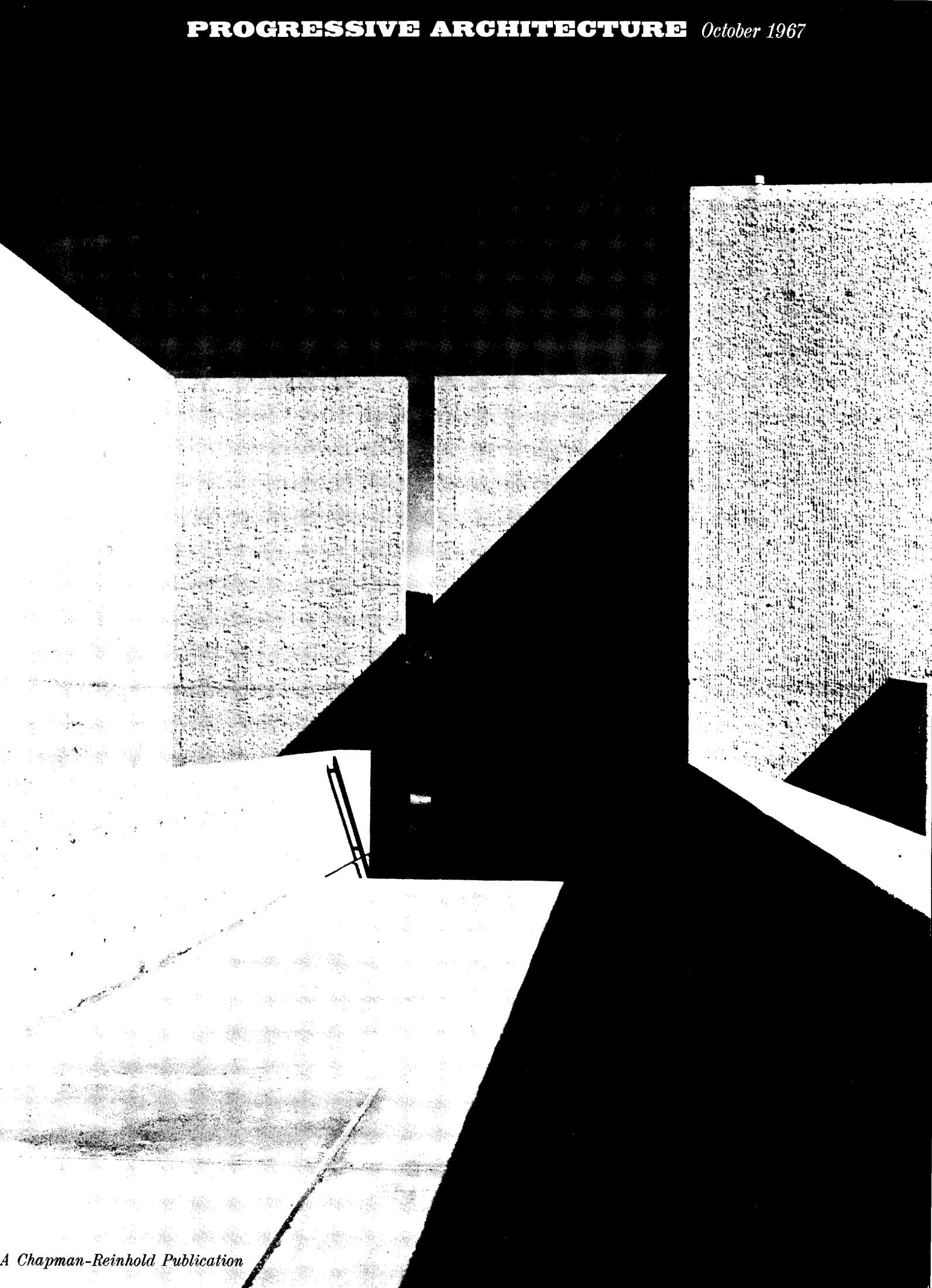
PROGRESSIVE ARCHITECTURE *October 1967*



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THIS MONTH IN P/A

Progressive Architecture ® *October 1967*

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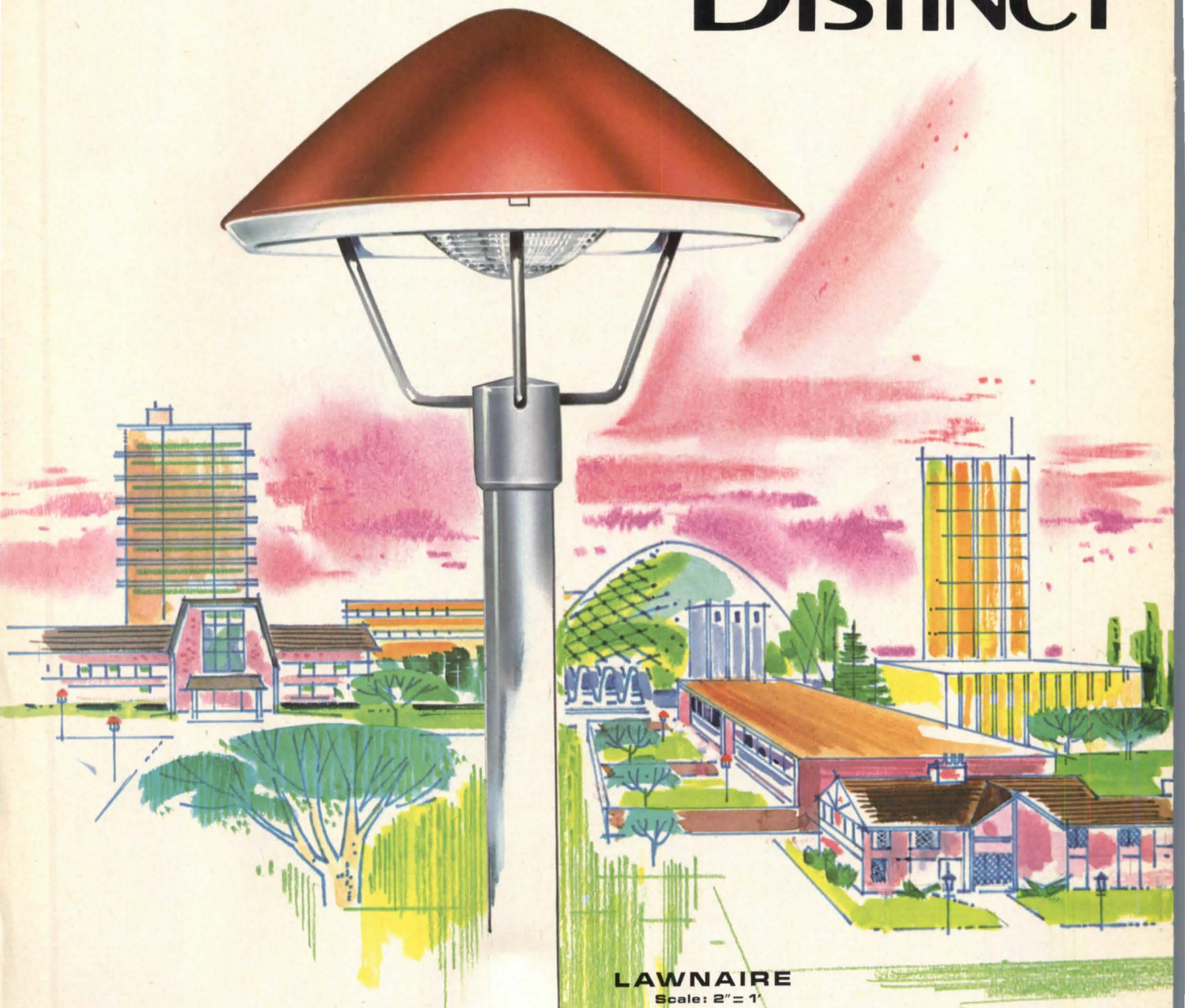

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VIEWS

"Performance Design" Reactions

Dear Editor: Your "Performance Design" material (AUGUST 1967 P/A) is exactly on target. It should be required reading for the profession.

Your survey conforms almost exactly with my own sense of the thing. I have been very close to "systems" myself, having introduced medical facility programming reforms which the D.O.D. [Department of Defense] imposes upon the military and having participated in the I.A.T. [Institute of Applied Technology] analysis of G.S.A. [General Services Administration]. Still, there was much that was new for me. Never could I have foreseen this remarkable contribution! You have set a new high for the standards in our profession's journalism. My critical comments on your material that follow are purely personal and non-technical, quite apart from the great fascination each section of your report holds for me.

First, you do wrong to latch on to "humanist" as the word for one's irrational and intuitive values. Formerly a president of the National Capital Humanist Association, I must tell you that it is *precisely* the scientist who calls himself "humanist"; for instance, both Mullers do, both Huxleys, Pauling, and Abraham Mazlow, all the "third force" psychology people (Rogers, Fromm, Chisholm, Mowrer) as well as the intellectual giants of our time — Dewey, Nehru, Russell, and Einstein.

Quite recently, *Time* magazine has been working to depricate the word, because it implies rebellion (in the Camus sense) against the "faiths" upon which the editorial policy of *Time* had to be based. Your magazine was much fairer to the term, but equally wrong to assign a private and inappropriate "epithet" to this increasingly useful word.

Secondly, your use of *Life Against Death* invites some further distinctions. [Norman O.] Brown, I believe, is critical of "civilization" himself. He might say of it that its "models" for man in society are all balled up, being based not upon our needs but upon our foibles, men (warriors and priests, i.e. those who would reject society) having too often understood human satisfaction as being inimical to the socialization process. Brown is in fact much closer than you allow to the Mazlow-Confucian-*Rogers-Mowrer* understanding of "life against Freud."

Having said this, I must identify my true difference here. Architects do not "struggle in their work against reason and reality." You could say so of moon-bound space scientists, life negative defense researchers, the F.B.I., etc., etc., hence including nearly all the current crop of systems types. It was perverse (in Freud's sense) of you to say so, but I defy you to carry out the logic of your playful proposition *even* if "Norman Brown's interpretation, etc., is right" [Editorial].

Methodology is a different story; it is based, I say, upon the conditioning of school and professional peer group. Character structures (i.e., motivation) are as diverse in architecture as they are in motherhood. It is the inertia of old ways that we face, not behavioral sets and certainly not humanism. The "personality cult" is one of those old ways to be sure, but it is not incompatible with the interdisciplinary team, especially if the latter means survival. I have seen this for myself.

Basically I agree with Sim [van der Ryn], Christopher [Alexander], and Ezra [Ehrenkrantz] that systems is a tool that aids the designer. If this is right, it would be best to say it so that resistance to systems may be minimized.

So as not to seem a perfect scold, I conclude by telling you I propose to seek endorsement for your useful term "Performance Design." The AIA Urban Design Committee, which I serve as executive staff, has also been luminary. Your concept is wholly complementary to its own formulations. Combining them we have a rationale for the architectural profession.

ANDREW F. EUSTON, JR.
The American Institute
of Architects
Washington, D.C.

Dear Editor: I want to compliment you on your excellent publication (AUGUST 1967 P/A). My staff and I find it of great value.

W. L. POESCH
Director, Research and
Development Centre
ATCO Industries Ltd.
Calgary, Alberta, Canada

Dear Editor: Congratulations on your August issue. I shall be much interested to learn what the reaction of the profession will be. From my non-professional viewpoint, your concept of "Performance Design" appears to be the most constructive development in recent years.

CHARLES F. BEELER
President, Automated
Environment, Inc.
Hamilton, Ohio

Dear Editor: It was with great pleasure that I read a clear and simpler explanation of my work [AUGUST 1967 P/A, pp. 111–112] than I could ever muster. You manage to spoonfeed your reader without insulting his intelligence — a delicate balance.

DAVID J. PARSONS
Washington, D.C.

Dear Editor: Our compliments on the "Performance Design" report. It was an excellent summary of the field, a realistic assessment of what can and cannot be done by computers, and what should properly be done by thinking people. I have called the issue to the special attention of the executive directors in each of our offices.

PAUL N. WILLIAMS
Leo A. Daly Co.
Omaha, Nebraska

Dear Editor: (Re: AUGUST 1967 P/A): B-O-O-O-O-M. "Parturiunt Montes." Fantastic issue. I believe the architects should not worry and should greet "Performance Design" with enthusiastic resignation.

The mountain will give birth to the usual square structure in rotten surroundings, in sizes ranging from Megacubes to minimal Parallelecapsules designed by budget-minded Microcomputers for the poor chaps.

The ultimate satisfaction will be there anyhow, for, even if the building is not as one "feels" it should be, at least it will be certified as nearest to the best. The smaller the score, the better the building — remember? And the whole thing will practically eradicate responsibility from the practice of architecture.

There is something unquestionable about your article: IT'S A PITY BUT IT WORKS.

With the advent of "Performance Design," architects will find more time to dedicate to really creative endeavors, such as ceramic painting, custom jewelry, and Karate, or other forms of "humanitarianism," until THOSE WHO KNOW will catch up. At the moment, bless the Lord, they cannot.

VINCENZO DE PERSIIS
New York, N.Y.

Dear Editor: Congratulations on your timely and excellent coverage of what you call "Performance Design." Someday the scientific method will undoubtedly penetrate and revolutionize our peculiar profession, and it could happen very soon. I hope both art and industry do not become too discouraged in this inevitable process.

Contrary to what your term "Performance Design" implies, I prefer to think that all valid design activity is design for performance, whether implicit or explicit. It seems to me that the significant contribution of the methodical systems approach and the computer, is the capability for being explicit and rational when we build. This central idea seems to have been underplayed in your articles.

Again, hats off to a fine treatment of a thoroughly difficult subject.

FRED J. STEPHENSON
Architect and Systems Design Consultant
Lawrence, Kansas

Continued on page 10

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Continued from page 6

Dear Editor: I have just finished reading the August issue. It is one of the best I have read to date and I hope to read many more of its nature. I am at present a student of architecture at the Southern Alberta Institute of Technology and I see from this issue that my interest in computer technology is worth following.

DAVID ROBERTSON
Didsbury, Alberta, Canada

Dear Editor: Congratulations and compliments on the very timely August issue. I was particularly impressed with the contents as well as the effective graphic presentation of the cover.

We have become deeply involved in the design and demonstration of building systems here at Texas A & M University School of Architecture. Three years ago, we created the Systems Building Research and Graduate Center. We will be involved in the near future in actual construction of two demonstration units of the adaptable building system.

EDWARD J. ROMIENIEC
Chairman, School of Architecture
Texas A & M University
College Station, Texas

Dear Editor: The August issue was great. It should considerably reduce the obscurity, glamour, and intimidation of this powerful tool. My major criticism is that the articles are independent and a bit contradictory; "Performance Design" applied to these articles would have increased the impact.

The essentials of "Performance Design" may be readily mastered by the architect, permitting him to produce better designs and to control the dehumanizing tendency prevalent in large projects. Computer services can be obtained from computer service bureaus, and help with theoretical and mathematical problems is readily available from systems engineers who would like to apply their knowledge to socially useful projects. It would be almost criminal to abdicate responsibility to the builder's operations research group. This would result in just another dreary "money pump."

A vital function of the architect is to reflect the millenniums of art and history of mankind; no other member of the team can presently do this. Until a computer program produces an original Rembrandt and the social scientists can devise a society in which the needs, hopes, and aspirations of every man are realized, the architect's intuition will remain a civilizing factor.

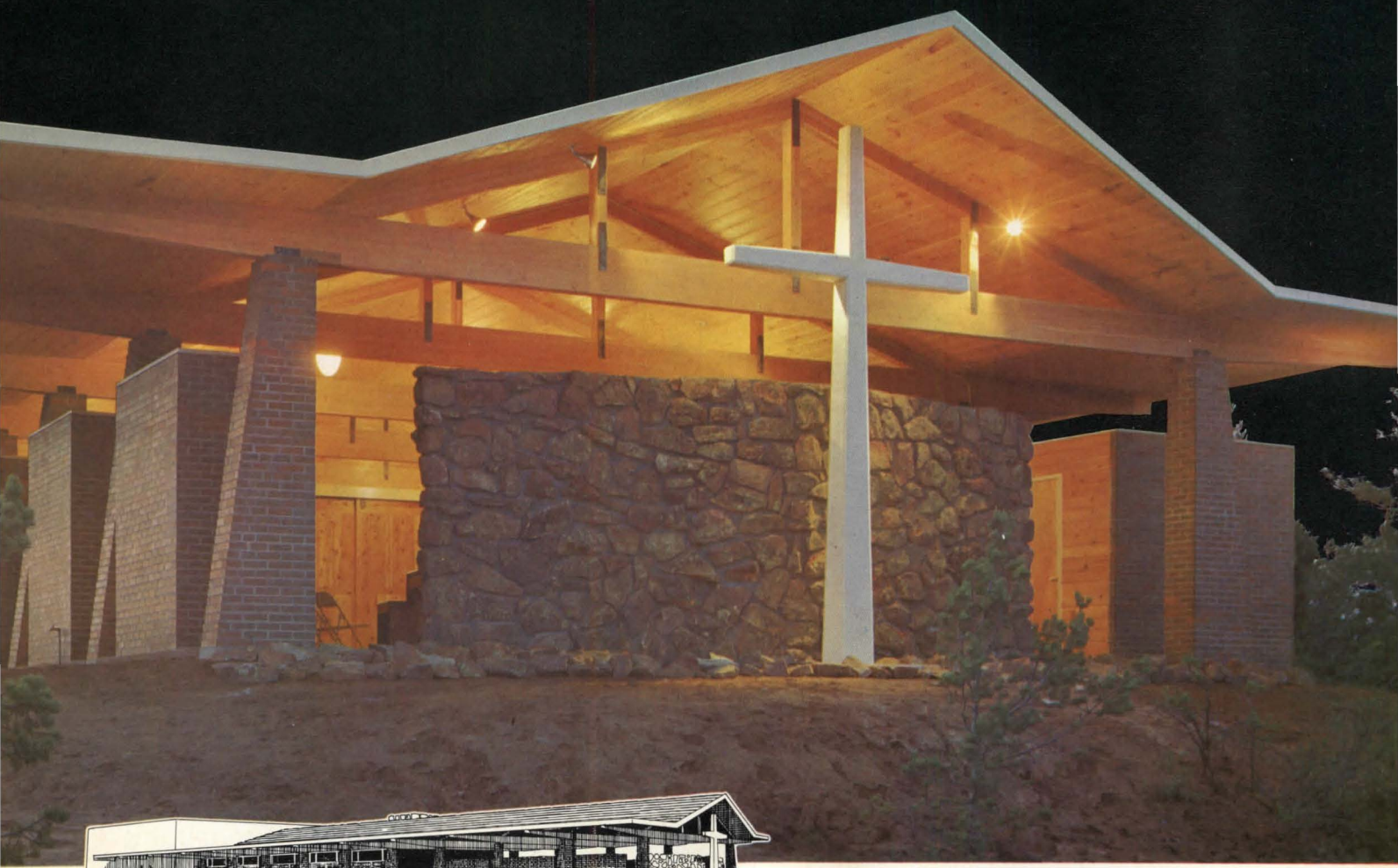
KENNETH HOFFMANN
Jamaica, N.Y.

Dear Editor: Congratulations on your August issue. It is certainly the most lucid,

Continued on page 14

News from the Potlatch Timberline

A SENSITIVE COMBINATION OF FORM, COLOR AND FUNCTION IN THE NEW MEXICO HILLS...



Architect: Albert R. Merker, A.I.A.

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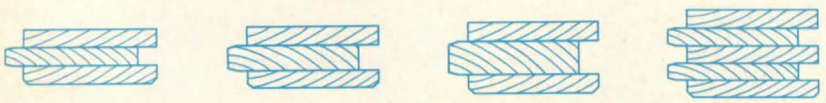

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For details see SWEET'S Architectural File 1c/Po

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Continued from page 10

thoughtful, and provocative discussion of systems design in architecture that I have ever had the privilege to read.

JOSEPH C. WHITE
Vice President, Inland Steel Products Co.
Milwaukee, Wis.

Flipping in Dumpy Cubes

Dear Editor: On page 47 of the August 1967 P/A News Report is an article called "The Ignoble Experiment." Personally, I think it is far from an "inspired" design for a playground. It seems to look as though the "play" should go on outside the play area.

But what I'm writing about is that you are confusing me by criticizing Mr. Forberg's work. Flip back to page 45. Now doesn't the building at the bottom closely resemble the play area? How come you don't compare the cost of the play area with this building? Look at page 7, page 11, the top of page 52, and finally look at pages 160–162. This is really confusing because you say on page 162 that, "it has a dignity that is at the same time inviting, a serenity that is alive rather than somnolent." But this is also a structure made of precast concrete with "elements that lend verticality and keep the cube from appearing dumpy." Why don't you admit it? All of these structures are just plain BRUTAL. Just because one has a famous architect's name on it is no reason for not calling a dumpy cube a DUMPY CUBE!

The reason I'm confused is that for years I thought you people at P/A liked this kind of stuff.

Actually, Architect Forberg should be commended for his experiment in sociology. How else are the kids going to be able to exist in these brutal cubes if they are not trained to live in them through play? Just because they don't happen to like them is no excuse; MAKE them play in those concrete play areas and then the kids that flip can be weeded out and disposed of before they grow up and flip in the buildings that all the magazines are flipping over. How come they are allowed to NOT LIKE the play area but are NOT ALLOWED TO NOT LIKE the buildings?

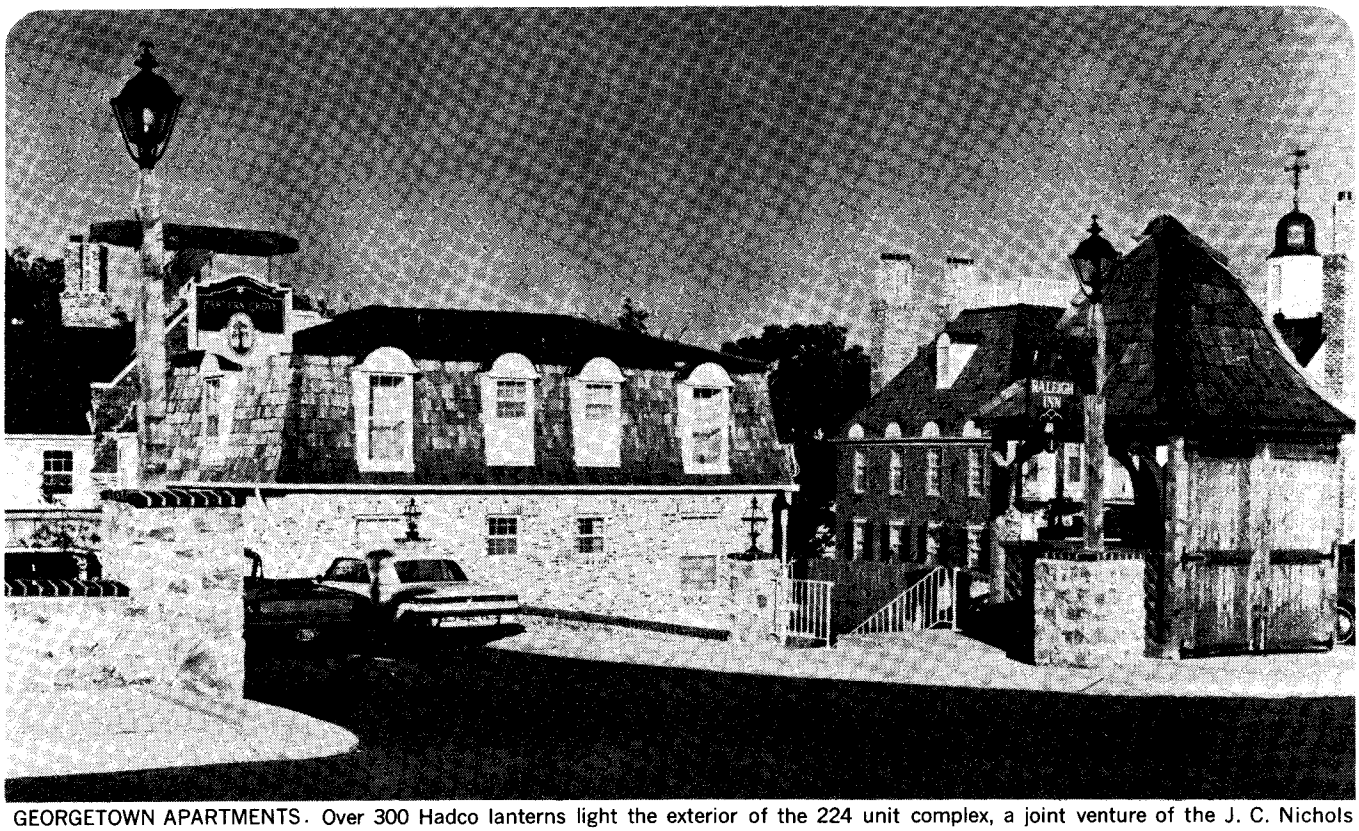
TERRY WATERS
Malibu, Calif.

(We would NOT find it easy NOT to disagree with you, especially since pages 7 and 11 were supplied by advertisers, NOT us. — Ed.)

A Newfoundlander Speaks Out

Dear Editor: I was disappointed to discover that our province of Newfoundland had achieved the dubious distinction of being publicized in the July 1967 issue of P/A via the house at Happy Adventure

Continued on page 20



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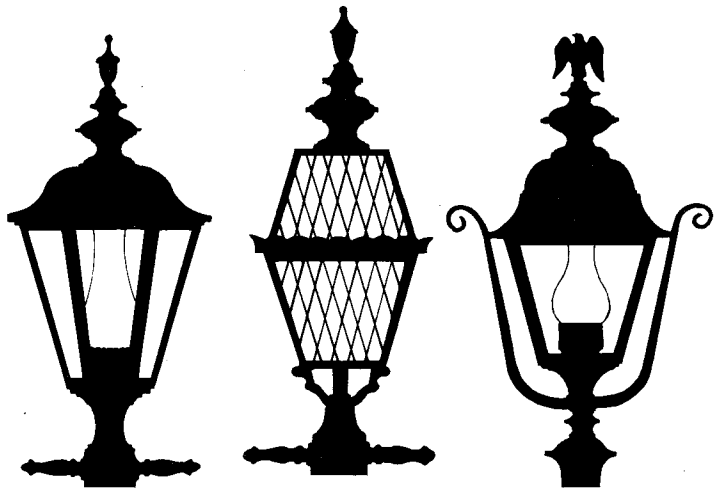

The Architectural The Old English The Independence

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Continued from page 14

by Peter Gluck.

If one considers the nebulous quality of the architectural design *per se*, your reference to the people of Happy Adventure "burbling" over its first piece of modern architecture is rather ludicrous, since Newfoundlanders just do not burble that easily.

Aside from the fact that you considered this structure worthy of publication, the editorial comment contained two erroneous statements necessitating immediate correction.

First, Happy Adventure is a typical picturesque outport fishing settlement in Bonavista Bay on the east coast of Newfoundland with a population of about 400. Newfoundland has a population of 500,000, about 100,000 of whom live in the capital, St. John's. Your statement "there is absolutely nothing to do in Newfoundland" is, without further comment, absurd.

Second, construction wages in Newfoundland of $1.00 an hour are in the absolute minority, unless advantage was taken of the carpenter not being able to read the plans. Union wages for carpenters prevalent over most of Newfoundland are $2.35 per hour.

FRANK NOSEWORTHY
Newfoundland, Canada

[Our idea of nothing to do and the unburbling Newfoundlanders' may not coincide. Depending on how many construction workers are not in the union, maybe it's not so surprising nobody burbles much. — ED.]

More Nationalism at Expo

Messieurs: Ayant lu votre article intitulé "How it is," consacré à l'Expo de Montreal, je déplore votre parti-pris vis à vis de la France et de son pavillon. Vous reproduisez laborieusement, en un style de catalogue, la plupart des architectures (certaines ne méritant certes, pas ce nom), et vous consacrez à la France la plus petite photo et le plus mauvais cadrage. L'architecture est volontairement escamotée au profit d'un gros plan d'une personne prostrée sur un banc.

Quant au texte, meprisant, il est tout aussi significatif de votre état d'esprit de "donneurs de leçons."

Si la France a effectivement adopté Le Corbusier, d'origine Suisse, n'oubliez pas qu'il est cependant de race et de langue Françaises.

On n'en peut dire autant de vos architectes qui viennent pratiquement tous de la Vieille Europe, d'Allemagne principalement. A part le romantique WRIGHT, nous trouvons les MIES VAN DER ROHE, SAARINEN, NEUTRA, GROPIUS, etc. . . . Un japonais aussi:
YAMASAKI [*sic:* ED.].

Quant à ce que l'Amérique à dire ("to say for herself in terms of progressive architecture"), il y a longtemps que vos boîtes de verre ne nous impressionnent plus. Tout le bronze, l'acier et le verre, et les plus riches matériaux du monde, ne peuvent sauver des volumes monotones.

Un peu de modestie, Messieurs les Américains: l'Europe vous a appris l'architecture! Le Corbusier vous a influencé ou devrait vous influencer par son riche vocabulaire plastique.

Ne confondez pas architecture et mécanique! Car votre pavillon, qu'est-il sinon l'illustration de votre talent de mécaniciens et d'ajusteurs bien outillés?

BERNARD MERLIN
Architecte Diplome
Par le Gouvernement
Lyon, France

[We wonder who likes to "donner des leçons," la Vieille Europe! Someday perhaps you will learn the distinction between a small photo of a building and France; however, with the idea firmly in mind that there exists some mystical "la race Française," we wonder how long it will take. — ED.]

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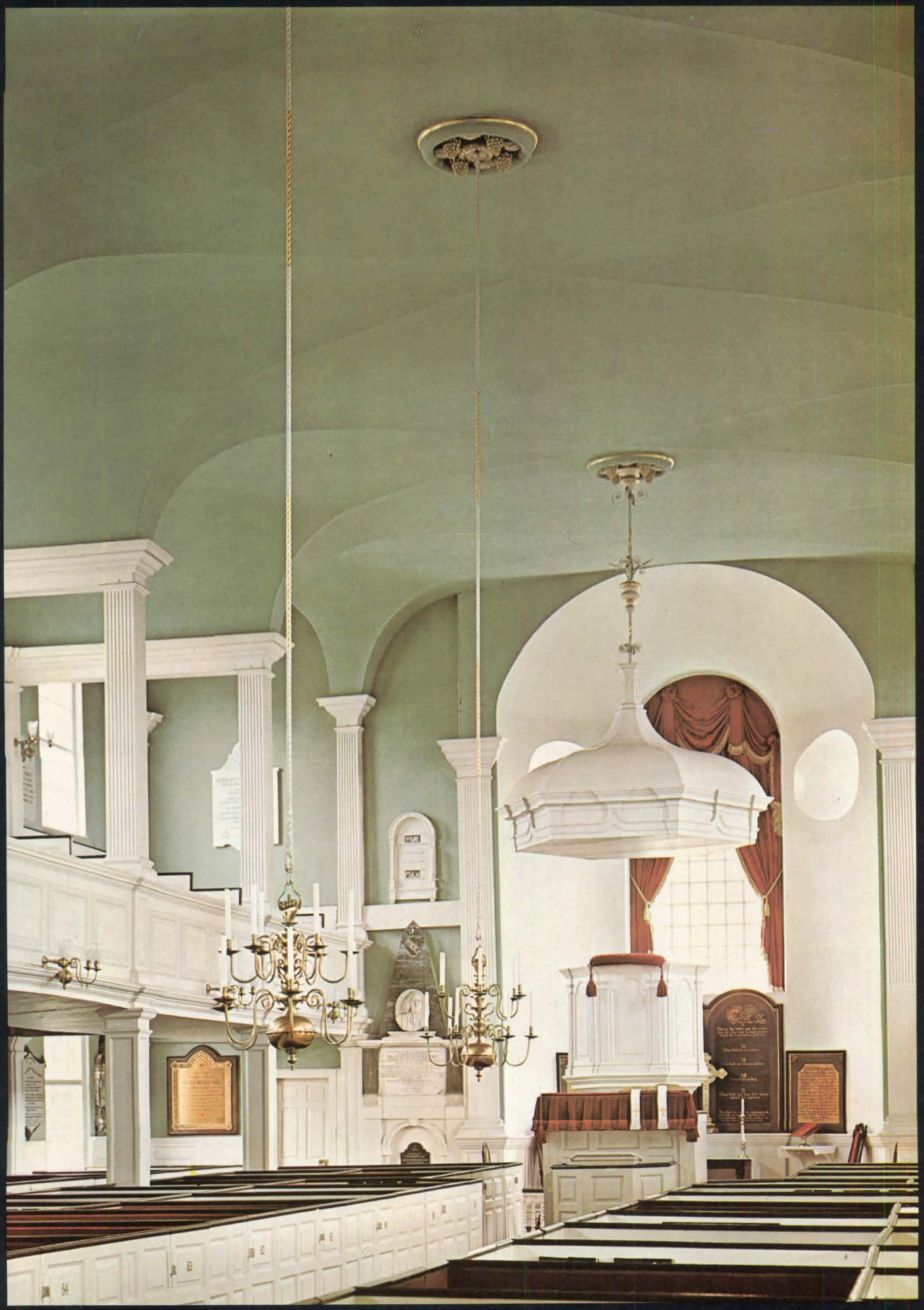

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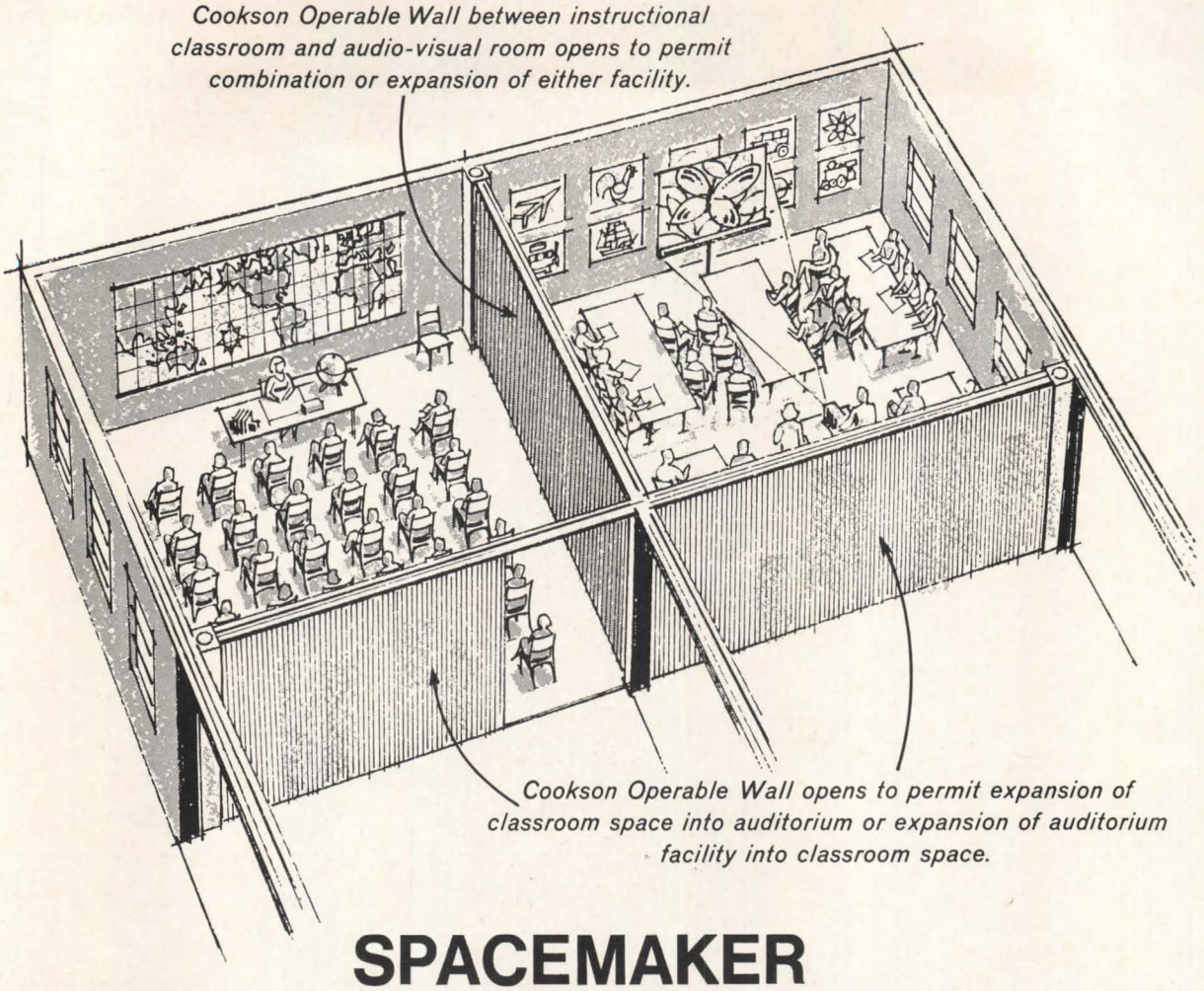

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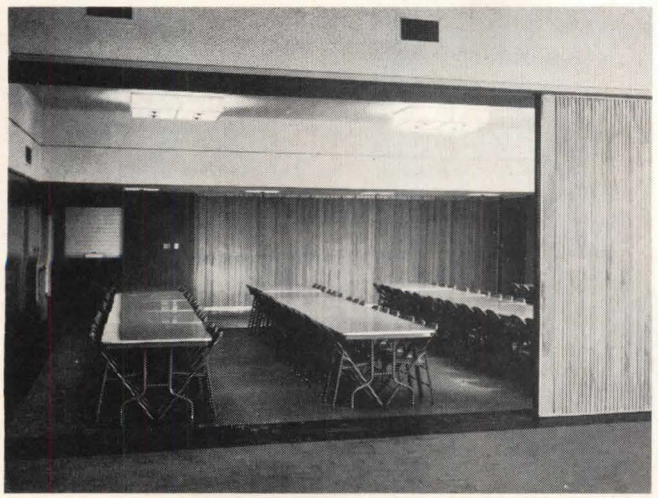
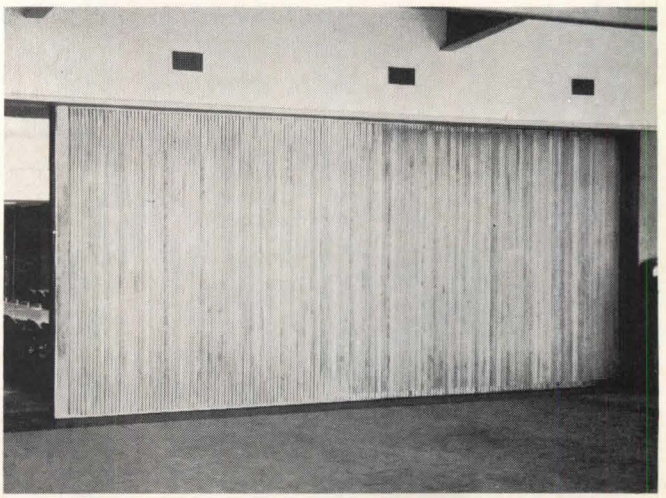

Cookson Side Coiling Operable Wall—almost fully open


Cookson Side Coiling Operable Wall—almost completely closed

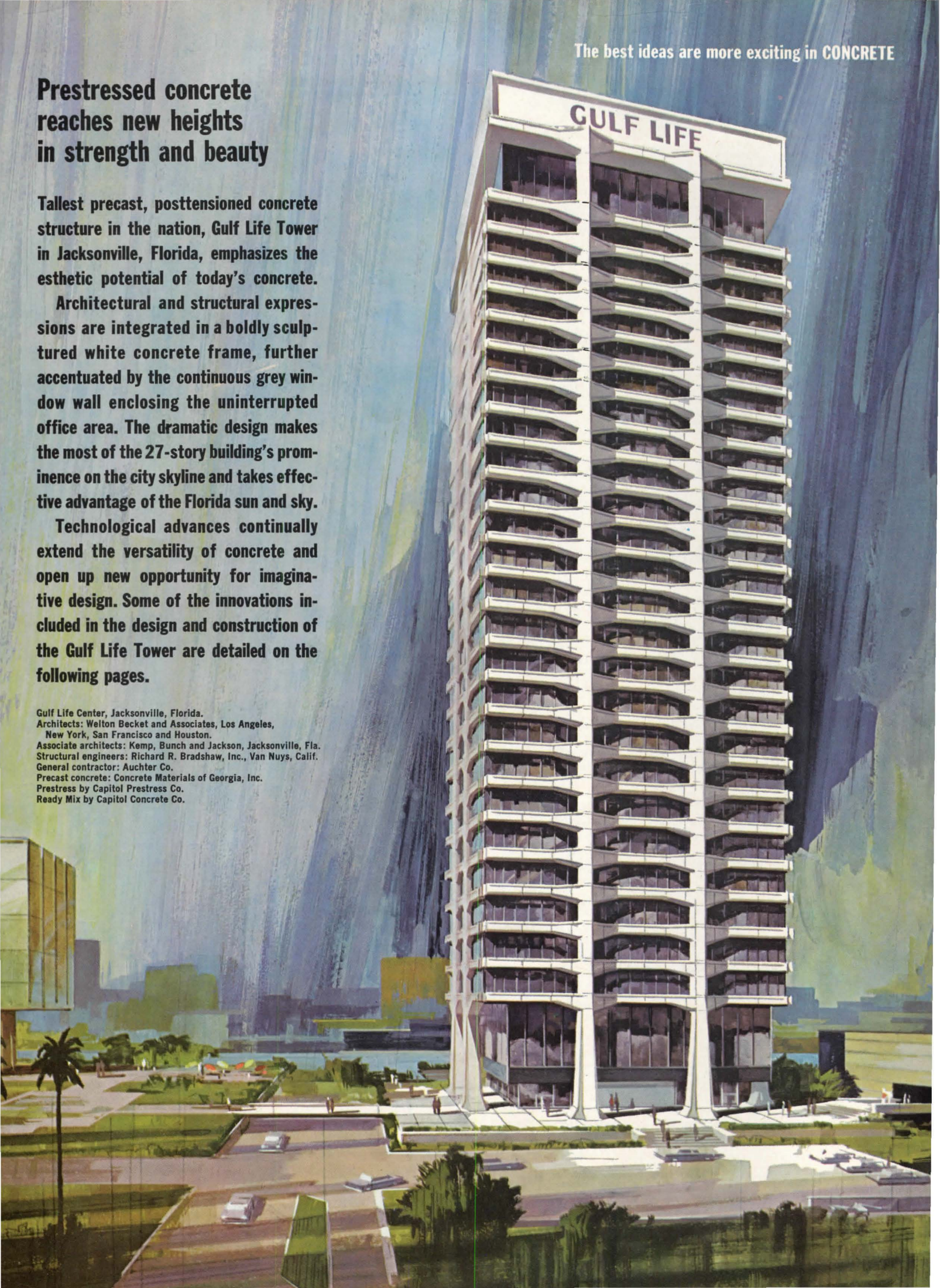
Prestressed concrete reaches new heights in strength and beauty

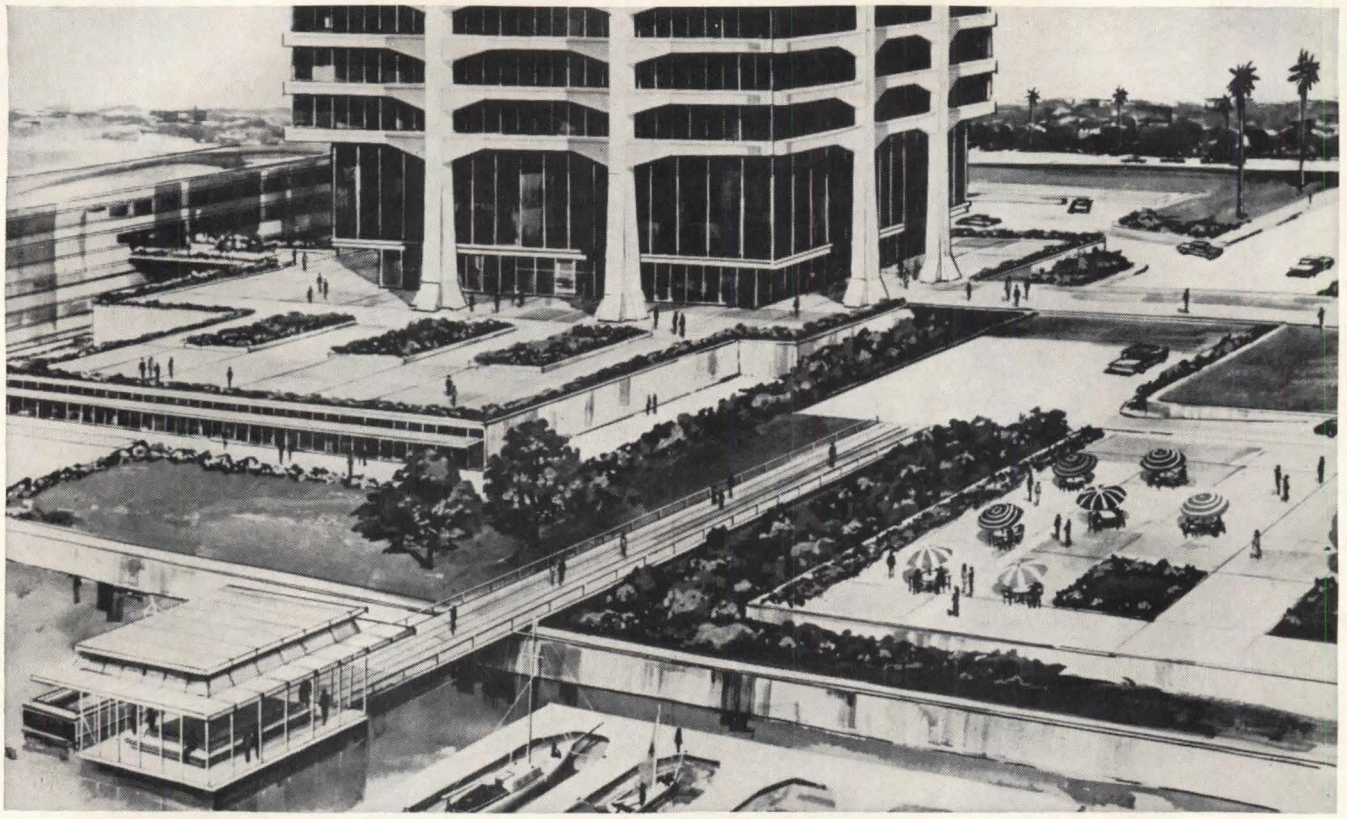
Tallest precast, posttensioned concrete structure in the nation, Gulf Life Tower in Jacksonville, Florida, emphasizes the esthetic potential of today's concrete.

Architectural and structural expressions are integrated in a boldly sculptured white concrete frame, further accentuated by the continuous grey window wall enclosing the uninterrupted office area. The dramatic design makes the most of the 27-story building's prominence on the city skyline and takes effective advantage of the Florida sun and sky.

Technological advances continually extend the versatility of concrete and open up new opportunity for imaginative design. Some of the innovations included in the design and construction of the Gulf Life Tower are detailed on the following pages.

Gulf Life Center, Jacksonville, Florida.
Architects: Welton Becket and Associates, Los Angeles, New York, San Francisco and Houston.
Associate architects: Kemp, Bunch and Jackson, Jacksonville, Fla.
Structural engineers: Richard R. Bradshaw, Inc., Van Nuys, Calif.
General contractor: Auchter Co.
Precast concrete: Concrete Materials of Georgia, Inc.
Prestress by Capitol Prestress Co.
Ready Mix by Capitol Concrete Co.

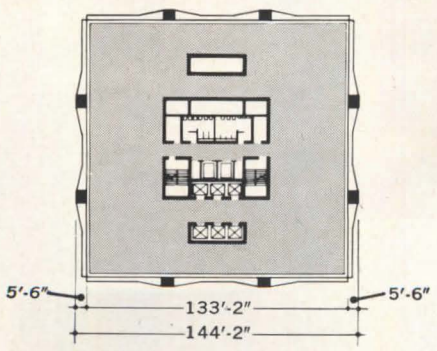




Prestressed concrete structure rises 430 ft. above a broad podium

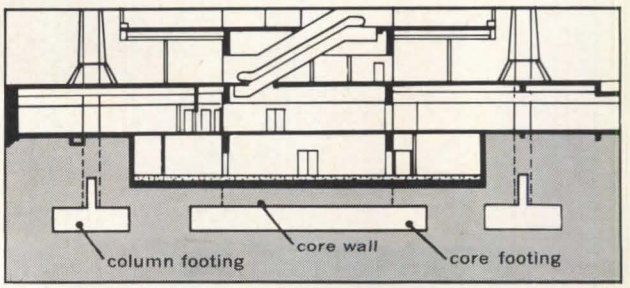
The 27-story Gulf Life Tower will be the focal point of the 12-acre Gulf Life Center in Jacksonville. Included on the river-front site is a multi-level parking garage for about 1100 automobiles, a small marina, a 300-room hotel and convention facilities. A glass-enclosed lobby at the podium level is set back from a second level bank. Precast concrete bridges will span the drives providing pedestrian access to the garage and rest of the center. A concourse level below the podium includes a 600-seat cafeteria overlooking the river, and an employe lounge. This complex will further enhance the commercial waterfront of Jacksonville's St. Johns River. The podium level is framed with 7-ft.-wide precast, prestressed concrete single-tees, and is surfaced with terrazzo. The extensive and varied use of concrete provides visual unity to this boldly conceived complex.

Eight exterior columns plus center core support tower

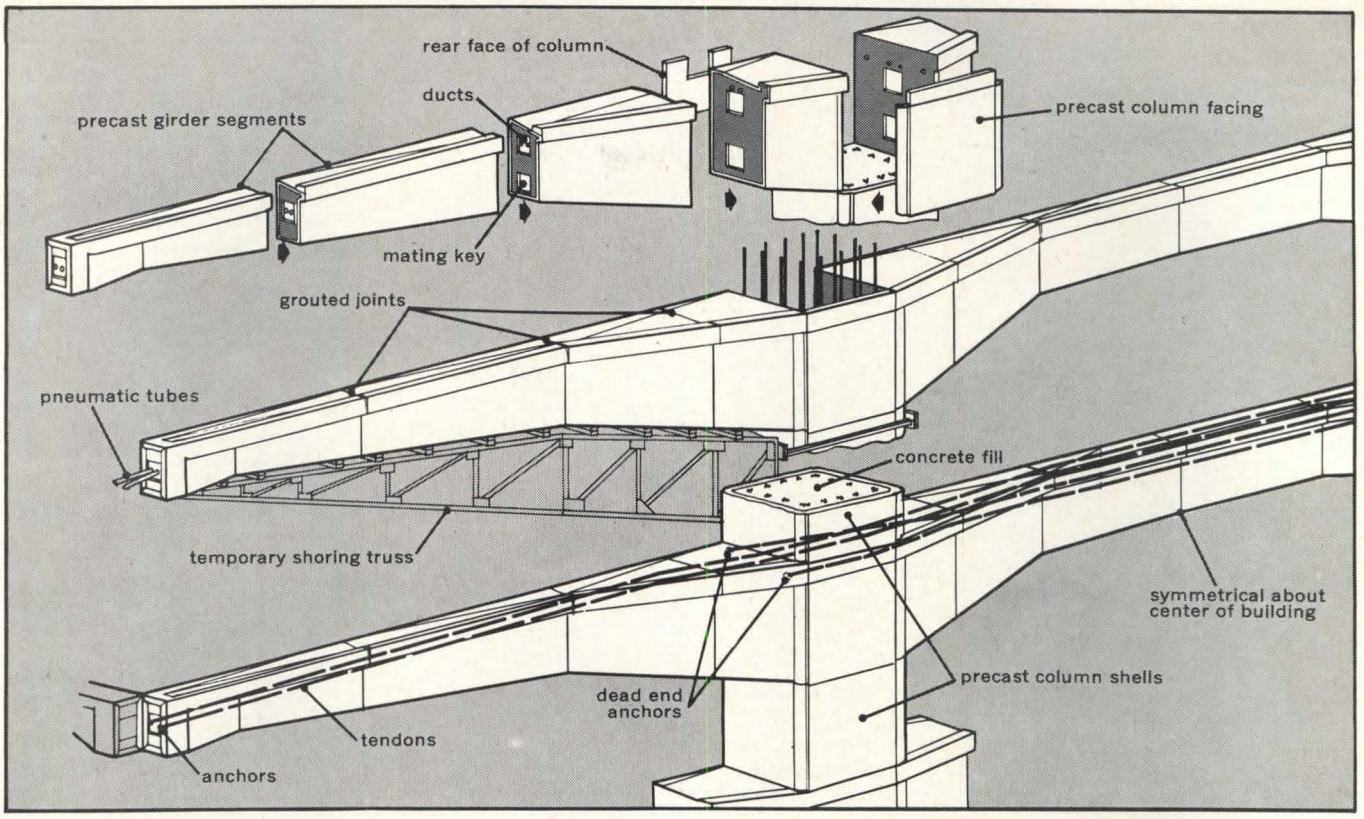


Completely exposed columns provide uninterrupted glass area—set back from the inner column surface. Core contains elevator shafts, stair wells, rest rooms, and mechanical shafts. Gross space totals 512,000 sq. ft. The 360,000 sq. ft. of office space enjoys complete flexibility offered by the long-span prestressed concrete double-tee floor units.

Single spread footing supports 430-ft. core



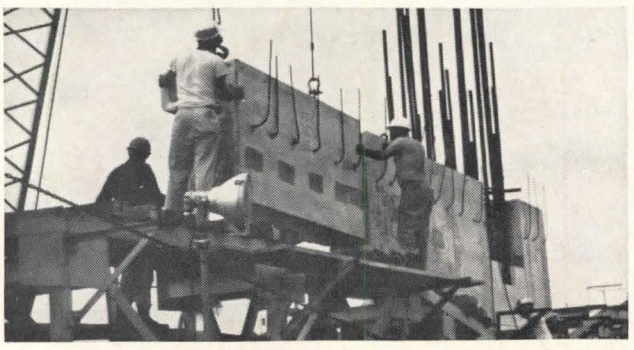
A massive spread footing supports the tower's central core; four individual spread footings support each pair of the eight exterior columns. The podium, from which the Gulf Tower emerges, is supported by piles. Hydrostatic pressure from beneath the tower's basement floor slab is resisted by several walls that cantilever from the central core.



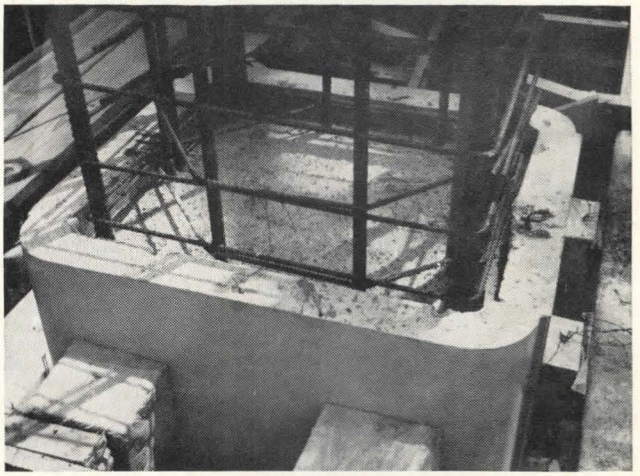
Posttensioned, precast segments form 133-ft. girder

The segmental posttensioning techniques used are simple, fast and economical. Although the erection sequence varies depending upon the number of tendons used, the fundamental steps are as follows:

- Precast column shell sections are placed and filled with lightweight concrete.
- Temporary shoring truss is secured in position.
- Precast girder segments are placed and aligned, sealing the periphery of the joint with gummed, foamed plastic tape.
- Rubber pneumatic tubes are threaded into mating prestressing ducts and inflated to 5 psi.
- With tape sealing periphery of joint and tubes sealing duct holes, the 1-in. space between segments is filled with high-early-strength grout. (3,000 psi in 24 hrs.)
- Tubes are deflated and withdrawn. Tendons are inserted, each consisting of twelve ½-in., 270 ksi strands.
- Tendons are stressed and anchored (Freyssinet Method) as columns above girder are placed.
- Ducts are pressure grouted to protect tendons.



Columns combine precast, cast-in-place techniques

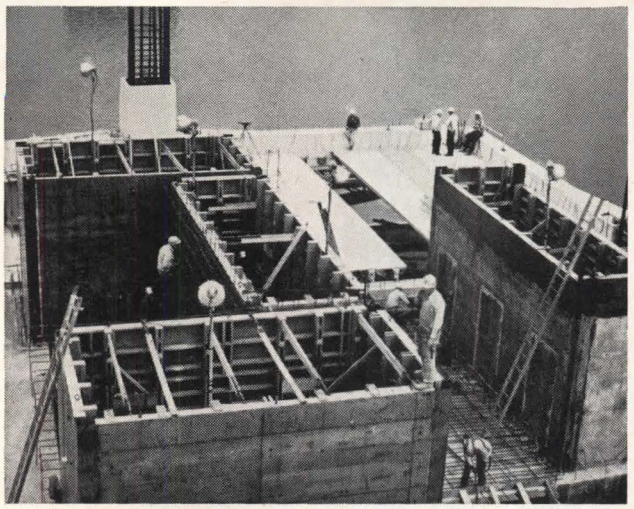


Each column is composed of a precast shell into which fresh concrete is placed. This provides uniform color and texture . . . and precludes the necessity for the decorative concrete mix throughout the entire column. Columns taper from a width of 6 ft. 9 in. at the third floor to 4 ft. at the penthouse, and are typically 5 ft. 6 in. deep. Mix design data for the column concrete fill are:

Portland cement, Type I	800 lbs.
Fine aggregate (sand)	1245 lbs.
Coarse aggregate (lightweight expanded shale)	735 lbs.
Water	43.8 gals.
Water/cement ratio	5.2 gal. per bag
Entrained air	4 percent
Slump	4.25 in.
Strength at 28 days	5000 psi

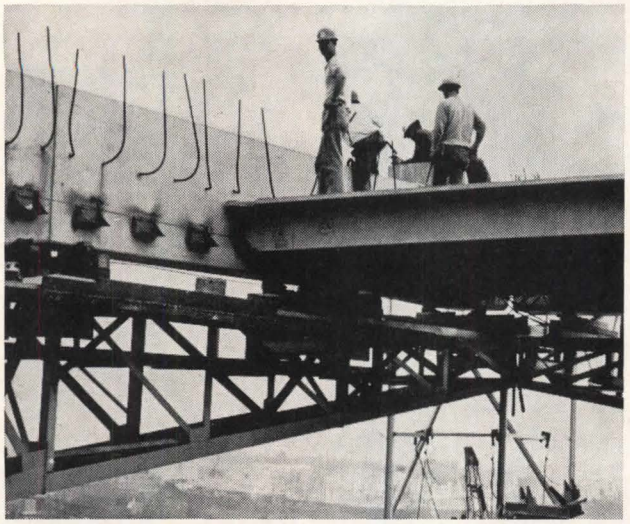
Turn page for more information

Construction of core walls

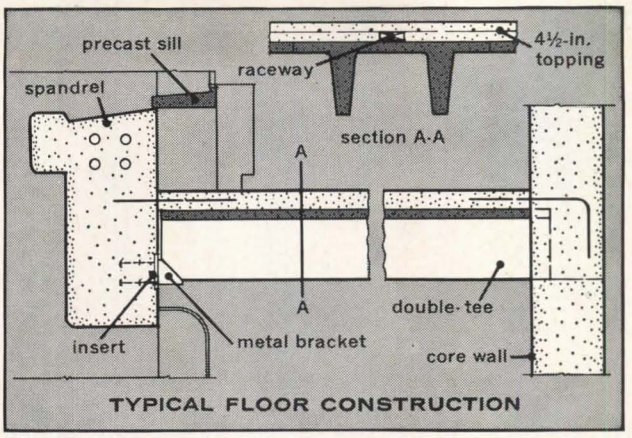


Core walls of Gulf Tower progressed simultaneously with the exterior precast concrete framework. Consequently, it was possible for the prestressed concrete double-tee floor slabs to be positioned directly atop the core wall. Wall forms were of ¾-in. plywood on 2x6-in. horizontal studs, backed up by double 2x8 vertical walers. Heavy-duty, 9,000-lb. ties held forms against concrete pressures. The structural core as designed resists all wind forces acting on the building.

Precast, prestressed concrete double-tee floor slabs span 40 ft.

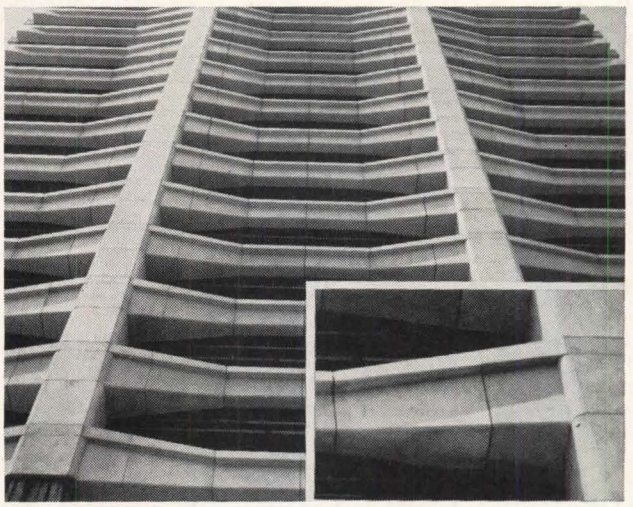


Metal brackets welded to inserts in the spandrel beams support one end of the 18-in.-deep double-tees. The opposite end rests in pockets cast in the core wall or on precast concrete planks which are part of a composite girder extending from the column to the core wall. Tees are placed in north-south, east-west directions on alternate floors to equalize load distribution on the columns. A 4½-in. lightweight concrete topping is placed over the double-tees providing flexibility in accommodating electrical raceways. Air conditioning units located under the window area have individual temperature controls for office space.



TYPICAL FLOOR CONSTRUCTION

Exposed white concrete sculpture ascends high above Jacksonville skyline



White cement and white quartz sand combine to create a bold sculpture which dramatically defines the individual "work areas" of the office building. Tinted glare-reducing glass contrasts sharply with the white concrete frame. The frame segments were cast in Tedlar-coated steel molds resulting in dimensional accuracy and uniformity of color and texture. The precast concrete exterior surface is permanent and will require little or no maintenance.

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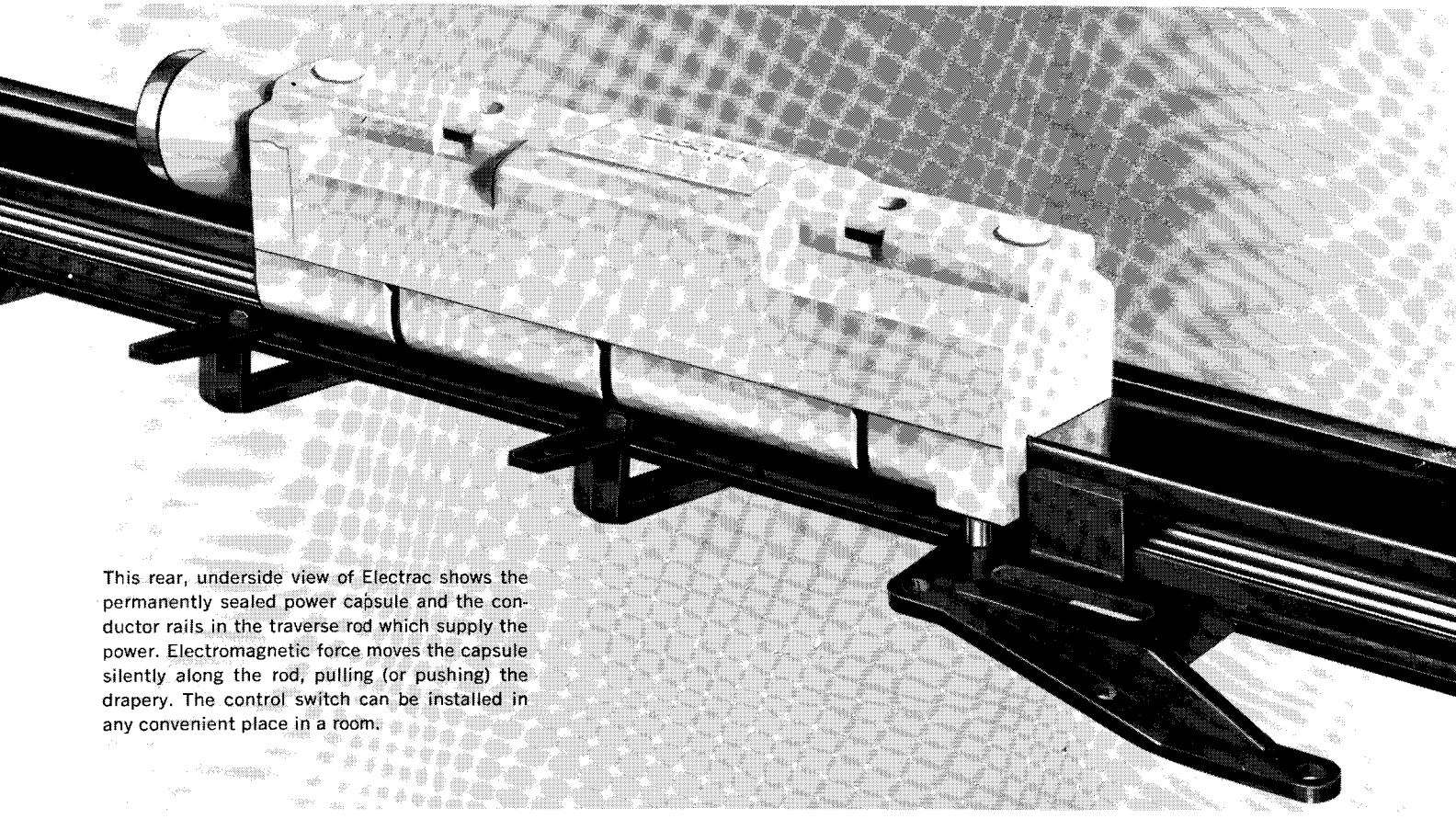

This rear, underside view of Electrac shows the permanently sealed power capsule and the conductor rails in the traverse rod which supply the power. Electromagnetic force moves the capsule silently along the rod, pulling (or pushing) the drapery. The control switch can be installed in any convenient place in a room.

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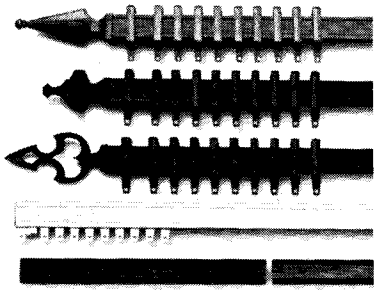

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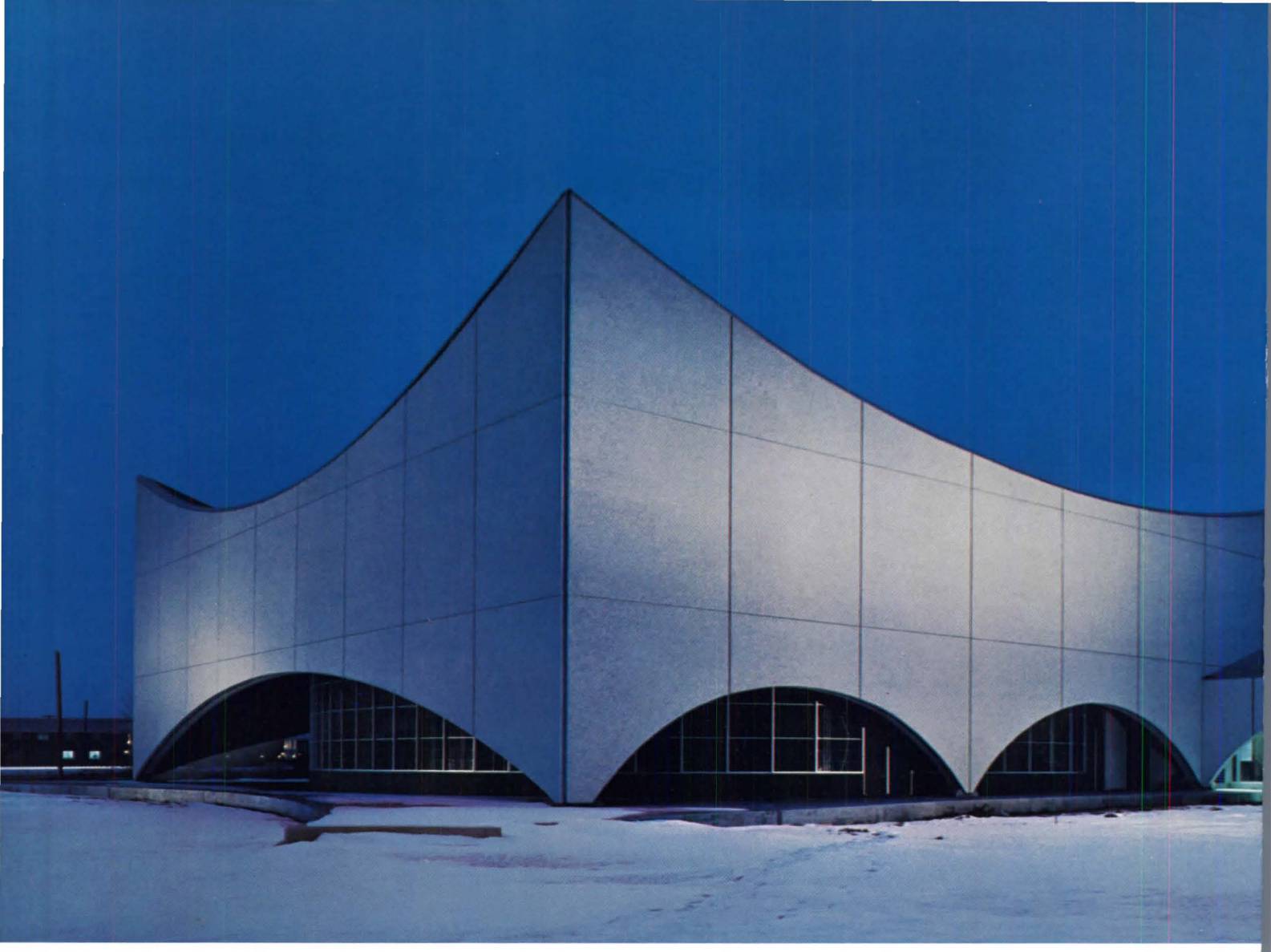


Arched walls

enclose a circle of stained glass

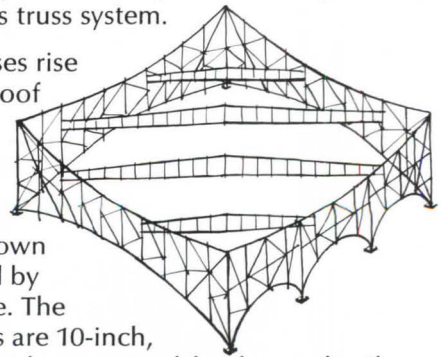
Design of the column-free sanctuary made possible by a structural steel framing system

Great spreading arches that form an outer structure around a circular wall of stained glass distinguish the new B'nai David Synagogue in Southfield, Mich., a suburb of Detroit.

The recently completed synagogue is unique, not only from an appearance and historical standpoint, but also because of the unusual design concepts employed in its construction.

The design of the completely column-free sanctuary was made possible by a structural steel framing system devised by the project architect, Mr. Sidney Eisenshtat of Los Angeles, Calif., associate architects Havis-Glovinsky Associates of Detroit, and the structural engineering firm of McWilliam and Keckonen of Birmingham, Mich.

Four curved steel trusses, each 124 feet long and 44 feet high on the ends, form the four exterior arches of the new synagogue. The trusses are tied together by four main plate girders, two of which are 142 feet long and 7 feet deep. The ceiling and interior plaster walls hang from this truss system.



The deep steel trusses rise above the pitched roof of the sanctuary. The roof slope provides drainage. The trusses were shipped knocked down and then assembled by field bolts at the site. The main truss members are 10-inch, wide-flange beams. The structural loads are distributed to concrete pedestals at the foot of each arch.

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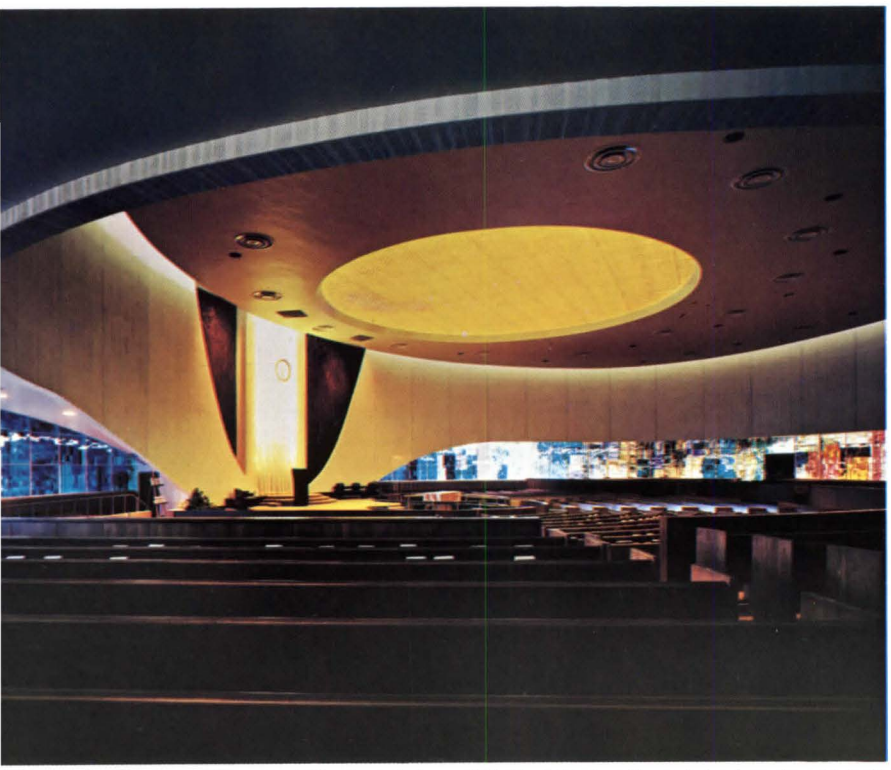
The four rising points of the arches provide an allusion to the four horns of the altar of the original sanctuary in Jerusalem. While the outer arched walls form a diamond pattern, the sanctuary itself is circular in shape, with the seats placed in a horseshoe pattern around the bimah (altar area). This places worshippers in the last row of the 1,050-seat sanctuary never more than 17 rows, or 64 feet, away from the pulpit, creating an atmosphere of intimacy.

Circular glass wall, enclosing the sanctuary, consists of 70 windows whose colors bridge symbolically the path from Earth to Heaven.

Like giant arms reaching out from the altar two curved innerwalls rise to the ceiling which floats within them.



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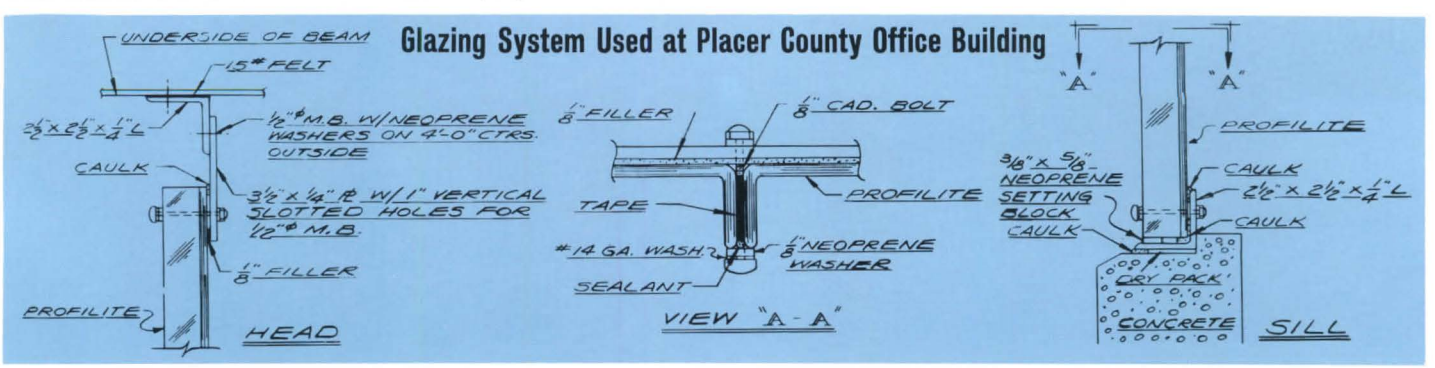

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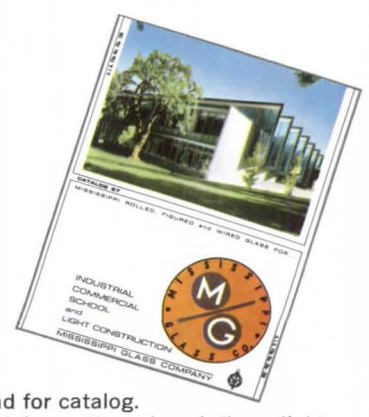

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P/A NEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products *October 1967*

RUDOLPH, PEI, FRANZEN RECEIVE FORD GRANTS

NEW YORK, N.Y. Three New York architects — Paul Rudolph, Ulrich Franzen, and I. M. Pei — will receive grants from the Ford Foundation to study specific problems in urban design. They plan to stress aesthetic and humane considerations rather than purely technical ones in an attempt to discover new concepts of physical form that will make cities more livable and workable than the traditional ones.

"These projects arise from the conviction of these three men and many of their colleagues that most urban design — by which we mean the design of whole neighborhoods or sectors of cities — is dominated by concepts of physical form that no longer are relevant to the tastes and needs of most city dwellers. One example is the widespread use of free-standing towers separated by often useless open spaces," said W. McNeil Lowry, a Ford Foundation vice president.

Franzen proposes to study a main thoroughfare in Harlem — Lenox Avenue — which runs for 35 blocks through the community, providing a commercial and institutional focus. He hopes to find ways to tie it more closely to the residential areas adjoining it.

Rudolph's research will center on Canal Street in downtown New York, which has long been among the proposed routes for a Lower Manhattan Expressway. He hopes to discover how such massive superhighways may complement and reinforce the quality of adjoining areas rather than blighting them.

As P/A goes to press, I. M. Pei's project is still under discussion.

The studies will be financed by grants from the Ford Foundation to the American Federation of Arts, Inc. Franzen and Rudolph's grants will total $448,000, a sum that will cover research, display — as an exhibit at the Whitney Museum and then later throughout the nation — and publication in book form. The projects are expected to take two years.

NEIGHBOR FOR SEAGRAM'S

NEW YORK, N.Y. The Seagram Building is a hard act to follow. With its bronzed mullions, its broad plaza with reflecting pools and fountains, its exquisite proportions, it is perhaps the single most beautiful example of contemporary architecture in the U.S. What do you do if you have a commission to build next door to it? What Emery Roth & Sons, who designed the 44-story office building that will rise on the full-block site just to the south of the Seagram Building, have done is set their building 110 ft back from Park Avenue, aligning its front façade (buff precast concrete covering the steel frame) with that of its distinguished neighbor. Broad steps will lead up to the plaza from Park Avenue, and along the 51st Street side, opposite St. Bartholomew's Church, will be a granite parapet wall with benches.

St. Bartholomew's, one of this country's outstanding examples of Romanesque architecture, although massive in its own right, will be to its 44-story neighbor like a bulldog to a giraffe. With this difference in scale in mind the architects have wisely wrapped their front plaza around the south side of the structure placing most of the open 23,000 sq ft on the corner opposite St. Bartholomew's. In addition they plan to enhance the effect of openness between office building and church by enclosing the entire 200-ft lobby along 51st Street in glass. The effect should be to set St. Bartholomew's in a protective pocket of open space, which will make it visible from a distance as one moves down Park Avenue. Some

Photo: Adolph Studly

critics are already saying that this openness only removes the surprise and variety which a cityscape should have. But under the circumstances, with two such fine, if disparate, examples of architecture as Seagram's and St. Bartholomew's, to display them openly can hardly be a failing. It is a little like the difference between putting a beautiful woman on a pedestal or hiding her in a closet.

Some critics also argue that the office tower's set-back allows the carefully defined space of the Seagram's plaza to leak away. The architects have tried to avert this criticism by placing a low rise annex at the northwest corner of their tower's base.

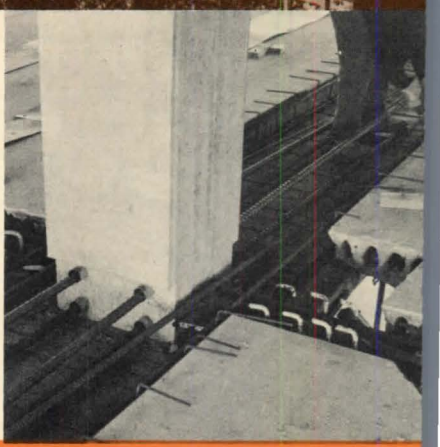
Unfortunately, in its massing, the office building does not live up to the potential of its open ground level spaces.

It is interesting to note that the General Electric Building, built in 1931 and seen in the rendering directly behind St. Bartholomew's, chose the same colored brick and terra cotta façade as the church in an effort to blend with rather than dominate it.

In an effort to regain rentable space lost to the plaza, the architects are extending the structure 4½ stories below grade, about 60 ft. According to James Ruderman, structural engineer, the excavation, which is now underway, has already yielded more rock than any other building excavation recalled in New York — some 154,000 tons. Such below-grade space is now in demand in New York for computer installations, storage, mechanical equipment, and parking.

Although the building is not yet out of the ground (opening is scheduled for late 1968) all of its 1,575,000 sq ft are rented.

Spancrete planks provide the side forms for a poured-in-place beam in combination with precast column. Job-cut niches in the Spancrete provide for mechanical accesses.



Fox Pavilion, Office Building / Jenkintown, Pennsylvania / Architect: George S. Idell / Structural Engineer: Irwin Speyer

An extra floor with Spancrete!

With a township height restriction of 85 feet and a floor-to-floor minimum of 9 feet 8 inches, most buildings in the Jenkintown, Pennsylvania area are limited to eight stories in height. However, by using 8-inch-thick Spancrete flooring with a 2-inch concrete topping, a nine-story building with 8-foot-plus ceilings was possible. The deluxe suburban office building was built on a semi-circular design, with standard Spancrete planks fanning out from the inner to outer wall. Spacing between the planks varies from zero to 11 inches on the 28-foot span. The voids were covered with masonite strips and a 2-inch concrete topping poured. Running on the radius at column locations, the topping fills in and forms a poured-in-place beam. (See inset.)

Low sound transmission, rapid construction, fire safety, and low maintenance are other advantages of using economical *Spancrete hollow core planks*. Call your local manufacturer for more information on Spancrete and its application to your next project. Maybe you can go higher than you think with . . .

SPANCRETE

PRECAST, PRESTRESSED CONCRETE HOLLOW CORE PLANK FOR ROOFS AND FLOORS

MADISON LIBRARY MUDDLE

WASHINGTON, D.C. If built as planned, the Library of Congress James Madison Memorial Building would be "visually unsatisfying and functionally inadequate," according to a committee of architects. The committee (Charles M. Nes, Jr., George E. Kassabaum, David N. Yerkes, Llewellyn W. Pitts, Vincent G. Kling, and Harry M. Weese) was appointed by the AIA as stipulated in Public Law 89-260, which called for a committee of outstanding architects to "present a national viewpoint on the type of building to be constructed." Unfortunately and ironically, the same law also called for a building whose design "shall be in keeping with the prevailing architecture of the Federal buildings on Capitol Hill."

This kind of legislation, rife with interior contradictions, is what keeps Congressmen working, but it has produced a situation, in this case, embarrassing to all the architects involved, both review committee and designers. DeWitt, Poor & Shelton are the architects selected by the Architect of the Capitol to design the library annex. And as they have done so often before they have designed an expensive ($75 million), heavy-handed building that will contain slightly more than 2 million sq ft. A spokesman for the Library of Congress says its style can best be described "as being designed under the classic discipline, yet in keeping with the architecture of the mid-20th-century."

Paul Richard, writing in the Washington Post on September 3rd, disagreed: "the design of the new building," he wrote, "has nothing in common with classical architecture nor with mid-20th-century architecture nor with Capitol Hill older monuments.

"It is compatible only with the Rayburn Building and with other pseudo-classical uglies that Architect of the Capitol J. George Stewart has been adding to Capitol Hill for the last ten years." Richard also found it compatible with work produced by Albert Speer, Hitler's favorite architect.

In a report which is a model of diplomacy, firmness, and clarity, the AIA committee agrees "that severe — and perhaps contradictory — limitations have been imposed on the architects. These requirements should be reconsidered. In the Committee's opinion, reconsideration of the requirements would be preferable to the construction on Capitol Hill of a building which would be visually unsatisfying . . . "

The committee then took the chance to press for something they have long advocated: a permanent architectural consultant committee to review buildings designed for Capitol Hill. "With the help of such a group," reads the report, "mistakes which are damaging and costly might be avoided. Certain decisions must be made prior to passage of legislation which authorizes the construction of a building. As has been pointed out in this report, this legislation sometimes included requirements which may seriously handicap the architects. Such difficulties could be prevented if a permanent review commission could study the program requirements for any project as prerequisite to preparation of legislation."

Specifically, the committee objected to the building's mass: a rectangular building about 500 by 400 ft in plan, it would dominate the area. It is 70 ft high to the first setback, 80 ft high at the second, and finally, 100 ft at the mechanical penthouse. It would have no interior courts. To conform with space and height requirements it must be this massive. Also, the committee felt that persons working in such a building would be deprived of outside light and perhaps made to feel confined by the nine-ft ceilings.

How seriously the AIA committee report is being taken is a matter for brood-

ing. When plans for the library annex were officially unveiled in late August the AIA was *never officially* told of the ceremony.

As in all cases on Capitol Hill, the real power (spelled out in PL 89-260) lies with three Congressional committees: the House Office Building Commission, the Senate Office Building Commission, and the Joint Committee on the Library — chaired by Senator E. Everett Jordan (D., N. C.). This is the group that puts up the money, finally approves selection of the associated architects, and in effect, really is the Architect of the Capitol (just as a special committee composed of the Vice President and the majority and minority leaders of both houses is the real "architect" when it comes to rebuilding the Capitol itself).

It is this group of lawmakers, that has now instructed Stewart's office to proceed — to request the money to complete the library design and get things ready for construction — regardless of the AIA recommendations.

In an effort to explain Stewart's actions in this case a spokesman for the Architect pointed out that PL 89-260 (1) doesn't say at what point the AIA group should start its consultative activities; (2) doesn't give it any specific powers in the matter anyway.

"We went to the coordinating committees (of Congress) for instructions on when to begin consultation with AIA," said the Stewart spokesman, "and we were told by them to consult during the planning stages. We have done that. We were also told by this (coordinating) committee — which approved the selection of DeWitt, Poor, & Shelton — to proceed now to request funds for planning. There has been no circumvention of anyone."

There the matter rests.

FOUNTAINS TO MASK NYC PUBLIC WORKS PLANT ON THE RIVER

NEW YORK, N.Y. New York City, since the ascendency of Mayor John Lindsay, has been increasing the attractiveness of public works jobs to prominent designers. One of the most notable apparent successes in the mayor's campaign for excellence in design was attained when, early this year, the city was able to retain Philip Johnson to redesign a $70 million sewage treatment plant for the Department of Sanitation. The plant is to handle about 220 million gallons of sewage per day that now flow, untreated, into the Hudson and Harlem Rivers.

Site of the plant is located below a preferred residential neighborhood on a sloping site that will be extended on piles into the Hudson. When residents complained about the unmitigated ugliness of the proposed facility and were backed up by the Hudson River Valley Commission, city officials agreed that the additional cost needed to obtain a facility more agreeable to the public (almost 13 per cent of the total) was money well spent.

Philip Johnson's answer to the problem of turning a beast into a beauty was to cover the plant's 22 acre roof with ornamental pools and fountains that will spout city water 200 feet into the air. The display would be visible from the George Washington Bridge, north of the site, and from the West Side Highway, which runs parallel to the River near the plant. These and the sculptured shapes of ventilators and doorways on the roof would transform it into a visitors' landmark.

In midsummer, the plans were handed over to the Mayor for approval, but have as yet to emerge from his office. Apparently, residents of the area from 137th to 145th Street are not satisfied with ornament. They have complained to the city that the roof area of the new plant could be turned to better account by creating a recreation area or children's playground atop the broad surface. Mayor Lindsay has promised to meet with neighborhood organizations in the coming weeks so that plans may be given final approval as soon as possible. At present, completion is scheduled for 1972.

SPECIFIC PLANS FOR BOSTON CORE

BOSTON, MASS. For almost five years now Victor Gruen Associates have been working on a plan for Boston's central business district. Their plans, announced recently in some detail, were arrived at in cooperation with the Boston Redevelopment Authority (BRA) and the Downtown Business Committee, a group of businessmen who banded together when Edward Logue came to town from New Haven preceded by a legend of irascibility, to keep track of what he did and to see that whatever it was it dove-

Washington Street shopping mall.

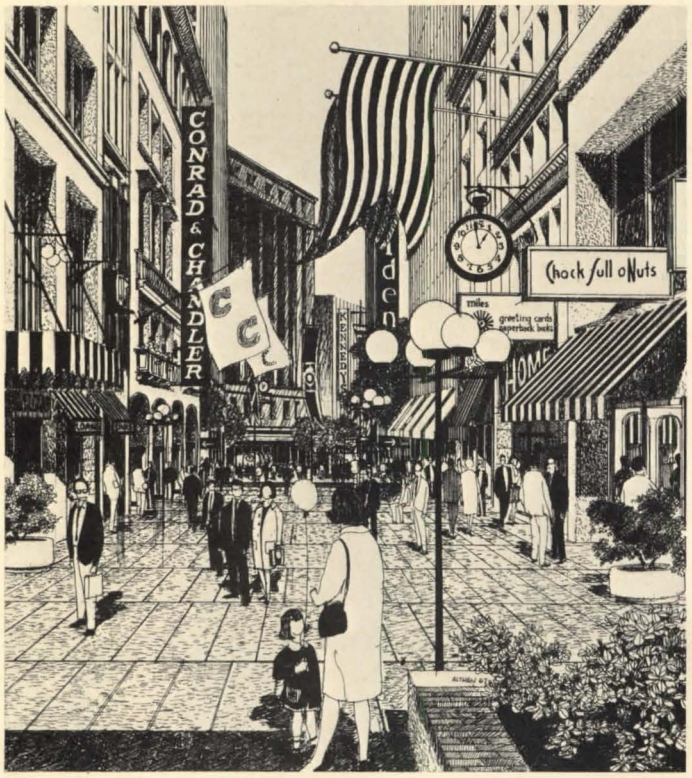
Downtown Boston 1975, with new stadium at right.

Entertainment district includes public square surrounded by new theatre, apartment tower, hotel.

tailed with their interests. From this initial purpose the committee has evolved into a group that can and does help implement the plans arranged by the planners.

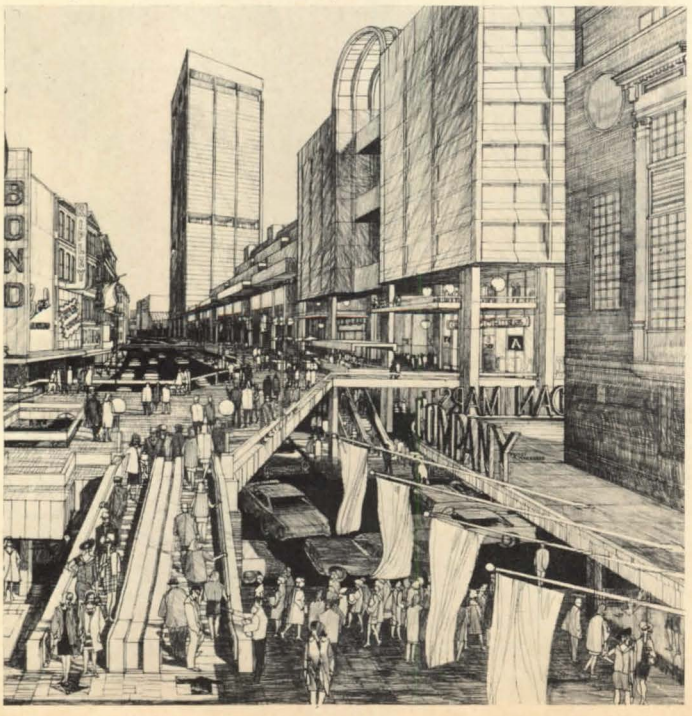
In all the central business district comprises about 200 acres, and it will be redeveloped at an estimated cost of $400 million. This sum represents $100 million in urban renewal money, supplied two thirds by the federal government, one sixth by the state and one sixth by the city. Private investors are expected to put $300 million into new buildings.

The Gruen plan intends to turn Washington Street, which a spokesman calls "the only street in Boston that runs straight for more than two blocks," into a 10-block pedestrian mall lined with shops and outdoor cafes. The city's three main department stores are all in this area, and all are planning to put up new buildings on their present sites.



Winter Street shopping mall.

Looking down second level walkway on Summer Street to South Station.



Park planned by Old Corner Book Store and Old South Meeting House.

The largest planning problem according to a Gruen spokesman was the area's transportation. All transportation, of course, is to be carefully coordinated with the master traffic plan for the city worked out by the BRA. Four subway lines run beneath the site. The streets are a narrow, twisting, maze, surrounded by a network of superhighways that dumps trucks and cars into it. To solve the problem the Gruen planners propose adding some new streets. They also are advocating the construction of parking structures for 5000 cars at one edge of the site, near the location of the new stadium and the post office. Shuttle buses would take people from the parking area into the core. Also proposed is a service tunnel, to run beneath some new buildings planned in the ladder blocks between Tremont and Washington Streets. Trucks servicing these buildings would duck into the tunnel from periferal streets easing congestion at street level.

The plan, of course, provides for the retention of Boston's historic building, although in one or two cases such as the old Boston State house, the old will be dominated by multistory curtainwall blockbusters. To an extent the planners have tried to ease the impact of this inroad of progress, but as one planner points out, "You can't be arty about today's economics."

For two years now early land acquisition has been going on in the area. All that is needed now is action.

DAVID R. W. TEVIOTDALE

David Teviotdale was Associate Editor of *Progressive Architecture* and responsible for the Materials and Methods section of the magazine for only six months. But during that time he impressed his colleagues with a penetrating insight into and broad grasp of the technology of construction. It was therefore with a deep sense of shock and sorrow that P/A learned of his tragic and untimely death on September 9 at the age of 38.

Previously an Associate Editor of *Engineering-News Record*, Dave had many friends and professional contacts throughout the architectural and engineering professions who will be equally distressed at his passing, with which a great potential for the advancement of information has been lost.

CALENDAR

The **Second Conference on Product Literature- and Advertising in the Construction Industry** will focus attention on manufacturers' product selection catalogs. The meeting, sponsored by the Producers' Council, Inc., will be held at the Drake Hotel in Chicago, October 23–24. For information on the conference, write to Product Literature Conference, Producers' Council, Inc., 1717 Massachusetts Ave., N.W., Washington, D.C. 20036 . . . Miami will be the port of departure for three **Architects' Grand Treks** around South America for AIA members, families, and friends. Departure dates are October 24, January 30, and March 26. The 21-day trips will be managed by Captain John E. Smith, Jr., general manager of the United States Travel Agency. Further information is available from: U.S. Travel Agency, Inc., 807 15 St., N.W., Washington, D.C. 20005 . . . The **AIA Committee on Research for Architecture** will meet October 25–26 in Gatlinburg, Tenn., to discuss system building, use of computers, office practice, and models. The committee will convene at the Mountain View Inn in Gatlinburg . . . **The 16th Annual Western**

Mountain Region Conference of the AIA will be held November 5–8 at the Broadmoor Hotel in Colorado Springs, Colo. Details of registration and program may be obtained from: Barbara L. Light, Executive Secretary, Colorado Chapter AIA, 1426 *Larimer* Square, Denver, Colo. 80202.

NEW TOWER FOR BOSTON'S PRU CENTER

BOSTON, MASS. A 28-story office structure, designed by Charles Luckman Associates, will soon occupy the southern corner of the 33-acre, triangular tract in downtown Boston known as Prudential Center. The site is already occupied by Boston's tallest building, the Prudential Tower, as well as apartment and office towers, a major hotel, and the War Memorial Auditorium.

The Luckman office also master-planned the entire complex and were architects for the Tower.

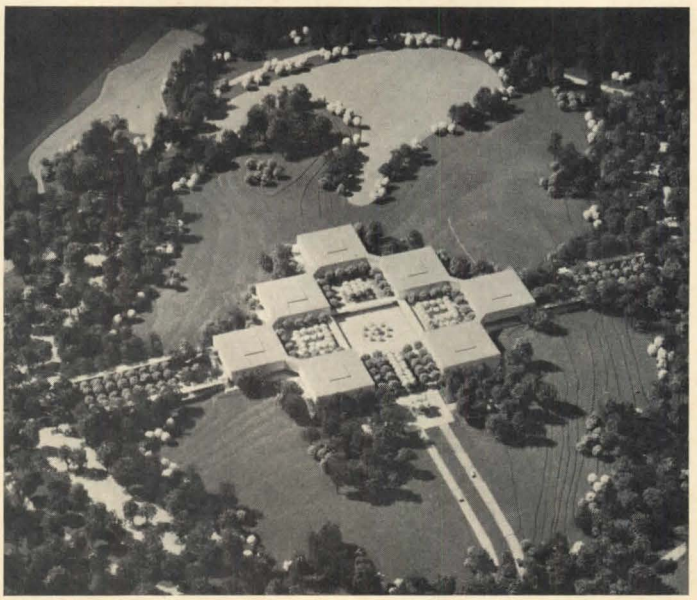
They have designed the new tower to contain more than 600,000 sq ft of office space on floors of approximately 23,000 sq ft each. A three-level garage below a two-acre plaza will offer parking space for 700 cars. High-speed elevators will carry passengers from the garage to office floors above. All truck service will occur off-street and underground. Main entrance will be at plaza level.

Exterior columns will be faced with a brick similar in color to that used on plazas and adjacent buildings. Bronze-tinted glass will cover large surfaces on all sides of the structure, permitting views through the center toward the Charles River, Copley Square, and the harbor.

Boston's Prudential Center today.

Structural engineers were Edwards & Hjorth; mechanical and electrical consultants were Jaros, Baum & Bolles. Construction will begin in 1968, with completion scheduled for the summer of 1970. Estimated cost for the building, including underground development, is $20 million.

PEPSICO PLANS CREATE CONTROVERSY



HARRISON, N.Y. Early this year Edward Durell Stone received a commission from Pepsico International to design international executive headquarters for the company on a site in upper Westchester County, N.Y. The site is one that has been, until recently, occupied by the Blind Brook Polo Club, in an area of the Harrison township known as Purchase.

Most residents of Purchase, an unincorporated residential area, are in the upper-middle to high-income bracket and commute to New York. They found the prospect of commercial invasion by a multi-million dollar corporation much to their dislike, and fought throughout the spring to defeat new zoning laws that would change restrictions on the proposed Pepsico site to a low-density commercial district. By April, when the town of Harrison held hearings on proposed zoning alterations, residents of Purchase had organized to demand a referendum that would give voters a chance to approve separate incorporation. Purchase, a three-square-mile enclave of old estates, would then be able to enact its own zoning regulations.

At hearings in May, the Harrison Town Board finally approved a variance for Stone's design, before opposition could rally sufficient support to obtain a referendum. Later, the town plans to redistrict the area to allow further commercial construction. At the hearings, a representative of Pepsico explained that the campus-style massing of buildings proposed by the Stone office would be well screened and surrounded by planting to obviate intrusion on the present rural setting.

Seven interconnected three-story buildings are to be grouped around a central open area. The entire complex will accommodate approximately 800 to 1000 employees, all of whom will find room for parking behind existing trees, which bound the site. As much as possible of the prevailing rural atmosphere will be preserved; additional landscaping will be done by Fraioli, Blum & Yesselman of New York City.

When Pepsico abandons its present headquarters at 59th Street and Park Avenue in New York, that building will be taken over by the Olivetti-Underwood Corporation. The 59th Street building was designed by Gorden Bunshaft of SOM and completed not quite four years ago.

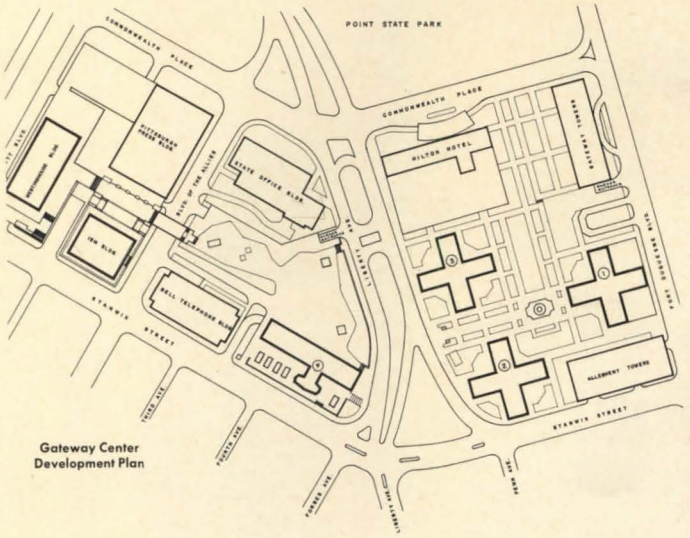
DIRECTORY LISTS EXPERTS IN BEHAVIOR AND ENVIRONMENT

PROVIDENCE, R. I. A *Directory of Behavior and Environmental Design* lists more than 250 persons representing 30 different disciplines, from Anthropology to Zoology. The idea behind the directory is to make available to architects and designers the names and titles of published works of experts in related fields.

The directory was compiled by the Research & Design Institute to encourage interdisciplinary cooperation. The experts listed are, for the most part, those whose studies have direct relevance for designers.

Copies of the 126 page booklet are available for $2.00 per copy from the Research & Design Institute, P.O. Box 307, Providence, R.I. 02901.

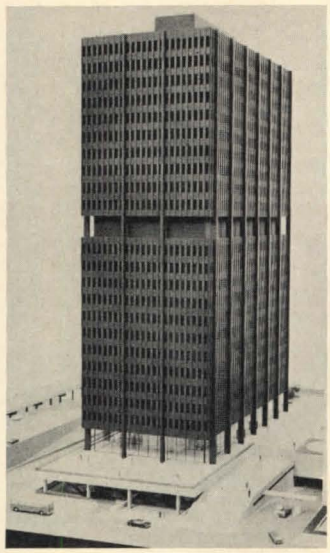
"TOTAL ELECTRIC" OFFICE BUILDING TO COMPLETE GATEWAY CENTER



Gateway Center Development Plan

PITTSBURGH, PA. Architects Harrison & Ambramovitz have designed a 23-story office structure for the Equitable Life Assurance Society of the U.S. that will be principally tenanted by the Westinghouse Electric Corp. The building will complete development of Gateway Center, at the tip of Pittsburgh's Golden Triangle.

The first major commercial structure east of the Mississippi to incorporate a mechanical system totally dependent on electricity for all general power services, the Westinghouse Building will need only one floor to house mechanical installations for heating and cooling. Mechanical engineers Meyer, Strong & Jones of New York used computer models and systems analysis to determine the most economical and efficient design for lighting, transportation, and environmental systems. Lighting intensity will range from 150 ft-c (in small offices) to 225 ft-c (in large, open areas) throughout the building. The lighting system will be water-cooled; water will absorb, conduct, and store excess heat for use when needed to heat the building. Internal building heat along with solar heat will be captured to provide all necessary heat throughout the year at individually controlled temperatures. This system will require less ductwork than conventional heating systems and demand fewer horsepower to operate fans.



The building will rise 350 ft from a landscaped plaza on a site bounded by First Avenue, Stanwix Street, Pitt Boulevard, and Commonwealth Place. It will contain approximately 500,000 sq ft of office space. Pedestrians will take escalators from the main entrance on Stanwix Street to reach plaza level. A bank with drive-in service will be located beneath the plaza, and below that will be a four-level parking garage accommodating 400 cars.

Structural engineers Edwards & Hjorth have designed a steel-frame construction with cellular steel floor decks. Curtain wall will be of dark gray duranodic aluminum and double glazing.

Construction has already begun and should be completed early in 1969.

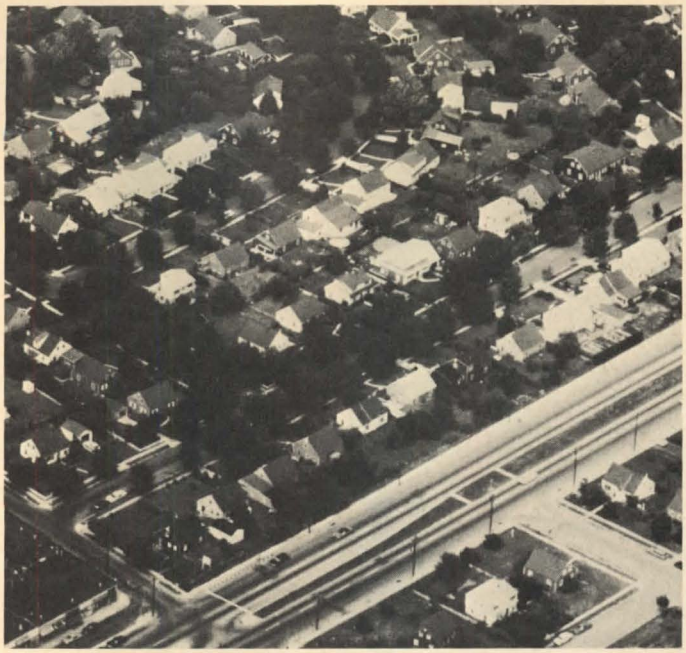
AIA ESTABLISHES ANNUAL AWARDS FOR CRITICS

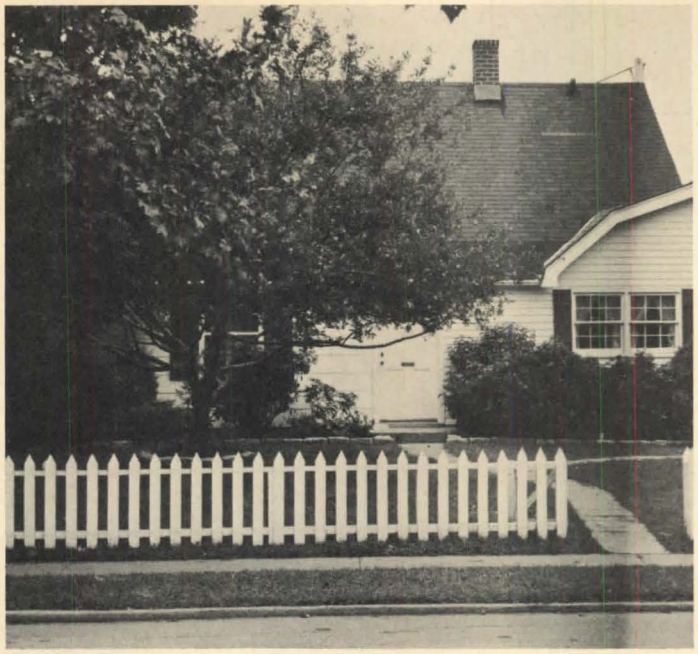
WASHINGTON, D.C. Two awards for architectural criticism, a Critic's Medal and a Critic's Citation, will be awarded annually by the American Institute of Architects. As recommended by the AIA Committee on Aesthetics, the purpose of the awards is to "stimulate, broaden, and improve the quality of architectural criticism in order to increase the public's visual perception in environmental design." The Critic's Medal will be awarded for a distinguished career devoted to architectural criticism. The Critic's Citation will recognize excellence in a single article, book, movie, or TV report.

A jury meets early this month to select the 1968 winners. Jurors are Dr. Frank Stanton, President of the Columbia Broadcasting System; Edward P. Morgan, American Broadcasting Corporation news commentator; I. W. Cole, Dean of the Medill School of Journalism at Northwestern University and Director of the Urban Journalism Center; Francis P. Gassner, chairman of the AIA Committee on Aesthetics; David Brinkley, NBC news commentator; and Philip J. Meathe, member of the AIA Board of Directors and chairman of the Public Relations Committee. Presentation of the awards will be at the AIA's 100th convention next June.

LEVITTOWN REVISITED

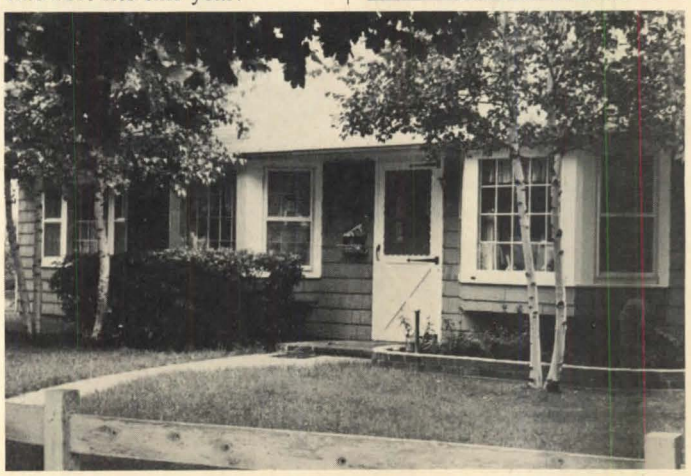
LEVITTOWN, LONG ISLAND, N.Y. Levittown . . . the name calls up visions of identical box-like frame houses standing row upon row upon row on a barren landscape. It has become synonymous to some with mediocrity and conformity, tinged with the same hint of opprobrium that one finds in the terms "middle-class" or "hippie". But those who mock have not seen Levittown as it is today, twenty years after Levitt & Sons built the 17,423 homes in the midst of Long Island potato fields. In 1947 critics predicted the area would be a slum within a few years. Instead it has today a cosiness and charm that the critics and perhaps even the planners could never have dreamed possible. They failed to consider the pride the early residents, mostly World War II veterans, would take in a meager $6990 home; moreover they underestimated the urge for individual expression that the development itself would foster. Today residents have not only maintained their homes well, keeping them repaired and painted, but, as their affluence and families have grown with the years, they have added to the basic unit in a host of ways. They have added garages and car ports, bedrooms with dormers, bay windows, brick,





shingle, and clapboard siding, patios, back porches, front porches, breezeways. While gaining this modicum of mature individuality they have kept the same lot size, the same roof height, and in most cases the same basic house shape — enough to give the community a family resemblance that lends to its feeling of harmony. But mostly there are trees and plantings. Early Levittown residents can recall "old man Levitt" coming around in a pick-up truck planting trees on front lawns. "We spent a pile of money on landscaping; trees and shrubs always help stabilize homes," William J. Levitt can recall his father saying. These trees, some now forty feet high, give the development an air of summer lushness and peace that colors one's initial impression. Today Levittown has about 65,000 residents, and those basic houses that sold for $6990 in 1947 now bring from $12,000 to $15,000. Those with improvements and additions are said to bring up to $35,000. Although an estimated 17 per cent a year move from Levittown to more affluent surroundings, many seem content to remain and improve their property. The community generates a civic pride that led one homeowner to put a badly lettered hand-made sign on his lawn offering $150 for information leading to the apprehension of the person who stole his front fence.

Levitt & Sons has profited over the years to such a degree that last year it cleared $3,254,000 on sales of $74,462,000. In July the company was absorbed by the International Telephone & Telegraph Company. Levitt is now offering homes that sell for as much as $44,000 and he talks of total communities, including industry, shops, churches, schools, apartments and homes for as many as 50,000 persons. Levitt calls his proposed new communities "primary employment towns" and sees the cost of one at about $600 to $700 million. He plans to announce the first midwest site this year.



P/A DESIGN AWARDS JURY MEETS

NEW YORK, N.Y. Jurors for PROGRESSIVE ARCHITECTURE'S fifteenth annual design awards met in the New York editorial offices overlooking Park Avenue on September 18th and 19th. This year's jurors were Lawrence B. Anderson, Partner, Anderson, Beckwith & Haible, Architects, and Dean, School of Architecture and Planning, Massachusetts Institute of Technology, Cambridge, Mass.; Gunnar Birkerts, Gunnar Birkerts & Associates, Architects, Birmingham, Mich.; Richard P. Dober, Partner, Dober, Walquist & Harris, Inc., Planning and Landscape Architecture, Cambridge, Mass.; Romaldo Giurgola, Partner, Mitchell & Giurgola, Architects, Philadelphia and Chairman, Division of Architecture, School

of Architecture, Columbia University, New York, N. Y.; and Fazlur Khan, Associate Partner, structural engineering, Skidmore, Owings, & Merrill, Chicago.

Winners of awards were notified confidentially by telegram. Winning projects will appear in the January 1968 issue of PROGRESSIVE ARCHITECTURE.

ROCKEFELLER CENTER TO ADD 18TH OFFICE BUILDING

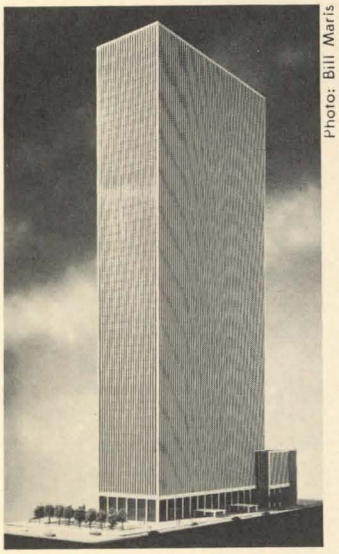


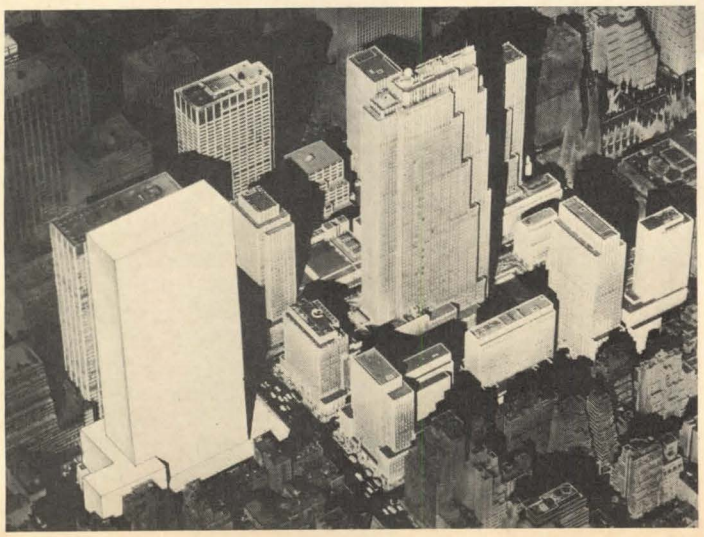
Photo: Bill Maris

NEW YORK, N.Y. Rockefeller Center, Inc., and the Standard Oil Company of New Jersey have announced a joint venture to build and own a 54-story office building that will be the 19th structure in the world's largest privately owned business complex. Jersey Standard will occupy approximately two-thirds of the building's rentable space, which, in all will amount to 1.8 million sq ft. The company plans to move at least 3000 employees to its new headquarters here, including those who are now accommodated in the old Esso Building on 51st Street. That structure is owned by the Rockefeller Center Corporation and will be rented to new tenants.

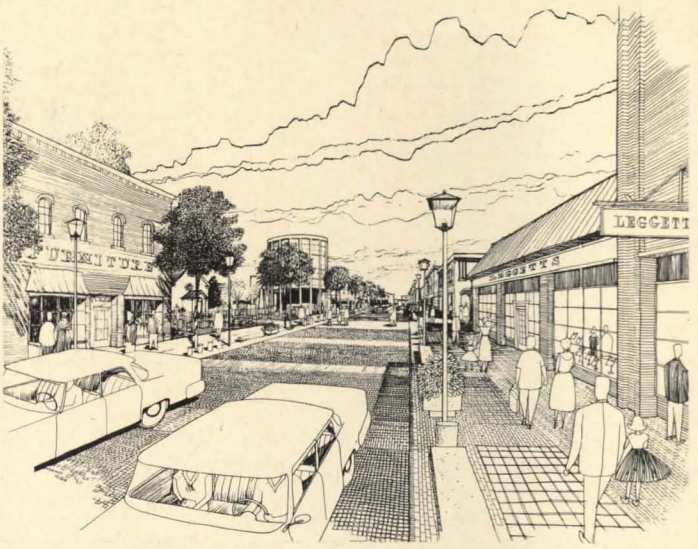
The projected building, designed by Harrison & Abramovitz, with Welton Becket & Associates acting as consultants to Standard Oil, will require 98,000 sq ft of space on the west side of the Avenue of the Americas from 49th to 50th Streets and extending more than halfway back to Seventh Avenue. The area is now occupied by structures of one to five stories (with the exception of the 16-story Plymouth Hotel) containing shops, bars, and restaurants. Of 23 restaurants now on the block, 14 will be displaced to make room for the new tower.

When completed late in 1969 or early 1970, the tower will face the 70-story RCA Building across Sixth Avenue and Harrison & Abramovitz's Time-Life Building on the north side of 50th Street. It will be hemmed on three sides by extensive plazas. According to preliminary plans, a sheer, rectangular tower over 700 ft high will rise from a six-story base on the west end of the site. The entire structure will be set back 117 ft from the avenue to leave room for landscaped plazas.

Structural consultants are Edwards & Hjorth; mechanical, Syska & Hennessy. Welton Becket & Associates will handle design of the interior spaces to be occupied by Standard Oil.



OUT OF THE PAST, THE FUTURE



HAMPTON, VA. The oldest continuously inhabited town in the United States, Hampton. Va., has turned to a Greek city planning firm, Doxiadis Associates, Inc., to give it back an 18th-Century look. Although Hampton dates from 1610, when forts were built there, three miles upstream from Jamestown, to protect the James River channel, the look chosen for the redevelopment will be an 18th-Century one. The city will be transformed, one observer puts it, into "a *modern* old city." Hampton, whose motto is "Out of the Past. the Future," plans to spend approximately $50 million renewing 119 acres of its historic downtown section. Doxiadis's plans have been approved, and the city has begun to acquire property.

According to Doxiadis's multi-volume report, over 70 per cent of the buildings in the 119 acres are either substandard or severely decayed enough to contribute blighting influences to the area and, as such, to be eligible for removal under federal urban renewal law. The Hampton project has already qualified for a grant of $9.8 million from the Renewal Assistance Administration of the Department of Housing and Urban Development. The city's share of the renewal is expected to be $4.4 million with the rest of the $50 million being made up by private investment. So far, all the banks in Hampton have shown a lively competitive interest in the renewal, and there is little doubt that this city of 115,000 will ultimately benefit greatly, although the renewal will be drastic.

In a 20-block downtown area, for instance, only 23 of 519 buildings there will remain in their present state. Twenty-four will be remodeled and the other 472 will be removed and replaced by brick and stone buildings designed in an 18th-Century colonial style.

But this will be no showcase town in the Williamsburg tradition. (Hampton is only about a half hour's drive from the Williamsburg-Jamestown-Yorktown triangle.) Behind the 18th-Century facades the 20th-Century life

of the town will continue. Among the downtown renewal projects will be a 300 unit apartment complex, with four-bedroom town houses renting for $107 per month. Also in the urban renewal area will be a privately-financed development of 200 medium to high-income apartments. Although it is expected that some of the persons displaced by the renewal, most of whom are Negroes, will resettle in the area, the city also is providing public housing just beyond the downtown district. The second development opened there recently and 500 more units are currently planned.

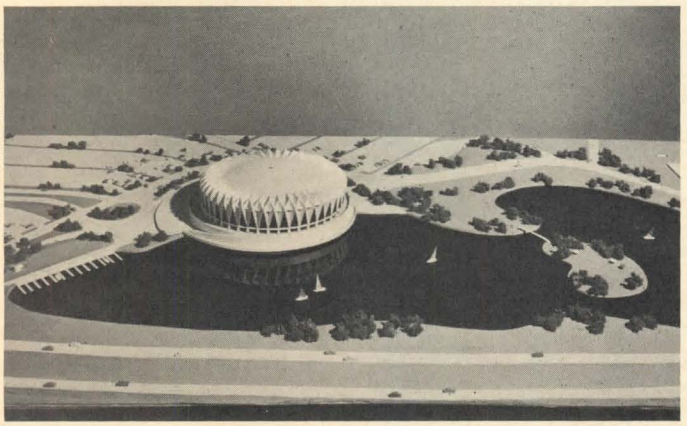
New construction slated in the downtown area includes a five-story City Hall, a complex of legal offices next to the Court House (one of the buildings to remain), and two new department stores.

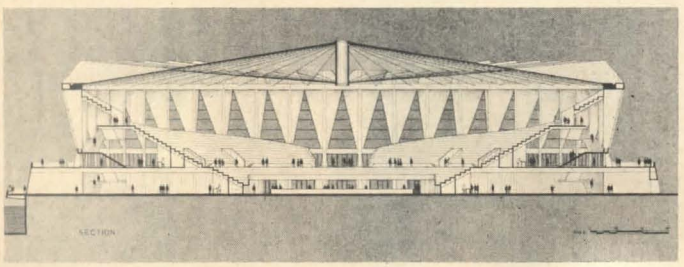
Part of the new old town's flavor and 18th-Century character will come from 200 antique gas lamps being brought from England. And the main street, Queen Street, will be repaved with Belgian building blocks, which resemble cobblestones. Every 24 ft there will be a smooth stone crossing, for women in high heels.

It has taken five years since Thomas P. Chisman, president of the Peninsula Broadcasting Company, persuaded some 70 per cent of the downtown property owners to contribute $37,500 towards financing the Doxiadis study. But despite the delay, enthusiasm still runs high in Hampton. After all it should take at least five years to turn back the clock two centuries.

AN ARENA FOR HAMPTON

Photos: Gordon H. Schenk, Jr.





HAMPTON, VA. Almost nothing is remaining unchanged in Hampton, Va., these days. As a 119-acre urban renewal project gets underway downtown (see "From the Past, the Future," p. 57) working drawings are on the boards for a $6.5 million convention center — sports arena on a 75-acre site along Interstate Highway 64 just north of town. Designed by A.G. Odell, Jr. & Associates of Charlotte, N.C., the arena will provide 78,000 sq ft of exhibition space and will seat from 6750 to 9500 persons, depending on the type of use.

This summer, work began on the site. Land was moved to create a 14-acre lake, which can serve as a reflecting pool for the arena when seen from Highway 64. There will also be parking space for 3500 cars and a park around the lake. In the future, the city may add other structures, such as a restaurant.

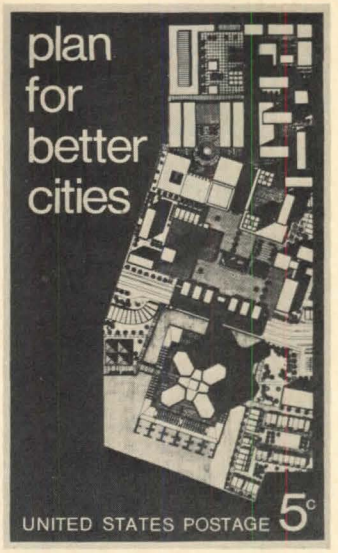
As shown in preliminary plan, the roof will be a bicycle-wheel-like structure with tension cables radiating from a central pivot. This, in turn, will be supported by the precast panels that form the exterior walls. There will be no interior supports.

Odell expects construction to start sometime next year following completion of a bond issue to raise financing. The coliseum will open in 1969.

PERSONALITIES

New York architect **Charles Edwin Thomsen** has been named Special Assistant for Design Policy in the Renewal Assistance Administration of the Department of Housing and Urban Development. His work with HUD will concern improvement of design in urban renewal programs, rehabilitation, code enforcement, central city parks, and urban beautification . . . **Lev Zetlin,** principal in the New York consulting and designing engineering firm Lev Zetlin & Associates, was recently appointed to the President's Advisory Panel of the General Services Administration. He is the only structural engineer serving on the panel, which was created to insure high architectural standards in all public buildings . . . Governor Nelson A. Rockefeller of New York has announced the appointment of **George A. Dudley** to membership on the State's Pure Waters Authority and to the chairmanship of the State Council on Architecture. Dudley is presently dean of the School of Architecture at the University of California's Los Angeles campus. As chairman of the council, he will coordinate efforts to obtain excellence in architectural design and to provide financial aid to local governments for rehabilitation and preservation . . . Newly appointed Director of the Urban Policy Center at Urban America, Inc. is **Allan R. Talbot** of New Haven. The center was formed to develop proposals for dealing with crucial issues of urban design and planning through interdisciplinary research . . . **James Merrick Smith** was recently re-elected president of the American Institute of Interior Designers.

POSTAGE FOR PLANNING



WASHINGTON, D.C. At a dedication ceremony and luncheon on October 2, Postmaster General Lawrence F. O'Brien will introduce a new 5¢ stamp whose design commemorates urban planning. The stamp will be issued during the Fiftieth Anniversary Conference of the American Institute of Planners on "The Next Fifty Years, the Future of a Democracy."

Designed by Francis Ferguson, instructor in the School of Architecture, Division of Urban Planning at Columbia University, the the stamp is dominated by an aerial view of a planned city. White lettering is set against a dark blue background. The city area is white, black, and light blue.

OBITUARIES

DeVere Dierks, Jr., president of the Southern Pine Association and chairman of its executive committee, died August 29 as a result of injuries sustained in an automobile accident. Dierks was also executive vice-president and director of Dierks Forests, Inc. and Dierks Paper Company. Last May, at the age of 38, he became the youngest chairman in the history of the Economic Council of the Forest Products Industry.

Clair Ditchy, president of the AIA from 1953–55, died August 1 in Royal Oak, Mich. He became a Fellow of the Institute in 1944 and held the post of National Secretary

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from 1947 to 1953. Ditchy maintained a private practice in Detroit, specializing in the design of hospitals and schools, until his death at the age of 76.

Stanley McCandless, professor emeritus of lighting at the Yale School of Drama, died August 4 in West Haven, Conn., at the age of 70. McCandless received his M. Arch. degree from Harvard in 1923 and joined the firm of McKim, Mead & White in 1924. During his 40-year association with the Yale drama faculty, he influenced prominent figures in the field of stage lighting, and personally designed the lighting for several Broadway productions. In addition, he was lighting consultant for the United Nations Assembly Hall, Radio City, the National Gallery in Washington, the TWA Terminal at Kennedy International Airport, and a number of college and university theaters.

Lewellyn W. Pitts, senior partner in the Houston, Tex., firm of Pitts, Mebane, Phelps & White, died June 23 after a long illness. He was active in professional organizations, serving as director of the Texas Region, chairman of the AIA Commission on Public Affairs, and on several Institute committees. In 1966, he was nominated for the office of First Vice-President of the AIA. He was elected to the College of Fellows in 1958 for design and public service. His major works include 19 buildings for the Coca-Cola Company (one in Houston received the AIA's First Honor Award in 1951), and research and office facilities for Mobil, Texaco, and Gulf Oil corporations.

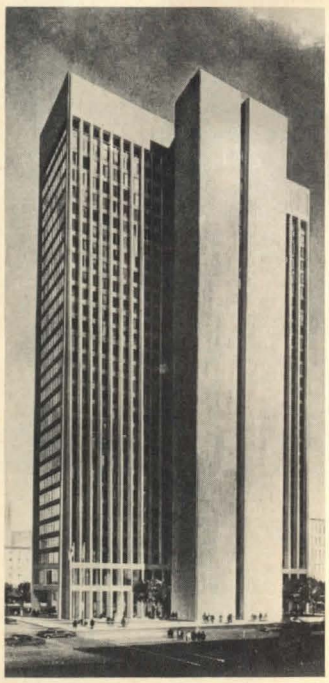
Henry H. Saylor died August 22 at the age of 87. Saylor was the first editor of the AIA *Journal* and wrote the institute's chronicle, *The AIA's First Hundred Years.*

On completion of his architectural studies at MIT, he joined the firm of Cope Stewardson and Edgar V. Seeler in Philadelphia. During World War II, he supervised construction of Pratt & Whitney plants for the office of Albert Kahn.

Saylor was best known, however, as an architectural journalist. Since 1904, when he became editor of *The Architectural Review* in Boston, Saylor directed publication and editorial activities of numerous journals, and founded, edited, and published *The Architect's World.* He wrote or edited 12 books, including a *Dictionary of Architecture,* published in 1952.

After retiring from the editorship of the AIA Journal in 1956, he continued to serve the institute as historian and unofficial guardian of the Octagon and its grounds. In 1954 the institute recognized his services to the profession by presenting to him the Edward C. Kemper Award. Saylor became a Fellow of the institute in 1952.

BANK FOR THE GOLDEN TRIANGLE

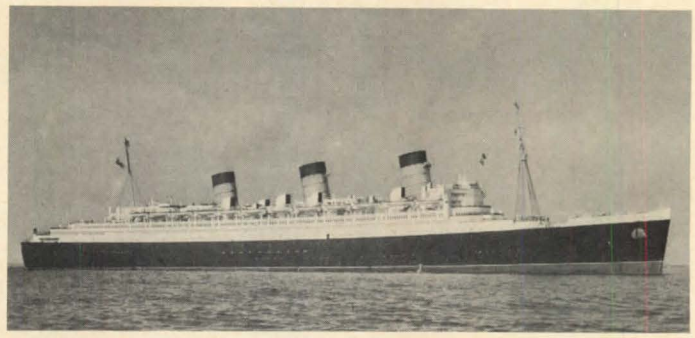


PITTSBURGH, PA. Part of the continuing redevelopment of the Golden Triangle in Pittsburgh's CBD is the erection of a 30-story headquarters building for the Pittsburgh National Bank. Construction will begin in the spring of 1968, at a site on Wood Street between Fifth and Oliver Avenues.

The new structure, designed by Welton Becket & Associates, will rise on exterior, granite-clad columns that will visually accentuate the separate element of the elevator and service core, which will also be sheathed in granite. Horizontal beams will be recessed in hopes of creating constantly changing patterns of light and shadow across the face of the building and its two landscaped plazas, which are divided by the exterior service core. Glazing will be glare-resistant, tinted to complement the granite of the exterior. The interior of the structure will provide 600,000 sq ft of office space, 40% of which will be available for tenancy by other firms. The main banking floor, at ground level, will be entirely column-free, with a 25′ high, luminous ceiling.

Parking for 100 cars will be provided beneath the building. Occupancy is scheduled for spring of 1971.

LONG BEACH BUYS A QUEEN



LONG BEACH, CALIF. Not often can you buy an existing hotel, complete with bedsheets, table linen, silverware and china, float it into position at the end of an arm of landfill, anchor it there, and open for business. With its purchase last month of the Cunard Lines' aging Queen Mary for $3,440,000, the City of Long Beach completed part of its plans to do just that. Although a relatively small city (population, 378,000), Long Beach is located on San Pedro Bay, one of the world's richest oil fields, and local law stipulates that royalties from tidelands oil must be spent on maritime matters. It was this revenue that enabled Long Beach to outbid New York City, which had hoped to use the ship as a high school. The landfill arm at the end of which the Queen will rest will have 30 or 40 acres of parking and utility buildings to provide the ship with electricity, air conditioning, and so on. Eventually, additional hotel, boatel units will be added in the area, and the arm of land will be linked by bridge to the Pacific Terrace Convention area. A portion of the ship — the present crew quarters — will be converted into a maritime museum. The Queen's final resting place is located about halfway between the Marineland of the Pacific and Disneyland.

Photo: Courtesy Museum of Modern Art

As the Queen Mary prepared for its final voyage, from England to Long Beach, an exhibit of architectural fantasies hung in New York's Museum of Modern Art. It consisted of drawings and photomontages created by three young Austrians, two of whom, Hans Hollein and Raimund Abraham, are architects. "They are interested in violent transformations and by what might be called architectural content," wrote architectural curator Arthur Drexler in his introduction to the exhibit. "Thus most of Hans Hollein's ideas involve the enlargement of a familiar object, like a spark plug or a theodolite, so that it becomes an architectural monument looming on the horizon." Shown here is Hollein's photomontage of an aircraft carrier,

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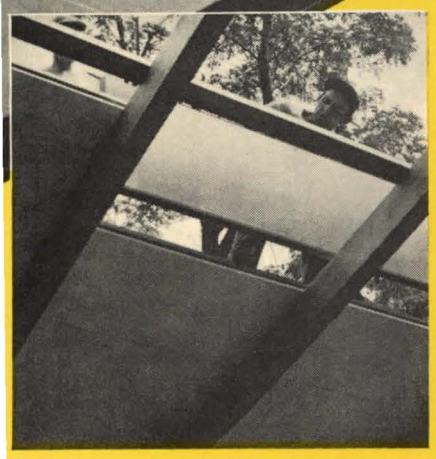

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looming on the landscape like a medieval town.

The thin line between fantasy and reality was given an even more severe jolt last month as both Philadelphia and New York revealed plans to turn the aircraft carrier Tarawa into a city school. If one of them gets it, there will be the huge hulk of an aircraft carrier looming over a bit of East Coast land. And it will no longer be an aircraft carrier but a school — a piece of architecture.

WESTERN HOME AWARDS ANNOUNCED

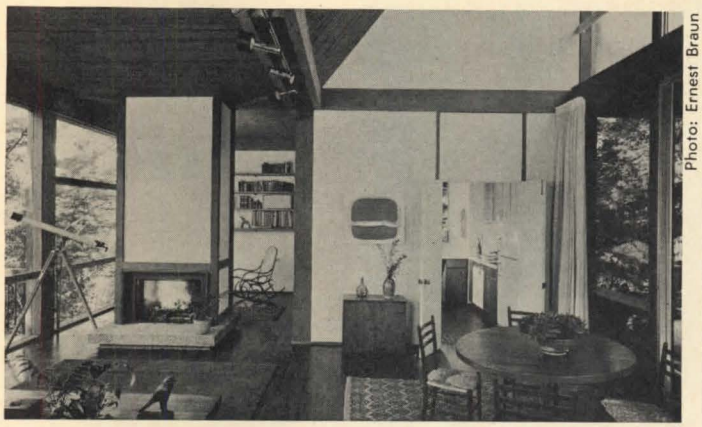

Photo: Ernest Braun

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Photo: Morley Baer

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Photo: Ernest Braun

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Photo: Jeremiah Bragstad

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Photo: Ernest Braun

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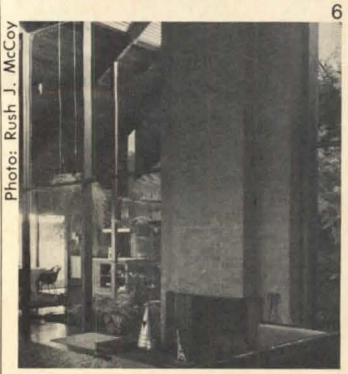


Photo: Rush J. McCoy

MENLO PARK, CALIF. Jurors for the Western Home Awards Program, sponsored biennially by *Sunset Magazine* in conjunction with AIA, noted a predominance of two established design trends among this year's entries. The first is the use of the pole frame, evident in two award-winning designs; the second is the multiple pavilion plan, employed in a complex arrangement to win an Award of Merit in one case.

Members of the seven-man jury for the program were: Donn Emmons of San Francisco; A. O. Bumgardener, Seattle; Fumihiko Maki, Tokyo architect currently at Harvard University; Kevin Roche, Hamden, Connecticut; Robert Royston, San Francisco landscape architect; John Burchard of the University of California at Berkeley; and Proctor Mellquist, editor of *Sunset Magazine*.

Sixteen winners were chosen from entries representing work in the Far West and Hawaii. Of these the following received Honor Awards: residence for Roderick Maroux **(1),** Mill Valley, Calif., by Fisher-Friedman Associates of San Francisco; architect's own residence **(2),** Berkeley, Calif., by F. Malcom George; residence for Mr. and Mrs. Thomas Blackhaller **(3),** Inverness, Calif., by Michael Siegel of San Francisco; two residences **(4, 5)** from a tract developed by Sunset International in Novato, Calif., by Fisher-Friedman Associates; and architect's own residence **(6)** in Boulder, Colo., by Hobart D. Wagener.

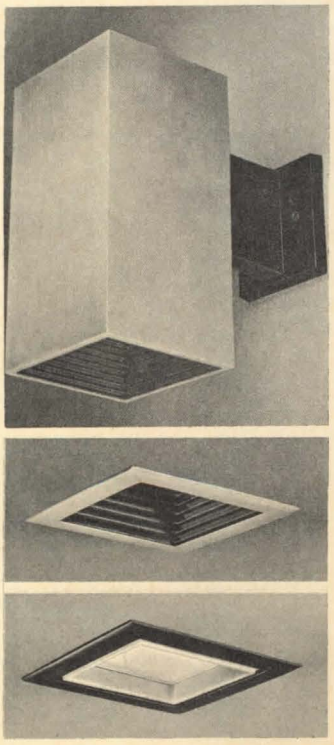
Awards of Merit went to: Campbell-Michael-Yost, Portland, Ore.; Lee & Roberson, San Francisco, Calif.; Ian Mackinlay & Associates, Orinda, Calif.; Marquis & Stoller, San Francisco; MLTW/Moore Turnbull, Berkeley, Calif.; and Moore & Bush, Denver, Colo.

SCHOOLS

Michigan State University offers a new degree program in landscape architecture. Students who have earned their B.S. in the four-year course previously offered may opt for a fifth year of professional training that will lead to the degree of Bachelor of Landscape Architecture . . . Dr. Paul L. Niebanck has been appointed assistant professor of city and regional planning in the Graduate School of Fine Arts at the **University of Pennsylvania** . . . The Graduate School of Design at **Harvard University**

sofas, chairs, tables, and desks designed by Robert Benham Becker, Hans Krieks, and A. Der Marderosian. Among other neat, serviceable designs, catalog shows Becker's "Woven Cube Chair": tan, brown, or black leather strips woven together over an oiled walnut or oak frame with leather-covered cushions and bolsters. Also by Becker is a four-seat bench; polished aluminum base has four legs each supporting seats of leather-covered foam rubber on plywood. 64 pages. Helikon, 315 E. 62 St., N.Y. 10021.
Circle 220, Readers' Service Card

LIGHTING



Squares are hip in lighting. Two brochures describe square lighting units for outdoors, indoors, and wet locations. Both lines described are

in cast aluminum with satin or satin black-anodized finish. One line features wall- and ceiling-mounted fixtures; the other features recessed and semirecessed square units. Brochures include indoor and outdoor applications, dimensions, selection data, suggested specifications. Each brochure 4 pages. McPhilben Lighting, 270 Long Island Expressway, Melville, N.Y. 11746.
Circle 221, Readers' Service Card

SPECIAL EQUIPMENT

Washroom grab bars. Booklet illustrates over 30 lines of grab bars and their typical applications in ordinary or special arrangements, as well as 2 lines of heavy-duty safety railings with concealed and exposed fastenings. Also illustrated and described are concealed anchors for stud-wall and solid-wall construction, and two types of mounting accessories. Illustrations. Specifications. 8 pages. The Bobrick Corp., 868 E. 42 St., Brooklyn, N.Y. 11210.
Circle 222, Readers' Service Card

Airplane parking. Brochure presents manufacturer's steel hangars for small planes; also included are dimension charts of a number of airplanes, from a single-engine Piper Cherokee to the Boeing 707's. Overall length, height, and wing spans are given. 6 pages. Stran-Steel Corp., P.O. Box 14205, Houston, Tex. 77021.
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SURFACING

Formica designs. Two recent additions to the Formica repertoire are "Wexford Irish Linen" light, mossy green linen pattern with a slick finish; and "Green Leather," a medium-dark olive with a feel somewhat similar to real

Architect: Epple and Seamar, Newark, N. J.
Acoustical Contractors: Jacobson & Company, Inc., Elizabeth, N.J.

Soundproof a library? All it took was a hammer, staple gun, tape and 1/64" sheet lead.

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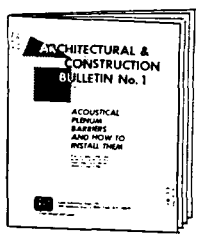
The library reading rooms of the Newark College of Engineering had to be quiet enough for student concentration. So architects Epple and Seaman specified sheet lead plenum barriers above the hung ceiling. Sheet lead is 1/64" thick and weighs only one pound per square foot. But it stops noise more effectively than other thicker materials.

Want facts? Full information? Write for your copy of Architectural & Construction Bulletin No. 1., (Acoustical Plenum Barriers and How To Install Them.) Lead Industries Association, Inc., Dept. N-10, 292 Madison Avenue, New York N. Y. 10017.



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IN THE SOUTH, THE BEAUTY OF PRECAST RISES TO NEW HEIGHTS. THE CEMENT IS ATLAS WHITE.

Gulf Life Tower, Jacksonville, Fla. This striking 27-story building is the nation's tallest precast, post-tensioned concrete structure. Eight towering columns support the exposed structural frame that cantilevers 50 feet outward on each floor. Precast column shells were placed and filled with lightweight concrete. The precast girder segments were placed, post-tensioned, and the stressing ducts were pressure grouted. Then pre-tensioned double tees were erected as floor slabs and 4½ inches of lightweight concrete were used as topping. Atlas White Cement and white quartz sand create the dazzling exterior. Universal Atlas offers a brilliant white cement in more types with more uniform characteristics than any other producer, assuring quality throughout every phase of construction. Precast concrete was furnished by Concrete Materials of Georgia, Inc., Atlanta, Georgia. Prestress by Capitol Prestress Co., Jacksonville, Fla. Ready Mix concrete by Capitol Concrete Co., Jacksonville, Fla. Architects and Engineers: Welton Becket and Associates, Los Angeles, New York, San Francisco, and Houston. Associate Architects: Kemp, Bunch, and Jackson, Jacksonville, Fla. Structural Engineer: Richard R. Bradshaw, Inc., Van Nuys, Calif. Contractor: The Auchter Co., Jacksonville, Fla. Write Universal Atlas Cement Div. of U. S. Steel, Room 4845, Chatham Center, Pittsburgh, Pa. 15230.

Halls, Kansas City, Mo. Halls' block long Moorish-influenced building is one of Kansas City's bright examples of retail merchandising. The entire exterior is sheathed in precast white concrete panels with alternating sections of precast screen panels made with exposed pink quartz aggregate and Atlas White Cement. Decorative elements are 5 inches thick and range up to 27 feet long and 8 feet wide. The brilliant whiteness of Atlas White Cement assures true color and consistent quality throughout all phases of construction. Precast panels were furnished by Inland Schokbeton Div. of Nebraska Prestressed Concrete Co., Lincoln, Nebr. Architect: Tanner-Linscott & Associates, Kansas City, Mo. General Contractor: Sharp Bros. Contracting Co., Kansas City, Mo. Write Universal Atlas Cement Div. of U. S. Steel, Room 4845, Chatham Center, Pittsburgh, Pa. 15230.

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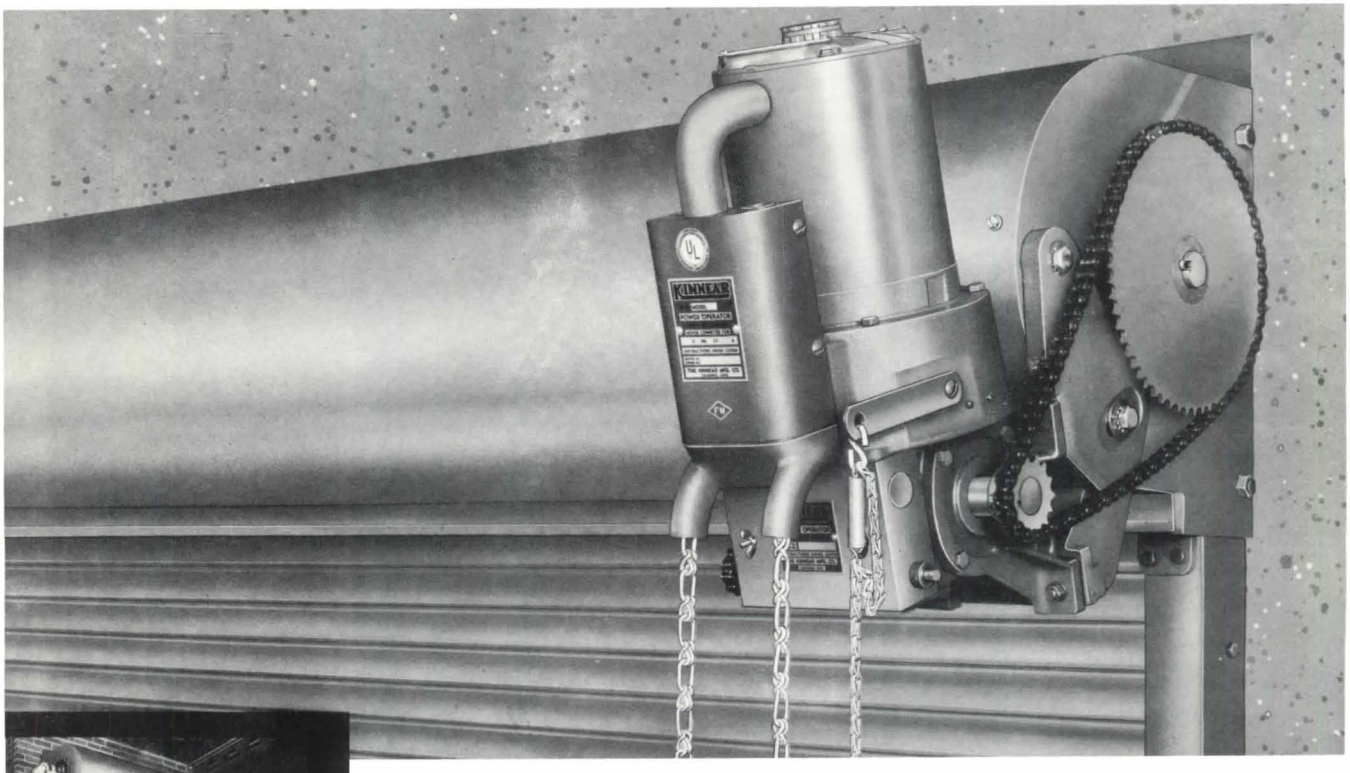

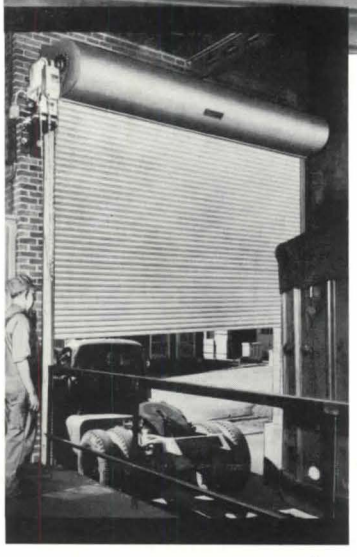

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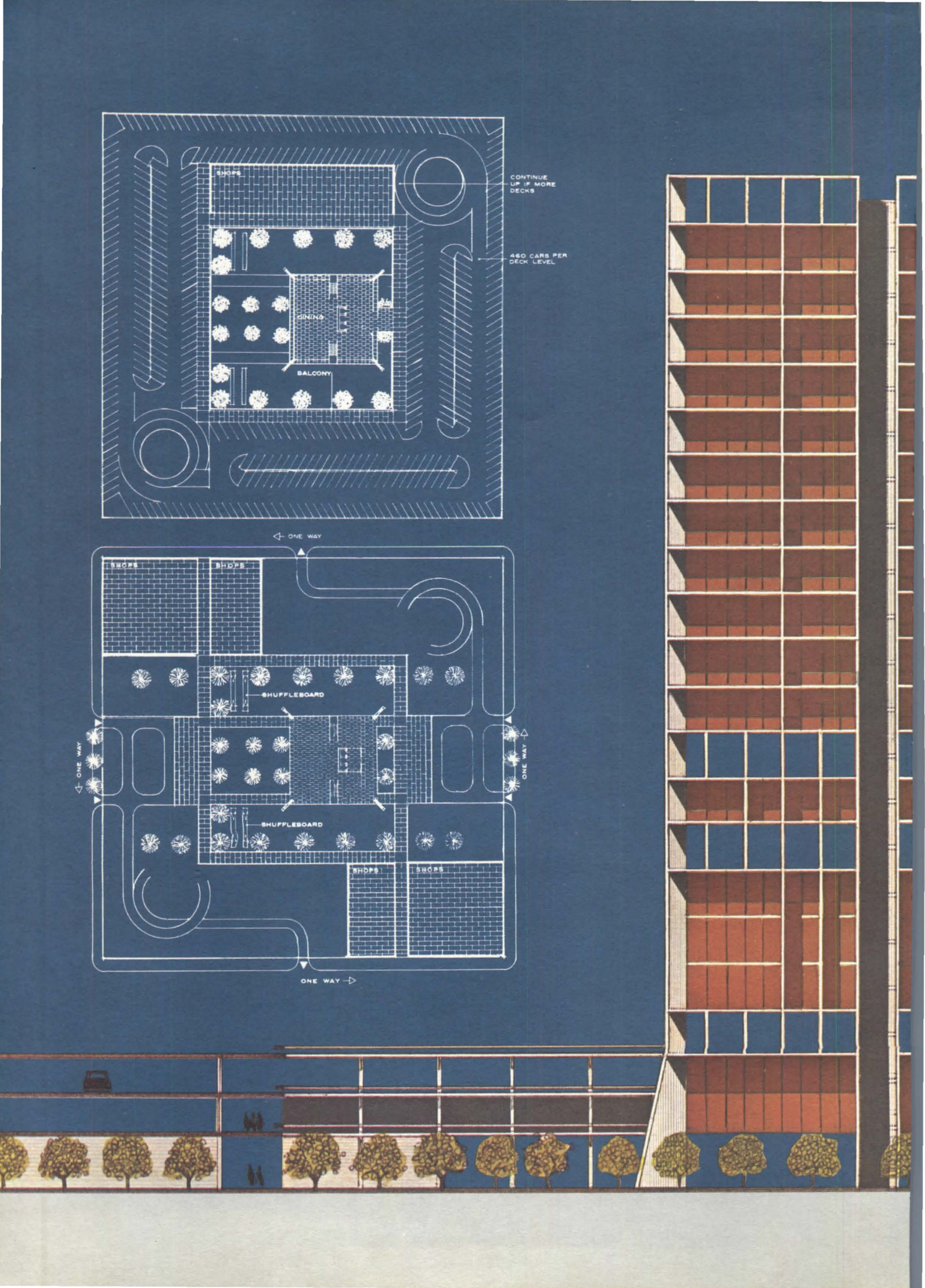
Herbert H. Johnson Associates designs a Downtown Extended Care Nursing Home

Downtown? Instead of out in the country? Why not? Old people want something to look at. What could give them a more varied scene than a terrace or large windows facing a busy street. They can watch the city go by. And shop nearby. A tremendous morale builder for ambulatory patients.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CONTINUE UP IF MORE DECKS
460 CARS PER DECK LEVEL
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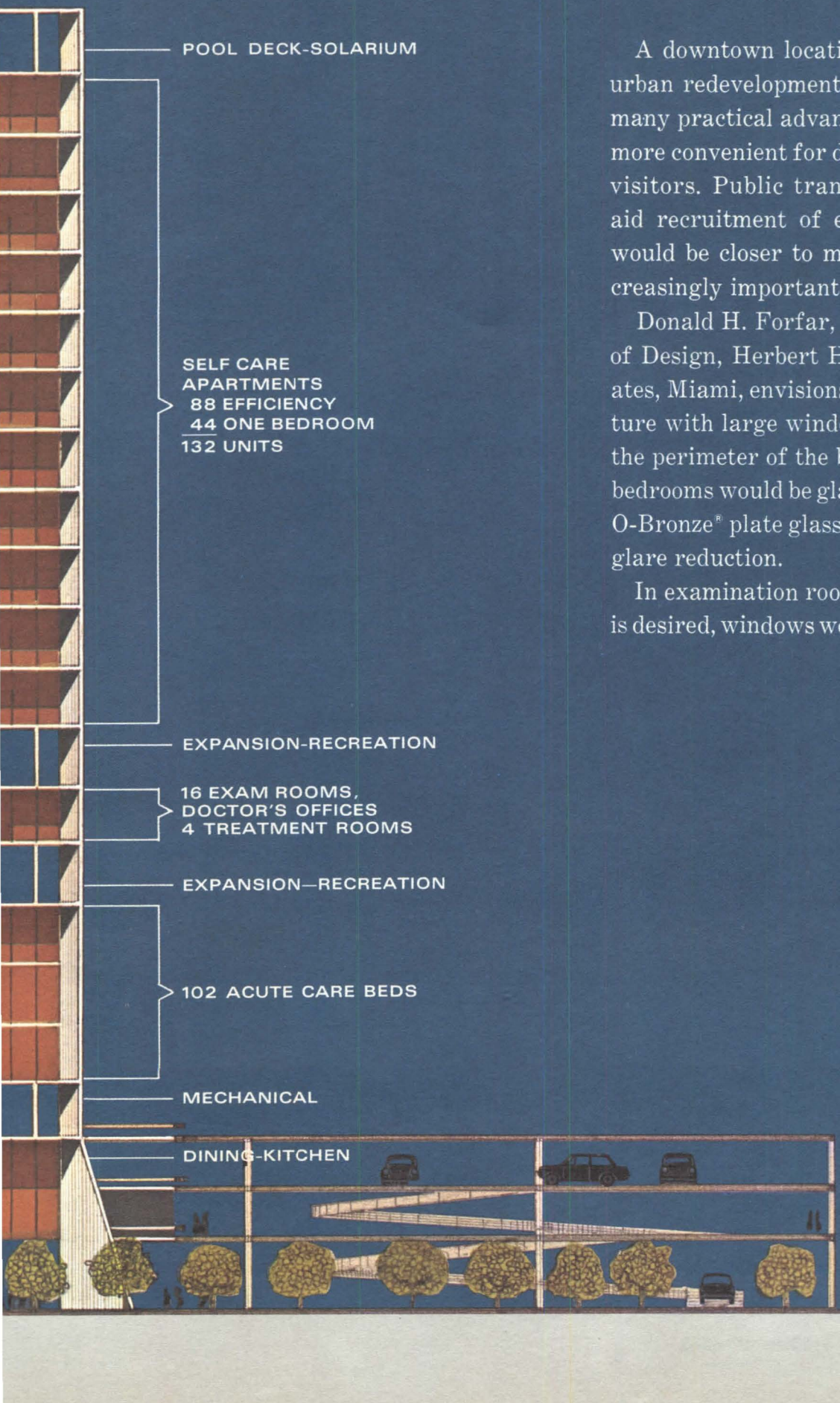
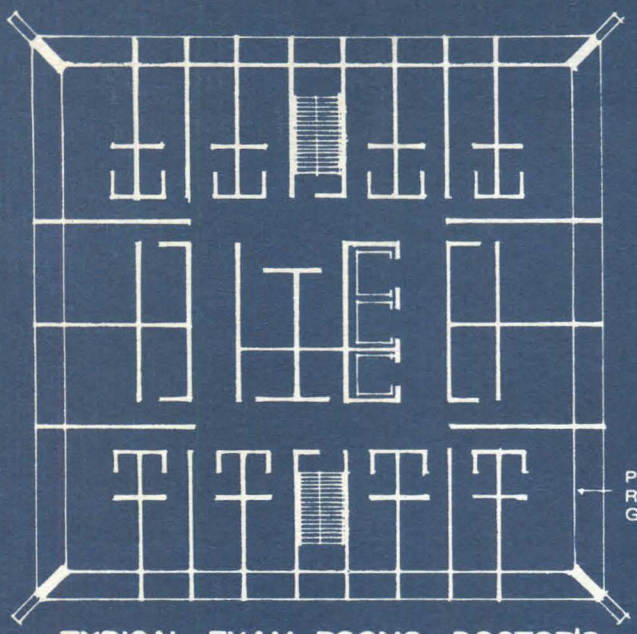


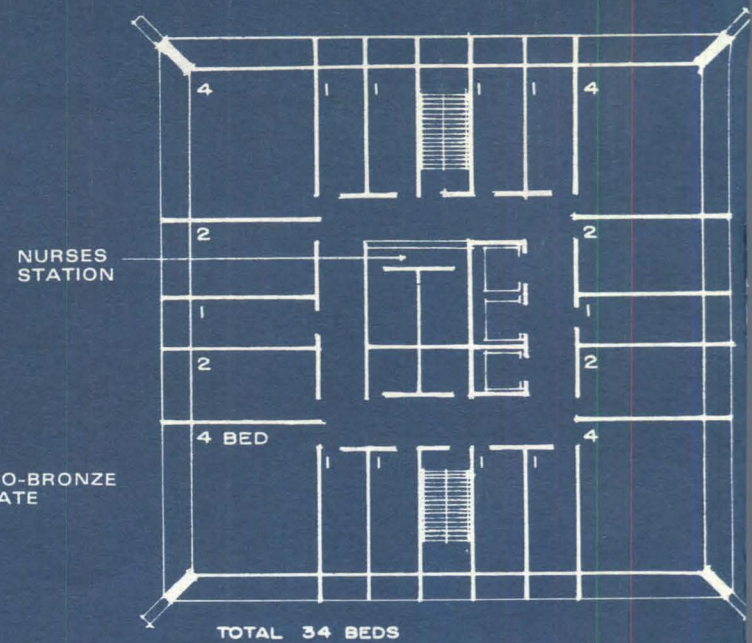
A downtown location, perhaps in an urban redevelopment area, would have many practical advantages. It would be more convenient for doctors, nurses and visitors. Public transportation would aid recruitment of employees. And it would be closer to major hospitals, increasingly important with Medicare.

Donald H. Forfar, Partner in charge of Design, Herbert H. Johnson Associates, Miami, envisions a high-rise structure with large windows set back from the perimeter of the building. Patients' bedrooms would be glazed with Parallel-O-Bronze® plate glass for solar heat and glare reduction.

In examination rooms, where privacy is desired, windows would be glazed with

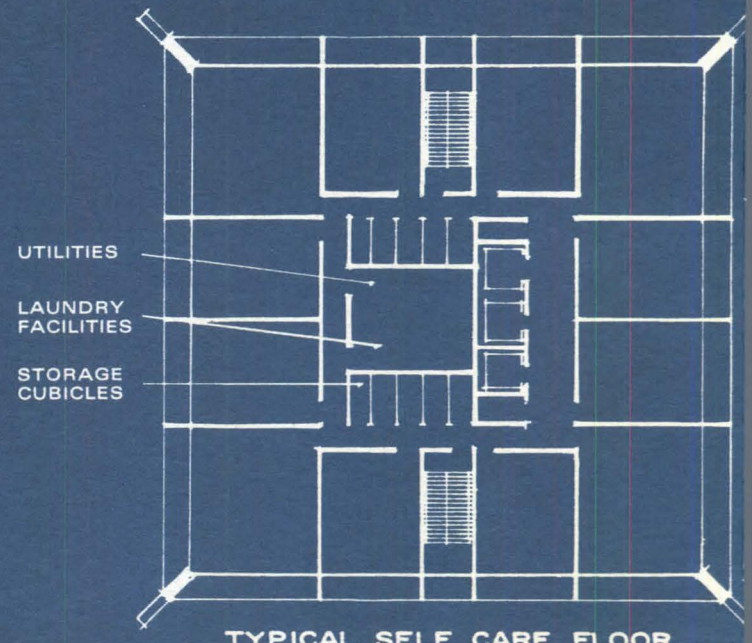


TYPICAL EXAM ROOMS, DOCTOR'S OFFICES & TREATMENT ROOMS



TOTAL 34 BEDS

TYPICAL ACUTE CARE FLOOR



TYPICAL SELF CARE FLOOR

Parallel-O-Bronze Rough Plate. Both products aid materially in reducing air-conditioning costs.

L·O·F makes a particular kind of glass for every purpose in open world design. Refer to Sweet's Architectural File or call your L·O·F glass distributor or dealer listed under "Glass" in the Yellow Pages. Or write to Libbey·Owens·Ford Glass Company, 811 Madison Avenue, Toledo, Ohio 43624.

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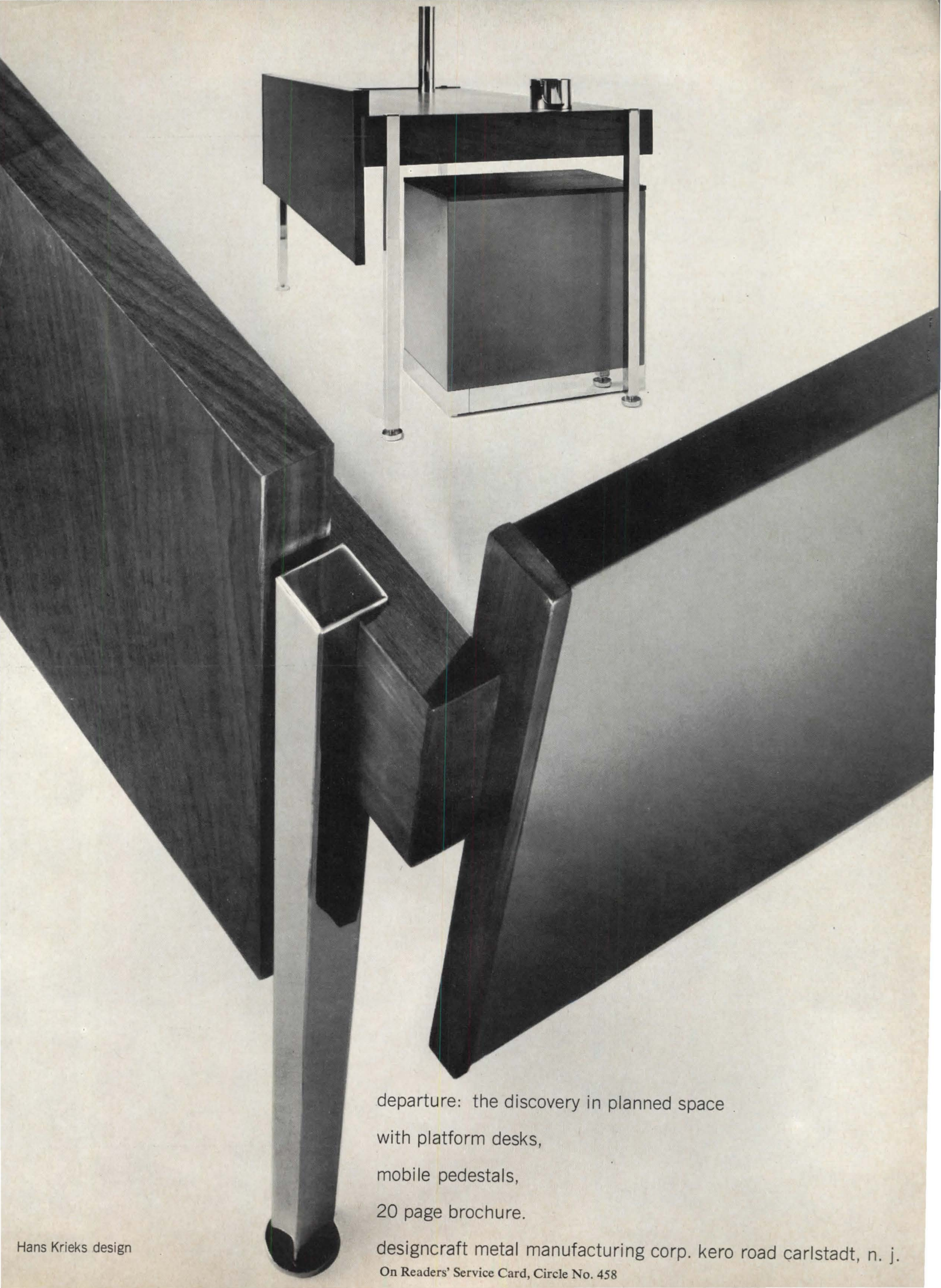

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Hans Krieks design

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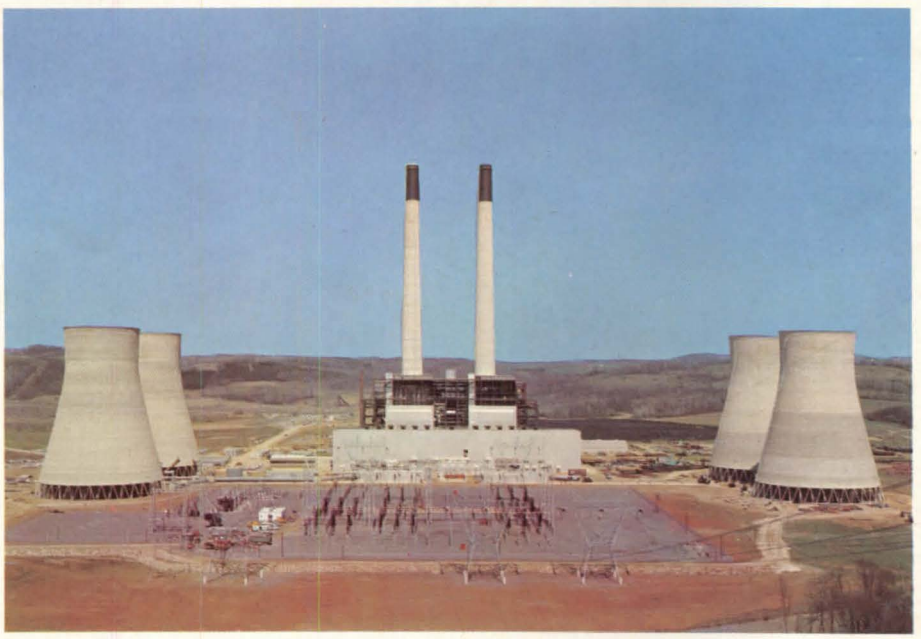
Architect and Engineer:
Gilbert Associates
Reading, Pa.

Fabricator:
E. G. Smith
New York, N. Y.



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It had to be Alcoa.

The new Keystone generating station, largest in North America, had to be aluminum by Alcoa. The very size of the plant is staggering: Over 340,000 sq ft of Alcoa® Industrial Siding sheathe the main building; stacks reach 800 ft into the sky; four cooling towers are higher than a football field is long (wider, too); and there's a boiler structure the size of a major music hall. The 1.8-million-kilowatt plant is so large, in fact, that it was located at the mouth of a coal mine—from which it will yearly draw 5.5 million tons of coal when fully operational.

Keystone is a good example of Alcoa's *total capability* in aluminum. Alcoa worked with the architect and fabricator to determine siding panel sizes, workable weights and the proper alloy. Then it backed up the selection of alloy with needed, in-depth technical assistance and research facilities. Alcoa provided detailed, specific information on the chosen alloy and its service characteristics.

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ALCOA

PYRESOTE® provides a roof to satisfy the neighbors and the State Fire Marshal

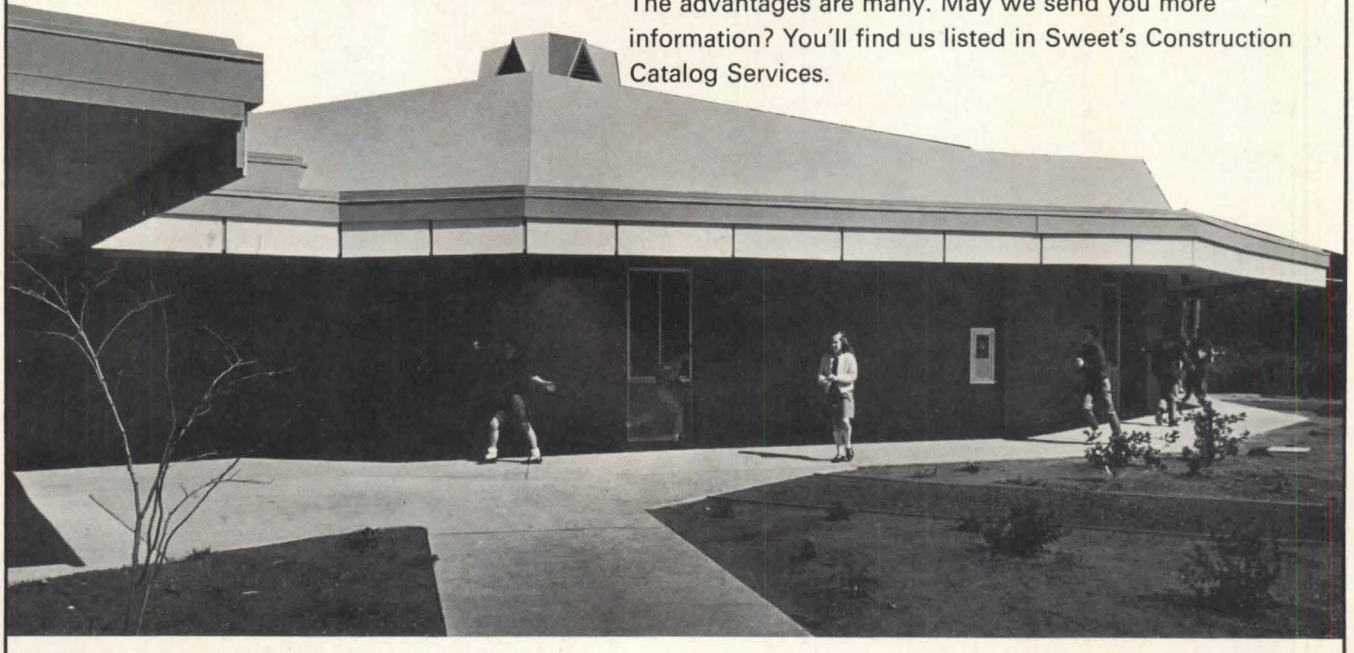
Two criteria guided San Francisco architects Corlett and Spackman in designing a roof for their multi-use classroom building of Wolfe Grade Elementary School, Kentfield, California: Make it maintenance-free, and also attractive to neighbors overlooking the site from their adjacent hillside homes.

An elastomeric roofing system, using ⅝" thick Douglas fir plywood sheathing, seemed to answer both the maintenance and aesthetic requirements for this 75-foot clear span "child scale" circular school building.

However, since California codes require all school and assembly buildings to have fire-retardant roof coverings (ASTM-E-108 "A" or "B"), and the elastomeric covering, alone, does not meet the requirements, project architect Peter H. Skaer specified that the plywood sheathing be pressure treated with fire-retardant Pyresote®—which met fire requirements for Class 'B' ASTM-E-108 roof assembly by test. And satisfied the State Fire Marshal.

Pyresote® is the registered trade name for fire-retardant treated lumber and plywood produced by J. H. Baxter and its licensees. Pyresoted® wood is almost universally recognized by U.S. building codes for use as plywood sheathing in roof assemblies—and as studs for partition walls in Types I & II buildings.

The advantages are many. May we send you more information? You'll find us listed in Sweet's Construction Catalog Services.



Architects: Corlett and Spackman, San Francisco, California
Project Architect: Peter H. Skaer
General Contractor: Royce Hall, Napa, California
Roofing Contractor: Jack Ostrander Roofing, El Sobrante, California

J. Baxter
1700 South El Camino Real
San Mateo, California 94402

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Pyro-Kure® Vapor Barriers Protect Insulation And Are Permanently Non-Combustible

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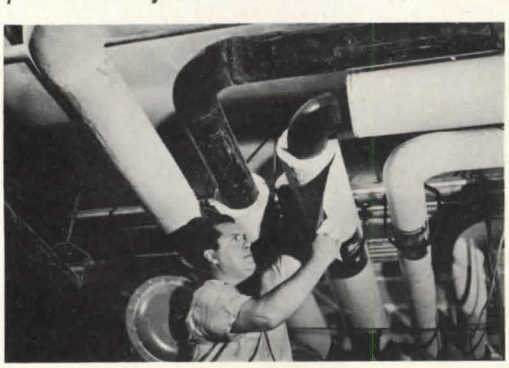

All leading insulation manufacturers offer Pyro-Kure-faced insulation under their own brand names. Also available in roll form for local facing. Write for samples and data on various grades. Contact Sisalkraft, 56 Starkey Avenue, Attleboro, Massachusetts.

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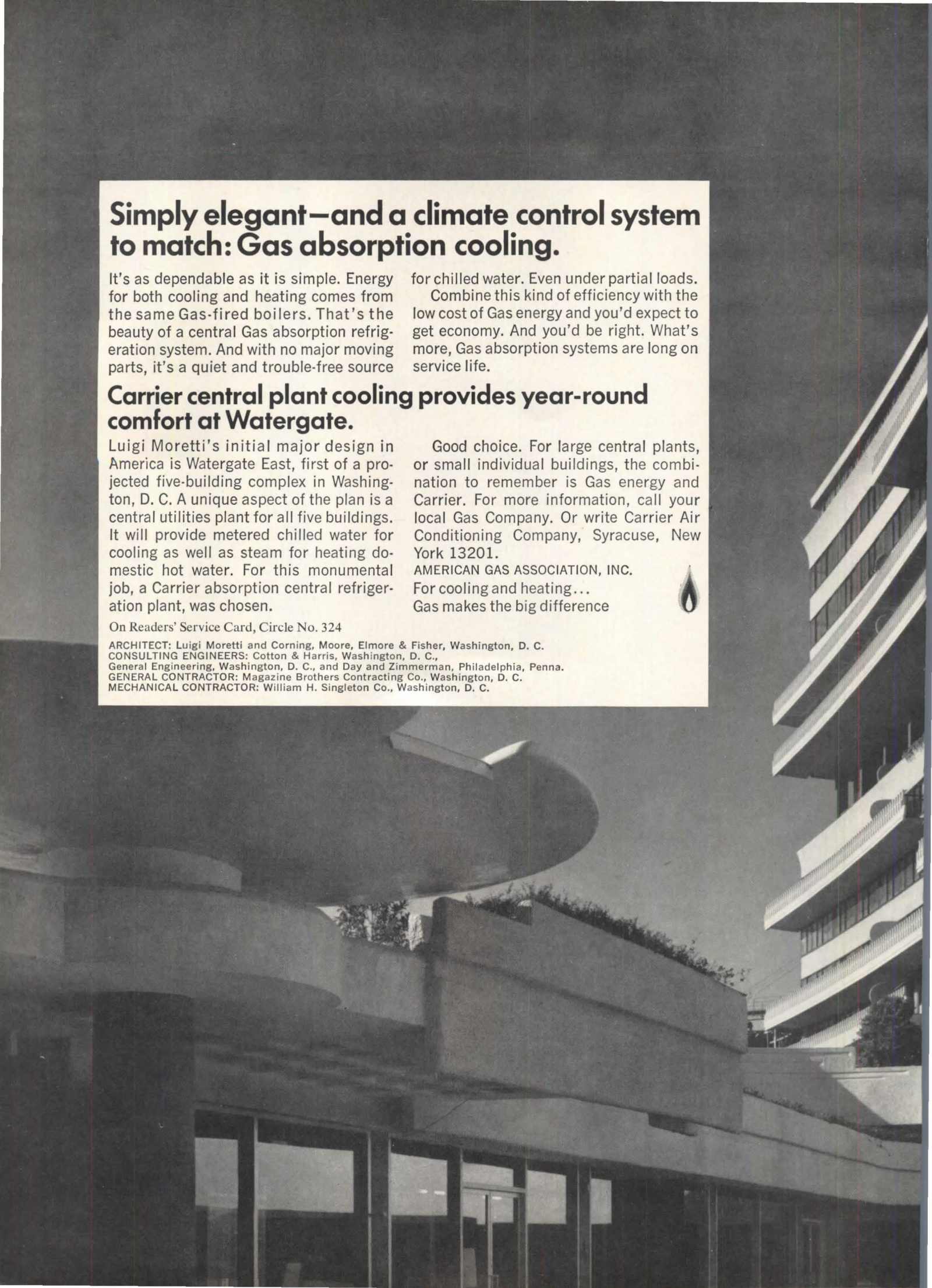

Simply elegant—and a climate control system to match: Gas absorption cooling.

It's as dependable as it is simple. Energy for both cooling and heating comes from the same Gas-fired boilers. That's the beauty of a central Gas absorption refrigeration system. And with no major moving parts, it's a quiet and trouble-free source for chilled water. Even under partial loads.

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Carrier central plant cooling provides year-round comfort at Watergate.

Luigi Moretti's initial major design in America is Watergate East, first of a projected five-building complex in Washington, D. C. A unique aspect of the plan is a central utilities plant for all five buildings. It will provide metered chilled water for cooling as well as steam for heating domestic hot water. For this monumental job, a Carrier absorption central refrigeration plant, was chosen.

Good choice. For large central plants, or small individual buildings, the combination to remember is Gas energy and Carrier. For more information, call your local Gas Company. Or write Carrier Air Conditioning Company, Syracuse, New York 13201.

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Gas makes the big difference

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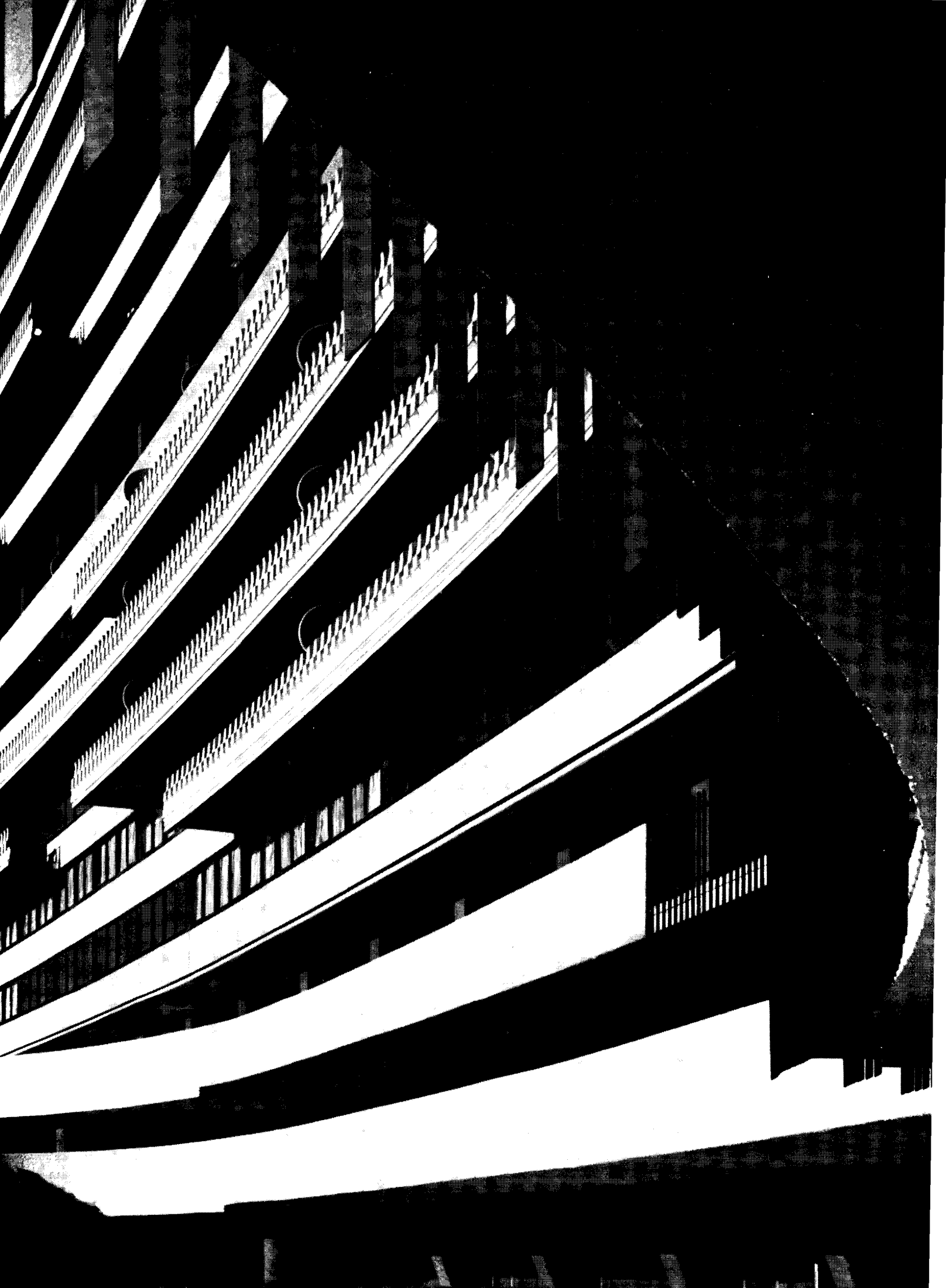
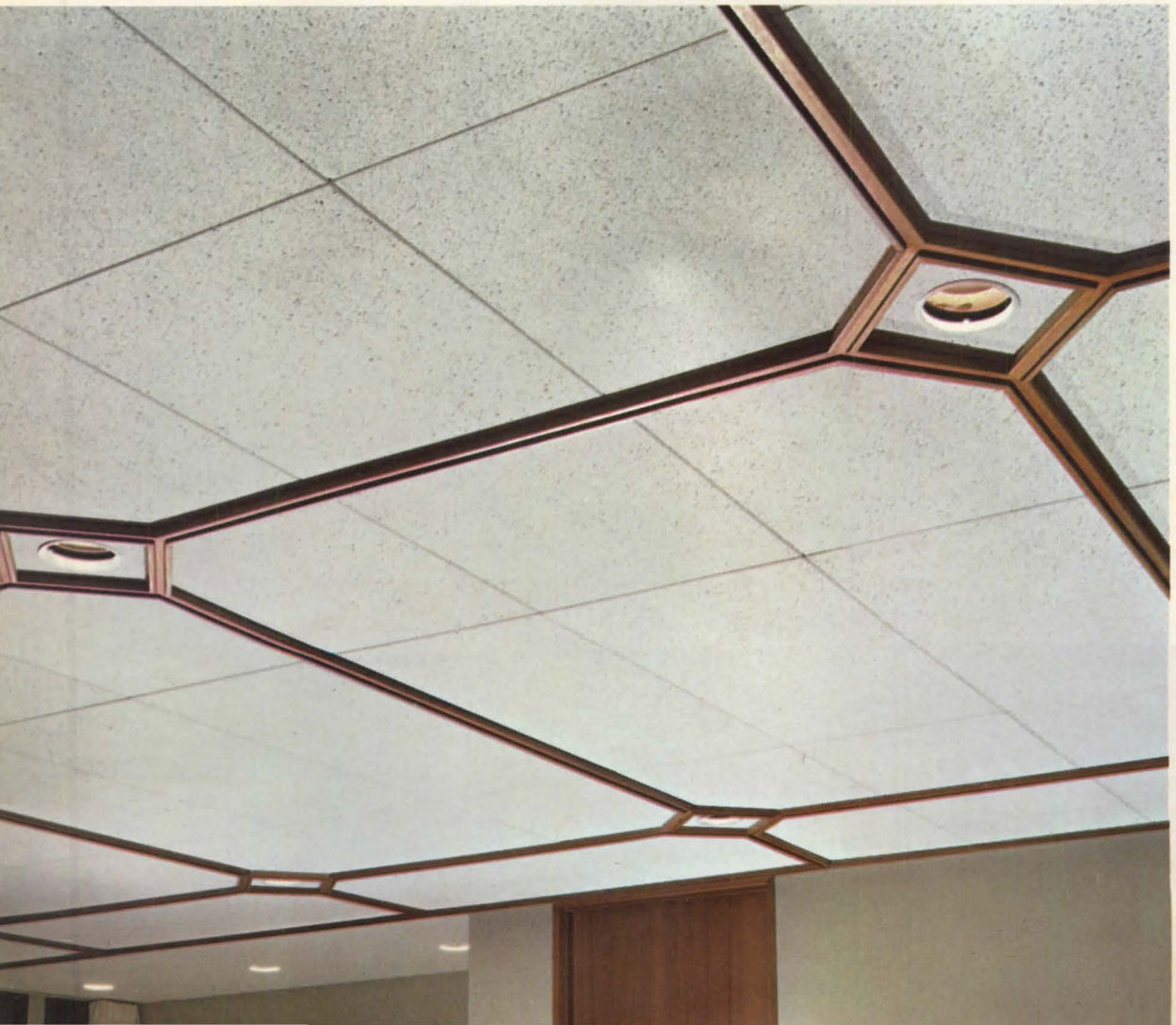
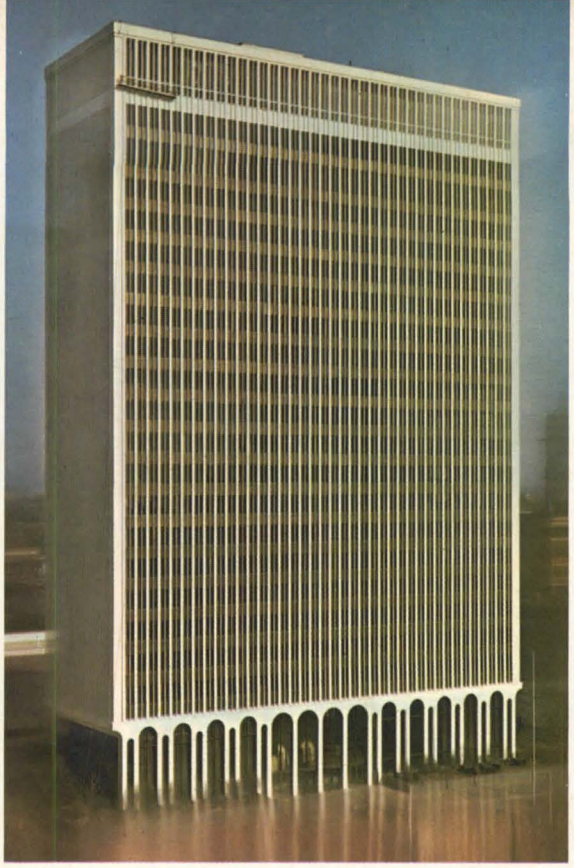
ARCHITECT: Luigi Moretti and Corning, Moore, Elmore & Fisher, Washington, D. C.
CONSULTING ENGINEERS: Cotton & Harris, Washington, D. C.,
General Engineering, Washington, D. C., and Day and Zimmerman, Philadelphia, Penna.
GENERAL CONTRACTOR: Magazine Brothers Contracting Co., Washington, D. C.
MECHANICAL CONTRACTOR: William H. Singleton Co., Washington, D. C.







Manufacturers and Traders Trust Company Bank Building,
One M & T Plaza, Buffalo, N. Y.
Architect: Minuro Yamasaki, Detroit, Michigan
General Contractor: John W. Cowper Company, Buffalo, N. Y.
Subcontractor: Buffalo Acoustical Corporation.

Can there be empathy between ceiling tile and unique architectural design?

This new bank building presents visual delights to the viewer through the delicate beauty of the facade. But step inside. The continuity of design manifests itself in every aspect of spatial control including the acoustical ceilings.

Gold Bond® Travacoustic in the fine-fissured "Abbey" style identifies itself with today's architectural design. The exclusive Travacoustic® production process was easily adapted to meet the architect's requirements for custom sizes. The effect is a blend of function and subtle texture in concert with the architectural theme.

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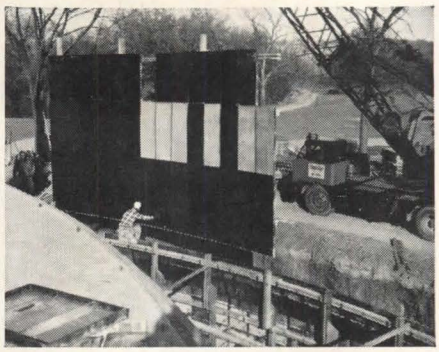
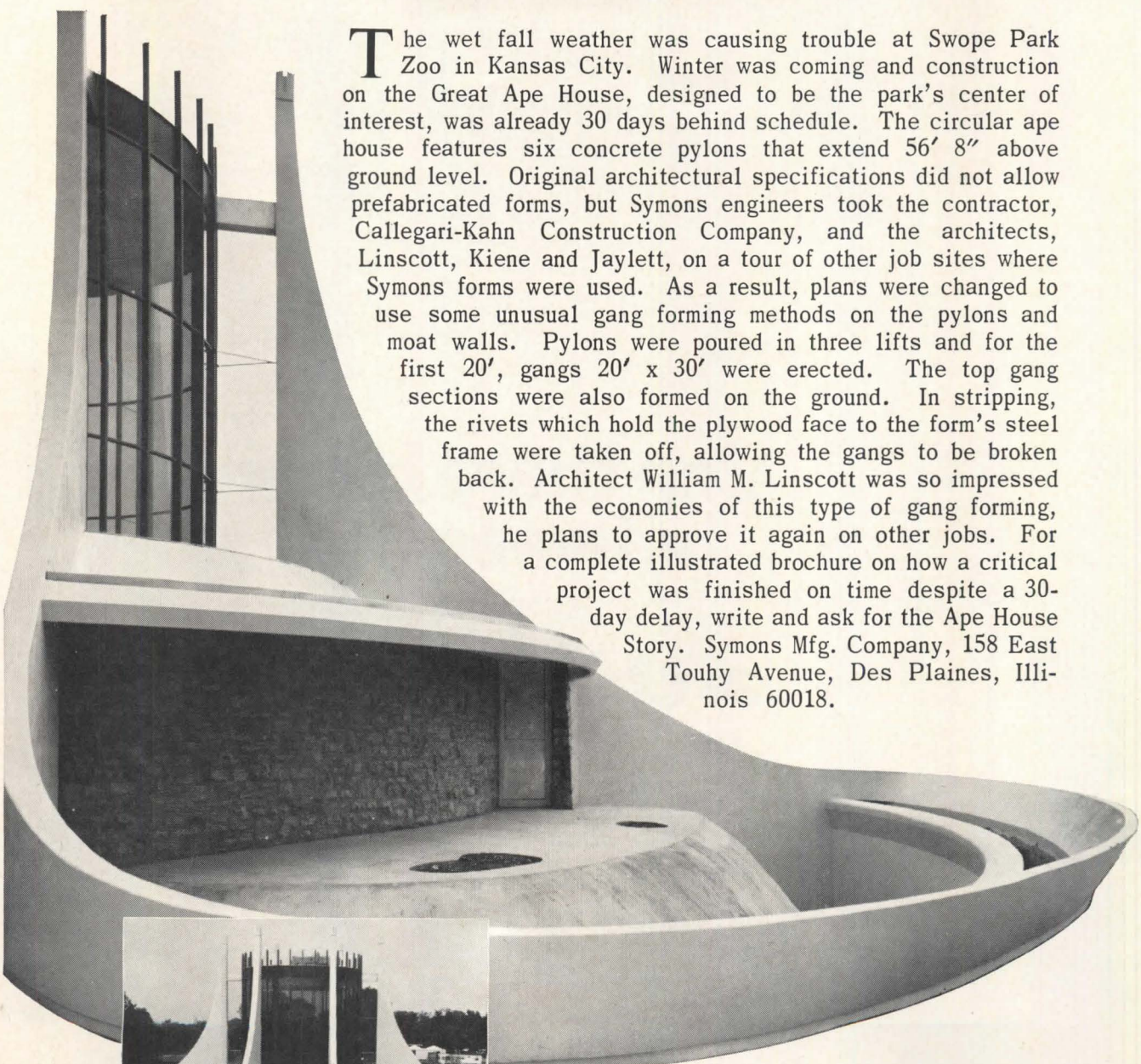


THE APES ON TIME

The wet fall weather was causing trouble at Swope Park Zoo in Kansas City. Winter was coming and construction on the Great Ape House, designed to be the park's center of interest, was already 30 days behind schedule. The circular ape house features six concrete pylons that extend 56′ 8″ above ground level. Original architectural specifications did not allow prefabricated forms, but Symons engineers took the contractor, Callegari-Kahn Construction Company, and the architects, Linscott, Kiene and Jaylett, on a tour of other job sites where Symons forms were used. As a result, plans were changed to use some unusual gang forming methods on the pylons and moat walls. Pylons were poured in three lifts and for the first 20′, gangs 20′ x 30′ were erected. The top gang sections were also formed on the ground. In stripping, the rivets which hold the plywood face to the form's steel frame were taken off, allowing the gangs to be broken back. Architect William M. Linscott was so impressed with the economies of this type of gang forming, he plans to approve it again on other jobs. For a complete illustrated brochure on how a critical project was finished on time despite a 30-day delay, write and ask for the Ape House Story. Symons Mfg. Company, 158 East Touhy Avenue, Des Plaines, Illinois 60018.



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A decade ago, PLEXIGLAS acrylic plastic was specified and installed as light diffusers in this luminous ceiling. The reasons: efficient light transmittance, light weight, safety, low maintenance, and the famous resistance of PLEXIGLAS to discoloration.

Today, PLEXIGLAS is providing the same superb service as the day the diffuser panels were installed. No loss of efficiency—proved economy—and, as shown in the recent photograph above, like-new whiteness after 10 years of exposure to fluorescent light.

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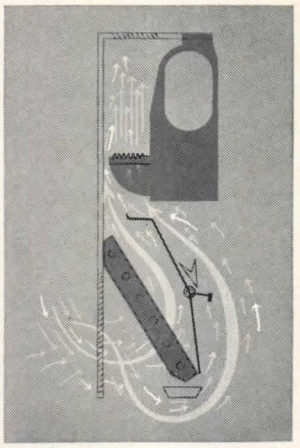
Carrier Bypass Weathermaster Units. Bypass Weathermaster® units automatically maintain room temperature dialed by occupant. Units come complete with control that improves performance, eliminates valve problems, and reduces installation cost.

Bypass damper provides varying coil capacity from zero up to 100 percent. In this cutaway, damper blade is half open. In actual operation, the damper assumes instantly the exact position required to proportion properly the amount of room air permitted to flow over the coil. If no change in capacity is required, the damper is held stationary. Water temperature and flow rate through the coil are constant. This eliminates water valves and throttling noises.



Attractive to look at! Without an "or equal" –the reason's inside!

The photo shows one of the many architecturally attractive arrangements made possible by these high-velocity induction units.

The diagram shows how these units use the reliable and extremely simple bypass principle to provide automatic response to changes in a room's temperature requirements.

Nobody else has perfected a high-velocity induction unit embodying this principle.

And we say "perfected" with evidence of this Weathermaster unit's performance. Since introduction in 1936, more than 600,000 Carrier terminals have been successfully installed in high-rise buildings from coast to coast.

What advantages have these units? Design flexibility . . . factory-installed and factory-calibrated controls . . . instantaneous response to room temperature change . . . smooth and silent action, no water-throttling noises . . . water-control valves completely eliminated.

Besides being available with the automatic bypass control described here, these units come with a manual bypass or with water modulating capacity control. Models may be furred-in or installed in cabinets. Cabinets and accessory components offered in 7 decorator colors. All models ARI certified.

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New artistry in concrete

Achievements in concrete: a report by MASTER BUILDERS

New artistry in concrete

A common material spawns an uncommon breed of building for better living in the twentieth century.

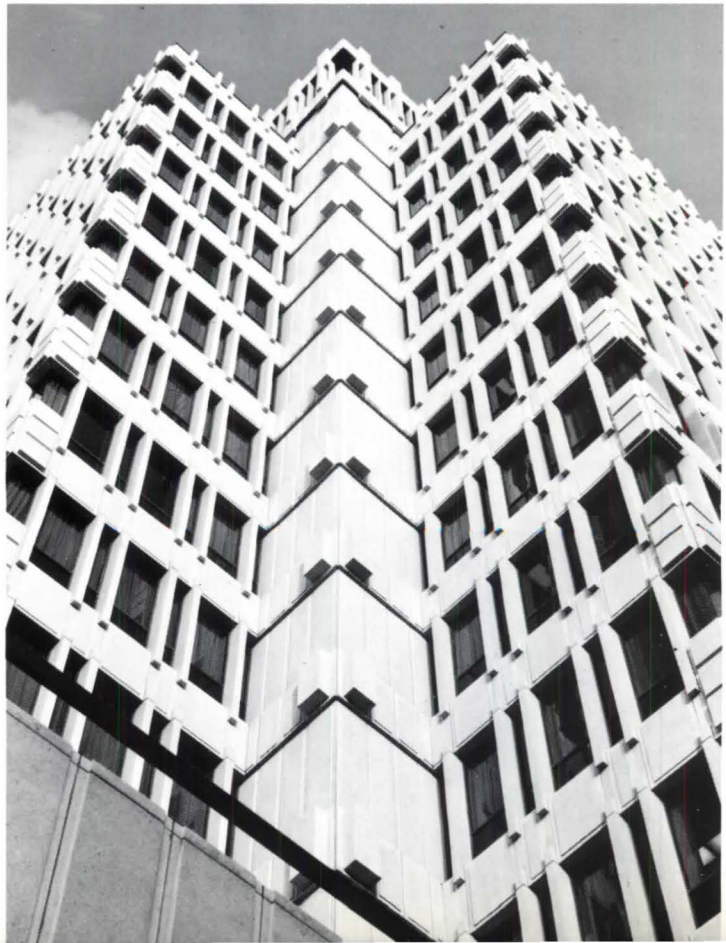
Long ago, concrete proved its integrity as a structural material.

And as men learned to control its behavior, concrete assumed even more stature in architecture. It became an exciting medium of expression with a character and personality all its own.

Architects who sought its strength discovered a latent advantage: *its versatility.*

Here was a material which could be compounded to a specification; a material inherently capable of being placed, pumped, molded, and textured.

World of Darkness Building, Bronx Zoo. Black granite chip facing over insulated precast concrete panels produces natural setting for viewing night animals. Architect: Morris Ketchum, Jr. and Associates. Structural Engineer: Ames & Selnick. General Contractor: Trans-Urban Construction Co.



Bank of Canada, Vancouver. More than 7,200 panels of precast concrete with granite aggregate create a distinctive landmark. Architect: Thompson Berwick Pratt & Partners. Consulting Architect: R. V. Chadwick & G. Bennett Pope. General Contractor: Foundation Company of Canada Ltd.

Master Builders' *Pozzolith* was used to improve concrete performance in all structures on these pages.

But concrete's versatility was enlarged when Master Builders introduced *Pozzolith*. The world's first water-reducing, set-controlling admixture has triggered a quiet revolution in design; stimulated a new artistry in concrete.

Specifically, *Pozzolith* has improved workability, placeability, and cohesion; permitted early strength development; reduced permeability and cracking; and facilitated new techniques in finishing. Perhaps most important, *Pozzolith* has made concrete predictable.

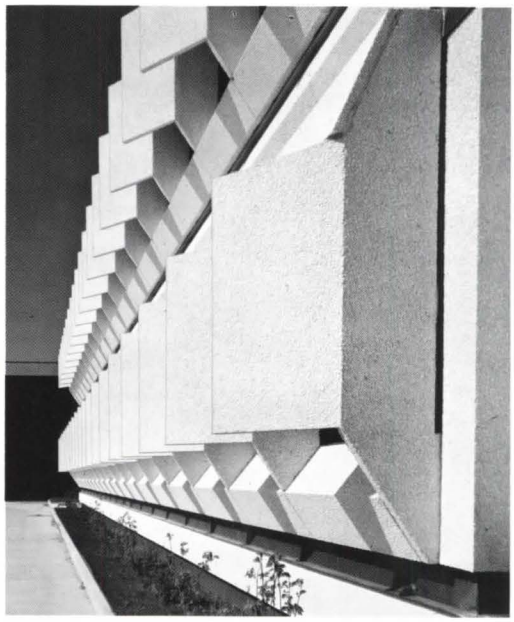
The buildings pictured on these pages are typical of the new artistry in concrete.

Here is dramatic detail, exciting geometry, clean line, bold angle, fluid span. Here is creative freedom in architecture faithfully translated into functional structure.

Pozzolith concrete—precast, pre-stressed, cast in place—has played a significant role in the exciting realization of each of these buildings. Master Builders is proud to have been of service.

continued...

Provident Federal Savings & Loan Building, Redlands, California. Walls comprised of eight tilt-up concrete panels and a folded-plate roof of thin-shell concrete won an award for "creative use of concrete." Designer: Clinton Marr. Structural Engineer: Johnson & Nielsen. General Contractor: Forsberg and Gregory.



Manitoba Liquor Control Office, Winnipeg. Precast sunshade panels, only 2-½ inches thick, cast dramatic shadows. All cast-in-place, precast and prestressed concrete was made with *Pozzolith*. Architect: Smith Carter Searle Associates. General Contractor: Trident Construction Ltd.

Professional Arts Center, Miami. Design motif is a concrete bas-relief sixty feet high. Two hundred concrete panels were cast in molds of plastic foam to create the "sculpture." Architect: Herbert H. Johnson and Associates. Sculptor: Albert S. Vrana. General Contractor: Burk Builders, Inc.

(For detail, see cover)

Artistry in concrete tomorrow

The creative architect is impatient for progress. His pursuit of structural efficiency, economy, and aesthetics will put new demands on tomorrow's concrete.

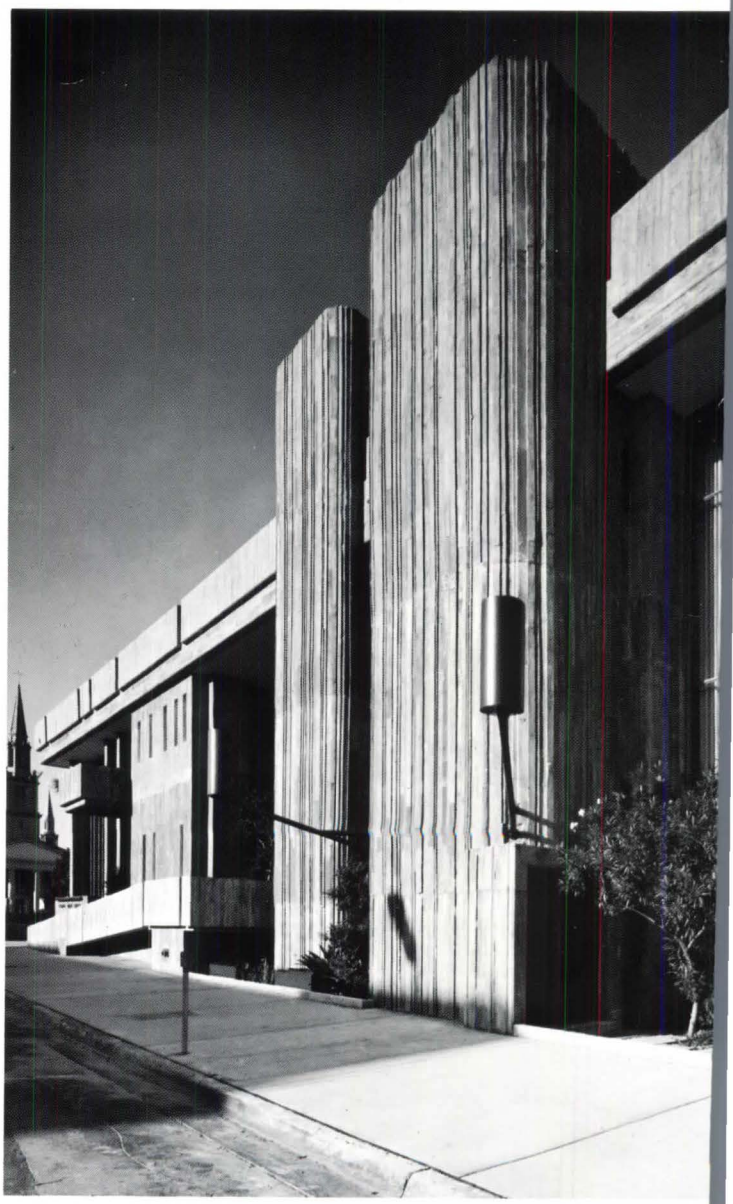
Pozzolith will meet tomorrow's challenge.

Master Builders is dedicated to improvement in concrete technology, totally committed to better products and helpful field service.

A Master Builders field man can provide technical information and reference material on *Pozzolith*.

Federal Complex, Austin Texas. Bush-hammered surfaces, molded perimeter columns, and textured "trees" demonstrate the detailing versatility of concrete. Architects and Engineers: Page-Southerland-Page in association with Brooks, Barr, Graeber and White. General Contractor: Warrior Construction Co.

Orlando Public Library. Florida. Form-board striations complement the vertical lines and create an illusion of weathered aging. *Pozzolith* maintained proper workability in the pumped concrete. Architect: John M. Johansen. Engineer: Milo Ketchum. General Contractor: H. L. Coble Construction Co.



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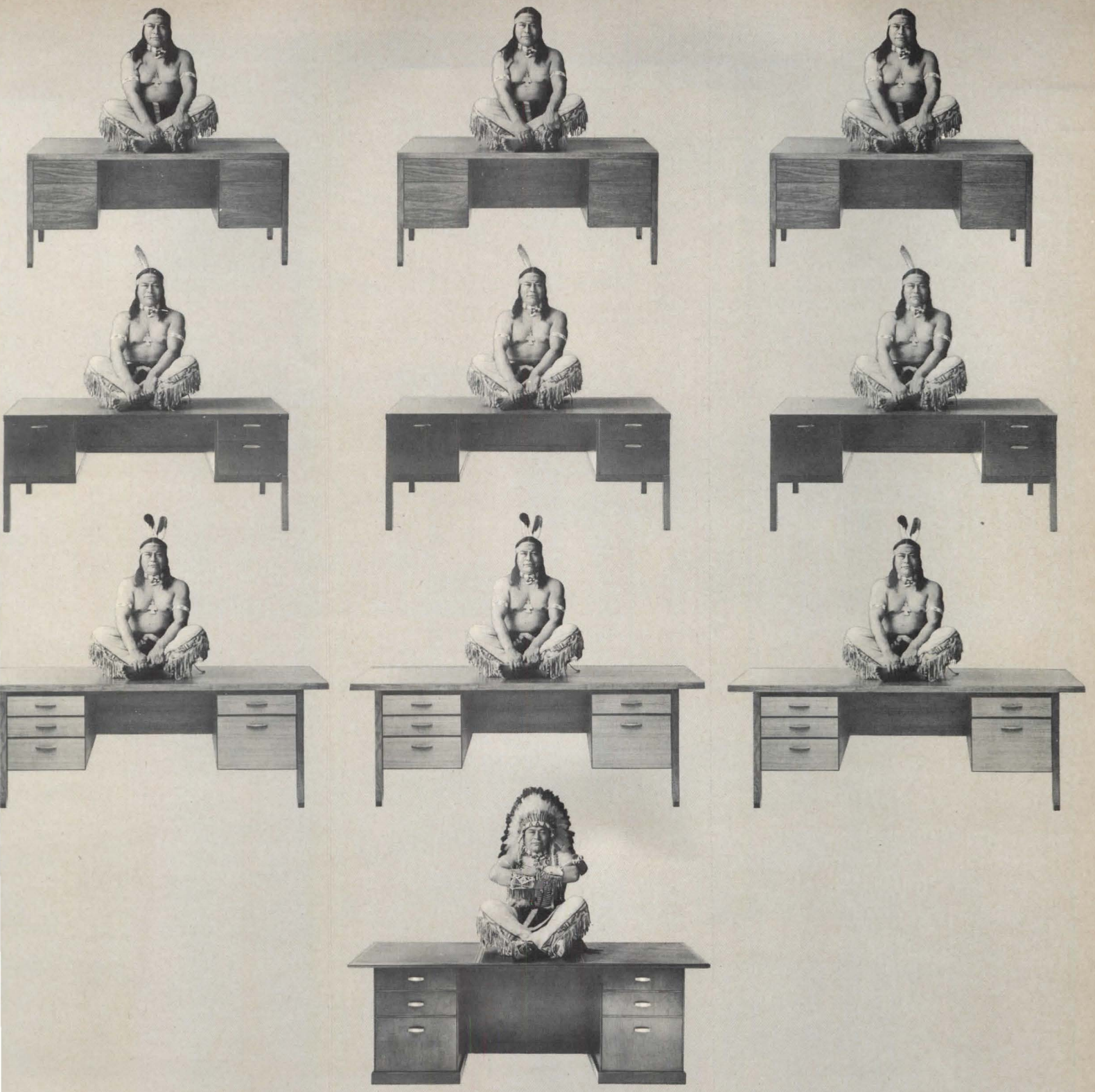

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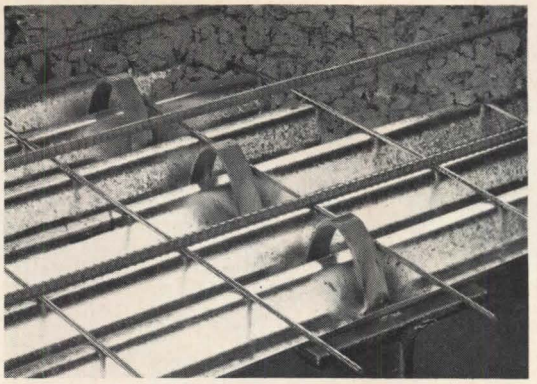

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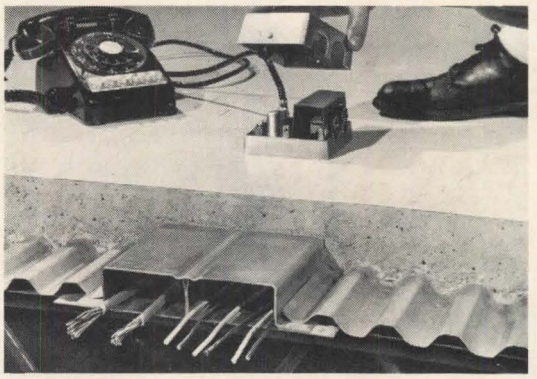
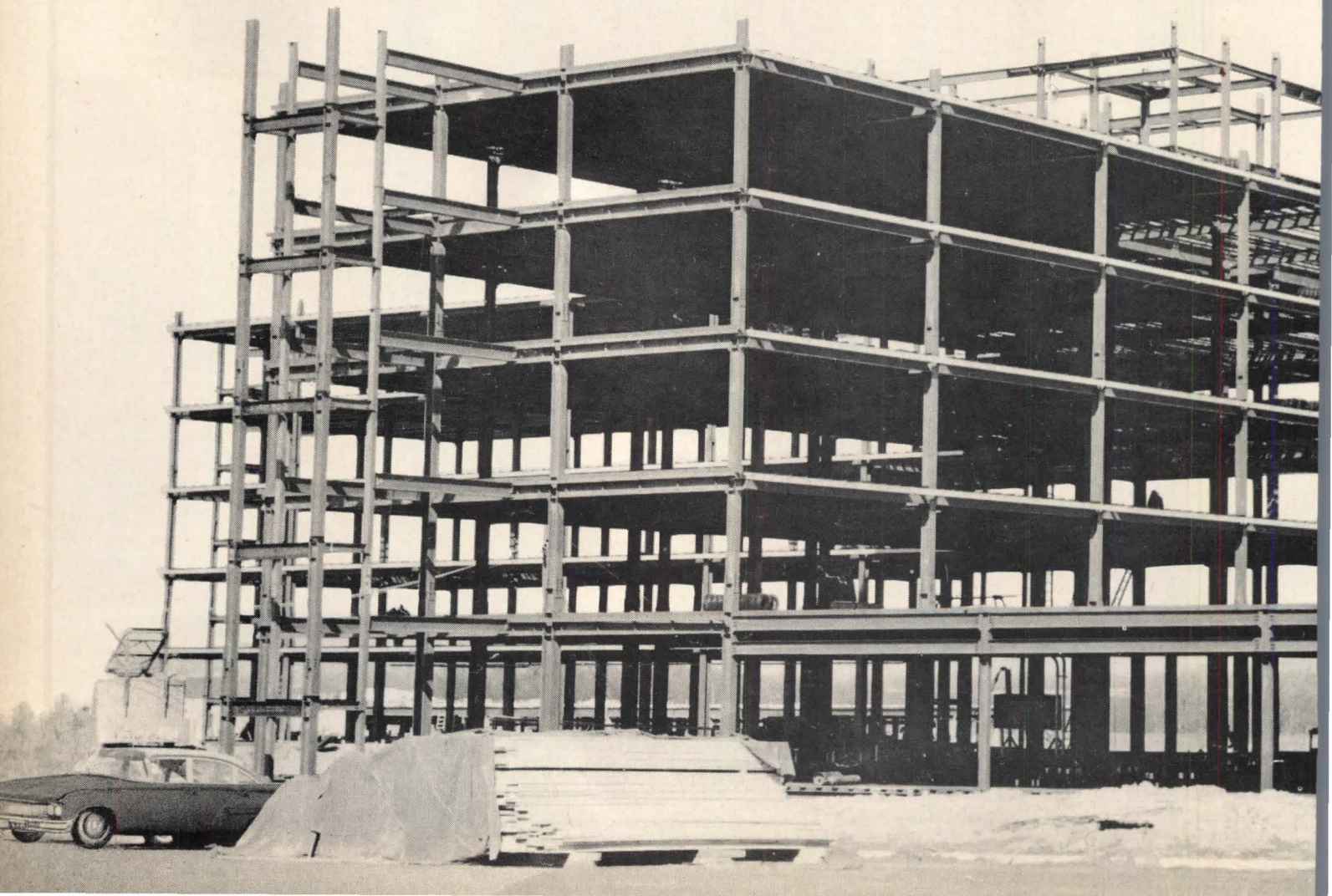


CEL-WAY®—for electrified structural slabs that carry telephone, electric, and even signal service to any location. A-E FLOOR—combines air and electrical distribution in one compact floor system.



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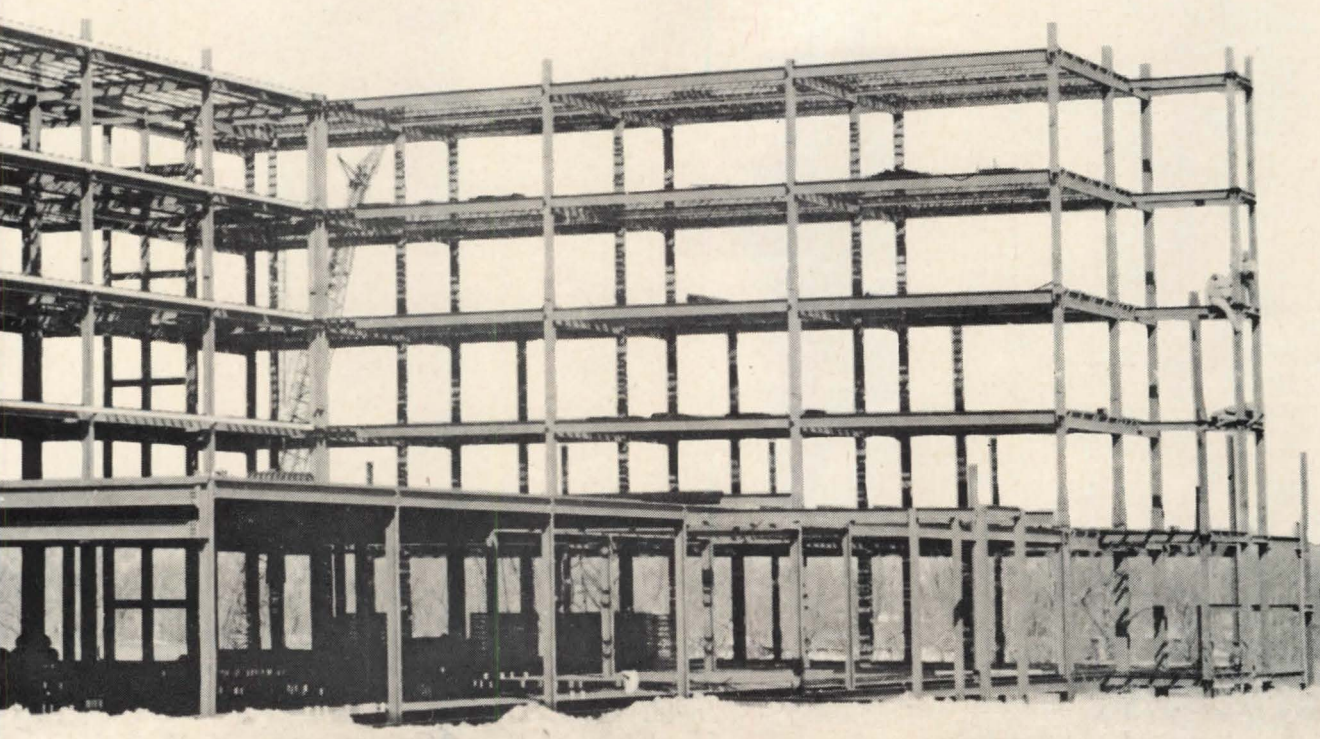
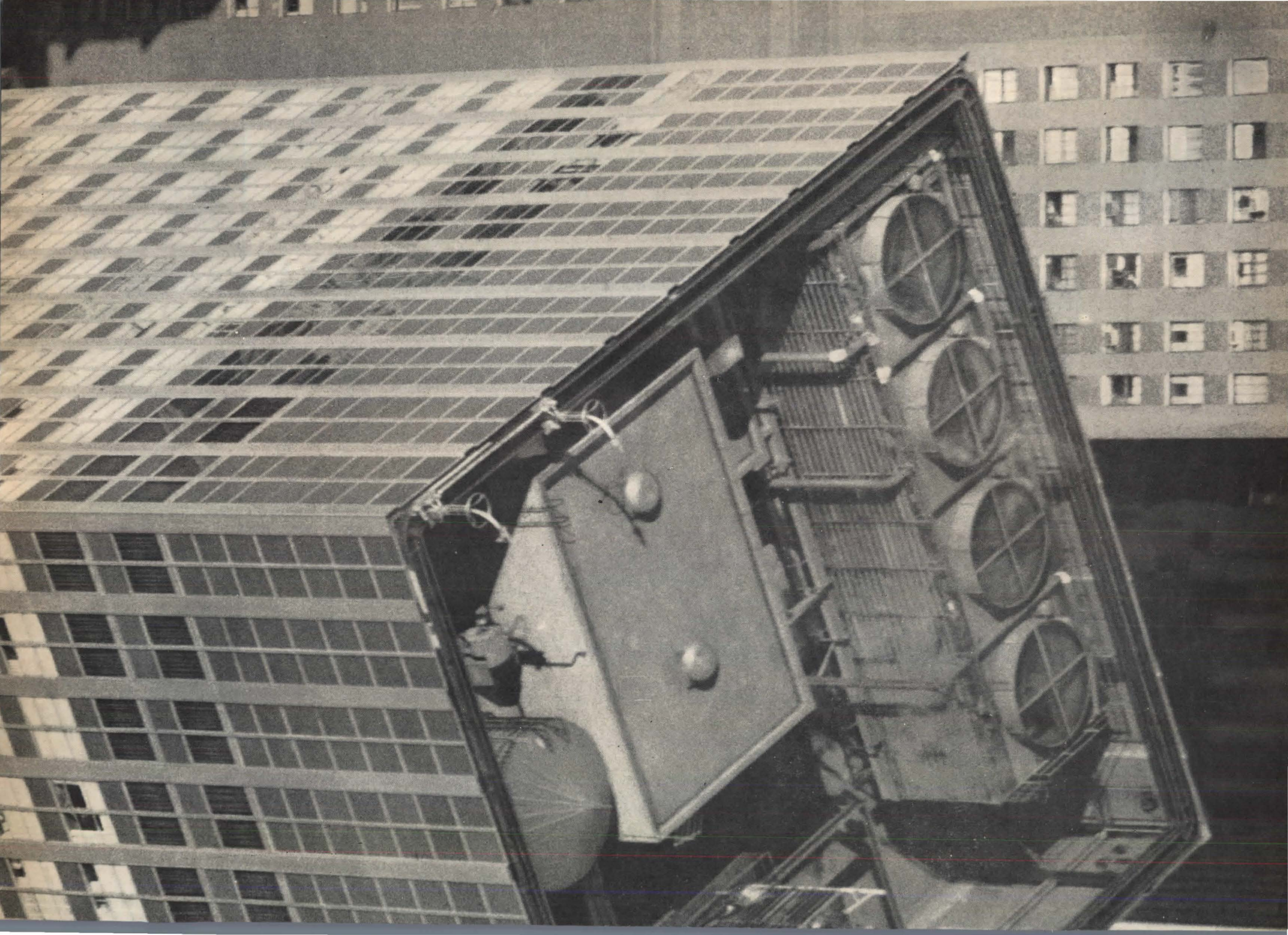
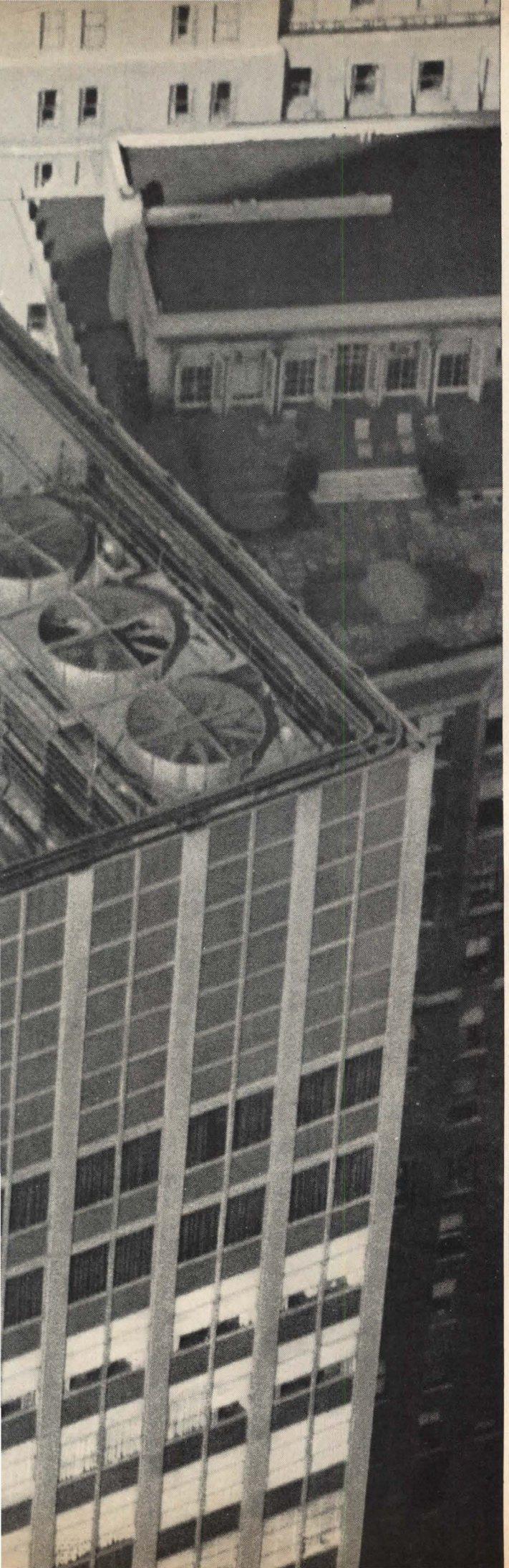
Steel

IMAGINATION IN STEEL







A four-pipe system
isn't always the answer.

There could have been a profitable pool or penthouse on this roof.

And a garage instead of a boiler in the basement.

If only someone had specified a General Electric Zonal System.

GE Zoneline units could heat and cool the outside rooms.

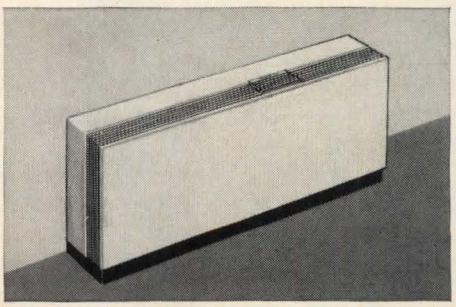
GE unitary units could heat and cool the inside, public rooms.

No rooftop cooling towers. No basement boilers. A significant increase in usable, rentable space.

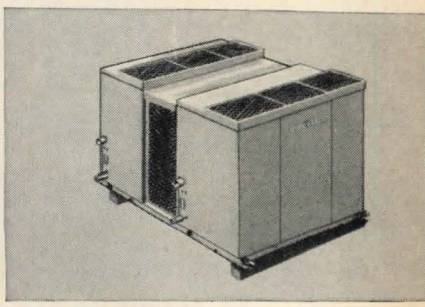
Other advantages over four-pipe systems:

- Big first-cost savings.
- Lower maintenance costs.
- Lower heating/cooling costs in unoccupied rooms.
- A breakdown doesn't affect the entire system.

From motels to high-rise construction, a General Electric Zonal System can save you space and money. For full specs, call your General Electric representative. Or write AP6-208, General Electric Company, Louisville, Kentucky 40225.



GE Zoneline heating/cooling unit. Room-by-room control. Choice of grilles. Fits over doors or under window seats. Through-the-wall or floor-mounted consoles.



GE Unitary systems—A full line from 2-20 tons, split, self-contained, with various heating means including GE famous Hi-Reliability Weathertron® heat pumps.

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GENERAL ELECTRIC

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UNIVERSITY LUTHERAN CHURCH, Lawrence, Kansas. Architect: UEL C. RAMEY, AIA of Uel C. Ramey & Jack R. Jones, Architects, Wichita; Structural Engineers: HARTWELL-BAXTER & ASSOCIATES, Wichita; General Contractor: LAWRENCE CONSTRUCTION CO., INC., Lawrence; Ready-Mixed Concrete; LAWRENCE READY MIX, INC., Lawrence; Lightweight Aggregate: BUILDEX, INC., Ottawa, Kansas

Concrete's Beauty Exposed

Monolithic Church Wins A.I.A. Architectural Design Award

Inside walls are also exposed concrete. 1 x 6 board forms were used, and the concrete surface was left unfinished.

This boldly designed structure evolved from a basic conviction: that a church building should reflect architecturally the heritage and beliefs of the faith it represents. It is one of five structures honored by the American Institute of Architect's Kansas Chapter in its 1965-66 design awards program.

The open tower with rounded roof reminds worshippers of their ancient heritage. The exposed, unfinished concrete underlines the simplicity and strength of their faith. Form marks and ties were left showing, and tie holes were not filled. Says the architect, "We are rapidly developing a culture in which the substitute, the artificial, is more desirable than the real thing. In this building concrete is concrete."

The church is adjacent to the University of Kansas and serves the fast-growing community of students and faculty. Dependable Lone Star Portland Cement was used exclusively in its construction. Lone Star Cement Corporation, 100 Park Avenue, New York, N.Y. 10017.

VICRTEX covers the walls at MacArthur Airport

...because there's no equal

Architects Dobiecki, Beattie and Colyer knew what they wanted for the handsome interiors of the Passenger Terminal at MacArthur Airport at Islip, Long Island, New York.

They wanted the lustrous color, warm texture, the durability and easy maintenance of Vicrtex V.E.F. Vinyl Wallcovering. They chose Vicrtex Montage — and they made sure they got it!

They knew that no "or equal" substitute could come close. So they specified Vicrtex Montage — and deleted that perilous "or equal" clause from the contract.

When you know enough about Vinyl Wallcoverings to specify Vicrtex — you'll want to do the same.

We have some very convincing swatches and specifications brochures. We'd like to hear from you.

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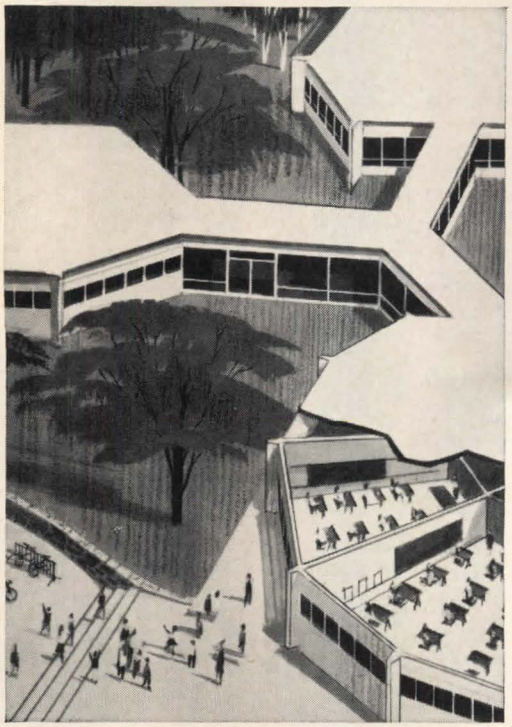
Only all-electric you all these

FLEXIBILITY OF DESIGN



The design simplicity of electric heating and cooling components permits you to design with far greater freedom and flexibility. And since no bulky furnaces or complex distribution systems are required, you can solve problems of office and room design with far greater latitude.

Witness the oval layout of the Pine Hill Elementary School, Pine Hill, N.J. Surrounding a central library and multi-purpose room are classrooms varying in shape and size. And rooms will be added as needed—in satellite clusters.

LOWER CONSTRUCTION COSTS

The most modern, efficient heating/cooling system you can specify can actually be the least expensive for your client to install. With an electric system, you can eliminate costly boilers, stacks, trenching and steam piping. Not to mention fuel storage and boiler *rooms*. (The boiler is replaced by a compact control cabinet, like the one seen above.) You would also eliminate attendant high installation costs.

How substantially can construction costs be reduced? By going All-Electric, the designers of the 60,700 sq. ft. Hampshire High School, Romney, W. Va., for example, lowered construction costs by $62,900. A saving much appreciated by the local school board.

HEAT RECOVERY

The principle of recovering heat from high-intensity lighting permits such impressive economies, that it seems sure to dominate the future of space conditioning. By deploying the recovered heat to the cooler parts of a building, or storing it for later use, the architect can effect extraordinary operating efficiency.

Example? The new All-Electric 94,500 sq. ft. engineering and administration building of Electronic Associates, Inc., Long Branch, N.J. So efficient is this building's heat-by-light system that during milder parts of the heating season it provides enough extra heat to carry other EAI buildings.

design can offer major benefits

EASIER EXPANSION

Why is it much easier to expand an All-Electric building? Because you can forget about boilers and boiler capacity problems. And there's no need for concern about boiler rooms, fuel storage or stacks. Instead, expansion is accomplished with wiring and a compact control cabinet.

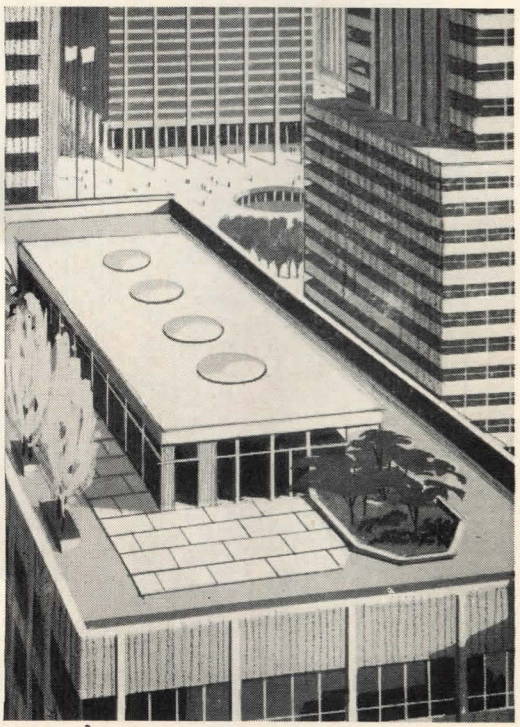
Example? Central High School, Olympia Fields, Ill., expanded from 103,500 sq. ft. to 159,685 sq. ft. at an estimated saving of $38,610.

ROOM-BY-ROOM TEMPERATURE CONTROL

In many buildings, individual room temperature control is a must. Nursing homes require it for critical health reasons. Motels want it for economy. And it is also fast becoming standard in other buildings in which occupancy and activities vary daily from room to room; e.g. schools, churches and hospitals.

Only All-Electric design permits room temperatures to be controlled directly, either by occupants inside their rooms or by management from a remote central location... or both.

EXTRA RENTABLE SPACE



A penthouse serves best as a source of revenue—not as a storeroom for boilers, cooling equipment and fuel. That's one reason why the builders of the $3 million People's Savings Bank Building in Bridgeport, Conn., chose All-Electric design.

By specifying through-the-wall electric heating/cooling units, they freed 4,800 sq. ft. of penthouse space for extra owner income. The added return on capital? $15,000 per year.

Shouldn't you incorporate these All-Electric benefits into your next project? For more facts, call your electric utility company.

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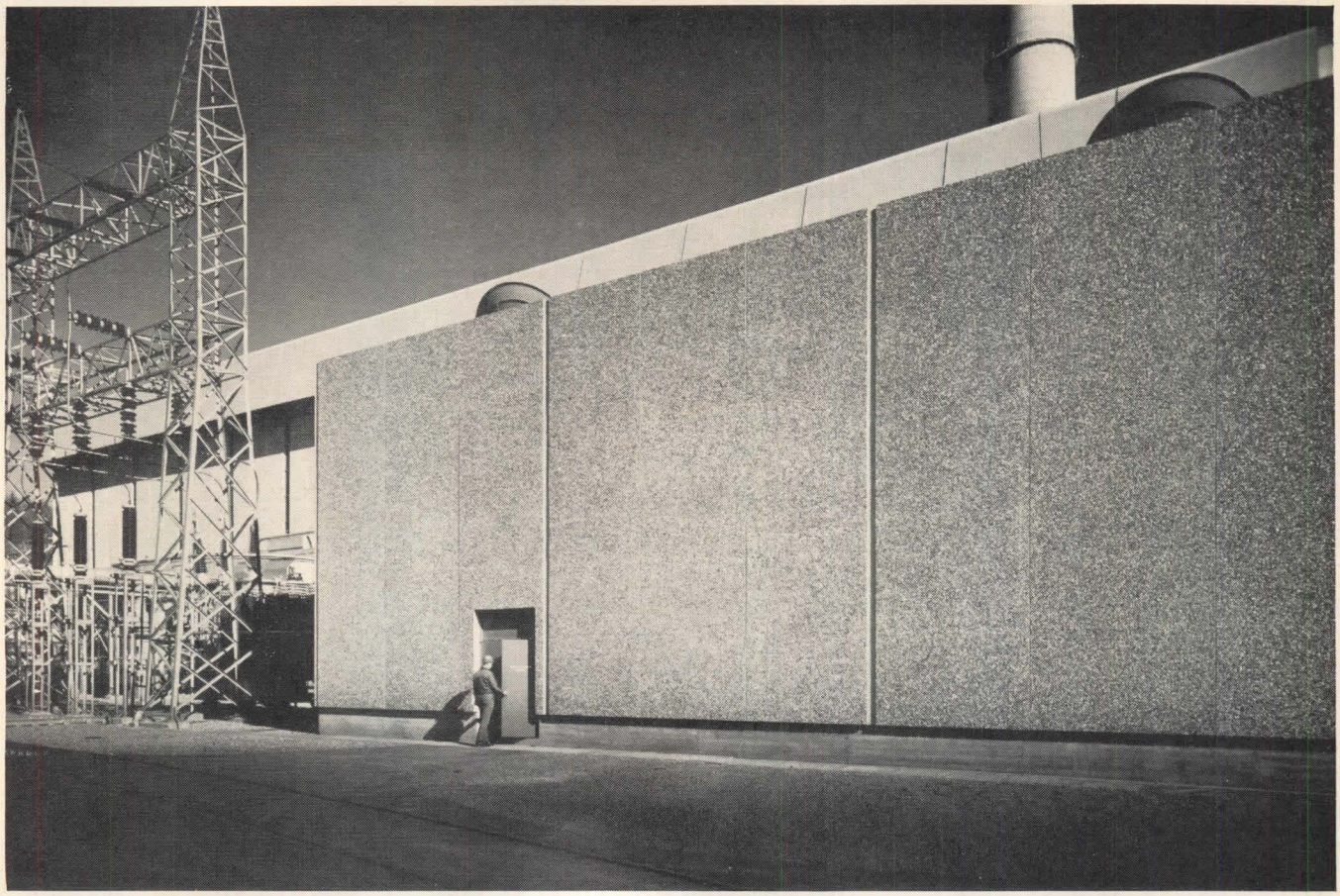
TVA BULL RUN STEAM PLANT, OAK RIDGE, TENN. DESIGN AND CONSTRUCTION: TVA'S STAFF. PRECAST CONCRETE: SOUTHERN CAST STONE COMPANY, INC., KNOXVILLE, TENN.



PROBLEM:

Build a huge
steam generating plant
in a beautiful valley...and
keep the valley beautiful.

SOLUTION:

Use materials that blend.
Like precast white concrete panels
with exposed river stone aggregate.

You can't build the world's largest anything in a rural setting and make it look like a grove of oaks. But you can, with care and skill, make your structure a part of its site—not an imposition on it.

Precast white concrete panels with natural river stone aggregates were chosen for much of the exterior and interior of the TVA Bull Run Steam Plant. From any point of view; economical, aesthetic, practical—it's a highly successful choice that recommends itself to buildings of all types.

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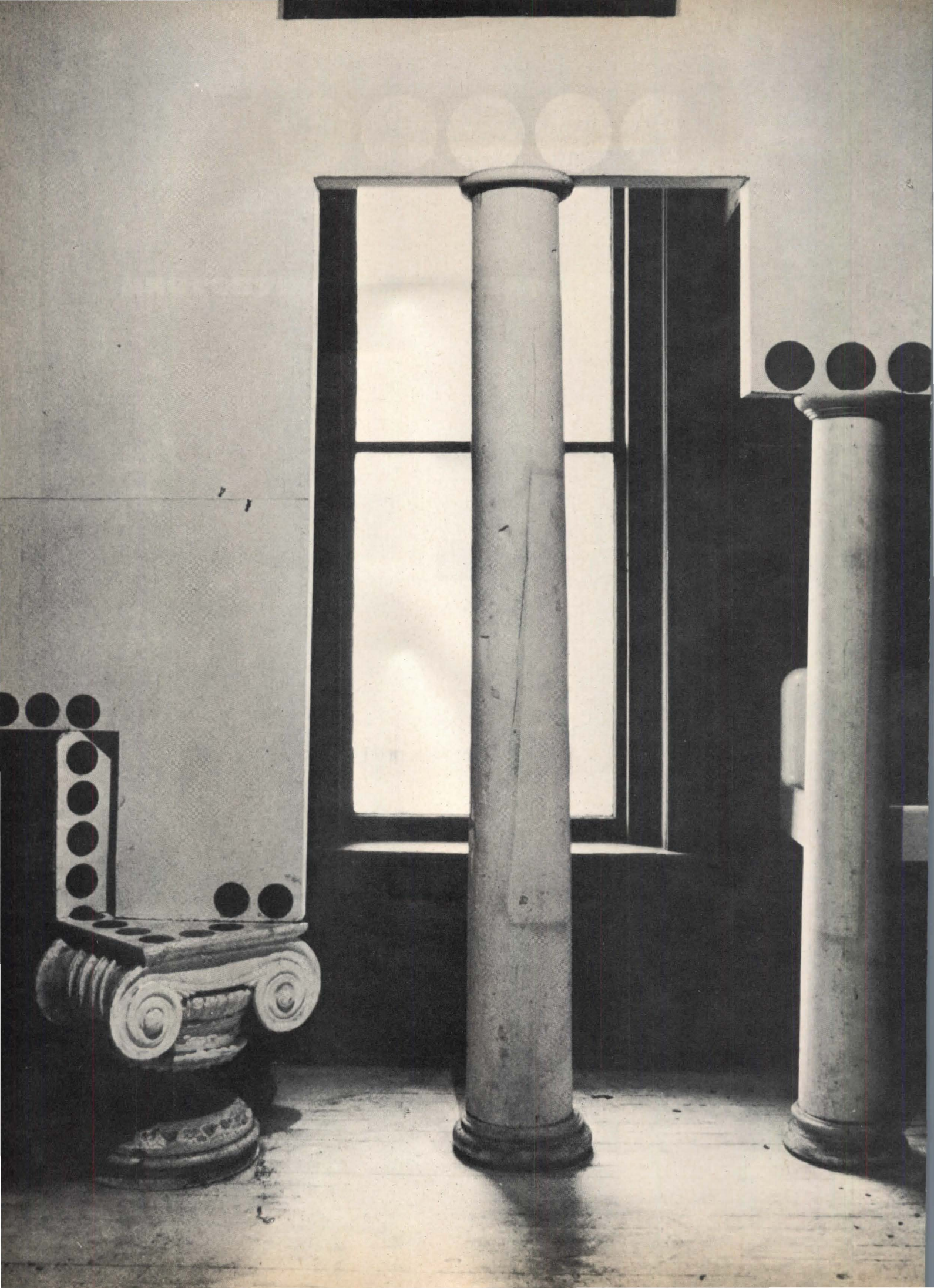
"Architects seem ready to accept an ungodly amount of variation in natural stone. But they seem to forget that concrete is made up of this material. When it is cast, they expect it to be transformed."

A CONCRETE FABRICATOR



EDITORIAL

Controls are fetters that restrain personal action. The penalty for not living alone is the shackling of individual behavior. Except for a lonely hunter in the bush or jungle, we are subjected to various controls, which, with the growing complexity and congestion of society, become more numerous and more elaborate.

That anti-social behavior must be curtailed is obvious. What is less obvious is what constitutes anti-social behavior.

When the question of life and health is approached in somatic terms, the controls become relatively simple and non-controversial. Everybody agrees one should drive on one side of the street in order to reduce automotive slaughter. Everybody agrees buildings should have adequate fire exits. Almost everybody agrees habit-forming drugs should not be sold over the counter. Whenever danger to life or health is obvious and quantifiable analysis of risk can be made, society accepts controls without much opposition.

But when more murky areas enter the picture — such as, say, morals or mental health — controls immediately become subjects of heated controversies. The eternal strife about rules affecting pornography, for instance, is a good example of one non-quantifiable, and hence constantly arguable, type of social control.

In environmental regulations, the situation is similar.

Except for public relations writers working for coal mining and electric power companies, everybody agrees that air pollution should be quickly eliminated. Since most air pollutants are not only dangerous (which can be proved easily) but also smell bad (which is not disputed), regulations for getting rid of them have popular support.

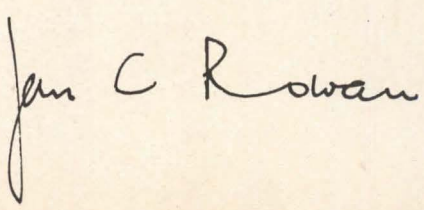
In the case of noise pollution, however, controls become more complex. Few would argue that noise that is damaging to hearing should be banned. But how about noise that is merely a "nuisance"? If you quiet cities to a bucolic level, will all the life seep out of them? If you ban firecrackers on the Fourth of July, will this Republic still be the same? Sound evokes an emotional response that is different in different people — and even different for the same person at different times. Beyond the realm of auditory medicine lies a vast area of auditory man.

Visual pollution is even less subject to medical scrutiny. In the visual world, *life* is emotional and not physical, *health* is mental and not somatic. Hence any aesthetic control invades an area strewn with quagmires — the area of social mores.

Which is why I question the unqualified enthusiasm of our esteemed legal contributors, who, in last month's "It's the Law" column state: "The acceptance by the courts of aesthetic objectives as a valid legal basis for . . . prohibition of acts that offend the social or cultural patterns of the community should be particularly welcome by the design professional. . . ."

In a dynamic society, social and cultural patterns are not static. The designer's role, as often as not, is to create a new pattern for a new civilization. Not all designers are afflicted by the Lady Bird Blake syndrome. Not all designers believe in petrification of aesthetic concepts by statutory regulations or appointive censorship bodies. The head of the School of Architecture at Yale University, whose recent New Haven office is illustrated on the facing page, purposely violates in his design all *existing* patterns of professional and business decorum. Does this mean that he should be banished to another land? One can easily build up a case for the separation of church and state in the highly personal world of enivronmental imagery.

Tempting as it is for architects to wish for aesthetic controls, one should never forget that such controls — as the designers of the new AIA Headquarters well know — are inevitably two-edged swords, with both edges equally sharp. ■



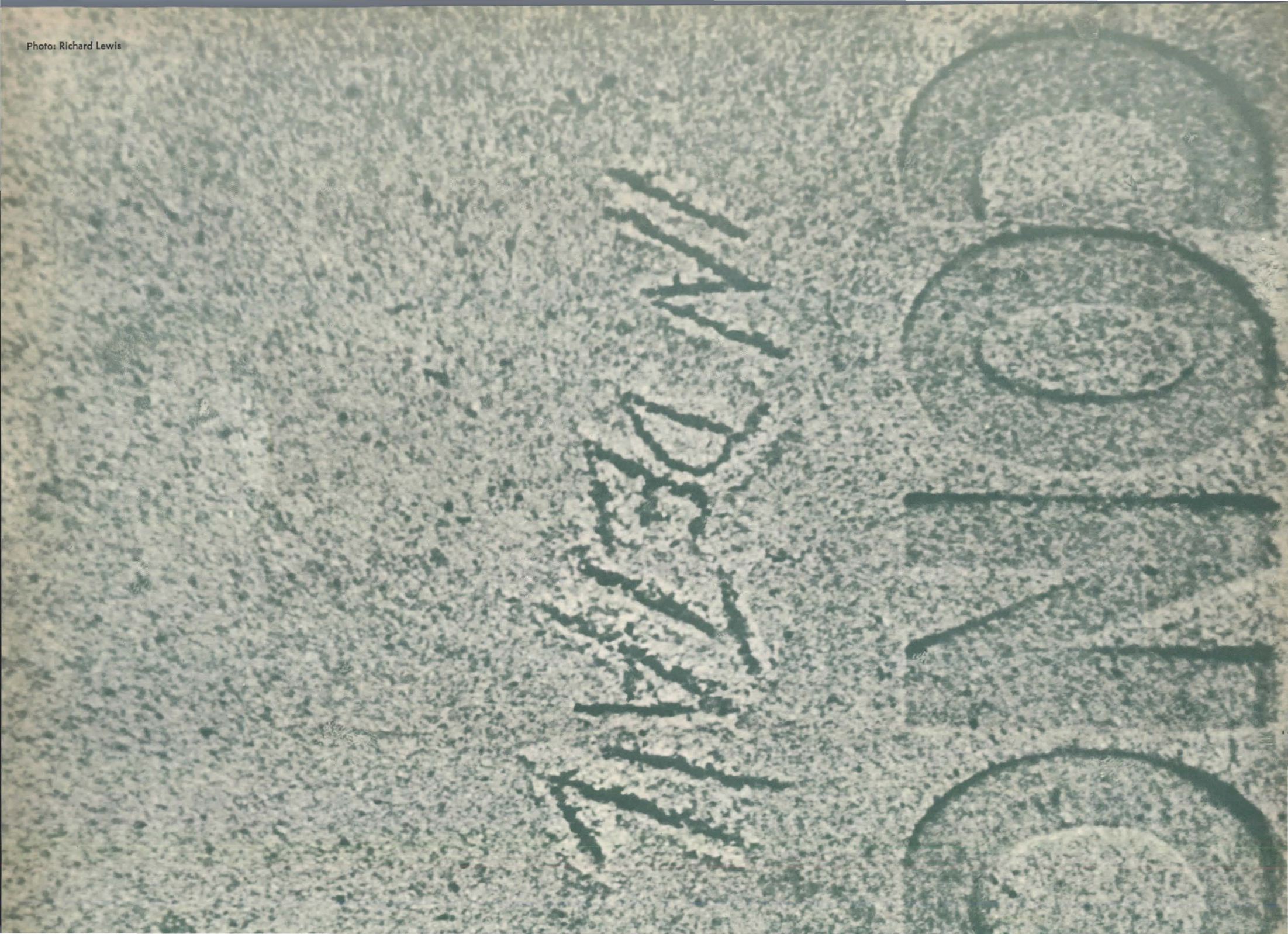


Photo: Richard Lewis

Concrete

Just a year ago, P/A devoted its entire October issue to the subject of concrete. It was a compendium of opinion and comment drawn from architects, engineers, contractors, precasters, and just plain critics. Many of those who contributed to that issue were frankly disappointed with what they built and what they saw; concrete had not lived up to their expectations. This month, on the anniversary of that controversial discussion, P/A's editors talked to some men who believe they know what problems underlie the shortcomings expressed by the disenchanted practitioners. And they are men who should know: They are all concrete specialists. Our experts do not agree on all points, among them performance specifications and the wisdom of using local or imported aggregates. But their opinions are well considered, and each point of view, no doubt, has its validity for specific situations. In addition, P/A's editors have collected a package of detail drawings that show how architects today are actually exploiting the potential of concrete, one of construction's oldest materials, in new and sometimes elegant ways.

industry advises

George J. Santry sets forth some precepts on precast concrete panel design aimed at developing the maximum potential these components have to offer. Santry spent two years in Holland as an industry consultant to Schokbeton. In 1959, he acquired the Western hemisphere rights to the process and has since licensed about 17 precasting yards in this country and Canada to use this method.

Perhaps because precast concrete is not *a material* that lends itself to catalog selection (with the exception of a few standard shapes), many architects have failed to exploit its full potential. Only through complete understanding of its properties and limitations are interesting designs and economies attainable. Too often, the combination of its plasticity and load-bearing capability is overlooked.

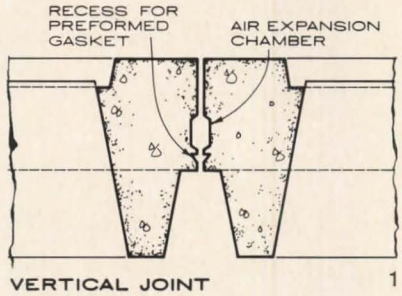
When contemplating any precast concrete component, the architect should ask himself these questions:

- How many functions can be designed into the element to take advantage of the material's many properties?
- What is the largest element that can be produced, transported, and erected economically? In most cases, the problems of calking joints, handling, and erection are reduced by designing to the largest practical dimensions. Small elements multiply joints, complicate structural connections, and frequently require as much erection time as larger ones.
- What configuration will provide the greatest number of identical elements? Obviously, it is desirable to minimize or, if possible, eliminate nonstandard elements.

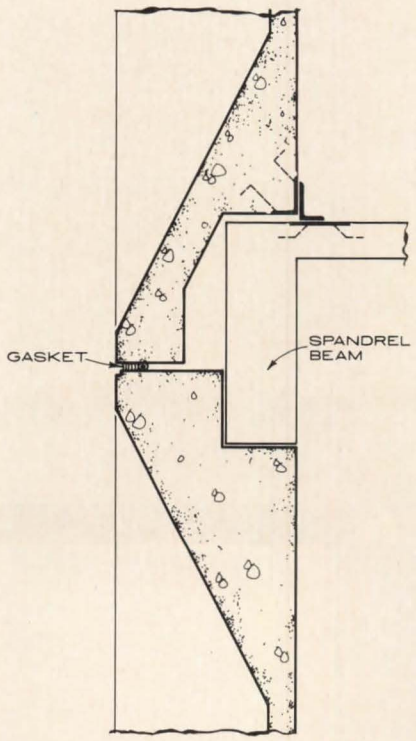
Cookie Cutters Cost Money

Molds are costly, but this cost may be held to a minimum if a few simple rules are observed.

- Where possible, design all architectural features with sufficient draft to eliminate the need for movable mold sections. (A minimum slope of 8:1 is good practice.) This holds stripping and mold reassembly time to a minimum and reduces wear and tear on the molds themselves.
- If mold inserts, collapsible sections, reverse drafts, or other complex features must be incorporated into the design of the mold, be sure the purpose served justifies the added cost.



VERTICAL JOINT 1



HORIZONTAL JOINT 2

The Importance of Scheduling

On the face of it, the mold cost for precast elements is absurdly simple. The cost of the mold, divided by the number of elements cast in it, yields the prorated mold cost per element. Thus, if a mold costs $2000 and produces 100 elements at the rate of 1 element each day, the mold cost per element is $20 each.

But poor scheduling can upset this otherwise simple relationship. To produce 100 elements requires 20 weeks. Many times, too little lead time is allowed when the order for the precast concrete is placed. If, for example, only 30 days production time had been allowed in the case cited, three molds would be needed (and the precasting yard would have to work some overtime as well) to complete the contract on schedule. This would raise the mold cost from $20 to about $75. For a 100-sq-ft element, the increased cost per sq ft of projected wall would be $0.55, an unnecessary cost increase of 15 to 20 per cent.

Joint Design

When detailing both horizontal and vertical joints between panels, the designer must consider the shape of the element and its function, and the problems of demolding and erection. Unlapped vertical joints with an air-expansion chamber are best **(1)**; horizontal joints should be lapped or bear on a compressed gasket, or both **(2)** . (It is important that all air-expansion chambers vent to the outside to allow any accumulated moisture to drain.

Scale and Texture

Architectural design determines the texture of a completed building. The distance between the viewer and the finished building importantly determines its appearance. In most cases, the scale of present projects precludes a close-up view; the building's texture is developed by the architect's success in the use of light, shadow, and color in his design. To accomplish such success, the architect usually *needs no* more than an inexpensive, well-designed concrete mix that will provide the desired color tone.

Hundreds of thousands of dollars have been needlessly spent for expensive exposed aggregates, which, at a distance of only a few feet, cannot be read.

Watch Out for Weather

Every building weathers with age, and in some localities moisture combines with

atmospheric contaminates to accelerate this process. In time, the character of the building may emerge quite differently from the architect's original conception.

That expensive quartz aggregates provide better weathering concrete is a misconception. The weathering of concrete depends on the quality of the matrix; if solid rock or stone free from deleterious materials is specified and used, exotic, expensive aggregates are unnecessary.

In most cases, a careful study of the area will disclose a local stone or rock suitable for aggregate. The Denver Hilton Hotel included precast panels with aggregate taken from near the site. In the past, the skillful use of regional materials has historically provided the architectural character of many areas; the economic reasons are valid still.

It is the slow drip, not the downpour, that stains. The design should incorporate drip details, perhaps camouflaged as shadow lines or verticals.

The possibility of providing space or reveals to accommodate electrical and mechanical hardware always exists. Space so designed can save costly site work and speed the installation of auxiliary services.

Apples and Oranges

Architects have raised the question of the comparative economics of cast-in-place and precast concrete. While both have their place and proper application, it is important that the architect compare alternatives that are truly comparable. Sometimes, in their specifications, architects seem prepared to accept average, or even poor, cast-in-place concrete while insisting upon an alternate bid for the finest available precast material, often unnecessarily costly aggregate.

The precast concrete industry has developed in part because of the inefficiency and increasing cost of field labor, and in part because cast-in-place concrete is often subject to poor quality control and construction delays in bad weather.

For precast concrete, the architect should specify and demand the same qualities he expects of other construction materials.

- Compliance with specifications.
- A qualified, experienced producer.
- Product application guidance.
- Prices competitive with other qualified producers.
- Delivery in accordance with contract schedules.

Paul Eagle and Harry Wise point out that the detailing of a precast concrete component for easy fabrication, storage, and transport can be as important as its architectural and engineering design. Both men are involved in the day-to-day operation of a precasting plant.

"Despite the good control of concrete mixes and finishing techniques available to the precaster, precast concrete panels cannot be exactly matched as, for example, can sheets of paper," comments Wise.

"Although precast concrete is a versatile material and the technology of producing it is steadily improving, it does, nevertheless, have limitations; some of these are directly attributable to practical problems arising in the precasting plant."

With this short preamble, Eagle, Wise, and one of P/A's editors toured Eastern Schokcrete Corporation's Bound Brook, N.J., precasting yard, the precasters pointing out some specific difficulties — among them the placement of reinforcing steel, handling completed elements, storage, and preparation for shipment.

"Be prepared for variations and the slight imperfections natural to the medium: Architects seem ready to accept an ungodly amount of variation in natural stone but forget that concrete is made up of the same material. It is not transformed because it is cast," say the precasters. "Moreover," they add, "precast concrete is not examined with a magnifying glass at 10 in."

Mold Design

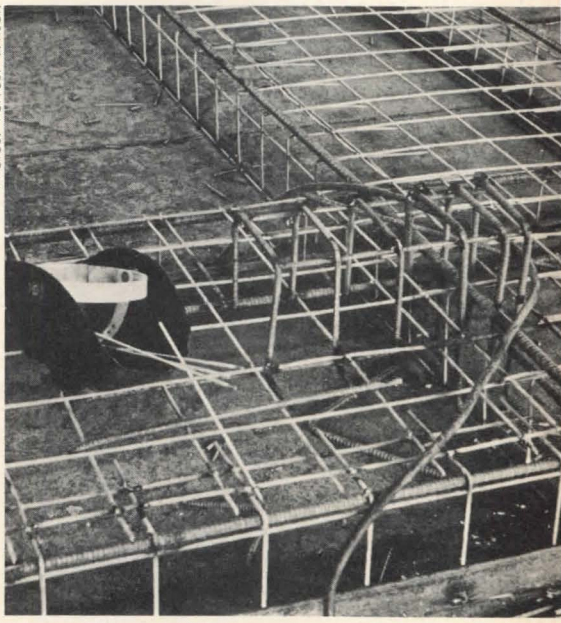
Wise and Eagle have found that when 30 or more similar panels are needed, molds of glass-fiber-reinforced plastic are usually economic. When a great number of identical elements are called for, they are ideal. Although glass-fiber-reinforced molds may sometimes have to be repaired, they almost never wear out.

Molds with an elaborate profile on the back surface, as well as the front, are hard to cast. Ideally, the mold should have an open back face with no projections, so the mold can easily be filled. Molds, including back pans with upstanding projections, prevent excess concrete from being struck off level with a screed and make it difficult for yard workers to finish the surface with steel trowels or wood floats, which is the preferable way to treat the back of a precast panel.

When detailing sharp corners and small projections, the designer should be sure they relate realistically to the size of aggregate that will be used and the kind of surface treatment contemplated.

A precast concrete component must do more than just fulfill its function when in place on the finished structure. The stresses imposed on the panel when it is moved around the yard and during erection may be greater than those it must withstand in service. Abrupt variations in thickness can be bad; they induce stress concentrations that may result in cracking during normal plant transfer operations.

Photos: Forrest Wilson

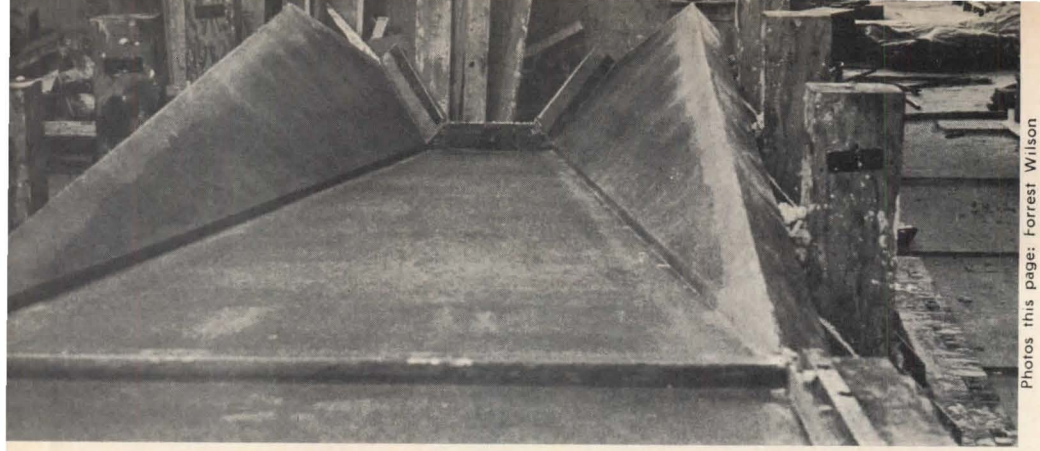


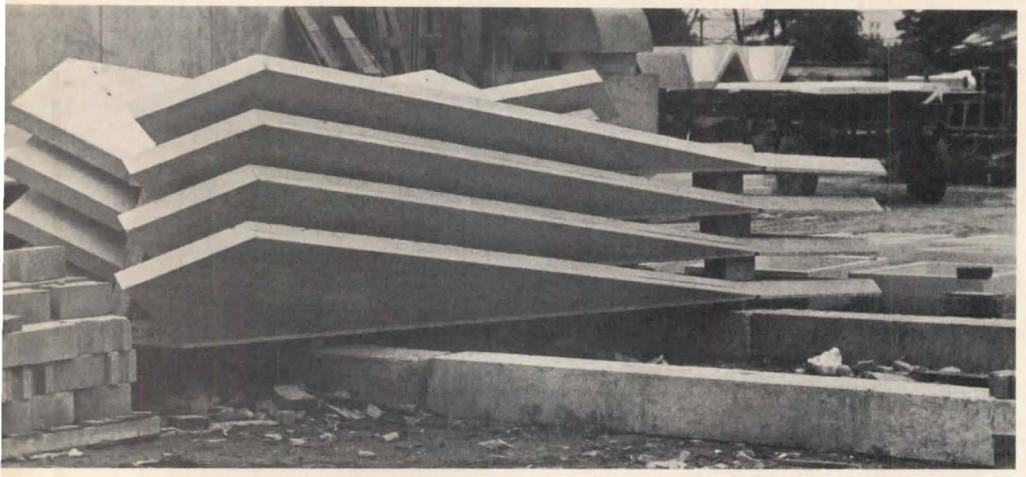
Welding panel reinforcement.

Flat panels are easier to stack and store both in the yard and on the job.

Reinforcing

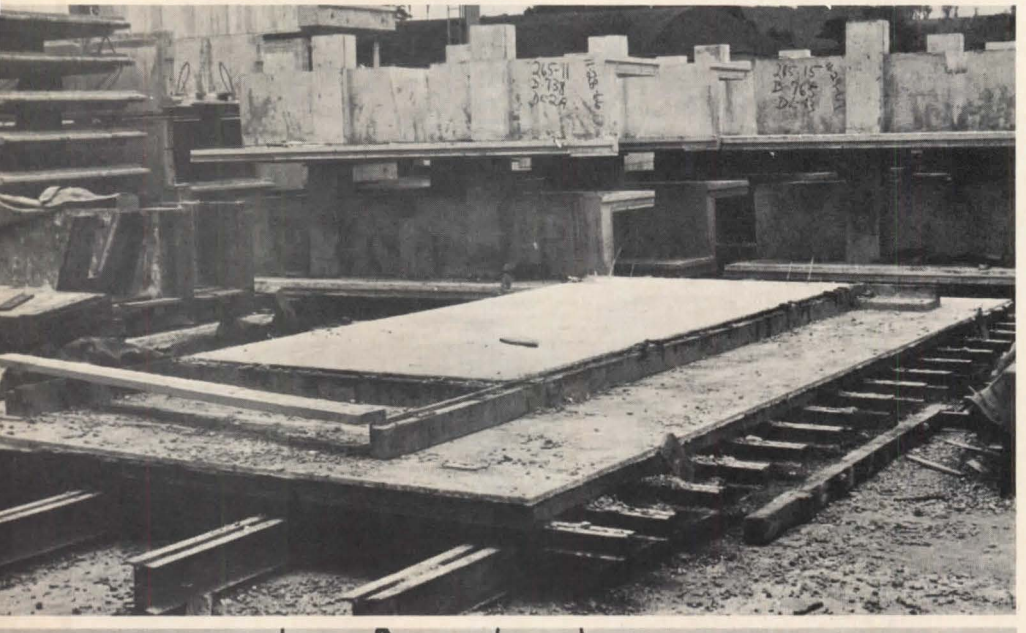
Adequate cover for reinforcing steel often dictates the profile of some sections of precast concrete panels. Mullion widths should seldom be less than 3 in.

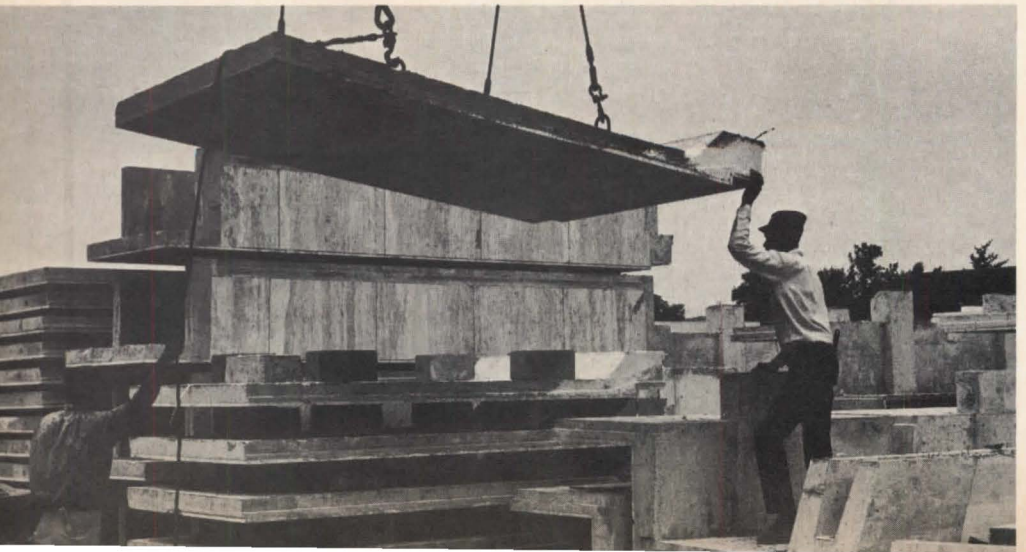




Photos this page: Forrest Wilson

The mold-making technology that has evolved with the development of glass-fiber-reinforced plastics gives the designer wide latitude in the shapes he can successfully cast (top), but highly sculptured panels are harder to stack and store in the yard. Simple flat panels, cast in plywood molds (bottom) are easy to fill, strike off, finish and stack.





The ends of tie wires joining reinforcing bar cages may sometimes come so close to the surface of the concrete as to cause rust spots to appear. Wise and Eagle have eliminated this by welding reinforcing bar joints rather than tying them.

The danger of reinforcing bar rust in dense, well-consolidated precast concrete is minimal, according to Wise and Eagle. They consider the use of galvanized reinforcing steel an unnecessary expense.

Responsibility for the size and placement of reinforcing is divided somewhat between the building's structural consultants and the precasting fabricator. Where precast components act as beams or otherwise contribute to a building's structure, the structural engineer should size and locate the reinforcing bars. Where the function of the reinforcing is to strengthen the panel itself and to control cracks, the fabricator may accept this responsibility; the ACI code embodies all the information needed to design curtain-wall panel reinforcing.

"Sometimes, structural engineers specify heavier reinforcing than is actually needed for the structure itself," points out Wise, "because they are unsure of the stresses encountered during yard handling, shipping and erection. This leads to added cost, both for the steel itself and the additional concrete required to cover the oversize steel." Wise recommends instead that structural consultants specify only the reinforcement needed to accomplish his structural requirements, and let the precaster supplement this where necessary for fabrication or erection.

How Big Is Too Big

As George Santry pointed out earlier, large panels are usually more economical than smaller ones. But there are limits.

- Eight-ft-wide panels are within the legal width limits for most roads; panels up to 12 ft wide require a permit that is usually easily obtainable. Over 12 ft, however, highway authorities may demand an escort and restrict truck movement to specific times of day, particularly over bridges and through tunnels.
- The lifting and handling of equipment in a precasting yard is limited both as to size and weight, factors that may influence the design of panels, molds or both.
- For those fabricators who use shock tables to consolidate concrete, the size and weight limitations of this equipment may determine the largest practical panel dimensions.

Performance Specifications

Wise and Eagle would like to work to performance specifications. "As precast manufacturers, we should be obliged to supply a panel as a unit with certain requirements as to strength and appearance. We should be judged by results, not processes. There is no standard recipe for a good panel that applies to all fabricators. Contractors work differently."

James Shilstone, Houston architectural concrete consultant, believes that careful selection of cement and aggregate can produce cast-in-place concrete in a wide range of textures and colors. Moreover, he adds, proper design of forms and unrelenting supervision of field workmanship can virtually eliminate the defects and undesirable variations that have marred otherwise admirable concrete buildings.

Our firm does not view the construction material generically termed concrete as a single building material. Depending upon how it is handled, it may be any one of three quite different products.

Structural concrete: Cast-in-place or precast concrete, or both in combination, acting to support the live and dead loads of a building where its appearance is of no consequence (except insofar as poor appearance may be an indication of structural defects). Its finish is unimportant; the surfaces will be covered by other materials.

Concrete used architecturally: This is concrete (either cast-in-place or precast that is exposed) that is used to develop spaces, mass, and to create patterns of light and shadow. The designer uses typical concrete mixes. Although he takes special pains with the detailing and construction of his formwork and supervises the field work carefully, he expects and accepts the surface variations that characterize typical concrete; in most cases, small defects may even be a sought-after textural effect. The Salk Institute for Biological Studies at La Jolla, by Louis I. Kahn, is one such example.

Architectural concrete: This is the form of the material that our firm seeks to provide for our clients. It is loadbearing, as is structural concrete; formwork is executed not just with care, as in the case of concrete used architecturally, but with precision. And it frequently embodies ingredients not normally specified, among them imported aggregate, color-matched cement, special surface treatments and coatings. To assist an architect in producing what we choose to call architectural concrete, we must meticulously supervise the erection of formwork (or preparation of molds), guide the subcontractor in all phases of placing the materials and finishing the visible surfaces, and, where necessary, supervise the application of protective sealers. We often build full scale mock-ups to be sure that tone and texture that seem appropriate when seen on a sample panel will, at full scale, express the image at which the architect is aiming.

Our concept of architectural concrete is not new. Meridian Hill Park, by Horace Peaslee, in Washington, D.C., is a magnificent example of cast-in-place concrete dating back to 1920. Erling Viksjø did some fine exposed-aggregate buildings in the mid 1950's. But interest in architectural concrete, as we define it, really arose in the U.S. with I.M. Pei's Kips Bay Plaza in New York City.

Forms and Bars

Form detailing is an extremely important factor in the creation of architectural concrete. Corners, reveals, and recesses are ideal locations for construction joints because they help to camouflage the inevitable (however slight) variations that occur among batches of concrete mix no matter how well controlled.

An upturned spandrel beam is just one example of this. If the designer will not accept an intentionally accentuated joint line at the level of the top of the floor slab **(1)** a construction problem will arise; the slab must be formed and cast separately, which, of course, is costly.

Where beams meet columns, the best spot for a construction joint is at the tangent to a radiused fillet **(2)**.

The little dots that structural engineers inscribe on their drawings may, in fact, be number 18 bars. Even number 5 bars take up a lot of space, and, when used on both faces of an 8-in.-thick wall **(3)**, for example, they can present two problems. The ACI code demands 1½ in. of concrete cover reinforcing steel, and, to allow for ½ in. of movement, 2 in. of cover must be allowed. The small spaces remaining between the bars tend to strain heavy aggregate out of the mix as it is poured, and it may be impossible for concrete workers to get vibrators into the forms to consolidate the freshly placed concrete. Some, but by no means all, local codes allow reinforcing bars to be bundled, which may help.

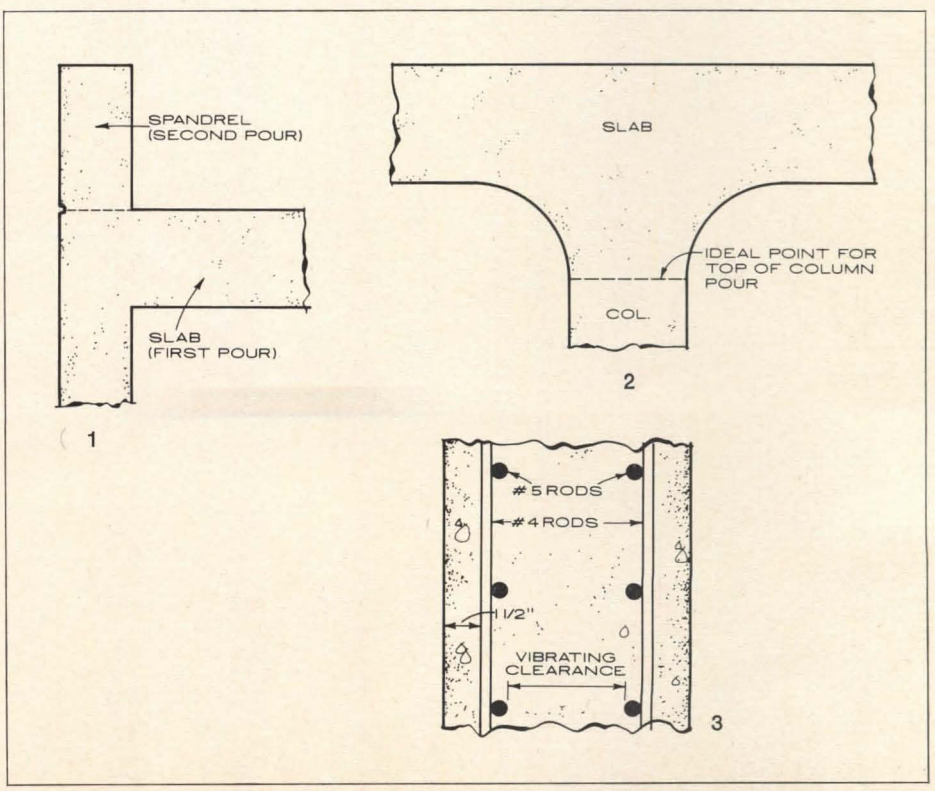
Similarly, a 6-in.-thick wall that is to have a surface of exposed aggregate up to 2 in. in diameter cannot be built in the conventional fashion; the aggregate will not fit between the bars and the form. Viksjø solved this problem by packing the forms with dry aggregate and filling the voids with grout under pressure.

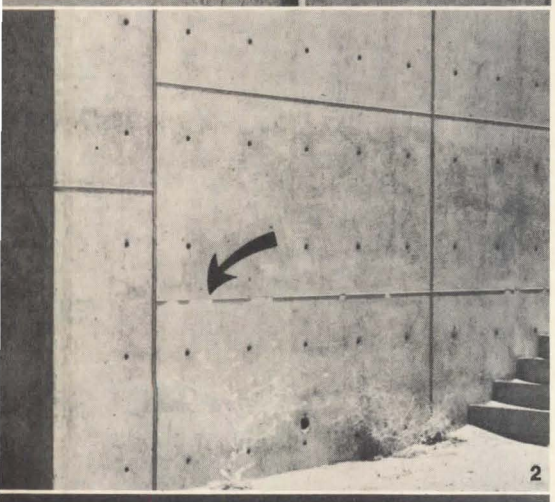
Vibrators

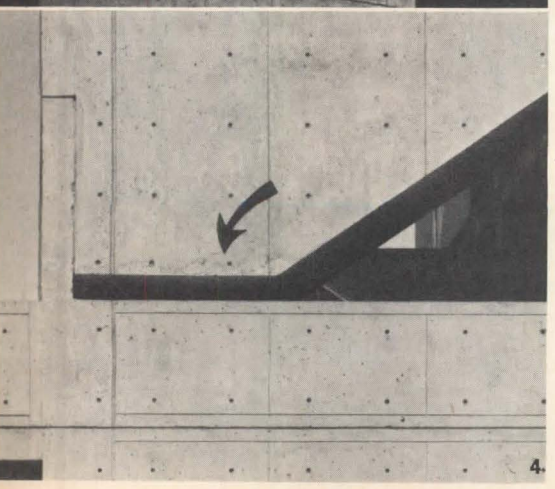
Vibration to consolidate fresh concrete is extremely important to the production of architectural concrete. The ACI rules on the subject are inadequate, and, in any case, contractors too often use whatever equipment they have available or is easily maintained, rather than selecting the equipment best suited for the task at hand.

We have operated vibrators inside clear plastic forms and have come to understand the action of vibrators under varying conditions.

■ Where form leakage is present, vibration induces a honeycombing effect; the sinusoidal action of the vibrator head pumps grout out on one cycle and air in on the other. This occurs even when the







Photos this page: Julius Shulman

leak is as much as 8 ft. from the vibrator head.

■ Vibrators tend to pump air to the top of the lift, where the hydrostatic pressure is lowest. Low-slump concrete minimizes this action.

■ In many cases, two types of vibrators should be used to consolidate a single pour. Large high-energy vibrators are good for blending the bottom of the fresh pour with the top of the previous one. But the same vibrator operating at the top of the fresh pour tends to boil the concrete, drawing air in between the form face and the concrete mix. A smaller, low-energy vibrator is better here.

The Aggregate

We have taken samples of aggregate from quarries all over the country and we know its cost at the point of origin. We also know the cost of shipping aggregate from those quarries to any other part of the country. Thus, we are often able to provide an architect with just the aggregate he wants at a reasonable cost.

Here is an example. A job on the West Coast called for a buff or light-brown aggregate that would have cost $40 per ton locally. We found a quarry east of the Mississippi where similar stone was considered common road gravel. It could be loaded into freight cars at $3.10 per ton, shipped to the site at $24 per ton, a net cost of $27.10 per ton. The saving of $12.90 per ton, multiplied by the tonnage involved, paid our firm's fee many times over.

Lift Lines

Since concrete is placed in lifts, usually about 18 in. to 2 ft in height, the possibility of a visible and unattractive lift line exists if either of two things occur:

First, the operator may not insert his vibrator deep enough to blend the two lifts; the solution to this is careful instruction of operators and close observation of their work. Or, the first lift may have partially set before the second is placed. When this happens, it is practically impossible to blend the two layers. To prevent this situation from arising, we seldom use high-early cements or calcium chloride additives. Instead, we use set-retarding additives, often in massive dosages. We have, on occasion, used more than double the manufacturer's recommended quantity (inadvertently gaining considerable strength in the process). The manufacturer's recommendation was, of course, based on the use of the admixture for structural concrete, where a faint lift line is not objectionable.

Surface Finish

Generally, we favor some sort of sandblasting, bush-hammering, or etch that will remove any skin of cement paste at the surface of the concrete; it tends to craze and spall. If you doubt the wisdom of this, just look at some old concrete that has weathered; the cement paste has spalled away, leaving a stable face of exposed aggregate. Why not design and produce a controlled, exposed-aggregate face in the first place?

Costs

We are often asked if all the special care we demand at every stage of design, placing, and finishing does not make what we call architectural concrete too expensive. Our answer is: Expensive compared to what? Costs vary considerably with the cost of local labor and materials, but the range is from a low of $0.75 per sq ft of wall to, say, $1.25; cut stone, on the other hand, might cost $2 per sq ft of exterior wall. Under most circumstances, we consider architectural concrete to be among the most economical building materials available. (Of course, the structure must be designed for the material in the first place; for example, on a low-budget job, do not design to a 5-ft module where the most appropriate forming material is plywood, which comes in 4′ x 8′ panels.)

Performance Specifications

For architectural concrete as we define it, performance specifications for cast-in-place concrete are no good. The contribution of the architect, the engineer, and the consultant (if any) are as important as those of the subcontractors. Control of all the processes from the initial conception is vital. Probably, fewer than half a dozen concrete contractors in the country can look at a concrete sample and really know how to reproduce it on a building; most cannot estimate the job properly, let alone build it.

To produce good architectural concrete, the architect must revert somewhat to his classical role as master builder, anticipating the craftsman's problems so his contractor can work with the job, not against it.

"The Salk Institute for Biological Studies by Louis *I. Kahn is an example* of concrete used architecturally, which is something quite different from architectural concrete," says James M. Shilstone. "This application is fine; Kahn appears to have been designing to achieve a balance of mass and space and for an interplay of shadows. But he has accepted some variations and imperfections **(1)** that would be unacceptable in what I call architectural concrete. Careless form stripping is probably responsible for that spalled fin **(2)**. The abrupt change in color **(3)** occurs at a point just about as high above the scaffold line as a worker applying the form release agent could reach (despite manufacturers' claims to the contrary, our tests have shown that most release agents do stain concrete). Form leakage is among the commonest causes of problems with concrete. That defect at the bottom of the section **(4)** is a characteristic condition that occurs when the action of the vibrator pumps cement-water paste out of the form and sucks air in."

Photo: Forrest Wilson

architects explore

Today, a year after last October's controversial round-up of views on the aesthetics and technology of concrete, the evidence continues that concrete design is on the upswing. P/A presents on the following pages a sampling of concrete detailing that conveys what architects and fabricators think about concrete today.

These details are not necessarily from architecturally distinguished buildings. Some, frankly, are from buildings a good deal less than that. It is a fascinating comment on the art of architecture and the technology of building that some of the most ingenious details are to be found sometimes on the least ingenious buildings. Good buildings usually have good details, but bad buildings do not necessarily always have bad details. For it is frequently the case that the concrete designer, detailer, or fabricator, in extending themselves to overcome unfavorable architectural conditions, produce details better in the quality of their architectural thinking than the building concept itself. This would seem to indicate that, in many instances, architects designing in concrete have as yet not developed an intuitive familiarity with the medium. It appears they are not yet sufficiently familiar with the material to instinctively sense its do's and don'ts.

The following pages of details and comments are devoted to illustrating problems and solutions at the level of doing rather than saying.

ADVANCING MOLD TECHNOLOGY

"There is no historical precedent for what designers are doing with concrete today," says Harry Mahler of Frank Grad & Sons, Newark architects. "It has never been done before. The key to precast panels is mold technology. Architects should understand the manufacturing process before they start to design. They should go to the beach and work with surf and sand to conceive the principles of the male and female mold."

Despite Mahler's advice to others, he did not apprentice himself to a beach boy. Instead, he learned the do's and don'ts of mold technology the hard way, without getting sunburned — on the job and in the casting shops.

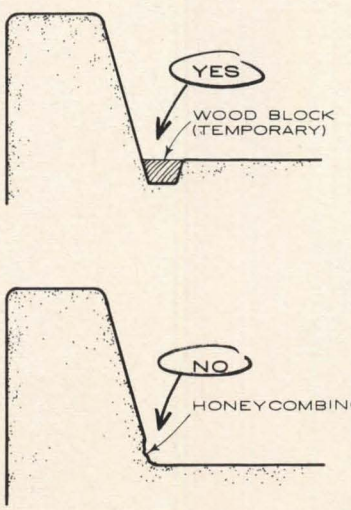
The Grad designers were introduced to precasting with molds of marine plywood, which, Mahler says, were unsatisfactory for several reasons. First, they objected to the restrictions placed on a plastic material by flat modular wood surfaces. Secondly, a more precise woodworking skill was needed than was then available. And thirdly, the seams opened up.

The appearance of the Corvette body prompted Mahler to investigate the possibilities of glass-fiber molds. "We are dealing with a plastic material. Why not have a sculptural quality in concrete?"

The limitations of wood technology can be overcome with clay plaster and glass fiber, says Mahler. The Grad designers found that plywood panel molds created the same joint problem in precasting as they did with cast-in-place. "Plastic joints allow us to exceed the limits of plywood. It's a new world; anything that can be conceived in clay can be cast in concrete," points out Mahler. "Cast stone beats the cost of carving." He predicts that the classic techniques of clay *modeling and* plaster casting will return to architecture through mold technology.

There are limiting design factors in areas other than mold technology: Limitations of weight and size set by casting techniques and yard handling, restrictions imposed by the length and weight that a trailer can handle, and problems of site erection. All of these factors, points out Frank Orleans, the Grad supervising architect, influence design through cost.

Today's concrete designers are making concrete do things it never did before within the framework of today's building technology. The following details illustrate some of the design solutions of the Grad office.



"Jelly retarder runs down and slides off to cause honeycombs. It can be brushed off, but usually takes the concrete with it."

DO'S AND DONT'S

DO: Do award, if possible, a separate contract for precasting ahead of the general bidding to be included later in the general contract. This allows lead time. It also saves the delay of the general contractor negotiating with the subs — sometimes termed "hanky panky."

DO: Use precast column covers instead of exposed cast-in-place concrete for window openings where possible.

DO: Simplify gray and white cement handling by combining precast and cast in-place. Cleaning hoppers is laborious, expensive, and not always totally effective.

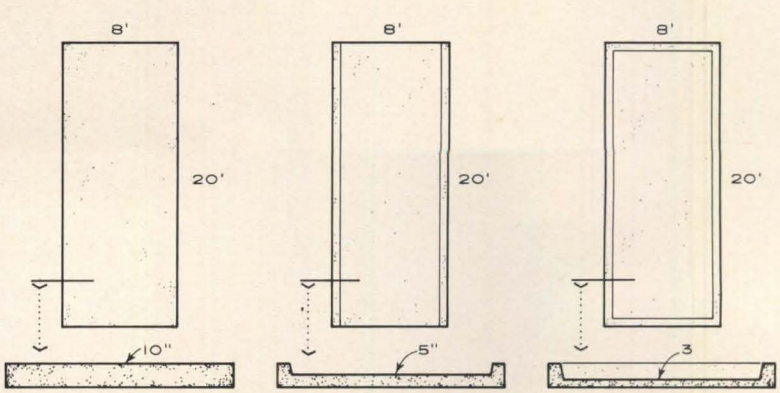
DO: Chamfer mold corners. Aggregate is larger than sharp corners.

DON'T: Expect a good finish on the back of a precast panel. It is possible but the mix is dry. Block back-up provides more finish control plus space for outlets.

DON'T: Use an acid wash. The human element of control is involved. Acid crystals not washed out of the concrete will come out with rain and etch the glass below.

DO: For a good economic finish dampen back of panel and run a long nap paint roller over it.

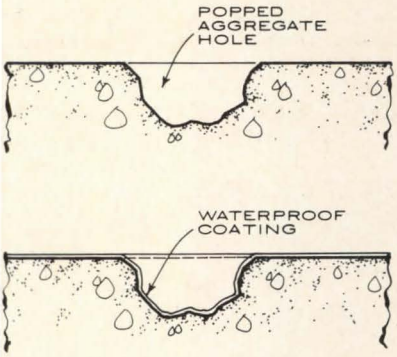
DO: Use a V joint with cast-in-place. Precast sandblasted joints tend to be tight; cast-in-place joints tend to open up.



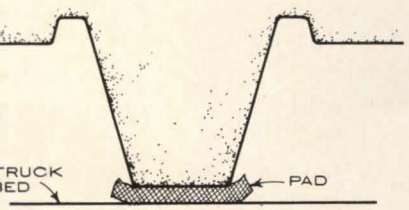
"Don't use a solid 10" panel when you want to cut down weight. Do put the strength in the rails or a frame. Don't forget it acts as a beam when lifted from the mold, a slab during storage and erection, and might end as a non load bearing curtain wall."

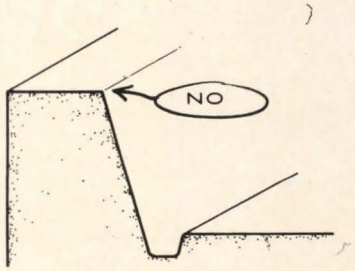
Photo: Creative Commercial Photography

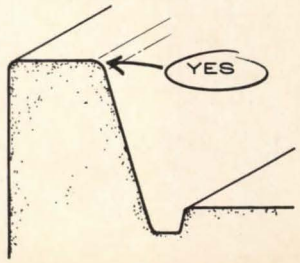
NEW JERSEY BELL TELEPHONE COMPANY, *Cranford Accounting office, Cranford, New Jersey.* ***Architects:*** *Frank Grad and Sons, Newark, N.J.*

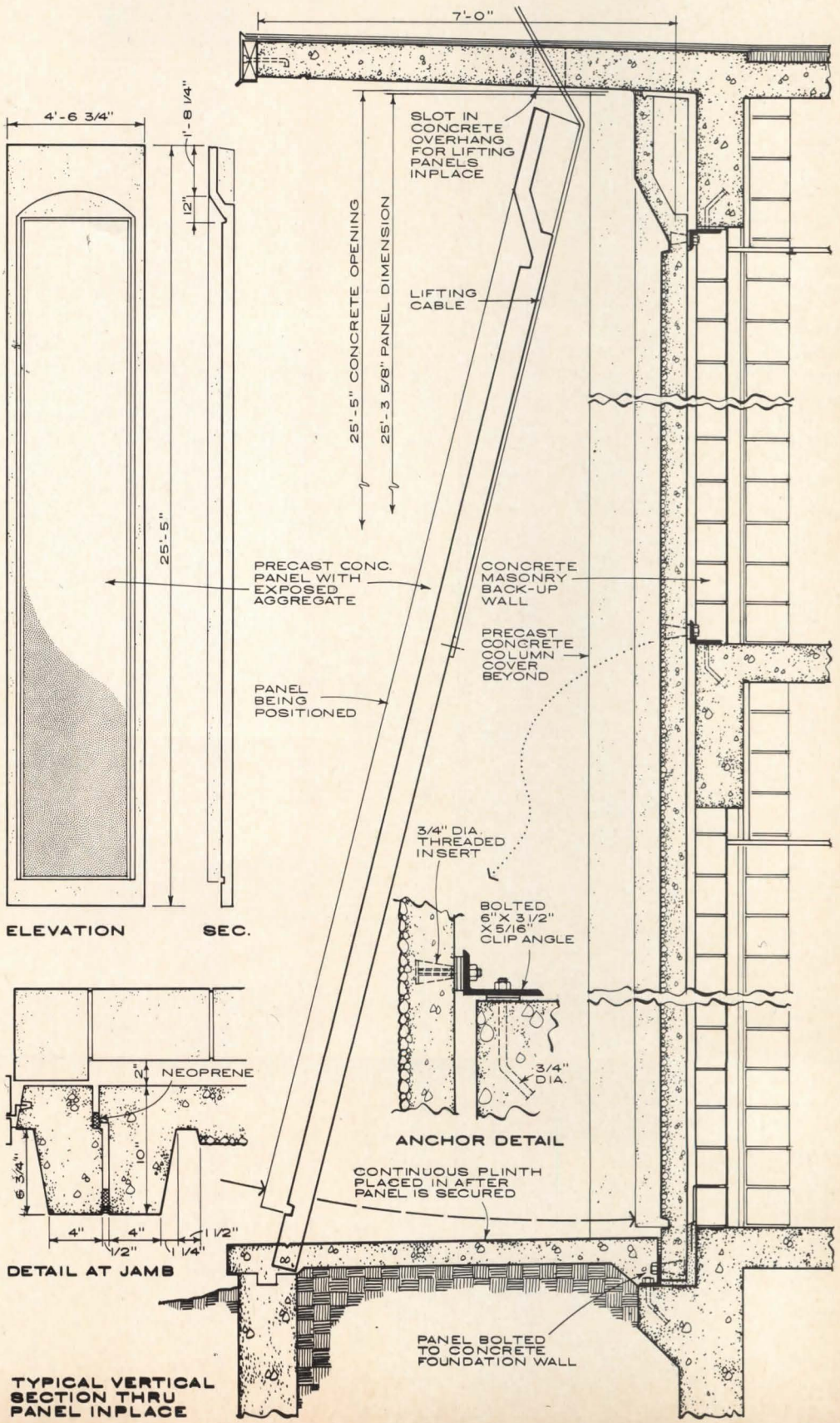


"Silicone finish worked against us. Water went into bubble holes and was not absorbed into the concrete. It froze and spalled."









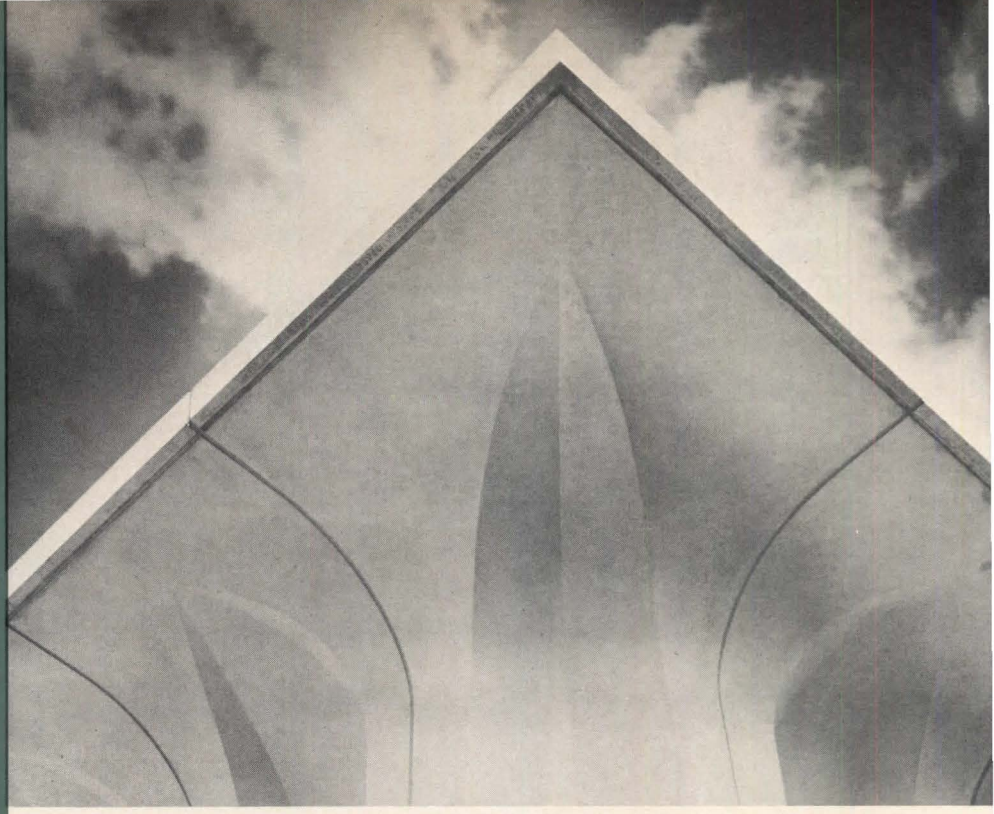
DEVELOPED PLASTICITY

NEW JERSEY BELL TELEPHONE COMPANY, *Northern Area Headquarters, Hanover Township, N.J.* ***Architects:*** *Frank Grad and Sons, Newark, N.J.*

Precast concrete loadbearing wall panels on steel frame building. The program called for knock-out walls for building expansion.

Precast wall was set and supported by temporary framing prior to pouring concrete on corrugated steel decking. Temporary steel columns were used and panels tipped up into pocket after steel structure was erected. The specific job requirements dictated this solution.

The reglet detail was not particularly successful. Wedges, pounded in, tended to slip out. The solution was to switch to a plastic reglet wedge. Difficulty was encountered in setting reglet strips in the precast panels. The strips had to be set after the panel was poured in the mold and tended to cause voids.



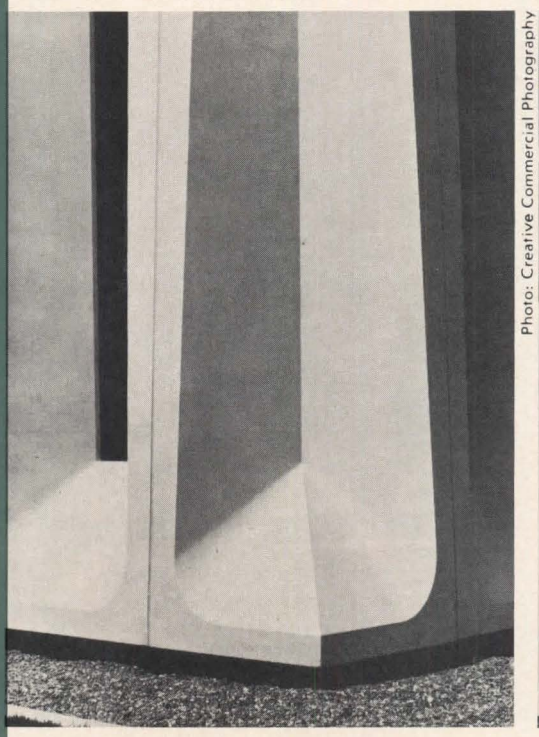
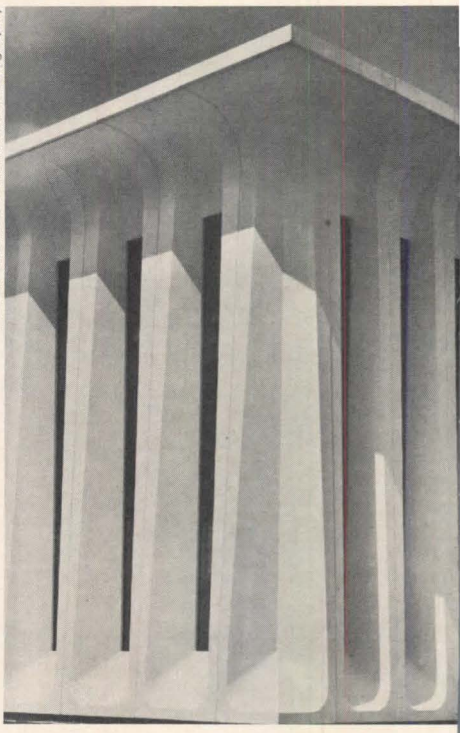
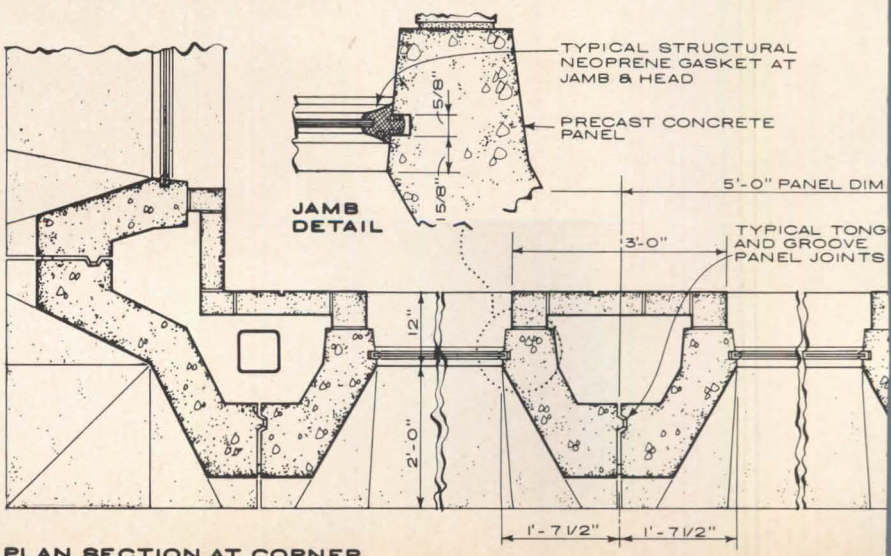
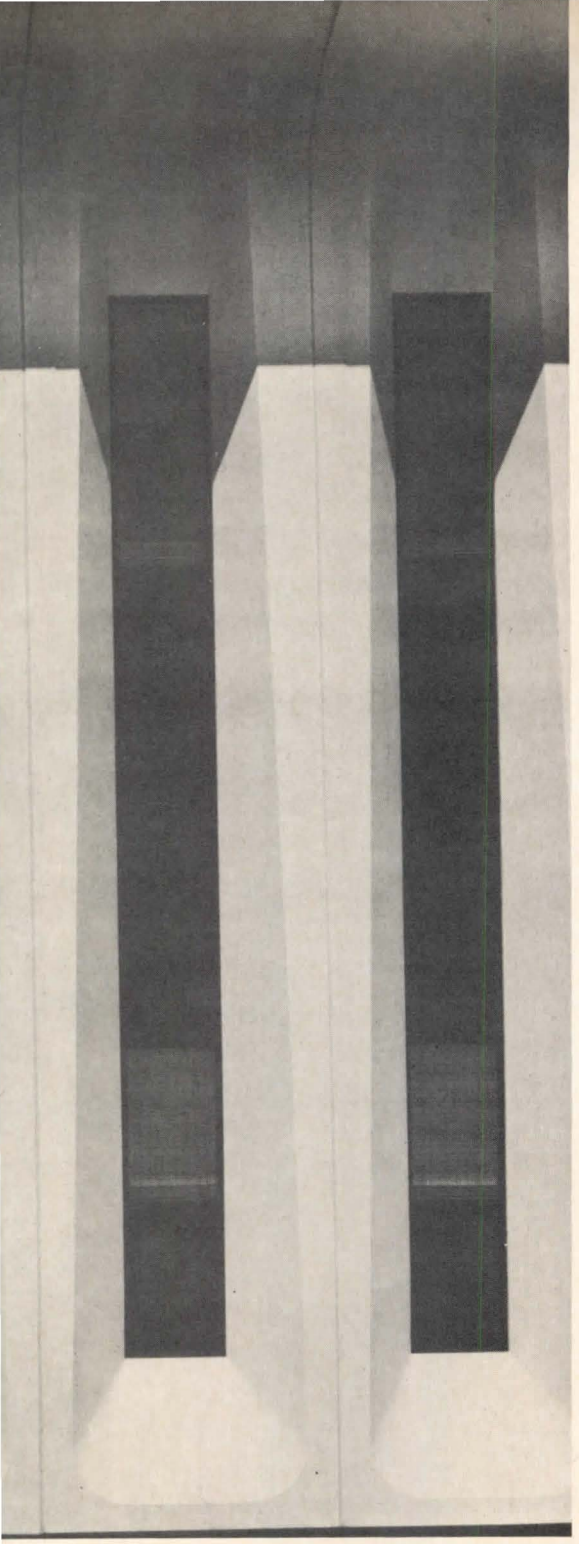


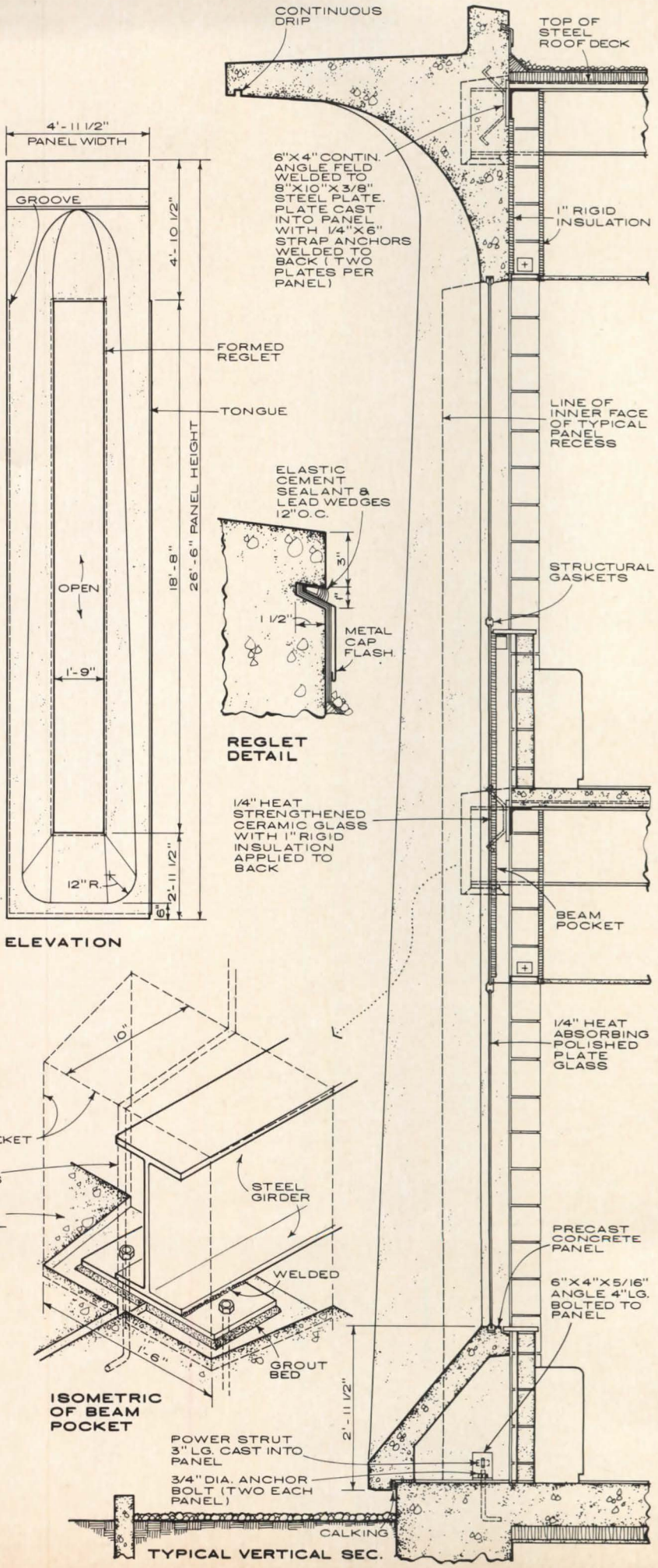
Photo: Creative Commercial Photography





PLAN SECTION AT CORNER



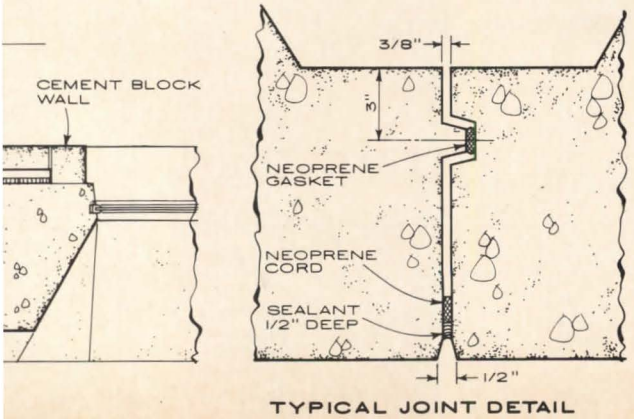


ELEVATION

REGLET DETAIL

ISOMETRIC OF BEAM POCKET

TYPICAL VERTICAL SEC.



TYPICAL JOINT DETAIL

CONCRETE ARCH?

BELMONT PARK RACE TRACK, *Elmont, N.Y.* ***Architect:*** *Arthur Froehlic & Associates, Beverly Hills, Calif.*

Is an arch erected in tension without centering, and an expansion joint in its keystone, still a curved beam?

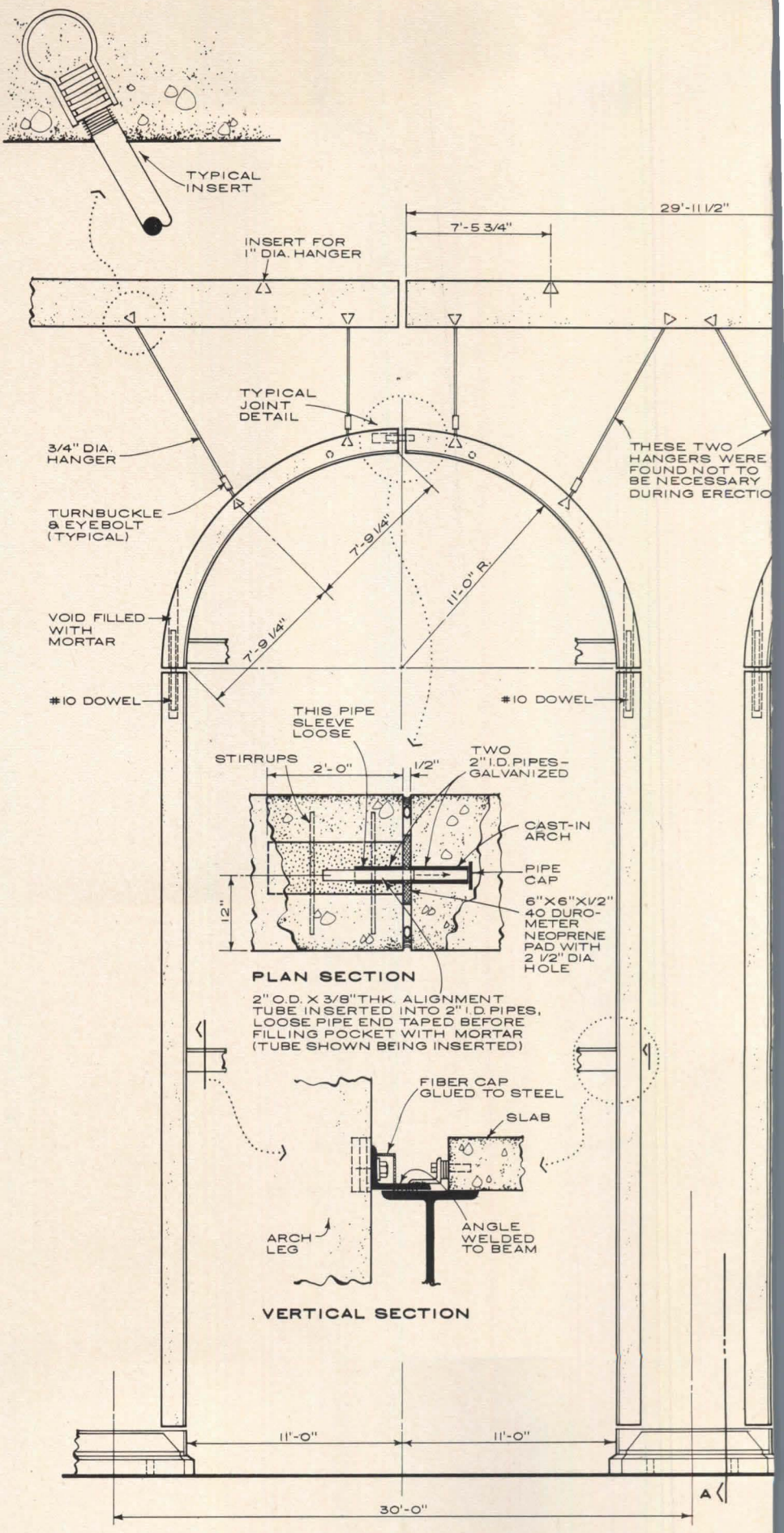
What was the point of introducing innovations to a construction method that has survived for centuries? The point was a decimal moved far to the right in the cost of installation.

The original concept was to erect the series of arches in the 2300-ft façade traditionally by the use of false work and centering. Instead, the engineers of the Pinter Contracting Company suggested this bit of ingenuity, which afforded "incredible ease in handling," according to George S. Pinter.

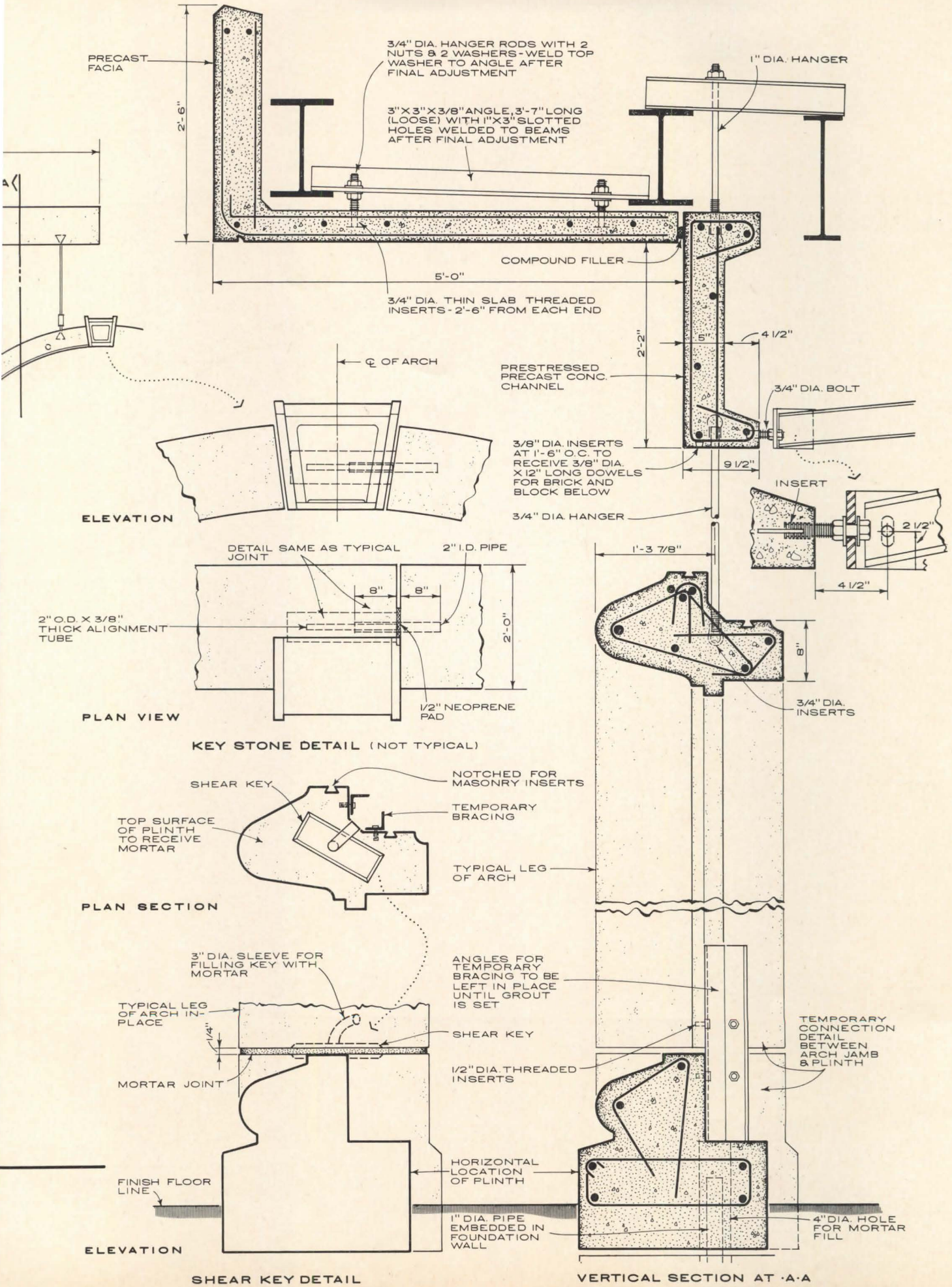
The stressed concrete jamb leg sections were fastened to the steel frame of the building and the curved "arch" sections suspended from the tensioned concrete spandrel with rods adjusted by turnbuckles. Spaces between the arches are filled with reinforced masonry for a shear wall. The erection notes and the drawings tell the story.

Erection Procedure

1 Set structural steel brace units.
2 Hang prestressed channel and brace to column and to brace units.
3 Set and adjust plinth. Mortar bed to be preset or subsequently dry packed at the erector's option.
4 Set jambs on shims and adjust. Provide connections and temporary braces to plinth.
5 Set right-hand arch segments and connect at third floor, similar to item 4.
6 Set and hang left arch segments with loose pin assembly similar to item 5.
7 Adjust jambs and arches. Push 2-in. pin into pipe. Tape pipe openings and tie pipe to stirrups.
8 Grout all joints and shear keys.
9 Insert 3/16-in. pipe sleeve over horizontal pipe and over horizontal bolts and weld connections at second and third floor.
10 Proceed with masonry. Provide neoprene control joints at crown. Brick and block to be built simultaneously to minimize twist on arches.
11 After masonry is completed and set, release temporary hangers between steel beams and prestressed channel.



TYPICAL ARCH ELEVATION


PRECAST FACIA
2'-6"
3/4" DIA. HANGER RODS WITH 2 NUTS & 2 WASHERS - WELD TOP WASHER TO ANGLE AFTER FINAL ADJUSTMENT
3"X3"X3/8" ANGLE, 3'-7" LONG (LOOSE) WITH 1"X3" SLOTTED HOLES WELDED TO BEAMS AFTER FINAL ADJUSTMENT
1" DIA. HANGER
COMPOUND FILLER
5'-0"
3/4" DIA. THIN SLAB THREADED INSERTS - 2'-6" FROM EACH END
2'-2"
5"
4 1/2"
℄ OF ARCH
PRESTRESSED PRECAST CONC. CHANNEL
3/4" DIA. BOLT
3/8" DIA. INSERTS AT 1'-6" O.C. TO RECEIVE 3/8" DIA. X 12" LONG DOWELS FOR BRICK AND BLOCK BELOW
9 1/2"
INSERT
2 1/2"
3/4" DIA. HANGER
ELEVATION
DETAIL SAME AS TYPICAL JOINT
2" I.D. PIPE
8"
8"
2'-0"
2" O.D. X 3/8" THICK ALIGNMENT TUBE
1/2" NEOPRENE PAD
PLAN VIEW
KEY STONE DETAIL (NOT TYPICAL)
1'-3 7/8"
4 1/2"
8"
3/4" DIA. INSERTS
NOTCHED FOR MASONRY INSERTS
SHEAR KEY
TEMPORARY BRACING
TOP SURFACE OF PLINTH TO RECEIVE MORTAR
TYPICAL LEG OF ARCH
PLAN SECTION
3" DIA. SLEEVE FOR FILLING KEY WITH MORTAR
ANGLES FOR TEMPORARY BRACING TO BE LEFT IN PLACE UNTIL GROUT IS SET
TYPICAL LEG OF ARCH IN-PLACE
1/4"
SHEAR KEY
TEMPORARY CONNECTION DETAIL BETWEEN ARCH JAMB & PLINTH
MORTAR JOINT
1/2" DIA. THREADED INSERTS
HORIZONTAL LOCATION OF PLINTH
FINISH FLOOR LINE
1" DIA. PIPE EMBEDDED IN FOUNDATION WALL
4" DIA. HOLE FOR MORTAR FILL
ELEVATION
SHEAR KEY DETAIL
VERTICAL SECTION AT A-A

WHY CONCRETE

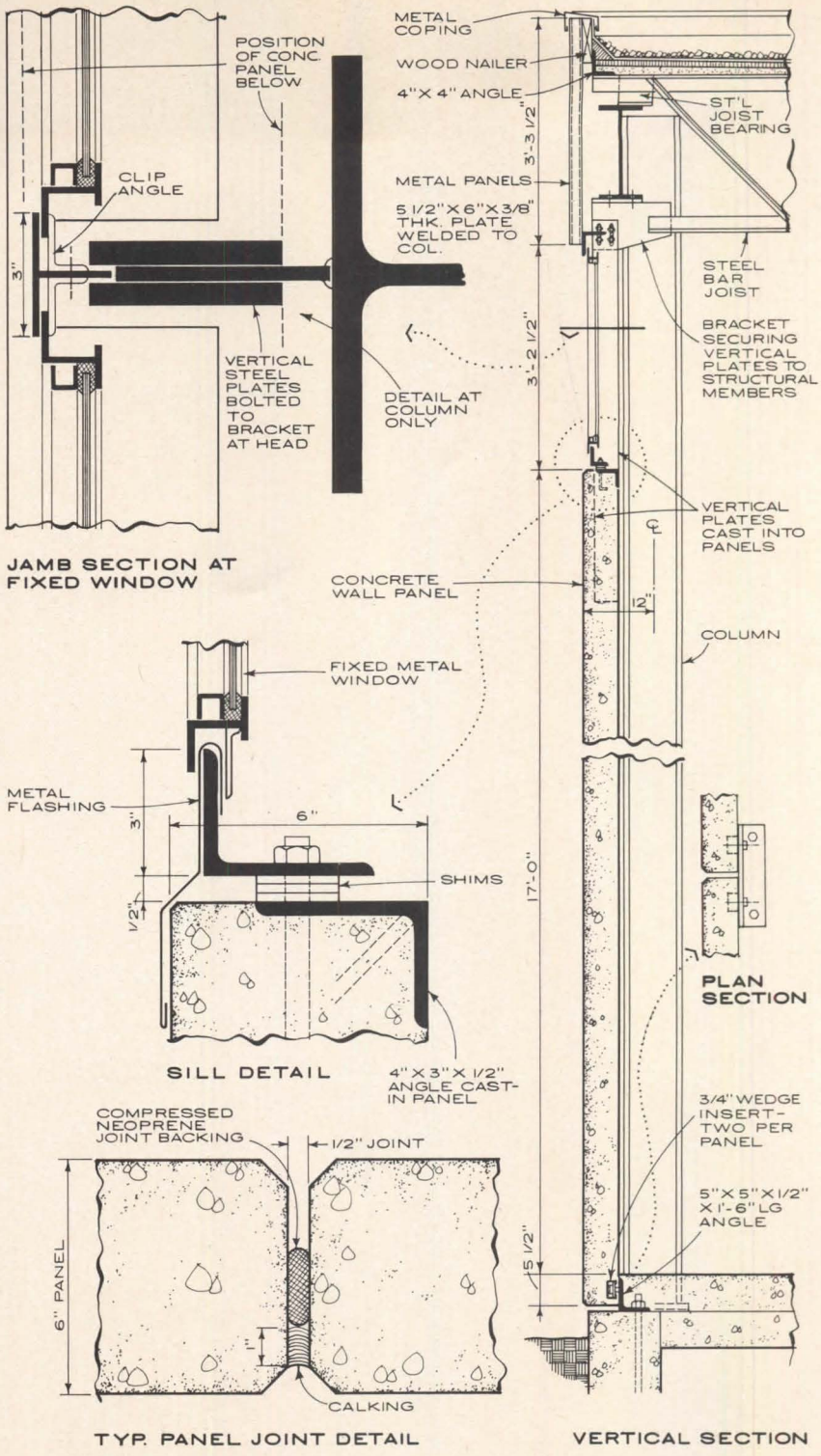
Some do's and don'ts from the men who can "either take it or leave it alone." Last year, architect Herb Reimer, principal of the Morris Ketchum, Jr., office, New York City, asked the question: "If concrete needs more refinement, why do it in concrete?"

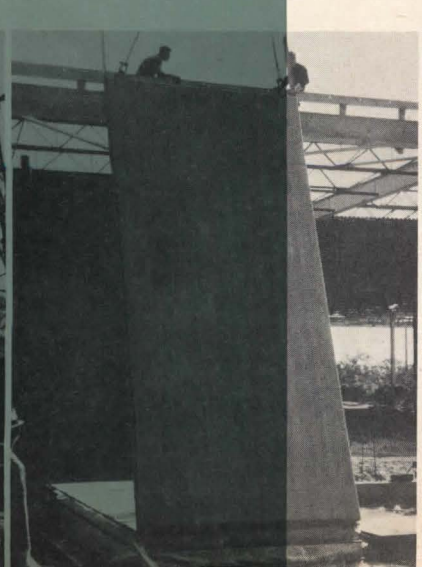
He did not add that they have every intention of taking it and none of leaving it alone. The three examples of concrete detailing that follow represent refinements in ways of using concrete; they are not attempts to change liquid rock to a rare stone. The zoo building shows a logical use of black aggregate panels, where they are appropriate to the building and the staining air of a large city. The raised panels of a department store in the southern United States are joined, so that their window frames reduce panel thickness. And the cast-on-the-site tilt-up panels for a budget warehouse and office building is a marvelously simple mud-pie utility solution to enclosing an economy structure.

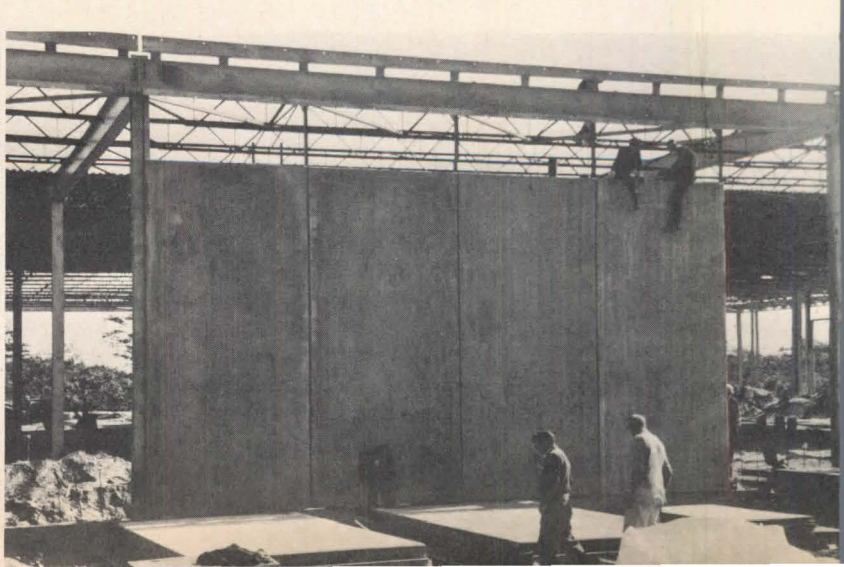
DO-IT-YOURSELF PANELS

WAREHOUSE AND OFFICE BUILDING, *Star Industries, Inc., Hauppauge, Long Island, N.Y.* ***Architects:*** *Morris Ketchum, Jr. & Associates.*

A panel with a clean sweep, broom finish, was devised by the Ketchum office in their design of this warehouse and office space. Panels were cast over each other in stacks around the building perimeter, with a bond breaker between. When cured and ready for erection, the contractor simply lifted them into place and attached through to the steel frame. Panels were fastened at bottom with wedge-type inserts shimmed and bolted, and, at top, with steel bars and studs cast into the panel.







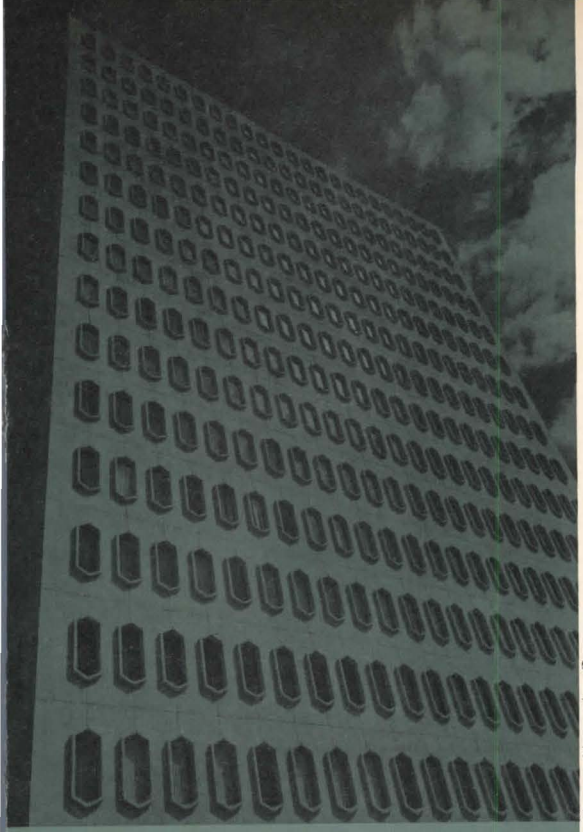
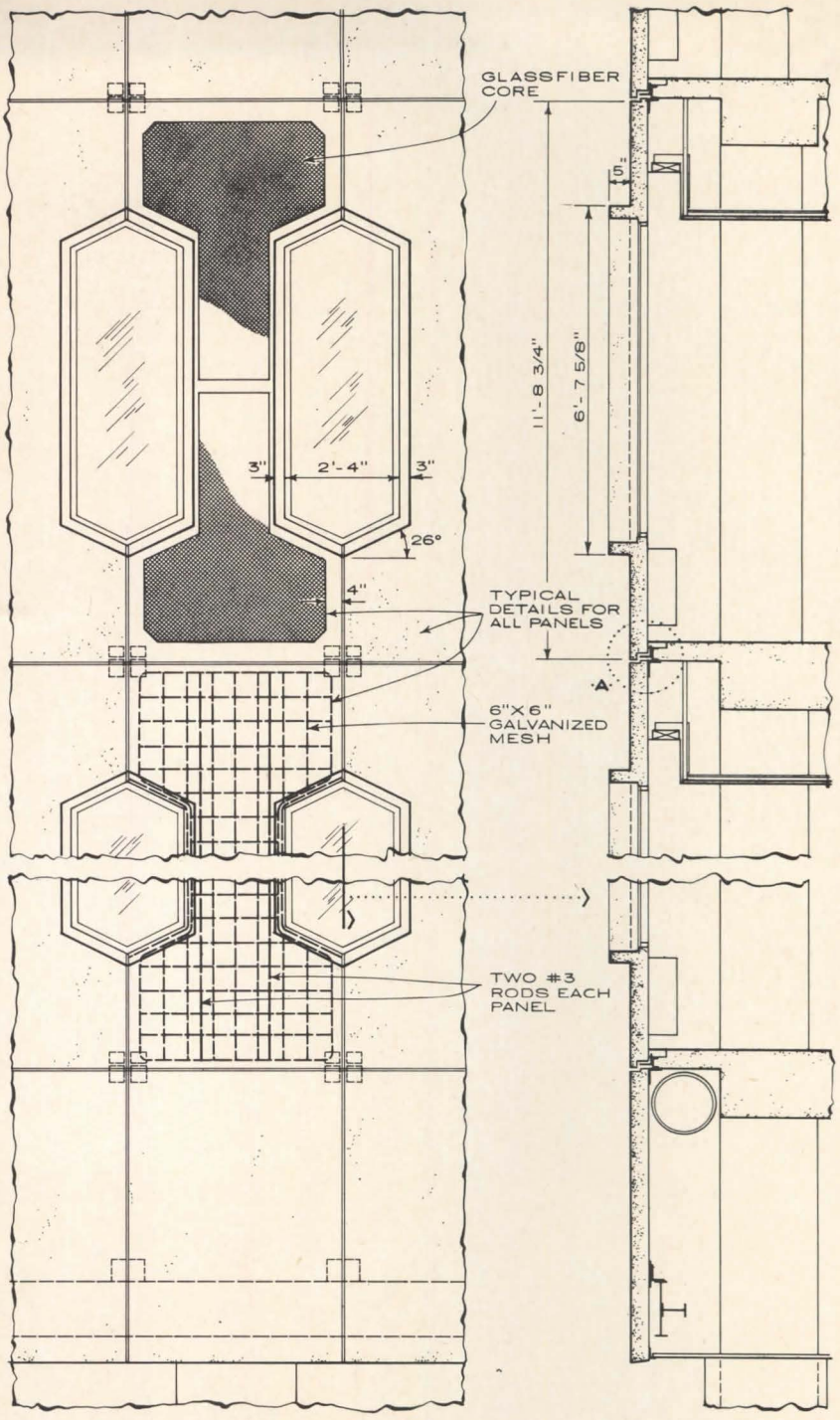


Photo: Alexandre Georges

CONCRETE CHANNEL

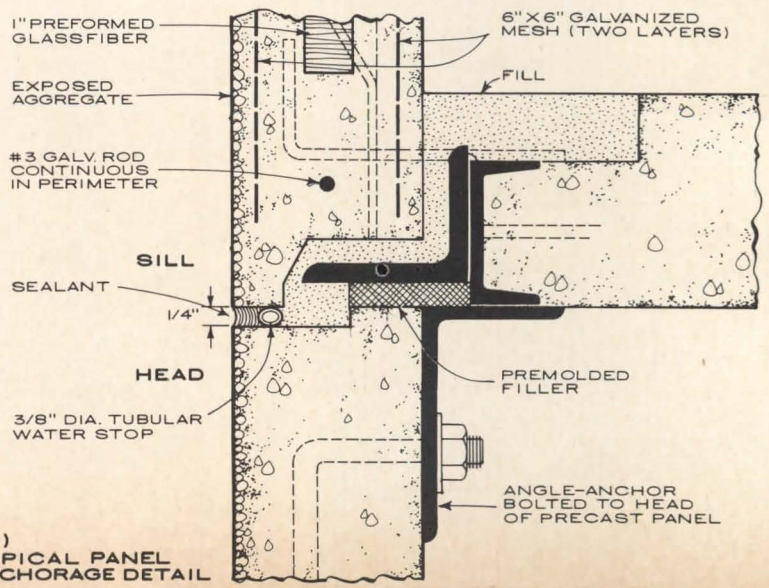
UNIVERSAL MARION BUILDING, *Jacksonville Downtown Center, Jacksonville, Fla.* ***Architects:*** *Morris Ketchum, Jr. & Associates.*

A clean, hexagonal, raised frame window panel shows that the Ketchum office can do a precast panel as well as the next fellow. Panels were cast on the centerline of two windows, so that the frame forms a channel to give panel strength and reduce panel thickness.



PARTIAL TYPICAL ELEVATION

VERT. SECTION



(·A·)
TYPICAL PANEL ANCHORAGE DETAIL

EVOCATIVE PANELS

WORLD OF DARKNESS, *Zoo Building for Night Animals, Bronx Zoo, Bronx, N.Y.* ***Architects:*** *Morris Ketchum, Jr. & Associates.*

The World of Darkness is an unusual building for nocturnal animals and is said to be the only one of its kind in the world. Program requirements demanded a windowless space. The interior core is the exhibition area; the exterior houses the service area and a complex mechanical system — or rather "three of them," says Morris Ketchum, "none of them for humans."

The architects first considered black slate as an appropriate material, but switched to precast black panels as a practical solution. "They will not smog up," points out Ketchum, "and are evocative of the environment of the building." Panels are cantilevered to give the building an appearance of floating and to prevent staining of the foundation.

"We designed a panel and sent it to the fabricator for research and development." The fabricator did this on speculation. They made samples and helped develop a specification." A chancy business, since the bidding was public-agency type C. Luckily for all concerned, the contractor refrained from "horse trading," and retained the original fabricator.

"We applied the same research to the panel as we did to the entire job," comments Ketchum.

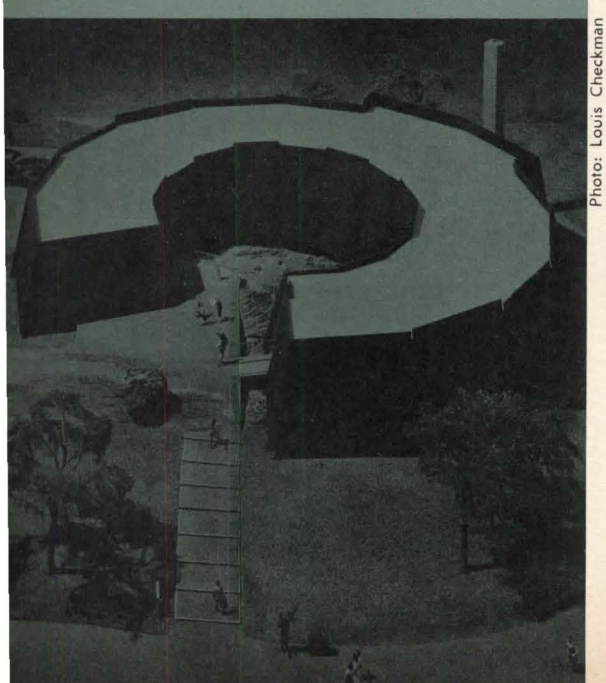
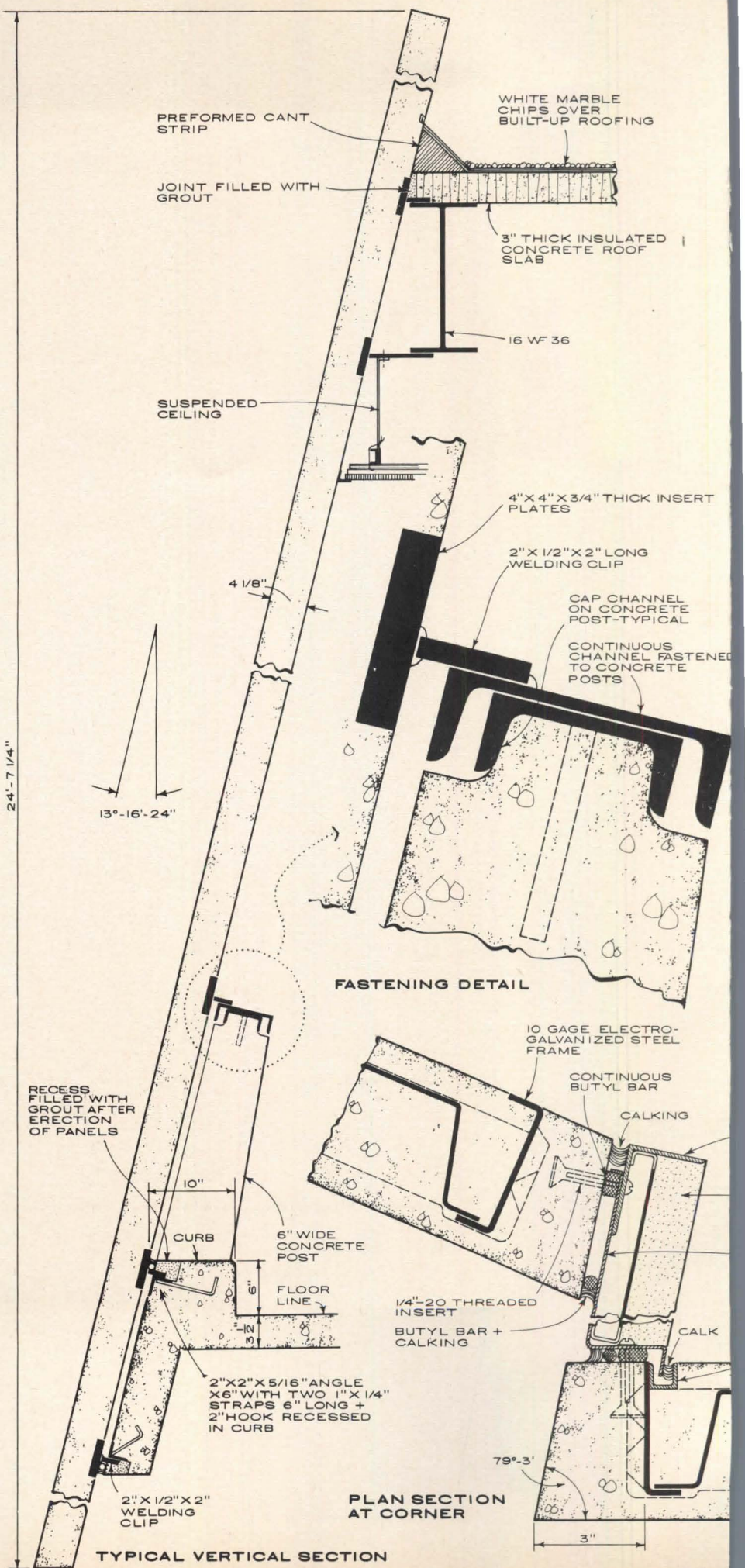
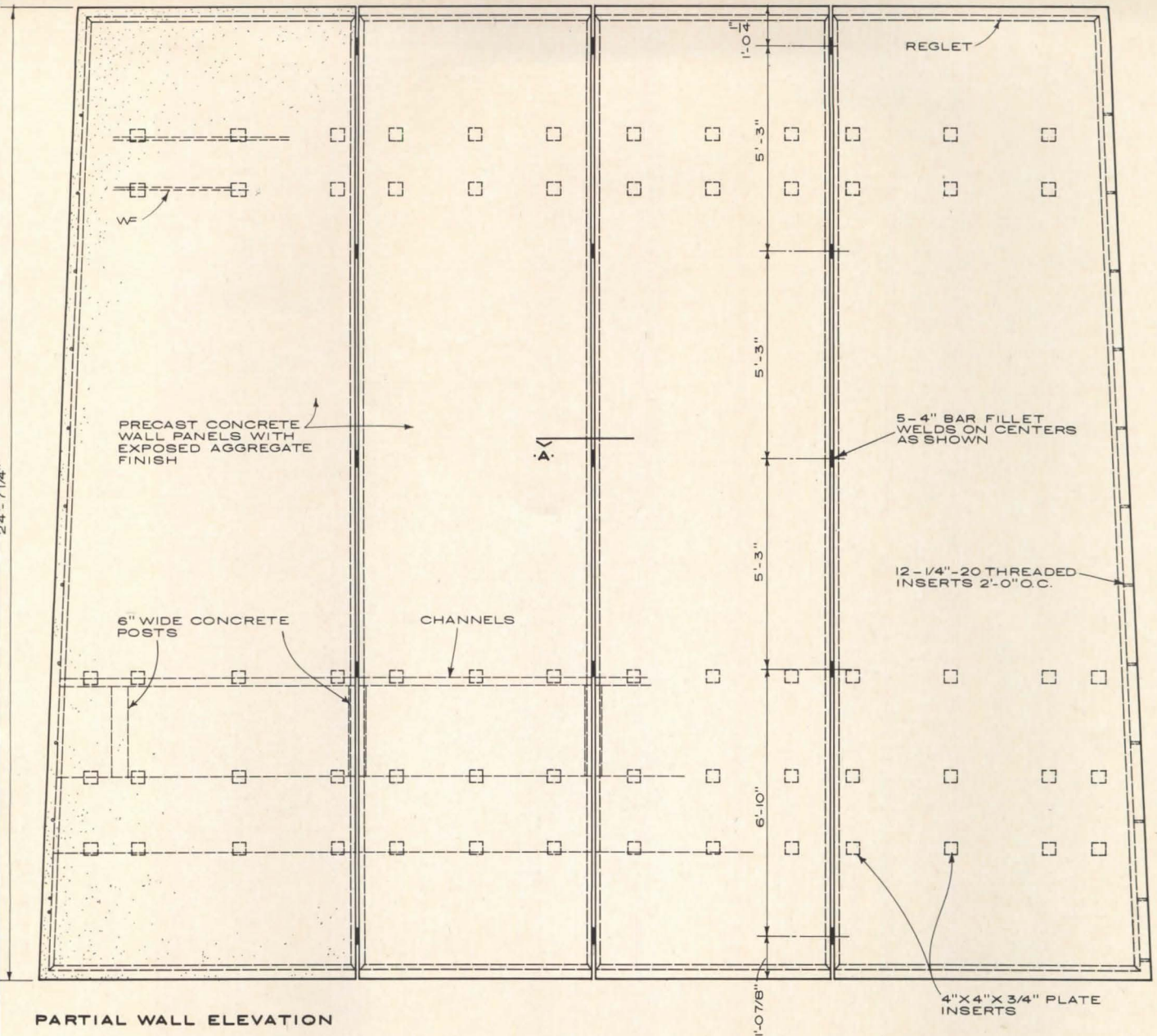
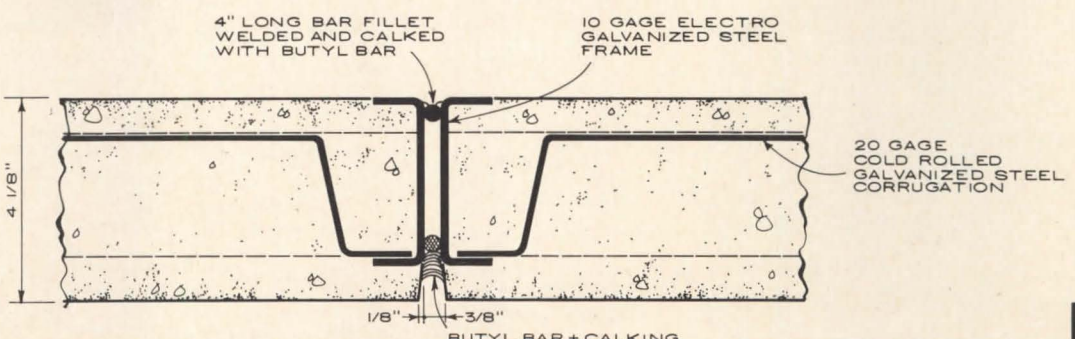


Photo: Louis Checkman

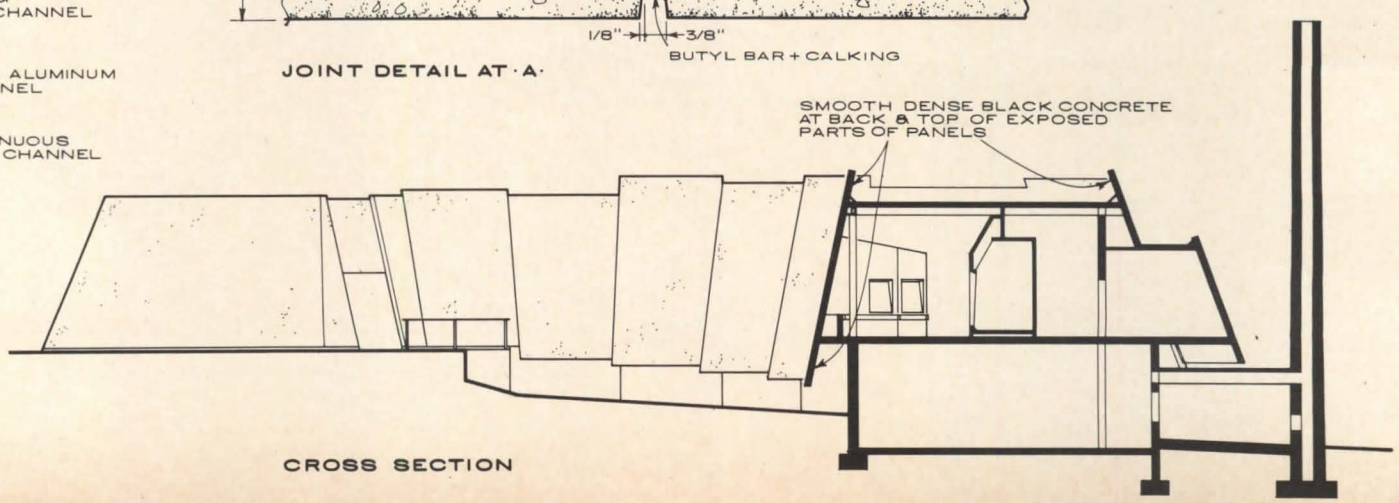




PARTIAL WALL ELEVATION



JOINT DETAIL AT ·A·



CROSS SECTION

HUNG FUN WITH PLASTICITY

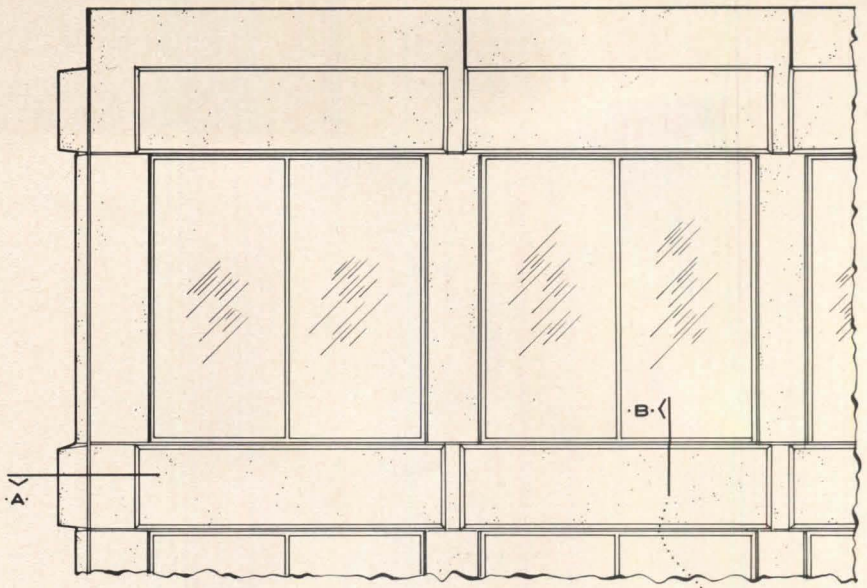
NEW BRITAIN TRUST COMPANY BUILDING, *New Britain, Conn.* OFFICE BUILDING, *345 Park Avenue, New York City.* ***Architects:*** *Emery Roth & Sons.*

"Architects are working with precast concrete because of the exciting possibilities of expression the architect can achieve, and the fun in the plasticity of the material," notes Richard Roth, Jr.

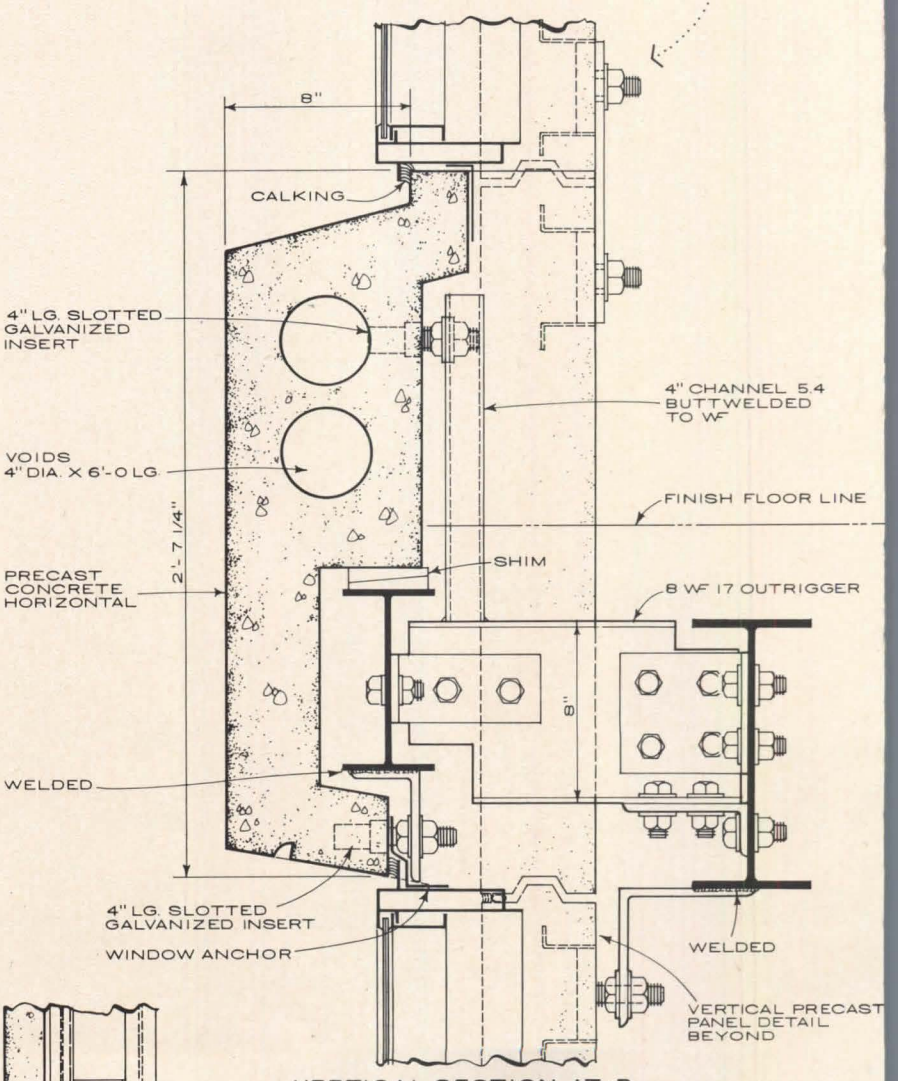
"The major problem with precast concrete, aside from the cost of the actual material and forming of it, is the expense involved and the difficulty of hanging it. When it comes to hanging precast panels, there is a world of difference between a 7-story building and a 44-story building that basically use the same type of exterior design. The size of the steel gets bigger, and the details of the miscellaneous iron used to make connections between the steel frame and precast panels can become a real Rube Goldberg."

The following details, taken from two buildings with similar precast façades and indicating the capabilities of concrete in matching the basic module established for the size of the buildings, illustrate Roth's remarks.

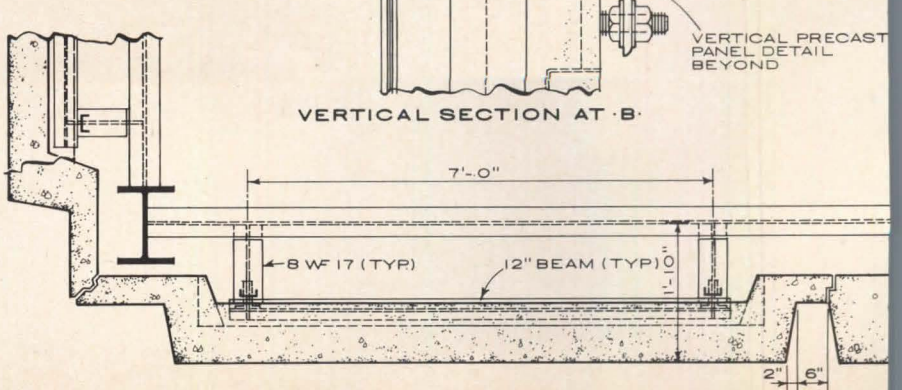
Photo: Bruce Cunningham-Werdnigg



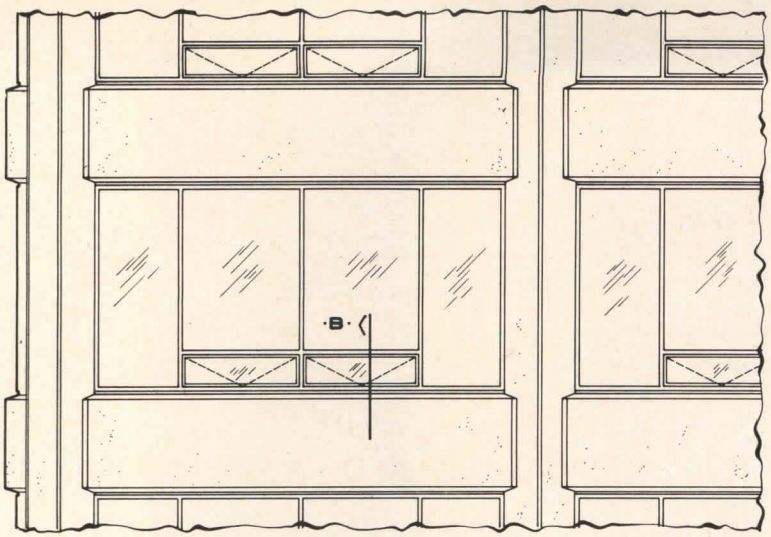
PARTIAL ELEVATION AT ROOF



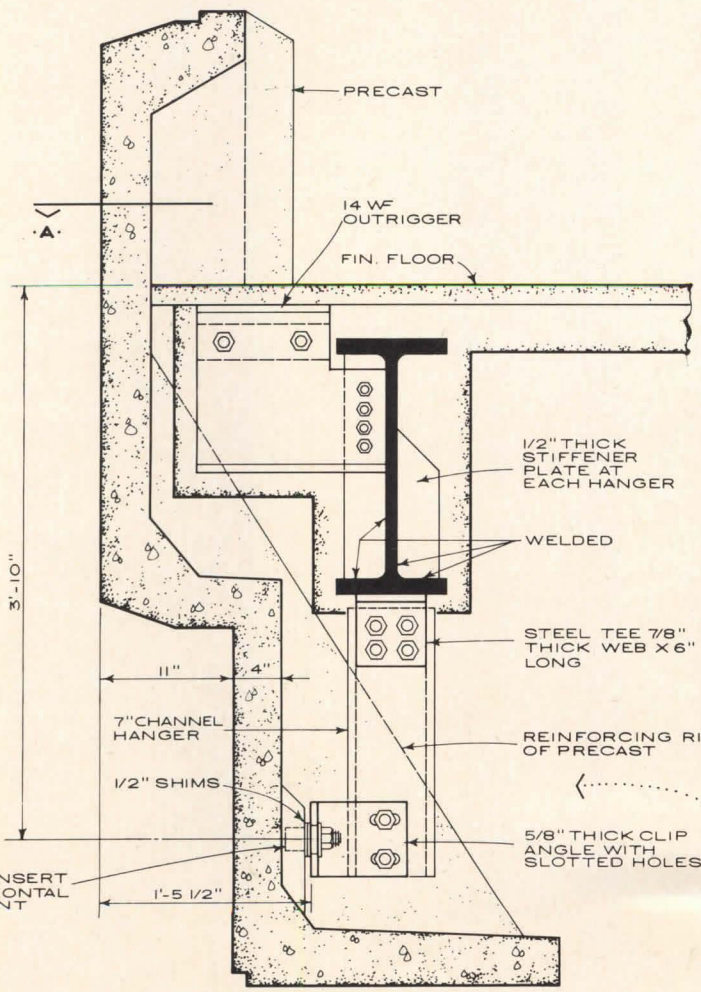
VERTICAL SECTION AT ·B·



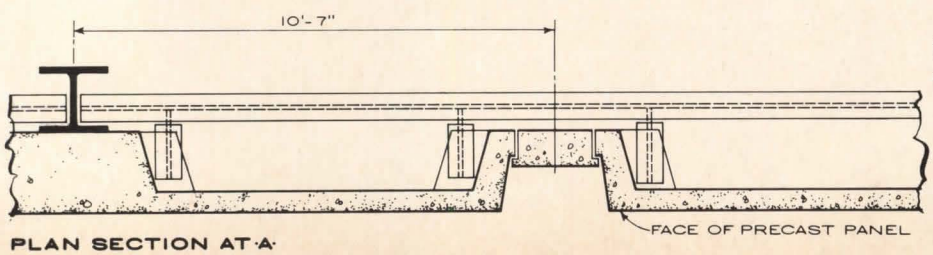
PLAN SECTION AT ·A·



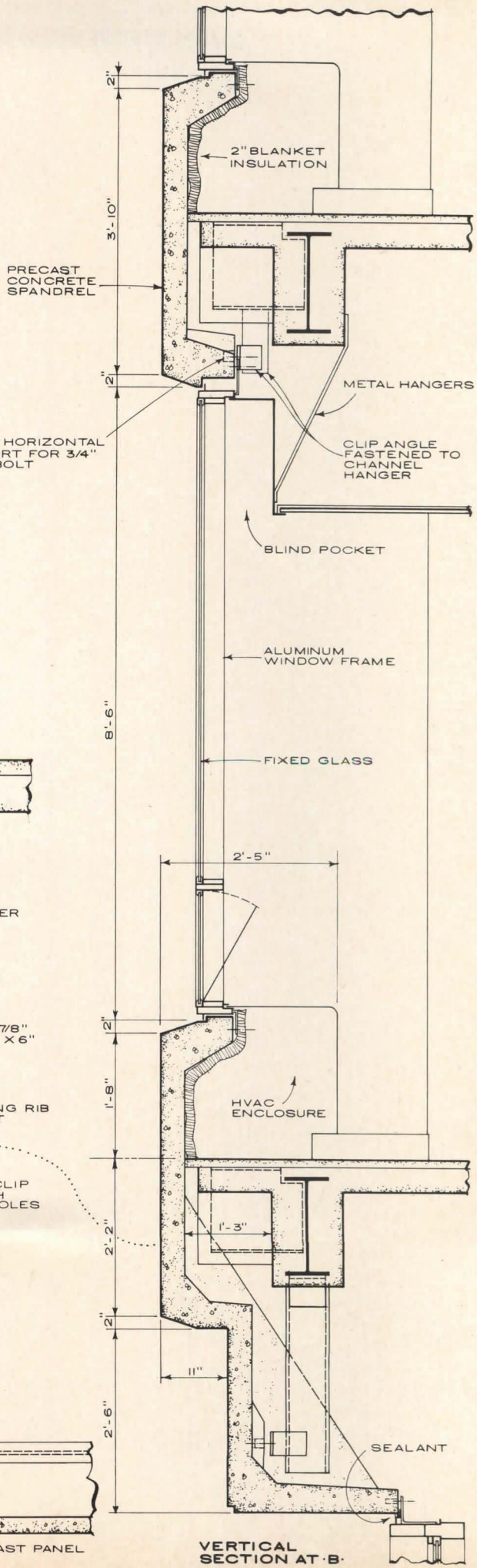
PARTIAL TYPICAL ELEVATION



TYPICAL SPANDREL SECTION AT BUILDING BASE



PLAN SECTION AT ·A·



VERTICAL SECTION AT ·B·

DELICATE PRECISION

Minoru Yamasaki, whose delight in concrete is well known, is the author of the two designs shown here. The nature of the architect's work required the utmost precision on the part of both the panel manufacturer and erector. For this reason, we have dwelt at some length upon the concrete technology involved in their fabrication.

I.B.M. BUILDING, *Seattle, Wash.* ***Architects:*** *Minoru Yamasaki & Associates. Associate Architects: Naramore, Bain, Brady & Johanson. Structural Engineers: Worthington, Skilling, Helle & Jackson.*

Delicate precast mullions of white quartz aggregate fireproof the structural steel pipes supporting the building's perimeter. Fixed aluminum-framed windows are flashed and sealed against the back of the mullions.

The following comments on fabrication and erection procedures were supplied by Mr. R. C. Robinson, president of Olympian Stone Company, member of the Mo-Sai Institute, Inc.

"Particularly worthy of note on the drawings is the very critical tolerance required for bending and placing welded wire fabric. You will note that adjacent to the open area of the 'U,' there are two layers of welded wire fabric and one 5/16-in. prestress strand in a thickness of approximately 1¾". This does not allow for standard cover over reinforcing, and required exceptional care in bending and placing. Where mesh was lapped longitudinally for continuity, it was actually difficult to place concrete with adequate consolidation.

"One detail feature that accomplished the desired purpose was the use of 1/16-in.-thick cardboard bond breakers between the weld plates and precast mullion concrete. This isolated welding heat and stress from the concrete and prevented all spalling of concrete in this area.

"We experienced some concern over elastic shortening of the structure, since lower floor units were placed, welded, and grouted to structural pipe columns before total upper floor loads were applied to the structure. This did not prove to be a source of damage to the lower units, but some differential shortening did occur, requiring custom fabrication of many of the top units to field measured lengths.

"The erection of the prestressed mullions on the I.B.M. Building hinged on the most efficient use of the crane used for erection of the building.

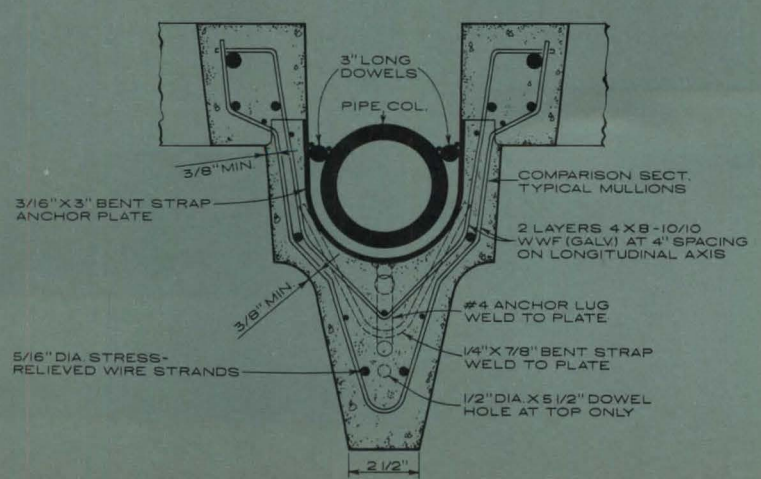
"To reduce the number of picks by one half, the general contractor requested that the mullions arrive on the truck spaced on the same module as the building columns.

"This was accomplished by the fabricator with a fairly simple system of wooden frames for the delivery trailers.

"At the job, the trailers were unhooked and the contractor dropped a jig over two mullions, bolted it to an insert in the top of each mullion and lifted them directly from the truck to the face of the building. On the face of the building, the two mullions were temporarily tied to the pipe column framework, the jig was released and swung down for the next load.

"Much of this erection was accomplished on Saturdays, Sundays, and evenings, when the tower crane was free.

"The jigging of the members at the precaster's yard, and the facility of leaving the trailers at the job site, contributed greatly to the speed of erection on what otherwise might have been a very slow and tedious erection job."



TYPICAL CROWN MULLION

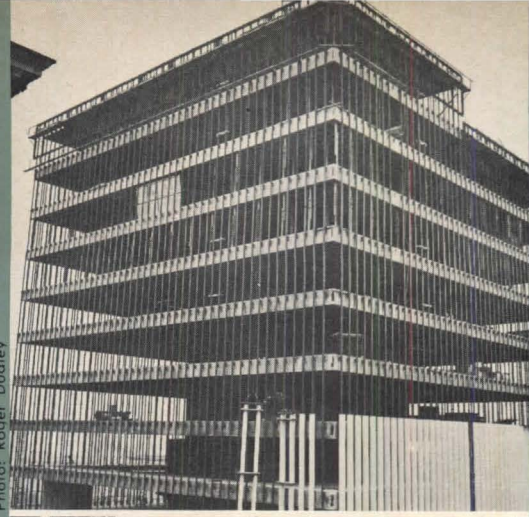


Photo: Roger Dudley

Photo: Roger Dudley

Photo: Roger Dudley

Photo: Hedrich-Blessing

MICHIGAN CONSOLIDATED GAS CO., *Detroit, Mich.*
Architect: *Minoru Yamasaki & Associates; Associated Architects and Engineers: Smith, Hinchman, & Grylls.*

Precast, prestressed concrete units were cast within a tolerance of ⅛-in. Clip angles bolt them to the concrete slab. A dowel protruding from the bottom of each casting fits into a pocket cast in the top of the unit below. Clamps were used to align the units and the pockets were then grouted. A small lip was cast around the edge of each unit to hold hexagonal metal window frames with neoprene gaskets. The outside and inside frames were pushed together with integral clips, locking the frames over the lip of the unit.

R.J. Bronsky of the Operations Staff of the concrete contractor, Otto Buehner & Co., members of the Mo-Sai Institute, Inc., offers the following description of the casting of the panels:

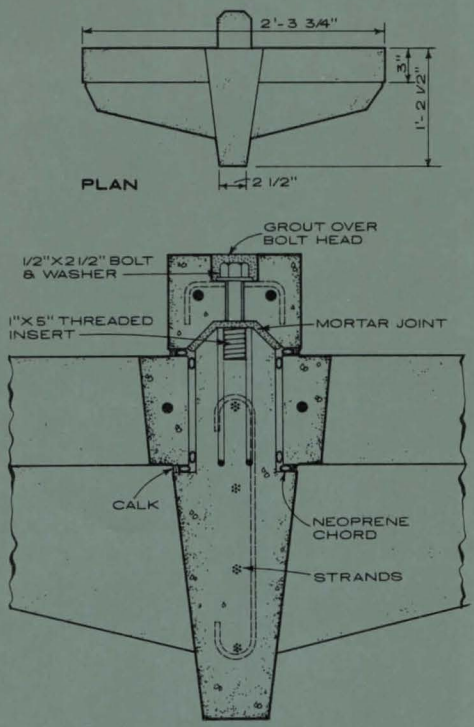
"A concrete mold weighing approximately 7 tons is manufactured from a model of the double lollipop, the 25-ft sections of the building wall. The inside of this mold is polished to a glasslike surface by hand. The inside is then given a coat of mold release material and allowed to dry. Steel cables are passed through the mold centroid with a tolerance of one-hundredth of an inch. These cables are then stretched and placed in tension with a hydraulic jack (tight as piano wires). Onto this cable are fashioned reinforcing rods (commonly referred to in the parlance of the building industry as rerod). Inserts are placed in supports to allow the finished lollipop to be removed from the mold; special hangers that will allow the double lollipop to be hung on the steel structure of our office building are also added. A specially designed galvanized pin is inserted in the mold. Later on in the erection, it will be coated with petroleum jelly to prevent the pin from adhering to the concrete, yet allow expansion and contraction of the double lollipop.

"The concrete to be poured into the mold is prepared with more care than a housewife takes in compounding an angel food cake. Special Utah white quartzite is used with pure white cement and the exact amount of pure water. This mixture is blended in a mixer.

"The mixture is then transported to the mold, which has previously been prepared, and carefully shoveled into it. The amount of water added is so small that this mixture is very thick. It will not flow of its own accord into the mold and therefore must be vibrated. There are 5 of these vibrators operated by air pressure, and they vibrate approximately 10,000 times a minute, shaking the 7-ton mold. When this concrete is under the influence of the vibrator, it flows like water into each crack and uniquely designed crevice in the mold. When the mold is filled, the surface is hand-finished by a gentleman who has been a cement finisher for 50 years, assuring us the best possible surface.

"To hasten the setting of this concrete, steam is ejected beneath the mold into a shroud formed by polyethylene film. So that we know when the cables previously stressed may be released without any deformation of the lollipop, sample cubes of our concrete are also subjected to the steam environment. These are allowed to set overnight. The next morning, the sample cubes are taken to a compression testing machine where they are broken. When these cubes are able to withstand a force of 4300 lbs per sq in., then and only then may the cables be released. The release of the cables puts the concrete double lollipop under compression, making it a more suitable and durable material. The lollipop is then removed from the mold, and coated with a special material to inhibit acid attack. When the inhibitor has dried, the lollipop is placed in a chamber in which the relative humidity, moisture content, and temperature are precisely controlled for a 7-day curing process. After 7 days have elapsed, the panels are removed and plunged in a bath of muriatic acid (to the chemist, hydrochloric acid). This acid eats away the cement and exposes the Utah white quartzite aggregate, which is not acted upon by the acid. The panels are washed with clean water, dunked in a bath of sodium carbonate to neutralize any excess acid, washed again, and allowed to surface dry for one day. They are then given a spray coating of a silicone bearing material, which prevents water and dirt from entering the concrete panel. The panel is wrapped in a bag of polyethylene, stored for 30 days, and shipped to Detroit for erection.

"This process, briefly described above, is used in the manufacture of prestressed exposed aggregate concrete, which will be the outside wall of our new office building. For those of us who are associated with it, we affectionately call it 'distressed concrete with an aggravated surface.' "



TYPICAL PLAN SECTION

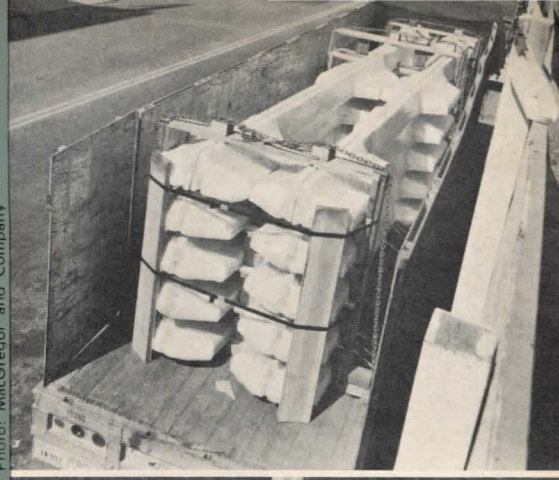


Photo: MacGregor and Company

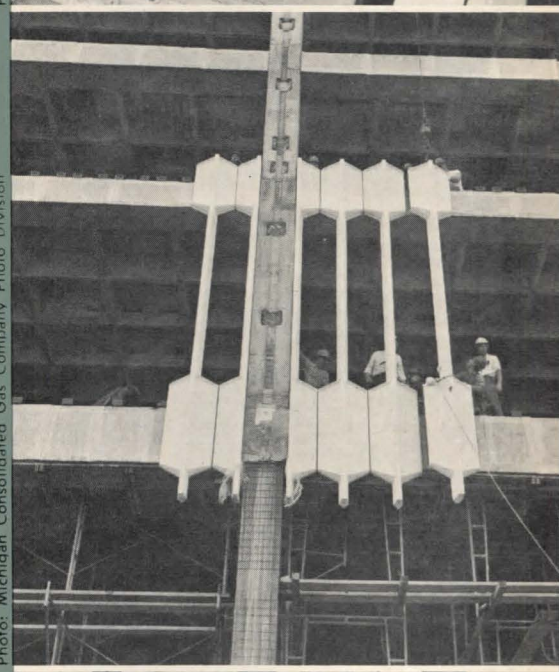


Photo: Michigan Consolidated Gas Company Photo Division


Photo: MacGregor and Company

AWARD WINNING DO'S

This year's winners of the annual Prestressed Concrete Institute competition give a good indication of some recommended do's for precast prestressed concrete.

"Attention in judging," announced the awards program literature, "will be given to the use of precast and prestressed concrete to achieve aesthetic expression, function, and economy." According to many architects, function and economy should be the primary virtue of concrete and its chief objective. Most of the projects chosen by the jury were conceived within the framework of tight budget restrictions.

P/A regrets that its concentration on the concrete structural aspects of the following buildings did not allow a comprehensive presentation. The use of concrete in these projects illustrates only one part of well-designed architectural solutions.

ECONOMY AFOOT

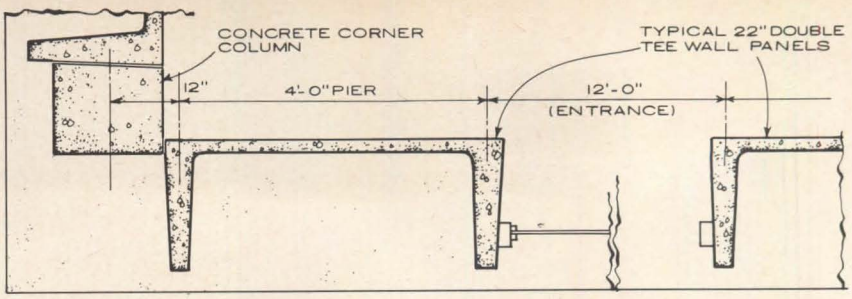
ATLANTA WAREHOUSE, *Atlanta, Ga.* ***Architect:*** *Martin & Bainbridge. Structural Engineer: E.M. Bennet.*

Entire structure of 8-ft structural T's. All wall and roof members are standard double-T's. Roof sections span to a prestressed girder running the length of the building. Special header beams and fascia were precast.

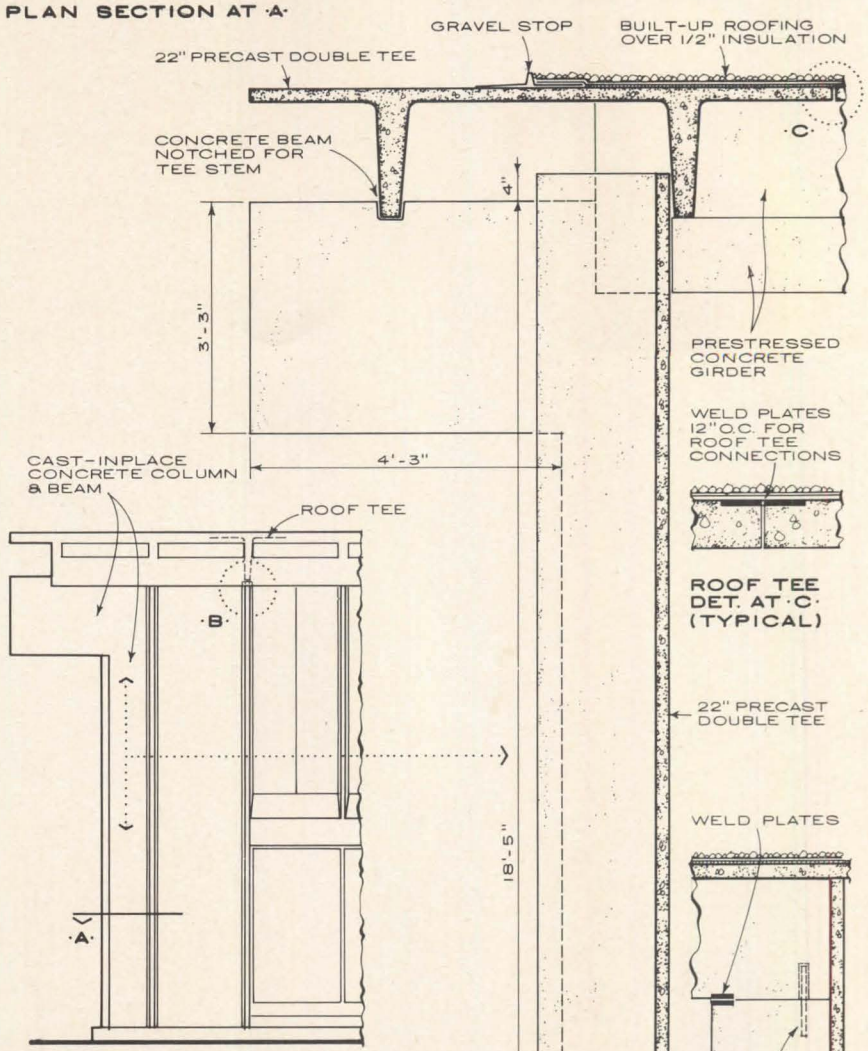
"Throughout this whole hemisphere," commented the jury, "the small warehouse structure has been, normally, kicked into the shade. We applaud the obvious care spent on this design and hope that others will follow."

Perhaps the architect did his job too well, for this humble warehouse has been upgraded to the glamour circuit. The architect informs P/A that it has been rented by a TV broadcasting studio for making movies.

Whether it houses the overall or grease paint set, it came in at a price to suit almost any pocketbook. The basic shell, with roof and pavement but without doors, windows, or foundation, was about $2.80 per sq ft. Bainbridge claims that this type of structure is extremely fast to erect. He has just completed a school building of almost 80,000 sq ft that was erected in six months.



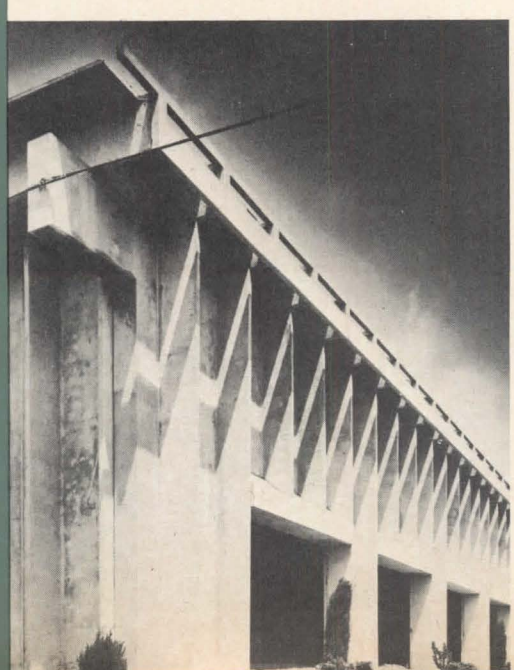
PLAN SECTION AT ·A·

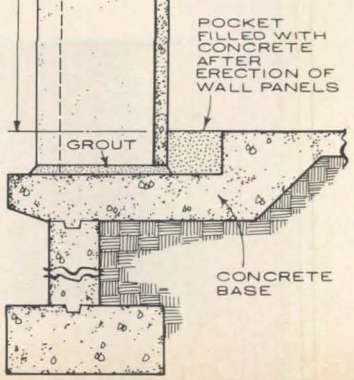


PARTIAL FRONT ELEV.

ROOF TEE DET. AT ·C· (TYPICAL)

WALL TEE CONNECTION DET. AT ·B· (TYPICAL)





VERTICAL SECTION

SAVINGS STRUCTURE

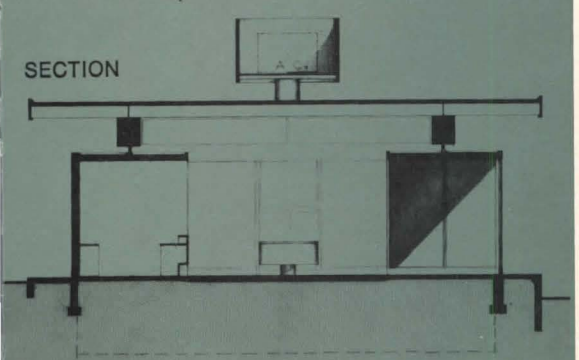
OHIO SAVINGS ASSOCIATION, *Parma Heights, Ohio.* ***Architects:*** *Don M. Hisaka & Associates. Structural Engineers: R.M. Gensert Associates.*

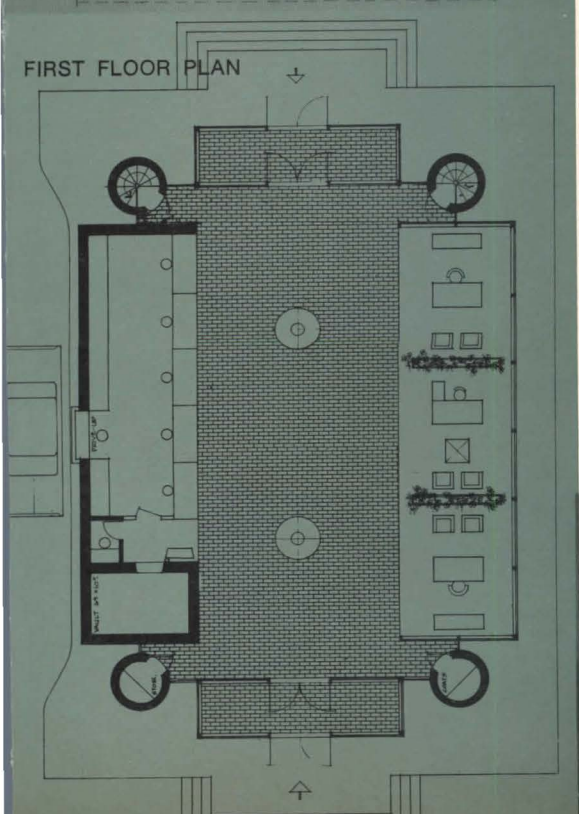
Four cylindrical cast-in-place hollow columns house a stair to the basement, provide storage areas, and support two precast, prestressed beams. A roof system of double-T's rests on the prestressed beams to span the banking floor and cantilever beyond the exterior walls.

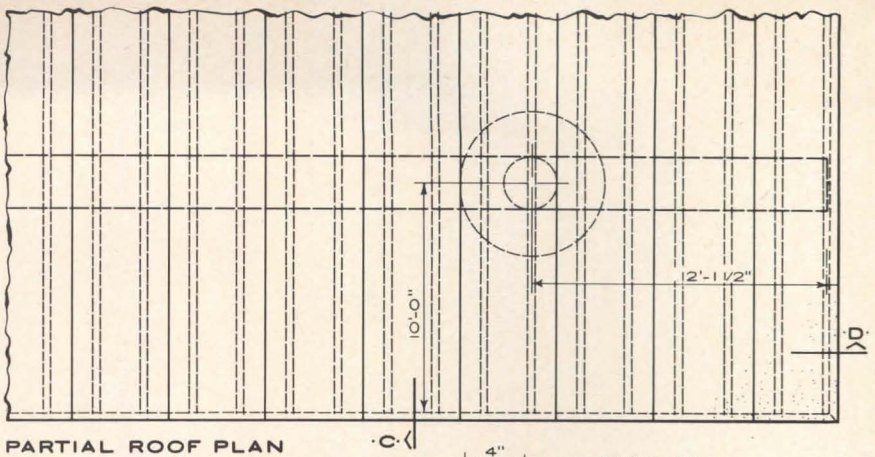
A precast facia caps the T's on all four sides of the roof. End-T's have one flange leg removed. The central T is single leg.

This was a low-budget project that came in on time and very close to preliminary estimates. These considerations forced a few do's on the architect, which he candidly states would have been don'ts under other circumstances.

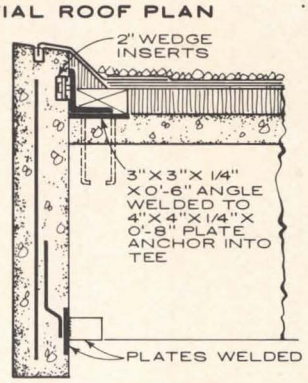
Price, time, and engineering overruled Hisaka's preference for precast, bushhammered columns. Instead, they were cast-in-place, with a plywood form used four times. Fins were rubbed, blemishes removed, and the exposed surfaces covered with a plastic coating. Despite Hisaka's purist qualms, the jury ruled it an aesthetic achievement of "highly simplified structural concepts."



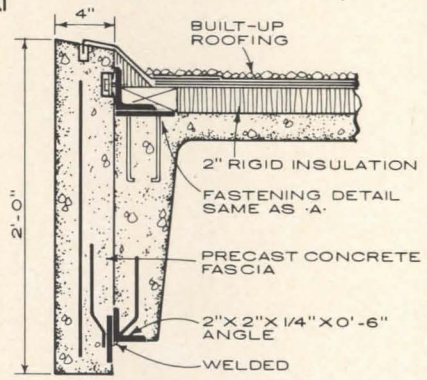




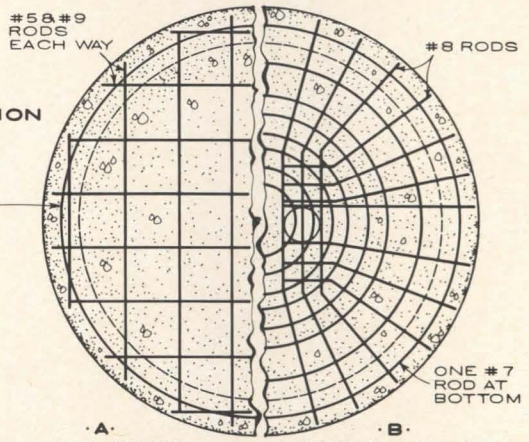
PARTIAL ROOF PLAN

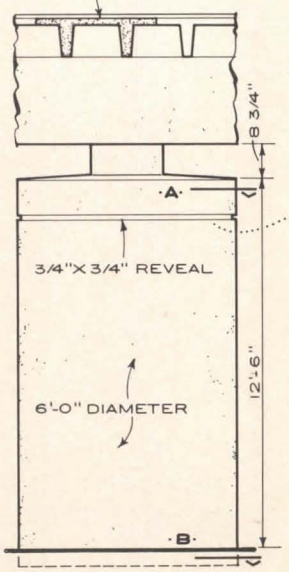


FASCIA DETAIL AT ·C·

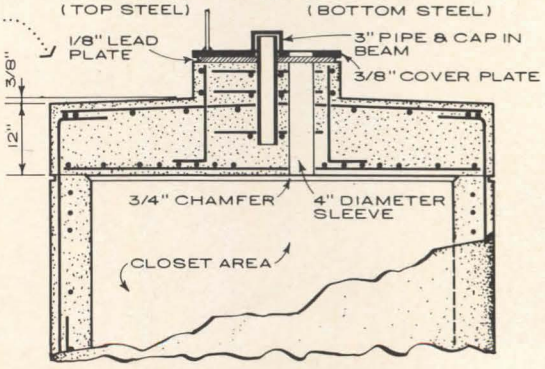


FASCIA DETAIL AT ·D·





COL. ELEVATION

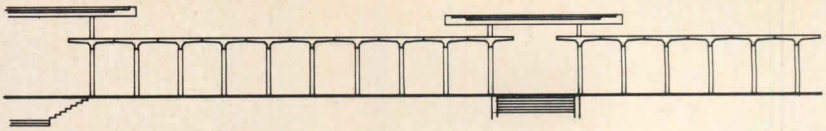


CUT-AWAY DETAIL AT HEAD OF COL.

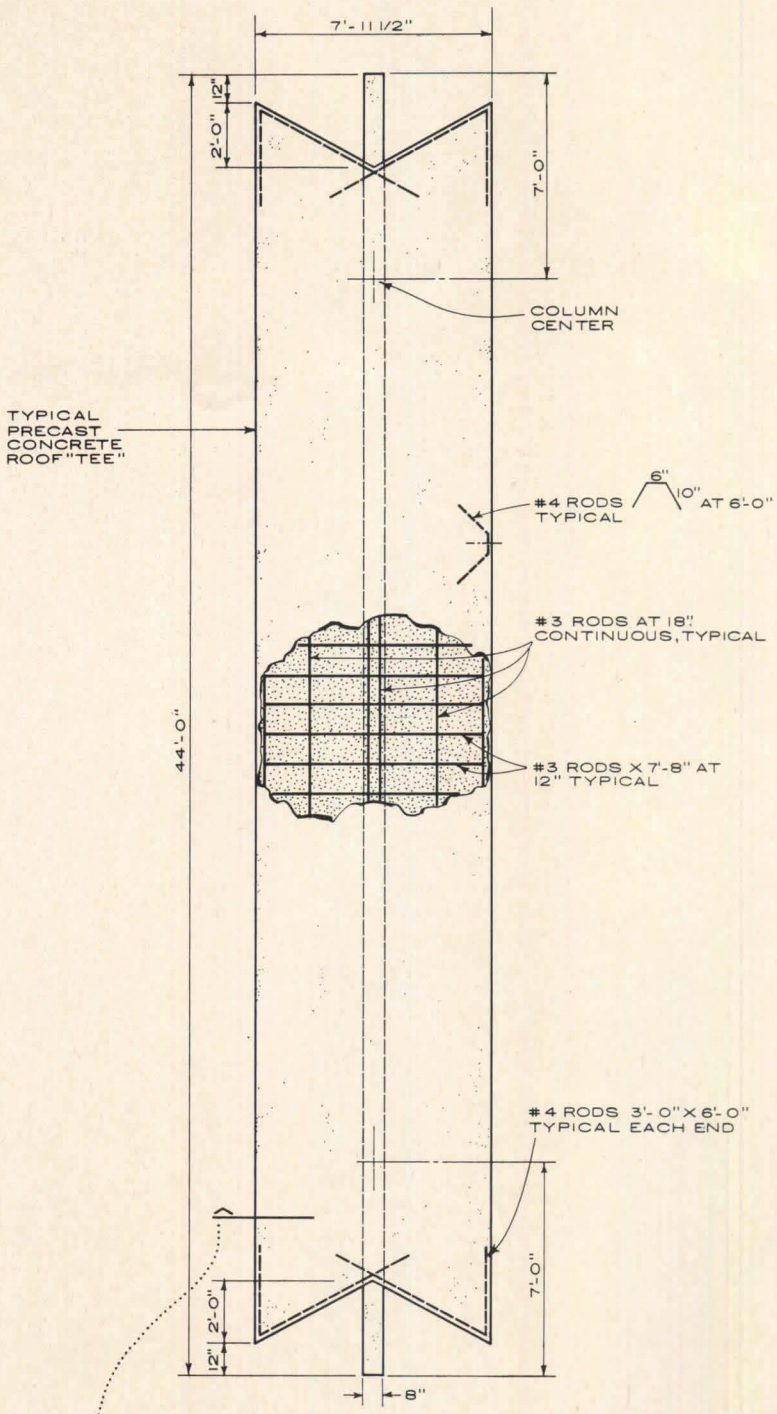
FLANGE SCULPTURE

SAN PEDRO YMCA COMMUNITY CENTER, *San Pedro, Calif.* ***Architects:*** *Joncich, Lusby & Associates. Structural Engineers: T.Y. Lin & Associates.*

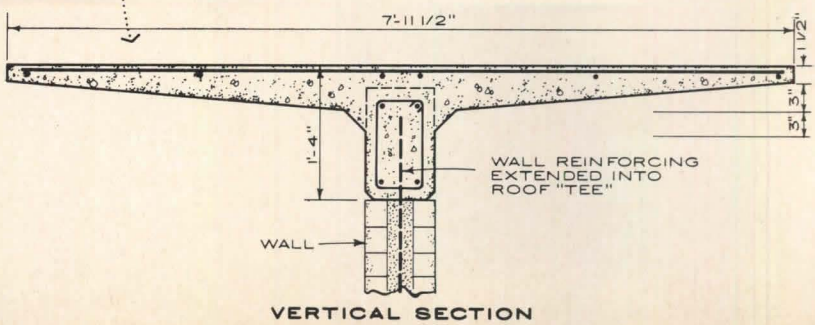
One hundred and twenty-six standard precast, prestressed concrete T's, with 8 ft and 10 ft flanges ranging in length from 30 ft to 114 ft, were framed into precast columns. The T's were used as governing modular units for the building. T flanges were cut back, exposing the webs at the eaves.



EAST ELEVATION



PLAN OF ROOF "TEE"



VERTICAL SECTION

PRECAST AT 10 LINEAR FEET A DAY

EDENS EXECUTIVE CENTER, *Wilmette, Ill.* ***Architects:*** *Lattin Smith & Associates. Project Architect: Frank John Moulis.*

A complete building, requiring only minor structural adjustment, was erected at the rate of 10 linear ft per working day. It was awarded an honorable mention in the 1966 PCI awards program. The precast Mo-Sai units were pre-bid and later assigned to the general contractor, saving three months of fabrication time. Precast units were ready for installation upon completion of the foundation.

The combined three-story precast enclosing wall panels, supporting 60-ft clear-span prestressed structural T's, enclose 62,000 sq ft of floor area.

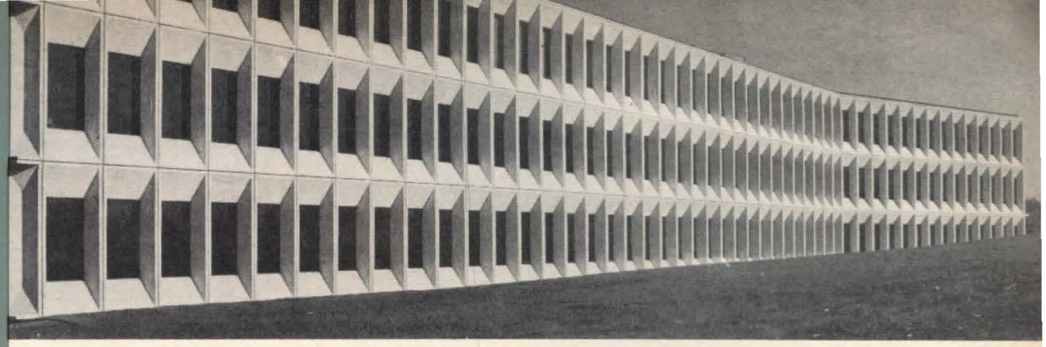
The wall panels were detailed for zipper neoprene glazing and included in the precast subcontract. Glazing followed immediately upon wall panel erection. The building was completely closed in within a few days after the end wall panels were set. Temporary windows were eliminated.

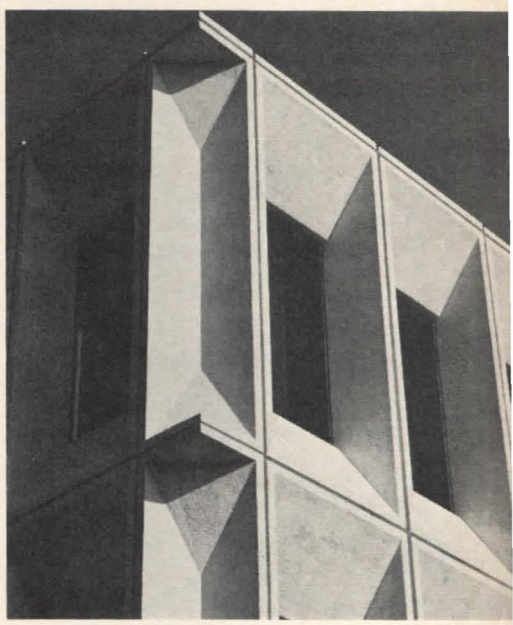
Erection

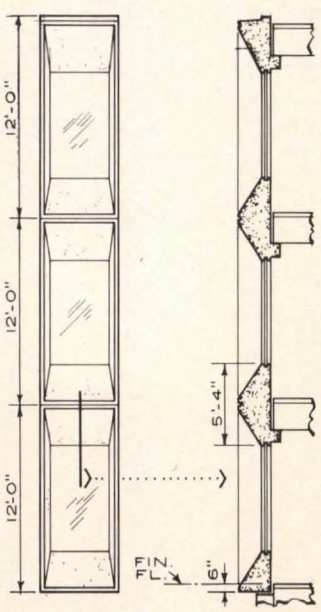
Double-T floor units in 5'-0" modules, matching that of the wall panels, were haunched on the wall panels and tack-welded to allow uninterrupted erection. At completion of erection, the double-T's were welded together, and 2-in. lightweight topping applied over the entire floor, except for 18-in. strips at each end. The remaining floor structure camber was then jacked down to anticipated live load level, stretch-plate welded in at fixed end, and the 18-in. topping strip completed. Creep was anticipated at the free end by use of designed spring retainers, holding outer (free) wall at predetermined stress during and through anticipated creep movement and creep slip allowed by neoprene shim plates at haunch bearing.

Present and future electrical connections were provided for in free lateral space between T webs and the mechanical work confined to space between slab soffit and suspended ceiling. This lateral "chase" method provided electrical and mechanical services to all areas of each floor and anticipates complete flexibility for lease changes without in-floor duct and access system.

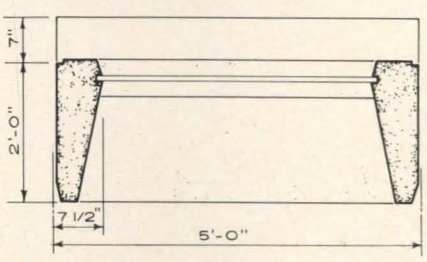
Photos this page: Orlando R. Cabanban



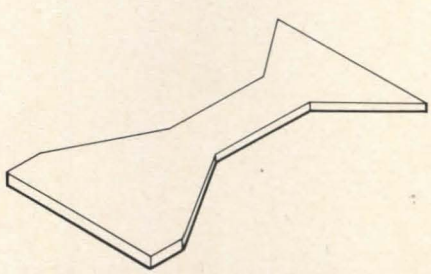




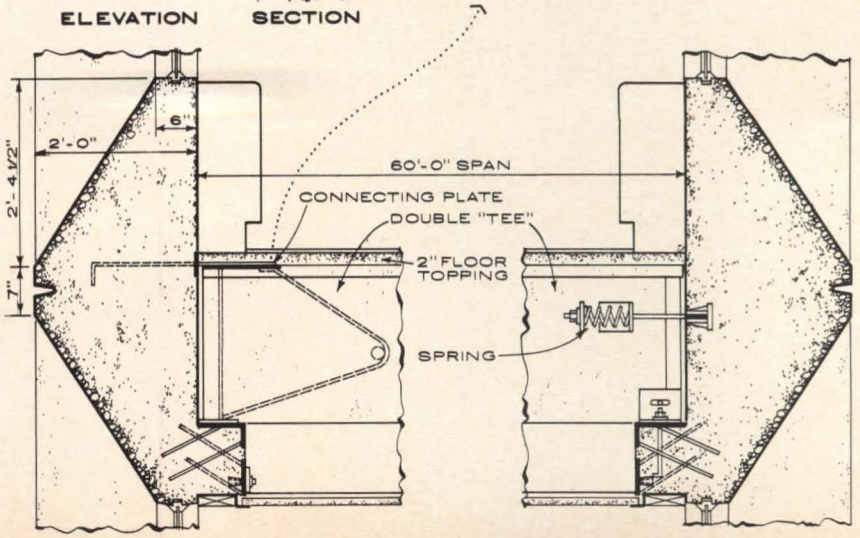
ELEVATION SECTION



TYPICAL PLAN SECTION



ISOMETRIC OF CONNECTING PLATE



SEMI-RIGID CONNECTION SLIDING END CONNECTION

STRESS ON TORONTO CITY HALL

TORONTO CITY HALL, *Toronto, Ontario, Canada.* ***Architects and Engineers:*** *Viljo Revell, John B. Parkin Associates.*

The Toronto City Hall has received a good deal of publicity, not all favorable. Be that as it may, for a very successful *do* with post-tensioned concrete, it bears further mention. After commending the Toronto city government for its choice of an "inspiring image of the city," the jury went on to say: "The complex uses precast and prestressed concrete in fresh, clean design to achieve what would have been difficult to construct with any other material." Somewhat of an understatement, we might observe. Whatever the architectural criticism has been, just or unjust, its structure has elicited on the whole nothing but highly favorable comment.

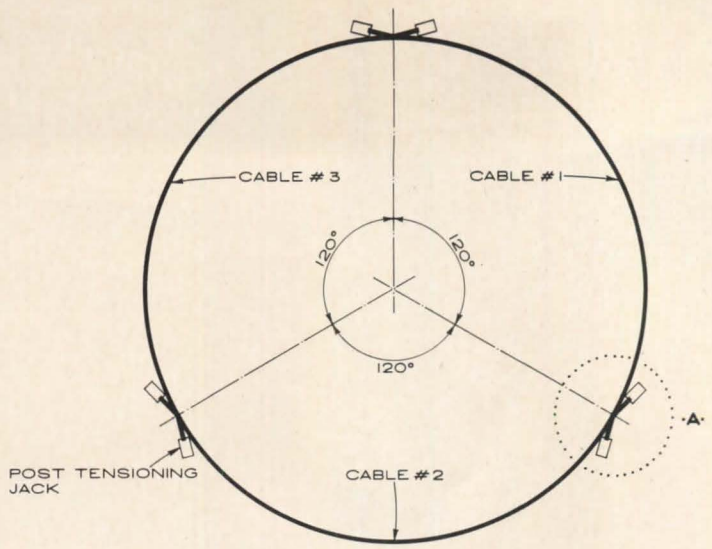
In discussing the project, the architects made the following points:

The cone slab is 18 in. in thickness and its generator is inclined at an angle of 30° to the horizontal. The cone contains three stiffening perimeter beams, which support most of the concentrated loads in the council chamber, and also help maintain a membrane state of stress in the cone slab.

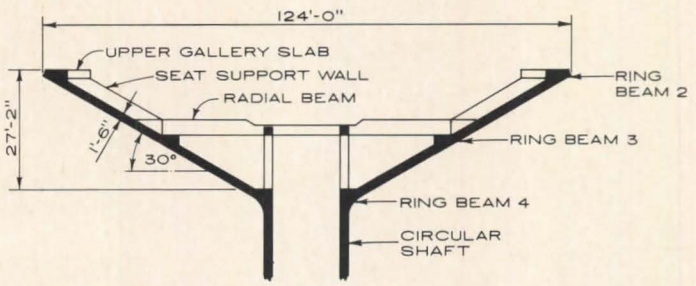
One of the benefits achieved by prestressing is the elimination of tensile cracks in the concrete, and the accompanying unsatisfactory weathering characteristics and visual aspects. Equally significant, however, is the minimizing of long-term deflection. This beneficial aspect was particularly important in permitting the proper installation of the circumferential glass, which spans between the podium roof and the underside of the council chamber cone.

Ring beams 1, 2, and 3 are prestressed by means of Freyssinet 12/5000 post-tensioning tendons. Each tendon, consisting of twelve 7-wire strands, has a nominal cross-sectional area of 1.73 sq in. and a design force at the jack of approximately 300,000 lb. Ring beam 1 contains 8 tendons, and beams 2 and 3 are prestressed with 5 tendons and 3 tendons respectively. Ring beam 4 did not require prestressing, since the nature of the geometry and loading produce a radial compression in the beam.

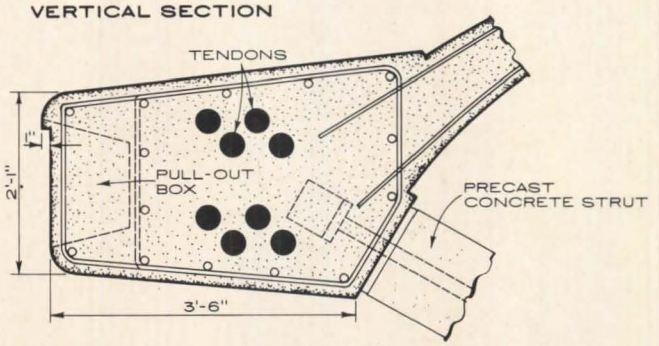
It was not possible to install each tendon around the entire circumference in one length, since the losses in prestressing force would have been excessive. The effect of one circumferential tendon was thus obtained by using three separate lengths, each traveling through 120°. Six jacks were required for each post-tensioning operation, and these were inserted in pull-out boxes. The boxes were filled with concrete after anchoring of the cables was completed.



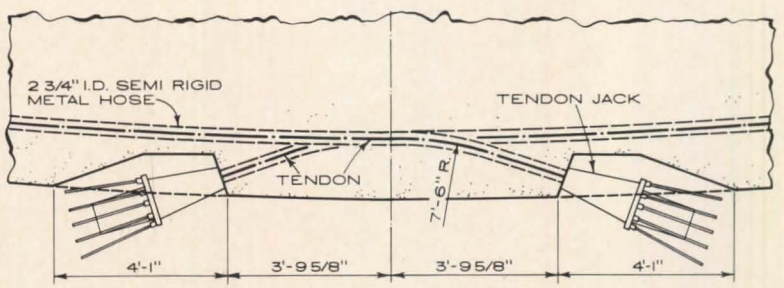
PLAN OF CABLE LAYOUT



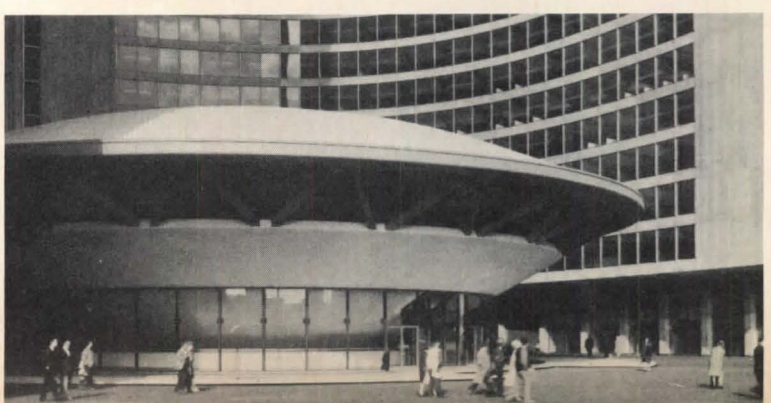
VERTICAL SECTION

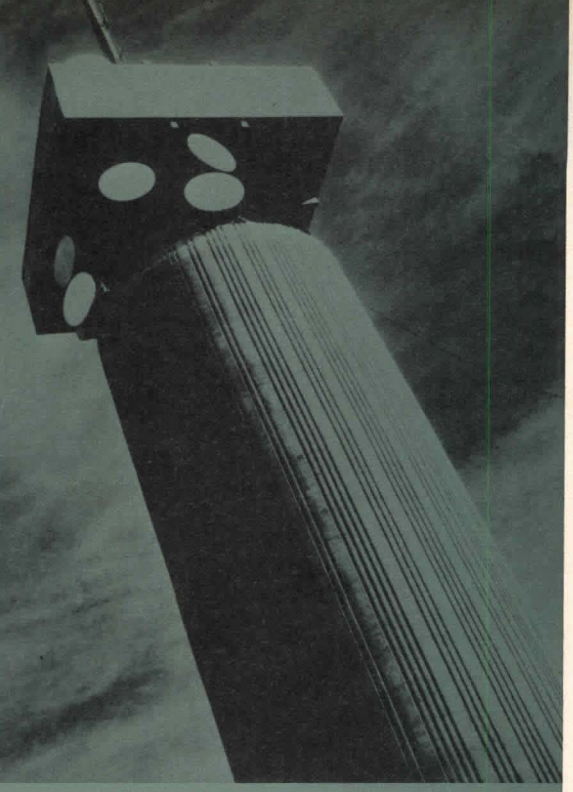


ROOF BEAM DETAIL



TYP. ANCHORAGE DETAIL AT ·A·





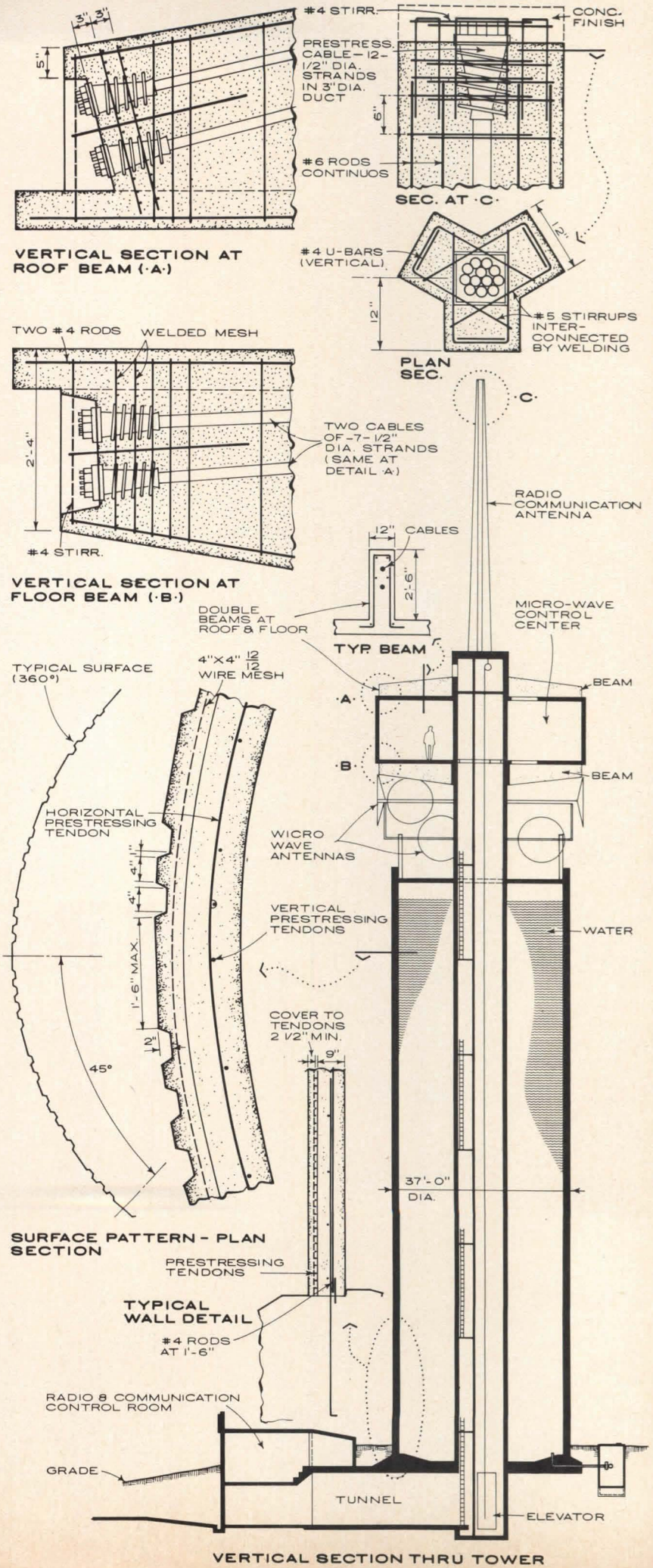
STRESSING WATER

WATER TOWER COMMUNICATIONS CENTRE, *near Simon Fraser University, Burnaby Mountain, British Columbia, Canada.* ***Architect:*** *Erickson Massey. Structural Engineer: Stefan Faliszewski.*

This 750,000-gal water tower pedestal, which supports a microwave center sandwiched between cantilevered control discs, is truly a multipurpose structure. Total height is 240 ft. A control room for heavy equipment is located at the base of the tower. Access to the control tower is by elevator or ladders located inside the tower.

Elevator core and water tower walls were slip-formed and post-tensioned. The outer walls received an additional slip-formed grooved concrete protection. The exterior wall of the tank is prestressed horizontally and vertically. The elevator shaft is prestressed vertically. All beams for the control room are prestressed by post-tensioned cables.

The jury terms it "a unique solution to the problems of both functions."



BRILLIANT STRUCTURE

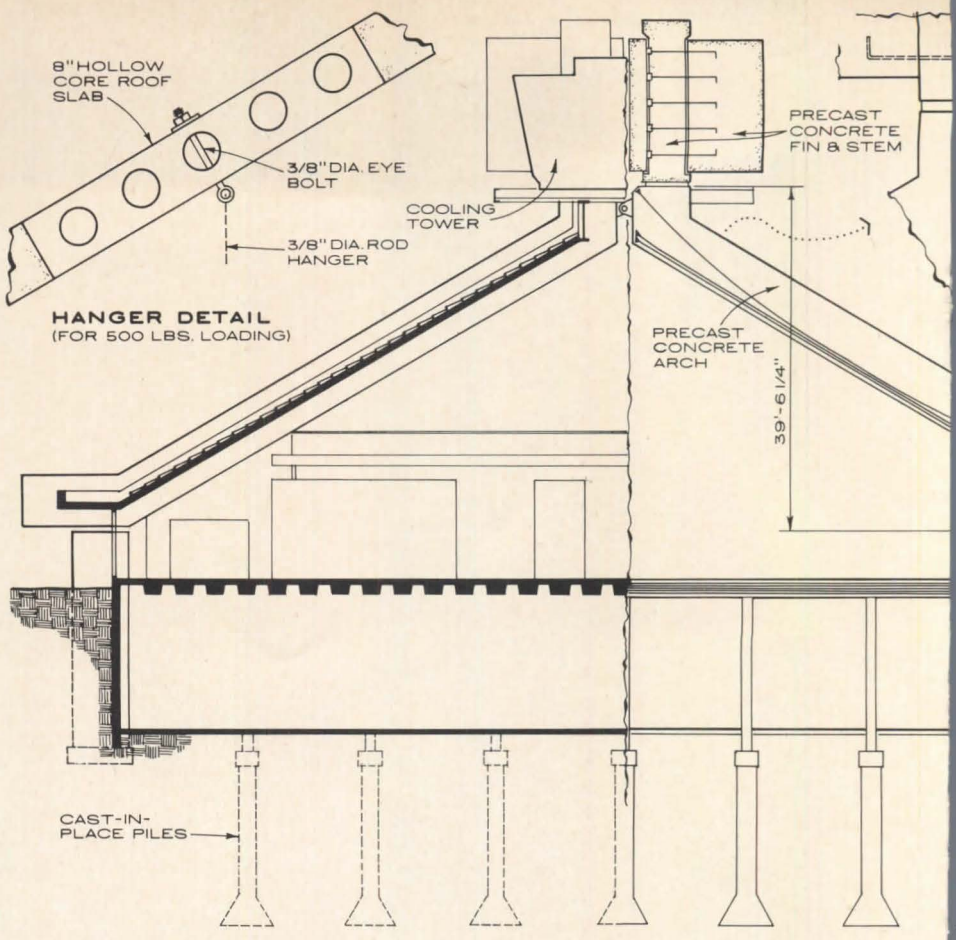
CENTRAL HEATING AND COOLING PLANT, *University of Saskatchewan, Regina, Saskatchewan, Canada.* ***Architect:*** *Clifford Wiens. Structural Engineers: Reid Crowther and Partners.*

"The structural concept is brilliant, demonstrating excellent use of prestressed concrete members," was the jury comment on this power plant for a university campus. The A-frame was chosen, say the architects, because it would best enclose the ideal space configuration required for mechanical equipment. The system gives support to heavy cooling towers and allows a concentration of roof penetrations for mechanical and plumbing vents at the apex, freeing the rest of the roof from such penetrations.

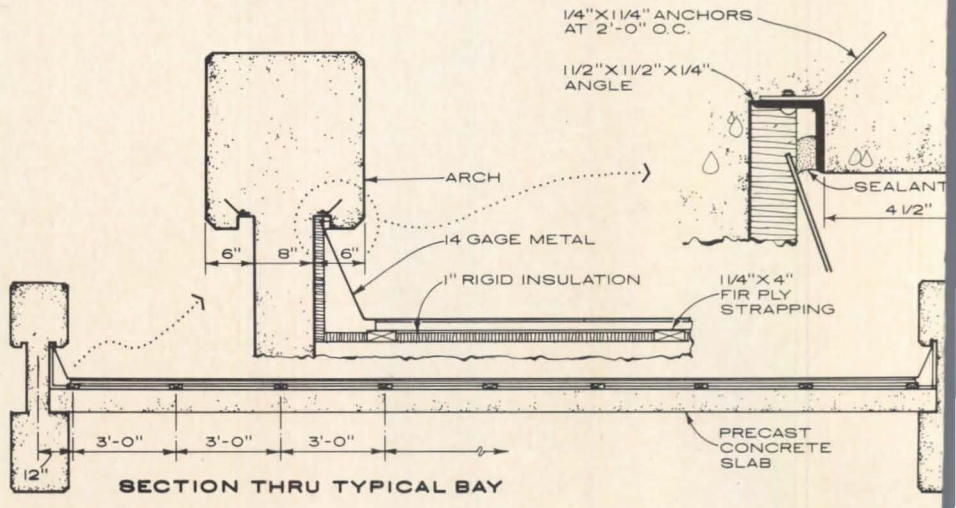
Steel, they concede, would have been more efficient from purely structural considerations, but when they considered condensation problems, fire-proofing and maintenance, they had no doubt as to the suitability of precast concrete for the structure.

The precast boardmarked formed concrete was not touched after it left the forms. The vertical markings control the staining impurities in water that runs off the roof.

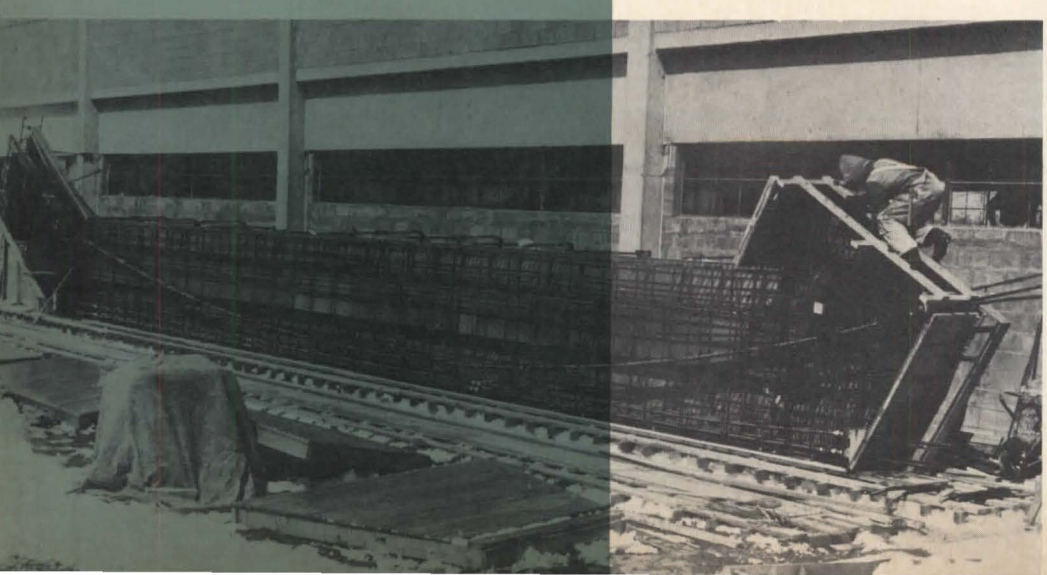
The architects also noted that concrete allowed a clear expression of structure both inside and out, which is not always possible in a relatively severe climate due to the condensation problems.

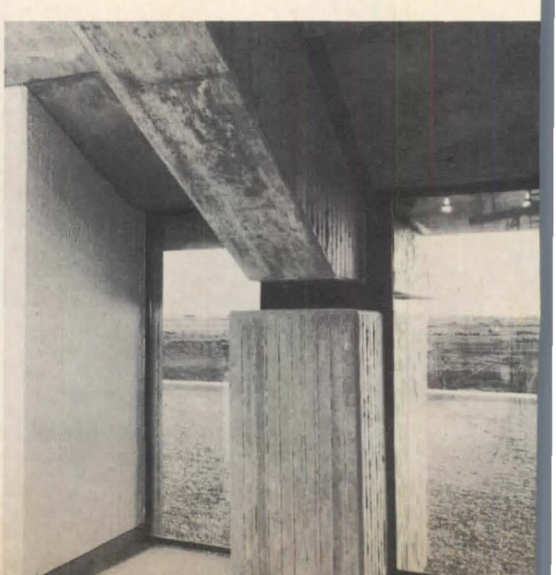


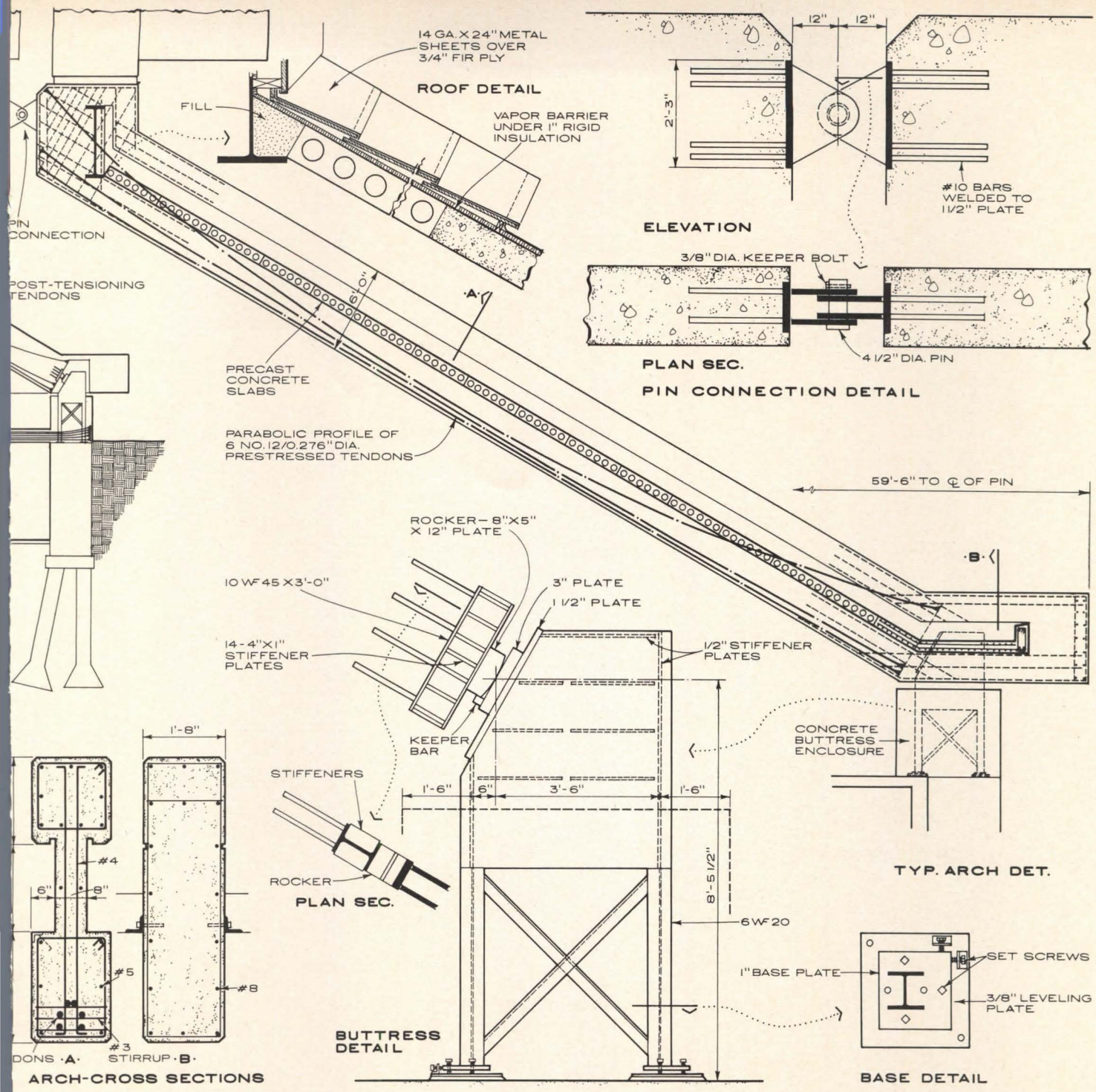
TYPICAL SECTION

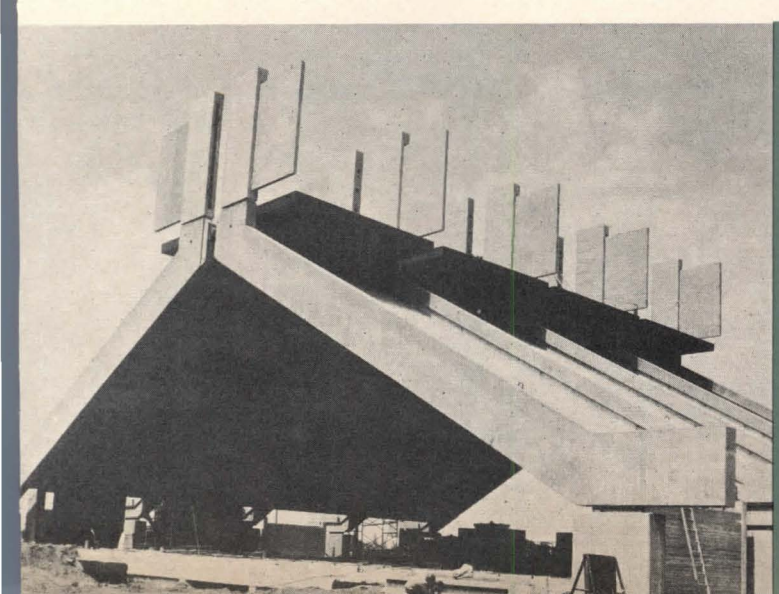


SECTION THRU TYPICAL BAY









The foregoing details were selected not because they represent startling stylistic innovation, but because they show good to outstanding solutions to everyday problems encountered by the majority of working architects.

The ingenuity displayed represents the inventiveness of designers who are finding solutions to the problems of concrete technology within the general usage of our day. That usage is not static; it has improved directly in proportion to the skill of architects and fabricators in the use of concrete. What architects will eventually evolve with concrete architecturally will depend on how well they are able to handle it technically.

THE MEDIUM IS WILLING...

By Robert H. Mutrux, an architect practicing in Bridgeport, Conn.

In another of his sardonic probes, Robert Mutrux investigates the question why, in relation to the other arts, present-day architecture is not held in greater esteem.

Time was when the supreme fulfillment of a man — or of a whole race — could quite satisfactorily be realized through a monument built in the prevailing "style" of architecture. The method of construction, the form of expression, and the ultimate message were happily united in a tangible, legible capsule for the philosopher and the archeologist to generalize about for a legion of tourists to record in their photograph albums.

Today, just as happily, there are no more "styles" of architecture. There are innumerable ways (and reasons) to build a building, but the variety of results has long ago ceased to be a clear expression of anything but the vagaries and vanities of individual architects. The journalist from outer space, taking a UFO's eye view of the Nile Valley, Greece, Rome, France, and then Megalopolis, with a brand new World's Fair at one end and Collins Boulevard at the other, will be hard put to find a more apt headline for his local paper than Shakespeare's "Confusion hath made his masterpiece!"

Judging both by computer and by crystal ball, things are likely to get a lot worse before they get better. The old giants of architecture (one avid giant-watcher counted no less than 11, each with young, back in the late 50's) who once imposed a modicum of discipline on the landscape have for the most part become colorful but ineffectual legends, like the Greek gods. They have been replaced by a horde of energetic and talented mortals and a plethora of (us) pygmies who are perennially engaged in a mad scramble to be noticed, not by posterity, but by the next client. It is an avocation which, to paraphrase Alexander Woolcott, is neither illegal, immoral, not fattening, even a little rewarding, and everybody loves it. But a few of us are plagued, between jobs, by the nagging sensation that something is lacking. There are no standards to go by (beyond the vague dictates of our professional conscience) and the work of our time seems to have about as much direction as Stephen Leacock's horse. Despite the unprecedented hurly-burly and the general aura of prosperity, the oldest form of expression is at a low ebb. As far as significant "statements" are concerned, the phrase-makers have taken over completely and the maker of images is struck dumb.

It is not merely a personal dilemma. One of our more perceptive editors recently suggested that the least a work should do, in order to merit history's attention, is to "contribute to the advancement of the profession." This cryptic manifesto was delivered somewhat in the manner of the Greek oracles, without elaboration, without key, and one has the vision of its author straddling a steaming tripod on the twentieth-odd floor and chuckling to himself, "That'll hold them for a while!"

It is a laudable proposal, and it may well provide a much-needed standard of judgment and a *direction* at the same time. Discounting the obvious thesis that self-immolation, in certain cases, might advance the profession immeasurably, the suggestion raises two vital questions. First, by what drum-head jury will a man's "contribution" be assessed? Presumably a man's peers, with whom he has studied and served on panels and had innumerable lunches, know no more about architecture than he does, yet they are in a position to declare that his life's sincere effort is not a "contribution" but a massive waste of time, a sham, and a delusion. And from all those who are themselves equally eager and qualified to make a contribution, who will select a jury? It is like the old question of who watches the watchmen.

Secondly, it neglects to provide a clue to the elusive term "advancement." Whereto, pray, after five thousand searching and exhausting years, shall the oldest of the professions advance? Must it settle from here to eternity, for the restless pursuit of elusive "truth" without ever reaching it, with no reward save the perpetual quest? This is going to be a little frustrating, to say the least, and not what we bargained for when we chose to put all our youthful eggs into this large and shapeless basket.

The old royal road, the expression of individual grandeur is so cluttered with contemporary status symbols in the form of sports cars on the one hand, and manufacturer's trailer-trucks on the other that it seems permanently closed as an avenue for the advancement of architecture. The large private estate has given way to the anonymous town house and the obscure suburban retreat, the private plane, and the collection of sculpture and painting. This leaves the relatively restricted categories of civic centers and the whims of large corporations, and there are not enough of these.

Perhaps, in the search for new fields, architecture could rise above its stuffy temporal foundations and reach into the misty realms of philosophy. It is worth considering. Organized religion, architecture's erstwhile mainstay, has had its day, and there is no more eloquent witness to the hopelessly fragmented state of the church today than the infinite varieties of "religious" architecture that strive feebly to remind us that the church continues to exist at all. The area of philosophy, on the other hand, is all the more challenging because it never appeared to need an architecture to survive. None of the philosophies of the world, from Plato and Socrates through Spinoza, Hegel, Kierkegard, Nietzche, and including Ethical Culture, Existentialism, Zen, and even Nudism, has ever been enclosed in a structural frame. It is a new world to conquer. What are our sales representatives waiting for?

On the other hand, it might venture into the heady stratosphere of metaphysics. A vision of the plateau of delight

where inspiration comes from mind-manifesting chemicals and design is accomplished by computer should be well worth the price of a jolt. The return trip from the world of continual moonlight could be timed with the annual confrontation with the B.I.R. and a lecture tour to which capacity attendance is a foregone conclusion. We have not begun to plumb the measureless caverns of ancillary benefits that could accompany this experiment.

As a further possibility, architecture might plunge into the current maelstrom of aesthetics and become, at long last, one of the fine arts. The movies did it in five decades, TV did it in one. Architecture, with its lineage of five millennia, deserves its own muse. Why should not the "mother of the arts" divorce the cold, barren bed of reason and, like the middle-aged matron completely rejuvenated with all available pomades, exercises, exterior purtenances and a new mental attitude, grace the boulevards and the galleries alongside of her emancipated, mini-skirted daughters? We may yet see a *nouvelle vague* in architecture, possibly with a little sex, hopefully with a lot of humor, certainly with exquisite direction and presentation. An architecture of the absurd may be just around the corner. If we follow the pattern of the accepted arts, the horizon opens up to infinity. It takes a lot more time, energy, material, experience, patience, and money to put up even a mediocre building than it does to produce a great play, yet what contemporary building has enjoyed one-tenth the acclaim of "Who's Afraid of Virginia Woolf?" or "La Dolce Vita"? Why doesn't Ed Sullivan squeeze into his program of finger-snapping songsters, dumb acts, and hamming diseurs and disueses, a "Building of the Week — or Month"? Why doesn't the *Saturday Review* (which used to confine itself to literature) have a weekly page on architecture, as it publishes regularly for ballet, for records, for music?

The answer may be right under our twitching noses. Architecture has fallen on evil days because everyone is accustomed to it, and people are no longer surprised.

The profession of building has become a mere background, and innocuous stage-set for a scene that is already glutted with neon-lit slogans and eye-catching symbols, and people have *become* blind to it in the same way that they have become dead to the music that is piped into every room, every car, every supermarket. Aaron Copeland remarked with astonishment that he could hear Beethoven's entire Ninth Symphony, complete with Mengelberg and full chorus, if he rode up and down a certain New York elevator 49 times! The world's composers, certainly those who are spinning around in their graves, can do nothing about the indiscriminate propagation of great music, but the architect is responsible to a great degree for what is happening to the profession of building.

Architecture will "advance" and the architect will make a "contribution" when his work once again forces people to see it, to be moved by it, and to find in it an answer to their questions. In its initial impact it must be arresting, or, as Philip Johnson stated, "It must make you gasp!" but in its final full impression it must invite you to return, to look again, because it contains something of yourself. It must provide a little — or a lot — more than you expected, if not an answer, at least a little reassurance, or it will vanish, and it may as well not have been built. This is not a new functionalism, but an application of an old principle. It does not lead "*vers une nouvelle architecture*" but rather toward a very old one, one we lost sight of when a certain rather wordy Swiss with his tongue in his cheek proclaimed that "a building is a machine."

It is not enough to be acknowledged by the editors who, however well-versed in the oldest of crafts and however eclectic in their judgments, are still subject to the baleful influence of the market on which their publications depend for their daily bread. A flattering double-page spread may, in all honesty, be an introduction to the novelty of a building's structural or decorative components as well as a representation of a skillfully solved problem in pure design.

Nor is it enough to be lauded by the aesthetes and the critics, whose incurable penchant for double-talk often distracts from the quality of a work. Wolf von Eckhardt's artless statement, "Discussion about architecture has graduated. . . . Names in architecture are dropped at cocktail parties as easily as those of night-club performers . . ." is a tribute to the medium of alcohol but not to the art of building. And when Louis Kahn straight-facedly praised the unworkmanlike blemishes and discolorations in the raw concrete as a "feature" of one of his buildings, he joined a list of offenders who are all well below his stature.

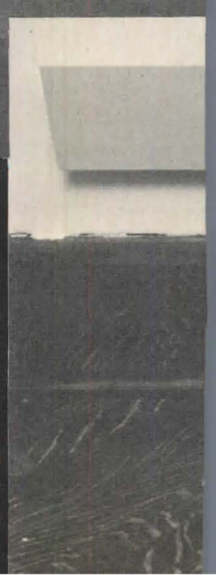
A man's work will be judged, ultimately, by the nameless, voiceless processions, without cocktail, with only one camera, but with an appetite for the kind of stimulation and satisfaction that great architecture alone can provide. A man's "humility" or his "passion for anonymity" or his private life and even his personal message are all besides the point. The viewer is looking for the echo of his own message, as he has in the past (and we have a whole shelf of postcard albums to prove that). And if architecture and its practitioners have a key to that message, it must be stated in bold type because competition from other means of communication is formidable, to say the least.

There is no question that a lot is waiting to be said. If architecture is able to say only a small part of it, the most ancient, the most emphatic, the most pervasive, the most permanent of all media may yet rate a chapter in one of McLuhan's books!

BUT THE MESSAGE IS WEAK

THE FREEWAY COMES INDOORS

Yale-architecture-trained Doug Michaels used a photomural of the ubiquitous bug purring down the street of dreams and bouncing over ionic capitals in his former apartment in New Haven. It puts the image of the mechanical bride above the garage of the non-mechanical bride.



English artist Gerald Laing has found inspiration in the customized, homemade hot-rod, which he says is American folk art. His abstracted forms evoke hot-rod parts, speed, smoke, and the serpentine flame motif. His materials are identical with the dragster itself: rainbow flaked metal or chromed metal that wheels the image into the plane beyond.

If the trailer industry had an aesthetic crack-up when it set the house on wheels and took it out onto the road, today's designers are winning a visual drag race by putting the trailer into reverse and bringing the automobile — and the whole freeway, in fact — indoors. As they say in today's neo-40's jargon, "It's super!"

The "Yield" signs over college dorimtory beds, the bumpers as fireplace fenders, the headlight bulbs in table lamps are constant reminders that the mystique of the autocar has captivated man. From fiery phaeton to tin lizzie, from Model T to souped-up dragster, the young in spirit have been revved up about speed. Today, they cherish the chrome wheels and the shine-and-polish routine that accompany it. The automobile is in the forefront. It is the imagery of our day.

Nearly half our time is spent in the environment of the road. Besides, with roadways going through buildings and, more and more, becoming a part of them, the visual aspects and accoutrements of the freeway were bound to be adopted for their decorative value.

Decoration, however, is what architects have pooh-poohed for the last decade. Posey-flecked wallpaper is bad, they said. (And this resistance broke down only when it was recognized that Mies' I-beam mullions were structurally unnecessary and were, therefore, applied decoration.)

Today, however, the distinction between design and decoration is almost academic. What counts is imagination and invention, appropriateness (even if of a perverse kind), and taste (whatever that is). Now, to use roadside billboards or street construction tarpaulins as wall coverings is suddenly and entirely acceptable.

Critics of this phenomenon say that using a bumper as a fire fender is no better than using a wagon wheel as a restaurant chandelier. And Boris Aronson remarks, somewhere in his *Encyclopedia of Furniture*, that when Victorian ladies brought gilded flatirons into their parlors as decorations, it was a sociological expression of their emancipation from the kitchen.

Wags point out that hanging up automobile parts is like hanging up one's suit of armor. One wonders if any knights of yore had two-armor houses — like two-car garages.

Was this — like the Victorian flatiron — also a glorification of where people spent their time — as the case of the automobile seems to be today?

How did the freeway get indoors? The deification of the machine and of the industrialized process started it all. Most recently, Pop Art investigations have "laxed" us further into accepting the commercial-folk aspects of our two-sided, gaudy-vs.-designed culture.

But the one-for-one substitution of roadway elements for indoor purposes is not the essence of Pop Art, which attempts, rather, to re-illuminate, to extend the limits of our comprehension of an artifact usually glossed over in our popular culture by actually transforming it or placing it in a new (and preferably ambiguous) context.

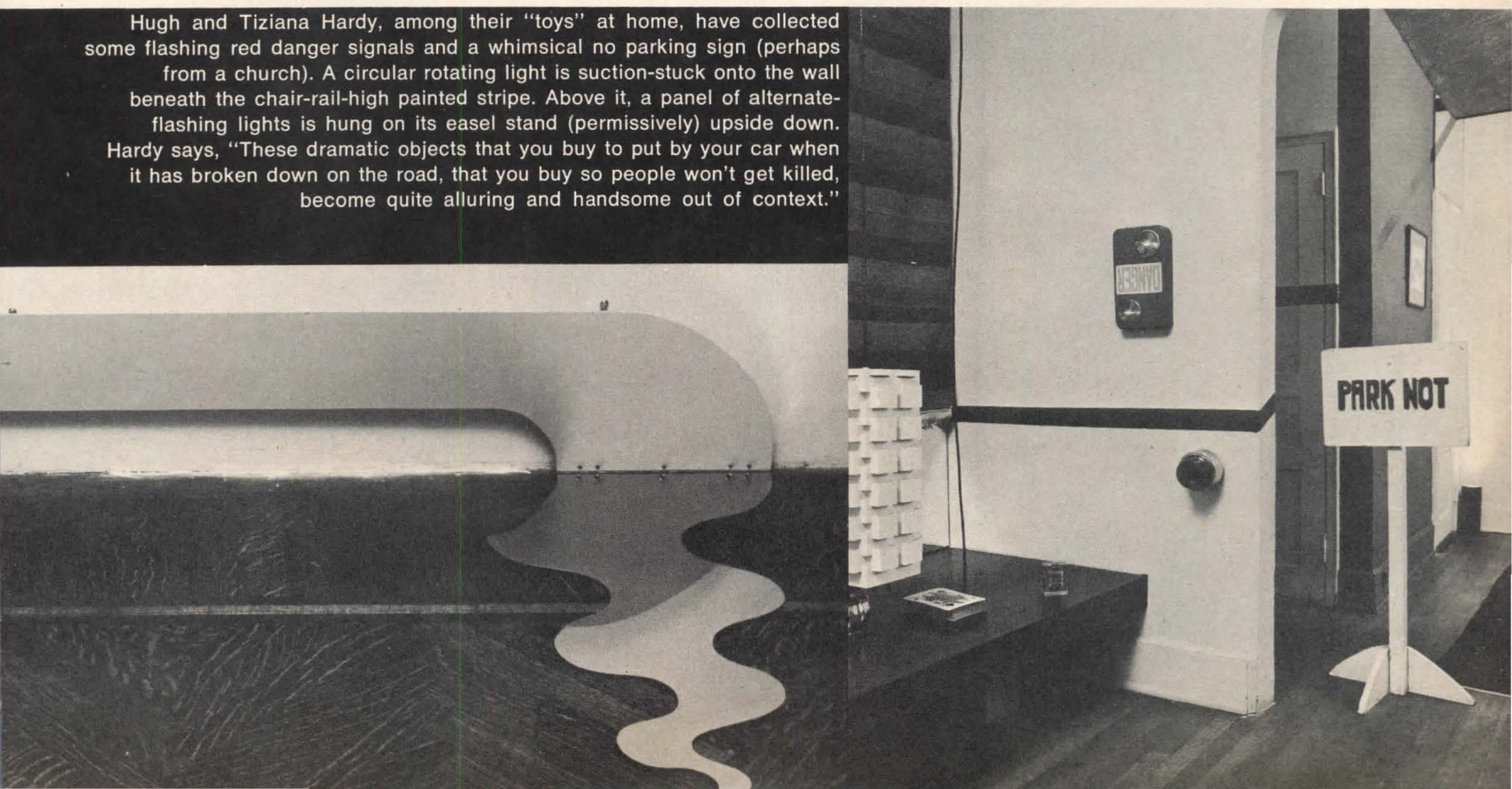
As the fine arts have shown, the transformation of freeway elements has varying degrees. In George Segal's contextual changes and John Chamberlain's and Cesar's assemblages, the roadway items remain realistic, if rumpled. In Gerald Laing's work, the imagery has been abstracted — chrome and enamelled metal pieces evoking mufflers, smoke, and speed.

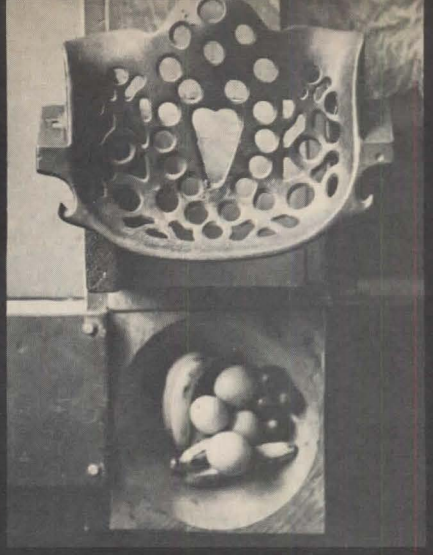
Some of the freeway elements now seen indoors also exhibit degrees of transformation — both contextural ambiguity and actual abstraction.

But the fine arts, as always, have already sped ahead to other imagery, leading the way.

Your Horoscope: aerospace is next. The minimal space capsule will move indoors. Caution is advised at blast-off. — CRS

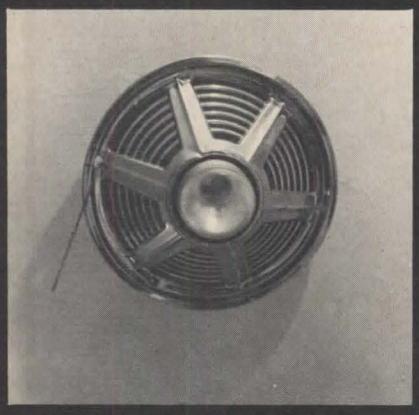
Hugh and Tiziana Hardy, among their "toys" at home, have collected some flashing red danger signals and a whimsical no parking sign (perhaps from a church). A circular rotating light is suction-stuck onto the wall beneath the chair-rail-high painted stripe. Above it, a panel of alternate-flashing lights is hung on its easel stand (permissively) upside down. Hardy says, "These dramatic objects that you buy to put by your car when it has broken down on the road, that you buy so people won't get killed, become quite alluring and handsome out of context."



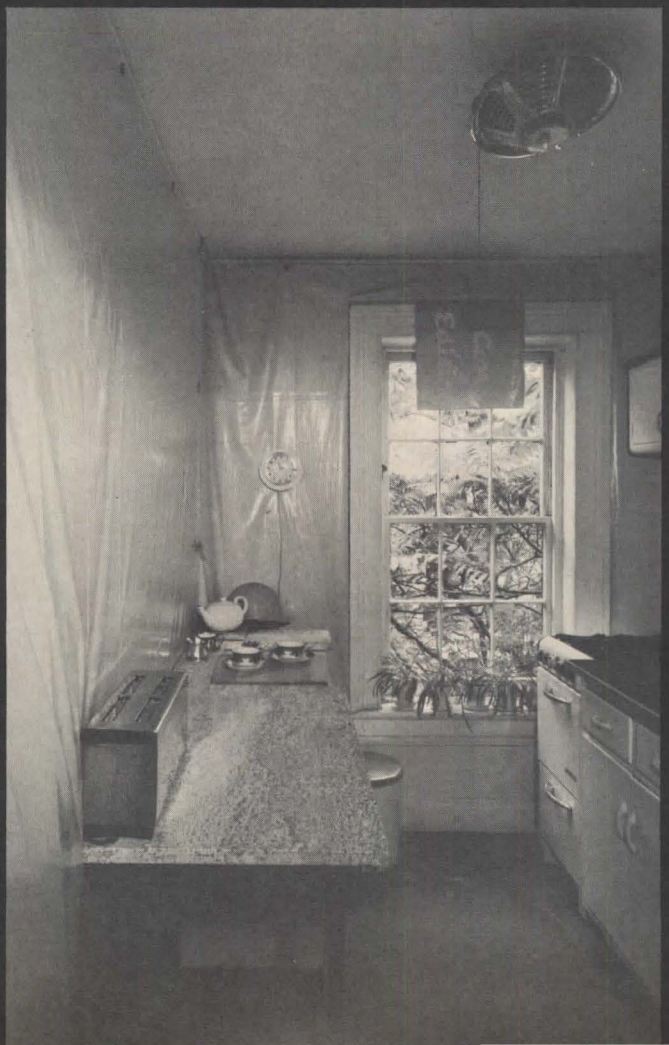


Ulrich Franzen is credited with first using tractor seats — another automotive item — as indoor furniture when he had them chrome plated for his shop "Paraphernalia." Now, they are sold by DR and used as objets trouvé by such designers as David Sellers.

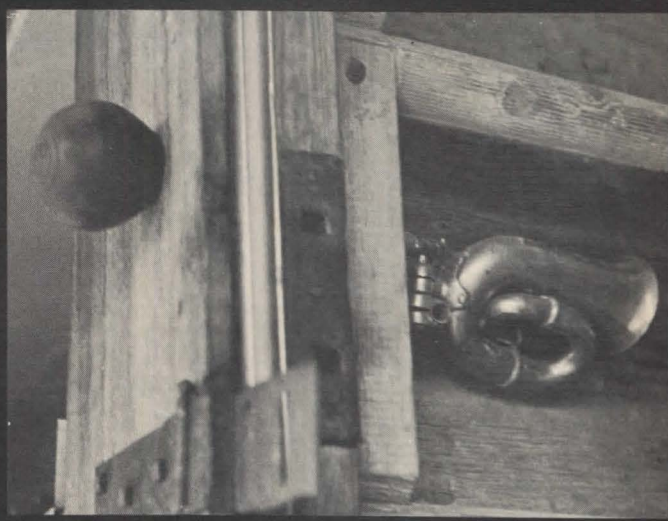
A car bumper sounded the largest and least expensive hunk of chrome already available to off-set a traditional, all-white living room. And since, in England at least, a bumper is called a "fender," a nice international interior design pun was made by using it as a fire fender. (The car make was never determined, but it is a rear bumper, upside down.) Not incidentally, of course, the lines are harmonious with several art nouveau pieces in the room and with the painting (acrylic on aluminum) above the fireplace by abstract pornographer Rick Herold.



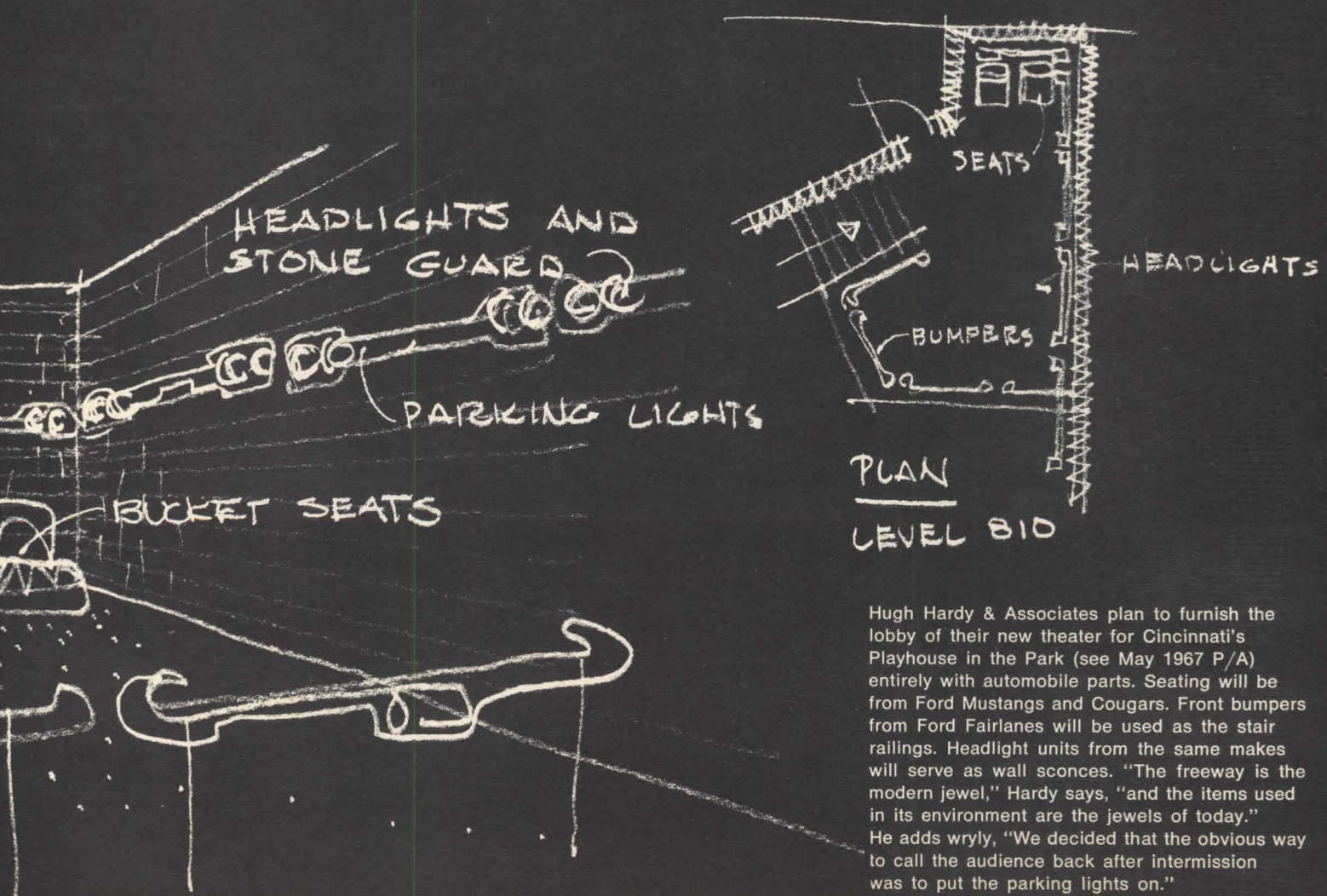
By extension, chrome-yellow rubberized all-weather road construction tarpaulins *also bring the automo*bile indoors. Standard tarps made for the Bell Telephone System are hung on their grommets as the wall-covering of your reporter's kitchen; they are tied together with dayglo-orange barricade warning tape. The all-weather materials are easily maintained and sprightly for kitchen use. A hubcap serves as a reflector for the exposed spot ceiling light.



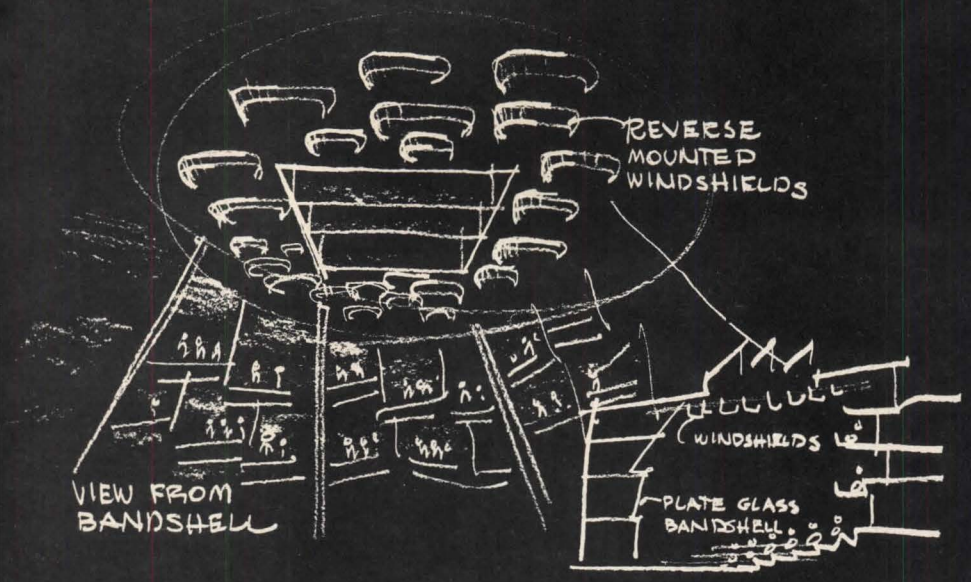
David Sellers put a rubber bulb "a-oogah" horn from an old tin lizzie through the front door of one of the houses at Prickly Mountain to serve as a doorbell. Someone suggested that it could serve as doorbell and doorknob combined if the problem of how to keep the bulb from pulling off could be solved.

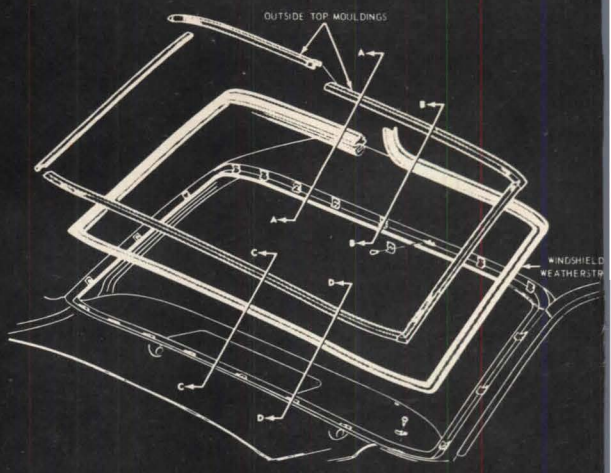


David Sellers has also used black leather seats from a Mustang as the sofa of prominence in his Bridge House at Prickly Mountain, Vt. The seats are elevated on a platform and installed with their tracks so they can be moved forward and backward easily.



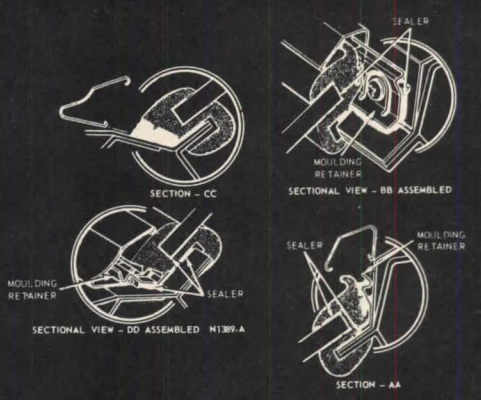
Hugh Hardy & Associates plan to furnish the lobby of their new theater for Cincinnati's Playhouse in the Park (see May 1967 P/A) entirely with automobile parts. Seating will be from Ford Mustangs and Cougars. Front bumpers from Ford Fairlanes will be used as the stair railings. Headlight units from the same makes will serve as wall sconces. "The freeway is the modern jewel," Hardy says, "and the items used in its environment are the jewels of today." He adds wryly, "We decided that the obvious way to call the audience back after intermission was to put the parking lights on."





— Windshield Installation —

In the concert hall of their award-winning Performing Arts Center for the University of Toledo (see January 1967 P/A), Hugh Hardy & Associates plan to hang automobile windshields as "acoustical clouds." Acoustician Robert A. Hansen says, "The scattering of the sound wave is generally best accomplished by convex surfaces or shapes as compared to rectilinear surfaces or shapes; a perfectly suitable shape may be sought in the fenders and windshields of automobiles. Certain automobile windshields, but not all, are acceptable." The windshields will be clamped in place as in automobile assembly techniques, compete with weatherstripping and chrome trim, but upside down.



Paul Rudolph started out to wrap his kitchen in roadside billboards (Gulf Oil) and ended up with a collage of them as wall-paper — walls, ceiling, floor, window, refrigerator, and cabinets. This is an abstraction of the freeway used indoors and it leads on to next month's investigation: Supergraphics.

the permissiveness of SUPERMANNE

"Mess is More!" is the satirical slogan the architectural establishment seems to be using to decry the new Supermannerism.

"Down with Uptight design!" is the crusading retort of the younger generation.

What this new school proclaims is a laissez-faire attitude of letting things happen in the design process — just as the situations generate themselves. By permitting situations and the conditions of design to generate solutions, and by permitting those solutions to stand adjacent to other unresolved and seemingly incompatible solutions, Supermannerism grants acceptance to the accidentals of design.

The new movement denies the economy of visual effects, of "contrived simplicity," of the "clean and pure." Instead, it approves an economy of execution, a realistic economy of means.

Its permissiveness, therefore, accepts things not fitting exactly; it accepts unjointed joints — coexistence. It does not attempt to hide necessary elements, but to make a design virtue of them.

It also accepts superimposition — things spilling over from one area to the next, the overlaying of plane on plane, and the interplaying of pattern and reflection. It cherishes fusion and the ambiguity that this sometimes creates, when the various levels of perception weave in and out, overlap and return.

In addition, it accepts artifacts from our daily popular world; it even permits horrors.

Finally, the permissiveness of Supermannerism accepts irreverence and iconoclasm in a kind of perverse and paradoxical attitude that is the basis of the true meaning of the much misused term "camp." The combination of all these goings-on sometimes produces an effect that could well be called "Campopop." That's telling it like it is.

In the decade that this concept has been gaining adherents, its nomenclature has undergone changes. Robert Venturi and Vincent Scully use the term "accommodation" to cover these "nonformalized" design results. Charles Moore uses the word "inclusion" to mean much the same thing. Most of their students, however, have come to use the word "permissiveness" to express the evolving idea. Vincent Scully says, "I can imagine how 'permissiveness' could come to mean 'accommodation,' but I have always used permissiveness to mean 'softness' — an architectural looseness like wetting the bed. To me, 'accommodation' is based on a rigorous pluralism and a willingness to face the complexity that surrounds us."

Correspondents of this attitude elsewhere in our contemporary culture are Marshall McLuhan's "allatonceness." Both McLuhan and the Supermannerists, in their larger view, accept an all-inclusive architecture and life.

Ironically, one area of design is not accepted by the new permissiveness: that is formalizing — the packaging into static, fixed geometric forms that was the tenet of architects from the Bauhaus through the International Style.

The young designers acclaim the unfixed situation. Ostensibly, theirs are architectural happenings. They acclaim the building process itself as a source of design inspiration. Some of them claim that they allow things to happen as they go.

Their aim is to get beneath the veneers of the creative process, to seize the seeds of architectural ideas and to encourage the germination of them and the growth. By improvisational methods, by permitting things to happen on site rather than having designed fixed drawings, the new attitude allows the architect to see what the design elements themselves are generating.

Critics of this idea — those with more established architectural tastes — naturally enough discredit indeterminacy, chance, and the unfixed design as elements of real art. Furthermore, they point out, on-site improvisation is possible only in small-scale projects.

The strongest criticism, however, is that this permissiveness can create only the kind of mess that the International Style crusaded to clean up.

One can answer historically that, in ages of great investigation and discovery, craft is seldom refined. Or, we can answer that, whereas the International Style "cleaned things up" for purely visual reasons, this permissiveness lets things happen for people, for the psychological and physical requirements of the user and (may one suggest?) for the leisure requirements of the designer.

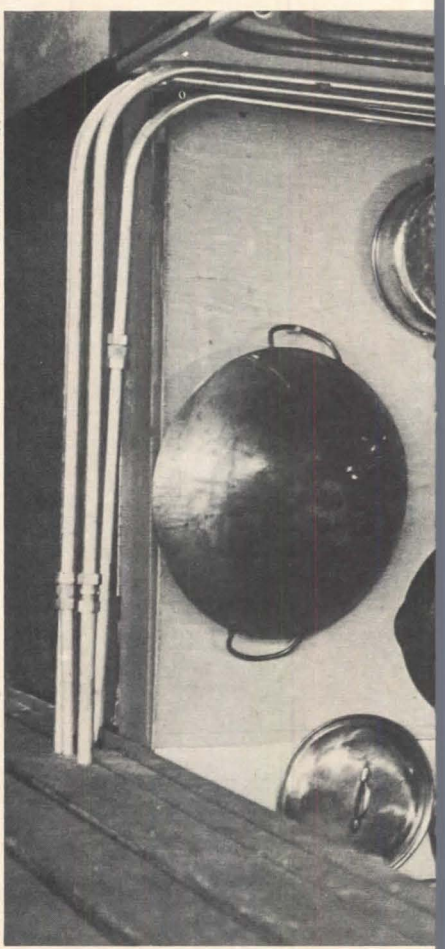
Ultimately, however, the untidy horrors of permissiveness, like the horrors of some assemblage sculpture, will be enjoyed for their acceptance of the reality of the architectural situation, for their joy in tactile surprises and for their visual richness — "vitality" is Robert Venturi's word — of superimposition. — CRS

ERISM

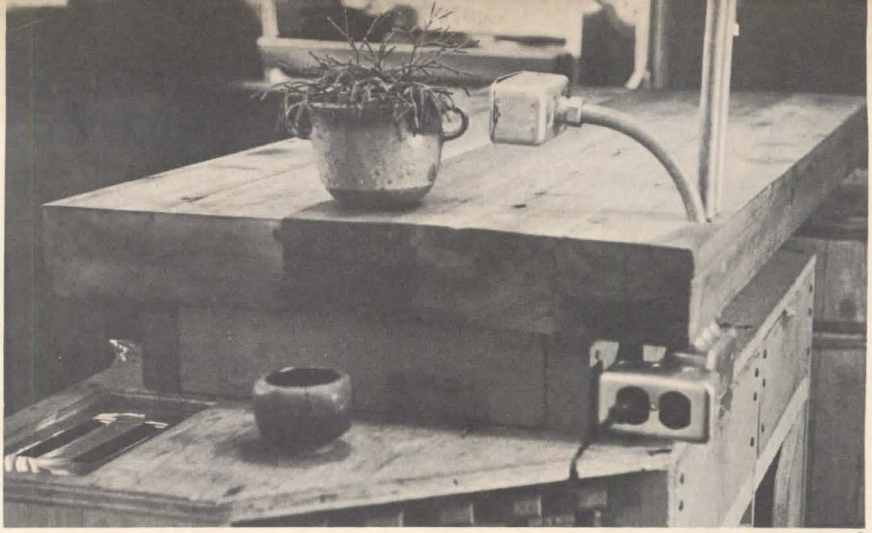
On their living room wall, Hugh and Tiziana Hardy have hung a kind of modern whatnot composed of shadow boxes that are clustered above a painted stripe — a sort of negative shelf. The boxes are hung with an economy of means; structure is not expressed unnecessarily: the smallest possible angle irons are screwed to the wall and left exposed; similarly, the electric cable for the lighted boxes is strung as the function honestly requires. Hardy, permissively, explains, "Why not?" to one inquiring magazine (not P/A). Not so permissively, this magazine published the wall group in full color, but retouched out the wires.

For a "silver environment" in a mens' tailoring shop (Terry Burns Ltd.), Frederick Romley installed silver foil on the walls. To complete the scheme, he simply allowed the aluminum side of the insulating batts to remain exposed, rather than closing in the ceiling and silver papering it.

Photos: Courtesy, David Sellers



Conditions of installing both plumbing and wiring are allowed to produce design solutions at Prickly Mountain, Vt. David Sellers lets his metal electrical conduit run exposed along walls and ceilings sometimes to achieve sculptural effects. In his Bridge House **(1)** the conduit produces a frame of modern molding around the kitchen cooking area and, near the switch, also serves as a rack for pot lids; outlet boxes sculpturally beckon to be used **(2)**. In the bathroom, conduit is the shower curtain rod **(3)**. Plumbing is also left exposed to achieve the same goals — sometimes sculptural, as in the Tack House kitchen **(4)**, but sometimes illustrating the dangers of permissive clutter **(5)**.



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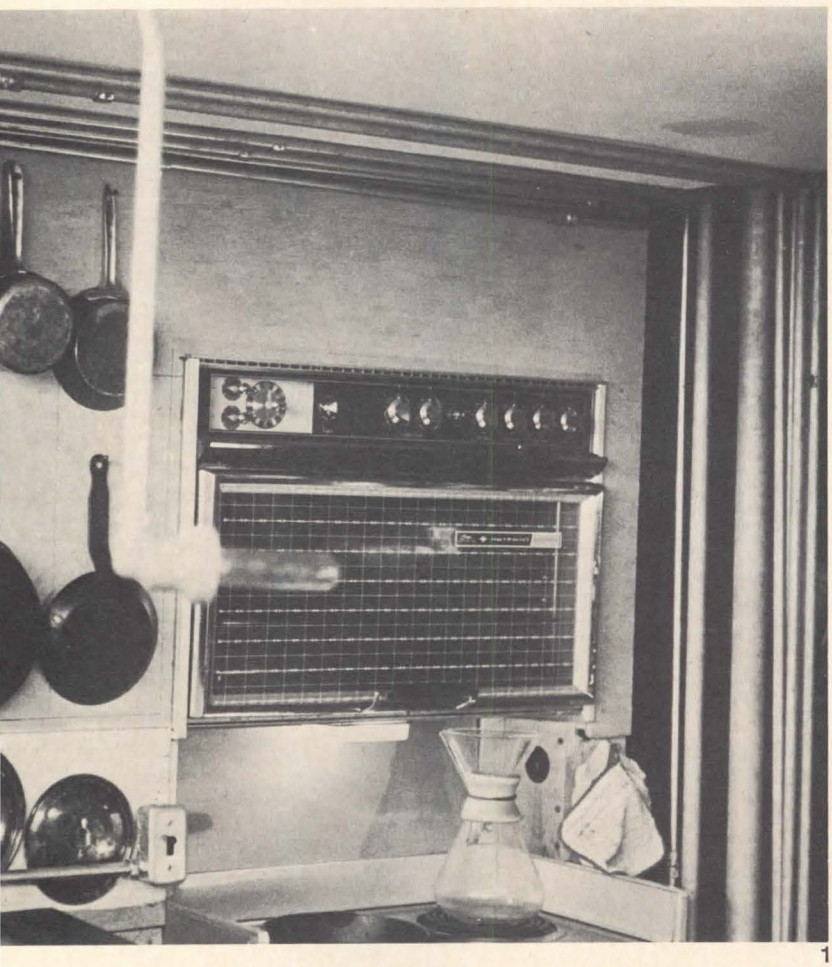

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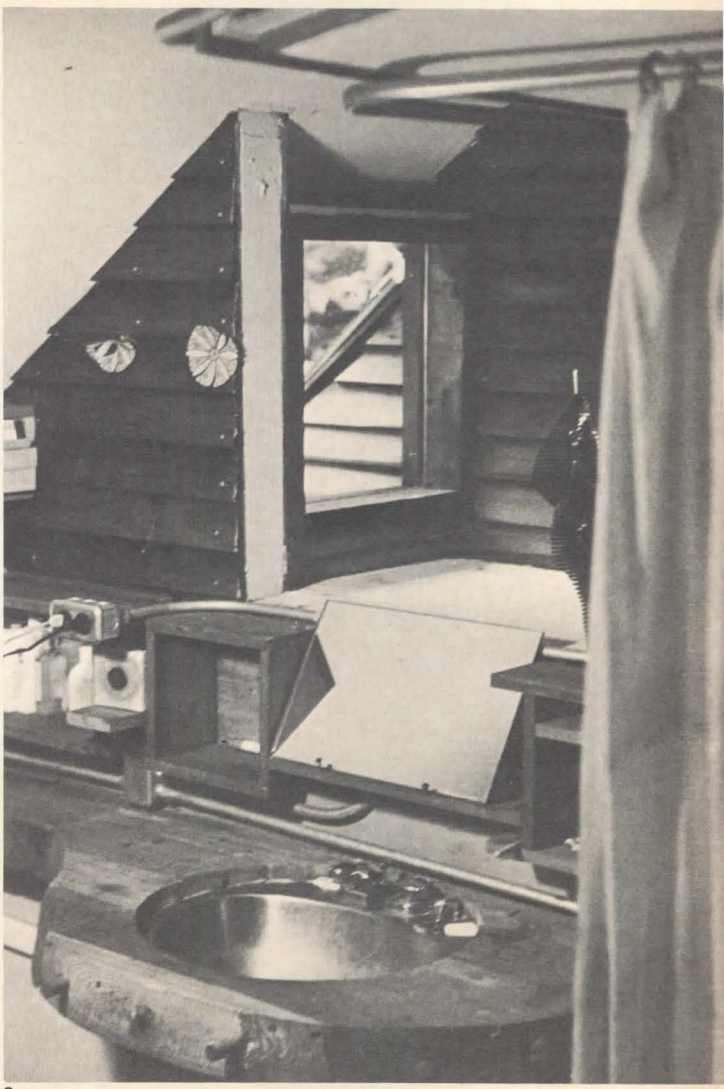

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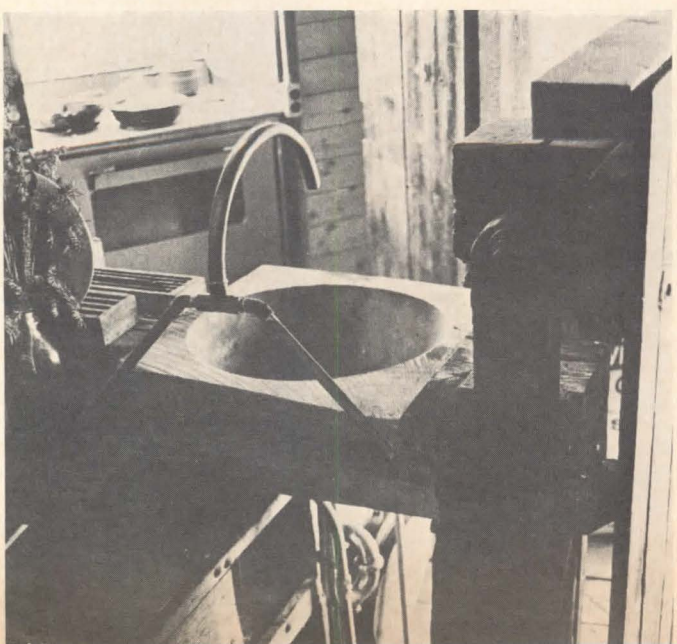

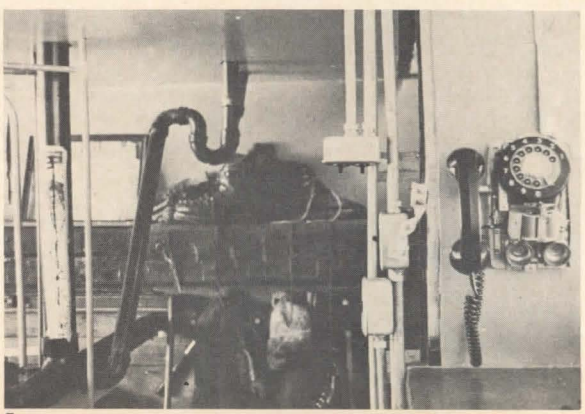

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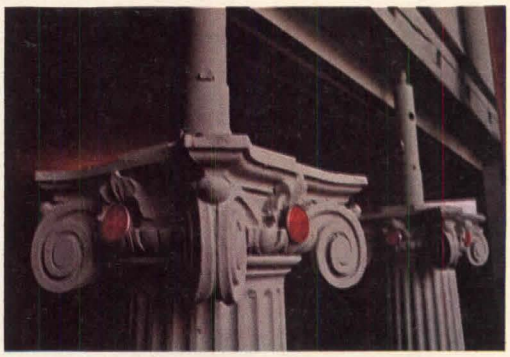
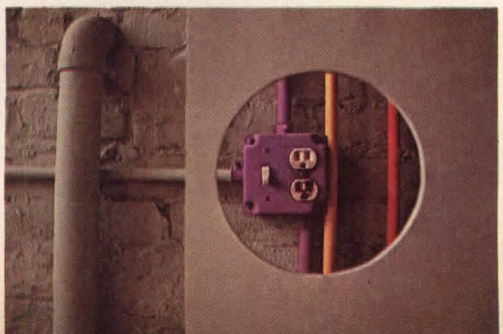
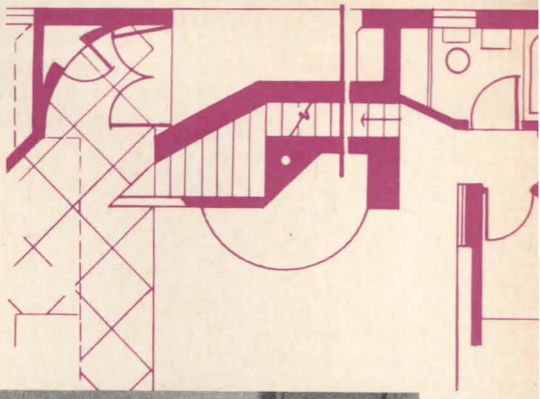
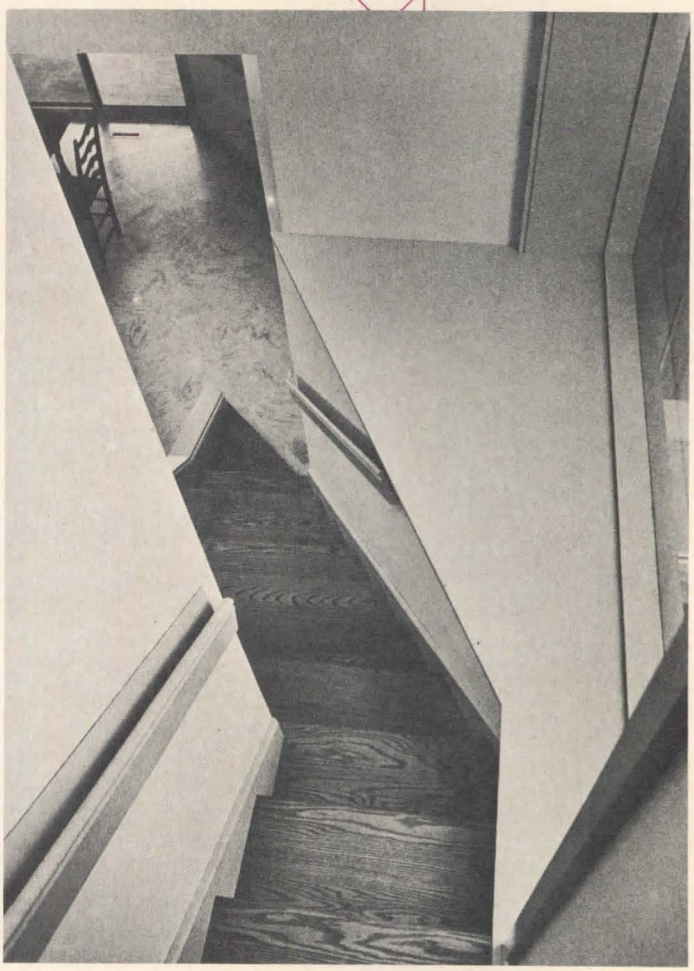


"Inclusion" is Charles Moore's term for the acceptance of architectural elements not fitting "cleanly" and of the interesting things that happen in the interstices. In his house in New Haven, for example, the tubular light wells float loosely within the house and produce richly ambiguous interplay between the original elements and the new (illus); the three rectangular openings in one of the tubes (illus) reiterate but do not line up with the three windows behind it — that is, they are not made to fit each other, though both are accommodated. When the back tube was cut through over the kitchen, an old joist with square holes in it was uncovered (illus). "We liked it and left it," Moore says. He also left part of the tube that covered a light switch and outlets, but simply cut a hole in it so the unit could be got at. With similar acceptance, Moore used old Corinthian to jack up the exposed joist, but since they were not tall enough he included additional columns — sawed-off *house* jacks — on top of them to make up the required height. This inclusive acceptance of all the aspects of architecture — including nonarchitecture — is the expansive view of today.







Robert Venturi's best-known permissive work (he uses "accommodation" as the term for the permissive principle) is the stair of the house he built in Chestnut Hill (see May 1965 P/A). The stair runs between the fireplace and the front door and accommodates itself both to the fixed fireplace form on the one side and to the need of the front door for more generous width on the other. Consequently, it ends up as a special "nonformalized" shape that was permissively induced by the conditions of its surroundings.

At the Duke House, which Venturi remodeled to serve as NYU's Institute of Fine Arts, the juxtaposition of Eclectic moldings and industrialized parts has produced sharp controversy. The juxtaposition shows Venturi's "giving in to contradictory things" — his accommodation of the seemingly contradictory traditions and multiple eras in our composite design culture.

Venturi's innovation is not in the visual means by which he makes the two compatible but rather in his vision to single out the two "incompatibles" and to accept the "contradictory" aspects of our visual culture.

Vincent Scully says, "The most important thing that is happening in the arts in America is a kind of over-all ironic use of the popular culture that is really functioning. It includes all and rejects gentility."

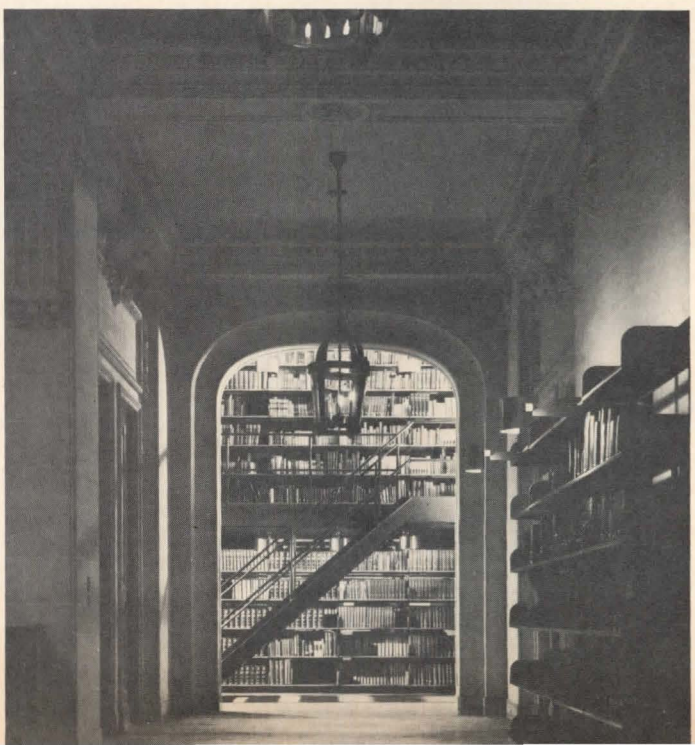


Photo: Courtesy, Margot Gayle

Jefferson Market complex in the early 20th Century, showing the old jail, now destroyed.

The return of Old Jeff

"Old Jeff," alias the Jefferson Market Courthouse, is a romantic survival from the mid-Victorian period in New York's Greenwich Village. Thanks to a determined effort by a group of admirers to save it from the wreckers, it is about to begin a new existence as a neighborhood library.

One of the most pathetic sights in architecture (assuming that something that nobody looks at can be called a sight) is the extra-special sort of building that has fallen into neglect. The Jefferson Market Courthouse, in New York's Greenwich Village, is a wildly romantic construction that has been deserted for years, and that, rather than weathering, has gotten just plain dirty. Now, however, it is about to be reopened as a library for the Village, after eight years of different sorts of activity and inactivity on the part of citizens, officials, and others.

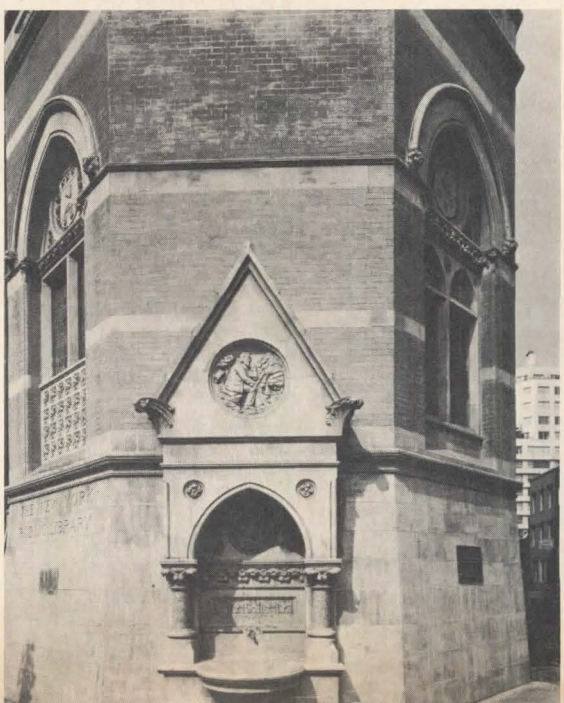
Decline

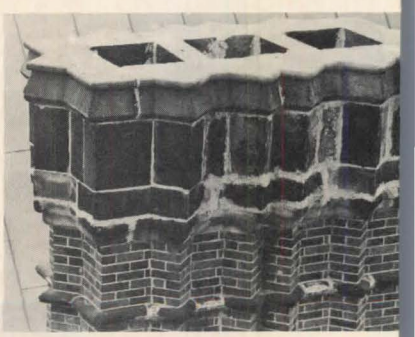
At some early period in the history of New York, lots were set aside for public buildings, each of which accommodated a market, a municipal court, a volunteer fire station, and a watchtower from which fires could be spotted and the firemen summoned by the ringing of a bell. The Jefferson Market was one of these. In the 1870's, it was decided to replace the wooden market buildings that had been there for 40 years with brick ones, and to rebuild the rest of the block. Frederick Clark Withers, an architect partner of Calvert Vaux (of Central Park fame) designed in 1875 the Courthouse and the adjoining jail, now destroyed. The Courthouse and the jail were most decidedly mid-Victorian affairs, more English than American, in the Ruskinian idiom of banded Italianate Gothic, sometimes called the Lean Bacon Style. An elaborate program of stone-carving was followed inside and out, and stained glass, plasterwork, and joinery added to such good effect that, in 1885, when architecture was getting away from mid-Victorian harshness through the influence of Richardson and the Shingle Style architects, the Courthouse was still voted in a poll of architects one of the finest works of architecture in the country. Afterward, however, it came to be regarded as decidedly old-fashioned, and re-entered the consciousness of the profession only briefly in 1906, when Harry Thaw was tried there. By 1945, it had ceased to be a courthouse, and began to house, in an indifferent manner, various municipal agencies that were in need of cheap, temporary shelter. Various Civil Defense organizations occupied space in the building for a while, as did a health insurance program (HIP). At one time, too, the Police Academy used the interiors, reputedly for riot training. By the late 50's the building was shabby and neglected. No casual vandalism had taken place, but routine repairs had been neglected, structural ironwork was beginning to rust badly, and the tile roofs were leaky. The city had no further use for the building, and there was a strong likelihood that it would be auctioned off. A local bank had plans drawn up for an apartment house on the site.

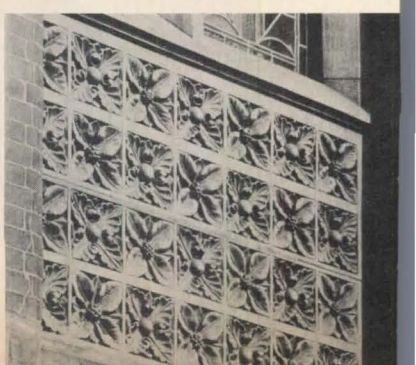
Rescue

Some people in the Village, however, had taken to the element of the fantastic that the building introduced into the area. Tenth Street, which borders the building on its north side, is small-scale and Bohemian, with little frivolous shops in old houses. But Sixth Avenue (alias the Avenue of the Americas), on which the building fronts, is an intrusion into the Village, broad and noisy and without any particular character, on which people loiter rather than live; and the presence of this handsome piece of architectural fantasy, obviously old and particularly gratuitous, was recognized as a saving grace. Interested Villagers began their campaign to save the Courthouse on a

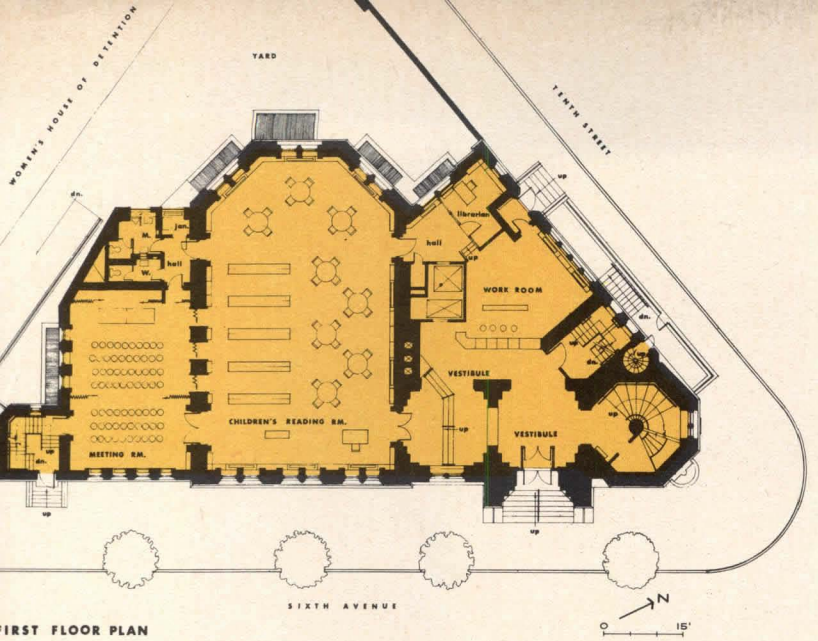
Photos, except as noted: Gil Amiaga



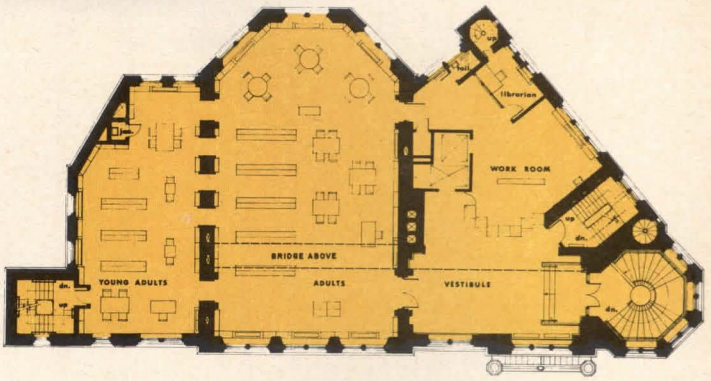




Above: *Main entrance, with new sign and old inscription.* **Top, right:** *Library as seen from Sixth Avenue, with House of Detention in background.* **Bottom, right:** *Fountain, not yet restored; chimney top; carved diaper ornament.*



FIRST FLOOR PLAN



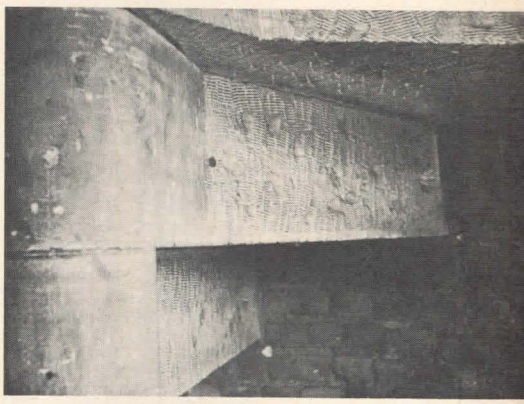
SECOND FLOOR PLAN

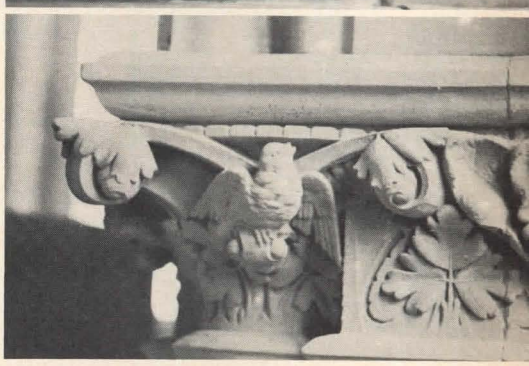
modest scale, concentrating on the tower clock. Under Margot Gayle (who is presently the Secretary of the Victorian Society in America) and Judge Harold Birns, then City Commissioner for Housing and Buildings, the Village Neighborhood Committee for the Clock on the Jefferson Market Courthouse was formed in 1959. Its first act was to telephone Robert Wagner, the then-Mayor of New York, on Christmas Eve, to request the rehabilitation of the clock as a present to the Village. On its own, the committee raised $3400, enough to install electrical clock machinery and have it in operation by September 1961. This, of course, was the thin end of the wedge. Hearing that the New York Public Library wanted a new branch in the Village, and that the Jefferson Market area was a possible site, the Villagers formed a new committee, the Committee for a Library in the Jefferson Courthouse, with Margot Gayle and Philip Wittenberg, a lawyer, as co-chairmen. It included such persons as Maurice Evans, Lewis Mumford, and E.E. Cummings, who lived across Tenth Street in Patchin Place. Around this same time, Professor Harold Edelman and his architectural students at Pratt Institute constructed models showing possible ways in which the building could be used. The Public Library was very skeptical at first, and held out for the erection of a complete new building to their standard specifications, but the committee obtained the valuable moral support of Mayor Wagner, James Felt, who was chairman of the City Planning Commission, and Edward Dudley, who was the borough president of Manhattan. As a result, the Department of Public Works, in 1962, asked Giorgio Cavaglieri, an architect member of the committee, to do a feasibility study on the proposal. Cavaglieri concluded that rehabilitation as a library was feasible, at a price well above the $400,000 for construction and built-in furnishings usually budgeted for a branch library. His preliminary estimate was $650,000, a figure that he raised to $950,000 after discussion with the Library people and the DPW. In October 1964, the plans and working drawings were approved as designed, and work was begun.

Repair

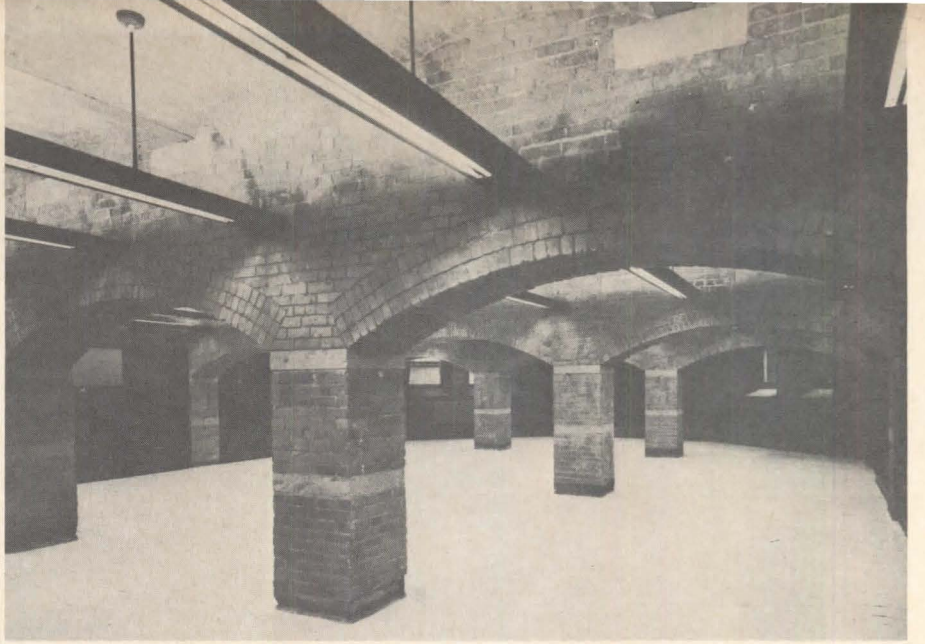
The Courthouse is a structure of red pressed brick and fine-grained, yellow-gray sandstone on a low basement of gray granite. The interiors have a considerable amount of sandstone also, delicately carved, as well as elaborate joinery. The more important ceilings are of molded plasterwork. The main stair is a broad winding affair of the mediaeval type, with a solid slab of sandstone for each tread, set into a heavy newel. Smaller versions of this stair give access to an intermediate story above the second main floor, and to the upper part of the tower. The structure of the first and second floors are of the typical mid-Victorian "fireproof" sort, with segmental vaults of brick turned between iron girders. The roof is of light iron trusswork, and the main second-floor ceilings are suspended from it. At the time work was begun, the roof was covered with slates. The mortar for the masonry was made with lime, rather than with the cement required by the building code today.

A building nearly a hundred years old is bound to be something of a technological curio, and the specific requirements of the present-day building code were so at odds with the mid-Victorian technology that a number of waivers ware needed to make public use of the building possible at all. A new staircase had to be installed beside the old main one, which, with its winding steps, is not officially recognized as an exit, and an elevated catwalk had to be brought from the staff lounge through the space of the main second-floor reading room and close under the vault of the second floor vestibule to the new official staircase in order to meet exit requirements. Among other things that had to be done were: cleaning and disinfection of areas abandoned to rats and pigeons; anchoring of the main gable, nearly 5 in. out of plumb; new brick-



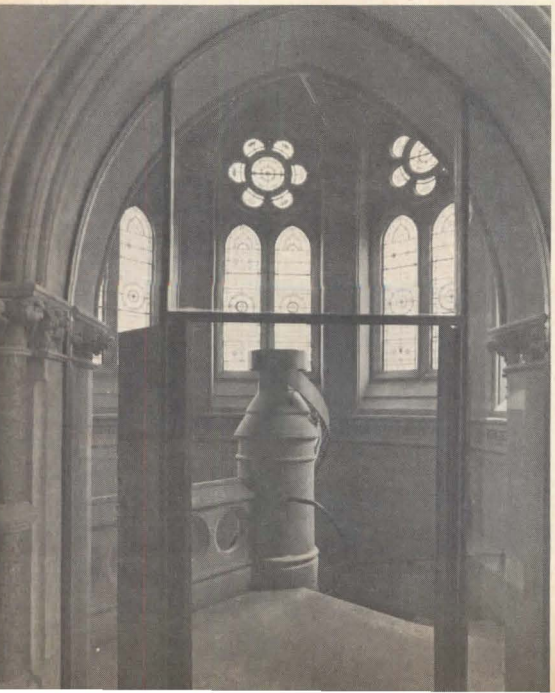


Details: winding service stair, each of whose steps form part of the central newel (left); label stop; capital.



View of basement as arranged for library reference room. Tables and chairs are not yet in place, but shelving has been installed (background).

Top of main stair ***(above)*** *looking at ornamental tie rods, and* ***(below)*** *as seen from second floor vestibule, showing new doors and continuous lamp on newel.*



work; replacement of roof slating with terne metal; reproduction of one existing decayed dormer; construction of one new dormer as a cooling-tower intake; support by steelwork of the outer portions of two existing chimney stacks whose lower masonry was removed; repair of interior stonework; new structural flooring in places; reconstruction of nearly all existing ceilings; unblocking of two windows and one archway; demolition of partitions; construction of partitions; installation of elevators; new doors; new window sash throughout; repair of stained glass; new clear glazing; travertine trim for new doorways; new finish flooring; repair of existing woodwork; painting and plastering; and, finally, the cleaning of the exterior: a process begun, contrary to specifications, with sand-blasting and finished, before any great damage was done, with paint remover and steam. The exterior masonry was slightly altered in a few places. Two original panels of brickwork were removed in the main upstairs room in order to make a window of full height. A new doorway was placed beside an existing one at basement level, and the stonework, which terminates in a molding, was altered suitably. A decayed molding stop was recarved; unfortunately, the original sandstone could not be matched. Unfortunately, also, the exterior masonry has been so deeply discolored that it was found impossible to bring it back to its original freshness.

The general construction contractors were the NAB Construction Company. Consultants were: A.D. Ateshoglu, Structural; Nicola Ginzburg, Heating and Air Conditioning; and Pavane & Zuckerman, Electrical.

Remodeling

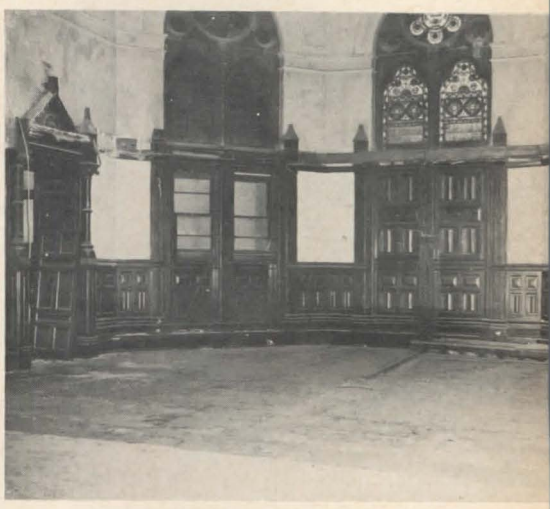
Cavaglieri's approach has been one of neat contrast between the old and the new. The old has been restored in many more places than one would suppose at first glance, but what looks old is at least a replacement for something that was there before. The new looks new, achromatic and austere. New doorways, and doorways leading to completely new interiors, are often lined with travertine, a most non-Victorian material. New plasterwork is pure white, and most fixtures and other details are either dead black or, in the case of the door and window frames, of a deep bronze color. Now and then, the old work invades the new, as is the case with the oversize stained-glass windows in the first-floor work room, which rise in four miniature wells above the new ceiling level. And the new invades the old, constantly, in the form of new flooring, new light fixtures, and the second story catwalk. But the contrasts are maintained throughout.

One new public interior that ought to be popular is the reference room in the basement. The old salmon-brick arches are very handsome in color and texture, in a way that the Victorians of 1875 were not quite ready to appreciate. It is something of a relief among so many dead-smooth surfaces, to come across a broad, low room with plenty of warm, soft brickwork, or to mount one of the little Gothic stairs and see their stone treads tooled in a rugged way that would have been the delight of a Gothicist only a few years later, when the visual sensibilities of architects had changed.

The movable furnishings have been chosen by the Public Library, and the architect is not directly responsible for them, although he volunteered advice on their selection.

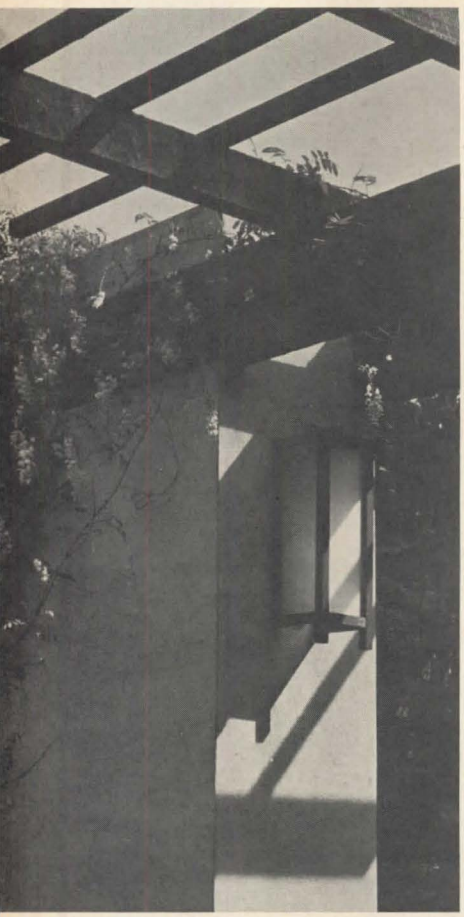
One thing, finally: The new library shares the block with one of New York's notorious places, the Hogarthian Women's House of Detention, built on the site of Withers' Jail in 1930. This brown modernistic structure has been ill-famed as a hellhole for years, but Cavaglieri is fairly confident that it will come down soon to provide space for a plaza or garden that can be made accessible from the library. — WCK

Photos: Mal Gurian



Views of second-floor interiors before restoration and remodeling, and after. The new work makes no attempt to imitate the old and restored work. The travertine facings of the new openings are an unfortunate (and rather vulnerable) piece of detailing.

STATELY PARISH HALL



Above: *Detail of pergola above upper terrace, showing bracket lantern.*
Right: *Garden front seen from drive.*
Facing page: *View of building from garden. A parking lot nearly occupied the garden area.*

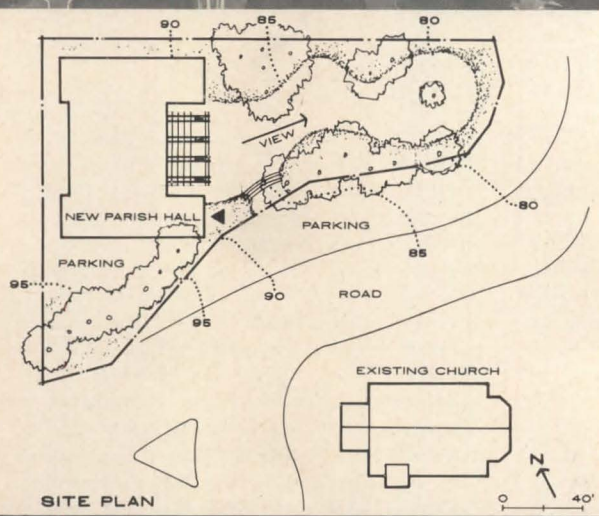
CAMPBELL HALL, CHRIST CHURCH EPISCOPAL, *Sausalito, Calif.* ***Architect:*** *Henrik Bull. Project Associate: Bruce Beebe.* ***Site:*** *A sloping wooded site in a residential area, across a winding road from an existing church. Pine and oak trees at the borders of the site. A view across San Francisco Bay toward San Francisco.* ***Program:*** *To provide a parish hall in which the Sunday school facilities of the church could be housed, and meetings and social gatherings take place.* ***Structural System:*** *Conventional wood framing, faced with stucco or shingles. In the upper hall, wooden trusswork resting on longitudinal Vierendeel girders of plywood and glued laminated wood.* ***Mechanical System:*** *Forced warm air heating.* ***Major Materials:*** *Exposed aggregate concrete retaining walls. Natural redwood. Incense cedar. Shingles. Stucco. Built-up roofing.* ***Cost:*** *$93,107.* ***Consultants:*** *C. F. Guiliano, Structural; Alexander Boome, Mechanical; Herman Heine, Landscape Architect.* ***Photography:*** *Glenn Mitchell.*

In commissioning the design of Campbell Hall, the rector and the building committee of Christ Church had two purposes, one a little more readily written into the building program than the other. The more specific one was that of housing certain parish facilities; the more nebulous one was that of getting younger members of the congregation more interested in church activities by creating a "warm and welcoming" place for these activities. To these objectives the architects added a third: to create a building that the neighborhood would accept as belonging in it.

The Hall and Its Setting

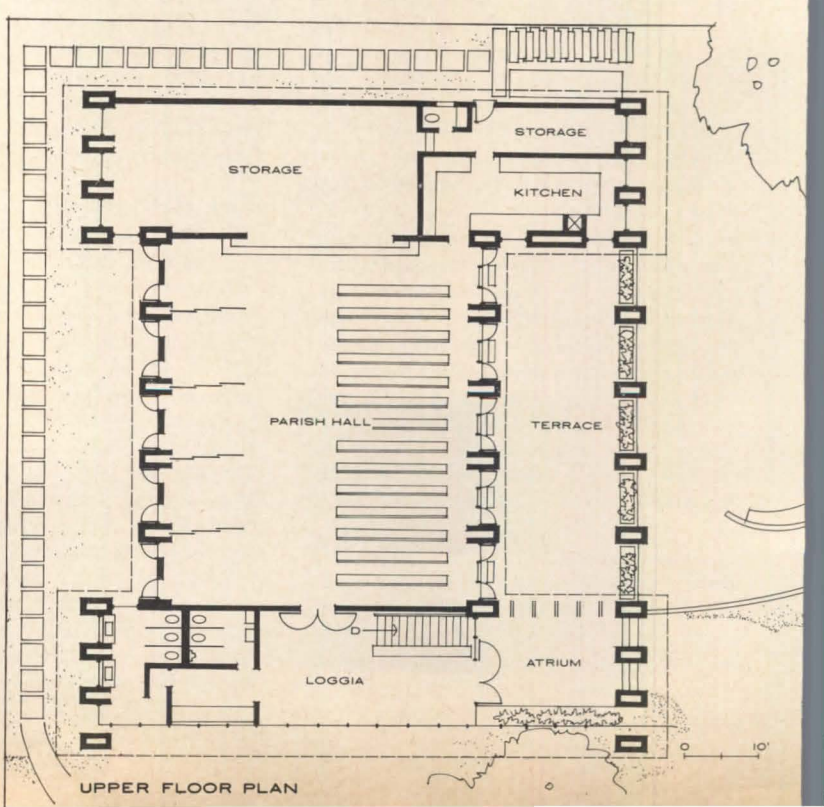
The site that the architects were given was peculiar, rather like a grand piano in shape and with a fairly steep slope downward from the corner of the site in which the Hall could most advantageously be placed. There were compensations, however, in the beauty of the setting. On one side, that bordered by the road, were huge old pine trees; on the other, straight side, were old oaks. And between the converging lines of trees was a distant view of San Francisco Bay over the low adjoining housetops.

The immediate neighborhood is one of unpretentious houses, 60 or 70 years old, covered with stucco and shingles. The architects were at pains to create a building that would fit into the setting as harmoniously as its rather large scale would permit. They began by adopting the surfacing materials of the neighborhood, and treating the roofs and pergolas as oversailing horizontal planes topping the composition firmly. In their attempt to avoid a violation to the neighborhood's domestic scale, they were helped by the nature of the site, which conceals the considerable height of the building on the sides most closely visible from adjacent properties. One triumph of the project was the successful attempt to set aside a Sausalito code that would have required the site of the garden to become parking space for 15 cars. The architects were able to persuade the officials that a parklike setting for the Hall would be a civic amenity better for the community than the statutory parking area, especially since "the parking situation in Sausalito was impossible anyway." As a result, a garden with a generous terrace, a bench-lined winding path, and some spare but attractive planting, all within the beautiful setting of the bordering trees, came into being. Had the upper terrace and the doors of the "garden

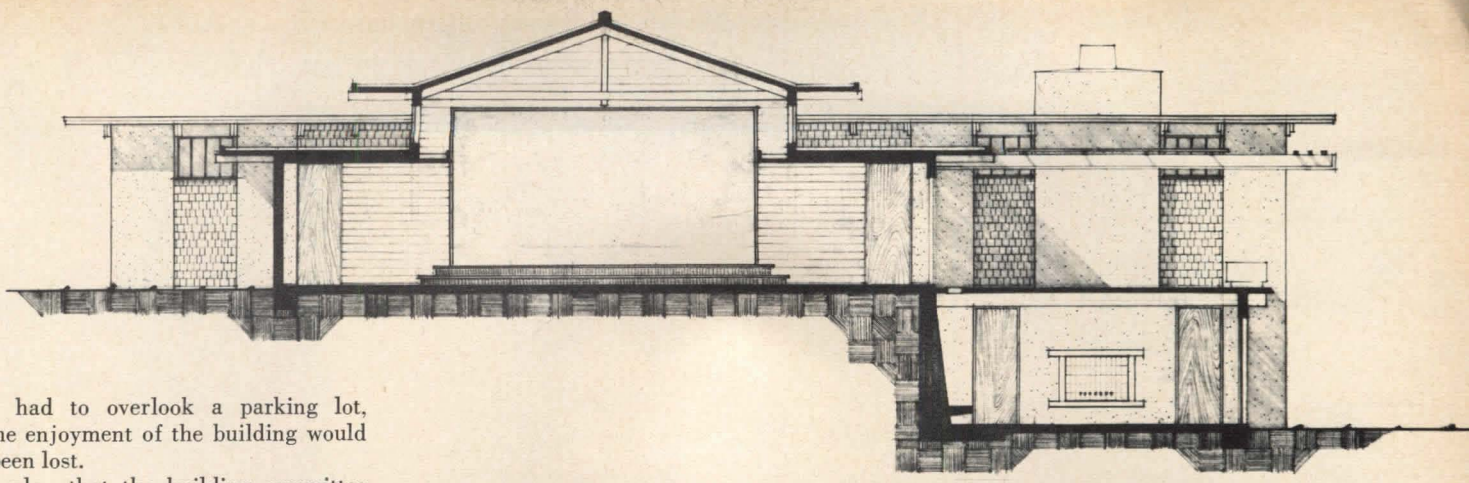


SITE PLAN

Above: *Upper hall, looking toward stage. Piers serve as pockets for sliding panels.* ***Below:*** *Loggia interior, looking toward atrium.* ***Facing page:*** *View of building from drive, showing differing characters of the end and side elevations.*

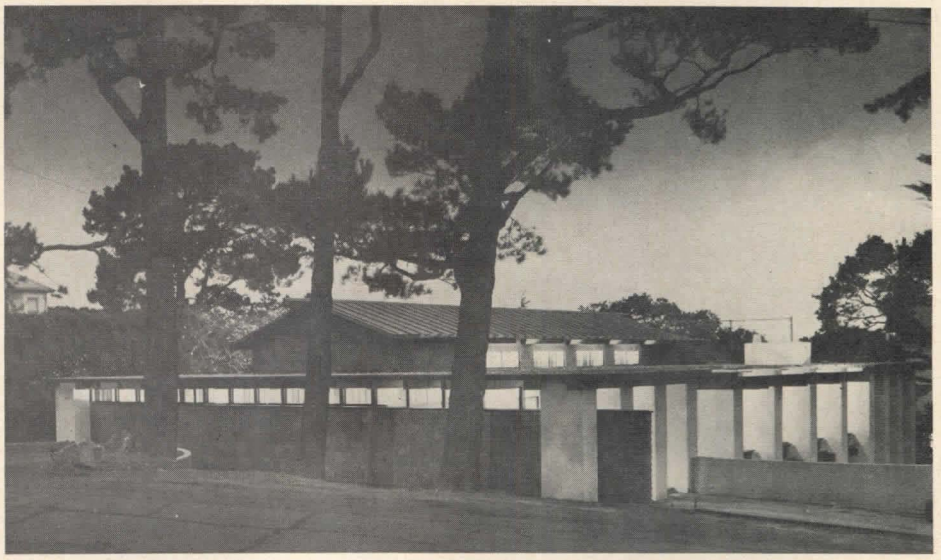


UPPER FLOOR PLAN



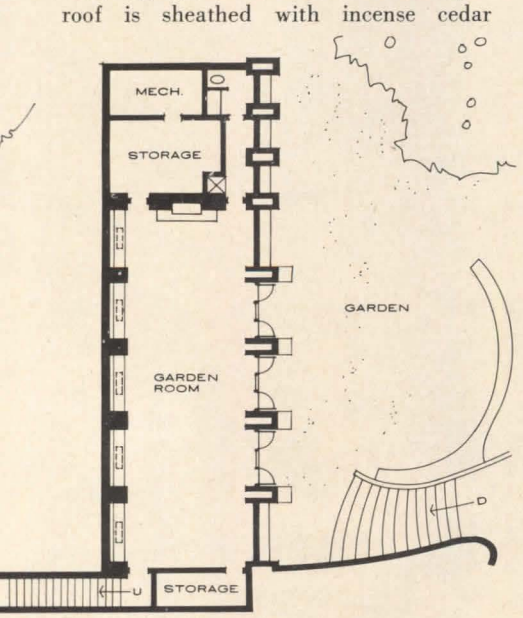
room" had to overlook a parking lot, half the enjoyment of the building would have been lost.

The plan that the building committee had in mind originally was a fairly elaborate one, with provision for complete Sunday school facilities in their own area of the building. The architects were able to demonstrate that the parish could not afford the number of small specialized areas that resulted from this proposal and proposed instead a plan consisting basically of two major enclosed spaces, a multipurpose upper hall, giving on to a terrace, and a lower hall, giving onto the garden. This was adopted.



The Plan

The building is usually entered from the open "atrium" on the southern corner of the upper level. From this, one pasess either to the pergola-covered upper terrace, or into the enclosed "loggia," which serves as a foyer for the upper hall and as an upper landing for the stairs that lead to the lower "garden room." The upper hall is an area about 45 ft long and a little over 40 ft wide. Extensible partitions can be drawn from the piers on either side to create 10 alcoves enclosed on three sides, leaving a raised central portion, lighted by a clerestory of colored glass, of about 20-ft breadth. For meetings and entertainments, the upper hall is provided with an ample stage and a kitchen. Doors lead onto the terrace. The interior walls are entirely faced in redwood, and the underside of the open roof is sheathed with incense cedar planking. The lower hall, or "garden room," is of the same length as that of the upper hall, but much narrower, its effective width being only 15 ft. Its interior walls are of exposed aggregate concrete, with a ceiling of exposed joists. Three bays of French windows give onto the terrace at the head of the garden. The wall opposite these windows is actually a retaining wall, between whose buttresses are fixed benches. At the end of the room opposite the stair is a raised, rather Prairie School-looking fireplace.



LOWER FLOOR PLAN

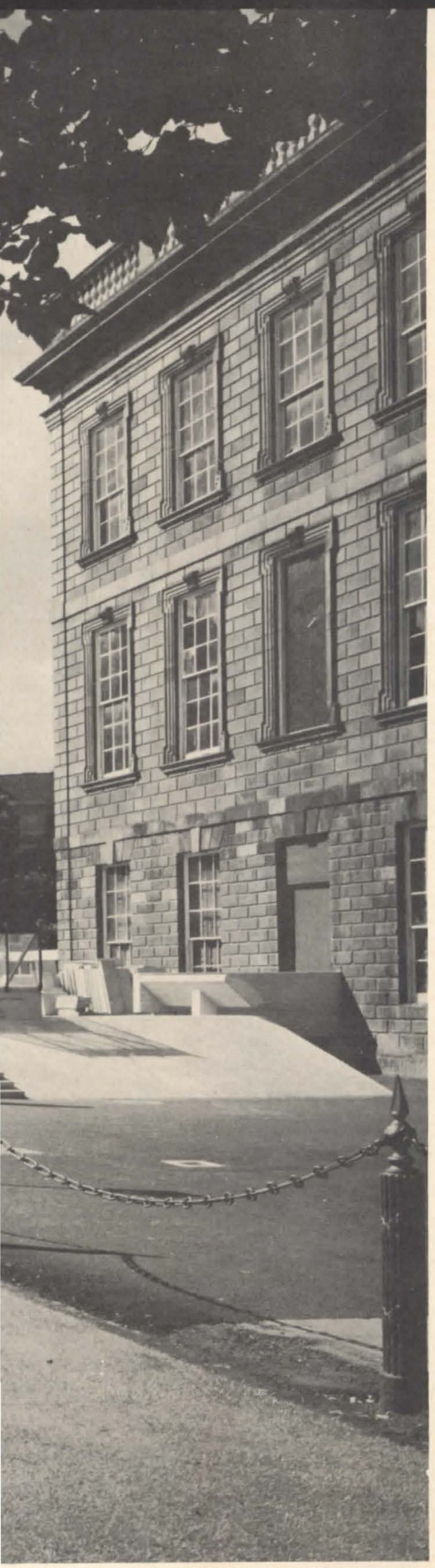
The building depends for its aesthetic effect mainly on refined detailing, attractive materials, and well-controlled scale. There is more than a little about the detailing that is Japanese, for instance in the entrance wall of the loggia, or in the wall lanterns. But there is also a harkback to the Stately Homes of California era, particularly in the garden elevation; not a literal reminiscence, of course, of the mansion style of 40 years ago, but an identity of feeling, a similar sense of something verging on the grand, but, above all, deeply reposeful. There are very few gratuitous elements, few features that can be called purely ornamental. Wooden blocks have been nailed to the fascia of the low cornice that tops the building, and the framing of the lanterns is carried an inch or two beyond the corners, and that is about all that there is of ornamentation as such.

Criticism

Some features of the Hall are open to question. In the first place, there is something of a paradox in the relation between adjoining exterior walls. The end walls are one-storied, firmly horizontal affairs of timber and shingles, dark and strongly textured, whereas the longer fronts have a firm vertical rhythm set up by the stuccoed piers, which march across the top of the garden with the stateliness of an aqueduct. And though the façades have been prolonged so as to intersect and cross each other at the corners (rather like the framing of the lanterns), the feeling persists of four handsome elevations rather than of one building. The transition from front to front, as one descends the drive beside the building and sees the garden front, is especially abrupt. Again, one wonders what effect the yellow and blue glass in the monitor of the upper hall was intended to produce. It is out of harmony with the woodwork colors and impairs somewhat the cheerful objectivity that is the very best thing about this space. Thirdly, the "garden room" seems too long for its width, so that it is suitable neither for intimate gatherings around the fire nor for large-scale assemblies.

The parish, however, appears to be happy with its new building. Membership has grown, and Henrik Bull is at work on an addition to the church itself.

Photo: Rex Roberts Studios, Ltd.



New Trinity College Library from New Square.

◀ *Trinity College, Dublin; library site circled.*

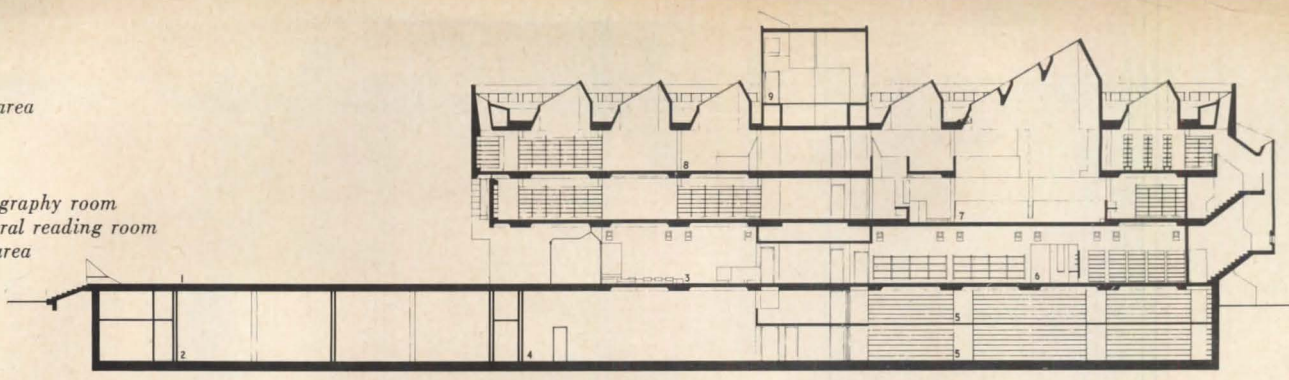
CREATIVE CONTINUITY IN DUBLIN

A 20th-Century link between the 18th-Century, old library (Col. Thomas Burgh, 1712–32) and the 19th-Century museum building (Deane & Woodward, 1853–7) is now in business on New Square at Trinity College, Dublin, Ireland. It is the competition-winning, new library by the young London firm of Ahrends, Burton & Koralek (p. 67, September 1961 P/A). In contrast with several other quite mundane contemporary buildings we saw in Dublin on a recent visit to attend the opening of the library's gallery, the AB&K design is appropriately sympathetic to its older neighbors, and fills the last gap in the façade of New Square with serenity and resolution. It retires somewhat behind a forecourt between the old library and museum, allowing the side elevations of those fine structures to be admired, and presents a sturdy but discreet face to the square.

Within, the architects reveal themselves as deft manipulators of spaces and levels. Indeed, this American observer was immediately struck, during a tour of the building with Paul Koralek, by a comparison with the handling of large and small volumes and horizontal and vertical planes and that of Paul Rudolph at the Yale Art and Architecture School. Where Rudolph was confronted with placing a number of activities in his school, to the discomfort of some of them, Koralek was dealing with a one-use building, and the series of spatial experiences at Trinity College Library becomes much more cohesive, and even logical, than a walk through the Yale A&A Building. This is without, however, losing a sense of exhilaration on entering the lofty main reading room, or following an interesting, twisting route down into the balconied space of the temporary exhibition hall (scene, when we were there, of a fine Henry Moore show), or of the other expanding and contracting sensations felt because of the arrangement of overhead light scoops, sidewall bay windows, and views up or down to other levels and activities. To the reader looking at these plans and photographs, all this may seem a rather frantic way to go about planning what should be a quiet environment for study and research. The satisfying thing is that, although one is aware of the strong personality of the interior and its clues to the workings of the whole "body" of the building, there is nevertheless the quite adequate stillness, separation, and fit ambiance for "a mind serene for contemplation." In a scheme that, less expertly handled, could have become overwrought and

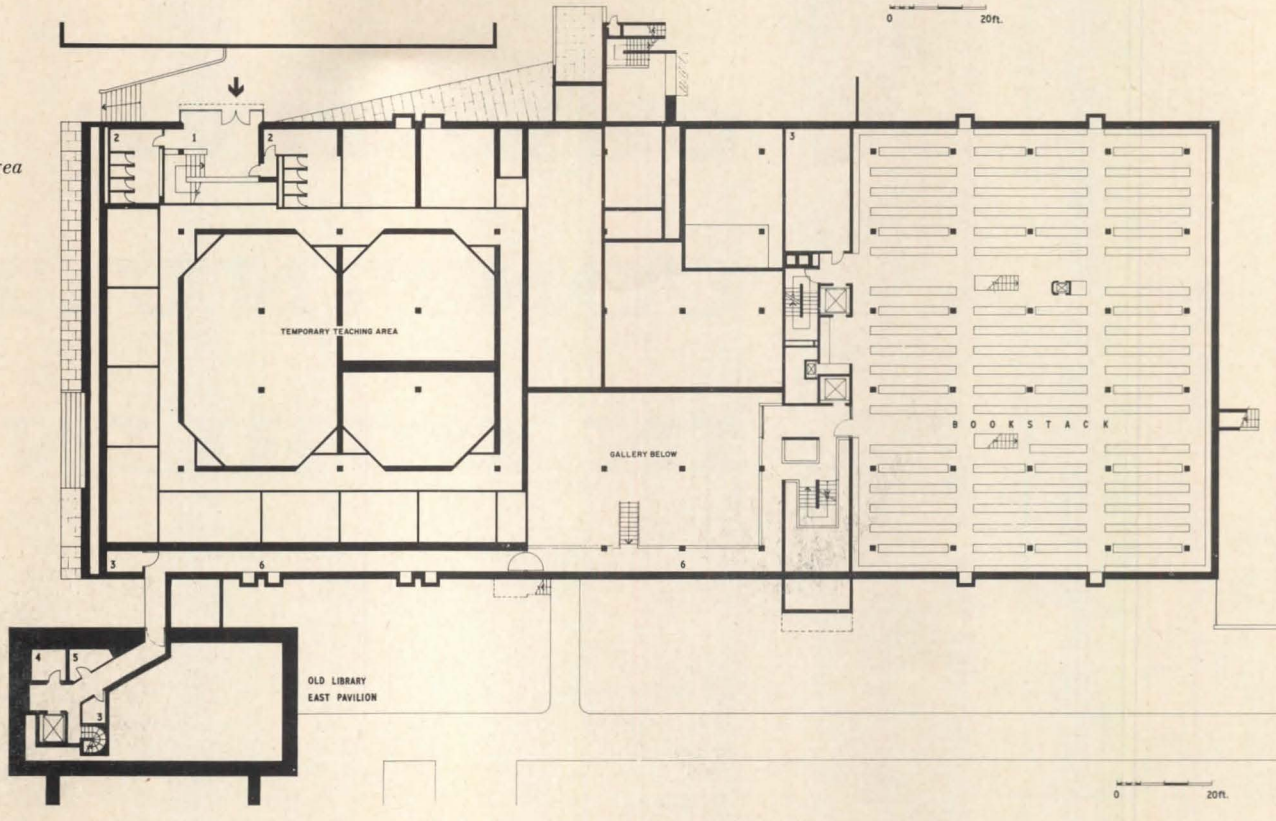
Section

(1) *forecourt*
(2) *temporary teaching area*
(3) *entrance hall*
(4) *exhibition hall*
(5) *bookstacks*
(6) *catalogue and bibliography room*
(7) *periodicals and general reading room*
(8) *specialized reading area*
(9) *plant room*



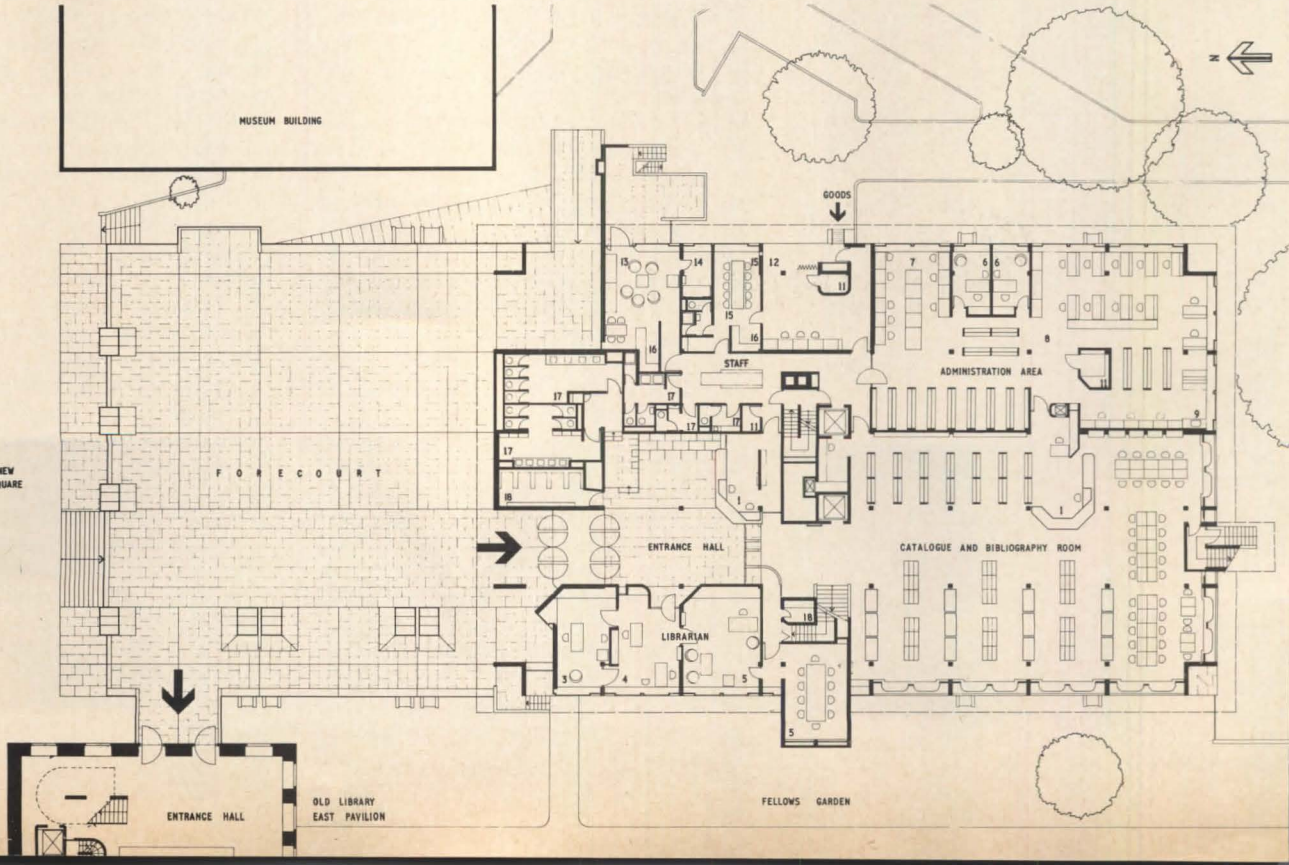
Upper basement

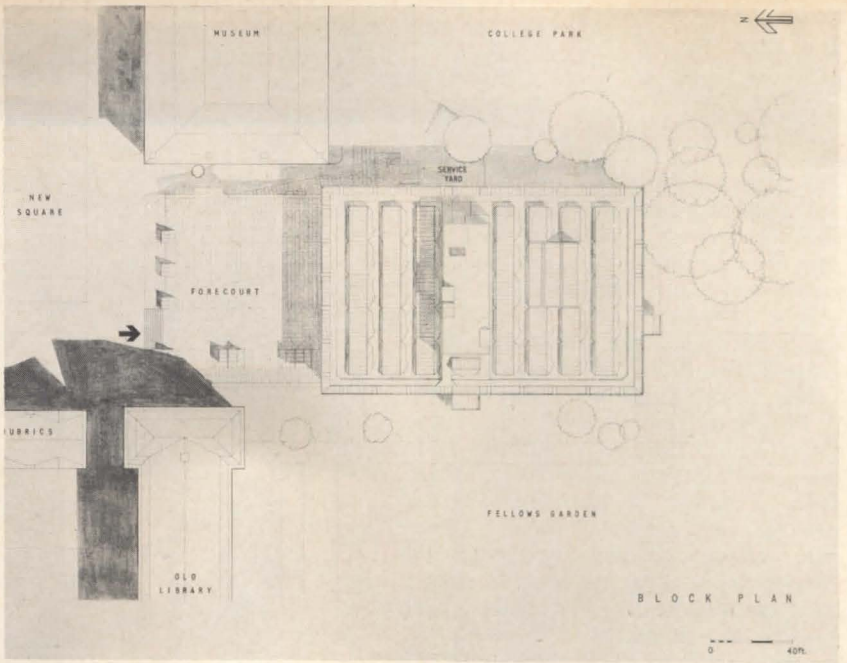
(1) *temporary teaching area*
(2) *toilets*
(3) *storage*
(4) *strong room*
(5) *switch room*
(6) *gallery*



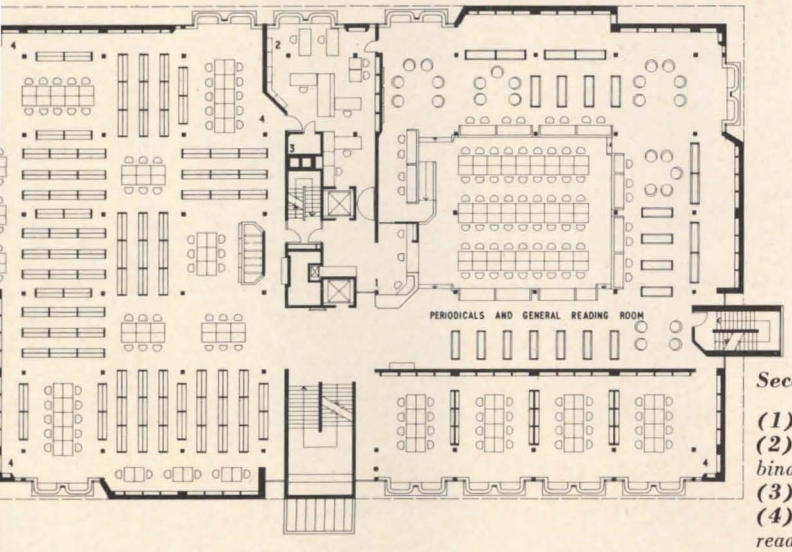
First Floor

(1)* *control desk*
(2) *librarian*
(3) *deputy librarian*
(4) *secretary*
(5) *conference room*
(6) *office*
(7) *typists*
(8) *catalogers*
(9) *workroom*
(10) *unpacking room*
(11) *storage*
(12) *loading bay*
(13) *staff common room*
(14) *rest room*
(15) *dining*
(16) *kitchen*
(17) *toilets*
(18) *coat room*



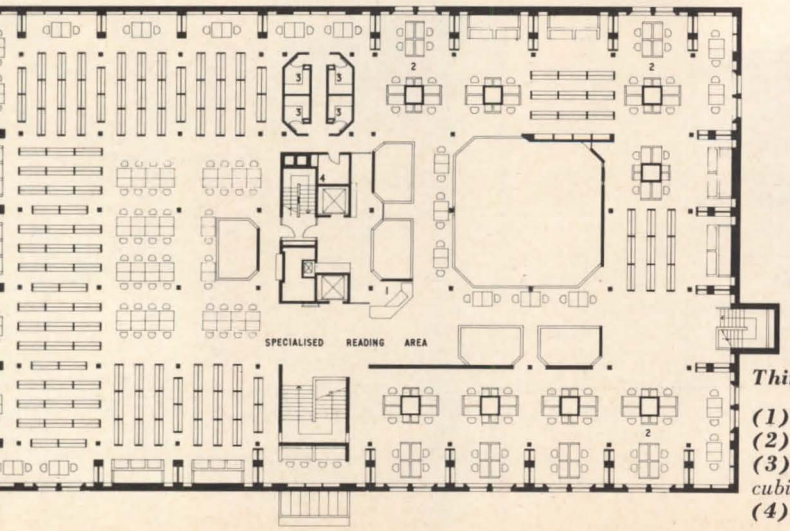


Architect: *Ahrends, Burton & Koralek;* ***Structural Engineer:*** *Felix Samuely & Partners;* ***Mechanical and Electrical Engineer:*** *Steensen, Varming, Mulcahy & Partners;* ***Quantity Surveyors:*** *D.A. Degerdon & Partners;* ***Photography except as noted:*** *Norman McGrath.*



Second Floor

(1) *control desk*
(2) *periodicals binding room*
(3) *storage*
(4) *specialized reading areas*



Third Floor

(1) *control desk*
(2) *carrels*
(3) *microtext cubicles*
(4) *storage*

too crowded with incident, peace prevails, but a peace made non-bland by architectural variety.

Program

The architects were asked to provide a new library for an ultimate 469 readers and 829,000 books in a site between the old, overcrowded library and the college museum (which also houses the engineering school and other activities). The completed design was the winner of an international competition, and has been built substantially as originally designed. (It, incidentally, insured the survival of the just-born firm of Ahrends, Burton & Koralek, which at that time had done a tiny office building and nothing else.) Program also included the rehabilitation of the old library as a stack building, linked at basement and plaza levels with the new building. Other facilities to go into the old library (still under construction) are visitors' and tourists' areas, a rare books department, rehousing of an important collection, and new access to the splendid Long Room, a powerful, arch-roofed space.

Costs under contract (1963), including alterations to the old library, were $1,705,590; for the new building only (including external works and fitted furniture) $1,591,-165, or $18.30 per sq ft.

Solution

By setting the library back behind its entrance plaza, the architects were able to thrust subsurface storage facilities the length of the site to the edge of New Square. At present, some of this space is being used

for temporary instruction rooms and for the aforementioned gallery (a facility it would be a pity to have disappear). Light is admitted into the upper basement by twin triangular skylights that make pleasant glazed forms on the otherwise bare plaza (the Moore group there for the exhibition is unfortunately gone by now).

Entering the library across the plaza on the first floor, one faces the main control desk in the lobby (there is a tapestry designed by Patrick Scott here). To the right are offices for the librarian and his deputy and secretary, plus a conference room; to the left are public toilets and cloak rooms. Straight ahead is a catalog and bibliography room with all necessary card files and book shelves, another control desk, and reading areas including casual seating in bay windows overlooking the Fellows' Garden. The east part of the first floor is occupied by administrative and staff areas, including a staff common room, dining room, and kitchen. There is a staff terrace, and the goods entrance and loading bay is also here.

Koralek says that the second and third floors of the library were "conceived as a single large volume, the two levels being linked by double height volumes and light shafts." The extensive natural light system includes a dramatic network of skylights, "lightgrabbers," light shafts bypassing the third into the second floor, and bay windows for sidelighting (plus smaller windows for some natural ventilation). The most imposing space of the building is the two-story high, slightly sunken periodicals and general reading room on the second floor. This space, occupied by tables for 73 readers and ringed by casual reading areas for another 34 readers, is also viewed from the third floor reading area, and rises dramatically to a series of angled skylights that wash it in natural light.

The other half of the second floor contains an open-access book storage area (64,000 volumes) spotted about with specialized reading areas of from eight to 10 readers (for a total of 98).

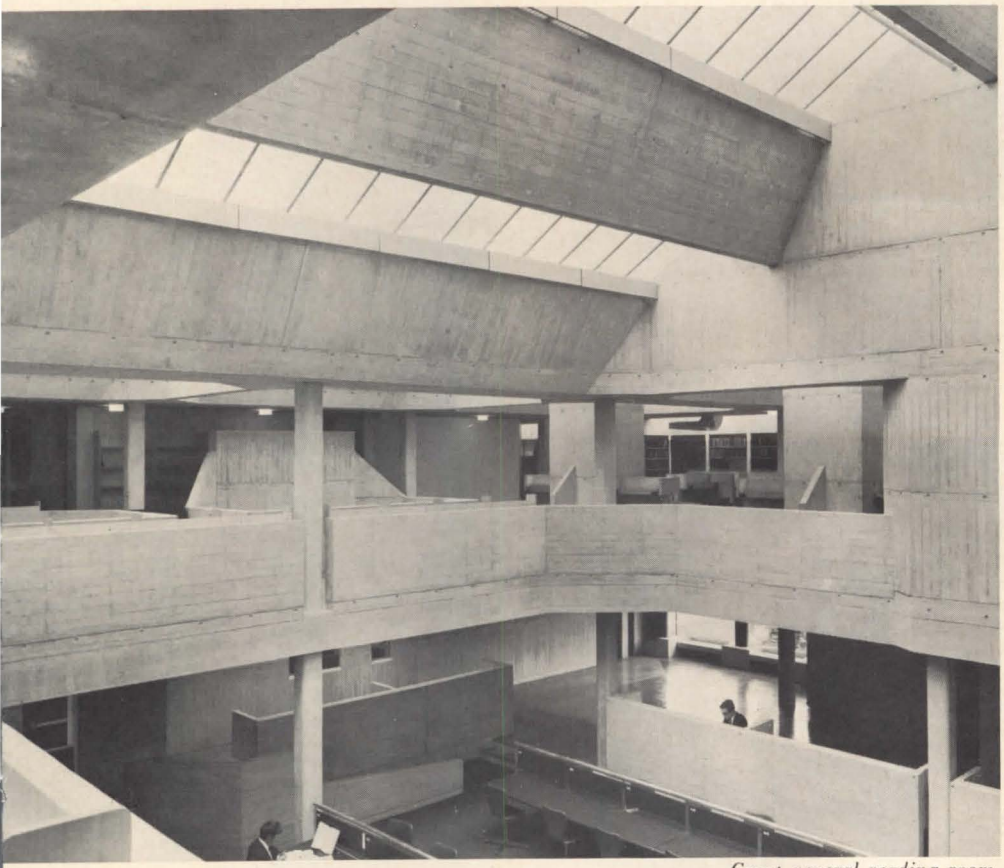
Post-graduate and academic staff areas are located on the third floor. Carrels, reading tables, and open-access shelves surround the great light well of the general reading room (the carrels have been neatly detailed by the architects to include desk, chair, shelf, lighting, and personal storage space). At the front of the building on this floor is a specialized reading area of open-access shelves, alcove reading tables, and island reading tables. The entire library system is planned around a central service core that contains service stair and elevator and book lifts from the stacks in the basement. All control desks and other reader-staff contact points are around this core.

Skylight, "scoop," and carrels

Structure

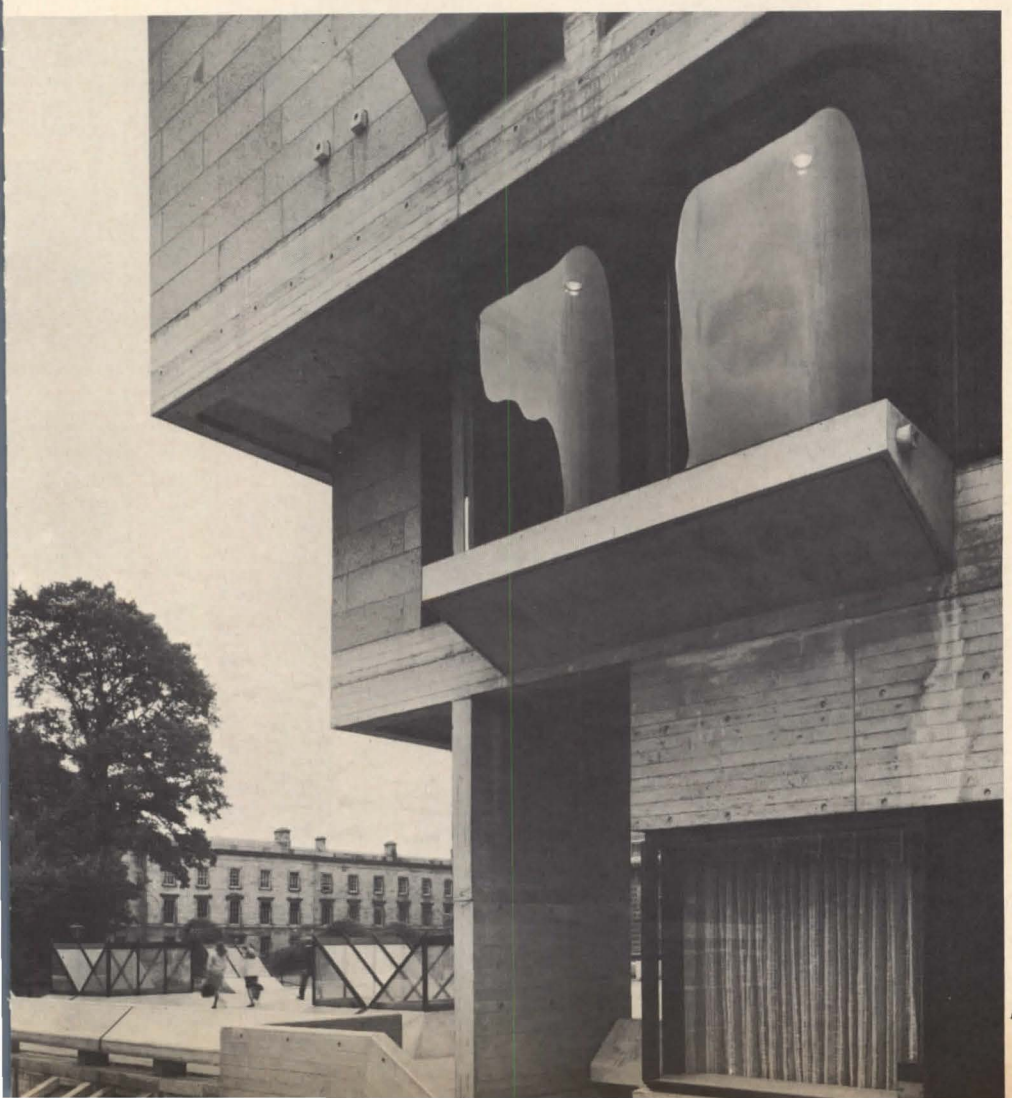
Poured-in-place white reinforced concrete, exposed internally and externally. Structural module is a 16'-8" bay, which was appropriate for accommodating book storage, giving 4'-2" o.c. modules for bookstacks, reader seating, etc. This system determined the general column spacing. Floor slabs are square coffers spanning two ways; soffits are board-formed, as are walls, also, as a rule. Roof consists (except for mechanical tower) of poured-in-place concrete skylights glazed with translucent double glazing units in lead-covered patent glazing bars. The roof is sheathed with lead (skylights being

Staff ramp.



Great general reading room.

Long Room, the old library.



Forecourt; west windows.

finished like the walls on the interior). External walls enclosing the two upper floors are of cavity construction, with outer cladding of Wicklow granite ashlar blocks finished by bush-hammering, and, within, concrete block plastered and painted and generally covered by shelves. Windows are bronze-framed, with curved plate-glass bays in the reading areas flanked by sheet bronze ventilators. Except for the main reading room, which has a dashing blue carpet, floors are generally covered in a combination of smooth and ribbed rubber (a product we had not seen before, and which seems very practicable). The library is, for the most part, artificially ventilated with filtered and humidity-controlled air heated through a plenum system.

Architect is in the Details

Ahrends, Burton & Koralek did not settle for just the "major" statement of the library shell, with its spaces and volumes and levels; they designed a number of quite admirable details to make life in Trinity College Library happy. Artificial lighting is as ingeniously handled as natural lighting, for instance. There is a low, general level of light from tungsten fittings in the ceiling. This

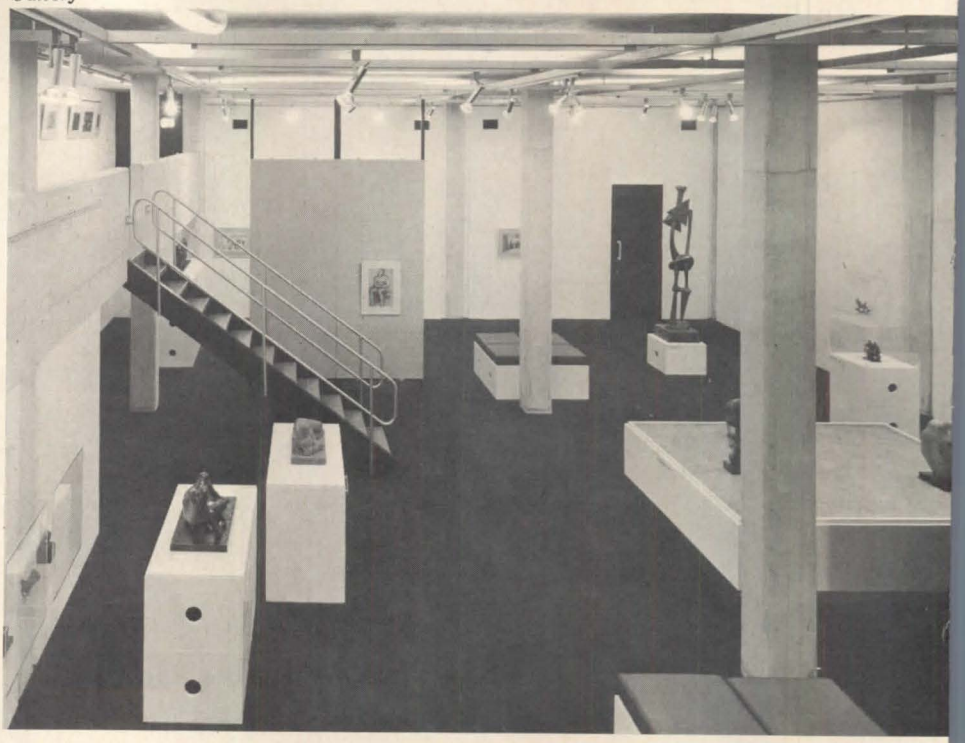
is supplemented by individually-switched-on fluorescent strip lights in louvered fittings on all bookcases and reading tables. Thus, there is a general aura of good light, but reading light is concentrated where it is needed by individuals. The tables that support the lights are designed on a modular additive (two-four-six-eight readers, etc.) basis using a textured plastic working surface on a chromium-plated steel frame. Chairs are of upholstered plywood shell on a polished aluminum swivel pedestal. We have alluded to the carrels, which frequently bring the structure of the building into use as support, separation, and storage servant. The good, and unobtrusive, graphics are by Gordon House.

Fitting and Proper

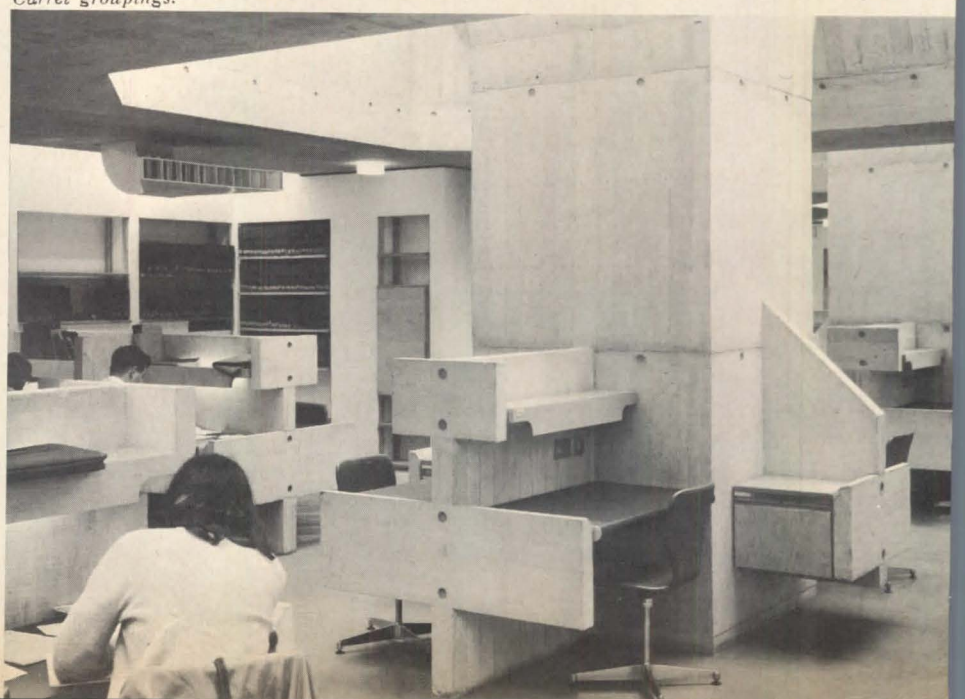
The new library at Trinity College may appear a trifle bright in its pristine state to the reader seeing it in these photographs. But the architects thought of this when they specified the cladding of granite blocks for the upper stories. In time, this will darken as has the stone of the other Trinity buildings, and the concrete soffits and other elements will remain white, giving a contrast of colors and materials shared by both its neighbors. Such matters as the respect for neighboring roof lines and string courses have been handled with taste but not slavishness. From the rear, where the library juts out between the Fellows' Garden and College Park (a green sweep of playing field), it asserts its individuality more forcefully. The sculptural elements of the staff terrace, service ramp, the strongly expressed rear stairway, the curving bay windows, and the cut-out corners of the lower floors show that if the architects had wanted to do a building that would overpower everything in sight, they could have. But the view is serene, and the impeccable new addition to the centuries-old school has already settled in with its surroundings. It is interesting to note, in passing, that there is even a continuity of tradition in the very *different* interiors of the three side-by-side buildings. Each has one major, emphasized space: The Long Room of the old library, the general reading room of the new library, and the wild Victorian lobby of the museum (which was supposed to have been Ruskin's favorite building). They are all substantial successes on their own terms and of their own times. — JTB

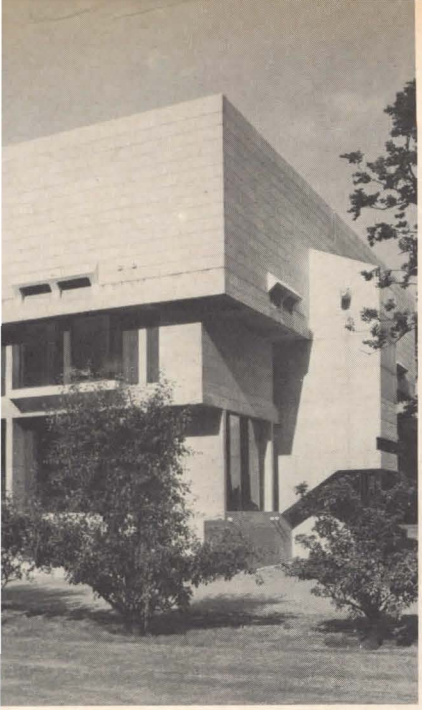
Stair to gallery.

Gallery



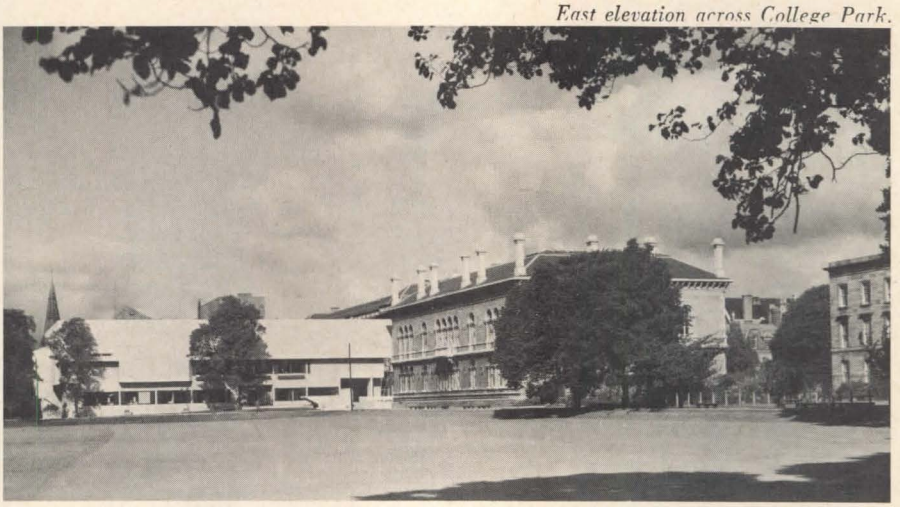
Carrel groupings.

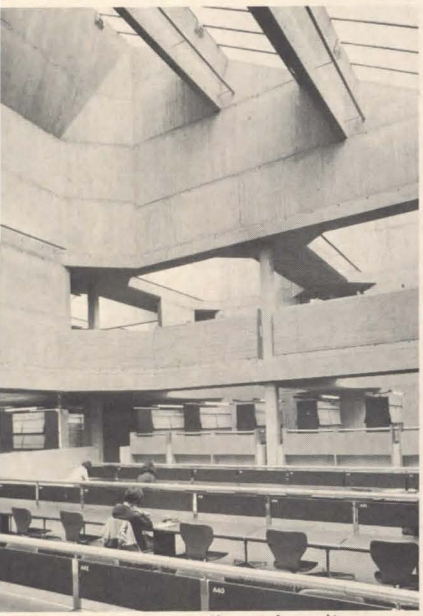




West windows and rear stair.

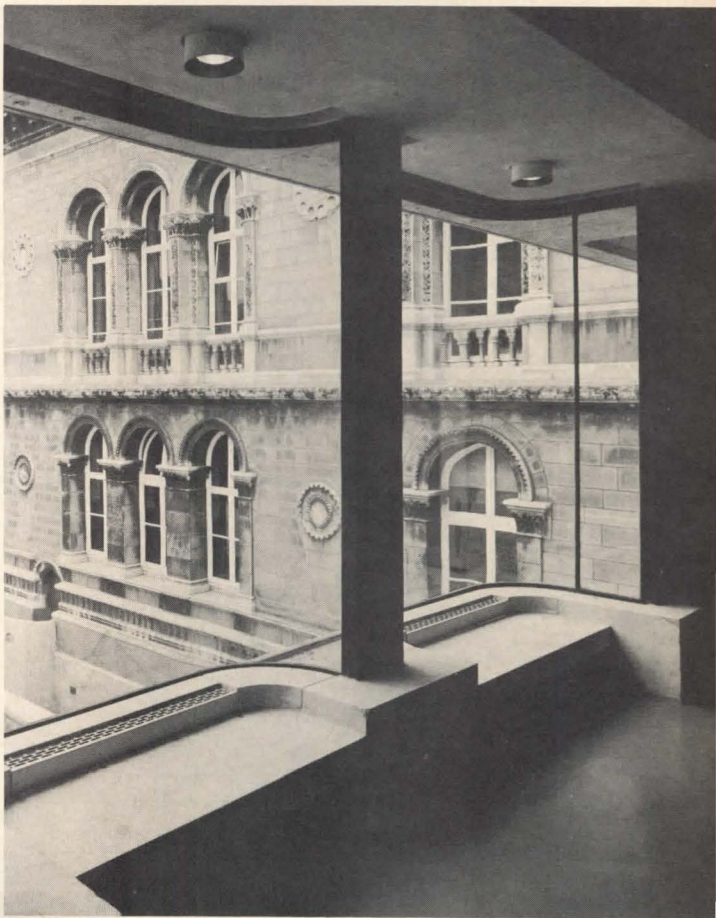
East elevation across College Park.





General reading room.

Graduate study area.



Bow window with seating.

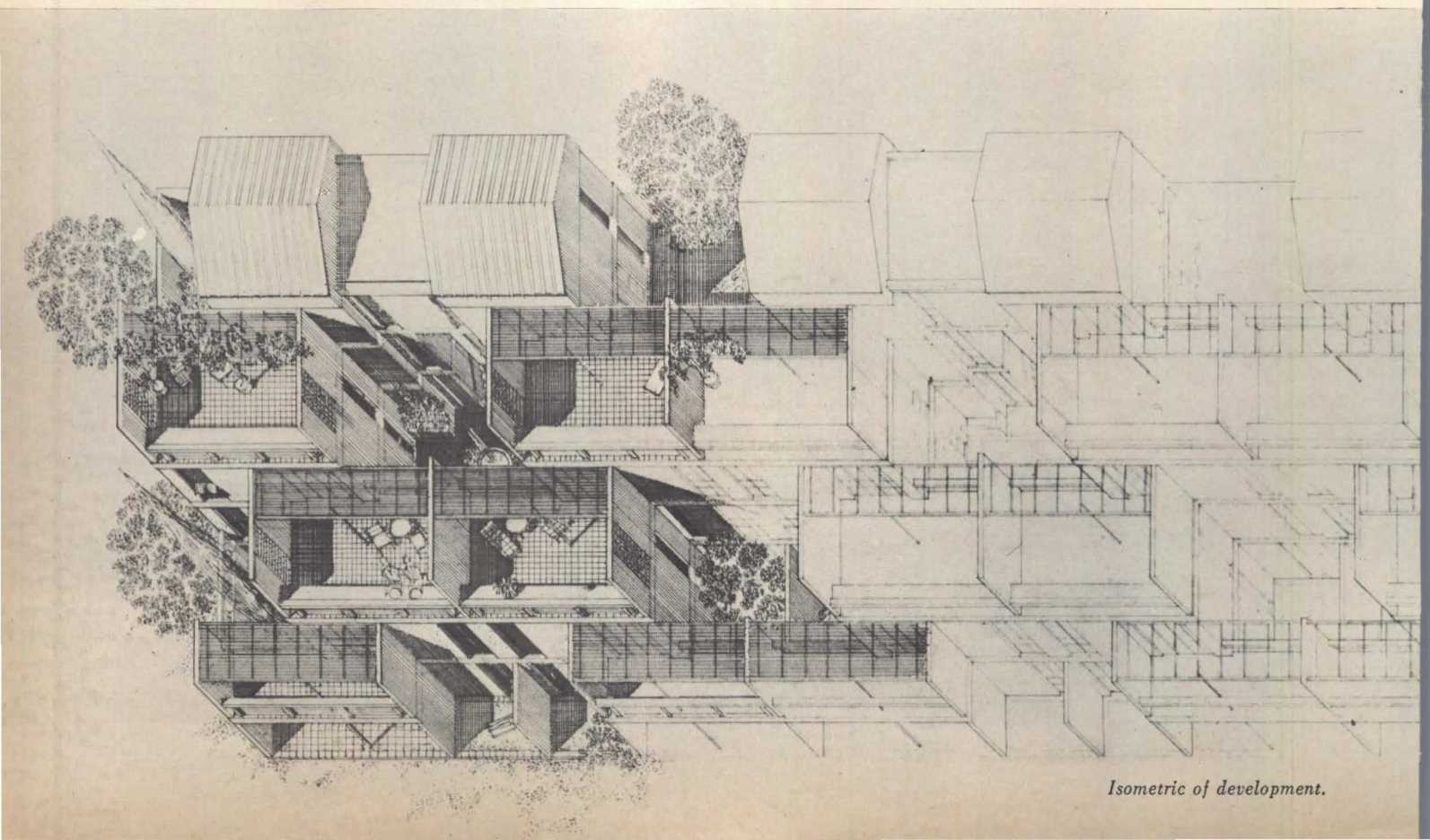
Reading area.

FUN ON THE SUN COAST

What do you do when you are building in Spain and there are no plains? Go up the hill, of course. At Sotogrande in Spain's Costa del Sol, that is what Welton Becket & Associates have decided to do with an apartment development for Joseph R. McMicking. The project, which will be in a resort community between Algeciras and Marbella, will consist of 30 apartments (efficiencies, two-bedroom, and three-bedroom) as a start towards an eventual total of 204 units. The apartments will be for cooperative ownership for people who wish to spend part of their year in the area.

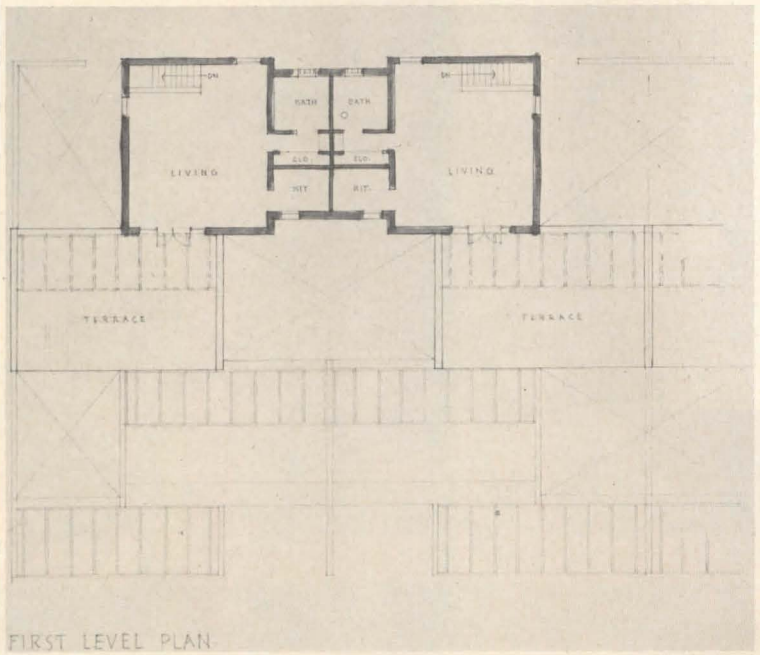
In attempting to give each unit both privacy and an outdoor space of its own, the architects have juggled the plan on the slope so that tenants will have ease of access to their apartments, and will all have views out across the little Arroyo de la Horra river (to be developed for recreation) to the sea in the distance. The apartments will cluster around a central courtyard in groups of six — two efficiencies, two two-bedrooms, and two three-bedrooms, plus two separate groups of three maids' rooms each.

The two-bedroom apartments are to be approached directly from the highest point of the site at the rear of the complex, through a garden (the efficiency is reached up a flight of stairs from this garden). Below the living-dining space of the two-bedroom units are their sleeping areas, contiguous to the living spaces of the three-bedroom apartments, surrounding the central courtyard which will be approached down a staircase from the common street at the rear, where separate parking buildings will be provided. Bedrooms for the larger apartments will be on the fourth, or bottom level. Maids' rooms will be beneath the efficiency units. All apartments will have three exposures, the main one down the hill to the south. The openness created by this arrangement will be increased by the generous provision of patios, screened terraces, and gardens. Local materials (concrete block, stucco, tile roofs and floors, metal grilles) and construction methods will be used for economy and to preserve a regional character. Preliminary sales prices suggested by the Bechtel Overseas Corporation, which is overseeing the project, in 1966 were a top of from $18,000 to $28,000. That seems pretty healthy for Spain, but the design seen here is not the usual flimsy resort claptrap, so it will undoubtedly be worth the investment.

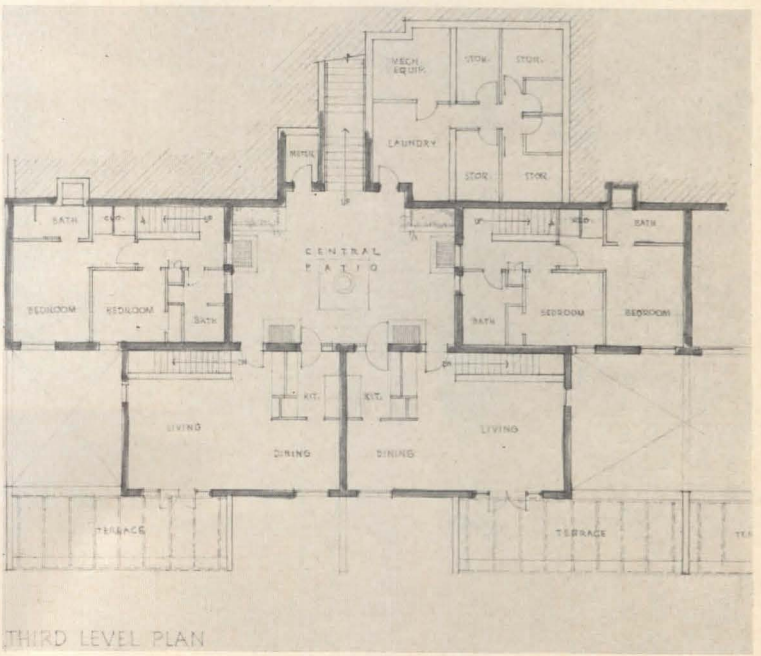


Isometric of development.

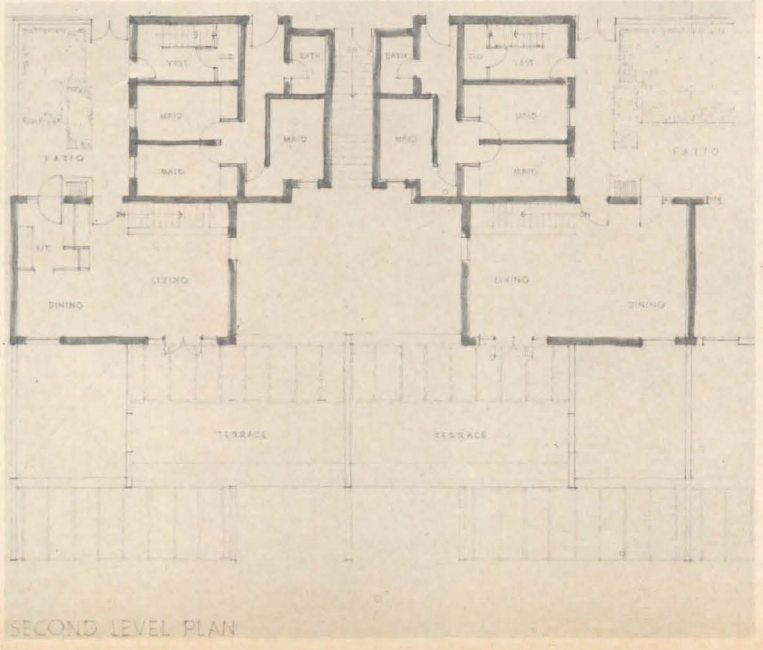
Photo: Louis Checkman



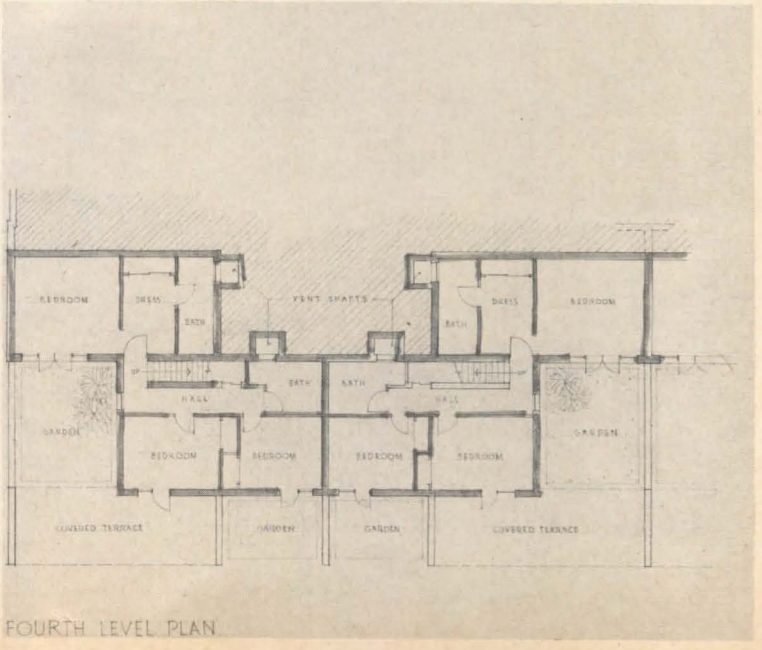
FIRST LEVEL PLAN



THIRD LEVEL PLAN

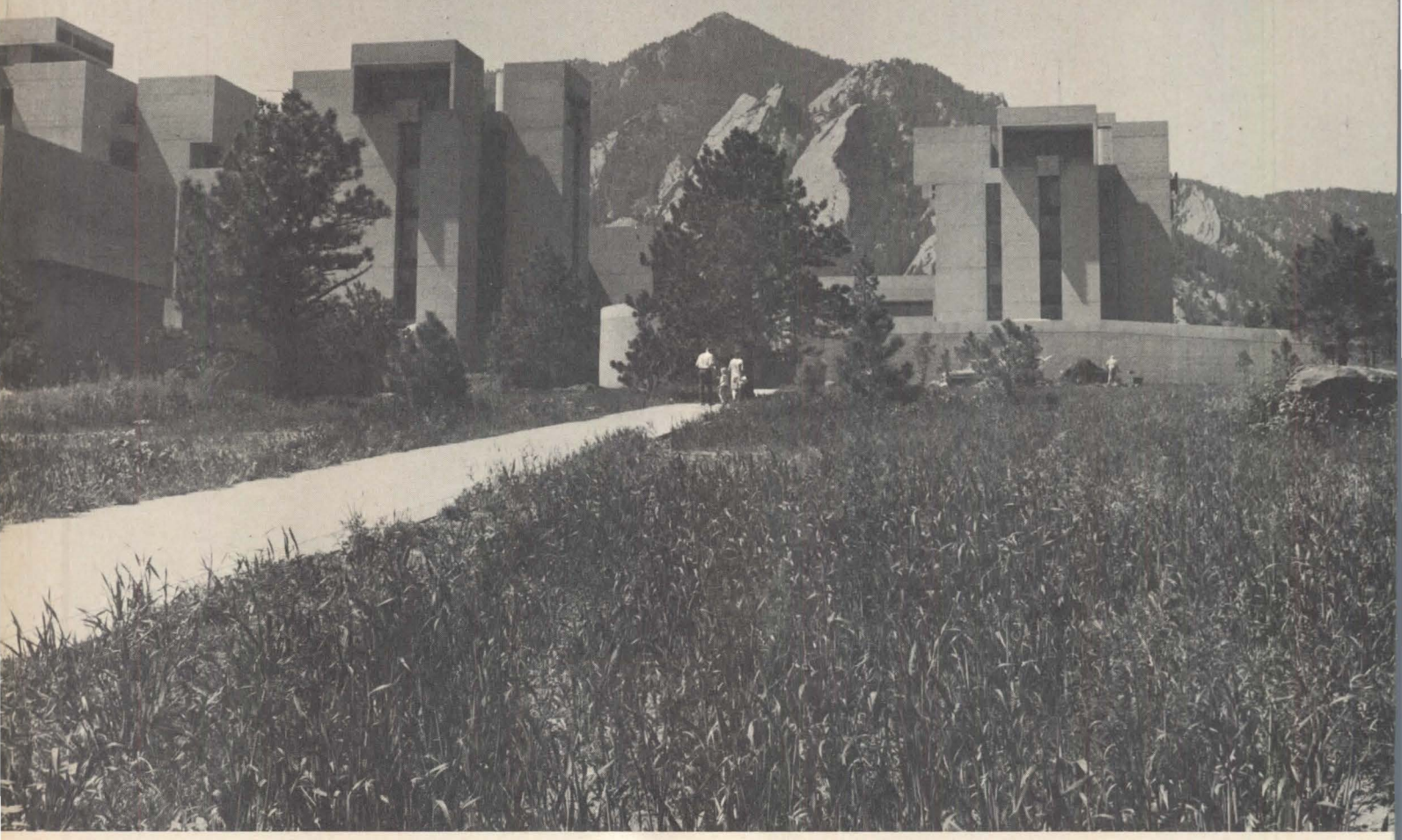


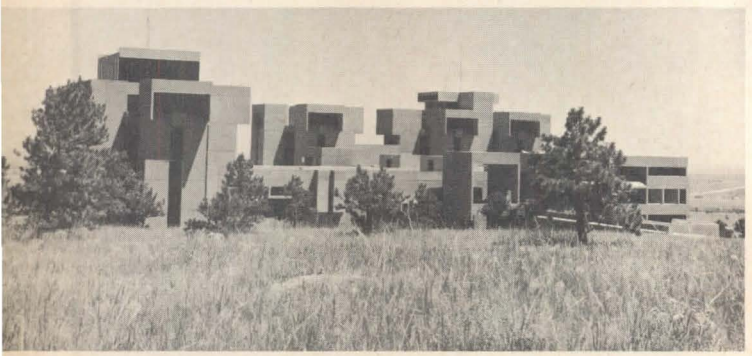
SECOND LEVEL PLAN

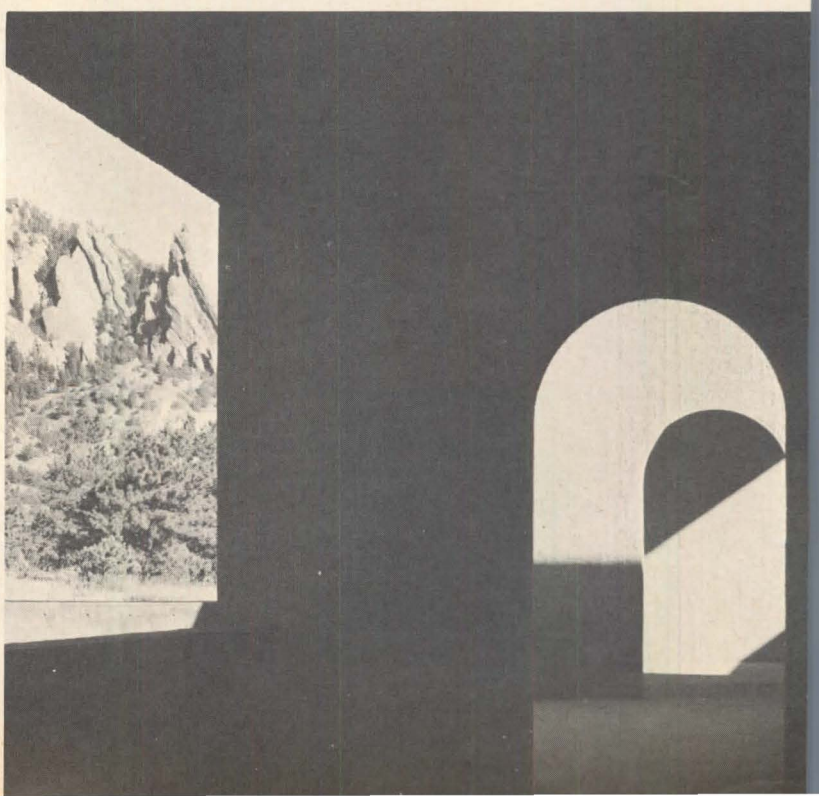


FOURTH LEVEL PLAN

ATMOSPHERE OF THE SIXTIES





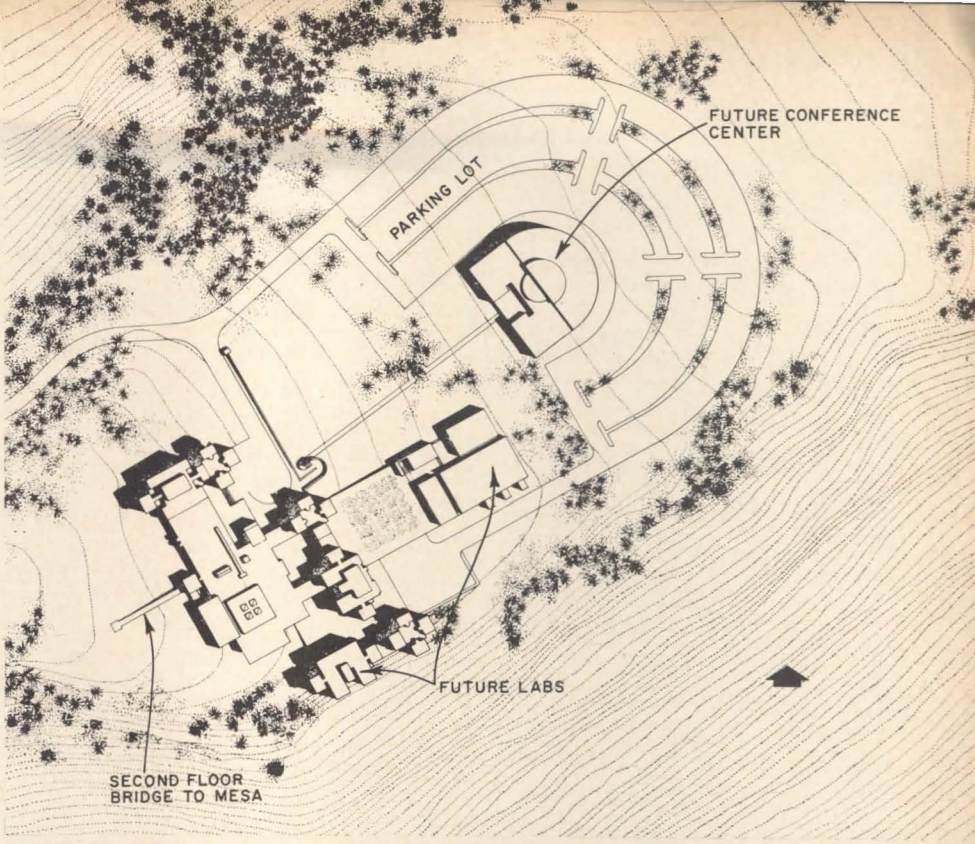


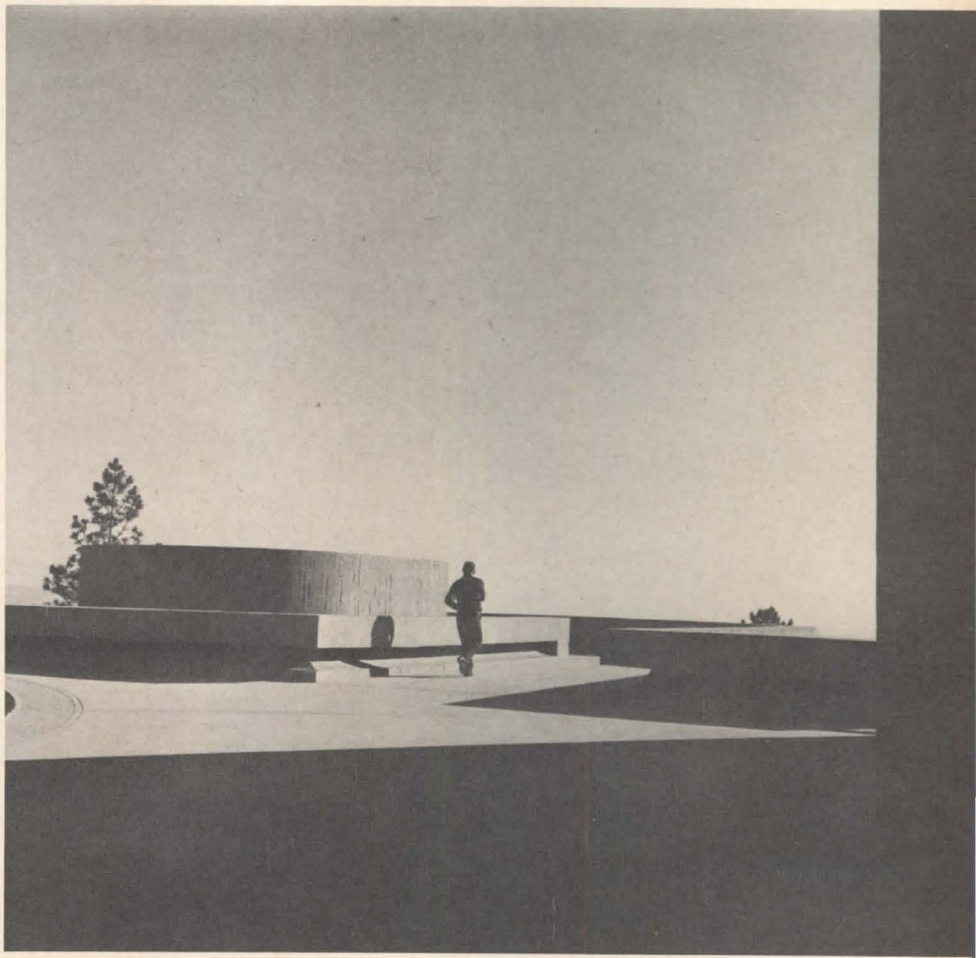
Client: *The University Corporation for Atmospheric Research;* ***Architect:*** *I. M. Pei & Partners (Associates in charge: James P. Morris, Richards Mixon, and, interiors, Robert Lym);* ***Structural Engineer:*** *Weiskopf & Pickworth;* ***Mechanical Engineer:*** *Jaros, Baum & Bolles;* ***Landscape Architect:*** *Office of Dan Kiley;* ***General Contractor:*** *Martin K. Eby Construction Co., Inc.;* ***Photography:*** *Rush J. McCoy.*

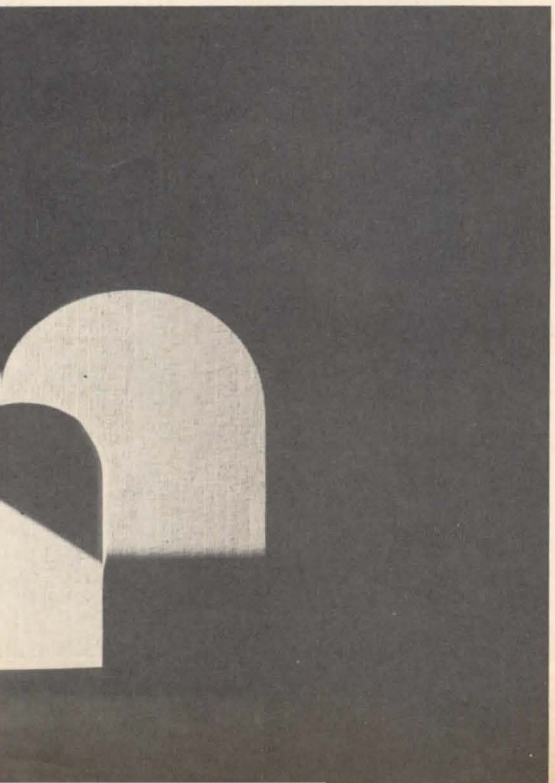
I. M. Pei, who sparked the architecture of Colorado in 1955 with his Mile High Center for William Zeckendorf, and later in 1957 with his sophisticated Denver Hilton, has done it again with the initial units of the National Center for Atmospheric Research in Boulder.

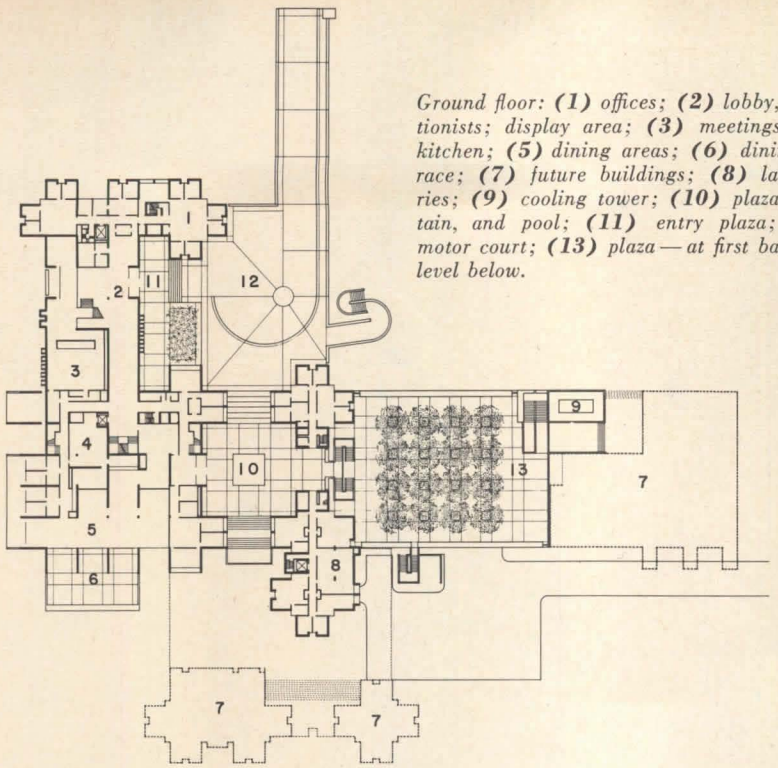
NCAR was created seven years ago as an "umbrella" group for investigations in the atmospheric sciences, researches by inter- and intra-disciplinary sciences, government units, universities, private research organizations, and other organizations dealing with problems of air pollution, global weather prediction, aspects of the modification of weather and climate, and many other related questions. The Center acts as the headquarters for the far-flung activities of NCAR and will, when completed, comprise a complex of laboratory towers, office structures, administrative center, and a large conference center. The present units provide the initial laboratory tower, office space, reception and display areas, facilities for the handling and programming of computers, library, and commons room, meeting room, dining room, and kitchen, plus generous outdoor courtyards and terraces.

Although, as can be seen from the site plan, the completed structure is less than half of the eventual total composition, the force and invention of the design come through. The play of angular building forms against curved entrance ramps and ground floor archways, of fountained cloisters against the vastness of the Colorado landscape, of reflective glazed

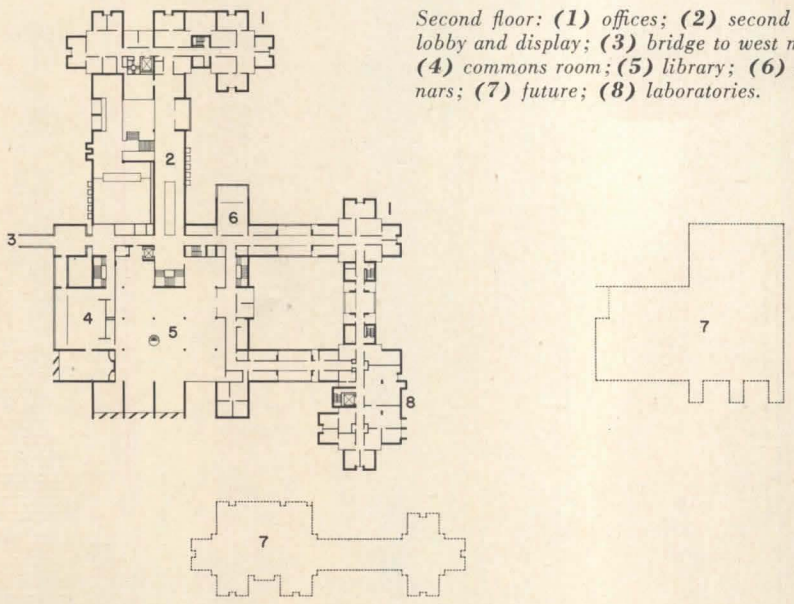




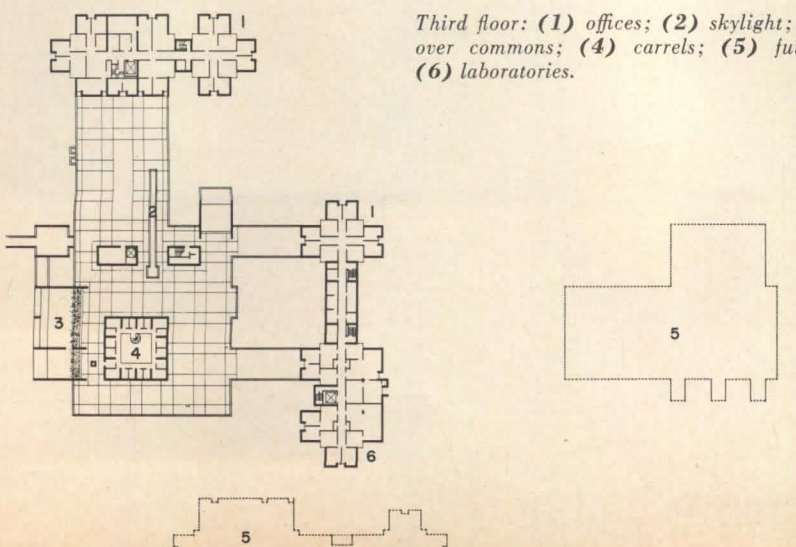




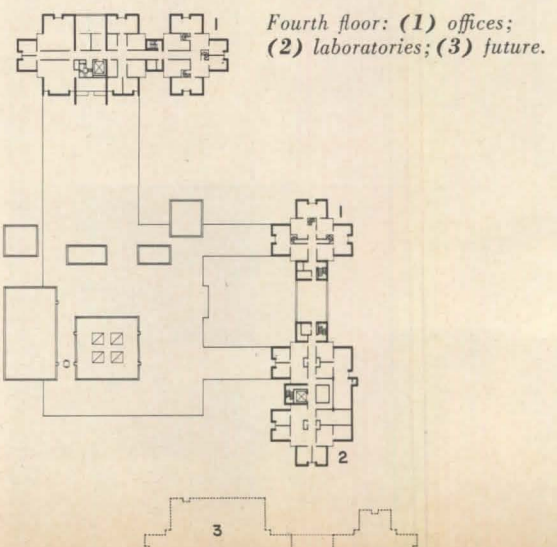
*Ground floor: **(1)** offices; **(2)** lobby, receptionists; display area; **(3)** meetings; **(4)** kitchen; **(5)** dining areas; **(6)** dining terrace; **(7)** future buildings; **(8)** laboratories; **(9)** cooling tower; **(10)** plaza, fountain, and pool; **(11)** entry plaza; **(12)** motor court; **(13)** plaza — at first basement level below.*



*Second floor: **(1)** offices; **(2)** second floor lobby and display; **(3)** bridge to west mesa; **(4)** commons room; **(5)** library; **(6)** seminars; **(7)** future; **(8)** laboratories.*



*Third floor: **(1)** offices; **(2)** skylight; **(3)** over commons; **(4)** carrels; **(5)** future; **(6)** laboratories.*

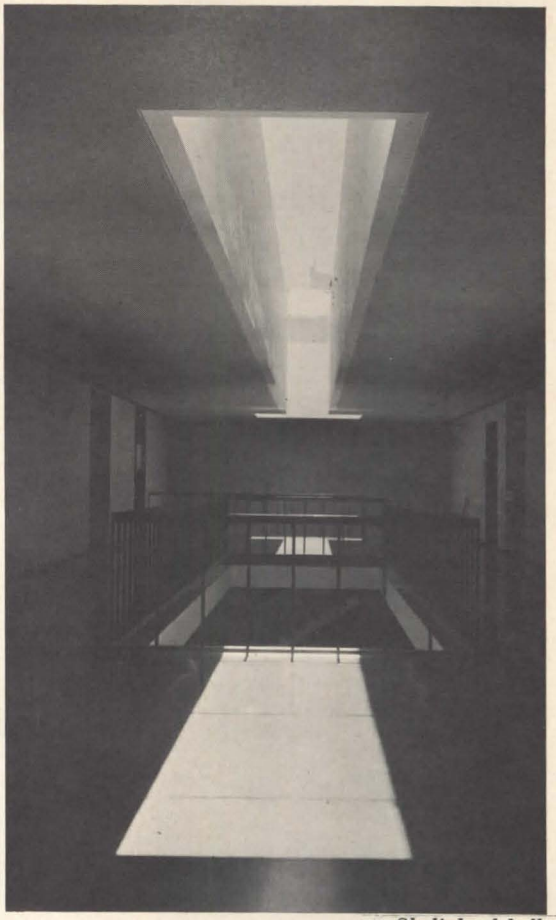


*Fourth floor: **(1)** offices; **(2)** laboratories; **(3)** future.*

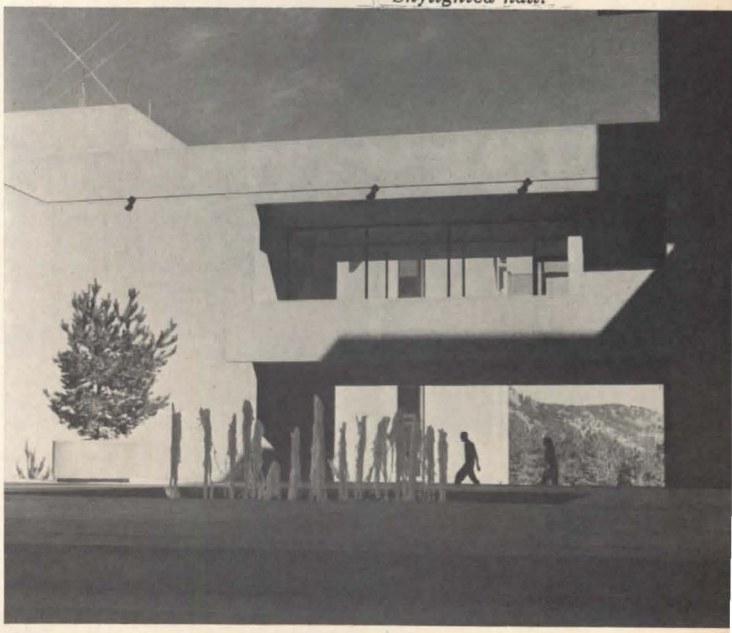
planes against textured wall surfaces created by bush-hammering concrete containing a special aggregate of local red limestone, all contrive to make the center read as a positive occurrence in the countryside, one which has its own identity and self-confidence but which does not seek to intrude impertinently upon the grandeur of its mesa setting.

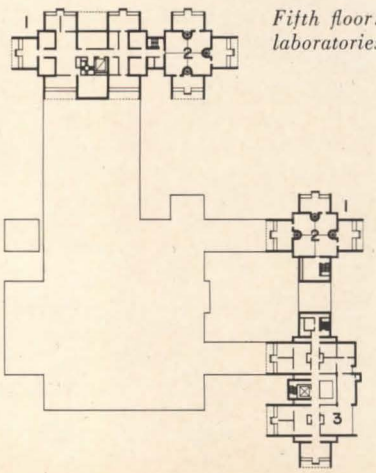
This juxtaposition of rugged forms against the awesome backdrop of the Front Range of the Rockies is interesting in comparison to another well-known man-made landmark near Colorado Springs. Where Skidmore, Owings & Merrill at the Air Force Academy chose to counterpoint their serene horizontal rectangles against the majesty of the mountains (dropping in the "brilliant" of the chapel to underline the contrast), Pei thrusts up emphatic forms in defiant respect to their natural surroundings. The Academy can be seen in retrospect as a typical — albeit masterful — solution of the 1950's, and of the work of its architects at that period. The Center exhibits an equally masterful search in the directions of design interest of the 1960's: the evocative but functional form, the multi-layered arrangement of interior and exterior spaces, the use of exposed, plastic structural materials contrasted with more "sophisticated" fenestration materials, and, finally, the concept of the large building project as what might be called a micro-community rather than as a master-plan of individual works of architecture. As a work-in-progress, the National Center for Atmospheric Research represents a fascinating distillation of what concerns many thinking architects today. It will be interesting to look at it on its completion some years hence to see whether these interests, and the conclusions implied in such a notable work as this, were the ones that lead to a significant "future architecture." — JTB

Library.



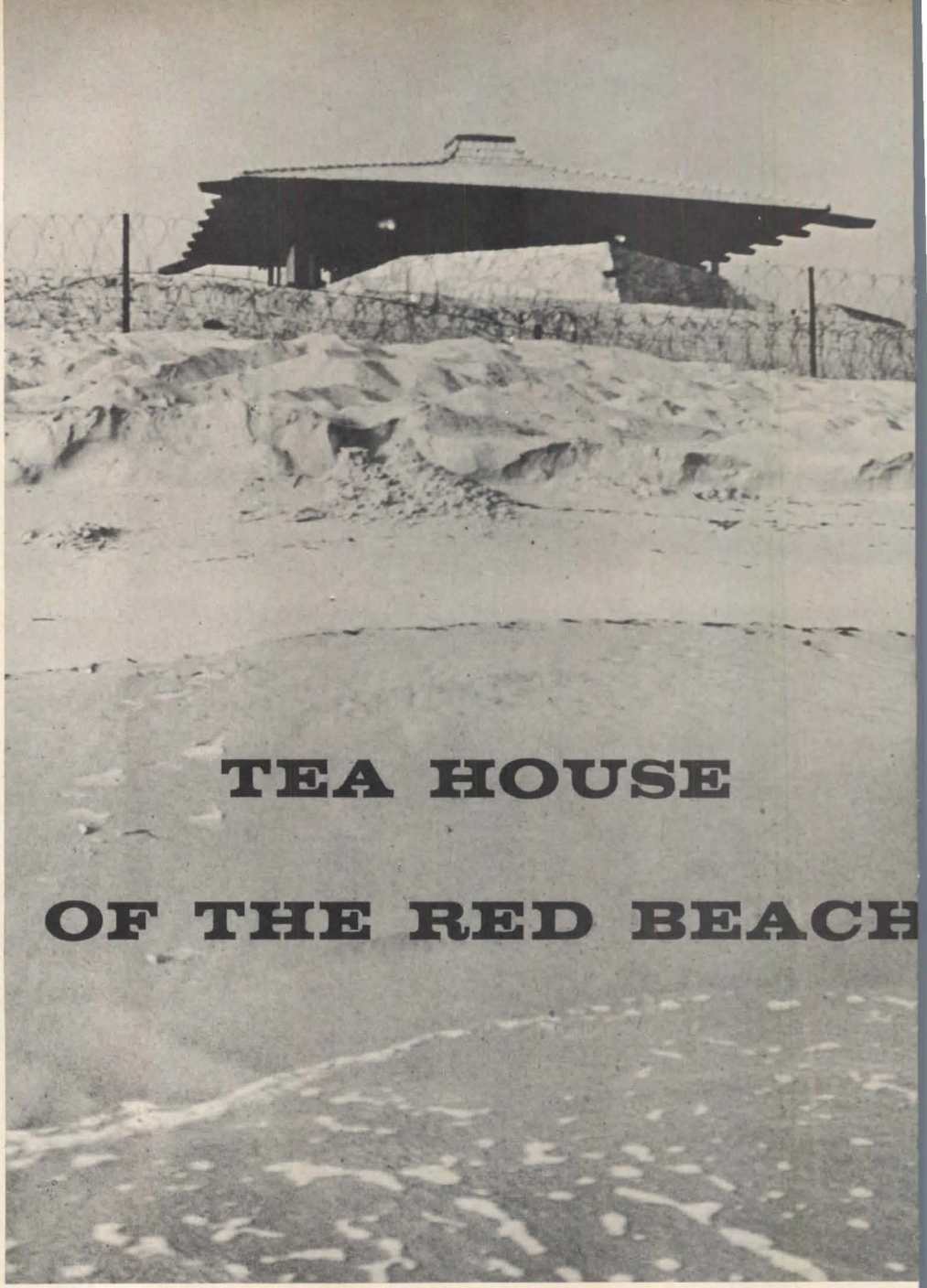
Skylighted hall.





Fifth floor: ***(1)*** *offices;* ***(2)*** *terraces;* ***(3)*** *laboratories;* ***(4)*** *future.*

Lounge.



TEA HOUSE OF THE RED BEACH

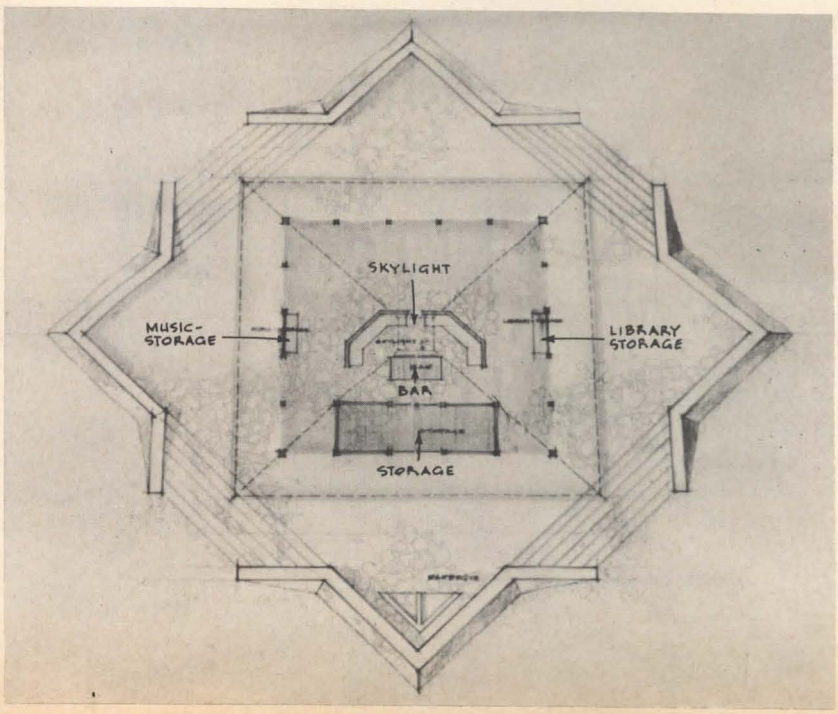
Red Beach, DaNang, South Vietnam, is far from our idea of the place to spend an autumn vacation — we doubt whether it is the place anyone unfortunate enough to be there now would choose, either. But a 1964 graduate of the School of Architecture and Fine Arts at USC as designer, and a 1965 graduate of the School of Architecture at Georgia Tech as construction coordinator, have provided an officers' club for the privileged classes of U.S. Naval Mobile Construction Battalion Fifty-Eight ("Seabees") in that unwholesome spot that would grace the greens and fairways of any stateside country club. Speaking of mobile, Lt. (j.g.) William D. Martin and Lt. (j.g.) L. Lord were not exactly hindered in their search for design amenities by some of the mobile scenery seen in these photos. It has a distinctly non-government issue appearance, if you ask us, and we can only wonder whether Battalion Fifty-Eight is under the command of Gen. Hugh Hefner.

The club is for 25 officers "and guests" (we quote from a description sent by Lt. Martin) replacing an "existing tent." With a bare-bones budget and strictures to use indigenous materials (pretty scarce) wherever possible, the lieutenants have done as good a job as Glenn Ford and Marlon Brando turned out in "The Tea House of the August Moon." Although the club stands in the Dantesque landscape of a wartime military installation ("tin-roofed, strong-back huts, Butler buildings, defensive emplacements, and construction support equipment and facilities"), its designers have given it an appropriately Eastern flavor and meticulousness of detail, together with a couple of military touches ("the designer borrowed freely from the low, hovering profile and 'battered' sandbag walls of defensive bunkers common to the beach area") that make it a far cry from the picture John Wayne gave of the Seabees when he won World War II.

Construction was done on a schedule that permitted no interference with duty hours, using officers and Vietnamese labor. The club took the form of a pavilion angled to the beach and raised on its battered platform, which also serves as outdoor terrace space. Materials are locally quarried rock, rough-sawn Philippine mahogany timbers, and locally-manufactured, interlocking clay roof tile. Structure is post and beam with a two-way indeterminate truss with a balanced load distribution on perimeter columns giving a column-free interior and deep eaves.

Except for the dubious atmosphere of Saigon, liberty ports in Vietnam

are nil. Sailors — and soldiers, too, of course — are therefore generally limited to base or dismal restricted "recreation areas," making a few nice touches such as Battalion Fifty-Eight's officers' club practically obligatory (having worked our way up to PFC in WWII, we wonder about the facilities for enlisted men). For these lucky officers, their new club "provided a congenial retreat from a war-sterile and often hostile environment and helped to ease the long, lonely evenings far from families and loved ones." The battalion has since returned home, leaving the club for others (we cannot help but wonder if they left behind *all* the accoutrements for easing "the long, lonely evenings far from family and loved ones" they sent us in these photos). None of it changes what General Sherman said about war, however, not one bit. — JTB



MECHANICAL ENGINEERING CRITIQUE

REFERENCE LIBRARY AIDS IN ALL-ELECTRIC PLANNING

BY WM. J. McGUINNESS

Four articles from an ongoing series of design guides to be published by the National Electrical Contractors Association are reviewed. McGuinness is a practicing engineer in New York City.

In this era of rapid change and multiple choice among sources of power available for heating, cooling, lights, and mechanical power, the architect and engineer can make use of good information on each power source. When the decision is for the exclusive use of electricity, an excellent reference now published by the National Electric Contractors Association (NECA) will be found useful. It is an electrical design library known as *NECA Electrical Design Guidelines.*

Power planning can indeed present problems of choice; fuel costs and electric power rates vary by geographic region. Occupancy and activity within the building may have an important influence; a few possibilities are:

- Electricity for heating, cooling, and lights.
- Total energy, using oil or gas exclusively, for generating electricity, and for heating and cooling.
- Oil or gas for heating, electricity for cooling and lights.
- Electricity for lights, oil or gas for heating, and — by the use of steam in absorption-refrigeration machines — cooling.

When electric rates are favorable, the use of electricity for all purposes may be appropriate. The intent of Electrical Design Guidelines is to provide examples and guidance in developing an all-electric energy system.

Two monographs, in what is to become a continuing service, have now been published: *All Electric Concepts for Architecture and Visual Aspects of the Electric Environment.* The monographs include descriptions of successful solutions to problems arising in a variety of buildings. All of the articles are excellent; four are described briefly in the following reviews.

Control by Each Tenant

The Freudenberg Building, in Washington D.C., by the architectural firm of Lockman Associates, is a six-story office building of diversified occupancy, mostly small offices. Incremental cooling units at the perimeter serve the offices there. Each of these self-sufficient units includes compressor, condenser, and evaporator coil plus electric resistance heating; each tenant controls his own climate. All units turn to night setback for moderated night output. The tenant, however, can override this central control at intervals during evenings or weekends, making his office comfortable. Perimeter units are all turned on automatically (in random order, to prevent a demand surge), starting at 5 A.M.

Attractive perimeter louvers bounded by floor, sill, and mullions surround each story. They admit fresh air and provide air circulation for condenser cooling.

For the control of the interior core, an air-handling unit on the roof, served by adjacent, rooftop, air-cooled condensers and by electric resistance heating is used. It downfeeds air for the six stories and returns it for reconditioning through parallel vertical ducts.

Ductless Design

The D.E.N.T. Building in South Charleston, W. Va., is a two-story medical clinic, by architect Howard G. Johe. Ducts are almost entirely eliminated through the use of four air-to-air electric heat pumps on the roof. Three of these deliver cool or warm air to a plenum above the ceiling of the top story. The fourth, through a short one-story duct, delivers the conditioned air to a similar plenum above the ceiling of the lower story. Air reaches the occupied space through porous, ventilating ceilings. Absence of ducts and ceiling diffusers gave the architect complete freedom in locating the lighting fixtures.

New Lighting Lets Ceiling Assume New Forms

Examples of the new forms include:

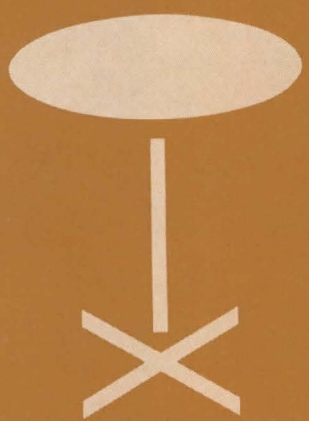
- A vaulted ceiling springing from closely spaced columns forming square bays. The ceiling is washed by the upward glow of indirect fixtures mounted on the columns and using quartz-tube lamps. Recessed lamps, four to a bay, provide good downward illumination for desk work.
- A conference room with varied light sources providing visual interest. Coves light the ceiling indirectly by color-improved mercury vapor lamps in specular reflectors set in the coves. Center table receives the light of 12 square fluorescent lamps in a floating panel. Low-voltage (12-V) spotlights accent various room objects.
- Deep baffles (in an egg-crate configuration) shield the glare of lamps producing 400 ft-c in a general office space.

Lighting As a Fundamental Element of Design

Four well-known lighting designers discuss the important relationships between lighting and design. Among them they point out how lighting can define and reinforce major structural elements, how points of visual interest can, and should be emphasized with special lighting, and how dreary visual uniformity can be avoided.

ADJUSTABLES

The State Room
The University of Iowa
Iowa City



DETACHABLES

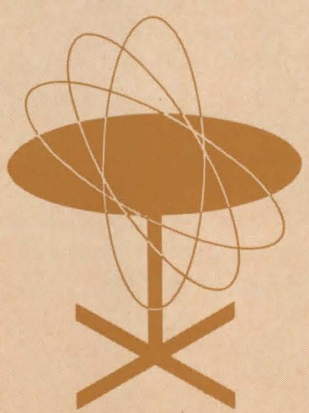
This is CHF

Versatility of design, cast in solid bronze, aluminum or iron . . . tailored to an overall theme. Simple beauty providing a maintenance free table of distinction.

This is CHF . . . *built with "student-proof" durability . . . a flair for elegance. Complete line, showrooms all principal cities . . . or write for custom design ideas. Dept.* 610.

Chicago Hardware Foundry Co.
North Chicago, Illinois 60064

CHF



FLIP TOPS

New River Room
The University of Iowa
Iowa City

On Readers' Service Card, Circle No. 454

NorthPark Shopping Center, Dallas, Texas

Just 24 Wide-Lite* fixtures light this 6,000-car parking lot!

The NorthPark Shopping Center is *big*—as big as the entire downtown shopping district of Dallas. Yet it takes only 24 "Wide-Lite" Mercury "4000" fixtures to light the center with attractive parking lot lighting that says "shop at night" to thousands of shoppers.

The fixtures are mounted on poles spaced approximately 300 feet apart. Each fixture operates four 1000 watt mercury vapor lamps, from a 480 volt electric system. The result is smooth, uniform light coverage, free from "hot spots" or dark areas—the kind of parking lot lighting that makes shoppers, particularly women shoppers, feel perfectly safe. Photoelectric cells automatically turn on the lamps in the fixtures at dusk. When the shopping center closes for the night, three of the four lamps in each fixture are turned out, while the fourth lamp keeps operating to provide protection until dawn.

Want more information about "Wide-Lite" indoor and outdoor lighting for everything from parking lots to swimming pools, factories to football stadiums? Contact your "Wide-Lite" representative (see the Yellow Pages). Or write Wide-Lite Corporation, Dept. 24A-460.

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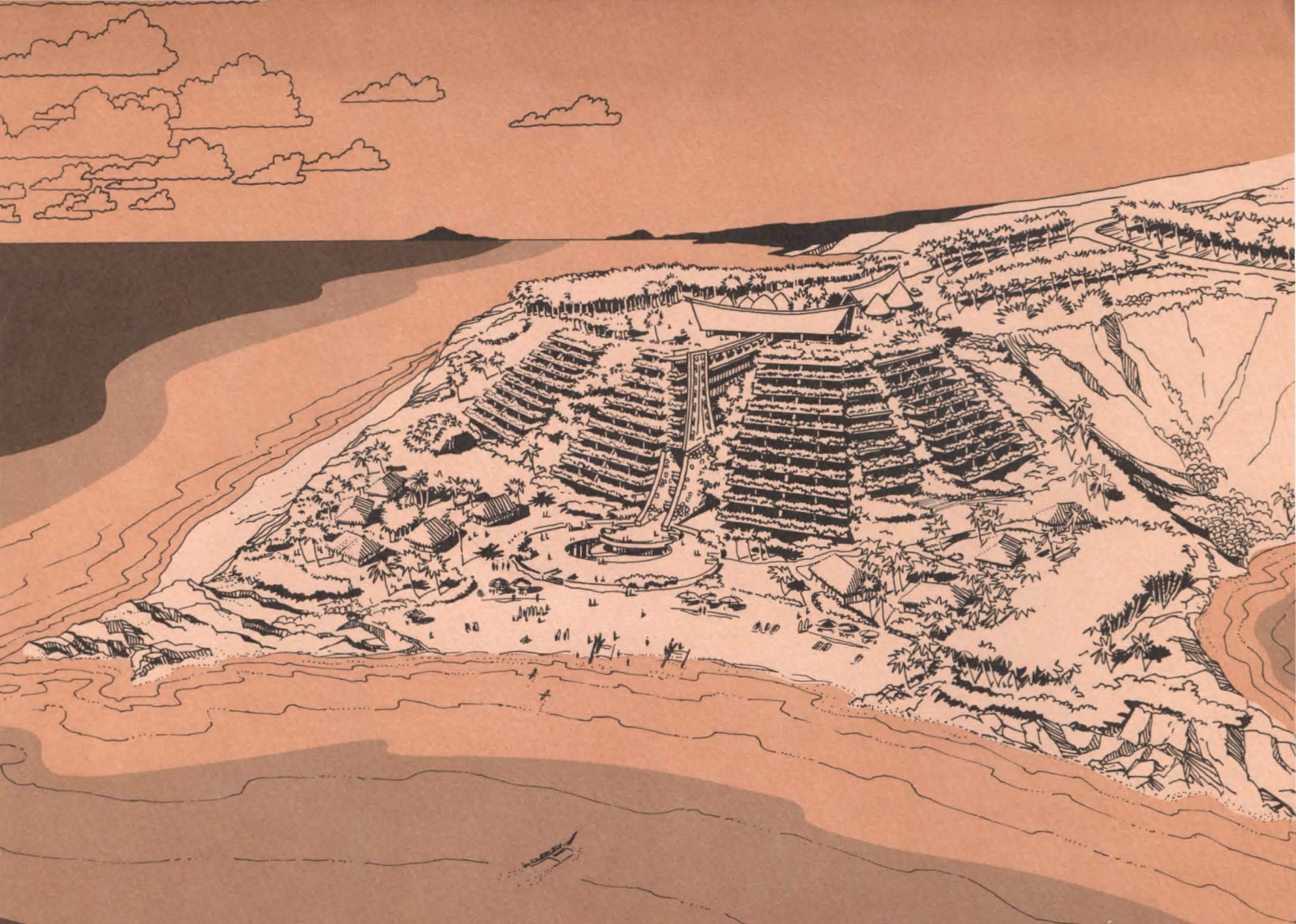
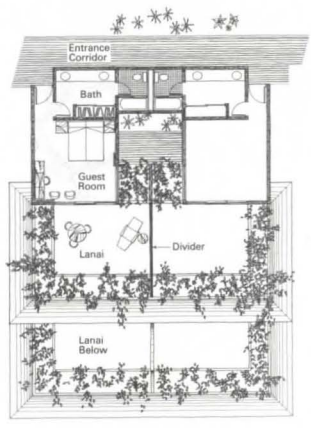


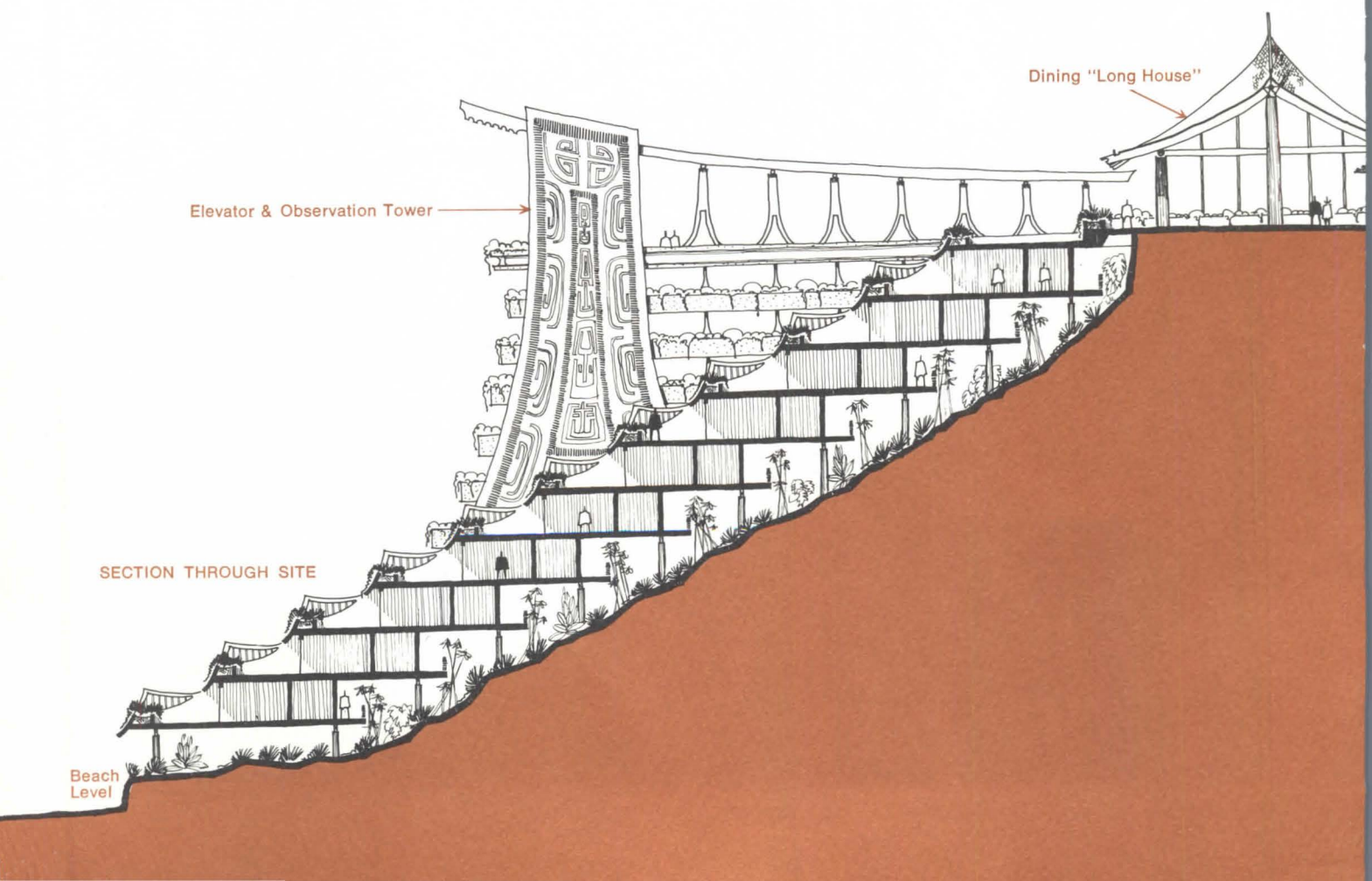
Wimberly, Whisenand, Allison and Tong design a hotel for the South Pacific

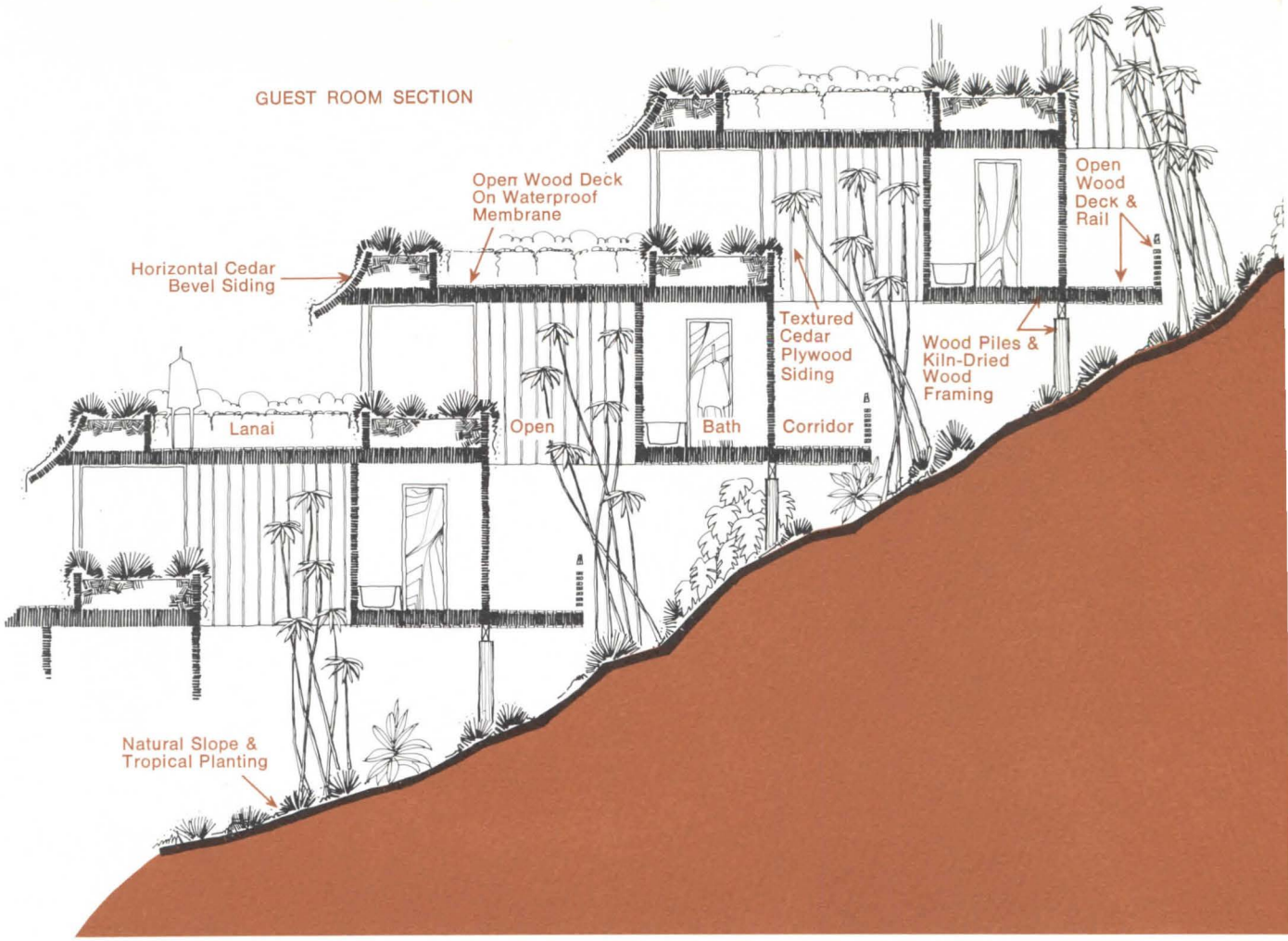
One of a series of design innovations commissioned by Weyerhaeuser Company

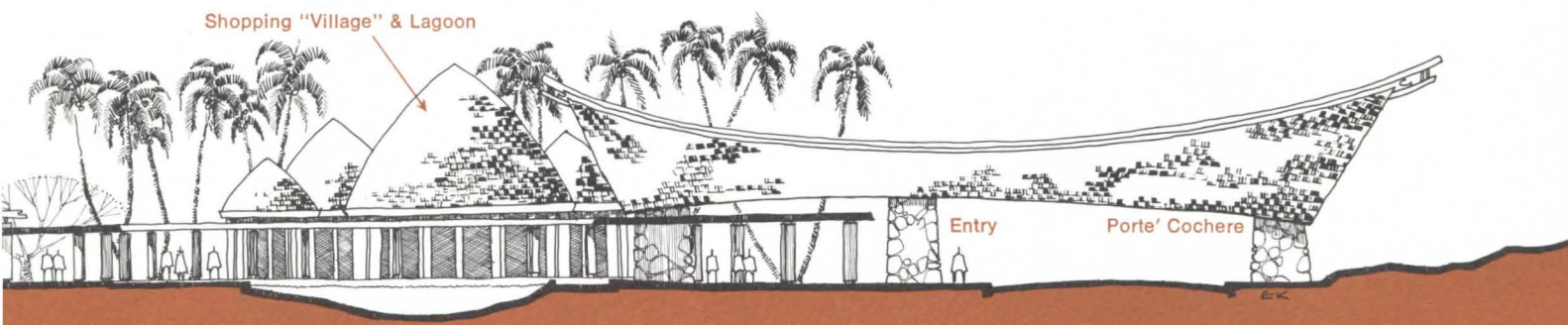
Weyerhaeuser has commissioned a number of leading architectural firms to create design innovations which highlight the potential of wood in public and commercial buildings. This original design by the architectural firm of Wimberly, Whisenand, Allison and Tong of Honolulu, Hawaii is the eleventh in the series.

GUEST UNIT PLAN









"...a minimum disruption of the natural setting."

"The fabled romance of the South Seas becomes a reality in this South Pacific resort hotel.

"The design takes full advantage of the natural characteristics of a tropical volcanic island site. The 'native village' cluster of public areas atop the plateau affords guests a panoramic ocean view.

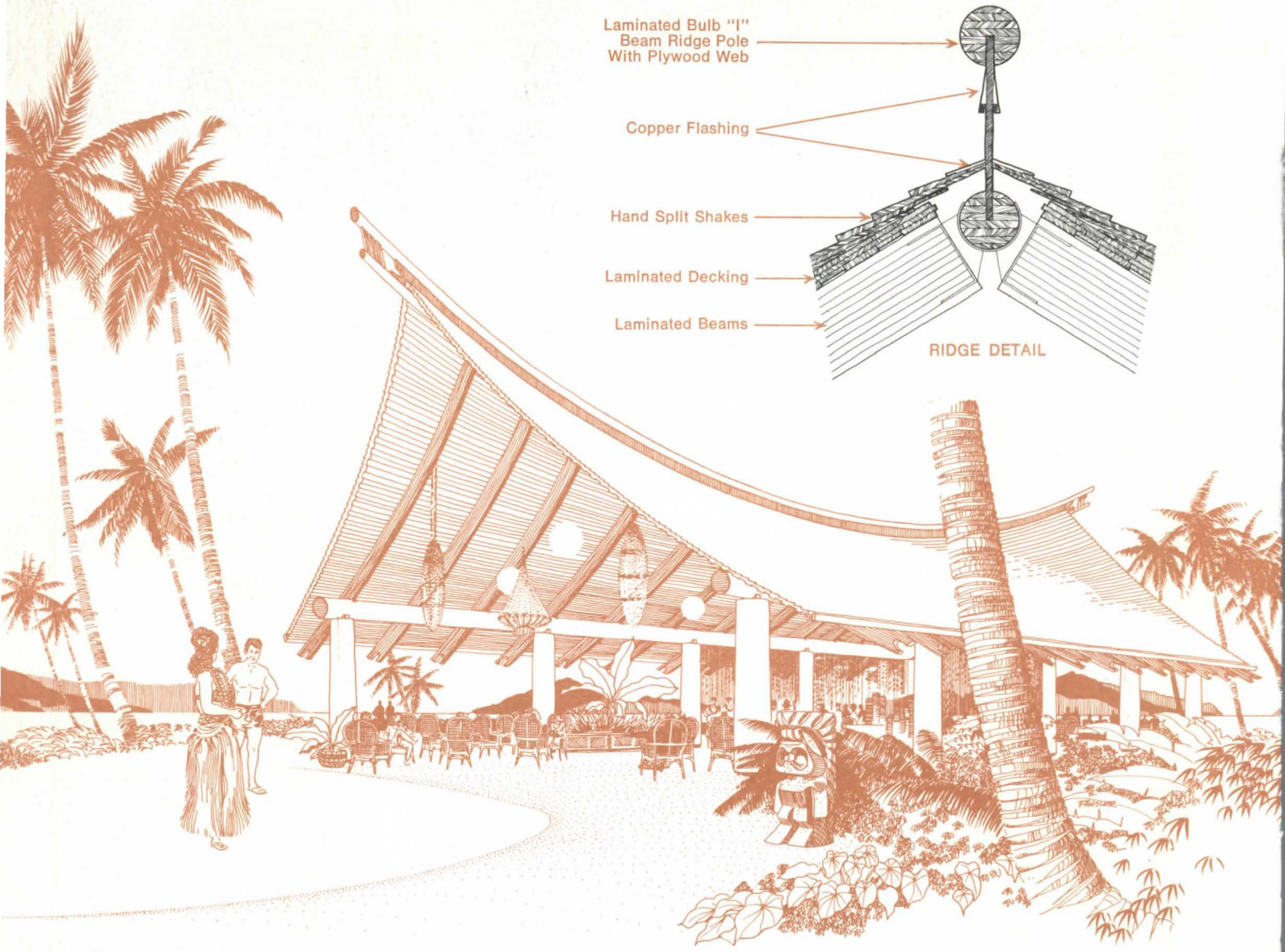
"The guest units that cascade down the slope to the reef-protected beach float above the hillside on wood pilings tied together by laminated wood beams. This allows the natural tropical planting to flow under, around and through the construction.

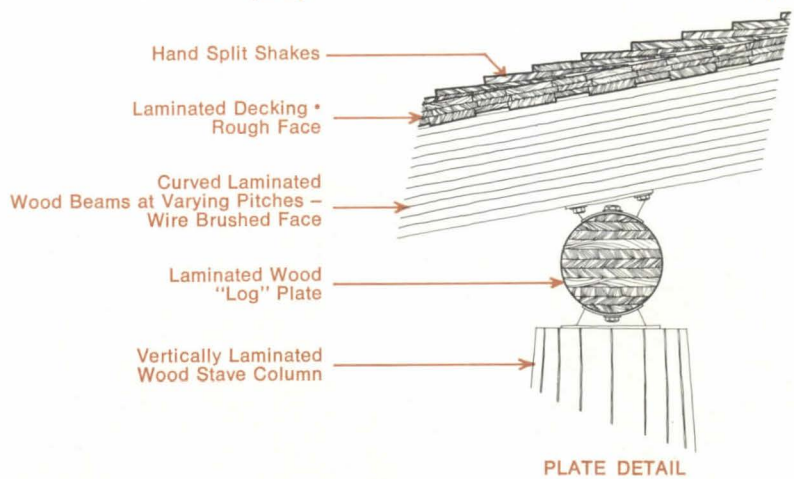
"Each room unit is designed as a private space surrounded by tropical terraces and planting spaces, yet grouped to afford convenience and good service to the guest.

"A natural weathered tropical atmosphere is achieved through the use of textured plywood walls on both interior and exterior surfaces. Interior floors are laminated decking and exterior lanais and corridors are open wood decking over a waterproof membrane and plywood floor system.

"In time the buildings will be further enhanced as the exposed wood takes on the soft patina of salt air weathering."

Gerald P. Allison





"wood's versatility minimizes construction problems."

Wood conveys the natural rustic character desired in a South Pacific resort.

Wood is also the material best understood by native craftsmen. This simplifies construction — vitally important when building in such a remote location.

The South Pacific Hotel is another excellent example of the imaginative use of Weyerhaeuser Architectural Wood Products.

The Weyerhaeuser Architectural Services Program exists to aid you in making use of wood's great creative potential. It makes available to you the most comprehensive body of technical information available from one source in the wood products industry.

Call your Weyerhaeuser Architectural Representative or write Box B-2541, Tacoma, Washington 98401.

Weyerhaeuser

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