in plywood



Surety Federal Savings & Loan, Detroit / C.E. Noetzel, Detroit, Architect / Plywood Structural Div., G.H.L. Corp., Auburn Heights, Mich., Fabricator

Fourteen petal-shaped plywood components roof this drive-in bank that blossoms by a busy Detroit highway. It's another case where only plywood could reconcile a demanding design with a tight budget. Concrete was considered but would have cost twice as much. The conical plywood panels were so lightweight and so carefully engineered that they took only three days to install. Whenever your designs call for unusual shapes, high strength and low cost, look into plywood components and structural systems. For more on DFPA plywood, write us at Tacoma, Wash. 98401 (US only).

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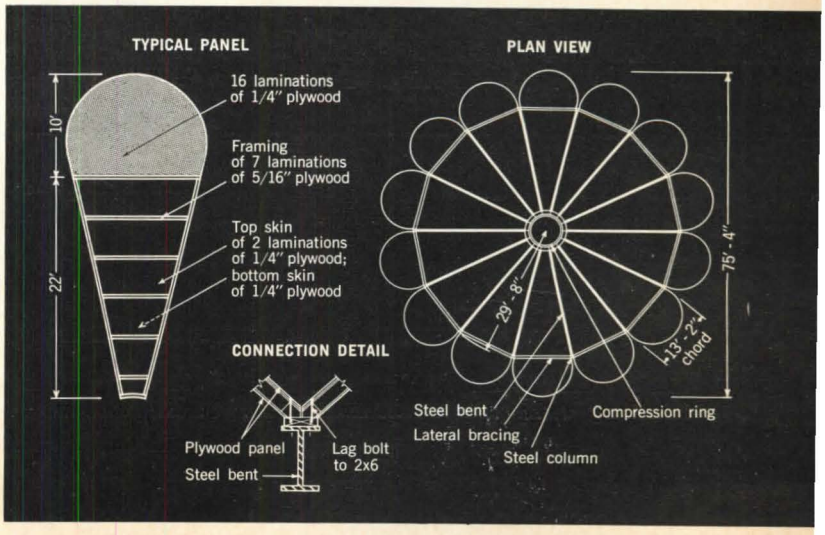

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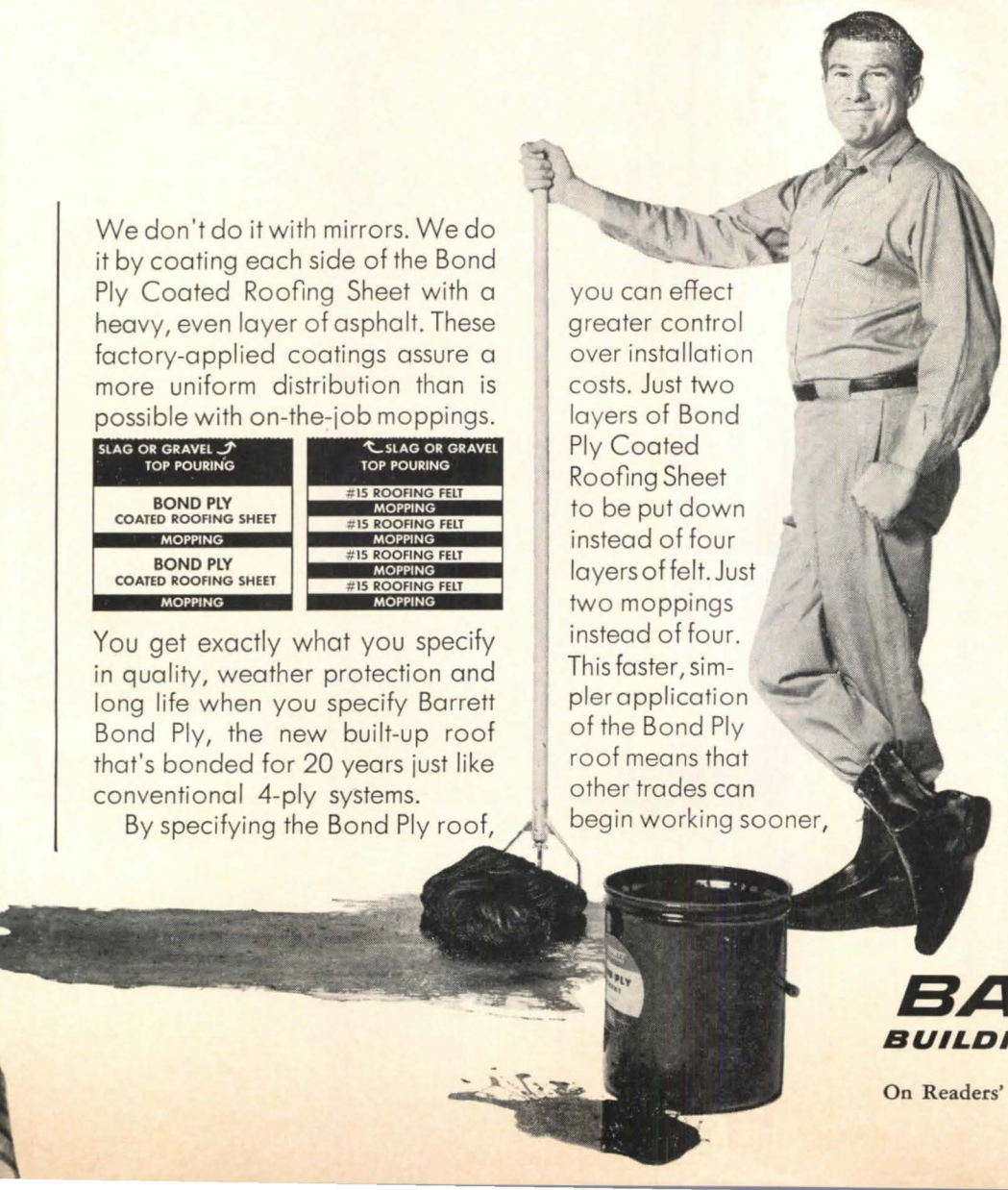

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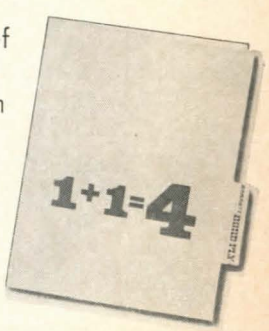

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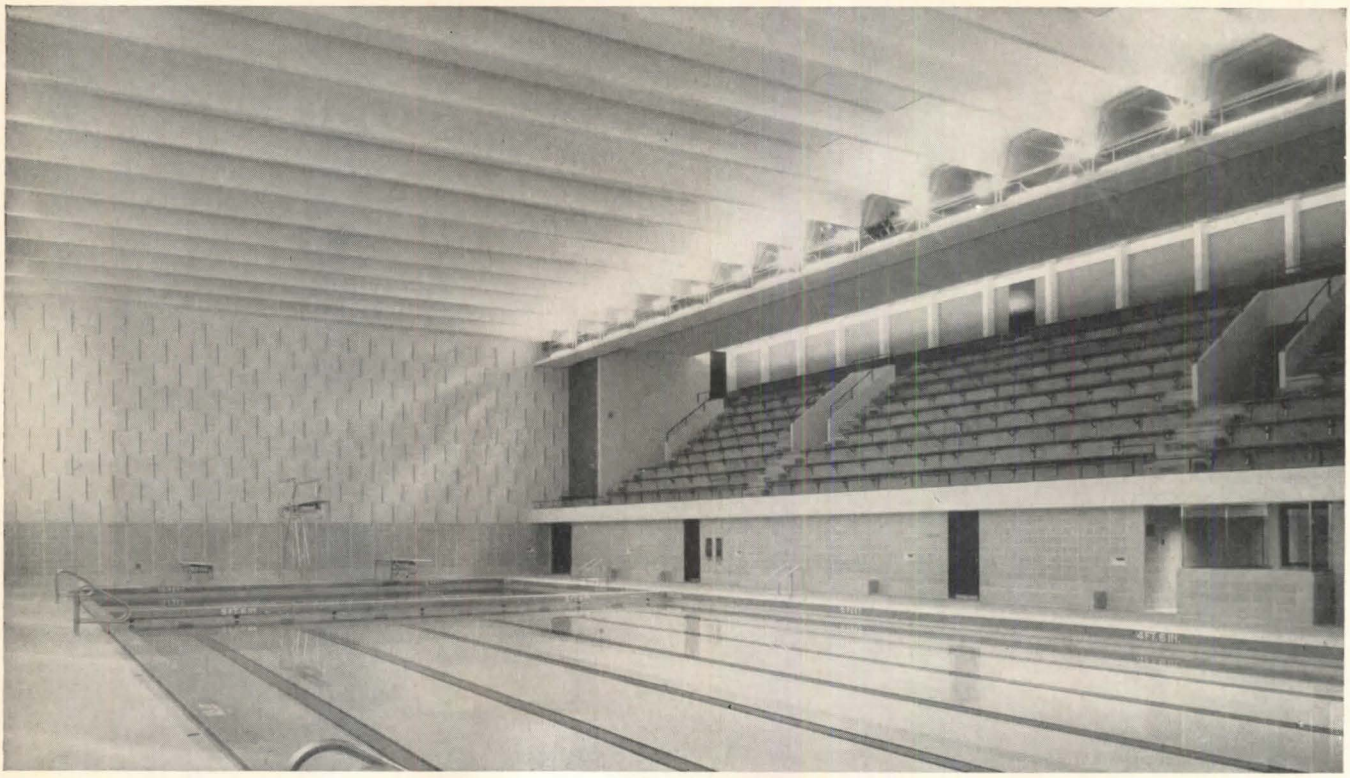


Variety of prestressed concrete tees for roof and floor in new Johns Hopkins University Athletic Center

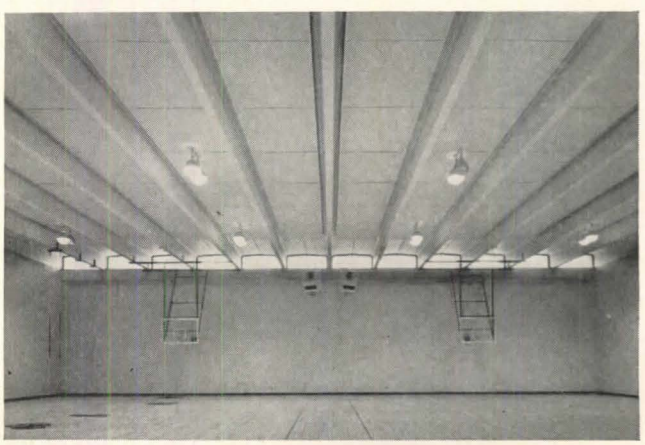
Large floor and roof areas in the new Johns Hopkins Athletic Center are made with giant tee sections of prestressed concrete. They range in length from 39 feet to 95 feet.

In the gymnasium floor, 22 tees, 8 feet wide by 28 inches deep are used. The gym roof is made of 13 tees, 95 feet long, 8 feet wide by 36 inches deep. In the natatorium (see picture) 18 tees form the roof. They are 96 feet long, 8 feet wide by 36 inches deep.

Clean interior lines, easily finished and maintained, are an architectural feature of the structure. Clerestory effect is formed by the legs of the tees where they bear on walls.

This project is a classic example of the use of prestressed concrete to achieve functional and distinctive design, while gaining the economies of material, construction speed, finishing cost and maintenance. And the selection of Union TUFWIRE® Strand for prestressing strand in the tees reflects the increasing reliance of prestressed concrete producers on this product. TUFWIRE Strand, TUFWIRE and other Union Wire Rope products are made by Armco Steel Corporation, Steel Division, Department W-1905, 7000 Roberts Street, Kansas City, Missouri 64125.

Owner: The Johns Hopkins University, Baltimore, Maryland
Architect: Meyer, Ayers and Saint, Baltimore, Maryland
Engineer: Van Rensselaer P. Saxe, Baltimore, Maryland
Contractor: Piracci Construction Co., Inc., Baltimore, Maryland
Prestressed Concrete Fabricator: Shockey Bros., Inc., Winchester, Virginia



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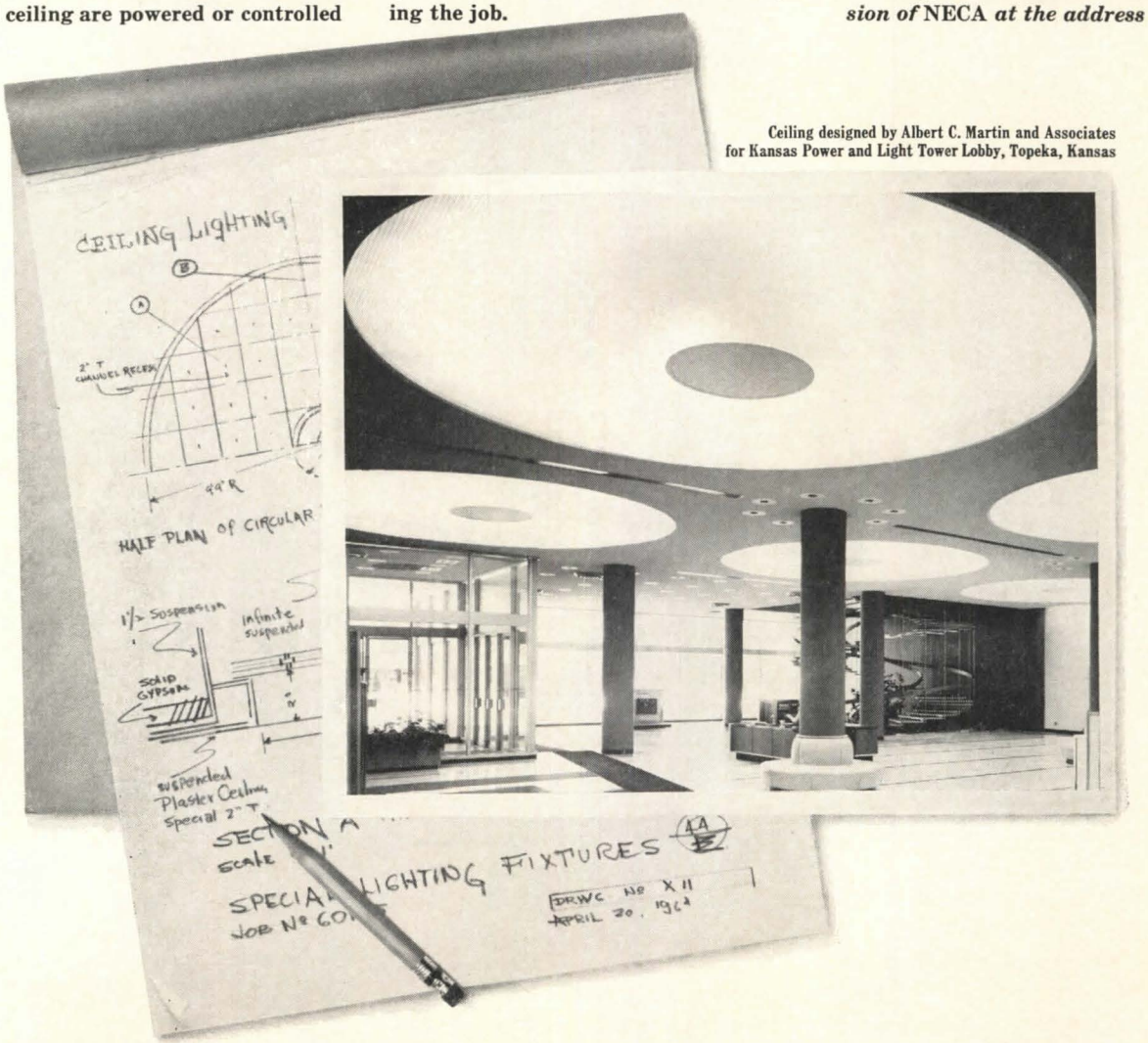
NECA *has prepared a film on integrated electric ceilings. To arrange a showing, contact the Marketing Division of* NECA *at the address below.*



Ceiling designed by Albert C. Martin and Associates for Kansas Power and Light Tower Lobby, Topeka, Kansas

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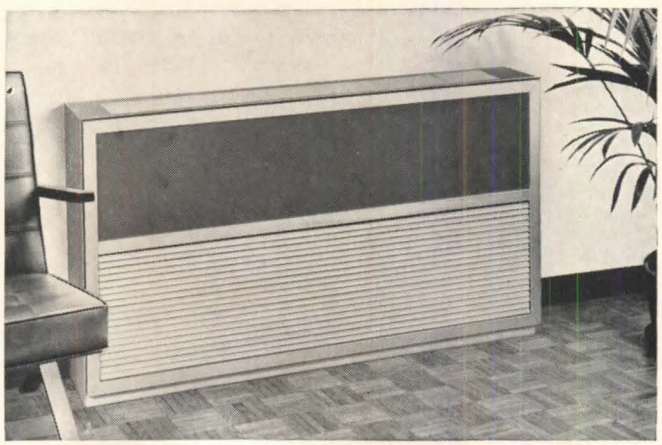

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Easy-to-install Copper DWV Drainage Tube saves space and cuts construction costs.

(Illus: Scale model of The Tower, Long Beach, Calif.)

THE TOWER, Long Beach, California: *WORLD'S TALLEST PRE-STRESSED CONCRETE APARTMENT BUILDING;* Henry Sassoon, owner; Carl B. Troedsson, architect; John Kerr Associates, mechanical engineers; Hickson Plumbing Company, mechanical contractor.

The time to start thinking copper is in the design stage . . . as THE TOWER architect and mechanical engineer did when planning this 34-floor apartment house.

Mr. Carl B. Troedsson, architect of THE TOWER, states: "By taking advantage of an amendment in the Long Beach plumbing code permitting 3″ DWV lateral drainage lines in high-rise structures, THE TOWER'S team of planners was able to maintain the designed 8′9″ fl.-fl. height despite the very limited furred space available over kitchens and baths.

This decision saved many thousands of dollars."

Installation economies made possible by copper added considerably to total savings.

Building efficiency such as this explains why more and more architects and engineers are *thinking copper . . . insisting on copper* for plumbing in the early stages of plans and specifications.

R. E. Hickson, mechanical contractor for THE TOWER, adapted pre-assembly techniques which enabled his men to rough-in drainage in one-third the time allowed for ferrous piping. Over 200 "trees" were pre-assembled on the job site during wait periods, permitting efficient utilization of a trained crew. As a result the DWV rough-in could be accomplished by two men at the rate of one floor each four days—eight apartments per floor, each with two baths.

For speed, space- and labor-saving economies, specify copper . . . Anaconda copper. For further data write: Anaconda American Brass Company, Waterbury, Connecticut 06720. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 64-0845

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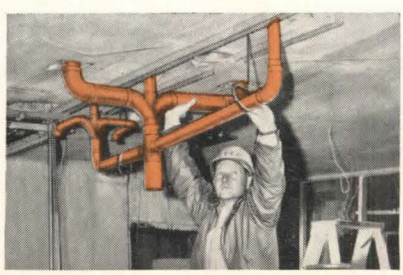
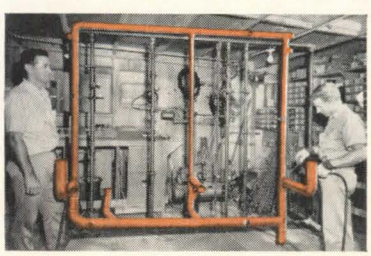


A pre-assembled unit of copper soil, waste and vent branches is easily positioned. Supported by preplaced hangers, it is ready for joining to rest of system. Note the space that is saved by this compact assembly of copper tube and solder-joint fittings.



Lightweight copper permits extensive prefabrication. Here Contractor Hickson watches as one of his crew works on a typical bathroom "tree" of DWV Copper Tube. Pre-assembled units of this size are practical only with copper and saved two-thirds of the estimated rough-in time over cast iron.

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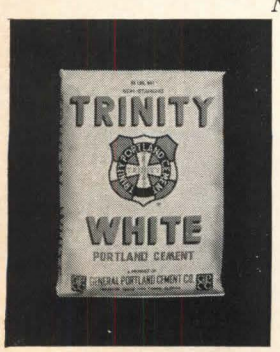

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"The articulation and formation of space give some kind of relief to all of us, a relief from the vague threat that seems to emanate from negative indeterminateness."

THE REV. WILLIAM LYNCH, S.J., AT THE INTERNATIONAL DESIGN CONFERENCE, ASPEN, COLORADO, 1965.

Two recent meetings, the AIA Convention in Washington and the International Design Conference in Aspen, had similar subjects: the designers discussed the New World, and the architects the Cities of the New World. Since rapid urbanization is one of the "new world's" phenomena in any case, the two gatherings really talked about the same thing—how man can lead a meaningful and happy life in this fast-changing, man-made world of ours.

There was a vast difference, however, in the way the two meetings approached the problem. This I found interesting, because it clearly illuminated the unfortunate tendency by some to be—despite all good intentions—smugly superficial when offering cures for our urban ills.

The AIA vision is of a world of "beauty," which apparently can be achieved easily by providing that billboards are eliminated, electric wires are put underground, and all structures are designed by duly licensed and properly affiliated members of the profession. This is an exaggerated picture, but, I believe, a fair representation of the spirit that prevailed in Washington.

It was therefore a relief to find oneself the following week in the rarified atmosphere of Aspen—rarified both literally and figuratively. The discussion there, although seemingly more abstract, was actually more to the point, because it revolved around the new world as being almost incomprehensibly complex and very much different from the world we used to know—so different that new approaches to all of our problems are urgently needed; and, most important, that without the ability to define these problems we cannot possibly hope for any meaningful solutions.

Perhaps the best description of what we face was given by sociologist Philip Hauser: "The New World, in essence, by reason of increased size and heterogeneity of population, has produced new problems which are completely unprecedented, for which our traditional social heritage has no answers whatsoever. . . . The breakdown of the traditional order is what is responsible for the criminal, the delinquent, the alcoholic, the drug addict . . . the scientist, the professor, the designer. These are all deviates. These are all people who have broken out of the traditional order. . . . If you really want to know who is subverting the order, you turn to these new types of deviates that the mass-society is producing." And, more specifically about designers: "In a traditional society you don't need designers. Everything has been designed for you before you get there. It is in this new mass society, because of the impact of man on man and the breakdown of the traditional law, that you begin to have manifest need for design."

So the need for design obviously exists, but the design of what? When faced with problems never previously encountered by mankind, problems that affect our whole social structure, before we can proceed with "design" we need a valid program. This means that we have to start thinking about the restructuring of our society, about the creation of new institutions, about completely new patterns of living—about a *new* tradition. Otherwise, all we can do is only to make pretty something that is wrong in the first place. Our present cities minus billboards and electric wires might be a little more beautiful, but they will still not be truly livable places suited to the needs of our age. ■

THE INSTITUTION HUMANIZED:

THREE PROJECTS

To "care for" another person has at least two meanings: (1) to take dutiful custody of him, providing for him and watching over him; or (2) to love him. The mentally retarded and the mentally ill have been "cared for" in institutions for centuries, but it is only recently that custodianship has been replaced by the respect and compassion of love. Even the names have changed —the "lunatic" of the "insane asylum" is now a "patient" in a "treatment center"; the one-time "feeble-minded" is now a trainable and often educable "mental retardate."

These are significant changes: on the one hand, that mental *illness* is a *disease* (not an incurable condition of being possessed by demons), and is amenable to treatment like any other disease; and, on the other hand, that mental *retardation* is a *condition* (not a disease, although disease is among its many causes), and is susceptible to slow but measurable improvement. With both, there is hope of a return to, or achievement of, a "normal" life. With much effort, patience, love, and luck, many can be returned to society or can be integrated anew into a society they were not part of before. And those who cannot are less a cause for shame than for sorrow.

What does this mean for architecture—and to architects? For one thing, it means that designing a facility for the mentally ill, for instance, cannot any longer be a job of selecting urine-resistant flooring and escape-proof windows. The facility cannot be just a sufficient square footage, suitably surfaced and equipped. It must be designed as an organic community, giving the individuals the kind of surroundings that will be most conducive to their personal development, enabling them to have as meaningful contact with others as they can manage and as will be beneficial. This is part of the education process for the mentally retarded, and part of the therapy for the mentally ill. These are places where people live and grow, not where they are locked up as outcasts of society or where they are isolated

even from those who are like themselves.

In any institution, a certain approximation to real life, then, is vital to the habilitation or rehabilitation program. Yet these are people who, in various ways and for various reasons, cannot live in the "real" world. Their environment must, of necessity, be controlled—separating out those parts that aggravate and emphasizing those that alleviate. The architectural solution must grow out of, and reinforce, the particular program of training and treatment that is being undertaken.

There are several reasons why these architectural solutions are increasingly more humanized, less institutional. Firstly, the ways of looking at the mentally ill and mentally retarded have become more sympathetic; and the programs for their care and treatment, more humane. These developments in thinking will be outlined more specifically for each of the three facilities presented in the next pages.

Secondly, while the ultimate aim of these facilities is to help the individual join the outside world as a self-sustaining member of the larger society, there will be some—the severely retarded, the severely disturbed—for whom the institution is the only home they can cope with; if they are to remain institutionalized, it is all the more necessary for this home of theirs to be as sympathetic as possible.

And finally, a noninstitutional environment will have an important effect on a general public that is still only dimly aware of what kinds of people and what kinds of activities such a building serves. Through its external image, the architecture can convey something of what goes on inside, and can help to create an understanding of those who are (or have been) institutionalized. Without words, the image can do much to persuade those in need of special care themselves to be less hesitant about seeking it.—EP

1. School and Hospital for the Retarded

Name and Location of Project: *West Tennessee Hospital and School for the Retarded, Arlington, Tennessee.* ***Architects:*** *Mann & Harrover and Eason, Anthony, McKinnie & Cox, Inc.; Roy P. Harrover, Partner in Charge of Design; Robert B. Church, III, Chief Designer.* ***Site:*** *A 600-acre rural tract on the outskirts of a small community. Access is from interstate expressway. Site is gently rolling farmland, with groves of trees and several natural ponds.* ***Program:*** *Housing and total care initially for 700, ultimately for 1500, mentally retarded patients of all ages and all levels of mental and social development, both ambulatory and bed-ridden. Full facilities for school; sports-recreation-physical therapy areas; chapel; auditorium; hospital; administration and admitting unit; central kitchen; warehouse-service complex.* ***Structural System:*** *Concrete frame with load-bearing brick walls and concrete roof system.* ***Mechanical System:*** *Mechanical service is from central heating plant with absorption cooling machinery located in or near buildings served. Main intensive-care building has a mechanical floor between main and third floors for piping, air-handling equipment, and ductwork. Pipes travel through double walls and beam system to other areas where monitors convert to ductwork.* ***Major Materials:*** *Concrete for structural frame; brick or glazed block for walls; slate roofing; flooring of terrazzo in a polyester matrix; plaster or acoustical plaster ceilings; anodized aluminum windows and bronze solar glass.* ***Cost and/or Financing:*** *Estimated cost for the first stage (700 beds) is $8,000,000, including buildings and fixed equipment but excluding sitework, roads, and fees. Cost averages $24/sq ft of enclosed space.* ***Consultants:*** *Ellers & Reaves, Structural Engineers; Henry C. Donnelly, Mechanical Engineer.* ***Photography:*** *Oscar Menzer.*

It is estimated that approximately 3 per cent of the U.S. population—between 5 and 6 million children and adults—is mentally retarded. There are about 400,000 children so retarded that they need constant care or supervision; more than 200,000 of these are in residential institutions. The causes of retardation are many (among them physical injury to the child, chromosome abnormalities, metabolic malfunctioning, German measles early in the mother's pregnancy, hydrocephalus, and encephalitis), but the 100 or so causes that have been identified account for only about 25 per cent of the known cases of retardation. There appears to be a high correlation between the incidence of retardation and adverse socio-economic conditions, as President Kennedy pointed out in his pioneering message to Congress on mental illness and mental retardation.

The field of mental retardation today is judged to be "back where mental health was about 30 years ago." People are uninformed, misinformed, or do not care. But it is important to clarify that mental retardation is not the same as mental illness. The mentally retarded have suffered brain damage that makes them unable to develop a full intellectual (and sometimes motor) capacity; the mentally ill generally have no such impairment, but their distorted perceptions of reality have a marked effect on their behavior.

And there are differences among the retarded. According to data from the National Association for Retarded Children, approximately 5 per cent of the retarded (of all ages) are totally dependent, frequently unable to learn elementary speech or take even simple care of themselves; another 6 per cent are trainable, although "usually incapable of self-maintenance"; and approximately 89 per cent are educable and employable.

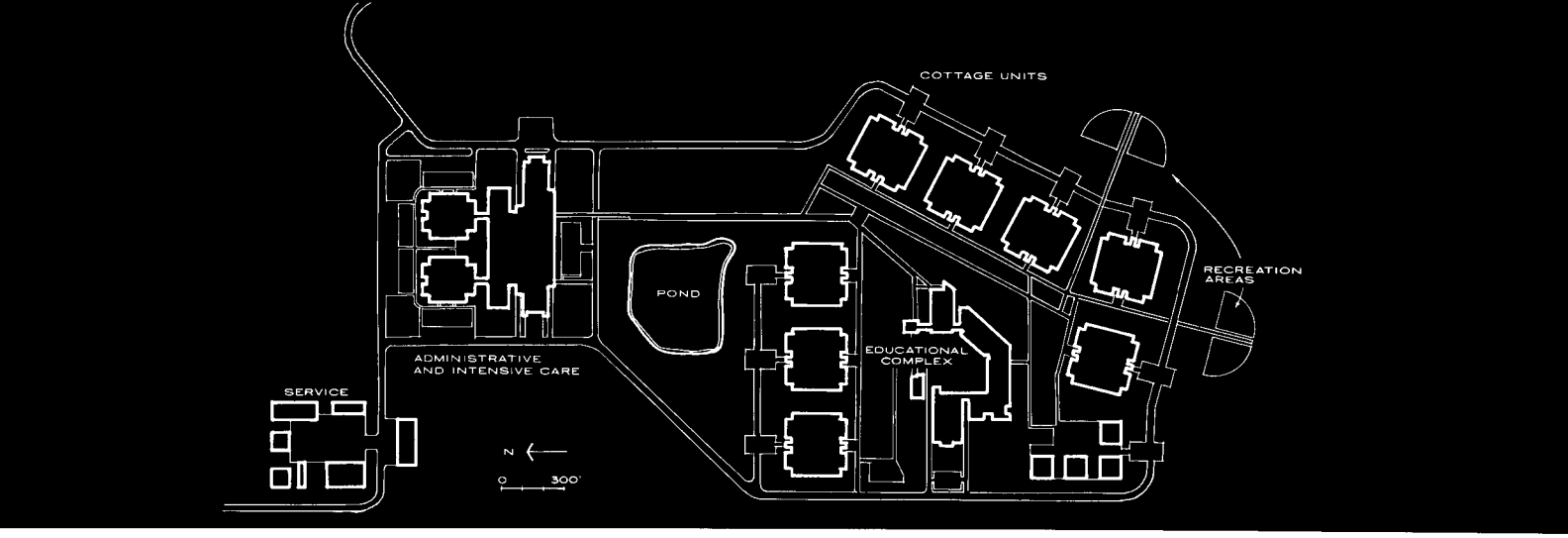
With such a varied group and their varied requirements, it is difficult to formulate a set of guidelines for the design of facilities for the retarded. In general, though, a major principle is the avoidance of the "custodial, smothering, illness-oriented" environment that would soon slow down a child of normal intelligence. As much as possible, it is suggested, these facilities should approximate what is desirable for the normal individual, whether child or adult. The environment should be informal and intimate, warm and cheerful, providing "stimuli conducive to growth," and making a favorable impression on those who live in it, visit it, or view it from a passing car. A frequent recommendation today is that facilities be planned for no more than 500 beds (sometimes the figure is 1000), and that existing facilities, if larger, be broken down into small living units for closer personal contact.

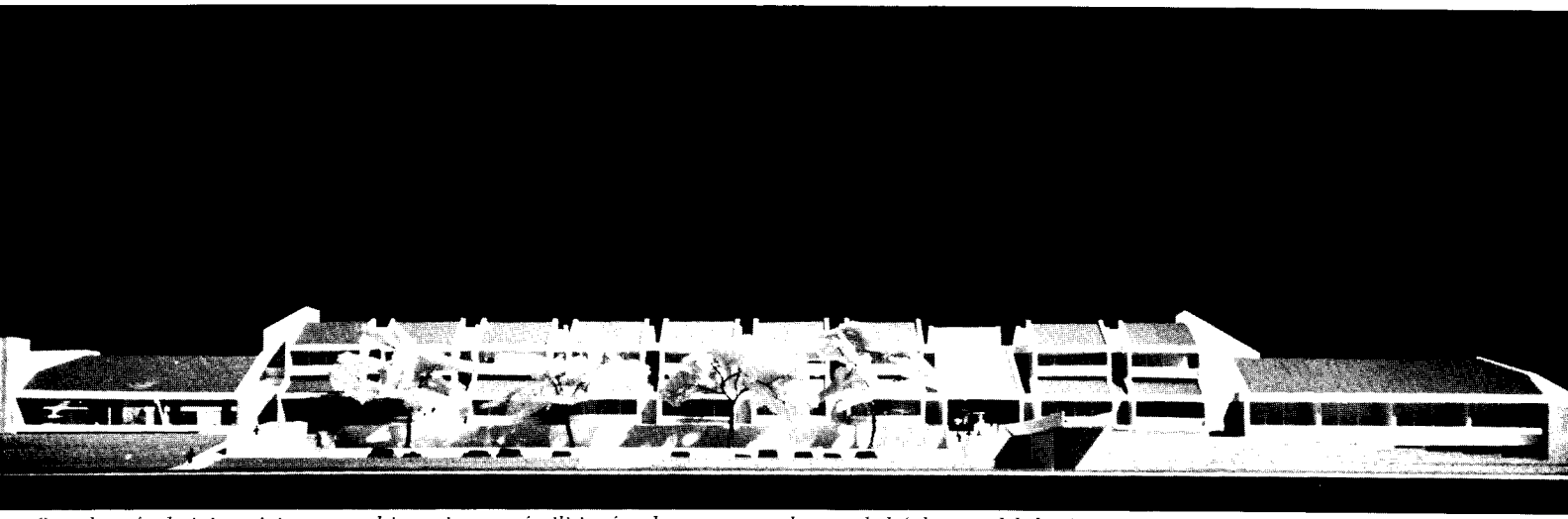
The new center in West Tennessee is the only one planned for this part of the state, which has approximately 1,000,000 people in the area and 30,000 retarded; the facility will initially take care of 700, eventually 1500. A high proportion of the patients will thus be the severely and profoundly retarded, with mental ages equivalent to a child under one year of age. These patients are frequently unable to walk or talk; some of them can recognize shapes and forms; many of them are "presumably unaware of their own existence." This group is to be housed eight to a room, with four rooms surrounding a playroom and opening onto a play court and play shelter. The nonambulatory units are attached to the hospital due to the high degree of medical care—frequently emergency care—required by the profoundly retarded. The architects are sympathetic to the needs of a dedicated and low-paid staff: "We have tried to wash this area with light and sun . . . [and] make it as bright and open and pleasant as possible." Another of their aims was to make staff supervision of patients as easy as possible, and their approach to this portion of the project was "to favor the staff members whenever a question of staff member versus patient arose."

There will also be patients with only mild and moderate retardation, "children" who are gregarious, playful, and have a need for social contact and affection. (Some of the patients can be successfully intermixed, but most cannot.) There are further breakdowns—into male and female groups (none of the people here will exceed the mental age of eight years, but most of them will attain full physical maturity), and into toilet-trained and non-toilet-trained. The architects say: "There is a temptation to take one of the groups and subgroups and design independently for that group. This is not practical. It was our responsibility to design a few building types that would be somewhat flexible."

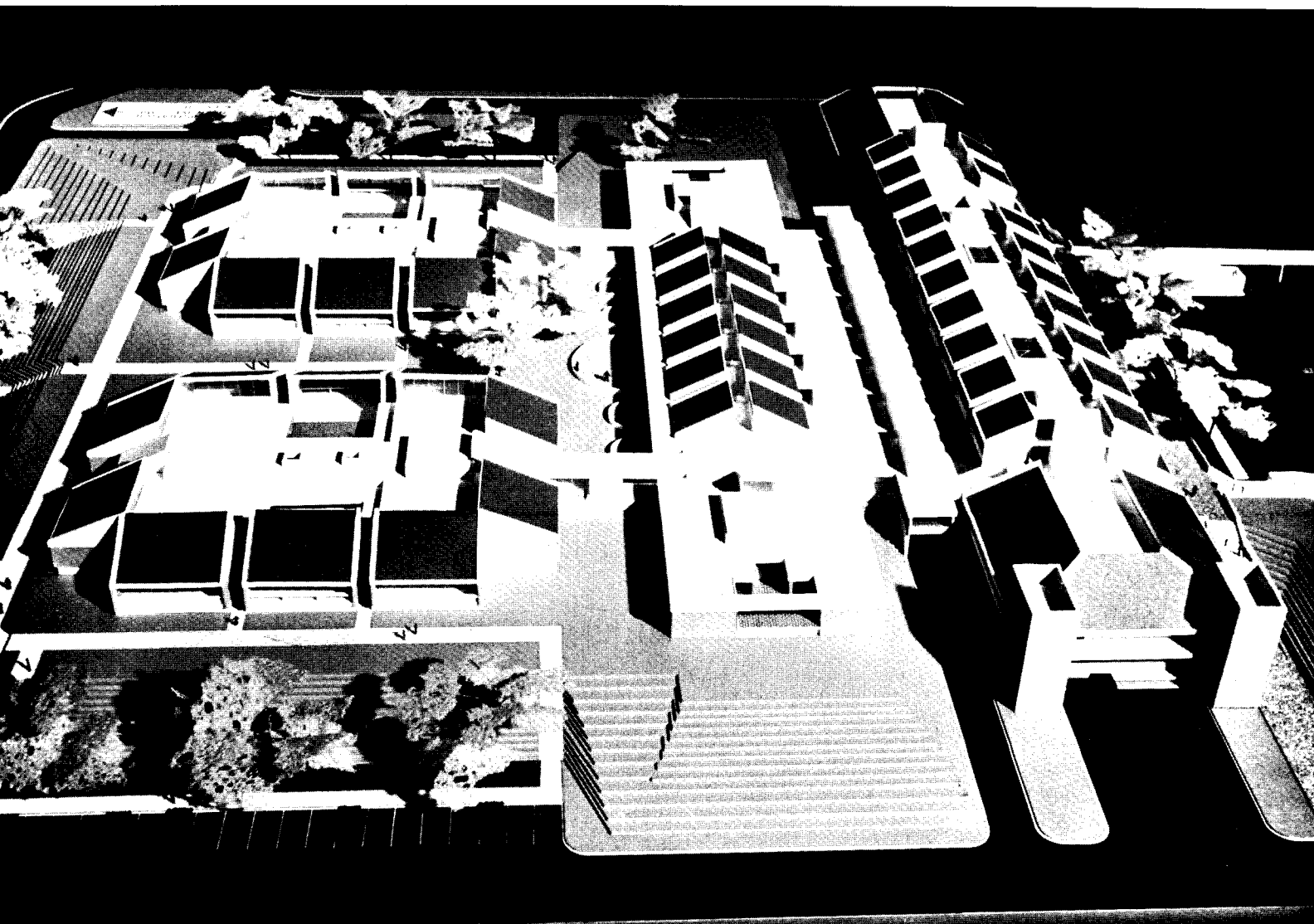
All of the ambulatory patients will be housed on a hilltop, in a neighborhood of cottages that surrounds the school and community center. (The intensive-care building is on another hilltop, with an existing pond between them.) There are 32 ambulatory patients in each cottage, four cottages in each cluster. Roy Harrover mentions that, when they were researching the project, the average size of cottages they inspected could accommodate 50 patients. The 32 patients here are in rooms of 16, divisible into rooms of 4 according to patient types. A staff of 4 can supervise each cottage at any given time, partly because there are not likely to be more than 10 of the 32 in any one room except at mealtime (the others will be outdoors, or up on the hill at the community center).

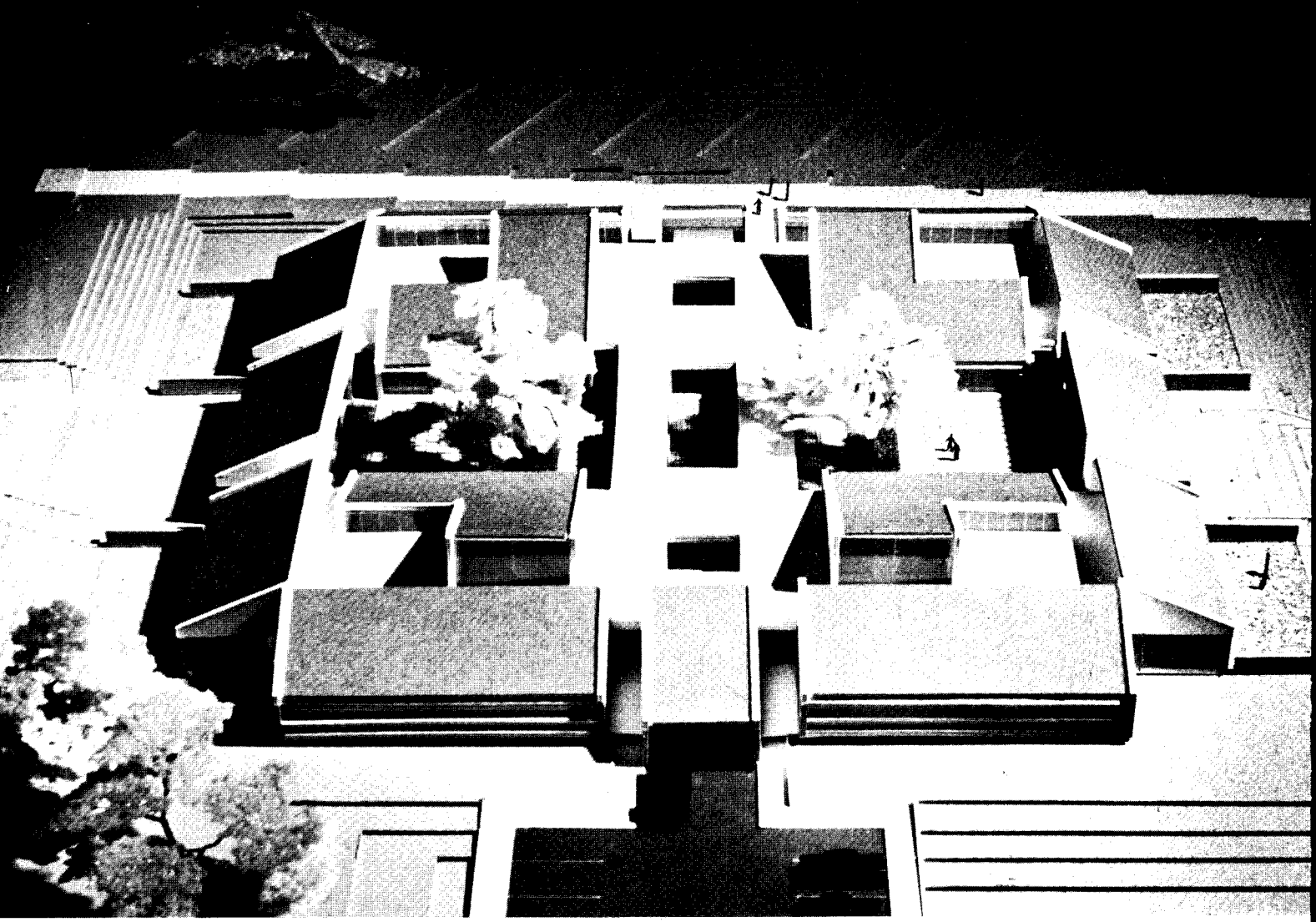
The various building groupings are connected with a roadway system for vehicles and with an independent internal system of walks for pedestrian traffic. The land forms are to be "carefully sculptured," making use of the rolling countryside and



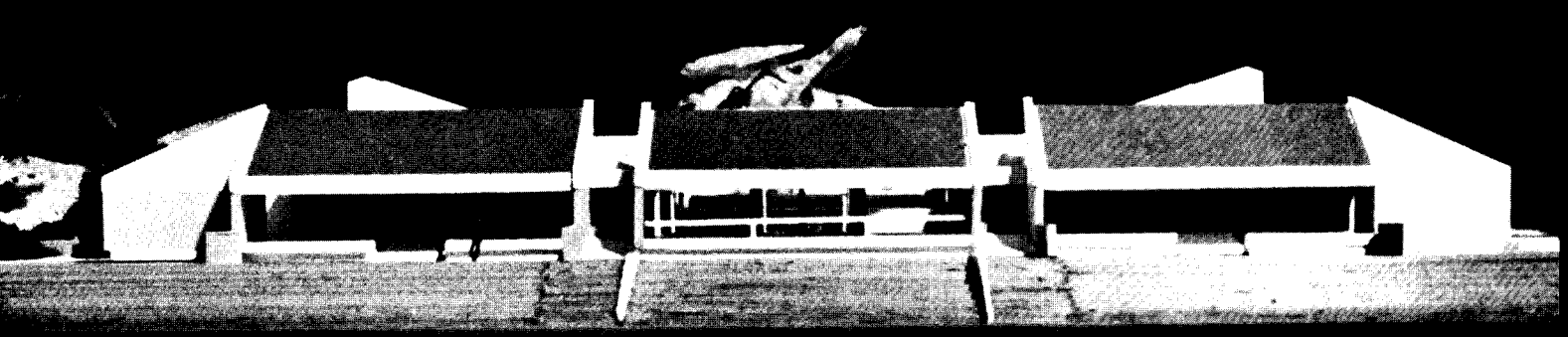


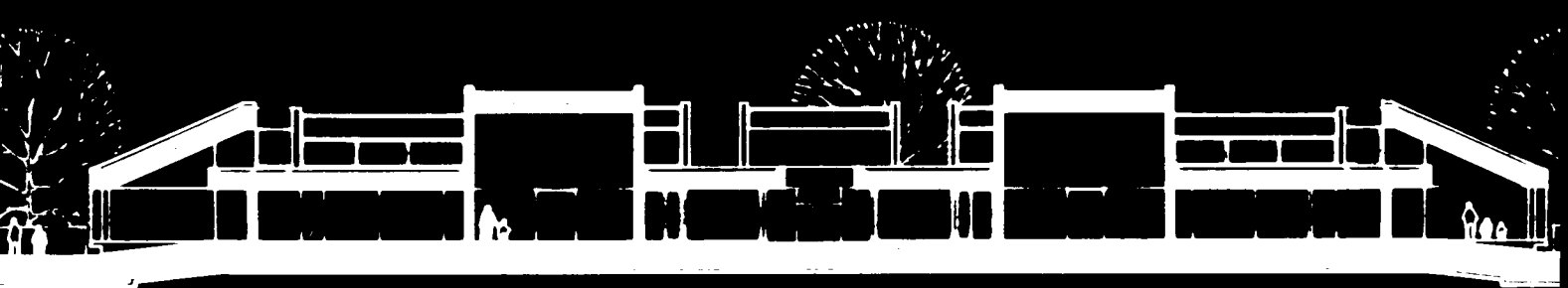
Complex of administrative areas and intensive-care facilities for the most severely retarded (above and below).





Typical cluster of four "cottage" units for those with mild or moderate retardation (above and below).





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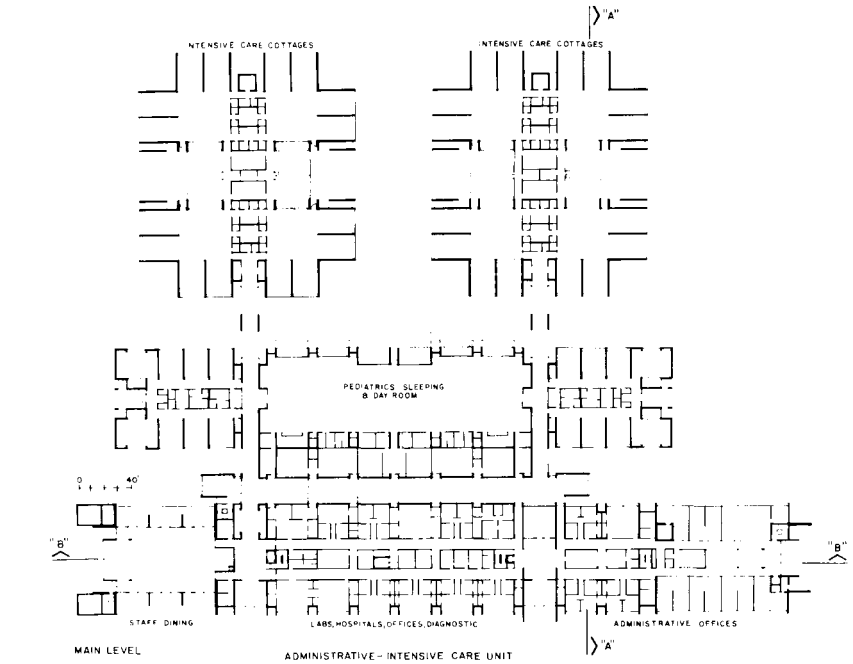
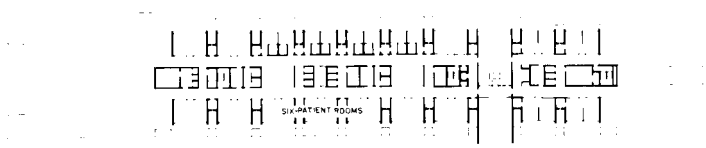


ADMINISTRATIVE–INTENSIVE CARE UNIT



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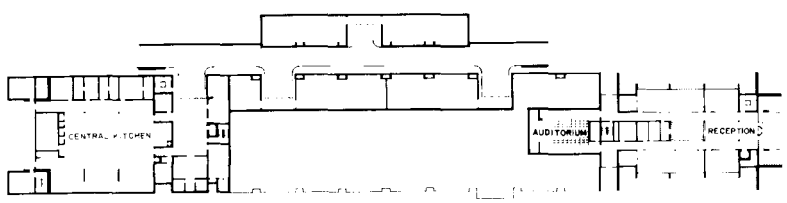
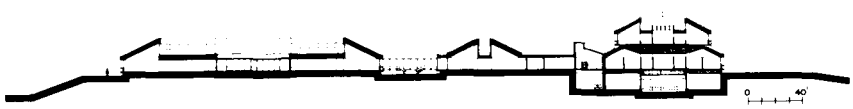


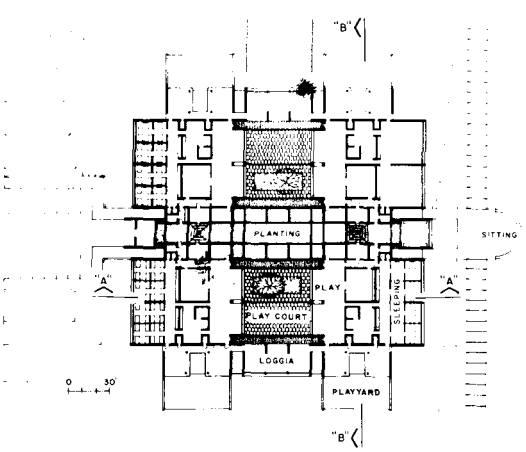
LOWER LEVEL



SECTION "A–A"

SECTION "B–B"

ADMINISTRATIVE–INTENSIVE CARE UNIT



SECTION "A–A"

TYPICAL AMBULATORY COTTAGE UNIT

contrasting it with "visual podiums" for the buildings. The design makes extensive use of earth mounds, seeded and sodded or rip-rapped with fieldstone.

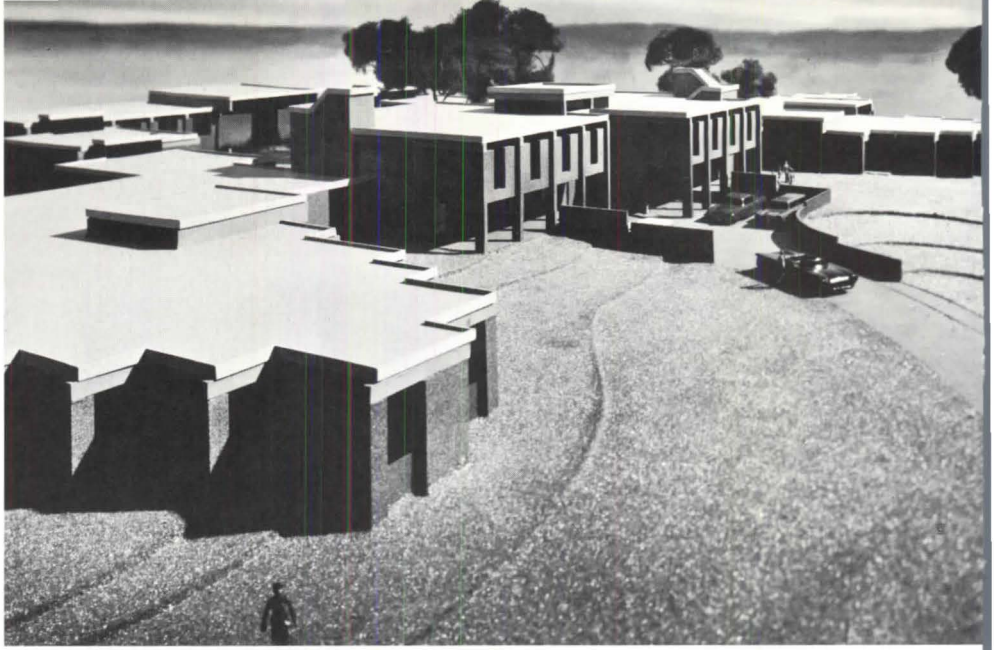
The architects summarize: "It was the intent of the design to express a very open architecture, of residential scale, utilizing natural light to full advantage to cheer and freshen interior spaces. . . . The design attempts to create a vigorous and lively architecture which would impart a happy and comfortable spirit to all its inhabitants."

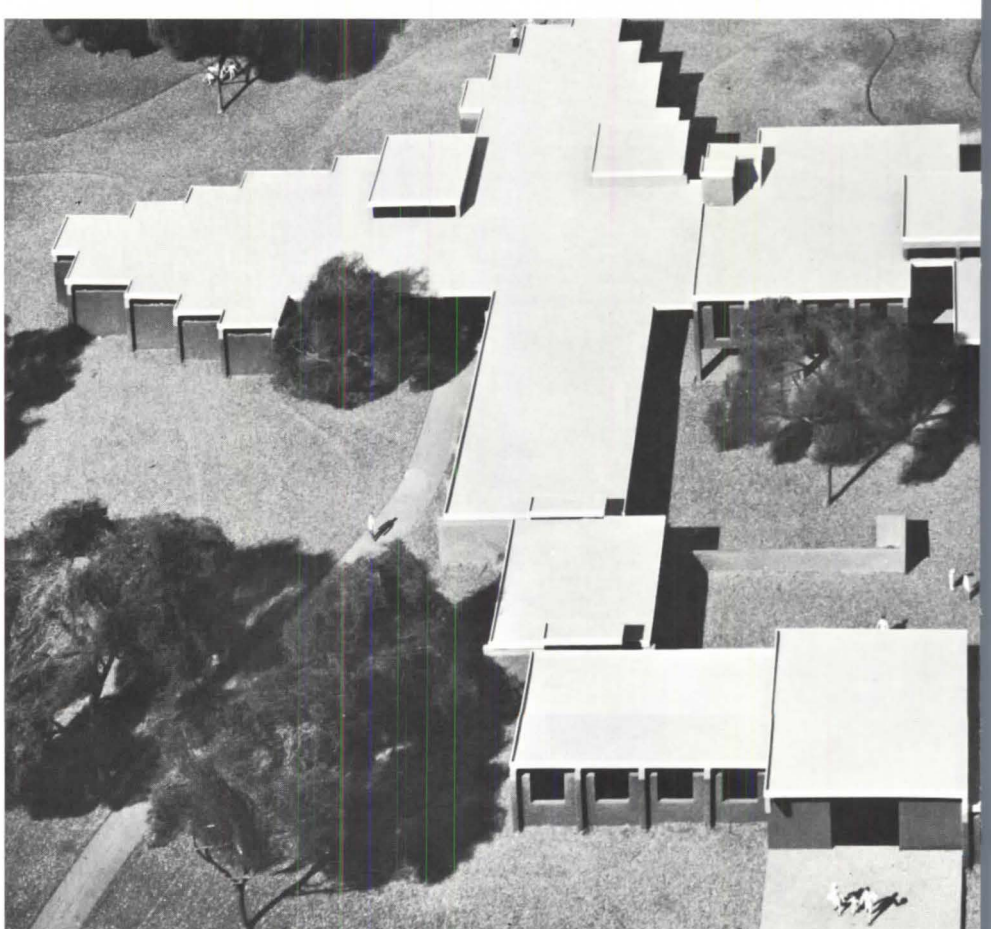
About its over-all size, Harrover says: "We are aware that a few of the people in the field feel that this should be limited to 500 or so. Many others feel that it cannot be limited to this or any figure. The question cannot be definitely answered except with a specific design in mind. We feel that our design, with separate cottage clusters and separate neighborhoods, has solved the problem of the psychology of overwhelming size. We have created a city for the retarded, with its residential parts functioning semi-independently. To say that this city must be limited is like saying that any normal city would become uninhabitable after reaching some arbitrary size. We can understand that, since most of the experts are not viewing an institution in the same way that we are, they might not agree. Also, the practical problems of staffing and of central facilities make it almost mandatory to have a facility of 1500 patients in order to support adequate core facilities and amenities."

There is enthusiastic approval from the client, Robert G. Jordan, M.D., Medical Director of the Child Development Center of the University of Tennessee's College of Medicine (operated in cooperation with the Tennessee Department of Public Health). He believes that this facility "is going to prove to be a model design for such facilities." He feels that there is "a new high in natural lighting and outdoor visibility" provided for the most severely handicapped, and there is "quite a difference in what is provided for the mildly retarded in giving them a chance for more individual attention and freedom."

Roy Harrover adds: "This is not a highly specialized facility for the very moderately retarded. Such a facility can in many ways be more pleasant because the human problems are not as serious and the hope of recovery is much greater. Perhaps only 5 per cent of the patients of this facility will ever go back into the outside world. Half of these will eventually return. This is a huge field and we are only scratching the surface. We are attempting to do this in a human and exciting way, both for patient and staff."

2. Treatment Center for Disturbed Children





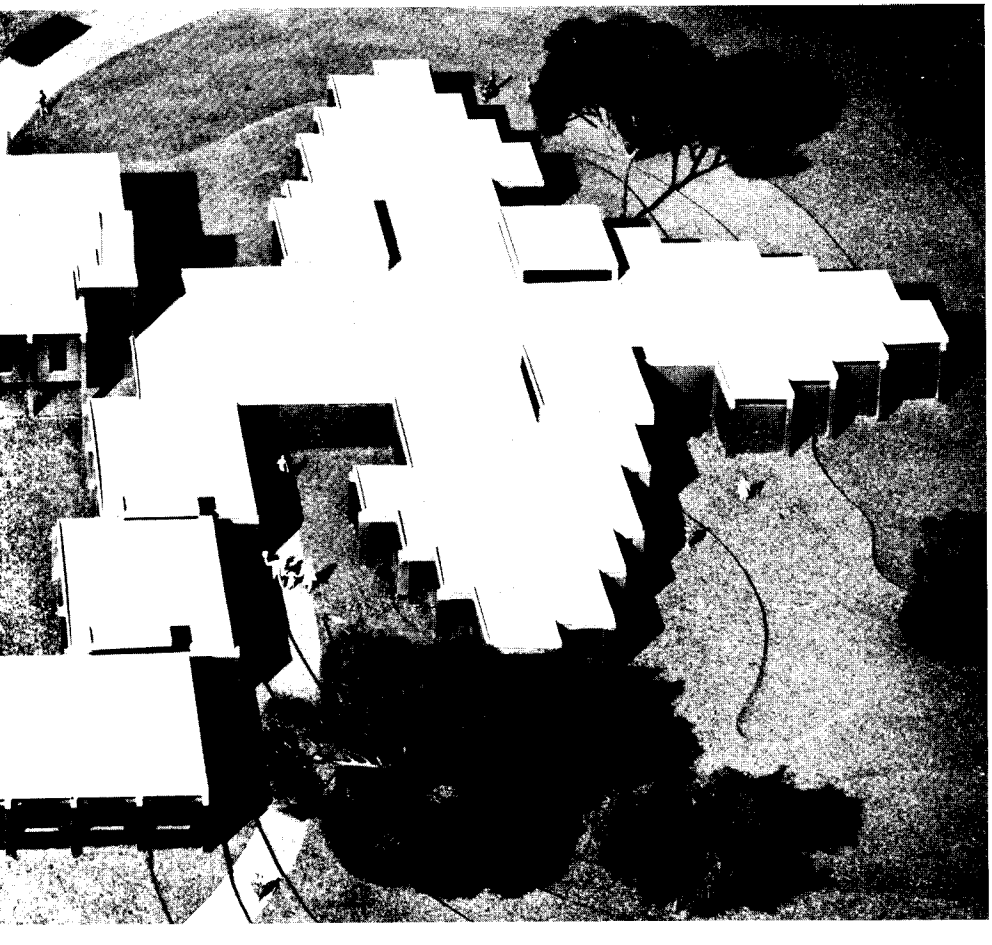
Name and Location of Project: *Linden Hill School, Hawthorne, N.Y.* ***Architects:*** *Davis, Brody & Associates.* ***Site:*** *Part of a 250-acre wooded property in Westchester County, 30 miles from New York City.* ***Program:*** *A residential treatment center for mentally disturbed children. Complete diagnostic, treatment, and living facilities for 30 children in the 12–18 age group (replacing facilities recently destroyed by fire); and extension of services to a younger group, with facilities for 20 children in the 8–12 age group. Center also has a new day-treatment program for 15–20 children. Facilities required for research, and for staff living quarters. (Educational program is in an existing building nearby.)* ***Structural System:*** *Vocabulary of materials, structure, and detail is completely developed from a modular 4-in. grid for masonry construction involving modular brick and concrete block. First floor of central services unit has reinforced-concrete frame and slab; staff rooms have concrete-block bearing walls and concrete-block prestressed roof panels. Clinic and research units have concrete-block lintel beams, from brick pier, to allow for future relocation of partitions.* ***Mechanical System:*** *Hot-water radiant heating in slabs, for safety, in children's areas; convectors in other areas. Staff dining room is air conditioned; office areas have fan-coil units and provision for future air conditioning.* ***Major Materials:*** *Concrete block for bearing walls, bond beams, and roof panels; modular brick for exterior walls; exposed block, painted, for interior walls, with brick for major areas (dining and living rooms), and laminated gypsum board, on insulation, for one wall of each child's bedroom; gypsum board on metal studs for clinic walls; exposed concrete plank, painted or asbestos-sprayed, for ceilings; asphalt tile flooring; built-up roofing; ribbed copper fascia; aluminum sliding windows.* ***Cost and/or Financing:*** *Total cost, approximately $1,135,000 (including furnishing, equipment, landscaping, fees). Basic construction, $21.50/sq ft (excluding furnishings, kitchen equipment, finished landscaping). A small percentage of the total cost will be provided by the Government through the Hill-Burton Act; this participation is, in any case, limited to a maximum of one-third of the total cost.* ***Consultants:*** *Goldreich, Page & Thropp, Structural; Wald & Zigas, Mechanical & Electrical.* ***Photography:*** *Louis Checkman.*

In the dozen years of its existence, the Linden Hill School has served approximately 150 children. Yet this small treatment center has had, and continues to have, an influence far greater than its size. When it opened, in 1953, it was the first small center for adolescent boys and girls diagnosed as psychotic. Its principles and methods, then as now, are far in advance of general practice in the treatment of seriously disturbed children.

Linden Hill is described as "an alternate treatment resource" to a state mental hospital, and, in fact, a large proportion of the children have been confined in mental hospitals. Many are diagnosed as schizophrenic. Their severe disorders take various forms; most of these children are extremely fearful, anxious, withdrawn, but few are delusional, and almost none are delinquent. Though occasionally explosive, they are generally not aggressive; indeed, as a rule they are reticent. Although on the surface there may be similarities with the mentally retarded, the children at Linden Hill are normal in intellect, even above average.

The philosophy of treatment at this pioneering school is a blend of progressive education and psychotherapy. The large staff—made up of counselors, therapists, and teachers—attempts a unified approach to each child, treating him as a human being, not as a patient, dealing with his particular problems, building on his particular strengths. There is support without overprotection, challenge without threat. The staff sets a tone of high expectation for the children in a low-pressure environment. They do not think in terms of "cure" but of "improvement" and "growth toward health." The average stay for a child is three years.

Basic to the philosophy of treatment is the idea that a rigid custodial environment is detrimental to growth. The psychotic child, particularly in the younger age group, needs a certain orderliness and routine for a sense of psychological security, but there must be flexibility too—as much spontaneity and naturalness as possible between the child and the adults responsible for his care. There must be well-worn paths and well-defined places, but an avoidance of rigidities. The goal is "order without fear and repression, freedom without individual and group disorganization." On one level, this is expressed in the freedom of movement enjoyed by the children—they are encouraged to use community facilities (recreational, educational) whenever possible. Several of the children have newspaper routes. And, at the school itself, there are no locks or bars. (The old building was equipped with screens at the windows; but even these were removed.)

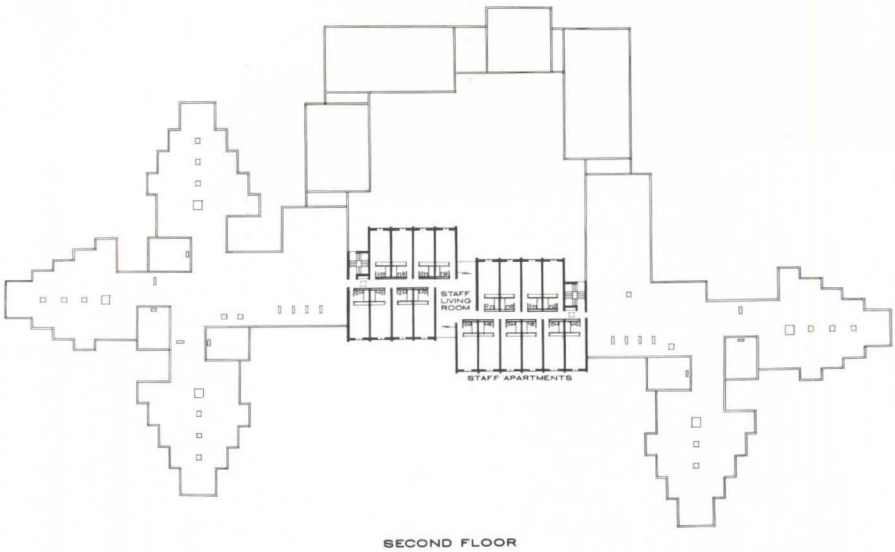


The new building for Linden Hill will replace the facilities (for adolescent children) that were destroyed by fire in 1962, and will enlarge the program to include a younger group of children. There will be 50 children in residence—30 in the 12–18 age group, 20 in the 8–12 ages. An additional 15–20 children will be under day care only. The new building has research and clinical areas, too, and living quarters for staff; the educational facilities are elsewhere in an existing building on the large rolling site.

At a place such as Linden Hill, where the relationships between people are a crucial part of the program in every respect—teaching, therapeutic, living—it is difficult to measure the importance of architecture. Much of the Linden Hill program could, and in fact now does, operate under less than ideal surroundings. Architectural merit must depend, in large part, on how well the facilities mesh with the goals and methods of the over-all program of treatment. Much of the new building will remain visually in the background, a quiet statement of philosophy and organization, rather than an obtrusive statement of form for its own sake.

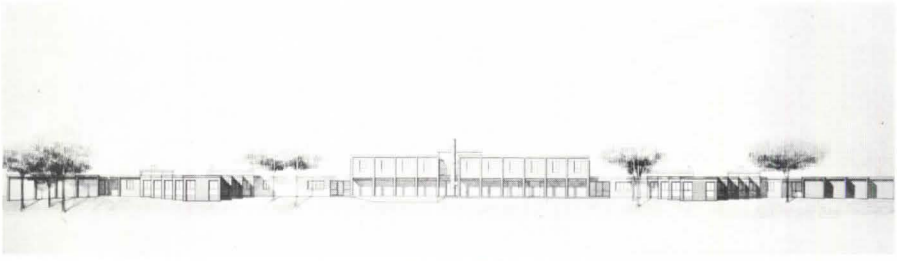
The new building will be of an intimate residential scale, informal but with a sense of order and the possibility of easy supervision. (To supervise the building at night, only two staff members are needed.) The 50 children are divided into discrete groups of 10, two groups making up the junior section, three the senior, possibly to be reorganized into a boys' wing and a girls'. Each of the five clusters has mostly single rooms, although there is some possibility of double occupancy, depending on therapeutic desirability. (Each bedroom looks out only onto the site, not back onto other parts of the building, further reducing the scale of the whole building in the child's awareness, and providing a strong acoustical barrier between rooms.) Living and dining rooms are provided for each group, giving further cohesiveness and group identity. It would have been far easier to have a central eating place, but Linden Hill is not a place for easy methods. Recognizing that separation from home and family, although helpful, is always painful, the school wanted the atmosphere to be as noninstitutional as possible.

The size of the site made it possible to spread the building out along the ground, and to group the various living quarters and other spaces around a large courtyard, which is a man-made environment contrasting with the essentially natural quality of the rest of the site. The archi-

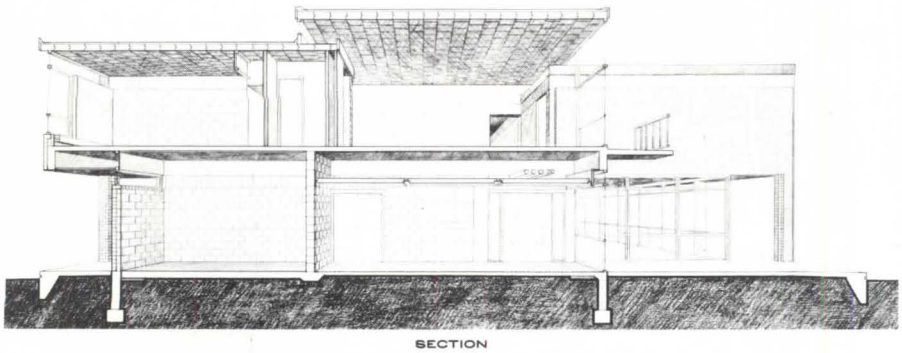


SECOND FLOOR

FIRST FLOOR



EAST ELEVATION



SECTION

tects mention that varied levels might have made a more interesting massing, but since the children must wheel food along the corridors, all stairs and ramps have been avoided. The only two-story section is the central portion, where the upper level has living quarters for counselors—a series of minimal rooms (although each has a private bath) and a common dining area. This location of the staff area gives needed privacy, yet makes them immediately available in an emergency.

Linden Hill admits children on a nonsectarian basis, but is a division of the Jewish Board of Guardians, an agency that has long pioneered for more effective treatment for disturbed children. Their Hawthorne Cedar Knolls School, established in 1904, is world-renowned for its enlightened treatment of delinquent and disturbed children; Linden Hill, on a corner of this site, grew out of the older school, in an attempt to provide a smaller school for the special problems of the most seriously disturbed adolescents.

Herschel Alt, Executive Vice-President of the Jewish Board of Guardians and a leader in the field of child welfare, sees the relatively costly, small, specialized center as making a contribution over and above the treatment actually provided. The new Linden Hill will have considerable space for research, partitioned in such a way as to be moderately flexible. Research in this field is moving from the primarily psychological (testing) into the physiological (laboratory), and future directions cannot be precisely foreseen now. Some of the research conducted here will be in the nature of follow-up studies; a recent study of all the children who have been treated at Linden Hill, and who had left the school more than a year before, found 61 per cent of the boys to be "definitely improved," and others "improved to a marked degree." Among the girls, the figure was 73 per cent.

But it is not only with their own children that Linden Hill can measure its influence. The State of New York, in some of its newest facilities, is building units for as few as 100 children. And Davis, Brody & Associates can take rueful pride in the fact that at least one new treatment center (in the Midwest) will have an almost identical architectural solution to their design in Hawthorne. The number of children who have been, and can be, treated at Linden Hill must remain small, and among these, most can be considered "fragile" personalities even after the most heartening improvement. But this is a general area and a special place where the longest journey is measured in small steps.

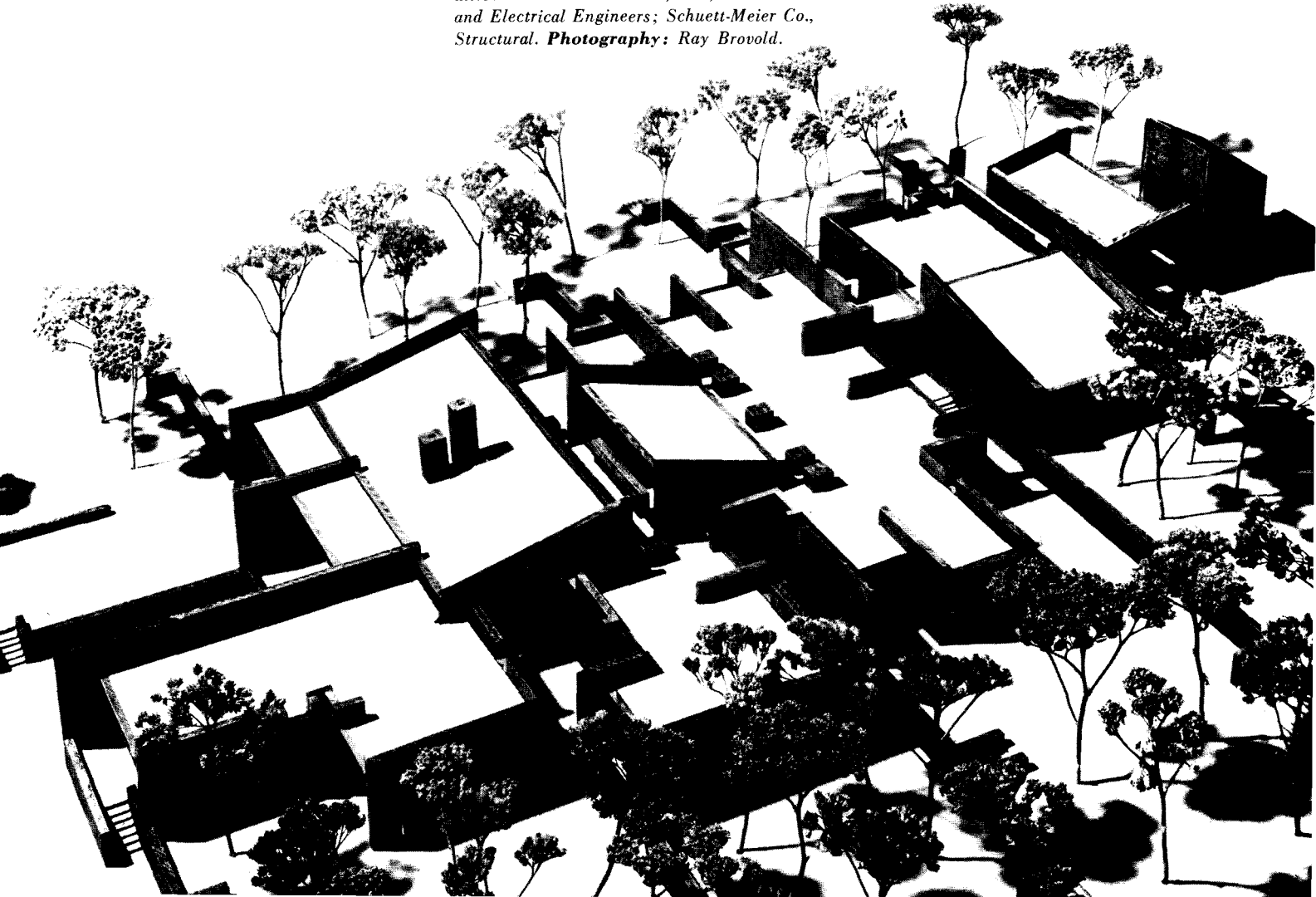
3. Rehabilitation Community for Alcoholics

Name and Location of Project: *Rehabilitation Center for the Hazelden Foundation, Center City, Minnesota.* ***Architects:*** *Voigt & Fourré Inc.; Daniel W. Fourré, Partner in Charge; R. Michael Schneider, Design Associate.* ***Site:*** *Sloping, drops 50 ft to a scenic lake; more than 100 acres in size, and approximately 40 miles northeast of St. Paul–Minneapolis.* ***Program:*** *A treatment center for alcoholics, consolidating and expanding several facilities operated by the Hazelden Foundation. Residential quarters for 125 (100 beds new, 25 in an existing building), with common facilities for dining and group activities. Also library, chapel, and some shopping facilities.* ***Structural System:*** *Masonry bearing-wall construction, with concrete slab on grade and precast-concrete roof deck.* ***Mechanical System:*** *Oil-fired, hot-water heating, with air-handling units in each building for ventilation and electronic air filtration. Two buildings are presently air conditioned; others will be in the future.* ***Major Materials:*** *Red face brick for exterior walls; brick and lightweight concrete block for interior walls; limited use of vertical oak boards for partitions; floors largely carpeted, with quarry tile and ceramic tile for wet areas; ceilings have spray coat on exposed precast deck, with limited use of acoustic plaster; built-up roofing; precast coping and precast scuppers; sliding glass doors.* ***Cost and/or Financing:*** *Construction cost: $1,400,000 (based on mechanical, sheet-metal, and electrical bids and general construction estimate). Unit cost: $21/sq ft (including air conditioning, kitchen equipment).* ***Consultants:*** *Gausman & Moore, Inc., Mechanical and Electrical Engineers; Schuett-Meier Co., Structural.* ***Photography:*** *Ray Brovold.*

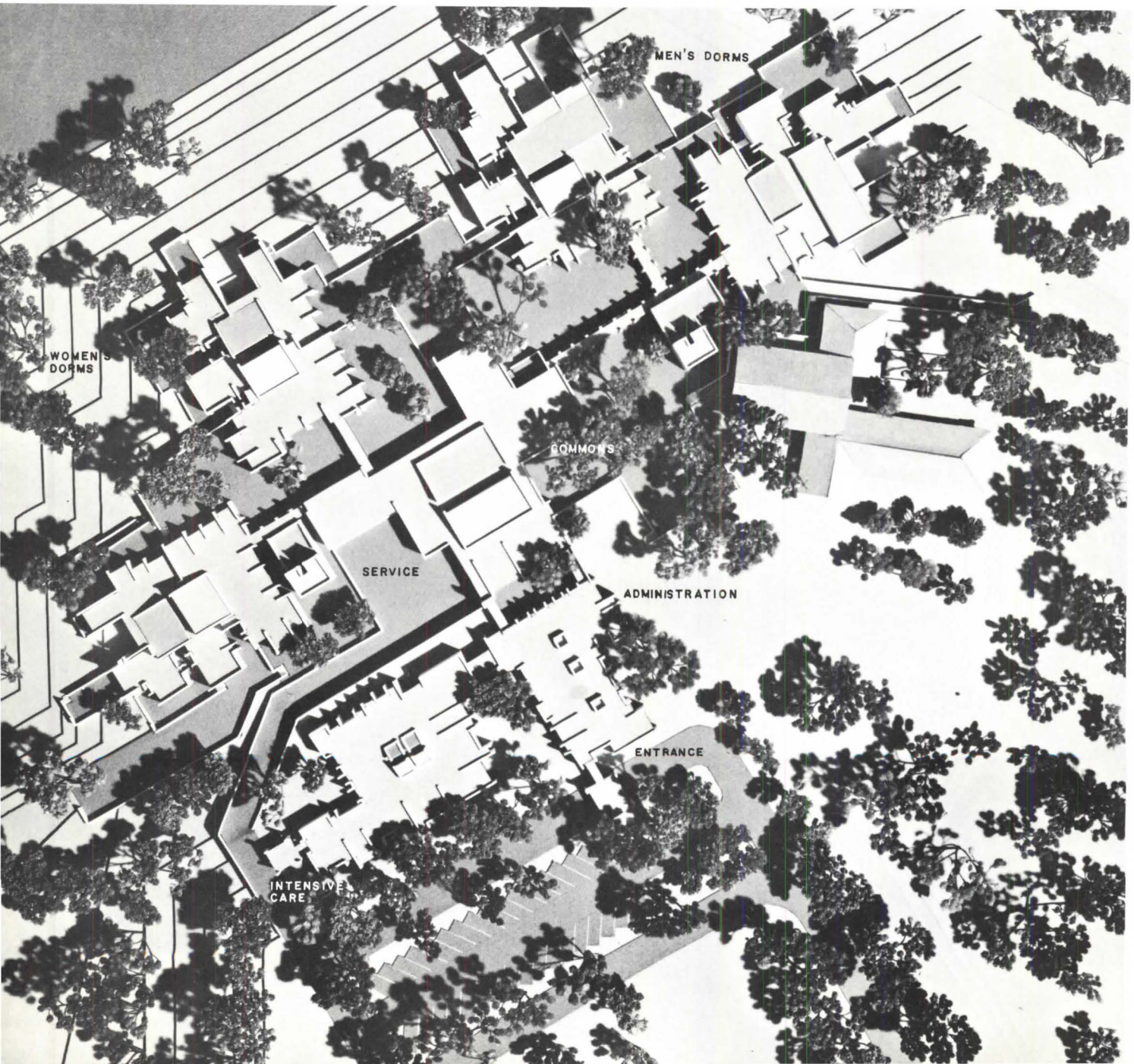
In a book entitled *The Planning of Lunatic Asylums*, published in 1896, "intemperance" was listed as one of the "probable causes of insanity" for some 54 of the 519 patients admitted to one institution during a typical year. (A few other causes were disappointment in love, religious excitement, hereditary taint, masturbation, and loss of work; the major cause, accounting for more than half, was "unascertained.")

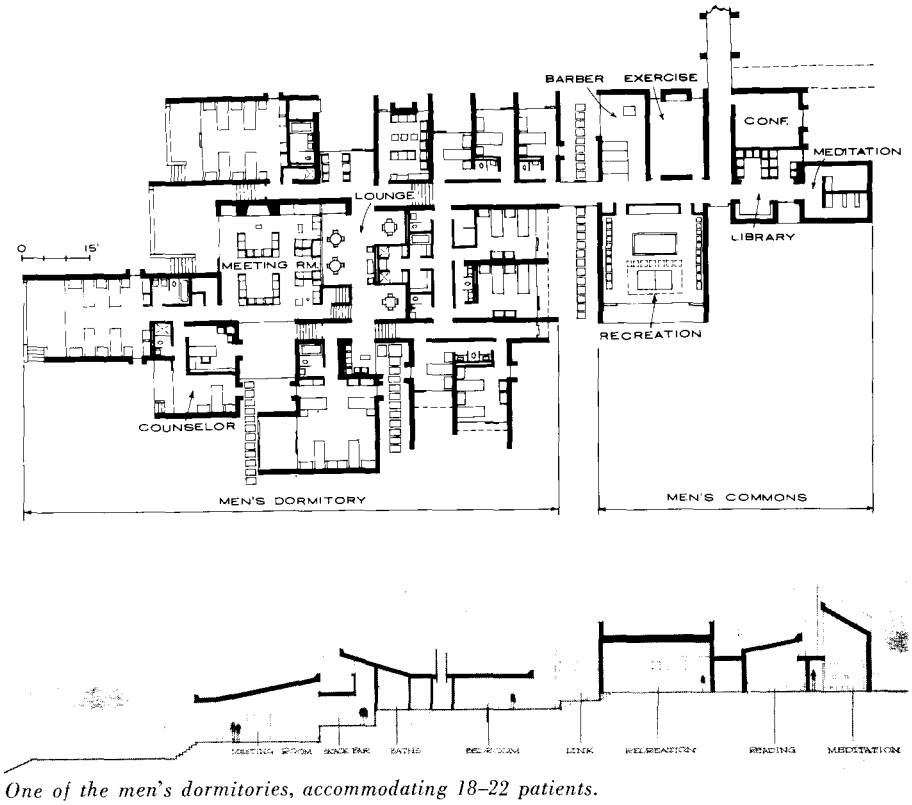
Today, we know that alcoholism is only a *symptom*, and not the *cause*, of much deeper psychological problems. It is a complex personality disorder in which alcohol, sought as a means of adjustment to various difficulties, ultimately makes one less and less able to cope with the original problems, as well as with the new problems created by the drinking itself. The alcoholic is one whose decision to drink is no longer his own; he cannot control it, or stop it, without special assistance.

The problem, although apparently not growing, is already a sizeable one—the number of alcoholics in the U.S. remains relatively constant at about 4,500,000,

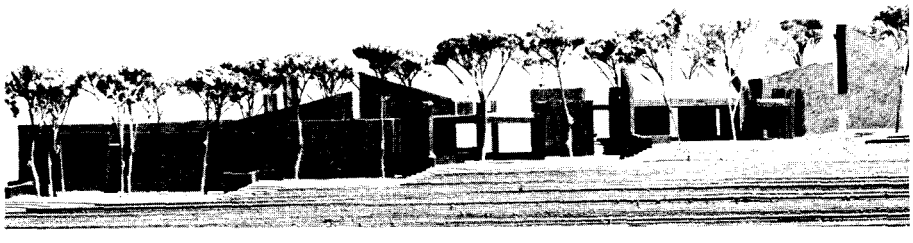


Two views of "hill village" from the lake (above and immediately below).





One of the men's dormitories, accommodating 18–22 patients.



four-fifths of whom are men. Our rate of 4760 alcoholics per 100,000 adults is second only to that of France (and just a little higher than that in Chile, Switzerland, and Sweden). The incidence of alcoholism is five times that of cancer. It is estimated that 25 per cent of the mentally disturbed persons in the U. S. are alcoholics.

The alcoholic has traditionally been thought of as a nuisance, a disturber of the peace, not warranting hospital or medical treatment except in emergencies. He has been considered a weak-willed person, rather than one who is seriously ill, and any "treatment" based on this judgment has been either "inadequate or inconsequential . . . nothing more than an expedient erected by a bewildered society against the annoying or threatening overt behavior of the alcoholic. Unfortunately, most public management of alcoholism is still of this variety, such as incarceration and purely custodial care of the alcoholic in municipal drunk tanks, county farms, workhouses, state prisons, mental hospitals, and so on."

These are the views and words of Daniel J. Anderson, Executive Vice-President of the Hazelden Foundation, a nonprofit private corporation in Minnesota organized for "the treatment of problem drinking through rehabilitation, education, and research." Since the beginning of the Hazelden program in 1949, more than 6000 people have been treated. According to Anderson, the program is "among those considered outstanding in the U.S."

At the core of the Hazelden residential rehabilitation program are daily individual and group sessions of therapy and discussion. Attempts are made with each patient to understand his alcoholism and to set up a more realistic, less self-destructive, handling of his multiple problems. The alcoholic is recognized as someone who is ill, and is encouraged to face up to his illness. It is recognized that the complex nature of alcoholism requires treatment on different levels and by different people—physicians, clergymen, psychologists, and counselors who are recovered alcoholics. The staff believes in establishing personal contact with the patient's family, and in maintaining contact with the patient after his departure. But it is the patient's association with others like himself, while he is at the treatment center and after he leaves, that is crucial to his rehabilitation.

The foundation has been operating two other facilities (one for men, one for women) in addition to the small one on this site at Center City. Within the past three years, the number of patients has doubled, almost all of them having been referred by former patients. The need for expansion was therefore undeniable. Yet there was concern about becoming "too large, too impersonal, too institutionalized"—the success of the program is a function of its small numbers, "peer-group therapy," and casual atmosphere. Therefore, even though a total capacity of 125 beds was planned, it was decided to keep the patients in groups of no more than 18–20.

There were many other conflicting conditions in the building program as it was outlined by the foundation to the architects. The alcoholic is sometimes very ill physically for a short time, "but we don't want a hospital." Many of them are emotionally disturbed, "but we don't want a mental hospital." Many need spiritual help, "but we don't want a church." In some ways, they said, "we want a hotel or motel atmosphere, but that isn't exactly it, either; in some ways we want a residential club." Space was needed for library facilities, for the use of visual aids, important in the re-education program; for counseling (the patient goes to staff offices or staff goes to the patient, as individual situations indicate); for cultivating new recreational interests (pool, shuffleboard, cards); and, in general, for a therapeutic milieu in which individuals could be deliberately exposed to small groups of other patients. Also needed was space for the continued training of the staff, and for public education to invited groups.

The architectural solution has kept an intimate scale for the individual, while making him part of the larger community of Hazelden. There is a variety of placement, vista, and elevation for the bedrooms, as they group along the hillside; and the whole complex is conceived as a sort of "hill village." After an initial stay in the 20-bed admissions unit, for medical therapy, the patient (sometimes referred to as the "resident guest") moves into one of the four residence buildings for an average stay of 3–5 weeks. Each residence building, of 18–22 beds, comprises a basic therapeutic unit, with its own resident counselor, meeting and TV rooms, card area, and coffee bar. All the patients come together only for meals and periodic general meetings, in common facilities that occupy the central location and overlook a central court and the lake beyond. Each residential "therapy unit" thus has "an integral form," write the architects, "and becomes a neighborhood within the total community." The result is a cohesive architectural design that has form in itself and also gives form to the program it shelters.

EDUCATIONAL REFORM AND ITS ARCHITECTURAL IMPLICATIONS

"We are presently in a decade of unprecedented reform in public school organization patterns, this reform in turn both causing and deriving from efforts at fundamental changes in the school program and in procedures of instruction. The essence of these reforms is a rededication to the concept of individualized instruction. A major effect of these reforms is to inspire teachers to work more closely together, to complement each other's academic interests and commitments in many ways, and to confront children in instructional groups of many patterns. All of these changes have direct and significant implications for architecture, the password being flexibility."

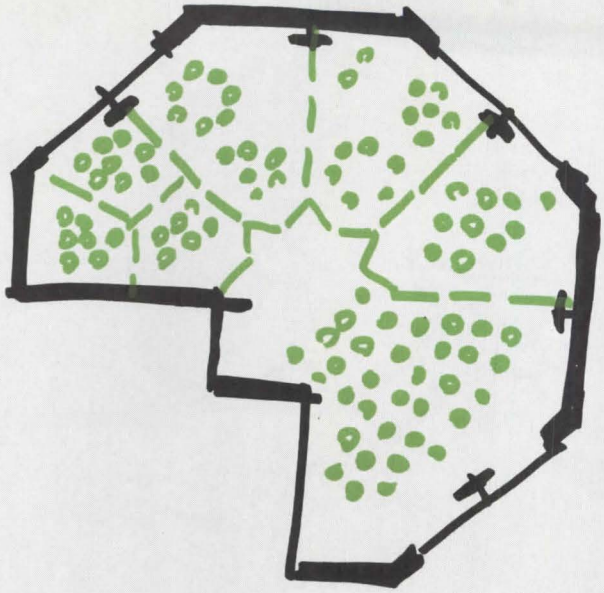
ROBERT ANDERSON
Associate Professor of Education
Harvard University Graduate School

Flexibility is indeed the password in school design today, and, as concepts of team-teaching, large-group instruction, small-group seminars, independent study, ungraded schools, educational television and other visual aids* are further explored and applied, the schoolhouse will be perceptibly transformed. But the 2.5 million linear feet of operable walls that will have been installed in U.S. primary and secondary schools by the end of 1965 will not have solved the problem once and for all. Educational innovations will demand architectural solutions far beyond the mere installation of accordion doors and multi-purpose rooms. Most of all it will take close and continuous collaboration between educator and architect to achieve the varied arrangements of space the new educational methods require and to keep the plan under constant review.

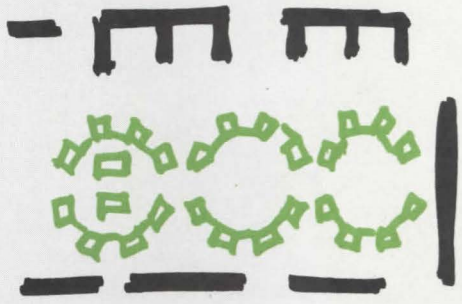
Surveillance of the flexible plan, it has been suggested, may place the architect in an entirely new role in relation to the school. "If the schoolhouse is going to be rearranged periodically inside and out," said one participant of a recent conference in preparation for the design of the Bedford Middle School, "who does the rearranging? Certainly not the superintendent, or the teachers. No, it would have to be an architect—and why not the same one who designed the building originally? The architect's job would be to keep the schoolhouse running in good condition, just as it is the doctor's job to keep a patient's body in a healthy state. . . . The schoolhouse should be submitted to regular check-ups to make sure its space is functioning properly."

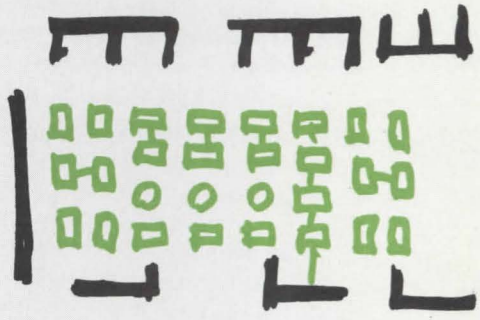
The following three schools—covering the range from primary through secondary education—have been selected to give an indication of the educational changes underway and to demonstrate what architects are doing to keep the school plant pliable during the course of this reform.

*For further information on this general topic, P/A recommends the following publications by Educational Facilities Laboratories, Inc., 477 Madison Avenue, New York 22, N.Y.: "Design for ETV-Planning for Schools with Television"; "Schools for Team Teaching—10 examples"; "Middle Schools"; and "Schools Without Walls."

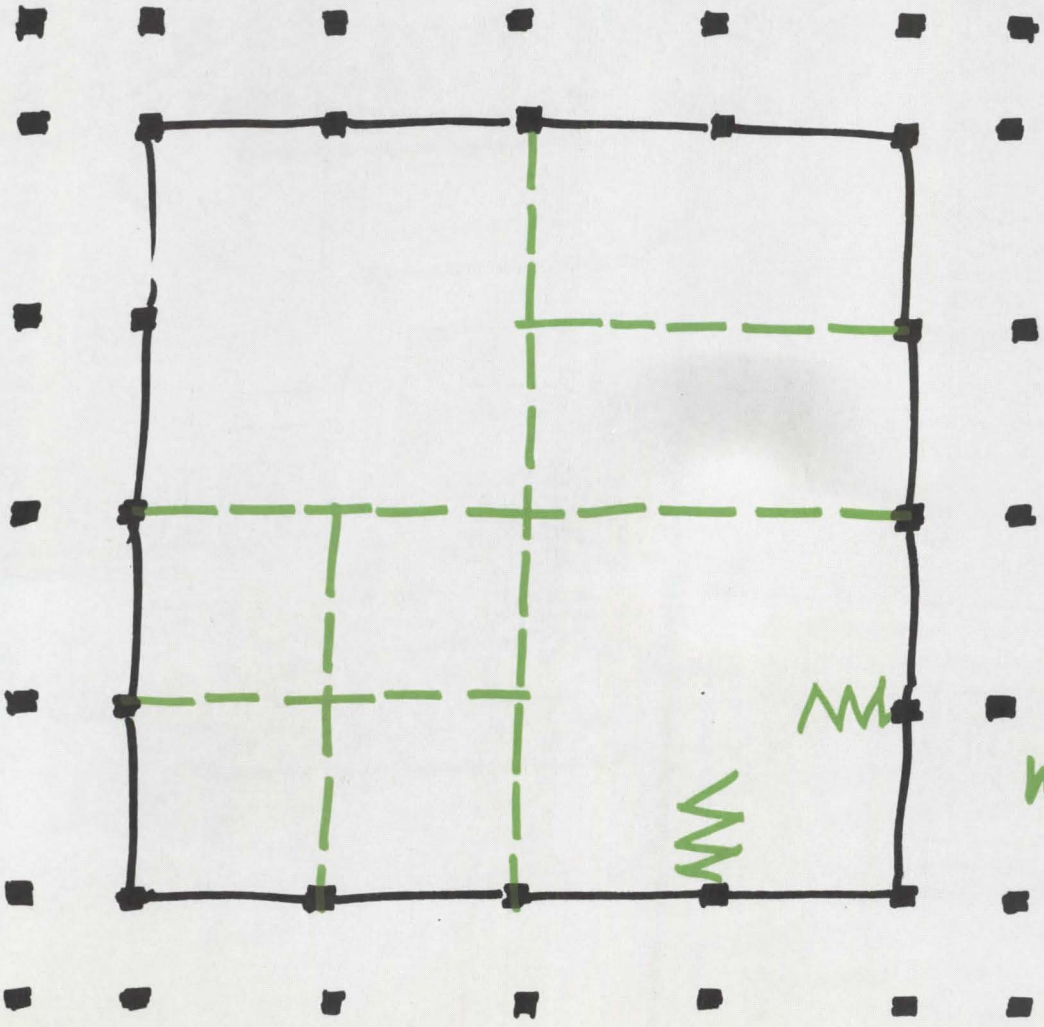


elementary school





middle school

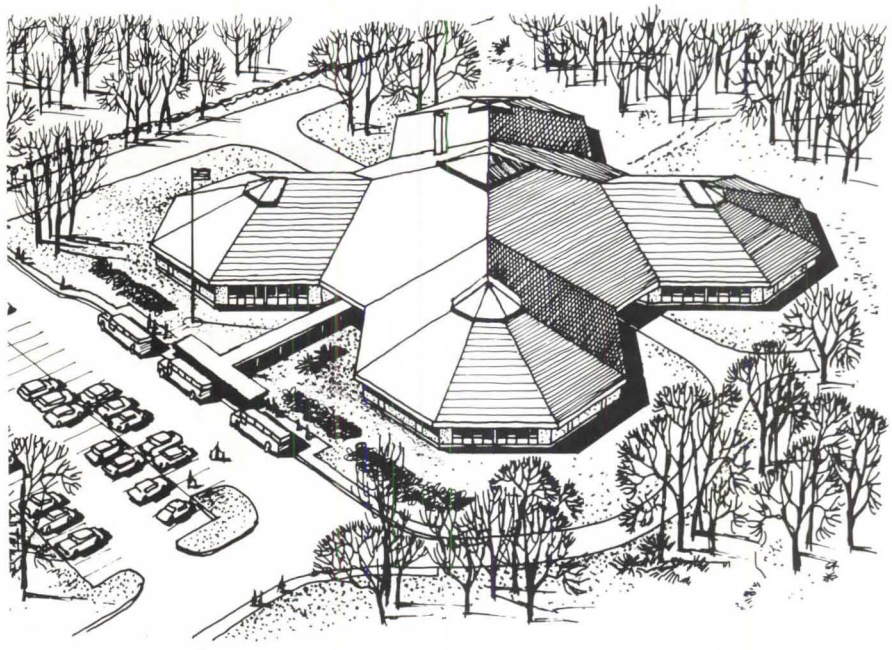


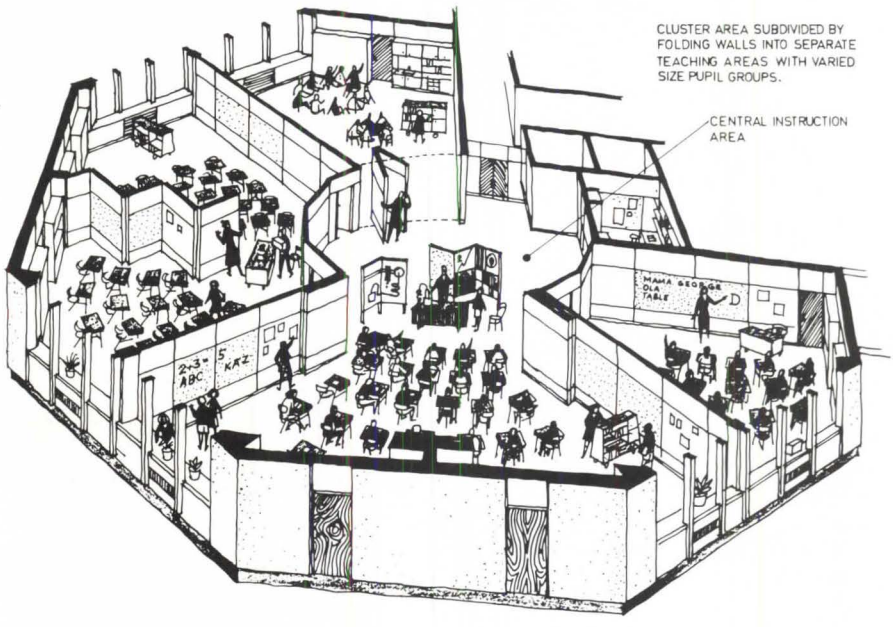
high school

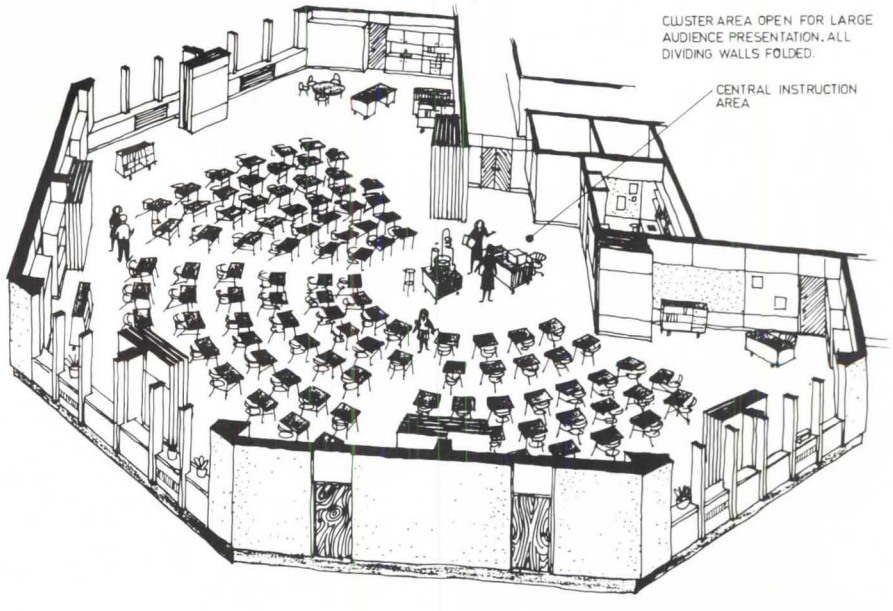
Elementary School

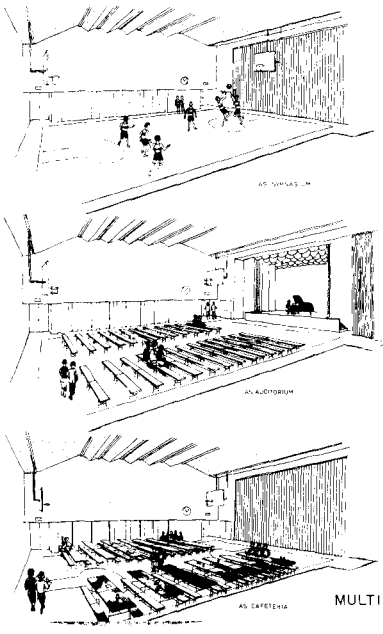
ELEMENTARY SCHOOL, *Georgetown, Massachusetts.* ***Architects:*** *Henneberg & Henneberg.* ***Program:*** *Facilities for 720–840 pupils, grades 1–6; school to be expandable, convertible, versatile; some team-teaching anticipated; flexible walls for converting regular classrooms into larger and smaller teaching/learning stations; audio-visual equipment for large-group instruction.* ***Site:*** *flat countryside.* ***Structural System:*** *Steel columns and trusses, wood decking.* ***Mechanical System:*** *Unit ventilators.* ***Cost:*** *$17.40 per sq ft anticipated for construction, not including site work.* ***Consultants:*** *William J. Le Messurier, Structural Engineer; Francis Associates, Mechanical Engineers.*

Whether it is team-teaching or conventional instruction, the arrangement of classrooms around a central core will suit both systems equally well. For traditional teaching, each classroom will accommodate 30–35 children. When walls are folded out of the way, team teaching can be instituted, making it possible, for instance, for one teacher to supervise 30, 60, or 90 students, while his colleagues are free to study, correct papers, prepare tests, or work with individuals or small groups of slower pupils. These latter activities can be conducted in classrooms further subdivided by movable screens (as shown in plan of classrooms #6 and #12) or in the central instruction area. This central space will also be useful in setting up experiments, or motion-picture screens, without interrupting classes in progress. When the walls are removed, experiments, motion pictures, and television broadcasts can be shown by one teacher to 120, or even 180, pupils. Teachers' planning rooms, directly off the central instruction area, provide the opportunity for exchange of ideas among instructors and for coordinating the daily curriculum. The multipurpose room in the very center of the building is designed to serve three different functions: as a gymnasium, with 40′ x 60′ regulation basketball court; as a cafeteria for 250 pupils; as an auditorium for 400 spectators. The stage itself will find dual use as a music instruction area. Finally, a library and resource center for students and teachers—a facility intended to promote more active use of new techniques and teaching aids—is still another thoughtful addition to an elementary school, which will be adaptable to educational reforms for many years to come.

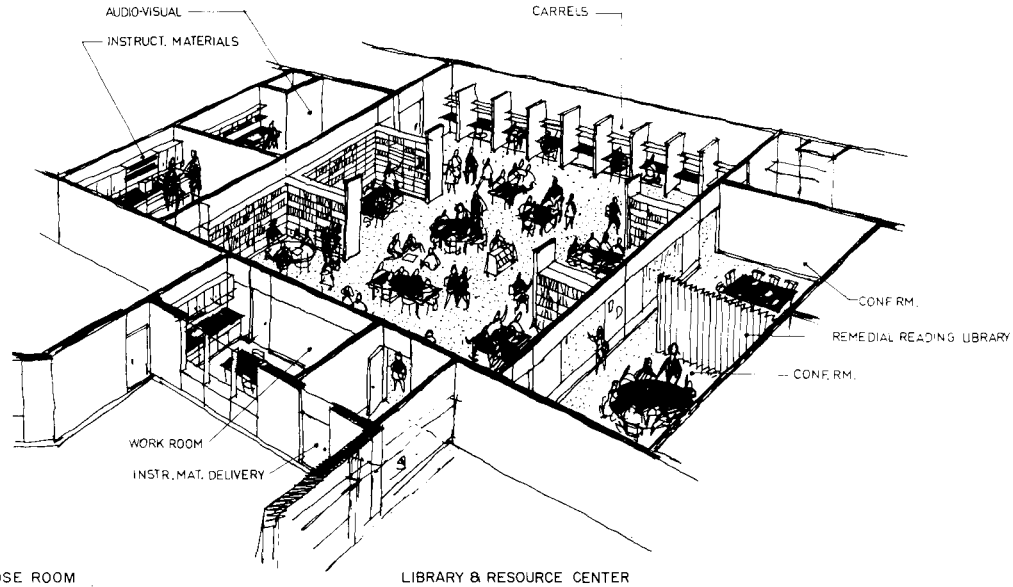




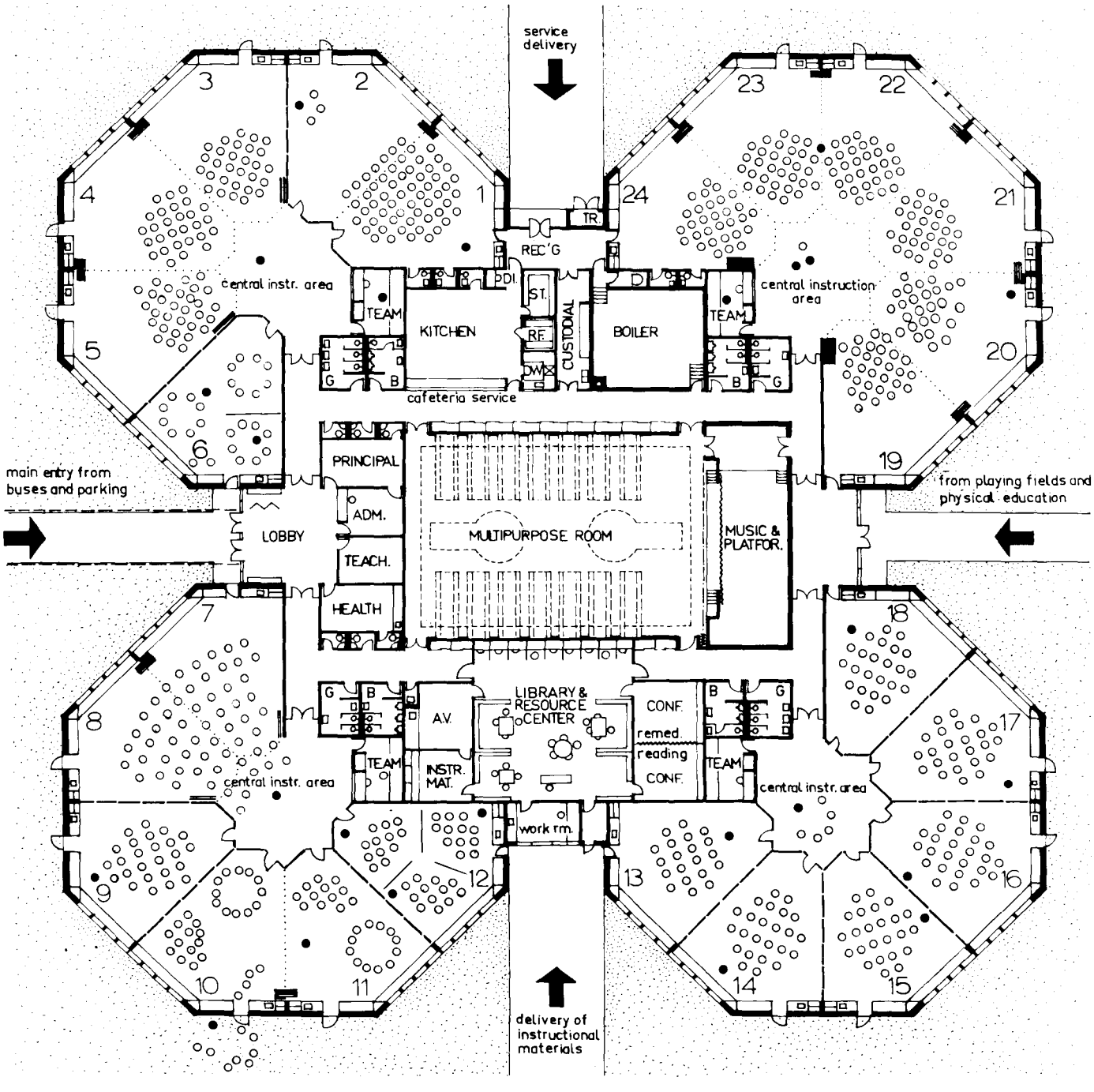




MULTIPURPOSE ROOM



LIBRARY & RESOURCE CENTER



Middle School

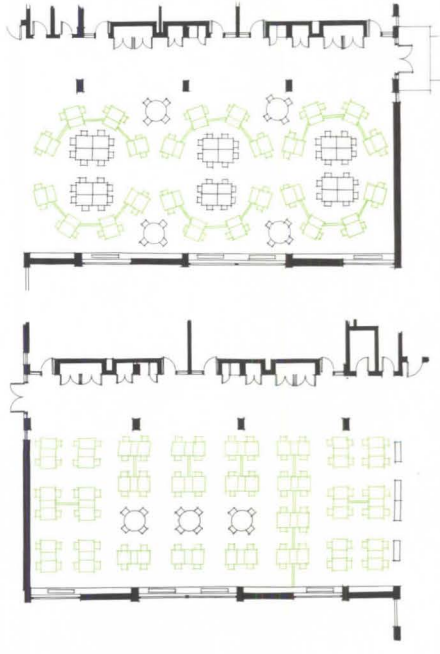
MIDDLE SCHOOL, *Bedford, New York.* ***Architects:*** *The Architects Collaborative, Inc.; John C. Harkness, Sarah P. Harkness, Herbert K. Gallagher, Ernest N. Wright, Joseph F. Schappa, Design Team; (Dr. Charles O. Richter, School Superintendent during planning phase).* ***Site:*** *Adjacent to existing Fox Lane School.* ***Program:*** *An intermediate school for 1100 pupils, grades 6, 7, 8.* ***Structural System:*** *Cast-in-place reinforced concrete, rib slab construction.* ***Mechanical System:*** *Unit ventilators, provision for air conditioning.* ***Major Materials:*** *Brick, sand-blasted concrete.* ***Cost:*** *$21.26 per sq ft, including site work, not including equipment.* ***Photography:*** *Phokion Karas.*

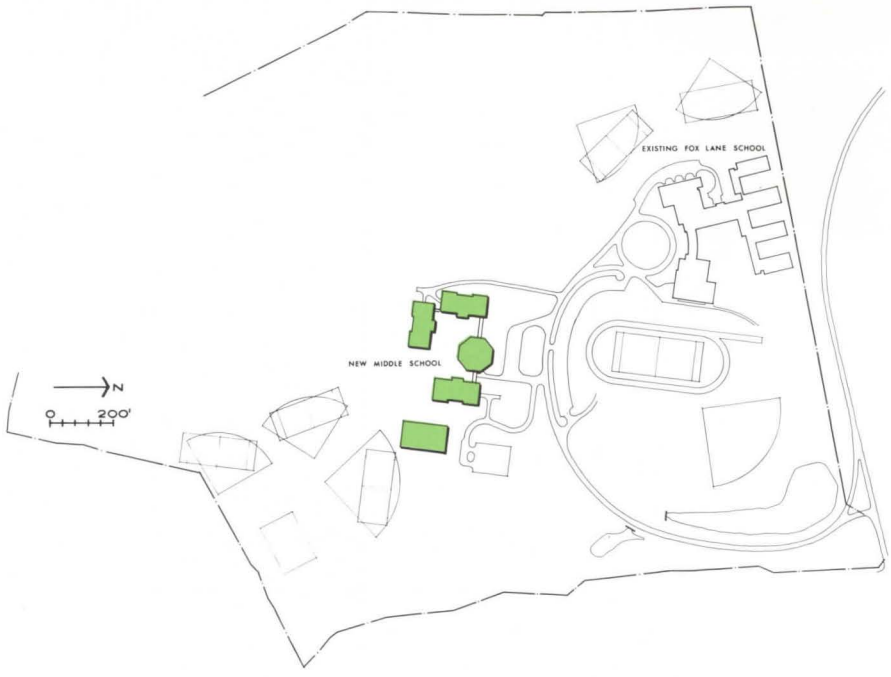
The junior high school is the most neglected and least effective of the school units in American communities. To investigate this specific area of education, experts in the fields of education, psychology, and design assembled in Bedford, N. Y., for conferences sponsored by the Educational Facilities Laboratories. Their findings were published in a report titled, "Middle School, A Report of Two Conferences on the Definition of Its Purpose, Its Spirit and Its Shape," which was issued for the consideration of the Board of Education of the Bedford Public Schools.

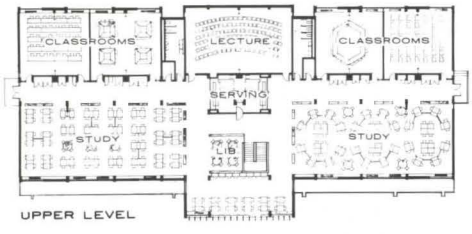
"The child in the age bracket of 11/12 to 14/15," states the report, "is undergoing basic physiological and psychological changes. . . . Such a child is not yet ready for a high-school type of experience, nor is a junior version of it necessarily appropriate. On the other hand, he is eager and ready for experiences quite different from those he has had in the elementary school." More than anything, the experts believed, these children in the 'middle' of their public school life need privacy and the opportunity for self-directed learning. "A distinguishing feature of the Middle School," states the report, "will be the confidence it places in the young people to take responsibility for themselves, to carry out assignments over lengthening periods of time, to pursue new ideas and interests independently, and to maintain and utilize various resources and materials which relate to their classroom experiences. The conventional school, in which no youngster has a working headquarters of his own, denies the pupils such experience and requires them to be academic nomads in a factory of ideas. The Middle School will be one of the first to reject this practice and to dignify the work of each pupil by assigning him headquarters for scholarship."

Independent Study

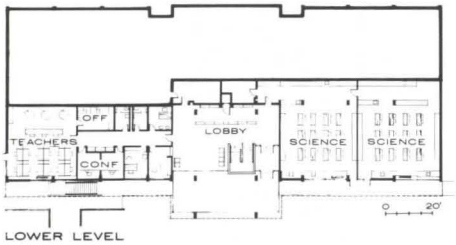
Translated into three dimensions, this concept has become the study carrel—a unit that is, first of all, the student's private place for study, but, grouped in multiples, lends itself to many arrangements. The unit is composed of a number of simple and sturdy wood elements: (1) a storage cabinet containing four locker compartments with chalkboard-covered doors, which are also visual baffles; (2) tables that can be placed against the storage unit for private study or regrouped for dining; (3) 4-ft-high tackboard-surfaced screens, which hook onto the ends of storage units. Because of the space demands of the individual carrels (10–15 sq ft of floor space per pupil) and the cost factor ($40–$50 per student station), it was decided to combine study with dining and lockers. "As the plans for the Middle School progressed," explain the architects, "it was decided that only two-thirds of the children would be assigned individual study spaces, partly because of considerations of space, partly because of the assumption that one-third of the children would not be ready for this kind of independence." Twelve standard-size classrooms are to be provided, but even these can be further subdivided into smaller seminar rooms if necessary. For the early changeover period, two addi-



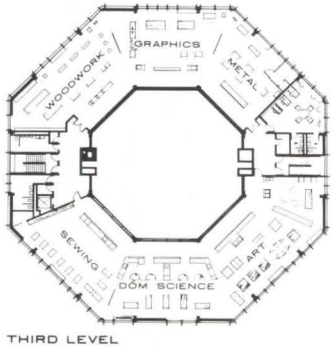




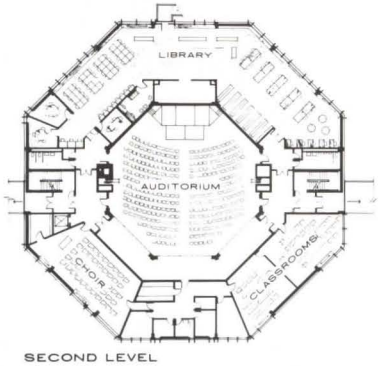
UPPER LEVEL



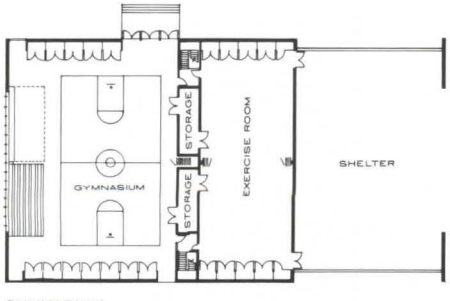
LOWER LEVEL



THIRD LEVEL



SECOND LEVEL



GYMNASIUM

FIRST LEVEL
CENTRAL FACILITIES

tional standard classrooms can be created at each end of the large study space, which holds the carrels and also takes the place of the cafeteria. Food is to be prepared in the neighboring high school and served from carts.

Three "Houses"

Having established the smallest teaching/learning unit—the carrel—it was generally agreed that "a 1000-pupil school needs to be broken into more intimate, more manageable units—only in this way could every child be treated as an individual." For this school, the natural division was considered to be 350 students per house, thus preserving as much as possible of the family atmosphere associated with the elementary school.

Central Facilities

"At the same time," continues the report, "the social horizons of each child should expand as he participates in total-school activities and in the programs which are housed in centralized facilities." In the Bedford School, these facilities have been placed centrally (*study model, facing page*) in an octagonal structure that houses, on the first level, administration, nursing facilities, sound laboratory, and an audio-visual center from which closed-circuit television can be beamed to all classrooms and major study areas within the school. On the second level, it contains a library and a small 350-seat theater adaptable for proscenium or theater-in-the-round arrangement for lecture purposes and band practice. The third level is conceived as one continuous space, serving the manual, graphic, visual, and home arts. The gymnasium is housed separately and a large outdoor shelter has been attached to it for open-air play.

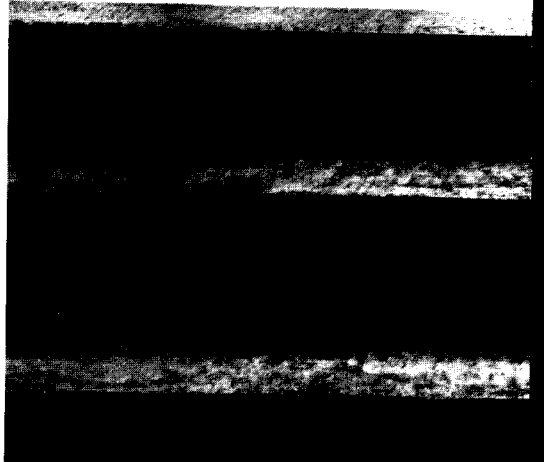
Continuity Within the School District

Proximity of the two schools on one site (*site plan, left, top*) was considered to be highly beneficial because of the opportunities it presented in the sharing of special talents of two staffs; in exchange of audio-visual material; and, above all, in coordinating educational programming, and in easing the transition for the student from middle school to high school.

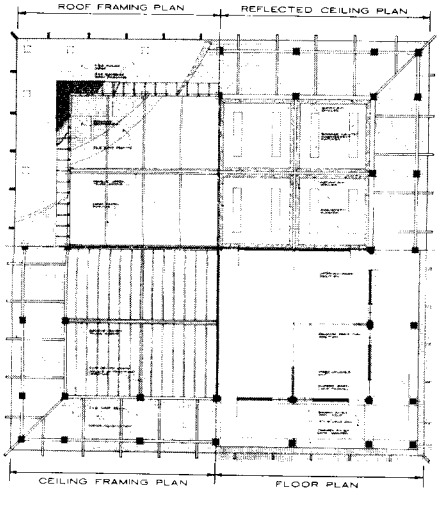
Looking toward the future, the experts agreed that patterns of organization for more effective teaching and learning were only beginning to evolve, and that the school plant must necessarily be pliable during the course of educational reform, preferably with the help of the original architect on a continuing consultative basis.

High School

HENRY M. GUNN SENIOR HIGH SCHOOL, *Palo Alto, California.* ***Architects:*** *Ernest J. Kump Associates.* ***Site:*** *50 acres, gently sloping with existing trees, a dry creek, flood control basin; property bisected by 80-ft right-of-way for public water system; crossed by 10–15 ft sewer easement; bordered along east by proposed power-line easement; gas line easement paralleling dry creek; 20-ft easement along south for proposed widening of road.* ***Program:*** *School plant—initially for 1250, later 1500 students—flexible in its adaptation to existing classroom method or team teaching.* ***Structural System:*** *Concrete floor slabs, cast-in-place concrete columns supporting steel roof trusses.* ***Mechanical System:*** *Restricted to heating and ventilating; gas-fired, duct-type, individual furnaces supply warm or recirculated air to perimeters of classroom ceilings; no air-conditioning found necessary because of temperate climate and wide overhangs.* ***Major Materials:*** *Concrete; redwood siding panels; gray, low light-transmission glass; redwood shake for vertical roof surfaces above corridors; composition roofing on horizontal surfaces; wood ventilating louvers.* ***Cost:*** *Total construction exclusive of land, landscaping, and fees $3,247,832; per pupil cost $2,160; sq ft cost $15.20.* ***Consultants:*** *Sasaki, Walker, Laxkey Associates, Inc., Landscape Architects; Edwin H. Smith, Civil Engineer; Clarence E. Rinne, Structural Engineer; Smith & Garthorne, Electrical Engineers; Alexander Boome, Mechanical Engineer.* ***Photography:*** *Karl H. Riek; and William C. Eymann (photos 1, 3, 4, 7, 8).*

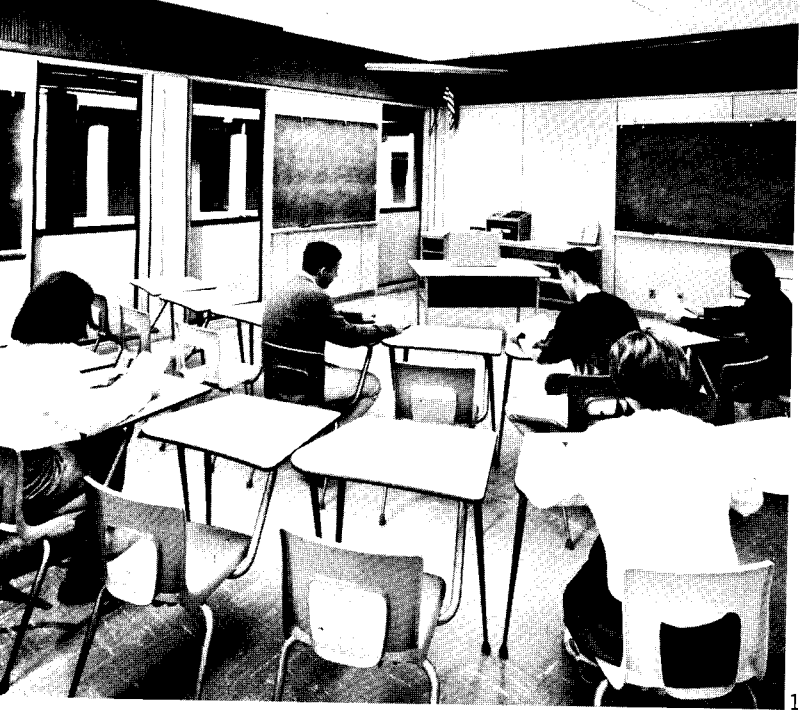


In anticipation of the team-teaching method that is to be increasingly put into effect in this Senior High School, the new plant required the full range of student accommodations from campus-wide assemblies, to groups of 200, 100, 60, to standard classes of 30, and seminar groups of 15–10, as well as spaces for individual study. In addition, the teaching teams needed central facilities for their respective departments. "The solution to the problem," according to the architects, "was to departmentalize the buildings, and to give each center an appropriate number of standard classrooms, divisible classrooms, lecture halls, laboratories, individual study areas, teacher team work areas and offices." Most important of all was to make these interiors as flexible as possible, so that, as educational programs change, the interior spaces may be rearranged accordingly.



Flexible Space Module

To this end, the buildings have been planned in multiples of a basic space module, measuring 56′ x 56′. Each module is self-contained structurally, mechanically, and electrically. Furnaces, transformers, and other equipment that may be



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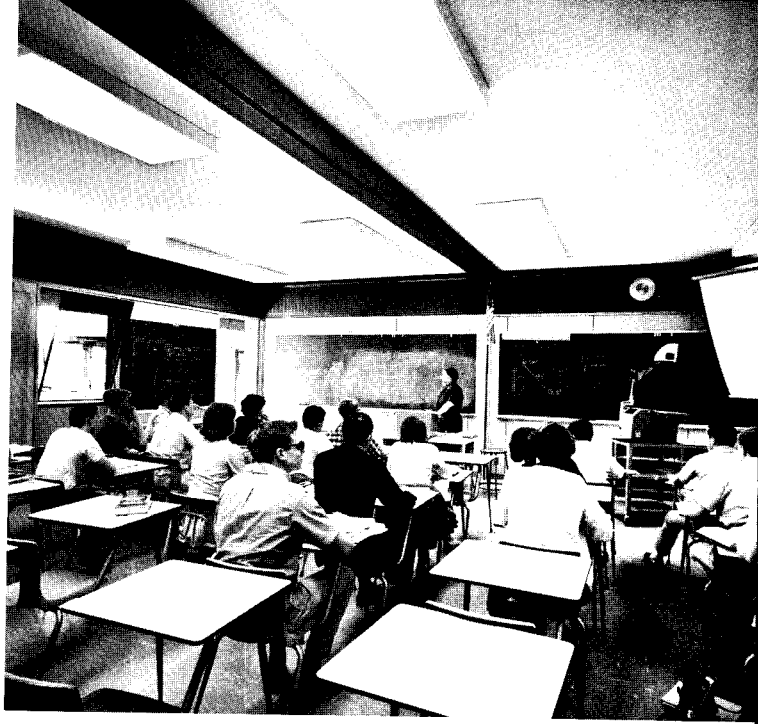

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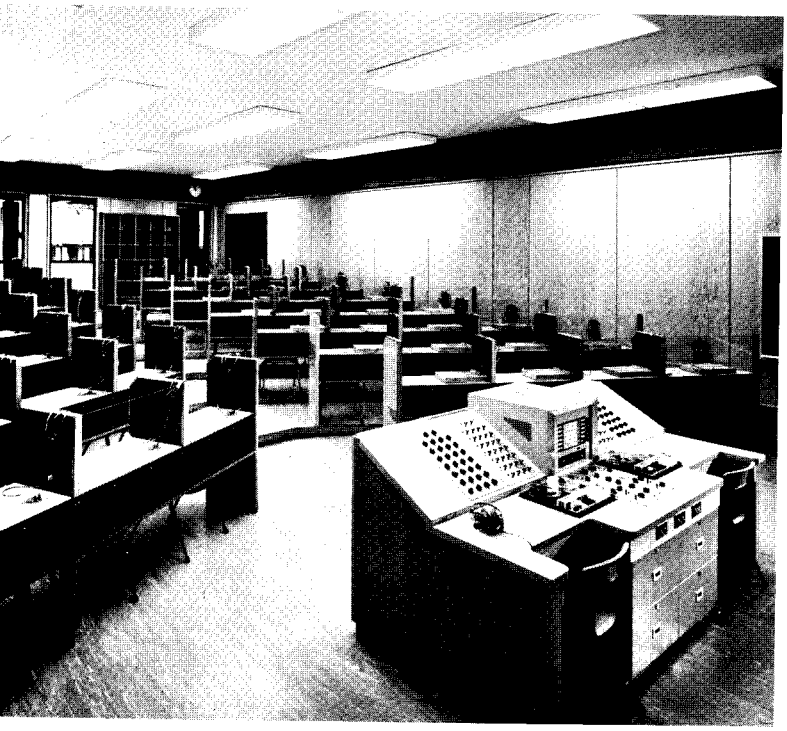

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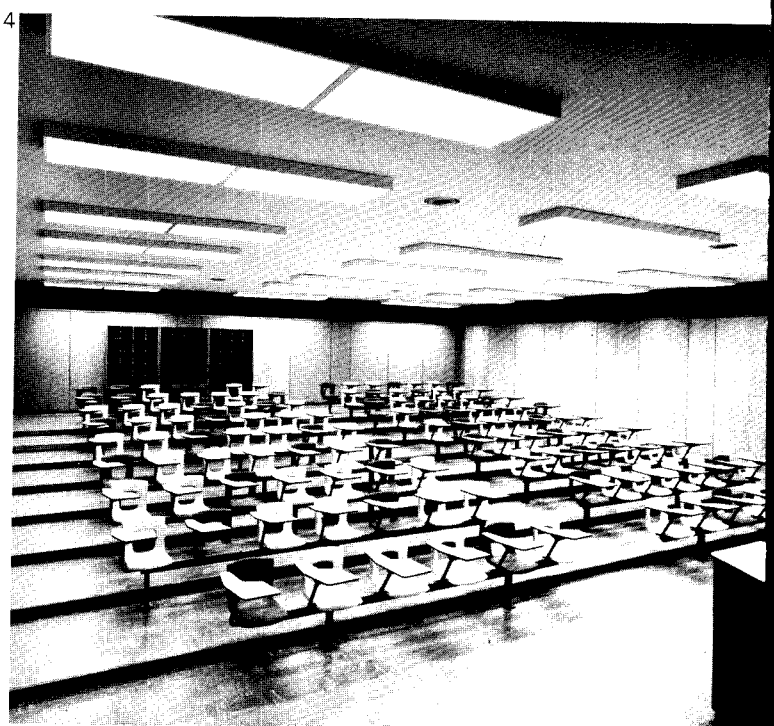

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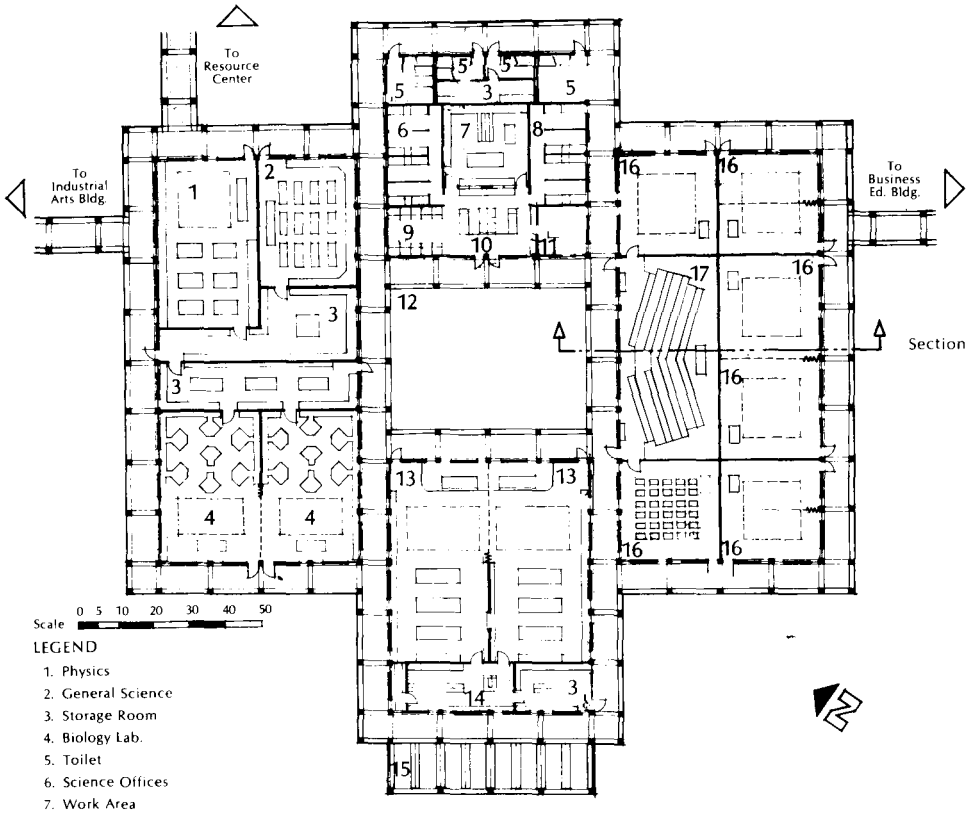
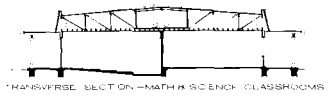


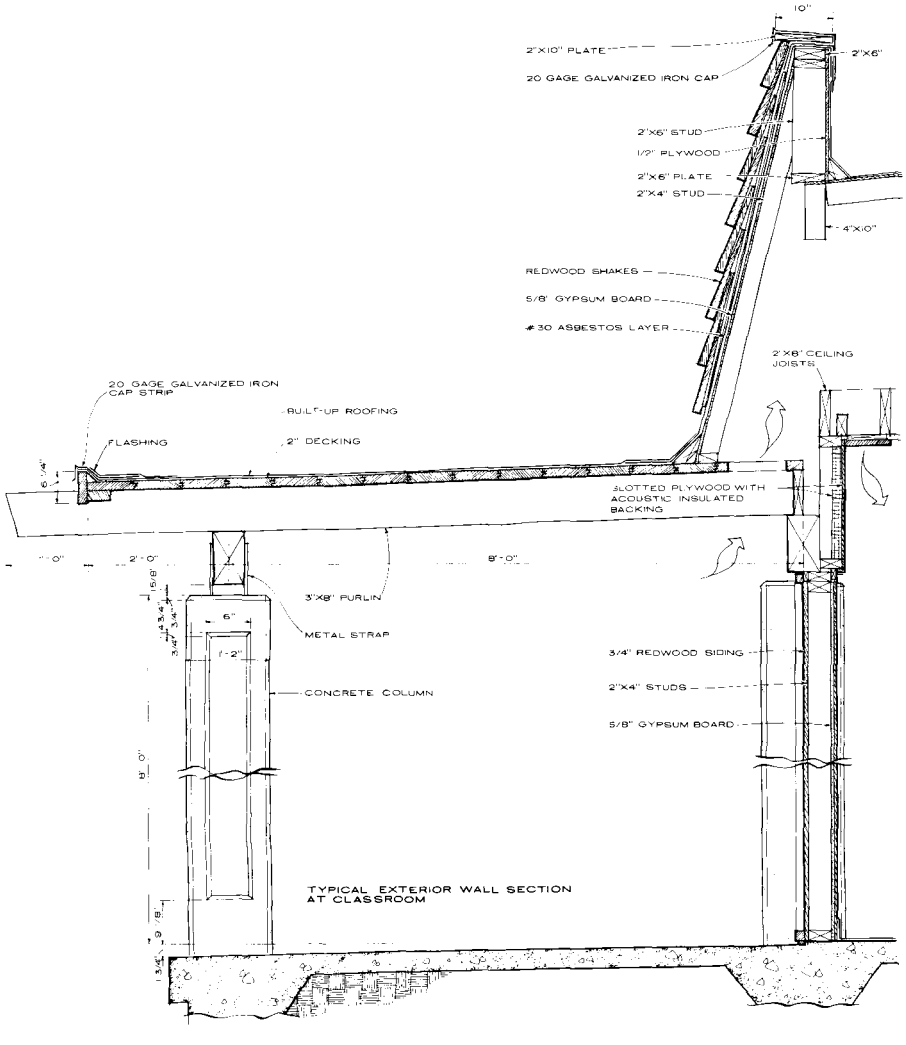
LEGEND

1. Physics
2. General Science
3. Storage Room
4. Biology Lab.
5. Toilet
6. Science Offices
7. Work Area
8. Math. Offices
9. Study
10. Aides
11. Conference Room
12. Court
13. Chemistry Lab.
14. Preparation Room
15. Student Lockers
16. Math. Classrooms
17. Math-Science Lecture



TRANSVERSE SECTION—MATH & SCIENCE CLASSROOMS

MATHEMATICS-SCIENCE CENTER

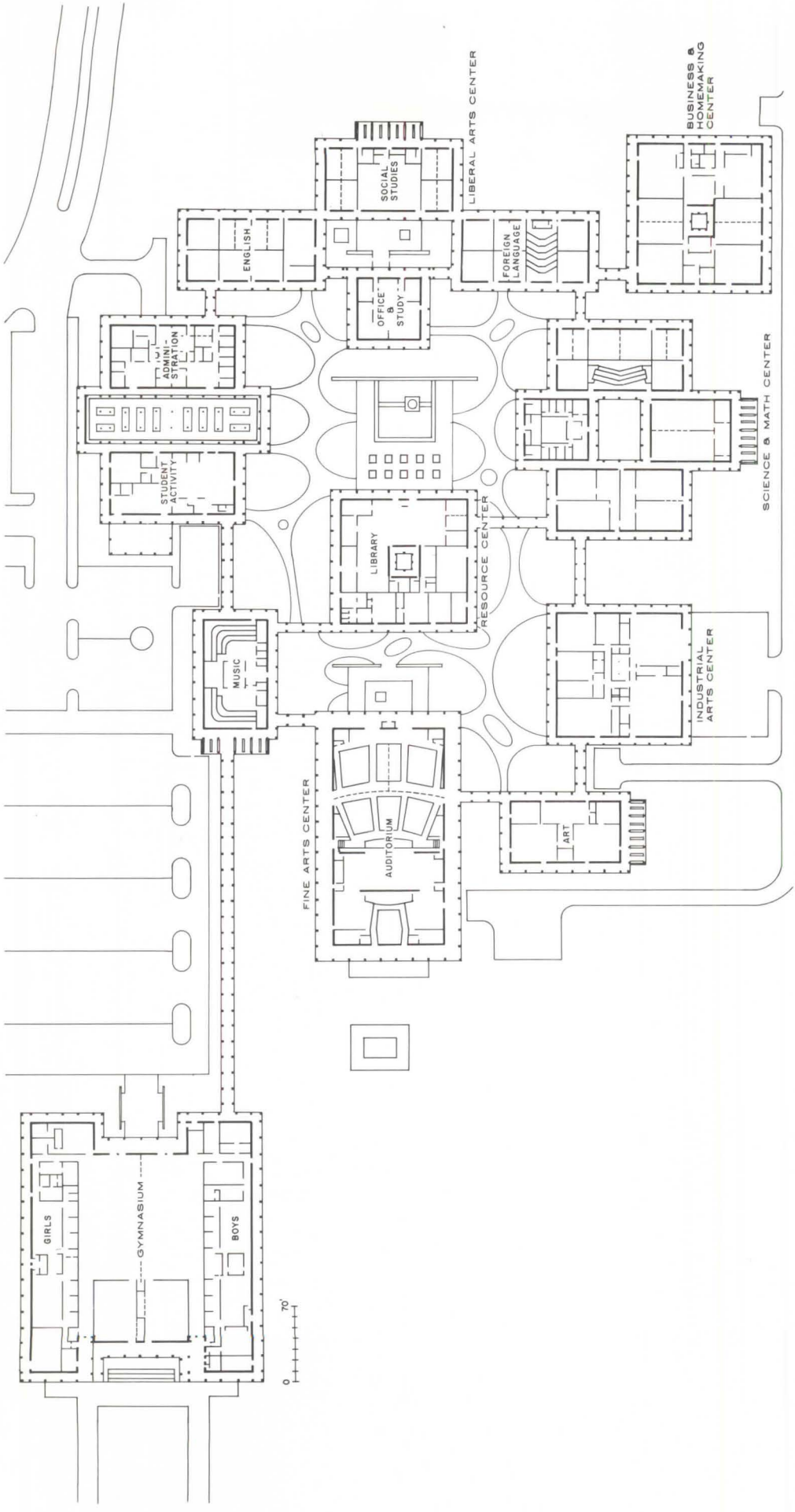


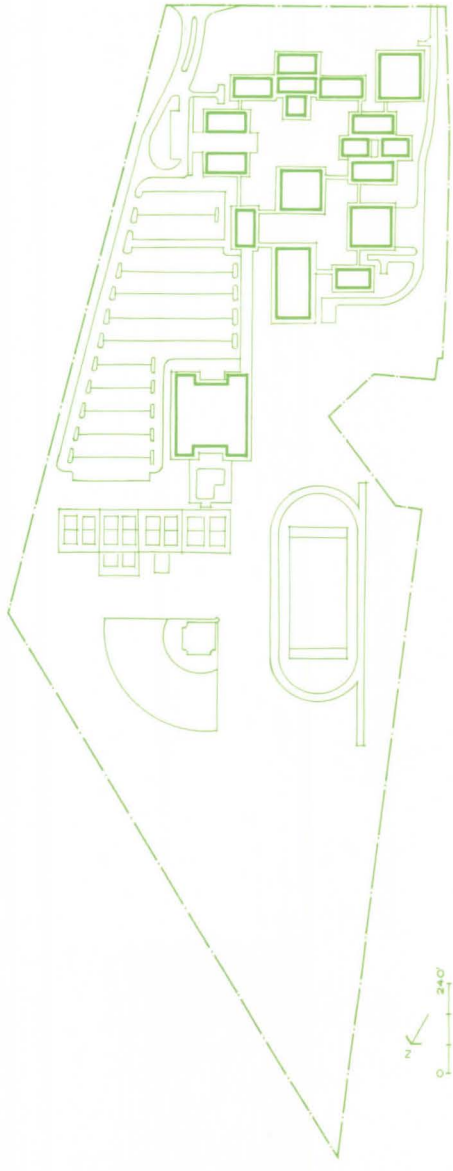
TYPICAL EXTERIOR WALL SECTION AT CLASSROOM

affected by interior changes are easily accessible in the attic mechanical rooms, where all mechanical parts are located. There are no interior columns within the 56′ x 56′ space—all vertical and horizontal loads are borne by the columns, eave beams, and solid sheathing of the roof surface. Folding partitions, or more permanent but nonstructural partitions, are used to subdivide the 56′ x 56′ space along the lines of the 14-ft structural grid. Thus it is possible to obtain 14′ x 14′ spaces for seminars **(1)**, 14′ x 28′ classrooms **(2)**, language laboratories **(3)**, lecture halls **(4)** and science laboratories **(5, 6)** based on any multiple of 14 ft. Each 14′ x 14′ space contains two surface-mounted fluorescent fixtures. Forced warm air supply and return registers are incorporated into the perimeter ceiling trim. Acoustical treatment is provided along the perimeter walls in a frieze of slotted plywood with insulation backing, which, incidentally, also succeeds in unifying the two different ceiling heights of classrooms and perimeter walkways. Windows are of light-reducing glass, permitting the use of audio-visual presentations without further recourse to darkening aids. The windows are further shielded from direct light and sun by an 8-ft-wide roof overhang, which also provides weather protection for the open-air corridors. A double row of concrete columns, skillfully molded and handsomely expressed both inside and outside, support the roof structure and roof overhangs. Visually, these concrete columns also serve to unify all of the buildings on the campus, whether large or small, typical or special.

Special Facilities

Focus of the eight curriculum centers is the Resource Material Center, whose library **(7)** overlooks the main courtyard **(8)**. Other special facilities are the Fine Arts Center **(9)**, with its two-way stage, two auditoria, and closely related music and arts buildings **(10)**, and, on the opposite side of the 80 ft easement, the large gymnasium, which can be used as a single space or subdivided for use by boys and girls.





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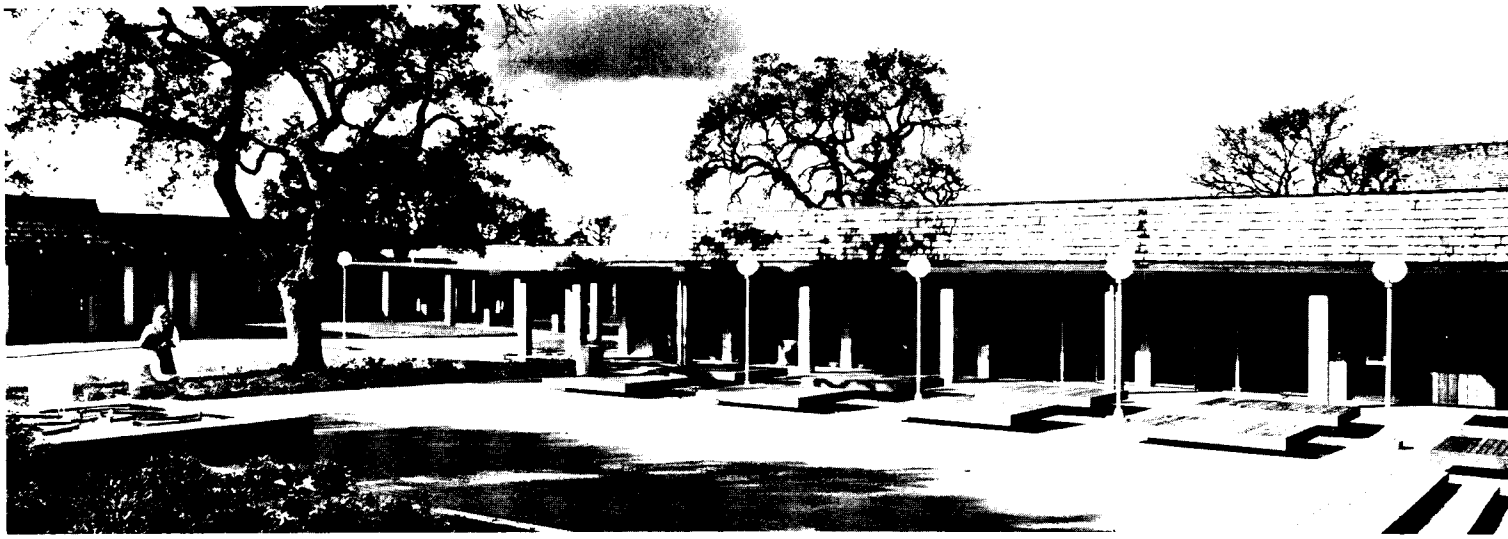

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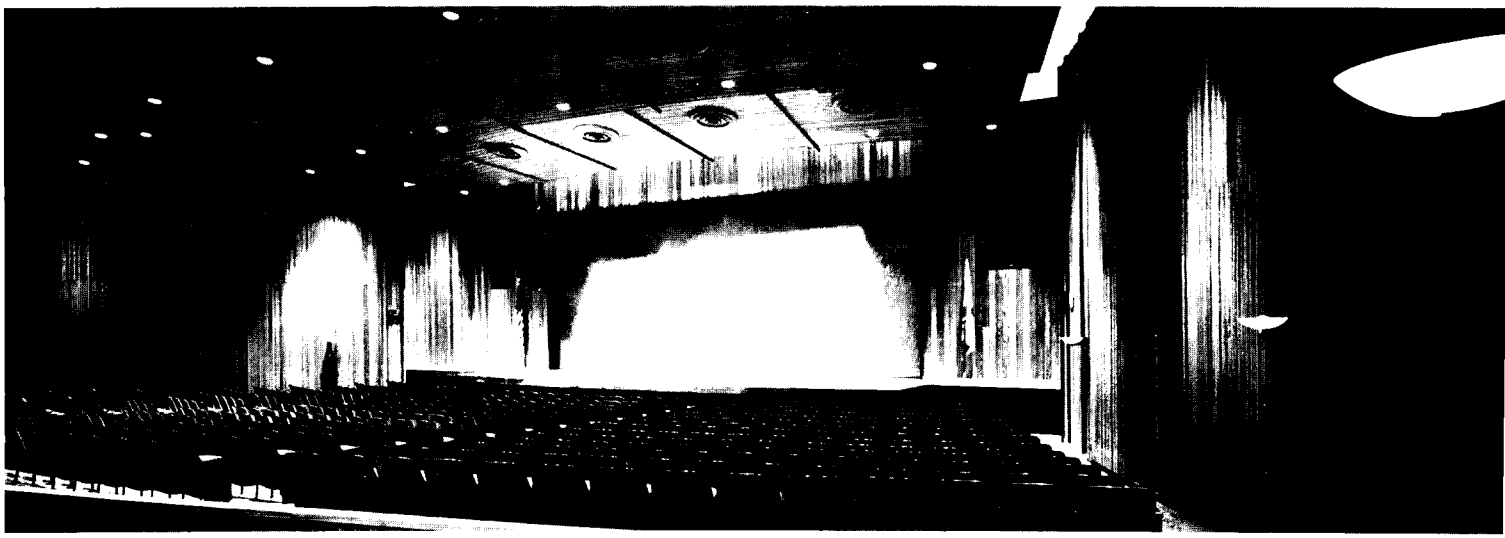

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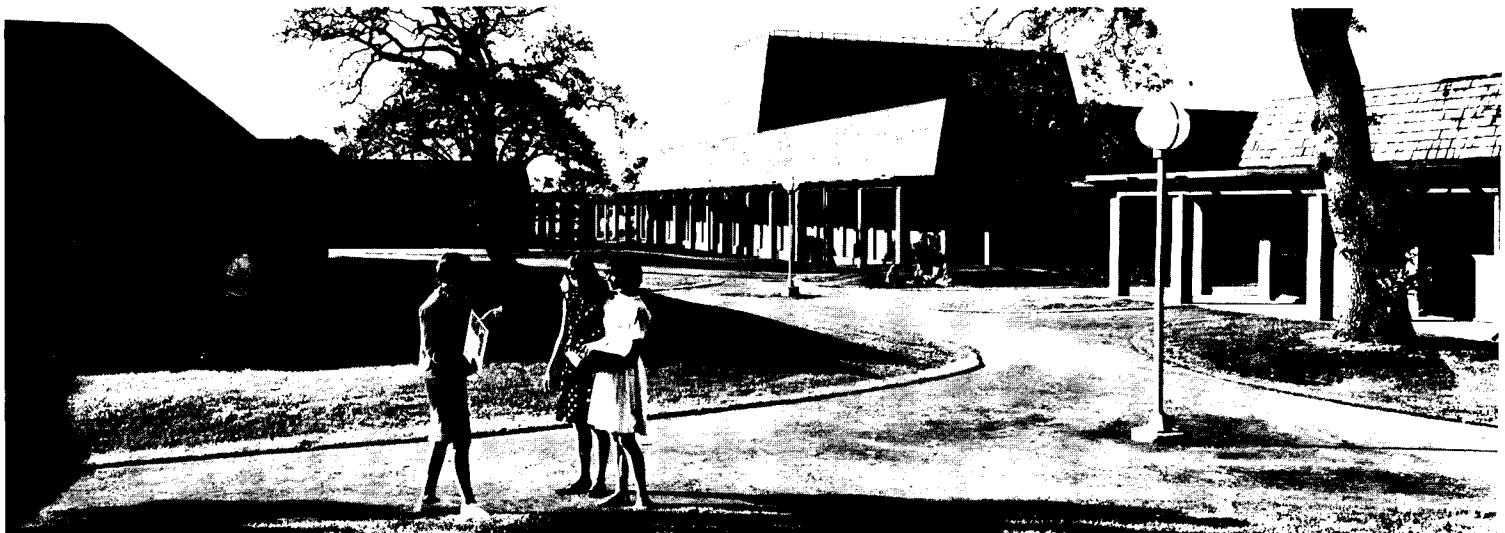
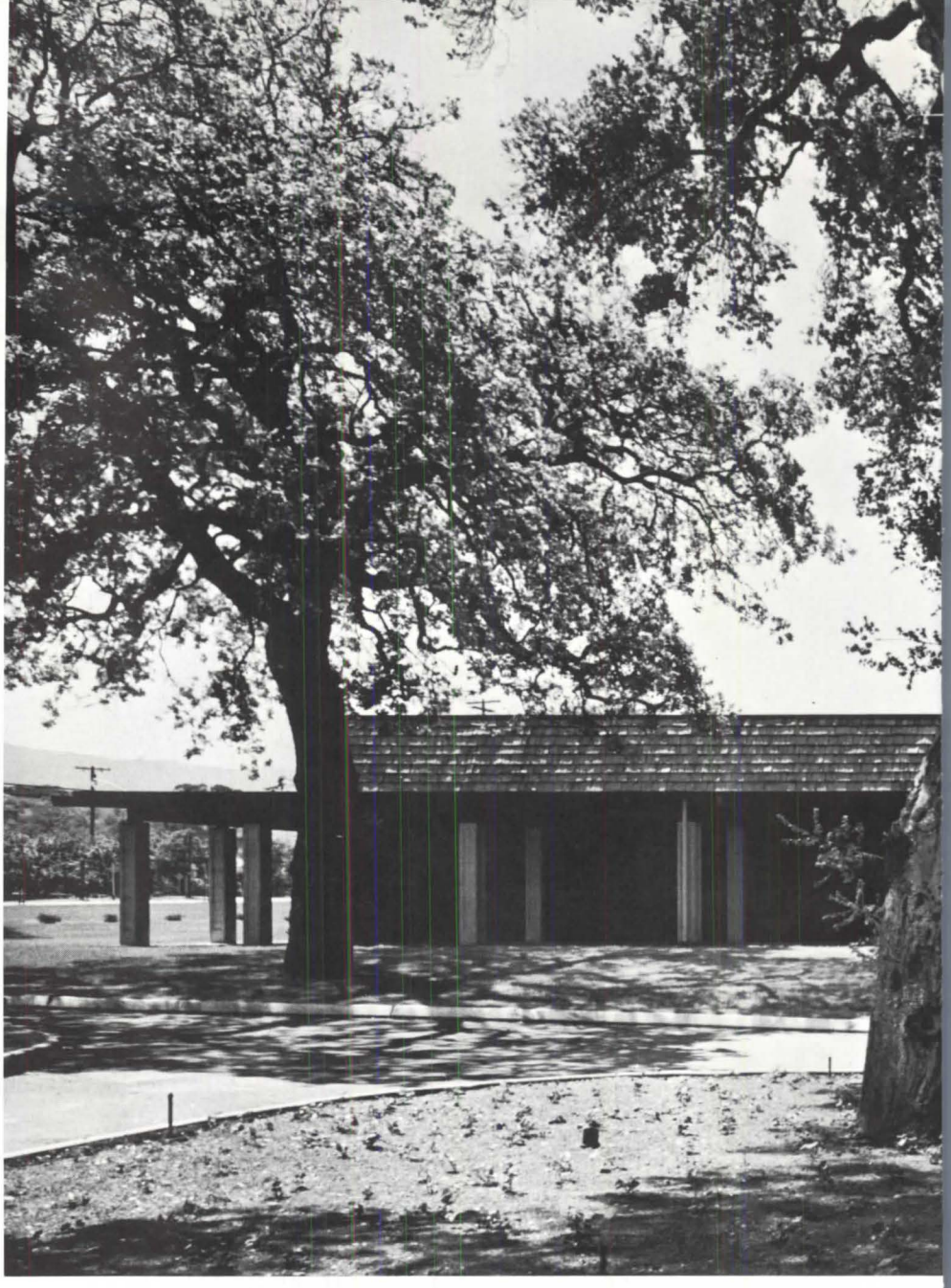


Campus Plan

Several factors favored the choice of a campus plan over a more compact, single-building solution: first, the educational program with its emphasis on flexibility; second, the many easements and property restrictions the architects had to respect in siting the structures; third, the location of the school in a residential district, making it desirable to keep buildings low and in scale with their neighbors; fourth, the natural beauty of the surrounding countryside, which was not to be overpowered by the architecture; fifth, the district's educational philosophy, emphasizing the importance of the individual student and his relationship to others in groups of varying sizes. It has been aptly said of this school that it weds artistic form with a utility that at once comprehends the present, and brilliantly anticipates evolution toward the unknown in educational instruction.



Looking East in Detail

PHOTOGRAPHS AND COMMENTS BY RICHARD O. ABBOTT

Richard O. Abbott, an architect practicing in Plymouth, Massachusetts, has recently returned from a nine-month trip through Asia and the Middle East. The trip, made possible through the award by the N.Y. chapter of the AIA of its James Stewardson Traveling Fellowship, led Mr. Abbott to rediscover the architectural variety and beauty of the East. P/A here presents a portfolio of his photographs and comments—his look at the East in detail.

To a Westerner, a trip through the East is, at least, a revelation, and, at most, a memorable experience of diversity, beauty, and surprise—in short, an experience overflowing with life itself. For me, the memory, the experience, was one of sensitivity, of great beauty—sometimes subtle, sometimes bold—that one finds in the architecture, in the textiles, in the folk arts, in the sculpture, and in the faces.

Louis Sullivan's "Less is more" was to Frank Lloyd Wright "Less is more when more is inferior." In the East, I found that more is definitely "more" if it is beautiful, and "less" when it is vulgar. To be sure, there is both good and bad in the East, as elsewhere, for good cannot exist without a set of values ranging between the very worst and the very best. Through the great loom of architectural variety and diversity of the East run common threads. One of the strongest is the belief that, when viewed from a close distance, the building surface, in its sensual, textural, and visual richness, should fulfill a man's need for aesthetic pleasure. The Easterner strives to decorate or enrich the surfaces of buildings, but never at the expense of articulation of structure and space. In short, within the framework of great discipline and serenity lies ornamentation and detail.

As a complex art, architecture is criticized from many different points of view. Mass, silhouette, space, spatial sequence, structure, relationship to society, site, climate, client, surface treatment, and proportion—all enter into one's analysis. Yet how many times have our buildings presented us with an image of massive strength from a distance, yet disappointed us when seen close up. Architecture—one of the most silent of the arts—must somehow welcome us both from a distance and close up. This, after all, is the essence of architecture, which is the art of sheltering, of showing compassion to the human being and thereby making concessions to one's senses as well as one's intellect.

In Cambodia and India, one is lost in trying to imagine the manpower, effort, and talent that went into the building and the carving of many of the temples—some cut from one huge piece of stone, others cut from rock cliffs, still others assembled and carved to an enthusiastic end. Yet even in the most vigorously conceived buildings, there is a feeling of restraint, of form never subordinated to content. Typically, the greatest embellishment occurs at significant architectural happenings, such as at the corners. It may also occur in the podium on which the building sits, on the window and door openings, in the changes of plane, and at structural events in general. Yet if there is decoration in the various structural events, it is usually subordinated in effect to that of the walls.

No stone buildings are more beautifully related to the ground by podium and plinth than those of the Hindi in India and the Kymers in Cambodia. With horizontal bands comprising vertical forms, they are a study in sculptural vitality. On the other hand, the Mogul architecture has more in a secular way to offer the visitor; one can see how the royalty lived, how the common people prayed. The Moguls, invaders and conquerors, brought Persian craftsmen with them to India. Much of their art is Persian-influenced. Although perhaps colder to touch and brighter in color (with the use of highly colored green, blue, and yellow tiles) than the Indian, the Persian-Mogul surfaces share a sensitivity to surface. Their carved screens and inlaid marble and stone designs are delicate yet disciplined.

It is visually refreshing to be reminded of the beauty of detail and surface, how it can add aesthetically to the over-all value of a given environment. Today, there is a tendency to evaluate architecture on the basis of how well it fits an environment, rather than how good it is in and of itself. Not that the over-all environment is unimportant, but it is never more than the sum of its parts. However, if we do not strive for the good, then our standard of building will drop, and what is lesser will become acceptable when it should not. Too little credit is given those trying to lead, too much to those trying to follow and conform. Why not strive for buildings that are beautiful aesthetically as well as intellectually—ones that inspire and fulfill? It is obvious that today there are many new and diverse forces shaping our lives and architecture. This is not to say that the problem of surface treatment and placement of decoration is eliminated.

We can no longer recreate the past, nor should we. Yet in the permanence and sculptural embellishment of the ancient East, there are perhaps other guidelines to the common end—beauty.

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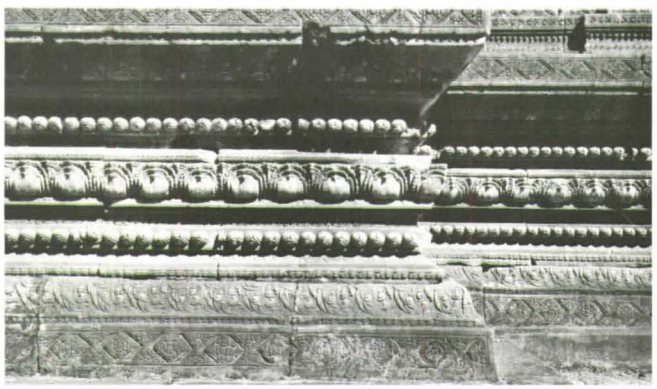

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(1, 7) *The Hall of Forty Columns, Isfahan, Iran, 17th Century, is used today as an open pavilion by the ruling Shah. It is attached to an enclosed building and is of all-wood construction on a stone base. Detail of ceiling* ***(1)****; and plaster falsework and decoration located in the building attached to the Hall of Forty Columns* ***(7)****.*

"This building has only 20 columns, but because of the effect of the reflecting pool, it appears to have twice as many. In proportion and subtlety of line, it is surely one of the most graceful pavilions. The decoration is perfectly subordinated and related to the whole. The roof literally soars overhead."

(2, 3) *Temple of Banteay Srei, Cambodia, built in 968–1001* A.D. *by Jayavarman V and dedicated to Siva. View of entrance portico to main sanctuary* ***(2)*** *and detail of podium of main sanctuary* ***(3)****.*

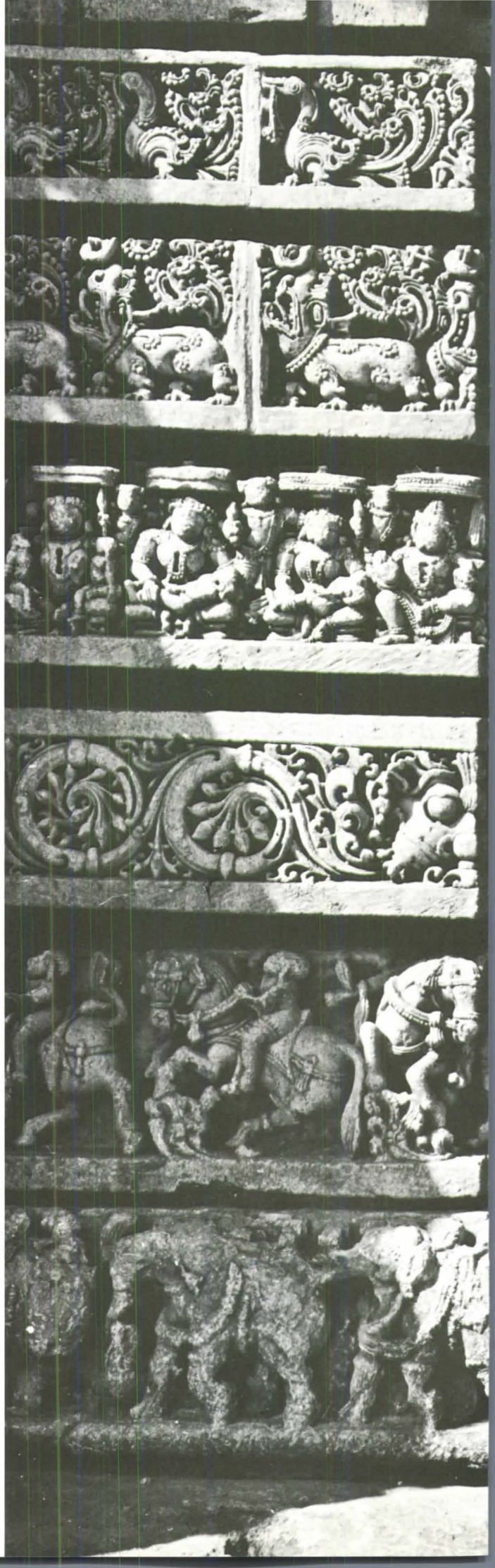
"This temple is located some 21 kilometers from Siem Reap—a two-hour jeep ride through fantastic jungle, over muddy roads, and along peasant villages of stilt houses. Although a small temple, it is an unusual find, built completely of red sandstone. It is also one of the few of the Kymer temples that have been so completely restored. The podium is one of the most beautiful I have ever seen."

(4) *Temple of Somnathpur, Mysore, India, 1250–1300* A.D. *Detail of carving on the plinth of the temple.*

(5) *Agra Fort, Agra, India. Detail of carved-stone window screen overlooking the river below.*

(6) *Shah Mosque, Isfahan, Iran, 1612–1630. View of ceiling, showing completely tiled half-dome meeting the main central dome.*

"The mosques in Isfahan are built of brick, then covered with plaster and tile usually containing segments of a larger floral design. Yet to the Westerner, who can never truly understand or enter into the Eastern way of life, the mosque, like the Japanese tea house,



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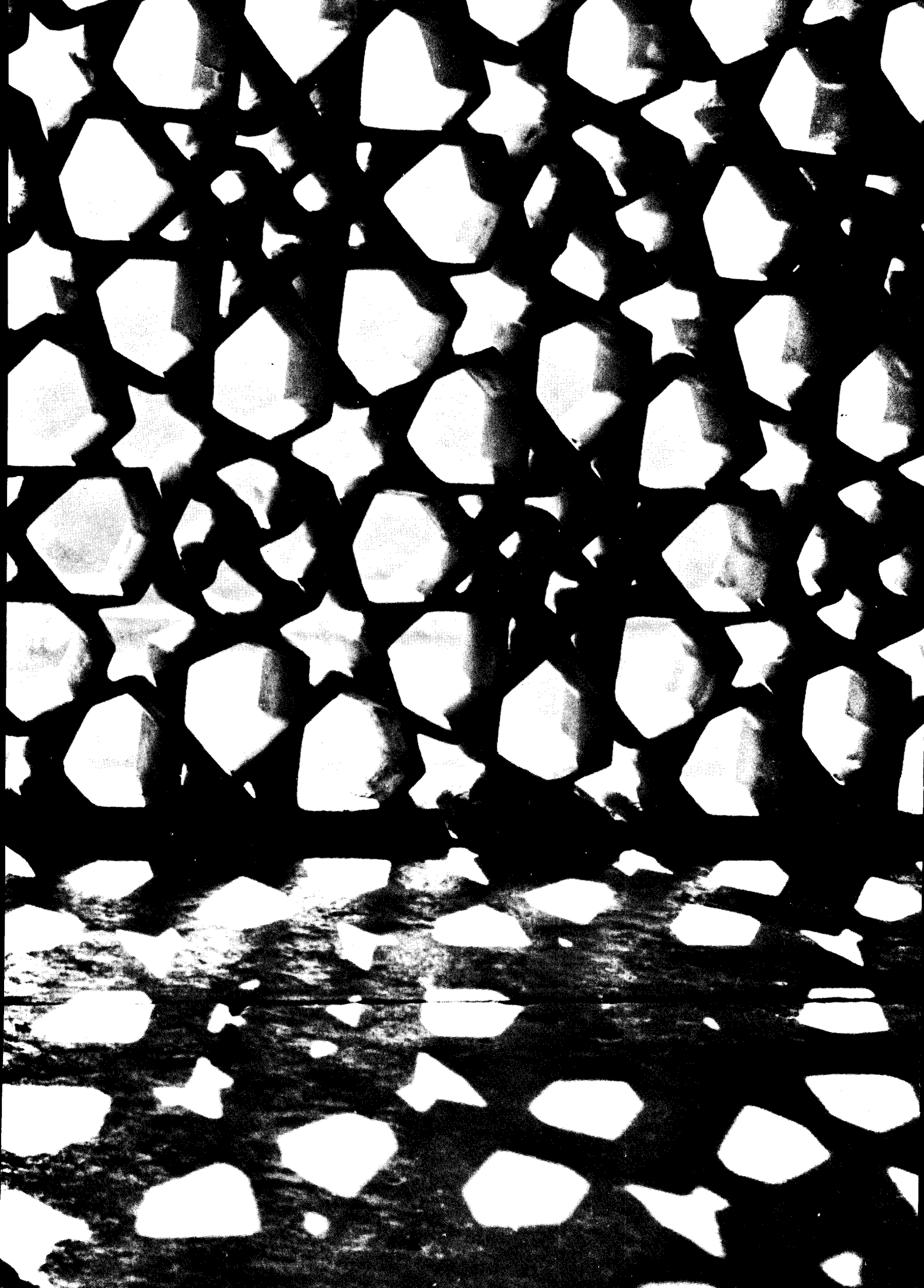

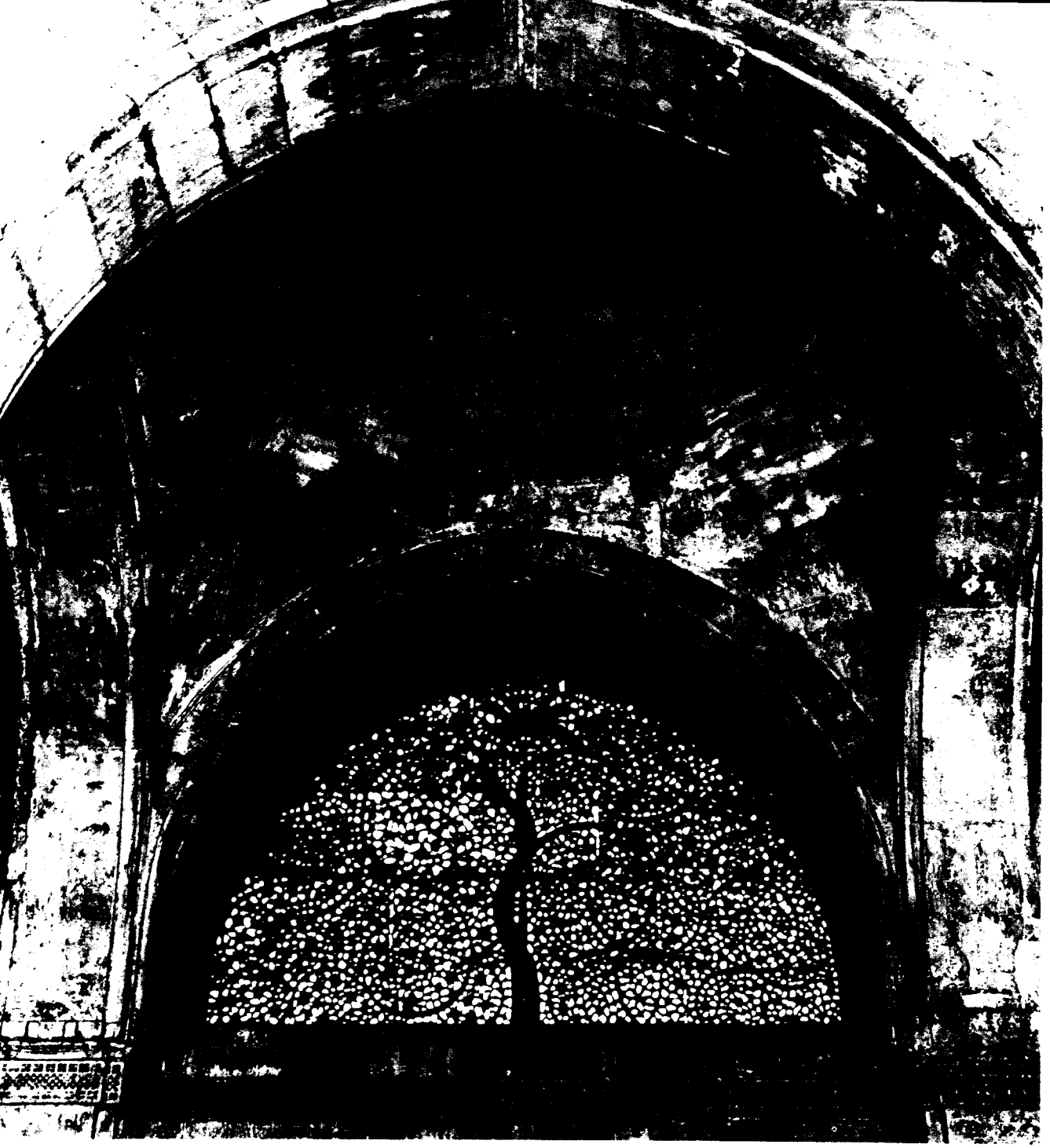

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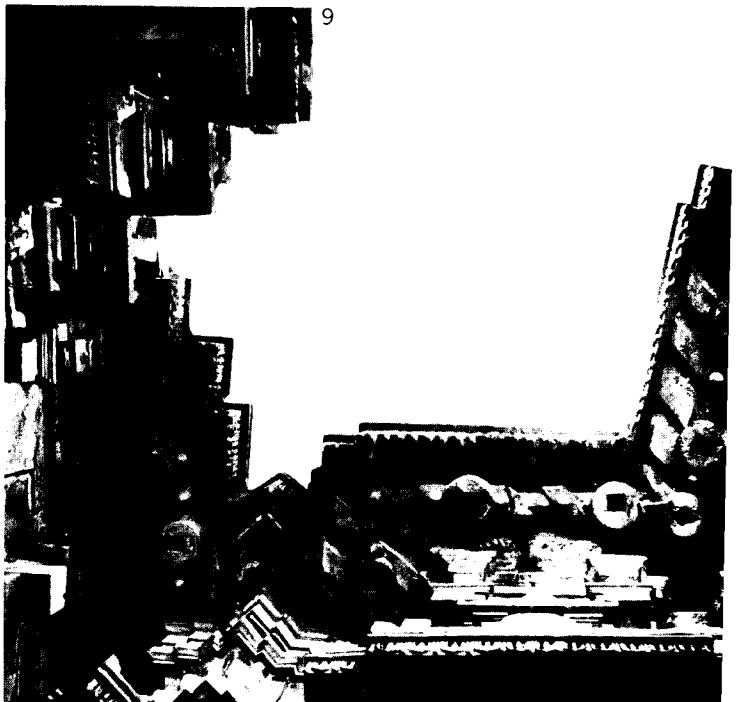
seems empty—almost lifeless. Both exhibit the highest qualities of architecture as background."

(8) *Mosque of Sidi Sayyid in Ahmedabad, India. 15th Century. Detail of carved window.*

(9) *Halebid Temple, Mysore, India, c. 1250–1300* A.D. *Detail of stone soffit of temple. Stone in India is used in tension in many ways. Curved cornices 2-in. thick may sometimes project 2 or 3 ft from the last support. And many times, stone emulates wood in decorative details.*



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SPERR
HUTCHINSON
S&H
DISCOUNT FOR CASH
10

OFFICES FOR GREEN STAMPS

OFFICES OF THE SPERRY & HUTCHINSON CO., *New York, N.Y.* ***Interior Design*** *by Designs For Business, Inc.* ***Photography,*** *except as noted: Louis Reens.*

The connecting link between architecture and Green Stamps is the little-publicized Beinecke family, which owns not only the multimillion-dollar Sperry & Hutchinson organization that produces S&H Green Stamps, but also the largest block of interest in one of New York's biggest construction firms, the George A. Fuller Company. In addition, the Beineckes were responsible for endowing Gordon Bunshaft's Beinecke Rare Book Library at Yale University. Now, the family has had an encounter with office planning and design via their recently commissioning Designs for Business to do S&H's new offices.

The Green Stamps that have burst on the scene so ubiquitously in the last decade are not at all bumptious upstarts. Sperry & Hutchinson was founded in 1896 and has been a relentlessly successful leader in the trading-stamp business ever since. Now the country's largest single customer of many household goods, the firm consequently has a vast distribution system—over $200,000,000 worth of merchandise in and out of nine warehouse-distribution centers to 850 redemption centers throughout the country. This distribution system, as well as other company operations, is controlled by the first computer to be used in the field of retailing—one of the most advanced computer systems in business use today.

Until recently, these operations were handled in an aging downtown building; now, S&H has been installed in five floors of a new midtown Manhattan office structure called the Sperry & Hutchinson Building.

What has been done for the S&H offices is not a consistent piece of interior design: It could not have been, since the top executive areas were designed independently by another consultant in neo-Georgian splendor. This group of executives, among whose historical interests are rare books and manuscripts, and Western Americana, seems to be led to prefer visual styles of the past. But there is also that progressive trend in the firm—as the advanced, computerized distribution system indicates—and DFB's contribution in those areas is a design step in the right direction. Since S&H has a studied double image—on one side a casual, countrified, friendly face, and on the other a shrewd, efficient sophisticated operation (S&H is about as casual as a fox)—the double standard in office design is understandable.

Furthermore, DFB's work at S&H also reveals an interest in two concurrent directions; P/A has previously described (JULY 1963 P/A) this combination as "industrialized, almost spartan efficiency and a warm, nearly residential sumptuousness." Here are industrially efficient "work" areas and several lush areas for "show"; as always, the designers have provided some special furniture and some interesting detailing. In addition, one new element seems to have emerged prominently in this project—a forcefully expressionistic use and placement of facilities to evoke the image of the company's scope.

For example, S&H and DFB, with their consultant, Information Management Facilities, have decided to capitalize on the reception room to tell visitors about the company's background, operations, and impact: They project a seven-minute commercial to waiting callers. Similarly, the company's computer center has been placed near the visitor's and executives' dining room, where this newest corporate status symbol can create a positive public-relations effect.

This new direction raises questions about the propriety of imposing advertising on one's guests. DFB feels that business visitors are not really guests. Both S&H and DFB believe that visitors should be told about the firm—like the Midwestern custom of showing guests through the house—and that a firm is fully justified in taking such business advantage whenever visitors are on its premises. Others think that this creeping influence of Big Brother is invidious.

Office designers must judge for themselves. P/A can note only that such encroachment on individual privacy in the business world will probably prove irresistible and unopposable in this Computer Age.

Unquestionably, S&H has shown leadership and responsibility in finance and management; now it shows leadership, however questionable and ominous, in its new hard-sell office design. But the influence of the S&H catalogue as a taste-maker is also ominous, and seemingly not yet considered by the firm with sufficient responsibility. Perhaps it will not be too much longer before the firm will fill its patchwork design book with stamps and redeem it with cultural responsibility for good, consistent design.

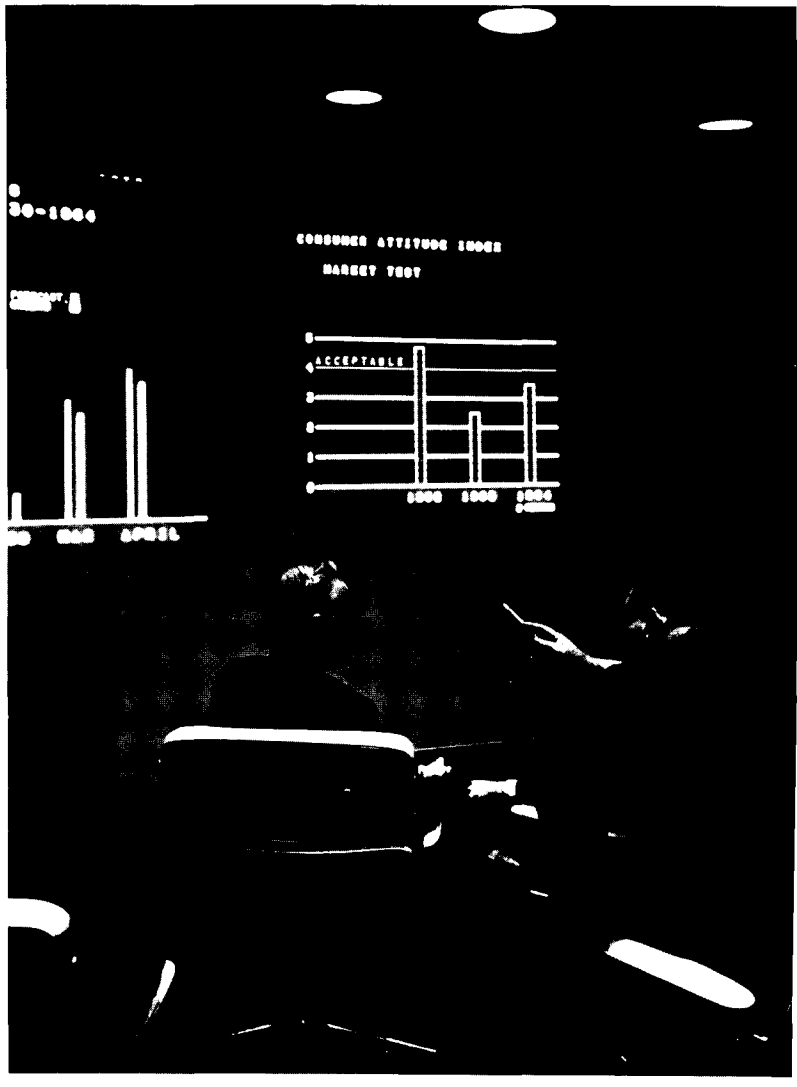
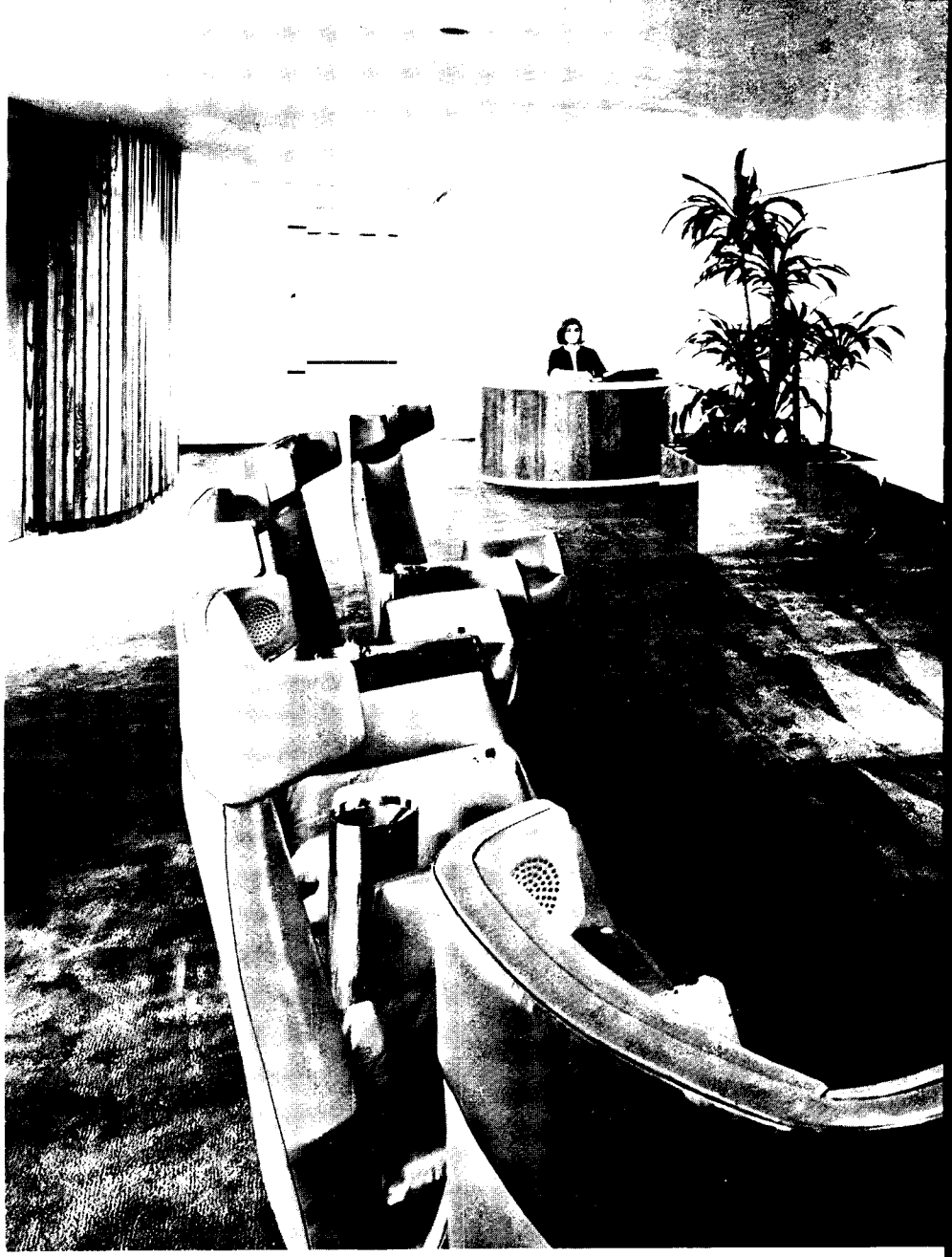


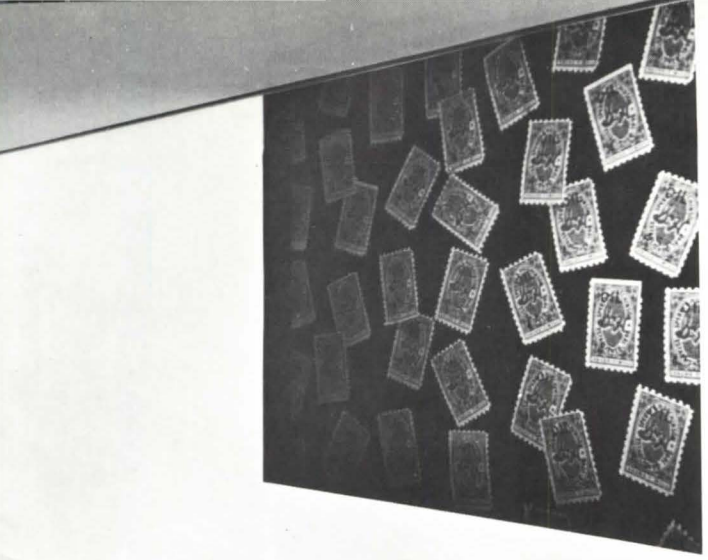
PHOTO: COURTESY OF INFORMATION MANAGEMENT FACILITIES, INC.

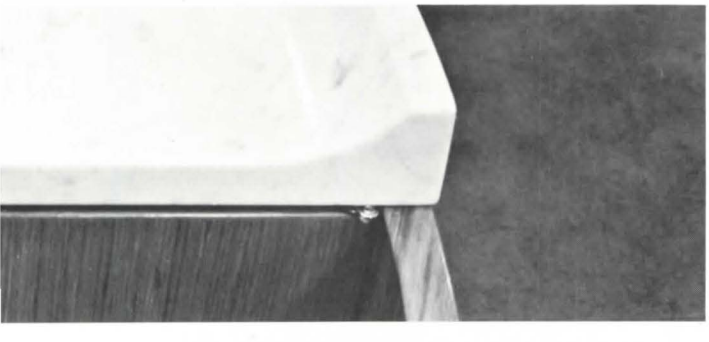
In the reception room of the Sales and Marketing Floor, Designs For Business, with their consultant, Information Management Facilities, have produced "an automated version of the old backlighted transparency idea." Visitors' chairs are installed facing a wall screen on which the S&H "impact story on world economics" is projected. Adapting an idea from the World's Fair, where moving chairs have built-in, recorded travelogues coordinated to passing exhibits, DFB has designed a new wing chair with a stereo-speaker in each wing that plays a commentary on the projected S&H story.

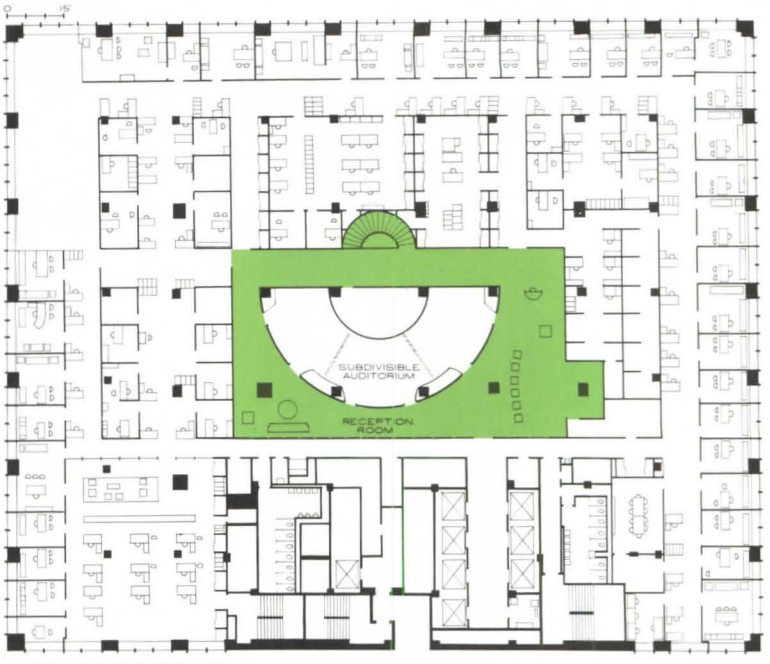
The chair-speakers are also wired to the desk of the receptionist, who can thereby communicate with callers when S&H personnel are ready to see them. The desk is uncommonly distant from the chairs and somewhat separated from them by a planter. DFB's idea was that this placement would produce a grander approach through the room and that the plant would provide a little seclusion for viewers watching the commercial on the wall. Their idea in connecting the chair speakers to the receptionist's desk was that aurally interrupting the viewer would be less harsh than a tap on the shoulder. On the other hand, the communications system is obviously a walk-saver; the distance of the desk from the chairs prevents the receptionist from having to hear the commentary repeatedly; and the plant seems thoughtfully placed to shield the screen from her view.

Visitors, however, are captive. Since, for aesthetic reasons, the chairs do not swivel, alternate views are of the receptionist on the left or of the watercooler and entry to the ladies' room on the right; otherwise, the salesman must watch the screen. He need not press the start button for the film (if he dare be thought uninterested), and if other salesmen-visitors are not so confident, he can, mercifully, turn off his individual speakers, or hope that the picture has changed since his last visit. DFB insists that visitors can sit at the sofa group at the far corner of the auditorium, and that the receptionist can call them by a speaker. But S&H receptionists have not yet found that speaker or that mike button: therefore, to prevent much walking, visitors are encouraged to sit in the wing chairs and watch the screen. Salesmen cannot easily overlook the significance of S&H after this brainwashing experience. Big Brother's influence on office design is growing.









SALES & MARKETING FLOOR

PHOTO: BEN SCHNALL

At the center of the Sales and Marketing Floor, the designers have provided a subdivisible auditorium containing automated information retrieval facilities where the firm can hold elaborate presentations and thoroughly documented conferences. Here, S&H staff members have access to taped facts and figures in making business decisions, rather than relying on memory.

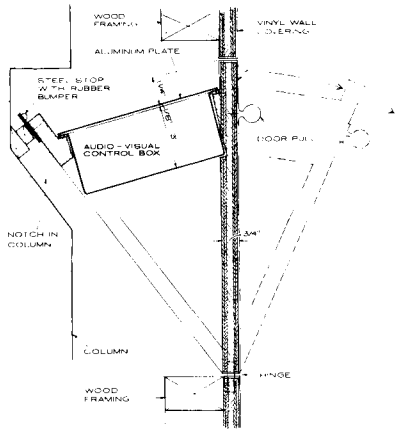
The semicircular 75-seat auditorium is subdivisible into three 25-person auditoriums, each with its own screen and presentation facilities. To make this possible, the semicircular theater plan has been used in reverse (normally the screen is at the narrow end of a fan-shaped theater). This reversal permits three sets of projection equipment to be concentrated at the hub of the semicircle, where they can be controlled by a single operator.

The three-screen plan also permits a flexibility in presentational techniques—simultaneous, sequential, or multiple: Either a single screen, or three simultaneously, can be used to make a presentation to the entire chamber, or three different subjects may be discussed at the same time in different visually documented conferences.

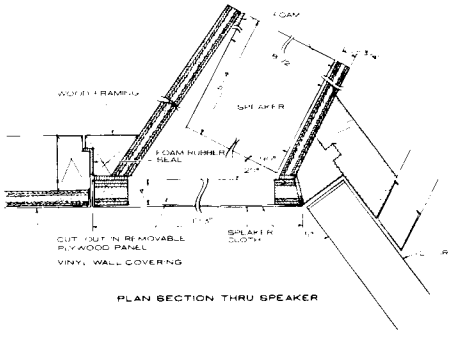
The heart of the information retrieval system is an automatic, random-access slide facility, which provides recall of numbered slides dialed by the speaker. Tape-recorded proceedings of meetings are also indexed and planned for automatic retrieval. Furthermore, the facility is designed for ultimate hook-up to and direct interrogation of the computer, from which "readout" can be projected directly onto the screens within 10 seconds of interrogation.

Curved "screen walls" are bordered physically only by the entry/exit doors to the area: a "color light mat" (green or yellow from the ceiling cove) provides a border for projections. Audience lighting is on both perimeter and central circuits to permit note-taking during projections.

Projection is through a strip of double curved optical glass with a 2-in. air space at the hub of the semicircle.



VERTICAL SECTION THRU CONTROL BOX



PLAN SECTION THRU SPEAKER

PHOTO: BEN SCHNALL

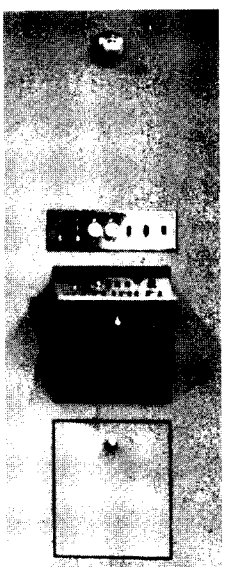


PHOTO: BEN SCHNALL

The electronic data-processing center (below) that controls the company's massive distribution system is centrally located within soundproof glass partitions between the employee cafeteria and the executive dining room so that everybody going to and from the dining facilities, including visitors, will have a view of the EDP center and thereby be reminded of the scope of company operations. S&H has already been intrigued by the reaction of visiting executives to this unmistakably prominent placement of the newest corporate status symbol.

RECEPTION ROOM: Walls, Ceiling: plaster/painted white; solid straight oak planking/boiled linseed oil finish/Ezra Blank Assoc. **Floors:** carpet/wool/olive bronze/V'Soske. **Lighting:** surface, recessed/incandescent/Lightolier; Lighting & Electronics Inc. **Partitions:** tempered solar bronze glass panels/PPG/unframed/3" spaces/Ezra Blank Assoc. **Doors:** teak/U.S. Plywood/Ezra Blank. **Chairs:** Gerald Luss design/stainless steel column/Edward Roffman Associates/tan leather/American Leather Co. **Sound System:** Mills Widener Inc. **Ashstands:** chrome/AMV. **Reception desk:** teak/marble/Luss design/Ezra Blank. **Desk chair:** bronze/Steelcase Inc.; black wool/Jack Lenor Larsen. **Planters:** mirror stainless steel/copper liners/recessed uplights/Cumberland Furniture Corp. **Plantings:** The Greenhouse. **Sofa:** Luss design/mirror steel base/Cumberland; tan leather/American. **Table:** Luss design/mirror steel base/gray glass top/Pittsburgh Plate Glass. **Pendant light:** Salem Light/Robert Salem Inc./Luten-Clary-Stern. **Projection screen:** Mills Widener Inc.

SUBDIVISIBLE AUDITORIUM: Walls: vinyl covered/yellow-greige/Laue Bros., Vicretex. **Folding acoustical walls:** Metal sandwich panels/painted yellow-greige/Elof Hansson Inc. **Ceiling, Screen Walls:** white painted plaster. **Floor:** carpet/olive bronze wool/V'Soske. **Speaker panels:** woven plastic/beige. **Chairs:** aluminum/light yellow leather/Eames design/Herman Miller Inc. **Conference tables:** Howe Folding Furniture; teak tops/Ezra Blank. **Projection equipment:** Dukane. **Lighting:** Lightolier; Lighting & Electronics, Inc.

ELECTRONIC DATA PROCESSING CENTER: Walls: metal partitions/painted yellow-greige/Aetna Steel. **Partitions:** aluminum posts/Aetna; wire glass panels/Misco Wire Glass Co. **Flooring:** vinyl tile/off white/Azrock; floating/Liskey Aluminum Inc.; blue wool carpet/Stratton Industries. **Ceiling:** acoustical tiles/perforated metal/off white/Armstrong. **Lighting:** pendant globes/Kurt Versen. **Chairs:** computer room/Steelcase; waiting room/Herman Miller. **Tables:** white plastic laminate tops/black stem base/B. N. Levy. **Computer:** IBM.

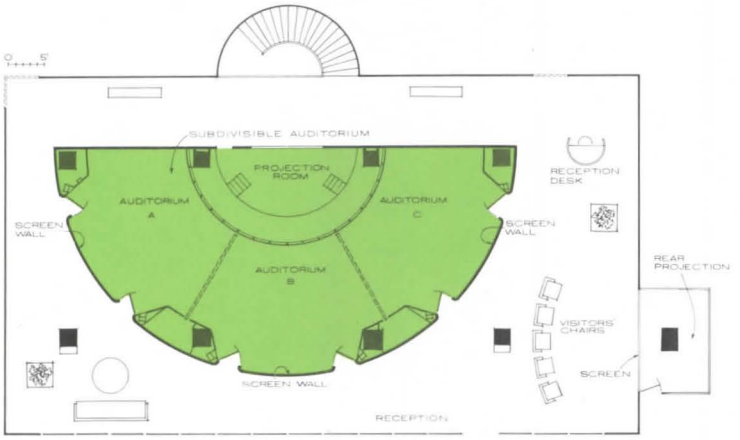


PHOTO: BEN SCHNALL

PHOTO: BEN SCHNALL

PRESTRESSED MEMBRANE TENSION STRUCTURES

BY RICHARD LARRY MEDLIN

The following article presents some general thoughts on architecture and lightweight structures, reports on studies of a lightweight structure, and suggests possible applications for that structure. The presentation is based on research performed by the author while an American guest at the Entwicklungsstätte für den Leichtbau (Institute for the Development of Lightweight Construction) founded in Berlin by Frei Otto in 1957.

History has indicated that our great works of architecture are primarily those in which the material and the nonmaterial were equally comprehended and given equal consideration. We find examples of this in the case of the relationship of nonmaterial considerations of form to the material aspects of structure.

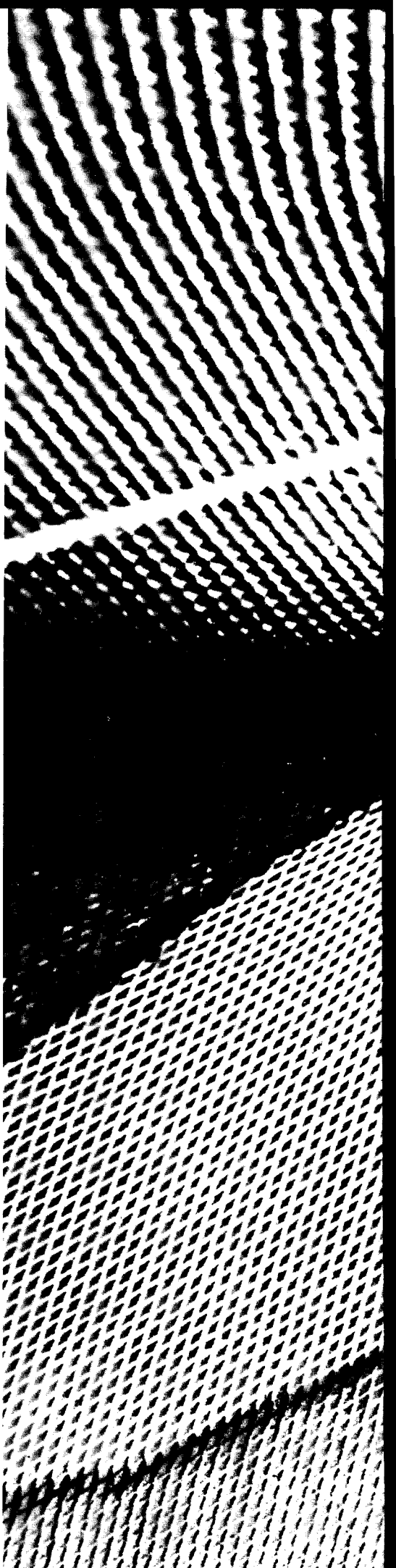
Greek temples such as the Parthenon and the Erechtheum in Athens, and the Temple of Artemis at Ephesus, were strongly dedicated to man's spiritual needs. These masterpieces are works in which the architect had an unlimited capability in the use of post-and-lintel stone construction.

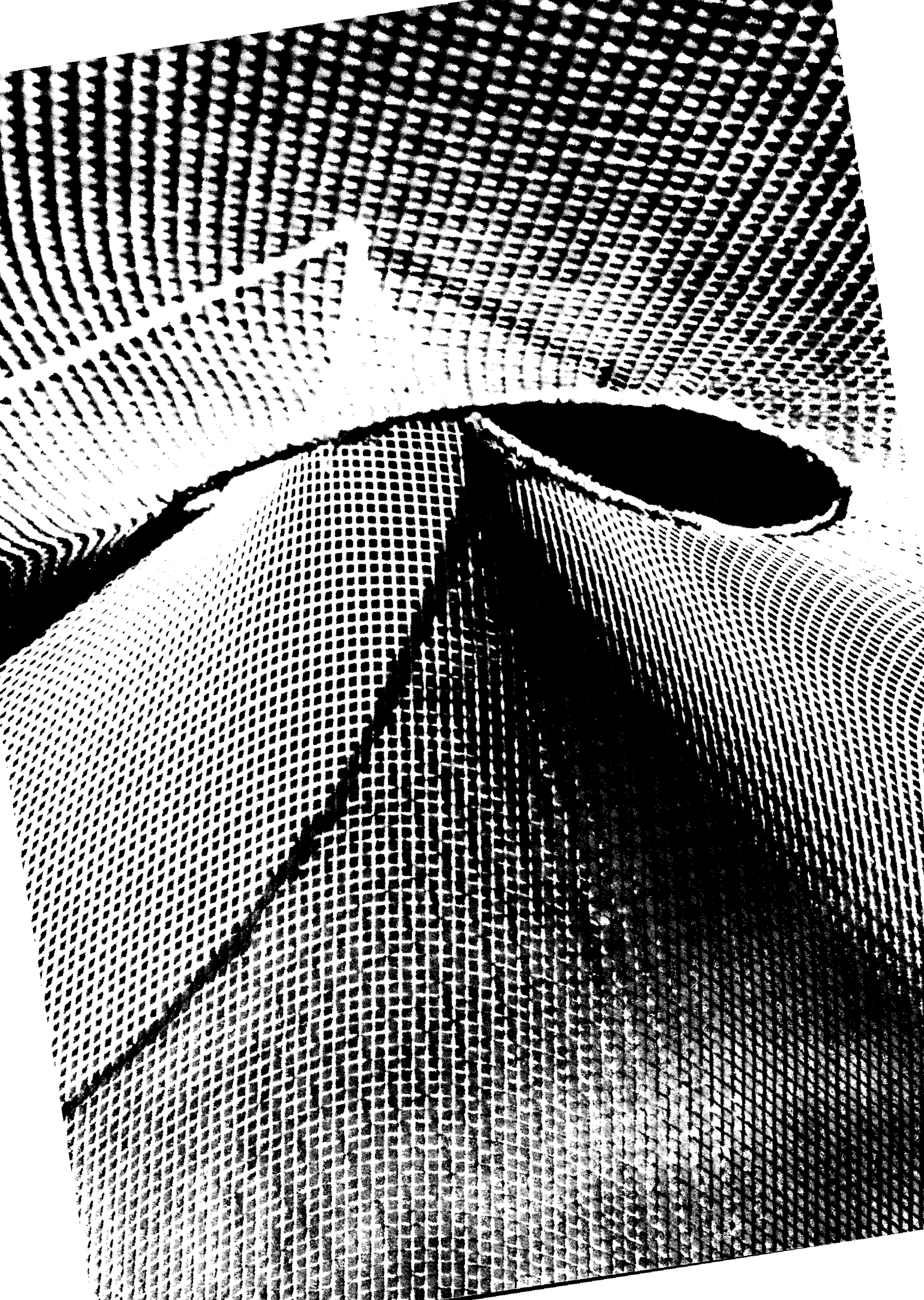
In the 20th Century, grace and elegance have been attained in high-rise glass and steel buildings by Mies van der Rohe. He so thoroughly possesses a knowledge of curtain-wall and steel-skeleton construction that his refinement of them produced these nonmaterial results.

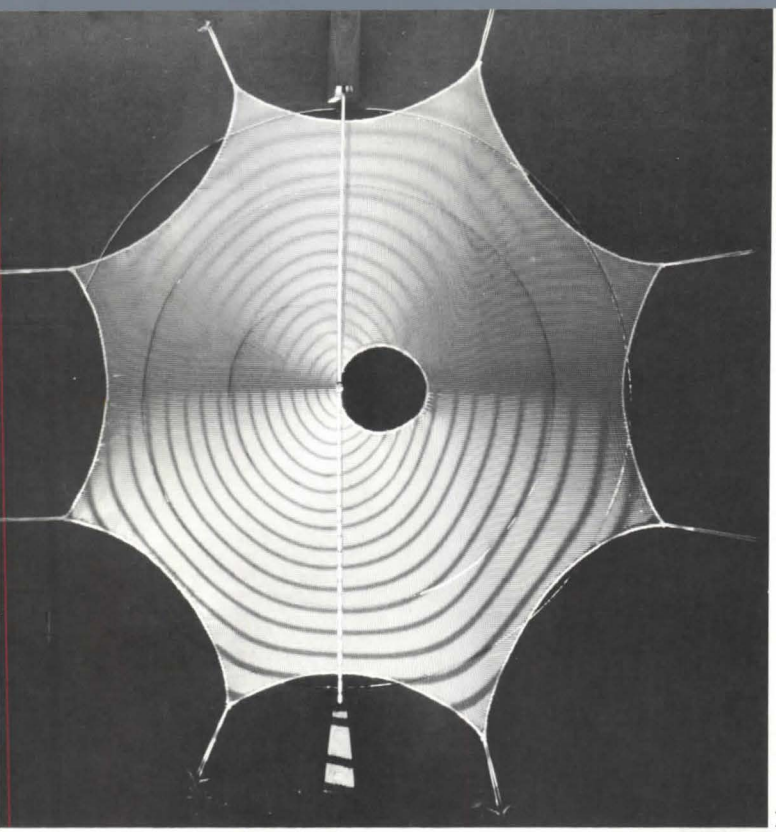
Currently, much is being done and said about the desire for an architecture of greater plastic, structural, and spatial qualities. In this field of architectural consideration, we suffer one of our greatest lacks of interrelationship between the material and nonmaterial. Perhaps the shell structures of Felix Candela, Eduardo Torroja, and Pier Luigi Nervi are our best examples of a plastic architecture in which aspects dedicated to man's spiritual nature and to physical structure are equally controlled.

Reasons for Research

It is with the intent of presenting an applicable tool for contemporary and future architectural design tasks that this writer reports on recent research performed at the Entwicklungsstätte für den Leichtbau in Berlin, under the inspiration of its founder and director, Dr. Frei Otto. The objective of the work was to expand possibilities for lightweight structures. The ultimate goals are greater construction economy, which is to be achieved by: minimizing energy, construction time, and increasing building adaptability; and expanding the horizon of plastic spatial







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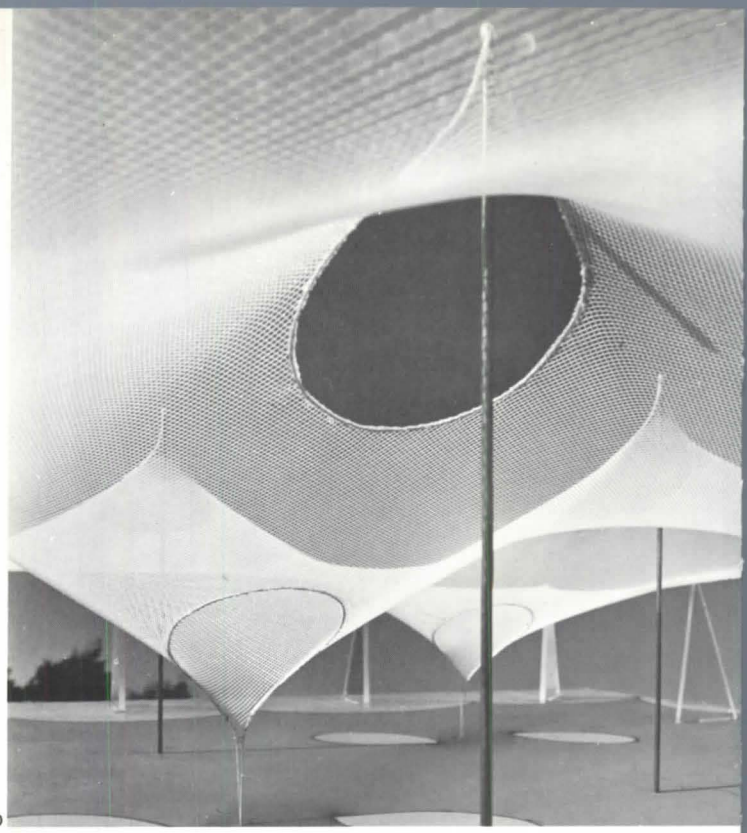

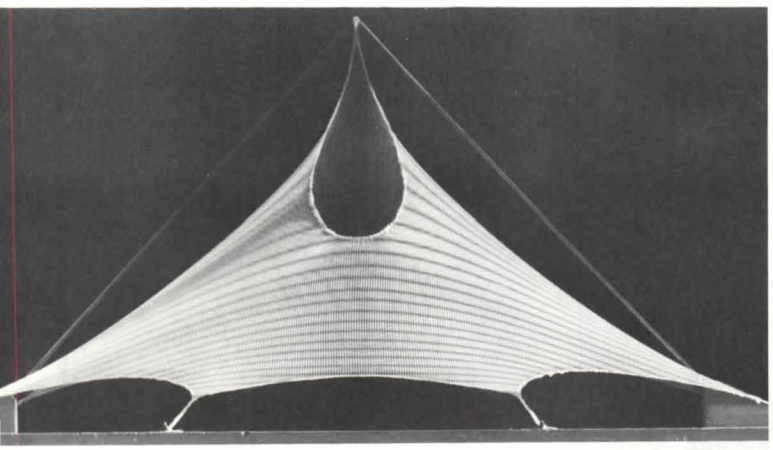

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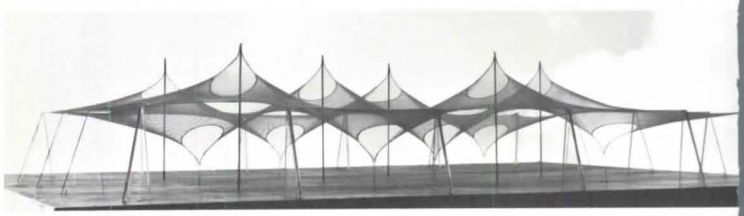

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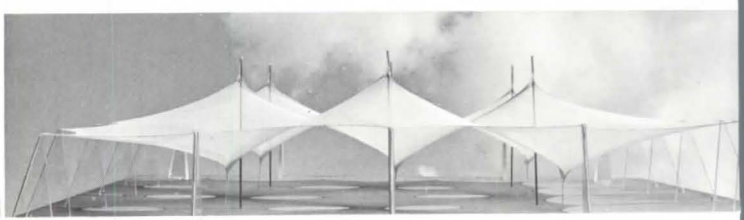

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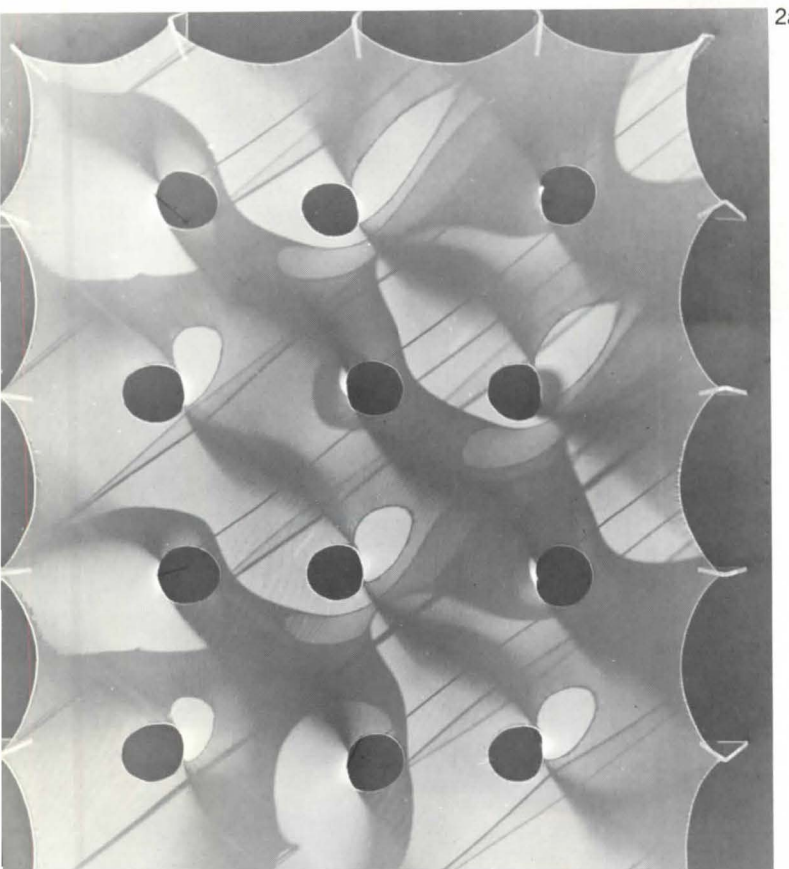

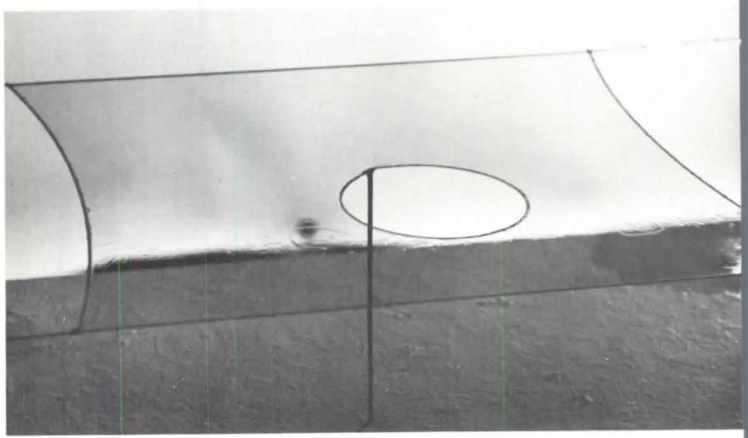

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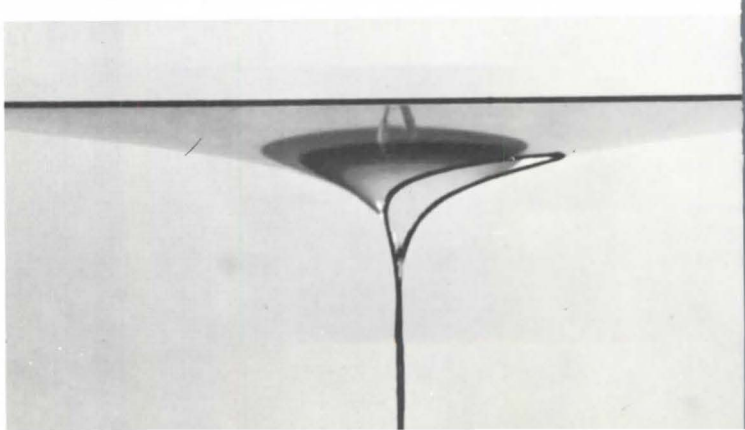

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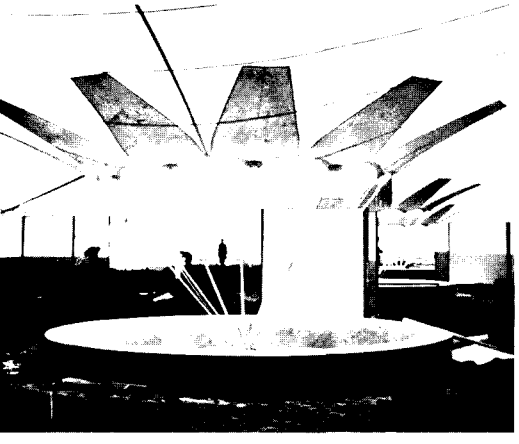

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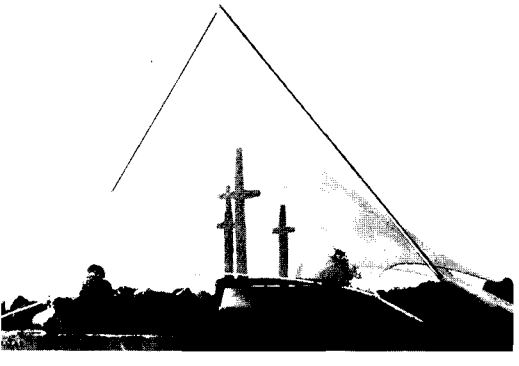

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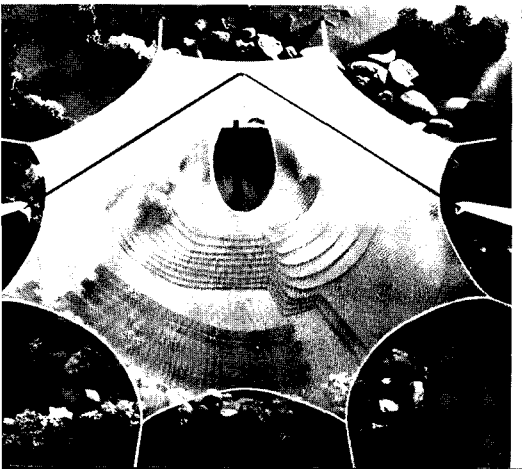


5b

experimentation in construction.

These goals were pursued in the field of tension structures for three major reasons: (1) most materials have considerably greater limits in tension than in compression; (2) tension members are stable, whereas compression members have a tendency to buckle; (3) a three-dimensional tension membrane may be utilized in such a manner that counteracting pulls from all directions produce a prestressed structure that obtains stability from the membrane's anticlastic curvature (two-directional curvature of opposite sign).

Research Studies on Lightweight Tension Structures

The projects shown in Study A **(1a, 1b)** and in Study B **(2a-2d)** are minimal surface structures that were inspired by experimentation with soap films.[1] Soap films were explored because, within a given frame, they assume an equal tension minimum surface.[2]

The main element under investigation in these studies was the structural component that pulls or pushes a structural membrane into tension. Until now, the most sophisticated devices used to place membranes in tension are an umbrella-like apparatus **(3a)** for pushing the membrane up, and a parachute-like rig **(3b)** for pulling the membrane down. It was discovered in soap film studies that these devices can be simplified to a single cable loop for support or restraint.

The loop is produced by simply suspending a limp doubled cable in a flat soap film (the equal tension in the flat membrane will draw the cable to a true circle, **1a**), and stretching the membrane by lifting the ends of the cable. The equal tension of the soap film will draw the loop to a configuration with an equal radius of curvature in space **(4b)**.[3]

The process of approximately reproducing this phenomenon in a cable net was a laborious trial-and-error procedure of attempting to determine the flat plan form that would assume a curvature of equal radius in space when stretched. It was not a true circle as it was in the soap film. This is because a soap film is a fluid and deforms to the final stretched shape by realignment of the soap film's particles in all surface directions; whereas, the cable net deforms to the final shape only by changing the angles between the cables at their intersections. The resultant form of the cable net loop in flat plan is similar to a cardioid; however, in the stretched state, it assumes almost a true circle in plan **(1a)**.[4]

The procedure of laying out a surface structure while flat has many advantages. These include easy prefabrication from a cable net or woven membrane without the need for awkward installment of cutouts, gores, or gussets; easy erection; and economies of adaptability of use. Because of their light weight and variability of form (by unfixing the net or membrane and altering the surface by repositioning the edges), the structures can generally be relocated, altered, or reoriented without great difficulty.

Remarks on Construction Methods

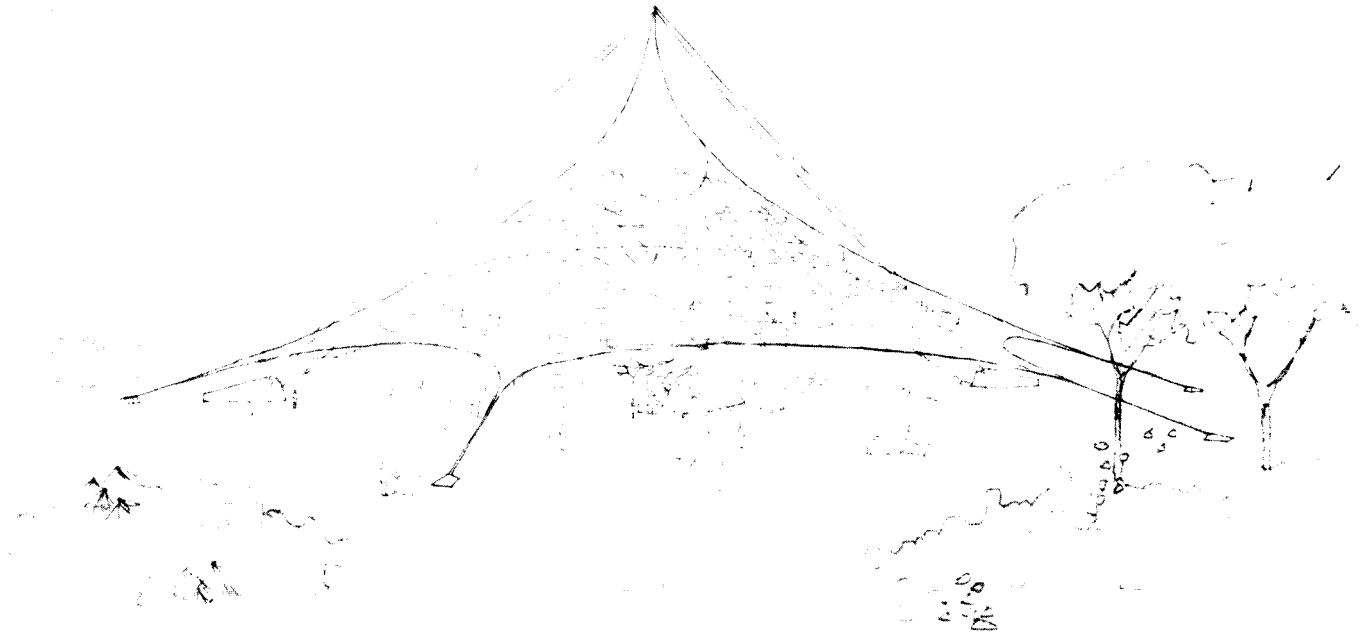
From the structural study models presented in this article, the next logical technological step toward the execution of such structures is the development of construction details and selection of materials. A general requirement for almost all structures of this type is the development of a precise measure model from which construction drawings can be prepared. The complex three-dimensional measurements of such a structural system vary considerably with each application, and until now usually cannot be compiled by existing mathematical or conventional methods. However, knowledge of existing tensile structures minimizes the difficulty of selecting materials and developing construction details. Decisions in this regard would be largely dependent upon the size of the building to which the structure is applied. For small buildings, a membrane of cotton, plastic, or synthetic material could be adequate. In larger constructions, a steel cable net covered with a membrane or solid panels tailored to the meshes could be utilized. (The grid of a cable net may be designed with great freedom of cable spacing, since buckling is not a problem.)

Comments on Architectural Applications

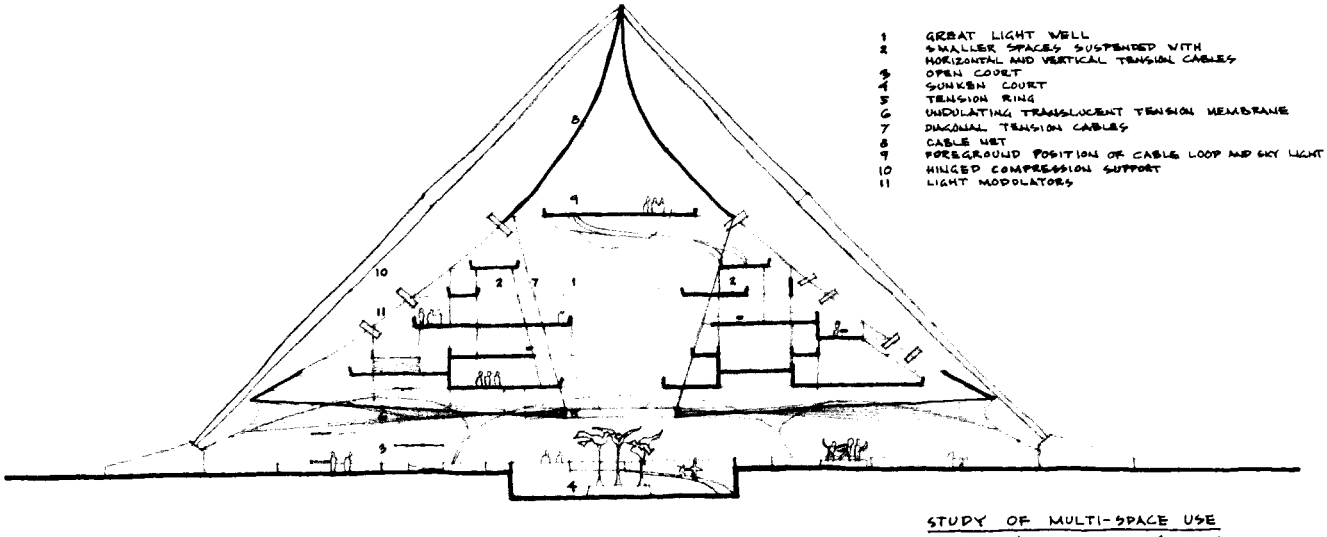
The structures developed in these studies are not finished architectural entities. Their present value is primarily as a tool to be applied to the solution of architectural problems.

In many respects, the visual qualities of these structures cannot be evaluated by known aesthetic standards. In an effort to obtain more knowledge of the potential and values of such qualities, a series of studies on architectural applications for the structures was conducted.

Perhaps the approach of seeking a function for which a structural system may be utilized will be challenged, especially by those who strictly adhere to the formula "form follows function." On the other hand, if we limit ourselves to developing forms only for an existing functional structure, we foreclose the possi-



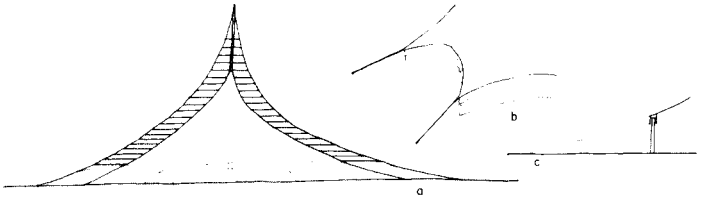
6a

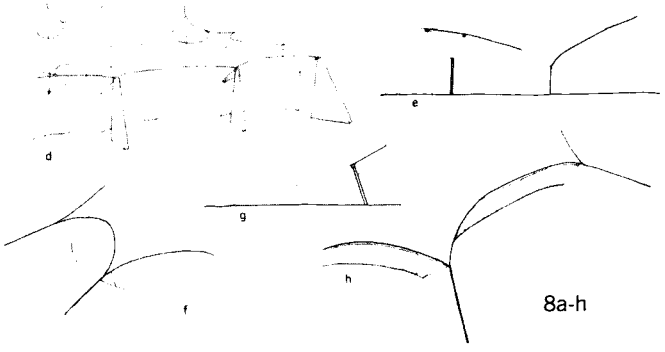


6b

STUDY OF MULTI-SPACE USE
MODEL A SECTION

7





8a-h

bility of the form suggesting an expansion of the functional structure. If our objective is to amplify and enrich man's total experience, we must include evaluation of both form and function in our design thinking.

The studies of architectural applications were made in consideration of the form limits of the structural system and not specifically for the form configuration of the study models. The economical possibility of large spans with tension construction suggested four ways in which the structures could be adapted to human habitation: (1) the conventional method of enclosing the volume to be used with the structure; (2) use of the exterior surface of the structure; (3) within the membrane (for this the membrane would be doubled, **8a** and **4a**) combinations of the preceding three.

The studies commented upon are limited to the volume within the structure. This group can again be subdivided into usage as a single continuous space and as a multispace building.

Use of Study A as single space was considered in a model of a meditation chapel (**5a** and **5b**). The structure is physically and visually light; it almost appears to hover above the surface. This was emphasized by contrasting the light structure to surface shrubbery and stones that penetrate the plan circle upon which the eight ties are anchored (**5b**). The surface modeling inside the chapel was an attempt to direct movement of people within the space and to complement the plastic character of the roof.

The plan section of the membrane just above the edge cables is almost a true circle. As the section is taken at higher points, it progresses to an oval, with the axis in the plane of the supporting frame becoming proportionately longer. (See lines of equal height in **1a**.) This fact is recognized in the plan of the gravel bed at the base of the crosses, the wall behind the crosses, the altar, and the benches, which recall the contour lines of the membrane overhead.

An interior volume is divided into a series of spaces (**6a** and **6b**). This application could conceivably be utilized for assembly functions or for a series of related or sequentially-used spaces, for such examples as a museum, gallery, art academy, offices, or religious and educational buildings.

Smaller spaces of variable size are developed in a stepped pattern close to the surface of the cable net so that they define a large inverted conical volume within. The smaller spaces may receive light externally from the side or overhead; the loop skylight bathes the large space and the interior of the smaller spaces with natural light. The possibility of exposure to natural elements may also be valuable for ventilation purposes in certain building situations.

Using Study B, we see a metropolitan transportation center (**7**). Public transit buses and monorail trains enter on the surface level in a direction parallel to straight lines of equal height (**2d**) in the membrane above. Elevated pedestrian monorail trams cross over these routes at right angles and also parallel straight contour lines above (**2c**). The right-angle grid of the mean contour line of this study might also be useful in such applications as a school building, greenhouse, or factory.

The structures of this research may also be applied to reduce the waste of large unused volumes that are inherent in the application of certain structural systems to some architectural tasks. An example is the traditional approach of suspending an acoustical envelope of plastic form within a rectangular volume. Tension structures may be designed in such a way that the exterior shell, which shields the inside from exterior sound, may have a closer form relationship with the interior shell, which controls sound within the building.

Details of Architectural Applications

An important detail is the architectural treatment of the loop. This must be done so that the visual expression of the loop as a primary structural element is not destroyed. Possible uses of the loop are as a skylight or a ventilator. For these it could be left open, covered by a bulbed form or by a projection of the surface of the surrounding membrane, or perhaps the loop's equal radius in space with its curved line of centers might suggest a ribbed covering that would open and close.

In recent years, pilotis and stilts have been utilized with increased frequency to raise the mass of a building above the surface. This has been done to reduce visually the weightiness of buildings, to provide a base or juncture between a building's mass and the ground, and to enable a greater freedom in surface development, particularly in respect to matters of ingress and egress in urban applications. The tensile anchor cables at the base of the presented structures are in many respects similar to pilotis and stilts. However, they must be architecturally expressed as load diffusers or distributors rather than as load bearers or gathers. The space under the base edges of the membrane may be left open or enclosed by a *continuous* membrane from the rim cables to the ground (**8b-8h**). An entirely different possibility is to return the edge of the membrane by incorporating a perimeter compression ring and using it for a functional purpose (seating perhaps).

Conclusion

A postulate of this paper is that, in architecture, the material and the nonmaterial must be considered and included to equal cognition and conceptual depth. If this is done, waste may be easily discerned, and thus greater economies of energy-work, materials, and time will be realized. To acquire such sagacious and clairvoyant talents, men must pool their creative experiences.

Creative acts are of two orders. The first is the initial conception of an entity. Acts of this order are rare. Acts of the second order are those that occur in response to the entities of the first. Disciplines assumed for such acts are often abortive. In many cases, the product of such acts is the antithesis of the initial concept. Each of these orders is an important architectural task. If architecture is to advance, creation of the first order must be analyzed and evaluated; then expansion or refinement must be based upon these convictions, not in avoidance of them.

The structural experiments presented in this report are an effort to expand knowledge of tension structures. They are only an embryo—simply words to be added to the language of tension. Perhaps these words will provide the vocabulary for new architectural statements.

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[1] The important soap film studies (**4a, 4b**) were conducted by Bernd Friedrich Romberg. Other studies are the work of the author.

[2] A soap film in weightless condition is an absolute equal tension minimum surface. In similar configurations, other materials such as the cable nets of these structures approach minimum surfaces, but after such a membrane is stretched beyond a certain point tension increases toward the loop area. The quantity of the increase varies with the material used.

[3] The centers of the radius will travel along a curved line. This may be more easily understood by first thinking of a spiral spring as a curve of equal radius in space with centers traveling along a straight line.

[4] Membrane unit stress =

$$\frac{\text{Total vertical force} \times \text{Slope of membrane}}{\text{Circumferential length of membrane at horizontal section}}$$

Approximate force in loop cables =

$$\frac{\text{Total vertical force} \times \text{Slope of cables}}{\text{Circumference of horizontal geometric section upon which the membrane section is circumscribed—Circumferential length of membrane}}$$

Accordingly, at the point of junction of the loop cables, the slope is unity, the total vertical force is in the cables, the length of the membrane is zero, thus the geometric section upon which the membrane is circumscribed is infinite (i.e., a straight line). Hence the approximate plan circle of the loop is flattened as the curve approaches the juncture of the cables.

NOISE ABATEMENT BY BARRIERS

BY M. RETTINGER

Effectiveness of noise barriers, such as walls, hedges, rows of trees, etc., is discussed by an Acoustical Consultant of the West Coast Engineering Department, Radio Corporation of America, Burbank, California.

Noise is the source of many complaints, and most persons are prepared to pay a premium for quiet residential surroundings. Not infrequently, an entire community becomes affected by unwanted sound, as when a freeway starts to traverse its home ground or a new airport is constructed nearby. Even businesses such as drive-in theaters and hospitals are adversely influenced by the presence of high noise sources, and a number of lawsuits have been instituted as a result.

Architects and engineers are frequently asked about the effectiveness of barriers, such as high walls, hedges, and rows of trees. How high does such an obstacle have to be to become effective as a noise shield? How far or how near does the source of sound on one side of the wall and the observer on the other side of it have to be to provide desired results for a given height of wall? Are all sound frequencies equally affected by the obstruction, or is there frequency discrimination? And, most importantly, how much money for how much noise reduction?

Textbooks up to the 1960's (the author's own included) have carried little information on the subject. The writer has worked out the mathematics of the problem elsewhere, and it is the purpose of this article to note the essential results ("Noise Level Reduction of Barriers," September 1957 *Noise Control;* and "Noise Level Reduction of 'Depressed Freeways'," February 1960 *Journal of the Society of Motion Picture & TV Engineers*). Repetition of the derived equations appears undesirable, since they involve Fresnel integrals, which in turn require special tables for their solution. However, some curves and pictures will tell the story meaningfully, since we are chiefly interested in an over-all picture, a guiding summation.

Frequency Effect

For one particular disposition of noise source and observer, the effects of introducing a wall between them is shown (1). This illustrates the "frequency effect" of the obstacle, and exists for all such shields, regardless of their height. In the upper part of the illustration the (nondirectional) noise source is at S, an observer at P, and the wall height is

given by h. The chart below shows the sound-level reduction as a function of frequency for various wall heights. The curves show the diffracting (bending) effect of sound waves. If sound waves would not bend, the wall would be a perfect insulator (as long as it itself does not permit the transmission of sound through it) because the sound waves, once they have passed the wall edge, would continue straight to the sky. The curves are to be interpreted as follows: If, say, a 100-cycle source produces a signal level at P equal a given db level with no barrier between source and observer, then, according to the curve, the erection of a 18-ft-high wall will lower the signal level at P by 13 db. At 500 cycles, the corresponding excess sound reductions would be in the order of 19 db, since higher notes bend less readily than lower ones.

Surprisingly, the required barrier for the above example would not have to be heavy, although its transmission loss at 100 cycles should exceed 13 db and at 500 cycles should exceed 19 db. Thus a ¾-in.-thick plywood wall, 18 ft high, would well suit the purpose. The material cost for such a wall, as might be used around a drive-in theater, should not exceed $9 per running foot, which comes to 50¢ per db per ft (not counting labor, of course).

Transmission Losses of Materials

Following is a list of building materials, their weight per sq ft when 1-in. thick, and their average transmission loss according to the mass law formula.

Material 1" Thick	*Wt/sq ft Lbs*	*Transmission Loss At 500 Cycles Db*
Cork	1	23
Fiberboard	1.5	25
Plywood	2.5	28
Water	5	33
Acrylic Plastic	6	34
Concrete	12	38
Masonry	12	38
Marble	13	38
Aluminum	14	39
Glass	15	39
Steel	40	46
Lead	60	48

Self-supporting concrete walls along highways should be of the "tilt-up" type. Concrete cylinders 2 ft or 3 ft in diameter are sunk into the ground some 10 ft or 15 ft apart to act as anchors for the concrete foundation. Rectangular concrete columns, heavily reinforced, are erected at intervals, and the 6-in.-thick ground-cast wall is raised and tied into the columns. Construction costs for a 20-ft-high wall run from $25 to $50 per running foot, depending on the ground conditions, or $1 to $2 per db per running foot (for a 25-db reduction).

Building Ordinance Considerations

Brick walls around residences are generally of limited value, because they cannot be made high enough without interfering with the local building ordinance. In Los Angeles, for instance, maximum height of such a wall facing the street is 3½ ft, although it may be 6 ft on the side and rear of the building (where there is generally little traffic).

In some instances, it is possible to erect an earth dam for a similar purpose, as at the mouth of a canyon opening onto a freeway. Such a dam was erected in Los Angeles by Universal TV Studios along Hollywood Freeway to permit the sound recording of Westerns within the canyon.

We must now consider the effects of distance between noise source and wall. This effect is illustrated **(2)** for a frequency of 100 cycle/sec. It can be seen that the wall becomes the more effective the closer it is to the noise. Thus, for the same position of the observer (300 ft from the wall), a 12-ft-high wall at 25 ft from the source affords as high a noise reduction as a 24-ft-high wall at 100 ft from the source—namely, 16 db. The condition is true also "in reverse," with the observer coming closer to the wall and the source of noise remaining at a fixed distance from the wall.

For quick estimation, a simplified combination of the above illustrations is presented **(3)**.

Conclusions

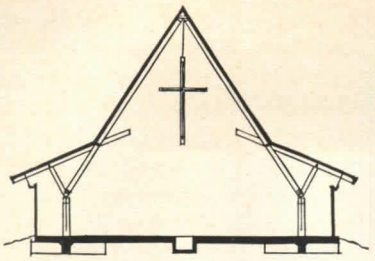
What conclusions can be reached from these calculations? Speaking broadly, we may say that, for most cases of economical wall or barrier construction (not more than 20-ft high), a noise level reduction from 10 to 15 db will result, provided the wall is long enough so that no flanking of sound can occur. Doubling the wall height will result in a 6 db increase of sound-level reduction for all frequencies. This is true only as long as the source remains at the height assumed in the calculations. In the case of an airplane take-off, the noise-level reduction is practically nil once the plane's altitude exceeds the wall height. On the other hand, a noise-level reduction of even 10 db may have a pronounced psychological effect. The curves shown refer to sound pressure levels in db, which is a purely physical quantity, although sometimes, for the sake of a simple illustration, a db is likened to the minimum "loudness" change detectable by the human ear. Loudness refers to a subjective impression, is complicatedly dependent on frequency, frequency bandwidth, signal strength, duration, etc. (For a more complete discussion of the subject, the reader is referred to "Calculating Loudness," by S. S. Stevens, September 1957 issue of *Noise Control.*)

As a simple although pointed example of what may be expected of a barrier in the way of loudness reduction, consider the case of a low-frequency noise (from 75 to 150 cycles/sec), whose sound pressure level is 90 db, which equals 23 sones on the loudness scale. A 15 db reduction by the sound barrier would lower the sound pressure level to 75 db, which corresponds to 7.5 sones on the loudness scale. Hence, the wall produced a threefold (23/7.5) reduction in loudness, because sones are a direct measure of loudness (a noise of 10 sones being 10 times as loud as a noise of one sone).

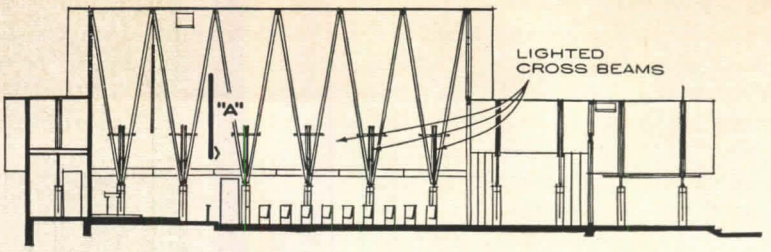
Similar results are obtained by the use of a loudness scale (as expressed in "Noys" and "Perceived Noise Levels," and described in the paper, "Some Effects of Spectral Content and Duration on Perceived Noise Level," by K. D. Keyter and K. S. Pearsons, published in the June 1963 issue of the *Journal of the Acoustical Society of America*).

Hedges and rows of trees have a minor and sometimes an unnoticeable effect on reducing traffic noise, regardless of their location or proximity to the noise source. Sound-pressure level measurements of traffic noise in front and behind a 7-ft high, dense privet hedge showed no noise-level reduction at 100 cycles, and only a 2 db reduction at 1000 cycles. Hence, such hedges and rows of trees often tend to give more of an illusion of noise reduction than an actual lowering of the noise.

By "depressing" freeways and other traffic arteries below the level of the adjoining residential areas, noise-level reductions are obtained similar to those of roadways bordered by barriers. In this case, the walls or banks of the roads act as barriers, subject to exactly the same laws. These depressed roads may be more costly, not only because of the large amount of soil that has to be moved, but also due to the added problems of rainwater drainage. Generally, however, depressed freeways are less unsightly than concrete walls within a community.



CROSS SECTION



LONGITUDINAL SECTION

Photo: Jerry Bragstad

ROOF TO BEAM DETAIL
3/4" SCALE

PLAN VIEW
(CROSS BEAM–PIPE CONNECTION DETAIL)
3/4" SCALE

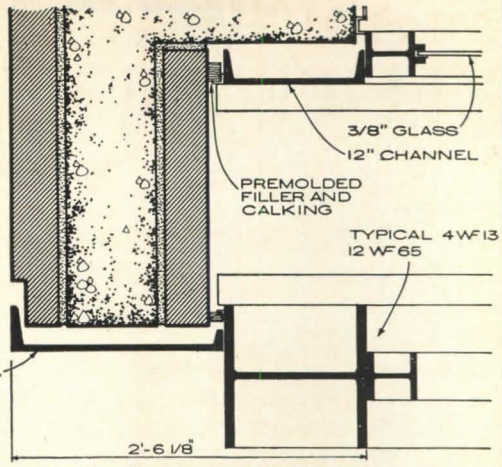
PARTIAL SECTION AT "A"

TRINITY CHURCH: Sonoma, California
IAN McKINLEY, Architect

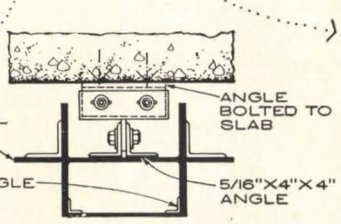
SELECTED DETAIL
INTEGRATED LIGHTING

Photo: Alexandre Georges, courtesy Museum of Modern Art

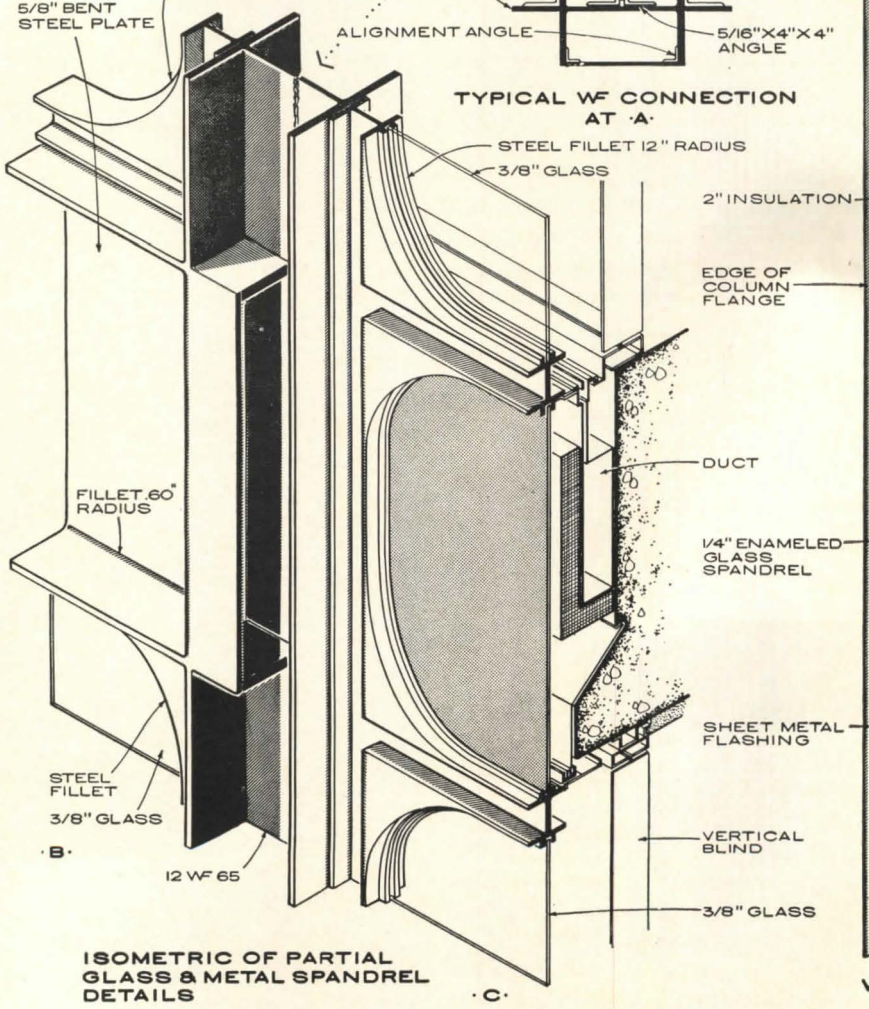
GARDEN ELEVATION (NORTH)



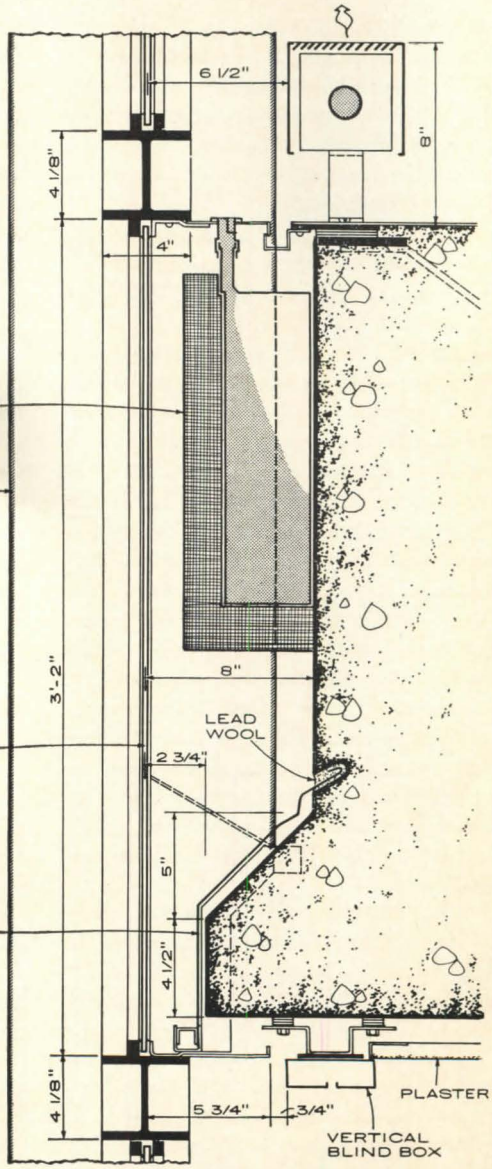
PLAN SECTION OF CORNER



TYPICAL WF CONNECTION AT ·A·



ISOMETRIC OF PARTIAL GLASS & METAL SPANDREL DETAILS ·C·



VERTICAL SECTION AT SPANDREL

NO SCALE

MUSEUM OF MODERN ART: New York, N.Y.*
PHILIP JOHNSON, Architect

SELECTED DETAIL
GARDEN WALL SECTION

* See July 1964 P/A

LEASING ARCHITECTURAL OFFICE EQUIPMENT

BY SAUL STEINBERG

Advantages of leasing office equipment for architectural firms are reviewed by the president of the Ideal Leasing Corporation, Great Neck, Long Island, New York.

"We're in business to supply our services, not hard goods," an architect said to me recently. "Therefore, it doesn't make sense to tie up our capital in office and peripheral equipment when we should be using money to hire more and better brainpower."

This architect might have been voicing the opinion of the vast majority of his confreres on the business practices of such firms.

That this feeling is growing among architects may be pointed to by noting that, whenever the leasing of equipment is brought to the attention of those in charge of finances at architectural organizations, there is a resultant climb in the use of this system for acquiring needed equipment, as opposed to outright purchase.

At our organization—where we specialize in leasing office equipment, computers, and electronic data processing machinery that are of particular use to architects—we find that, in conversations with executives of such firms, there is little knowledge of this type of leasing and the reaction is usually, "Why hasn't this been brought to my attention before?"

Apparently, there is a general belief in the field that leasing of equipment is reserved for large industrial companies and is not offered to smaller architectural firms.

This notion can easily be refuted by pointing to several leaders who use leasing to varying extents.

Among these are Hicks Drafting (a part of the Edward Durrell Stone organization), which leases photocopy equipment; Deeter & Ritchey of Pittsburgh, which takes expensive calculators through this method and uses them for engineering and cost analysis programs; and the Morris Lapidus firm of New York, which has also acquired photocopy equipment.

In addition, several architects have leased their entire office requirements from us, including desks, chairs, typewriters, drafting boards and lighting fixtures, through framed pictures and even the wallpaper.

It is our observation that these architects have found leasing attractive because, as in any other service business, they make their living from their talent and not from their capital investment. Therefore, they can husband their funds for attracting competent personnel rather than dissipating it in office equipment purchases.

Under the terms of a lease, any depreciable asset can be obtained for a term lasting as long as the life of the item itself. Of course, the equipment taken on lease by an architect may be of any type and from any manufacturer designated by him.

To summarize, the major reasons why architects lease equipment are:

(1) By leasing, an architect is able to avail himself of the latest and most modern machinery while his cash remains in his bank account.

(2) Working capital for payroll or other business functions is not diluted by a heavy cash payout at one time.

(3) Bank relations are improved because short-term bank loans for financing are not required.

(4) Lease payments are fully deductible expenses and usually allow greater depreciation than on purchased equipment.

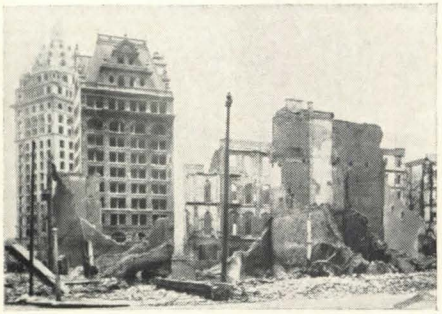
(5) An architect is able to avail himself of the latest technological advances and can update his equipment periodically without having to depreciate and sell equipment he owns.

(6) Credit standing with suppliers and customers is improved and more cash is available to take advantage of discounts on other items.

(7) Leasing provides important tax savings by allowing the financing of equipment out of current earnings.

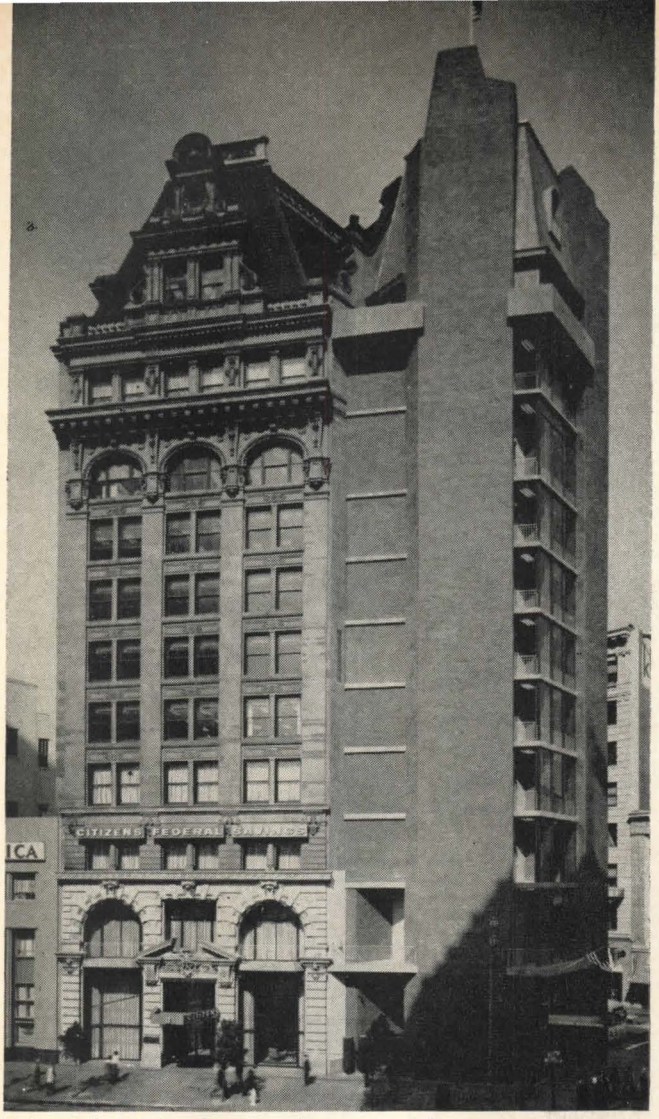
CORE ON THE GORE

When the dust and smoke of the great earthquake and fire had cleared in San Francisco in 1906, a four-year-old bank building at the corner of Market and Kearny Streets was one of the few downtown buildings to survive without structural damage. The building had been designed by William Curlett for the Mutual Bank; later in its career, it became quarters for the Citizens Federal Savings and Loan Association, which recently had it remodeled and enlarged with the addition of a vertical core element on the triangular corner formed by the meeting of Market, Kearny, and



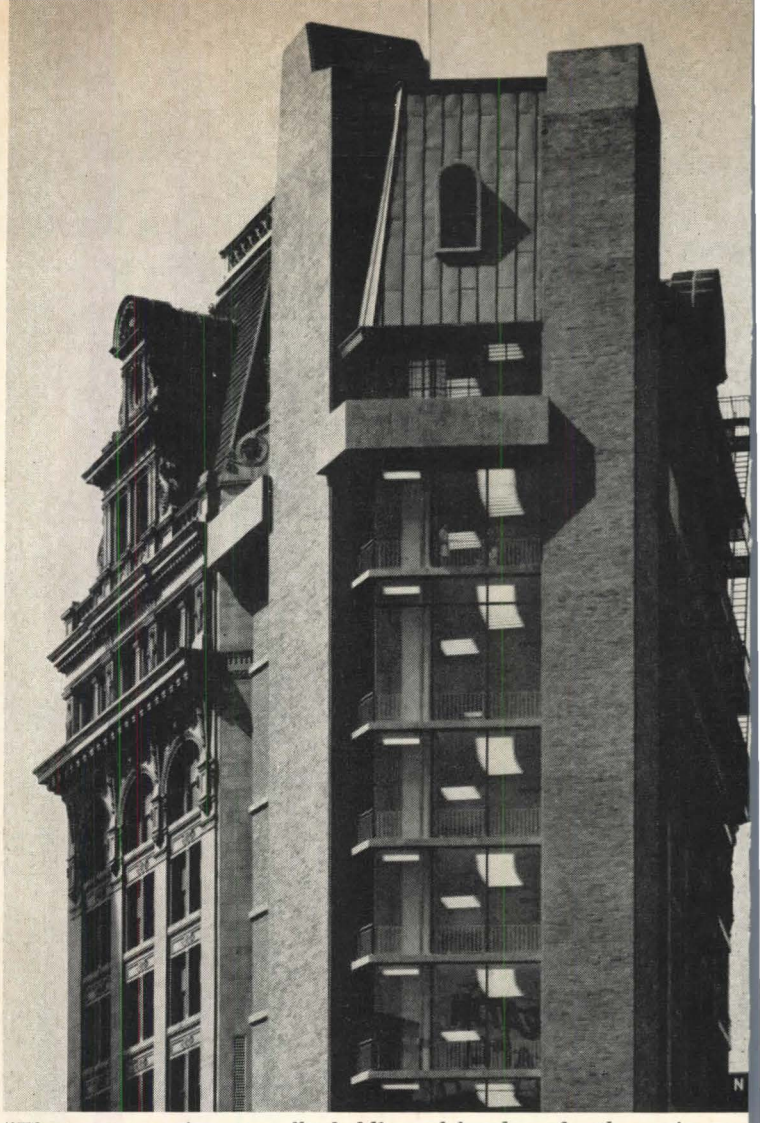
"One of the few structures to survive."

Photo: Gordon Peters



Photos, except as noted: Morley Baer.

"A valid relationship in color, materials, texture, scale, form, and details."



"The copper roof . . . recalls, boldly and handsomely, the roof configuration of the earlier building."

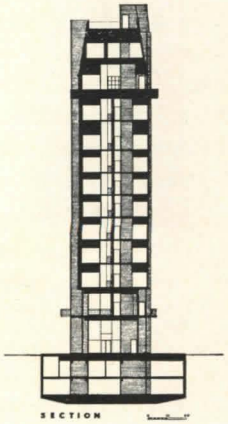
"The new spaces and the remodeled spaces are pleasantly planned and extremely well finished."

"Gay concessions forecast the sort of along-the-street activity that we hope will increase."

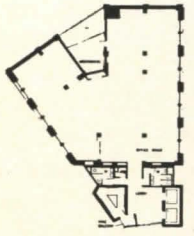
Architect feels use of old brace as element for drama in lobby makes a "virtue of a necessity."

Geary Streets. These unusual Market Street corners are called gore corners, causing architects Clark & Beuttler to coin the term "core on the gore" for the Citizens Building.

The decision to demolish a small commercial building on the corner and use this space for a lobby and vertical transportation core was the result of a study in which eight possibilities were explored, ranging from a new high-rise building occupying the entire site to merely building an addition to match the existing structure. This solution was found to afford satisfactory gross area, and to be far ahead of the other possibilities in prestige, "image"-making, ease of construction, and public relations. That this has proved to be so can be seen by the widespread favorable reaction to the building. *The San Francisco Chronicle* editorialized that the building "is earning its owners and architects generous praise for having preserved an historical landmark of Market Street." At the recent AIA Convention, the Citizens Building received an Award of Merit.

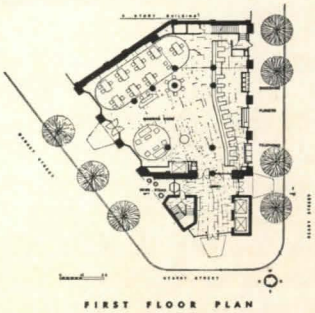


SECTION



TYPICAL FLOOR PLAN

SECOND FLOOR PLAN



FIRST FLOOR PLAN

Thomas H. Creighton, former Editor of P/A who is now a partner in the San Francisco firm of John Carl Warnecke & Associates, has followed the development of this and other commercial projects in the Market Street area with considerable interest, and has sent his reactions to P/A: "The Citizens Federal Savings and Loan Association headquarters is a fine addition to San Francisco's downtown for a number of reasons. It is in a very key position on Market Street, in an area of the city that will soon redevelop at such a rate and in such a manner that many existing landmarks face possible destruction. In 1966, construction will begin on a subway under Market Street, and this wide thoroughfare, cutting through the flat core of the city and connecting the Ferry Building on the Bay with the Civic Center and the western part of San Francisco, will gain a new and significant lease on its long and colorful life. Instead of being a dreary edge of the business district, toward which shabby role it had degenerated, it can become again a great street, linking the long blocks to its south, aching for redevelopment, and the shorter blocks on the north, formed by busy streets coming in at a different angle to form odd gore corners. The exciting possibilities for the growth of the street are now being explored by the firms of John Carl Warnecke & Associates and Mario Ciampi & Associates, as consultants to the City.

"The Citizens Building, then, located in a strategic position between the financial district and the retail commercial area, not only preserves itself as a sturdy survivor of the earthquake and fire and adds to itself in a graceful manner on a potentially awkward gore corner, but now prepares to begin a new life on a revitalized street. How good it is to see an old inhabitant spruce himself up and outshine newcomers like the Wells Fargo Building a few blocks to the east, intrusive strangers who have none of the fine, naive, friendly western character which is still the underlying visual quality of San Francisco.

"In basic forms and in detail, the Citizens Building addition complements (and compliments) the older portion. One of the most difficult design problems is to add something new, with contemporary validity, to an older environment. The risks of copyism, cornyism, or, at the other extreme, a bland disregard for the old (which is often not all that good, after all) must be avoided. Clark and Beuttler have skirted all the dangers and arrived at a valid relationship (a relationship, not a similarity, which is important) in color, materials, texture, scale, form, and details. The new is of today, the old remains of its period, and they live well together. From the street, where gay concessions forecast the sort of along-the-street activity that we hope will increase along Market Street to the copper roof which recalls, boldly and handsomely, the roof configuration of the earlier building, the design is successful.

"Inside, the new spaces and the remodeled spaces are pleasantly planned and extremely well finished. The two parts of the building link together well in use. But it is the external visual impact, the relationship to the corner, the Street, and the City that the local San Franciscan and the out-of-town visitor sees and enjoys, and this is the unique accomplishment of the building's 20th-Century architects. Their 19th-Century colleagues, if they could know, would be grateful."

Architect: *Clark & Beuttler.* ***Associates:*** *Charles W. Moore and Alan E. Morgan.* ***Structural Engineer:*** *H.J. Brunnier.* ***Mechanical and Electrical Engineer:*** *Keller & Gannon.* ***Landscape Architect:*** *Lawrence Halprin.* ***Interior Consultant:*** *Dudley Kelly.* ***General Contractor:*** *Joseph L. Barnes Construction Co.*

M-G-M PRESENTS

McMillan-Griffis-Mileto is the new name of Robert S. McMillan Associates of Rome, introduced in the October 1964 P/A (pp. 239-246). The firm has expanded to include a principal office in the United States, headed by architect William Mileto of New Haven. This puts the firm in the somewhat unusual position of having its American-born partners based in Italy, and its Italian-born partner in charge of the American office of McMillan-Griffis-Mileto. ("Interplan" is another designation M-G-M uses when doing African jobs with consultants in partnership.) The continuing internationality of the firm can be seen in two current projects, one an imaginative idea study for a United States manufacturer, the other a major governmental complex for Nigeria.

PROTOTYPE DORMITORY PREFAB UNITS

The continuing need for living quarters for students in prep schools and small and medium-sized colleges has led the New Haven branch of M-G-M and its client, the Plasticrete Corporation of Hamden, Conn., to investigate the possibilities of flexible, well-designed prefabricated units. Such systems would be arranged financially through the "lease-back" plan under which the school would lease from an outside corporation buildings conforming to its requirements, and pay annual lease payments on a per capita basis, with the possibility of purchase after an agreed period.

Basic M-G-M approach to designing the prototype was to provide dormitories that will be flexible for many needs and criteria: amount of supervision over students, whether the dorm is for men or women, allocation of bathroom facilities per student (one to one, two to one, gang lavatories, etc.), site conditions, and other requirements such as common areas and cafeterias.

The fundamental components in the architect's solution emerged as bedrooms, connected with service stacks containing heating (eventually air conditioning), ventilating, electrical, and plumbing systems. Thus, the individual room, or cell, placed on either side of the service stack, becomes a half unit. Repeat the plan on the other side of a hall, and a unit is obtained; a group emerges with the addition of two more service stacks and two more rooms. The service stacks that make this system workable would include a sink-shower arrangement that acts as the whole shower stall when a shower is being taken, protected by curtains or sliding glass doors. The toilet would be located in a small adjacent compartment. Each stack could contain one or two of these units, permitting use by one student, two students, or four students. Alternatively, large group toilets can be provided, using other service stacks strictly for mechanical and electrical services (drawings, p. 178).

The basic room units themselves —flexible in size from 10′x16′ to 14′x18′—would eventually consist of a completely precast front including a balcony, canopy, and bay window, and a prefabricated corridor partition of hollow-metal frame door and insulated panels. The walls, roof, and floor of each room would conceivably consist of a precast system of 4-ft-wide parts added in length to obtain the desired room size. A sliding door would provide access to the balcony. These units are designed to stack from two to four floors without elevators and up to eleven with elevators.

The architect promulgates two arrangements of this prototype: the string plan would allow the connection of the units in a "train" on either side of the corridor, flowing up and down the terrain as need be, and changing course when necessary or desired. This flexibility would be made possible by the ability of the units to slide up and down on the service stacks and to pivot up to 30° on the stacks. Common areas opening off the corridor could be provided according to requirements of particular schools. Also, proctors' rooms could be placed where desired along the corridors for student supervision. Storage and maintenance areas can be placed where needed.

The cluster plan would result from placing the units around a central area, which could be treated as a roof-high court, or, by dividing horizontally every one or two floors, as common living areas for smaller groups. The architect considers this system more adaptable for women's dormitories, since it would provide a more comfortable, more easily supervised layout with a smaller ratio of students per group bathroom.

With the bending and offsetting of corridors, added to the proposed carpeting throughout and the insulated wall panels, the "corridor will be adequately soundproof and aesthetically pleasant."

The combination of the two plan types, together with the possibility of vertical and horizontal expansion, should give the dormitories an interesting series of spatial experiences, both inside and outside. The architect says that "the exterior appearance of the building will be sculptured differently by the effect of the individual ratio prerequisites, and the individual site adaptations." He adds that the availability of several finishes and colors of concrete

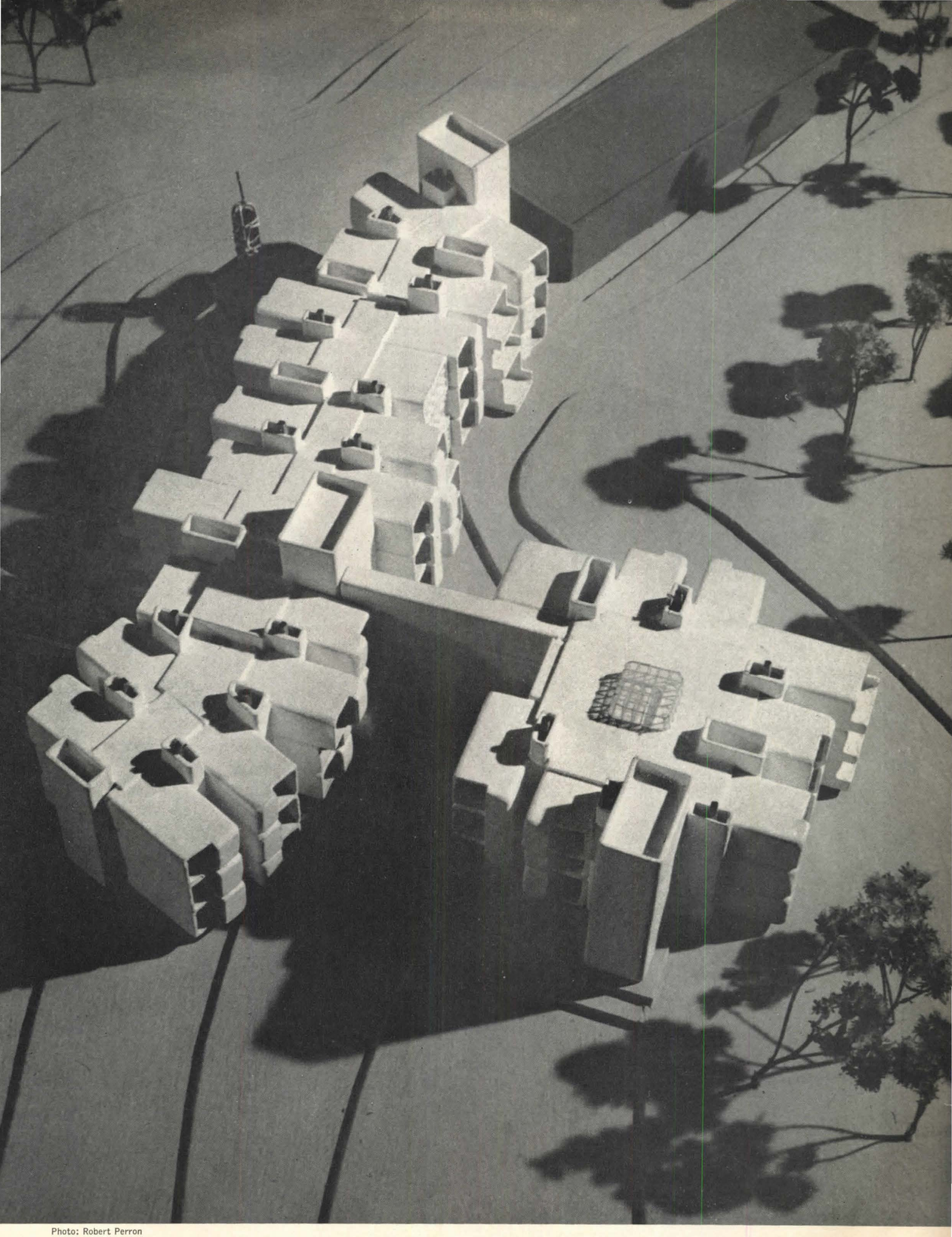
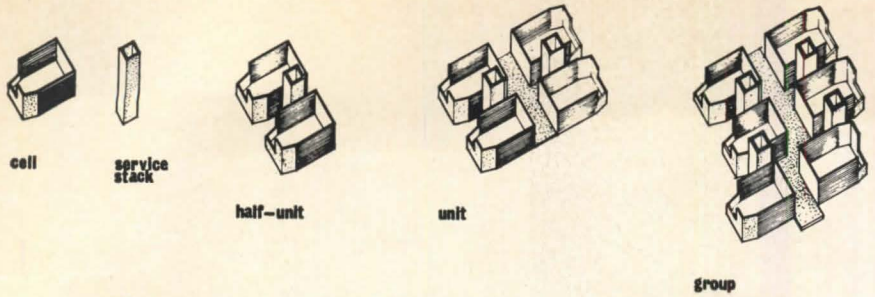
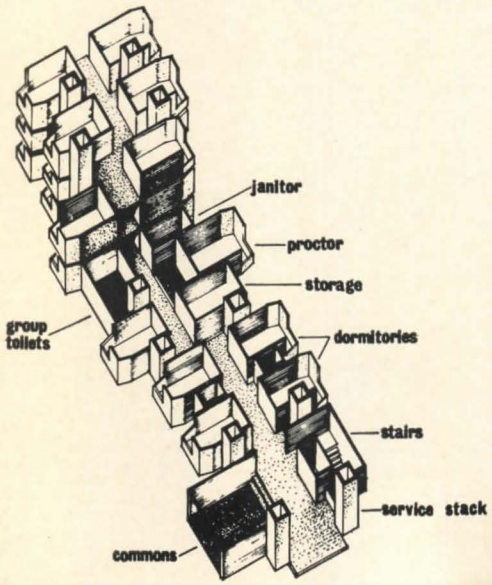


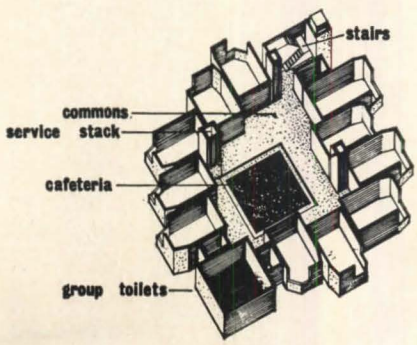
Photo: Robert Perron



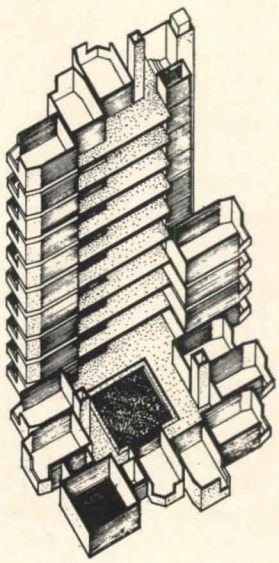
Concept Development



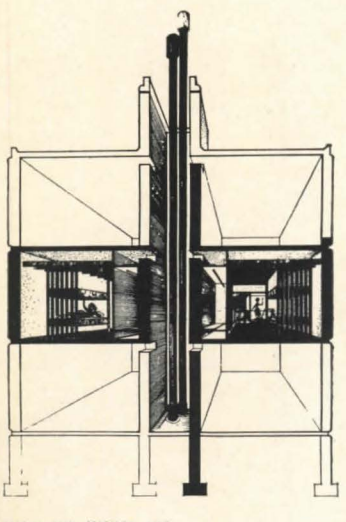
STRING VARIATION



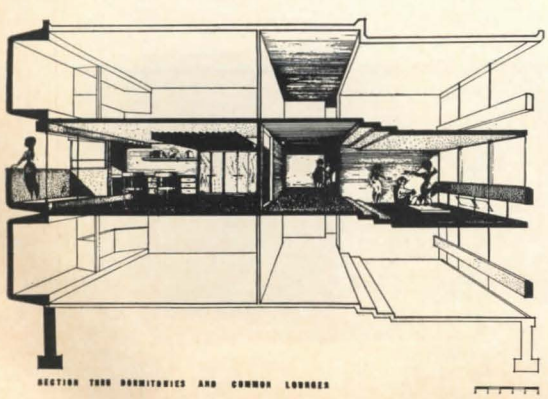
CLUSTER VARIATION



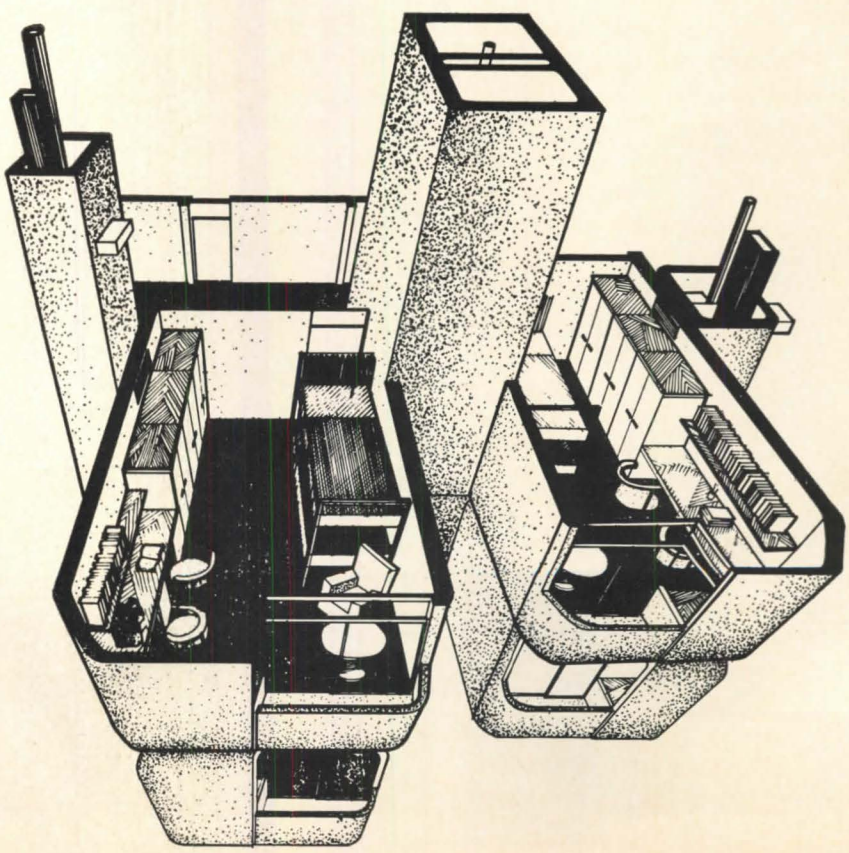
VERTICAL EXPANSION



SECTION FROM CORRIDOR SIDE



SECTION THRU DORMITORIES AND COMMON LOUNGES



Four Dormitory Units

admixtures can add to this variety.

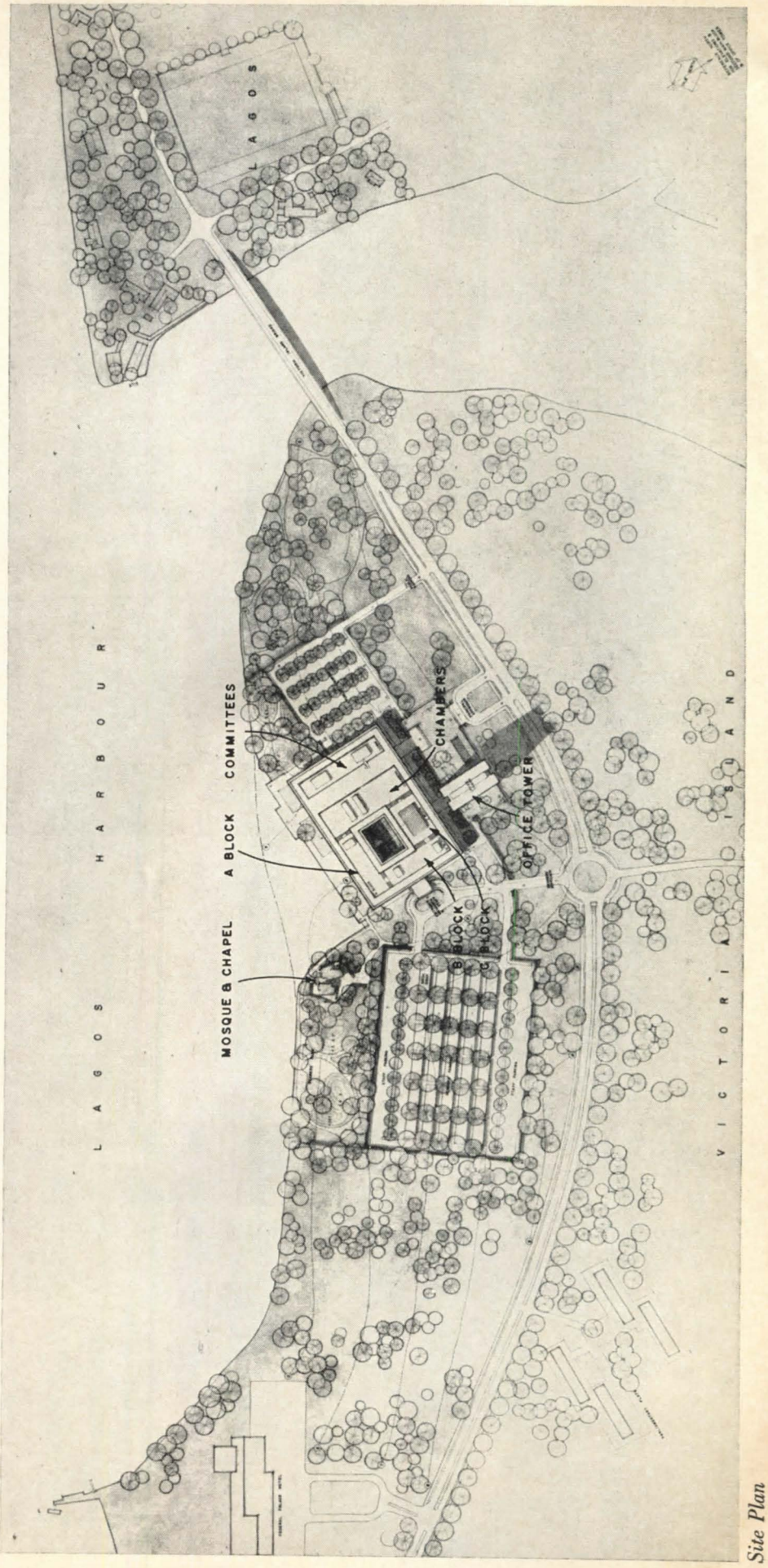
It is perhaps a psychological effect, but one wonders whether the individual rooms might indeed seem like "cells." Conceivably, this is the effect of seeing the design as a series of isolated though connected units, something like the molecular models one used to see in chemistry class, and not as a completed structure. Nevertheless, this seems an uncommonly imaginative and workable solution for a problem now affecting many schools. M-G-M and Plasticrete are to be commended for their efforts in this direction.

NIGERIAN PARLIAMENT

One of the major commissions in the Rome office of M-G-M now is the Houses of Parliament in Lagos, Nigeria. (Credit for this project actually is given as Interplan Planning Organization, Planning Consultants; Robert S. McMillan, Partner in Charge of Design; A. A. Egbor, Project Director for Federal Ministry of Works and Surveys.)

The Parliament complex will provide for a permanent staff of 2400, including members of Parliament. There will be public gallery and press accommodations for 1900 persons in the main chambers and committee and commission rooms.

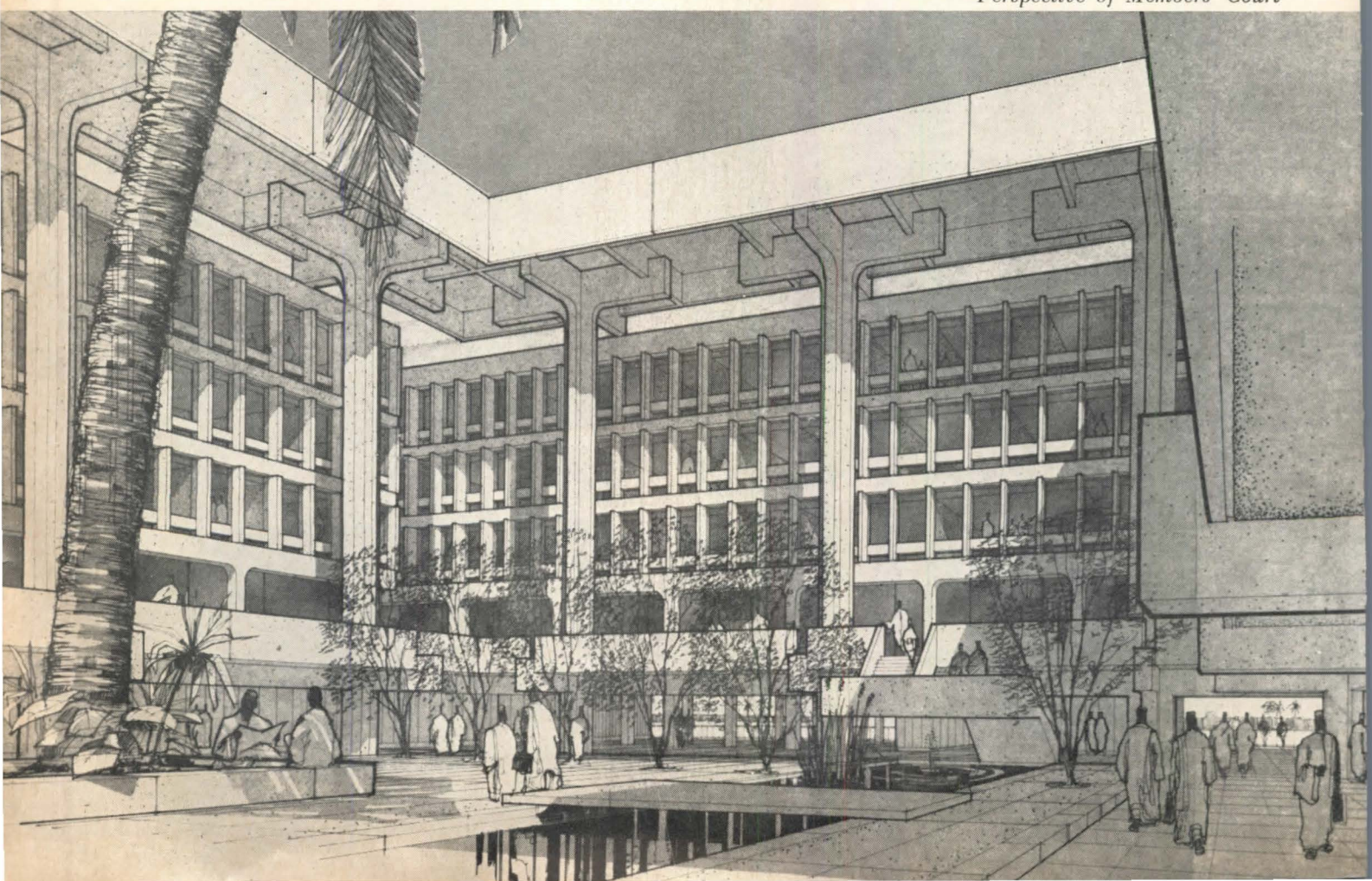
The project comprises two elements: the main block and a 20-story office tower. The main block will be subdivided into five units, which will sit upon a broad podium under a common overhanging roof (see site plan, right): 1 the Chambers block, including the Senate and House of Representatives, visitors' hall, Members' hall, division lobbies, and related facilities; 2 the Committees block, containing committee rooms and offices, and, where it adjoins the Ceremonial Concourse separating it from the Chambers block, the main admissions facilities for the building and a visitors' lounge; 3 and 4 administrative blocks A and B, providing office facilities for senior officials of Parliament and the official staff; and 5 library block C, containing the library of Parliament. Blocks A and C will also contain lounge and terrace facilities for Members on the main level.

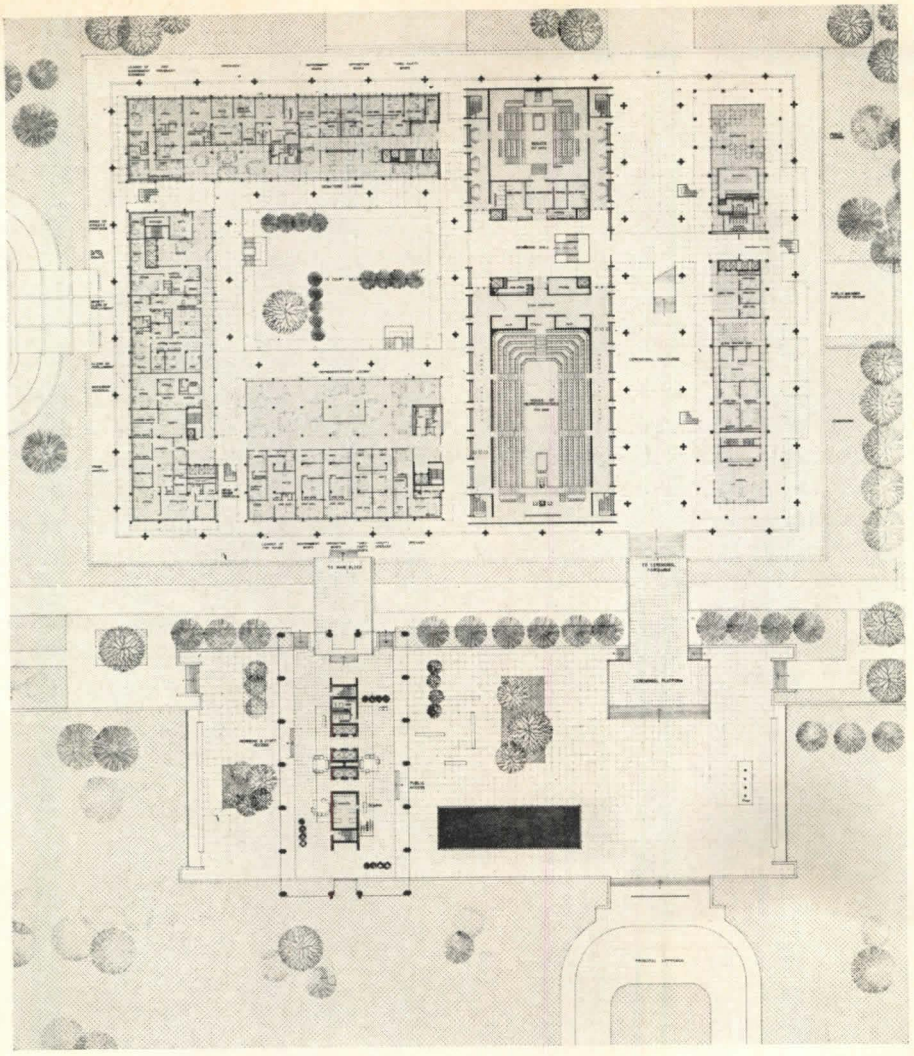


Site Plan

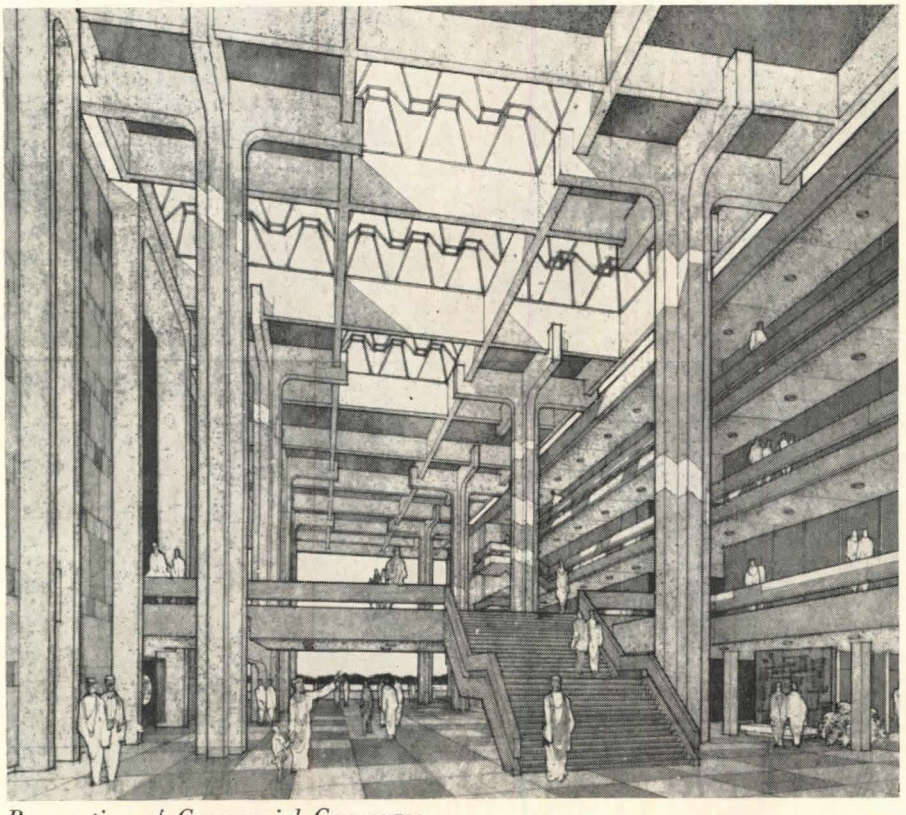
Photo: Vasari, Rome

Perspective of Members' Court





Plan of Principal Level



Perspective of Ceremonial Concourse

Whereas the Chambers and Committee blocks will define the Ceremonial Concourse, blocks A, B, and C, together with the Chambers block, will surround a multilevel open court set aside for the use of Members and staff (see plan of principal level). Around the court, which will penetrate below the major level, will be found cabinet facilities, dining rooms and lounges, and communications centers. Public and ceremonial approach to the main block and the office tower will be via the main entrance plaza; separate entrance from the Members' parking area has been provided for parliamentarians. On a secluded area of the site, there will be a mosque and nondenominational chapel.

While all enclosed spaces of the Parliament will be air conditioned, generous use also has been made of covered space cooled by natural breezes. The two major examples of this are the Members' court and the Ceremonial Concourse. All pedestrian routes or gathering places in these spaces are protected from sun and rain and cooled by orientation of the building, grilles, and placement of the different blocks with openings between. The Members will enjoy a spacious terrace overlooking Lagos Harbor.

The entire complex is an imposing mass, possessing the requisite monumental dignity for such a structure, yet, with its exciting site and generous system of open spaces, having an inviting quality for visitors and Members of Parliament alike. One can imagine that these surroundings will become a stately symbol for the Nigerian government.

The Parliament, while an extravagantly unusual commission, is, however well done, really a variation on standard building types (the civic building and the office building). The study for the prototype dormitories, however, represents idea *architecture: the thinking past specific answers for an actual project to solutions for universal problems. One feels that this kind of theoretical design makes a notable contribution to architecture.*—JTB

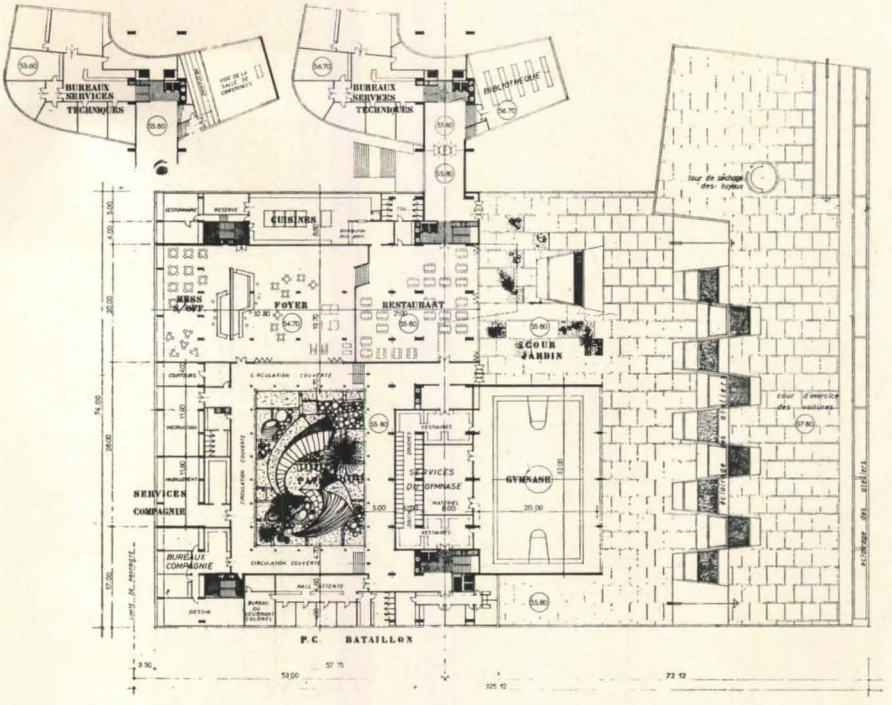
feux d'artifice

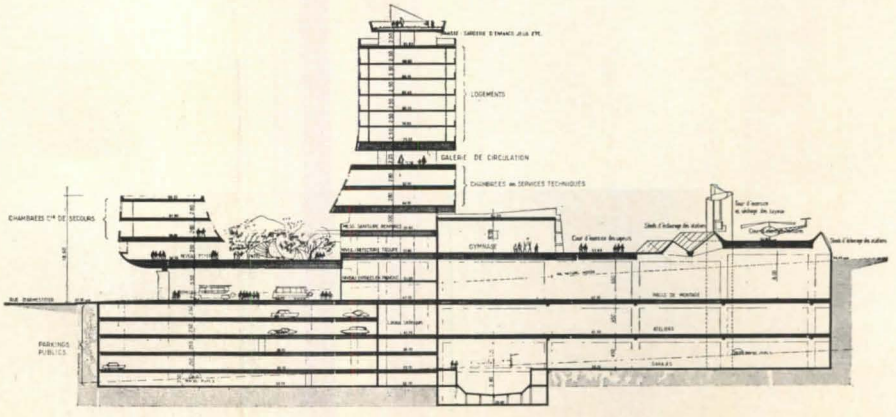
France continues to take up the cultural lag between herself and the United States, which has been operating in an eastward direction since World War II, with the announcement that a major fire station will be built in Paris next year. One of the recent *causes célèbres* of American architecture, you will remember, was the New Haven Fire Station by Carlin & Millard, which won a P/A Design Award in 1961. At that time, the jury spent quite a bit of time discussing whether such a "service" building should be treated as a civic monument. The majority decision was that this is permissible in certain cases, and evidently architect Jean Willerval and *la Préfecture de la Seine*, his client, agree, for the new main fire station of Paris will be quite an important building from both architectural and planning standpoints.

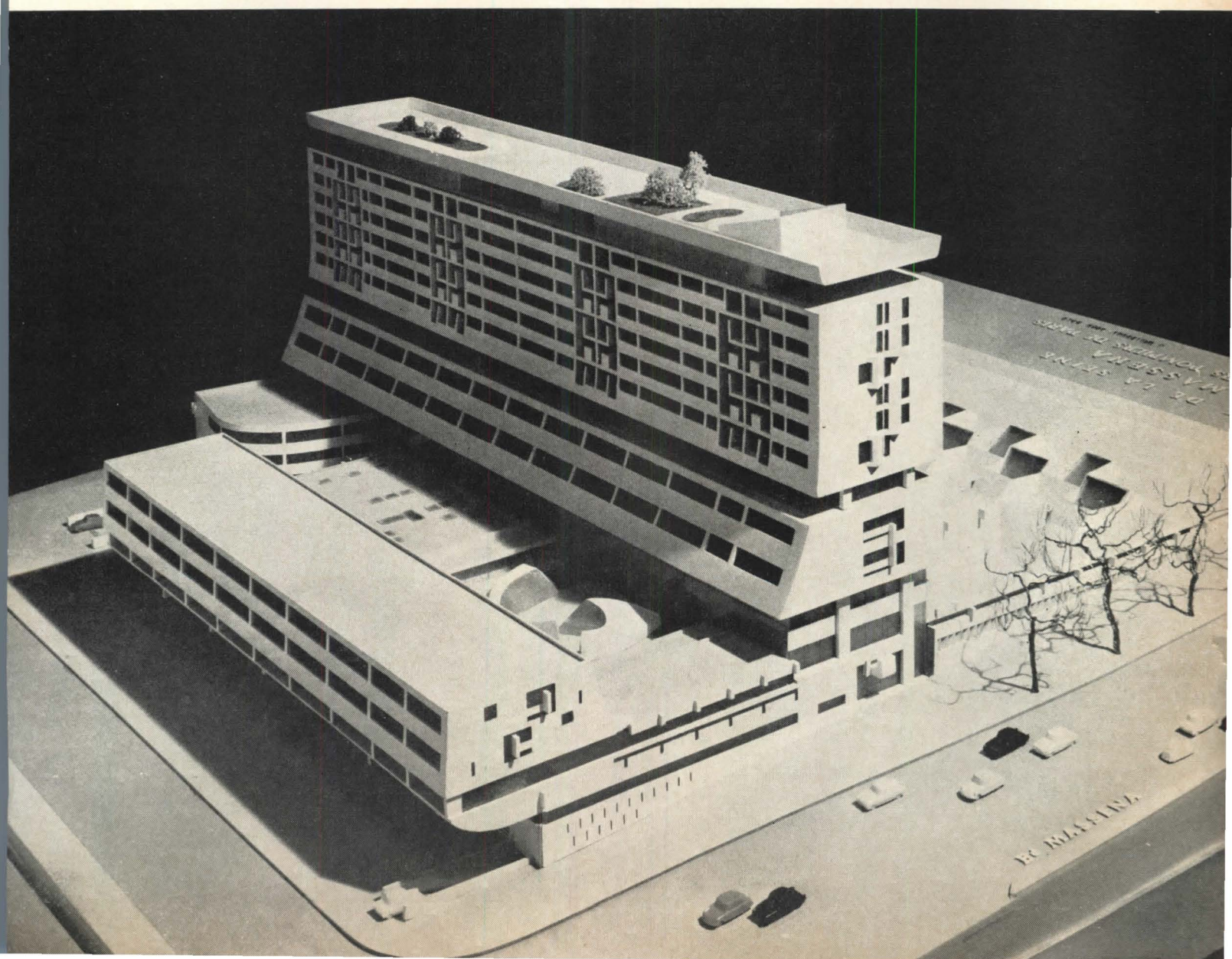
The reinforced concrete structure will include lodgings for 400 specialist firemen; billets for the permanent troop of 150 firemen and officers living in the station; common spaces for all the firemen such as lobbies, dining rooms, kitchens, uniform storehouse, gymnasium, swimming pool, courtyards, instruction areas, and barber shop; parking space for 250 firemen's automobiles; separate public parking for 700 cars; repair shops for the 800 vehicles of the Paris fire-fighting system; and a connected building containing facilities for the technical services of the regiment, including offices, conference rooms, files, and library. The roof of the drill hall and instruction area will be used for exercise courts, spaces for vehicle tune-up, helicopter landing pad, and the hose-drying tower. The areas below will be lit by large skylights punctuating the rooftop plazas. There will also be a play terrace for the children of Paris on the roof of the tallest element.

Architect Willerval states: "We wished to break deliberately with the traditional style of the fire station. The smallness of the site, the interpenetration of the services, the search for fast, easy circulation between the living quarters and the fire engines when an alarm comes in, lead us to conceive an extremely compact complex that reduces circulation to a minimum and allows large, free utilitarian spaces."

The form the architect has produced to house these variegated activities is an exceptionally powerful one, and, when completed, should produce as much comment as the Carlin-Millard fire station.







"A well-experienc'd archer"

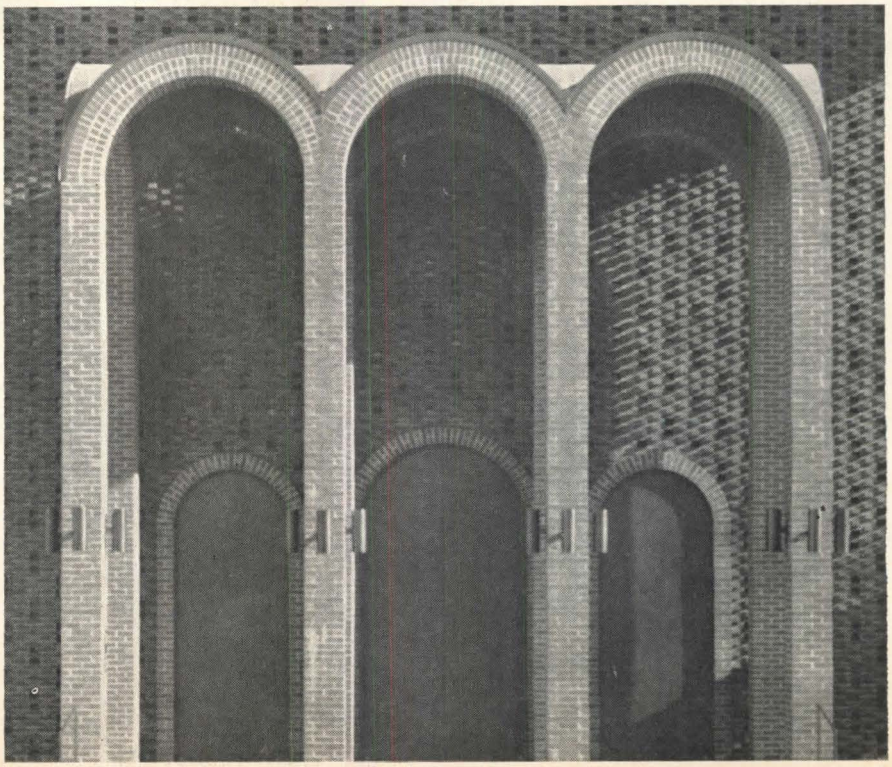
Shakespeare, *Pericles*

"Underneath the Arches" used to be an English music hall tune of wide popularity. It may well be revived, with architectural lyrics, for the work of I.W. Colburn & Associates of Chicago, as you can see on these pages. The arch form seems to exercise a compelling fascination on Colburn; he has made it an integral design part of the six buildings shown here, plus the house shown in the MAY 1962 P/A (pp. 164-167)—there may be more. Six of the seven examples have been houses; the seventh, winner of a Chicago Chapter AIA Honor Award, is a Roman Catholic Church. The use of a personal vernacular is, of course, not exclusive to any architect; one has only to think of Stone's hanging planters, colonnades, and grilles, Yamasaki's pointed windows and roof-passing mullions, and Rudolph's baroque stairways and corrugated concrete. The danger with dedicated use of a particular design vocabulary is that it can become monotonous, superficial, and, worst of all, inappropriate. All three of the architects previously mentioned have fallen victim to one or more of these pitfalls in recent years. This is most probably because they enjoy extensive practices dealing in many kinds of projects ("contemporary Gothic" rests as uneasily on a skyscraper as Rudolph's scaled-down version of Endo Laboratories does on his widely-publicized Alabama house). Colburn, in this collection, has been confined to buildings of modest size and only two uses. As delightful as these may be, either together or separately (preferably the latter, if the truth be known), one can only shudder at the thought of a new high-rise commercial or apartment building in the arch idiom (Stone tried it in his neo-fascist Perpetual Savings Bank in Beverly Hills and failed).

Given his predilection for a certain form, Colburn can ring some interesting changes on it. He can be lofty and inspirational (St. Anastasia Roman Catholic Church, **1**); rather charmingly fey (his own house, **2**); quite reminiscent of the California houses of Irving Gill (the Leslie, Brooker, and McLennon houses, **3**, **4**, and **5**); and immensely imposing in a Veblenesque manner (Gregory house, **6**). It is interesting to note, however, that despite their romantic aspects, most of these buildings have quite open, sometimes Miesian plans (there is an occasional turret den or fun alcove, but wothehellarchie, we only live once!).

It will be most interesting to note the future designs of I.W. Colburn & Associates. Right now, given a cohesive collection of residential and religious architecture, it possesses a continuity—one that will please some and infuriate others, but a continuity nonetheless.—JTB

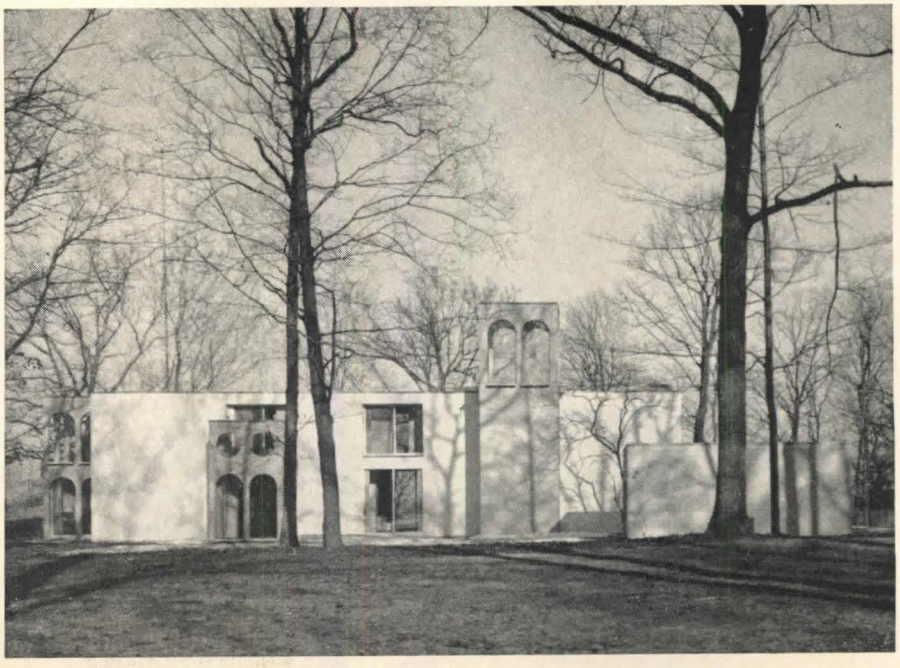
Photos: Rose & Mayer

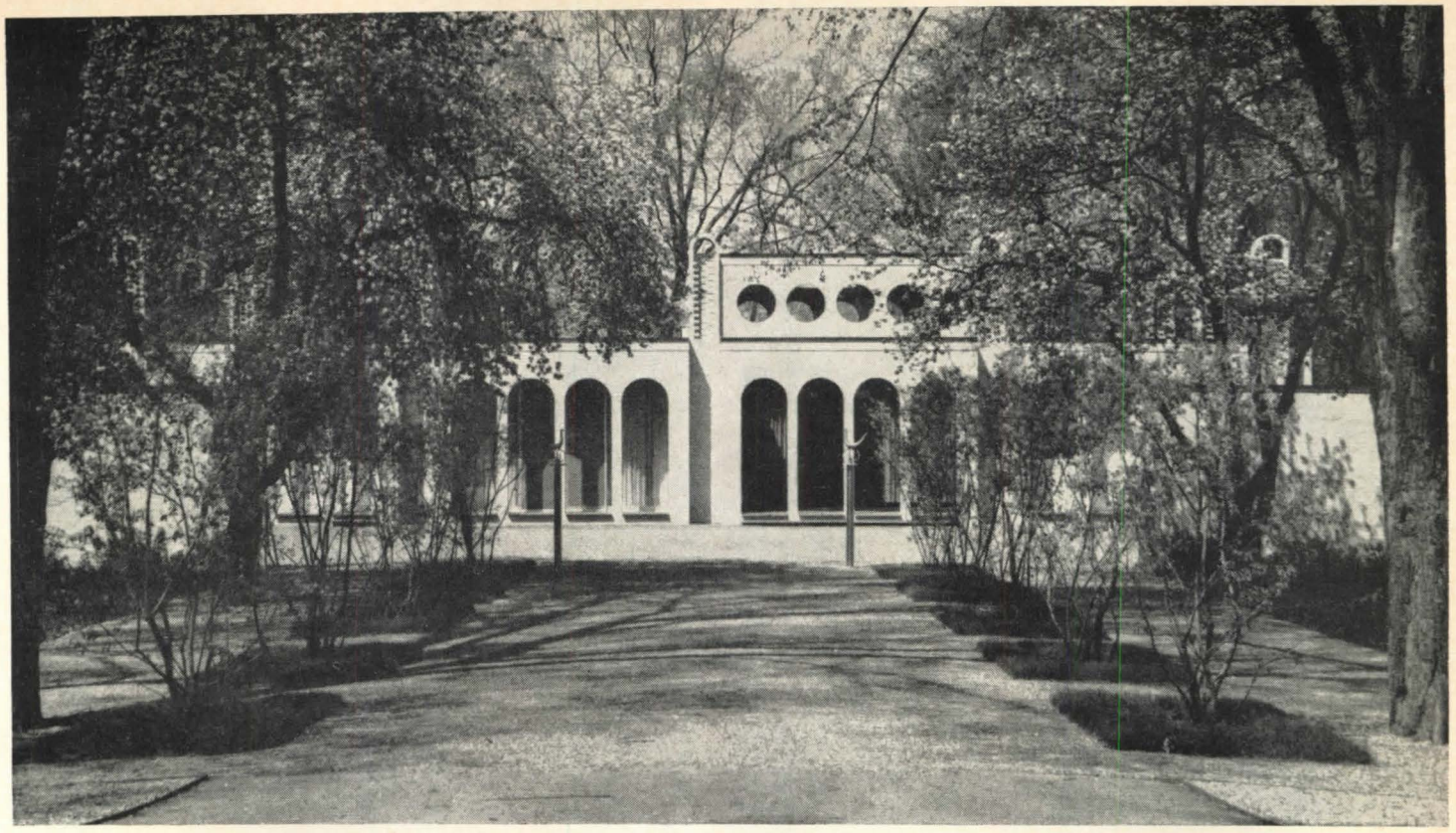


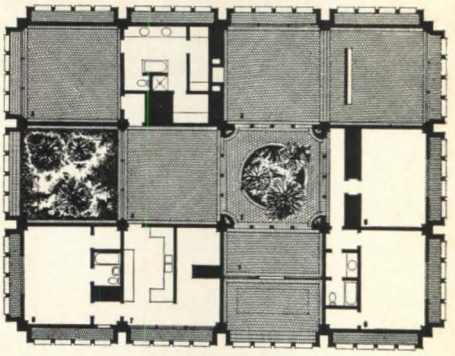
1 St. Anastasia Roman Catholic Church, Waukegan, Ill. Structural Engineer: Frank Klein & Company; Mechanical Engineer: Samuel R. Lewis & Associates.

2 *I. W. Colburn House, Lake Forest, Ill.*

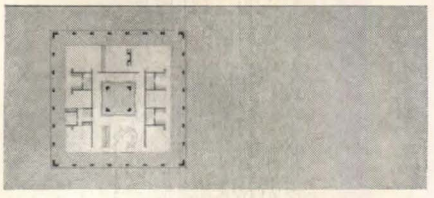
3 *John H. Leslie House, Winnetka, Ill. Structural Engineer: Frank Klein & Company; Mechanical Engineer: Samuel R. Lewis & Associates.*





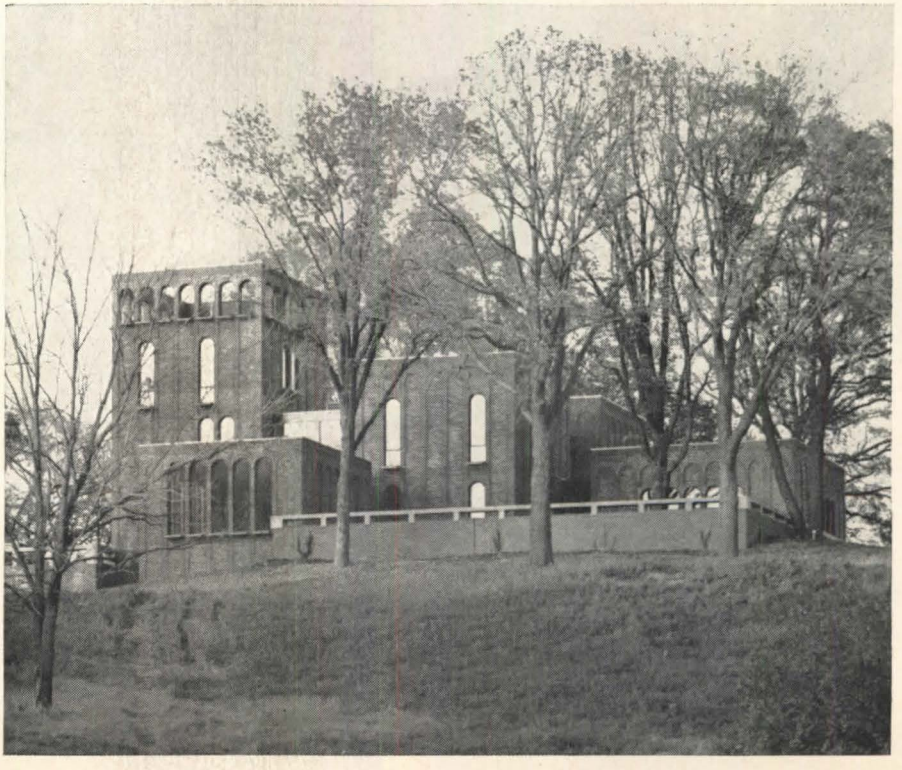


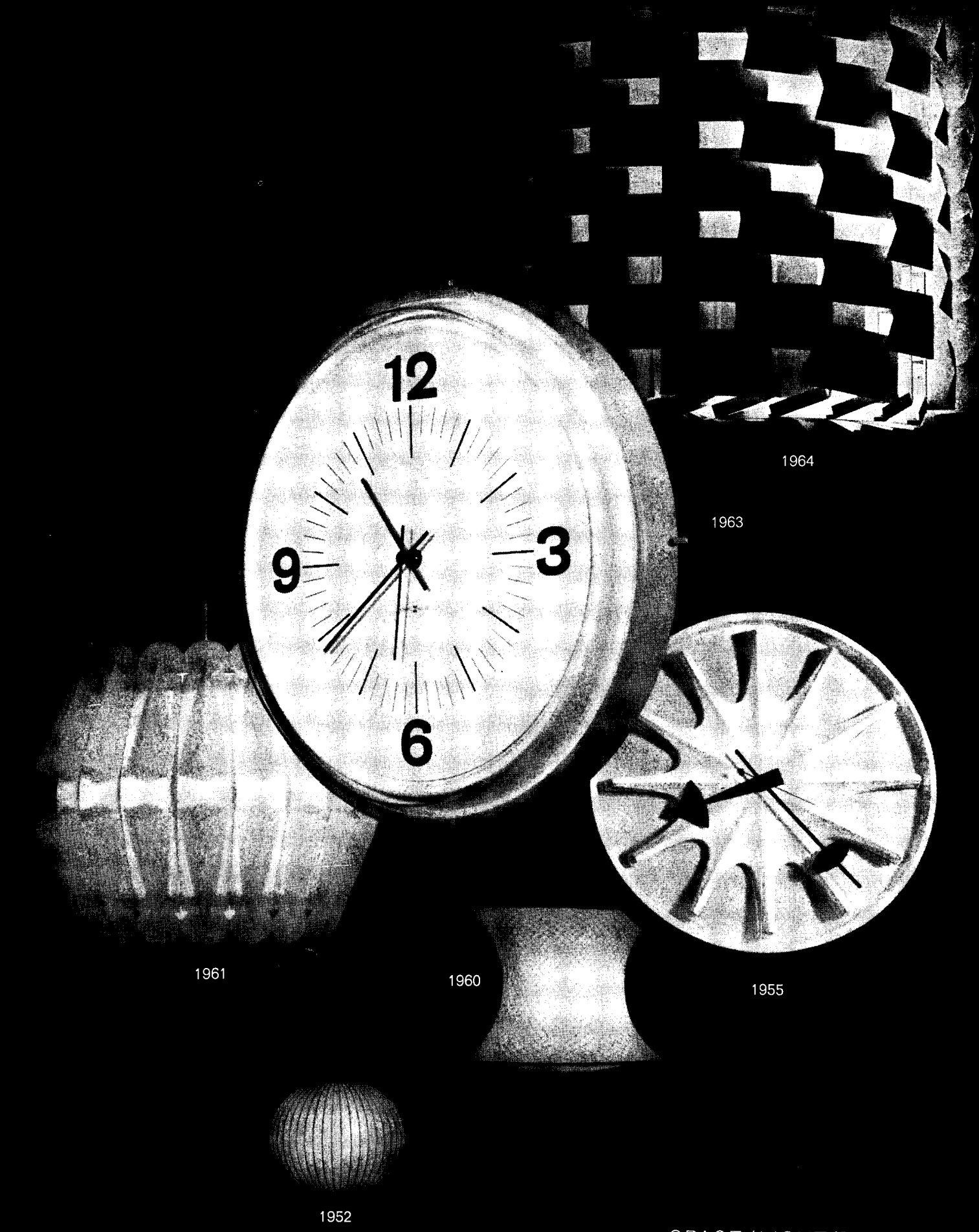
4 Robert E. Brooker House, Winnetka, Ill. Structural Engineer: Frank Klein & Company; Mechanical Engineer: Samuel R. Lewis & Associates.



5 *William L. McLennon House, Lake Forest, Ill. Structural Engineer: Frank Klein & Company; Mechanical Engineer: Samuel R. Lewis & Associates.*

6 *William D. Gregory II House, Wayzata, Minn. Structural Engineer: Frank Klein & Company; Mechanical Engineer: Lewis D. Freedland.*





1964

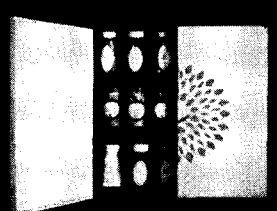
1963

1961

1960

1955

1952



SPACE/LIGHT/TIME

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Climate Control in Apartments

BY WILLIAM J. McGUINNESS

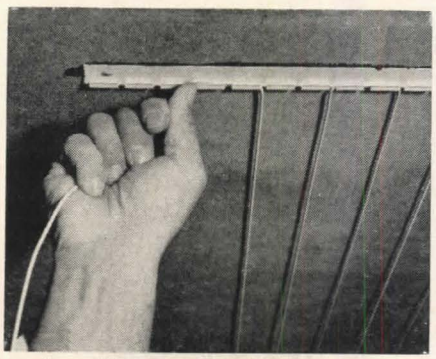
Electrically powered heating, cooling, and ventilation installations in an apartment house, with individual controls for each apartment, are discussed by a practicing mechanical engineer.

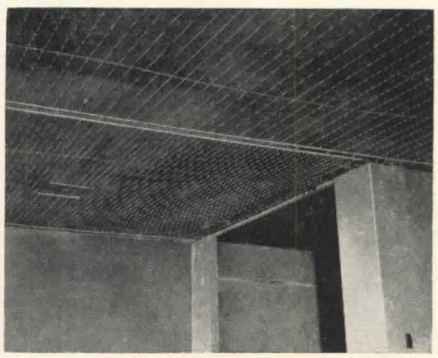
At the Vista Del Lago cooperative apartments on the shores of Lake Michigan, the owners are assured of a feeling of personal ownership and control.

In this 105 unit, 11-story building at Wilmette, Illinois, each large apartment (1400 to 2300 sq ft in area) is equipped with a cooling, heating, and ventilating system, all electrically powered and capable of being regulated by the occupant. Through separate metering, he can control his expenses as well as his comfort in this package arrangement, which also includes lighting and electric cooking. Individuality and privacy are enhanced by a design in which only two apartments on each floor are served by one of the numerous elevators.

Heating is provided radiantly, in ceilings, by electric cables imbedded in a relatively thin coat of plaster. Plastic spacer strips, held to the underside of the flat slab concrete floor by a strong adhesive, afford a 1-in. modular spacing. As shown (*above, left*), 2- and 3-in. spacings were generally required. This selectivity, together with the use of 11 different cable sizes (lengths), conformed each room precisely to its heat loss. With a standard output per linear foot, the cables range from 600 w at 221 ft length to 3800 w at 1406 ft. With this concept in electric heating, heating densities are 10.6 to 16.2 w per sq ft; in thermal terms, 37 to 55 Btuh per sq ft. A thermostat in each room gives selective control to this sensitive installation. In addition to this basic system, there are auxiliary ceiling and wall-mounted resistance and radiant heaters in the various baths and powder rooms.

This method of heating—using ceiling cable fastened to the concrete with Ceil-Strip—is now gaining considerable popularity in the Chicago area. It has been employed in the construction of an in-





tern's residence, a multistory motor inn, and several large apartment buildings.

Air conditioning at Vista Del Lago, including cooling and ventilation, is accomplished by 439 electrically powered through-wall units skilfully and inconspicuously blended into the design of the exterior walls. The capacity of these G.E. Zonelectric units ranges from 8000 to 15,000 Btuh of cooling, and there are between two and six in each apartment. Fresh air can be drawn in, summer or winter, to join the recirculated room air. In winter, this outdoor air is preheated by 1500 w of supplementary resistance heating in each cabinet. Quite independent of the ceiling system, these units are controllable at each through-wall location. The air handling may be arranged for recirculation of 100 per cent return air or the introduction of some outside air, either of which may be accomplished with or without cooling or supplementary heating.

Electrical service in each apartment is through a 200 amp switch and a 40 position panel. Typically, each apartment with a load of 42 to 48 kw has 15 240-v circuits and 10 120-v circuits, all single phase. Each apartment has a meter in a stairwell location. Average monthly electric utility costs for all uses will range from $25 for a two-bedroom apartment to $45 for a four-bedroom apartment.

Exhaust facilities in apartments remove air from kitchens and bathrooms. A general suction is maintained in ducts served by exhaust fans at roof stations. The kitchens and bathrooms are provided with motorized dampers, which open the rooms to this exhaust duct facility when lights are switched on in these spaces. Multiple roof fans are programmed to pick up increasing loads of exhaust ventilation.

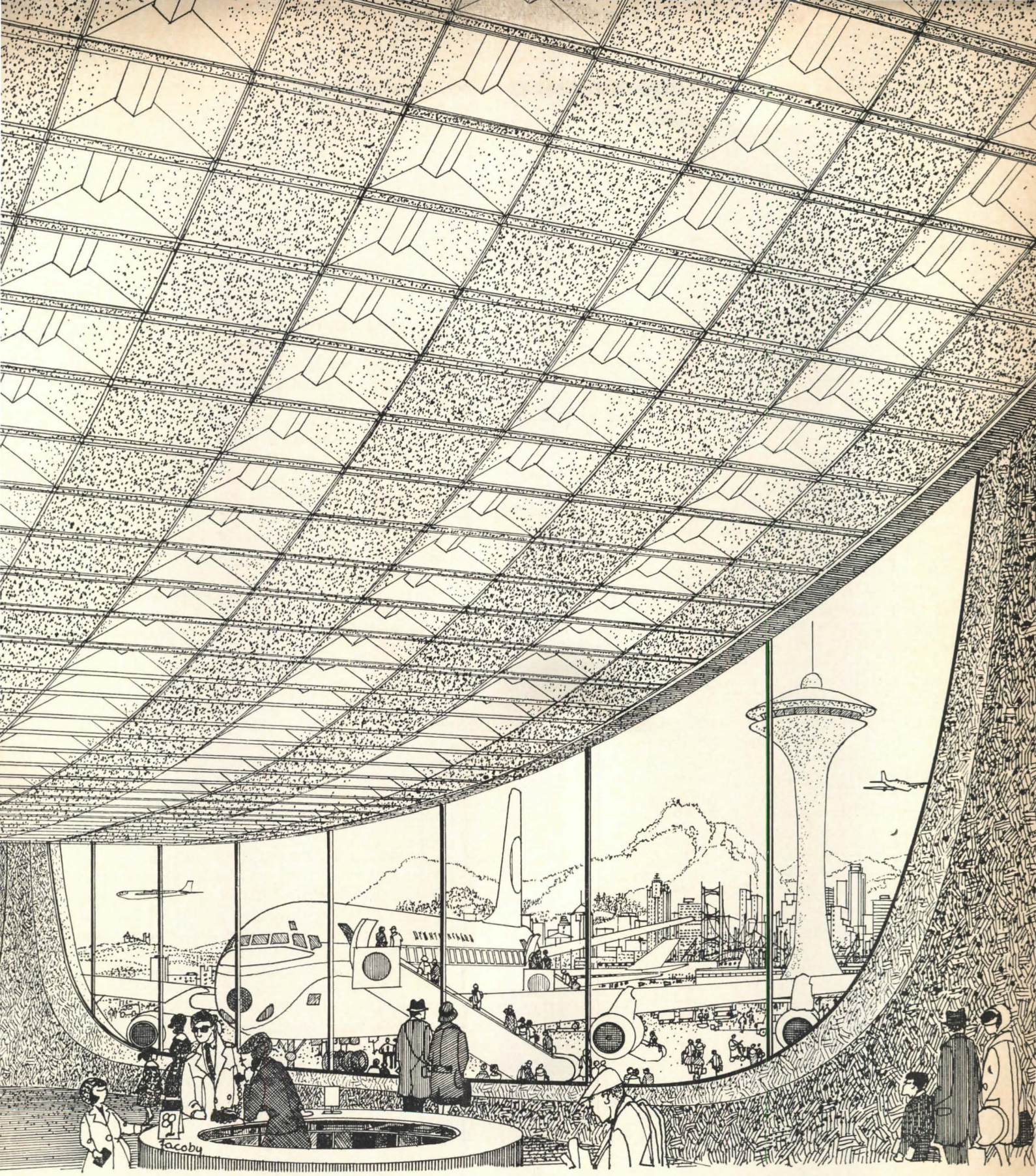
Public spaces have separate climate control. An interesting design feature for air balance involves the slight pressurization of air in public corridors. This precludes the minor possibility of stray cooking odors from apartments drifting into the corridors. It also puts a slight pressure into the apartments to minimize infiltration of outdoor air.

Putting the ownership and operation of these well-designed systems into the hands of the apartment-home owner seems to have worked. Edward James, developer and manager of the project, was startled to discover that, under conditions of —18 F and 30 mph winds, there was not a single heating complaint.

The electric power load for the entire building is 4000 kw, which includes 1237 kw for radiant cable, and 142 kw and 41 kw respectively for auxiliary ceiling and wall-mounted heaters.

The electrical cost for heating is 1.25c per kwh. Though the energy cost is somewhat higher than for oil or gas, the over-all operating and owning costs for the entire building were considered to be more than competitive.

Robert Hausner, of the Chicago architectural firm of Hausner & Macsai, was largely responsible for the selection and development of this installation. It was designed by Chicago Consulting Engineer William Goodman; the collaborating utility was the Commonwealth Edison Company.



There is virtually no limit to the design effects possible with Armstrong Luminaire Ceiling Systems. In this airport departure building, rows of Luminaire modules suspended alternately with rows of flat sections shape an inwardly curved ceiling—creating an ethereal quality in harmony with the concrete support columns.

For free technical data on Armstrong Luminaire Ceiling Systems, a construction drawing of this particular design, and details on the many other design variations possible with Luminaire, write Armstrong, 4208 Watson St., Lancaster, Pennsylvania.

Ceiling Systems by

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Changed Subsurface Conditions

BY HAROLD J. ROSEN

Payment for expenses concerned with unforeseen subsurface conditions discovered by the contractor during excavation are discussed by the Chief Specifications Writer of Skidmore, Owings & Merrill, New York.

Who should pay for the unexpected in subsurface construction? Grandfather or all-inclusive clauses that require a contractor to excavate anything and everything he encounters can work both ways. While the architect may believe that he is protecting his client by making the contractor responsible under the contract for all of the unknowns such as rock, unmarked utility lines, and latent subsoil conditions, the architect may be inadvertently performing a disservice to his client. The contractor, in order to protect himself, must provide a contingency in his bid to take care of these grandfather clauses. If these unknown conditions do not manifest themselves during the subsurface operations, the contractor will have benefited at the expense of the owner. If the contractor has underestimated the unknown conditions, the contractor can literally lose his shirt. In may instances, both parties to the contract may have to resort to the courts for a judicial determination of the equities involved.

Firm bids should be based on known conditions, and it is unfair to both contractor and owner to pay for items that may not materialize during the course of subsurface operations. If we can enumerate those elements that can contribute to an equitable solution, we will have taken a firm step toward eliminating one of the major risks in the construction industry.

The current AIA General Conditions Article 15 does not provide all of the safeguards recommended in a paper prepared by the Committee on Contract Administration of the American Society of Civil Engineers ("Changed Conditions Clause in Construction Contracts," Robert F. Borg, F. ASCE, September 1964 Proceedings of ASCE).

The ASCE Committee paper analyzed the changed conditions clauses of several widely used construction contracts and concluded that any satisfactory changed conditions clause should include the following 10 elements:

1. The owner should pay for the unexpected.
2. The owner should not be the arbiter of whether the unexpected has occurred.
3. The Contract Documents should be based on an assumed set of facts.
4. A changed condition can exist through a matter of difficulty of performance.
5. The owner should be made aware of a changed condition when it occurs.
6. Changed conditions should include obstructions.
7. The contractor should stop work until ordered to proceed.
8. Either party to the contract can claim changed conditions.
9. A method of procedure for handling changed conditions should be provided in the contract.
10. There should be an arbitration clause.

The following "Changed Subsurface Conditions" clause was approved by the Committee on Contract Administration of the ASCE on March 11, 1965:

"The work to be performed below the surface is based upon the available data. The subsurface conditions, quantities, dimensions, classes of work, and the borings, such cores or soil samples as are available, all as shown or described in the contract documents are agreed upon by the parties as embodying the assumptions on which the contract price was determined. The unexpected shall be deemed to have occurred if actual subsurface conditions, quantities, dimensions, or classes of work differ materially from those which were shown or indicated.

"As the various portions of the subsurface are penetrated during the work, the contractor shall promptly, and before such conditions are disturbed, notify the owner or his representative, in writing, if the actual conditions differ materially from those which were assumed, or if previously unknown obstructions are encountered which are not reasonably foreseeable. The owner or his representative shall promptly submit to the contractor a plan or description of the modifications which he proposes should be made. The resulting increase or decrease in the contract price, or the time allowed for the completion of the contract, shall be estimated by the contractor and submitted to the owner. If approved by the owner, a change order shall be issued.

"In the event the parties do not agree that there has been an unexpected condition, or fail to agree on the change to be made in the contract price, the contractor shall in the meantime proceed with the work, if so directed by the owner. The contractor shall keep an accounting of all costs in overcoming the condition, to be verified daily by representatives of both parties.

"If no agreement can be reached between the contractor and the owner, the question shall be submitted to arbitration as provided elsewhere herein."

A method for equitable payment of rock excavation may be provided for in the specifications in the following manner. An estimated quantity of rock may be established by the architect and noted in the specifications with a stipulation that, if a greater or lesser amount be encountered, the contract price would be adjusted accordingly. This device assures firm bidding on the part of bidders. The following clause is suggested: ". . . cubic yards of rock (as hereinafter defined) are to be excavated by the contractor and shall be included in the contract price. However, the actual total amount of rock to be excavated shall be determined by cross sectioning and measuring the rock to be removed. Should a greater or lesser amount of such rock in place be encountered than the total estimated amount hereinabove noted, payment for any such greater amount or credit for any such lesser amount shall be made in accordance with the unit price agreed upon."

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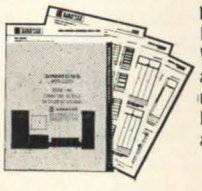

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The Tragedy of Gaudí

Transept facade of the unfinished Church of the Sagrada Familia in Barcelona.

Crypt of the chapel at the "Colonia Güell" workers' colony near Barcelona.

BY GEORGE R. COLLINS

NUEVA VISION DE GAUDÍ. *Enric Casanelles. Ediciones La Poligrafa S.A. Balmes, 54-Barcelona, Spain (1965, 261 pp., illus. $15). The reviewer, a Professor of Art History at Columbia University, is the author of a monograph on Gaudí and other studies of the period.*

This is a good book. Facilely written and superbly illustrated, it does indeed cast new light, as its title indicates, on the subject of investigation: Antonio Gaudí. It is a book which says things that will lodge in one's memory just as Gaudí's forms, once seen, are never forgotten.

It is obvious from the spectacular appearance of Gaudí's buildings that the man who designed them had interesting ideas not only about the art of architecture, but also about the individuals who were paying him to construct them, and the public to whom the clients addressed themselves. In recent years, there has been a great deal written about Gaudí: many attempts have been made to "explain" him, and we have been provided with much information about his life, his architecture, and the general milieu in which he operated. The contribution of Enric Casanelles in this book is to cut through some of the mythology that shrouded this colorful architect since early in his career and that has tended to crystallize and even to exaggerate itself

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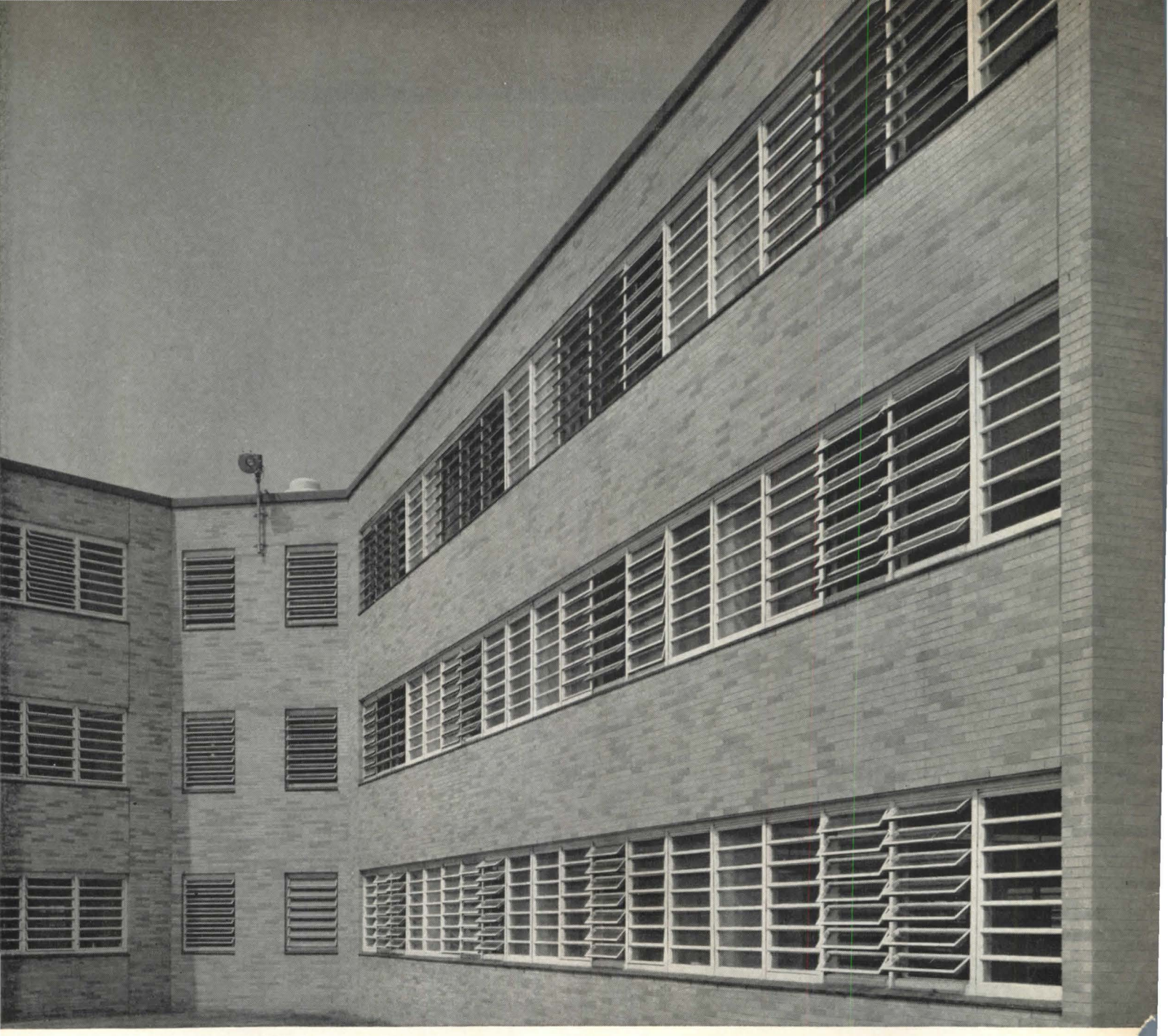

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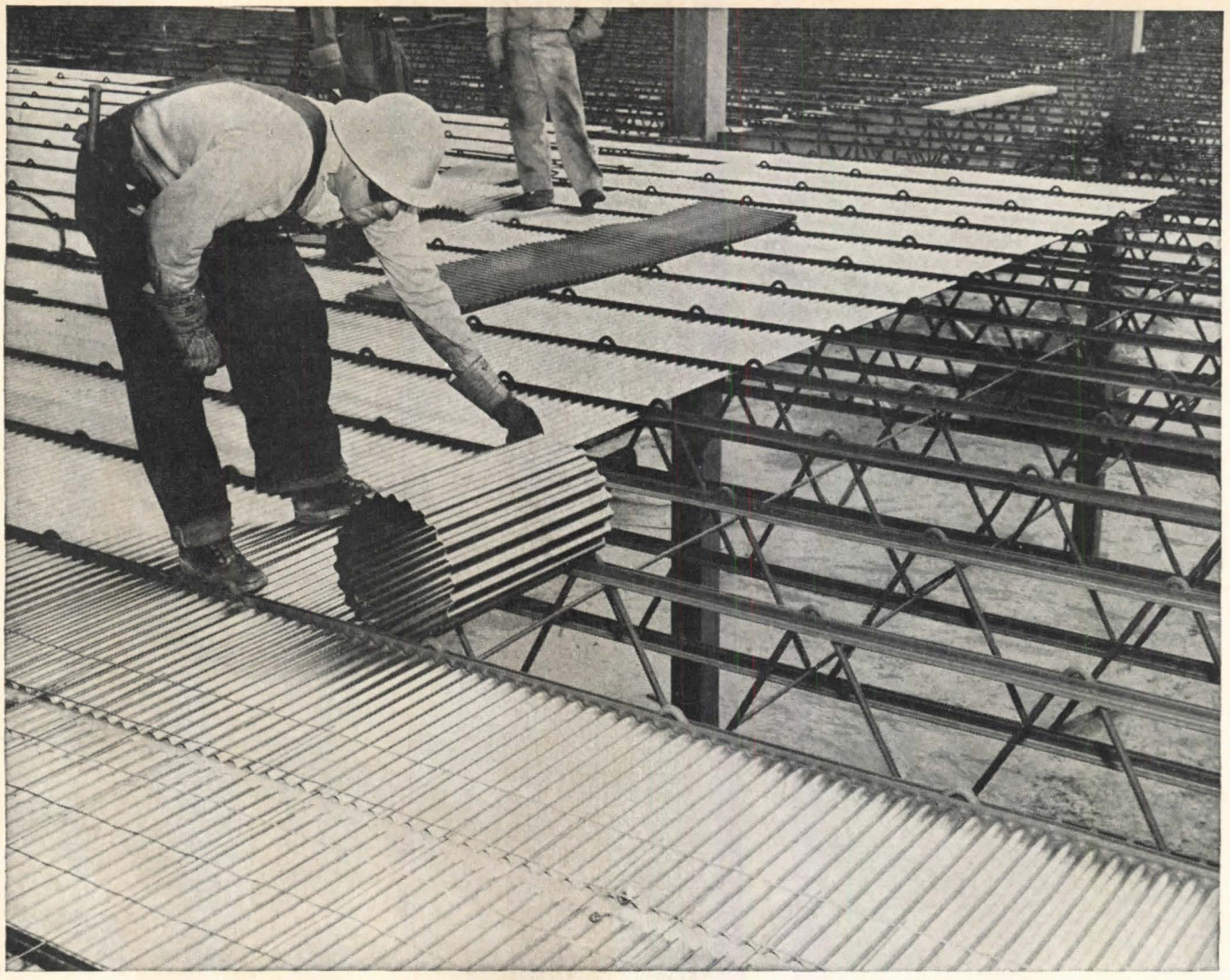

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"Hold Harmless" Agreements

BY BERNARD TOMSON AND NORMAN COPLAN

PA's legal team discusses the increasing popularity of "hold harmless" clauses in construction contracts and how these can help protect owner and architect.

The inclusion of "hold harmless" agreements in contracts involving construction appears to be an increasingly popular practice. On occasion, an owner who does not fully understand the function of an architect or an engineer will seek to include in his contract with the architect or engineer a provision that would, in substance, make the professional an indemnitor to the owner for any damages sustained by the owner arising from the construction of the project. More commonly, the construction contract between the owner and contractor will contain some form of "hold harmless" agreement that is intended to protect the owner to some degree, depending upon its scope, from claims asserted against him arising from or in connection with the construction of the project.

The Board of Directors of the AIA some time ago issued a policy statement insofar as indemnity agreements between architect and client are concerned, recommending "that members of the architectural profession should not include such indemnity [hold harmless] provision in contracts with their clients." The basis of this recommendation was that very often such "hold harmless" provisions create liabilities that are not within the professional function of the architect to assume. However, if an owner insists upon such a clause, the professional must determine whether he is willing to accept those risks and potential liabilities the owner wishes to cover, and whether the language of the "hold harmless" provision is sufficiently limited in scope. The architect or engineer must also determine whether his existing insurance covers the liability assumed, or, if not, whether he can obtain such insurance. "Hold harmless" clauses in contracts for professional services require the close scrutiny and consideration of the architect's or engineer's attorney and insurance advisor.

"Hold harmless" clauses in construction contracts take different forms. The General Conditions of the Contract for the Construction of Buildings issued by the AIA, for example, contain a limited "hold harmless" clause under Article 34. This article, in substance, provides that the contractor shall bear the cost of defending any proceeding and pay any judgment involving a suit against the owner by a separate contractor who contends he was damaged by the contractor. The AIA General Conditions do not require the contractor to carry any insurance to cover this limited commitment.

Some construction contracts contain "hold harmless" provisions that state, in effect, that the contractor will indemnify the owner from any loss or damage because of personal injury to any person or property damage sustained as a consequence of the contractor's negligence in performing the construction contract. Such a provision merely restates a legal principle that is applicable in any event.

Other construction contracts provide, in substance, that the contractor shall indemnify the owner against any loss or damages because of personal injury to any person or property damage arising in connection with construction of the project. This type of clause is ambiguous and the parties or the court are generally uncertain as to whether it is intended to cover only negligent acts of the contractor, or whether it is intended to furnish a blanket indemnity to the owner.

The type of "hold harmless" clause that results in the greatest objection among contractors, and which has recently created a continuing controversy in New York, is one which expressly creates a liability of the contractor to the owner and architect, independent of and regardless of the contractor's negligence. A typical clause of this type, which is contained in the construction contract of an agency of the State of New York, reads as follows:

"The contractor agrees to idemnify and save harmless the owner, architect and engineer, their agents and employees, from and against all loss or expense (including costs and attorneys' fees) by reason of liability for damages because of personal injury, including death at any time resulting therefrom, sustained by any person or persons or on account of damage to property, including loss of use thereof, regardless of the negligence of the contractor and whether caused by or contributed to by said owner, architect or engineer, their agents, employees or others."

A contractor's association in New York, objecting strongly to such a clause, warned its members against entering into a contract containing it. One of its principal objections was that the clause in question provided indemnification to the architect and owner for damages arising from deficiencies or defects in the architect's plans. Many contractors refrained from bidding on contracts of the agency in question. This resulted in a suit instituted by the Attorney General of New York against the association and certain of its members charging them with a conspiracy to boycott bid calls of the public agency. The contractors' association, in turn, is seeking a change in the statutory law of New York to provide that such a clause would be unenforceable.

The protection afforded by a "hold harmless" clause in a construction contract to an owner or architect can be lost if the contractor becomes insolvent. Many owners and architects do not realize that insurance covering such contractual obligations is not included in a contractor's general liability policy. Coverage is only afforded by a special type of insurance known as "contractual liability insurance."

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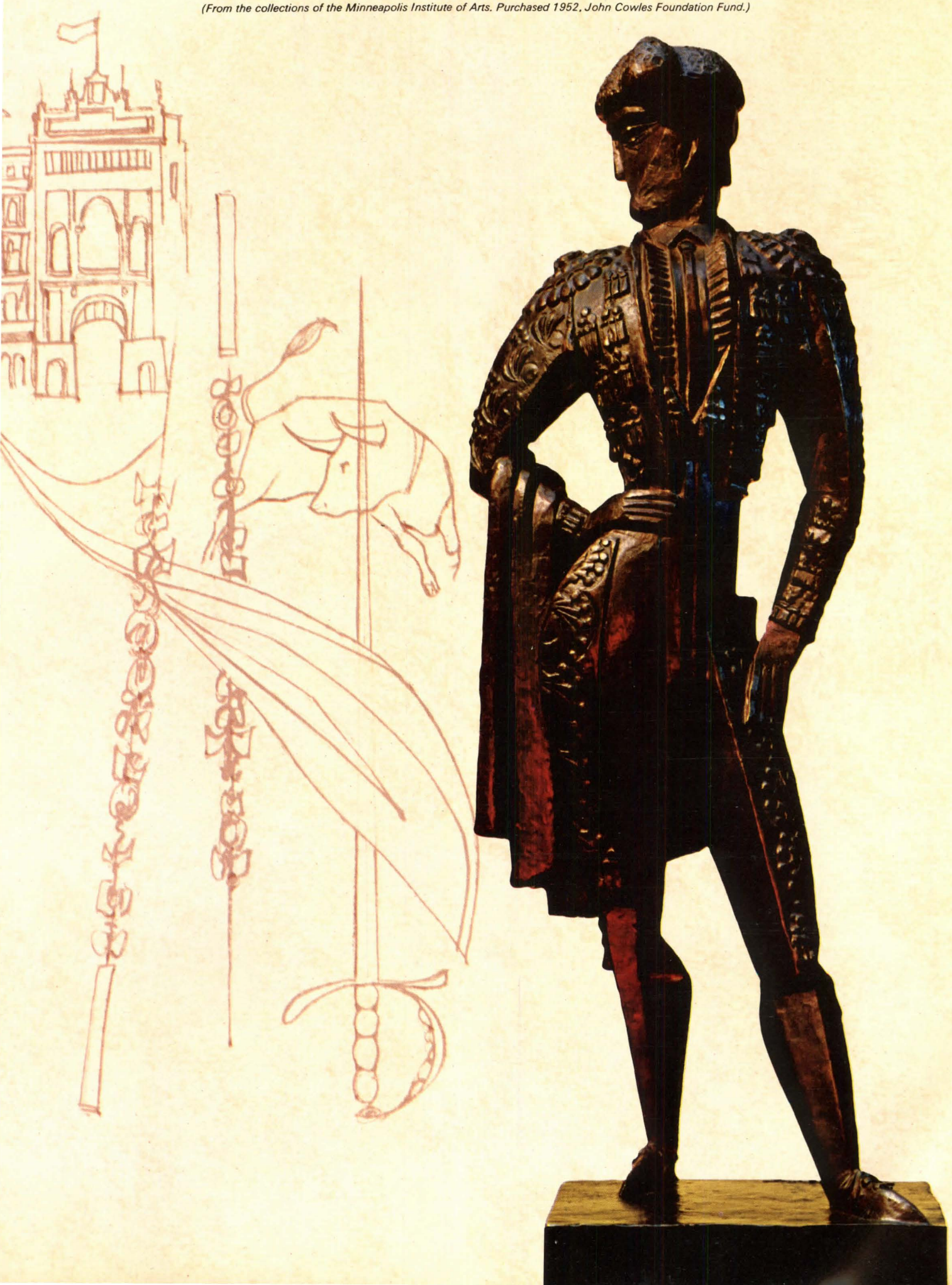

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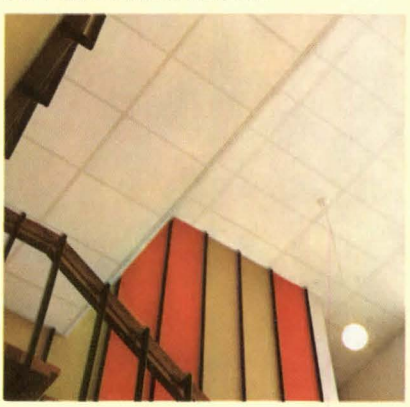

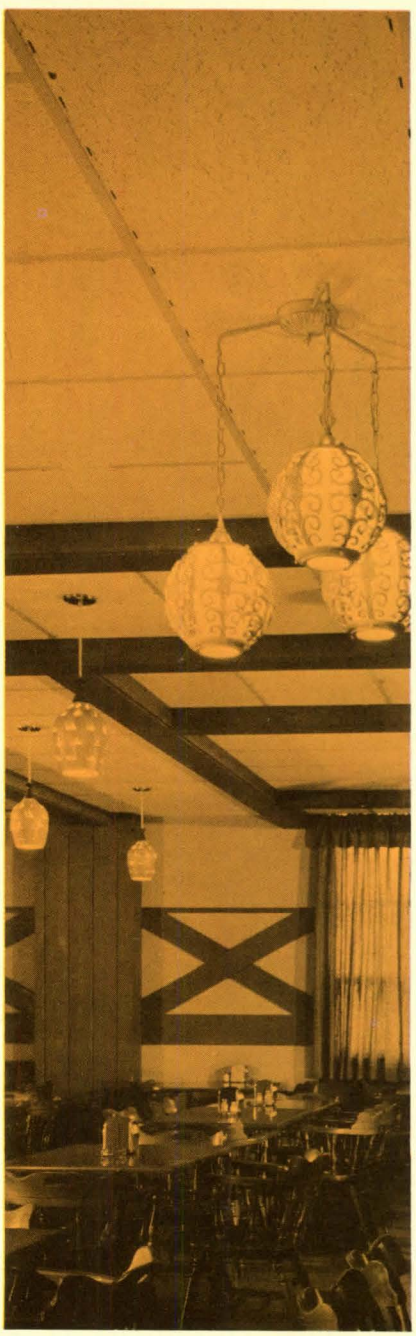

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Continued from page 196

in writings about him after his death in 1926.

Casanelles' procedure is to marshal the recorded facts of Gaudí's life, to scrutinize the printed remarks of his contemporaries, and to interview survivors. He was aided in such documentation by his having served for many years as Secretary of the Amigos de Gaudí in Barcelona. He has done much to convert that organization from a mere adulatory association into the best archive for study of the period. His major revaluations of Gaudí center around the architect's relationship to his patrons, his image in the public eye, and his connection with styles of architecture current in Spain early in the century. To extract from these very professional problems a new picture of Gaudí, the author has had recourse to data previously unknown and unpublished. With a characteristic Spanish twist—like Unamuno—Casanelles, a profound and pious student of human nature, finds the humanity and the significance of his hero in the tragic role he played. This is the "New Vision of Gaudí."

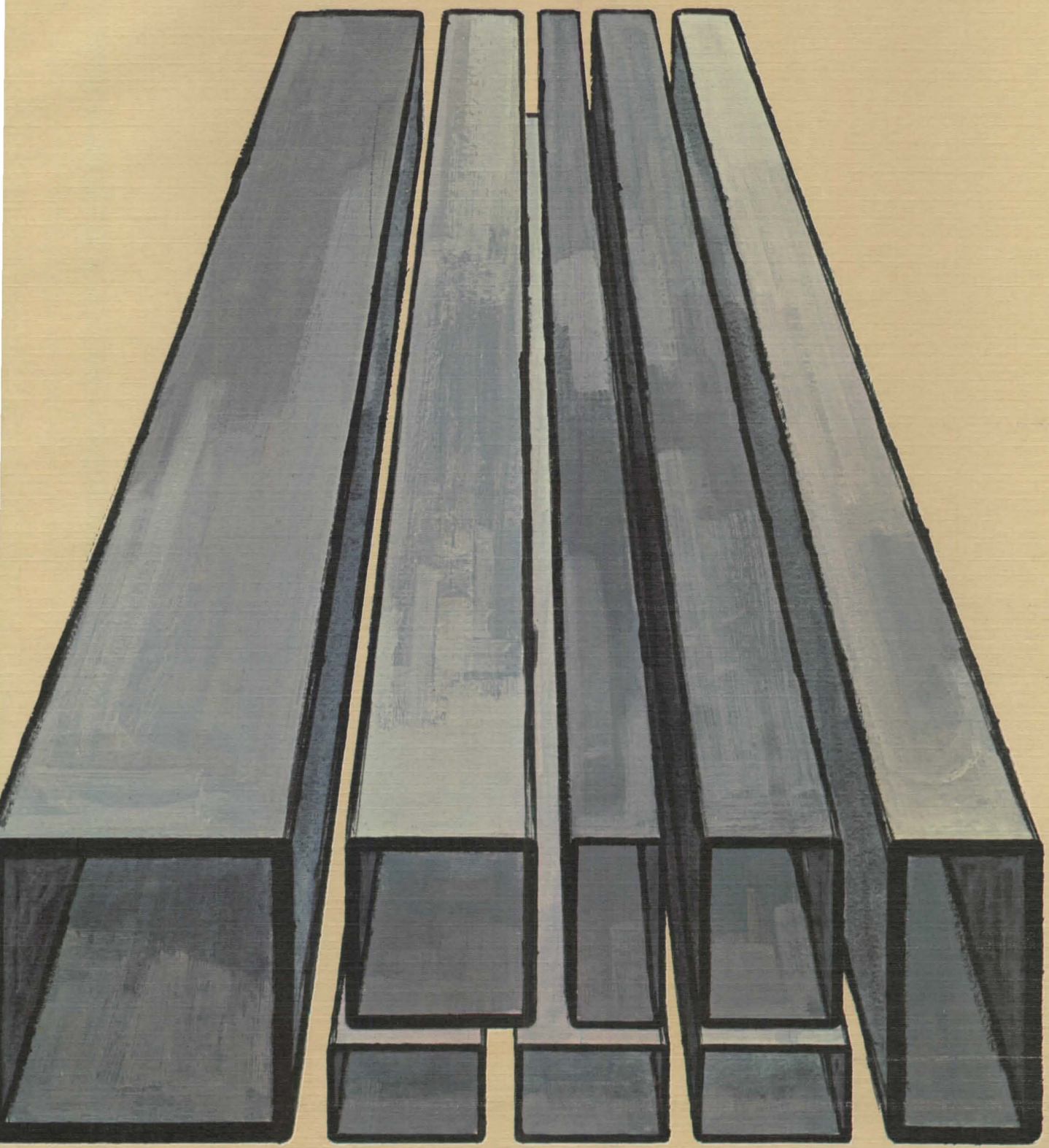
Although the threads that the author weaves into his complex psychological study of the architect are many, the crux of the matter consists of the following questions: What were the conditions of patronage and ambiance that allowed this indefatigable genius, in a lifetime of 74 years dedicated exclusively to his art, to produce only a dozen or so major buildings, not all of them completed? Why is each project unique and so remarkably different from the rest? On what did this man subsist physically, intellectually, spiritually, and economically?

As regards those for whom Gaudí worked, there is a lot of new and fascinating information here about them (they were mostly related to each other by friendship in complicated ways). The most interesting new information deals with his major employers: Eusebio Güell and the administration of the Sagrada Familia Church. Casanelles' treatment of the latter situation—about which many books have been written—is startling, especially coming from one who was drawn to the study of Gaudí through his own devotion to the Templo and who has always been close to its Junta. His conclusion is that, although Gaudí had been architect of the Templo since 1883, its administrators took no particular notice of him until the time of their financial crisis in 1914, when he abandoned all his other projects to work on the church, and that the public did not associate him especially with the project until certain pieces about him and the church (not entirely complimentary) were published in 1906 and 1914 by the poets Maragall and Carner. Casanelles further contends that the Association so exploited Gaudí's name after his dramatic death for its fund-raising that a completely warped picture has emerged of the nature of his career and the character of his religious faith. It is a curious fact, as this reviewer has also noticed, that *The Propagador*, the painstakingly detailed journal of the Junta, hardly if ever mentioned the architect's name until well into the 20th Century. Gaudí seems to have been considered merely an employee on salary. Until 1906, when a drawing of his complete scheme for the church was printed in a newspaper, it was not generally realized that the novel aspects of the building were his.

The relationship of Gaudí to Eusebio Güell, both in general and in connection with four of Gaudí's major projects, is here treated with great sympathy. It is clear that Gaudí was only one of many artists encouraged or maintained by this

Continued on page 210

WHAT IN THE WORLD CAN ARCHITECTS DO WITH STRUCTURAL TUBING?



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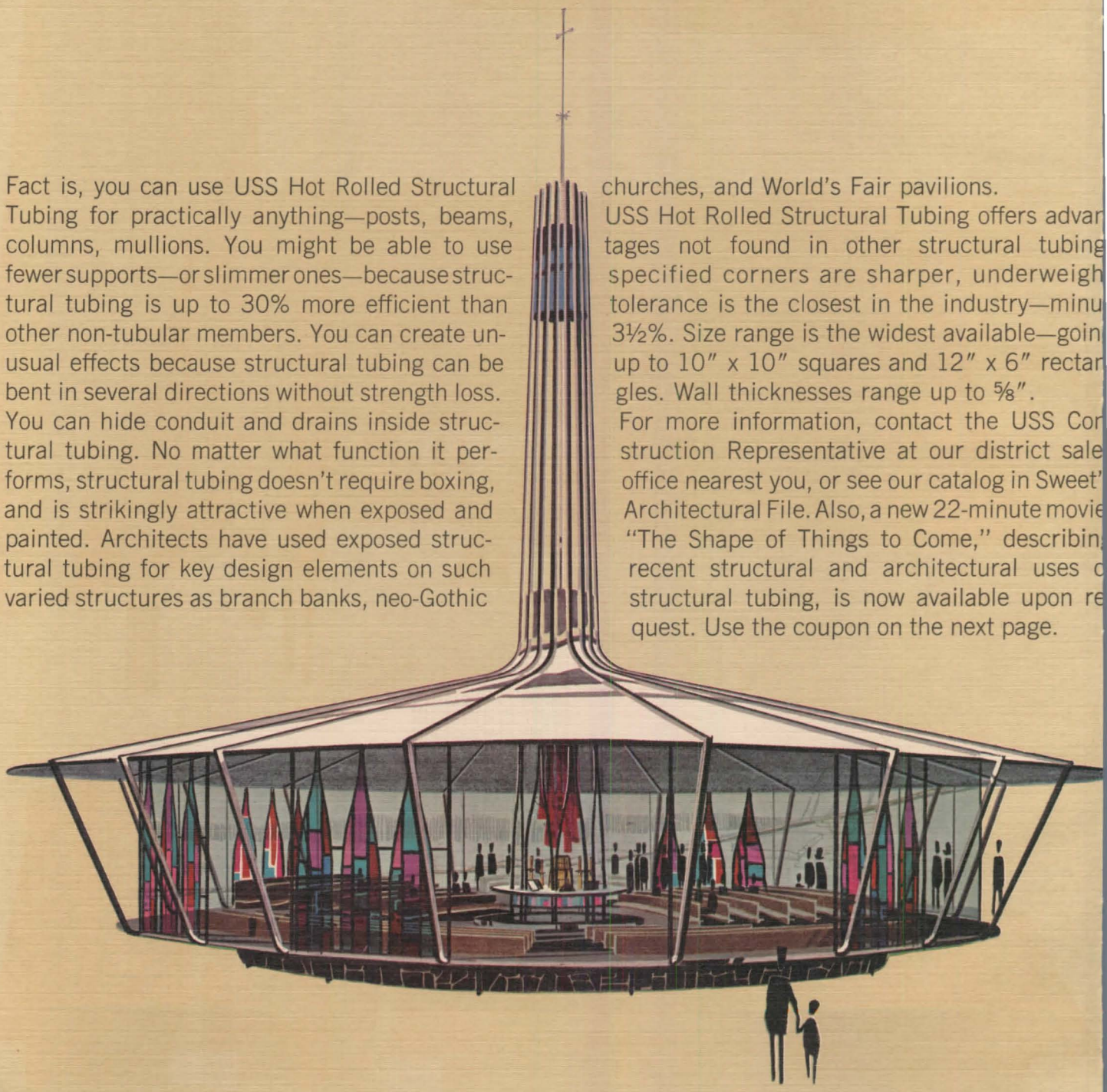

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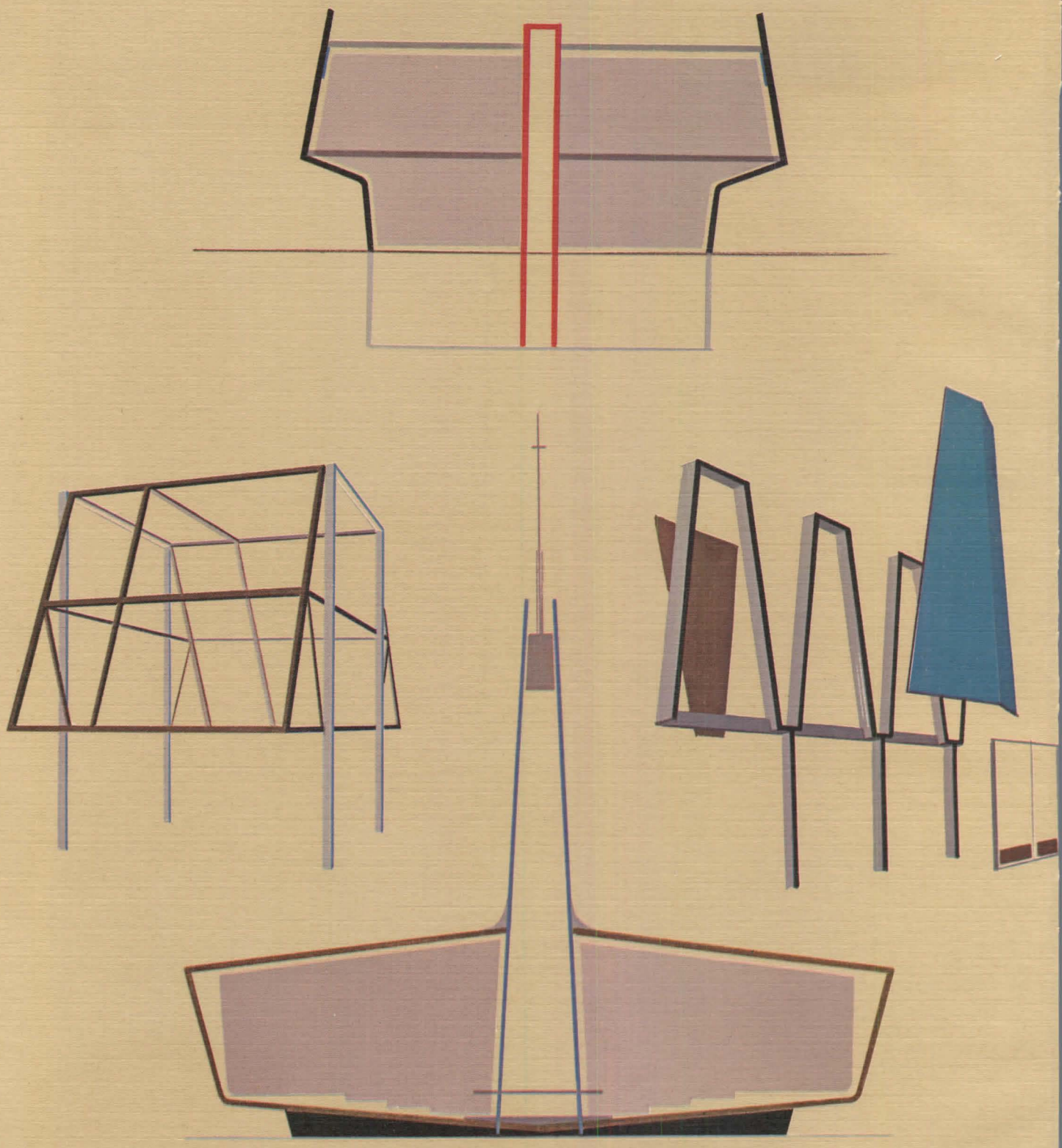

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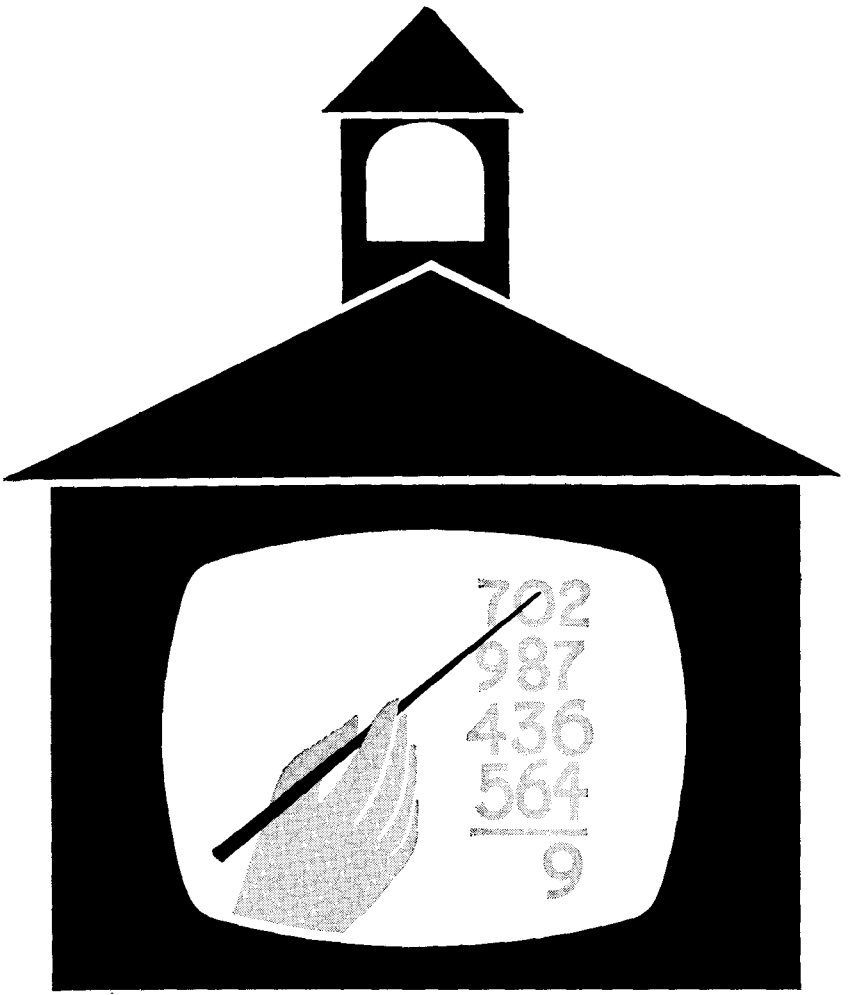

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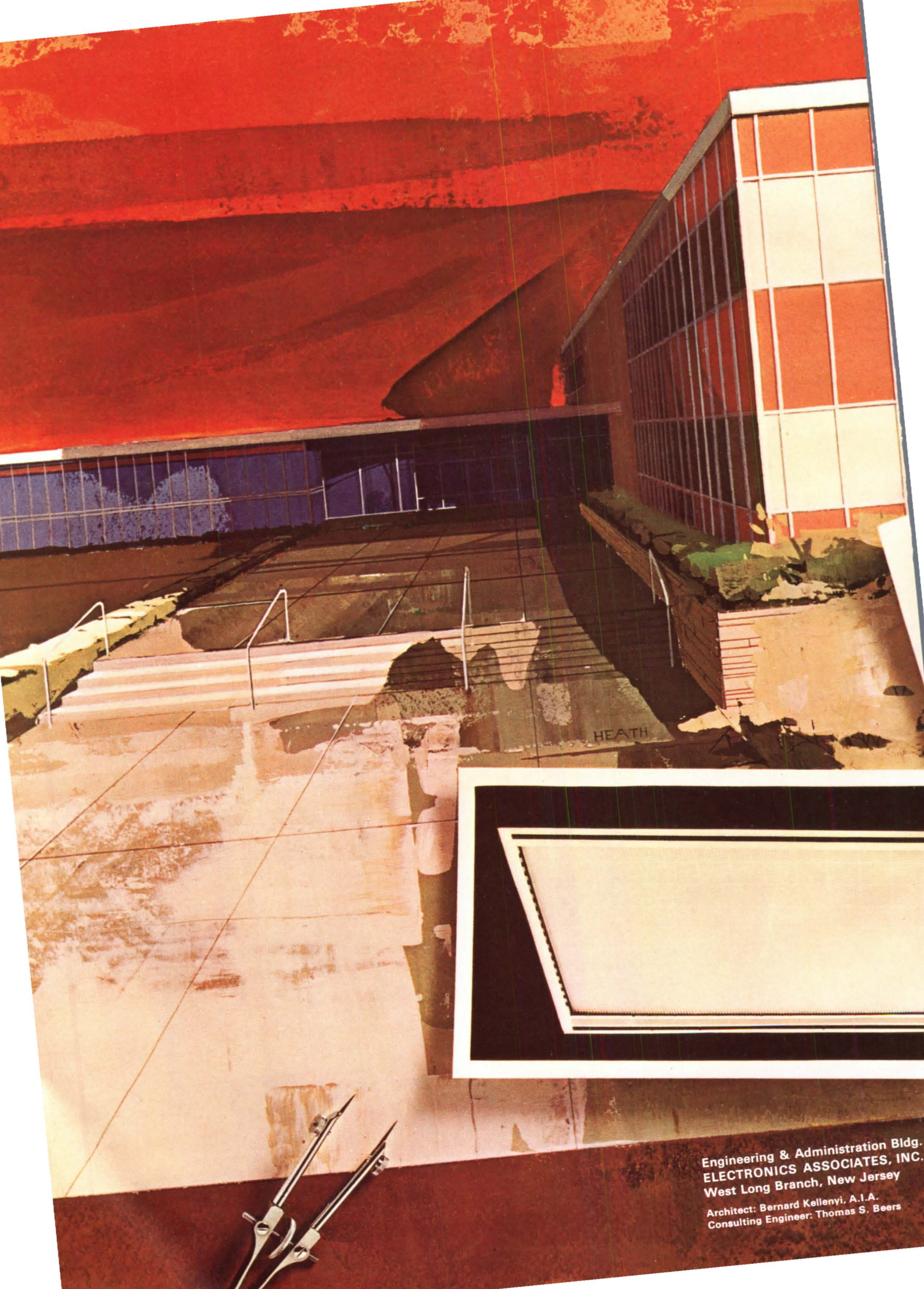

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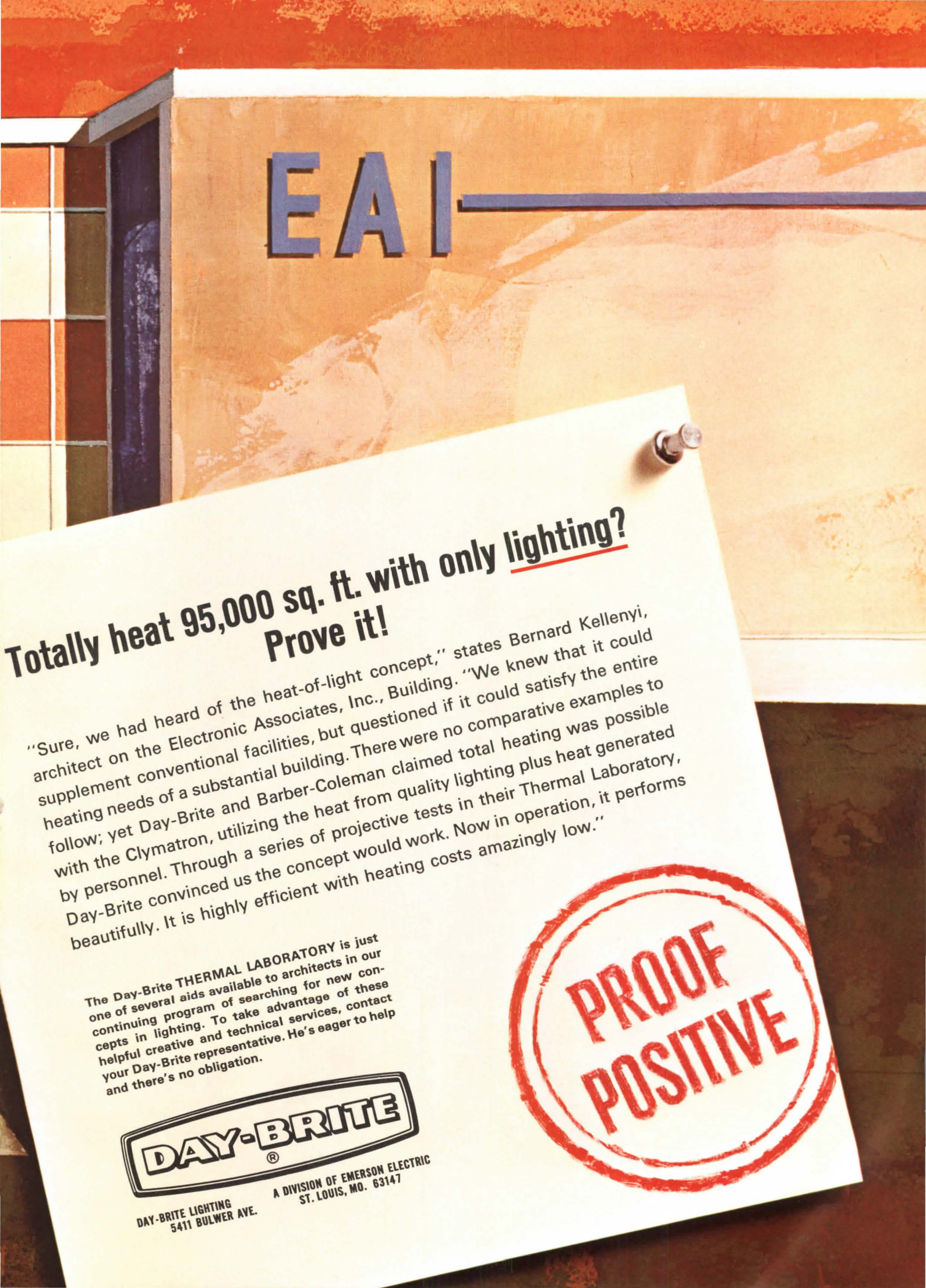

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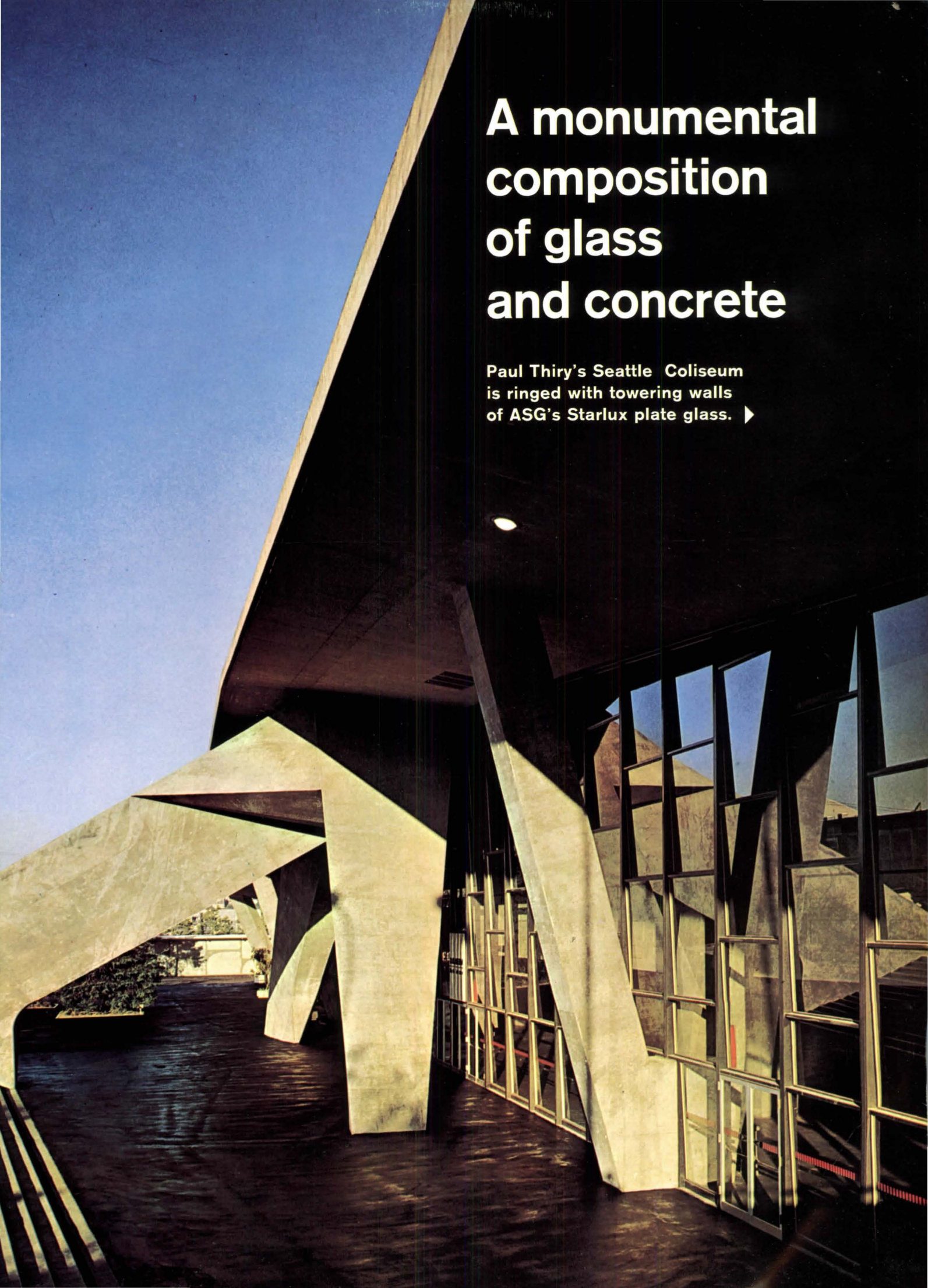
Continued from page 202

Maecenas. Several questions arise, not all of which are completely disposed of by Casanelles. Let us begin with the Palacio Güell, the fulcrum of their friendship: In a study of the Moslem ingredient in Gaudí's work, this reviewer became convinced that many of the Arabic overtones of the building that cause it to resemble the Alhambra apartments so markedly may have been Güell's idea of how to pattern his family life rather than young Gaudí's idea. When Puiggarí published his guide book to the house in 1894 (saying of the building, "as if through a magic art, the wand of some Scheherazade Aga Hussein here gave body to all the dreams of oriental stories . . ."), he laid the stress on Güell and seemed puzzled as to the part Gaudí had played in the designing. The anonymous role played by Spanish artists and architects, is, of course, well known; the "realism" of the peninsula's sculpture and the style of its architecture during its Golden Age seem often to be more a function of the purpose or program of the work than the personality of its artist, who is often unnamed. For instance, it is still undecided just what were the responsibilities of the architects of Philip II in designing the Escorial for him.

It would be interesting to know precisely whose was the inspiration for the residential development known as the Park Güell, a work of "urbanization" to which Gaudí devoted many years and in which he lived, virtually alone, for two decades. How much did the failure of this enterprise contribute to the separation of the two friends in about 1914? Why, as Casanelles reports, did Gaudí stand apart when Güell was having prepared the great exhibition of his works for Paris in 1910, an exhibition that hardly met with enthusiastic reaction? What lies behind the demission of Gaudí and his master mason from his favorite and ultimate project, the workers' colony chapel for Güell, in 1914? Casanelles reports that he has been unable to fathom this last question. I have suggested elsewhere (note 71 in my own book) that the festive dedication by Güell of an authentic Louis XVI room in his own home right in the Park Güell in 1914 would indicate that Gaudí was completely eclipsed, that in Barcelona's new fad for classicism Gaudí had become meaningless even to his most steadfast patron.

It is this tragic estrangement from the profession, from the public, and from his own former friends that Casanelles treats so sensitively and that makes this book such a warm and human document. In his description of Gaudí's youth, a clear image emerges of the stress of family tragedy and the hard knocks that must have shaped his personality. He then proceeds, by a careful dating of projects and other activities, to demonstrate how Gaudí, like Goya, was projected from humble origins into a world of social and intellectual excitement, from which a dogged pursuit of certain truths in his own art slowly alienated him. Casanelles makes clear that Gaudí remained aloof from those vulgarities of the Art Nouveau (Modernismo) that popularized it as a style and eventually choked it off: he quotes (p. 47) a biting satire on Gaudí by two prime movers of Modernismo in 1889, which indicates that its practitioners themselves did not consider that Gaudí "belonged." As our author puts it, while his contemporaries Domenech y Montaner *and* Puig y Cadafalch were busy fabricating a *national* style for the Catalans, Gaudí was summoning them to a supernational idiom that would not really be understood until mid-century. Casanelles sees the ultimate villain to be Eugenio D'Ors, an influen-

Continued on page 216



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Continued from page 210

tial Catalan critic who, in his re-establishment of classical doctorine (itself a dead-end movement in Catalonia), subjected Gaudí to public ridicule from 1906 on. During those years, many cartoons appeared of the funny little old man and his grotesque big building, the Casa Milá, which Casanelles believes to have been designed by Gaudí as a final grinning protest against the vagaries of popular taste that were reducing his career to ashes.

It is fascinating to read this construct of the trajectory of Gaudí's career, this careful documentation of the relationships between a sensitive artist and the many dimensions of his environment: nature, Spain, fads, faith, and people. It is all presented simply and logically in a chronological treatment of the projects themselves. The successive vignettes of the buildings are excellent. The writer's prose is lucid, and he is completely free of any preconceptions about architectural style so that each project is allowed to speak clearly and forcefully to its purpose, as the architect obviously intended that it should. A good case in point is his analysis of the "Casa de los Botines" of 1891-94 in Leon, a totally misunderstood block of granite that is here explained in terms of the symbolic and economic needs that result from its placement on a venerable plaza in an historic city. Casanelles then goes on to plant the puzzling question as to why the proprietor of this most sober of Gaudí's buildings should have been presented by the artist with an autographed copy of his most radical and totally different project, the oddly turreted Franciscan mission in Tangiers.

Apart from extending our understanding of Gaudí the man, this volume contributes a considerable amount of new knowledge about his works, corrects their chronology (as in the case of the Teresan School), and reveals some recent and ingenious discoveries. Most remarkable of these is the fact, hitherto unnoticed, that the shattered tiles of the Park Güell benches actually bear a series of almost imperceptible inscriptions that were baked into them in manufacture. These are cryptic and largely, although not exclusively, devotional, and have as yet not been explained. Although Casanelles does not refer to it, one wonders if they might be related to the calligraphies—sometimes a phrase, sometimes a doodle—that appear in the swirling plastered ceilings of the Casa Milá, which are also apparently by Jujol,

Continued on page 220

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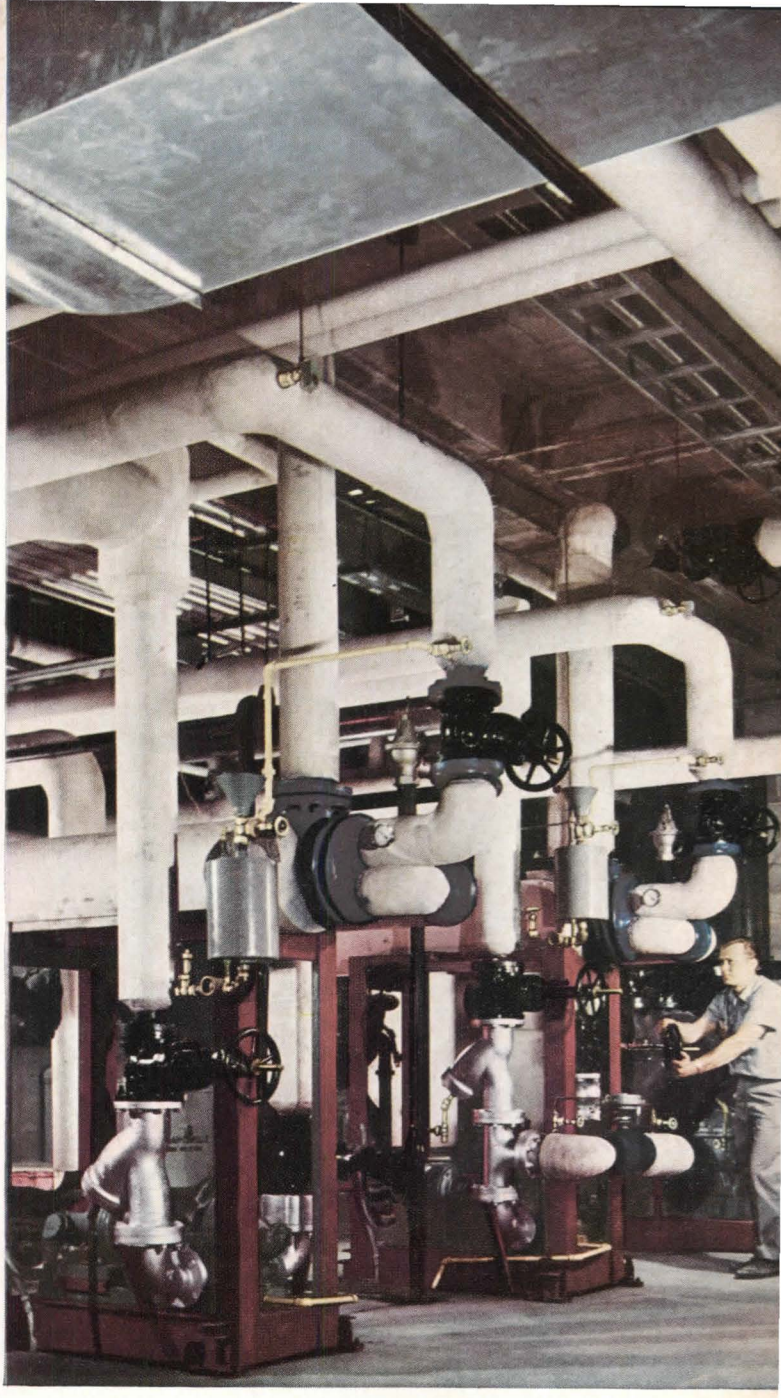

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Continued from page 216

co-designer of the Park benches. One Park inscription, "Angelus," is cast into relief precisely at the moment of noonday sun—a bit of cosmic adjustment that one might well expect from an architect as given to symbolism as Gaudí.

Among other pieces of new documentation in the book are those relating to the associations of Gaudí with the town of Alella for which he made an early and recently discovered project for an altar; a more precise description of his relations with the workers' cooperative at Mataró, a drawing for which is illustrated in color; and Gaudí's ideas for the mountain shrines of Montserrat. Among the author's original investigations, perhaps the reformation of the Cathedral at Palma de Mallorca and the construction of the Colonia Güell Chapel figure most importantly. In both cases, much attention has been paid to the timing and rhythm of the work, which are strange and erratic. These irregularities seem to owe more to long periods of inactivity and of gestation of ideas in the mind of the architect than to simple physical circumstances such as the availability of funds or the distraction of Gaudí by other tasks. At Palma, one intense season's campaign produced virtually all the changes in the internal fabric of the church, only to lapse into a 10-year-long period of slow and tortuous labor on a few, mostly unfinished, details.

The Colonia Güell Chapel is, perhaps, the greatest enigma (and in Casanelles' estimate, the greatest masterpiece) of all. What, for instance, went on between 1898, when Gaudí presumably started it, and 1908, when, according to documents that Casanelles has found, the first stones were put into place? Why did Gaudí leave in 1914, two years before construction finally ceased and one year before the crypt was dedicated to use? Why does all his elaborate work with the funicular model and sketches treat a nave which was never built, instead of the crypt that was finished? Whereas the chapel has customarily been interpreted by his followers as the "laboratory" for his larger church of the Sagrada Familia, the author sees it as a totally unrelated enterprise and the culmination of his career, at least in ecclesiastical building. Here I would take issue with the author, for reasons that have been outlined in my article on Gaudí's forms and structures in *Perspecta 8*. The chapel as a concept antedated the latest designs for the Sagrada Familia church. In the chapel, Gaudí

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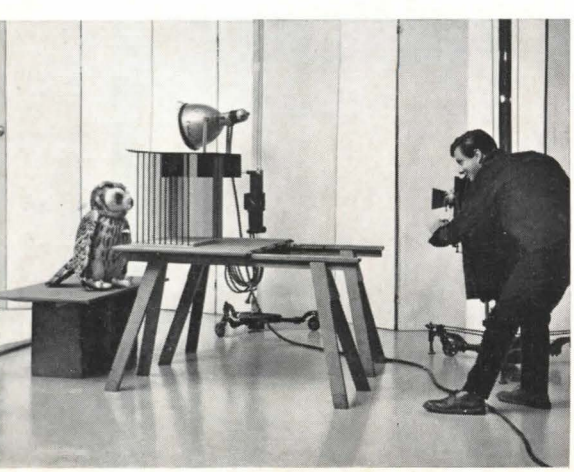

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operated in what might be called an "empirical" manner, adjusting his hanging model until it produced a formally satisfactory stress diagram that he could translate into masonry. The concept for the church was, as we would expect with Gaudí, totally different from the chapel, but it involved using the experiences and procedures of the chapel to produce a more a priori geometric design in which stress lines are not emphasized themselves but are absorbed into the prismatic surfaces. As Casanelles himself observes, it is Gaudí's *integrated* manner of thinking and inventing that allowed him to produce such a startling variety of designs—of several different descents, perhaps, but all blood relatives.

This sense of variety is nowhere clearer than in the plates that make up almost half of the volume—nearly 130 full-page illustrations, one-quarter of them in color. These have been selected with great care from the vast resources of Casanelles' archive; and despite some reddening of the brown tones, the color plates are as authentic and exciting as are to be found in any publication on the subject. These illustrations, which were arranged by the author prior to and somewhat independently of his written text, form a separate but corollary pictorial essay. Graphic in another way are two documents printed as an appendix: one, a series of notes on aesthetics, and the other, fragments of a previously unknown diary. Although both of these date from very early in Gaudí's career, Casanelles insists that they set out principles from which the architect never wavered. At several points in the text, Casanelles prints lengthy verbatim reactions of the day to Gaudí and his works. For instance, in order to communicate the character and appearance of the architect in his later years—isolated with his ideals, somewhat defensive in conduct, shabby but intense—we are given the dramatic reports of several visitors to his studio: a young Catalan architect, a journalist from Uruguay, and a German, one of the first students at the Bauhaus.

A prologue has been contributed by the Catalan poet Blai Bonet. This is a pithy essay on modern culture and the part that architecture plays in it, on myth-making and myth-breaking and the role that Casanelles has played in the latter. The whole volume is a must for every *aficionado* and scholar of Gaudí. I hope that its translation from the Spanish will soon be arranged so that the book may serve its purpose more universally in our schools in this country.

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BY FORREST WILSON

BENDINER'S PHILADELPHIA. *Alfred Bendiner. Foreword by B.A. Bergman. Preface by Russell Lynes. A.S. Barnes & Co., 8 East 36 St., New York, N.Y. (1964, 175 pp., illus. $4.95). The reviewer is an Associate Editor of P/A.*

When Adam, in all innocence, tasted the apple, he was banished from the garden of Eden—not for the sin of partaking of the tree of knowledge, but for initiating the vice of comparison. Whether man is dressed in the leaf of the fig or the league of the ivy, judgment by comparison is hardly more excusable today than it was in Adam's time. Yet it remains the only alternative when writing about a book that speaks for itself.

Although they are separated by well over a century, Bendiner is reminiscent of both Samuel Clemens and John Lloyd Stephens, if for no other reason than their quality of humor. His humor is the kind that can disagree without rancor in the conviction that we are all of the same species, and although some of us may differ in our tastes, it does not imply mental derangement.

An architect, archaeologist, writer, and artist, Bendiner found time to go on archaeological expeditions to Iraq and Guatemala, and also to serve in both World Wars—which leads to further comparison with Mark Twain, the riverboat pilot and Civil War veteran, and Stephens the antiquarian, diplomat, and builder of Central American railroads. Bendiner's involvement in major adventures of his time was not responsible for his wit and worldly outlook, but they were undoubtedly sharpened and broadened by the eventful life he chose.

The author has a pleasant damning opposition to glass and chrome architecture, redevelopment that destroys worthwhile old buildings, and a typically American dislike of the men in city hall. On the latter subject, he writes with the nostalgia of the world as it was before the atom bomb, when the city council and state government were important enough to take seriously, uncontrasted as they are today to world governmental ineptness in the face of total destruction.

Bendiner was the son of an Hungarian immigrant who immigrated to Philadelphia and apparently afforded the younger Bendiners a full share of the simpler Philadelphia pleasures of 50 years ago. Picnics, ferryboat rides, Christmas, and New Year's celebrations

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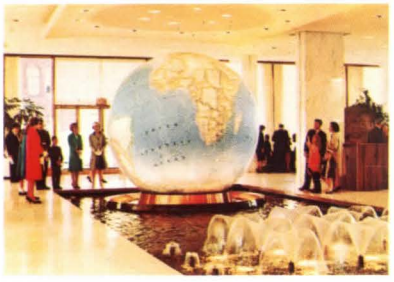

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are among the events in the city of brotherly love that the author remembers as a child.

While the central theme of *Bendiner's Philadelphia* is architecture, the book is interlaced with many other delights, such as the First City Troop, the Paoli Local, and the Strawberry Mansion Bridge. On this bridge, in an era of mischievous youth—before the invention of delinquency—the sport seems to have been to lean precariously over the railing, dangerously cantilevered from the running board of a moving trolley, to see if it were possible to expectorate into the river below, preferably onto a sculler's head. A neat trick—with the sole aiming device the tip of a small Hungarian boy's nose.

Contemporary esoteric criticism seems to have lost the knack of good old fire and brimstone opposition. Here is a sample of Bendiner's art: "Early Twentieth Century, retired-bankers Heidelberg, rusticated castle, bastard Gothic crossed with sonofabitch German, complete with towers, turrets, porte cochere and lace curtains, dark furniture, dark oak woodwork, dark and damp ugly." Hardly the type of copy that would be run up the flagpole for salutes on Madison Avenue.

Bendiner has been compared to Osbert Lancaster on the book jacket. It is hardly a justified comparison, in my opinion, for Bendiner is uniquely himself, and, if the fact that he both writes and draws architecture is the basis of such a comparison, then we might just as well compare the hop toad of Calaveras County to the unicorn.

Bendiner's wit is uniquely his own, in the tradition of Twain and Stephens; his drawings show the delight of architectural texture and form as reflected in the experienced eye of the architect. His drawings have a variety and quality of line superior even to the excellent work of Osbert Lancaster. There is a delicate line (pun intended) that differentiates between cartoon and illustration. Bendiner is always on the side of illustration. He displays a sheer pleasure in the draftsman's work and a quality of quiet graphic humor that achieves fine art rather than the stereotype of cartooning.

For many of us, drawing becomes a language in itself, possessing infinite variety and subtleties, capable of all the nuances of words, and infinitely more capable of direct communication. Under these circumstances, a line may assume control and make its own statement, but Bendiner never loses control of his own

Continued on page 239

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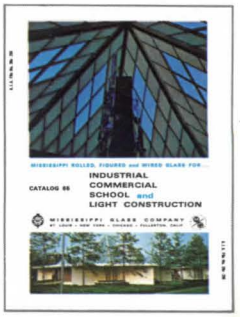

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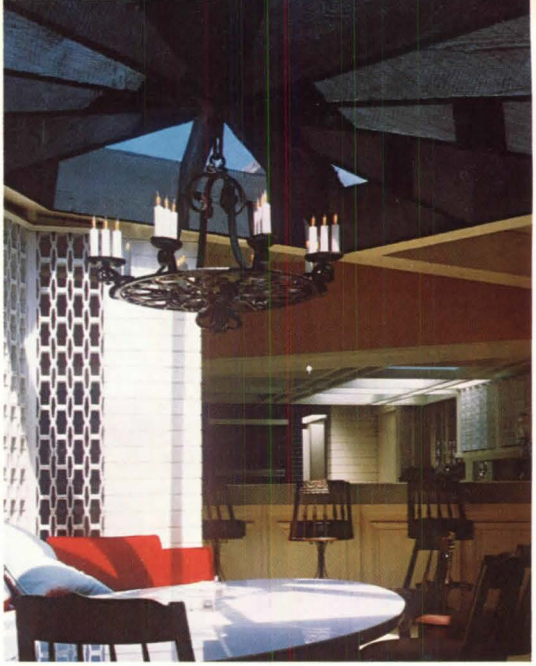

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Continued from page 226

evolved graphic language. His work is represented in many of the major galleries of the world—as it should be.

Bendiner's death last year leaves a void—a loss more tragic in that there seems to be no one else who expresses the spirit of humor and humanism as firmly as he did: that buildings and cities are for people. It is to be hoped that we do not have to wait another hundred years before we find someone of comparable stature.

The Architects Are Responsible

BY GEORGE C. KELLER

HOMES, TOWNS, AND TRAFFIC. *John Tetlow and Anthony Goss. Faber & Faber Ltd., 24 Russell Square, London WC 1, England. (1965, 224 pp., illus. $6.30). The reviewer formerly taught government at Columbia University and is now Editor of* Columbia College Today, *a magazine that has received several national awards.*

Just as the tin can revolutionized what people ate, which food was grown where, and how food was distributed, so the automobile has changed what people do, where they live, and how they and the commodities of their lives move about. Possibly no single nonarchitectural artifact has had such a determining influence on mid-20th Century architecture, planning, and land use.

Surprisingly, few architects and planners have fully recognized the profound changes that the spreading use of motor vehicles has brought. Social scientists and cultural historians have not yet revealed the total effect of automobiles on our lives. And political leaders and the publics they are supposed to serve are, for the most part, appallingly ignorant of even the most rudimentary implications of the revolution—although they have allocated more of their incomes for highways than they have for any other item—except the military budget.

It is to help remedy this widespread ignorance about the consequences of the increasing use of automobiles for architectural planning that two Englishmen, John Tetlow, a town planning consultant, and Anthony Goss, head of the Leeds School of Town Planning, have written this book. The authors feel strongly that while automobiles have brought new pleasure, privacy, and freedom to countless people, they have also altered individual house design, helped change the life of towns, and are in danger of decimating the cities, the age-old centers

Continued on page 238

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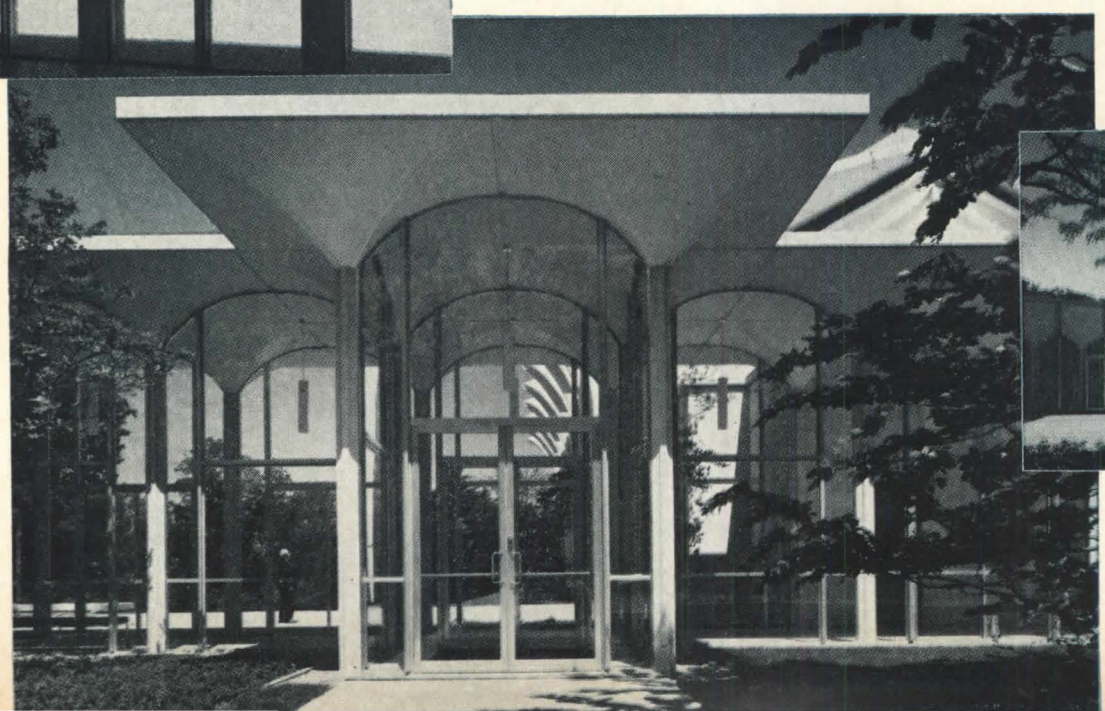

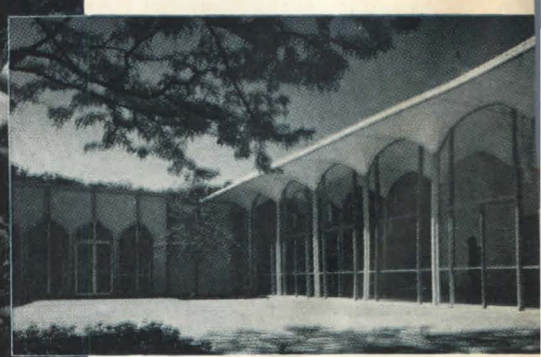

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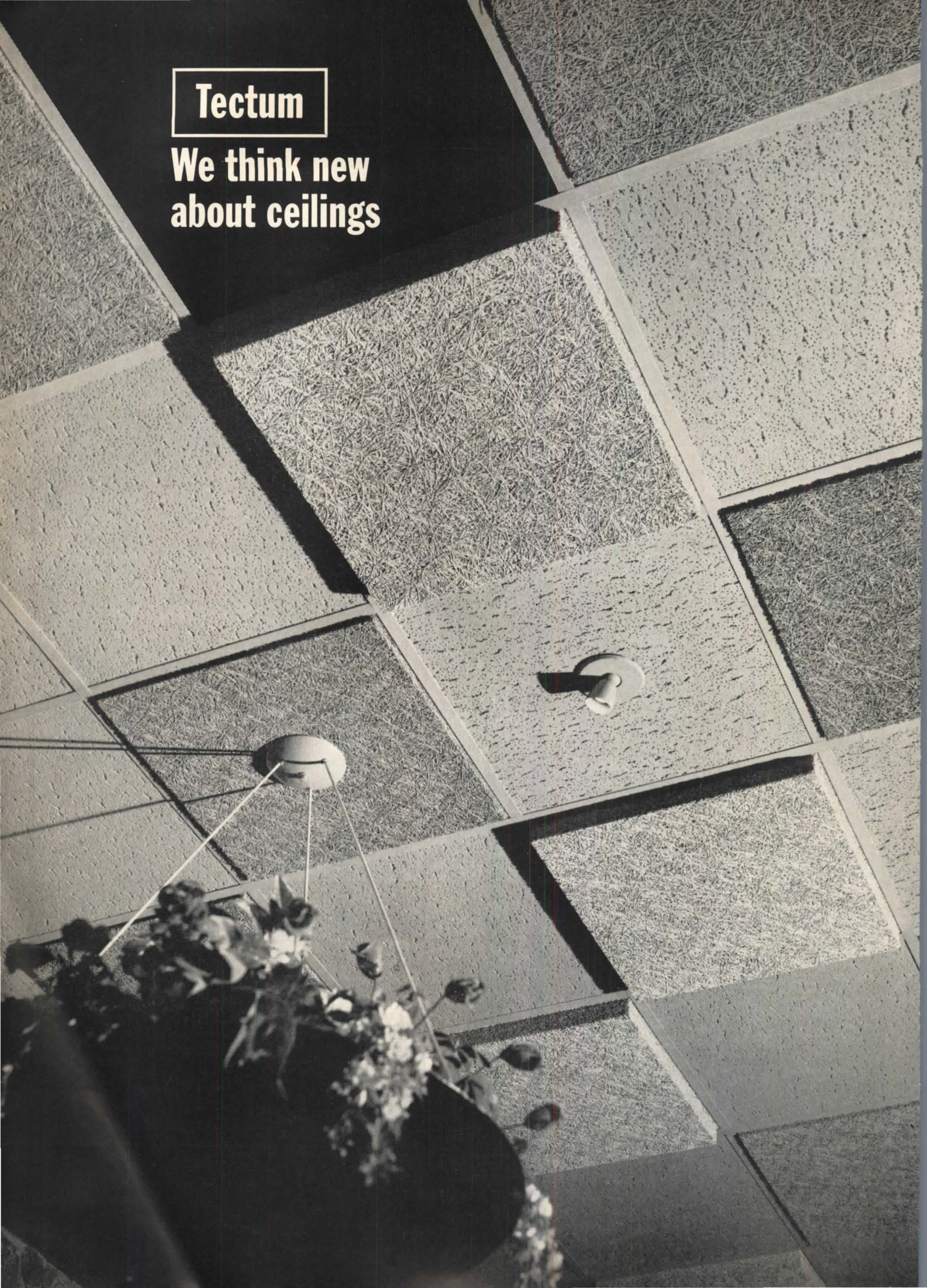
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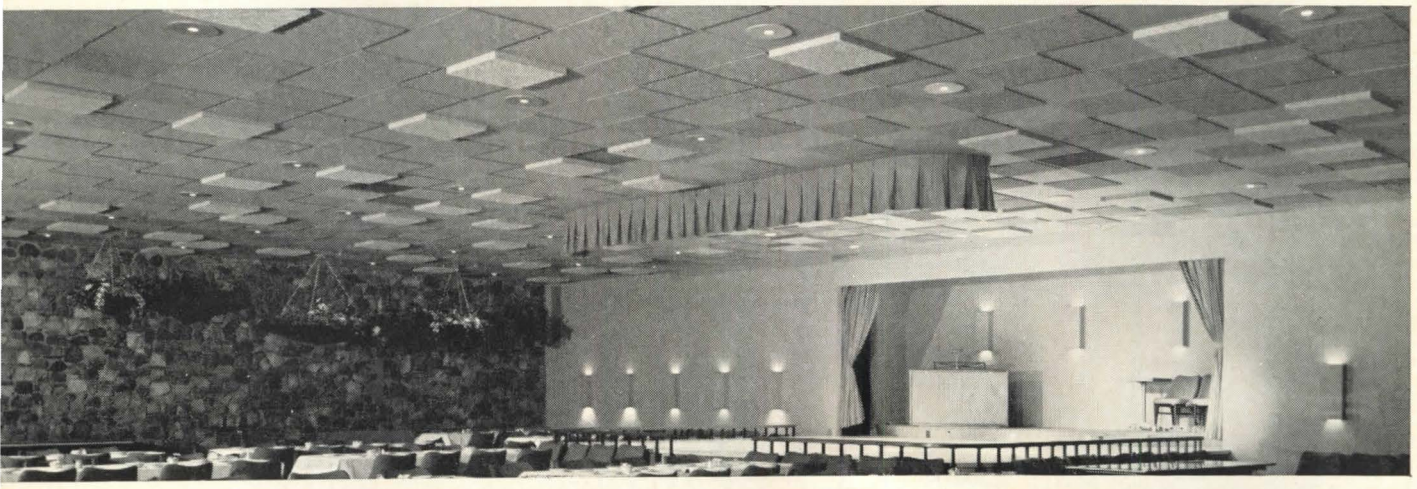

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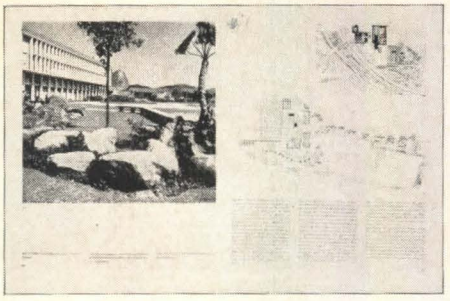

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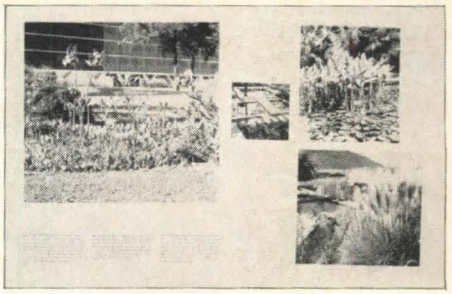
THE TROPICAL GARDENS OF BURLE MARX by Prof. P. M. Bardi, director of the São Paulo Museum since 1947, and author of numerous books on architecture. Large 9½ x 11¾" format; 160 pages; 227 illustrations (60 in color). Captions in English, German and Italian. $15.



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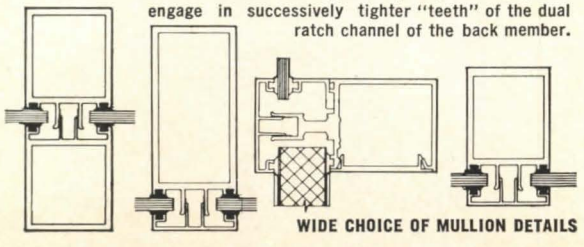

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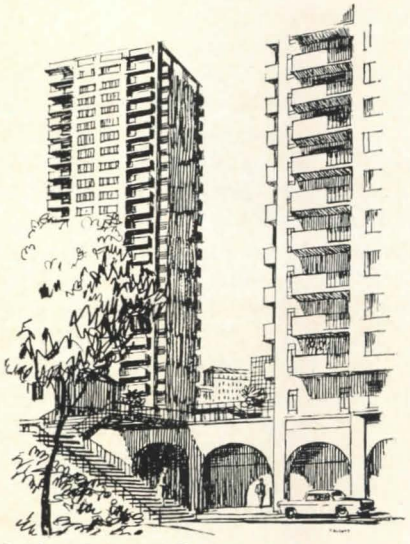

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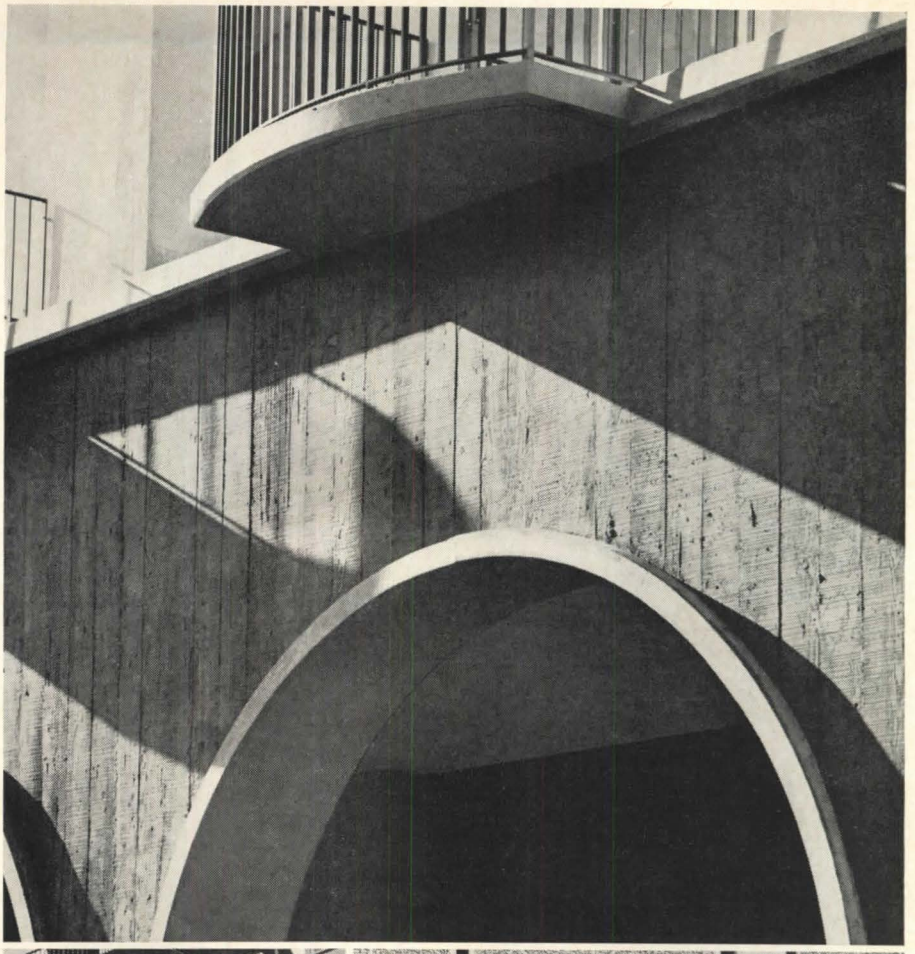

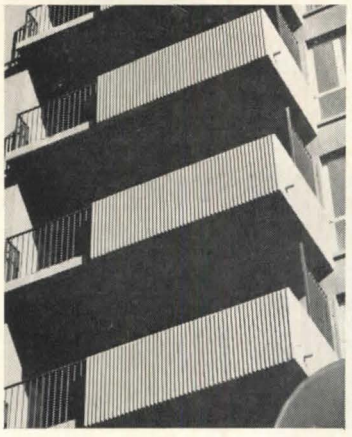

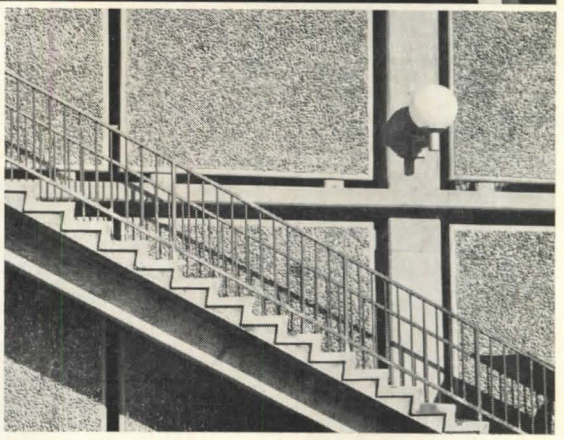

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Continued from page 230

of civilization. Although they have written primarily to alter the thinking of *British* architects, their assertions—that most architects still design "as if the motor car did not exist" and that "a major problem today is to find a way of communal life which reconciles our reliance on motor vehicles for personal, public, industrial and commercial use with the need for safety, privacy and quiet in our homes"—are ones that obviously should have an audience in other nations, especially in the United States.

Rather neatly, if sometimes dully, the authors describe the emerging Motor Age, the best schemes of some early architects and planners who tried to come to grips with it, the more recent attempts in Britain to build wholly new towns and revitalize old ones, and the few gestures toward metropolitan planning that England has shown. They argue, very calmly, for more comprehensive planning, a more rational and national system of transportation, and for greater political initiative.

Their section on planning suburban towns is a strong one, full of useful ideas. And they are delightfully candid about how well—and how poorly—some of these ideas that have been tried have worked out. I suspect, though, that the authors have had little experience with major urban areas, for their section on large cities' traffic and building is disappointingly cursory. Indeed, a major flaw in the volume is that the authors, who so commendably plead for greater modernity and vision in our thinking, still seem to be romantically attached to the old English towns. It is one thing to incorporate the finest elements of former town life and modern town planning—such as the Radburn, N. J., divorce between motor and pedestrian traffic—into contemporary urban planning; it is another thing to hanker for the good old days (which were never actually that good), and to imply that the solution to our drift into chaotic large-scale urbanism is the establishment of more lovely little towns between the major metropolises.

Like Lewis Mumford, to whom the book is dedicated, the authors appeal chiefly to the *political* leaders for help in our indisputable and potentially catastrophic drift. They claim that there is no lack of planning and architectural ideas, only "a lack of political will." Although I have heard other architects express this view, I find this emphasis both untrue—because the warehouse of

Continued on page 242

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entrancing architectural and planning ideas for the Motor Age is far from full, as the authors themselves admit elsewhere—and misplaced. At least in a private enterprise, democratic society, the *primary* appeal should be to the professional architects and planners and to their chief patrons, the businessmen.

Of course, powerful politicians must be persuaded to support good architecture, and, even more urgent, imaginative planning for *people* rather than for better traffic flow or commercial profit, as the authors say. But it will be a bleak day when we must rely on politicians to urge imaginative design and farsighted planning on the architectural profession, rather than the other way around. *Homes, Towns, and Traffic* is happy evidence that the bleak day has not yet arrived.

OTHER BOOKS TO BE NOTED

Habitation 3. J. H. van den Broek, Editor. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York 17, N. Y., 1964. 350 pp., illus., $29.50

A volume that details the development of housing in seven countries (including the U.S. and the Soviet Union) since World War II, discussed in terms of "Program," "Design," and "Production." The "Program" section is a general review of each country: legislation, financing, production, and "mental and material requirements" of housing in each country are outlined. The "Design" section includes pictures of the different types of buildings, plus the relevant data: architect, year built (most were in the 50's), size, bibliography (although this is often missing), etc. This is the third and final volume in a series initiated at the Fourth Congress of the U.I.A. for the purpose of raising building standards all over the world.

High Steel, Hard Rock, Deep Water. Richard W. O'Neill. The Macmillan Co., 60 Fifth Ave., New York, N. Y., 1965. 289 pp., illus., $12.95

This is a story told in words and pictures of the men—the muscles and minds—of construction.

Landscape Architecture: As Applied to the Wants of the West. H.W.S. Cleveland. Roy Lubove, Ed., University of Pittsburgh Press, Pittsburgh, Pa., 1965. 59 pp., $2.95

To be reviewed.

Libraries and Automation. U.S. Government Printing Office, Div. of Public Documents, Wash., D.C., 1964. 268 pp., illus., $2.75.

This book assesses the impact of automation on library operation. It reports the substance of a conference held on the subject in May 1963. There are seven independent sections: the library of the future; file organization and conversion; file storage and access; graphic storage; output printing; library communications networks; and the automation of library systems.

Natural Stone as an Element in Design. Gerd Zimmerschied. Interbuch Berlin, Berlin-Charlottenburg 2, Schlüterstrasse 17, West Germany. Distributed by Renouf Publishing Company Ltd., 2182 St. Catherine Street West, Montreal 25, Canada, 1961. 321 pp., illus. $12

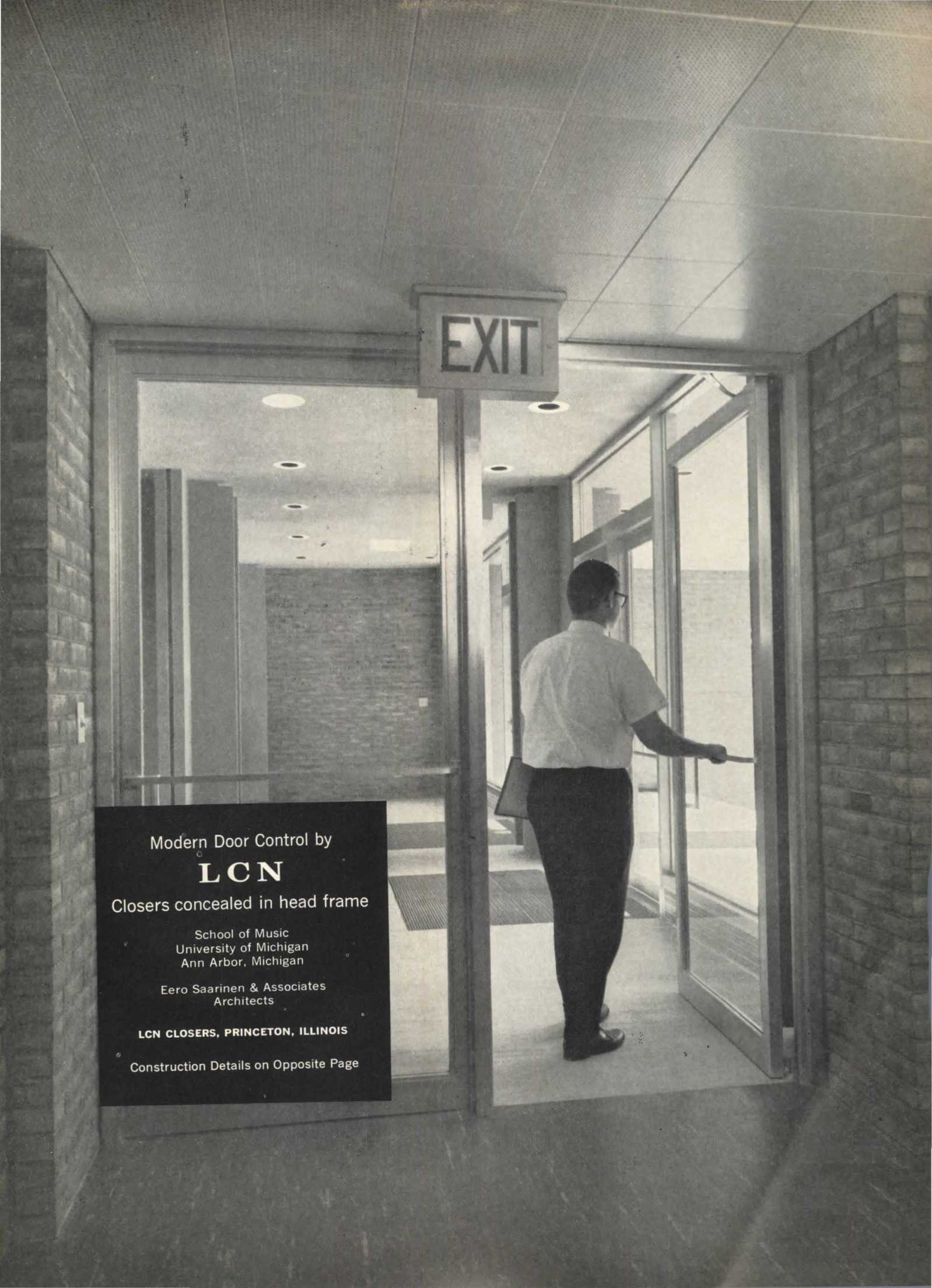
To be reviewed.

New Swiss Architecture. Alfred Altherr. Architectural Book Publishing Co., 151 East 50 St., New York, N.Y., 1965. 212 pp., illus., $16.50

A pictorial review of the last eight years of Swiss architecture, divided into the categories of Housing, Leisure and Recreation, Schools and Universities, Work, and Churches and Crematoria.

The Open-Air Churches of Sixteenth Century Mexico. John McAndrew. Harvard University Press, Cambridge, Mass., 1965. 755 pp., illus., $15

This is a detailed and informative epic on that peculiar response to time, circumstance, and conversion—the 16th-Century open-air church.



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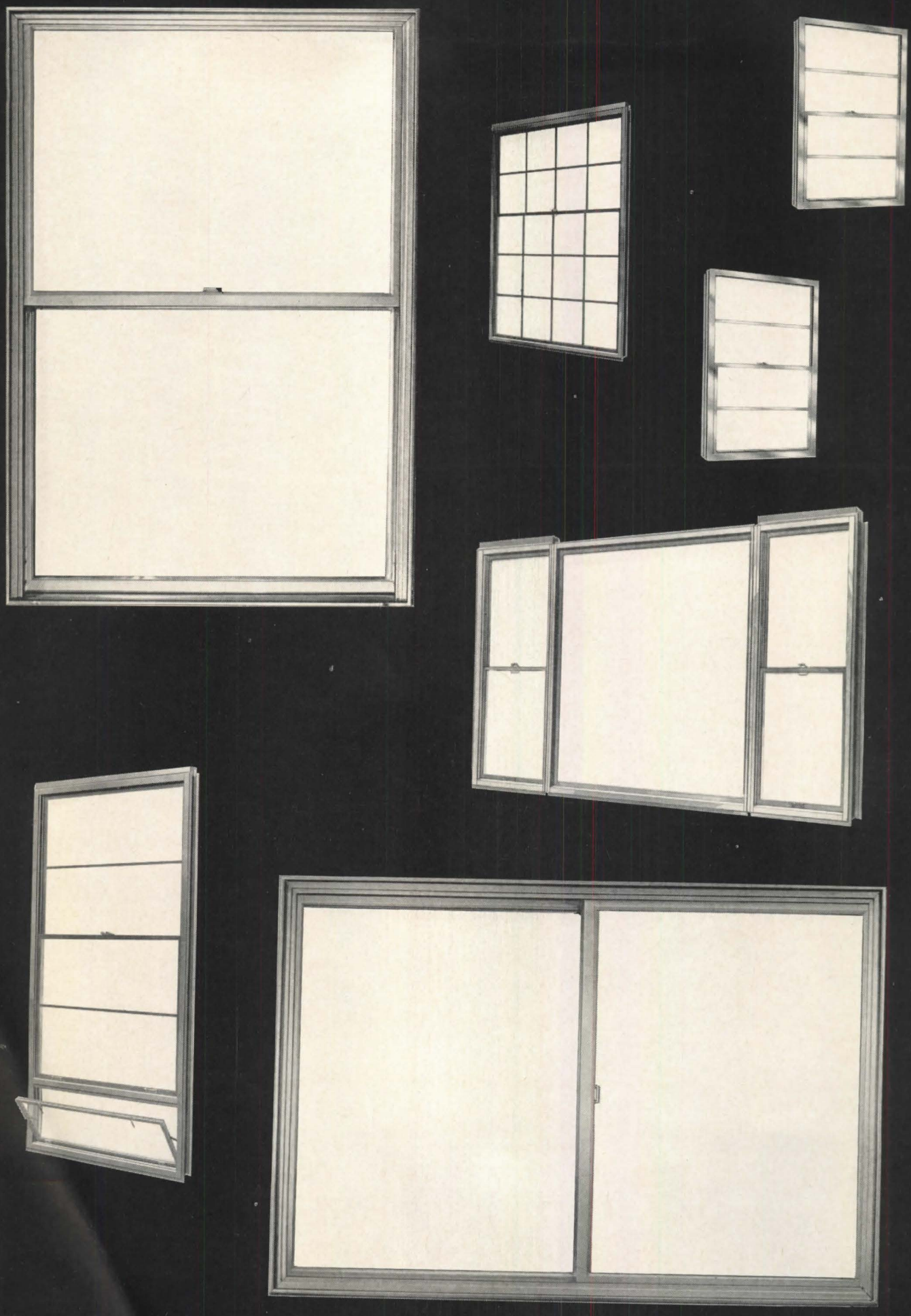

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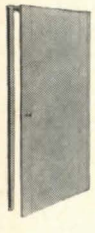

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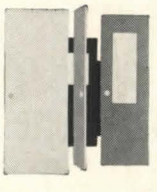

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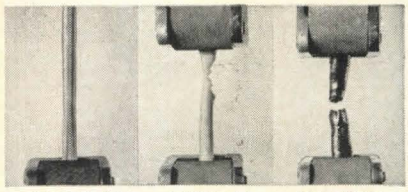

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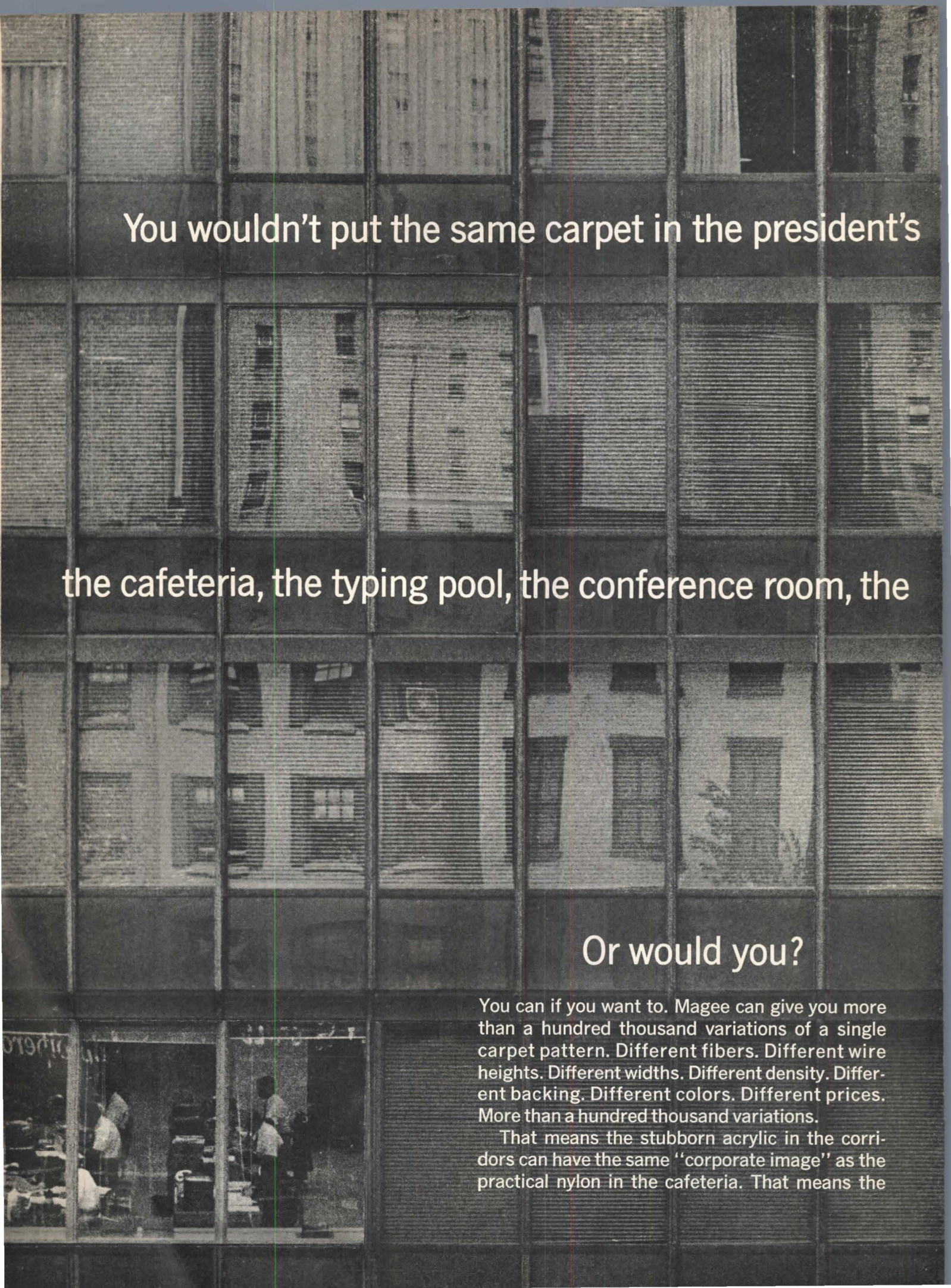

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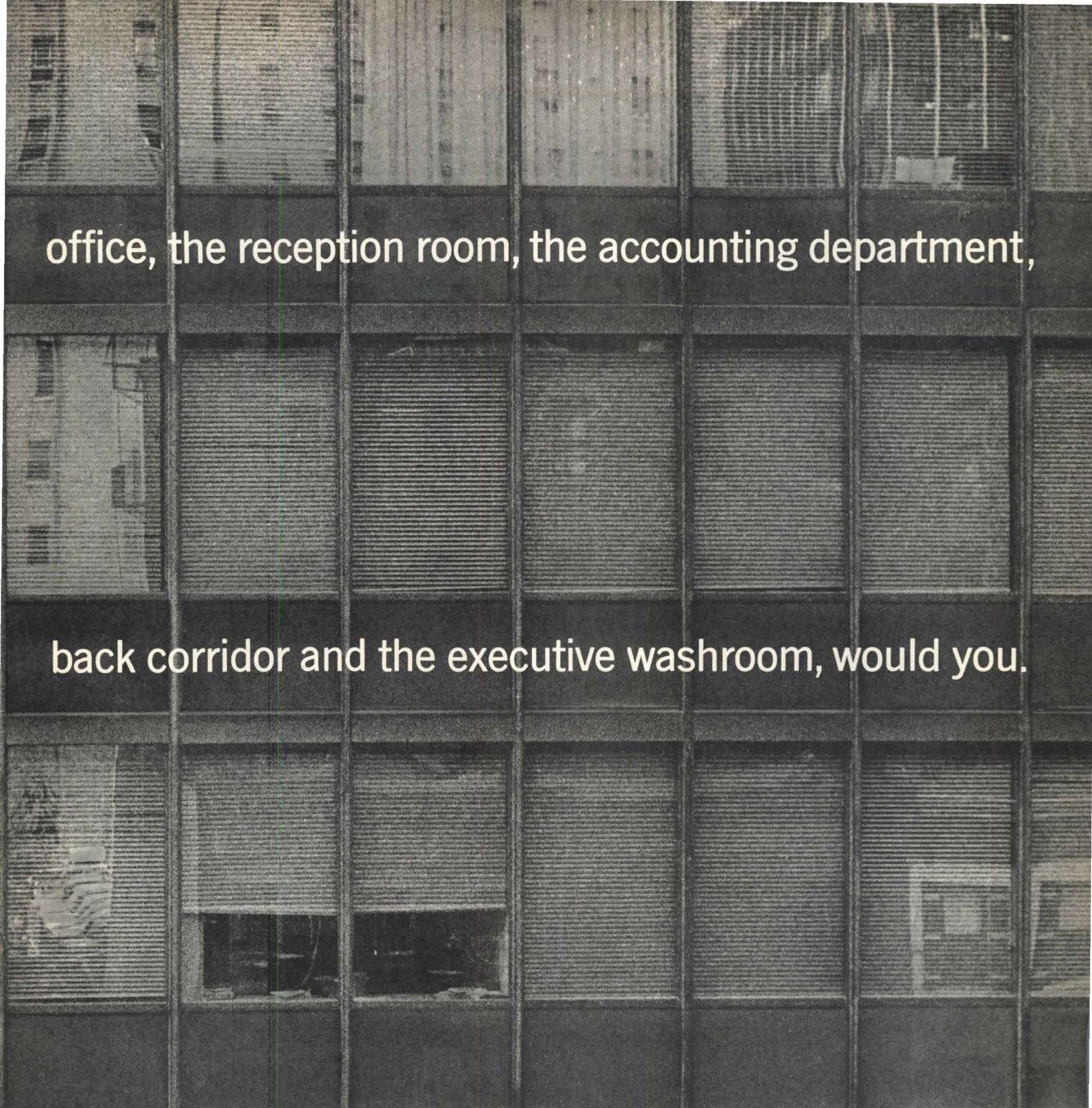

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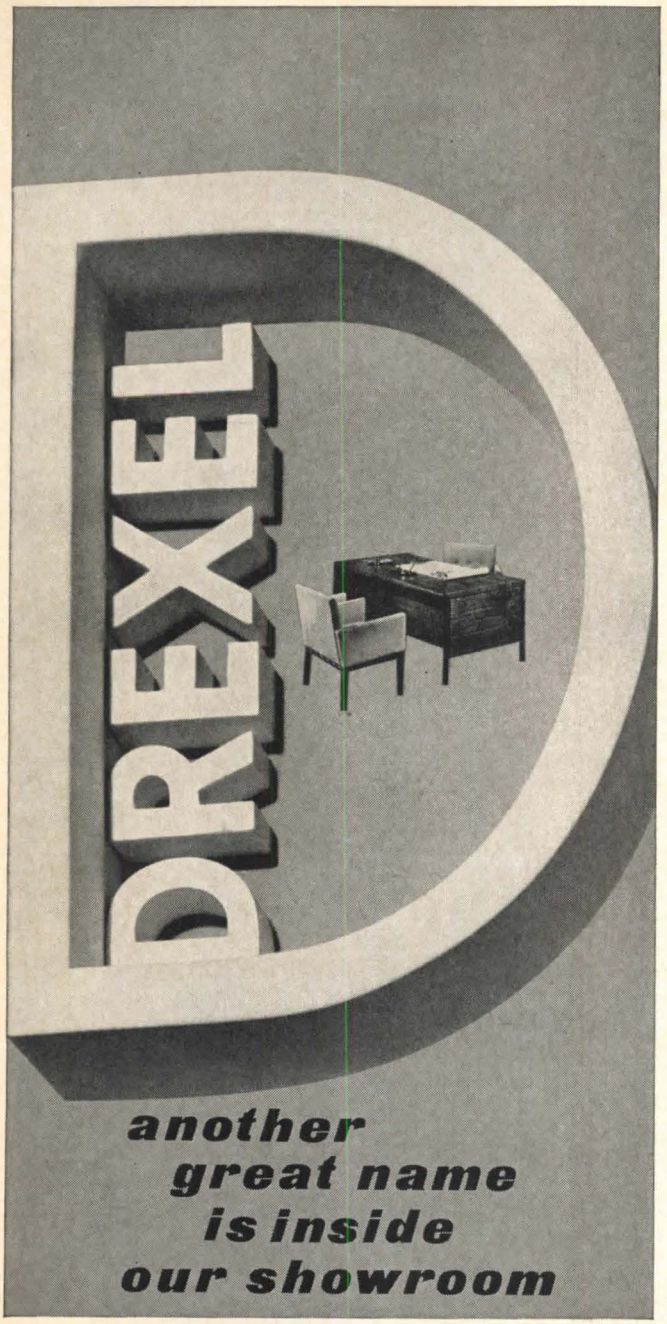

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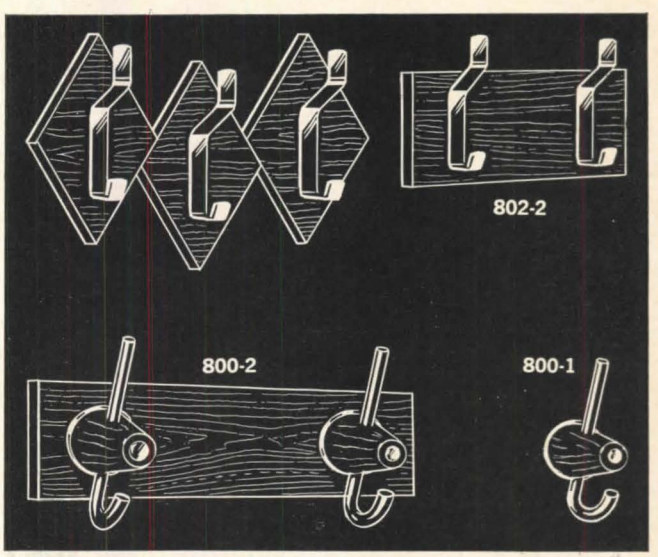

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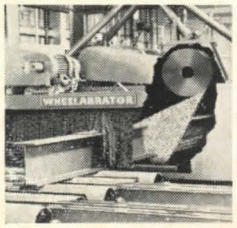

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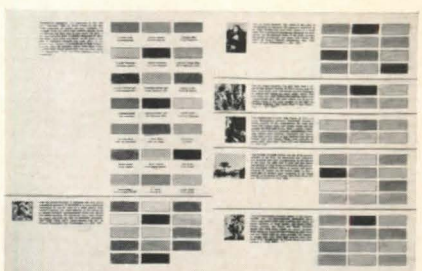
The actual palettes used by (left to right) Braque, Derain, and Dufy are shown above. Palettes of many more famous painters, as well as unusual palettes used by painters during various periods of history are included.



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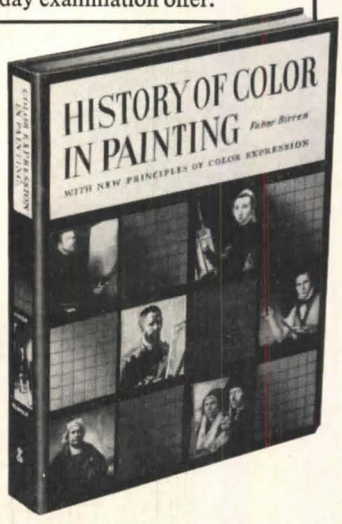

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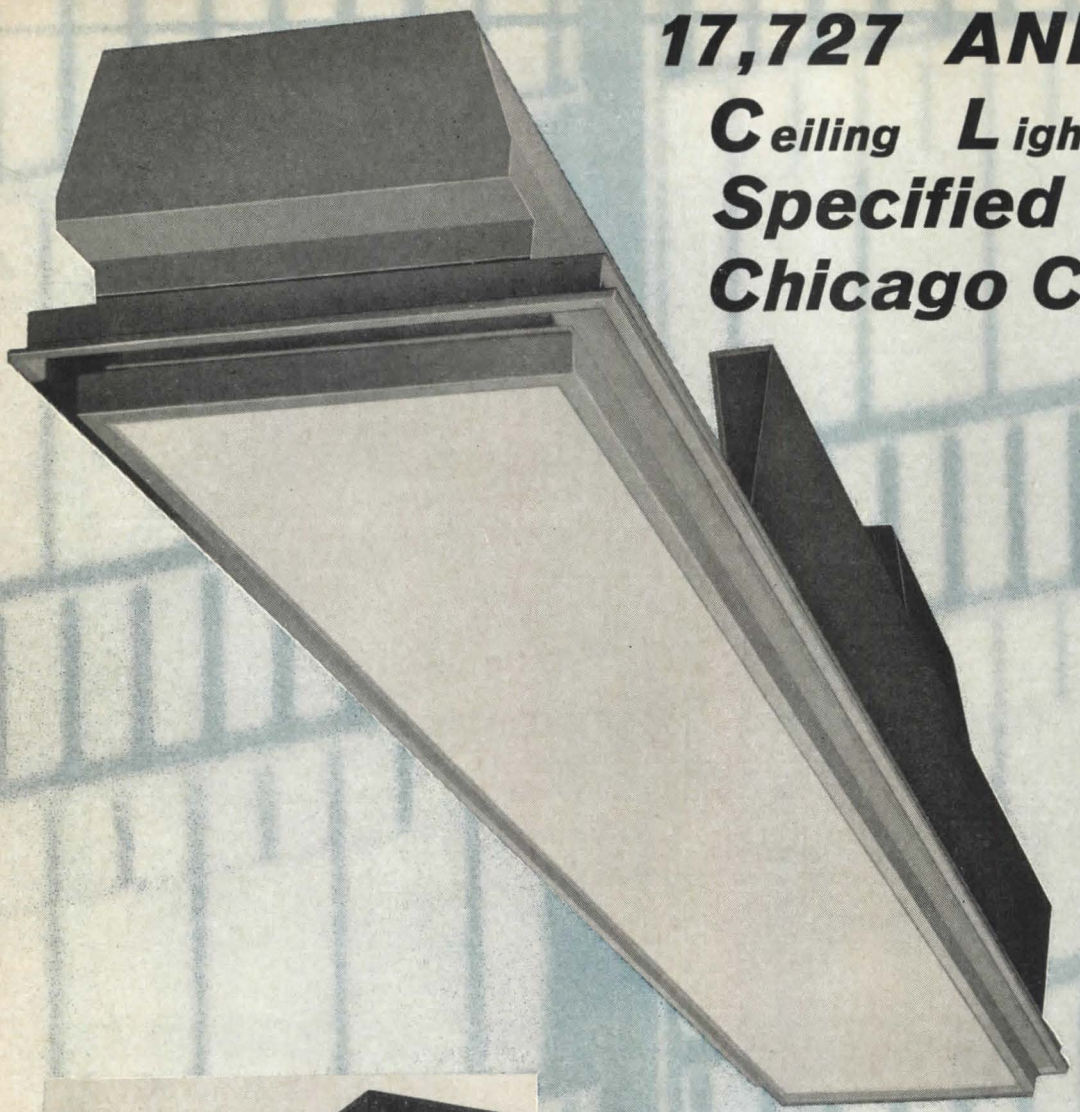

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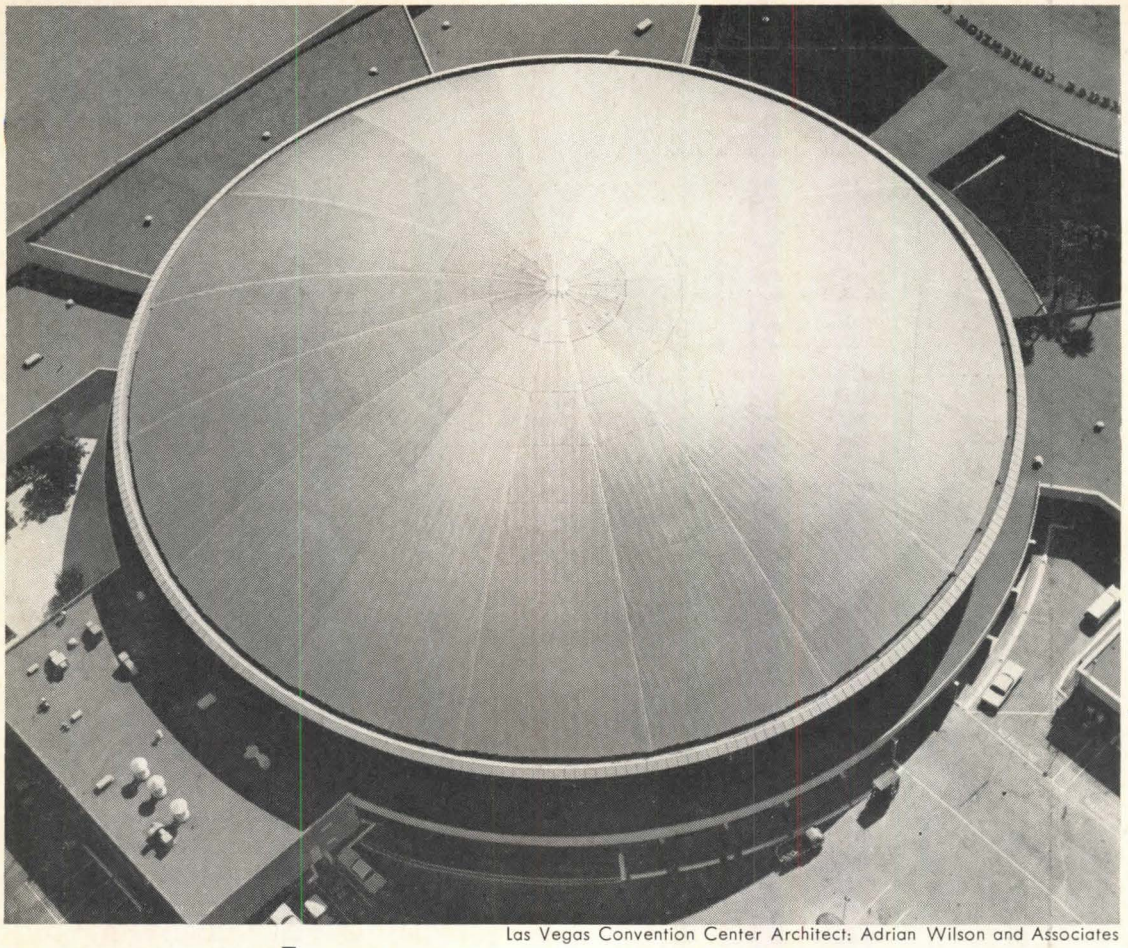

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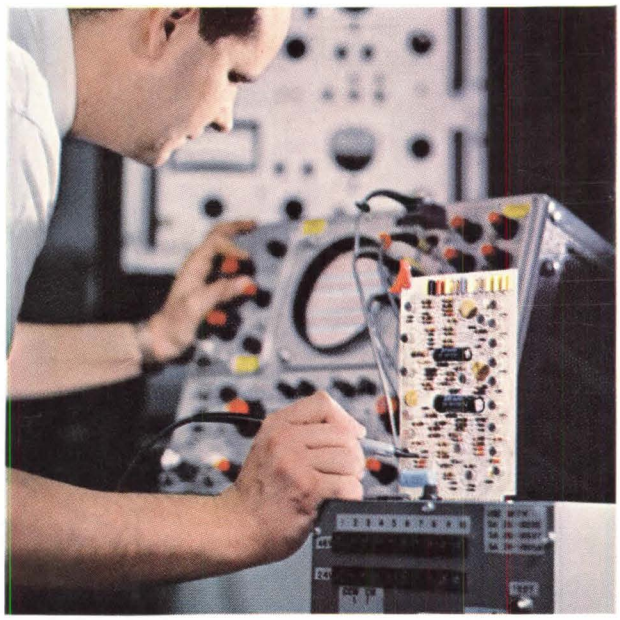

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