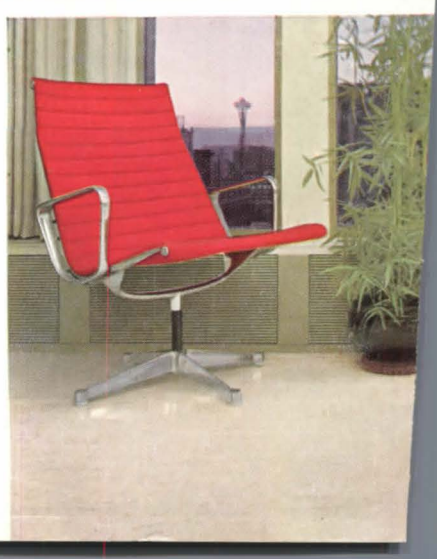
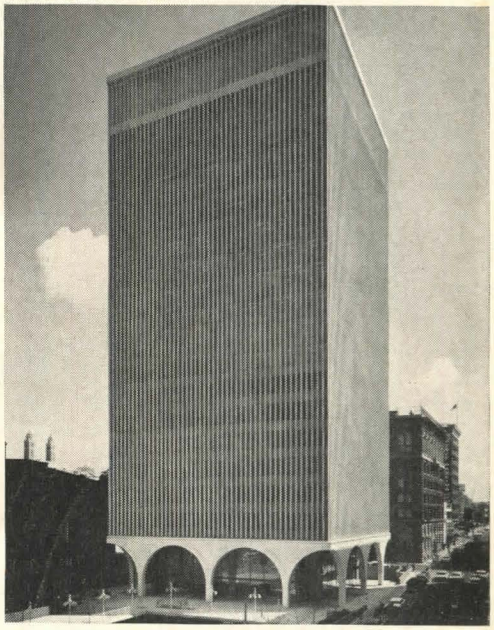
December 1965 **PROGRESSIVE ARCHITECTURE**



Armstrong offers the widest variety of resilient floors. The best is the one that suits your design.

IBM Office Building, Seattle, Washington. **Architects:** Naramore, Bain, Brady and Johanson, Seattle/Minoru Yamasaki and Associates, Birmingham, Michigan; **Structural Engineers:** Worthington, Skilling, Helle & Jackson, Seattle; **Mechanical-Electrical Engineers:** Bouillon, Christofferson & Schairer, Seattle; **Air Conditioning Consultant:** Jaros, Baum & Bolles, New York City; **General Contractor:** Howard S. Wright Construction Company, Seattle; **Flooring Contractor:** Hamilton Carpet Co., Inc., Seattle.



Here, the best is Travertex Excelon Tile.

For University Properties, Inc., new IBM Building in Seattle, the architects selected floors of Armstrong Travertex Excelon Tile. Its soft pastel coloring and travertine graining harmonize with the fine-grained vertical pattern established by the building's exterior. This is a design keynote maintained throughout the 120,000 square feet of corridors and offices where Travertex Excelon is installed. But the reasons are practical as well as aesthetic. Its appearance will last the life of the floor because the graining goes completely through the tile thickness. Armstrong Travertex Excelon is a vinyl-asbestos tile; it's durable, easy to maintain, and low in cost, so it answers visual and economic demands equally well.

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THIS MONTH IN P/A

Progressive Architecture® *December 1965*

COVER
Leaving Donner and Blitzen parked at concourse level, Santa Claus peers into lobby of Philadelphia's M.S.B. for possible location of chimney (page 108). Photo: Louis Reens.

EDITORIAL FEATURES

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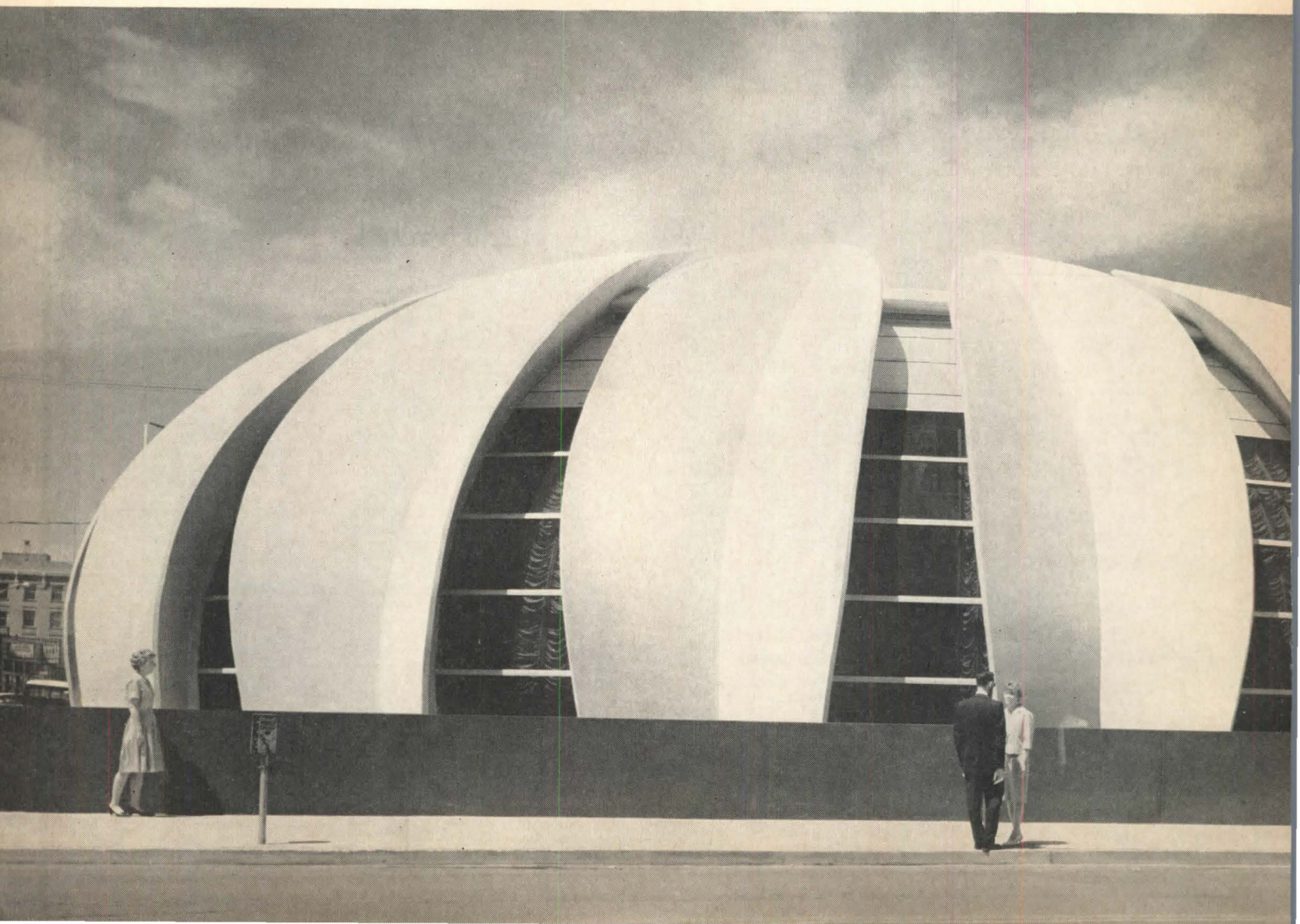
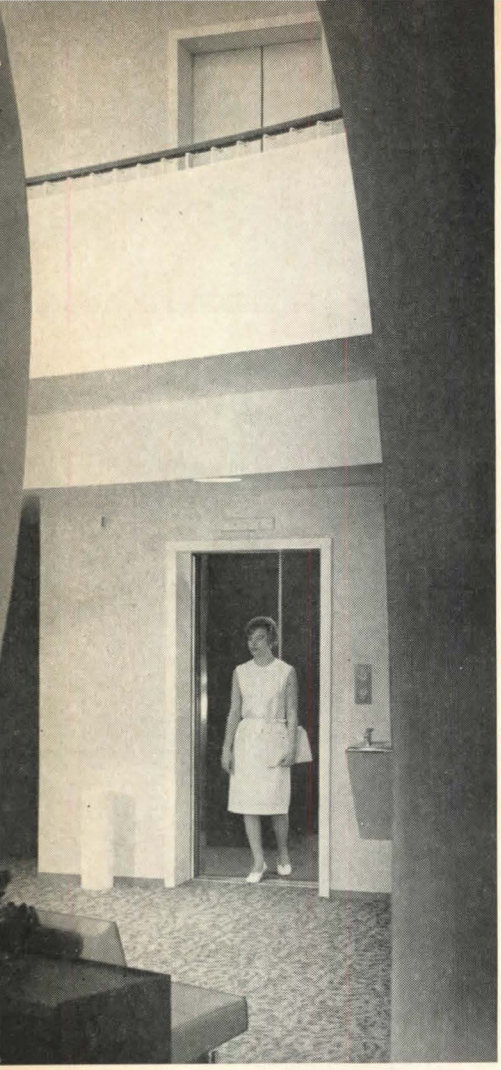
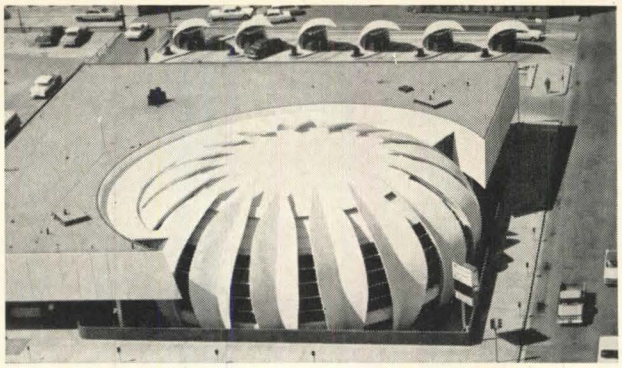
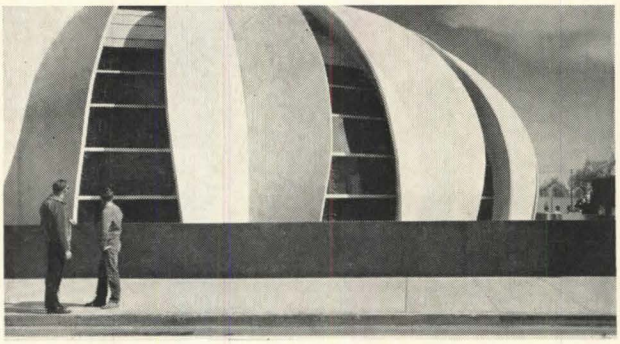


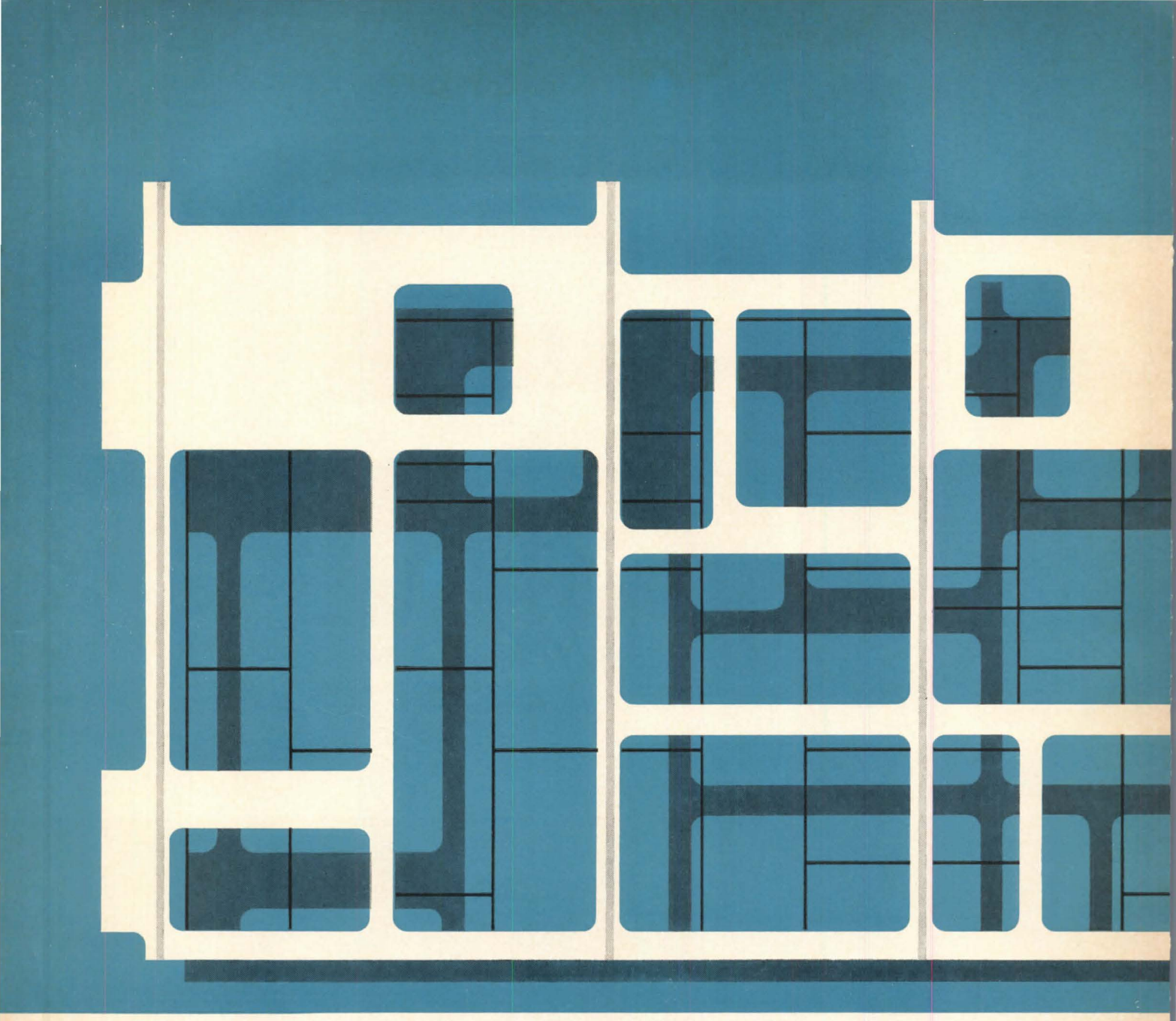




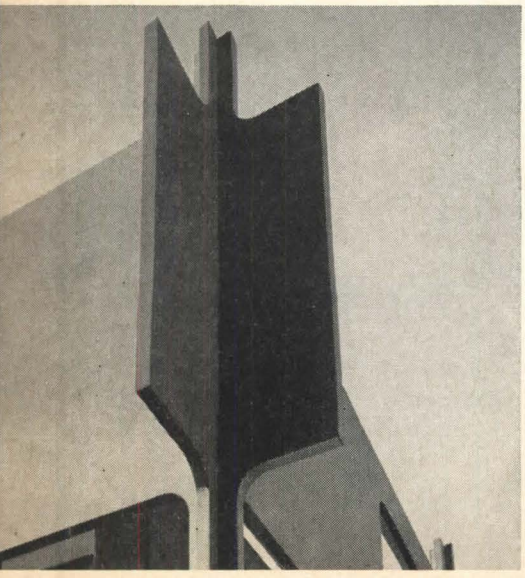


WYOMING NATIONAL BANK, Casper, Wyoming. Architect: Charles Deaton, Denver, Colo. General Contractor: B. H. Baker, Casper. Two Oildraulic Passenger Elevators installed by Dover Elevator Co., Denver.

Hedrich-Blessing Photos



the most exciting ideas take shape in plywood



Tyrone Guthrie Theater, Minneapolis, Minn. / Architect: Ralph Rapson, A.I.A., Architects, Inc. / Structural Engineers: Meyer & Borgman / Contractor: Watson Construction Co.

This unusual screen forecasts the mystery and excitement to be found within the theater itself. And it is a good example of how plywood can help achieve unusual design effects without exaggerating costs. The screen is composed of thin sheets of Exterior DFPA plywood nailed and glued to a lumber frame. This construction – which works like a stressed skin panel – is light, strong and very low-cost. In fact, plywood cost less than steel, metal lath and plaster, or solid laminated wood. For more information on plywood structural systems, write us at Tacoma, Washington 98401 (USA only).

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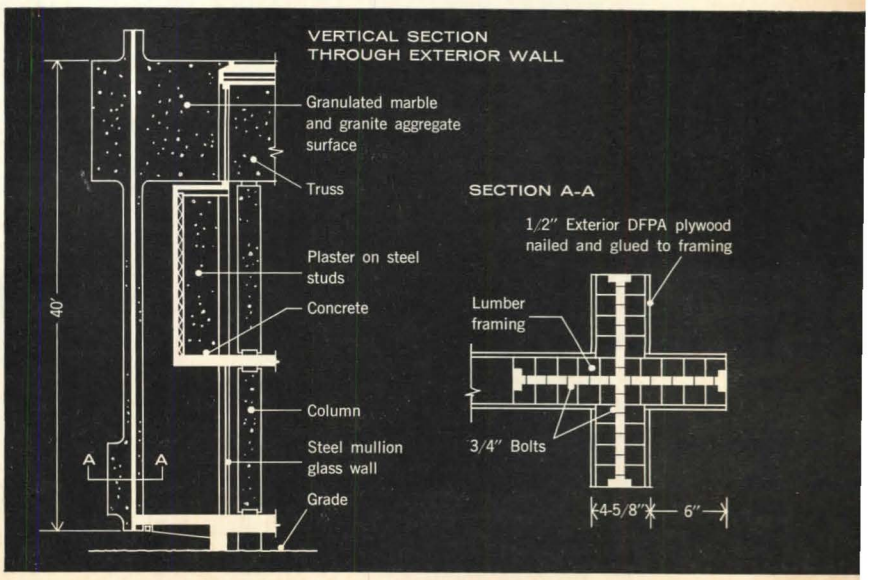


VIEWS

Praise for the October Issue

Dear Editor: Although on occasion I differ with your views on practice, I have only admiration for the magnificent issue on "The Changing Practice: Theatres" (OCTOBER 1965 P/A). The concept was superb, and the dilemma of modern practice—the maintaining of architecture as an art in the midst of a maze of technological demands—came through loud and clear. It will be required reading for my course in Professional Practice.

Where is a solution—for the schools and the profession? I did not see one in comments from the imposing names on the panel. Perhaps the best architecture is, of necessity, imperfect.

HARRY E. RODMAN
Professor, School of Architecture
Rensselaer Polytechnic Institute
Troy, N.Y.

Dear Editor: I want to congratulate you on the very unusual coverage of the theatre in the October issue. It is not only a timely discussion but it is beautifully edited and presented in a visually handsome way.

JO MIELZINER
New York, N.Y.

Dear Editor: I was very delighted and interested in your "play" on theaters and consulting. It also brings into focus more clearly the relationships we desire in our architectural practice from the consultants.

This presentation was a great idea and I hope that you see fit to do it on other types of buildings.

CURTIS GREEN
Saint Paul, Minn.

Dear Editor: Congrats on putting together a gear mag, babe. (Isn't that how you folks talk in New York?) Seriously —a great issue! They keep getting better, though your covers can only go downhill from now on.

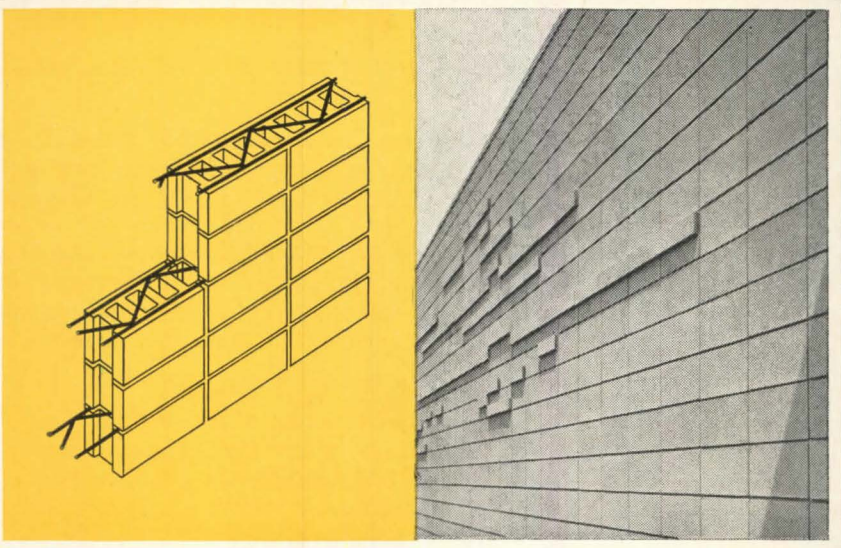
Forrest Wilson may be the zonked kook of architectural publishing. Keep him warm; we all love him.

THOMAS R. AIDALA
Berkeley, Calif.

Toronto City Hall: The Personal Element

Dear Editor: It seems a shame that you did not take a leaf from *The Architectural Review* in the critical analysis of the Toronto City Hall. The other side should get equal time.

Korab's photographs do not seem to



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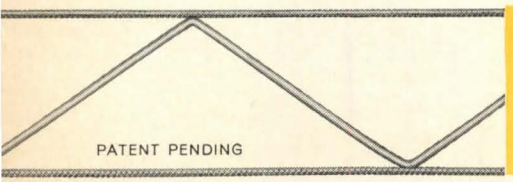

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do justice to such a striking form. He is eminently more qualified than I to pass judgment on the project, but I still feel that a less personal exposition should have been made in juxtaposition with so sharp a criticism.

EDWARD HARRISON BERNSTEIN
Philadelphia, Pa.

Dear Editor: How could you? Four valuable pages wasted on the "personal assessment" of the Toronto City Hall by Balthazar Korab. This "architect turned architectural photographer" is not only out in left field in his written comments, but the obvious, deliberate, "lousy" photographs that accompany the article in an attempt to justify his criticism leave me cold.

I am 100 per cent in favor of Korab's statement to "let the photography speak for itself." It does. But, having visited the completed City Hall, the photography does not speak for the building. After years of enjoying his excellent photographs in several architectural journals, I feel cheated by Korab's photographs.

Be we architects, photographers or (well, you name it), our opinions are our own, and we enjoy the freedom to express them. However, in the OCTOBER 1965 P/A VIEWS, John H. Beynon's letter states the problem only too well. Let's have more "articles based on architectural problems or ideas . . . and fewer based on personalities. . . . One journal that often gave the impression of preferring architects over architecture is now extinct." Regarding Korab's article, is the photographer preferred over the photography?

GORDON W. JONES
Buffalo, N.Y.

P/A: Fat and Profound

Dear Editor: Each month for the past year or so, I have watched P/A grow more fat—and more profound. I approach its pages eagerly as a student does the intellectual adventure of a forthcoming semester of design projects. I always finish my monthly perusal with both admiration and consternation, never unmoved. Some of your editorial efforts make me puny and other give me the might of right.

On the mighty side:

Would you mind letting me know how you can publish an article about a new and widely publicized city hall (Toronto), good review or bad, with the temerity or absent-mindedness that permits you and your reviewer to completely ignore evaluation of the aesthetic considerations and functional validity of the interior of

Continued on page 14

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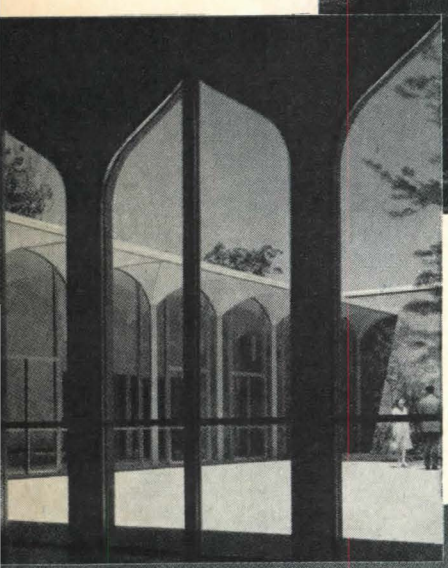
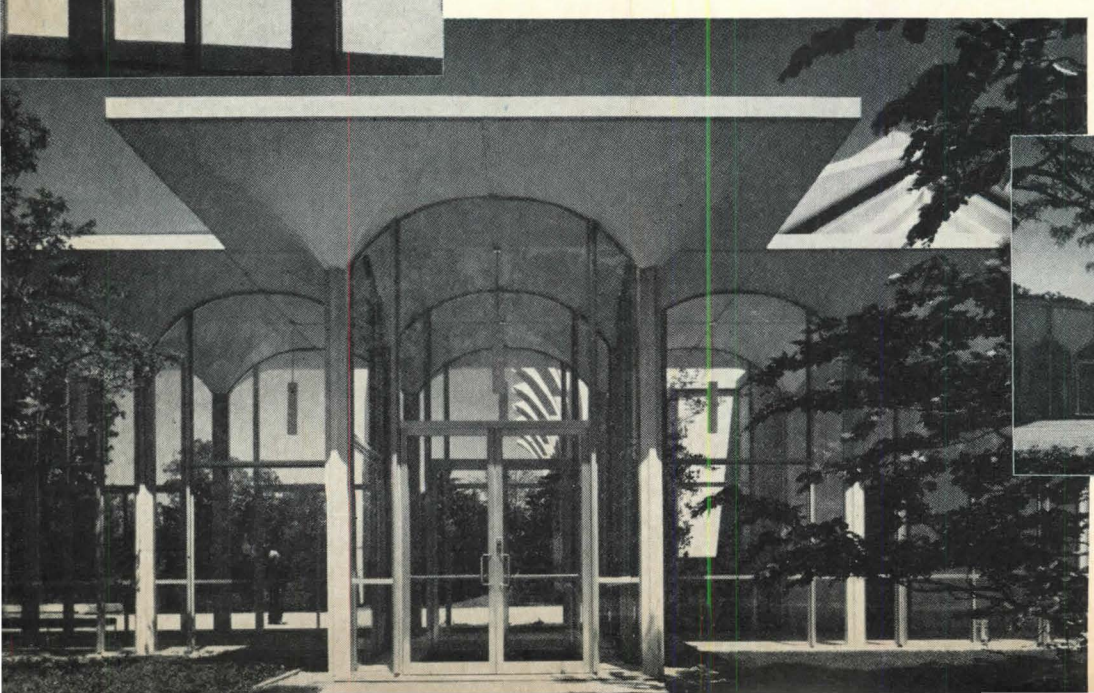
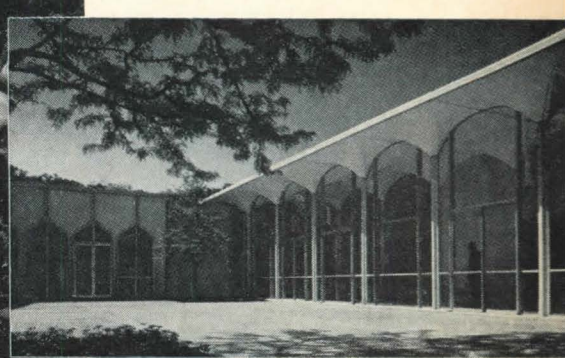
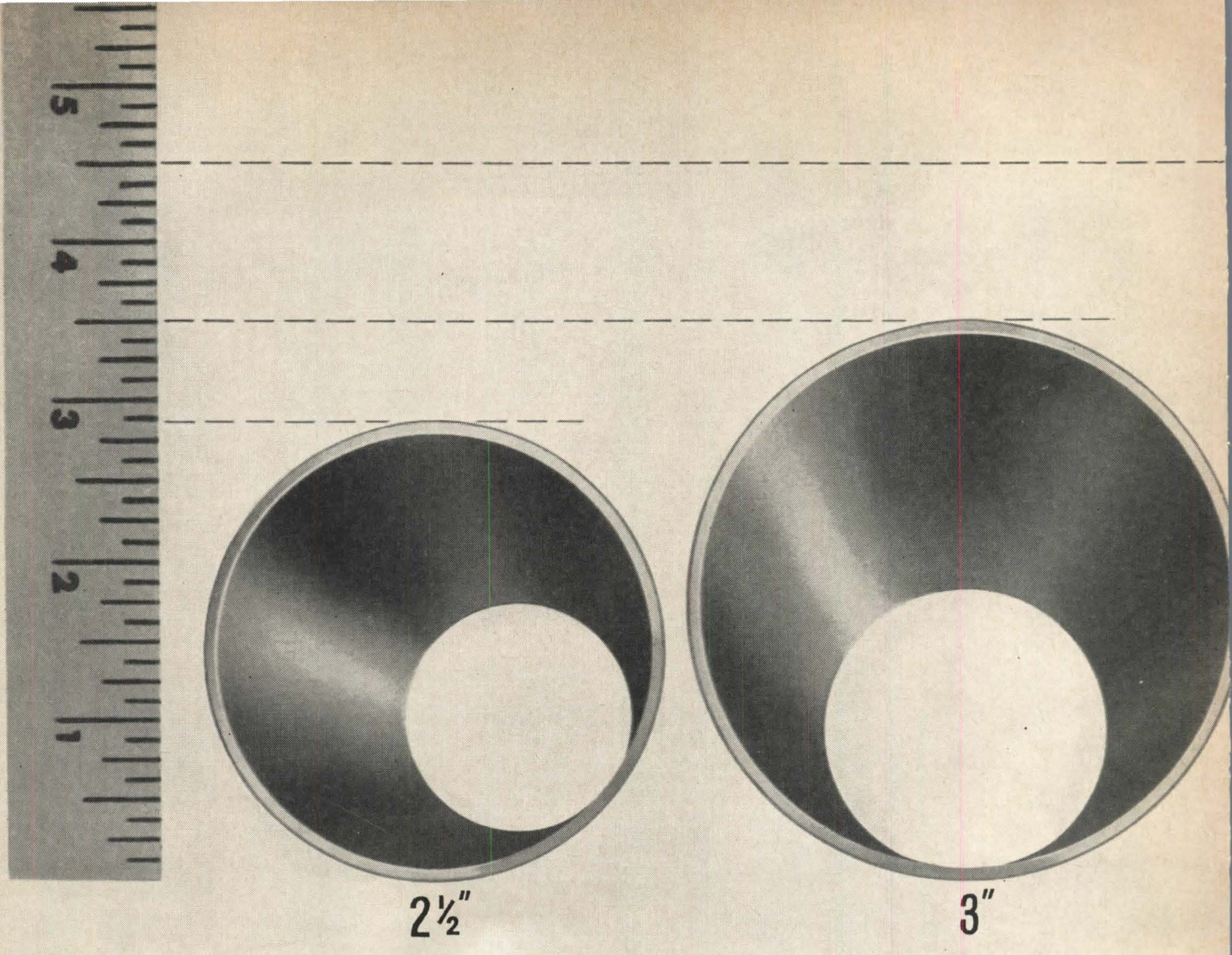


An inspiration in structure
to lift the spirit of the worshiper





photographs by Hedrich-Blessing



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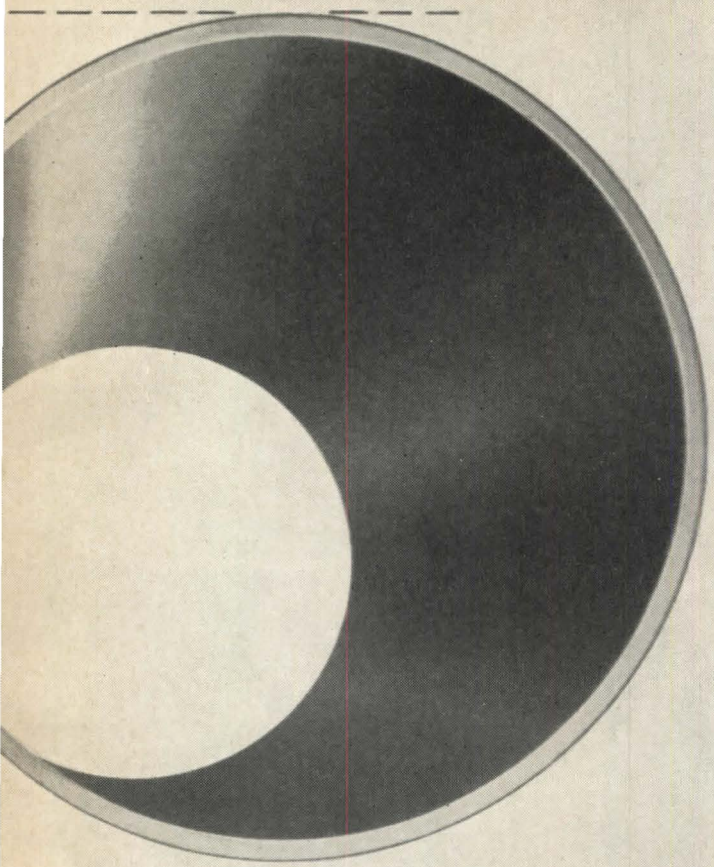

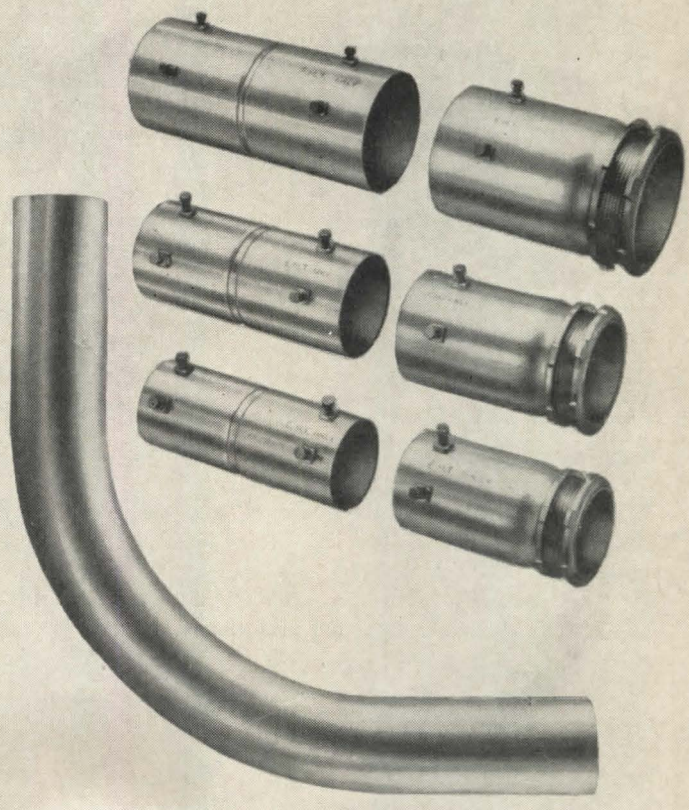

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Continued from page 10

the building? It would seem that architectural criticism such as this views a building as nothing more than a playful container of vacuum (which, of course, it sometimes is).

I travel a great deal, and manage wherever possible to personally inspect the architecture I have read about. In a recent visit to Chandigarh, motivated by the "half-life" reviews of all the architectural magazines, I found that Corbusier's public buildings fitted into the category of buildings that are really nothing more than containers of vacuum. As a matter of fact, I can best describe the Secretariat Building as a nine-story basement and the Legislative Chamber as an incipient grotto. *Quelle Choque!* Perhaps I'll save myself the disappointment of looking into the Toronto buildings on the recommendation of your omission. Or should I?

LAWRENCE LERNER
Saphier, Lerner, Schindler, Inc.
New York, N.Y.

Department of Missing Persons

Dear Editor: Re your article, "Paperback Prospectus," on p. 175, SEPTEMBER 1965 P/A.

The lead page shows the cover of a paperback titled "Architectural Widow," but the survey fails to list such publication.

If there *actually* is such a publication, please forward me the author's name, date, and publisher.

LAWRENCE F. MERRION
Berkeley, Calif.

[*There isn't.*—ED.]

Editorials Lauded

Dear Editor: Your Editorial in the JULY 1965 P/A issue was a gem.

Working for a building products firm for several years, I too have an image of the architect that does border on the holy. I'd suspect most people do, even outside the trade.

Your Editorial certainly humanizes the architect, and that hilarious cover of H. H. Richardson gave me a few chuckles. Incidentally, trying to find out who "it" was on the cover made me read your Editorial. I usually pass them up.

For what it's worth, I think you added a new star to P/A's crown with the article.

NORMA PLAMONDON
Waltham, Mass.

Dear Editor: Your Editorial for the September issue was great, nothing less.

The point about arrogance is little understood, but so true. Arrogance is not a concomitant of strength—indeed, the reverse may be true.

Very, very thoughtful. Thanks.

FRED BASSETTI
Seattle, Wash.

Halprin's Motation: A First?

Dear Editor: The inclusion in the JULY 1965 P/A of Lawrence Halprin's article on "Motation" appears to mark an interesting advance on the part of both author and magazine into some of the more arcane and neglected areas of architectural research. The implication is one of scholarly effort to create the language for investigation, understanding, and —hopefully—communication and response.

While I welcome the report, I am uneasy about one of its implications: that this a virgin territory of investigation

Continued on page 22

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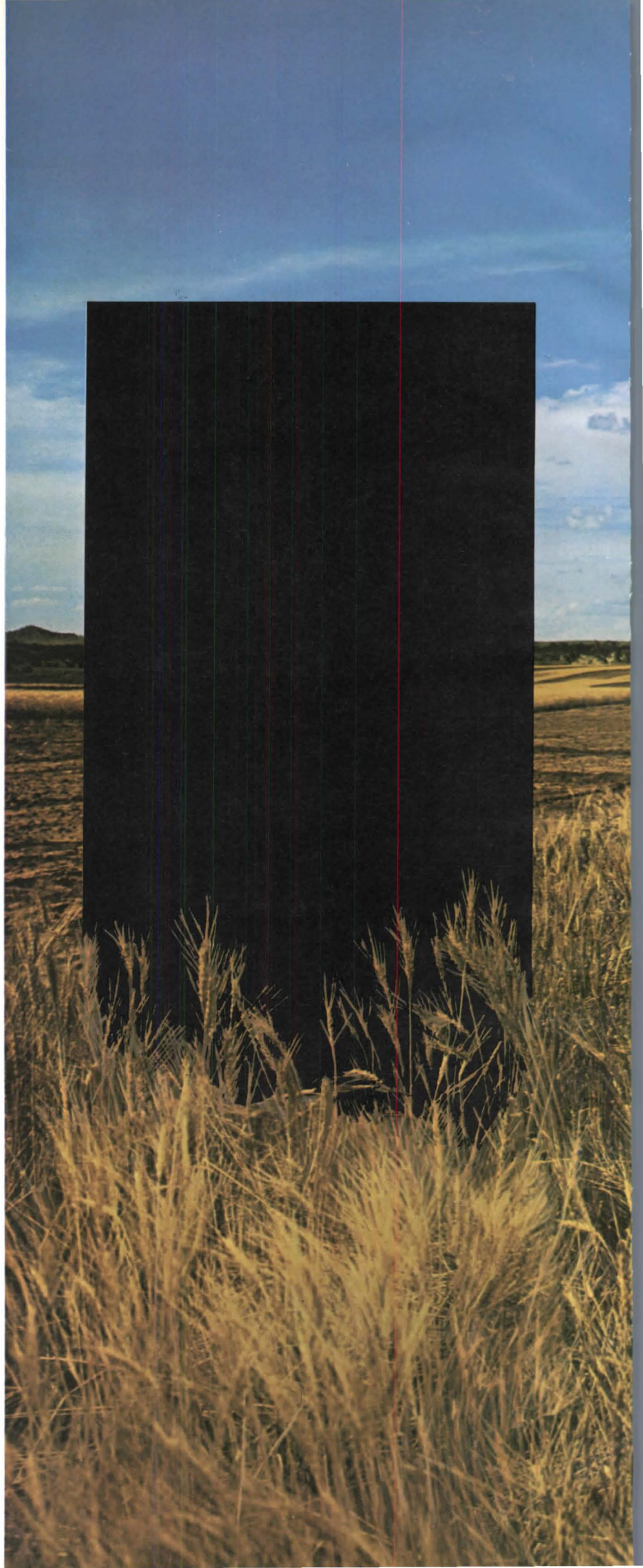

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Continued from page 14

into which its author has advanced unattended and unannounced. As a matter of record, he has been preceded for some number of years by other explorers whose trail markers he must have noted as he made his own progress.

Surely, Halprin was not unaware of investigations of a related perceptual nature by Kepes and Lynch at M.I.T., and, especially, by Philip Thiel of the University of Washington. The latter's research has been proceeding since the early 50's. Its status by 1961 was fully explained in his *Town Planning Review* report of April of that year, "A Sequence-Experience Notation for Architectural and Urban Spaces"; and the "space notation" system it establishes significantly anticipates that of Halprin.

I am sure these men welcome Halprin into their camp. My only point here is to suggest that he might suitably have acknowledged catching up with the safari rather than implying its leadership.

NORMAN J. JOHNSTON
Assistant Dean
College of Architecture and Urban Planning
University of Washington
Seattle, Wash.

Misunderstood Air Terminal

Dear Editor: I don't think I can remain silent about your abusive *news report* regarding the Logan International Airport North Terminal (OCTOBER 1965 P/A). The architectural concept owes nothing to the Dulles International Airport, as anyone closely involved with the design can testify. The solution was the logical outcome of a sincere effort to fulfill the requirements of large clear span (it was to span over an existing wing), spatial relationship (high space over public area and low space over ticket island), and structural economy. The convincing rightness of this design resulted in its adoption in spite of the possibility of its being misunderstood as a derivative of the Dulles Airport by superficial critics.

While asserting the firm to be respectable, your report does not seem to give it the benefit of a doubt. Your report wrongly puts forth personal speculation as actual fact and falsely pretends to ask questions whose answers (if your analytical powers fail to provide them) could easily be obtained by a little diligence in your fact-gathering.

If you were sufficiently well-informed, you might have looked far enough and found a building more similar in appearance than the Dulles Airport. That building is Professor Tange's Totsuka Country Club. If you want to carry your way to the logical conclusion, you may accuse Dr. Gropous (*sic*) of chopping both father and grandfather up in his plant for the Rosenthal China Company. Such are the mysteries of architecture.

S. C. TSAO
Jacksonville, Fla.

Hitchcock's Corbu

Dear Editor: "Historian" Henry-Russell Hitchcock's little essay (OCTOBER 1965 P/A) throws more light on his own peculiarities than those of Le Corbusier, which, after all, are quite familiar to us. An old hand at glancing over my shoulder as I advance resolutely while sitting on my Thonet, I might sympathize with Hitchcock's back pains, but I am rather more concerned about the cold in the head which is evident in his tone.

ENRIQUE LIMOSNER
Berkeley, Calif.

Reaction to Dead Sea Scrolls

Dear Editor: Let me tell you quite simply how I felt about the "Shrine of the Book" when I visited it in Jerusalem this summer.

My reactions hinge on the first experience I had of the scrolls 10 years

this room looks comfortable ...and is!

Norwood Hospital
Norwood, Massachusetts
Administrator:
Charles A. Richardson
Architects: James H. Ritchie and Associates
Engineers: Buerkel & Co., Inc.
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it's heated and cooled...without draft by an Inland Radiant-Acoustic Ceiling

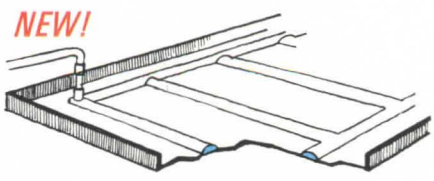
Indoor comfort in Norwood Hospital's new 110-bed wing is just what the doctors ordered: Temperatures are uniform. There are no noticeable variations from floor to ceiling. There are no "cold spots" or "hot spots"—no drafts. Each patient room has individual thermostatic control.

The acoustical properties of the Inland IRC/BM ceiling panels help keep noise level low.

There are other advantages that make Inland Radiant-Acoustic Ceilings so ideal for hospitals—and other buildings: Ease of housekeeping. Low maintenance requirements. Flexibility of layout. Freedom in selection of lighting fixtures and placement within grid modules.

There are three types of Inland radiant-ceiling panels. All are described in Sweet's, section 11b/In. Write for Catalog 251 to Inland Steel Products Company, 4103 W. Burnham Street, Milwaukee, Wisconsin 53201.

NEW!



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INLAND

EP-52

ago. At that time, I was preparing plans for the landscape of the Hebrew University campus and the scrolls had recently been brought into temporary housing in the basement of the then-just-completed administration building. I was brought down to see them. They were in a bare, narrow, low-ceilinged room. Nothing was there except the scrolls, which dominated the space. The scrolls gave me the shivers. Their idea was so strong, the purity of their essence was so overwhelming, the quality of reaching out across the years to an early time when people had come to grips with the great universal problems of humanity and tried to evolve a system of ethics and morality was so physically overpowering as to make that visit to that basement one of the important experiences of my life. I will never forget it. I had experienced the scrolls.

The next time I saw the scrolls was this summer in the "Shrine of the Book." I don't much wish to enter into whether I like or don't like the design. What I do know is that, for me, the scrolls were completely destroyed. Encased as they were in an involved and complex, even overwhelming, building, they were dwarfed by the architecture. The scrolls seemed secondary. They were demeaned. They were diminished. It was the building that counted—not the essence of the scroll idea. I have never seen more clearly the confusion of the container for the thing contained.

I hated it. I want the scrolls back.

LAWRENCE HALPRIN
San Francisco, Calif.

CORRECTION: The article on the Battle Creek Zoo (p. 195, NOVEMBER 1965 P/A) should properly have listed R. M. Schneider as responsible for Research and Development; consultation was conducted by Harvard Graduate School Zoo Research Program.

NOTICES

Branch Offices, Showrooms

ARCHITECTURAL POTTERY, Los Angeles-based firm, has new showroom at the Merchandise Mart, Chicago, Ill.

SHELBY WILLIAMS INDUSTRIES, INC., manufacturers of contract furniture, have a new showroom at 600 Madison Ave., New York, N.Y.

New Addresses

ATCHISON, KLOVERSTROM, SAUL & ATCHISON, ARCHITECTS, 3970 E. Exposition Ave., Denver, Colo.

AUSTIN-ANDERSON, Designers-Engineers-Builders, B.P. House, 1-29 Albert Rd., Melbourne, Victoria, Australia.

VIGGO BONNESEN, Consulting Engineer, 1530 Summer St., Stamford, Conn.

GARDNER & HOWE, Consulting-Structural Engineers, 165 Madison Ave., Memphis, Tenn.

L.S. HIGGINS & ASSOCIATES, 1044 116th Ave., N.E., Bellevue, Wash.

GORDON A. PHILLIPS, Architect, 1312 Third St., San Rafael, Calif.

ROBERTS & SCHAEFER CO. INC., Engineers, 445 Park Ave., New York, N.Y.

WALLACE SHERRIFF, Architect, 137 Wellington St., W., Toronto 1, Ontario, Canada.

New Firms

DONALD BAKER, Architect, 4900 Travis, Houston, Tex.

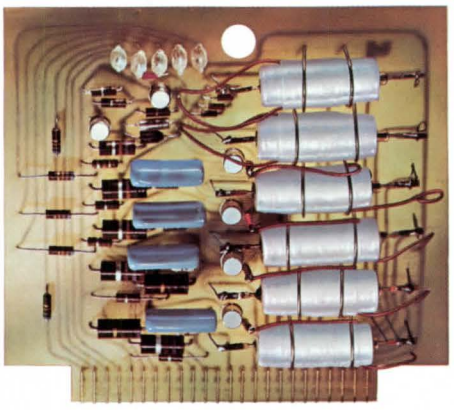
ARTHUR D. BENJAMIN, Consulting Engineer, 468 Park Ave. S., New York, N.Y.

COLVIN, HAMMILL & WALTER, ARCHITECTS, 410 O'Hanlon Bldg., Winston-Salem, N.C.

DESIGNER INFORMATION SERVICES, providing literature, information, and product and material samples without cost to the profession in southern California, 2235 S. La Brea Ave., Los Angeles, Calif.

LEVATICH & MILLER, ARCHITECTS, 408 E. Upland Rd., Ithaca, N.Y.

Continued on page 238



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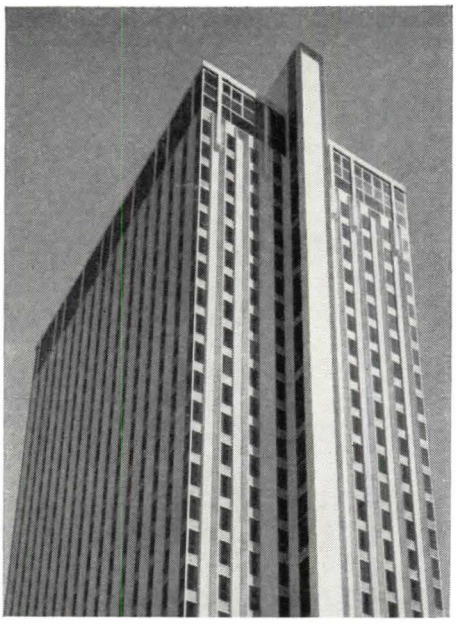

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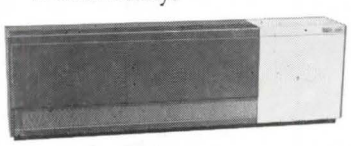

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Features a self-contained quiet-operating refrigeration unit • Just plug into correct electrical source for immediate air conditioning • Fits any existing heating supply—hot water, steam, or electric • Shipped prewired, ready for installation • Delivers 45,000 BTU/hr. cooling capacity.

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Both units can be installed originally as heating and ventilating units only. Integral refrigeration section can be added later.

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BUILDING COST SAVINGS
Self-contained units allow significant dollar savings through elimination of central refrigeration and chilled water piping system, ductwork, plumbing, etc.

FLEXIBILITY FOR FUTURE PLANNING
Future additions won't be restricted by capacity of an existing central refrigeration system • SC units can be installed originally as heating-only units. Integral refrigeration components added later (even one room at a time!).

SUPERIOR HEATING AND VENTILATING SYSTEM

Unit ventilator system, with introduction of fresh air into classroom, means healthier, better learning environment • Temperature can be controlled on a room-by-room basis • Units can be easily coordinated with AAF air handling units into a "split system."

WHATEVER YOUR AIR CONDITIONING REQUIREMENTS, let us tell you about these remarkable *self-contained* units. Write for details to American Air Filter Company, 215 Central Avenue, Louisville, Ky. 40208. In Canada: AAF of Canada, Ltd., Montreal 9, Quebec.

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ELEGANCE IN STEEL

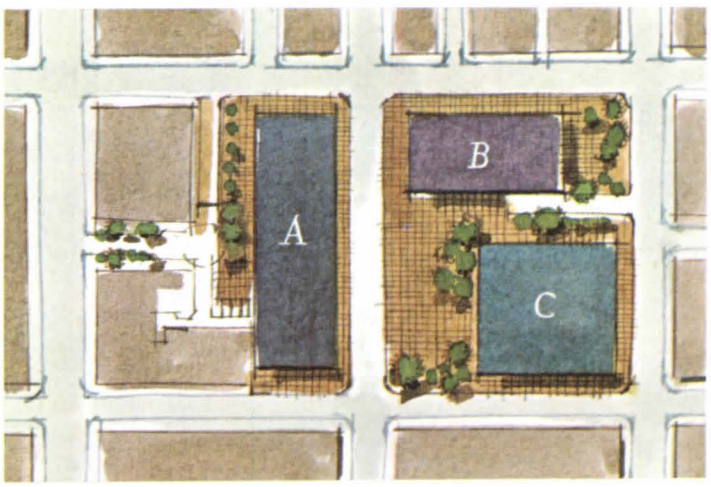
United States Courthouse and Federal Office Building, Chicago, Illinois

BETHLEHEM STEEL

ELEGANCE IN STEEL

The austere dignity of the 30-story courthouse and office building, enhanced by the restraint of its site utilization, promises a triumphantly successful Federal Center when all three buildings are completed in 1968 . . . They will occupy less than one-half of the 1½-block site, opening up spacious, landscaped areas in the heart of Chicago's crowded loop . . . The Federal Center demonstrates how thoughtful architecture of government projects can make a significant contribution to the urban environment.

BETHLEHEM STEEL



The courthouse and office building (A) is 30 stories high. A 43-story office building to be constructed (B) will be of similar design, with exposed steel facade. A post office (C) will be the equivalent of three stories in height.

Owner: United States Government, General Services Administration

Chicago Federal Center Architects: A joint venture of Schmidt Garden & Erikson, Ludwig Mies van der Rohe, C. F. Murphy Associates, and A. Epstein & Sons

Superstructure Contractors: Paschen Contractors, Inc., and Peter Kiewit Sons' Company

Substructure: A. L. Jackson Company

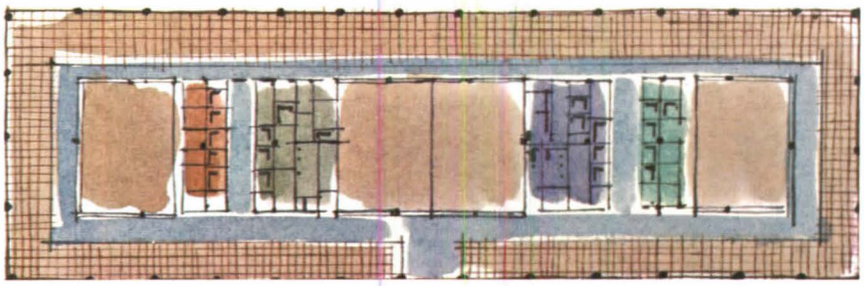
Steelwork: Bethlehem Steel Corporation

The courthouse and office building rises 396 ft above city data, and has a gross floor area of nearly 1,400,000 sq ft. Bays are 28 ft square.

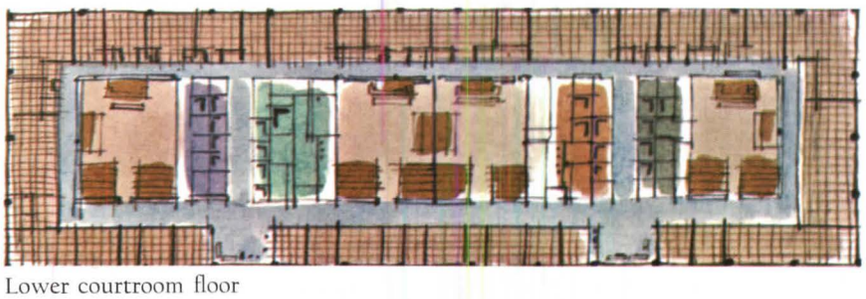
ELEGANCE IN STEEL

Perfection of proportions and subtlety of detailing are evident in the facade treatment. Verticality is emphasized by wide-flange steel mullions on 4-ft 8-in. centers. Mullions and steel-plate spandrel fascias are painted an architectural flat black graphite. Bronze-tinted windows extend floor-to-ceiling.

Courtrooms vary in size but are alike in dignity of design. All woodwork is of matched black walnut.



Upper courtroom floor



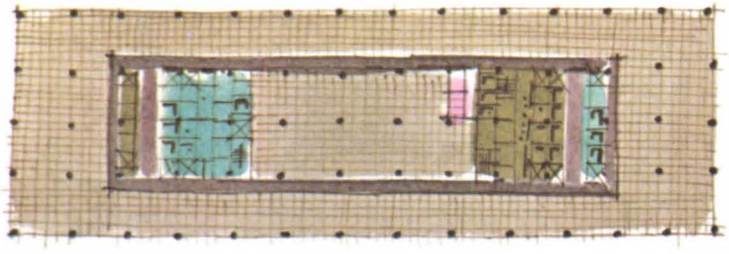
Lower courtroom floor

Fifteen courtrooms are located on the 17th through the 27th floors. They are of two-story height, spanned by 46-ft-long welded-plate girders which provide column-free interiors and 18-ft ceilings.

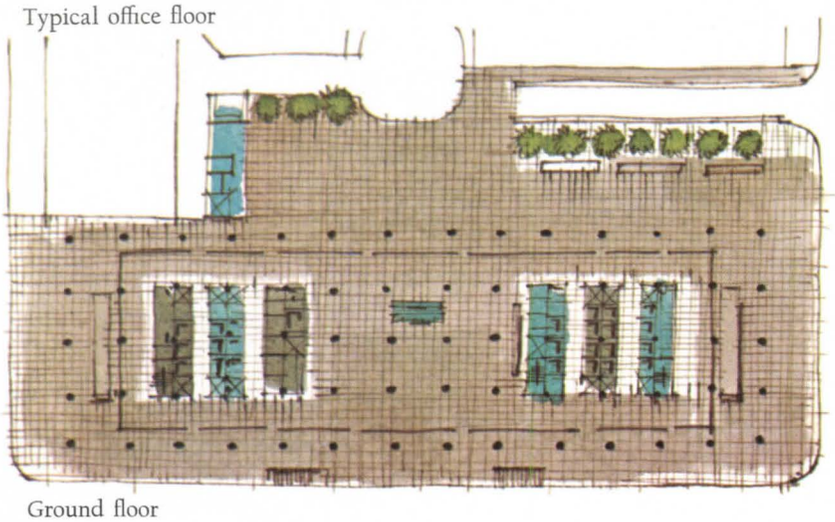
BETHLEHEM STEEL

ELEGANCE IN STEEL

Dual core design of the structure left the central portion open for a "great hall," 100 ft wide, at street level. Its high-ceilinged expanse and massive columns create an impression of monumentality. By setting the glass-walled lobby one bay back from the peripheral columns on all four sides, the designers added to the plaza area and provided a sheltered promenade for pedestrians.



Typical office floor



Ground floor

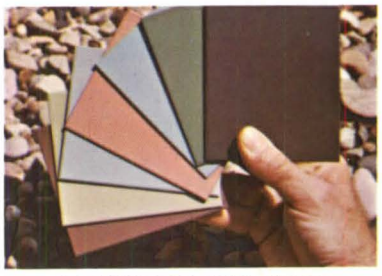
The honed granite flooring of the lobby (upper photo) is carried through to the exterior paving (lower).

The clear line of sight through the lobby will be even more effective when additional plaza areas planned for the Federal Center have been completed.

STEEL PRODUCTS FOR ARCHITECTURAL DESIGN

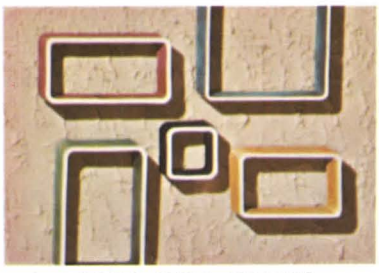
WEATHERING STEEL

Mayari R Steel "paints itself," forms an attractive, maintenance-free oxide coating. Available as steel sheets, plates, structural shapes, bars, and bolts.



NATURE TONES

A variety of rich, natural hues in porcelain-enameled steel can be furnished by manufacturers of curtain walls and other architectural components. See Sweet's File 3b for manufacturers' literature.



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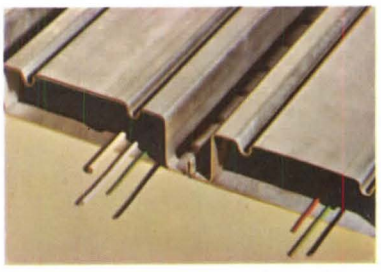
Hollow structural sections are attractive, structurally dependable. Cold-formed from blast-cleaned steel, Bethlehem hollow sections have excellent paint-holding qualities. 146 sizes and gages.



CELLULAR DECKING

Cellular steel decking, used throughout the courthouse and office building, provides economy and flexibility of electrical and communications systems, and HVAC. See Sweet's Files 2i and 2j.

Movable steel office partitions are used throughout the courthouse and office building, providing economical and speedy initial installation and easy relocation. See Sweet's File 22a for manufacturers' literature.

New steels and design techniques offer new opportunities to achieve aesthetic objectives . . . to better meet functional requirements. Don't hesitate to call on Bethlehem's Sales Engineers or representatives of your local steel fabricators for technical information and assistance.

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NEWS REPORT

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

Air Academy Building Expansion Takes Off

DENVER, COLO. Within the next few years, the U.S. Air Force Academy will more than double in size. At work on plans for the $40,000,000 expansion program are two Omaha, Neb., architectural firms: Henningson, Durham & Richardson, and Leo A. Daly Co. They plan to expand almost all the academy's facilities. Involved are a new dormitory, physical education and base chapel buildings, additions to the academic, dining hall, and social center buildings, new parking lots, cadet formation areas, and athletic fields. Construction on the dormitory got under way last month. All work is to be programmed so that construction will never interfere with the cadet's routine. When completed, the academy will accommodate 4250 cadets, instead of the present 2500.

Breuer Designs For Yale

NEW HAVEN, CONN. The next addition to the architectural museum that is the Yale University campus will be a six-story Engineering and Applied Science Laboratory, designed by Marcel Breuer. The late Yale president A. Whitney Griswold originated the architectural policy of having leading architects design buildings for Yale, and current president Kingman Brewster, Jr., is continuing it. The Laboratory is the first major building commissioned at Yale since Brewster took over two years ago.

Breuer's plan will fit the campus no better—but probably no worse—than the other contemporary structures completed here in the last two decades fit into Yale's traditionally eclectic demeanor.

To make way for the new Laboratory, two engineering buildings on Prospect Street will be razed—the 73-year-old Winchester Hall, and the 92-year-old North Sheffield Hall. According to preliminary plans, the Laboratory will have a façade of precast concrete panels, with color, texture, and surface modulations sympathetic to the masonry of neighboring Sterling Tower and Sheffield - Strathcona Halls. Window openings will be subdivided by vertical mullions, which will provide partial sunshielding. The first-floor façade will be recessed behind the supporting pilotis. In front will be a walled terrace that Breuer sees both as a unifying element tying together the Laboratory and surrounding buildings of different styles and as a roof for an underground auditorium, lecture room, and faculty lounge.

Plans for raising the $9,000,000 needed to complete the project are under consideration. An additional $3,000,000 will be raised for the renovations of adjacent Dunham Laboratory of Electrical Engineering and Mason Laboratory of Mechanical Engineering. This renovation is being planned by Douglas Orr, deCossy, Winder & Associates of New Haven.

$32,000,000 for Cleaner Air

WASHINGTON, D.C. The Amended Clean Air Act, signed into law in late October by President Johnson, authorizes appropriations of more than $32,000,000 to the Department of the Interior. With it, the Department will initiate programs to improve disposal of solid wastes generated by "mining, processing, and using minerals." At the same time, the bill will help cut down the absurd blight of roadside and urban scrapheaps by finding ways of getting rid of them economically. According to Assistant Secretary of the Interior J. Cordell Moore, "The Amended Clean Air Act will enable us to move faster toward accumulating this essential information, not only on the auto graveyard problem but also on other forms of scrap metal waste. For example, it is estimated that we're losing nearly 5,000,000 tons every year, just in discarded 'tin' cans." One hopes that the $32,000,000 won't be lost in discarded or disregarded studies and committee reports, or frittered away in massive labyrinthine digressions.

AND THEN THE LIGHTS WENT OUT

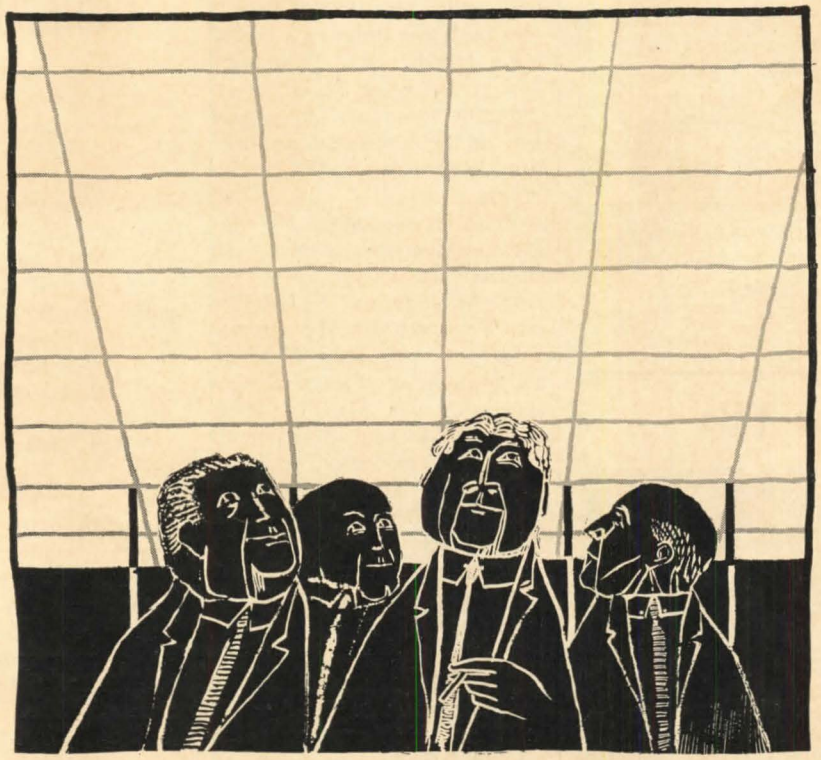
NEW YORK, N. Y. Shortly after sundown on November 9, when a massive power failure darkened the Northeast, it brought to mind what E.B. White wrote 16 years ago in his essay *Here Is New York*: "By rights New York should have destroyed itself long ago, from panic or fire or rioting or failure of some vital supply line in its circulatory system or some deep labyrinthine short circuit. . . .

"Mass hysteria is a terrible force, yet New Yorkers seem always to escape it by some tiny margin: they sit in stalled subways without claustrophobia . . . they meet confusion and congestion with patience and grit—a sort of perpetual muddling through."

This time, some 800,000 persons, about as many as live in the city of Milwaukee, were trapped in subways. But all made their way out. And New York did not destroy itself.

Although prophetess Jean Dixon (who claims she predicted President Kennedy's assasination, but came a cropper when Pope Paul did not come to grief on October 4 as she foretold) had predicted the blackout as early as last July, the sudden failure of artificial light surprised most of 30,000,000 persons in eight northeastern states and not surprisingly gave them an unexpectedly fresh view of Megalopolis' cityscape.

Over Manhattan, where the glow of the nighttime sky can ordinarily be seen for scores of miles, the only glow came from the full moon. Instead of brightly lit buildings being outlined against a dark sky, the dark bulks of the buildings were etched against a moonlit sky. But although its demeanor changed, the city did not become more humane. The slanting rays of the moon highlighted eerily the refuse in the gutters. The overwhelming girth of the Pan Am Building,



The lighting qualities of Quartette, the total integrated ceiling, have to be seen to be believed.

Pictures and words fail to capture the amazing beauty of Quartette's light. Glare-free and comfortable at any intensity, Quartette produces indescribable subtleties of definition, highlights, shadows, depth and perspective, adding remarkable new dimensions to indoor lighting. Quartette light has to be seen to be believed.

And that's just the beginning: Quartette is the first and only total environment control, totally integrated ceiling system.

Quartette light is controlled in every module, from 75 to 600 footcandles or more. Initial planning provides for future increases by simply changing lamps and ballasts.

Quartette's air-return system exhausts lamp heat at source, permits reuse for space heating. Lamp heat is not blown into occupied space.

Quartette's constant air-wash provides controlled ambient for maximum lamp efficiency, long lamp life. Lamps in proper ambient attain 115% light utilization.

Quartette is all metal. Its functional and partitioning flexibility are years ahead. Boldly textured and handsome, with custom-dimensioned modules that fit any interior layout. Reduces operating costs remarkably, maintenance is practically nil.

Quartette's integration of light, air exchange, acoustical and partitioning functions *in every module* provides complete environment control in each module, any space — even as small as a single module's dimensions.

Look up to Quartette. Specify the ceiling with light so great that it must be seen to be believed. Write for a Quartette brochure and perhaps we can show you an installation so you can see yourself in a new light.

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deprived of whatever warmth and humanity its thousands of brightly lit windows lend it, loomed sullenly above the darkened streets, like a giant monolith from some dead civilization. Times Square, suddenly devoid of its particular humanity, stood empty except for an ABC television truck with a spotlight, which searched for pictures like some predatory eye. Most avenues and cross streets were solidly packed with slowly moving traffic whose headlights provided the only light for the milling hoards on the sidewalks. "It's the first time cars have ever seemed useful in New York," said one pedestrian. At the Armory at 33rd Street and Park Avenue, the headlights of two jeeps lit the interior parade floor, shedding light for the group of persons who found shelter there because they couldn't make their way home. They seemed to find consolation in the two pairs of unblinking lights in spite of the exhaust fumes. What will Manhattanites do in an emergency, real or feigned, when these armories are removed?

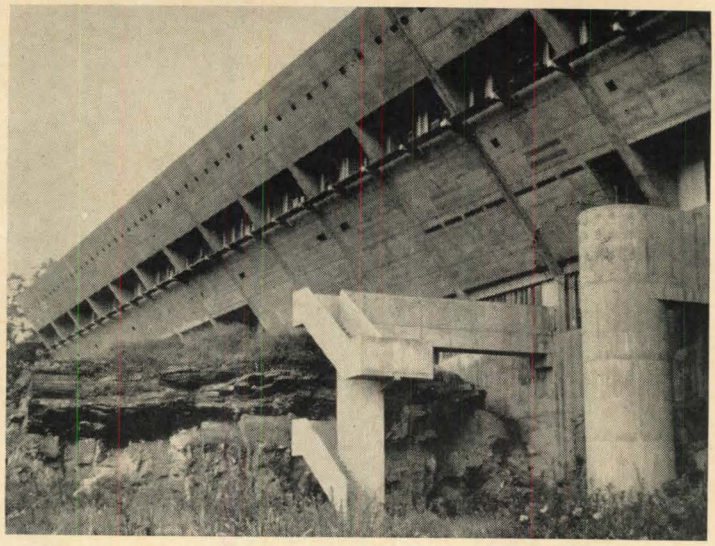
Candlelight lit myriad bars and restaurants in the New York metropolitan area: Deprived of their flashing neon lights, they seemed particularly appealing, and were generously populated. Is this the way to bring humanity back to cities —candles instead of electric light, horses instead of cars, rocks instead of washing machines?

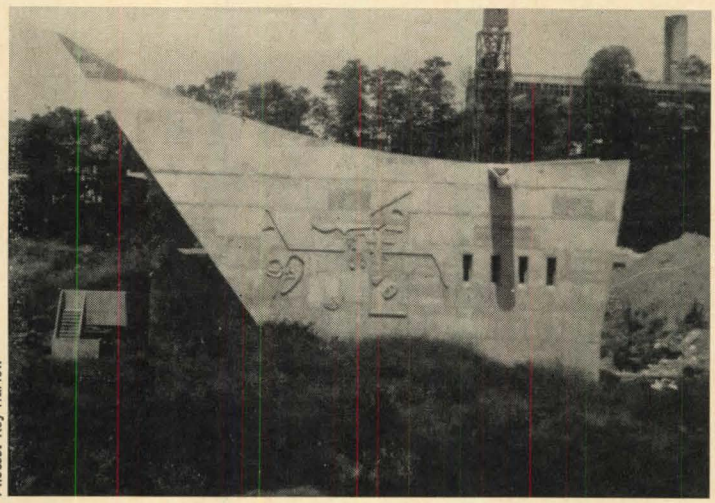
Another solution might be to do what they did in Boston. Thousands of off-duty policemen attending a policeman's ball were summoned back to duty. They directed traffic at darkened intersections, with badges pinned to their tuxedoes—urban beautification to vie with Mrs. Johnson's geraniums.

Forty-eight hours after the blackout lifted, *Sherlock Holmes and the Deadly Pearl* was shown on local New York television. In a stunningly apropos passage, Nigel Bruce as Dr. Watson asked Basil Rathbone as Holmes, after electronic warnings had signaled a theft in the British Museum: "What on earth was that, Holmes?"

"Electricity, my dear Watson," the detective replied cuttingly, "the high priest of false security."

A Late Corbusier Work Takes Shape





Photos: Roy Harlow

When we published the model and plans for Le Corbusier's church at Firminy, France (pp. 206-209, FEBRUARY 1965 P/A), we indicated that the late master was creating other works for that provincial city. On a recent visit there, New York architect R. P. Harlow took the photographs shown here of Corbu's "House of Youth and Culture," now nearing completion. The building will be joined by a stadium.

Gateway Arch Topped Out

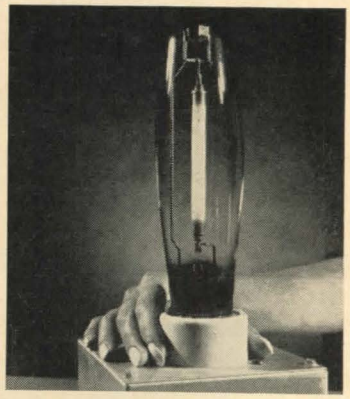
ST. LOUIS, MO. St. Louis was once the Gateway to the West. Fremont outfitted here. So did Bowie, Jim Bridger, Davie Crocket, and Kit Carson. In those days, St. Louis *was* a gateway; today, it no longer is. It does, however, have a gateway arch reminding everyone of its past.

The Saarinen-designed, 630′-high Gateway Arch was completed here on October 28. On hand to see the keystone section hoisted into place was 77-year-old Barney Dickman, who thought up the idea for the arch when he was mayor of St. Louis in 1933. "This is the greatest memorial since the Eifel Tower," he said. "I'm glad the darned thing's finished." So was everyone else. Designed 17 years ago by the late Eero Saarinen, the arch has been under construction since the spring of 1962.

Pageantry was in evidence at the topping-out ceremony. An Air Force band played the national anthem, and fire hoses played cooling water on the completed steel sections of the arch to keep them from expanding in the sunlight.

The arch and the underground exhibition center at its base will be opened next year.

G.E. Casts a New Light



CLEVELAND, OHIO What General Electric spokesmen call the "third age of light" dawned officially in late October with the unveiling of G.E.'s new Lucalox lamp. Using a Lucalox ceramic filament to activate alkali metal vapors at higher temperatures than previously possible, the lamp is said to produce substantially higher lighting levels with no increase in the number of fixtures and with an appreciably lower cost. It produces warm, white light noticeably different from that of a fluorescent lamp.

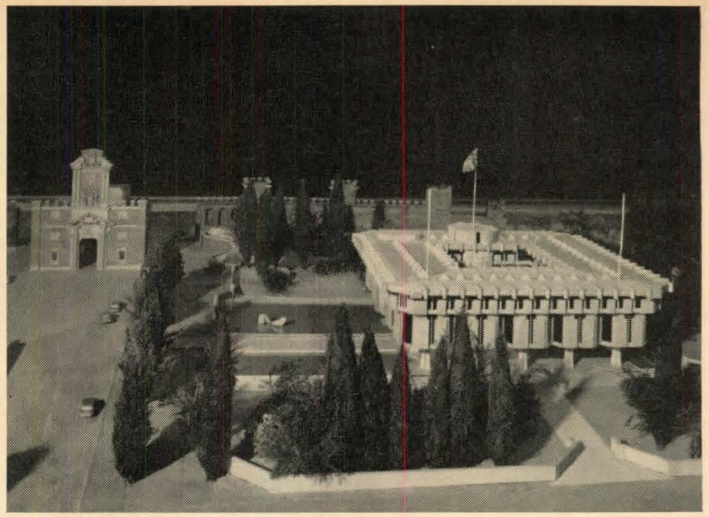
The first Lucalox lamp, to be available commercially in January, is rated at 400 w and will produce 105 lpw, with a life expectancy of 6000 hrs. It is said to be the first time an efficiency of greater than 100 lpw has been achieved with white light. G.E. expects the new lamp can be used in commercial and industrial locations, both indoors and out.

Falling Down, Falling Down

LONDON, ENGLAND Once upon a time, there was a wooden bridge built by a Roman visiting in these parts. The bridge spanned the river that came to be known as the Thames. But the bridge fell down. Those Vikings made it fall in 1014. Then, 198 years later, a king—Henry II—built a stone bridge on the same spot. And many people, mostly merchants eager for London trade, lived and worked on it.

And it was quite a place. Heads of traitors, pirates, robbers, and the like swung from the rafters—warnings to all who entered the city and came under its laws. But the bridge —London Bridge, as it came to be known—began to fall, or at least split a bit at the seams. For, until 1750, it was the only bridge over the Thames going into London and the traffic was heavy, even in those days. Children sang a song about it falling down while repairs kept it crossable until 1832. Then the bridge came down for good, and 100′ up-stream another one was built. John Rennie, a Scottish civil engineer, designed it, but died before it was finished. His sons supervised the actual construction (1825–1831). It was then only one of many bridges crossing the Thames, but it had a charm the others lacked. In 1904, they cleaned it up and widened it a bit and things were fine for a while.

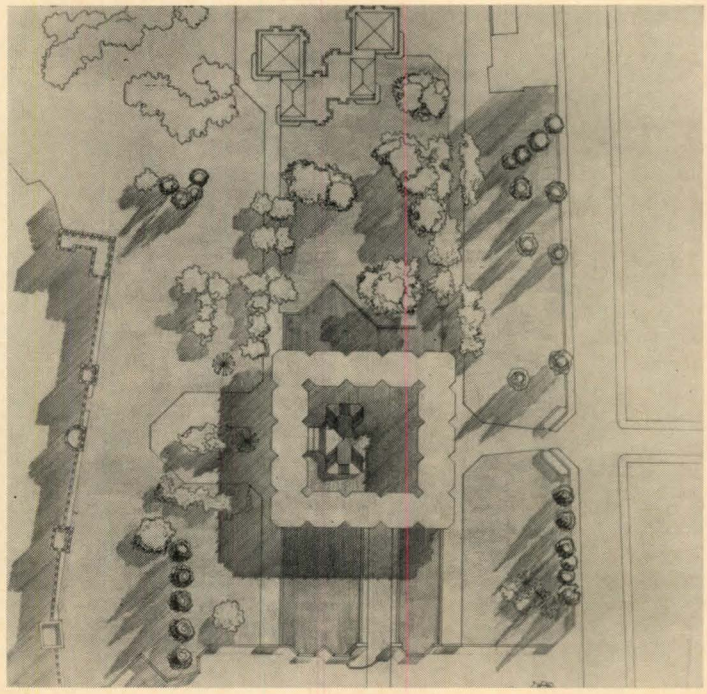
Now London Bridge is falling down for the third time. Its pilings sink another inch every eight years into the clay bank it rests on. In 1970, it will be built again, not of wood, nor of stone, nor granite. The London Bridge will be concrete, six-lanes wide, and will cost $6,720,000.

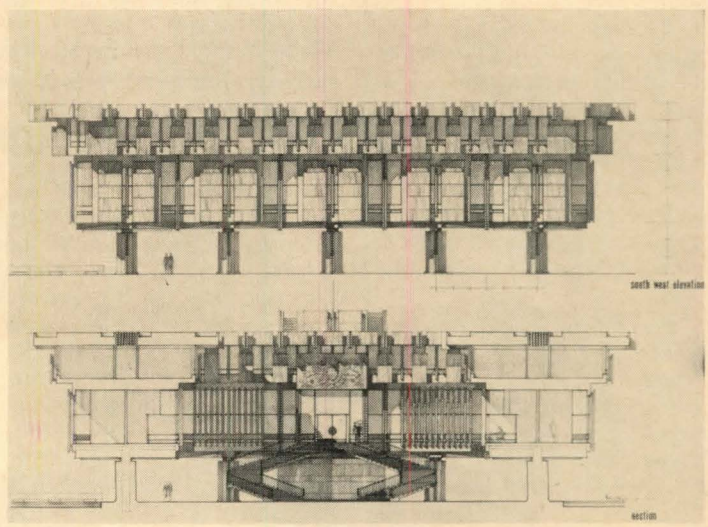


Medal, Medal Who's Got The Medal

NEW YORK, N. Y. These noted practitioners really trust each other; they are just holding hands for the photographer (although a couple of them don't seem too happy about it). Occasion was the awarding of medals to Philip Johnson, Giorgio Cavaglieri, and William F. R. Ballard, marking their formal elevation to Fellowship in the AIA. Flanking them are AIA president Morris Ketchum (*left*) and New York chapter AIA president Max Urbahn (*right*).

OK, let go fellows; back to the old drawing board!





British Embassy For Rome

ROME, ITALY Since 1946, when the British Embassy here was destroyed by Jewish terrorists, the Embassy staff has been working and living in "temporary" huts built on the grounds of the Villa Wolkonsky, about two miles from the center of Rome. Now plans for new Embassy offices have been approved by the Ministry of Public Buildings and Works. It will stand on the 6-acre site of the old Embassy, next to Michelangelo's city gate, Portia Pia.

Architect Sir Basil Spence's design, which makes a self-conscious attempt to integrate the building with the site, fails because it tries too hard. Although its square two-story height does not seem overpowering—it is in scale with both its garden setting and Michelangelo's gate—its multi-faceted façade upstages both the crenelations in the city wall behind it and those on the gate. The building's 16 elements, each supported by a single column, are linked around a central courtyard. Since the top two floors overhang, providing a sun shield, the effect is much like that of a substantial dowager supported on spindly legs. But the open courtyard area beneath the building does maintain the ground-level vistas of the garden. To the east and west of the building are reflecting pools. Construction, which is expected to start in 1966, will be of reinforced concrete, with slabs of travertine set off from the walls, creating shadows but also adding to the fussiness of the façade.

The Ministry of Public Buildings and Works estimates that construction will cost about $2,100,000.

Gold Bricking

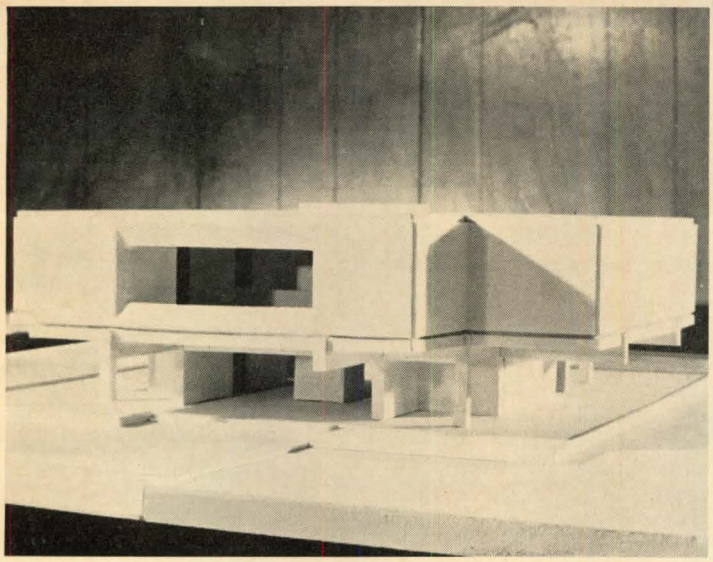


Photo: Authenticated News International

FORT KNOX, KY. State Parks Commissioner Robert D. Bell announced recently that Kentucky will request permission from the U. S. Army to construct and operate a museum at the Fort Knox Military Reservation. Looking a bit like a gold brick itself, the "Gold Museum" will cost $250,000, sit on a 10-acre plot of land between Bullion Boulevard and Depository Road, and hopefully add to the area's wealth.

NYU Library Model Unveiled

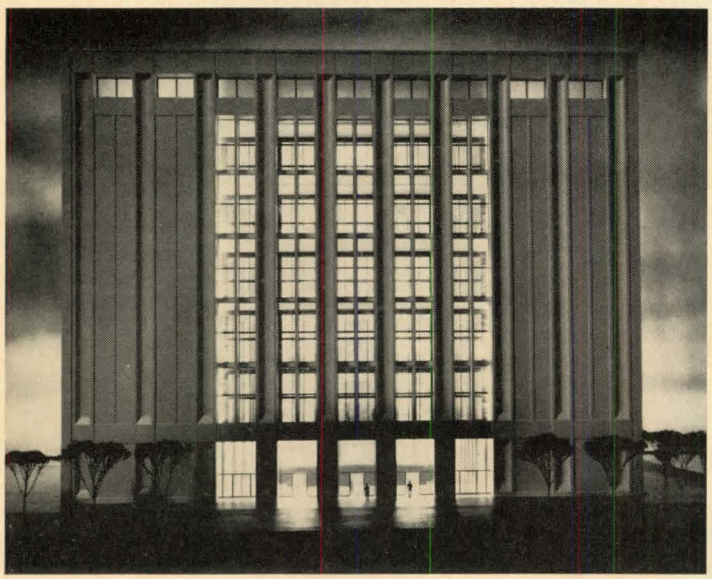
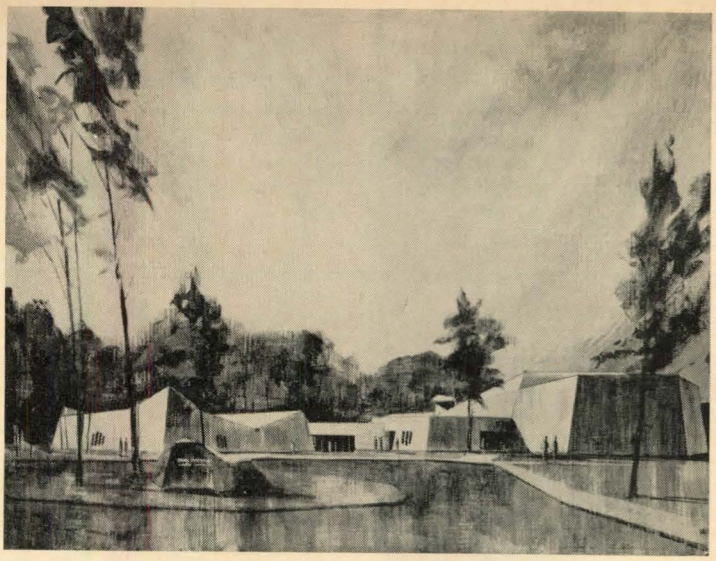


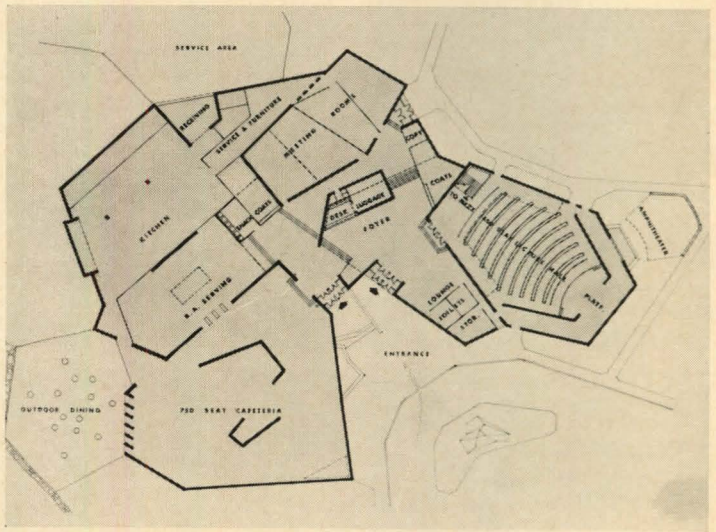
Photo: Maris—Ezra Stoller Associates.

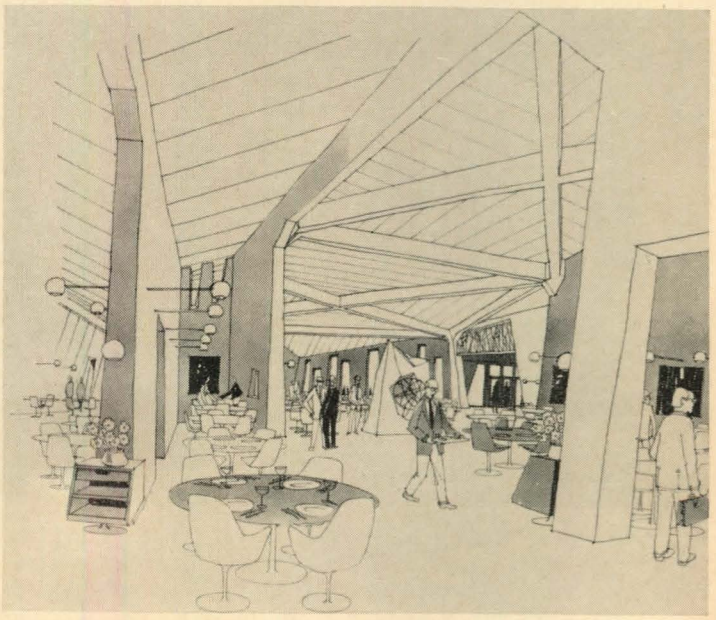
NEW YORK, N. Y. Part of Philip Johnson's and Richard Foster's design for the Washington Square campus of New York University, this general library and study center building will stand on the southeast corner of Washington Square Park. Construction will get under way in the spring. The 12-story, $17,500,000 building will house more than 2,000,000 volumes and provide space for 3500 students.

AEC Takes a Giant Step

BROOKHAVEN, LONG ISLAND, N. Y. The Office of Max O. Urbahn has designed a cafeteria-lecture hall for the Atomic Energy Commission Laboratories here, to be completed in the early fall of 1967. Brookhaven—an army base, then a prisoner-of-war camp during World War II—has been operated by the AEC since then as a medical research center and now as a basic science research station. Although the AEC administers the center, actual research here is done by scientists of various Eastern seaboard universities. Some 4000 persons work at the center; of these, about 2000 take their meals in the cafeteria. And it is to these workers that the Urbahn office is catering. The tightly budgeted ($38 per sq ft including fees and furnishings) free-form, poured concrete and stucco building combines intimacy with expansiveness. It will serve equally well for everyday meeting and eating as for special conferences by scientists. The 53,000-sq-ft building has been sectioned to provide for the feeding of

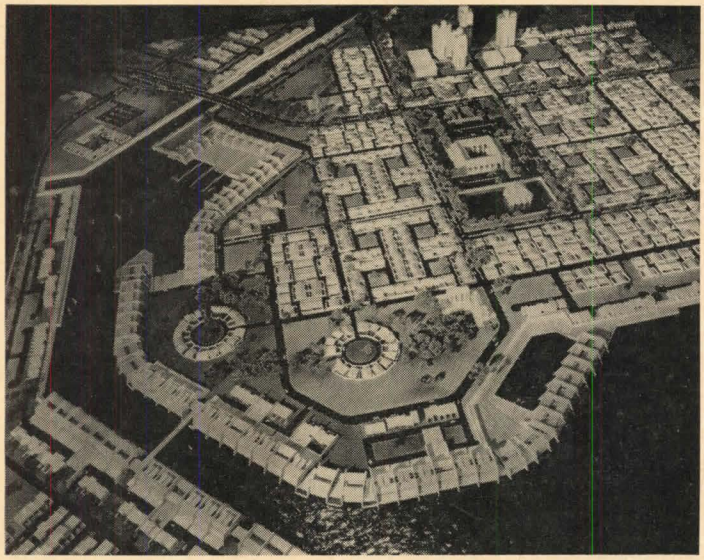


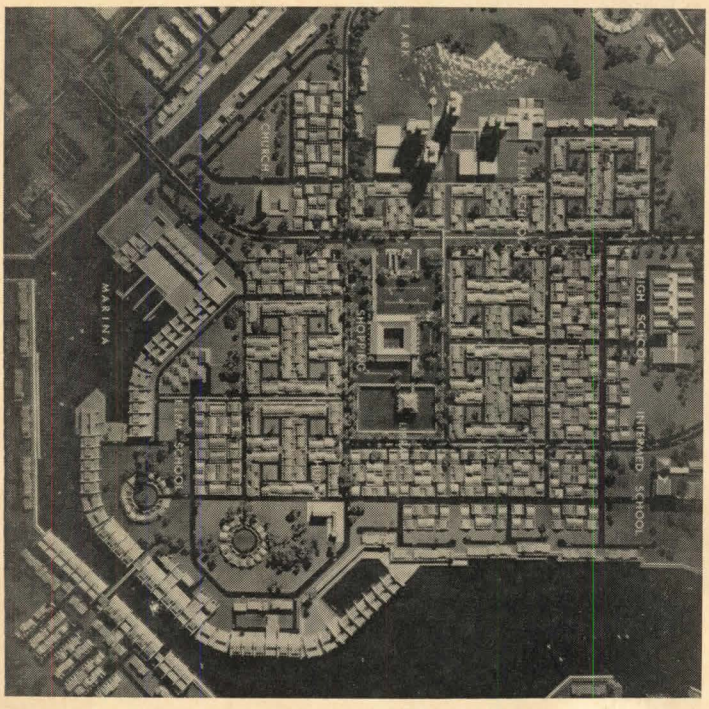




2000 persons in rotation, the lecturing of a comfortable 452, and the gathering of 44, 59, and/or 121 in meeting rooms (see plan). All activities can be conducted simultaneously, with a minimum of overlap. Fenestration is slight (with one window in the reception area and open viewing in the cafeteria only) and completely in keeping with the feeling of a sculptural whole. Brookhaven has taken a giant step away from conventional governmental building.

Venice on the Bay





REDWOOD CITY, CALIF. Redwood Shores, a residential community with an anticipated population of 60,000 by 1980, is being planned as part of the Redwood City area. Located on the southwest corner of San Francisco Bay, the community will have greenbelts and what might be termed bluebelts—waterways that will wind through the community, providing boundaries as well as thoroughfares. Garden apartments will snake along the waterways. Elsewhere, housing will be clustered in groups of 16 units, which can be organized into superblocks of four clusters, or 64 housing units. These units would be grouped around a common open space with front entrances facing the opening. In this way, the families would have a common central open area and in addition each unit would have a private open area in the rear.

The Architect's Collaborative developed Redwood Shores' master plan and have offered advice on what information will have to be fed into computers to determine finally how to plan and implement the schedule for Redwood Shores' completion.

Aalto in Frienze

FLORENCE, ITALY From November 14 through January 9, this city will hold its third biennial exhibition on masters of contemporary architecture. Following on the heels of Frank Lloyd Wright and Le Corbusier, Alvar Aalto will have his day with an exhibit of his work in the halls of the Palazzo Trozzi. This will be the first comprehensive showing of Aalto's work who, coincidentally, is the architect for the planned Florence cultural center. The Italians seem to think highly of the Finn—his exhibit has a 750,000,000 lire insurance tag on it.

Making the Scene at the League

NEW YORK, N.Y. New York's staid old Architectural League (founded in 1881) has for years been sliding gradually into a quagmire of geriatric self-satisfaction that has remained unaffected by occasional efforts of more progressive members to enliven it. The latest effort is the appointment of 26-year-old Robert A. M. Stern to serve the League for a year under funds from the H. Clawson Mills Fellowship, money which traditionally goes to research proposals and the like. Stern's activities will mainly focus on a series of exhibitions called—with uncharacteristic zip—"Making the Scene: the New Talent," and on several meetings at the Museum of Modern Art. The first of these exhibitions opened on October 26 with a show of the work of Mitchell/Giurgola Associates of Philadelphia. The inaugural reception proved a crowded event, with architects and artists of all persuasions jostling to get a view of the designs by Columbia University's new Chairman of the Division of Architecture (Romaldo Giurgola). Future exhibits will feature the work of such young firms as Venturi & Rauch; Chermayeff & Geismar (graphic designers); Moore, Lyndon, Turnbull & Whitaker; and Earl P. Carlin and Peter Millard. In addition, Stern is preparing what should be a lively series of discussions at the Museum of Modern Art on city forms and how they get that way, starting with an evening talk by Sibyl Moholy-Nagy that uses drawings by P/A's Forrest Wilson. This series replaces the tired old versions of how-can-we-integrate-art-and-architecture the League has been sponsoring for the past 800 years.

Stern's own view of a recent new city form, Constitution Plaza in Hartford, Conn., can be found in this month's P/A OBSERVER.

Calendar

The National Society of Professional Engineers meets January 5–8 at the Americana Hotel in Bal Harbour, Fla. . . . **The National Conference on Religious Architecture** will be held in San Francisco, April 26–28, 1966.

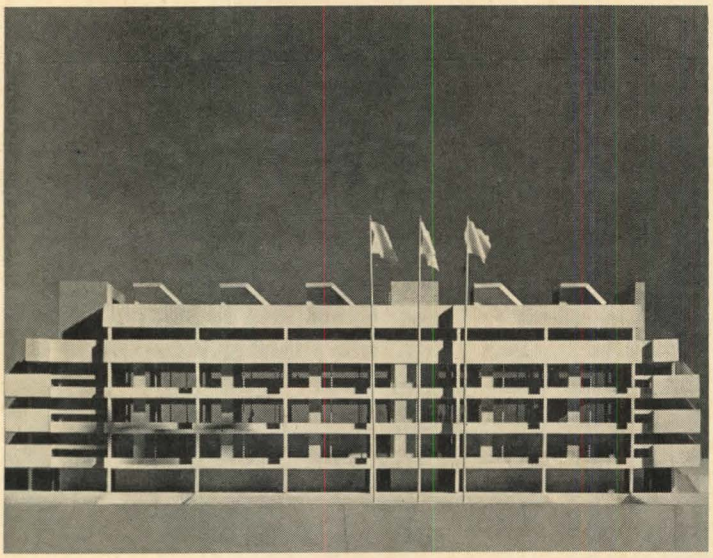
The First International Symposium on Urban Transportation Planning will be held at the Hilton Hotel in Pittsburgh, Pa., February 1-3, 1966.

Oatlands Trusted

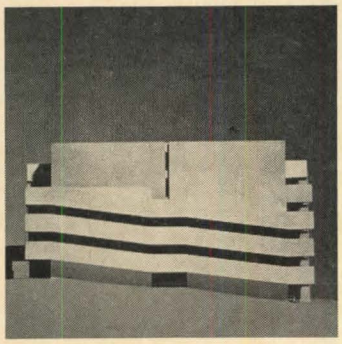
WASHINGTON, D.C. The National Trust for Historic Preservation has added another charge to the stable of well-bred estates it maintains—Oatlands, a Federal mansion with formal gardens in Loudoun County, Va., six miles south of Leesburg. It was built in 1800-1803 by George Carter, who designed the house himself. A front portico, supported by six Corinthian columns, was added in 1831, which, together with the entrance door, interior overdoors, mantels and plaster cornices, are considered outstanding examples of Georgian detailing. The original 5000 acres on which Oatlands was built were part of 63,093 acres given to Carter by his father, Robert "Councillor" Carter, who had purchased them in 1776 from Lord Fairfax, proprietor of the Northern Neck of Virginia. Given to the Trust with Oatlands were 261 acres of surrounding farmland. The

house was turned over to the Trust by Mr. David E. Finley and Mrs. Eustis Emmet, whose parents, Mr. and Mrs. William Corcoran Eustis, had owned it since 1903.

Student Center at Duquesne



Photos: James H. Cook

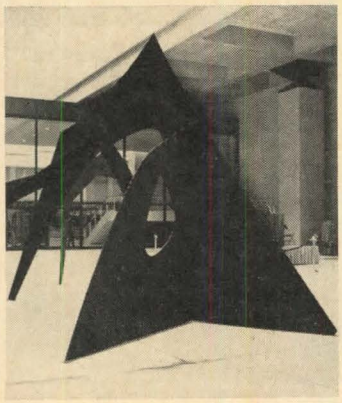


PITTSBURGH, PA. This rather convivial design for the University Center at Duquesne University is the work of Pittsburgh architect Paul Schweikher. Built with poured-in-place reinforced concrete at a cost of 2,885,000 shekels, the center will open its doors to all in December of 1966. It should be a gracious neighbor to the Mies Science Building on the same campus.

Calder and Moore at Lincoln Center

NEW YORK, N. Y. In mid-November, Alexander Calder's stabile "Le Guichet" (Ticket Window) was set up near the entrance to the Library-Museum of the Vivian Beaumont Theater. Called the "Ticket Window," because one of its great, blackened steel plates has a hole in it at shoulder height, the sculpture is 22′ long, 14′ high at its pinnacle.

Calder flew to New York from his Paris studio for the dedication. Also present was New York City Parks Commissioner Newbold Morris, who had actively opposed putting the sculpture on city-owned land near the Vivian Beaumont Theater. "Maybe it will grow on me," *The New York Times* quoted Morris as saying. "If the Municipal Art Commission voted to accept the sculpture, I must be wrong. I'm a product—or maybe a prisoner—of the 19th Century." Morris may have that



problem, but it seems as if some contemporary artists are also prisoners of the 19th Century. On opening night at the Beaumont, one of them picketed Henry Moore's sculpture "Reclining Figure," which rests in the reflecting pool (see p. 194, NOVEMBER 1965 P/A). He was miffed because Moore, a Britisher, had been given the commission. In commenting on the picketing, William Schuman, president of Lincoln Center, remarked: "It would be an insult to American artists to commission them or to buy their works merely because they are Americans. Our artists are among the best in the world and have no need of protectionism that would be afforded by a narrow, chauvinistic artistic tariff against foreign artists. The only criteria that Lincoln Center recognizes are those of excellence, and in its choice of works of art, the outstanding works of American artists have won an important place."

Business and Design

NEW YORK, N.Y. Meeting in New York's Hotel Pierre recently, 194 conferees registered for the American Management Association's conference on "Design for Better Business." Although the three-day meeting produced a host of papers, which were read to an attentive audience, it seemed often as if the speakers had expected to address a much different type of gathering. Although it was an AMA group, the conferees were designers, not manufacturers. Yet the speeches read as if they were meant to explain design to people who were unaware of its function. The effect was that of a Marine just back from Viet Nam, extoling night fighting to a roomful of combat veterans: it was interesting, even informative, but seldom original.

If originality crept in at all, it came from the three foreign speakers (shown here): Paul Reilly, Director of England's Council of Industrial Design; Yukio Yamazaki, Professor of Arts and Crafts at Chiba Univeristy in Japan; and architect-designer Fernando Cavestany, of Madrid. Their originality was usually that of an observer with a slightly different heritage explaining the difference to outsiders.

Paul Reilly spoke of the common contemporary design dilemma when he reminded the audience that good design, like good cream, must come from the top. "This surely cannot be repeated too often. No design policy will get off the ground if it starts from the bottom or even halfway up the ladder. It must come from the top. There must be someone on the board who cares passionately about this subject, or at the very least someone who knows his art from his elbow. . . . Even a company offering so straightforward a product as rope or timber must present itself to its public, and this presentation may well start at the factory or wharf and run right through to the check book and the invoice."

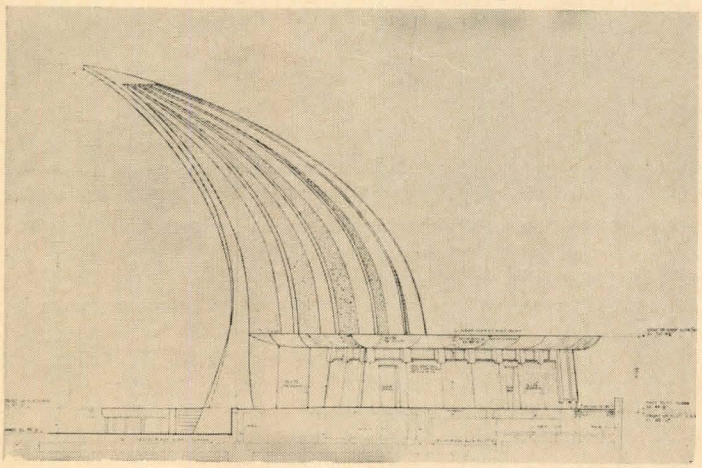
Yamazaki explained the ancient preoccupation with design in Japan: "The idea of fitting the surroundings is a basic element in Japanese design and is common to all periods," he pointed out. And yet despite this, he reminded the audience, "today's design tends to think of the purpose and function of a building independently; it

should consider whether the design is suitable for traditional customs, background, etc., to see that it does not cause friction or incongruity but plays up the surroundings, so that the object itself could also be set off from the surroundings." He also explained that "curves used in Japanese art are often comparatively simple and one-dimensional. Looking at the curves of the roofs and brackets used in architecture, the curves of the blades used in swords, the outlines of art objects, and the lines of handles, almost all of them are close to straight lines or tending toward a slight curve."

Fernando Cavestany, Madrid architect who once studied with Frank Lloyd Wright and has taught at two American universities, spoke sadly of the overabundance of bad taste, which seems a common artistic denominator among persons of all nationalities. "How wonderful it would be, if one could be operated on for bad taste and have it removed. When we see that bad taste is shared by people from a low cultural and economic level, we are sorry and sad to a certain extent, but when we see it abound among people of a high level, among the rich, among political leaders, among company managers, then we feel invaded by a real terror, and it is then, when we realize how tragic and how serious it can be for a society, for the world, that so much bad taste exists and spreads."

For taste in general and for architecture and design specifically, it seemed heartening that the AMA devoted time to the advantages if not the substance of design. One hopes that the message carried through to management.

White Fever in Lincoln Square



NEW YORK, N. Y. They are passing the nails and pouring the concrete at Lincoln Center, and the fever to build and build and build is spreading into the surrounding environs. Fordham University has announced that The Perkins & Will Partnership will undertake the second stage in the development of their Lincoln Square campus just across the street and to the south of The New York State Theater. The already existing Law School building, finished in 1961, will soon be joined by two great white buildings, in keeping with present Lincolnia — a theater (in foreground of photo) and an administration building (in background). The two buildings, which form Stage II, will allow the university to consolidate its Business, Education, and Social Service Schools, as well as add a new

Photo: Louis Checkman

College of Liberal Arts and office space for the School of General Studies. Budget for the total project is $14,000,000.

Kitty-corner to the new Fordham campus and directly behind the State Theater is Damrosch Park—soon to be graced with a $500,000 concrete and Gunite bandshell designed by the New York architectural firm of Eggers & Higgens. The shell, to be known as the Daniel and Florence Guggenheim Bandshell, will be shaped like a halved onion with a point. The point will serve to increase sound distribution from the 75 musicians on stage to the 4500 persons sitting out front. The 2.34-acre park surrounding the shell will be built at a cost of about $350,000. As Parks Commissioner Newbold Morris was quoted in *The New York Times*, "We ought to try to get the park ready by the summer of 7966." Let's hope the reality will deny the *Times*' typographical error.

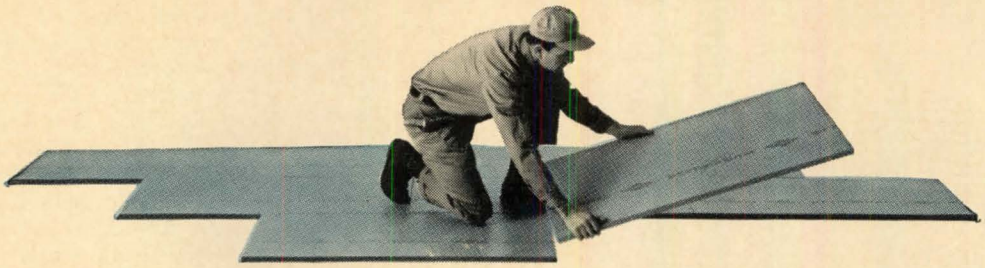
Russian Revolution Revisited

Photo: Peter Moore

NEW YORK, N.Y. If you wanted to experience the Russian Revolution, the Jewish Museum was the place to do it. From September 23 to October 31, Larry Rivers exhibited his epic mural, *The History of the Russian Revolution: From Marx to Mayakovsky*, together with 188 paintings, drawings, sculptures, and prints. The exhibition covered Rivers' work from 1950 to the present. The *History* was the largest piece in the exhibit—14′ high and 33′ long, with 76 individual canvas sections and construction units—and the most time-consuming (5½ months in the making). Speaking about his work, Rivers said: "Anyway, after 5½ months, I can only be certain of two things: one is that I'm not a lazy man either about history or art—here and now; two, my *History of the Russian Revolution* is the greatest painting-sculpture-mixed media of the 20th Century, or the stupidest." Next stop for the exhibit, Minneapolis.

Fanning the Arts: Part Two

HOVIKODDEN IN BAERUM, NORWAY In 1967, this little town outside Oslo will house one of the world's greatest private art collections in a new museum-cultural center—both gifts of the Sonja Henie-Niels Onstad Foundation. The museum, by competition-winning architects Jon Eikvar and Svein-Erik Engebretsen, will go up three years after the donation of the art, which includes such greats as Picasso, Matisse, Rouault,



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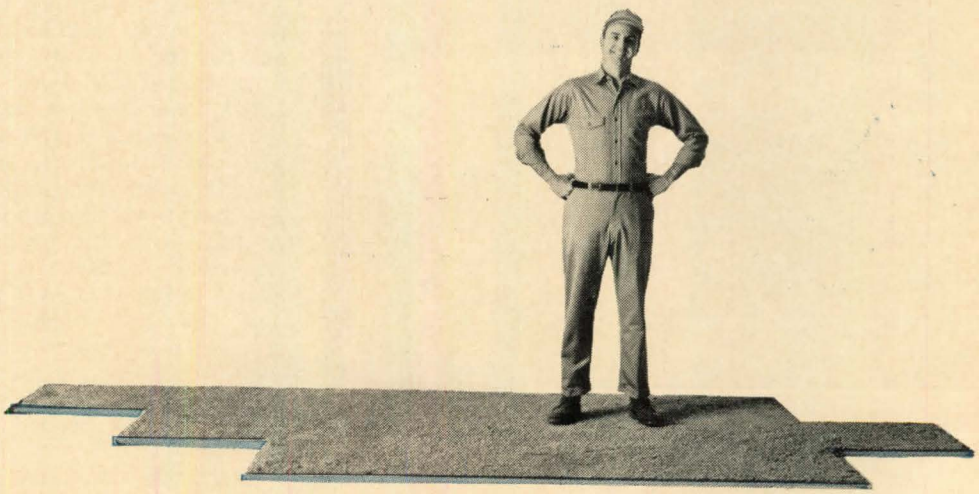
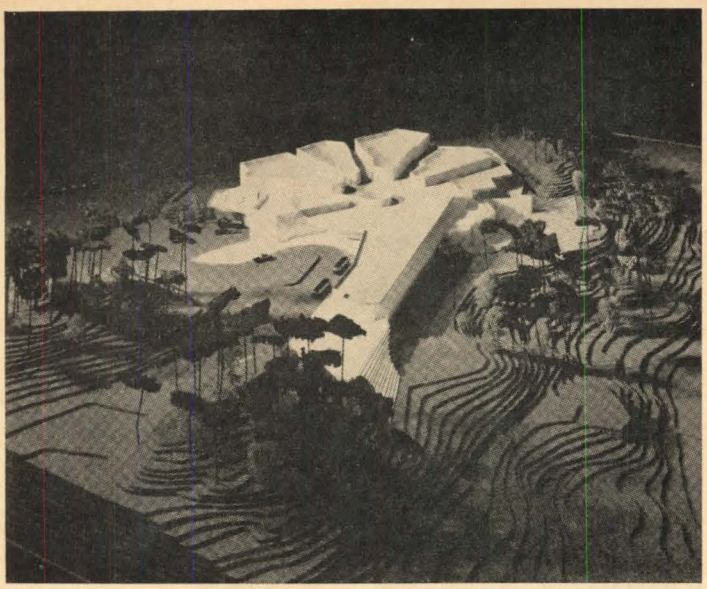
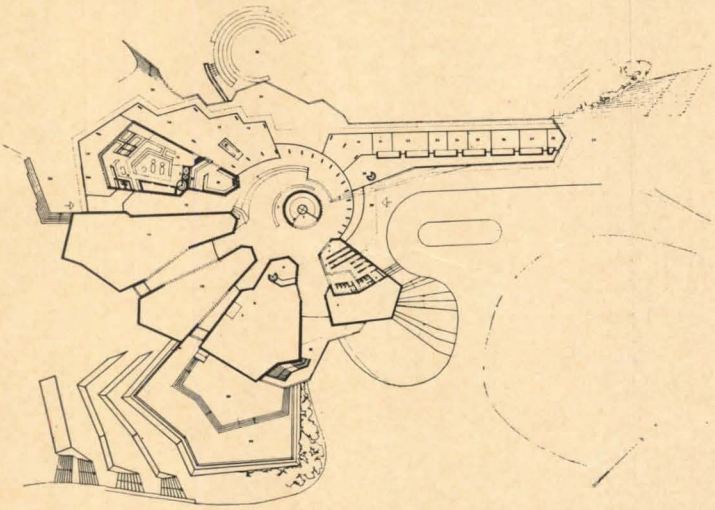


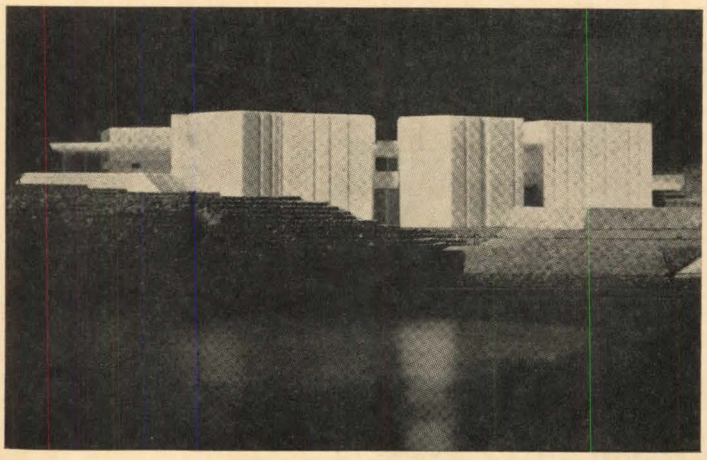
OK. Now forget it.

(It gets along by itself just great.)

DOW







and Klee. The 11-man jury (including Miss Henie and her husband Niels Onstad) praised the winning design and its obtuse-angled irregular exhibition rooms for creating exhibition variety and visitor accessibility. Getting lost in this museum will be virtually impossible. Each gallery will lead back to the entrance lobby. The structure will include a restaurant, library, reading rooms, and lecture room.

The Hovikodden design bears a remarkable likeness to the University Arts Center for the University of California at Berkeley, by architect Mario J. Ciampi (see p. 54, SEPTEMBER 1965 P/A). Each shares the same visitor-oriented approach and each solves both the design and the circulation problems by fanning units around a pivot. One can only suppose that there is a little Aalto in all of us.

Eavesdroppings

The following news item is reprinted in its entirety from the Champaign-Urbana (Illinois) *News Gazette:* "Often, one of the best investments you can make in building a new house is to retain an architect. Not only do their services lead to economy, efficiency, endurance and easy maintenance of a home, but they also can help you in selecting quality building materials, such as real ceramic tile, which never needs waxing and lasts a lifetime."

"My strategy and words are like a man's, but I can show warmth and disappointment, which in a man would be thought weak. But I never cried to get anything in business and I never intend to. . . . I'm only 33, and I want to build an empire. . . . I don't think real estate developers are obliged to improve the premises they tear down. If they do, they go beyond duty. The community should expect no more of a developer than of any manufacturer." *Mrs. Cecilia Benattar, president of the U.S. branch of the British holding company that bought the Savoy Plaza site in New York City for the soon-to-be-erected 50-story GM building, as quoted in* Life *magazine.*

"Louis Sullivan gave industrial designers, as well as architects, a worthy catechism that has become a classic phrase, when he said that Form shall follow Function. Certainly, this is an excellent guide, and when the function is perfect, the form approaches perfection —witness a wheel, a propeller, an egg; but even when the function is imperfect, we tend blindly to follow Sullivan's dictum and we stumble and produce designs that are far from acceptable. There are times when the form must include, but go beyond, the function.

"Architects also swallowed this epigram hook, line, and sinker. Departing from the overdose of neoclassicism that swept this country, the T-square took over and swept every compass and French curve off the drawing boards. Glass and metal boxes towered monotonously skywards until our city streets became canyons of boredom and owners had to rush out for trees and fountains to relieve the sterility. Top-flight men in the architectural profession have by now gotten the message and the sculptured form has taken over—note Saarinen's Dulles Airport and his TWA bird at Kennedy, the fishlike plan of Harrison and Abramovitz's Hartford Insurance Building; the Corbusier Chapel at Ronchamp, and Phillip Johnson's flowing museum at Dumbarton Oaks. These men have recognized that they must bring our surroundings to psychological human dimensions —we cannot, we must not be mentally dwarfed." *Henry Dreyfuss speaking at the meeting of the Industrial Designers Society of America.*

"Let us hope that the bad taste that has dominated our industrial and commercial life for so many generations, that has flooded the market with products bereft of any charm, grace or beauty, that has blighted our cities and countryside and blunted our sensibilities—and which shows some signs of fading—will one day disappear. It is possible, and I hope probable, that bad taste will be rejected because it has been found to be economically inefficient, and to be economically inefficient because it is socially inefficient. Ugliness is a bad environment for productivity; ugliness and vulgarity narrow the horizons of society as a whole." *Frank Stanton, president of the Columbia Broadcasting System, speaking to the Art Directors Club of Philadelphia.*

Personalities

Professor Robert D. Katz of the University of Illinois, College of Fine and Applied Arts, has received two grants to study the role of the professional designer in publicly assisted housing programs . . . **Ray Y. Okamoto,** San Francisco architect-planner, has been appointed by the Danish Ministry of Cultural Affairs to be lecturer in planning and urban design at the new Jutland School of Architecture in Aarhus, Denmark. Okamoto will help to establish a department of planning and urban design at the school . . . **Vincent Kling,** Philadelphia architect and 1940 Columbia graduate, has recently been appointed an alumni

Continued on page 50

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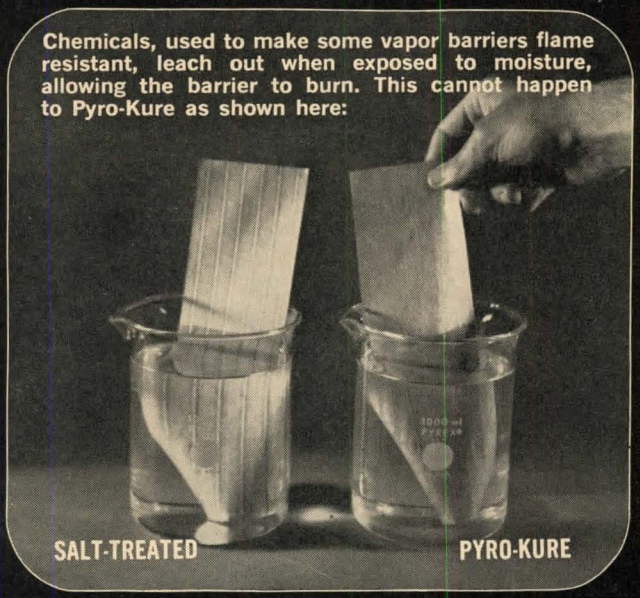

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(2) Barriers are then dried out.

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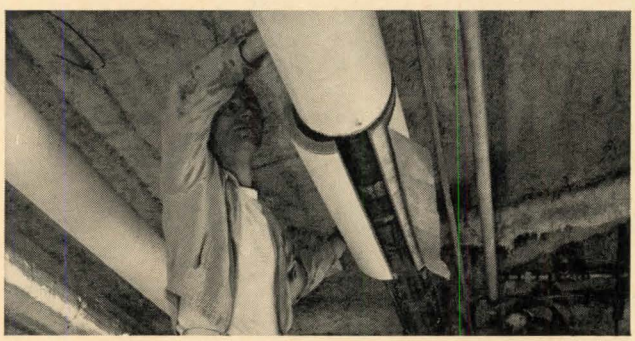

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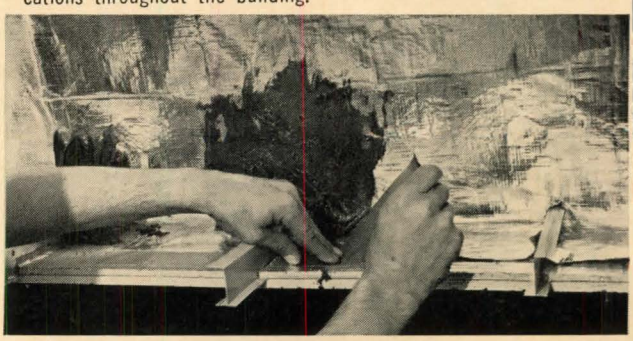

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Pyro-Kure now provides permanent noncombustibility plus airproofness for ventilated ceilings and for lighting plenums.

Pyro-Kure®:
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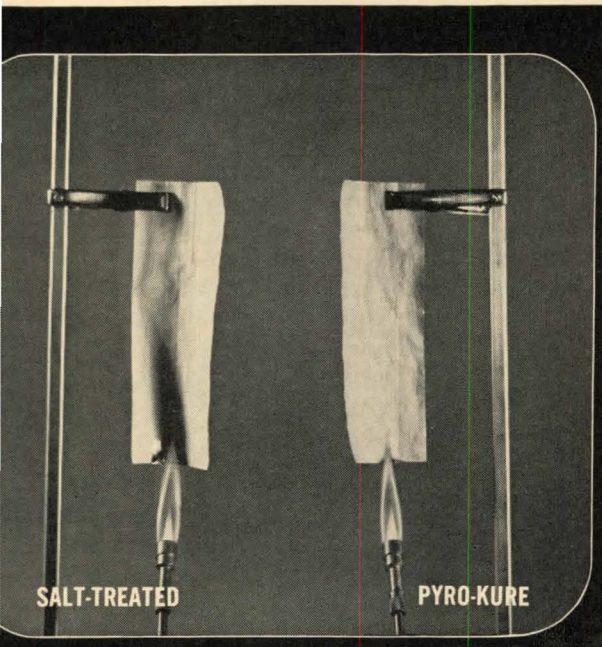
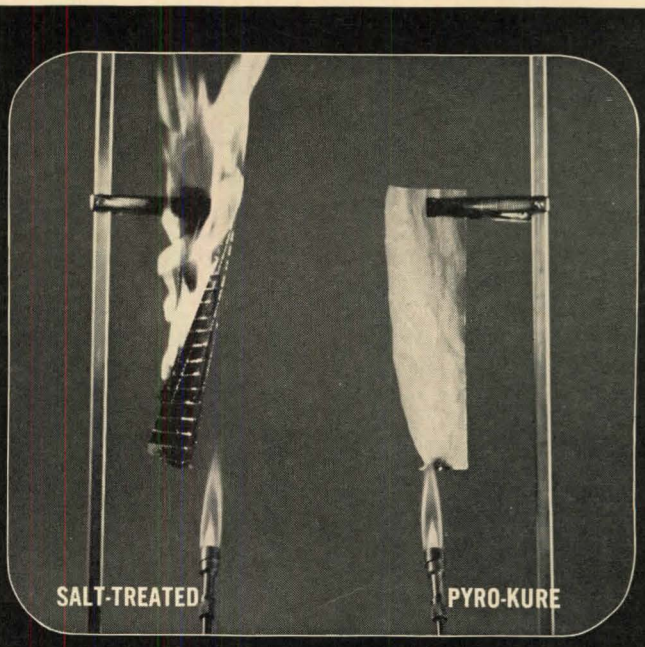
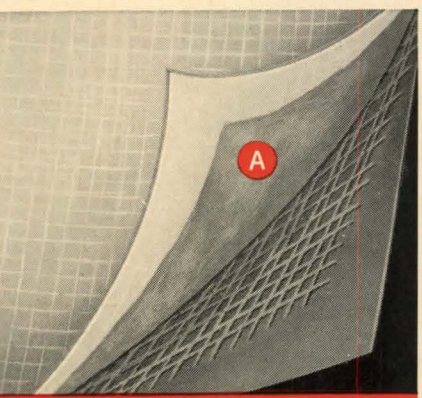


Flame is applied, treated barrier starts to burn.



(4) Treated barrier engulfed by flames. Pyro-Kure snuffs out flame, won't burn ever!



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end for Samples and Technical Data Kit which includes perm ratings and other physical property information. Vrite: Sisalkraft, 56 Starkey Ave., Attleboro, Massachusetts 02303.

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ST REGIS
SISALKRAFT DIVISION

Continued from page 46

trustee of the university . . . **Douglas McHenry,** director of development, Portland Cement Association Research and Development Laboratories, has been elected chairman of the Reinforced Concrete Research Council. **Paul F. Rice,** who had been technical director, was named vice-chairman . . . **T. Norman Mansell** will be President of the Philadelphia Chapter, AIA, in 1966 . . . **Eric C. Fisher,** Schenectady (New York) architect, has been appointed to a two-year assignment in Tanzania, East Africa, under the auspices of the C.I.P.M. (Council for International Progress in Management). The project is geared to train technicians and builders in the country to achieve higher standards of housing . . . The American Institute of Planners has recently re-elected **C. David Loeks** president and **Irving Hand** vice-president . . . **Charles E. Thomsen** has been appointed to the newly established post of executive director of the New York Chapter AIA.

AWARDS

Nominations for the **1966 Reynolds Memorial Award** will be accepted through January 31, 1966. The award, which is the largest in the architectural field, carries an honorarium of $25,000 "for design of a significant work of architecture in which aluminum has been an important contributing factor." An architect may be nominated by anyone, including himself or his firm, using a form available from the AIA. Interested? Write: The Reynolds Award, The American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. 20006 . . . The Key Man Award of the Avenue of the Americas Association in New York has been given to **William S. Paley** and **Dr. Frank Stanton** for their "outstanding service to the Avenue" in their selection of site and choice of architect for the new CBS building . . . **Max S. Wehrly,** executive director of the Urban Land Institute in Washington, D.C., and **Dennis O'Harrow,** executive director of the American Planning Officials in Chicago, were recently awarded the American Institute of Planners 1965 Distinguished Service Award for their work in planning. AIP Honor Awards were also given to the cities of **Rockville, Md.,** and **New Haven, Conn.,** for their successes in comprehensive planning. No award went to a city with a population of over 500,000. None was found worthy . . . Cities awarded the AIA Citation for Excellence in Community Architecture were **Philadelphia, Pa.,** for Society Hill; **Louisville, Ky.,** for Village West; **Salt Lake City, Utah,** for the Downtown Second Century Plan; **San Antonio, Texas,** for the Paseo del Rio; **Oklahoma City, Okla.,** for the Downtown Plan; and **Canton, Ohio,** for Central Plaza. The AIA also announced that it has entered into formal affiliation with the **Guild for Religious Architecture.** Fresno's Fulton Mall will receive an AIA citation for excellence in community architecture. The purpose of the citation is to commend public and private groups who have sponsored architectural projects that have contributed to a better community environment. This is the first time a California project has been so honored. . . . The American Institute of Steel Construction has presented the Verrazano-Narrows Bridge an award for its outstanding contribution to technology and esthetics. Also lauded by the AIA were the citizens of Hartford (Connecticut) and Urbana (Illinois) for their Constitution Plaza and Lincoln Square, respectively. The award, "Citation for Excellence in Community Architecture," was begun early this year. No single building can qualify for a citation. The purpose of this AIA award is to recognize a city's effort and success in creating liveability.

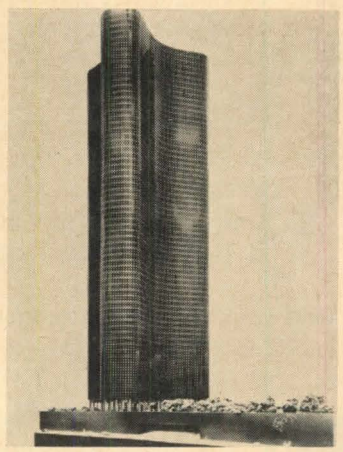
Engineering Info Center Being Set up

NEW YORK, N. Y. A clearing house for engineering information, an automated information center, is being set up in New York City. Located in the United Engineering Center, the project is being coordinated by three engineering groups: the Engineering Index, Engineers Joint Council, and United Engineering Trustees. It is planned as the first step toward a scientific and engineering information network proposed by the Federal Government. According to one spokesman, "The development of an orderly and comprehensive system will provide the opportunity for those who will seize it—to relegate much of the literature searching to technicians or clerical personnel. It is interesting to note that a 1 per cent decrease in average salaries to do this country's engineering work is equivalent to about $100,000,000 per year."

Building Products Data

NEW YORK, N.Y. To answer a need for improved building products data, unaffected by advertisers, the Building Materials Research Institute, Inc., was recently formed. It is publishing and selling voluminous, impartial reports that are particularly oriented toward the elastomeric and plastic materials fields; surveys take major brands of a given group or type of product and subject them all to the same tests. The resulting reports are of two types: a large Research Report gives detailed information on test procedures and results, and smaller Digest Reports contain synopses of the former. In each case, the specifier is forced to make his own evaluation and selection. In addition, the Institute will conduct special surveys on request. Further information is available from the Institute at 60 East 42 St., New York, N.Y.

The Shape of Things to Come



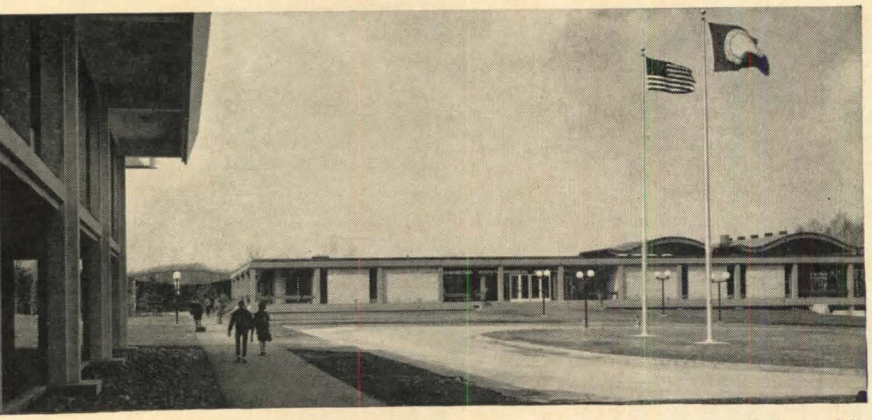
CHICAGO, ILL. The challenge of designing a high-rise building in Chicago that can assert its individuality is becoming increasingly complicated (see p 55, MAY 1965 P/A). And the designs themselves increasingly reflect this. The latest proposed addition to the Chicago skyline is this 70-story, curvilinear apartment house, the Lake Point Tower, which, when completed in 1967, will be the tallest reinforced concrete frame building in the world. At 645′, it will be 18′ higher than Montreal's Place Victoria, the current record holder. Ground-breaking ceremonies will be held this month.

Designed by Schipporeit-Heinrich & Graham, with Anderson, Probst & White associated, it will have a continuously curving, symmetrically shaped façade around a triangular service core. Bronze-tinted glass curtain walls with anodized aluminum mullions form the façade. The tower will rise from a two-story base, which will house parking for 700 cars, a health club, a restaurant, and a coffee shop, in addition to the lobby. Living space will total 1,300,000 sq ft; projected cost is $20,000,000.

Save Our Capitol

WASHINGTON, D. C. The AIA recently issued a call for the preservation of the nation's Capitol. In a prepared statement, it offered the urgent reminder that "If the Capitol continues to expand it will rapidly lose all resemblance to the original building." Under consideration now is an extension to the West Front, which would obscure the last of the original exterior walls. "If reconstruction is structurally necessary," comments the AIA, "it should be carried out in strict accordance with the present design." The original design was done by a physician, William Thornton, who was allowed to submit his proposal three months after the official competition deadline. His design impressed George Washington: "The grandeur, the simplicity, the beauty . . . will, I doubt not, give it a preference in your eyes as it has in mine." Additions to and changes in the original structure have been made before. Some modifications were made when the Capitol was restored after being burned during the war of 1812. In 1857, an extension to the House wing was added. In 1859, the Senate extension was completed. And in 1863, the present dome was topped out. The most recent change, an extension of the east wing, was in 1960.

CORNING COMMUNITY COLLEGE, Corning, New York; Architects: WARNER, BURNS, TOAN, LUNDE, New York; Structural Engineers: SEVERUD-PERRONE-FISCHER-STURM-CONLIN-BANDEL, New York; General Contractor: ROGER & McCAY, INC., New York; Precast, Prestressed Concrete: FORMIGLI SALES COMPANY, Philadelphia, Pa.



Student Center looking west. Each main building is so placed that additional elements may be added at a future date without crowding.

Community College precast with Incor®

New York's new community college in upstate Corning is one of many two-year colleges being built to cope with the mounting educational needs of the nation. Conceived as an entity, its structures have a consistent character. Each building is placed to accommodate future expansion without crowding.

Economical, fire-safe precast concrete was selected as the basic structural material for all buildings, with an exposed finish of beach pebble aggregate. Precast and prestressed "Spancrete" hollow-core floor and roof slabs—and over 1600 other concrete structural members—were produced at the precaster's yard and truck-transported 200 miles to the construction site.

On a construction budget of $20 per square foot, rigidly planned production and delivery schedules moved the project to a smooth completion during severe winter weather. "Incor" 24-hour portland cement in a 5000-psi mix was used throughout, assuring rapid turnover of the forms, and sound, high-quality units at low production cost.

Use of precast concrete permitted construction during severe winter weather.

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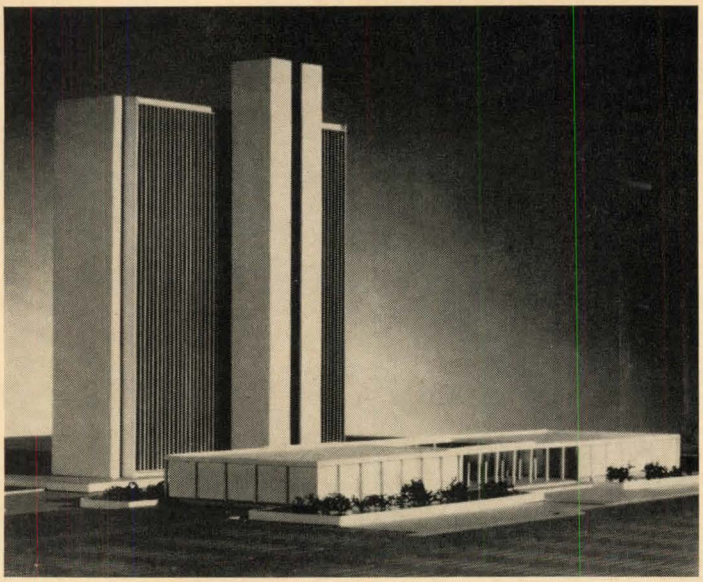

LOS ANGELES, CALIF. GSA has given the nod to Charles Luckman Associates to proceed with working drawings for the new $13,700,000 Federal Office Building here. The design, which will include a one-story post office and cafeteria area, a 17-story office area for seven government agencies, and an intervening courtyard, bunches all services (fire stairs, restrooms, mechanical distribution ducts, and elevators) in three separate towers. Only one tower, housing the elevator shaft (see photo), will read as a unit. It faces the 17-story, 595,953-sq-ft building like two skinny piano keys. Materials include precast concrete, which will be smoothed and painted an off-white, and clear spandrel glass. The project is scheduled for completion by the end of 1967.

WASHINGTON/FINANCIAL NEWS

BY E. E. HALMOS, JR.

With both Congress and the President momentarily out of town (until Congress reconvenes early in January), architects and the construction industry could take a moment to look at what Congress wrought in its long 89th session.

As a matter of arithmetic, the lawmakers had done well for both the profession and the industry; on matters of policy and procedure, they had dictated some profound changes.

Congress either appropriated or authorized spending for construction work that will top $22,000,000,000 over a period ranging up to five years, and will generate nearly as much spending from other sources. ("Authorization" is a sort of hunting license for a Federal agency—a promissory note that Congress will appropriate the needed money). Out of this total, a good part of $18,000,000,000 is of direct interest to architects. It includes such items as:

A total of $280,000,000, over two years, in matching grants for construction of health research facilities; $1,100,000,000 for projects of all kinds in the Appalachian area; $1,700,000,000 for military construction; $4,300,000,000 for all types of civil public works; $2,600,000,000 for Atomic Energy Commission Construction; $100,000,000 over five years for elementary and secondary school construction; $7,800,000,000 for various housing programs; $325,000,000 for highway beautification; even funds to permit the much-criticized Architect of the Capitol to begin planning for a third Library of Congress.

As to matters of policy and methods of operation that will affect architects, there were many changes—ranging from the establishment of a brand-new cabinet department (Housing and Urban Affairs) through approval of a new National Arts and Cultural Development group (PL89-125), to approval of a new State Technical Services Act (PL89-182) under which technical developments will be made available at a local level, and changes in the Foreign Agent Registration Act that seemed to exempt architects from registering for most work for foreign clients.

Department of Housing and Urban Development

Perhaps of greatest interest is the establishment of the new Housing and Urban Development department (already known in Washington jargon as "HUD"). Its most immediate effect will be to create a new rank for the head of the agency that was formerly the Housing and Home Finance Agency; fairly soon, its formation should begin to show in changes in operating personnel, and, more particularly, in operating policies. The task of creating a department out of the sprawling HHFA empire—made up of almost autonomous units—will be a huge one. Finally, as the new department gets itself together, there could well be other shifts, since much of its intended function overlaps those of many established agencies.

Perhaps most significant has been the steady emergence of the architect as one professional who must be considered first, whenever the Federal Government considers any construction, planning, or beautification work (much to the open annoyance of civil engineers and others in the construction industry).

This emergence—certainly in part the result of an aggressive policy by architectural groups—shows up in the deference paid to architects in Congressional hearings, speeches on the floor of Congress, talks and conferences by high administration leaders, and appointments to various committees and commissions.

It even extended, late in November, to the appointment of an architect (finally) to head the important Public Buildings Administration of the General Services Administration: Casper F. Hegner, who holds degrees in architecture from Princeton and Yale Universities. Succeeding Robert T. Daly (retired) as Commissioner of PBS, Hegner also serves as a member of the National Capital Planning Commission. He was formerly Manager of Operations in the construction office of the Veteran's Administration, and before that a partner in the Denver firm of Smith & Hegner.

(An example of the kind of comment that has kept the name "architect" before the public was the criticism of the selection of Mies van der Rohe to design a new downtown Washington library, on the ground that Mies has never designed a local structure, and isn't a Washingtonian. There's considerable room for debate over whether such criticism is good for the profession—but it certainly makes local headlines. Louis Justement used a luncheon meeting of the American Society of Civil Engineers as a forum for his comments.)

Water Distribution Study

The Building Research Advisory Board has launched a new study aimed at establishing criteria for distribution to buildings of chilled and dual and low-temperature water, through underground heat-distribution systems.

An advisory committee headed by Edward J. Losi, New York consulting engineer (Cosentini Associates), is handling the actual conduct of the study, which will be backed by a group of manufacturers. Idea is to identify and evaluate essential functional requirements and technical characteristics that may be applicable to systems and components; define the existing and developing new test methods; and gather relevant statistical data. Eventual outcome is expected to be a set of design guides and criteria.

Taft-Hartley Unchanged

Dropping of the fight for repeal of the famous section 14(b) of the Taft-Hartley Act (the "right to work" provision) and failure of every other labor-backed measure of any consequence in the just-completed session of Congress is no cause for rejoicing by a cost-worried construction industry. The 14(b) matter, for example, actually remains just where it was: approved by the House, still awaiting action in the Senate; the annual attempt to permit "common situs" picketing at construction jobs is still before a House committee. Bills that have not

L-M STYLEKINGS lighting the Grant Park Rose Gardens at beautiful Buckingham Fountain, Chicago, Illinois

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Wide selection of styles plus choice of 9 smart colors to match any architectural decor. Amazing versatility, too, with 7 distinctive cover designs for each base. Luminaires attach directly to pole tops for installation economy in new and conversion installations.

SPECIFICATION
Utilizes lamps rated through 250 watts mercury or 620 watts (10,000 lumens) incandescent; constant-wattage, high-reactance, or constant-current ballasts; IES Types I, I-1 way, II, II-4 way, III, IV and V distributions; 3-inch and 7-inch mounting fitters; photocontrol accommodation for Styles A, B, C, and F units.

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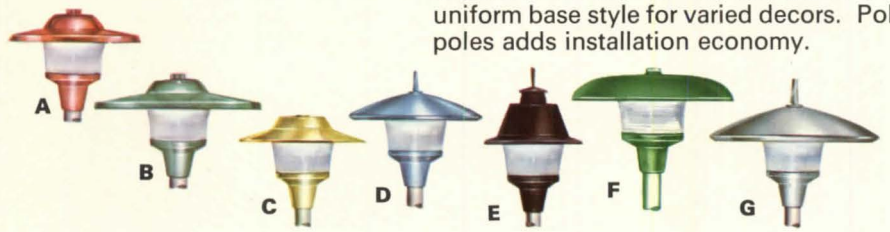
Modern styling plus application versatility with 7 designs and choice of 9 decorator colors. All the distinctive covers are interchangeable with the uniform base style for varied decors. Pole top mounting for 3-inch diameter poles adds installation economy.



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SPECIFICATION
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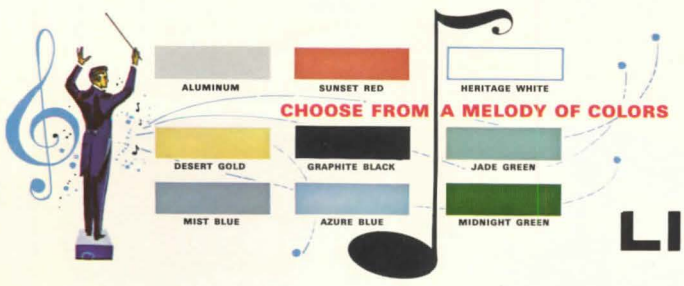

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Wall Mounted

SPECIFICATION
Accommodates 100-watt mercury lamp and high-reactance ballast, incandescent lamps through 150-watts; mounts on standard 3-inch OD yard light post; available with or without photocontrol.

UNISTYLE

(Scale: 1″=2′)

Superior lighting performance combined with efficient, modern appearance. Designed for 1¼-inch or 2-inch supports. Furnished with aluminum finish. Provides installation economy with one-piece lower housing, internal ballast and leveling assembly.

SPECIFICATION
Available for use with 100-, 175-, 250-, or 400-watt mercury lamps; internally mounted constant-wattage, high-reactance, reactor or constant-current ballasts; IES Types II, II-4 way, and III distributions; built-in photocontrol receptacle.

LAWNAIRE

(Scale: 1″=2′)

Contemporary styling combined with application flexibility. Available in a choice of 9 decorative colors. For mounting on 3″ OD pipe.

SPECIFICATION
Available for use with 75-, 100- and 175-watt mercury lamps; internally mounted high-reactance ballast; IES Types II, IV and V distributions; built-in photocontrol.

691

LINE MATERIAL® McGRAW EDISON

INDUSTRIES

McGRAW-EDISON COMPANY

been acted on can be revived next year.

Financial

The overriding financial fact for the construction industry was the huge total (see lead item, this column) of money that Congress set up for such work, either immediately or over a period of years. Such a backlog of Federal money—much of it to be matched by state and local grants—virtually insures a continuing high level of business.

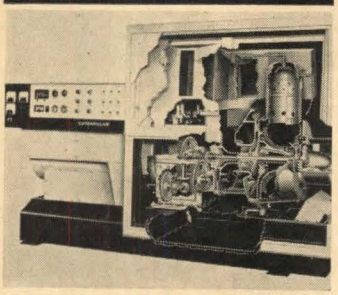
The annual forecasts were beginning to come in, too—and most of them were pegged to another rise in dollar volume for 1966, perhaps as much as 5 per cent for another all-time record.

But the economists were beginning to hang out some warning flags: The steady rise in construction volume over the past several years has been mostly in terms of money—not actual bricks and mortar. Even if the volume goes to $72,000,000,000 or more next year, physical volume isn't likely to be higher than it was two or three years ago.

Actually, construction volume was beginning to level off as fall began: In September, according to the Bureau of the Census, value of new construction put in place was $6,400,000,000—almost exactly the same as it was in August, and up about 4 per cent over the previous year. Private housing continued its steady decline, dropping slightly below 1964 to a rate of 1,422,000 units. There were some signs, statistically, that housing might revive on house sales: In August, sales were 62,000 units—up 11 per cent over a year ago; a total of 408,000 units were sold in the first eight months of the current year—up 7000 over 1964. But note that prices were up too: median price for homes sold in August 1965 was $20,400—up 9 per cent from the same month a year ago.

Construction machinery manufacturers seemed to be having a better year, along with the industry they serve, although statistics were a little uncertain on comparisons. Nonetheless, in 1964, machinery makers did 22 per cent better than in 1963 (total shipments of $2,256,000), and, it appears, will do better than that when 1965 figures are toted up.

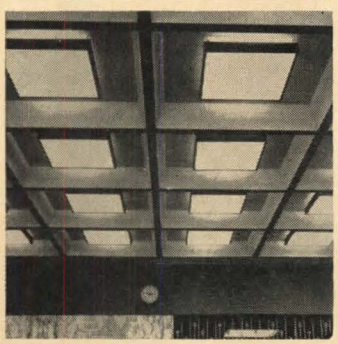
Air/Temperature

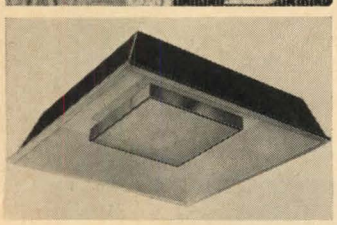


Gas Turbine for Total Energy

Gas turbine is said to cut utility costs in half when used in total energy systems. "Caterpillar 200-kw Turbine Electric Set" furnishes low-cost electricity to industrial plants, schools, apartment and office buildings or shopping centers; turbine exhaust gas supplies energy for heating, air conditioning, and steam generation. No external cooling system is required, which reduces weight and simplifies installation. Maintenance is also reduced since turbine and compressor assembly are the only moving parts in the engine. Turbine electric set can also be used for stand-by power in hospitals or office buildings. Caterpillar Tractor Co., Peoria, Ill.

On Readers' Service Card, Circle 100

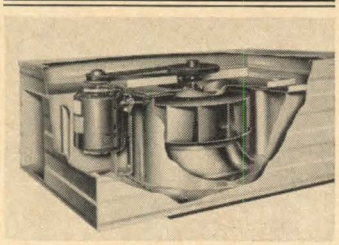




All-in-One Ceiling

An integrated modular ceiling system contains lighting, air-conditioning, heating, and ventilation services, and contains its own insulation, and acoustical control. "Alkconditioned Ceiling System" consists of perforated metal lighting coffers with baked enamel finish. Horizontal and vertical surfaces of the coffer are insulated with a 1″-thick strip of sound-absorbing material. The ceiling is lighted with conventional fluorescent lamps and suspended diffusers. Two air-handling diffusers can be installed adjacent to the lamps in each coffer. A 32″-square panel in the center of the coffer provides access to conduits and ducts above. Coffers can be custom designed to meet specifications. Alkco Mfg. Co., 4224 N. Lincoln Ave., Chicago, Ill. 60618.

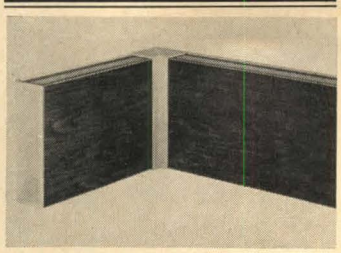
On Readers' Service Card, Circle 101



Roof Ventilator

Power-operated roof ventilator called "Lo-Set Power-X-Hauster," has a low, unobtrusive silhouette. Largest unit is only 39″ high, and can deliver more than 32,000 cfm. Hinged wheel across door permits easy cleaning of the unit without disassembly. Lo-Sets units carry UL listing and Air Moving and Conditioning Association Certified Ratings Seal on performance. G.C. Breidert Co., P.O. Box 1190, San Francisco, Calif.

On Readers' Service Card, Circle 102

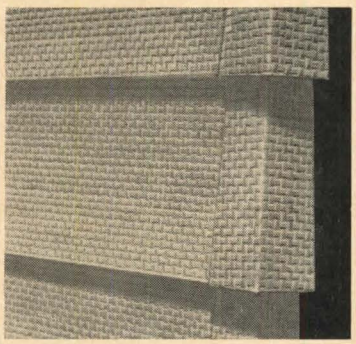


Slim-Fin Radiator

"Imperial" line of finned-tube radiators are available with flat or sloping top enclosures finished with a simulated wood or enamel surface. Enclosures snap on to channels mounted on the wall, and all front-exposed screws are eliminated. "Perma-Trim" mounting bracket is backed with a urethane foam seal that keeps dirt out and prevents wall soiling above the unit. Finned tube radiation is available in lengths of 2′ to 8′ in 6″ increments, and heights of 12″, 18″, and 24″. Enclosures are 5¼″ deep except the 12″-high slope top model, which is 4¼″ deep. Modine Mfg. Co., Racine, Wis.

On Readers' Service Card, Circle 103

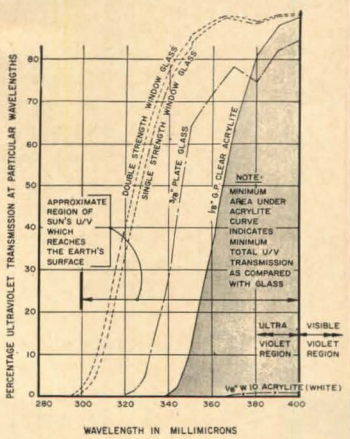
Construction



Textured Aluminum Siding

Aluminum siding panel, called "Innovation 8," has embossed pattern. This rustproof lap siding is finished with "Permlar," a nonchalking acrylic enamel paint for protection against severe weather. Horizontal panel is made in 12½′ lengths with an 8″ surface exposure and ½″ butt. Vertical panel is 10′ long with 12″ exposure. Available in white, gray, sandalwood, light green, pastel blue, and yellow. U.S. Aluminum Corp., 11440 W. Addison St, Franklin Park, Ill.

On Readers' Service Card, Circle 104



Plastic Panel Absorbs Ultraviolet Rays

Problems of fading or deterioration resulting from ultraviolet radiation can now be reduced or eliminated with "Acrylite" white translucent cast acrylic sheet. An absorber, added when the sheet is cast, allows the sunlight to brighten areas below skydomes without permitting ultraviolet rays to affect the occupant and his furnishings. American Cyanamid Co., 595 North Ave., Wakefield, Mass. 01881.

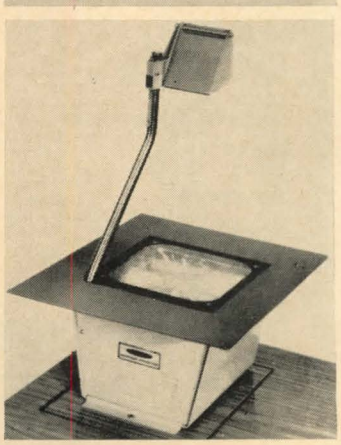
On Readers' Service Card, Circle 105

Translucent Insulated Panels

Translucent wall and roof panels that transmit light and provide good insulation are being used in school construction. Panels are composed of two sheets of glass fiber bonded to each side of an aluminum I-beam core. Reinforced glass fiber mat is placed in the core section to achieve high insulation values. The maker says the panels have a U-factor of 0.25, and variable light-transmission ranges from 28 to 50 per cent. Panels are made in widths up to 5′ and lengths up to 27′. Kalwall Corp., 88 Pine St., Manchester, N.H.

On Readers' Service Card, Circle 106

Electrical Equipment

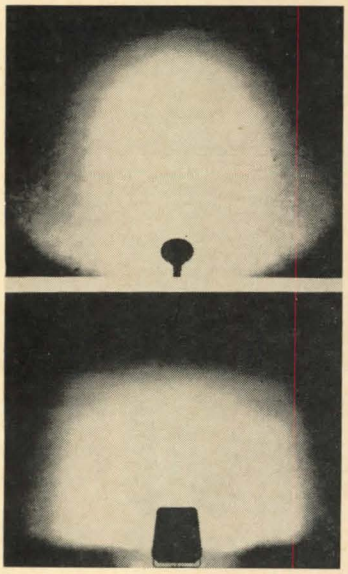


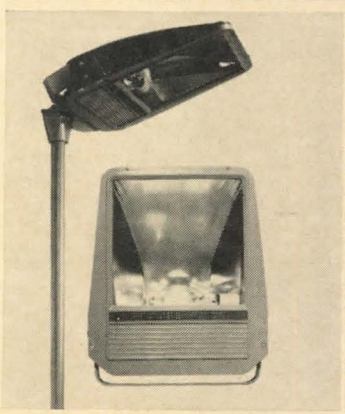
Projector/Desk

Desk table has a projector that throws image onto wall behind teacher's desk. Projector can be used flush with desk top, or

Readers' Service Card Now Located on Page 249

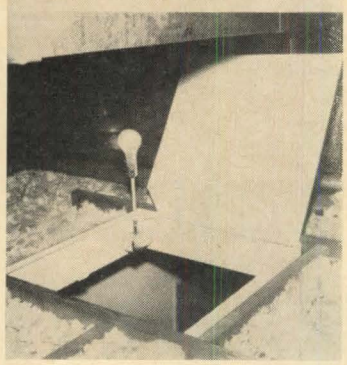
can be elevated 10″ above surface. Desk also contains file and pencil drawers. Commercial Products Co., 40 Market N.W., Grand Rapids, Mich. 49502.
On Readers' Service Card, Circle 107





Lighting A Square

Reflector throws light downward onto a square area. Suitable for exterior illumination, "Profile" metallic-vapor floodlights can reduce installation costs 28 per cent, because they throw more of the light source onto the surface to be lighted, says the manufacturer. Since 85 to 100 per cent of the beam generated by the metallic vapor light source is reflected downward, fewer poles and fiixtures are needed to accomplish the same lighting job, especially in large areas. One-piece reflector housing has a polished aluminum finish. Light sources are available in mercury lamps in 250-, 400-, and 1000-w; metallic vapor lamps in 400- or 1000-w. Loading tests show that Profile lights can withstand hurricane-wind velocities up to 100 mph. Crouse-Hinds Co., Syracuse, N. Y. 13201.
On Readers' Service Card, Circle 108



Hall/Attic Light

Ceiling panel doubles as hall light and trap-door to attic. "Lite-A-Way" fits ceiling opening leading to an attic. Inside the panel is an incandescent lamp and reflector unit that pivots upward to light the attic when the panel is removed for access. Translucent ceiling panel clips into frame; reflector panel hinges upward into the attic. Heavy gage metal trim around light panel is available in standard bronze finish, white enamel, or chrome. All other parts are finished in white baked enamel. Fixture is available in 20-″, 22″-, and 24-″ sq. Special sizes upon request. Modern-Aire Mfg. Corp., 7319 Lankershim Blvd., North Hollywood, Calif.
On Readers' Service Card, Circle 109

Fluorescent Starter

Recently developed fluorescent starter is recommended for high temperatures, excessive humidity, or line voltage variations. It automatically resets when the circuit is turned off and restarts its lamp when the circuit is turned on. The 40-w starter contains a circuit breaker that prevents false starts and blinking caused by worn-out lamps. General Electric, Wiring Device Dept., Providence, R. I.
On Readers' Service Card, Circle 110

Prefab Electrical Hospital Wall

Isolating distribution system in a single panel houses all electrical elements and provides a safe, one-stop checkpoint for electrical system performance in a hospital operating room. On-site installation costs are minimized by complete factory wiring and testing of the packaged unit. Panel is covered by a single warranty for performance, since there are no separate elements to wire or handle. Manufacturer guarantees that distribution panel operates at a sound level of no more than 35 db. Accidental contact with open terminals is impossible, due to a barrier between primary and secondary compartments. Crouse-Hinds Co., Syracuse, N.Y. 13201.
On Readers' Service Card, Circle 111

Finishes/Protectors

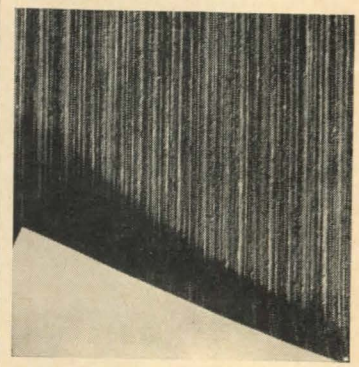
Nonsag Adhesive

"Bondmaster M754," a wet-shear-strength, nonsag epoxy mastic adhesive, is recommended by its maker for bonding expanded polystyrene, rigid urethane, glass foams, and ceramic title to vertical and overhead surfaces. It will bond materials weighing up to 5 psf, with no slippage. Two-component compound cures at room-temperature. The 100 per cent reactive formulated epoxy adhesive can be applied with a trowel. Pittsburgh Plate Glass Co., Adhesive Products Div., 225 Belleville Ave., Bloomfield, N.J.
On Readers' Service Card, Circle 112

Epoxy Color Coating

"Epoxy-Coat," a two-component epoxy, has good adhesion to iron, steel, aluminum concrete, wood and ceramics. Manufacturer claims that coating does not shrink or pull away while curing and that it has good abrasion- and wear-resistance. Coating can be used on concrete floors, outdoor railings, steel sash, ventilators, steel pillars, and porcelain and ceramic tile floors or walls. Available in 13 colors. Devcon Corp., Danvers, Mass.
On Readers' Service Card, Circle 113

Furnishings



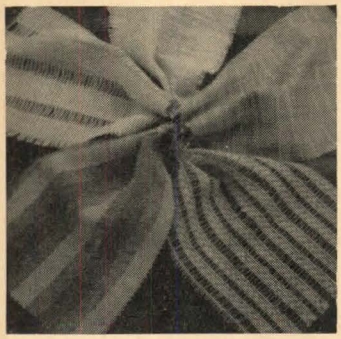
Two From Boris Kroll

A 100% Orlon, fade- and mildew-resistant fabric resembling sailcloth has been developed for outdoor upholstery. Called "Island Cloth," it comes in five solid colors coordinated with 11 designs printed on the same groundcloths. Wallpaper of nonwoven linen and viscose threads laminated side-by-side in striated colors has a novel textural effect (illustrated). Boris Kroll Fabrics, Inc., 979 Third Ave., New York 10022.
On Readers' Service Card, Circle 114

Synthetic Carpet Backing

This season, look for carpets backed with Polykor—a recently developed polypropylene and kraftcord yarn combination—in place of jute backing. It will be used for both tufted and woven floor-coverings by such manfacturers as Monarch, Barwick Mills, James Lees, and Cabin Crafts. New backing is said to resist heat, humidity,

and stretching, and is predicted not to raise carpet prices. Patchogue Plymouth Co., 295 Fifth Ave., New York, N.Y.
On Readers' Service Card, Circle 115

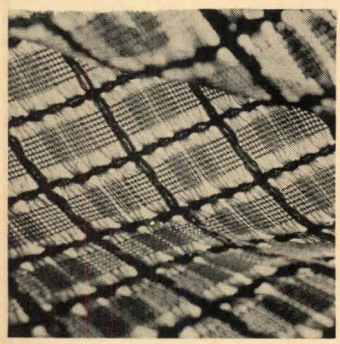


Textured Casements

Fourteen loose-weave casement cloths comprise a line of architectural fabrics with a handcrafted look. All are mixtures using Verel, Rovana, rayon, and flax; most patterns come in white, natural, or a combination of the two; all are 60″ wide. Generous sample binder available from Menlo Textiles, 640 Roble Ave., Menlo Park, Calif.
On Readers' Service Card, Circle 116

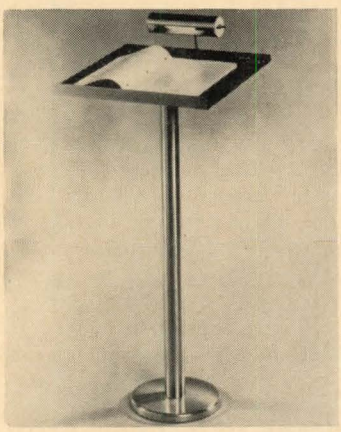
Space-Saver

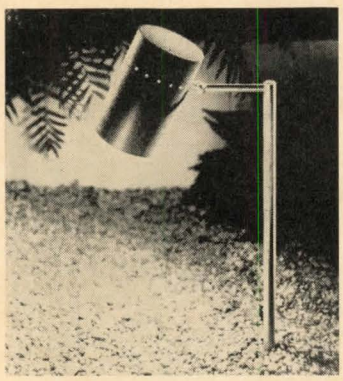
Space-saving device for desks is bookshelf "Caddy," which hangs in rear of knee space and rolls forward on track. It will fit single and double-pedestal desks. The Globe-Wernicke Co., Cincinnati, Ohio.
On Readers' Service Card, Circle 117



Hand-Crafted for Power

Among the "American Craftsman Collection," which is the result of Fiberglas Corporation's competition for American master weavers to create designs for power-loom production, two casement cloths by Judith Barrow are prominent. "Infalla" is a "spaced, intertwined, super-looped bouclé" in seven colors; "Afghan" (*illustrated*) is a leno weave of interest and has a good hand. Both fabrics are 45″ wide and are 100% Fiberglas Beta yarn. Owens-Corning Fiberglas Corp., 717 Fifth Ave., New York, N.Y. 10022.
On Readers' Service Card, Circle 118





Lucid Lecterns and Garden Glow

Four floor- and table-model lecterns of simple, straight-forward design by Don Jane have brass bases and plastic walnut tops and are available with or without built-in swivel reading lamps, which have concealed wiring. Garden lights with crinkle-finish black swivel cylinders on brass columns are spiked into soil. Nessen Lamps Inc., 317 East 34th St., New York, N.Y.
On Readers' Service Card, Circle 119

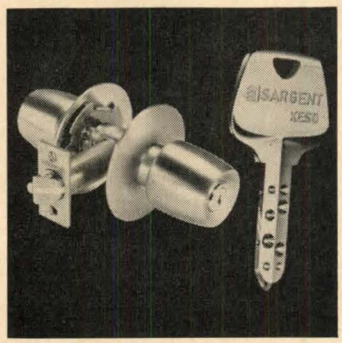
More Danish Fabrics

L. F. Foght, Danish manufacturer of textiles, now has a U.S. outlet for 70 of its upholstery and casement fabrics. These include a stretch-nylon material, a 100% wool plaid, a cotton basketweave, and a wool tweed check pattern, a wool hop-sack, and a rayon-wool combination. Distributor also introduces a domestically woven, worsted—"Donegal"—which is available in 38 colors. Isabel Scott Fabrics Corp., 979 Third Ave., New York, N.Y.
On Readers' Service Card, Circle 120

Spongeable Wall Felt

Washable wall-covering and upholstery fabric, "Nymarra," is feltlike in appearance yet is actually composed of nylon pile embedded in an expanded vinyl with a cotton backing. Stains are said to sponge off easily. Twelve stock colors are distinctively muted; 54″ wide. Contract Dept., Comark Plastics Div., 1407 Broadway, New York, N.Y. 10018.
On Readers' Service Card, Circle 121

Special Equipment

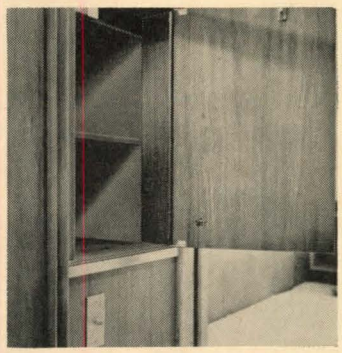


Pick-Proof Lock

A new type of cylinder lock, claimed by the manufacturer to be highly pick-resistant, contains three rows of overlapping key pins. A conventional cylinder lock has one row of pins. Keys for the new locks are drilled with shallow depressions on the two flat sides and both edges. The pattern of depressions is symmetrical so that the key can be inserted with either edge uppermost. The "Sargent Maximum Security System" is available in standard, removable core or construction core cylinders. Sargent & Co., New Haven 9, Conn.
On Readers' Service Card, Circle 122

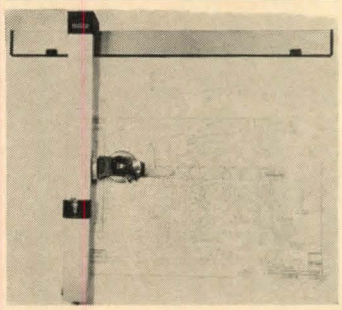
Sprinklers for Computer Installations

Automatic carbon dioxide fire-extinguishing system protects computers, electronic data-processing equipment, and tape storage rooms. System extinguishes fires by "total flooding," in which a charge of carbon dioxide makes the atmosphere surrounding the hazard incapable of supporting combustion. A thermostat, normally set at 140 F and located at the hazard spot, detects the fire and releases the system. Because of its clean, rapid evaporation, carbon dioxide does not damage tapes or computer equipment. Walter Kidde & Co., Inc., 675 Main St., Belleville, N. J. 07109.
On Readers' Service Card, Circle 123



Three-Floor Lift

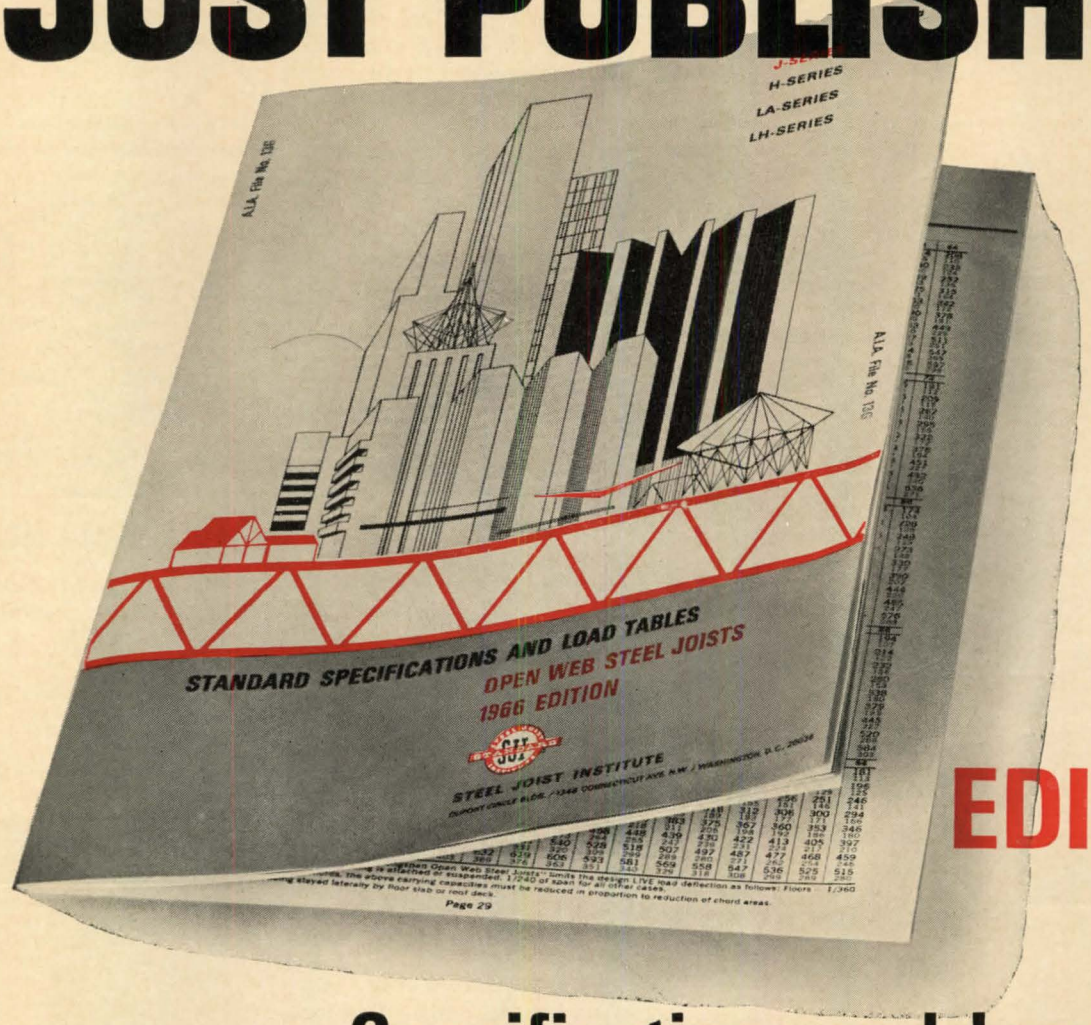
"Lift-Aid," an electrically-operated dumbwaiter, can serve three landings. Standard car size of 24″ x 24″ x 30″ can handle up to 200 lb. Lift-Aid travels 25 fpm, fully loaded. D. A. Matot Inc., 1533 West Altgeld, Chicago, Ill. 60614.
On Readers' Service Card, Circle 124



Drafting Machine

"Mutoh Trac-Drafter," a precision built track-type drafting machine, features a double-hinge design permitting drafter head to be raised vertically to the board when not required for use. Alternatively, the head and vertical track can be raised through 95° to clear the board. Equipment includes stainless aluminum alloy protractor, one-hand head control with automatic 15° protractor indexing and micro-adjuster for hairline baseline settings. Machine is available in four sizes to fit board sizes 37½″ x 48″ to 43½″ x 72″. Drew & Carr, Inc., 400 North Michigan Ave., Chicago, Ill.
On Readers' Service Card, Circle 125

JUST PUBLISHED!



1966 EDITION!

Specifications and Load Tables for High Strength Open Web Steel Joists

Here, from the Steel Joist Institute, are 32 pages of specifications, load tables and everything else you need for fast, accurate specification of joists to carry uniform loads on spans up to 96 feet. Covers the following joists: J-SERIES, joists made from 36,000 PSI minimum yield strength steel; LA-SERIES, longspan joists compatible with the J-Series; H-SERIES, high-strength joists made from 50,000 PSI minimum yield strength steel; LH-SERIES, longspan joists compatible with the H-Series. Send for your free copy of this valuable booklet.

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Please send me a complimentary copy of the 1966 Edition of Specifications and Load Tables.

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Wainscot Material Cost Study for Schools

A detailed report on the cost of building and maintaining wainscots in elementary school corridors reveals that glazed structural clay facing tile wainscot has a lower ultimate cost than ceramic wall tile.

The report is based on a survey conducted in 54 schools in Dallas County, Texas, by the Clay Products Association of the Southwest. The Columbus Laboratories of Battelle Memorial Institute assembled and presented the material for publication. The investigators took into account the following economic factors: time value of money, expected life of the building, anticipated price increase of labor and materials initial cost of the corridor walls, and frequency and cost of each maintenance task. Furthermore, actual on-site time studies were made on cleaning costs and initial wall costs for three wall thicknesses. 12 pages. Clay Products Association of the Southwest, P.O. Box 1726, Austin, Texas 78767.

On Readers' Service Card, Circle 200

Acoustics

Acoustic Enclosures

"Understanding Acoustic Enclosure Systems" describes three types of enclosures used to measure and contain noise or to provide soundproof shelter: anechoic (echo-free), reverberant (live), and quiet (dead) rooms. Recommendations for selecting the best type of enclosure for a particular need and data on the acoustic characteristics to be considered in the design and construction of each system are included. 4 pages. Industrial Acoustics Co., Inc., 380 Southern Blvd., Bronx, N.Y. 10454.

On Readers' Service Card, Circle 201

Air/Temperature

Terminal Controls for Hydronic Heating

Booklet describes coordinated terminal control systems and devices for hydronic-type air-conditioning installations. Booklet defines terminal controls; outlines their basic functions for providing air circulation, temperature control, equipment operation, and adjustment to inside and outside conditions; and reviews the application of these devices to piping systems of various types. Schematic illustrations show typical control hook-ups ranging from the simplest arrangement to those incorporating the latest control design for two-, three-, or four-pipe air-conditioning systems. 20 pages. American-Standard Controls Division, 5900 Trumbull Ave., Detroit, Mich. 48208.

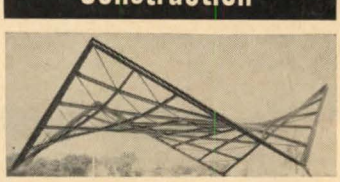
On Readers' Service Card, Circle 202

Filtered Humidifier

Bulletin describes "Rite-Aire Humidifier," a completely automatic, fail-safe, evaporative-type unit. Unit provides controlled humidity by means of wash-filtered air. Humidifier can be installed in hydronic, warm-air, oil, gas, or electrical heating systems in residential, commercial, institutional, and public buildings. Bulletin gives complete specifications, installation, and temperature-humidity data. 2 pages. Atwater-General Corp., 200 North Water St., Watertown, Wis. 53094.

On Readers' Service Card, Circle 203

Construction



Curved Grid Frames

First of a four-part study on curved, steel grid frame design is entitled "Development of the Concepts of Curvilinear Grid Frames" by Charles R. Hutton, an Associate Professor at Purdue University. A grid frame is a "particular arrangement of continuous ribs running in two or more directions, which are interconnected at the joints so that the deflections of both ribs will be identical at that joint." Two basic grid types are discussed: orthogonal grid, which has ribs parallel to the boundary of the frame; and diagonal grid, which has ribs placed diagonally to the boundary. Curved grids reduce bending stress values within the frame as much as possible and translate these stresses into direct stresses, either in tension or in compression. Booklet illustrates types, principles, and details of curvilinear grid frames. 50 pages. Inland Steel Company, Market Development Div., 30 West Monroe St., Chicago, Ill., 60603.

On Readers' Service Card, Circle 204

Laminated Redwood Timber

Pamphlet presents standard specifications for structural glued laminated California redwood timber. Specifications are divided into five sections: definitions of the types of laminated grades, design stresses, radius of curvature, standard sizes, and adhesives. Charts, details, and photos in addition to a list of references are included. 6 pages. California Redwood Assn., 617 Montgomery St., San Francisco, Calif. 94111.

On Readers' Service Card, Circle 205

Durable Concrete Specs

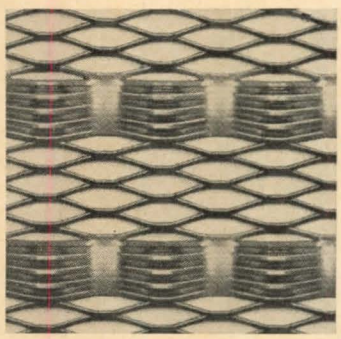
Chart summarizes recommended practices for specifying durable concrete. Paragraphs on air content, concrete strength, water content, aggregates, placing, finishing, and curing. Bulletin RM-154. Master Builders Co., Div. of Martin Marietta, Cleveland, Ohio. 44118.

On Readers' Service Card, Circle 206

Wood Veneers

Pamphlet illustrates types of veneer cuts, methods of matching, glossary of terms, and gives brief specifications check list. Among veneers available from this manufacturer are walnut, oak, maple, cherry, and others from the United States; teak from the Far East; and Rosewood from South America. Hardwood plywood laminated panels range up to 30′ long and up to 5′ wide. Panels are available with a lumber, plywood, particle board, or mineral core. 12 pages. *Wood-Mosaic Corp.*, P.O. Box 21066, Louisville, 21, Ky.

On Readers' Service Card, Circle 207

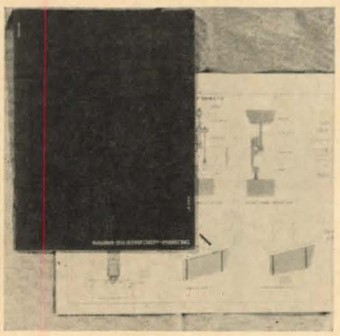


Expanded Metal

Book illustrates patterns of expanded metal gratings and mesh. Tables list dimensions and weights of steel, stainless steel, and aluminum mesh. 24 pages. Alabama Metal Industries Corp., P.O. Box 3928, Birmingham, Ala. 35208.

On Readers' Service Card, Circle 208

Doors/Windows



Movable Walls

Brochure describes sliding acoustical barrier that provides fixed-wall sound control. Photos and illustrations of typical installations, technical data, specifications, and detailed drawings are included. E.F. Hauserman Co., 5413 Grant Ave., Cleveland, Ohio.

On Readers' Service Card, Circle 209

Doors, Doors, Doors!

Brochure illustrates wide range of "Weldwood" doors with interior and exterior faces for fire-barriers, sound and radiation control, static-shielding, and other applications. The

Readers' Service Card Now Located on Page 249

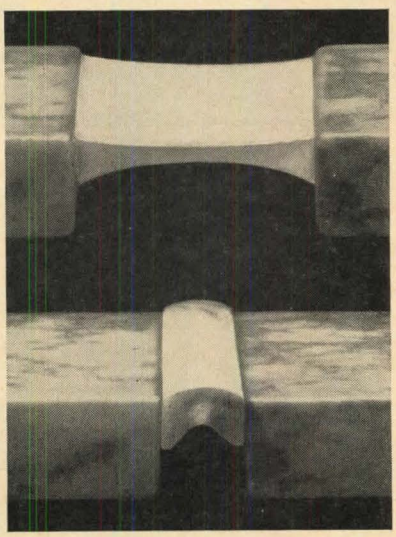
Alcoa Plaza Associates, Owner; Harrison & Abramovitz, Architects; Turner Construction Co. & HRH Construction Corp., General Contractors; General Bronze Corp., Curtain Wall Fabricator; Abbott Glass Company, Glazing Contractor.

9 tons of G-E Silicone Construction Sealant seal new UN Plaza

G-E Silicone Construction Sealant is an amazing synthetic rubber that cures in air. It's waterproof. It won't crumble, harden or peel. So it's the first really *permanent* sealing compound.

At the new United Nations Plaza apartment and office building, just across from the famous United Nations Building in New York City, nine tons of Silicone Construction Sealant were used for various sealing applications. Seven tons of Silicone Construction Sealant were used to glaze the windows. Another two tons seal the aluminum curtain walls. G-E Silicone Sealant is also used to caulk air ducts as well as miscellaneous caulking throughout the thirty-eight story twin-tower skyscraper.

G-E Silicone Construction Sealant applies quickly and smoothly from a standard caulking gun, forming a tight bond to glass, metal, masonry and other common building materials. No mixing either. And it can be applied easily in any weather . . . never stiffens in cold or runs because of heat. Cleanup is a cinch. So you save time while you get a good looking, permanent seal that minimizes callbacks.

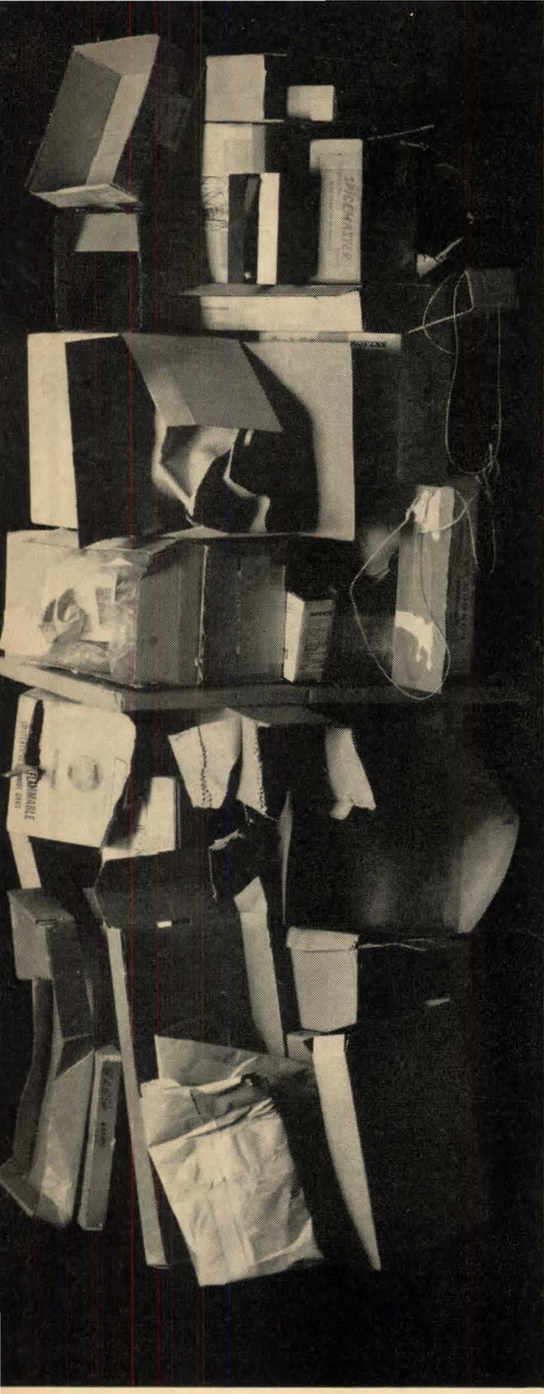


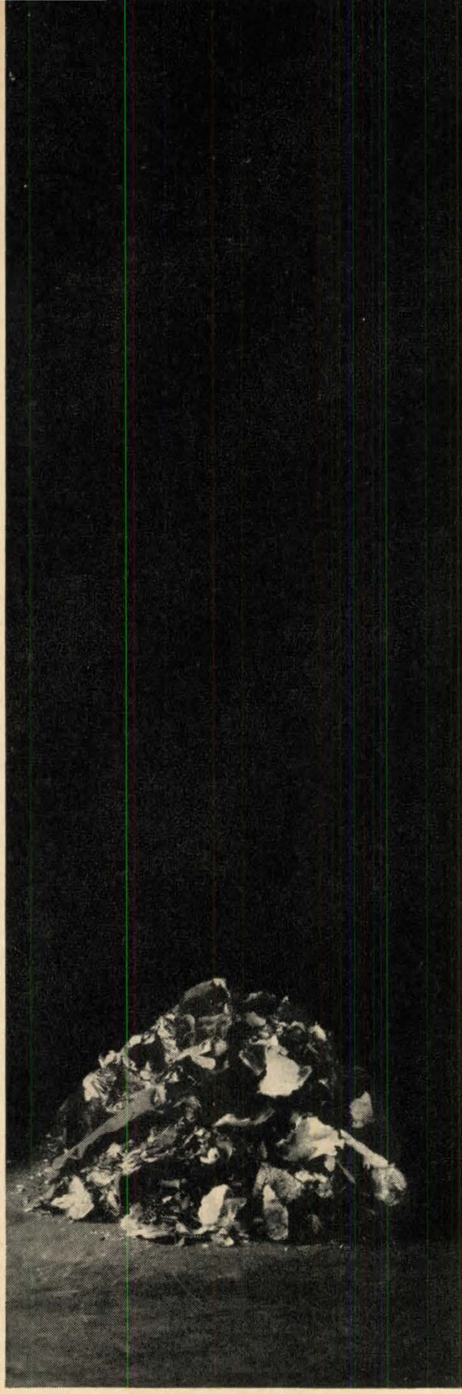
Joints expand and contract 10,950 times in 30 years . . . and so will G-E Silicone Construction Sealant.

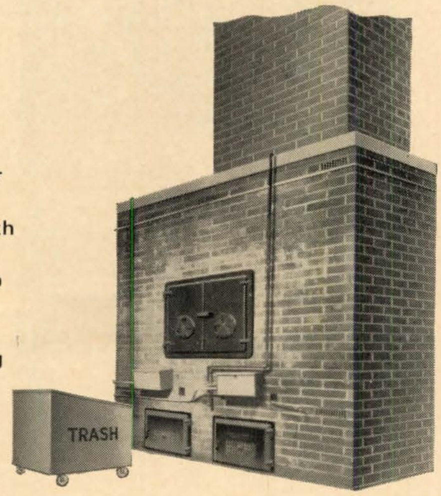
Available in a wide range of colors, as well as a translucent form, G-E Silicone Construction Sealant blends in well with almost any material. It's stocked by local distributors and in many building supply stores. For complete information, including a new bulletin on guide specifications for Silicone Construction Sealant, check the distributor nearest you, or write to Section Q12160R, Silicone Products Dept., General Electric Company, Waterford, New York.

GENERAL ELECTRIC

On Readers' Service Card, circle No. 431





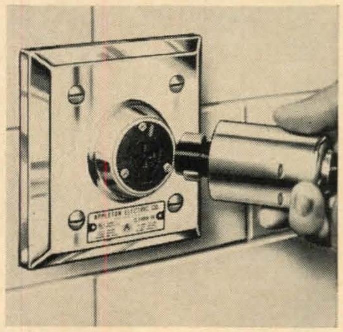


brochure describes the advantages of each of four basic types of door construction, shows cut-away drawings of doors, and lists suggested specifications. Similarly, the brochure deals with six types of special-purpose doors. Chart of comparative data on Underwriters' Laboratories approvals on all types of doors is included. 20 pages. U.S. Plywood, 777 Third Ave., New York, N.Y.
On Readers' Service Card, Circle 210

Seamless/Flush Doors

Folder presents hardware and glazing details of "Series 1100" seamless and full-flush 1¾"-thick doors made in a choice of 29 designs in 16-, 18-, or 20- gage cold-rolled steel. Amweld Building Products, 100 Plant St., Niles, Ohio. 44446.
On Readers' Service Card, Circle 211

Electrical Equipment



Fire-Safety in Hospitals

Booklet presents electrical hospital equipment designed to offer protection against fire and explosion hazards. Equipment includes sealed safety receptacles, feed-in plugs, vented clocks, pilot lights, and explosion-proof X-ray film illuminators. Each product is explained with photos and charts. 12 pages. Appleton Electric Co., 1701 Wellington Ave., Chicago, Ill. 60657.
On Readers' Service Card, Circle 212

ROOM SIZE	A. SURFACE and PENDENT FIXTURES*		B. RECESSED FIXTURES*	C. WALL LIGHTING**
	Minimum Size of Shield	Minimum Bulb (s) or Watts per sq. ft.	Minimum Wattage or Watts per sq. ft.	Length of light source in cornice, valance, bracket, or Wattage and spacing of fixtures
VERY SMALL (Up to 125 sq. ft.)	12" to 15"	One 100-watt or Three 40-watt	150-watt fixture for each 75 sq. ft. floor area or fraction thereof	6' or 75-watt fixt. on 3' cents.
AVERAGE (125 to 225 sq. ft.)	15" to 17"	One 150-watt or Four 40-watt	150-watt fixture for each 75 sq. ft. floor area or fraction thereof	8' to 12' or 75-watt fixtures on 3' centers
LARGE (Over 225 sq. ft.)	17" to 22"	100 watts for each 100 sq. ft. *footnote	150-watt fixture for each 75 sq. ft. floor area or fraction thereof	14' to 20' or 75-watt fixtures on 3' centers

*More than one fixture is usually needed on ceilings and/or walls for minimum general lighting. Dining area fixture should provide predominant downlight on table.
**Fixture recommendation applies to lighting one long wall.
For most effective design, consult electric utility, lighting fixture distributor, or manufacturers' booklets.

Residential Lighting Fixture Guide

Pamphlet recommends minimum and advanced lighting standards for houses and apartments. Recommendations are given, room by room, for in-

The "6300"

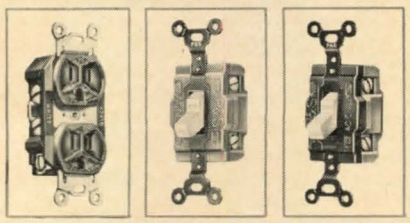
...newest of the P&S super devices

This is the new super "6300" by Pass & Seymour. Made without compromise . . . for the job where only the best will do.

The body and top are molded of high impact Melamine. All contacts are reinforced by plated spring steel clips . . . and each contact is individually recessed. May be side *or* back wired—with up to No. 10 wire. Assembly screws are threaded into the metal strap, not the plastic body.

The "6300" is for installations facing years of rough usage. It looks different because it is a truly different heavy duty outlet.

MORE SUPER DEVICES FOR HEAVY DUTY SERVICE



6200 3-Wire Grounding Outlet Companion to the "6300" with 15 amp. rated Capacity.

1001-I and 1021-I Switches Heavy duty, shallow body switches for installations requiring continuous, dependable service. 15 amp. switches are color coded blue; 20 amp., red.

FOR MORE INFORMATION WRITE DEPT. PA 1265

P&S PASS & SEYMOUR, INC.
SYRACUSE 9, NEW YORK

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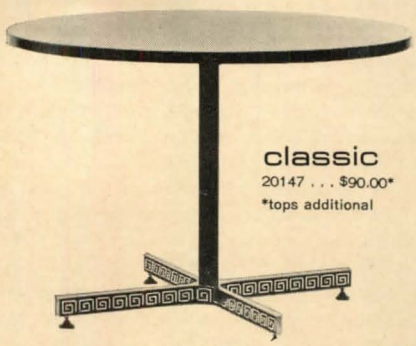
CHF introduces . . .

New CHF No. 80-013

New CHF No. 80-012



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North Chicago, Illinois

candescent bulb and fluorescent tube sizes. Also, pamphlet advises on portable lamps and decorative lighting. 4 pages. American Home Lighting Institute, 360 North Michigan Ave., Chicago, Ill. 60601.
On Readers' Service Card, Circle 213

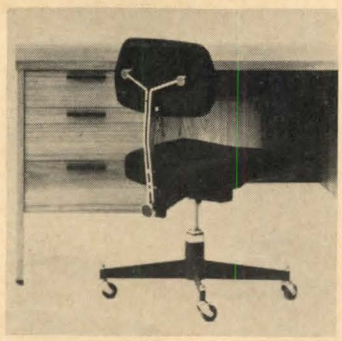
Cellular Ceilings

Brochure illustrates various types of "Electralume" illuminated ceilings. Charts indicate sizes and transmission characteristics of lightweight vinyl ceiling panels. 8 pages. Wilson Research Corp., 2001 Peninsula Drive, Erie, Pa.
On Readers' Service Card, Circle 214

Furnishings

College Collection

Brunswick's new "C/U Series" of durable furniture and equipment is illustrated in a 24-page catalog. Of interest are "Moduwall" chalkboard / display / storage systems that change blank classroom or faculty office walls into "working walls" with interchangeable, height-adjustable chalkboards, tackboards, pegboards, book shelves, etc. School Equipment Div., Brunswick Corp., 2605 E. Kilgore Rd., Kalamazoo, Mich.
On Readers' Service Card, Circle 215



Robert John Catalogue

Squared-off, wood-framed desks, cabinets, and chairs intended for office use are new additions to an extensive collection of executive furniture. Called "The Penwood Group," these moderately priced pieces are finished in walnut, teak, or laminates. They are illustrated in a three-page color brochure, which is "Part 4" of a comprehensive loose-leaf binder of the manufacturer's seven furniture groups. Fabric binder with 148 swatches of well-chosen tweeds, leathers, and naugahydes — not exclusively the manufacturer's — is included; any fabrics may be ordered exclusive of the furniture. Robert John Company, 821 N. Second St., Philadelphia, Pa.
On Readers' Service Card, Circle 216

Doorware

Drawings of a variety of showy door handles (twisted, round-flat, spherical, and rectangular), hand-finished in a variety of standard materials (wood, brass, bronze, and chrome), are presented in seven-page loose-leaf brochure. Diagrams giving specifications and installation techniques (through-bolted, semiconcealed set screws, and back-to-back, semiconcealed screws) are included for each. Russwin, Division of Emhart Corp., New Britain, Conn.
On Readers' Service Card, Circle 217

Controlling Solar Heat with Drapery

Booklet reports on the effects of solar heat on drapery fabrics. The test results enable designers to apply coefficients to fabrics in order to evaluate drapery performance, and estimate solar heat gains through drapery-shaded windows. Booklet also contains samples of the firm's fabrics (primarily glass or Rovana-Verel) with their shading coefficients, and hardware drawings and specifications for various drapery operations. Fabrics used in several well-known installations are also shown. For available copies, write on letterhead to Fenestra Fabrics, Inc., 9348 Santa Monica Blvd., Beverly Hills, Calif. 90210
On Readers' Service Card, Circle 218

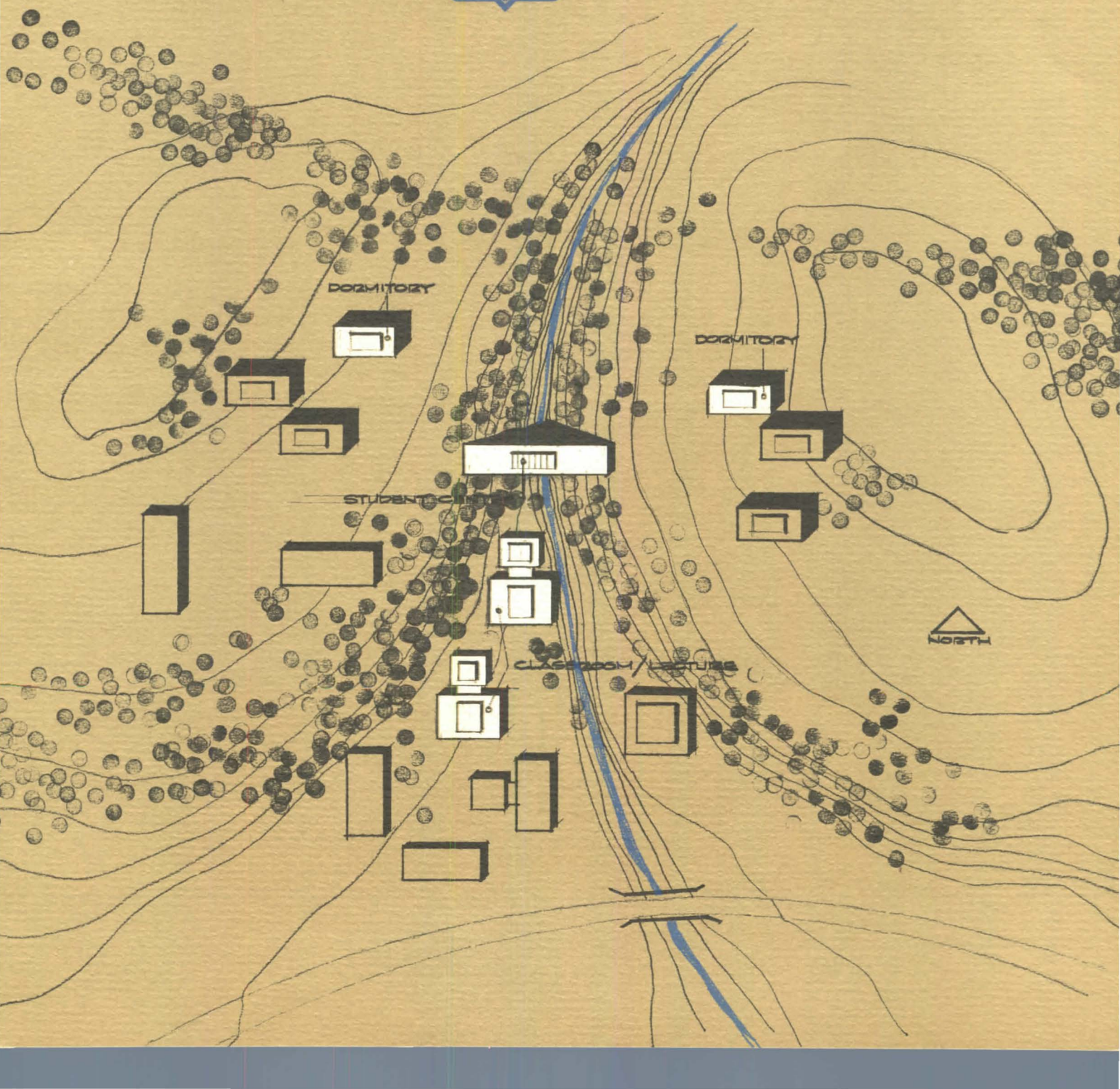
Lehigh Furniture

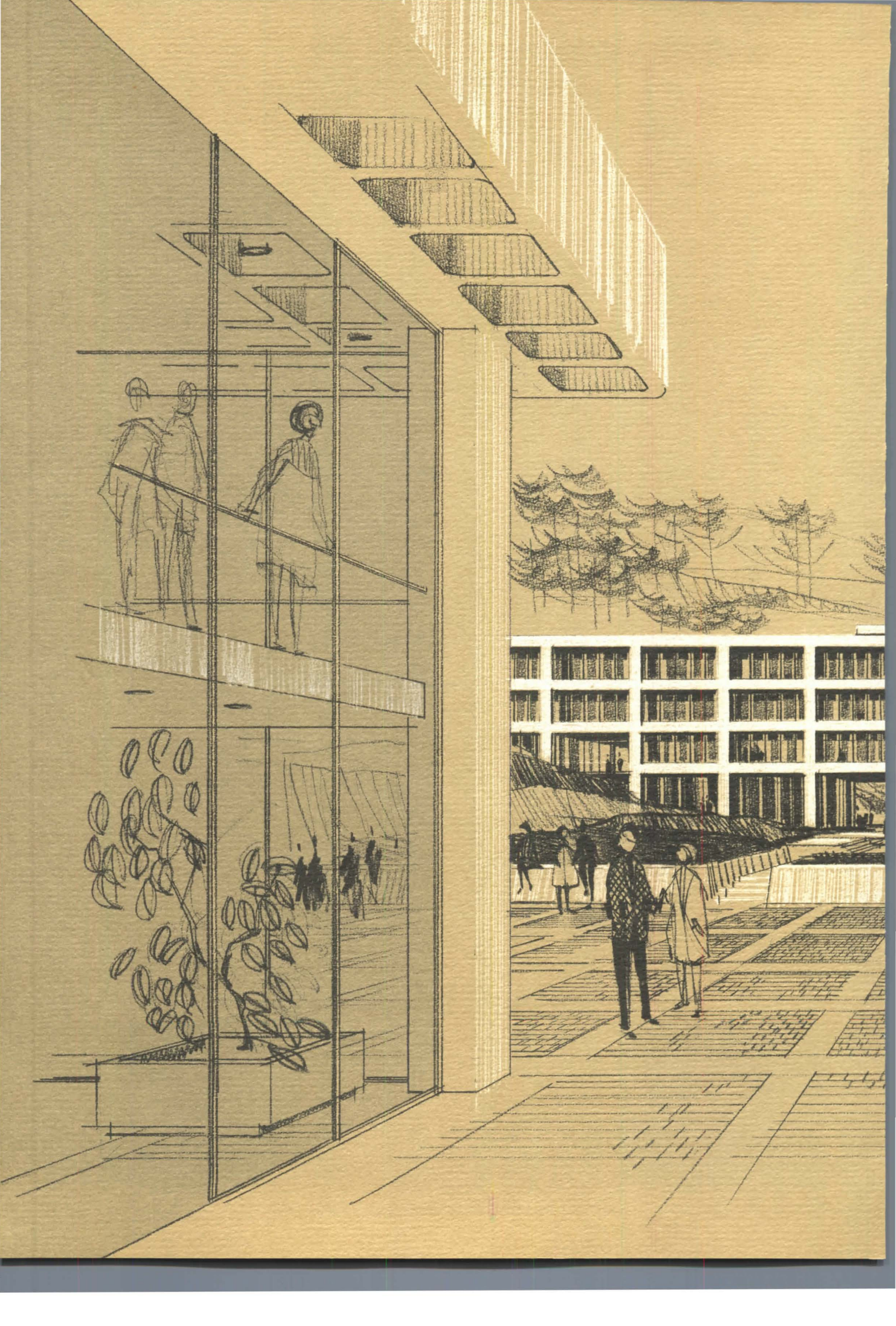
"Lehigh Product Illustrations 1965" catalogue presents the known line of furniture, which includes seating, tables, depositor's desks, executive and secretarial desks, cabinets, and accessories (including planters, wastebaskets, and revolving closets). Strangely, no designers are credited. Individual pages of this handsome catalog are available for paste-ups and presentations. 127 pages. Lehigh Furniture Corp., 16 E. 53 St., New York, N.Y.
On Readers' Service Card, Circle 219

Joseph Baker and Associates, Architects, design a unique Open World Community College

Community or "satellite" colleges are growing at a fast rate. All indications are that the trend will continue. A frequent problem is the utilization of low-cost land unsuitable for residential or commercial purposes. The site chosen for our theoretical campus is a rough valley carved out by glaciers aeons ago. Such land is common in southern Ohio, West Virginia and many other states.

Libbey·Owens·Ford asked Don Gunnerson of Joseph Baker and Associates, Newark, Ohio, how he would go about designing a 3,000-student college on such a site. Since two-thirds of the students of such colleges commute daily, a Student Center building is all important. Here students will have all the facilities they need: lockers to store clothing and books; a library with electronic and mechanical





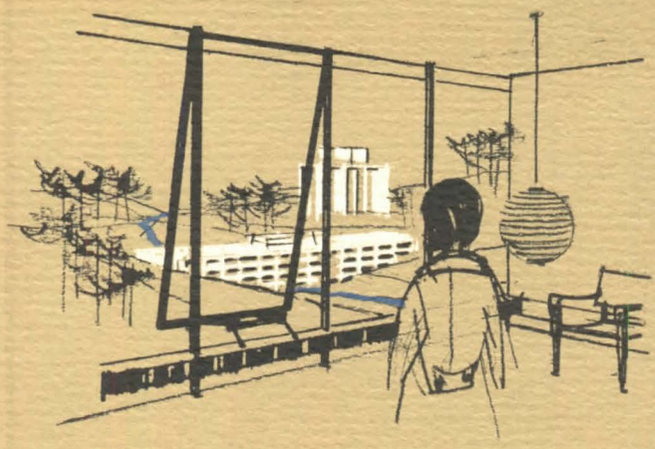
esources, as well as books; dining and recreational fa-
ilities; individual study carrels made with patterned
r rough plate glass for privacy.

Architect Gunnerson has designed this building to
pan the ravine and utilize the full site. Elevators
arry students to the top level which connects east
nd west hills. Large, recessed *Parallel-O-Bronze*® plate
lass walls open the building to views of a virgin
ardwood forest. The golden-tone glass enriches the
acade, helps make the interior more comfortable by
educing sun heat and glare. *Parallel-O-Bronze* would
lso be used in the other buildings as a unifying design
lement. The dining, lounge and recreational levels
re conceived on the top two floors with a light well
n the middle for visual relief. Balustrades around
he well would be made of *Tuf-flex*® tempered plate
lass. And over the well there would be a wired-glass
kylight. Here, then, is a college concept that is both
riginal and exciting. Glass makes it possible. L·O·F
nakes it practical.

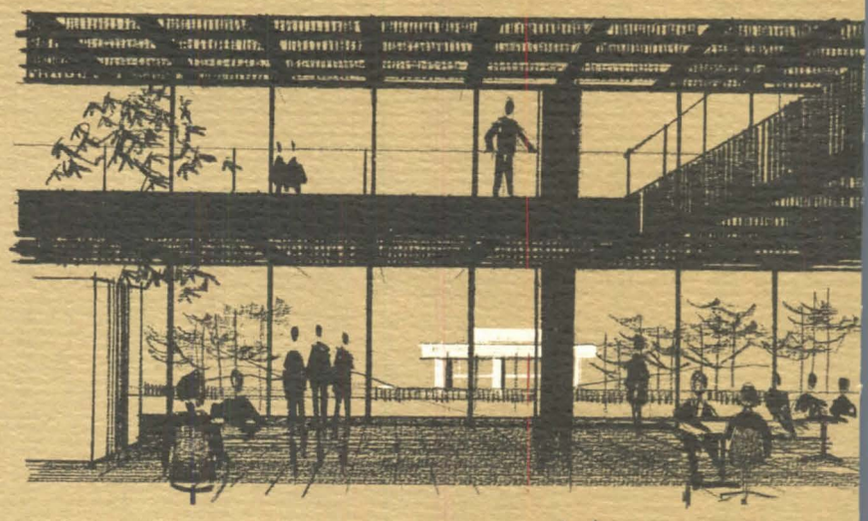
MADE IN U.S.A.

L·O·F GLASS

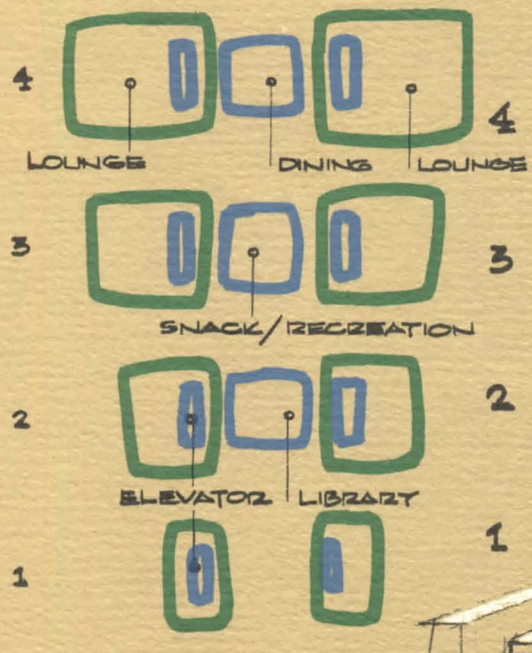
STUDENT CENTER / VIEW FROM LECTURE PLAZA



DORMITORY VIEW



DINING/RECREATIO



DIAGRAMMATIC PLAN

TRANSVERSE SECTON

STUDENT CENTER

If Lees does this to your specs, don't take it personally.

Sometimes we get specs we just can't follow as they are.

If we did, we'd have to cut corners. Make up a "bargain" carpet.

Sorry, but we won't do it.

We won't give up quality.

But. If we won't settle for second-rate, neither should you.

So when you give us specs we *can* afford to follow, even then we may not follow them exactly.

Instead, we'll try to do better.

If we can give you more luxury for the same price, we'll do it. In fact, we do it a lot. Lees has a huge contract program, with more carpets in stock than anyone else. With so many carpets already made up, we're often able to give you $12 luxury for the $10 you specify.

Or instead of that $10 carpet, we may try to sell you one for $8. (We're not trying to palm something off. We've got the carpet you want already in stock, so we can give it to you for less.)

Even colors you thought had to be custom, might be run-of-the-mill with us. Lees has over 100 colors in stock all the time. More than any other company. And more fabrics, too.

So if we do rip into your specs, it's to give you the best possible carpet we can.

But don't take it personally.

If you weren't satisfied with your Lees carpet, you'd go to someone else the next time.

And that's the sort of thing that really hurts.

Write us. And we'll tell you more. Commercial Carpet Department, James Lees & Sons, Bridgeport, Pennsylvania.

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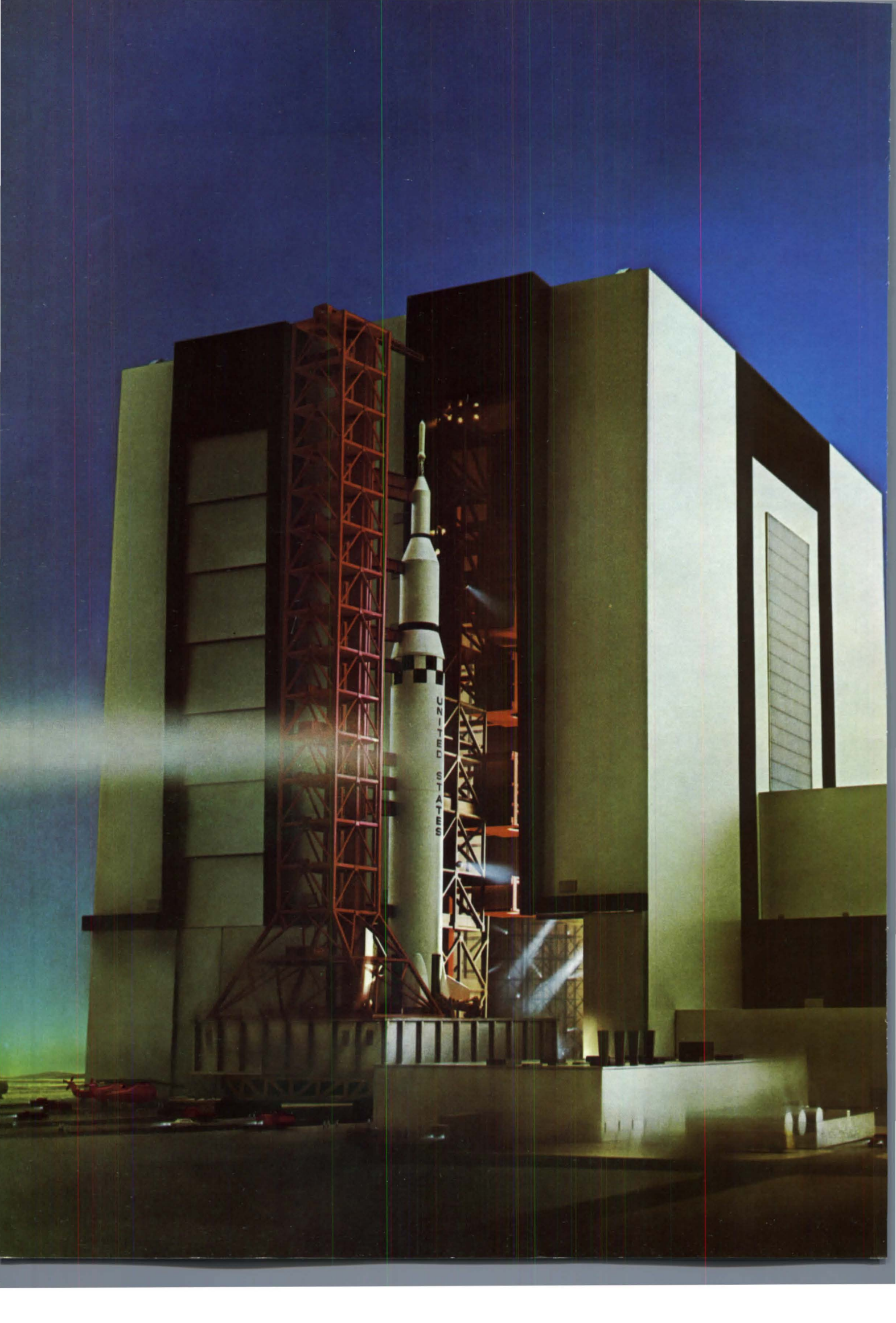
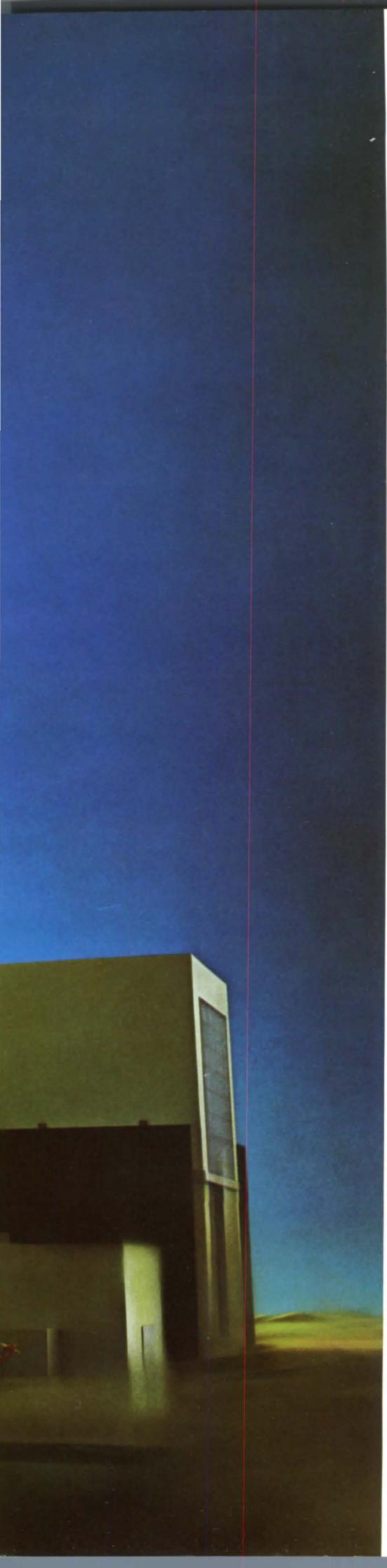
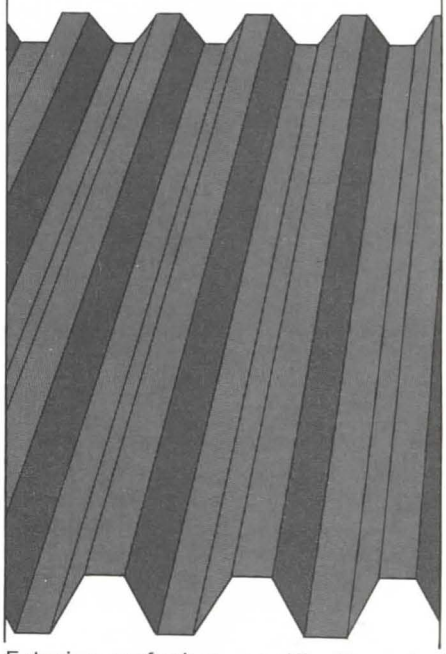

UNITED STATES



What metal was selected as a skin for the WORLD'S LARGEST BUILDING?

Name of Project: Launch Complex 39 Vehicle Assembly Building, NASA Launch Area, Merritt Island, Florida □ Architects/Engineers: Urbahn-Roberts-Seelye-Moran; New York City □ Construction and Design Supervision: Canaveral District, U. S. Army Corps of Engineers □ Contractor: Morrison-Knudsen, Perini, Hardeman; Joint Venture, South Gate, California □ Aluminum Panel Fabricator/Erector: Climate Conditioning Company, Stanton, California.
Panels consist of an exterior skin of prepainted aluminum V-beam sheets, backed with 1½ in. of insulating material.



Exterior surfacing specifications for this 524-ft-high structure at the National Aeronautics and Space Administration's John F. Kennedy Space Center were extremely strict: The coastal climate called for a metal skin with high corrosion resistance; strength was also needed to withstand severe wind load and deflection requirements; design-appearance was also a major consideration.

Solution? Of several options specified, the contractor chose specially-designed Alcoa® Aluminum V-beam sheets to "skin" giant wall panels (19 ft, 4 in. long, 42 in. wide and only 68 lb per square). Alcoa's design met the specifications and job requirements, including texture and color.

If you would like to know more about aluminum roofing and siding, call your nearest Alcoa sales office. Or write Aluminum Company of America, 1676-Z Alcoa Building, Pittsburgh, Pa. 15219.

Alcoa Brings You Action Drama At Its Best . . . "THE FBI," Sunday Evenings, ABC-TV

ALCOA

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Thermal Units in Los Angeles Federal Office Building

Another outstanding installation of Thermal air conditioning equipment.

The flexibility possible with the Thermal line of air handling apparatus has made it the choice for thousands of installations across the country—both for original and replacement applications. Thermal has the versatility to meet unusual conditions without sacrificing performance. The little things—never overlooked—make the big difference in Thermal products.

Owners, architects, engineers, and contractors are increasingly aware of the benefits of Thermal equipment, in all types of structures.

The diverse Thermal line includes:

• multizone conditioners (remote and self-contained) • central plant conditioners • spray coil units • heating and cooling coils • air-cooled condensers • air-cooled condensing units • heating and ventilating units • plus many other items.

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Thermal Multizone Air Conditioner

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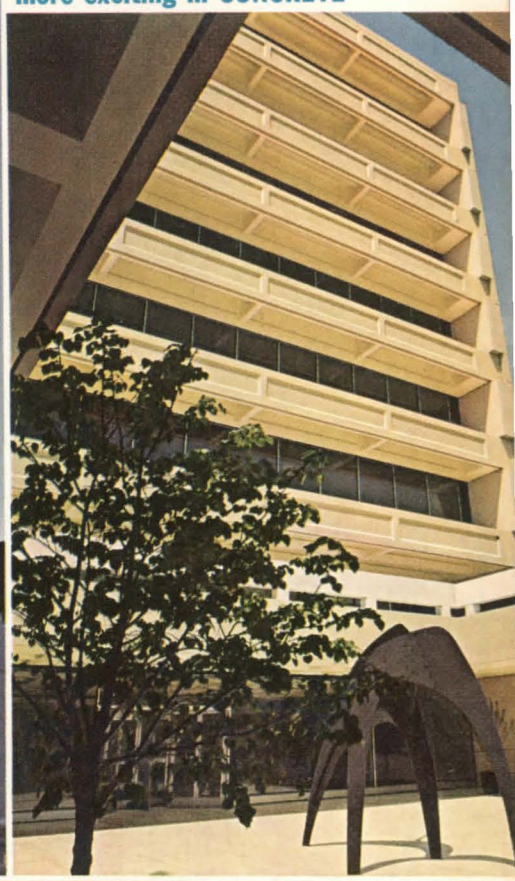
REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

The best ideas are more exciting in CONCRETE

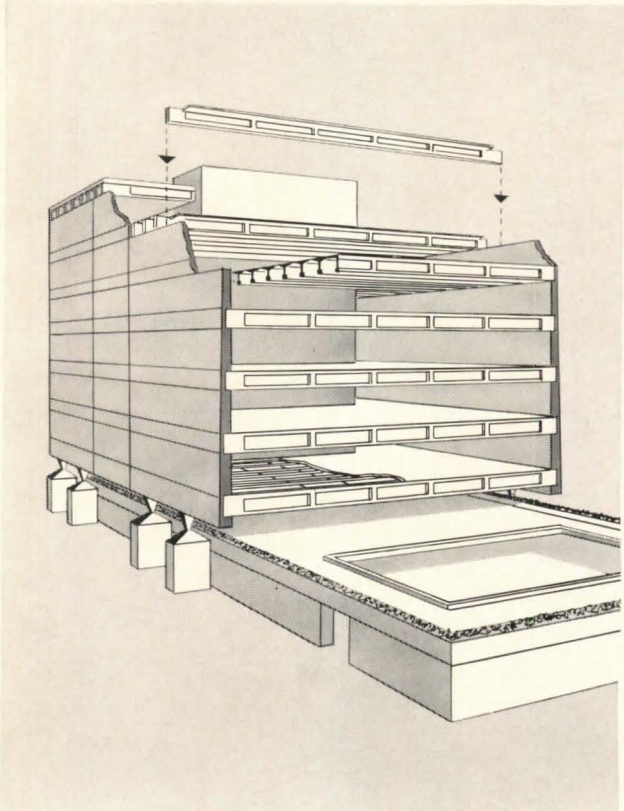


American Republic Insurance Co., National Headquarters Building, Des Moines, Iowa. Architect: Skidmore, Owings & Merrill, New York. Structural Engineer: Paul Weidlinger, New York. General Contractor: Arthur H. Neumann & Brothers, Inc., Des Moines, Iowa.

Dramatic simplicity in concrete... with cast walls and prestressed spans. Poised on four paired pedestals astride an independent ground floor, the American Republic Insurance Company's new headquarters attests the versatility of concrete. ■ Long span girders of precast, prestressed concrete are fitted into cast-in-place walls with the pleasing precision of rabbet-joint cabinetry. 90-foot clear floor spans, interrupted only by a service core, produce office space of maximum efficiency. ■ For added interior spaciousness, girders were left exposed to form impressive coffered ceilings that accommodate lighting and air-conditioning functions, as well as acoustic and structural elements. Walls, inside and out, present heightened visual interest, achieved by use of crushed granite aggregate exposed by sand-blasting for a rough-hewn texture. ■ Exciting designs in buildings of all types demonstrate concrete's dual talents as a structural and esthetic material.

Portland Cement Association
33 West Grand Ave., Chicago, Illinois 60610

Basic design of new American Republic headquarters is unique "package" of two concrete components

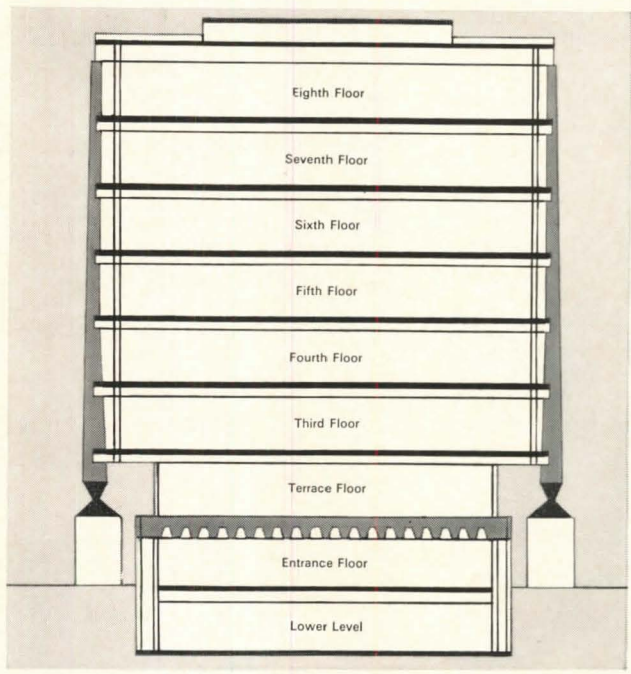


The arresting simplicity of the American Republic Insurance Company building is readily evident in the exploded view. This building is essentially a "two-part" structure, an architectural innovation which "packages" two components: girders and walls. The walls (1 ft. 6 in. thick at top, 4 ft. at bottom) act as a huge bearing envelope for seven levels of precast, prestressed concrete floor girders. There are no interior columns. The elimination resulted in an exceptionally efficient layout: each floor contains about 13,000 sq. ft. of clear area (54 sq. ft. per worker). Total interior area is 100,000 sq. ft. (650 employee capacity).

The entire weight of the building above the terrace level is supported on a central concrete core and eight steel hinges on concrete piers. Each hinge and pier supports 2,500 tons. This ingenious engineering solution provides elegance and a look of lightness for the structure.

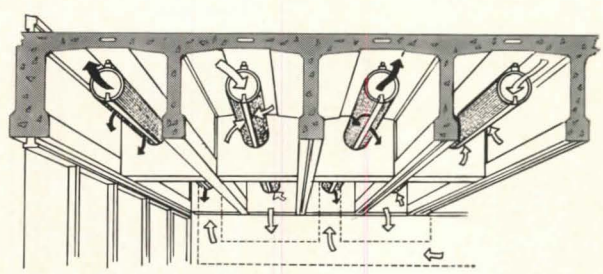
Precast, prestressed concrete girders provide long spans, support cavity walls

The precast, prestressed girders shown in the cross section are 99 ft. 4 in. long. Each "T" shaped girder weighs approximately 36 tons and rests in pockets cast into the bearing walls. The bearing is on neoprene pads centered on the wall. At a varying distance from the interior face of the bearing walls, the girders support a concrete block cavity wall which runs in a single vertical plane from the second to the eighth floor. Slots in the floor behind the cavity wall allow for mechanical and electrical utilities to flow uninterrupted between floors.



The clear interior room space on either side of the core is 66 ft. by 90 ft. Lateral forces, wind loads for example, are transferred to the building's central core through diaphragms cast in place between girders. A concrete slab cast atop the girders and diaphragms provides a composite floor system which ties walls, girders and floor to the core or "vertical backbone."

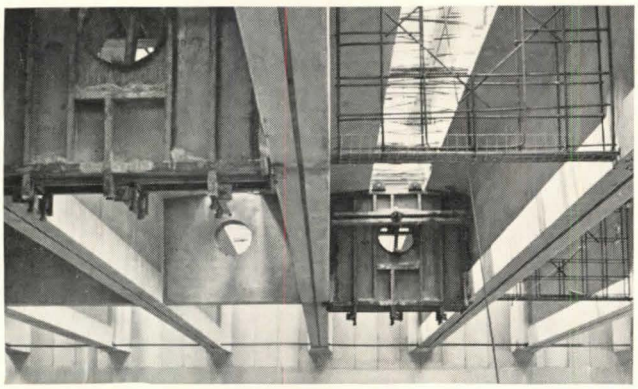
Mechanical/electrical systems designed as integral part of structure



To develop an integrated design that would provide the finest possible working environment, mechanical engineers Syska & Hennessy built a full-scale mock-up of the ceiling system. Ducts are fed vertically from the cavity wall which acts as a plenum; ducts then branch out into 6-ft. bays transversely across the building. A continuous perforated diffuser runs along the bottom of each 16-in. diameter duct. Each bay alternately contains supply and return ducts. Glass fiber duct liners act also as acoustical units because the aluminum duct is continuously perforated. The fluorescent lighting "rides" on top of the ducts.

Cast-in-place concrete diaphragms are key to integrated design

This construction scene shows a typical floor installation with girder diaphragms in various stages of completion. When cast in place, the diaphragms form continuous cross-members which transfer floor loads from girder to girder. Diaphragms also support the integrated system for heating, lighting and air conditioning, which is supplied to each floor from inside the walls. Notice that the diaphragm reinforcing steel extends up into the floor slab, which will be cast over and between the flanges of the girders.



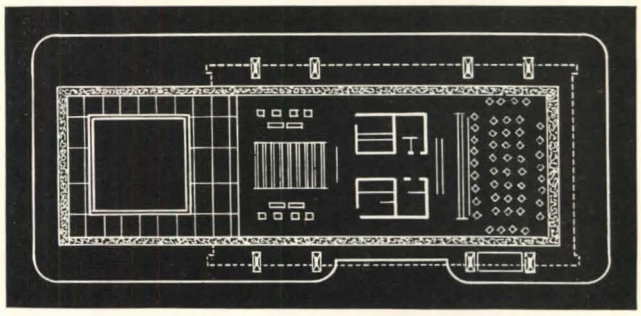
Clean, sweeping look of service system indicates new trend in esthetic design

The completed view of integrated structural, heating, air conditioning and lighting system shows a striking departure from the usual practice of moving air through ceiling registers or wall outlets. The graceful, modern look of the continuous diffuser coffered by the clean lines of the concrete girders is not only an innovation in meshing mechanical and electrical equipment with architectural and structural requirements, but a dramatic step forward in esthetics.

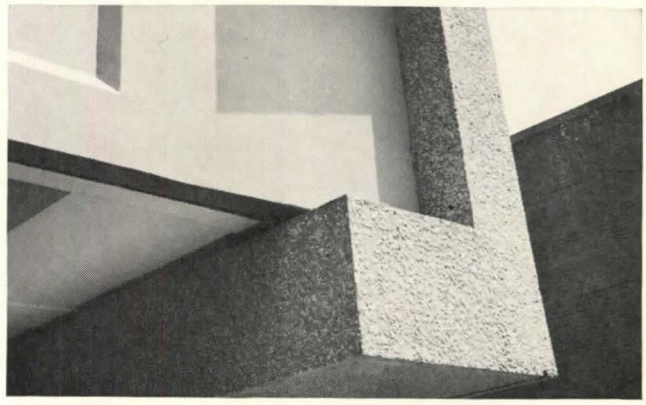
At the far end of the photo can be seen one of the eight steel support hinges.

8-story structure supported on eight perimeter piers

As seen in the plan, the eight piers which support the structure anatomy of the 8-story giant are located outside the ground floor perimeter. By so doing, the architect dramatized the connection between superstructure and foundation. Thus the structure in effect straddles a "free standing terrace floor," which accounts for its open-air effect. The ground floor height is 14 ft. 8 in.; succeeding floor story heights vary from 13 ft. 6 in. to 16 ft. (approx.). The service core shown is a continuous, reinforced concrete shaft, carrying stairways and part of the mechanical equipment, and serving as a "shear wall" to resist lateral loads. The core also houses four elevators.



Rough-hewn texture achieved by sandblasting gap-graded concrete



The clear, sharply defined texture of exterior and interior surfaces of the cast-in-place walls is the result of a special technique using a "gap-graded" concrete mix with aggregate exposed by sandblasting. The concrete mix contains a large percentage of coarse aggregates and a small percentage of fines (sufficient for workability) with no aggregates in the intermediate size ranges—thus "gap-graded."

Striking results are achieved when surfaces contain a maximum amount of exposed aggregate of predominately large size. The exposed aggregate surfaces for this structure were obtained with the following concrete mix:

Portland cement, Type I	564 lb per cu yd
Masonry sand, minus #8 screen	975 lb per cu yd
Crushed granite, ¾ to 1½ in.	1777 lb per cu yd
Crushed granite, ⅜ to ¾ in.	444 lb per cu yd
Water	225 lb per cu yd
Water/cement ratio	4.50 gal. per bag
Sand, percent of total aggregate by volume	30
AEA	as required to obtain approximately 5 percent air content
Slump	approximately ½ in.
Matrix percentage	50

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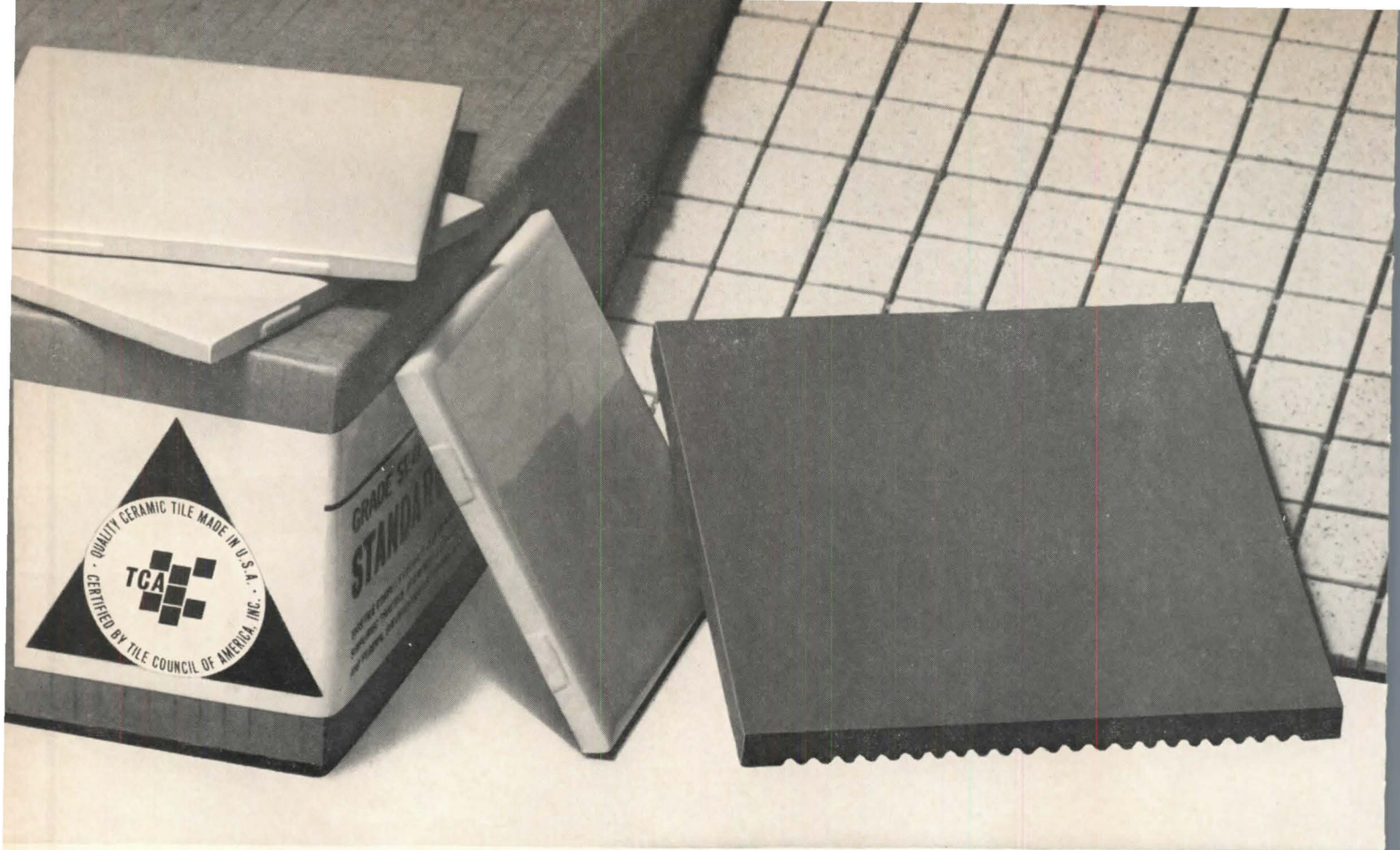

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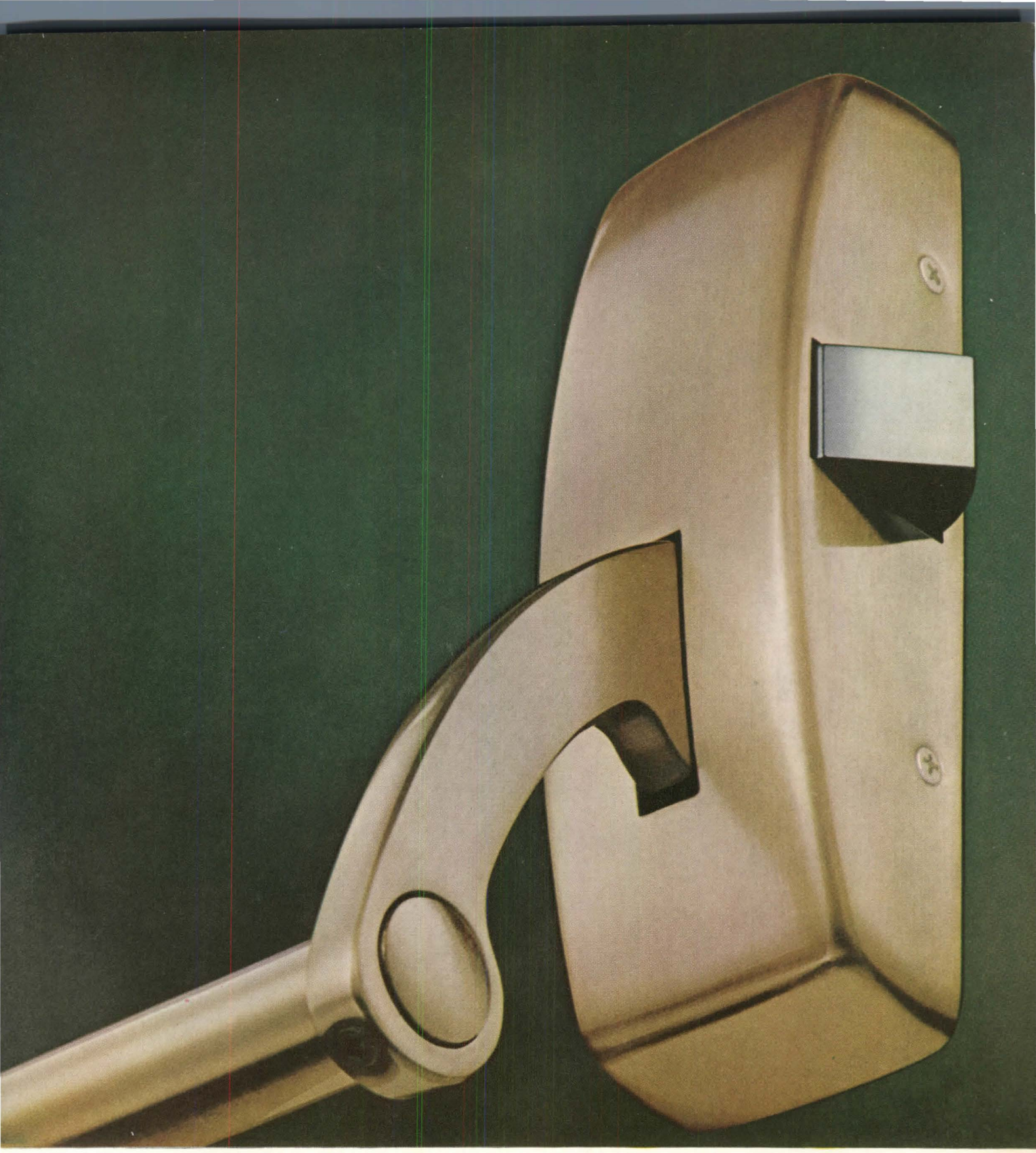

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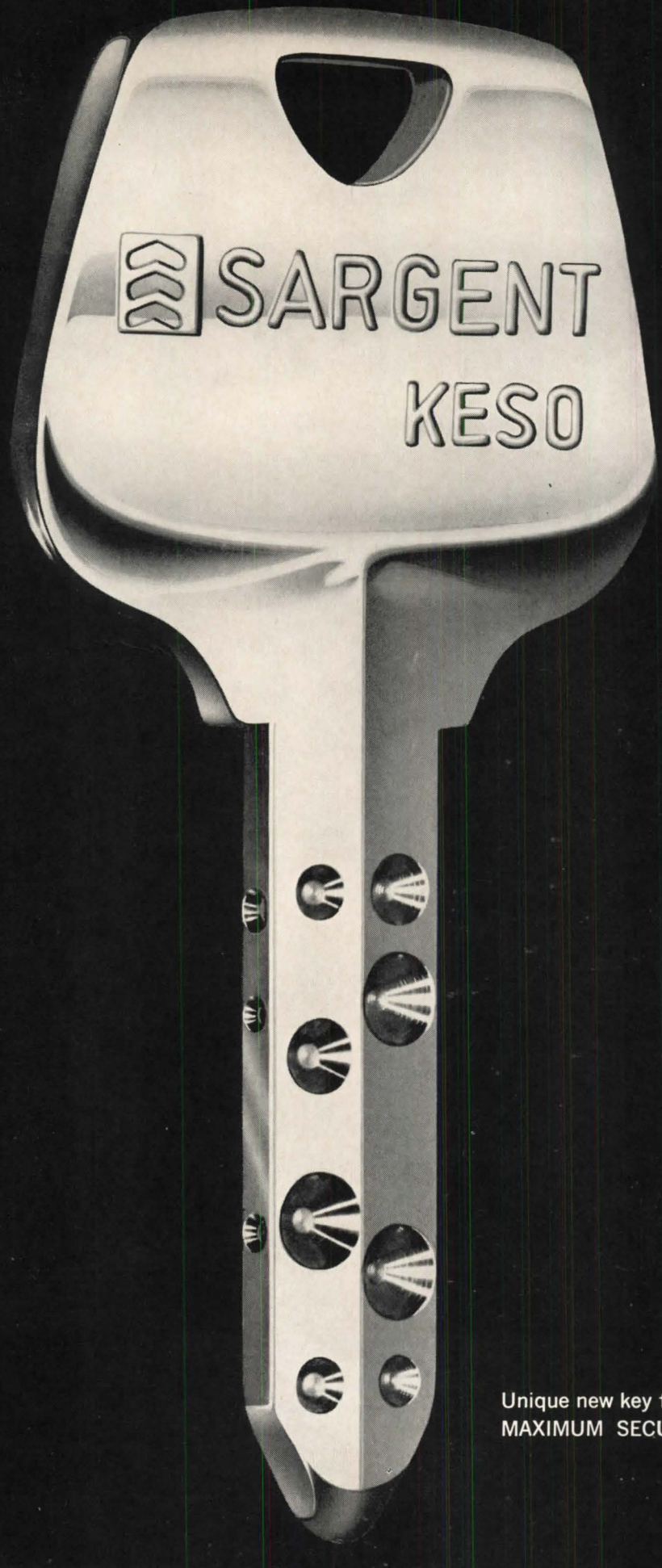

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Photo taken through a sample of SOLARBAN TWINDOW simulating typical building location. Camera: 4x5 Calumet, 1/50 sec at f/11 with Ektachrome daylight.

COMPARATIVE PERFORMANCE DATA		U Value	Maximum Heat Gain (BTU/hr./sq. ft.)	Visible Light Transmittance %
PLATE GLASS				
Regular Plate Glass	¼"	1.1	200	88
Solargray®	¼"	1.1	150	42
Solarbronze®	¼"	1.1	150	51
Solex®	¼"	1.1	150	73
LHR Clear	¼"	1.1	140	47
LHR Solargray	¼"	1.1	110	24
LHR Solarbronze	¼"	1.1	110	27
LHR Solex	¼"	1.1	110	35
SHEET GLASS				
Clear Sheet Glass	3/32"	1.1	205	90
Graylite™ 31	⅛"	1.1	170	31
Graylite 61	3/16"	1.1	195	61
Graylite 56	7/32"	1.1	190	56
Graylite 14	7/32"	1.1	150	14
Graylite 52	¼"	1.1	185	52
HIGH PERFORMANCE (Insulating, Heat and Glare Reducing)				
Clear Twindow®		.60	170	78
Solarban Twindow		.35	65	20
LHR Solargray Twindow		.60	90	22
LHR Solarbronze Twindow		.60	90	25
LHR Solex Twindow		.60	90	32
Solargray Twindow		.60	115	36
Solarbronze Twindow		.60	115	45
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EDITORIAL

Rugged individualism is one American dream no longer possible. The closer we live to each other, the denser our urban concentrations become, the more interdependent we become. A man isolated on a farm can spit to his heart's content; all that he will dirty is his own backyard. But a man who spits on a city street is likely to hit somebody else in the face. The freedom to spit must now be counterbalanced by the freedom not to be spat upon. Which means, of course, that the spitter has to be restrained. Much of our present political turmoil is due to the confusion in the interpretation of the meaning of the term "freedom," because one man's freedom often becomes another man's slavery—the slavery of listening to piped-in music, bathing in polluted waters, inhaling noxious gases, looking at ugly buildings; paradoxically, the freedom to do as one pleases can be a mighty enslaver that destroys the body, the mind, and the spirit. What the implications of this paradox are where architecture and urban design are concerned should be obvious.

Another cause of our growing interdependence is the constant increase in reliance on technological means. The disaster of the night of November 9, when a power failure immobilized most of the Eastern seaboard, is a good example of how dependent we have all become on the actions of others. One man pushing the wrong button can now paralyze the lives of millions of people, even blow us all into oblivion.

One of the speculations of science fiction (and it is only fiction because it is not yet reality) is the eventual control of gravity. Some scientists believe that we might find in outer space materials that have negative gravity—they would fall upward if brought down to earth. By constructing buildings that contain a mixture of normal-gravity and negative-gravity components, we could make them weightless; the only engineering needed would be to provide sufficient anchorage to resist wind forces. Then there is a possibility of a gadget that would neutralize gravity; buildings could then float in the air and move from place to place. Chances are that to operate such "gravity neutralizers," a central power source would be needed. This means that gravity would be canceled only when the device was switched on. The thought that immediately occurs is how unpleasant it would be for the occupants of an airborne building if some nut were to throw the switch to the "off" position. Even more interesting is the vision of a regional power failure in those future days.

Still, things won't be that bad for sometime yet. It will take awhile before technological advances overtake us all. Although we are close to landing on the moon, we also have on this earth head-hunting aborigines and other remnants of Stone Age civilization. And in Washington we have Representative Howard W. Smith.

Representative Smith, an 82-year-old Virginian, heads the important House Rules Committee. In September of this year, he was instrumental in burying a bill that would have allowed a study of the merits of converting the U.S. to the metric system. According to an Associated Press report, Mr. Smith, "peering from under his shaggy eyebrows," declared at the committee meeting: "I got my education in a one-room red schoolhouse. We took our degrees in the three R's. Just to make an honest confession, I don't know what the metric system is."

So there is no point in worrying yet about the dangers of neutralized gravity. All is well as long as we believe in little red schoolhouses, Little Red Riding Hoods, and little red Santa Clauses. Merry Christmas to you all! ■


ACME

M.S.B.: A DIAMOND IN PHILADELPHIA'S CENTER CITY?

The forceful architectural statement created by Philadelphia's new Municipal Services Building as the integral and focal element of the Center City complex, could be compromised by possible future additions to the site.

MUNICIPAL SERVICES BUILDING, CITY OF PHILADELPHIA, *Philadelphia, Pa.* ***Architect:*** *Vincent G. Kling and Associates.* ***Site:*** *89,000 sq ft city block, 10-ft drop in grade south to north. Adjoining Reyburn Plaza West and City Hall West Plaza, designed by Kling to be in harmony with the site. Below-street-level concourse connections to parking under Rayburn Plaza West. Planned main concourse entrance from City Hall West Plaza with concourse connections to Penn Center, and mass transportation.* ***Program:*** *Provide a minimum of 500,000 gross sq ft to house 2800 employees of approximately 24 separate city departments and agencies.* ***Cost:*** *$17,300,000, completed March 1965.* ***Structural Engineer:*** *McCormick-Taylor Associates.* ***Mechanical Plumbing and Electrical Engineer:*** *Charles S. Leopold, Inc.* ***Structural System:*** *Reinforced concrete. Columns supported on belled caissons resting on mica shist, 35 ft below service basement and 70 ft from grade level. Concrete 5000 psi, stone aggregate, 5-in. slab, 20-in. beams, 36-in. girders. Modular ducts in slabs, piping, and ductwork run through girder webs. Granite-paved plaza supported by column 34 ft, 4 in. o.c. Broad Street subway tunnel and concourse passes diagonally beneath plaza and public-access spaces.* ***Mechanical System:*** *Mechanical equipment located in penthouse and basement. Steam supplied to building for hot water duct boosters, radiators, and perimeter units. Basement equipment supplies public access, lobby and computer spaces, with a separate computer room system. Central refrigeration by three 630-ton machines. Eight fans and cooling tower in penthouse service first through sixteenth floors. Four low-pressure fans supply interior system through 3'x3' light fixtures in modular grids. Four high-pressure fans for alternate exterior mullion ducts to induction window units. Building is four-zoned.* ***Photography,*** *except as noted: Balthazar.*

"The best thing about this top award is the fact that the community would give them that much space on which to create a building."

JURY COMMENT, NINTH ANNUAL P/A DESIGN AWARDS

An evaluation of Kling's Municipal Services Building will have to be a temporary appraisal, involved as it is in the Planning Commission's continuing development of Center City Philadelphia. Its fate is in limbo—it irrevocably shares the destiny of the plot bounded by the four parks that precisely define the Center City Area that William Penn laid out as his "Greene Country Towne."

Since 1682, when Penn's Surveyor-General laid out the streets at the narrowest interval of the Delaware and the Schuylkill Rivers, the town's development has been planned but unpredictable. During the latter part of the 18th Century, the city almost allowed itself to be denuded of its trees as fire hazards on the not wholly unbiased advice of an insurance monopoly. The railroads at the latter part of the 19th Century brought the doubtful blessing of their elevated steamline tracks to the city, graciously building the terminal exactly at the city's center.

The impetus of the Second World War forced a recognition of the historic nature of Philadelphia with the reclamation of Independence Hall. The latter is now part of Independence Mall, which will extend from north to south between the two eastern parks of Penn's rectangle. The mall will be linked to City Hall and the M.S.B. by a lower pedestrian concourse. These extensive planned changes are part of the Comprehensive Plan adopted in 1960 to assure the continued dominance of Center City. Kling's building is part of this incomplete plan, and, as such, will ultimately have to be judged in terms of the surrounding changes, one of which promises to be a startling, 57-story-high surprise.

The architects were allowed to do the usually impossible in a contemporary American city: that of turning back and claiming space from the omnipotent automobile. The converting of the space adjacent to City Hall into City Hall West Plaza and the space adjacent to the M.S.B. into Reyburn Plaza West (both designed by Kling), so that they now are above- and below-ground pedestrian spaces that include non-tax-paying fountains, is no minor accomplishment. But as soon as these spaces are completed, they will come "up for grabs" in a space-hungry city, and will depend on the Planning Commission for their survival.

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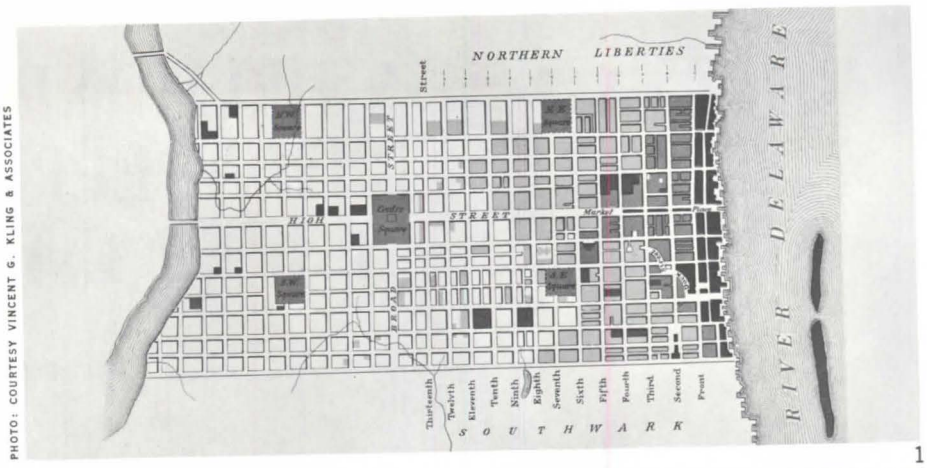

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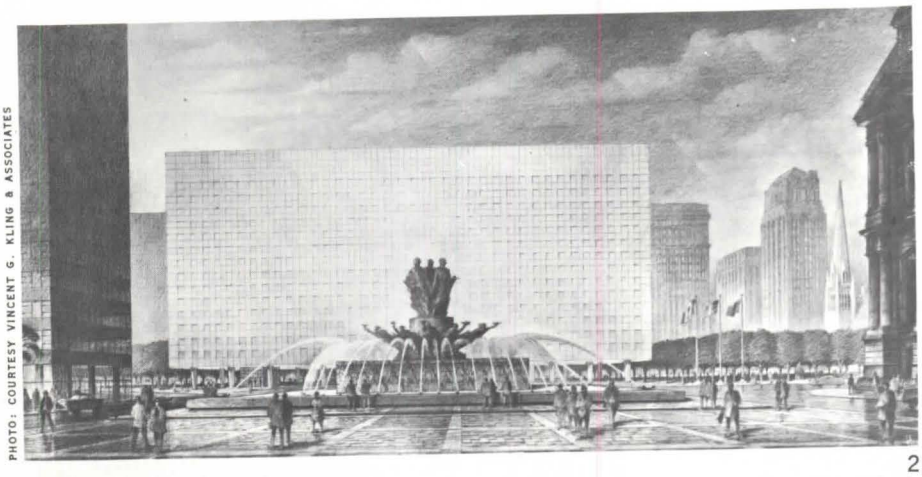

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PHOTO: LOUIS REENS

3

PHOTO: FAIRCHILD AERIAL SURVEYS

4

KLING'S ASSOCIATES DISCUSS EVOLUTION OF THE DESIGN CONCEPT.

"Willie Penn designed Philadelphia pretty well (1); Penn's skeleton has endured longer than a grand design had it been built. . . . We were given the site, Reyburn Plaza. As is our nature, and that of most architects when confronted with a preconception (2), we wanted to see if that was the only answer . . . that kind of a barrier was just a granite barrier like the Penn Center buildings (3). . . . We tried everything: square buildings, long buildings, high buildings, slab buildings. . . . We examined the feeling of continuity of the city (4). . . . The building in this location had to be omnidirectional . . . like a diamond on a ring, a feature, not just another building. . . . We raised it sufficiently to give it identity. . . . The more we studied, the more we found that Reyburn Plaza was not adequate to do the job, it wasn't big enough (5). . . . We saw that the space that was now a parking lot really belonged to Reyburn Plaza and the city as a park land (6). . . . It was no small accomplishment to convince the city traffic engineers to change the traffic pattern (7, 8). . . . This is what today they call urban design and think is a profession in itself (9). Certainly it's urban design, but what the hell makes it other than architecture, I want to know?"

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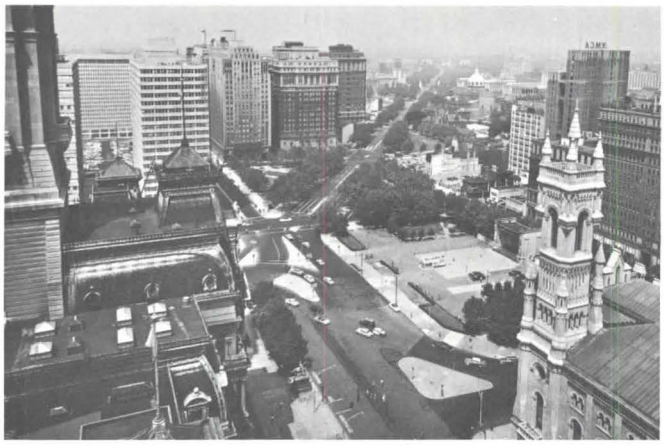

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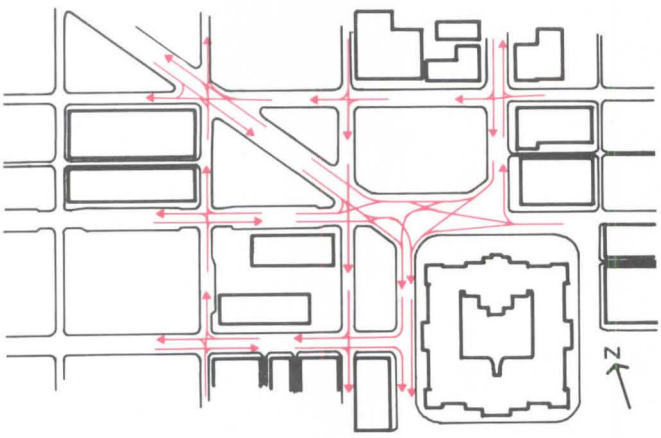

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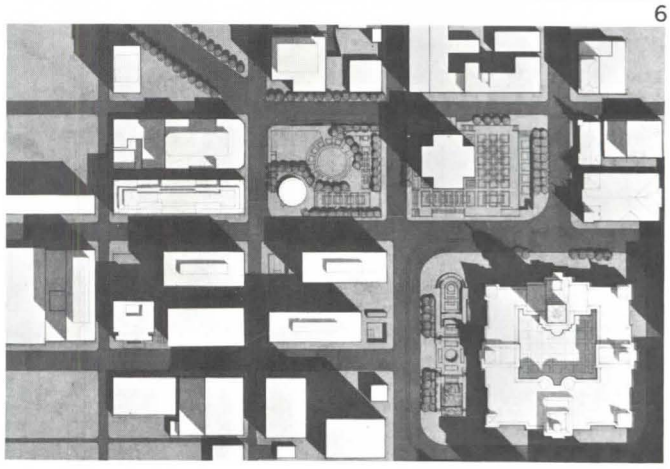

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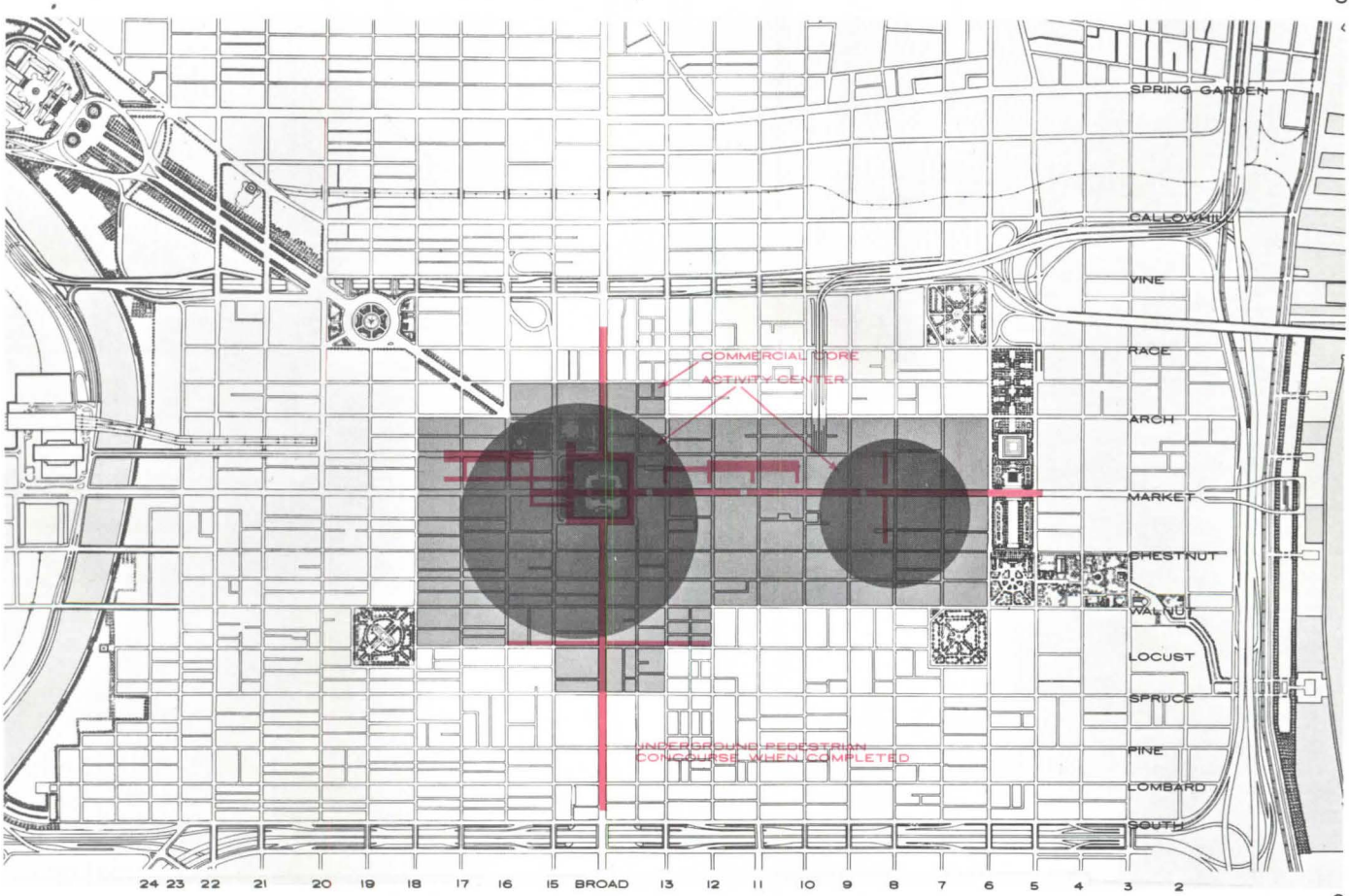

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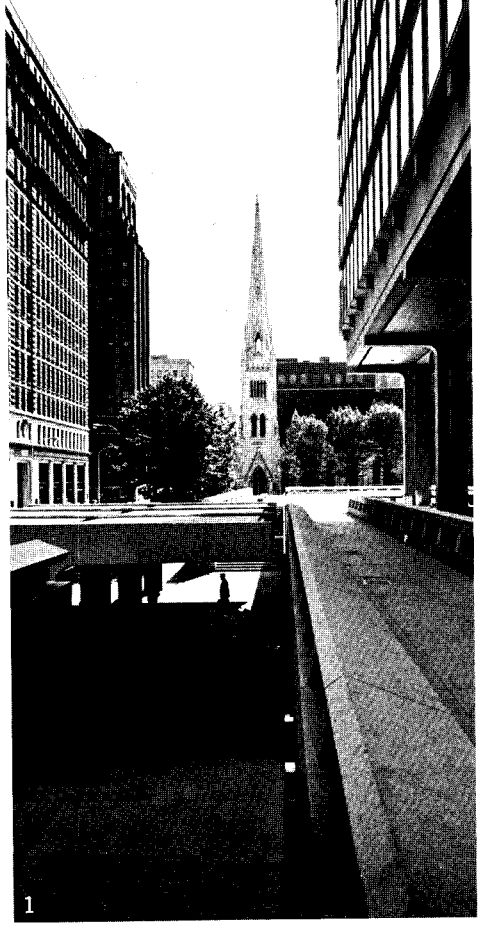
The M.S.B. occupies 25 per cent of the second most important square in the city. It helps to frame City Hall, but, by becoming the most important element in the most important space in Center City, it becomes the most important building. And it will remain so if the spaces and the frame remain, whether the mayor takes a permanent office there or not.

The pomposity of the façade of City Hall, so abhorrent to the moderns of the 30's, metamorphosizes itself into a charming pattern as part of the Kling frame. The City Hall still dominates by sheer bulk, and its importance will be increased by the addition of City Hall West Plaza. But whatever significance rubs off on City Hall, the M.S.B. will benefit the most, for it creates a luxurious vista of the M.S.B. in unrivaled isolation in an urban setting.

Secondary patterns of the U.G.I. building and the YMCA to the north and the church to the east, build textures complementary to the strong emphasis of Kling's deeply revealed granite frames. The slab-and-glass frame of the commercial buildings of Penn Center to the east can be tolerated and discounted. It is unfortunate that the pattern of Kling's I.B.M. building in Penn Center is not part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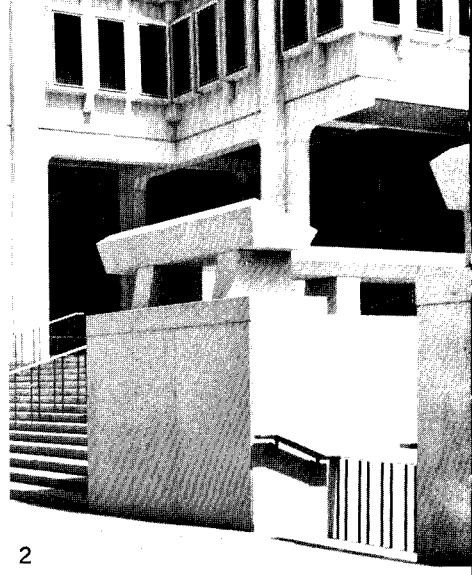
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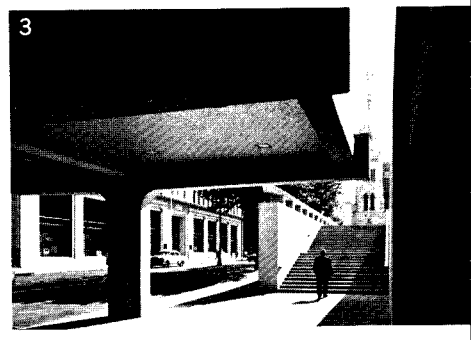
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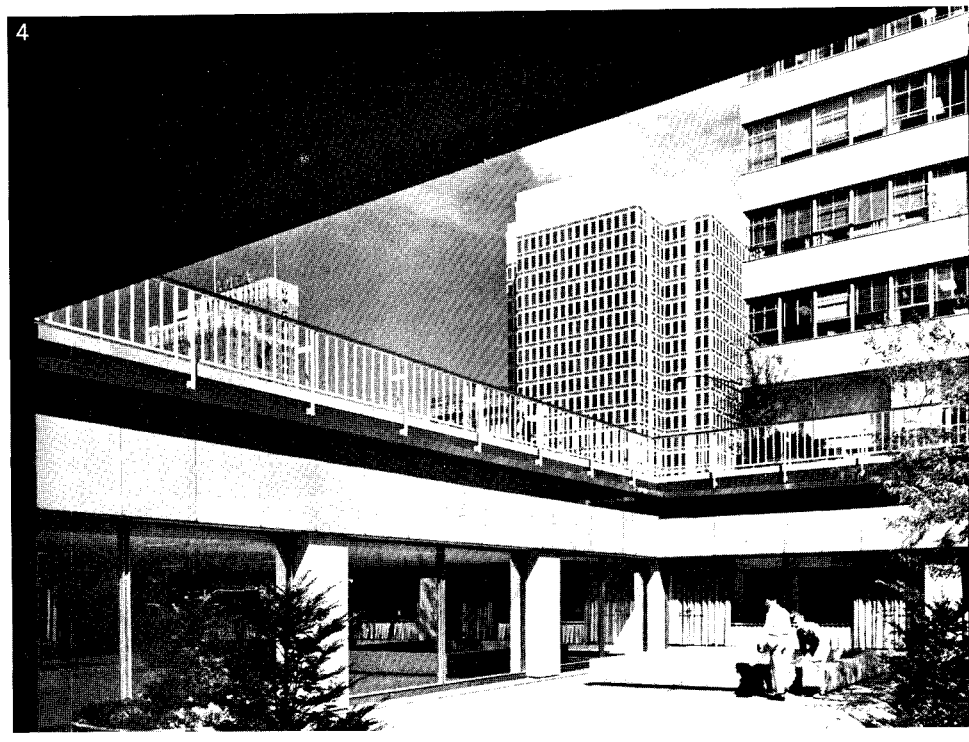
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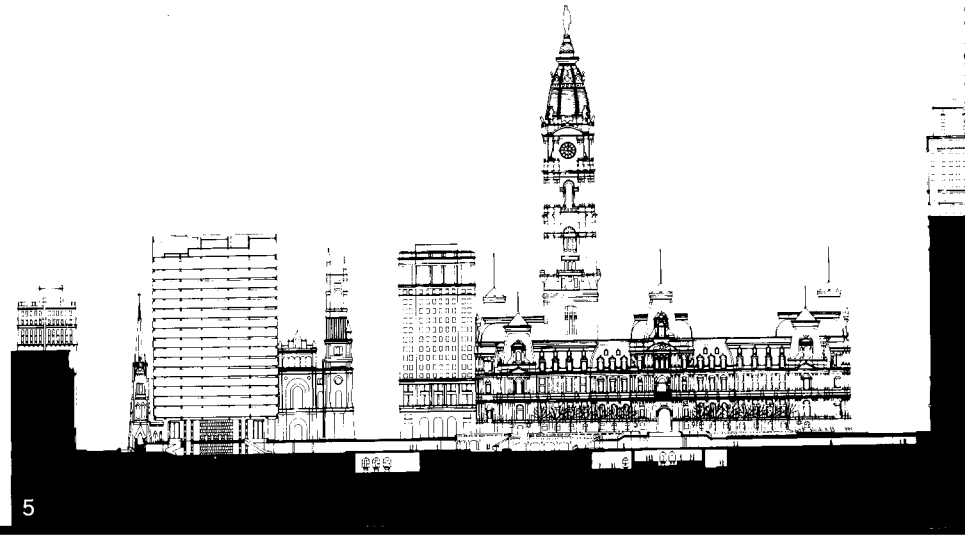
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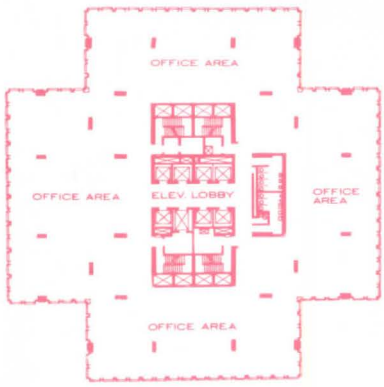
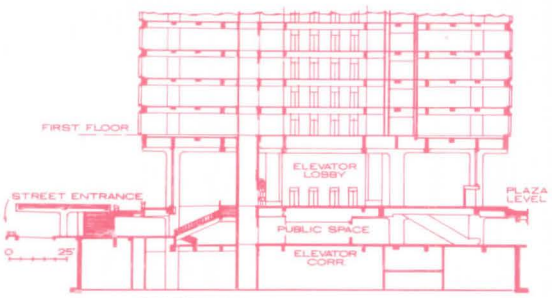
Off-street entrance to public space at concourse level ***(1)****. Granite plaza railing and stairway from plaza to street* ***(2)****. Canopy soffitt of off-street entrance* ***(3)****. M.S.B. as seen from a court in the underground shopping concourse of Penn Center* ***(4)****. Section through proposed below street level entrance to the M.S.B. from City Hall West Plaza* ***(5)****. Aerial view of M.S.B. and surrounding buildings (facing page).*

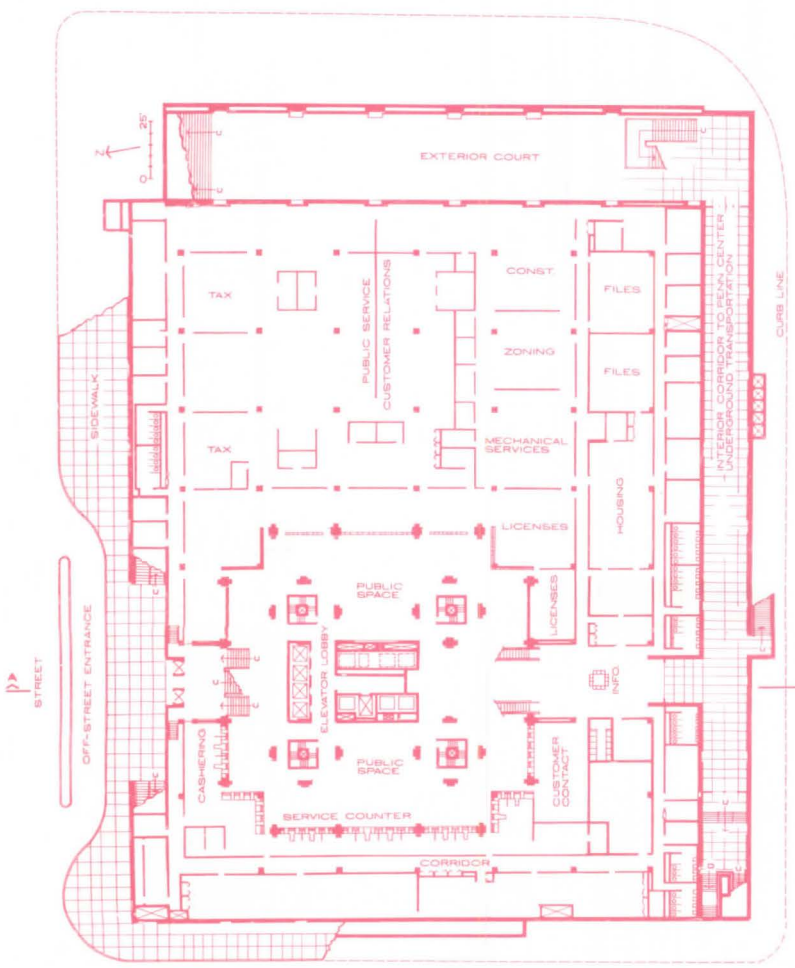

ACME MARKETS
YMCA



TYP. FLOOR PLAN



SECTION A-A



PLAZA PLAN

of this texture where it is needed at the weakest corner of the frame.

The metal chameleon to the northwest, which changes color with the clouds during the day and the neon signs at night and which has entrance pools of yellow chemical water supporting the lives of penny fish, was undoubtedly a welcome addition to the tax roles of the city if not the architectural frame around M.S.B. and Reyburn Plaza West. Kling also designed Reyburn Plaza West, on which the building fronts, as an extension of Reyburn Plaza, repeating the interlocking rectangular gray granite patterns in white granite.

The architects wanted the building to stand out like a "diamond on a ring," and they were successful. Its faceted granite window frames sparkle and move with the sun and shadows. But it is a diamond ring on an expanse of white granite. The diamond would hardly sparkle without its setting.

Center City is described by the Planning Commission as a proposed commercial center, yet commercial buildings generally exhibit the least architectural planning. The "principal place for doing business"—to use the Commission's phrase—is made attractive by those buildings that are not business buildings at all. When business comes to Center City ,it will come because it is attracted by the planning. The danger is, however, that it will come, as it invariably does, attracted by the *people* who are attracted by the spaces. Then, feeling that anything worth doing is worth doing out of scale, it will proceed to kill the space with structures whose blank façades will mirror their wonderment at its disappearance. If this happens, and if the frame of the surrounding buildings is disjointed and the interior spaces surrounding the M.S.B. violated, the diamond will turn to paste.

This is certainly not to say, however, that additional architectural planning in adjacent areas, within the framework of Penn's Greene Country Towne, may not bring another manipulation of spaces and textures that will be as sound an addition to Center City as is the M.S.B. and its complex.

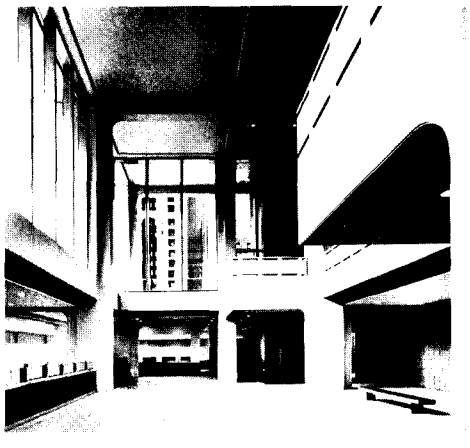
A project to erect a 57-story office building at the southwest corner of the frame is underway. The Philadelphia chapter of the AIA protested as a body. If this protest is a bugle-call to do battle as part of the AIA "War on Ugliness," then perhaps the scale of the Kling spaces may be saved. Let us hope that the bugle was not sounding taps. A 57-story tower in that location is certainly "other than architecture," as Kling's Fritz Roth would say.

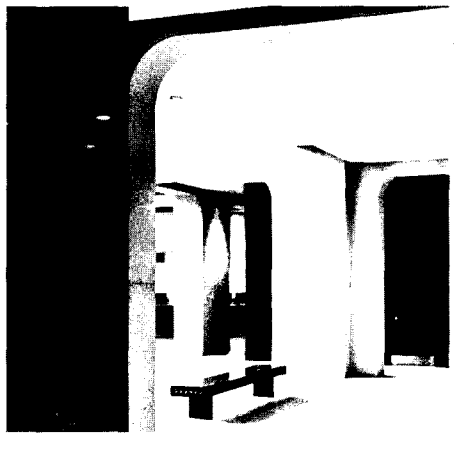
M.S.B.'s Interior Design: *Below ground level, civic space is a pleasant, dignified 80,700-sq-ft area in which the citizen can conduct more unpleasant civic duties—that of paying bills and obtaining licenses. A three-story-high room, divided into four courts, allows the viewing of the surrounding buildings through the glass enclosure at plaza level. Surrounding the counters that can service 2000 people is the huge work space, which extends to the east, where daylight is again brought below ground by a full plaza-length court. This is the one place for which the city felt it could afford new furniture. The colors are bright primary reds and blues, adding a lively air to contrast with the taxpayer's pallid countenance as he reaches for his billfold.*

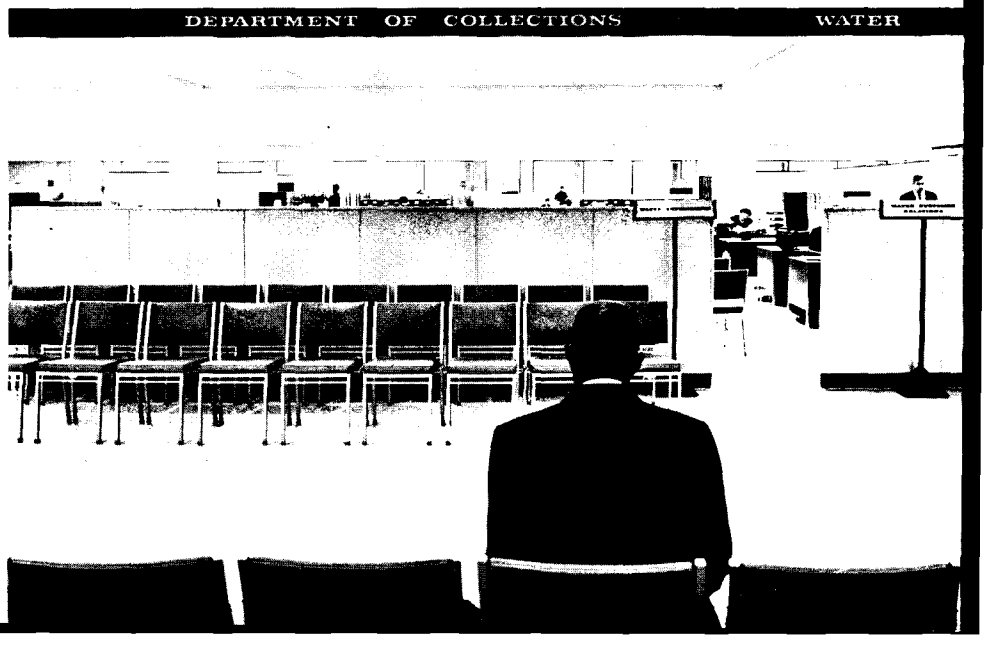
Above the open court, the M.S.B. houses offices for specialized public services that total 22,380 sq ft of space. The use of the symmetrical cruciform shape brings light closer to the core. The latter houses the elevators, plumbing, vending, and similar functions, as well as circulation to the four pavilions. Where interior passageways have been introduced by the client, paralleling the core, they seem a redundant waste of space.

The four pavilions form a natural segregation of working areas. This is an advantage that is of limited use, unless departments are of one-two-or three-pavilion dimension, which seems a unique module for civil administration. However, movable metal partitions and modular lighting and air conditioning allow maximum flexibility within the pavilion spaces. Furniture in these areas, except for the top executive offices, was brought from the previous offices to the new building after being tastefully painted in the city prisons.

Interior Finish: *Street and concourse lobby core walls, which extend through entire 16 floors, are of black Minnesota granite. Street and concourse lobby floors of Sierra white granite. Lobby ceiling of gold mosaic glass tile. Floors above lobbies of thin-set terrazzo, with black-and-white marble-chip aggregate in latex cement. Elevator doors of antique-gold baked enamel; elevator walls of gray melemin. Double doors leading to each pavilion from core are teal blue. Office floors of vinyl asbestos tile. Office walls, flooring, and furniture are shaded beige and brown; chairs are teal, gold, red, and black.*







GRINNELL'S SOCIAL GEOMETRY

THE COLLEGE FORUM, *Grinnell College, Grinnell, Iowa.* ***Architects & Engineers:*** *Skidmore, Owings & Merrill (Chicago). Walter A. Netsch, Jr., partner-in-charge of design; John H. Schruben, project manager; Robert W. Peters, project designer; John R. Messner, job captain.* ***Site:*** *(see text).* ***Program:*** *Student social center to include: a Central Area, comprising an informal lounge, music-browsing lounge, coffee house, grill, private dining-meeting rooms, food service area, and study rooms; a Recreation Area, comprising dancing-party area, games room and bowling alleys (the latter subsequently eliminated); and a Student Activities Area, comprising offices and activity rooms. Also to be included were staff offices, storage, and mechanical spaces. Admissions offices are temporarily housed, pending construction of a planned building.* ***Structural System:*** *Massive Y-plan concrete piers, which are set to form the strong negative corners of each bay of the plan, support a roof structure of laminated timber diagonal beams, which are cantilevered from the piers. The secondary girders, which are concentric with the perimeter girder, carry the load to the primary diagonal members. A center pin connection equalizes deflection, should an unequal live load, such as snow, occur.* ***Mechanical System:*** *steam from campus boiler plant; five forced-air package units; air-cooled condenser units on roof. Distribution through below-lower-level ducts to vertical service shafts; floor grilles; return above coffee-house and billiard room.* ***Major Materials:*** *Exposed concrete piers and columns; aluminum-and-wood framed glass bay windows; laminated cedar roof structure. Quarry tile flooring; wood deck and acoustic tile ceilings.* ***Consultants:*** *Philip Gould, structural; Roger Wilson, mechanical; Arthur Smetko, electrical; Bolt, Beranek & Newman, acoustical; LaVerne Gregory, interior designer.* ***General Contractor:*** *Ringland-Johnson-Crowley, Inc.* ***Photography:*** *Except as noted, Balthazar.*

Conceptually different from the standard student union, Grinnell's "College Forum" expresses an interaction of social and intellectual activities in its "lattice" plan.

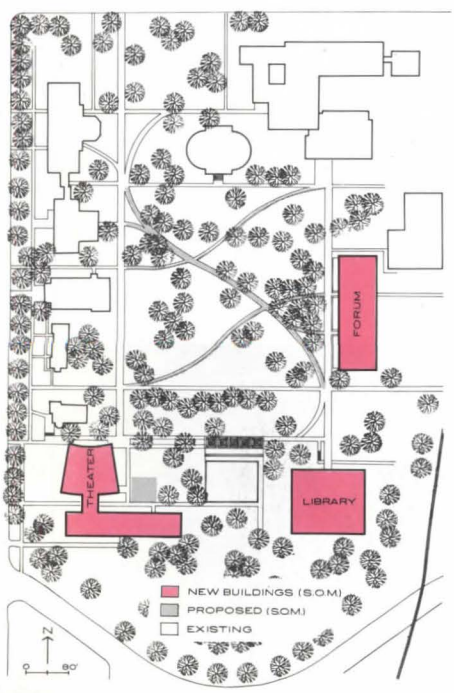
Iowa's Grinnell College continues her steady contribution to distinguished campus architecture with SOM's "The College Forum"—a community social center—which is the fourth building to be constructed under the architects' master plan for the college. The first of these (1959) was the Burling Library and the second (1961) the Fine Arts Center with its still controversial Roberts Theater (p. 147, SEPTEMBER 1962 P/A); a men's dormitory was the third.

The College Forum provides a new arm for the academic quadrangle, located, as it is, perpendicular to the north side of Burling Library. The exterior reveals a flat-roofed rectangular form with exposed structure and glass bays. Like its neighboring building, the two-story Forum utilizes the sloping grade to minimize its height. Yet this rugged structure, in SOM/Chicago's increasingly muscular style, is bulging with strength and has definition due to persistent geometric exercising.

In the case of this building, the geometric repetitions defined the functions. "This will not be a building like the usual student union," said the college president, "where you hang your intellectual hat at the door and say, 'Now we socialize, now we forget about the intercommunication of knowledge as a kind of communication.'"

"This led to the strong geometry," Walter Netsch explains, "because we could define the uses of the spaces and did not have to have a homogeneous series of triple-purpose spaces, such as is common in most union buildings."

The plan of each level of the two-story structure consists of three square bays that are subdivided diagonally by structural elements into X-shapes. These X's, which are more prominent on the lower level where centrally placed diagonal members help to support the upper floor, are only suggested in the upper three bays, which are central open areas with perimeter "terraces." At the juncture of the three bays, where the nodal entries are located, the interlocking of the diagonal members produces the "lattice system" that is the final result of this geometry exercise. Starting with the square, then squares-within-a-square, and proceeding to the load-bearing diagonals, there evolved the square turned diagonally, rotated, then the "diagonal squared—

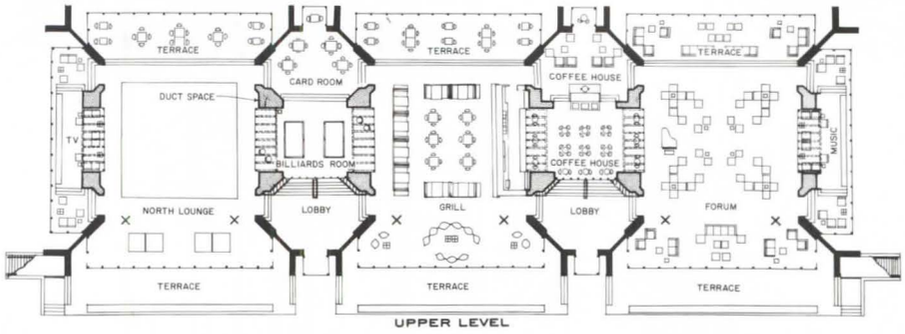


chopped off at the corners"—to produce an octagon. All of these lines interlock to create the lattice plan, which, according to Netsch, "is a linear expression of the progression of different activities and communications for which the building is used."

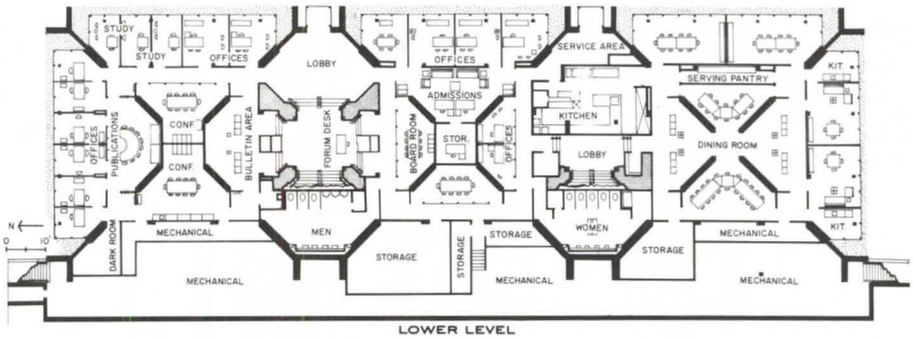
The structural system is composed of two-story-high, poured, Y-plan concrete piers, which are positioned to form the strong negative corners of each bay, and a roof structure of laminated timber beams. The roof structure comprises a deep perimeter girder, diagonal beams, and beams in a square pattern. The diagonal beams are anchored to the concrete piers, and, where they are cantilevered over the central space, are stepped up to express the decreasing load of the span. The flat roof is thereby given a pyramidal form on the interior, entirely within the thickness of the major girder. This aesthetic rationale, carried into the roof structure, gives the building its design consistency.

On the lower level, however, the structure is somewhat "haphazard," as even Netsch admits. In addition to the corner piers and the central diagonal members, there are columns on the perimeter.

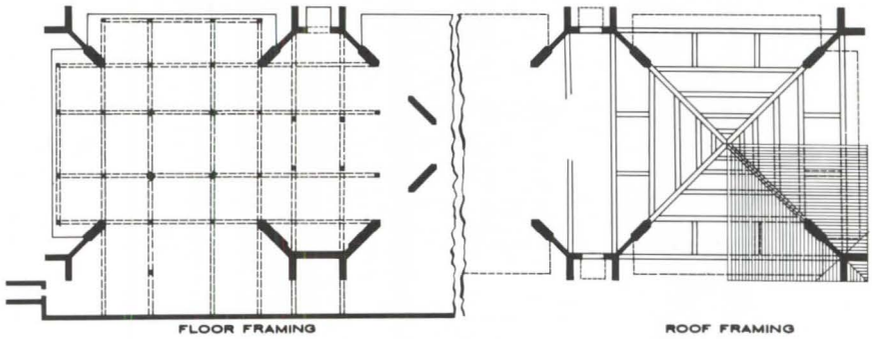
The enclosing walls of the bays are of black-painted, wood-and-metal-framed glass walls, which are set out from the perimeter girder of the roof and are topped with sloping glass. Mirrored, re-



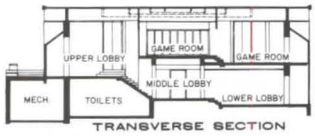
UPPER LEVEL



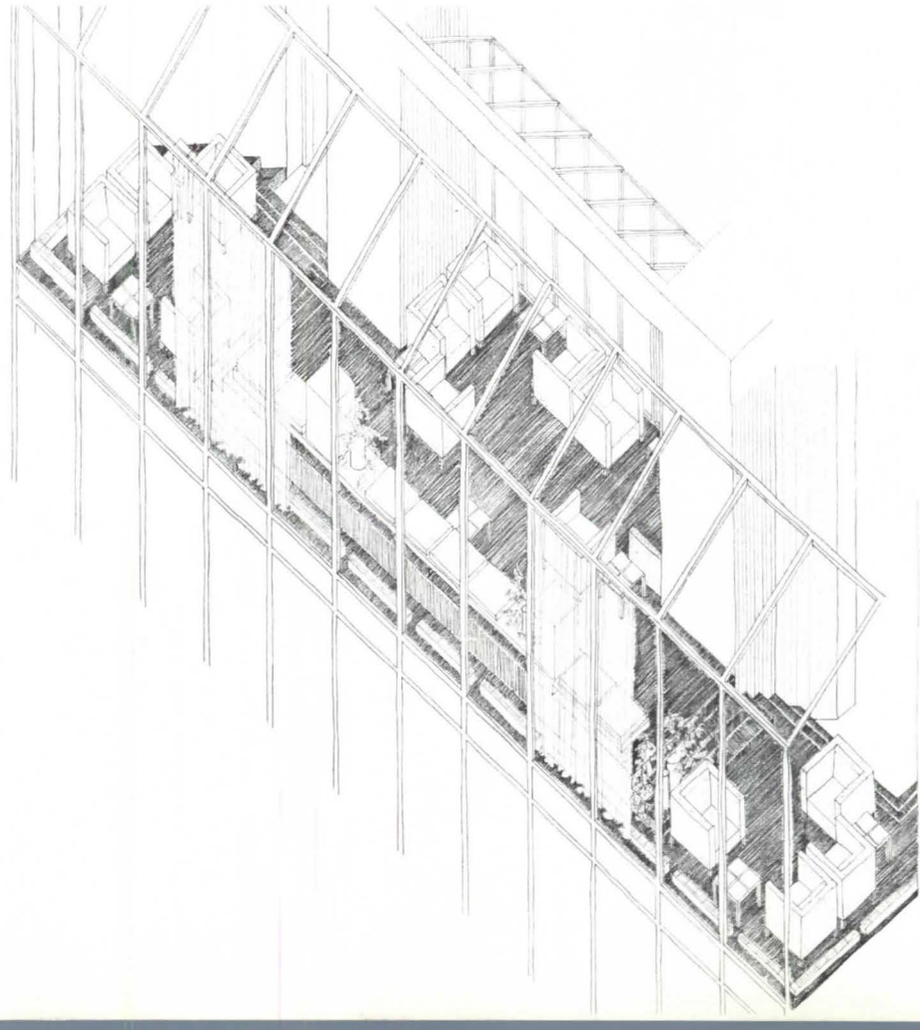
LOWER LEVEL


FLOOR FRAMING

ROOF FRAMING



TRANSVERSE SECTION



Interior planning provides large, open, social spaces, such as the "Forum" (facing page), which are surrounded by cozy inner rooms used for games and kaffeeklatsches, and by glazed, perimeter terraces that give onto campus vistas (right). Each has a feeling of special place. The main rooms are "salons" in the traditional sense, with doors en fillade, *yet they constantly open one to the other, and to the outside.*

The bay-window construction used to enclose the game room, coffee house, and terraces projects "the rooms, like greenhouses, into the green environment of the campus or into the central interior spaces," according to Walter Netsch. "It is a deliberate attempt at visual ambivalence, preventing the firm isolation that the wall surface might provide between inside and outside spaces and also achieving that quality of transparency that makes the building move into the environment."

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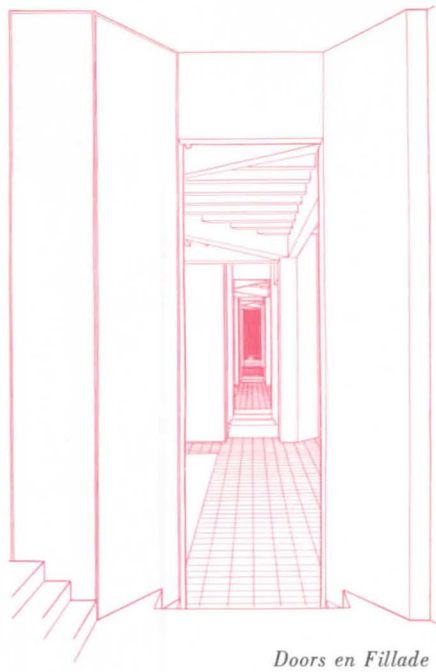

Doors en Fillade

flective glass is used to roof these bay windows in order both to eliminate heat and to "act as a permanent awning in terms of light transmission." Aesthetically, the purpose of the bay-window construction is, according to Walter Netsch, "to develop a transitional space between the open green and the interior space, to project the rooms into the green campus environment and prevent the firm isolation that the wall surface might provide between inside and outside spaces. It is a deliberate attempt at visual ambivalence and also

PHOTOS (2, 3): JACK BRINTON, DES MOINES SUNDAY REGISTER

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Spatial variety is reinforced by furnishings and lighting. Large, central rooms have solid, heavy, square sofas, chairs, and booths ***(1,2,3)****; peripheral terraces* ***(5,6)*** *and inner-spaces* ***(3)*** *have lighter, more open pieces. "Cube" ottomans (with built-in magnets to hold them in geometric arrangements) are used in the "Forum"* ***(1)****. To complement the square seating, a series of square, black lamps, tables, and accessories were designed by SOM, along with X-plan coat racks for the corners of the main rooms* ***(1,4)****.*

Opaque, ceiling-flush downlights are on the perimeter; in the central areas, translucent white cylinders are suspended from the diagonal beams and are stepped up toward the center by being graduated in length.

The basic black-and-brown surroundings are enlivened by rusts, plum, and purple in the large lounges ***(1)****, splashes of white and red in the Grill* ***(4)****. The billiard room above the split-level entry* ***(7,8)*** *has deep blues and greens; the coffeehouse* ***(3)*** *is red and deep purple. As a final touch, Mr. and Mrs. Walter Netsch have donated two splashy Pop Art Banners for the Grill—one by Jack Youngermann* ***(5)****, the other by Robert Indiana.*

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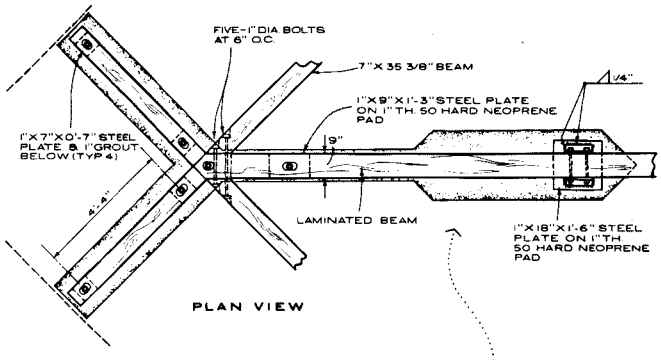
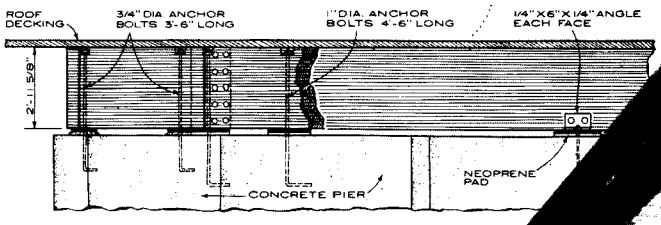


PLAN VIEW



PARTIAL ELEVATION

Formwork of the concrete was composed of narrow strips run vertically, the forms being made to interlock so that no horizontal joint appears. The vertical grain marks both express the poured concrete and reiterate the pattern of the laminated-wood roof structure.

Around the perimeter of the overhanging roof is a line of downlights that at night illuminate the glass-roofed bays, equalize the light inside and outside, and help define the massive character of the structure.

achieves that quality of transparency that makes the building move into the environment."

On the interior, the two floors differ in use, in character, and in plan. On the lower level, diagonal columns in the center of the bays produce trapezoidal spaces that, like the perimeter areas, are used as meeting rooms, offices, and private dining rooms. The kitchen ("where all the problems of the geometry came together") and the main lobby are located at the junctions of the bays.

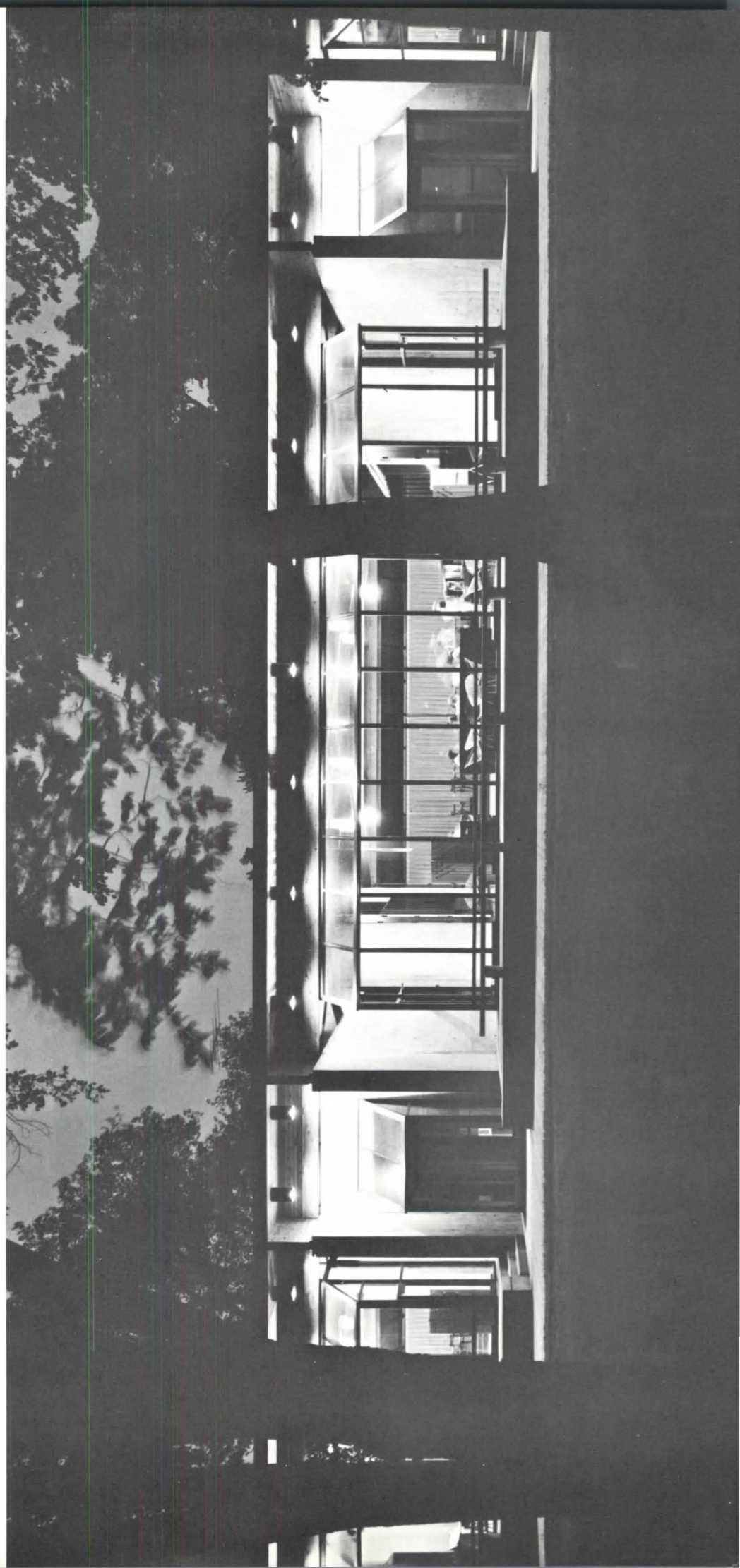
On the upper level, three large open bays accommodate the principal student commons facilities: the "terraces" on the perimeter of the building and between the bays provide smaller gathering places. From north to south, the facilities are: The Parlor, which is enclosed for watching noisy TV; then the large open North Lounge, which has a dance floor and juke boxes; next is the Billiard Room, which is glass-enclosed between the bays. The Grill provides dining area for 93 in the central bay; the rather lush Coffee House is between it and the South Lounge, which is a fairly formal reception and conversation room. At the south end of the building is a glass-enclosed room for listening to music records.

This arrangement indicates a progression in both the formality and degree of noise of the activities from north to south. "So, not only is the building a linear expression of the intensity of purpose varying in the kinds of communication that occur," explains Walter Netsch, "(and I think this is a definitive part of the conceptual ordering of the spaces and the way the building is used), but also, since it does fulfill a physical position as a linear system on one side of the campus green, its noisiest portions are farthest from the library." The same progression is to be found on the lower level.

This progression of both geometry and of function is, furthermore, expressed in the section, where the stepping up of the diagonal roof beams is reiterated by the sloping glass of the bay windows and where the terraces, at the ends and on the east of the building, are elevated three steps.

In addition, the Billiard Room and the Coffee House, which are enclosed by glass partitions, repeat the exterior bay window design so that, as Netsch amplifies, "We develop the vocabulary of one space looking into another space looking into another space."

The refinement and definition of all these architectural elements indicates that the effort of SOM's geometric exercising has rewards that are architecturally solid.



UP-DATING TRADITION: NEW CHURCH IN NEUSTADT

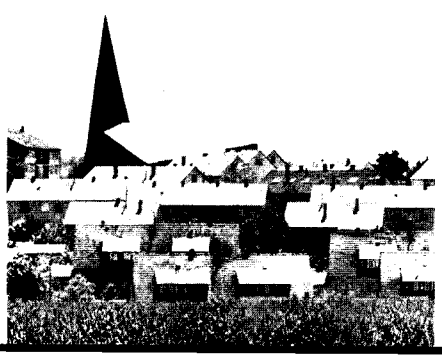
A new German church commands a hilltop like the old town kirk, yet its sleek and elegant design transmutes a traditional religious architecture into contemporary terms.

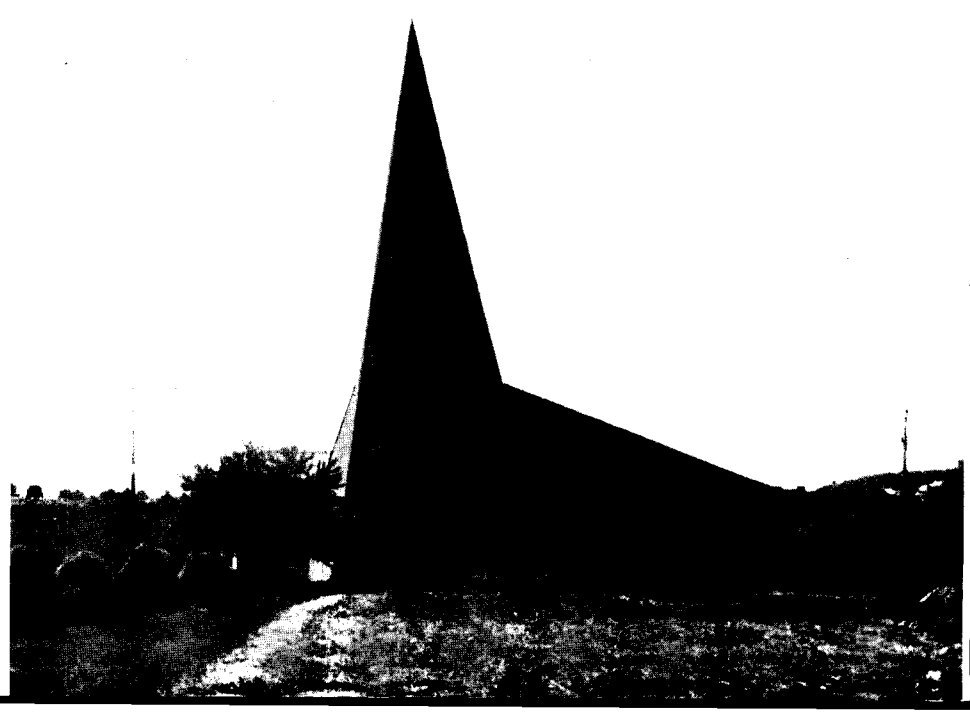
ST. MARIA CATHOLIC CHURCH, *Neustadt, West Germany.* ***Architects:*** *Hans Kammerer, Walter Belz.* ***Structural Engineers:*** *Dieter Götz, Rudiger Mock.*

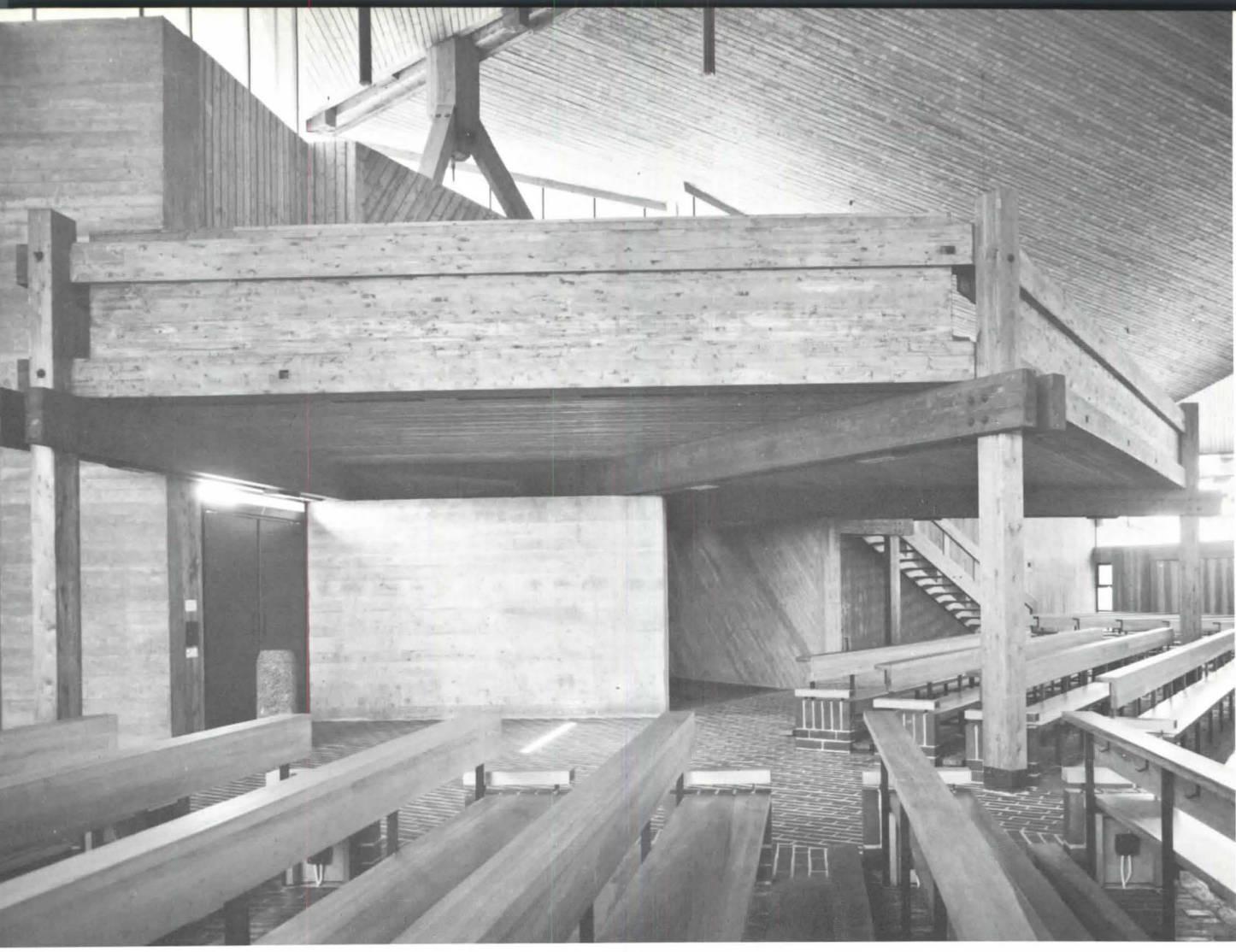
Most contemporary church architecture seems loathe to make a simple statement. The contortions displayed to convey a religious sentiment often makes their sincerity suspect and offends the spirit rather than attracts it. This church, however, on the outskirts of a small German town, is simpler than most and more inspiring.

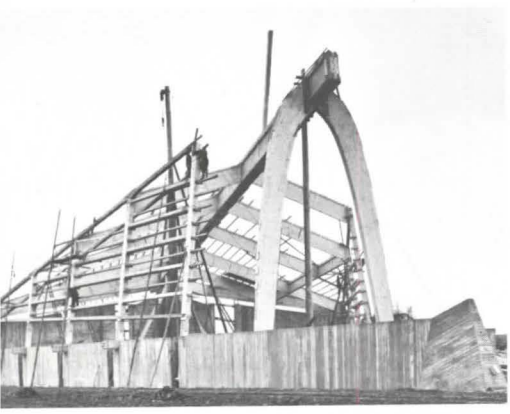
From a distance, it dominates the surroundings with an austere geometric form. Just as the architects intended, it commands the area like the old *kirks* controlled the centers of the towns. It is reminiscent of the old churches, yet, in the spirit of the new, simpler in shape and form. "The huge roof enveloping the spire and the main body of the church is drawn down on all sides, making the building appear to grow out of the surrounding fields."

As seen from one side, the steeple shoots out of the ground; as seen from the other, the large plane of the roof crowns the smaller roofs of encroaching suburbia.



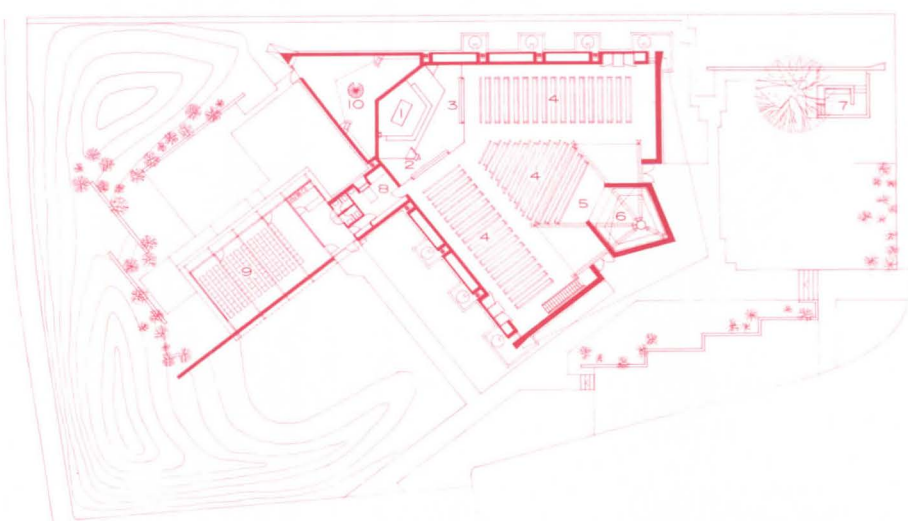




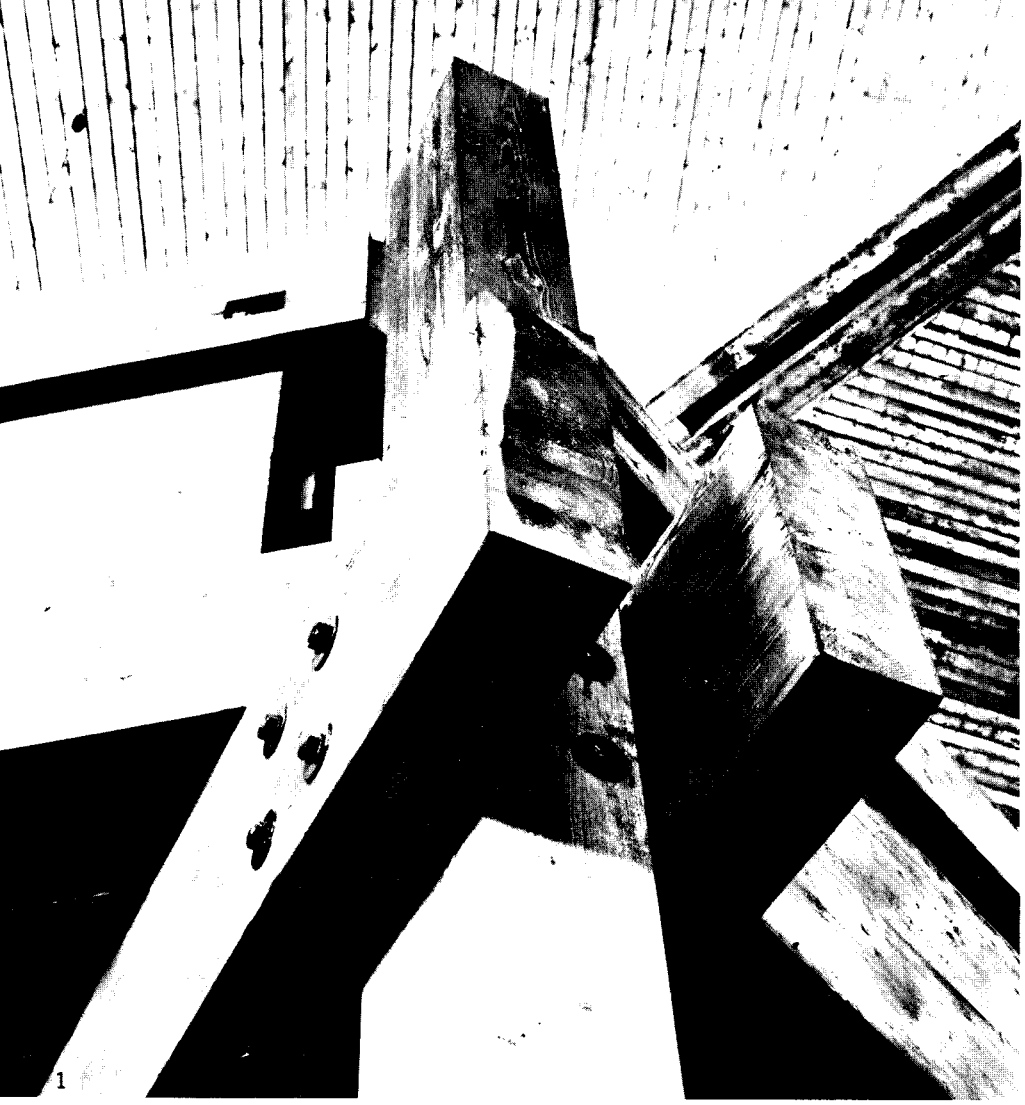


Ridge beam is supported by three-hinged arch under steeple and by a tripod at the other end. Beam, joists, and arch are of laminated wood. Joists are supported by posts set into concrete wall.

On the inside, the huge roof embraces the entire congregation and the choir gallery at the rear. It is an interior with more wall and roof than window. What glass there is, is inserted like a colored ribbon between the roof and concrete walls. Designed by Hans Schreiner, a painter from Stuttgart, the composition in glass conforms to the drama of the interior design: The forms and colors are diffuse near the entrances and grow more and more concentrated toward the altar. A sculptor, France Bucher from Rottweil, designed the aluminum medallion of the cross to form a link between the roof, pointing to the sky, and the walls anchored to the ground.



Plan: (1) altar; (2) pulpit; (3) altar; (4) benches; (5) organ and choir gallery; (6) font; (7) external pulpit; (8) sacristy; (9) parish meeting hall; (10) tower staircase.



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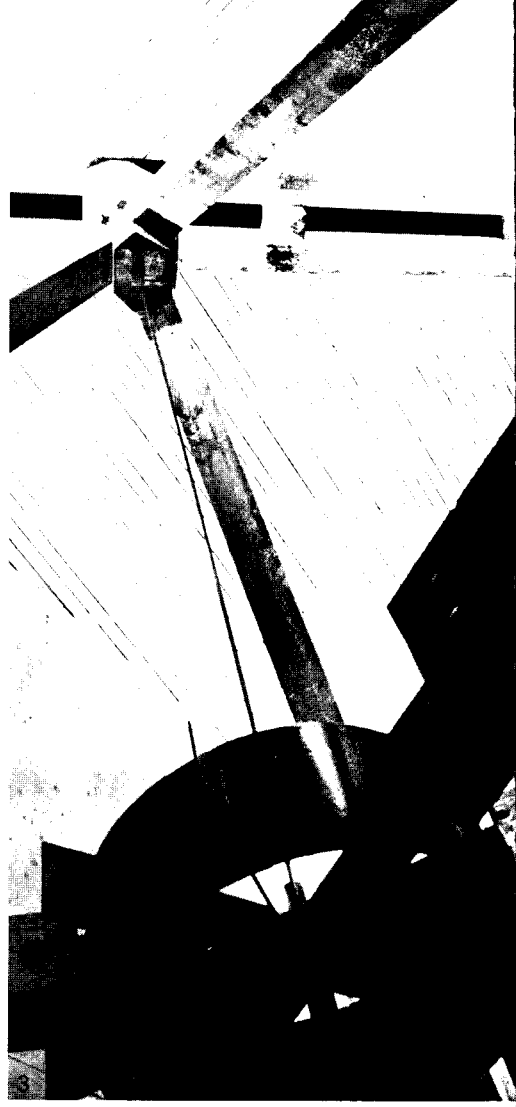

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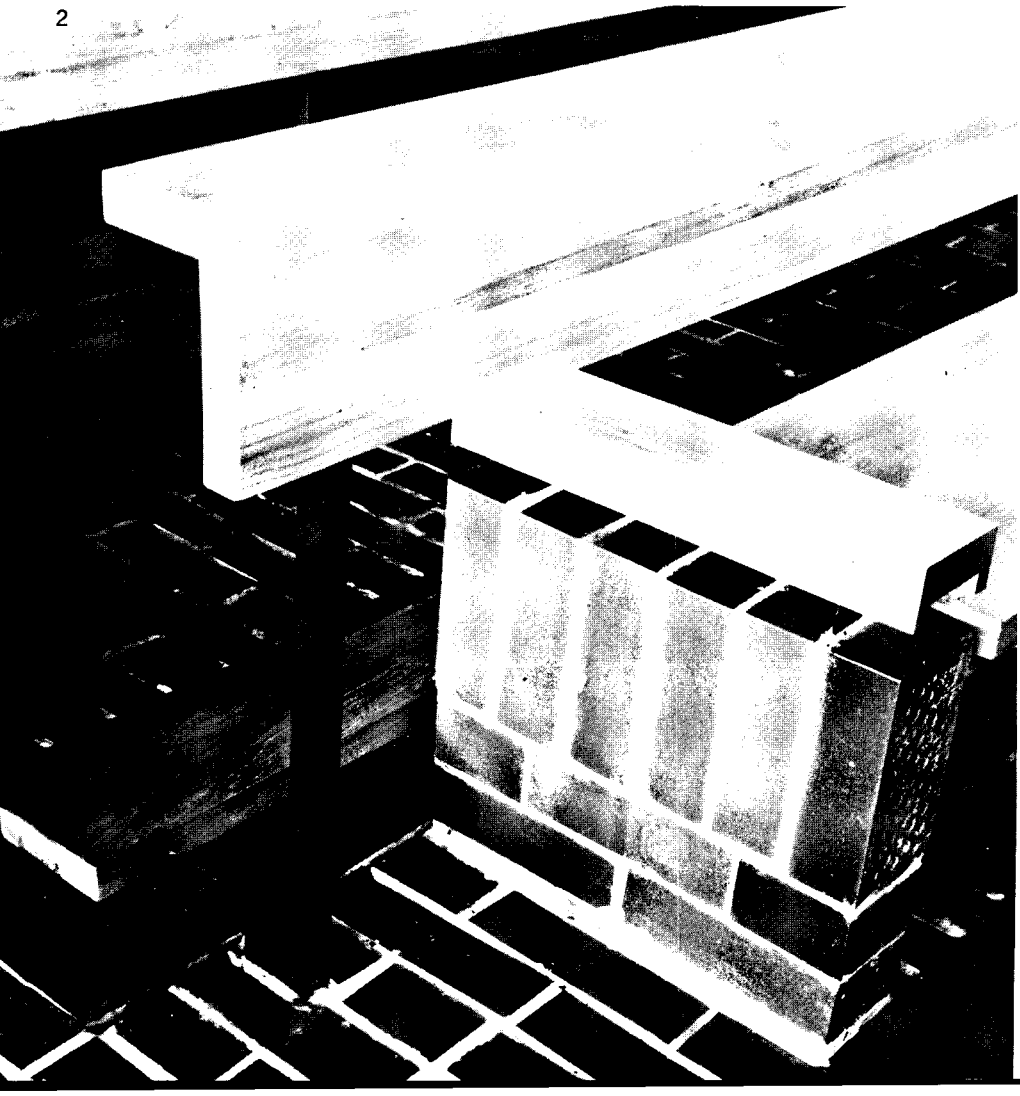

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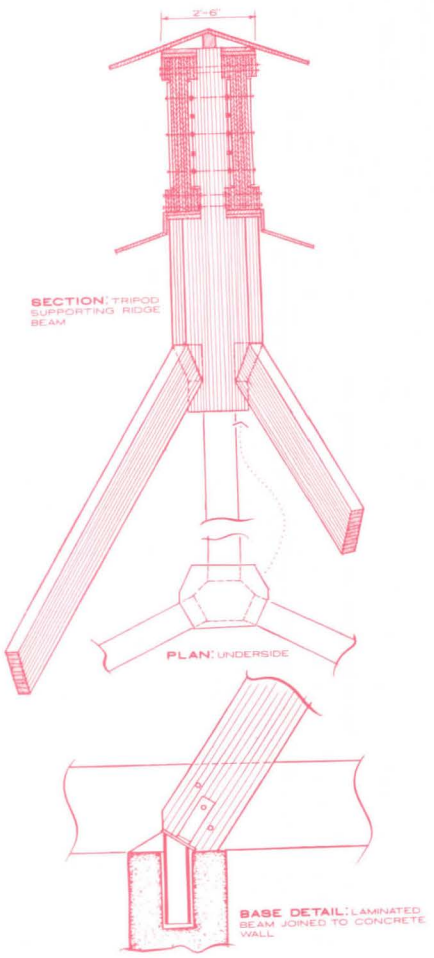

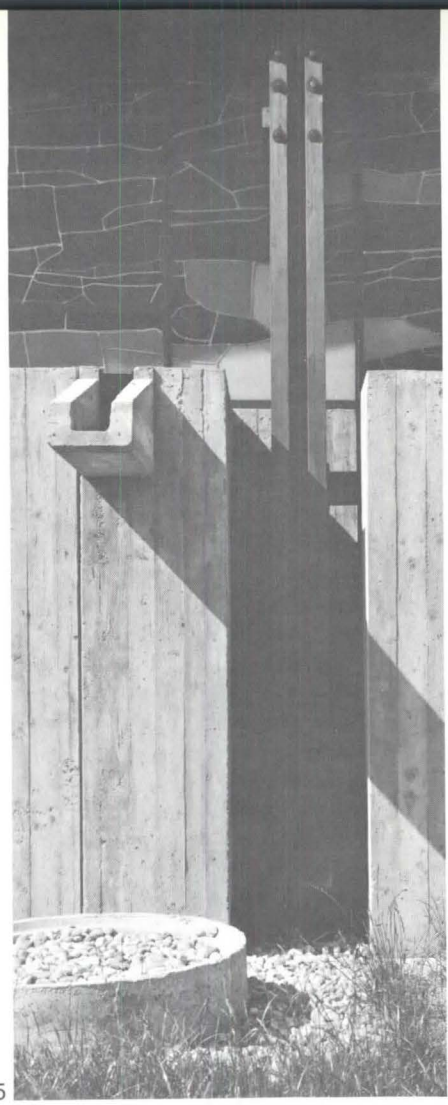

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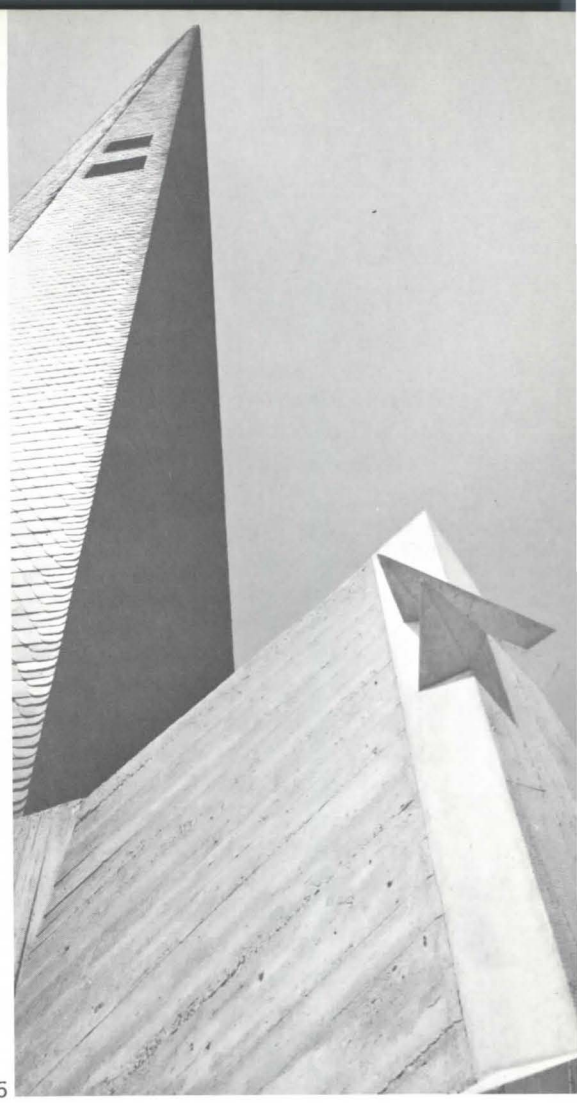

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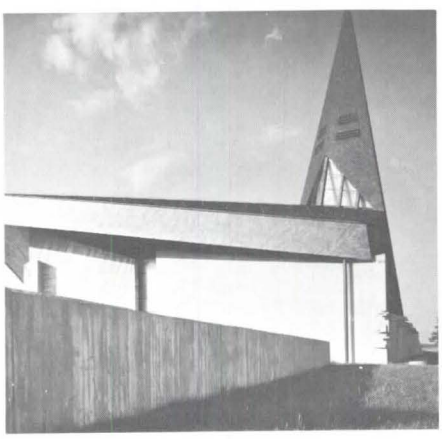

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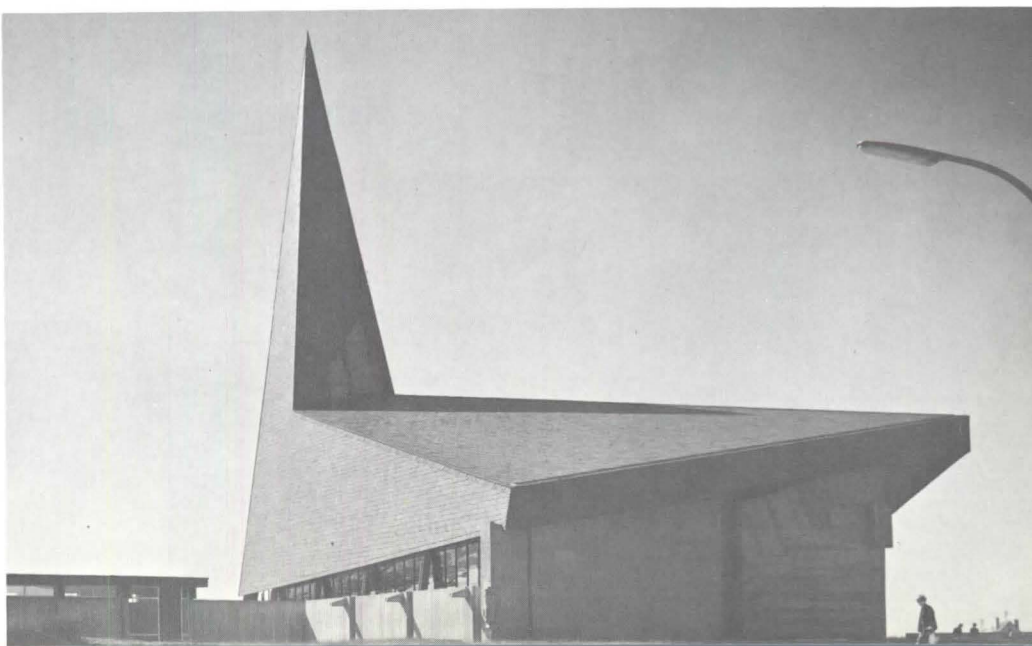
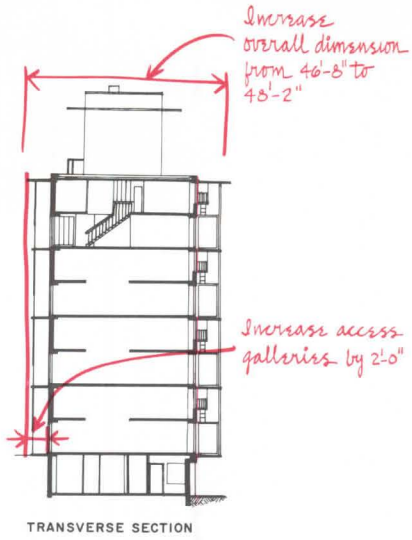


Construction details are bold and uncompromisingly articulated: Choir gallery is supported by radiating beams set over concrete walls, and bolted together ***(1)****. Tripod* ***(2)*** *soars above the font. Pews* ***(3)****—if such a traditional term is still applicable—resemble exploded drawings, so carefully is each material and each part isolated in space. Stair treads* ***(4)*** *are bolted to stringer. Spouts* ***(5)*** *empty water into graveled bowls and become a decorative element. Sculptures representing the "Morning Star"* ***(6)****, and the "Portals of Heaven" between the baptistry doors* ***(8)*** *are taken from the litany of the Blessed Virgin Mary and executed by Dieter Bohnet.*

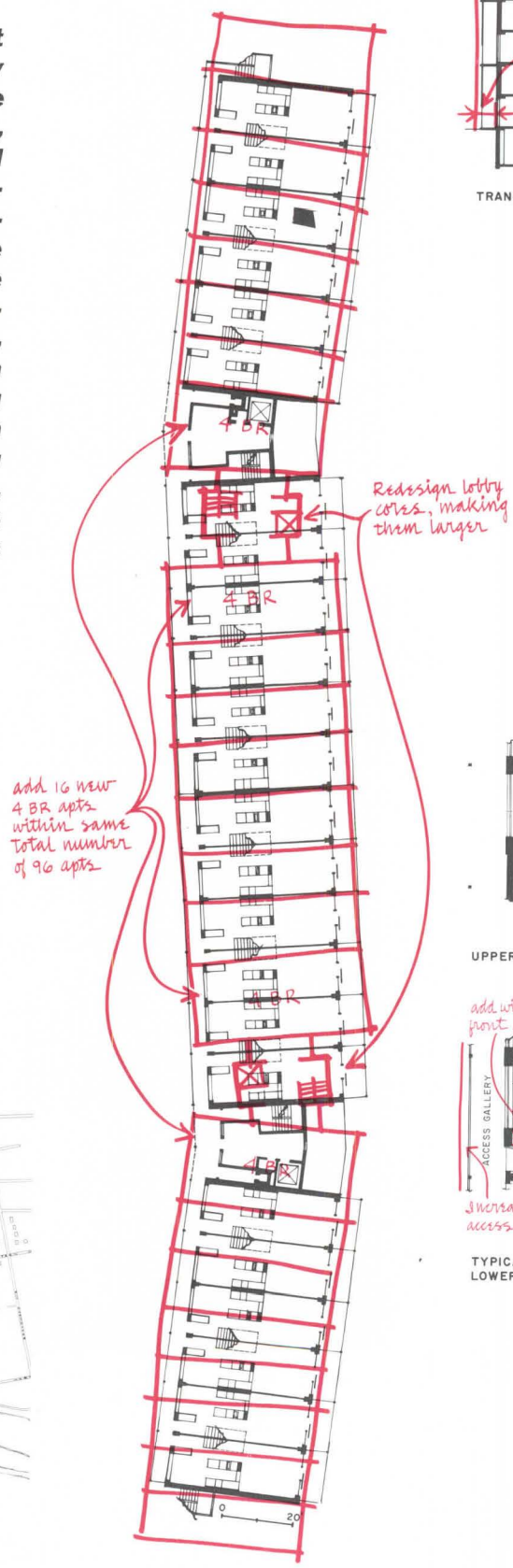
The strength and simplicity of the roof form —as seen from the distant fields or from the interior—is lost when the church is seen from a middle distance ***(7,8,9)****. From such a vantage point, the design breaks up into more fragmentary geometry with abrupt changes in massing and in scale.*

HOW DO YOU LIKE YOUR EGGS?

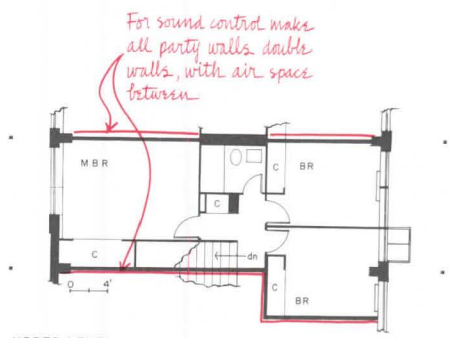
After completion of the first high-rise unit for faculty members, and before the design of a second unit, Princeton University and architects Ballard Todd Associates devised a questionnaire, hopefully to measure tenant reaction to the more unusual features of the design. The questionnaire, however, boils down to a rather specific "How do you like your eggs?" rather than a broader "What would you like for breakfast?" And, in fact, the questionnaire raises far more questions than it answers.



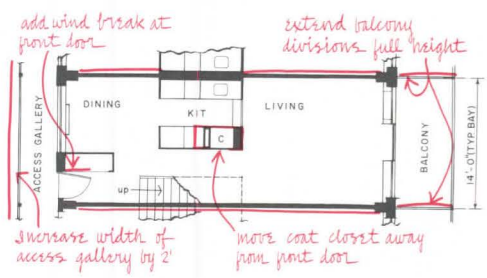
TRANSVERSE SECTION



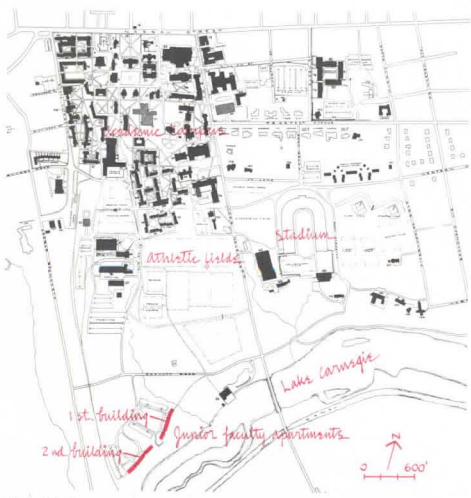
I ST. FLOOR PLAN
(SAME AS 3RD, 5TH, 7TH) BEDROOMS ABOVE, ON 2ND, 4TH, 6TH, & 8TH



UPPER LEVEL



TYPICAL 3BR APARTMENT
LOWER LEVEL



SITE PLAN

The quality of a university can rise or fall according to the quality of its faculty. And more than one university feels that faculty members will choose to stay or go depending on the quality of their housing.

Princeton opened its first unit of high-rise apartments for junior faculty in the fall of 1961. Now, four years later, an almost identical building has been built alongside the earlier one on the banks of Lake Carnegie. The first building was unusual enough—featuring open-air access galleries rather than enclosed corridors; and, for all 96 apartments, duplex rather than single-floor layout, and private balconies overlooking the lake. The second building is unusual not only in maintaining these unconventional features, but in making subtle modifications based on a survey of the tenants who have been living in the first unit.

During the earliest thinking, more than five years ago, the original idea for a series of garden apartments (not very original, actually) was scrapped by the architects —then Ballard, Todd & Snibbe—in favor of a high-rise development. The hope was to preserve as much of the lakeside landscape as possible, a hope that was achieved by the design of an eight-story structure that is segmented to follow the curve of the shore, that leaves much of the land undisturbed, and that orients all living rooms toward an unobstructed view of Lake Carnegie.

More recently, when it came time for the architects—now Ballard Todd Associates—to think about additional units, it was decided to question those who were best able to evaluate the actual living conditions in the apartments: the residents. Evaluations from perhaps different points of view were, of course, being carried out among various offices of the university administration. The questionnaire that was ultimately devised is the work of the real estate office, the maintenance department, and the architects. (See right for complete questionnaire, and tabulation of answers.)

Response to Questionnaire

At first glance, the responses would seem to be overwhelmingly enthusiastic. On the first question, 65 of the 66 respondents find the basic layout of exterior access galleries and floor-through apartments a satisfactory one. They seem to use the private balconies with enough frequency (although one of the main uses, for storage, does not appear in the question, #2). Balconies and access galleries are not generally thought to be "the right size," and, in fact, 44 of the 66 consider the access galleries "inadequate" (#3, #4). For the apartment itself, there is an unexpectedly heavy endorsement of the duplex plan (#5), even though it is sometimes another tenant's bedroom overlooking your balcony (#15). There is also agreement with the dining-kitchen arrangement (#8). The over-all size of the apartment seems "adequate" to most (#10), and the apartment has lived up to expectations for 50 of the 54 who felt up to answering (#19). For those in a position to compare, these accommodations are generally "better" than those at other universities (#20). There are complaints about sound transference and elevator service (#14, #18). And among the further comments received, each mentioned by three or more tenants, are such desired items as larger incinerator opening (by twenty-three tenants), second toilet (by three), built-in bookshelves (by eight), enclosed staircase for storage (by five), closed treads for safety (by five), upstairs TV outlet (by five), laundry room each floor (by six), and "garden-type units" (by three).

One wonders about the 30/96ths of the tenants who did not answer the question-

QUESTIONNAIRE

Exterior balconies:

1. Would you prefer an inside central corridor approach to your front door if you had to sacrifice cross-ventilation, and, for half the apartments, a view of the lake?
   1 Yes 65 No
2. Do you use your private balcony for: (please insert one of the following: very frequently, occasionally, not at all).
   VF: 15 O: 25 N: 13 Children's play area
   VF: 10 O: 36 N: 5 Adult entertainment area
   VF: 14 O: 28 N: 10 Family recreation
3. Are the private balconies large enough for functional enjoyment: (please check one)
   12 The right size
   40 Adequate
   14 Too compressed (Note: Private balconies are 5′-6″ x 13′-10″.)
4. Are the access balconies wide enough: (please check one)
   2 The right size
   20 Adequate
   44 Inadequate for foot traffic and moving furniture (Note: Access balconies are 3′-8″ wide.)

Interior living space:

5. Do you like having bedrooms on the upper floor rather than having all living quarters on one floor?
   54 Yes 12 No
6. In terms of need, are the bedroom sizes: (please check one)
   23 The right size
   32 Adequate
   8 Too compressed (Note: Master bedrooms are typically 152 sq ft; secondary bedrooms are 93 sq ft.)
7. How would you rate the closet space in your apartment: (please check one)
   30 Generous
   30 Adequate (Note: The two-bedroom apartments have 47 sq ft of closet space, including coat closet
   6 Too small and linen closet; three-bedroom apartments have 57 sq ft.)
8. For the dining-kitchen arrangement, do you prefer: (list in order of preference)

(1)	(2)	(3)	
50	8	0	The arrangement as is
3	7	20	A larger kitchen containing dining space at the expense of living room space
17	14	8	A larger living room containing the dining space

9. Would you prefer having the kitchen open more directly into the living room?
   1 Yes 65 No
10. Is the over-all size of the apartment adequate for living comfort?
    55 Yes 11 No
    (Check your size unit and fill in the number of permanent occupants)

12-10-4	2-bedroom unit	2-3-4 occupants
6-3	2½-bedroom unit	3-4
14-14-1-1-1	3-bedroom unit	5-4-6-7-3

11. If your answer to Question 10 is "No," would you be willing to pay a proportionately higher rent for the privilege of having more space?
    12 Yes 3 No
12. Where more than one child is involved, would you prefer: (check one)
    0 two large bedrooms
    58 one large bedroom and two smaller bedrooms as presently constructed
13. Where would you like telephone outlets located for your greatest convenience?
    M. BR. 26 AS IS 20 S. BR. 1 upstairs location
    D. R. 8 L. R. 3 K. 18 AS IS 36 downstairs location
    (Note: Present locations are upstairs and downstairs hallways.)
14. Are you bothered by sound transference:
    Through apartment walls 41 Yes 23 No
    Through ventilating ducts 44 Yes 20 No
15. Is the fact that bedroom windows open over the private balcony of others objectionable:
    To you as a balcony sitter 17 Yes 42 No
    To you as a bedroom occupant 10 Yes 46 No

Facilities:

16. Have you found that the incinerators work satisfactorily for the disposal of garbage and trash?
    45 Yes 7 No
17. Does the building provide a satisfactory system for milk and bread deliveries?
    42 Yes 7 No (Note: No special provisions made in plans.)
18. Do the elevators give adequate service in terms of: (check one)
    2 Always long wait
    28 Long wait occasionally
    26 Reasonable wait at all times (Note: There are two elevators.)

Please comment on:

19. Whether the apartment has lived up to your expectations:
    50 Yes 4 No
20. How do our accommodations compare with those in other universities? (check one)
    24 Better
    5 Equal
    1 Worse

naire. Does their silence mean that they *do* like the apartments, or that they *don't*? (Actually, 17 of the apartments were vacant at the time of the original poll.)

Design of Second Unit

Armed with these responses—interpreted partly as a vote of confidence, partly as a directive for change—the architects proceeded to design the second building. (Paul F. Basile, Associate, was designer; F. Andrew Foord, Associate, was project architect.) The architects made a number of changes—in sound control, in design details, and in apartment distribution (there are now 16 four-bedroom apartments where before there were none). Other changes in plan were few: the only important one being the addition of 2 ft width to the access galleries. Major changes were in soundproofing (Bolt, Beranek & Newman were consultants on both buildings). Interior walls are now double walls separated by an air space; ducts are now lined; stair handrails no longer go through from one apartment to the next; electric outlets are also newly separated; balcony partitions now go all the way up; the underside of each balcony is now perforated. There were few changes in materials: previously white-painted railings are now galvanized steel. (For further changes, see photos.)

"It's amazing how much change there was, on a repeat," says David Todd. For two buildings with the same general form, the same internal arrangement, they are different enough to seem like the work of two different architects, rather as if the rough outline of a master plan were being filled in by successive minds turning to newly defined problems.

Basic Assumptions

Yet the problems did not receive fresh analysis, despite the questionnaire. In fact, it avoids any real questionning of the basic assumptions of the first building. There is no question that seeks to gauge feelings about low-rise vs. high-rise. (When one child was asked—by her parents, not by the university—the open-ended question of what kind of house she would like, she answered in no uncertain terms, "A house on the ground." How many others may feel this way, or how strongly, or *why*, is unknown.) The questionnaire does not, then, ask "What do you like for breakfast?" but rather, "How do you like your eggs—three-minute or four?"

The questionnaire, in fact, raises more questions than it answers. Where did these tenants live before—in traditional or contemporary, single-family or multi-unit, low-rise or high-rise? To what extent are these residents "design-conscious"? To what extent are they aware of the potentialities of extended space, or the effects of limited space? To what extent is their approval of the duplex plan based on a desire to return to traditional layout? To what extent on privacy? How, in fact, are the various rooms used? Quite a few residents use the master bedroom for two children, while they—the parents—take over a smaller bedroom for themselves.

One Among Ninety-six

What do residents feel about being in 1 of 96 almost identical units, strung out in a line? There are indications that some of the tenants feel their individuality threatened by the repetitive design. Is this a specific response to the architecture, or a diffuse reaction to the uncertain and competitive circumstances of their lives at this time. The "publish or perish" dictum begins to be felt at this time; and the next several years will be crucial to most of these younger faculty members—years decisive in determining whether they will receive tenure at Princeton, or, if tenure is not desired or forthcoming, where they will go. (Even if they do get tenure, university regulations do not permit them to remain in these apartments.) The concern about being "one of the herd" is probably near the surface for many people in today's society. Is it more or less so for those in an academic community? Is it a feeling that can be significantly reinforced or lessened by the design of housing?

High-Rise Living

Are the Princeton tenants pleased or displeased with high-rise living? We do not know from the official questionnaire. One tenant, who comments privately that the first building is a "high-rise slum" and who deplores the construction of a second building of its type, nevertheless enjoys looking out over a placid expanse of lawn and lake—the beech trees reach to the eighth story, and birds are plentiful in the uppermost branches. The university's need was to use its land wisely, and the wish was to avoid squandering it, smothering it under a patchwork quilt of smaller buildings. But is this *particular* high-rise design—a long, eight-story block—the best answer to the needs and wishes of the people who will live here? (The second-unit tenants form a somewhat different group—one-third of the new apartments are used by older and more transient visiting scholars. Since their children are older, changes have been made in play areas and meeting rooms.)

Surprisingly, no question was asked about the lakeside site, the preservation of which was the whole point of consolidating units into these tall blocks. Do people use the grounds and playground facilities? In what ways? How often? Being above the ground rather than directly on it, is their attitude toward the outdoors perhaps more passive than active—an appreciation of View rather than an interaction with Land. It would be interesting to know, if difficult to measure.

Easier to measure, undoubtedly, is the attitude every faculty member and family has about living with other academic people. What do they like or dislike about it? If similar housing were available either exclusively for university people or open to a mixed Town-and-Gown group, which would they choose? Does this high-rise housing seem to promote or inhibit a sense of community among the tenants? Are patterns of friendship influenced by the architecture (same wing, same floor)?

A Massive Research Needed

Thus, although there may not be any "when-did-you-stop-beating-your-wife" blunders in this questionnaire, there were other errors, by omission. Perhaps one should not be too critical about what is, after all, an initial attempt to look at a problem. But it is sadly a small attempt, when the need is for a massive research into what people need and want in the way of housing, and how they use their existing housing. An architectural firm probably has neither the time nor the talent to do this; but a university would seem to be the ideal place for an investigation that crosses the boundaries of many disciplines. It is all the more regrettable, then, that the survey at Princeton did not aim higher.

Martin Meyerson, in *Face of the Metropolis*, wrote about Le Corbusier's Unité d'Habitation that "although the experiment has now been under way for almost ten years, the results of it have not been analyzed. This calls attention to one of the great needs of urban design: the appraisal, after the glamour of novelty has faded, of new forms of living and how they function, how they withstand the attritions of use, how they answer the needs of the people they house." Such an appraisal is ideally conducted without the immediate pressure of deciding whether—or how—to repeat a particular design. But in any case, whether research is aimed at discovering people's reactions to a particular design, or whether research is more broadly and openly conceived (the more difficult job and the more essential), it is long overdue. There is far too little concrete understanding of what architecture can mean to people. Intuitive guesswork by architects, whether it is grounded in aesthetic or humanitarian terms, is simply not enough.—EP

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PHOTOS: ALEXANDRE GEORGES

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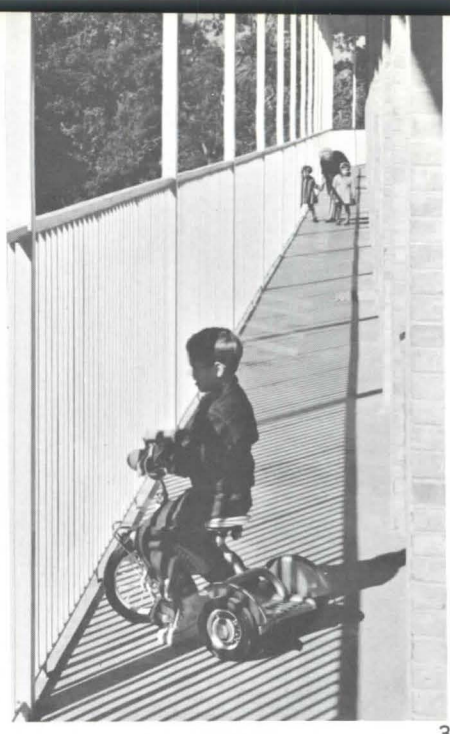

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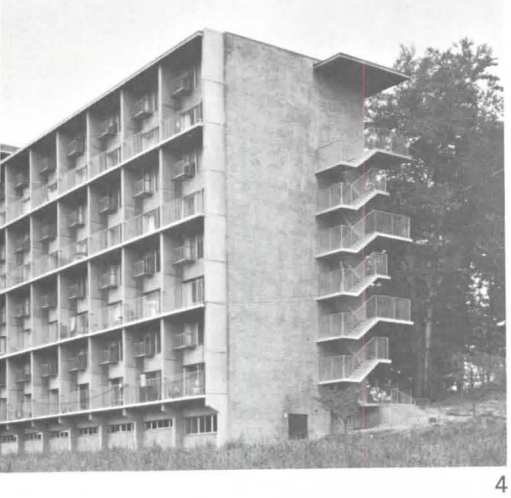
Comparison of the two buildings shows subtle changes in design. Seen from lakeside, for instance, the earlier building ***(1)*** *has a more delicate feeling than the newer unit* ***(2)****, because of various changes in structural details and in surfacing materials. Lobby core is more accentuated now, breaking up the form of the building into seemingly separate blocks. Entrance to all apartments is from access galleries on the building façades away from the lake; narrow galleries in the first building* ***(3)*** *have now been widened. End views are of newer building* ***(4)*** *and earlier one* ***(5)****. Inside, the new apartment looks out to the lake through floor-high windows* ***(6)****; earlier apartments were more enclosed* ***(7)****. Seen from lake* ***(8)****, new unit is at left, older unit at right. Because all apartments are duplex, each building appears to be only four stories high.*



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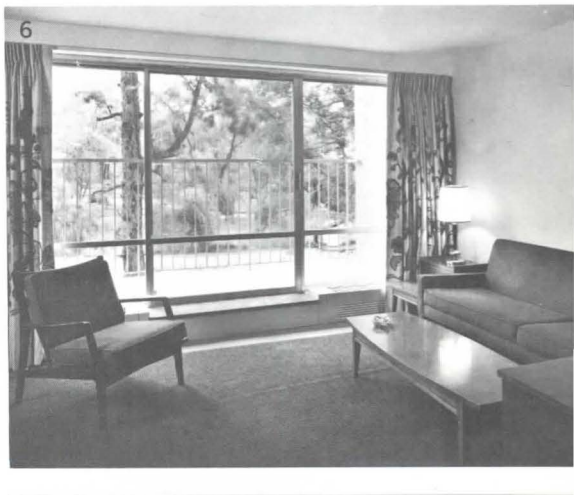

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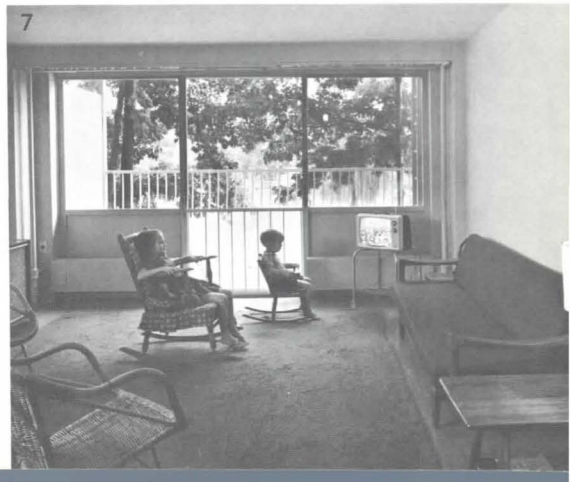

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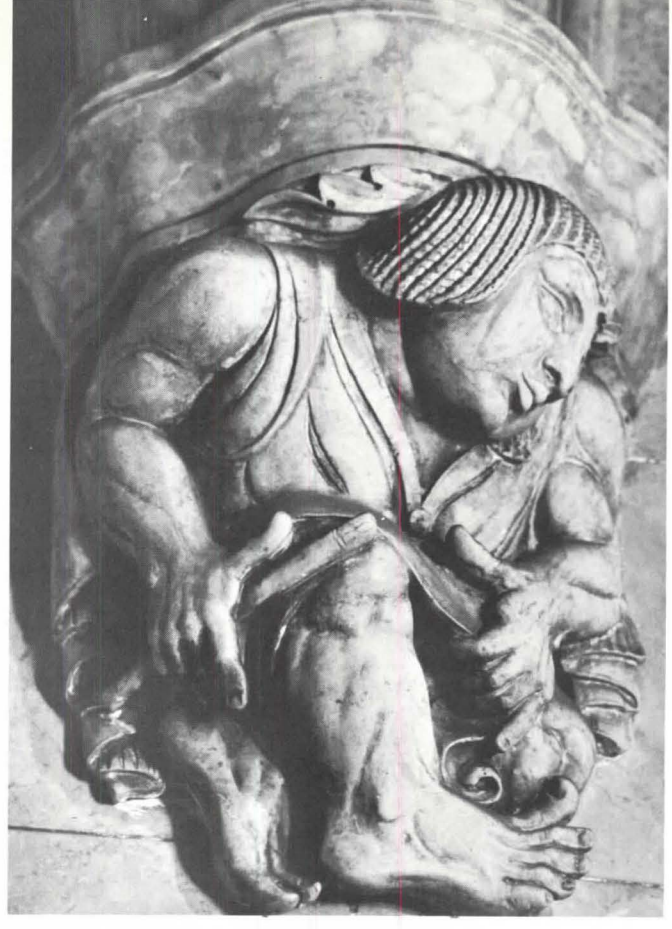


SCULPTURES FOR BORED BANKERS

A playful approach to sculpture, dating from the antique past of the 1920's, provides a useful lesson to the contemporary architect.

A visit to most modern banks will discourage anyone from lingering in the halls of money: Most interiors are simplified affairs, with clean-cut, rectilinear walls, whose dullness may be relieved by some subtle shift of materials—a pane of glass here, a wall of marble there. At best, there are one or two pieces of timid sculpture, a TV set, or an Eiffel Tower immortalized in copper to spur one on to better saving or better spending. An observant visitor will have canvassed the place in short order, and, if the lines are slow, the tellers fumbling, and the wait long, he will quickly wax impatient with little to divert him.

In a bank dating from the good old days, the early 20's, things were different. The Bowery Bank on 42nd Street in New York City, for instance, follows the example of old Cathedrals, where the mind and eye were entertained by sermons in stone, leavened with a lively sense of profane humor. Aesop's fabled creatures, gods and geese cavort about the walls, mail boxes, and fire-hose cabinets; sphinxes hide under tables, ghouls pick their toes above doorways. It is enough to induce one to bank several times a day, and to enchant any designers who might appreciate a disappearing art: the skillful, careful blending of two crafts—architecture and sculpture.

The exuberance of the Bowery sculpture was part and parcel of the studio of Ulysses Ricci and Angelo Zari in the 20's. The partners then had a shop of Renaissance proportions and activity. The studio, which was located on 35th Street between Second and Third Avenues in New York, had eight sculptors, five retouchers, seven architectural plasterers, and five casters (in a separate building). During the 20's, they worked on a variety of commissions: the Temple Emmanuel on 5th Avenue, the Chamber of Commerce building in Washington, the Allegheny General Hospital in Pennsylvania.

A design such as that for the Bowery Bank grew out of a close collaboration between sculptors and architects—in this case, York & Sawyer. Architectural plasterers in the Ricci studio would prepare a full-scale mock-up of the architectural frames (doorways, arches, vaults); the sculptors worked out the first sections of the frieze in clay; then the model would be cast in plaster, and the retouchers would finish it off. The piece would next be cast in bronze by skilled craftsmen (the likes of whom one cannot hire anymore), or sculpted in stone on the site of the bank itself, by workmen not connected with the Ricci studio. By making full-scale mock-ups, the architect, designer, sculptor and the workman on the spot knew exactly what the appearance of the design would be.

"Everyone contributed to the work," says Thomas LoMedico who worked for Ricci at this time; "it's hard to say just where one person started and left off. One sculptor might begin to design a piece, be called away, and someone else would come along and continue it. It's not like sculpture is today, when everyone does his own bit, signs it, and that's the thing. We all worked together.

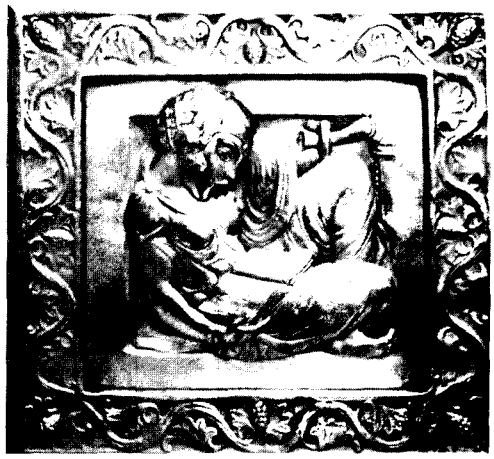
"Of course, the basic motifs for the Bowery were sketched out by the principal designers, the architects, and the bank officials, but if anyone thought of some appropriate symbol or motif, he would work it in somewhere. For instance, the Aesop fables that appear on the grille-work—I knew all about those; my mother used to tell me those tales. Only she didn't know they were by anyone called *Aesop*.

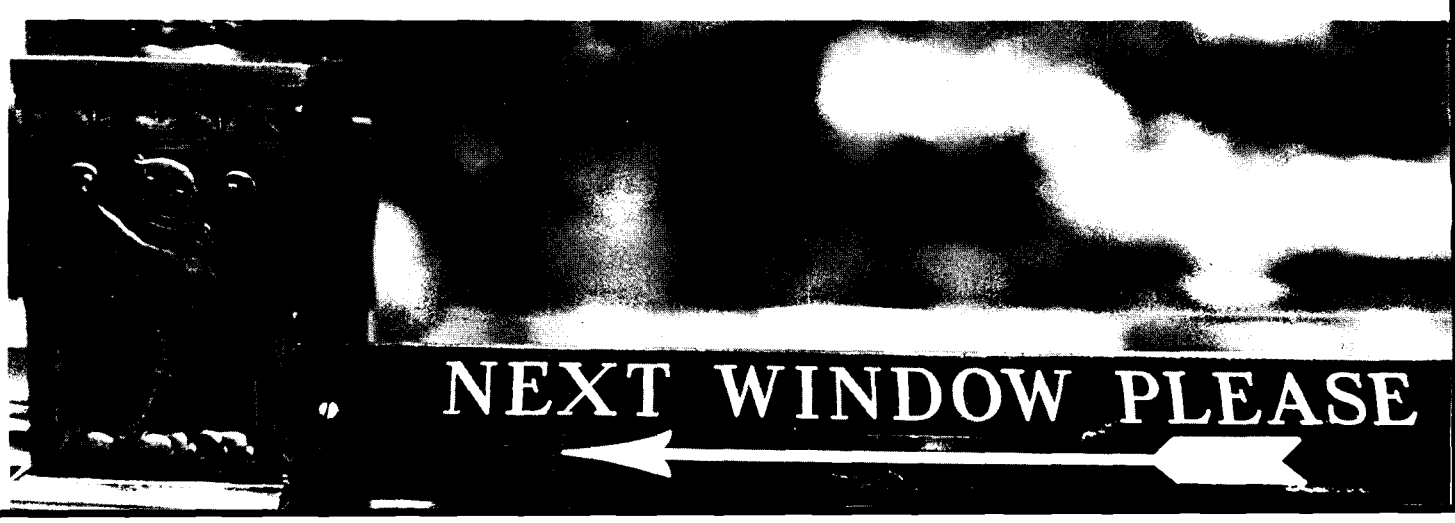
"There was real excitement about sculpture in those days. We used to work hard and we were well paid ($10,000–$12,000 a year). But in off-hours we couldn't talk about anything but sculpture. The Bowery Bank was special. After it was finished, that particular style was known in the trade as 'Boweryesque.'"

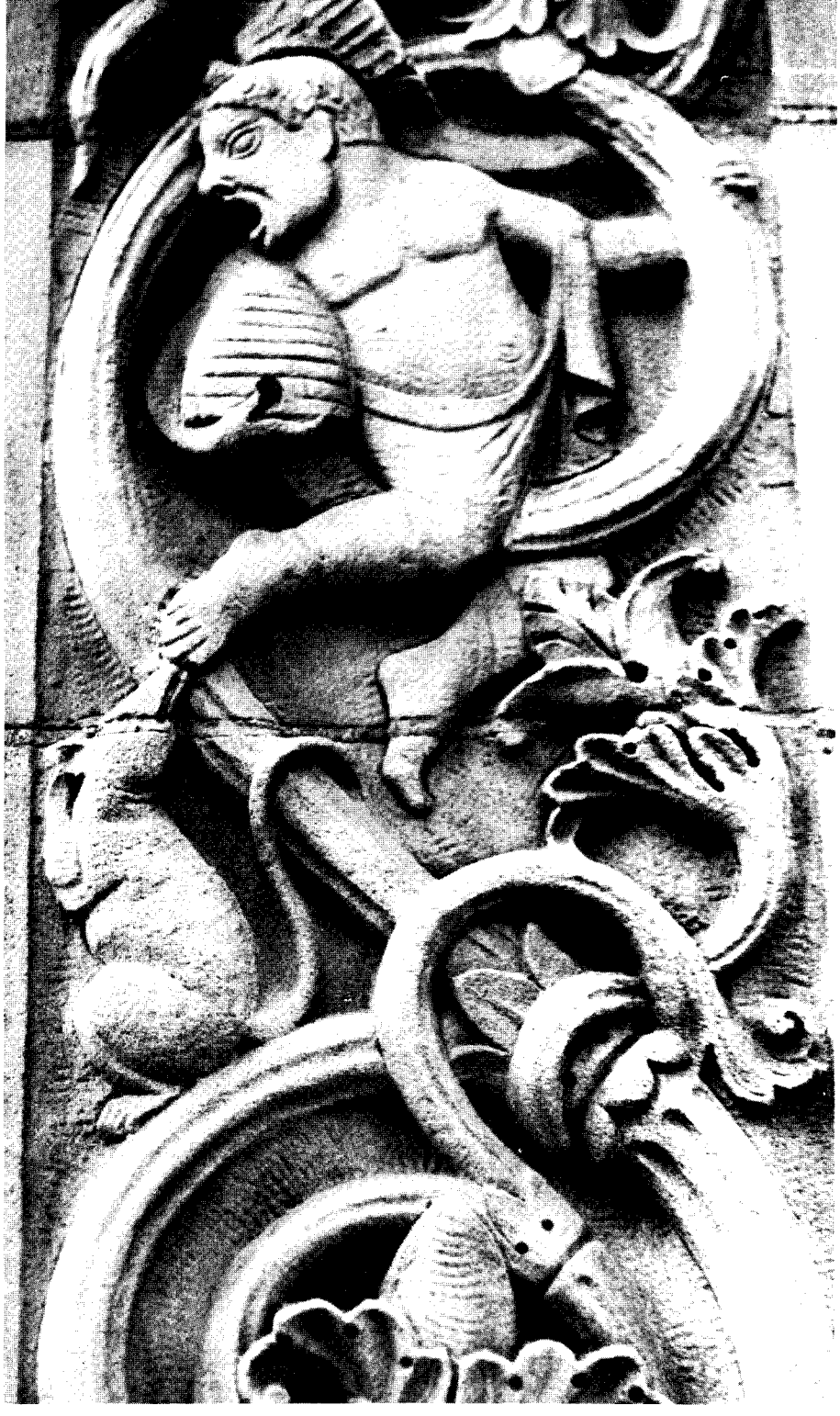
And 'Boweryesque' it is—a delightful and exuberant revival of the Romanesque, with a mythology of the gods replaced by that of Mammon.

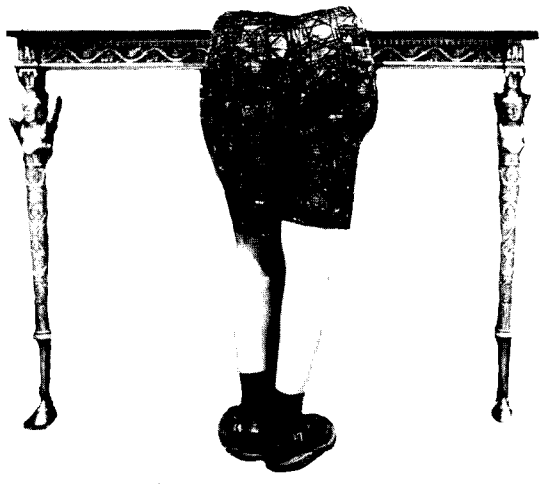
Ghouls and gremlins lurk beneath the lintels at the old Bowery Bank on 42nd Street, N.Y. Such whimsey from the 20's has given way in the bank's newer branch offices to a look of modern efficiency and fluorescent cleanliness that is accented by a few copper renditions of TV sets, Eiffel Towers, and test tubes.

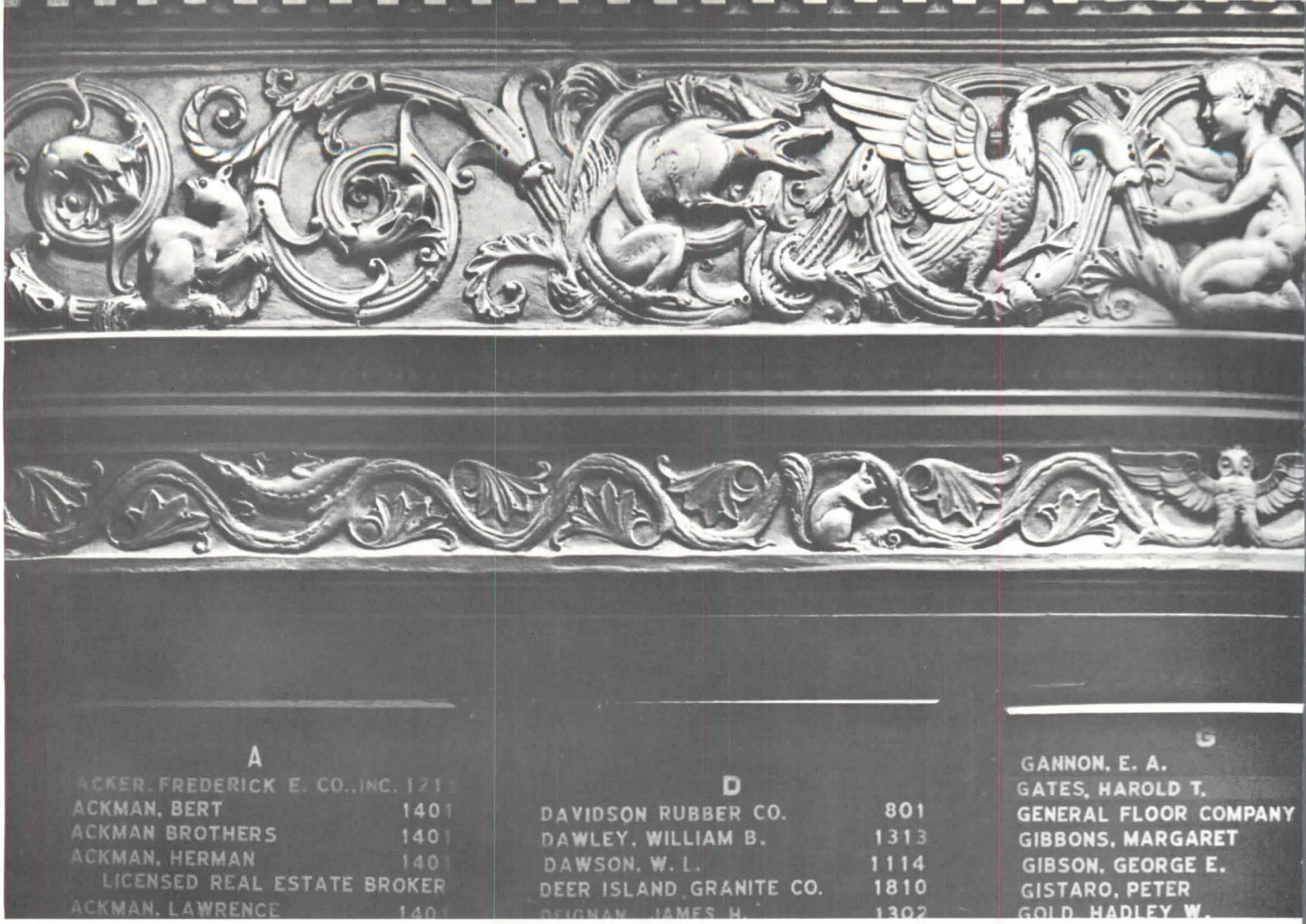
At the bank, Aesop's fabled animals romp around the gates. The elevators are emblazoned with portraits of professionals who might pass through the doors: a bemonocled architect, or a seductive telephone operator curled up with a book while waiting for a call. Monkeys climb the fire-hose cabinet and pompous owls are at your elbow at the teller's cage. It is a place to linger in, to outstare the sphinx beneath the writing table or contemplate the moral of "The Diligent Saver Whose Toe Is Bitten by the Rat of Bad Influence" in which the beehive symbolizes industry, organization, saving. Later on, the wicked rodent is hung from the topmost branch of the vine.







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LICENSED REAL ESTATE BROKER
ACKMAN, LAWRENCE 1401
D
DAVIDSON RUBBER CO. 801
DAWLEY, WILLIAM B. 1313
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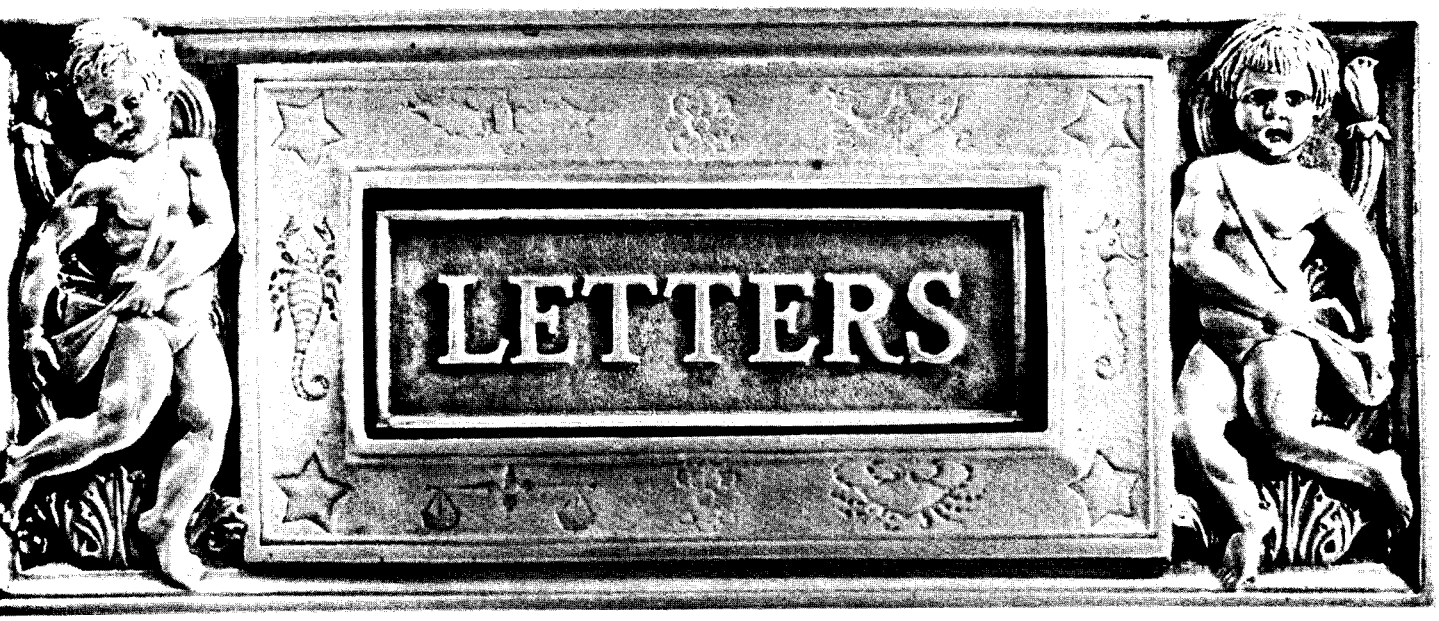
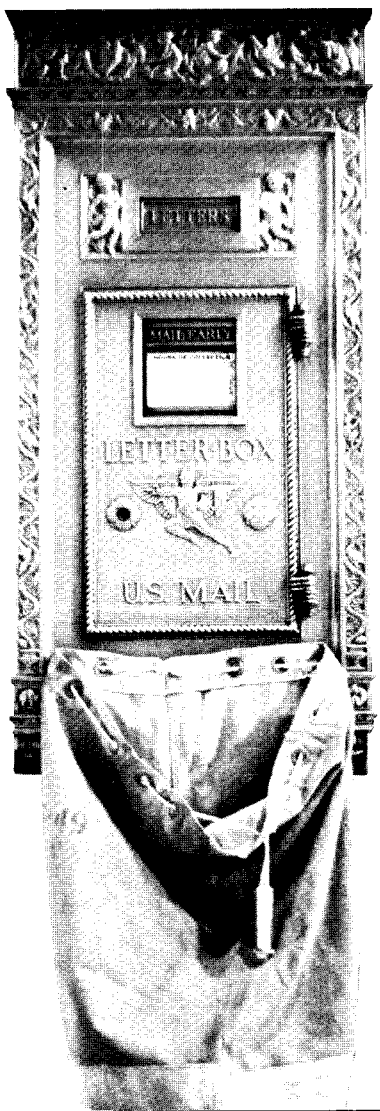
DEER ISLAND GRANITE CO. 1810
G
GANNON, E. A.
GATES, HAROLD T.
GENERAL FLOOR COMPANY
GIBBONS, MARGARET
GIBSON, GEORGE E.
GISTARO, PETER
GOLD, HADLEY W.



Who, nowadays, would ever think of looking at a building directory and find anything except a name? Do squirrels ever stash away nuts at the door to the banking floor? Or seahorses crown a teller's cage? Would anyone in 1966 think of decorating a U.S. mailbox with a pair of dancing cupids? It's not serious, not dignified, not the proper sort of image. Humor is not "in" nowadays.



FASHION SHOWROOM

Breuer's new fashion showroom reveals interesting parallels between his approach to furniture and interior design and his work as an architect.

SHOWROOM AND OFFICES FOR VERA INC., *New York, N. Y.* ***Interior Design*** *by Marcel Breuer and Herbert Beckhard, Architects.*

With his brutal new Whitney Museum beginning to take shape and with brawny office buildings on the boards, Marcel Breuer still finds a challenge in designing a small showroom for a loyal client. "We consider the intimate project to be a laboratory for bigger work," explains Breuer's associate Herbert Beckhard, "and we do a little experimenting there that we can't do on large-scale projects. Also, a showroom such as this has some of the cabinetwork and furniture considerations that Breuer has not lost his affection for over the years, since his career origins as a furniture designer."

Beckhard's biographical reminder forces a historical view of the showroom and reveals the scope of Breuer's design development that is apparent in this microcosmic project. Several elements are reminders of early association with the Bauhaus (the floor plan, seemingly without potential, since the existing building acted as a "given" in the situation, has open-plan suggestions in several free-standing partitions and in doorless spaces; strong primary colors are used on walls, such as the electric blue facing the entry).

PHOTOS: ANDRE KERTESZ

Other aspects speak for the 40's and 50's (the calm, somewhat bland over-all background of grays, whites, and teak; the textural orchestration that sets wool carpeting and crusty cork tiles against expanses of mirror and glossy white lacquer). Above all, and most immediately apparent, is the identification with the 60's (free-standing showroom display booths, where buyers can select merchandise without being easily observed by other buyers, are in the mainstream of Breuer's current work).

What is most intriguing about the showroom display booths, however, is not so much that they represent the latest efforts of a long-time furniture designer, but rather that for Breuer, whose architecture has been compared, at least once in the past, to furniture design (see Peter Collins, "Furniture Givers as Form Givers," p. 125, MARCH 1963 P/A), the display booths are clearly comparable to, if not derived from, some of his latest buildings.

This relationship is apparent in both the plan and elevations, for, although the booth units are basically triangular with fins cantilevered from the corners to provide privacy, the irregular placement of them in the space, rotated as they are to minimize buyer-spying even further, gives them an appearance of the double-Y plans that were devised for IBM France (FEBRUARY 1963 P/A), and the HHFA project on Pennsylvania Avenue (MARCH 1965 P/A).

Similarly, the staggered niches provided for scarf storage, which are the direct results of the triangular geometry of the plan, are clearly reminiscent of the faceted, "crystalline" sculptural walls of precast panels designed for the above-mentioned buildings. In addition, the white lacquer booth units are raised on vanishing black bases and thereby reiterate the effect of the pilotis of those buildings.

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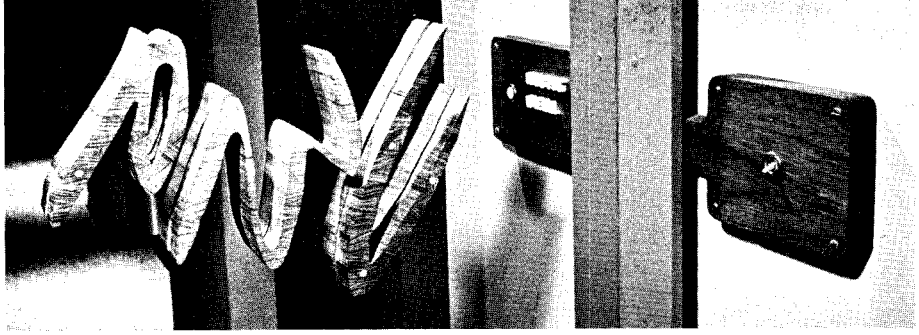
The booth units are a telling example of how an architect can make a strong personal statement in a small job without turning the project into an overblown one.

The fashion world of Seventh Avenue, however, is not known for its attachment to this kind of architectural statement or to the more durable "fashions" of good architecture. "I think we are the only ones who have ever gone to anyone that was that far out," says Vera Neumann, designer of the internationally popular ladies scarves and blouses and table linens "by Vera." But this is the third showroom that Breuer has designed for the firm in its 19 years of existence, and Mrs. Neumann herself lives in a Breuer house.

The program for the showroom and offices was straightforward: The firm needed larger, consolidated quarters and a separate showroom for the linen line that could be used interchangeably with the blouse-and-scarf showroom at peak "market" periods. They needed private offices for the general manager of the firm, F. Werner Hamm, for the managers of each of the lines, and several conference spaces as well as salesmen's desks. A small reception room was also required. Designing, printing, and finishing of the fabrics are done in the firm's Printex plant in Ossining; the warehouse and business offices also are located elsewhere.

"When we decided to do our first showroom," Mrs. Neumann recalls, "we thought it would be just as cheap to get someone good as someone inferior. And that first showroom did us quite a lot of good, for the simple reason that very few people in this field had one of such impressive character. (The usual fashion showroom is done by someone in store display or the office field.) There are infinite advantages to it: it helps efficiency; it's atmosphere is influential. People may not recognize what they admire about it, but they know that there is something different, and it inspires them to work better."



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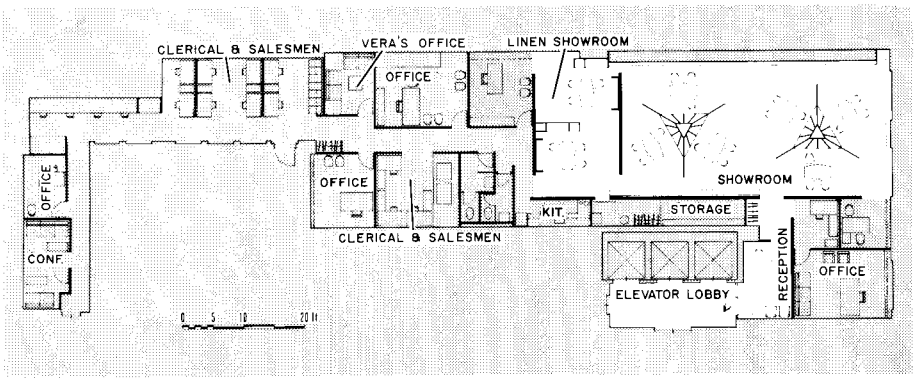

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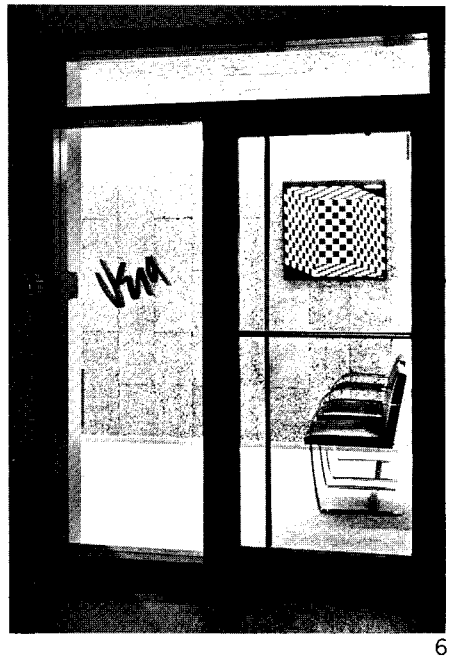

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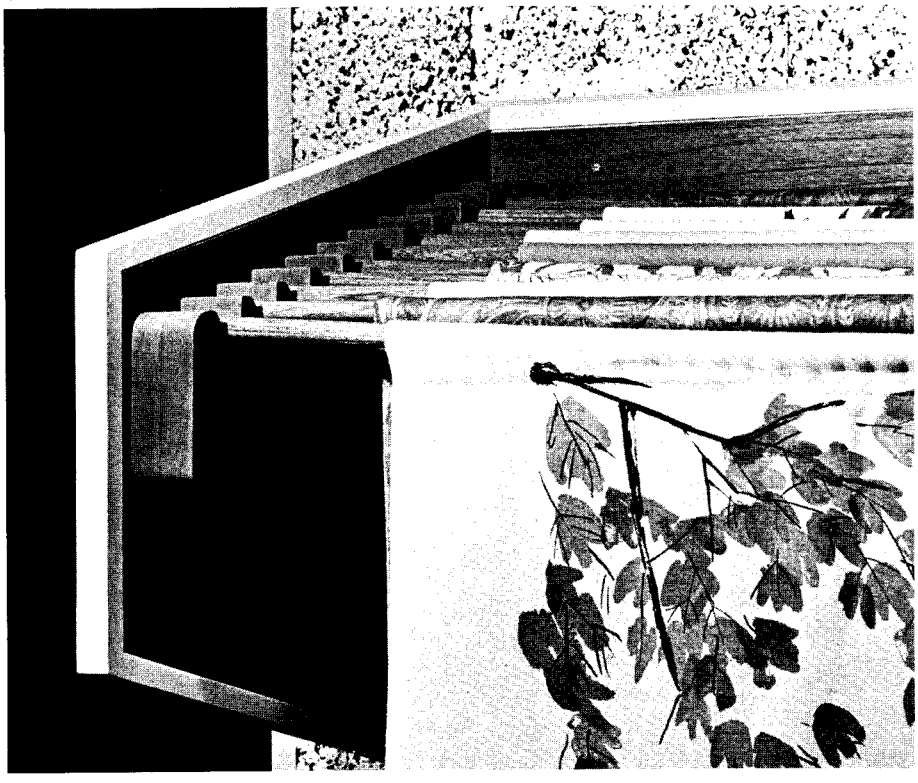

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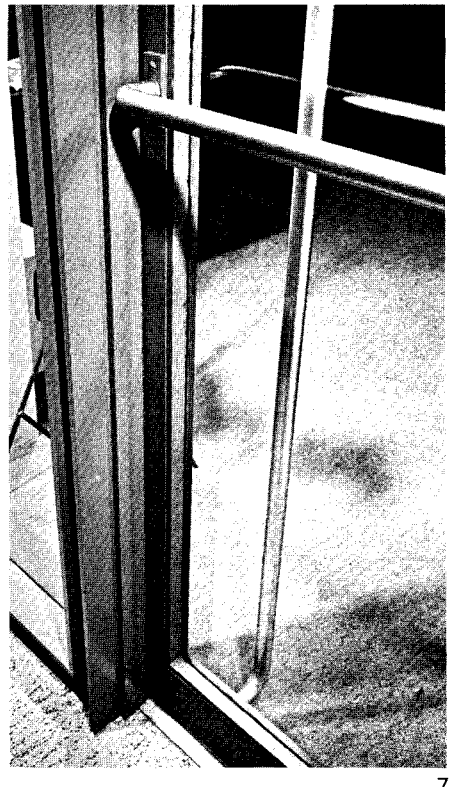

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The main showroom ***(1)*** *exhibits the two triangular display booths, clearly marked with Breuer's personal touch. Buyers at the tables have a view of the complete scarf line stored in the facing niches; both the fins and offsetting the triangular booths in the plan* ***(4)*** *improve buyers' sense of privacy. Showroom for linens* ***(2)*** *has storage niches staggered like the others but in rectangular cases; tablecloth rack* ***(2,5)*** *reiterates the "crystalline" niche motif. The small reception room* ***(6)*** *has two chairs facing a teak desk; an Op Art silk scarf by Vera is framed on the cork-tile wall. Details of the entry door* ***(3,7)*** *include lightswitch and nightbell plates that conceal wires that could not be countersunk. At right* ***(8)****, Vera examines a scarf.*

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DATA: **FLOORING: Elevator lobby floor:** vinyl travertine/gray/Ruberoid Co. **Reception:** carpet/nylon/beige/Commercial Carpet Co. **Showrooms:** carpet/charcoal/nylon/Commercial Carpet Co. **WALLS: Elevator lobby:** vinyl/gray/Guilford. **Entrance:** glass, painted gray aluminum frame/architect-design; wall-hanging/stretched black-and-white scarf/by Vera; sign/laminated teak mounted on both sides of glass/architect-designed. **Main showroom:** right/textured cork/primary blue; center/photomural/black and white/Herbert Matter. **Linen showroom:** white-textured cork; floor-to-ceiling mirror/Union Port Glass Co. **CEILINGS:** fissured acoustic tile/Hansson. **LIGHTING:** Gotham Lighting Corp. **CABINETWORK: Main showroom and linen showroom:** tables/teak top and drawers/brushed chrome legs fixed to floor/architect-designed; scarf display cabinets/wood/painted white with black bases/architect-designed. **CHAIRS: Reception:** leather/black/stainless-steel frames/Knoll. **Main showroom:** naugahyde/charcoal/chrome swivel base/Herman Miller. **Linen showroom:** naugahyde/beige/Herman Miller. **PAINT:** custom blend/Pratt & Lambert.

DESIGN OFFICES

Interior designers, in their new offices, emphasize a functional element — the lighting—as the prime aesthetic expression.

OFFICES FOR I.SD., INC., *Chicago, Illinois.* ***Interior Design*** *by I.S.D., Inc.*

I.S.D., Inc., the vigorous young interior-space-design division of the Perkins & Will Partnership that functions as an autonomous unit, has had such an unexpectedly rapid rate of growth that both of its branch offices have been moved twice in the five years of the firm's existence. What this activity seems to indicate is that architects feel confident about engaging another architectural firm's interior design division as consultants. As a result, the Chicago office has now been expanded for the third time.

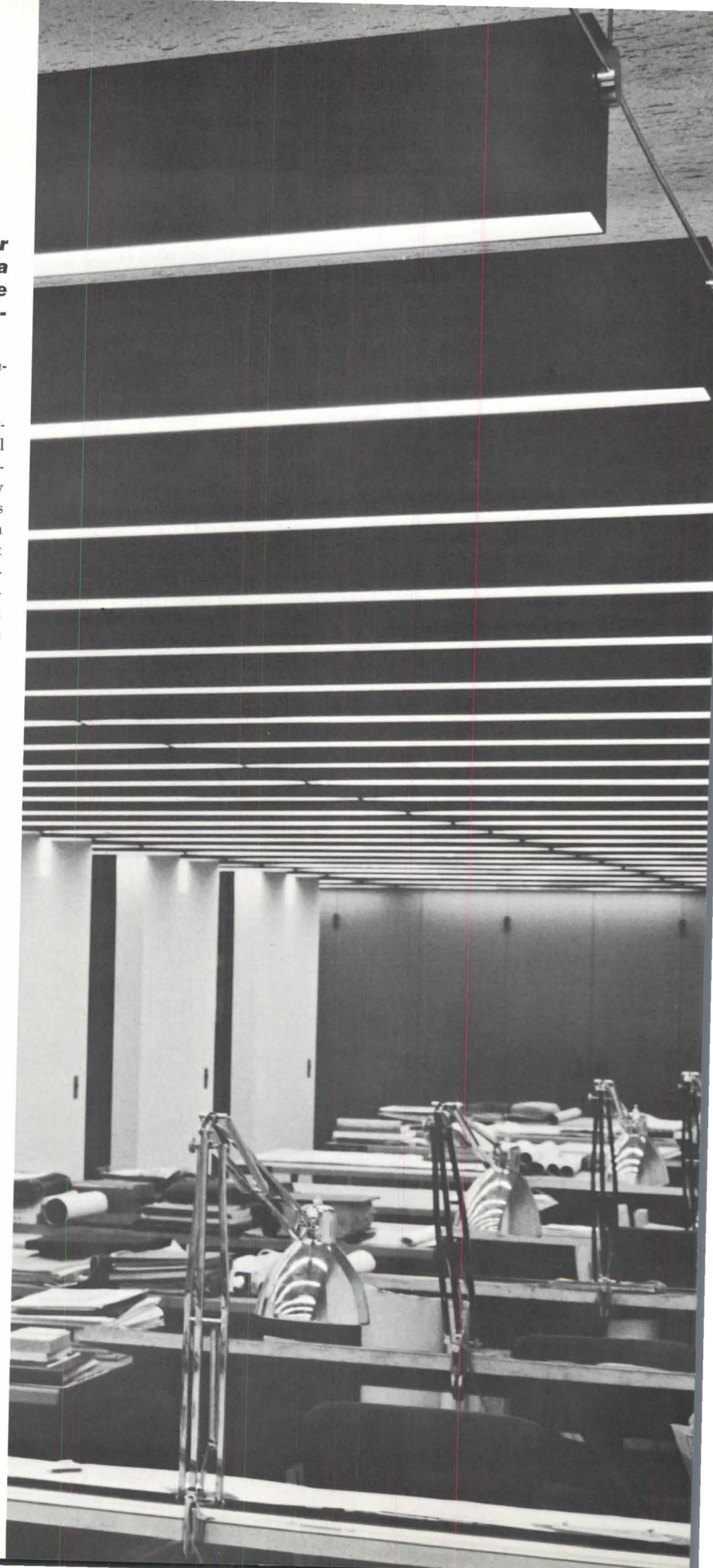
Functionally, the new plan shows a concentration on the architectural and furnishings designers' drafting room and its adjacent cubicles, which are really doorless offices for the project managers. In addition, the plan has been laid out to provide a measure of control by preventing unexpected salesmen and other visitors from getting to the drafting room without going through the reception-room checkpoint.

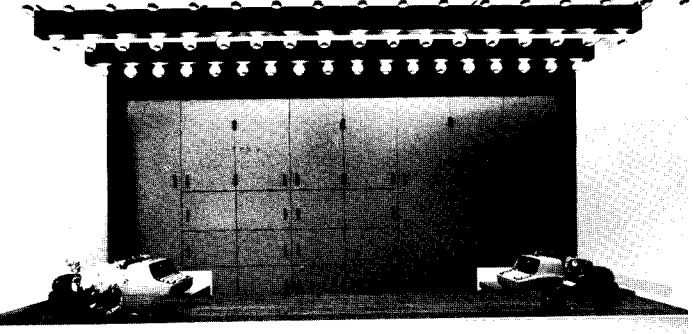
Aesthetically, the design illustrates the firm's decision not to attempt to impress prospective clients with luxury furnishings, but rather to emphasize one of the vital functional elements of the space—the lighting—as the principal aesthetic expression.

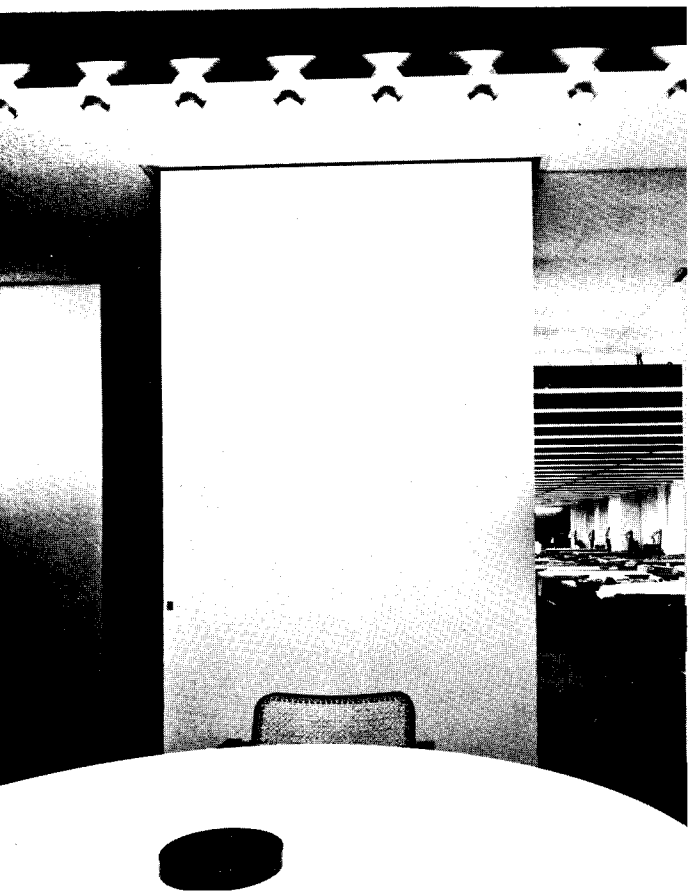
All other visual considerations in the scheme are, essentially, subordinated to the ceiling lighting fixtures. The colors and textures, for instance, are neutral: white walls with black bases, flat gray-green-painted doors and radiator covers, gray-green-and-black mixed carpeting, and furniture of stainless steel, maple block, white plastic laminate, and black upholstery.

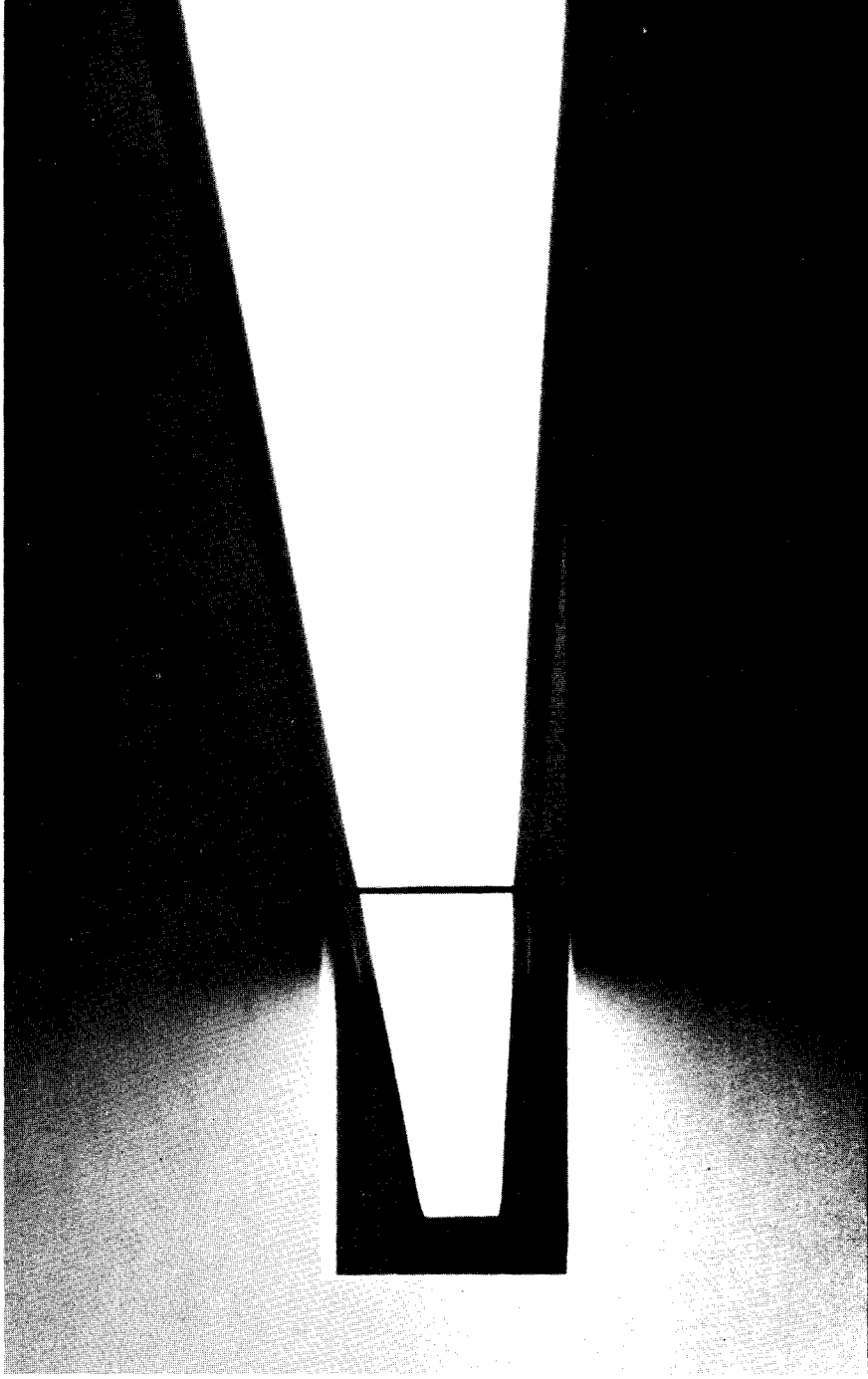
It is the black and stainless-steel lighting fixtures that add sparkle to this simple and subdued scheme.

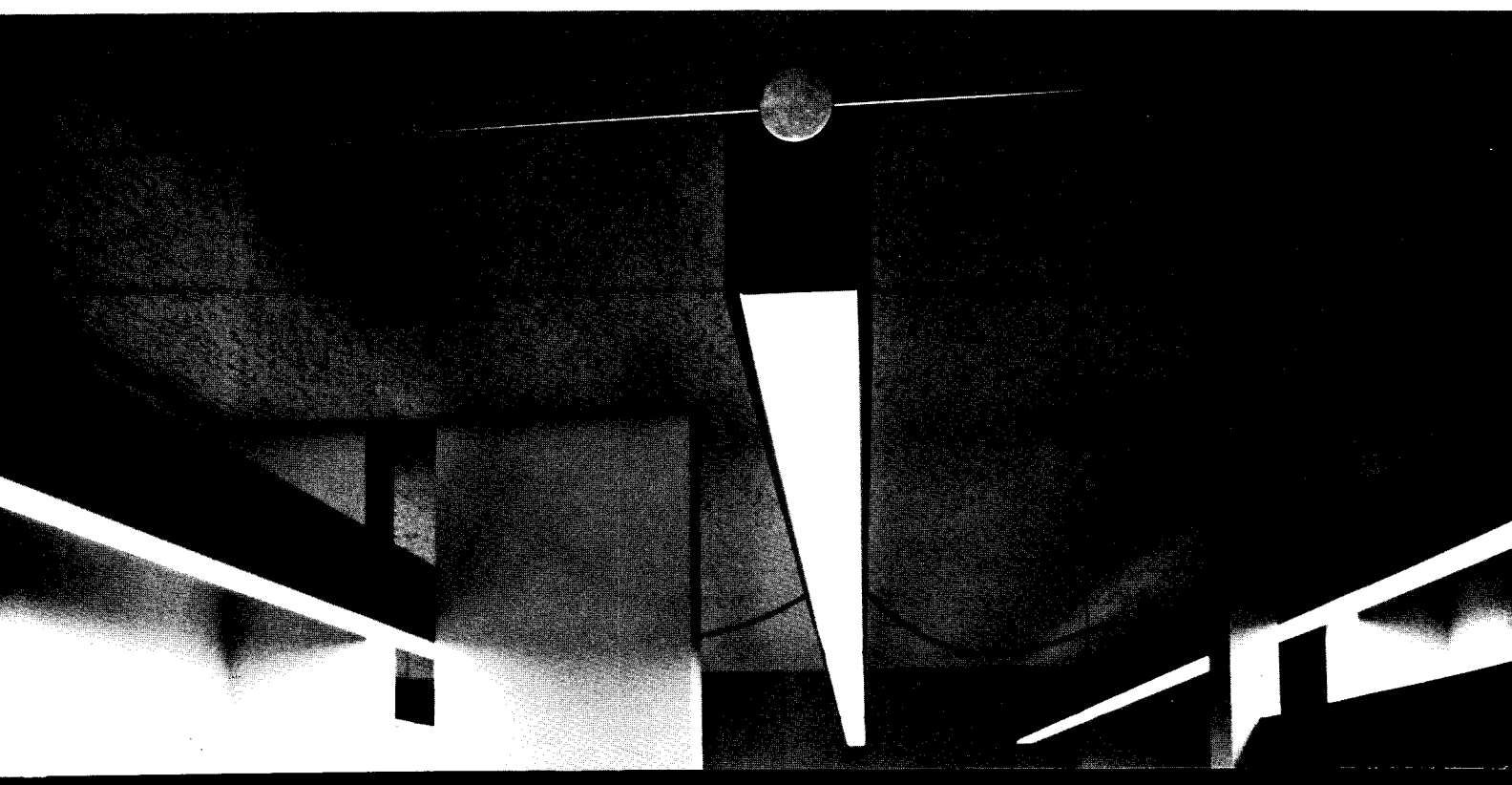
In the drafting room, black troffers housing fluorescent tubes are suspended on stainless-steel rods over the drafting tables at a height of 7′-4″. Ducts above the ventilating ceiling prevented recessing



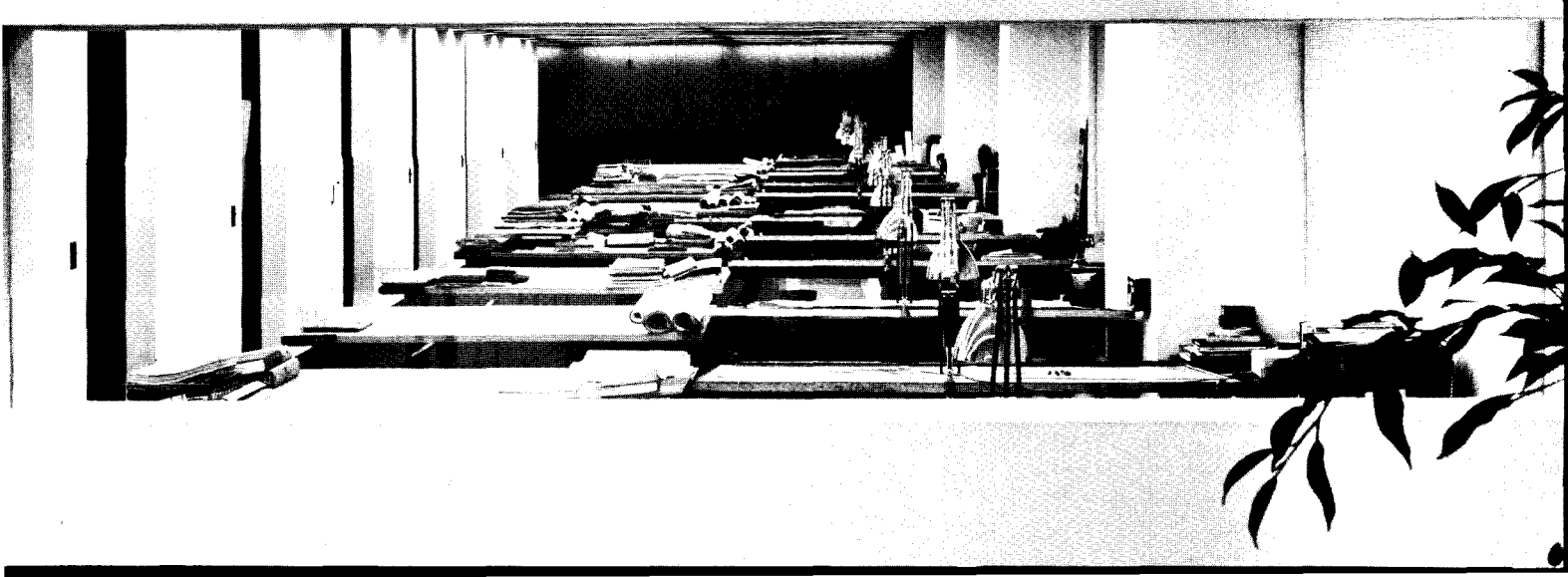








PHOTOS: DAVID R. PHILLIPS



the lighting; horizontal spill was not desired; and, visually, the lowered lighting gives better proportions to the long room.

Three 6-ft-long troffers with stainless-steel disks between them are butted to span the 18-ft-wide design area, which includes the project managers' cubicles; the panel walls of the cubicles are pierced by the troffers to suggest an extension of the width of the spaces.

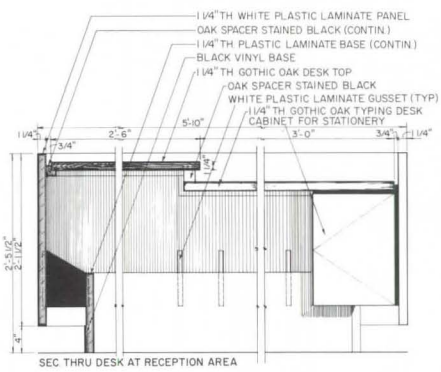
Three rows of troffers, controlled from switchplates on the panels of the cubicles, are banked together with exposed wiring. Concealing the wiring would have made a suspension system of greater diameter mandatory and the design less interesting, the designers feel; exposing the tubes themselves, on the other hand, would have destroyed the continuous lengths of the fixtures by interrupting them with the tube connections. The continuity of the troffers, therefore, is carried out by plain white plastic diffusers.

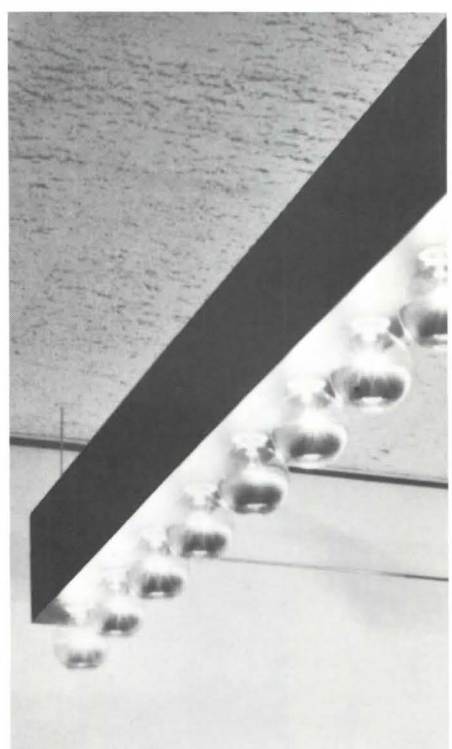
Chrome incandescent Luxo lights on the drafting tables and wall-mounted ones in the cubicles supplement the ceiling-fixture lighting on dark days, but, in practice, are used mainly for color checking. The foot-candle level is 120 in the drafting room and 75 in the cubicles.

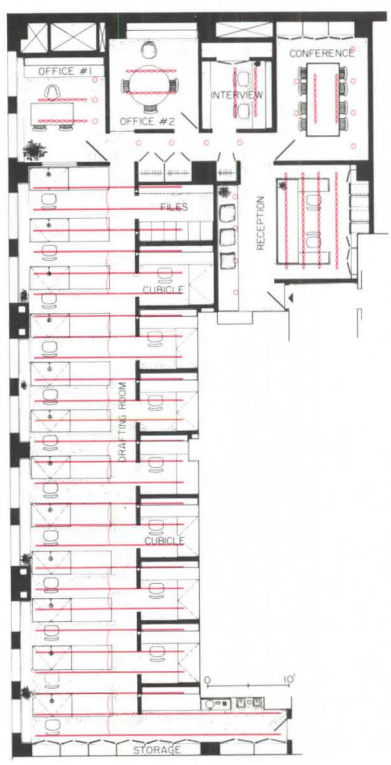
The same troffers and suspension system are used in the reception and conference rooms and in the private offices, but, there, the lights, which are incandescent bulbs with silver banding, are repeated 8 in. o.c., exposed below the troffers. The number of bulbs is more than what is functionally necessary, but they supply a glitter that provides important visual interest.

In the hallways and smaller rooms, swivel ball fixtures are used to provide pools of light and to spotlight paintings.

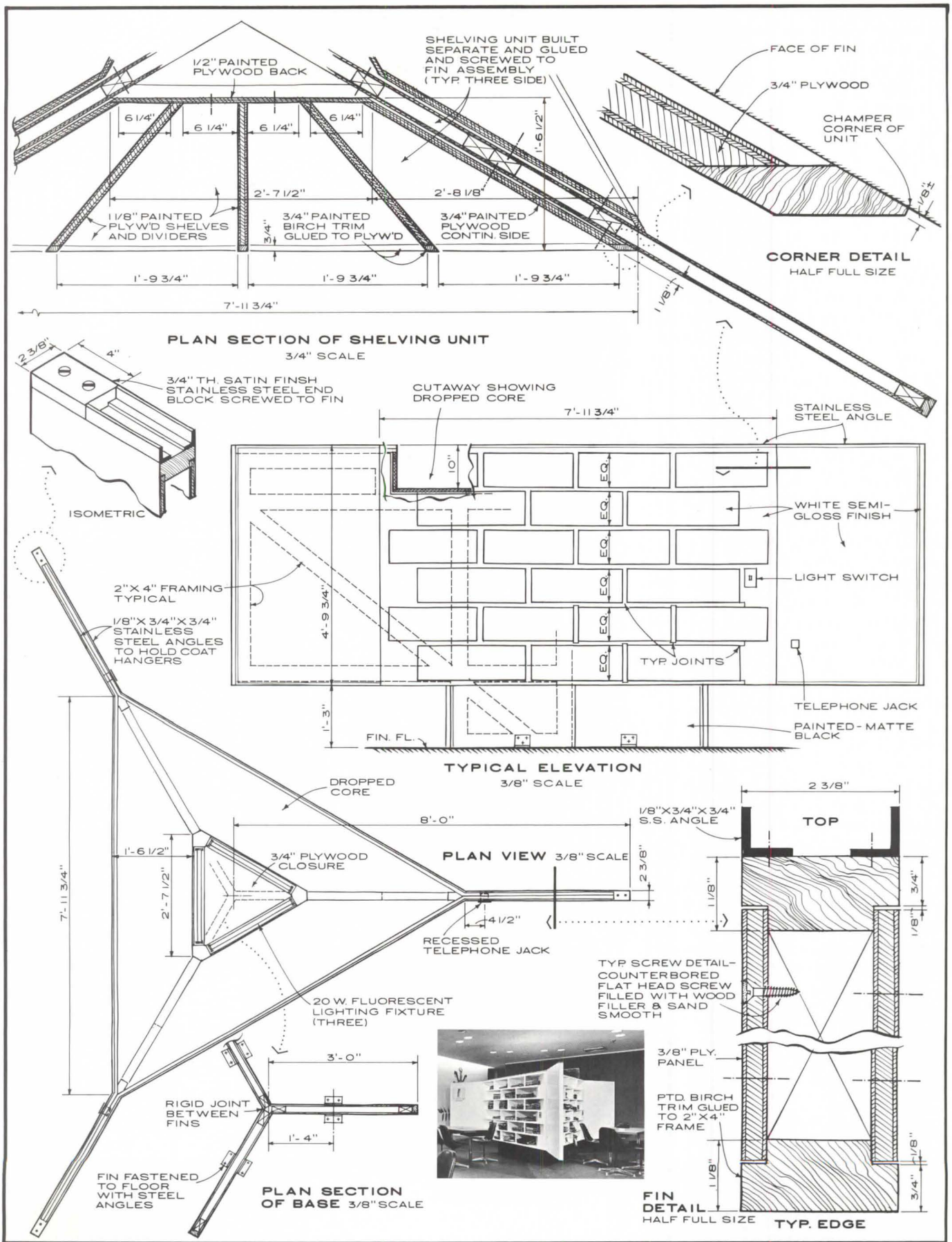
The scheme is sensible and unpretentious, and, in its use of a functional item as the principal decorative element, it exhibits a degree of control and imagination within the mainstream of current office planning that helps to explain the rapid growth of this young design firm.





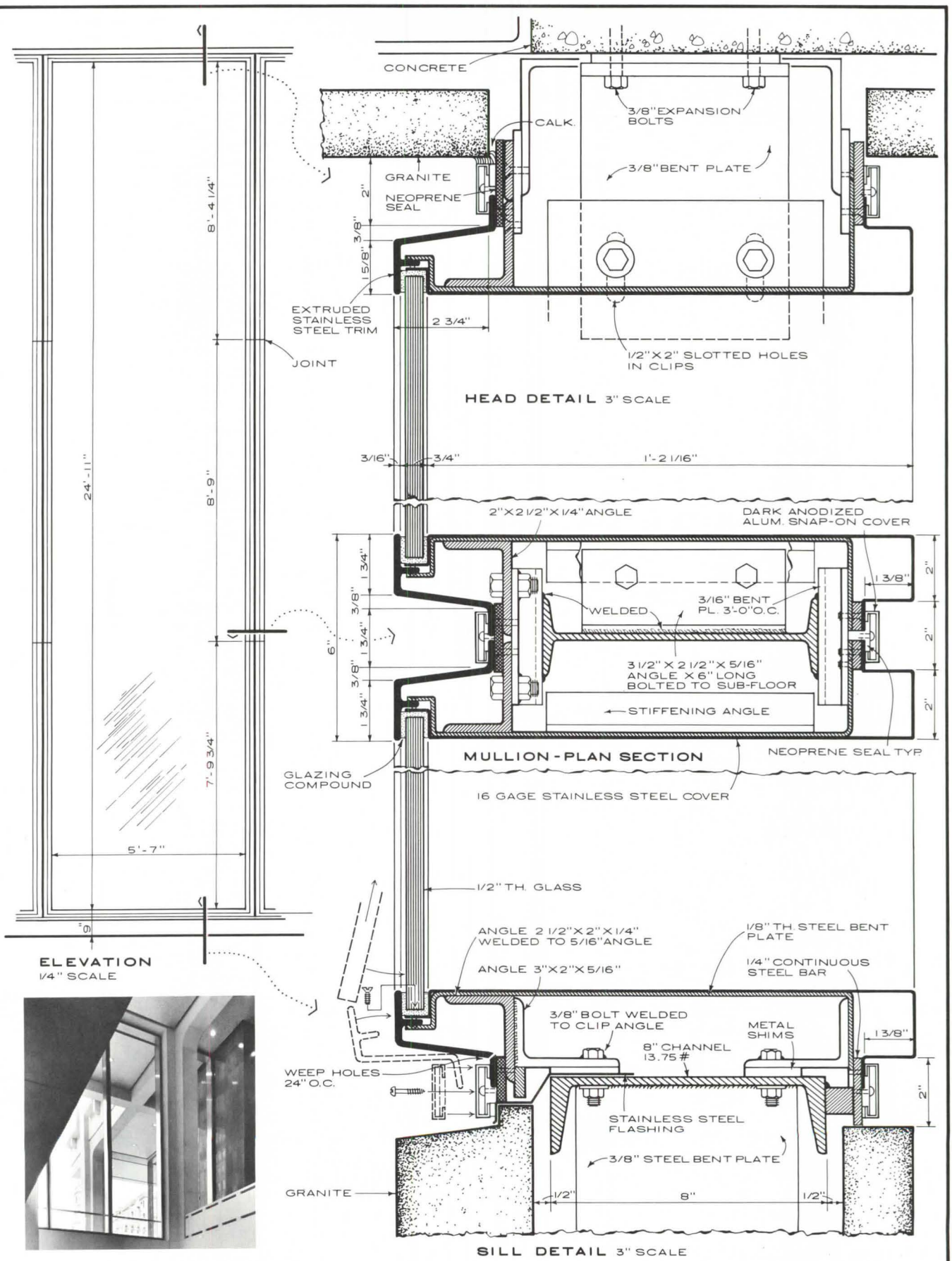


DATA: **DRAFTING ROOM: Ceiling:** ventilating ceiling/acoustic tile/"Airson," U.S. Gypsum. **Lighting:** ceiling/Morris Kurtzon, Inc.; drafting-table lamps/mirror chrome/Luxo Lamp Corporation. **Walls:** painted white/black bases. **Floors:** carpet throughout/gray-green with black/ISD color/Commercial Carpet Co. **Furniture:** black under-table file units/Steelcase, Inc.; reference tables/maple block tops/J. J. Lane Equipment Co.; drafting tables/H-frame stainless-steel legs/Stembridge Manufacturing Co.; hardware/doors/Brookline Industries, Inc.; cabinets/Colonial Bronze Co. **Window Coverings:** roller shades/split wood/Temlite/The Aeroshade Co. **Wastebaskets:** National Vulcanized Fibre Co. **RECEPTION AREA: Lighting:** bare silvered 50-w incandescent bulbs/G.E./on black troffers; pendant swivel globes/black/Morris Kurtzon, Inc. **Furniture:** bench/white plastic laminate/black base/architect-designed/Calgrimm Cabinet & Furniture; cushions/Samuel Butera & Sons, Inc./suede/brown/Fleming Joffe Ltd.; desk/black base/Gothic oak top/Wood-Mosaic Corp./plastic laminate encased/architect designed/Calgrimm; cabinets under desks/oak tops/plastic laminate cases/Corry Jamestown Corp.



SHOWROOM AND OFFICES FOR VERA, INC., New York, N. Y.
MARCEL BREUER AND HERBERT BECKHARD, Architects

SELECTED DETAIL
DISPLAY AND SALES BOOTH



MUNICIPAL SERVICES BUILDING: Philadelphia, Pa.
VINCENT G. KLING & ASSOCIATES, Architects

SELECTED DETAIL
LOBBY WINDOW

APOLOGIA PRO EDIFICIO SUO

The unhappy tendency on the part of some architects to enshrine their work in deathless prose may be good public relations, but is it necessary? This author argues that the completed building is the only necessary statement of its creator's talent and architectural credo.

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

There are more buildings under construction today than at any time in history. Concurrently, more is being written and said about architecture than ever before. And there's the rub. I am not referring to the sort of writing that makes Siegfried Giedion, Louis Mumford, and Ada Louise Huxtable, among others, glow like guiding beacons along the road to architectural greatness. I refer to the amount and the type of writing that architects indulge in about their own work. This is a phenomenon with no known historical precedent. The master-builder of the past was satisfied, as far as we know, with the silent statement of his works, often without his signature. Today's architect offers, in addition to his creation, a gratuitous outline of the philosophy that inspired it. It is not sufficient *to create* a thing of beauty; it seems necessary to accompany its presentation with a program note, in a dash or so of deathless prose, so that the admiring public can carry away the intellectual, artistic, and scientific message of a building within the convenient frame of a tight verbal capsule.

It is not difficult to find examples to document this trend. Frank Lloyd Wright's *Testament*, like its namesake, is admittedly comprehensive enough to invite quotation to suit any purpose, but it clearly stamps its author as one of the first to provide a libretto for his creations. Wright, in addition to siring an entire new field of design, was responsible as well for many of the clichés current in the trade today. His famous phrase, "a church in the attitude of prayer"—referring to the distinctive and inspiring First Unitarian Church in Madison, Wisconsin—certainly leaves an impression of profound piety when first heard, but there is something strongly self-conscious about its use in this context. One is led to infer that the attitude itself, as well as the phrase, had been expressed in architecture for the first time. Likewise, the "finger pointing toward God," suggestive of the wrath of some Old Testament prophet, seems a reasonably appropriate metaphor to characterize a church spire. But Peter Collins, the Canadian critic, noted soberly that his local town hall had two fingers pointing in that same direction.

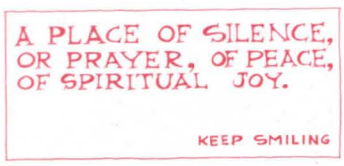
No one will question the fundamental truths that ring throughout Wright's writings, all well salted with the same healthy flavor as the poems of Robert Frost. It is only when he begs the question unnecessarily, in overselling particular examples of his prolific genius, that one is tempted to take issue. Consider his introductory comments on the Beth Sholem Synagogue, in Philadelphia, where he blandly states, "We want to create the kind of building in which the people, on entering, will feel as if they were resting in the hands of God."

At this point, the *maitre d'oeuvre*, not satisfied with the silent impact of his design, doffs his gloves and dons the robe of the revivalist. One might plausibly pursue the spirit of literal analogy *ad absurdum* and design a church to suggest Abraham's bosom. This, however, presages a trend toward physical resignation to which theologians as well as congregations might not wholeheartedly subscribe. The student of architecture and of Wright may grow understandably restless with Wright's repeated references to the spiritual potentialities of his buildings in terms of human anatomy. Certainly, as far as we know, it never occurred to Pierre de Montereau, Gaucher de Rheims, or Guillaume de Sens to remind the illiterate Age of Faith what they intended the Gothic cathedral to say. If they had, I venture to say that they would have done better than to evoke the tenuous bond between the flèche and the human finger.

Finally, a word on the Guggenheim Museum, probably the most startling and most controversial of Wright's creations. "We have used cantilever and continuity," he wrote, "rather than post and beam; the net result is greater repose. All is as one, the atmosphere of the unbroken wave." This flowing rhodomontade may have legitimate application in certain quarters, but to an inland person like *myself*, unaccustomed and innately suspicious of the force and vagaries of the sea, it is a patent contradiction in terms. The Guggenheim is unquestionably a milestone in museum design, and it has, by its sheer novelty and its quality of Pied Piper hypnosis, introduced the public en masse to modern art. But its interior, now that the subject is brought up, is as restful to me as a centrifuge, or, to those old enough to recognize the term, an old-fashioned cream separator. Through his overabundant and unsolicited flights into the

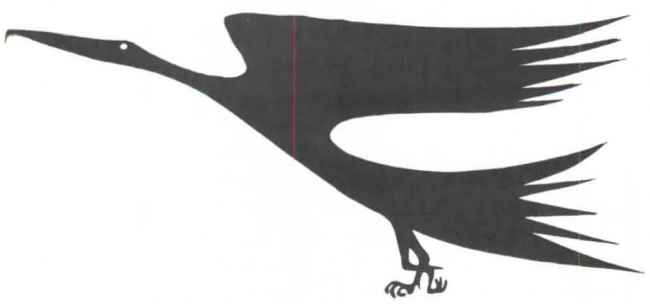
field of letters, the man who first introduced the honesty, virility, and richness of the American soil to the architectural world has forced that same soil to throw up, in self-defense, the inherently Mid-Western adjective "corny."

Le Corbusier has responded generously to this same strange impulse. On the door of Notre-Dame du Haut at Ronchamp is a card on which is written, "In building this chapel, I wished to create a place of silence, or prayer, of peace, of spiritual joy."



This quasi-humble dedication, which might serve any church equally well, is almost meaningless in the context of the building it refers to. The message of this extraordinary monument is well established in the visitor's mind long before he reaches the tiny entrance door. Visiting architects, young couples who select it as the place to solemnize their marriages, and the old peasant women whose gnarled hands caress their rosaries in the semidarkness, have no need to be reminded of the architect's intentions. Words that describe a building should enhance its appeal, or surpass it in expression; otherwise they tend to resemble the irrelevant litany intoned by the intrusive guide who forces himself upon the defenseless tourist.

A more recent paradigm of this professional conceit was offered by the late Eero Saarinen on the subject of the TWA Terminal at Kennedy Airport. He stated, "I wanted to give the impression of flight." In the face of the dynamic creation it was supposed to characterize, this almost apologetic statement again does justice neither to its creator's ability nor to the philosophy expressed in his buildings. Here, the impression of flight, if it was achieved at all, is crowded out by numerous other sensations. This building is a functional, structural, and aesthetic triumph of many dimensions, none of which can be adequately encased in mere words. The impression of flight is at the end of a long list, and, if it were a serious intention at all and not a poetic afterthought, I question whether it was successful. Brancusi's famous bronze, with or without the label, gives the impression of flight. And, to a certain extent, so does the light, soaring saucer-shaped Pan-American Terminal. But the TWA Terminal, despite its release from the routine of T-square and triangle, gives more nearly the impression of pre-flight, or an organism poised for flight. With its wings



outstretched but still resting solidly on its stubby legs, it resembles nothing so much as Baudelaire's Albatross, which is notoriously awkward when walking or taking off, but indescribably graceful in free motion. In a sense, Saarinen's sally into the field of poetry is a modest and unnecessary effort to say what the building says far better. Coincidentally, Wilbur Wright once apologized with the same simile when asked to make an after-dinner speech. "My specialty is flying, not speaking," he said, and history has it that he proved himself right on both counts.

The architect, as a rule, is as ill-equipped to evaluate himself in words as he is to explain himself psychologically. Felix Candela, in a recent interview in *Time* magazine, stated, among other things, "I am a prisoner of geometry." This, even for an artist whose achievements as a poet have not gone unrecognized, is poetic license pursued a bit too far, because it is literally untrue. This genius of calculated form is no more a prisoner of his medium than Blondin was a prisoner of his balancing-staff, which accompanied him, too, to heights attained by few other humans.

Candela, Nervi, Torroja, all explored areas hitherto unknown to the profession, dragging their chains with them. But, to me at least, it seems the antithesis of incarceration in any form, unless it be that of the poet enslaved by his love.

The architect-*cum*-poet has not yet put pen to paper, or breathed into a microphone, who can match the purity and breadth of Edmund Hillary's reason for needing to scale Mount Everest: "Because it is there" will always be one of the great answers to the question of what motivates the explorer, the dreamer, or the artist.

The TV interview is a trap into which even the most sophisticated may fall. Edward Durell Stone intended a gracious gesture when he recently resurrected the moss-covered platitude, "It takes a great client to make a great building." Out of charity we will omit the client's name, as well as the corresponding architectural context. The double damnation that results from this unfortunate episode does far more than prove the truth of this convenient quotation. It should prove the wisdom of continually watching every word, spoken and written.

This diatribe against gratuitous self-revelation has no reference whatever to the great architects who wrote primarily as teachers. There is an impressive list of those who have made significant contributions to the profession, and whose theories have been captured within a single phrase. Louis Sullivan will live forever for his formulation that "Form follows Function," despite the barbs of those who occasionally challenge its validity. Ludwig Mies van der Rohe's philosophy is bound up in the abstract precept "Less is More," which is reflected in Buckminster Fuller's directive, "Do More with Less." Frank Lloyd Wright introduced the term "Organic Design" to the profession, which contains the essence of his entire theory of architecture. These are the impersonal signatures of born teachers who are consciously aware of the responsibility of men upon whom great knowledge has been bestowed, and who generously bequeath it, each in his own vernacular, to waiting generations.

Furthermore, no one will question a creator's right to the normal acknowledgement of personal achievement. The measure of success by one's own standards can be a valuable record of a man's progress. I am reminded of a letter that Mendelssohn (Felix, the composer, not Eric, the architect), wrote his sister on the subject of his Italian Symphony: "I am making great progress. I believe it will be my most mature work." Here is greatness, and great humility in a single instant. But certainly this was not meant to be read by the world that heard his music.

And there is no more candid self-evaluation than that recorded in the first chapter of Genesis. The frame of reference

is not mentioned, but at the end of each of the first six days of the Creation, God looked at His works and "saw that it was good." The First Architect, however, carefully avoided saying what He was trying to express in the creation of the universe.

There is no quarrel with objective writing as such. It is only when the architect writes about himself that one begins to believe that, as philosophers, they should be seen and not heard. And thus, to quote Bernard Berenson, let the public judge their work "with their eyes, and not with their ears."

The practice of offering a creative work with an accompanying autobiography of the artist is a comparatively recent development. It is difficult to trace its origin, but it must spring from one of three sources. First, there is the architect who has not yet established an accurate measure of his worth, and is unsure of himself. He feels impelled, like the prompter in the theater, to say what he feels the building does not say. Thus he intrudes lamely on the scene, unaware that the building's lines are already built into the script. There are many men whose buildings speak far better than they ever will.

Then there are those whose natural facility with words far outruns the message of their creations. I have had the rare experience of hearing a nationally-known school architect parley a most prosaic parti into a veritable poem of form, function, and educational philosophy. This was done before a committee of better-than-average-educated laymen, who were so completely mesmerized by this exercise in logorrhea that, to this day, they do not realize that their school differs from any other only in the prolixity of its packaging. Our countryside is punctuated with many a literary buttress holding up buildings that cannot stand by themselves. This echoes the habit of our times when lyrical justification, sometimes erudite, sometimes humorous, often musical, accompanies the presentation of a product, like *la poudre aux yeux*, to conceal its inferior or spurious nature. It is a prime example of what Cézanne called *épater la bourgeoisie*, and the bourgeoisie seems to love it.

The public is, to a great extent, responsible. Noncreative people, whether bourgeoisie, élite, or peasantry, enjoy being impressed by the creative man's extracurricular dimensions. The public is far better able to judge the merits of a public-relations campaign than the value of a work of art. The technique of modern advertising has filled our world with legends and images, and the architect-extrovert is now, after a slight delay, well aware of this.

Murray Kempton touches on this characteristic in an article entitled, "The Artist in our Time." He comments, "Because we are bored, we demand that the artist tell us a story. When his product no longer tells us a story, we demand that he do so himself." Albert Camus said somewhat the same thing, though less simply, in his essay "The Riddle."

This may all sound like the impotent exhortations of the side-line noncombatant, or a petulant exercise in nit-picking. However, it is offered in an effort to stem the tide of architectural double-talk in cases where the core of greatness is lacking, and the catch-phrase alone is used to bolster up a man's work.

I believe that a building should be allowed to make its own statement, as it has in the past. Probably more has been written about the Gothic cathedral than any other building, yet the clearest statement, which has persisted for seven centuries, is that made by the building itself. A building whose *raison d'être* has to be explained is unlikely to go down in history as a great building. If it does not, by its inherent eloquence, "make you gasp," as Philip Johnson once said, nothing its designer may say will ever place it in the breathtaking category. Louis Armstrong, expressing a similar impatience in a discussion about jazz, phrased it perfectly in his own colorful vernacular, "If you got to ask what is it, you'll never know."

There is much to be said for a work that refuses to be confined within the limits of the descriptive notes found in guidebooks. A work that retains a certain mystery will live a little longer in the imagination of those who are intellectually impatient with the obvious and self-explanatory. Sigmund Freud wrote an absorbing, yet inconclusive essay along these lines on the subject of Michelangelo's statue of Moses. Here is a discussion in great depth about a work whose message is certainly not clear, yet that remains forever challenging. Freud dwells in great detail on the question of what Moses must have been doing at the moment he was captured, or, as Michelangelo himself would have said, released from the stone; and he adds his views to those of an entire college of eminent art historians, who also have been intrigued by this work of art. The sum of these discussions is that no one will ever know why the tablets are held in one hand as they are, and why the other hand caresses the beard, and the reason for the position of the knees. Nor will we ever know more than we know now of what Michelangelo intended. One wonders, however, if it is not possible that he planned, sincerely and simply, to portray Moses as he saw him, within the classic framework of his training—direct, frank, and monumental—with no intention whatever to mystify?

To balance this overly profound psychological archeology is an apocryphal story that may suggest a clue to this question. This story, quoted several years ago by Arthur Bendiner in the *AIA Journal*, describes how the Pope requested that Michelangelo devote appropriate time and research to the painting of the ceiling of the Sistine Chapel, which, in the Pope's words, would be a monument to his genius and a full expression of his philosophy as an artist. Above all, Michelangelo was warned not to hurry. The legend has it that Michelangelo looked briefly at the ceiling and said, "Okay, boss. Whadda color you want?"

It may be, in the final summation, that the greatest attribute of a work of art is that it start a controversy, not that it end one.

And perhaps it will be a third group of architects who will distill, purify, and justify this trend. In a field that is as competitive as it is creative, an atmosphere of tensions results that should be balanced by some creative form of relaxation. Many doctors, through some unexplained coincidence, seek relaxation as performing musicians. A highly respected New England poet, who died only recently, was a business executive engaged in the most prosaic of professions. The architect, after his diurnal diet of contracts, committees, clients, and temperamental artisans, deserves what relief he can get. And he may find that what Richard Tobin calls the "subtle force of literary persuasion," and Theophile Gauthier referred to as *le sâle métier d'écrivain* may be a rewarding form of calming his nerves and at the same time clarifying his ideas. This is highly desirable as long as he does not, without due deliberation, use it to delude his public, his peers, or himself. With time and practice, he may free himself of the chains of specialization, and, in the modern tradition of "do it yourself," be his own amanuensis, without benefit of a ghost.

Not all, of course, are gifted with the glib turn of phrase or the talent for *le mot juste*. The brightest future still beckons those who prefer to design in silence; whose search for truth is bound within the eloquent vocabulary of structure, materials, and sheer vision. History will hear what they have to say long after the voices of their more loquacious colleagues are stilled. It is for this reason that I humbly suggest to all architects, before they rashly embark on the verbal limb, "Whatever you have to say, let the building say it!" Or better still, "*Make* the building say it!"

HOW MODELS AID DESIGN INNOVATIONS

Making and testing models of structural systems helps designers to understand the behavior of a structure more easily than with mathematical analysis.

By James Leefe, partner in the firm of Leefe & Ehrenkrantz, San Francisco architects.

The mathematical approach to structural design is convenient but restrictive. It impedes the development of structural systems because mathematical theories cannot embrace the total structural concept. It is for this reason that structural innovators turn to model analysis.

Mathematics restricts design innovations because its theories generalize on the observations of experimental behavior. And in order to generalize, it becomes necessary to simplify and to idealize a phenomenon to a point where only structures composed of the most elementary members can be adequately dealt with. For example, the extremely complex conditions of a thin shell structure are reduced to a small portion of the boundary. This simplified condition is analyzed in an elementary manner similar to an isolated portion of a simple beam.

Designers, however, are concerned with the problems and complexities of structural behavior that cannot be comprehended by applying theory without experience. Experimental analysis leads to an understanding of the laws of structures; and, by observing a model, a designer can experience actions and reactions that explicitly define the events to be anticipated in the prototype. A designer is thus able to build a body of experience directly related to the final structure.

Experimental analysis can be used two ways: It can provide a basis for mathematical theory; or it can determine the patterns and intensities of stresses in a prototype structure. In the first case, a researcher into structural systems compares mathematical with experimental results to test the validity of the mathematics. When trying to establish a theory, a number of models should be studied. These models need not be similar to the structure, but they must be identical to insure a comparison of results.

In the second case, however, the model is a device to study the behavior of a specific structure. For this, it is necessary to extrapolate values obtained from the model to a full size structure. To do this, the model in all of its significant aspects must bear some definite relation to the prototype: It must be a small-scale replica of the building under study.

A New Dimension

Similarity between the model and the prototype can be expressed mathematically in terms of the accepted laws of structural mechanics. However, this statement is limited to structures composed entirely of elementary members for which the theory is known. When the structural behavior of the prototype is unknown, a more general expression for similarity can be derived from a branch of applied mathematics known as dimensional analysis.

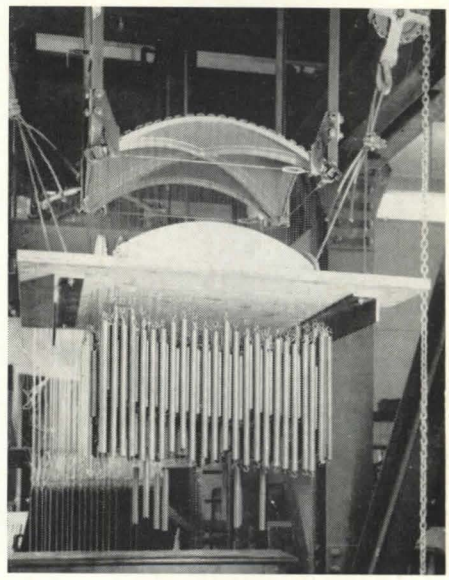
In dimensional analysis, physical phenomena can be described by quantities called dimensions that can be measured in terms of any unit system: the ratio of measure is independent of the size of the unit. If a small-scale model is constructed of the same material as the prototype—concrete, for example—and with exactly scaled dimensions, the prototype would deflect more under dead load than the model because of the scale effects of the shorter span and lighter-weight material. The model's size and weight are reduced, but the unit strength remains the same as a full-size structure, even though it has less work to do. So, to relate the deflections properly, the dead loads for the model have to be increased to scale by adding extra weight. Dimensions enable a researcher to determine how the numerical value of a quantity changes when the basic units of measure are changed. In turn, this change makes it possible to express similarity between the model and the prototype.

For complete similarity in mechanical models, only three quantities need be considered: the dimensions of length, force, and time. The length dimensions express geometric similarity, force expresses mechanical similarity, and time expresses kinetic similarity. With these factors, all the physical properties that occur in mechanical events can be expressed. Therefore, the relationship between strain and stress in the model and the prototype can be determined.

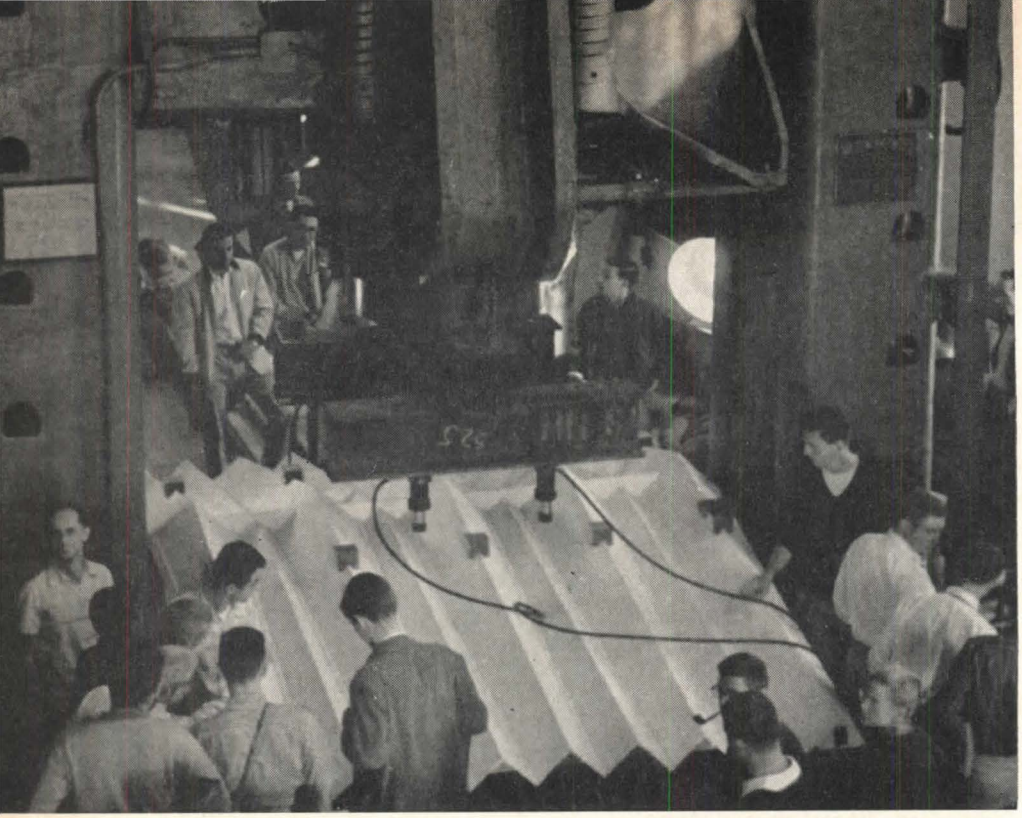
Model analysis depends upon measuring the strain of a loaded model and determining a stress from the elastic theory, $E = \frac{\text{stress}}{\text{strain}}$ To give a reasonable performance, the model must be accurately constructed of materials possessing properties similar to those of the prototype. Models can be built with the same material as the prototype or with materials of the same modulus of elasticity. Because of the difficulty in establishing equivalent deflections, models are often built with a material possessing a smaller modulus of elasticity than the prototype. This exaggerates deflections to make them measurable at the model scale. Celluloid not only is frequently used for its low modulus, but also because it is homogeneous and can be readily machined and cemented with acetone. Unfortunately, it has a tendency to creep, which must be compensated; and its elastic properties are affected by age, temperature, or humidity changes.

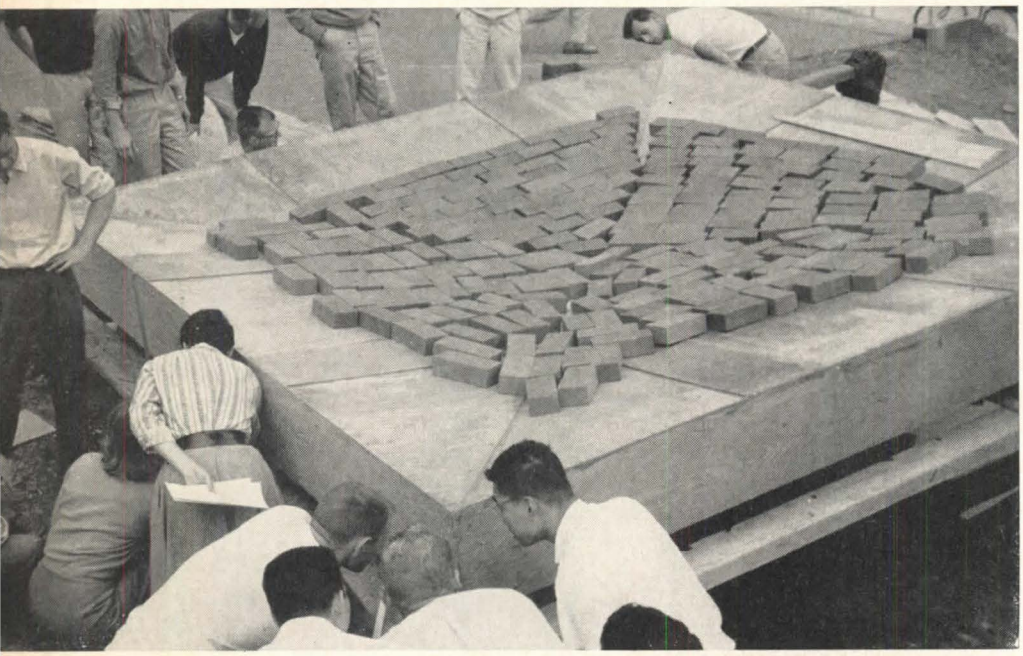
Measuring Strains

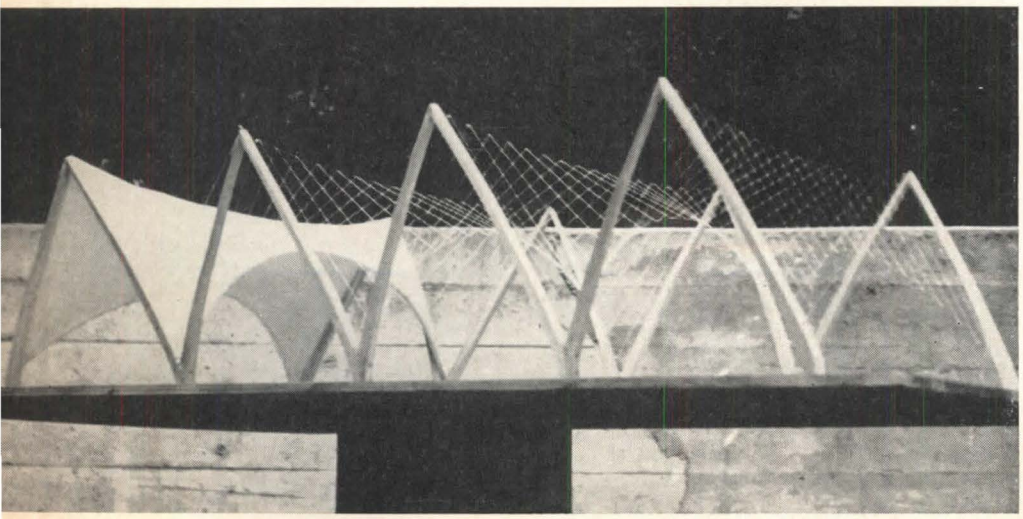
The pattern of stresses in a model, under any condition of loading, can be determined by measuring linear strains. The principal strains (maximum and minimum, which normally are perpendicular to each other) and their directions can be computed from the measurement

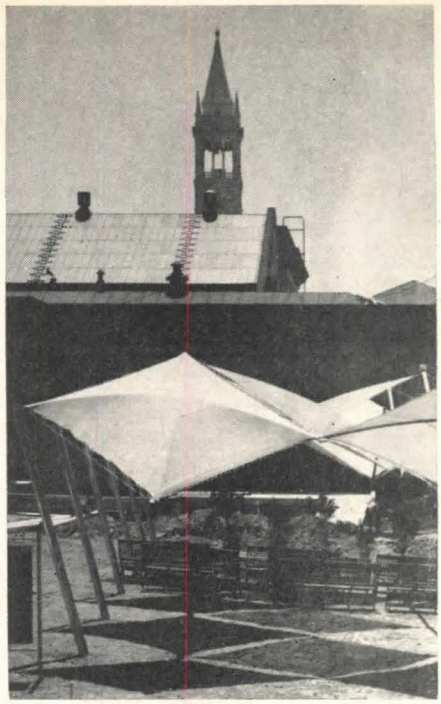


Model of a roof shell for a post office at Providence, R. I., enabled designers to establish thickness of the shell and size of intersecting ribs. Experimenters at M.I.T. made 10 polyvinyl chloride models, each of different thickness, and cemented ribs to the shell with epoxy adhesive. Loads hang on threads attached to pads that spread the load evenly atop the shell. A frame shaped to the underside of the test shell supported the model to prevent premature buckling while loads were being added.









Students at University of California built plywood models of one-room roofs designed for repetitive use in a tract housing project (left, top). Testers applied the equivalent of a normal 20 psf design load, then loaded models to destruction.

Joints of plywood inverted pyramid roof were reinforced with glass fibers and adhesive to withstand tensile forces (left, middle), but joint was too flexible for beam action that occurred along the fold in the roof.

Within a fixed boundary, a limited number of nets will form a rigid structure (left, bottom). Stretched cables describe geodesics, an efficient structural form incapable of buckling.

Following-up on model analysis, University of California students designed 40′ x 60′ shelter (above). Cables support three rows of aluminum struts framing diamond-shaped fabric panels.

of three individual strains, taken either through or around a point. Strain gages can be arranged on the surface of the model in any number of patterns, called rosettes; the two most frequently used are equiangular or rectangular. Because its gage lines are symmetrically arranged and equally distributed, the equiangular rosette works best when the directions of the principal strains cannot be readily determined. However, the readings from this arrangement require more work to analyze than those of a rectangular rosette placed with its outside gages in the directions of the anticipated principal strains. The magnitude of these strains can be measured directly with a high degree of accuracy. A four-gage, 45° rosette has the advantages of both equiangular and rectangular rosettes because the gage lines are equally distributed. Two lie in the directions of the principal strains. The fourth line, which is redundant, can be used as a check.

For strain rosette analysis, the model material is assumed to be isotropic, i.e., its elastic properties are the same in all directions. When this is true, the lines of principal stresses coincide with those of principal strains. The magnitudes of the stresses can then be defined by the physical relationships between stress and strain:

$$\Sigma \max = \frac{\sigma\max - \mu\sigma\min}{E}$$

$$\Sigma \min = \frac{\sigma\min - \mu\sigma\max}{E}$$

Where: Σ=normal strain; σ=algebraic sum of normal stresses at any point;

μ = Poisson's ratio

$$= \frac{\text{unit transverse deformation}}{\text{unit longitudinal deformation}}$$

Another method of accurately analyzing stresses is based on the change in optical properties of a transparent material under stress. Called photoelastic effect, the theory holds that an optically isotropic material becomes anisotropic under load. This means that light will pass normally through an unstressed material; but when the material is stressed, the light resolves into two components. These components are transmitted on planes perpendicular to one another, and at different velocities. The velocity of the transmission is directly related to the intensity of the principal stresses, and the optical axes coincide with the principal stress axes. Thus, a model constructed of a transparent sheet material and loaded similarly to the prototype will project alternating bands of light and dark. The dark lines may be due either to the plane of polarization being parallel to the principal stress axes, or to conditions of constant maximum shear stress. With some optical systems, these lines may be separated from each other. Then the patterns of shear stress distribution may be projected and the stress intensities determined by counting the bands and applying a simple scale.

Colorful Measuring Process

Three-dimensional analysis by photoelasticity can be accomplished in three ways. Firstly, the stresses in the interior of a model can be determined either by fixing them in heat-hardened plastic materials and cutting slices from the model for study; or, secondly, by scattering light to optically slice the model. The third way—photostresses—is the more versatile technique because it can be used to find surface stresses on curved models. Photostress measures stress by comparing controls with the polarized color of material under strain.

For photostress, the model is first polished or painted with aluminum to achieve a reflective surface. The surface is then coated with a birefringement material securely bonded so that surface strains are transferred to the coating. After the model is loaded, the surface is viewed through a polariscope. This consists of an adjustable source of white light, a polarizer lens, and an analyzer lens. Through the polarizer, a complete color picture of the strain distribution can be seen when the light is reflected back through the stressed birefringent material and through the instrument. The observable color change is directly proportional to the intensity of strain. By color matching, quantitative stress measurements can be made.

Photostress can be used on actual structures as well as on models. In addition to the coating technique, a photostress strain gage can be made with a small, rectangular piece of plastic showing permanent color fringes alongside a graduated scale that is covered with a polarizing material. When bonded to a structure, the gage will indicate strain by the displacement of the color fringes measured on the scale. A stress gage can be made similar to the strain gage, except that it will show directly the magnitude of the average surface stress in any required direction of the area covered by the gage. The stress gage is useful as a permanent indicator of a structure because it provides a direct reading without instruments.

Comparing Cracks

Another method of measuring stress relies on a brittle lacquer coating on a surface cracking perpendicularly to the direction of the maximum principal strain when the surface deforms under load. With a field of cracks on a surface of known deformation as standard, the crack pattern of the test surface can be measured to determine the stress trajectories and the proportional strains. From this, the principal stresses can be calculated.

The brittle coating method for stress analysis is obviously suited only to measure strains caused by tension and not compression. To determine compressive strains, a reverse procedure can be used. The model is fully loaded before applying the coating; then, as the load is removed, surface cracks will appear where tension is released.

For any model test to give reasonable results, careful construction of the model is essential. With even the most precise model, however, some distortion between the behavior of the model and that of the prototype will occur. This distortion is inevitable and is really unpredictable. It would be impossible, for example, to reduce a bolted connection by 24 times to the scale of ½ in. to the foot, so that its performance equaled the prototype. Instead, a cemented joint would be appropriate for the model, though the local effect in the area of the connection would materially differ. How this in turn effects the behavior of the whole system, and how serious its impact will be on the test results, can only be discovered from experience. Scale effects are bound to occur, and, to quote Langhaar, "The best guard against them is to build models as large as is feasible."

However large a model is, the value of experimental analysis is immeasurable. A designer beginning a design development with qualitative or sketch models may well discover possibilities in the scheme that would never have been realized. The sketch model, even though it may be quite crude, can still reveal the important visual aspects as well as the fundamental mechanical properties of the envisioned structure. With a highly developed intuitive sense of structure the designer can quickly see the soundness of a system in the model. By hand loading, the unity of the system can be observed. The critical points that need to be strengthened in the final design, or conversely, those that can be lightened, will become apparent. And a sense of the structure as a three-dimensional object that occupies space and creates its own environment will appear. The structure then undergoes a process of evolution similar to the creation of a sculpture or a musical composition.

GRANITE-FACED WALL PRECAST IN TWO-TON PANELS

Skin-deep beauty of granite facade is cast integrally with precast concrete back-up panels for office building walls.

Wall panels enclosing the Municipal Services Building in Philadelphia (see p. 108, this issue) depart from conventional granite construction techniques. Instead of applying granite to the face of a wall, the architect called for granite-faced precast concrete wall panels that were fabricated in a plant and shipped to the site ready for erection.

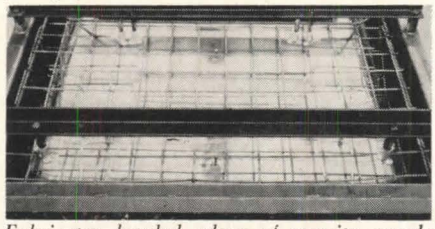
This technique revives interest in granite, which is a durable, monumental material normally associated with load-bearing construction. The recently developed fabricating technique enables designers to economically detail sculptured curtain walls faced with thin granite panels.

Wall panels at the Philadelphia project span vertically between 12½-ft-high stories, and extend nearly 6 ft horizontally. Each panel contains a window surrounded by a frame that projects 11½ in. in front of the wall. Within this frame, double glazing, spaced 7 in. apart, sandwiches vertical Venetian blinds. The fixed lights are installed in metal frames.

Wall panels, each weighing about two tons, are cast in steel forms. The 14 pieces of granite that face each wall unit are fastened together in the bottom of a form before concerte is cast. Anchors projecting from the back of the granite bond the facing material to the concrete backup. Also embedded in the concrete are steel tees for attaching the top and bottom of wall panels to the building frame. The wall units are nonloadbearing, and are supported by spandrel beams at each story.

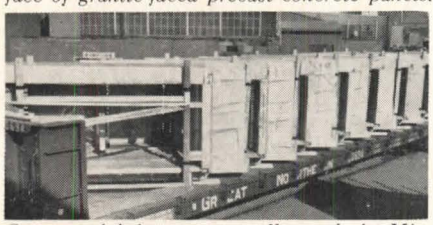
Vincent G. Kling of Philadelphia is the architect. Cold Spring Granite Co., Cold Spring, Minnesota, fabricated the wall units.

Steel bolts embedded in back of granite facing panels anchor them to concrete.

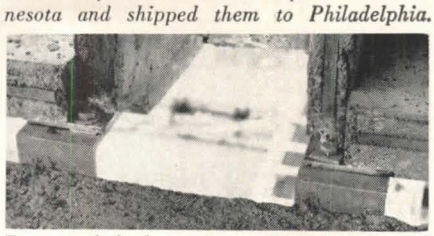


Fabricator bonded edges of granite panels together before casting concrete in forms.

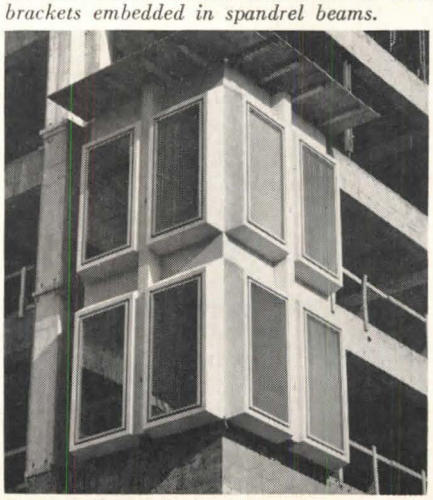
After stripping forms, workmen grind surface of granite-faced precast concrete panels.



Concrete fabricator cast-wall panels in Minnesota and shipped them to Philadelphia.



Erectors bolted two-ton wall units to steel brackets embedded in spandrel beams.



With wall panels in place, contractor installed blinds between double glazing.

SMALL FURNACES HEAT LARGE SCHOOL

Future fuels may make present heating systems obsolete, but this school is ready for an inexpensive change-over.

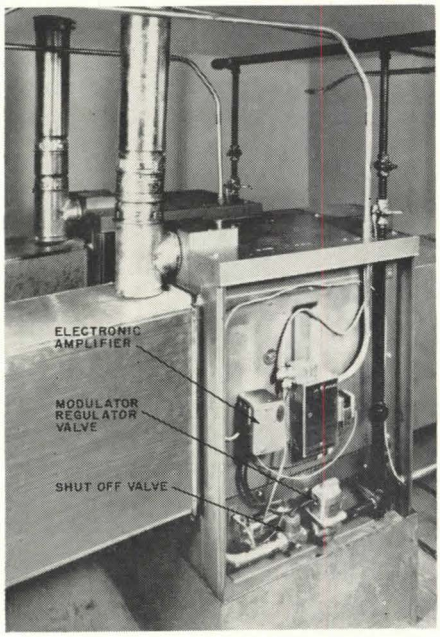
A California architect, convinced of the inevitability of scientific progress, specified dozens of small furnaces instead of one central heating plant for a Palo Alto school. Ernest J. Kump, of Palo Alto, believes that new heating sources will be developed within the life of the new Henry Gunn Senior High School, (p. 140, AUGUST 1965 P/A). Because these new heat sources would render present heating techniques obsolete, Kump believes that the school should be given the opportunity to convert to a new system with the least disruption to the building. For this reason, he specified many small heating units instead of a conventional central heating plant with its complicated distribution system.

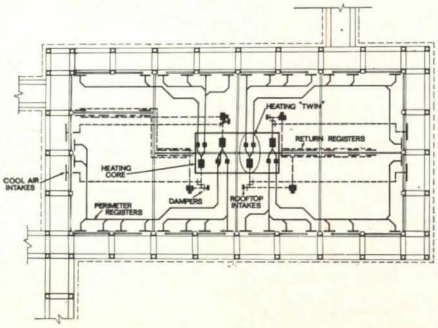
The present flexible heating system comprises forced-air furnaces located in groups of four units in overhead mechanical cores. Each of the school's 10, single-story buildings contains its own mechanical core, which feeds hot air through perimeter ducts to the rooms. Since a large number of furnaces are used, the small individual sizes are within the capacity used for domestic furnaces. This increased the range of furnaces in competition for bidding, and these furnaces can more easily be maintained by the school's maintenance staff.

Before the concept of this system could be accepted, the system was modified to control the temperature of air blown into the rooms. Gas-fired furnaces normally blow hot air when a room thermostat signals for heat. The temperature of the air is preset, and is not automatically variable. Thus, when a furnace switches on, it purges high-velocity cold air from the ducts, and then

blows uncomfortably hot air. When the furnace is not operating, no air circulates and cold air tends to stratify below the hot air. This cyclic effect is more noticeable in mild weather, when the heating system switches on infrequently. Palo Alto's climate is conducive to this phenomenon, since, during the average school year, there are only 10 days under 40 F, and 14 days over 80 F.

The mechanical engineer for the project, Alexander Boome Consulting Engineers, Inc., of Palo Alto, specified a system called electronic modulation, which regulates the temperature of the air leaving the furnace. This system senses the room temperature and transmits the information to a device controlling the flame in the furnace. The sensing device is an electronic amplifier located near the furnace. Inside it is a thermistor responsive to a variation of 0.10 F. Signals from the thermistor are fed to a printed circuit amplifier. This amplifier changes the voltage of a solenoid in a modulator-regulator valve, which in turn adjusts the input pressure of fuel to the burner. A modulator-regulator valve is used in the system in place of a conventional gas-pressure regulator, and can adjust the flame between full fire and 25 per cent fire.





SILICONES PUT THE SCIENCE INTO SCIENCE FICTION

From gee-whiz applications to mundane uses, the silicone family demonstrates its versatility for the construction industry.

By Donald V. Brown, Silicone Products Department, General Electric Company.

For the man who wants to get away from it all, a vacation home at the bottom of the sea may be possible by around 1980. The holiday hideaway would be a self-sustaining unit with no connections to the shore. Its occupants would breathe oxygen extracted from the sea through a membrane. This membrane could also eject from the shelter carbon dioxide exhaled by the occupants. A similar membrane that desalts sea water would provide pure drinking water for the inhabitants. Heat for the interior of the sea shelter would be uniformly distributed by a current-carrying coating painted on the walls and ceiling. This heat, and other power needs, would be supplied by a fuel cell. If the vacationers want an old-fashioned sun tan, they would visit the shore and relax under a solarium that admits the sun's ultraviolet rays through clear-plastic panels.

This project may sound like science fiction, but it all may be possible with the aid of silicones. General Electric scientists have already extracted oxygen-rich air from water with a silicone rubber membrane only one-thousandth of an inch thick. They foresee that it will be technically possible for silicone rubber membranes to purify water, and, in some applications, re-use waste water by passing it through a membrane. Scientists are close to developing a silicone panel that, unlike glass, is transparent to ultraviolet rays. And, lastly, experimenters have been working for five years with paints that carry an electrical current.

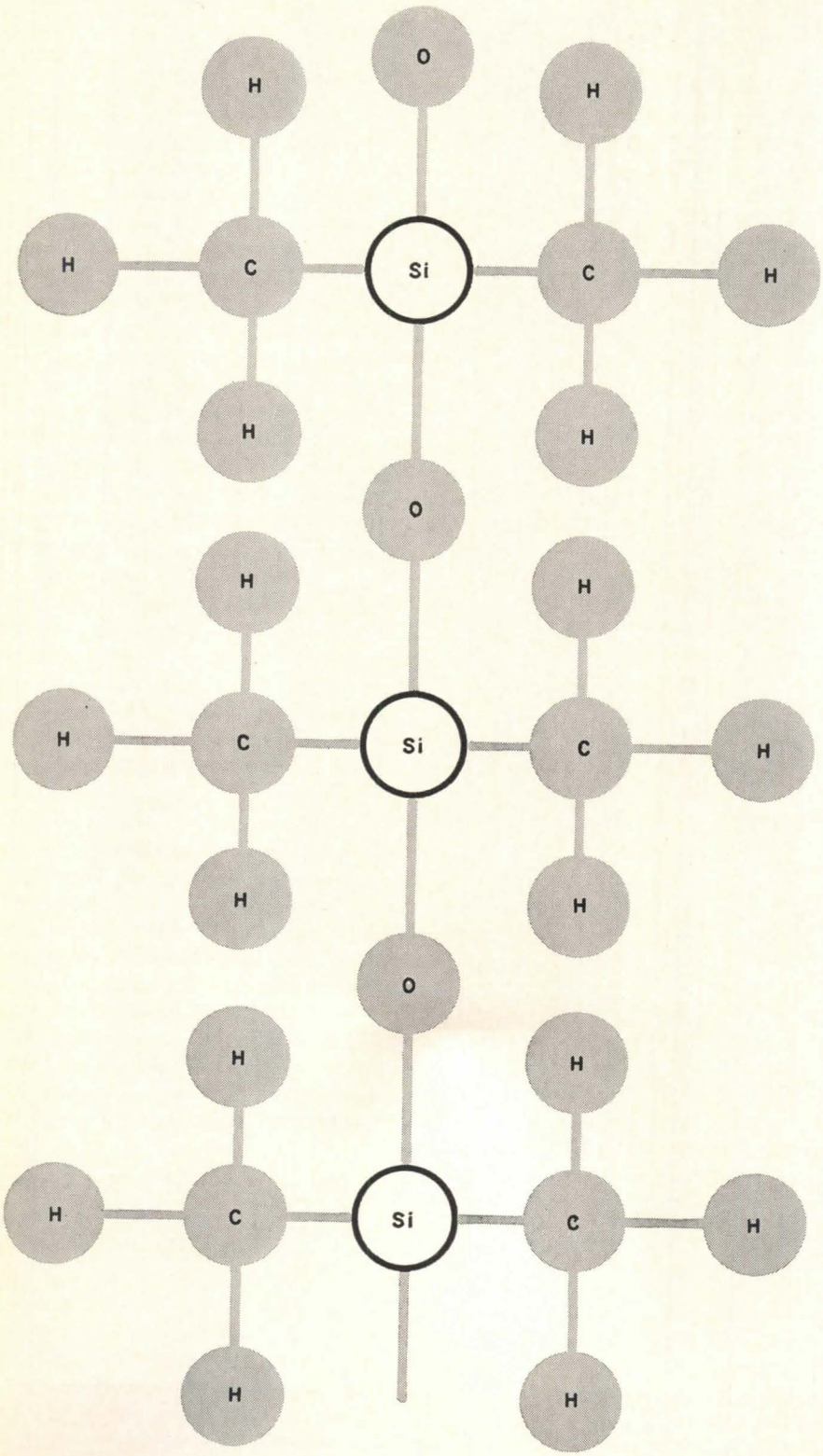
Silicones are not new to construction. Fifteen years ago, silicone-resin water repellants were applied to masonry walls. Later, these resins were used in paints requiring a resistance to high temperatures. About three years ago, silicone sealants arrived on the construction market, and this probably is the type of building product most widely associated with silicones.

The silicones are a widely diverse family of completely synthetic polymers, or large molecules, derived from sand and oil or natural gas. Their unique combination of inorganic and organic properties produces extraordinary durability with unusual versatility of form. Silicones are available in the form of rubbers, fluids, plastics, resins, greases, emulsions, and many exotic chemicals. Each of these forms makes a unique contribution to the science of materials.

Wrapped Around a Hot Line

Industry takes advantage of the near-phenomenal durability of silicones for insulating electrical systems in missiles that may lay dormant for years before functioning; for sealing spacecraft where the aging process of conventional elastomeric rubber is greatly accelerated; for the fluid in the super-hot hydraulic systems of jet aircraft; as parting agents in casting metal and rubber products, where high temperatures make ordinary oily coatings burst into flames. The list goes into thousands of applications spread through more than 30 basic industries.

Some of these products could, even



in their present form, be valuable to the construction industry. Let us look first at a recent development. Last spring, a new liquid silicone rubber provided aerospace materials engineers with a flameproof thermal insulation for the walls of spacecraft and other equipment where men must be protected against heat and possible flame. When troweled on a wall, the new material dries to a solid rubber foam.

If a fire starts near a wall coated with this silicone material, the rubber not only does not flame, but also keeps the reverse side of the wall cool for a long period. In laboratory tests, one side of the material was exposed to a 5000 F flame for one minute. In that time, the temperature on the reverse side only increased 13 F. With these properties, the material could be applied in commercial and residential structures around furnaces and fuel storage tanks.

The U.S. Navy specifies silicone-insulated power and control cables for its ships in order to reduce the chance of power failure in a fire at sea. But few commercial or residential buildings are equipped with silicone-rubber insulated cables that continue to keep the power flowing during fires. Though the silicone insulation can be consumed by flame, it leaves a nonconductive ash that permits an uninterrupted flow of electricity for operating elevators, lights, and emergency equipment. An additional feature of silicone-rubber insulated wiring is that it resists temperatures up to 600 F, thus permitting a wire to safely carry much larger power loads.

The heat-resistance of silicones has long been used in formulating high-temperature paints. Recently, however, developmental work led to silicone co-polymer coatings. These are reactive silicones that chemically combine with conventional paint ingredients to produce an extremely durable coating. Manufacturers protect aluminum and steel products with factory-applied silicone co-polymer coatings. As a result of their superior durability, these coatings improve the weather-resistance of aluminum siding and building panels for an indefinite period.

Paints Last Longer

Experimental silicone-containing coatings have been tested five years on aluminum siding and compared with premium non-silicone coatings. The silicone-treated surfaces are still not noticeably affected, but the others are badly faded. No one knows how long the silicone coatings will perform, but 20 or more years could be

a realistic expectation.

The spreading quality of the new coatings is good. In the above tests, silicone-based paint went twice as far as conventional coatings. Yet, despite progress, the major role of silicones in the protective coatings field may still lie ahead. Specimens of silicone exposed for 15 or 20 years show no noticeable effect from aging or the elements. This suggests the possibility of future all-purpose silicone paint coatings with a life-expectancy of 30 years or even half a century.

Silicones may solve the problem of paint blistering on wood and porous metal surfaces. The useful characteristic of silicone being able to breathe may make possible high-performance wood finishes based on silicone polymers or co-polymers. A further extension of this idea would be in clear finishes that allow the beauty of natural wood grain to show without fear of early degradation of appearance.

Silicone paints especially designed as partial-conductors may some day serve as heating surfaces on walls and ceilings. Developmental work in the field of partially-conductive silicones is still in the infant stage. However, the potential for converting low energy charges into heat dispersed over large surfaces may provide an efficient heating system that could replace present heating systems.

Plastic film and solid transparent panels made from silicones could provide interesting possibilities for an architect. At present, there is no practical, glasslike material that transmits ultraviolet radiation from the sun's rays. One possible material would be pure quartz, which for a variety of reasons does not offer a practical solution. As a result, it is now impossible to obtain a natural suntan in a totally enclosed solarium.

However, ordinary dimethyl silicones, which have been around for about two decades, offer no resistance to ultraviolet rays. Previously available only in the form of liquids and opaque elastomers, these compounds can now be made in the form of clear solid substances with unusually good optical properties. When the first ultraviolet transparent "glass" becomes available, it may well be a silicone.

Silicone Silencers

Silicones are well known for their adhesive qualities and are used for laminating plastic panels and compositions of various other products. They serve as a glue that is able to withstand high temperatures.

In construction, silicone elastomeric adhesives have been successfully used outdoors and indoors as a tile mastic. For this, they offer the dual advantage of a chemically inert compound that can be applied in cold weather, and a compound that remains flexible enough to withstand vibration and expansion without being adversely affected.

Flexibility makes silicone a logical material for sound isolation. The high level of everyday background noise makes methods of dampening noises in buildings of growing interest to designers. Although plastics are frequently used to insulate cavity walls, silicones will play an increasing role in dampening the noise of motors and mechanical equipment used in buildings. Cellular silicone compounds that can be pumped into, or painted on, an apparatus can reduce the noise of an internal combustion engine to a mere whisper in properly engineered systems. The silicones are perhaps the only material available that could withstand the punishment and deliver the results. This resilience could be applied to transplanting some of the traditional building materials of warmer climates to cold climates. Stucco walls might be developed that would have the necessary resiliency to withstand the ravages of moisture absorption and freezing that produce cracking in mortar and concrete. There is a possibility of a resilient concrete in which silicone rubber would be substituted for portland cement to give sufficient resiliency to prevent cracking due to expansion and contraction. Such compounds might be factory- or site-mixed, and be available in a wide range of brilliant, long-lasting inorganic colors.

Magical Membranes

The concentration of effort to provide pure water for house and apartment dwellers has intensified in recent years. But in the future, domestic water may be softened at the faucet by running it through a silicone-rubber membrane that would provide an unlimited supply of soft-water. Silicone-rubber membranes have already demonstrated their ability to extract pure oxygen from water, and to oxygenate blood in a similar manner to a human being absorbing oxygen from the air. In a similar process, silicones have shown their ability to desalinize salt water.

Eventually, silicone-rubber membranes may enable us to take waste water from a building and return it purer than when it originally came from the reservoir. Such a device would make possible recirculating systems in which the only new water required would be small amounts needed to replace that lost by evaporation.

The system would function due to the selective nature of a silicone membrane. Silicone membranes only permit water to pass through in single molecules. This means that the water permeates the membrane in the form of a vapor, and not as a liquid. The salts, waste products, bacteria, and viruses in the water cannot permeate the membrane, and would be left behind. The pure water passing through the membrane would be returned to the water supply for re-use. The refuse would be collected, dehydrated and sold as fertilizer.

Cleaner Air Conditioning

Another application for the membrane would be in air-conditioning systems. Silicone membranes are impervious to germs and pollen and would deliver oxygen-rich, super-pure air. The membranes could purify air better than systems using filters, which at present can only screen out particles above a certain size. Air purification systems in manufacturing plants and places in which hazardous fumes exist could be equipped with silicone membranes that would be impervious to the passage of certain types of contamination.

The list of possibilities for silicones is certainly not exhausted by those mentioned above. Someone once said that there were about 2000 uses for silicones. This guess was exploded when a silicone researcher rather casually composed a list of 200 uses for what he considered to be the least useful one of more than 400 different kinds of silicone compounds then in existance. Based on this rule of thumb, the current list of uses for the versatile silicones has to be at least 100,000. And the list keeps growing.

In the past five years, the silicone industry has put more effort into the development of silicone products for construction than it did in the previous ten. Meanwhile, the increased use of silicones in all industries has reduced the price of silicones sufficiently to make them more compatible with architectural use. Silicone rubbers once sold for $18 per lb.; they are now available for architectural purposes at about one-sixth that price.

Producers of advanced materials such as silicones are always ready to cooperate with the architectural profession. If architects will supply imaginative requests for materials, the silicone industry will certainly be glad to supply a little additional imagination, together with the vast potential of these remarkable materials, to meet future architectural needs.

CORBU'S VENETIAN CONTEMPORARY

When Frank Lloyd Wright was asked to design the Masieri Memorial in Venice, the furor raised in municipal circles recalled the days of the Doges, and the project was never built. Later, things relaxed a bit architecturally, and such a charming pastiche as Gardella's little apartment house was allowed to be built.

Now Venice is preparing to build a modern building of much larger proportions by the only architect who might succeed where Wright failed: Le Corbusier. The building is the new City Hospital of Venice, and it will occupy a prominent site on the Lagoon. With notable tact, the late architect designed a low, rather sprawling building of interconnected parts around courtyards recalling Venice's intense network of buildings and *piazzuòli*. Another felicitous and gracious bow in the direction of the city's traditional buildings is the raising of the hospital on piles over the water, bringing to mind vertical Venetian accents such as gondola moorings, the underpinnings of buildings, and towers and campaniles pointing upward from the low silhouette of the city on the sea. Construction using Corbu's classic material—brut concrete—will undoubtedly give the hospital a "retiring" nature when experienced within the Venetian cityscape. One can imagine the displays of "conforming to" and "reflecting" older architecture in the Queen of the Adriatic had this commission fallen to a number of other architects, either in Europe or in America—the sinew-strainers would have torn a ligament in showing how Mars can bed with Venus in an irreproachably Platonic manner, and the purveyors of elegance and delight would have burst their weskits in a surfeit of reminiscent arches, arcades, grillages, and Titianesque abundance. The sober Swiss's understanding and understatement in his design would seem, at this early stage, to be therefore even more deserving of commendation. (This is not to say, in the sadness over the loss of Corbu, that there are *not* other architects who could have come up with just as appropriate a solution, of course.)

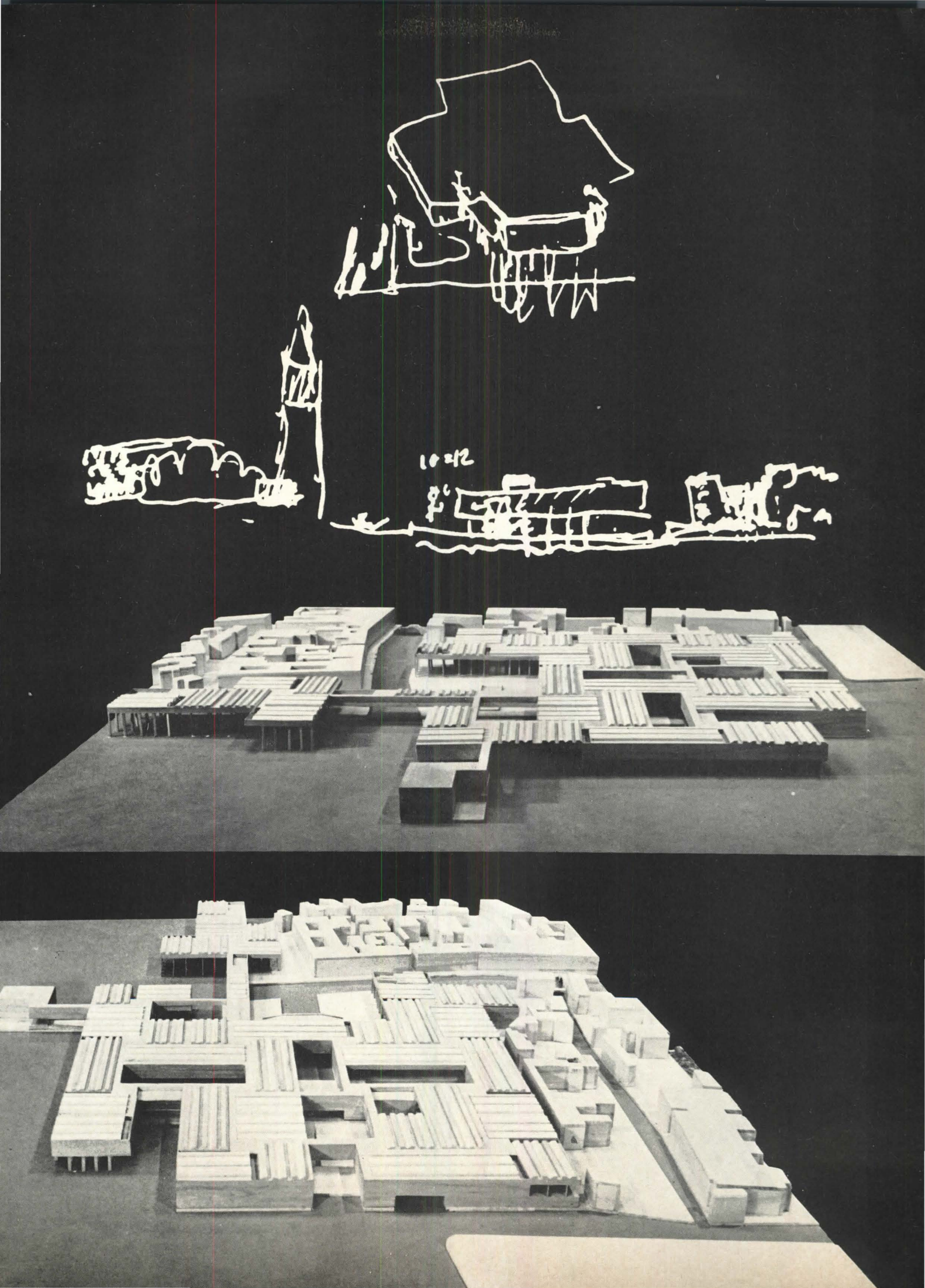
The hospital is planned in four levels, each housing a different aspect of medical services. The first floor contains arrival and registration facilities for all departments, in addition to commonly shared departments such as administration, main pharmacy, kitchen, laundry, stores, and records, and the chapel entrance. One alarming provision is for automobile parking for vehicles coming across a gangway from the Santa Lucia Station. Presumably, this provision is for the rapid movement of patients to the hospital; Venetians have been receiving adequate medical aid for some time, however, and this proposal for introducing the camel's nose of the noxious automobile into the Venetian tent is inexcusable and should be abandoned.

On the second level are first-aid and emergency stations, operating rooms, radiotherapy, diagnostic rooms, transfusion rooms, laboratories, infirmary, and dispensary. The third floor is a service floor containing wardrobes, prep rooms, and staff dressing areas. The most important floor is the top, nursing floor, which is divided into the departments of general medicine, general surgery, neurology, neurosurgery, urology, dermatology, otolaryngology, stomatology, cancer, obstetrics and gynecology, and pediatrics. The chapel also tops out at this level.

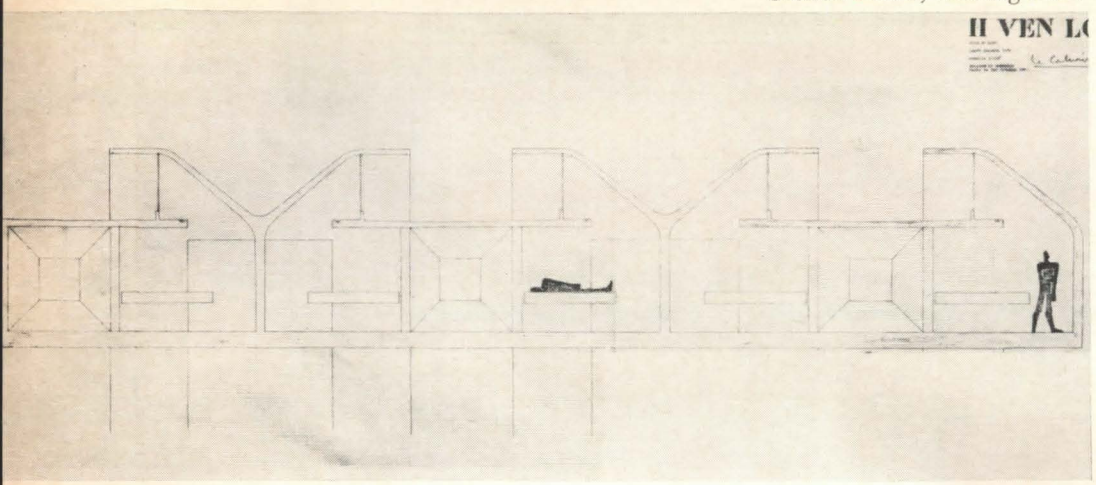
The nursing rooms have been planned, of course, on "Modulor" (see plan detail). A significant departure—for hospitals, at least—is that patient's rooms will be lit indirectly through clerestories extending above the adjacent hallways (see room section). There will be no direct natural illumination or view, which constitutes an unkindness perhaps to patients who would otherwise be looking out at the Lagoon. This system should give the hospital a cadenced roofline that will catch the rhythm of the pillars supporting the mass of the buildings. Connection to the pediatrics wing is made by a bridge over the canal, intensifying the sympathetic attitude Corbu took toward this city.

Agnoldomenico Pica, writing in *Domus*, notes that the site of the hospital now contains rather undistinguished buildings, though there are others in the area that are architecturally notable. "Thus the new building," he comments, "is destined to bring formal order and architectonic prestige to one of the very few zones of the city in which order and prestige were completely lacking."

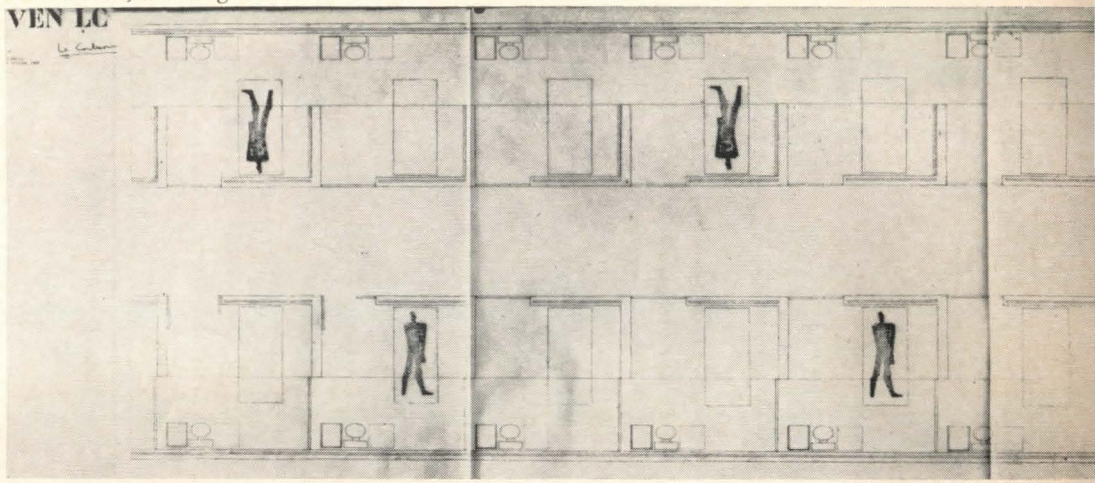
If the automobile proposal can be shelved, Venice will achieve a building that could introduce an architectural vitality rivaling that of her great past.—JTB



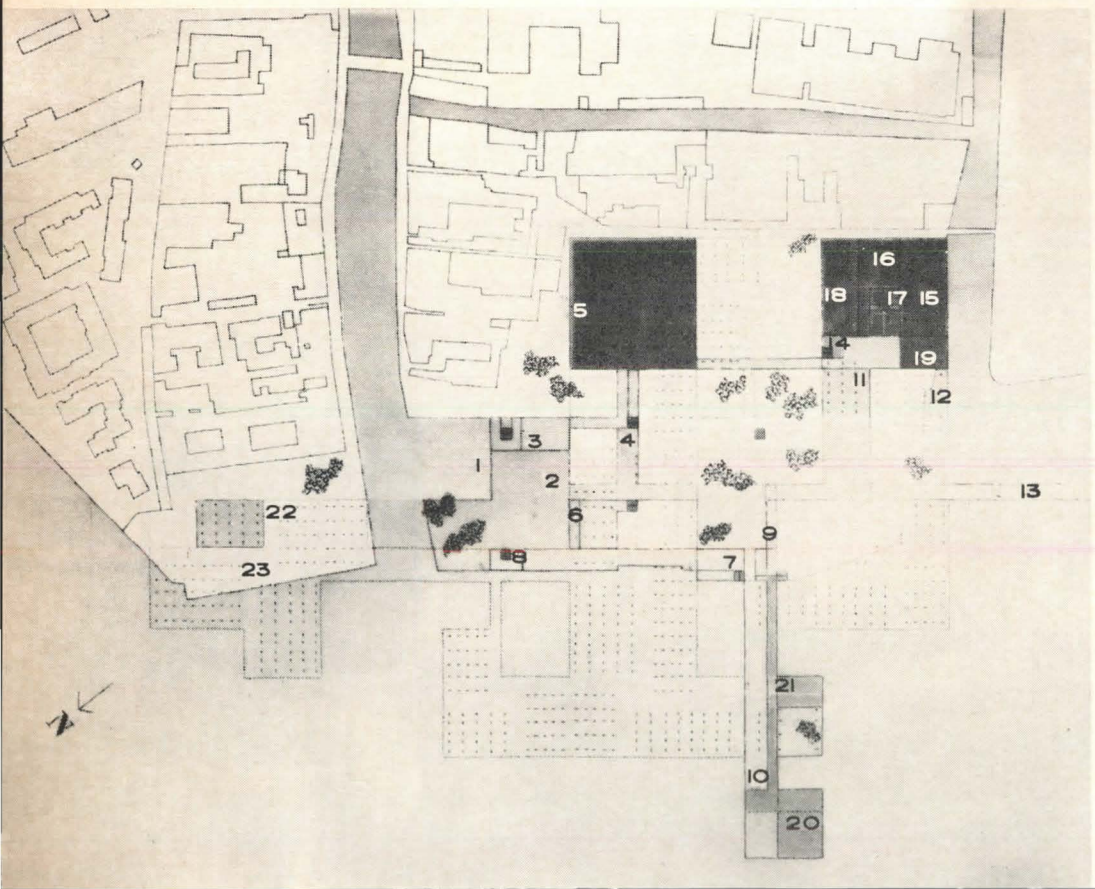
Section Detail, Nursing Floor



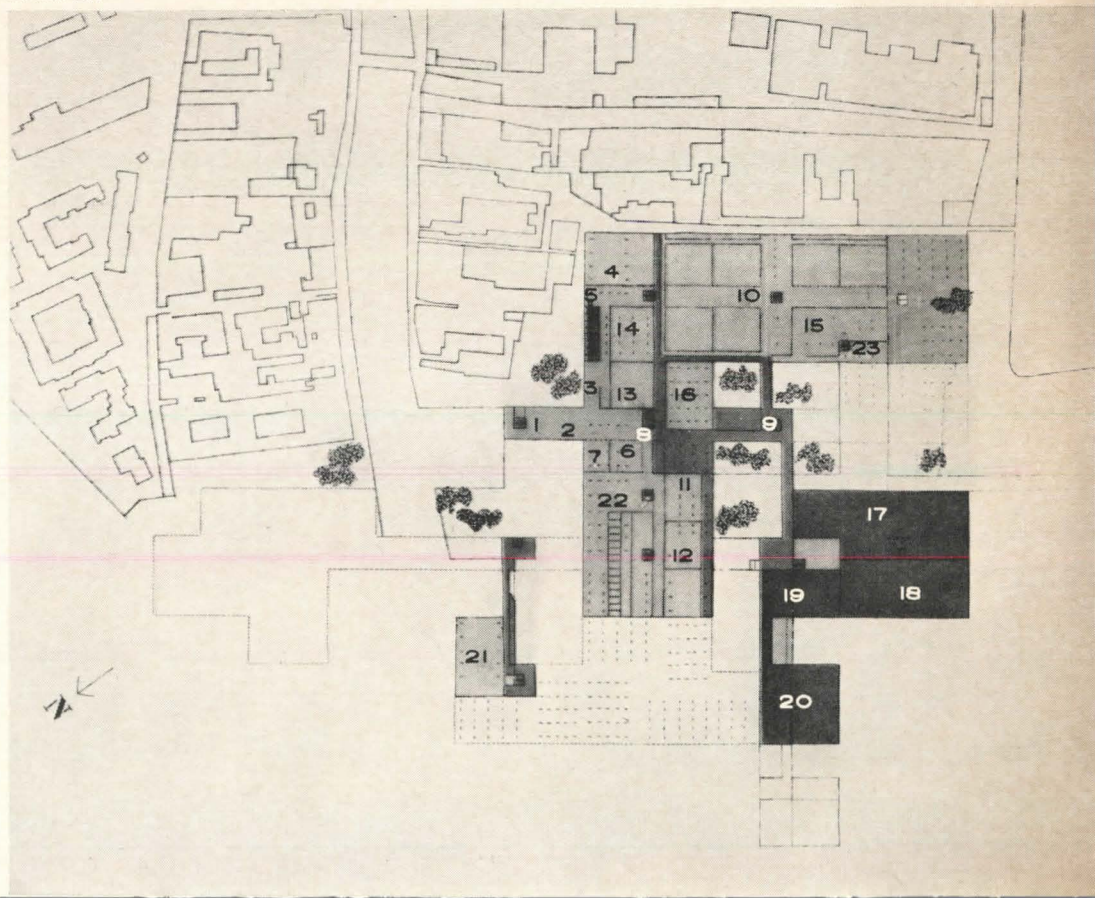
Plan Detail, Nursing Floor



Level 1



Level 2A

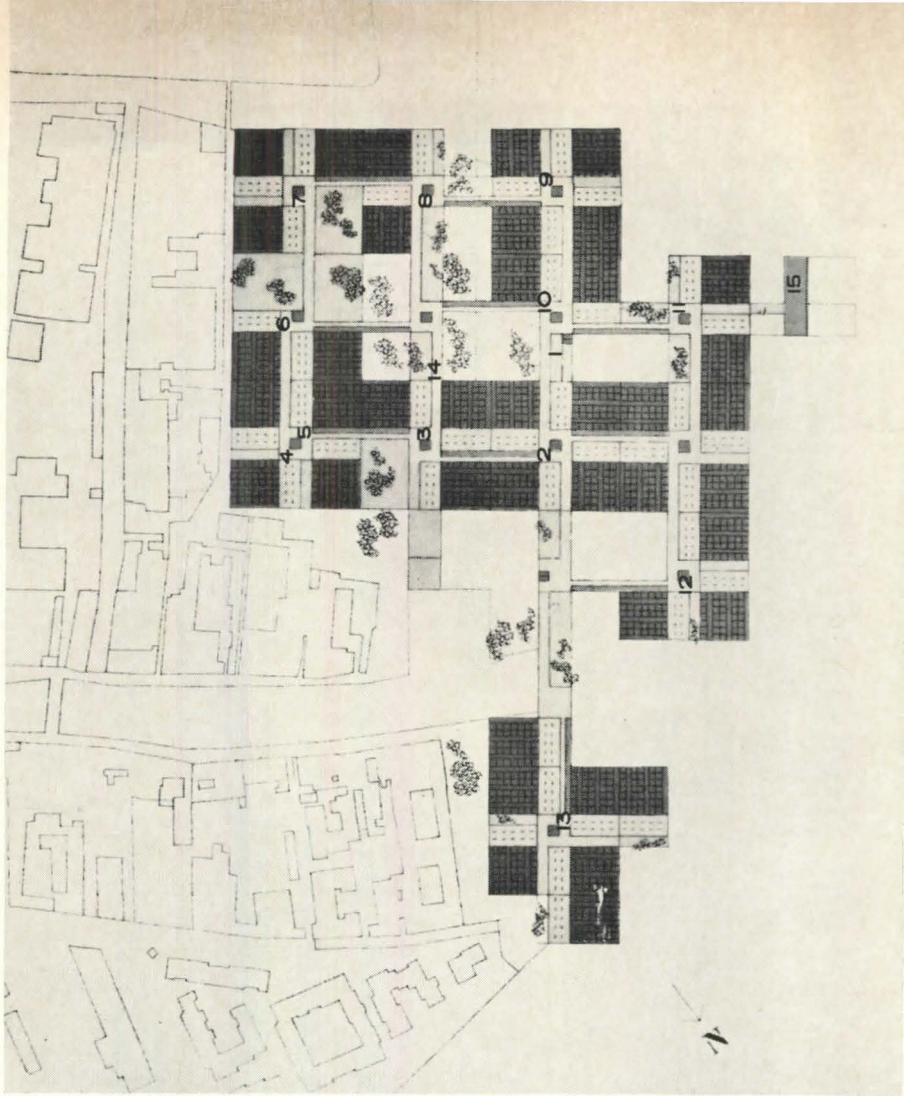


Level 1: (1) gondoloport; (2) autoport; (3) patient and emergency entrance; (4) entrance to administration; (5) administration; (6) charity entrance; (7) visitors' entrance; (8) obstetrics and gynecology entrance; (9) nurses' and attendants' entrance; (10) entrance to chapel; (11) service entry; (12) gondoloport for deliveries; (13) footbridge for vehicles; (14) central pharmacy; (15) kitchen; (16) linens; (17) laundry; (18) store; (19) maintenance offices; (21) chaplain's quarters; (22) entrance; (23) pediatric hospital.

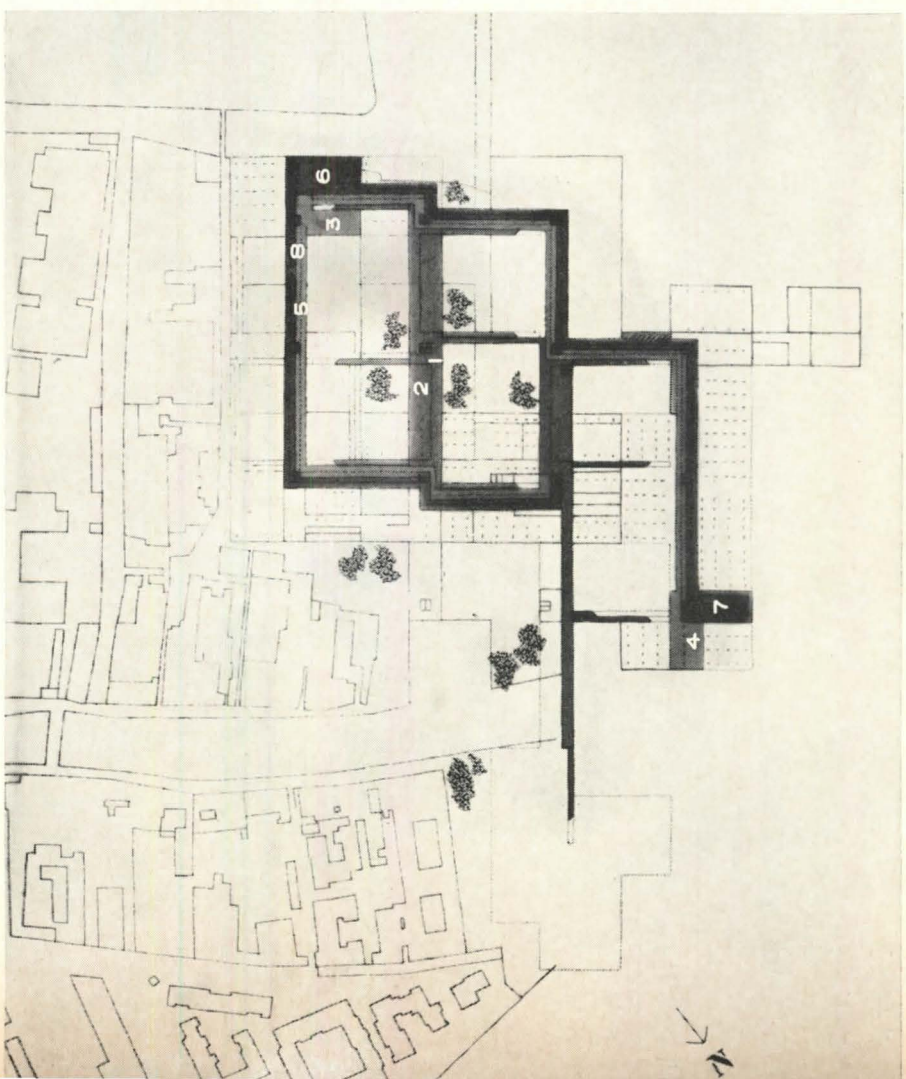
Level 2A: (1) Arrival and first aid; (2) reception; (3) emergency treatment; (4) emergency treatment; (5) beds; (6) guard service; (7) office; (8) patient entrance; (9) dispatching; (10) operating rooms; (11) transfusion center; (12) diagnostic center; (13) X-ray; (14) radiotherapy; (15) therapy; (16) laboratories; (17) infirmaries; (18) nurses; (19) sanitary director; (20) meeting rooms and amphitheater; (21) labor rooms; (22) dispensary; (23) pharmacy.

Level 2B: (1) patients' connection with second medical floor; (2) retreat; (3) antiseptic wardrobe; (4) antiseptic maternity wardrobe; (5) antiseptic charity doctors' wardrobe; (6) aseptic wardrobe; (7) aseptic maternity wardrobe; (8) aseptic charity doctors' wardrobe.

Level 3: (1) visitors' arrival; (2) general medicine; (3) general surgery; (4) neurology; (5) neurosurgery; (6) thoracic surgery; (7) urology; (8) dermatology; (9) otolaryngology; (10) stomatology; (11) cancer surgery; (12) obstetrics, gynecology; (13) pediatrics; (14) residence of ill; (15) church (chapel).



Level 3



Level 2B

CONSTITUTION PLAZA AFTER ONE YEAR

By Robert A. M. Stern

The author, presently holder of the J. Clawson Mills Fellowship of New York's Architectural League, edited the most recent "Perspecta" while at Yale School of Architecture. He is now organizing a number of exhibitions and seminars for the League.

It has been more than a year now since Hartford's Constitution Plaza in Connecticut opened for business. Because this is the most extensive project of its kind to be executed all at one time in recent years in this country, and because Hartford's renewal program has been a pioneering one, this is an appropriate time to take another look at Constitution Plaza and venture an evaluation of this undeniably influential plan. (It just won a special award at the New England regional convention of the AIA.)

Constitution Plaza and the adjoining Phoenix Mutual Life Insurance Company Building form the mainstays of the new downtown. Flanking State Street (a principal avenue leading from the peripheral highways to Bulfinch's historic State House and the commercial and civic buildings along Main Street), these separately financed projects can be viewed as one unit in the planning sense, and, for the purposes of this discussion, will be so considered.

The great strength of Constitution Plaza is its planned diversity. The mixture of office space with shops, broadcasting studios, research facilities, hotel and restaurants should encourage widespread use at all hours. There are things to do, reasons to go there. It is a place to linger, browse, and be entertained as much by the facilities provided as by the sheer joy of watching other people. Unlike New York's cultural ghetto at Lincoln Center or the commercial ghetto represented by the typical suburban shopping center, the pedestrian mall at Constitution Plaza, looked at from the point of view of the program alone, might have become a truly civic square. *Might* have become, because, unfortunately, the individual buildings that give the Plaza form in no way complement its program. Instead, the treatment of the site discourages, in very definite and predictable ways, the kind of use that was intended, and the kind of role that the whole project should have played in the life of downtown Hartford.

The reasons for Constitution Plaza's architectural and urbanistic failure are threefold: first, its fortress-like inaccessability from the existing streets and particularly from Main Street one block *uphill* to the west; second, the banal and clashing forms of the individual buildings; and third, the effete treatment of the gardens and pavements.

The decision to park 1650 cars in two enclosed garages (the roofs of which would be used as a pedestrian mall) was a sound and laudable one—and an extremely expensive one, as well. In an effort to keep costly excavation and foundation work to a minimum, not all the parking was put below grade. At some points on the steeply sloping site, as many as three of the parking levels are raised above the street. As the motorist approaches Constitution Plaza from the east, the raised podium that results from this half-in/half-out treatment of the garages provides a solid base for the diverse buildings above, an effect that greater care and restraint in the placement and design of the grilles and windows would have enhanced considerably **(1)**. From the other sides, where the mall should have opened up to the city and to the pedestrians, (who, in using it, would give it life), the podium presents a wall that can be scaled only at isolated points. The narrow, convoluted and complicated stairways make the prospect of vertical movement all the more uninviting. For example,

Photos: Joseph Molitor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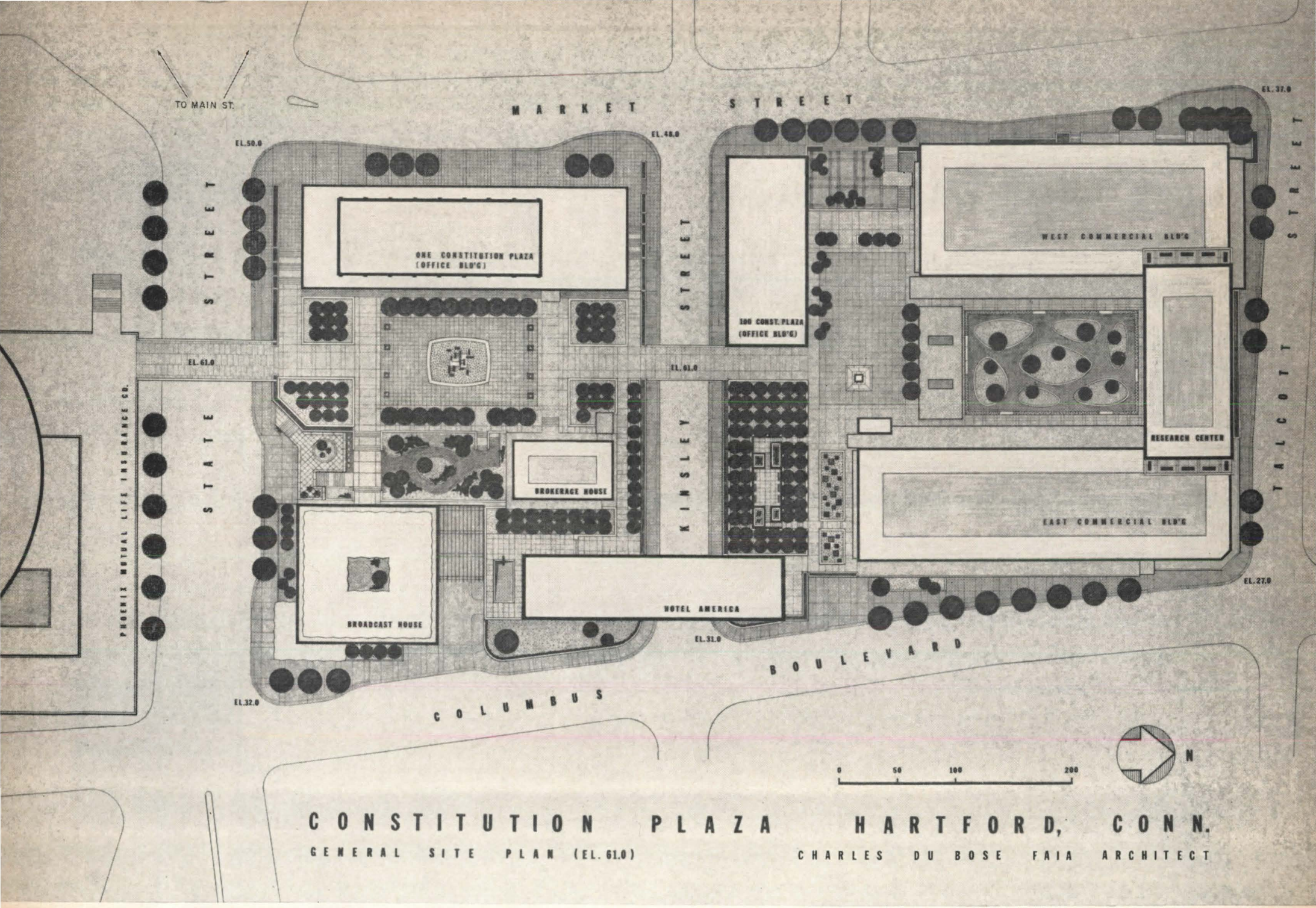

CONSTITUTION PLAZA HARTFORD, CONN.

GENERAL SITE PLAN (EL. 61.0)

CHARLES DU BOSE FAIA ARCHITECT

the stairway leading up from Market Street, north of Kinsley, placed in a skimpy forecourt, looks and *is* steep **(2)**. Another flight of steps, leading from State Street, begins in a gracious curve only to have its direction abruptly interrupted at the first landing **(3)** and straightened to fit more easily into the graph-paper regularity of the mall itself.

But the fundamental problem lies in the idea of a mall raised on a podium. The casual stroller on Main Street, or the housewife on a shopping spree, who contemplate a trip to Constitution Plaza, will probably think twice before *descending* the long hill from Main Street and then *climbing* two flights of steps to the mall. For similar reasons, people visiting the Plaza on business or stopping at its hotel, will probably content themselves with its shops and restaurants rather than making the alpine journey to Main Street. Psychologically, and even physically perhaps, Constitution Plaza is almost as completely divorced from the life of Hartford as any shopping center in the suburbs. It may offer the potential for an urban experience, but it surely does not encourage it. This need not have been so had the developers (Constitution Plaza Inc., a subsidiary of the Travelers Insurance Company) spent more money and sunk all the parking below the grade of Market Street. Then the mall could have opened its broad expanses to the city as a whole, at grade, and, at the same time, because of the slope of the site, maintained enough of its podium on the opposite side to make a base strong enough to be read from a moving auto. With such an easy relationship, a new business and shopping pattern might have emerged to encompass Main Street and the Plaza alike, rather than the schizophrenia that will inevitably be the product of the present scheme.

Little enthusiasm can be mustered by this writer for the architecture of the individual buildings, especially the glass-and-metal curtain wall office towers, which ape, with only slight success, their bigger, richer city cousins in New York. Only Harrison & Abramovitz, in designing the double prow slab of the Phoenix Life Insurance Building (**4**, not a part of Constitution Plaza, but obviously designed to be "sympathetic"), made an attempt to rethink the shape of the loft building. I am sure that this radical conception grows out of a rational evaluation of the way the hierarchies of office life are organized and of the problems of supervision in large stenographic and typing pools (though,

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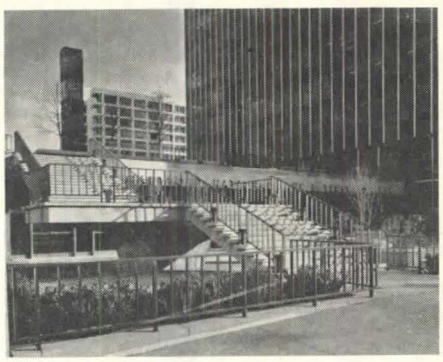

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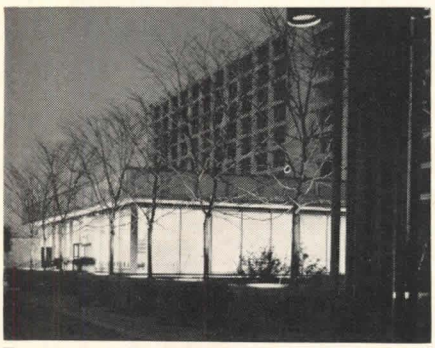
as Arthur Drexler points out, its relationship to Mies's experiments of the early 20's is a close one). But I am also certain that, from the point of view of the three-dimensional organization of Constitution Plaza, the resulting convex curves, which insistently lead the eye along glossy surfaces toward the knife sharp edges of the corners and beyond to empty space, drain away any possibilities for spatial definition that the building might have had and desperately needs as it commands, and presumably terminates, an 800-ft-long axis **(5)**. Despite the thoughtfulness that may lie behind its shape, there is a good deal of hokum, too. In case you miss the point of its nautical profile, for example, the water surrounding the base and the gangplank entry bridge socks it home.

The other buildings are smaller. Broadcast House **(6)**, built in part of concrete, fold, spins, bends, and in the process mutilates that material in a decorative manner better suited to paper; while the research building, sheathed in precast concrete panels, surrenders much of its mass to the intricate decorative effects made possible by that technique. Brokerage House—and "house," sadly enough, reflects the disparities

between the scale of the office slabs and the other buildings—is a neat and unassuming free-standing pavilion of glass **(7)**. Not so modest are the two-story shop buildings that hysterically attempt to define the northern end of the mall. In an effort to key up these diminutive buildings—they are the only two that are not designed as free-standing towers or isolated garden pavilions—the structure was extended beyond the buildings themselves to make a trellis of thin, linear elements that shred what little mass they already had.

Against the walls of glass and metal, Hotel America **(8)**, by Curtis & Davis, with its boldly exposed structural grid of concrete and its recessed windows, stands out as a work of substance. No great stride forward as concrete buildings go, Hotel America is nonetheless straightforward, serviceable, and good-looking. It is not a reduced version of the Time-Life Building sitting on top of a base reminiscent of the Pepsi-Cola Building, as is Number One Constitution Plaza, nor is it a graph-paper, assembly line, by-the-yard curtain wall like that of Number 100 **(9)**. Hotel America has presence; it has materiality; it makes a wall; it defines a space. And in the Coney Island world of distorted images and nervous shapes that is Constitution Plaza, this counts for a great deal.



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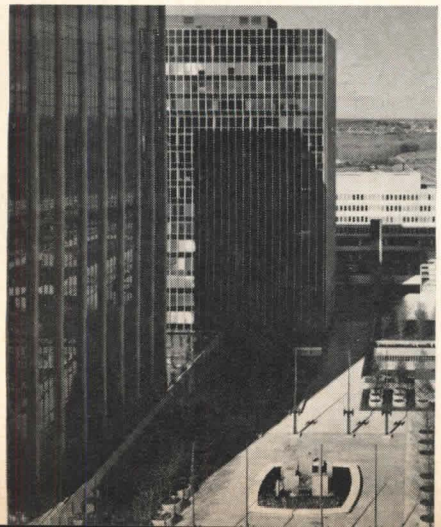
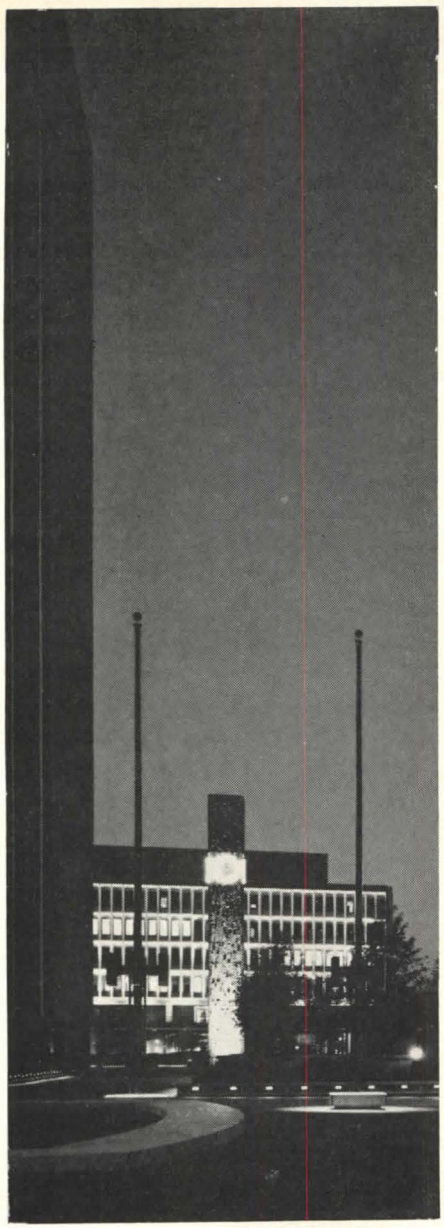


Even more than the buildings themselves, their interrelationship on the podium and the treatment of the mall make Constitution Plaza the urbanistic nightmare that it is to this observer. Each one of the buildings, with the exception of the hotel, is treated as aesthetically self-sufficient. That is to say, it would seem that these slabs and pavilions were designed in a vacuum, as if they were intended to stand by themselves, as if the buildings nearby did not exist. Can a space be defined with slabs each of markedly different height, with two low blocks and with one definite wall? Can a unity be achieved from nine buildings, the programs of which evidently demanded that, for advertising reasons, each be significantly different from all the others? I would suggest that this has never been possible in the past, not at the revered and endlessly, thoughtlessly, slobbishly misunderstood Piazzo San Marco, nor at Pisa, nor at the generally disregarded and extraordinarily successful Rockefeller Center in New York, nor at any other civic square that I can think of. We have for too long been coasting on the fundamentally anti-urbanistic aesthetics of the polemical days of the modern movement when architects, seeking to return to so-called first principles, and seeking to divorce themselves from what they would have called the historicizing excesses of the 19th-Century past, looked with childish contempt on the urban achievements of that past, when Le Corbusier suggested that Haussmann's Paris be torn down to make way for his new city of towers, when (and this is still all too prevalent today) the answer to most problems of urban renewal was "urban removal." Le Corbusier was right, however, as Vincent Scully has pointed out, when he proclaimed that in the world of towers, the city as we know it—the city of streets and squares—would inevitably be destroyed.

But do we really want this to happen? Must we have *only* towers set in parks? Scully and many others have also shown that good streets, defined by walls, may run endlessly to the horizon, while the great squares of the past have usually been limited in size, scrupulously enclosed by low, solid buildings. Within these definite and comprehensible boundaries, more sculptural shapes have been inserted: temples, towers, baptistries, and great cathedrals. Some architects are beginning to understand these principles again. Yamasaki, in his New York World Trade Center (a complex of buildings that I find in many ways irresponsible), and Rudolph, in his Government Services buildings in Boston, have both recognized these fundamental principles of boundary and sculptural objects: These, I would insist, are among the real first principles of city-making. They have proposed courtyards surrounded by comparatively low buildings in which taller, more elaborate towers will stand. But these are public or quasi-public projects. Private enterprise—once, in America, the leader in creative urbanism if we can take as examples the original development of Park Avenue and of Rockefeller Center—has steadily been losing urbanistic headway. Each corporation that attempts to build in concert with another insists that his building be noticeably different in shape and in scale, if not in materials. It is difficult to understand why we have "progressed" from Rockefeller Center, where all corporations, large and small, drew sustenance from the whole, to *today's* Park Avenue, where many—some honestly trying to enhance the avenue—destroyed it, and finally to Constitution Plaza, where almost no sense of community is left at all.

Frank Lloyd Wright's well-worn homily—doctors can bury their mistakes, architects must plant ivy—is given a new lease on life in the de-



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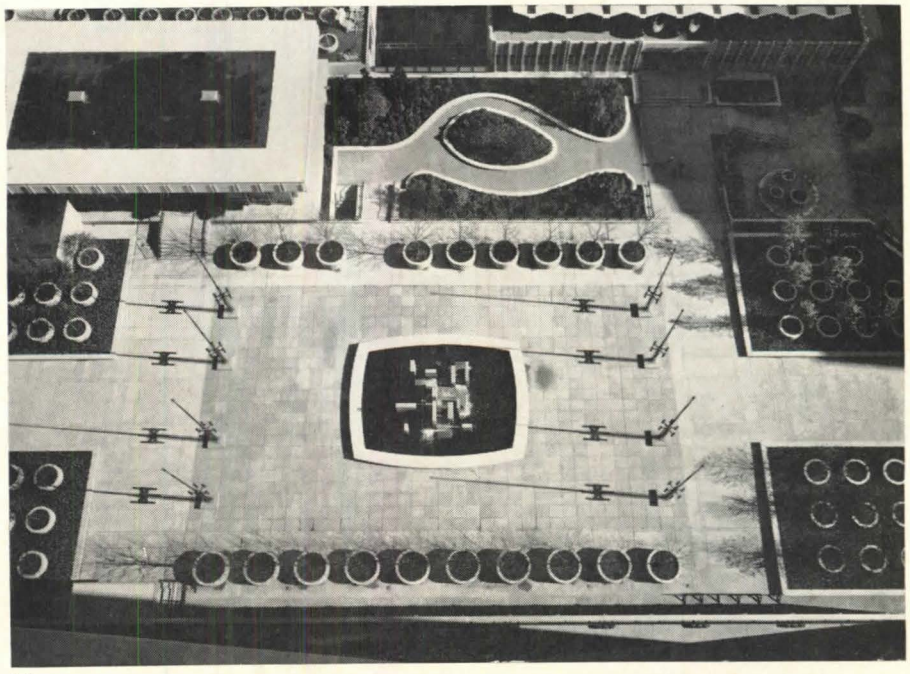
sign of the mall at Constitution Plaza. In what must have been a last-ditch effort to pull the entire composition together, no expense seems to have been spared—unusual planting, elaborate pavement patterns, lamp standards, even a clock tower and sculpture have been included. But it is money wasted. In a city of tall office slabs there is nothing more absurd—or hopelessly out of scale—than a five-and-one-half story clock tower of extremely slim proportions and an elaborate surface, which, because of its intricate patterning, is reduced to the scale of costume jewelry **(10)**. Nor is the even smaller sculpture of interpenetrating planes adrift in a pool of water able to compete with the big, equally abstract buildings. Only a heroically scaled, humanistically conceived sculpture—a noble Giacommetti, a Paolozzi, a Lachaise—could have provided what these buildings so desperately need: their opposite, an expression of the human condition.

At Constitution Plaza, the buildings are, for better or worse, the sculpture; and what they crave most is space around them. This is true of almost all buildings conceived in terms of their aesthetic: abstract, weightless planes of wall treated as glass stretched around geometrically pure volumes of space; and it has been well understood by Mies, who made sure that the Seagram building would breathe behind a magnificently spare plaza. Not so with the guiding spirits at Constitution Plaza, who, seemingly not confident in the spectacle of people moving through space, felt that pavements, gardens —just about everything their landscape architects could get their hands on, in fact—must be "designed." The entire floor of the Plaza writhes under an almost Victorian impulse to fill every space, cover every inch, leave no stone unornamented **(11)**. I shall not analyze the various groupings of plants nor the squiggling, serpentining arrangement of certain paths and flower beds, nor the concrete planters scattered about as if by geological calamity, nor any other of the hopelessly tippy-toe, "fairies in the bottom of my garden" effects, which capture perfectly, for this writer at least, the spirit of a miniature golf course. I do wish to point out, however, that when viewed from the rarefied heights of the office slabs, the plantings begin to make some sense, even though this is certainly the least important aspect of the design. The mall at Constitution Plaza is not landscape architecture as the great masters of the past have shown us it could be, nor does it approach the restraint of a Karl Linn or a Robert Zion; it is, instead, a kind of Burpee seed catalog of design tricks. As such, it celebrates the triumph of the gimmick over that basic relationship between buildings and earth, which is humanity's rapidly dwindling patrimony.

Constitution Plaza: Design Coordinator, *Charles DuBose.* ***Landscape Architects:*** *Sasaki, Walker & Associates, Inc.* ***Hotel America: Associated Architects:*** *Charles DuBose and Curtis & Davis.* ***Broadcast House: Architects:*** *Fulmer & Bowers.* ***One Constitution Plaza: Associated Architects:*** *Kahn & Jacobs and Carson, Lundin & Shaw.* ***100 Constitution Plaza: Associated Architects:*** *Charles DuBose and Emery Roth & Sons.* ***Brokerage House, Research Center, North and South Garages, East and West Commercial Buildings: Architect:*** *Charles DuBose.*



11

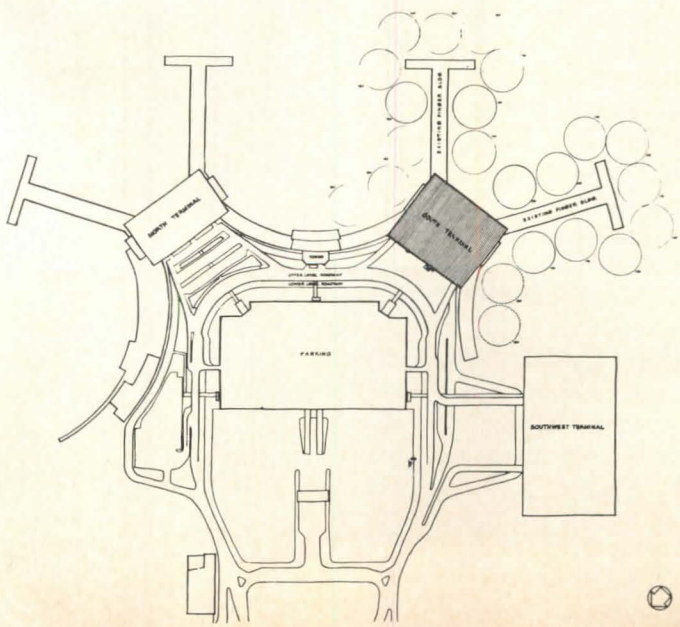
PARKING DOMINATES AIR TERMINAL

The long walk to the terminal after parking in a vast, windswept parking lot has long been among the prime irritants of air travel, ranking just behind the fact that it often takes longer to go to and from the airport than it does to make the actual flight. In Boston, at Logan Airport, American Airlines plans to alleviate the lesser of the two annoyances.

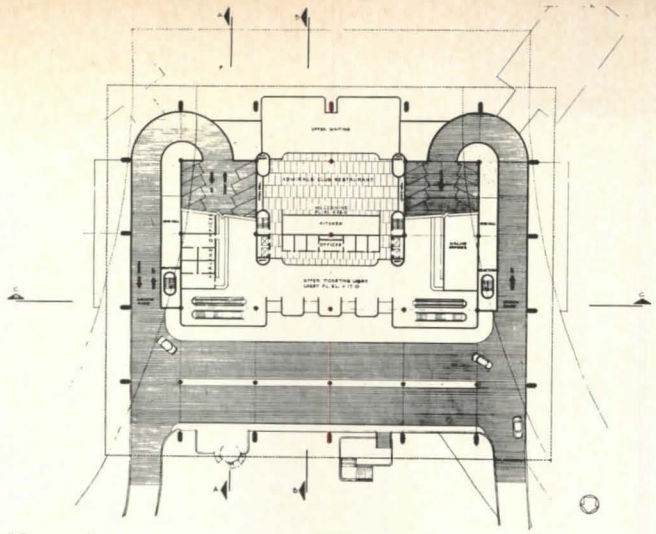
The preliminary design for the American terminal—prepared by Hillman-Garmendia of New York for the airline, which will submit it to the Massachusetts Port Authority for consideration—envisions a terminal sheltered under two overhanging parking decks reached by ramps from the upper level of the airport's two-level roadway system. Enplaning passengers arrive at the upper terminal level and can drive directly up ramp #1 to leave cars, or drop off passengers and baggage at the entrance then proceed up ramp #2 to the parking levels. (There will also be short-term surface parking at ground level.) Deplaning passengers will claim their baggage at the lowest level, which will be convenient to the lower level of the roadway system with its public transit systems, taxis, rental cars, and short-term parking. After retrieving their baggage, passengers who have cars parked in the terminal take elevators to the appropriate parking level and exit down the ramps to the roadway.

The upper parking deck will be supported by the major column system; the deck just below, called by the architect the "Intermediate Deck," will be held back from the range of columns on the front of the building. The terminal itself will be located well to the rear of this, so that it will, in fact, be enclosed in a a structural "cage." The designer plans to express the major concrete structure supporting the parking elements in rough texture, to contrast with the finely detailed precast panels enclosing the terminal areas within. Additional elements of interest will be a broad staircase descending from the upper-level roadway to the short-term parking area, and a circular kiosk serving as a waiting area for airline buses. Within, there will be a mezzanine above the ticketing floor containing a restaurant and airlines offices. There will also be rental areas for airlines other than American. Lev Zetlin is structural engineer and Joseph R. Loring & Associates are mechanical and electrical engineers.

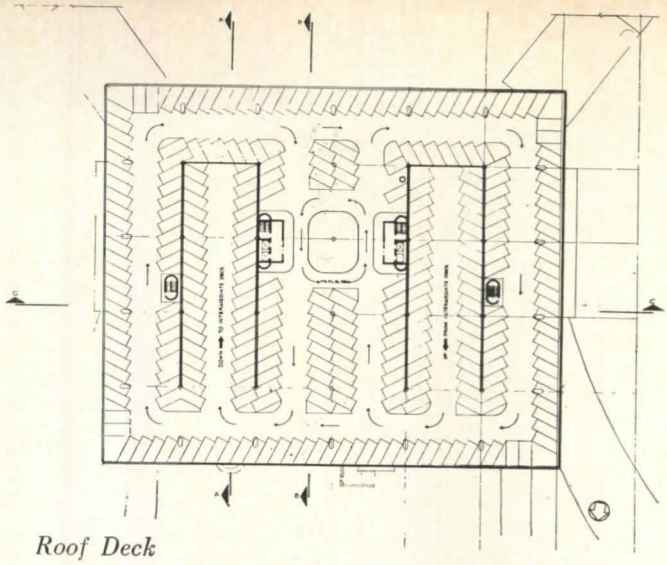
The Hillman-Garmendia proposal seems a logical solution of the ground-to-air-transition problem that has plagued designers of terminals. Such a concept could point directions for others working in this building type, including those dealing with the North Terminal at Logan Airport (p. 78, OCTOBER 1965 P/A). As long as we must continue to serve the automobile and its voracious space needs instead of being served by it, this scheme hopefully will succeed in keeping the automobile out of the way when not in use, but ready at hand when it is needed again.



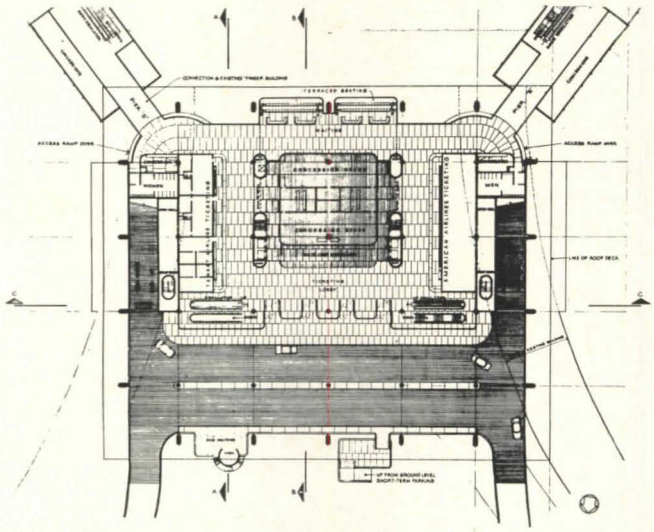
Site Plan



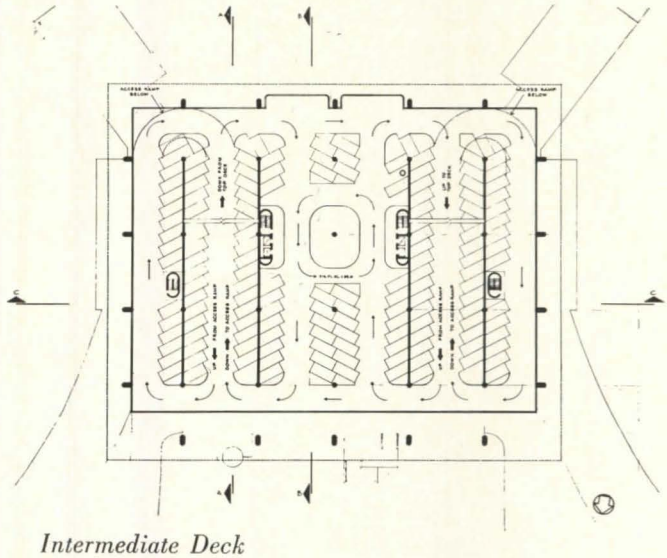
Mezzanine



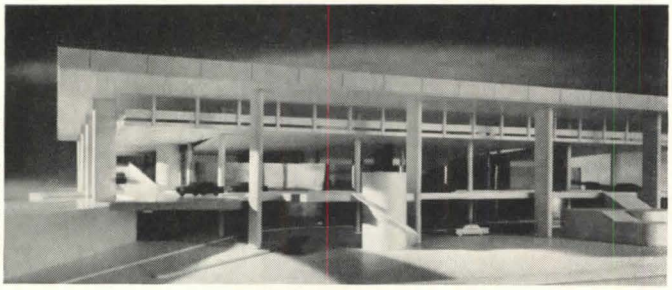
Roof Deck



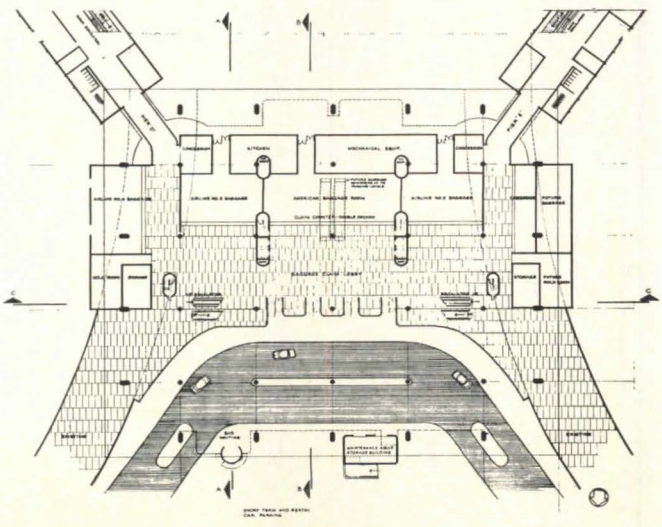
Upper Floor: Enplaning (Ramp 1, r.; Ramp 2, l.)



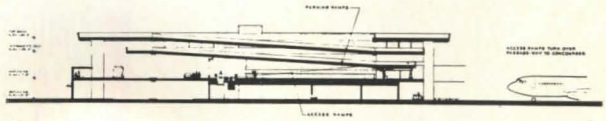
Intermediate Deck



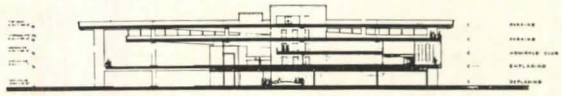
Photos: Louis Checkman



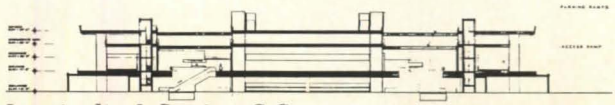
Ground Floor: Deplaning



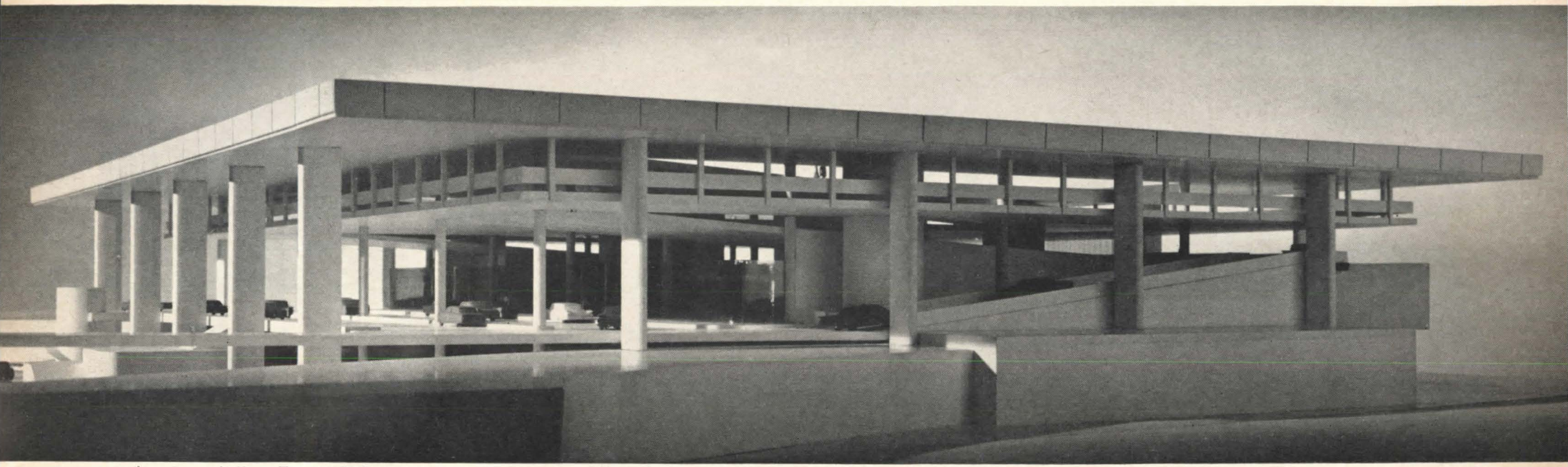
Cross Section A-A



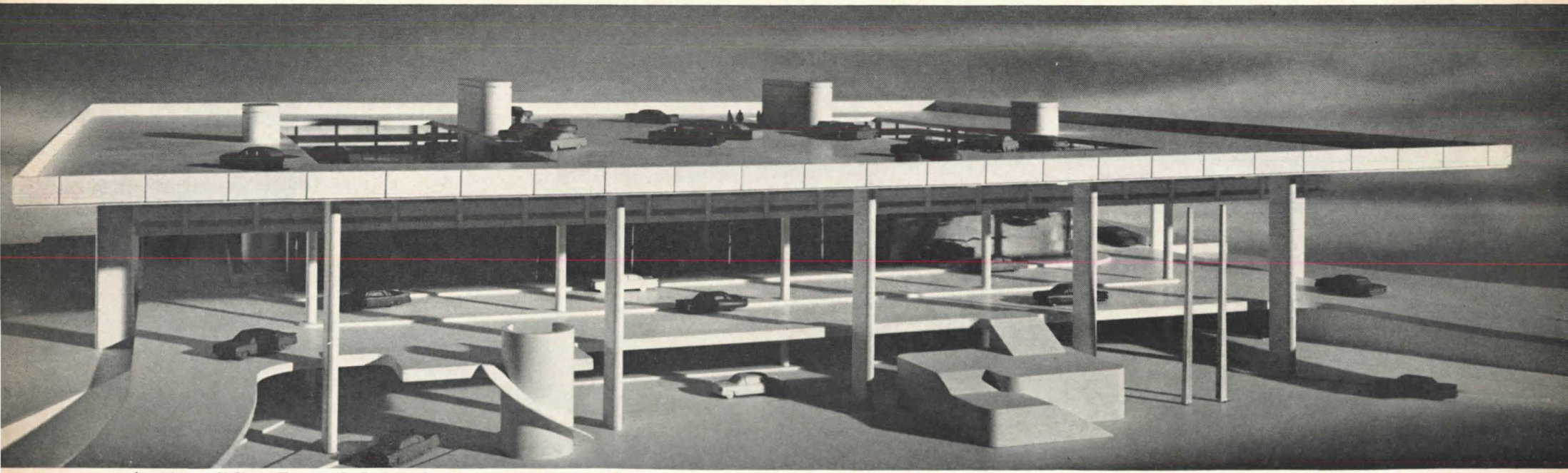
Cross Section B-B



Longitudinal Section C-C



American Airlines Terminal, Logan Airport, Boston, West Elevation



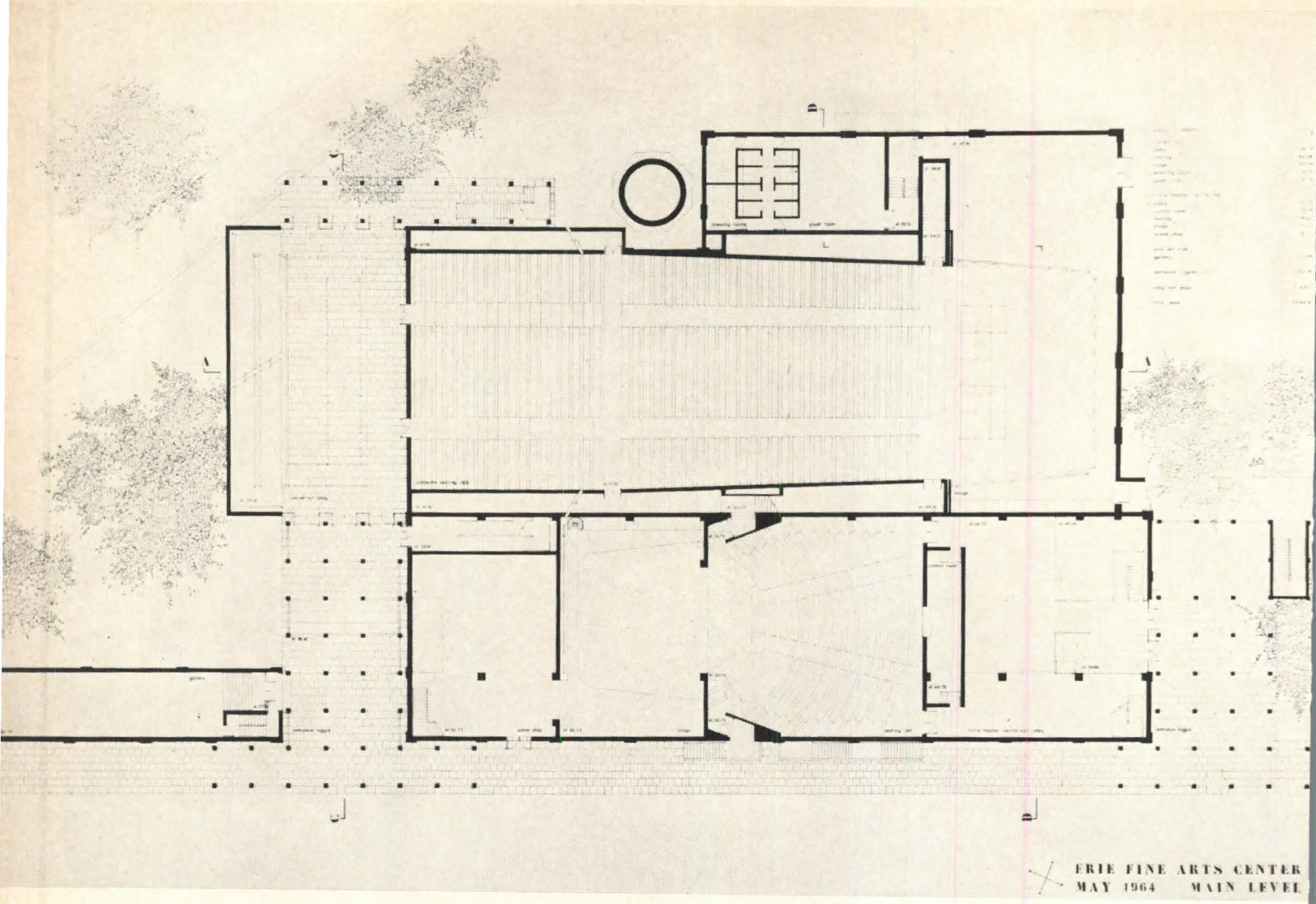
American Airlines Terminal, Logan Airport, Boston, North Elevation

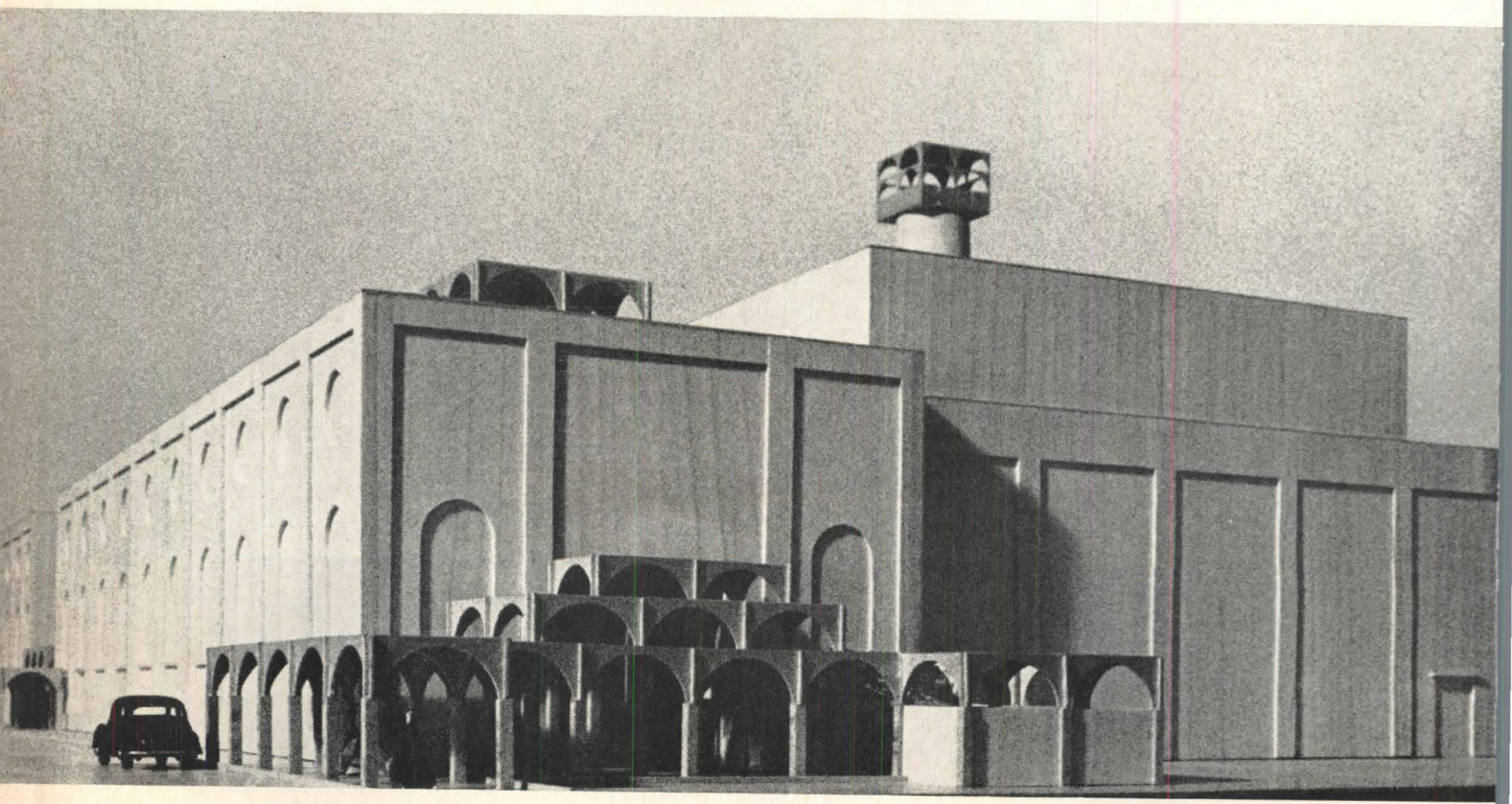
POWER FOR CULTURE

Photos: James H. Cook

Local cultural explosions set off by the fuse reaching from Lincoln Center and the John F. Kennedy Cultural Center to the new museum and theater complexes in Los Angeles are being heard from municipalities of all sizes throughout the land.

One of the latest cities heard from is Erie, Pennsylvania, which has come up with a unique answer to housing its *Kultur*. Not being able to afford neo-classical self-indulgence such as Lincoln Center's pompously eclectic anachronism, Erie had to look around for a solution. Happily, someone remembered the old PENELEC power plant in town which had been abandoned for 30 years. Soon, the Erie Junior League asked architect Paul Schweikher of Pittsburgh and theatrical consultant George Izenour of Cambridge to

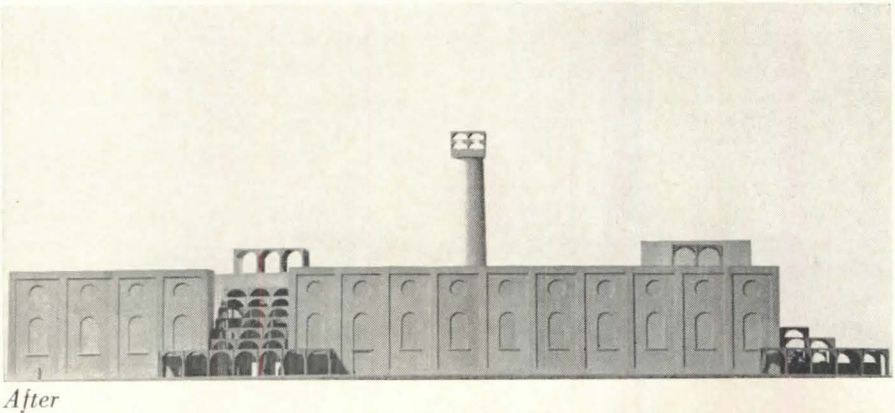

ERIE FINE ARTS CENTER
MAY 1964 MAIN LEVEL



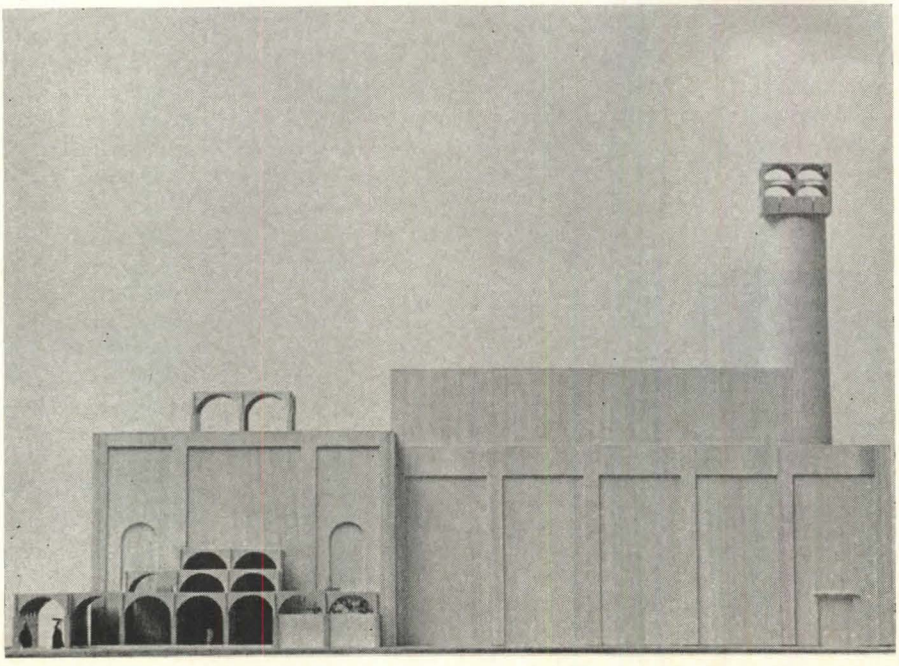
come up with a suggestion of what could be done to turn the huge old structure into the Erie Fine Arts Center. Schweikher and Izenour and their consultants—Herman Spiegel, structural engineer; James Dodson, mechanical engineer; Frank Wadlow, electrical engineer—got cracking and came up with a proposal that should transform the old abode of transformers into a very diverting and interesting place to visit. Of course, they had something to start with. The existing power house is a good example of the kind of solid design and construction that went into such utilitarian buildings in the 19th Century. Sturdy brick masonry expressing a motif of repetitive arches beneath circles gives the long main facade an appearance that is at once distinguished and, with the Schweikher remodeling, great fun to see.

In addition to respecting the design of the original building by retaining it, the architect will pay it homage by creating entrance loggias of precast concrete that repeat the arch motif of the facade. The entrance to the little theater-recital hall will wrap part-way around the southeast corner and rise to three tiers above the door. Leading toward the concert hall lobby past the gallery (see main level plan) will be more terraced arches, these achieving seven levels and leading the eye toward the pavilion-like lantern above the lobby. Another entrance will lead into the other side of the lobby from service and parking areas on the other side of the building. One of the old smokestacks will be retained and topped with the Center's arch trademark. Floors will be polished concrete.

Before



After



The concert hall will seat 1790 and can be converted into a large open space for conventions and exhibitions. An audience of 380 will be able to attend recitals or plays in the little theater-recital hall. In addition to the art gallery, other facilities will include dressing rooms, rehearsal areas, classrooms, a restaurant, and offices. The major new spaces will be the loggias and the symphony hall lobby. Principal equipment additions, mechanical and otherwise, will include a movable hydraulic floor in the concert hall, seating, stage rigging, acoustical, sound, and lighting provisions, and heating and air-conditionng systems.

Schweikher told P/A that the proposal is in the hands of the Erie Junior Chamber of Commerce and other interested civic and cultural leaders, "and, as we understand it, fund-raising and the relation of the project to general redevelopment and city planning are being processed."

Those architects fortunate enough to have attended the ball given in the doomed old Georgetown Power House by the local AIA chapter at last June's AIA Convention know what a powerful amount of strength and charm such a building can have. It is to the great credit of Erie and her architects that an important civic use is being found for the reincarnation of a building, which, like Marlene Dietrich in her old films, has both personality and a "past."

Hermetic Sealing Improves Absorption Machinery

BY WILLIAM J. McGUINNESS
Improved sealing techniques increase the efficiency of absorption refrigeration machines. McGuinness is the Chairman, Department of Structural Design, School of Architecture, Pratt Institute, Brooklyn, N.Y.

By maintaining an effective vacuum in absorption refrigeration machines, manufacturers have considerably improved the efficiency of air-conditioning equipment. A recent development for hermetically-sealed absorption refrigeration machines advances the claim of many designers that this process is superior to compressive refrigeration machines.

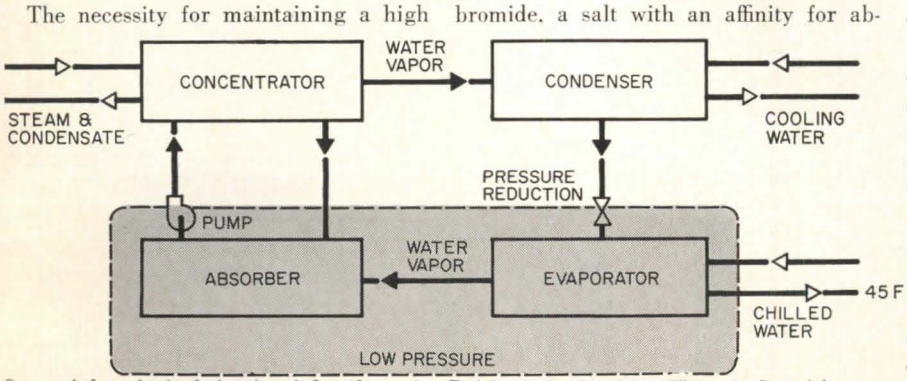
Designers often choose absorption machines to supplement steam-driven turbine compressor type refrigeration. The absorption unit uses the low-pressure exhaust steam from the turbine for its concentration process. On some projects, economic studies may show the absorption machine to be competitive with compression machines, and, in these cases, absorption is used as a prime cooling source.

Hermetic construction is achieved by welding the steel shell, reducing the number of pipes, eliminating gasketed joints and sight glasses, isolating motor shafts, and then testing the work with a helium mass spectrometer to insure that the machine really is hermetically sealed.

The necessity for maintaining a high vacuum is inherent in the principle of absorption refrigeration machines. Like the compressor cycle principle, the absorption process uses a refrigerant that expands when it takes on heat from the medium to be cooled. This expansion (i.e., evaporation) changes the refrigerant from its liquid form into gas. Later in the refrigeration cycle, this heat must be dissipated. It can be lost to the outside air, to water that is wasted, or to water that is recirculated.

In both systems, the refrigerant is evaporated mechanically. In a compressive refrigeration process, Freon is the commonly used refrigerant; in the absorption machine, water is used. Since Freon is a gas at normal temperature, it performs its cooling function by first being liquified, by compression, in which state it evaporates and absorbs heat from the surrounding space. Freon is therefore kept under pressure in the refrigerating machine. Conversely, if water is to be used as a refrigerant, it must be kept in a high vacuum, because, to produce chilled water at 45 F, it must be vaporized at about 40 F. Water will "boil" or vaporize at this temperature if its pressure has been reduced to about one-hundreth of the atmospheric pressure.

When refrigerant water is vaporized in an evaporator and acquires the heat from the circulated water that is to be chilled, it is drawn into the absorber by a concentrated solution of lithium bromide, a salt with an affinity for absorbing water (see diagram). The water added to the salt weakens the solution, which needs to be concentrated again. This is accomplished by circulating the solution through a concentrator where some of the water is again vaporized, but this time by steam. The vaporized refrigerant, now water vapor, passes to a condenser where it is liquified by the cooling effect of another—separate—water system often originating from a cooling tower. The condensed refrigerant water is then ready to repeat the process.



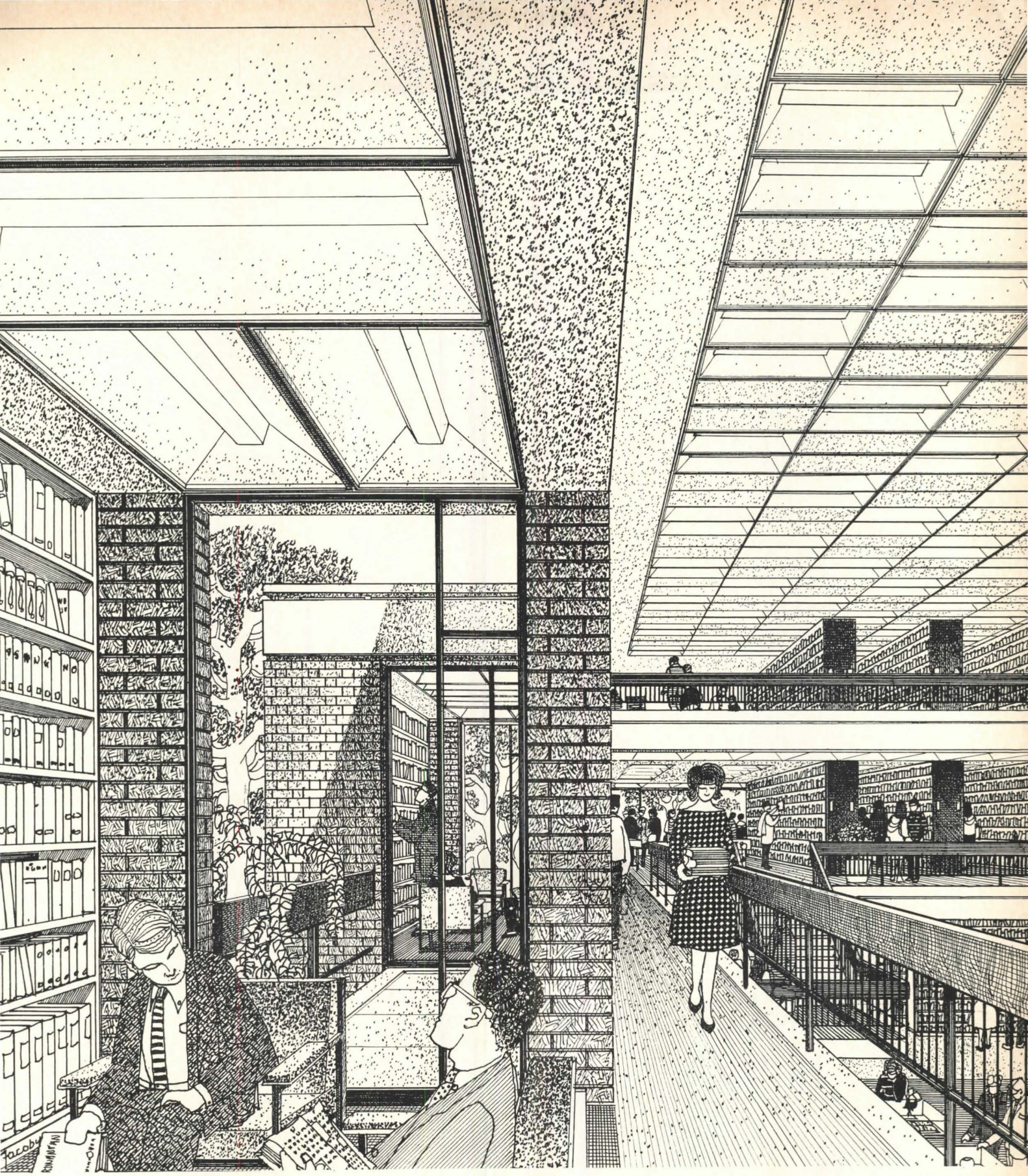
Some of the principal circuits of the Absorption Refrigeration Machine. Water is the refrigerant.

With water as a refrigerant, the absorption system depends upon a high vacuum for efficiency. If the vacuum is reduced, the efficiency of the machine is lowered. Leakage affects the machine in three ways.

- *Reduced capacity.* A pin-hole leak, permitting air to enter the equipment, can cause the chilled water to run 10 or more degrees warmer in only a few days.
- *Crystallization.* The capacity of the machine can be impaired by air infiltration into the condenser section. To compensate for the leak, the controls increase the concentration of lithium bromide. The salt may then solidify and block vital passages in the equipment.
- *Corrosion.* A very small amount of air can accelerate the corrosive effect of lithium bromide despite the use of corrosion-resistant metals in the construction of the machinery.

One of the devices most effective in checking for air leaks is the helium mass spectrometer. The machine to be tested is enveloped in a polyethylene bag full of helium. The air from the machine is then evacuated and passed through a spectrometer that registers the helium content. If the machine is hermetically sealed, there will be no helium pulled through by the vacuum pump.

This article is based on information contained in "Hermetic Absorption Machines," which appeared in Vol. 12, No. 5 of Actual Specifying Engineer.



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Cold Cracks Roofing

BY HAROLD J. ROSEN

Knowing why roof membranes crack in cold weather can help architects prevent failures. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York.

In cold weather, roofing felt contracts, and, if the temperature falls low enough, the felt splits. This phenomenon of tensile failure usually occurs in straight lines, and frequently the membrane splits in line with a continuous joint in the insulation beneath it.

During the last year, two reports have been published on this subject: one, presented at the Building Research Institute's 1964 Fall Conference, shows why roofing fails in tension; the other, the National Bureau of Standards' Monograph 89, by William C. Cullen, describes test procedures for measuring the effects of thermal shrinkage, and recommends methods to prevent membranes from moving when temperatures drop.

Thermal movement is a constant source of trouble in architectural design. Most materials will expand when the temperature rises and contract when the temperature drops. The ratio of the increase or decrease in length of a material to its original length for a specified temperature is known as the coefficient of linear thermal expansion. For some materials, this thermal coefficient is constant at all temperature ranges; but for other materials, the coefficient in a hot range differs from the coefficient in a range of cold temperatures.

Built-up roofing membranes belong in the latter group. The coefficient of thermal expansion is dramatically greater at sub-zero temperatures than at moderate temperatures. Figure 1 illustrates the contraction that results when a 100-ft-long section of built-up roofing membrane drops in temperature from +160 F to —60 F. Although the material contracts 7.1 in. through the 220 F temperature gradient, the major change occurs when the temperature falls below zero. Thus, in regions where temperatures often hover between —20 F and —30 F, the accelerated rate of contraction will affect roofing more severely than thermal changes in temperate zones. In cold climates, splitting of built-up roofing membranes and displacement of flashing and gravel-stops through contraction may cause premature failure unless certain precautions are taken in the design and installation of built-up roofing.

FIGURE 1 *Roofing membranes do not contract or expand uniformly at all temperatures. In cold zones, membranes contract more than in warm or hot zones.*

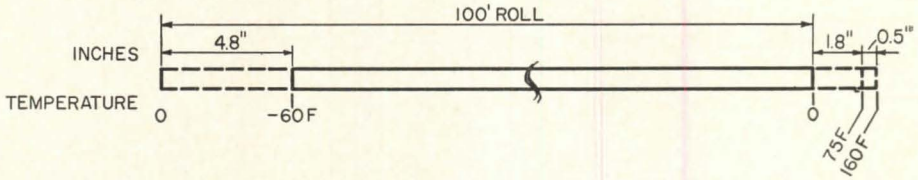


FIGURE 2 *Rolls of roofing felts do not expand uniformly in length and width. The coefficient of expansion for the length of the roll is smaller than for the width.*

Type of Membrane	Expansion-Coefficient x10⁻⁶ Along length of roll	Across width of roll
Asphalt and asphalt-saturated felt	10.9	20.8
Asphalt and asphalt-saturated asbestos	8.3	20.3
Asphalt and asphalt-saturated glass fiber	18.1	26.1
Coal tar and coal-tar-saturated felt	19.4	29.4

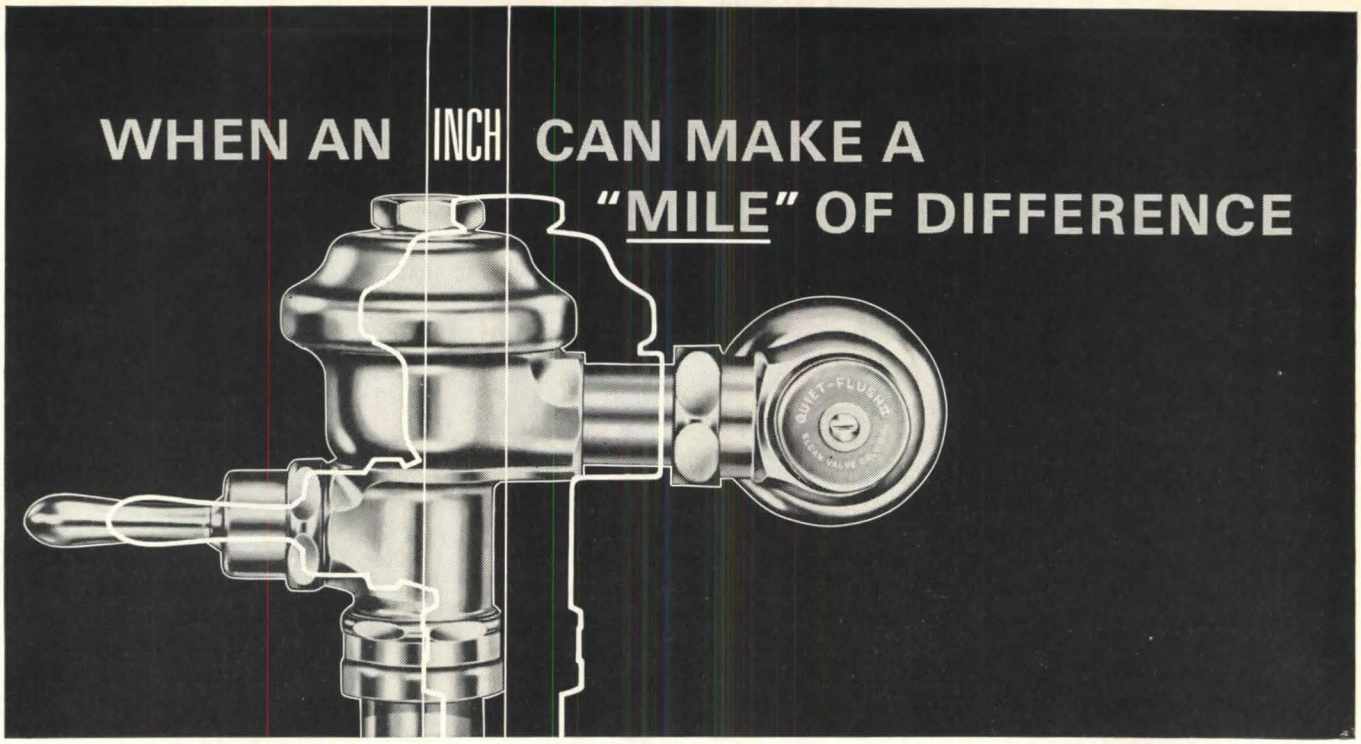
To determine what precautions are necessary, researchers made thermal-movement tests on both coal-tar and asphalt membrane systems that use asphalt-saturated organic felts, asphalt-saturated asbestos felts, asphalt-saturated glass-fiber felts, and coal-tar-saturated organic felts. Specimens of felts were prepared so that expansions and contractions could be determined across the width and along the length of a roll of felt. The specimens were subjected to changes in temperature from —60 F to +140 F.

The results of tests made through a 60° range, from —30 F to + 30 F, show a marked difference in the rate of thermal movement between the length and width of a roll of roofing felt. The figures show that the coefficient of expansion (or contraction) across a roll of felt is much greater than the coefficient of expansion for the length of a roll. This difference could affect the way in which rolls of felt are laid on a roof. The results are shown in Figure 2.

The direction of the material affects the resistance to splitting because, according to William Cullen, the breaking load of organic roofing felts is twice as high in the longitudinal direction.

His Monograph 89 suggests that certain design and installation procedures be followed when roofs are installed in areas subject to temperatures between —20 F and —30 F. These considerations also apply for reducing and preventing failures in all built-up roofing membranes.

- Expansion joints in roofing membranes (not structural joints) will reduce the incidence of failures.
- When insulation is used immediately below the roofing membrane, the joints between the boards should be taped. Taped joints reduce moisture absorption in the felts and eliminate areas of stress concentration over the joints.
- Insulation should be applied to the deck so that the continuous joint is parallel to the short dimension of the roof. Joints in the insulation should be staggered to reduce lines of weakness.
- Roofing felts should be applied parallel to the long dimension of the roof. This application permits not only the greater strength of the felt in the length of the roll to be used to advantage, but also reduces the potential stress concentration over joints due to the greater thermal movement of felt in the width of the roll.
- The adhesive bond between the roof membrane and the substrate should be strong enough to prevent wind from lifting the membrane. This adhesive should distribute over large areas any strains caused by a rapid change in temperature. Strip mopping of the base sheet effectively produces this result.



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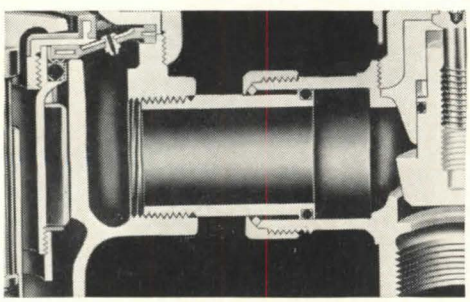

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Claims of the Subcontractor: Part 1

BY BERNARD TOMSON AND NORMAN COPLAN

In the first of three articles, P/A's legal team discusses the steps open to a subcontractor or materialman in enforcing payment from an owner.

A subcontractor or materialman who has not received his earned compensation because of some default by the owner in the payment of the general contractor, may, in most states, enforce a statutory lien against the property of the owner. However, lien rights will be of little avail if a subcontractor or materialman has not been paid his compensation because the general contractor has dissipated the funds received from the owner for such payment. Some states have sought to afford protection to subcontractors and materialmen, as well as the owner, against such contingency by adopting a law which provides that payments to a general contractor shall constitute a trust fund for the benefit of subcontractors, materialmen, laborers, etc., who are entitled to be paid out of such proceeds, and that diversion of these funds by the general contractor will constitute a penal offense. Subcontractors and materialmen may be afforded further protection where the construction contract requires the general contractor to furnish a Labor and Materials Payment Bond.

However, the statutory and contractual framework that is designated to insure the appropriate payment and application of funds does not always succeed in its intent, as a result of which there has been substantial litigation in this area. For example, under the Lien Law of New York, monies received by a contractor on any improvement of real property constitute a trust fund for the benefit of subcontractors, materialmen, laborers, and suppliers. Any payments of money by the contractor out of proceeds received on one project to satisfy the contractor's obligations on another project would be a diversion of such trust funds. A New York court was recently called upon to apply this principle, and the 3-to-2 division in the court would seem to indicate the difficulty involved (*General Crushed Stone Company* v. *State of New York, et al.*, 260 N.Y.S. 2d 32).

In that case, a materialman who was the principal supplier of materials to a general contractor had not been paid by the contractor on two projects. The contractor had been required to furnish a Labor and Materials Payment Bond on these projects and the materialman instituted suit on the bonds. The bonding company resisted payment on the ground that the materialman had so controlled and directed the finances of the contractor that it was a participant in the violation by the contractor of the trust provisions of the New York Lien Law. It was the further position of the bonding company that the materialman had fraudulently furnished false information to it, which had induced the bonding company to issue the bonds.

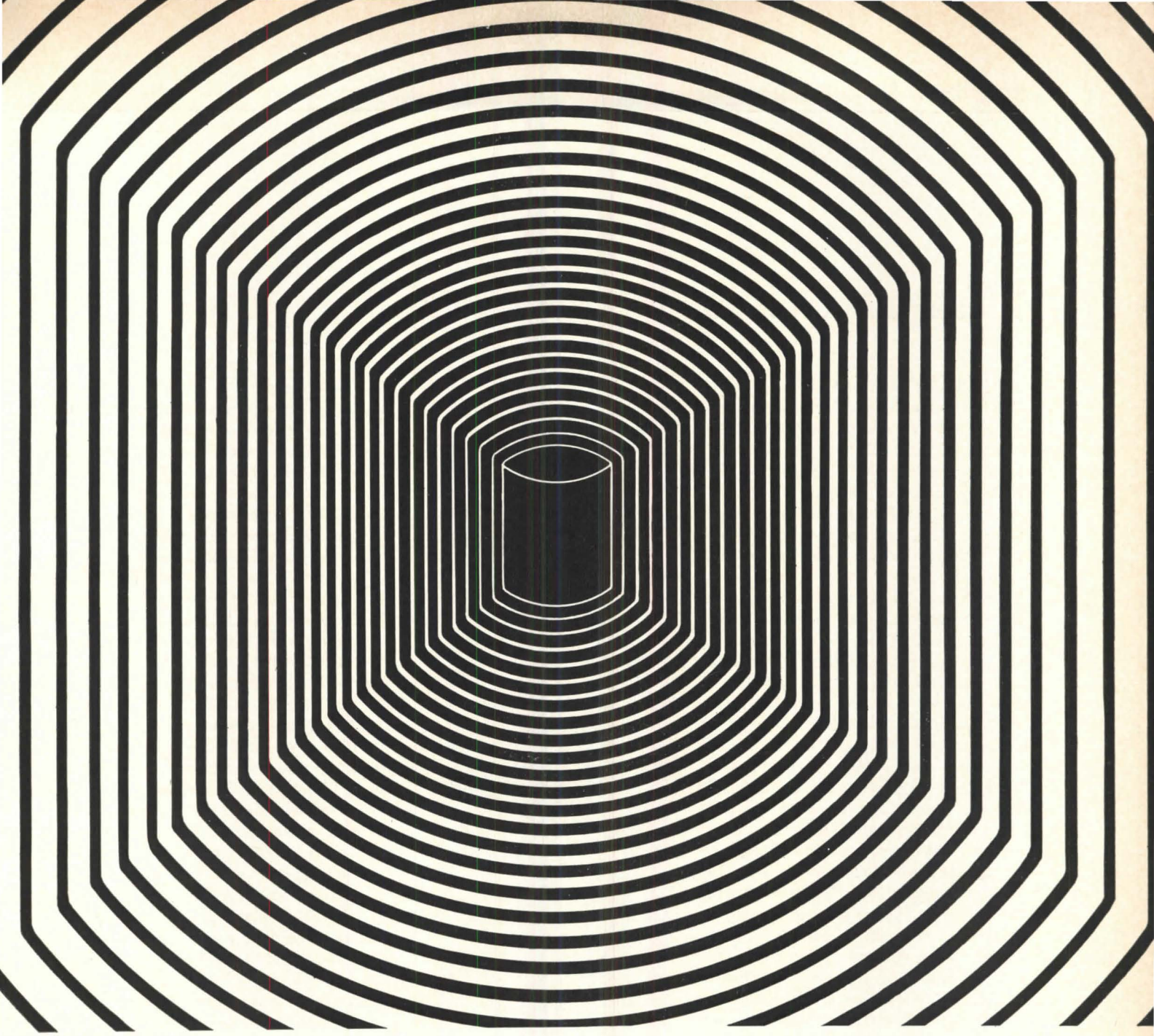
Prior to issuing the Labor and Materials Payment Bond, the surety company requested the materialman to verify a balance of approximately $116,000 as the monies due and owing to the materialman by the contractor, and which information had been furnished in a financial statement by the contractor. In the letter, the surety also asked the materialman for any other pertinent information. The reply of the materialman stated that, as of January 1 of the year, he was owed $133,000, and that "the amount owed at the present time (July) is considerably larger." The actual amount then owing to the materialman by the contractor was approximately $370,000.

The trial court had found that the actions of the materialman were such as to bar a recovery on the bonds in question. On appeal, the majority of the court reversed the trial court's decision and ruled in favor of the materialman. In the majority decision, the court pointed out that a surety is not a benficiary of the trust fund created by the Lien Law of New York, and that, in any event, no satisfactory proof had been adduced to show that the funds received by the contractor had been utilized to pay past debts rather than obligations of the project for which the funds had been received. The majority further asserted that the record did not indicate that there was any beneficiary other than the materialman who remained unpaid, and, consequently, if there had been a diversion of trust funds, no other creditor had sustained injury thereby. The majority of the court further concluded that the materialman's letter to the bonding company was neither fraudulent nor misleading, and that it was sufficient to put the surety on notice that the contractor might be deep in debt. There was no obligation, on the part of the materialman, held the court, to divulge all of his knowledge concerning the contractor, and the surety company was obligated to make its own independent investigation of the financial condition of the contractor.

In a dissenting opinion, a minority of the court asserted that the surety should be deemed a beneficiary of the trust provisions of the Lien Law of New York. The minority agreed with the trial court's conclusion that the materialman's conduct had enabled him to secure payments of old debts from current proceeds of the contractor, and that therefore the materialman had aided and abetted the contractor in the violation of the trust provisions of the Lien Law. The minority would have denied recovery on the bonds on equitable principles, stating:

> "We . . . consider that the felonious larceny which would be constituted by the diversion . . . is not to be as lightly passed over as the majority opinion would have us do; and the fact, if it is such, that the original victims were subsequently paid seems no reason to permit a co-conspirator to recover at the expense of the surety."

In next month's column, we will discuss the circumstances under which mortgage proceeds of an owner may be deemed trust funds for the protection of subcontractors and materialmen.



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Ideals Dictate Architectural Forms

BY SANDRA BLUTMAN

CHANGING IDEALS IN MODERN ARCHITECTURE. *By Peter Collins. McGill University Press, 3458 Redpath St., Montreal 25, Canada. 309 pp., illus., $12.50. The reviewer, a recent Smith College graduate, participated in Collins' course on "Nineteenth Century Architecture," from which the book under review took shape.*

There have been many attempts to trace the development of architectural forms and the changes that have occurred in the appearance of buildings in the past two centuries. The most notable buildings have been systematically analyzed and categorized by a number of eminent authors. The historical sources from which these forms derive have been analyzed and written about. Collins' approach, however, is to trace not the forms themselves but the ideals that have motivated architects to produce them. It is an attempt to acquaint the reader with the various recurrent ideas that have marked the history of modern architecture.

He deals with the period of transition out of which modern architecture has evolved, beginning at approximately the year 1750, when new ideals that had never before played a significant role in the creation of architectural forms began to influence design. He presents a sympathetic re-examination of the 19th Century, in which many commonly accepted ideals of 20th Century architecture had their spiritual, if not always their formal, origin.

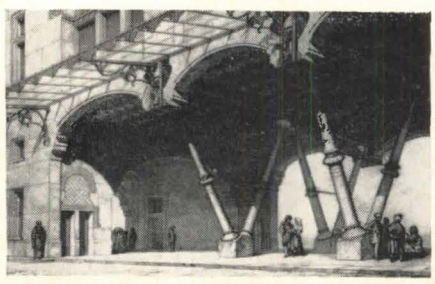
The theory that the same ideals have been recurrently expressed in different forms throughout the last two hundred years is well borne out by the examples of Boullée and Le Corbusier, for instance, both of whom defined architecture in terms of sculptural forms in light and shade. Similarly, the exoticism of the 18th Century that inspired Chinoiserie and other Eastern motifs is generically related to the importance that Frank Lloyd Wright was later to attribute to the influence of Japanese art on his architecture. Recognition of these re-

F. Furness' Provident Trust Building (1879): "Illustrating the influence of literary explorations into the aesthetic merits of ugliness."

current ideals helps to clarify much of what is being built today by defining the architectural tradition from which contemporary design has emerged.

A further case may be made for studying architecture from a philosophical point of view, rather than a purely aesthetic one. One discovers that often the same or similar forms are the product of conflicting ideals, as for instance in the case of the Gothic Revival, in which some advocated Gothic for moral, nationalistic, and religious reasons, and others because it was considered structurally the most rational type of building.

Illustration from Entretiens *by Viollet-le-Duc: "Showing another attempt made in the 19th Century to create a new architecture of iron."*



In attempting to analyze the changes that occurred around the year 1750, Collins discusses at length the influences of the picturesque and of historiography. In the former, it is the application of notions based on two allied arts—literature and landscape painting—which come to have significance in architectural thought of the period. But it is historiography, or the awareness of history, that Collins considers to be the "primary intellectual force of the age." He traces the development of the study of history as a distinct discipline and draws attention to the distinction between the history of architecture and the philosophy of architecture. The effects of historiography on architecture ranged from the fondness for archaelogical exactitude that characterized the Greek and Roman revivals—and resulted in a kind of formalism not unlike that encountered in contemporary architecture, in which the functions of a building are sometimes stuffed into what the architect considers an aesthetically desirable shape—to the demands of writers and critics in the 19th Century for a new architecture that would be recognizable to future civilizations as distinctly of its own century, a demand Collins believes acted to stifle the creativity of these architects by making them overly self-conscious.

In the section on Functionalism, he discusses four analogies that have often been used to justify and explain architectural forms and points out many fallacies inherent in the Biological, Mechanical, and Linguistic analogies, while explaining the logic of the seldom encountered Gastronomic analogy.

But it is the section on Rationalism in which the author's greatest sympathies lie. He sympathizes with the tradition of French Rationalism, from the 17th Century classicists to J.G. Soufflot, Viollet-le-Duc, and Auguste Perret, in which architectural forms were justified only if they derived from structural laws or from planning requirements. Architectural beauty emerges naturally out of the refinement and judicious ornamentation

Exposed aggregate finish adds color and texture to precast concrete

Holiday Inn Town Motor Hotel, Harrisburg, Pa. **Architect:** H. Weldon Bender & Assoc., Camp Hill, Pa. **Contractor:** Ritter Bros., Inc., Harrisburg. **Panel Erector:** Dauphin Construction Co., Harrisburg. **Precast Concrete Panels:** Schokbeton-Pittsburgh, Greenville, Pa.

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of what are essentially structural forms. Collins states that Rationalism "was the most widespread and certainly the healthiest architectural movement of the 19th Century." He argues that many buildings that appear superficially to be examples of revivalism were actually motivated by rationalist ideals. He believes that Perret's type of architecture went out of fashion in the 20th Century as a result of developments in the allied arts (such as painting and sculpture) and not for technological or structural reasons of any sort.

Collins does not concern himself with the evolution of forms. Indeed, it is clear that forms themselves would be of only marginal interest to a critic with a rationalist approach, since, by definition, in the best (i.e., most rational) architecture there will be only relatively minor changes in forms as they evolve logically from structural and technological advances—not periodic revisions of forms for purely aesthetic reasons.

Readers inclined to accept a purely aesthetic justification for architectural forms will have little sympathy with Collins' condemnation of Le Corbusier, whose buildings probably excite more of an aesthetic response than those of Perret. Yet, to Collins, what matters is not so much the building itself, as an object in space, as the building as a consistent realization of worthwhile architectural principles.

A minor difficulty with the book for some will be that it often lacks concrete examples of many of the ideals discussed. While it is true that precise descriptions and analyses of the buildings mentioned are available in other works, the inclusion of more detailed discussions of the illustrated examples might facilitate an understanding of the results of the ideals under consideration.

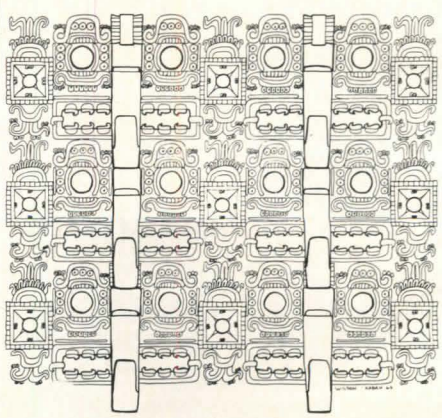
Although the author's point of view is bound to prove unpopular among many, his book presents much stimulating, well-written material and includes many unfamiliar sources in its refreshing approach to the evolution of modern architecture. The emphasis on the ideal of a rational, humane environment rather than a conglomeration of individual monuments to the originality and creativity of the architect himself is a sound one that is becoming daily more vital to the survival of our cities as harmonious architectural entities.

The Maya Were Architects

BY FORREST WILSON

LIVING ARCHITECTURE: MAYAN. *Text and photographs by Henri Stierlin. Preface by Pedro Ramirez Vasquez. Grosset & Dunlap, 51 Madison Ave., New York, N.Y., 1965 192 pp., illus., $6.95. The reviewer, an Associate Editor of P/A, has traveled extensively in Mexico and is a former Assistant Professor of Design at Pratt.*

There are few tasks more difficult than that undertaken by Stierlin in describing



Continued on page 190

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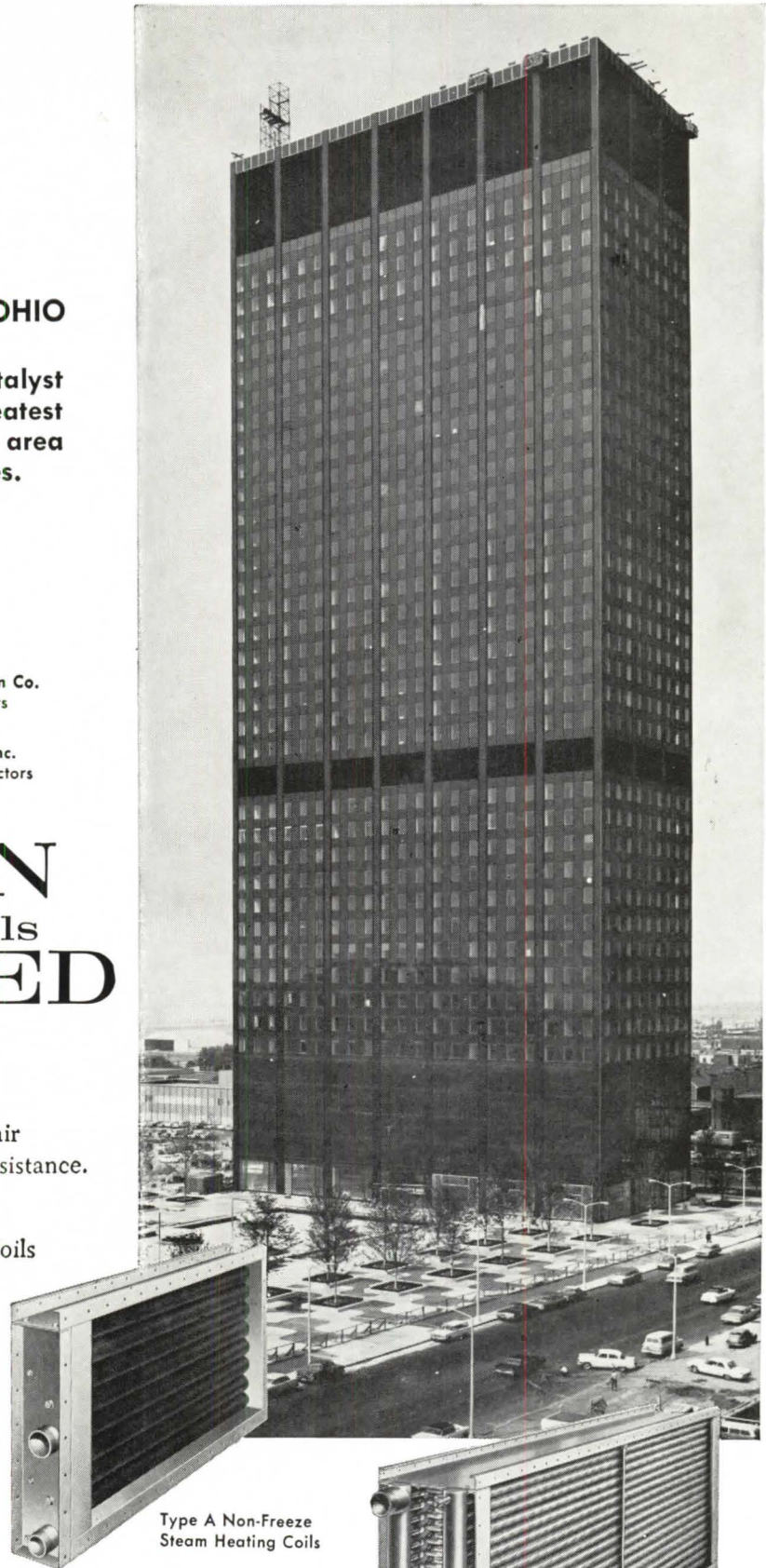

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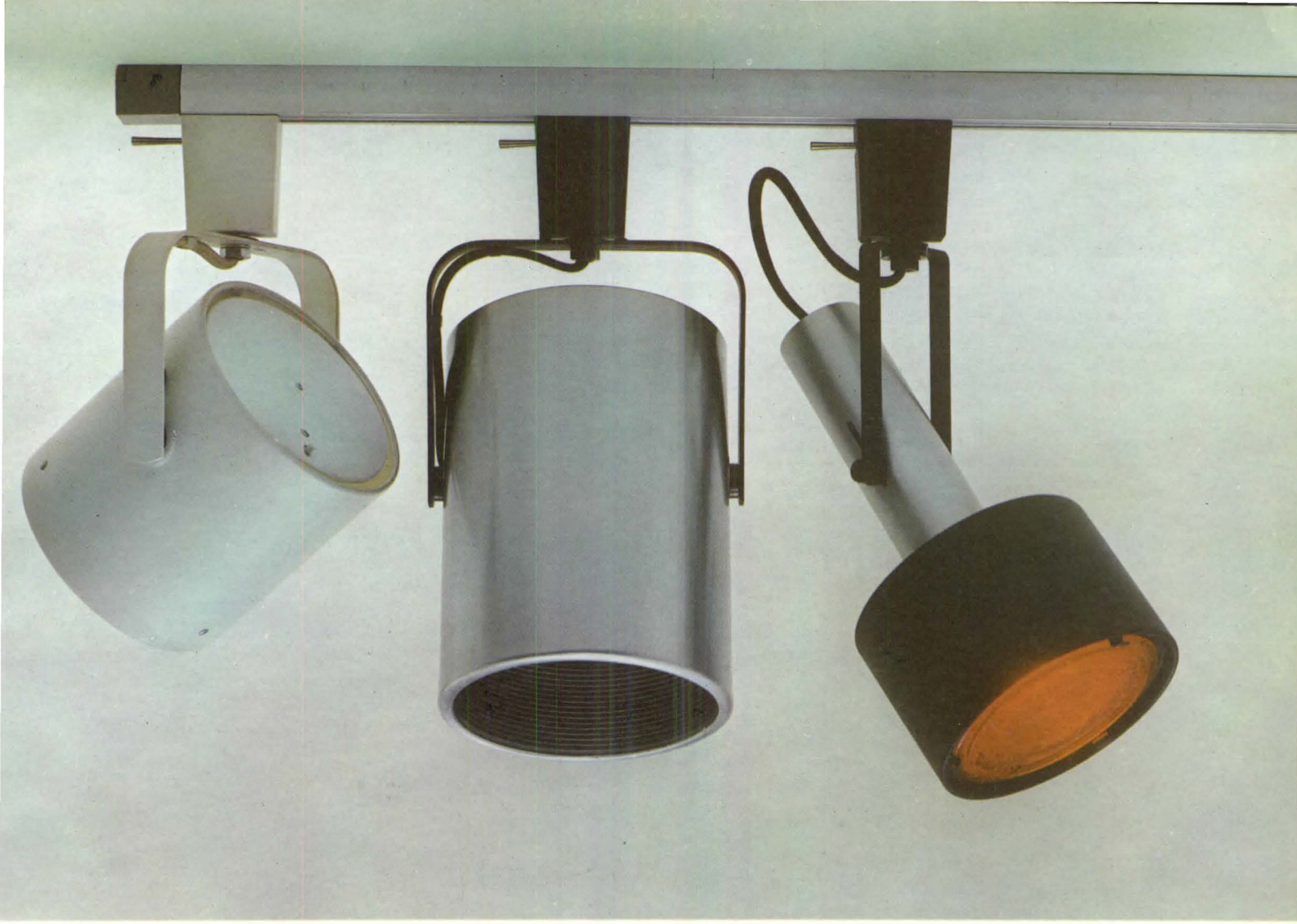

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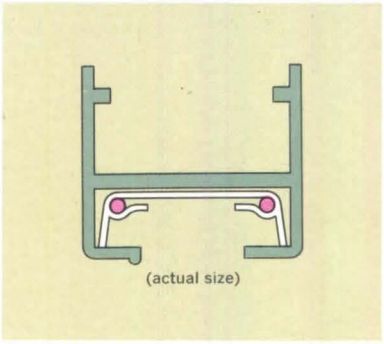

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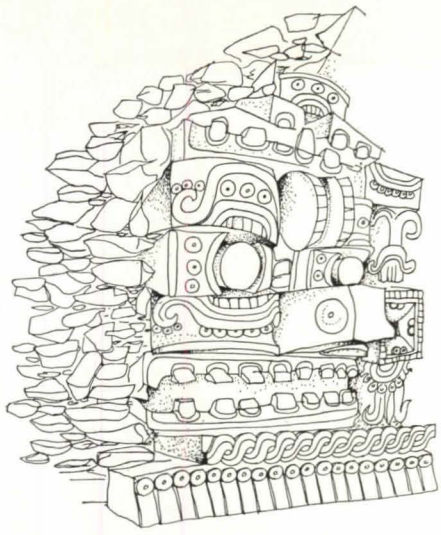
Continued from page 186

the architecture of the ancient Maya. It is almost an impossibility to describe an original architectural style without knowledge of its evolutionary history. The paradox of the Maya is that, in leaving behind unbelievable archaeological wealth, they also left an absolute poverty of evolutionary history.

Most of the historical information, aside from the sites themselves, is contained in contradictory archaeological texts. Of the glyphs left by the Maya, only a fraction have been deciphered and these are not historical but deal with the calendar and numbers.

What we know of their early history, immediately preceding the conquest, is largely due to the conquistadores and their partners, the churchmen. Bishop De Landa, among the most famous of these, conducted the Inquisition in Yucatan, and, although Tozzer claims there is some doubt that he burned all of the Mayan codices during the infamous Auto de Fe at Mani, there is little doubt that he displayed an inordinate fondness for hanging the natives by their members



and was hard-pressed for a logical explanation as to why a number of them died during his investigations. His compensation was to write the famous *Relacion De Las Cosas De Yucatan*, based upon the memories of his Christianized informants. Hardly a sympathetic or objective chronicler upon which to assess the history of these magnificent architects!

The understanding of Mayan architecture has both benefited and suffered from archaeological evaluation. Very few men were as objective as the antiquarian John Lloyd Stephens and his friend Catherwood, who visited the sites in the late 1830's and early 1840's. Stephens and Catherwood were followed by a number of antiquarians whose theories were matched in unreality by their lack of research. These gentlemen threw an aura of mystic nonsense around the Maya that only recently has begun to be dispelled.

It is now generally accepted that the terms "Old Empire" and "New Empire" are definitions without pertinence, since it has been proven that the so-called "New Empire" builders existed contemporaneously with those of the "Old Empire." Andrew's work at Dzibilchaltun confirms this.

It is a credit to Stierlin that he examines Mayan architecture in the light of its virtues as architecture and sculpture in its own right rather than falling into the trap of classical and Renaissance comparison. Since it was impossible to compose architectural description of a period of architecture without a history, it was necessary for the author to select his information from both facts and suppositions furnished by the archaeologists. Stierlin's choice is sensible and helps to create a plausible background for the buildings and the sites he chooses. His contentions will stand until new excavations shed additional light on the Mayan

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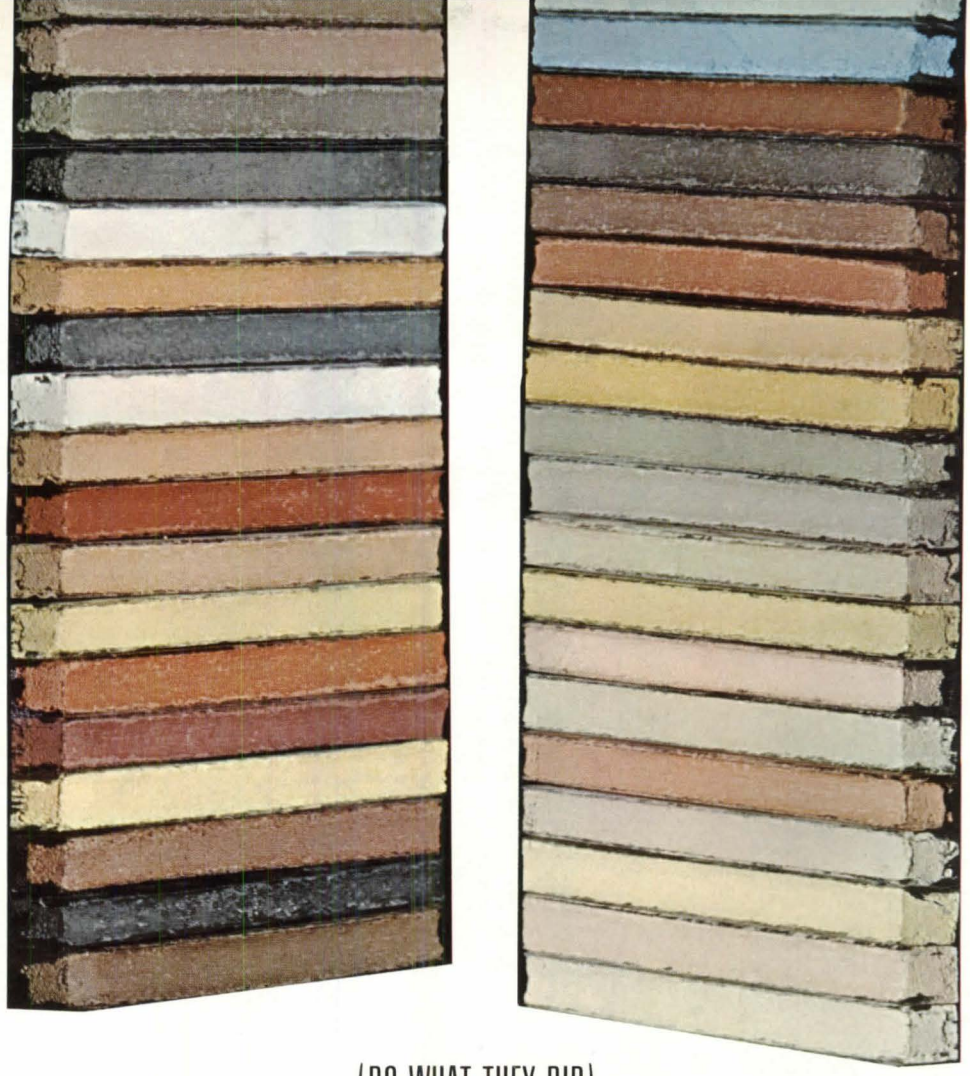

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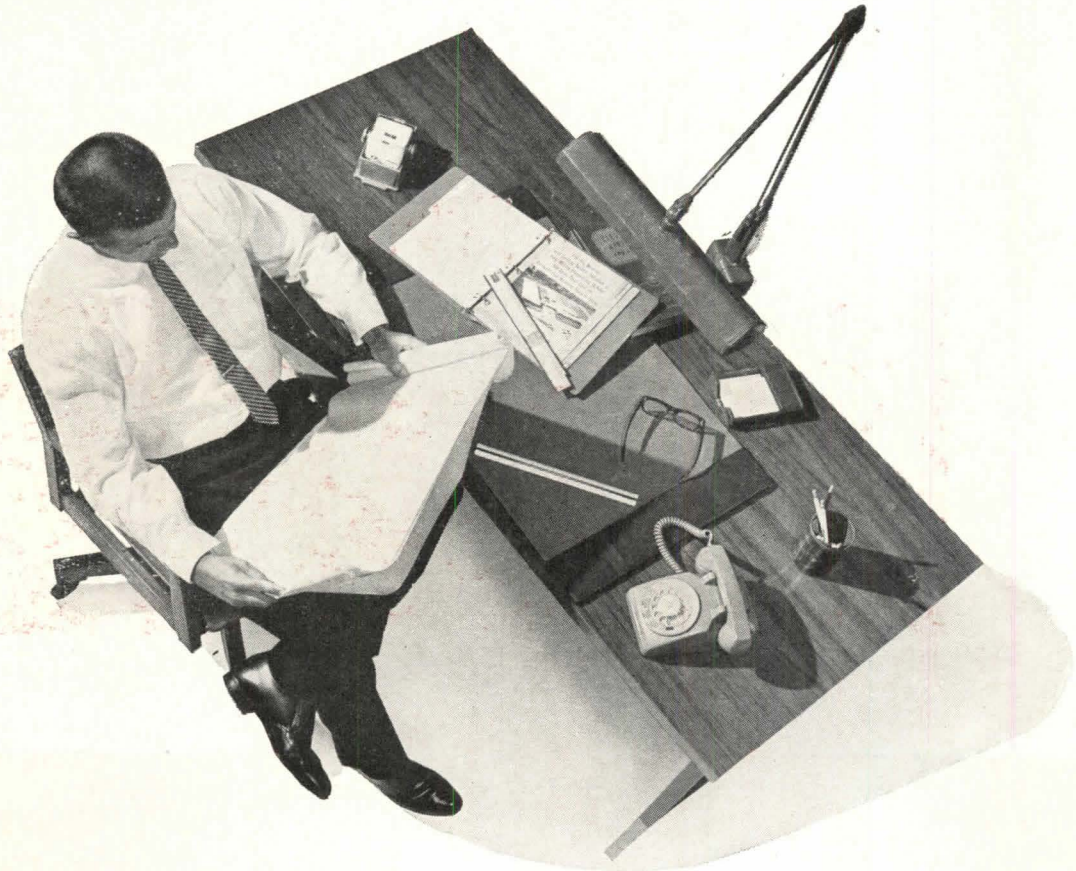

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Continued from page 190

mystery. Stierlin concentrates upon the structures themselves, which he analyzes without prejudice—and unswayed by European classical prejudice—as to their architectural worth.

There are bound to be points of disagreement, particularly when dealing with any history as nebulous as that of the Maya. It is my personal feeling that the influence of the Itz's in the 10th Century was not the first contact nor influence of the Yucatan Maya by the Mexicans. The intercommunication between

Mexico and the south, before the emergence of the Toltec-Maya in Yucatan, and the similarity of development throughout all of Mexico and Central America so admirably outlined by Eric Wolf, would seem to indicate a much more generalized interaction over a considerable period of time preceding the Toltec invasion from Quintanaroo. The carvers of Yucatan were closer to the carvers of Mexico in technique if not in form than they were to the Mayan stucco modelers in the south.

The author wisely stresses the unity of Mayan form, which, although involving two distinct techniques, maintained a characteristic formal aesthetic. His analysis of building methods are well conceived and documented. The photographs in the book are excellent; they were taken by the author and are a welcome relief from the now stereotyped pictures obtained from the institutions and galleries that usually illustrate books on Mayan culture.

Within the trends of history left by the conquistadores and now being unearthed by the archaelogists, Stierlin has written a plausible background for these legendary designers. He concentrates on our common heritage as builders in which rationality finds a universal ground and the Maya can be examined in the ideal condition of their works rather than their deeds.

Landscaping the Urban Environment

BY M. PAUL FRIEDBERG

LANDSCAPE ARCHITECTURE AS APPLIED TO THE WANTS OF THE WEST. *By H. W. S. Cleveland. Edited by Roy Lubove. University of Pittsburgh Press, Pittsburgh, Pa., 1965. 59 pp., $2.95.*

MODERN GARDENS AND THE LANDSCAPE. *By Elizabeth B. Kassler. The Museum of Modern Art, 11 West 53 St., New York, N.Y. Distributed by Doubleday & Co., Garden City, N.Y., 1964. 104 pp., illus., $5.95 hardbound, $2.75 paperbound. The reviewer, who won a Bard Award for his landscape design for the Carver Houses in New York, is especially concerned with the social aspects of landscape architecture.*

The authors of these two books attempt to answer today's most urgent and implacable questions: "What is man's relationship with nature within his self-made environment?" and "Can our cities express the fundamental needs and aspirations of man?"

Elizabeth Kassler's book, *Modern Gardens and the Landscape*, is a photographic anthology of gardens and landscape design throughout the world. The book exhibits the work of the world's

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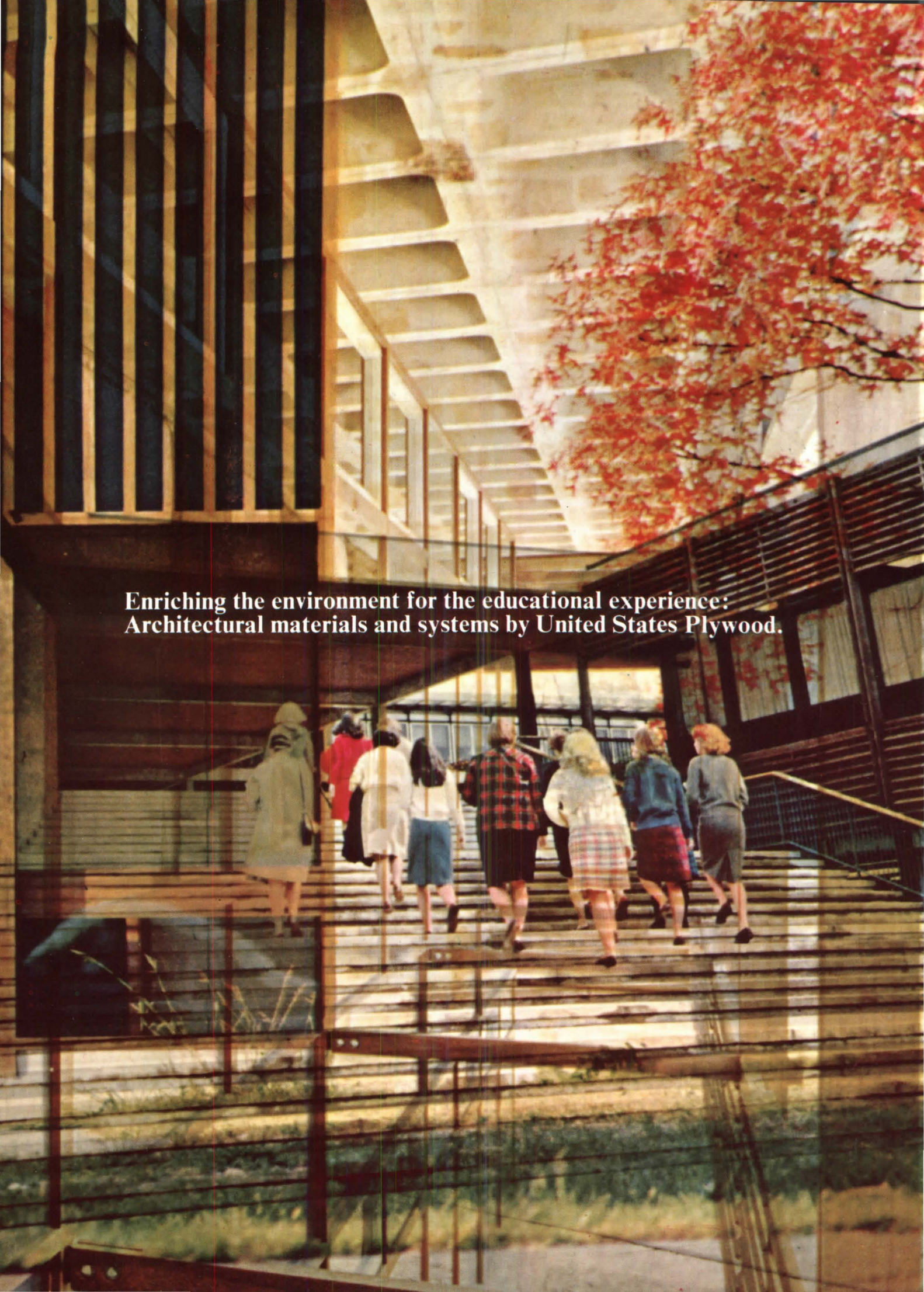
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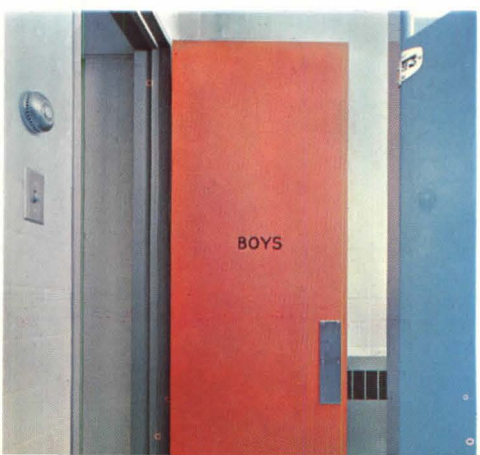
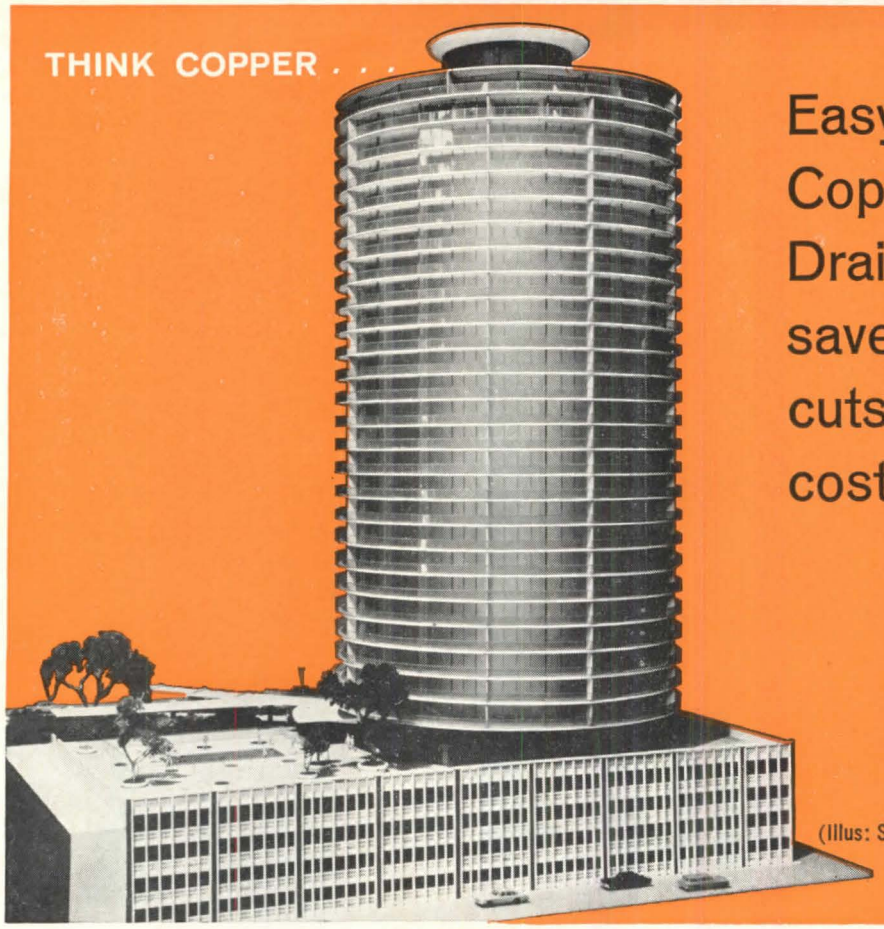
Where lumber won't behave, Flexwood® will. One element in the unique screen at left posed a problem: the floor-to-ceiling posts. Originally the design called for 2′ x 2′ posts of solid walnut. But warping made many of them unusable. Solution: walnut Flexwood wrapped around aluminum posts. Result: the posts retained their shapes, and a more uniform grain matching was achieved. Library of the W. E. Upjohn Institute for Employment Research.
Installer: Tieco Products Inc.

Doors that were made to be painted. Architects LaPierre & Litchfield & Partners used 60 Type 3A Weldwood Duraply®-faced doors for classrooms, laboratories, and lavatories in the new Science Building at Peddie School, Hightstown, N. J. The 5-ply lumber core doors were supplied factory-primed to permit fast, economical, on-site paint finishing with excellent lasting results.



Permanently colored Glasweld®—it outweathers the weather. Behind a grille of Chilean cypress, Glasweld's crisp blackness contrasts with copper roof, and walls of wood, glass, and stone. Inaccessible areas such as this are where Glasweld's 28 maintenance-free colors most convincingly prove their value to creative new designs. College Center, Goucher College.

THINK COPPER . . .



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

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

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

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

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

This decision saved many thousands of dollars."

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

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

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

For speed, space- and labor-saving economies, specify copper . . . Anaconda copper. For further data write: Anaconda American Brass Company, Waterbury, Connecticut 06720.

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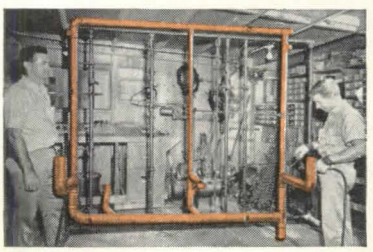
A pre-assembled unit of copper soil, waste and vent branches is easily positioned. Supported by preplaced hangers, it is ready for joining to rest of system. Note the space that is saved by this compact assembly of copper tube and solder-joint fittings.



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

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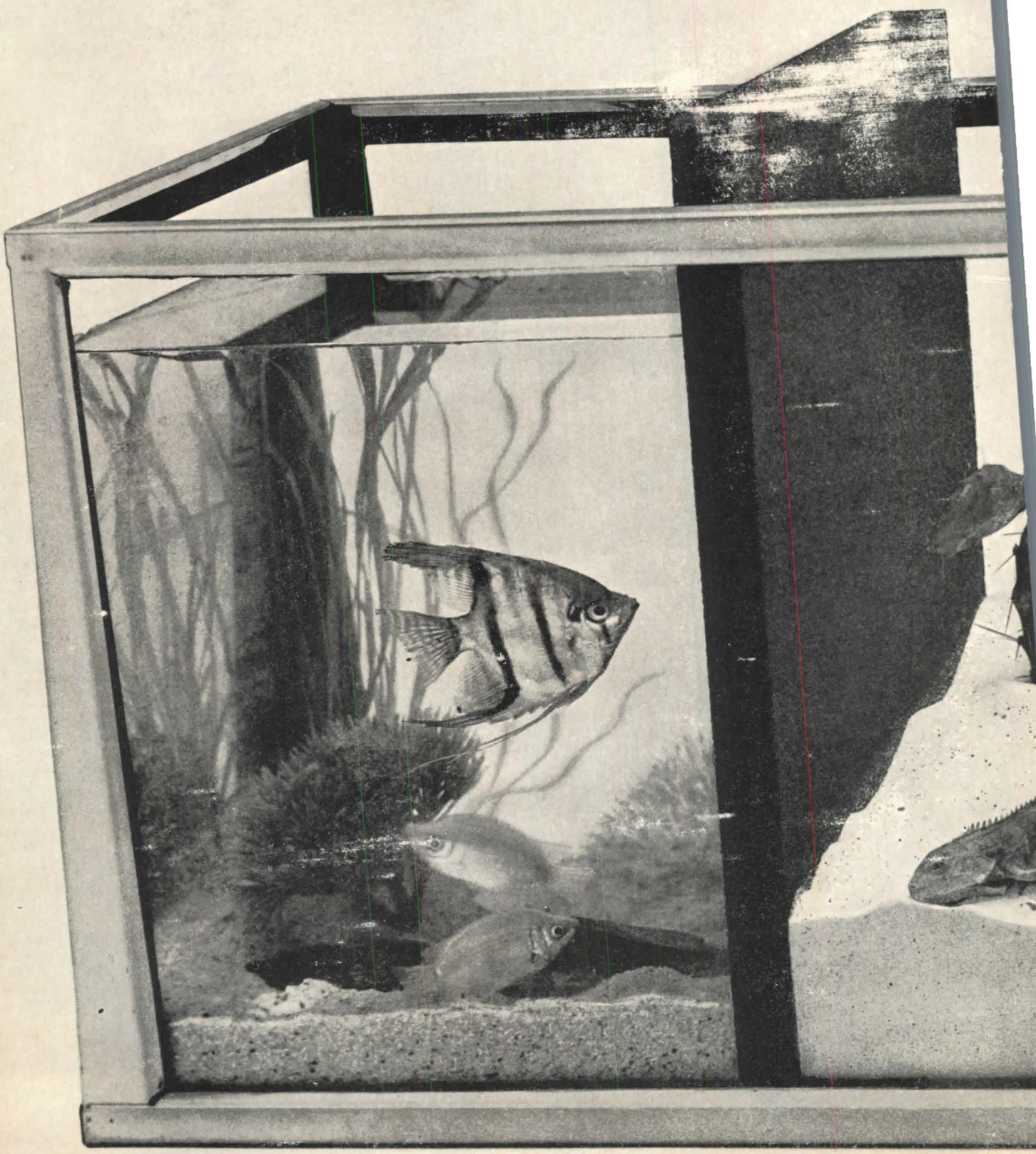

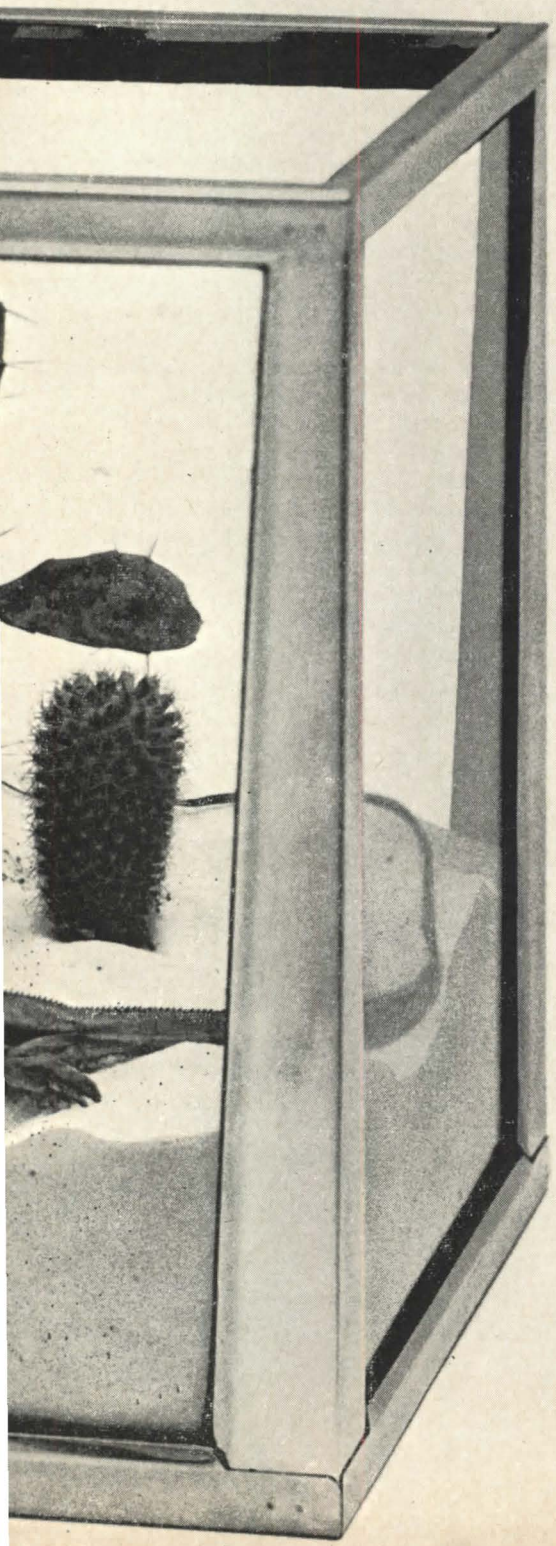

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Continued from page 194

most eminent garden designers: Luis Barragan of Mexico, Burle Marx of Brazil, Lawrence Halprin of California, and others. The text is limited to an introduction and a few succinct remarks that accompany and attempt to distill the essential importance of each photograph. But the photographs are generally limited to a detailed portion of the garden design so that it is impossible to understand the whole design as conceived by the artist. For this reason, each photograph cannot be judged in the context of the total garden, and the reader is forced to rely heavily on the author's remarks and conclusions.

The total book is not as interesting as it first appears. Although the graphics are professional, the photographs exciting, and the introduction provocative, investigation shows Kassler's statement to be very unsatisfying. In the introduction, she stimulates the reader's interest by posing the basic questions mentioned above, but then proceeds to set him adrift among the morass of unrelated landscape photographs' forcing him to draw his own conclusions. She claims that man is out of joint with nature and that he is the progenitor of an environment alien to himself. This we can allow; but then, if it is true, are the photographic examples shown in the book to be our salvation?

The pitfall of a picture-book approach is that the visual stimulus becomes an end in itself. This handsome variety of photographs overwhelms *both the* author and the reader. Photography is not a sufficiently extensive medium for critically analyzing garden architecture, since it lacks the capacity to show properly the development of spatial relationships—the relationship upon which the basic structure of gardens relies. This deficiency could be overlooked or compensated for if the accompanying text were sufficiently interesting and explanatory. But what cannot be overlooked is the lack of a clear, rational organization —one that imposes a meaning and presents an analysis and conclusion of the material the author presents.

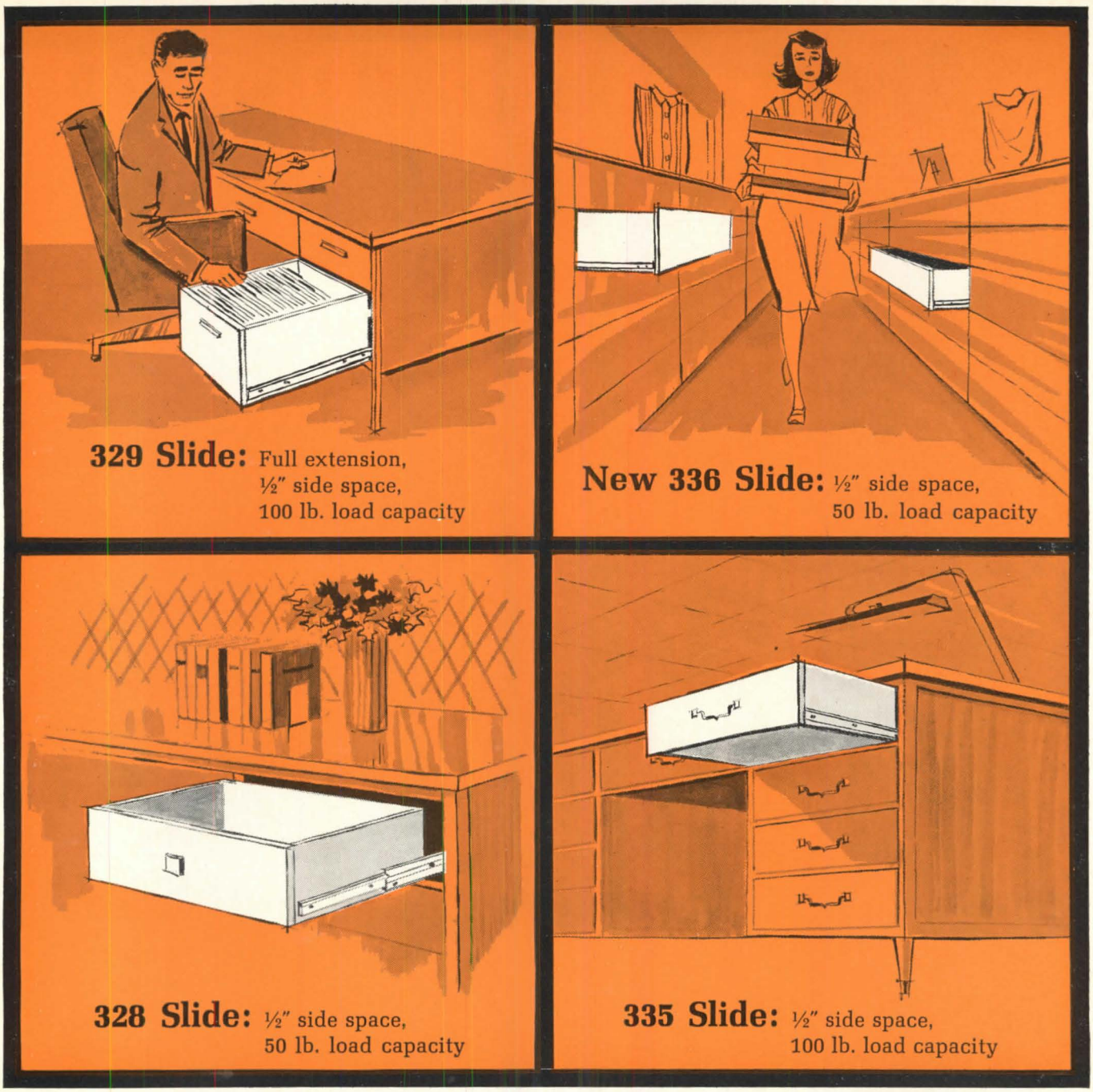
The book offers many excellent examples of personal styles and profound, serious work by great artists. I question, however, whether these designs reflect the expression of the new 20th Century form—the form that will change the nature of our environment. Limited to the material presented in this book, it is impossible for the reader to synthesize a rational conclusion, to sift out the answers to the urgent questions posed in the introduction. More is the shame, since the profession would most certainly be benefited by this kind of enlightenment. The limited text and introduction indicate that Kassler has the ability to take us a lot closer to the answers if she would only refuse to be distracted from what she claims as her goal and place less emphasis on photographs.

In counterpoint to the insubstantial froth of Kassler's book, we have *Landscape Architecture as Applied to the Wants of the West* by H.W.S. Cleveland. This little book of less than 60 pages, which consists entirely of text, is a sustaining book, since Cleveland did not just pose questions but sought to find answers. The six essays he wrote are an incisive description of today's most pressing urban problems; it is ironic that they were written almost 100 years ago.

Here was a man so dedicated that he took his pencil and tracing paper, traveled west where new cities were being planned and developed as a result of our western expansion after the Civil War. It was his hope to influence the design of the burgeoning cities with his new and burning concepts.

He envisioned cities that would provide for the social needs of humans—an urbanization that aspired to create an organic unity between man and his nat-

Continued on page 206



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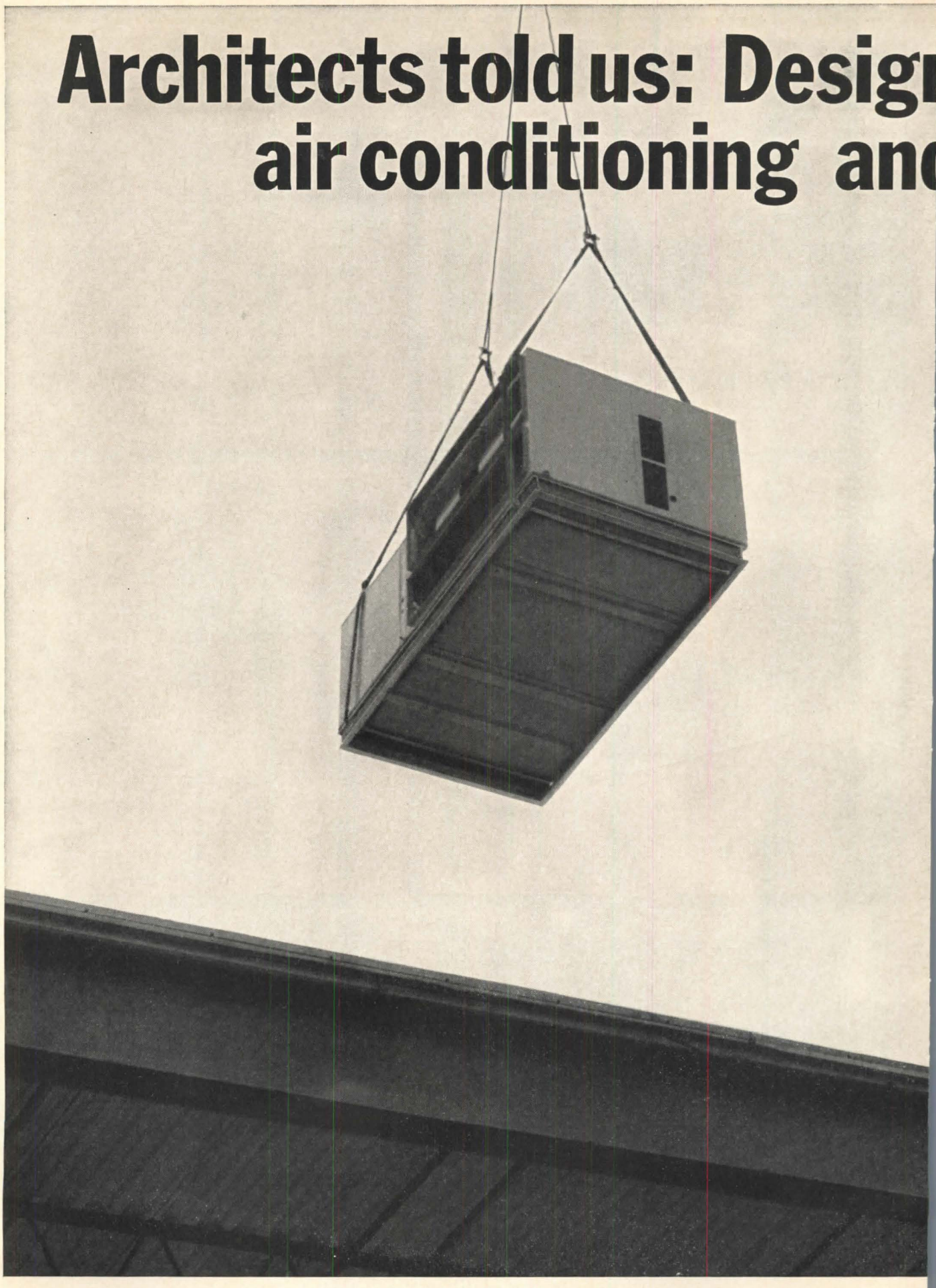
air conditioning an



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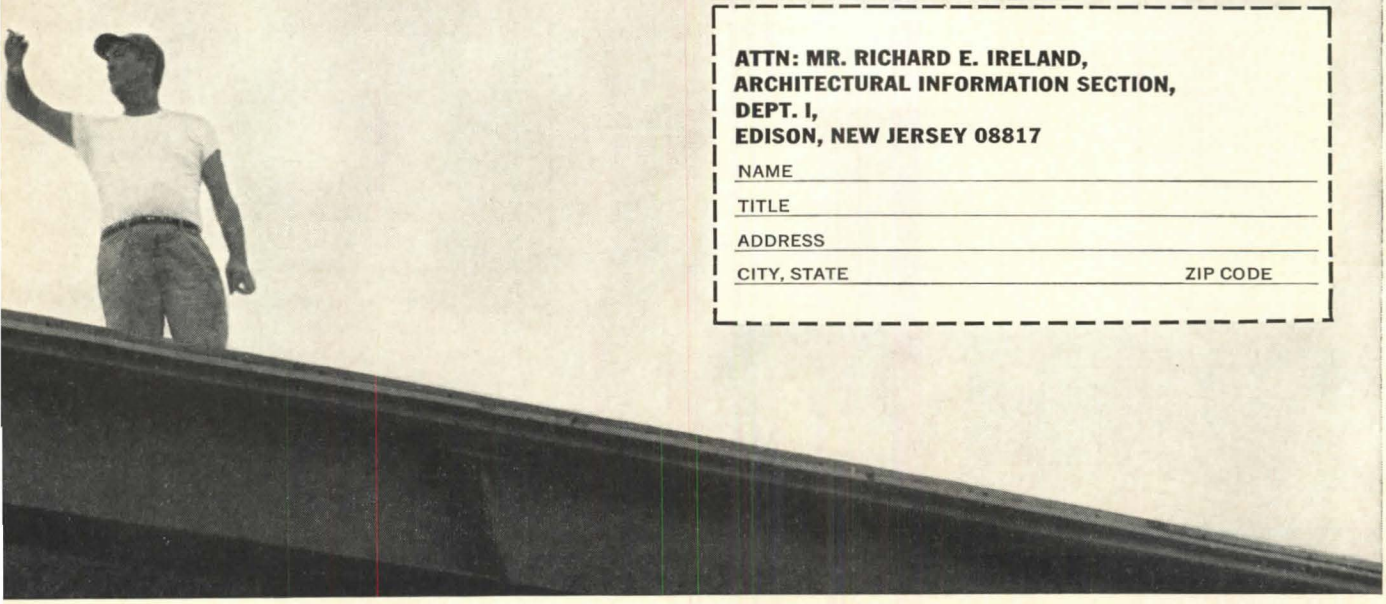

Continued from page 202

ural environment. The pattern and growth of the city could not be left to chance. Then, as now, when entrepreneurial pressures control and shape the physical destiny of the American city, and when economic values result in the conception of land and housing as a commodity, the assumption that social needs will coincide and be harmonious with economic individualism *cannot* be made. There has to be a coordinating plan—one that will resolve the sociophysical pattern with the present structure. Beauty and social requirements are within easy realization if incorporated within the basic plan of the city. As the city grows and takes form, this becomes increasingly more difficult. The cost for replanning within the existing urban complex is excessive.

Cleveland was an advocate of the garden-city approach; he envisioned a city of linked boulevards, greenways, urban-suburban parks and a fusion of stone and vegetation. The garden-city approach may not be practical as a contemporary urban form, but the results he sought are universal and requisite to any successful urban development. Today's technology may provide the facility for various expressions of urban growth, but the needs of the people that inhabit cities remain universal—fresh air, living space, adequate housing, and so forth. Does it seem strange that a planner would ask for a city that would ventilate itself, that would breathe clean air, that would look for a pattern of intervals and open spaces, that would seek a design based on inspiration and for the enrichment of all men? It seems little enough to ask, and yet, today, 100 years later, we still suffer problems examined by Cleveland. Except for a few local examples of decent planning, we continue to perpetrate a system of fragmentary development with built-in deficiencies.

Our contemporary society reflects a curious irony: We live in the most advanced form of civilization, yet are unable to cope with our fundamental needs. This is an environment bereft of physical, social, and psychological amenity. The image we project as a culture is schizophrenic and suicidal: At one turn we seek to increase our life span, and on the other we have evolved a world bent on decreasing it. Our air is contaminated, our food is deleterious, our water systems are polluted, and our daily urban environment is so ill-planned that it dangerously overtaxes our nervous systems. This basic contradiction is reflected in the individual's lack of commitment to

Continued on page 210

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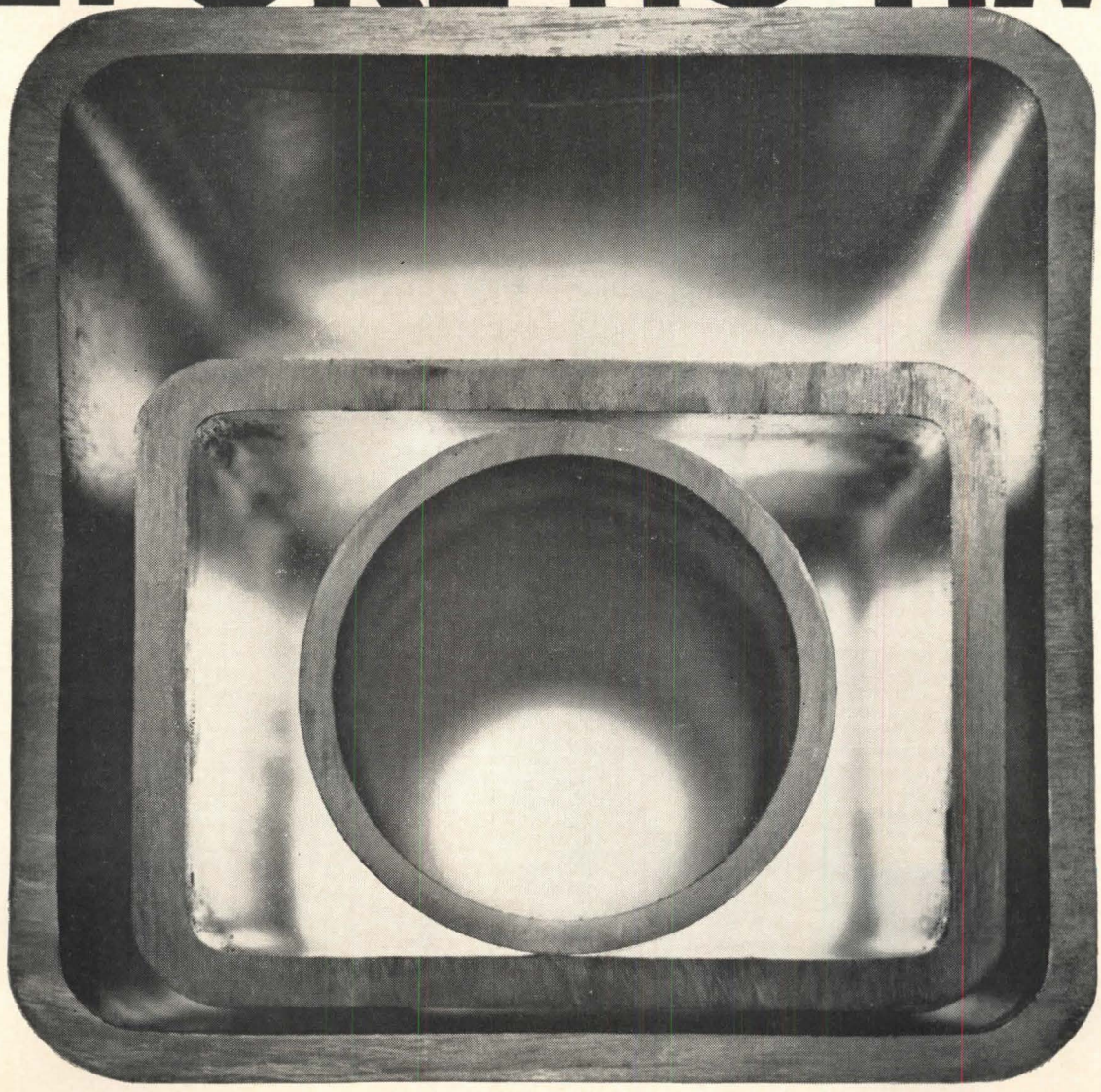

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Continued from page 206

the social and physical order. The ubiquitous forces of ignorance, apathy, and private gain thwart the attempts of planners like Cleveland to provide an idealistic, attractive world for humans to live in.

As a designer, he sought the pre-eminence of cohesive, unified planning in preference to gawdy, fragmentary embellishments. Almost 100 years ago, we were provided with the opportunity to establish a physical order for our environment that would reflect and provide for the social and biological needs of man—a world that would affirm the dignity, honor, and spirit of all human beings, provided by a visionary who did more than intellectualize. Cleveland had the courage and conviction to physically seek the implementation of his concept. His works are well worth reading and his actions worth emulating. Hopefully, his book will not have to be disinterred 100 years from now to stimulate a rational pattern for urban planning.

Innovation in Patient Care

BY ROBERT H. JACOBS, JR.

PRINCIPLES OF HOSPITAL DESIGN. *By Hugh Gainsborough, M.D., and John Gainsborough, A.R.I.B.A. The Architectural Press, 9-13 Queen Anne's Gate, London, S.W.1, England, 1965. 279 pp., index, $6.30. The reviewer was formerly Director of the Office of Hospital Research, New York Chapter, AIA, and is now a member of the architectural firm of Rogers, Butler, & Burgun.*

As a compromise between the luxury of the private room and the indignities of the open ward, the semiprivate room has become a fixture of the American hospital, deeply embedded in the mold of hospitalization insurance. Possessing the advantages neither of patient isolation nor of nursing efficiency, the semiprivate room has contributed its share to the crisis in American nursing. The I.C.U. (Intensive Care Unit) has achieved general acceptance in America because it can provide the high-level nursing no longer feasible in nursing units of semiprivate rooms. But the naked truth is that, despite superior staffing and equipment, the I.C.U. is essentially an open ward. To those who recall the horrors of the open ward, the I.C.U. is indeed a desperate solution. Current demands for patient segregation will doubtless be met as newer I.C.U.'s are designed, but the 10-20 beds usually provided still cannot begin to satisfy the acute intensive care

Continued on page 218

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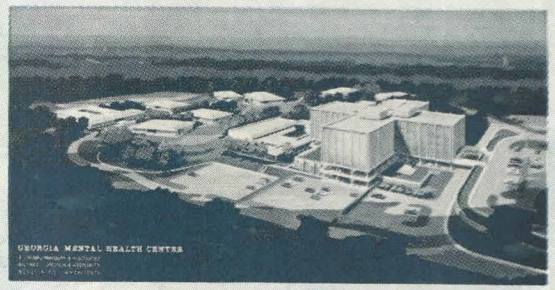

ARCHITECT
A. Thomas Bradbury & Associates
Wilfred J. Gregson & Associates
Associated Architects — Atlanta, Georgia

INTERIOR DESIGNER
Joe Blake, A.I.D.
Evanston, Illinois

GENERAL CONTRACTOR
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Write for samples of six Contrack cross sections, Architect's File with Catalog, Specifications, and Price Information Dept. SA.

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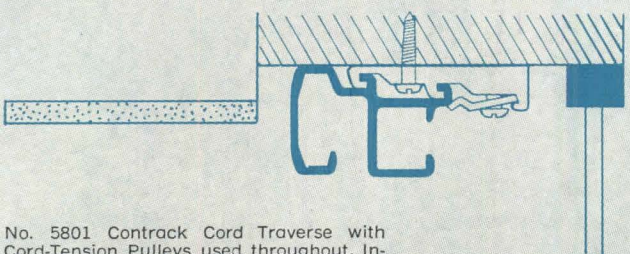

No. 5801 Contrack Cord Traverse with Cord-Tension Pulleys used throughout. Installed flush to ceiling wall-to-wall with ceiling brackets. Required carriers installed through pulley housing after track was in place.

Graber drapery fixtures
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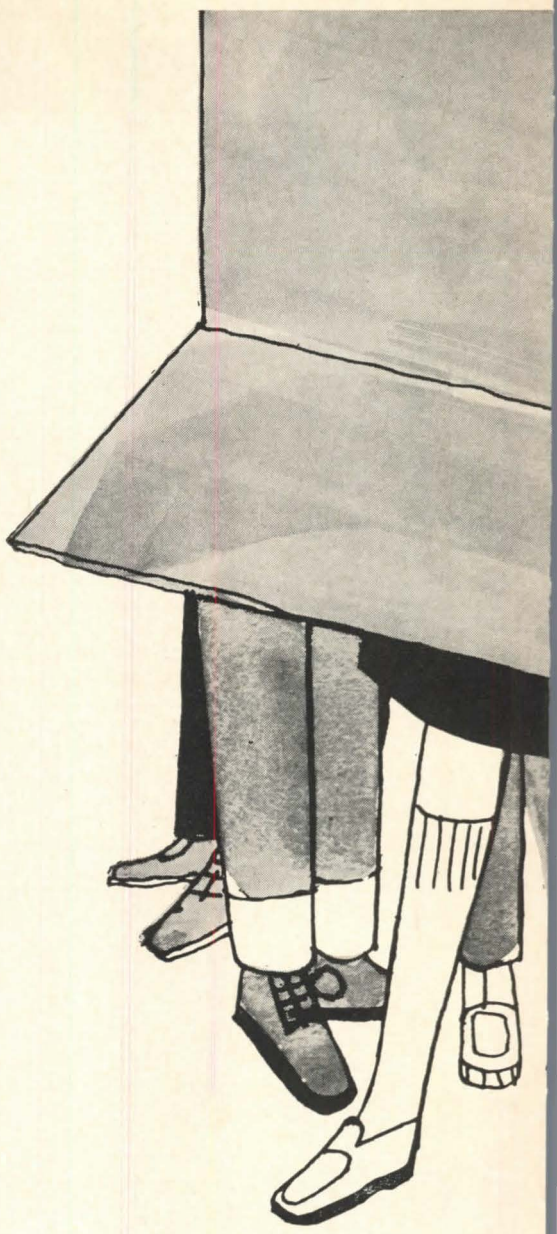
GEORGIA MENTAL HEALTH CENTER

LOCATION
ATLANTA, GEORGIA

TRACK STYLES
No. 5801

FILE NUMBER
C-1004

4912



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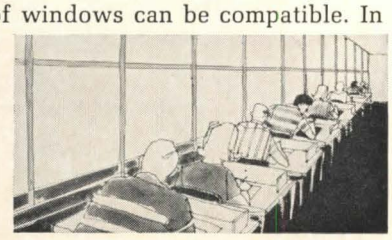
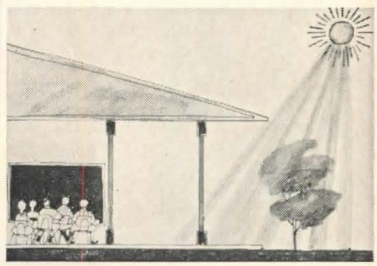
Who'd want to live in a windowless home? Or work in a windowless office? So why pick on the kids? Air conditioning and visual relief of windows can be compatible. In fact, studies* show that heat generated by artificial illumination in a windowless school often puts more load on air-conditioning equipment than a building of similar size, but with exterior fenestration supplying some sidewall daylighting.



*Copy upon request.

Structural aids to efficiency. Of course, there are the structural aids to efficiency in air-conditioned buildings — roof overhangs, vertical or horizontal blinds, trees, orientation of the building.



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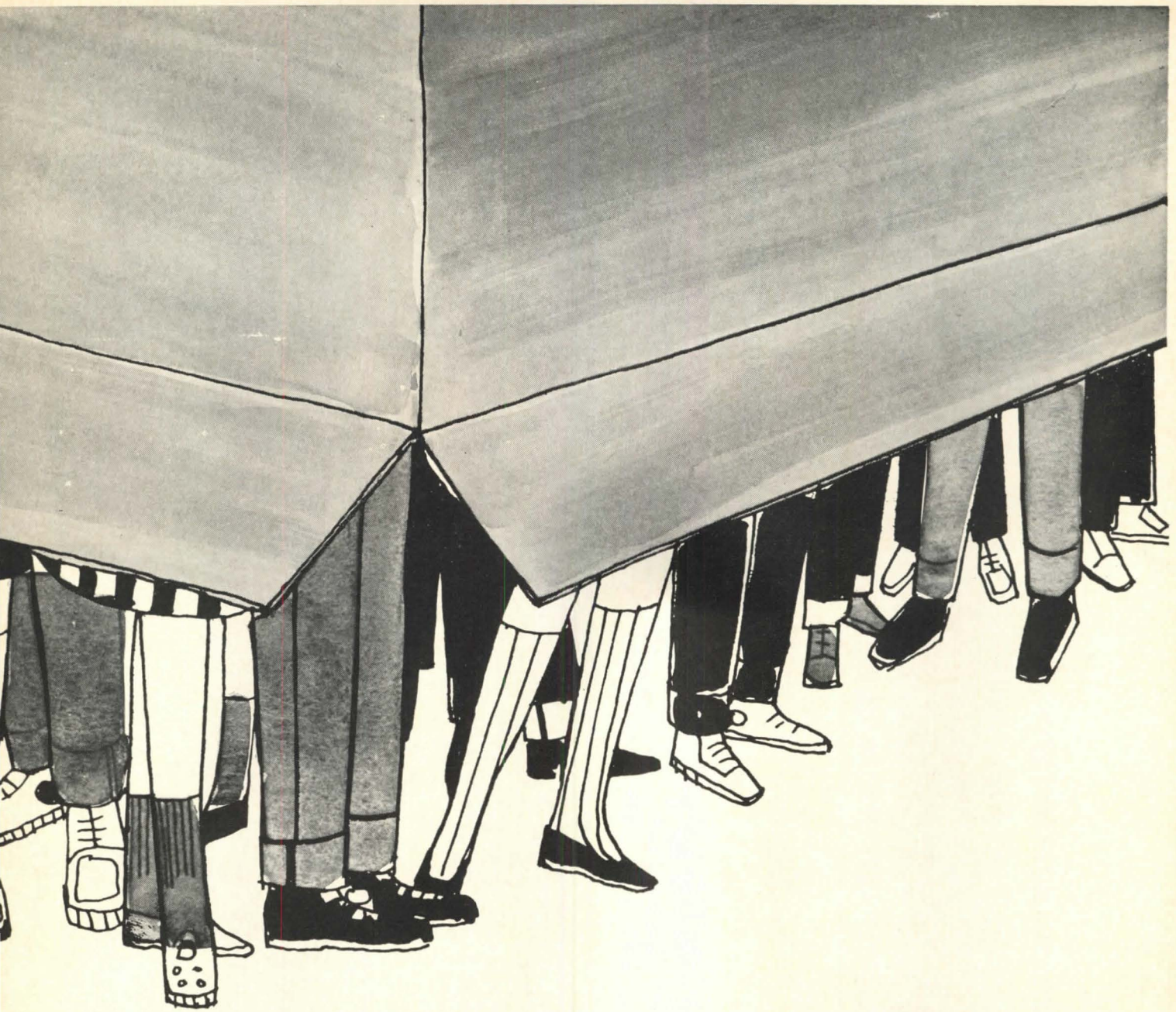


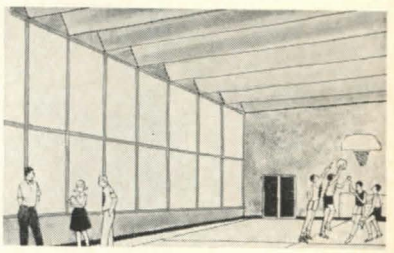
outer pane that not only reduces heat gain through windows, but heat loss in winter.

Sidewall daylighting. Most effective school illumination systems are a careful blending of daylight and artificial light to provide better lighting for reading and writing tasks.

Daylight is used as the primary light source. Daylight striking at a low angle from a side window produces good contrast between the written or printed matter and the paper itself. There is a minimum of reflected glare, which is not the case when the single lighting source is overhead.

So let's not settle for windowless schools which are "children boxes," and hazards in case of fires or power failures.

Libbey·Owens·Ford makes a particular type of glass for every purpose in school design. See Sweet's Catalog File 26A. Or call your L·O·F distributor or dealer (listed under "Glass" in the Yellow Pages).



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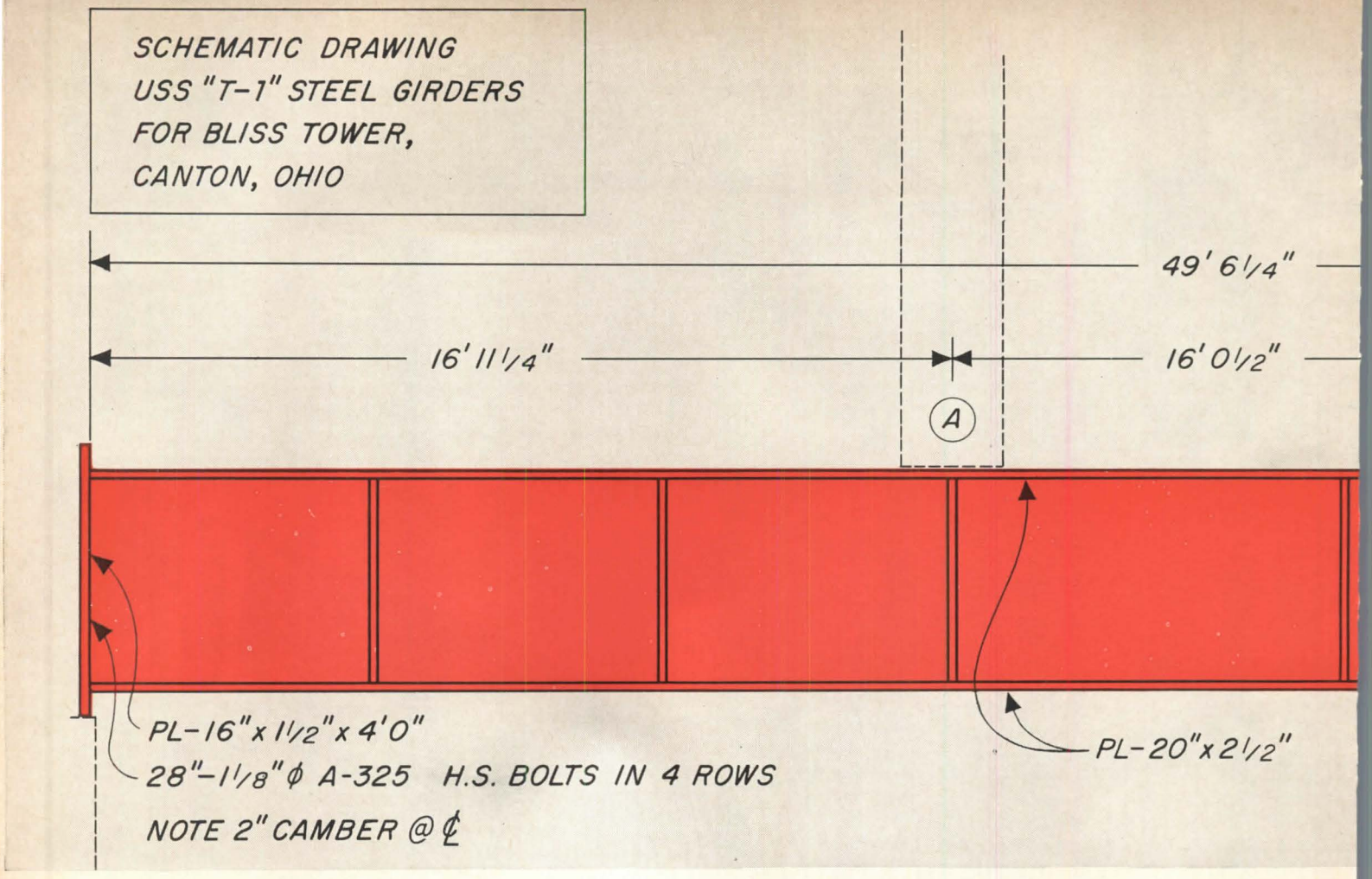


USS "T-1" Steel girders raise the ceiling 2 feet

Bliss Tower, Canton, Ohio.
Owners:
Elkom Corporation, Canton, O.

The Bliss Tower, Canton, Ohio, as originally constructed, consisted of a three-story steel-framed base with a high rise tower over part of it. The remainder of the base was built strong enough so that a second tower could be added later.

When the addition was planned, the owners decided they needed a large column-free area 49′ x 57′ on the fourth floor (the roof of the three-story base, which is actually the annex of the Onesto Hotel). This posed the problem of spanning 49 feet with two girders that could take the interior column loads from the upper 10 floors. (See A & B on diagram.)

Preliminary calculations showed that A36 steel girders would have to be 5 feet deep to do the job . . . but this depth cut down too much

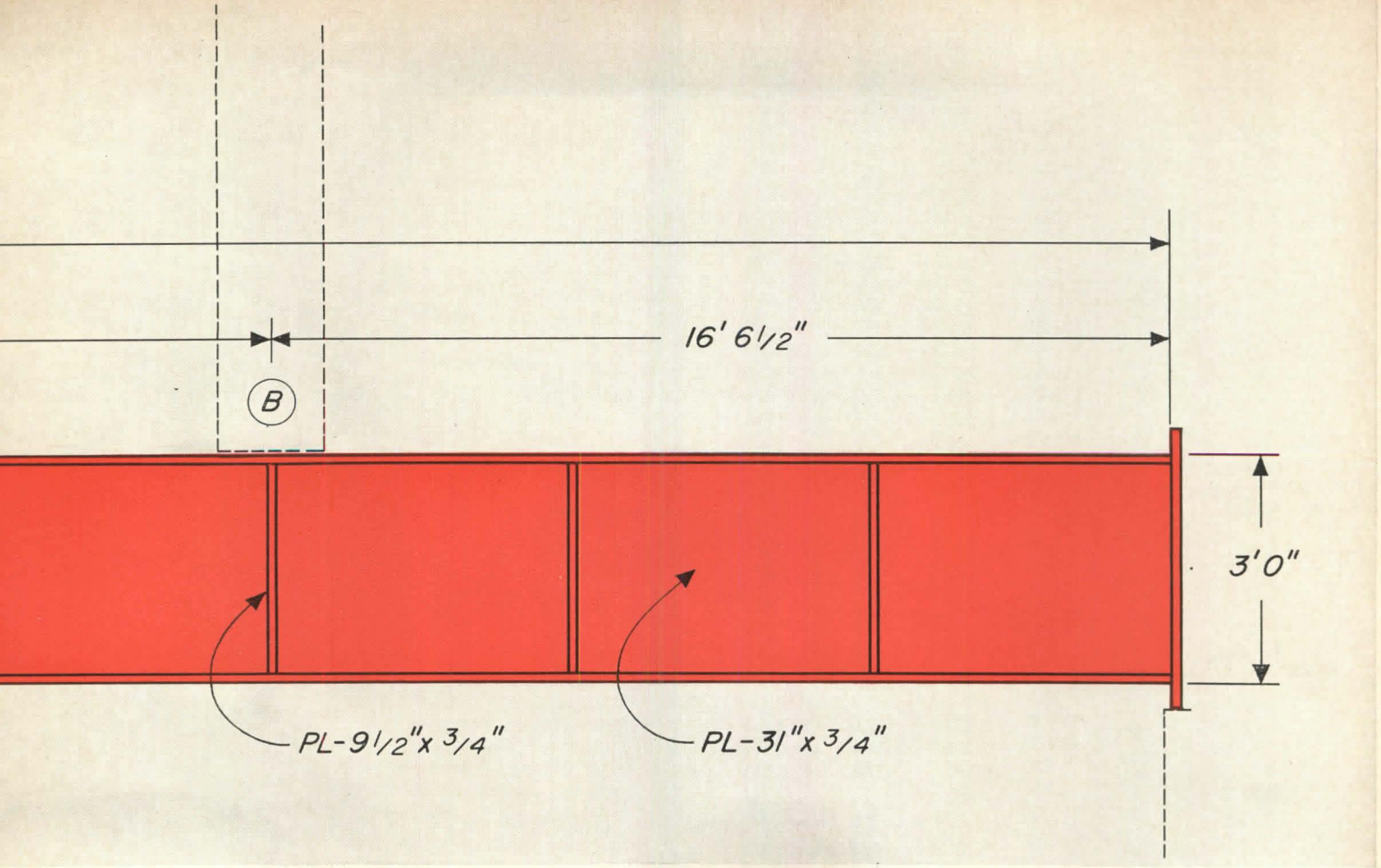
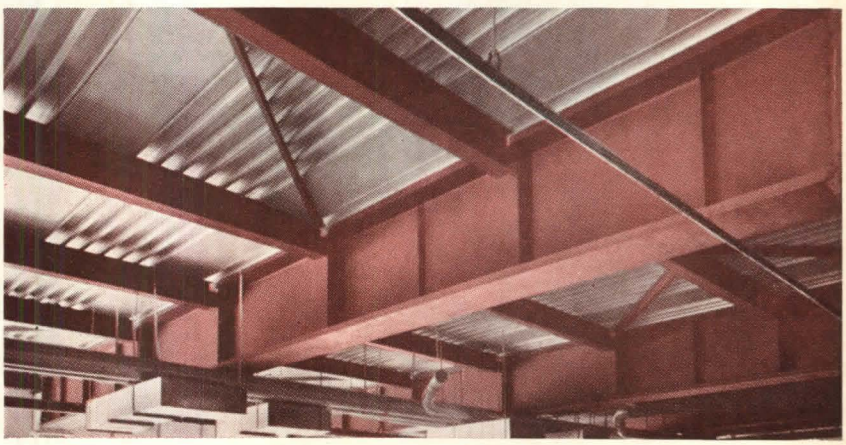


Diagram of girder construction. Columns are placed at points A and B to support the 10 floors above.

in Bliss Tower

on headroom. By using "T-1" Steel for the girders, engineers cut girder depth to 3 feet and avoided reducing headroom to an undesirable point.

USS "T-1" Constructional Alloy Steel has a minimum yield strength of 100,000 psi and has been widely used in structures of all kinds where its extra strength pays off in lower costs. It is also tough, weldable, and available. For more information, contact our nearest District Sales Office or write United States Steel, Room 8561, 525 William Penn Place, Pittsburgh, Pa. 15230. USS and "T-1" are registered trademarks.



Two 36-in. deep girders of USS "T-1" Steel, 19 feet apart, saved two feet of headroom making 49-foot clear span possible.

Architects: Cox, Forsythe and Associates, Canton, O.
Steel Fabricator: Allied Metals Company, Niles, O.
General contractor: Melbourne Bros. Construction Company, North Canton, O.

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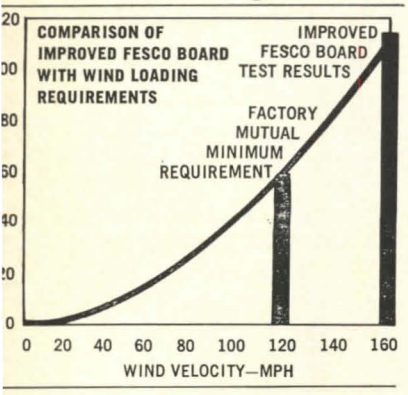
Wind Loading



Greater strength. Improved Fesco Board is an even stronger performer than before. We've improved resistance to compression and direct loading by *over two to one.* There's less chance of permanent deformation that may impair thermal efficiency. And rugged Improved Fesco Board can span metal deck rib openings in the same thicknesses as other insulations . . . yet requires no paper backing reinforcement.

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Continued from page 210

needs of a general hospital.

The Gainsboroughs' solution is simple and economical. They would locate within each medical nursing unit eight or more single-bed rooms. These rooms would be grouped together with a nursing station, and for maximum observability would have glazed partitions and toilets pushed back to the exterior walls. These rooms would serve not only the very ill, but the dying, the contagious, and the susceptible. (The suggested treatment is similar to the highly successful experimental unit at Methodist Hospital, Rochester, Minn.)

Counting on the conviviality of convalescing patients, the authors economize on the balance of the unit by providing six 4-bed intermediate care rooms. Without pretensions to privacy, but given the necessary conveniences—generous windows to garden and corridor, and a freedom from the more disturbing patients—such spaces could be pleasanter places to get better in than the semiprivate rooms. Most appealing of all is the ease with which patients could be moved between these acute care and intermediate care sections without loss of nursing continuity or medical service supervision.

This proposal is developed through an extensive critical analysis of historic and contemporary nursing unit designs. John Gainsborough, the architect member of this doctor-architect team, has been most generous in supplying scale plans of significant British, Continental, and American hospitals, as well as drawings of various versions of their own proposals. While the contentious will have little difficulty in picking faults in both the argument and the architecture, one is left with the conviction that if hospitals were designed as the Gainsboroughs would have them, superior care would result, and that if it does take more nurses to man these units, this is a hospital's most worthwhile expenditure.

While the authors carry their analysis into the other patient care areas, the reader should be warned that this is not a comprehensive text on hospital planning, that it is occasionally platitudinous, that it is based on British hospital traditions and aimed to influence the British national hospital construction program and not our own. Hospital architects must remember that in the context of the ferment of new thinking in Britain, these proposals are not as radical as they may seem to American eyes more accustomed to innovations in supply and communication systems than to innovations in pa-

Continued on page 223

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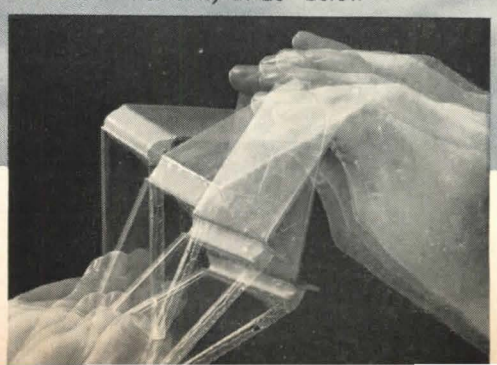

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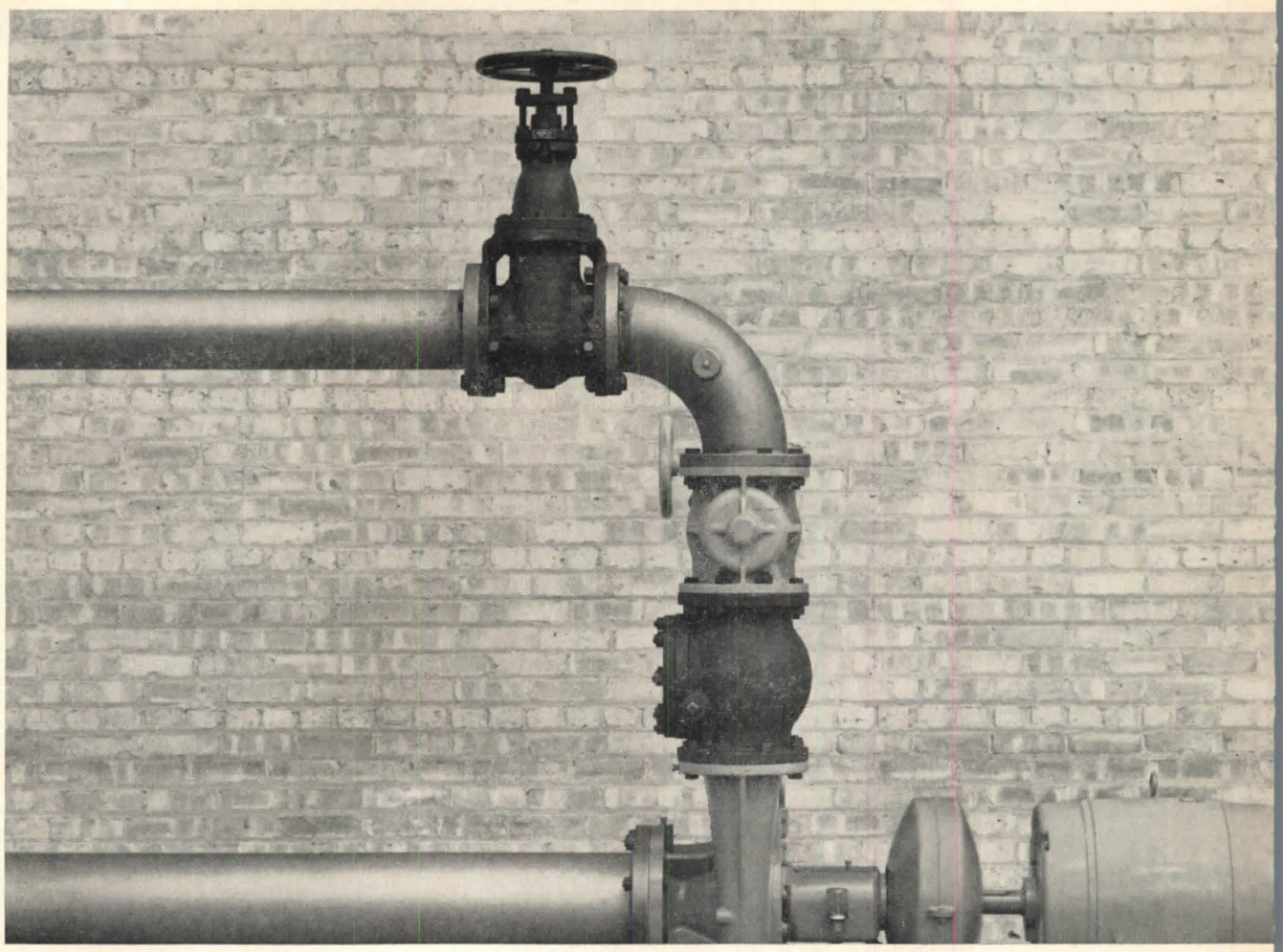
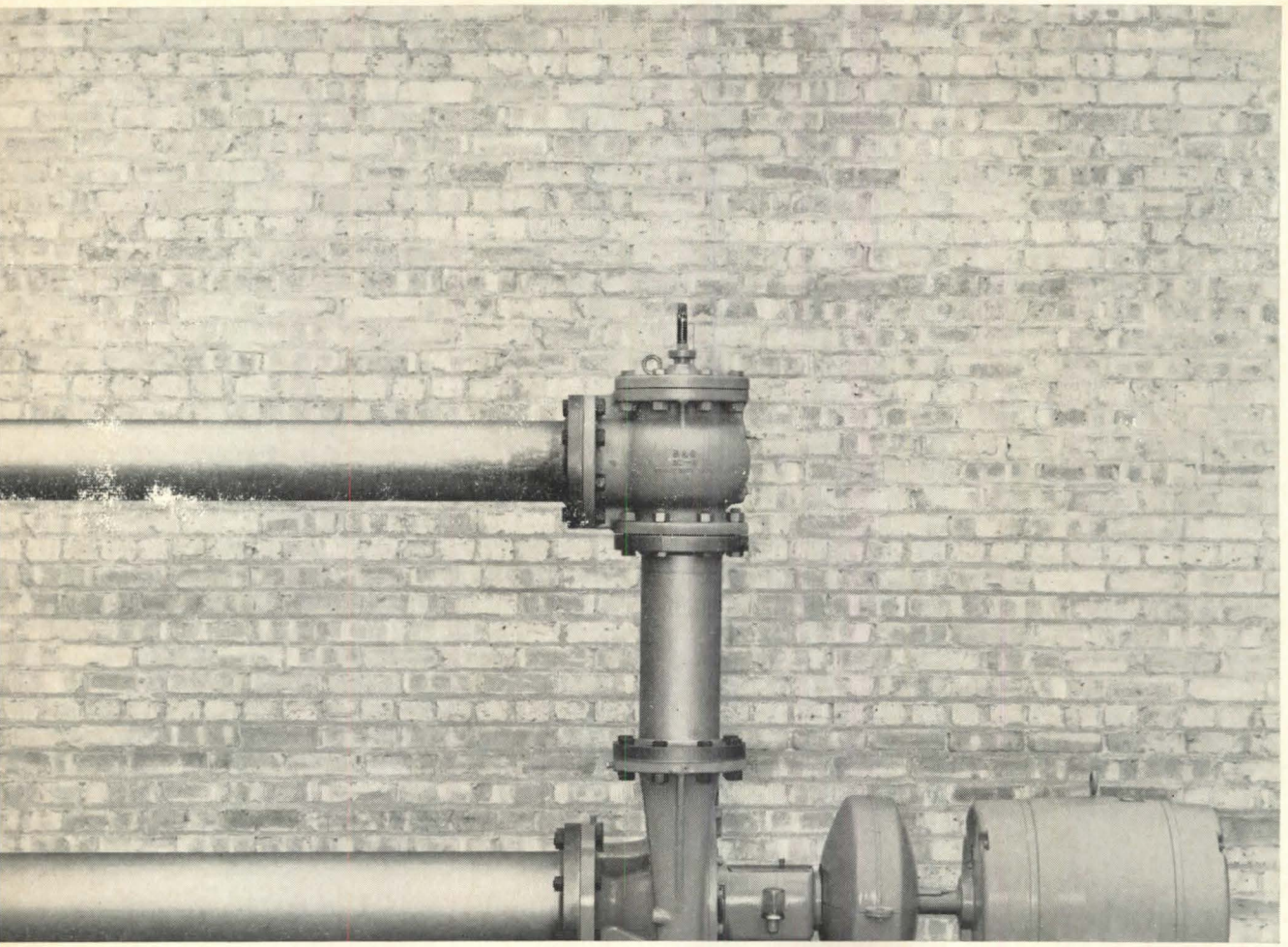


Why pay for 3 valves



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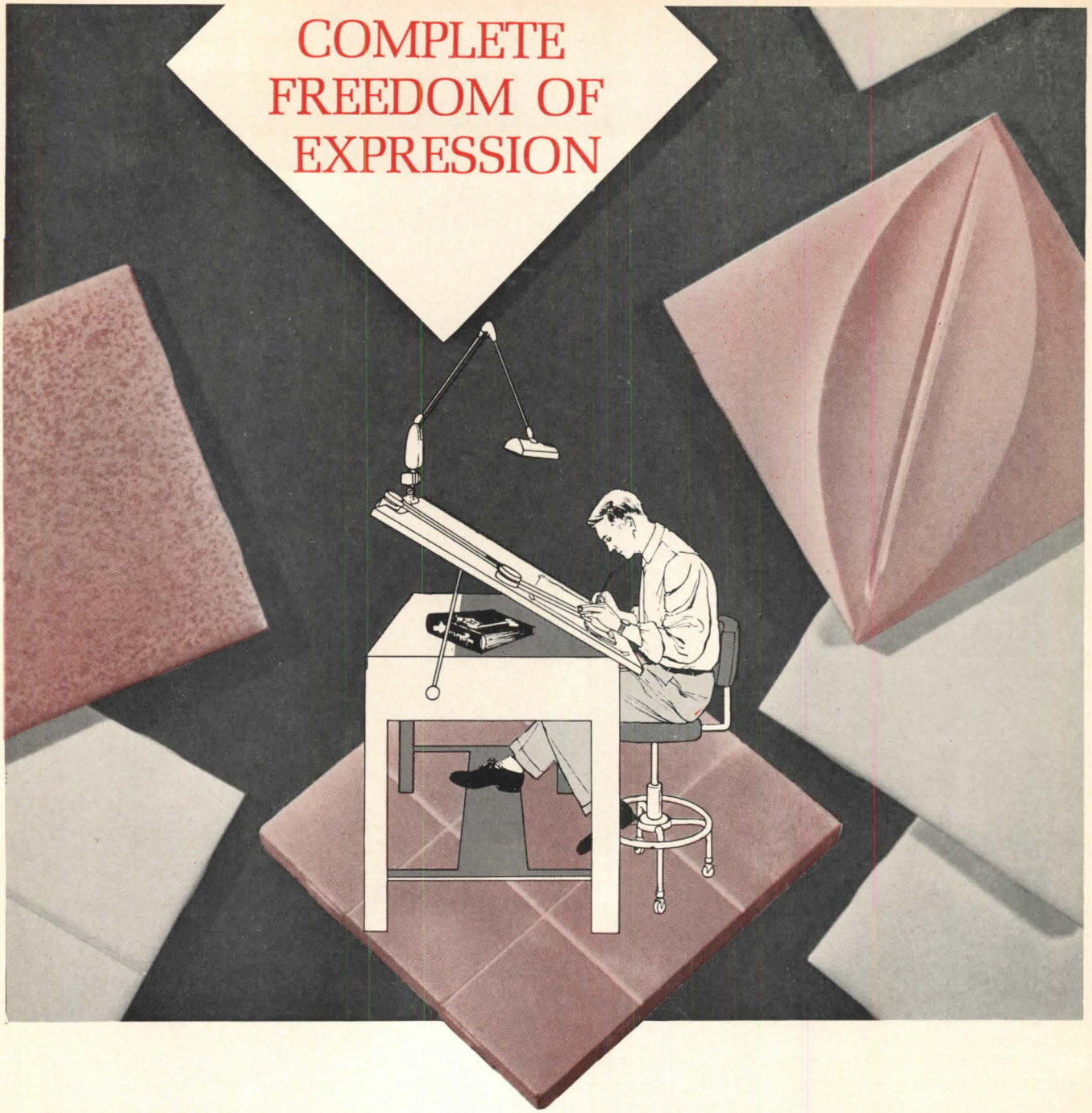

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Continued from page 218

tient care.

After almost half a century of stagnation in hospital construction, Great Britain launched a few years ago a massive hospital construction program. With little but hopelessly outmoded hospitals at home, the British looked to the highly developed U.S. hospital as a guide and model to be adapted to their needs. While much has been borrowed from us, the British do not ape; much that is considered standard practice here has been rejected and instead new and uniquely British models have been developed (see *Architectural Review*, London, June 1965). If this book succeeds in nurturing seeds of discontent lying dormant in America, the exchange will have been worthwhile.

An Invaluable Tool

BY WILLIAM J. McGUINNESS

HANDBOOK OF AIR CONDITIONING, HEATING AND VENTILATING. *2nd Edition. Strock and Koral, Editors. The Industrial Press, 93 Worth St., New York, N.Y., 1965. 1472 pp., $30. The reviewer, a P/A Contributing Editor, writes the monthly* "Mechanical Engineering Critique."

For those engineers who are constantly responsible for the appropriate selection, design, and construction of mechanical systems, the new edition of this handbook is an invaluable tool. Its scope is so broad that others, including architects, engineers, and mechanical contractors, will find it a valuable reference. Students taking intensive engineering courses in environmental design for buildings would benefit by using this book as a text. It should be placed in all engineering libraries, and principally in those service schools of mechanical engineering. Its contents include air conditioning, air handling, heating, ventilating, piping, plumbing, drainage, and noise control.

As one examines the new handbook, there appear to be about an equal number of pages of graphs, diagrams, and tables on the one hand and explanatory text on the other. The amount of original work, in its writing and editing, is impressive. It is quite difficult to find any of the standard illustrations that have been repeated too often in some other texts.

Those of us who were familiar with the first edition published in 1959 know its original value as a basic reference and are pleasantly surprised to find it so much further improved in the short period of six years. This must indeed set a

Continued on page 224

Continued from page 223

record for updating in this rapidly accelerating field.

A few of the subjects added and further developed indicate a fresh approach. Knowing the number of hours in a given climate in which various wet and dry bulb standards are exceeded aid the designer in judging the probable use for cooling. Friction in flexible air ducts is most useful because of the great increase in their use as adapted to the tortuous passages through modern structures. Design of high temperature water systems, rainfall intensity, duration and frequency curves, loads on buried pipes, noise and vibration control, and acoustics of high-velocity air distribution illustrate the wide variety of subjects treated.

Clifford Strock, Editor of the first edition and Richard L. Koral, Co-Editor of the second edition, are men of wide interests and experience in their chosen field. Among many other professional activities, each has been Editor of the magazine *Air Conditioning, Heating and Ventilating*. The contributions of government agencies, associations, and individual specialists have been generous.

OTHER BOOKS TO BE NOTED

American Houses in History. Arnold Nicholson. The Viking Press, 625 Madison Ave., New York, N. Y., 1965. 260 pp., index, illus., $12.95.

Famous old American houses of the 200-year period between 1610 and the Civil War—located in New England, New York, The Delaware Valley, Tidewater to Blue Ridge to Florida, the Mississippi Valley, and the West—are presented in photographs, with a brief commentary.

Applied Structural Design of Buildings. Third Edition. Thomas H. McKaig. McGraw-Hill Book Co., 330 West 42 St., New York, N. Y., 1965. 499 pp., tables, diagrams, index, $17.50.

A completely revised edition reflecting code revisions by the AISC, ACI, the National Lumber Manufacturers Association, and other recent changes in design practice.

Bituminous Materials: Asphalts, Tars, and Pitches. Vol. II: Asphalts. Part I. Edited by Arnold J. Hoiberg. Inter-science Publishers, a division of John Wiley & Sons, 605 Third Ave., New York, N. Y., 1965. 698 pp., index, $27.50.

This is the second volume in a series of three; the first covered "General Aspects" and the third will cover "Manufactured Tars and Pitches." Consisting of papers written by experts in the field, this book fully covers every aspect of asphalts.

California Design/Nine. Pasadena Art Museum, 46 North Los Robles, Pasadena, Calif., 1965. 144 pp., illus.

The Pasadena Art Museum has espoused the cause of design excellence; and the

Continued on page 238

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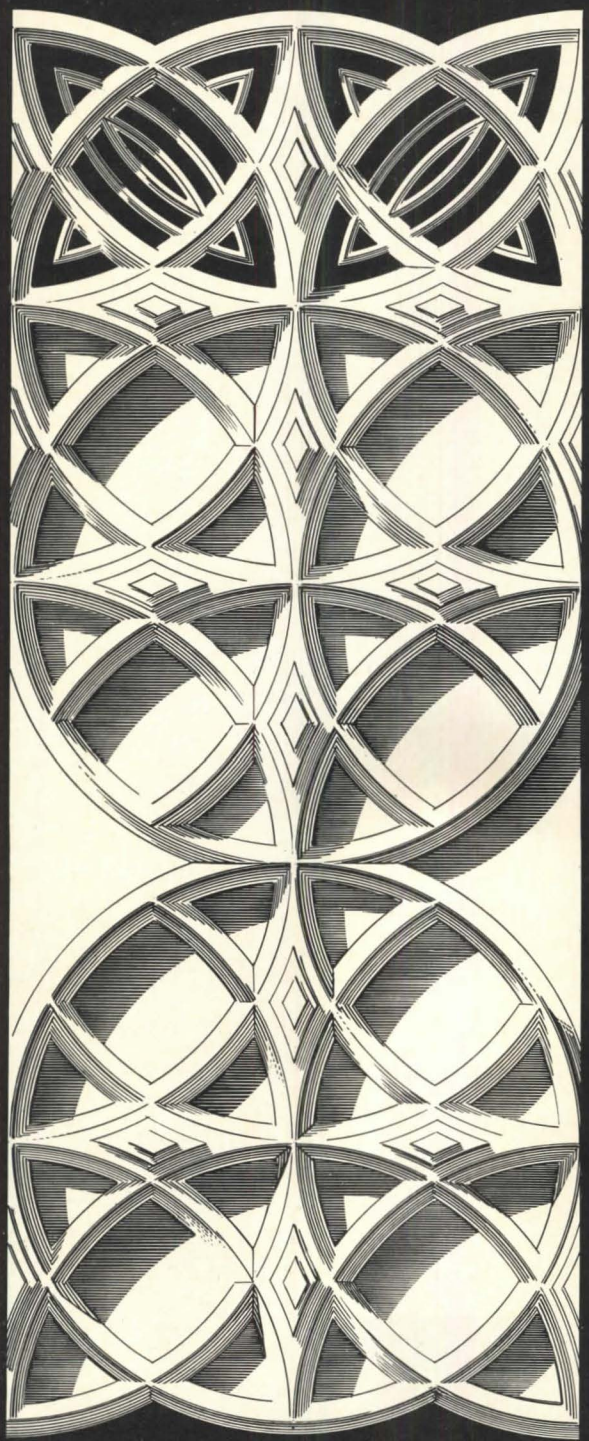

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of Lincoln Income Life Insurance Co.
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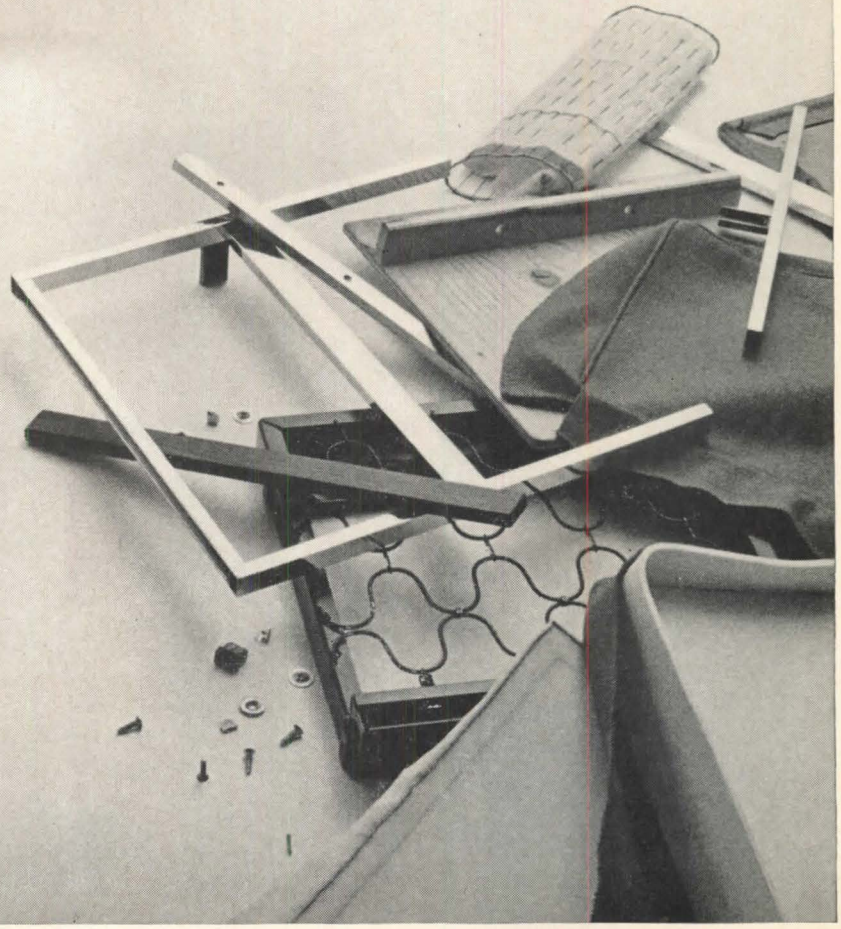

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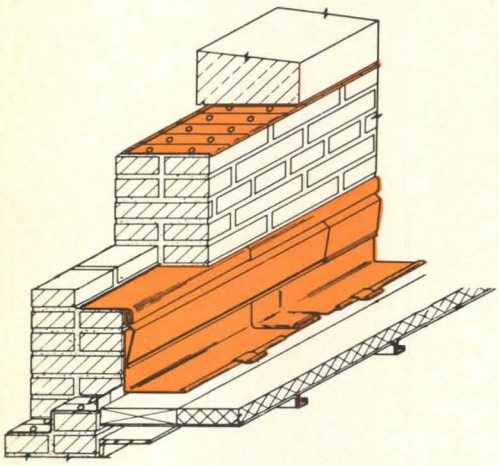

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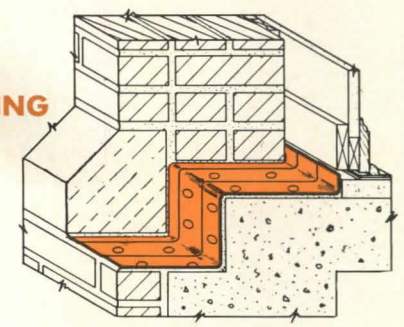

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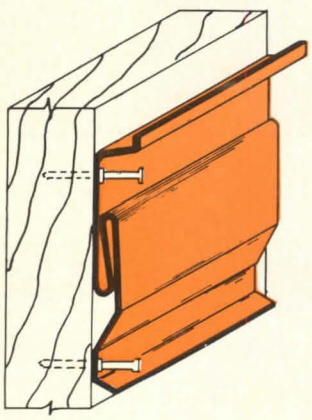

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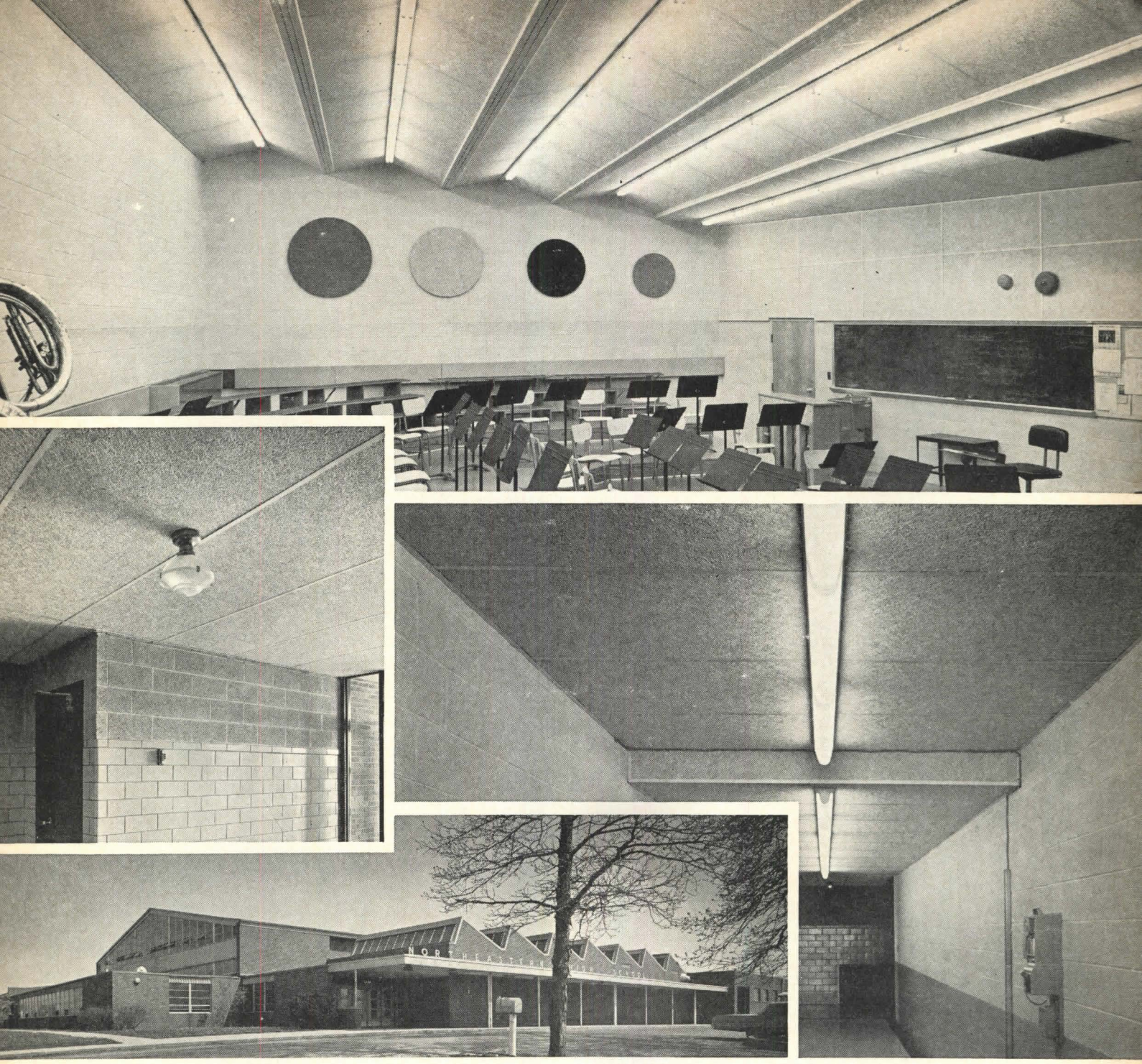
Yellow Springs High School, Yellow Springs, Ohio. Architect: John L. Kline. General Contractor: Rodgers Construction, Springfield. Tectum Erector: Field & Associates, Springfield.

Architect uses unique Gold Bond

There were other reasons, too. Appearance, structural strength, insulation, fire protection. At the Northeastern High School, room framing for the 44' band room was steel joists. Architect Kline achieved a folded plate effect by using a layer of Tectum between bar joists. Another layer of Tectum served as roof deck. At the Yellow Springs Public School, he used 2" Tectum backed up to structural building panels to create the entire exterior walls. Tectum, made of specially treated long-strand wood fibers, has a deep,



Northeastern High School, Northeastern Local School District, Springfield, Ohio. Architect: John L. Kline, Springfield. General Contractor: E. M. Redington Inc., Springfield. Tectum Erector: Field & Associates, Springfield.

Tectum to mute noisy school band rooms

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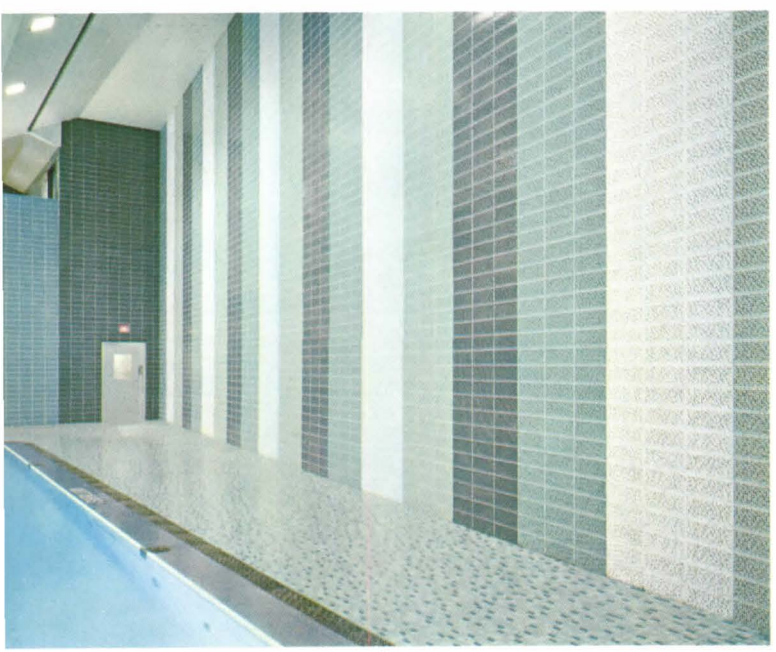

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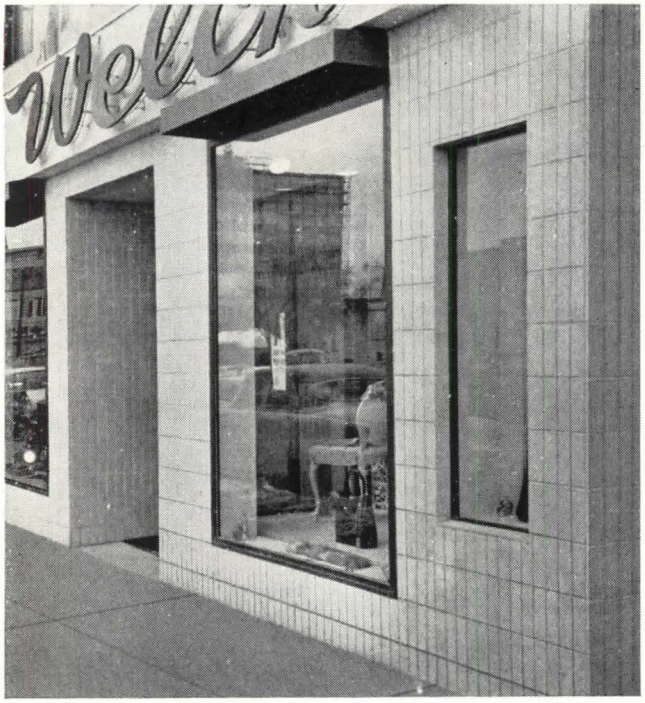

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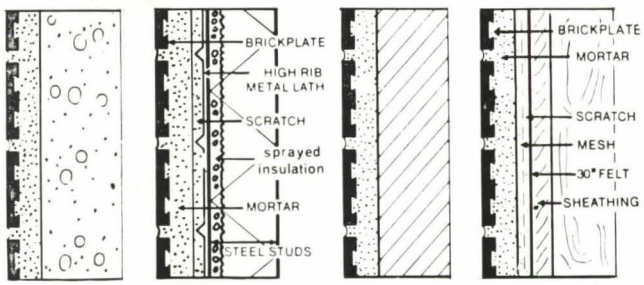

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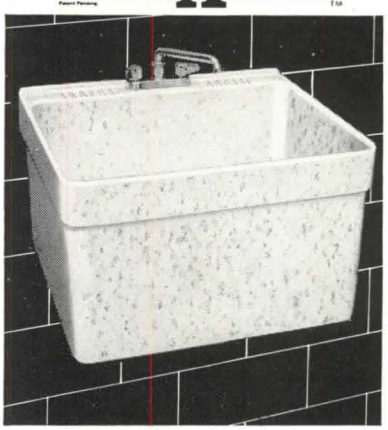

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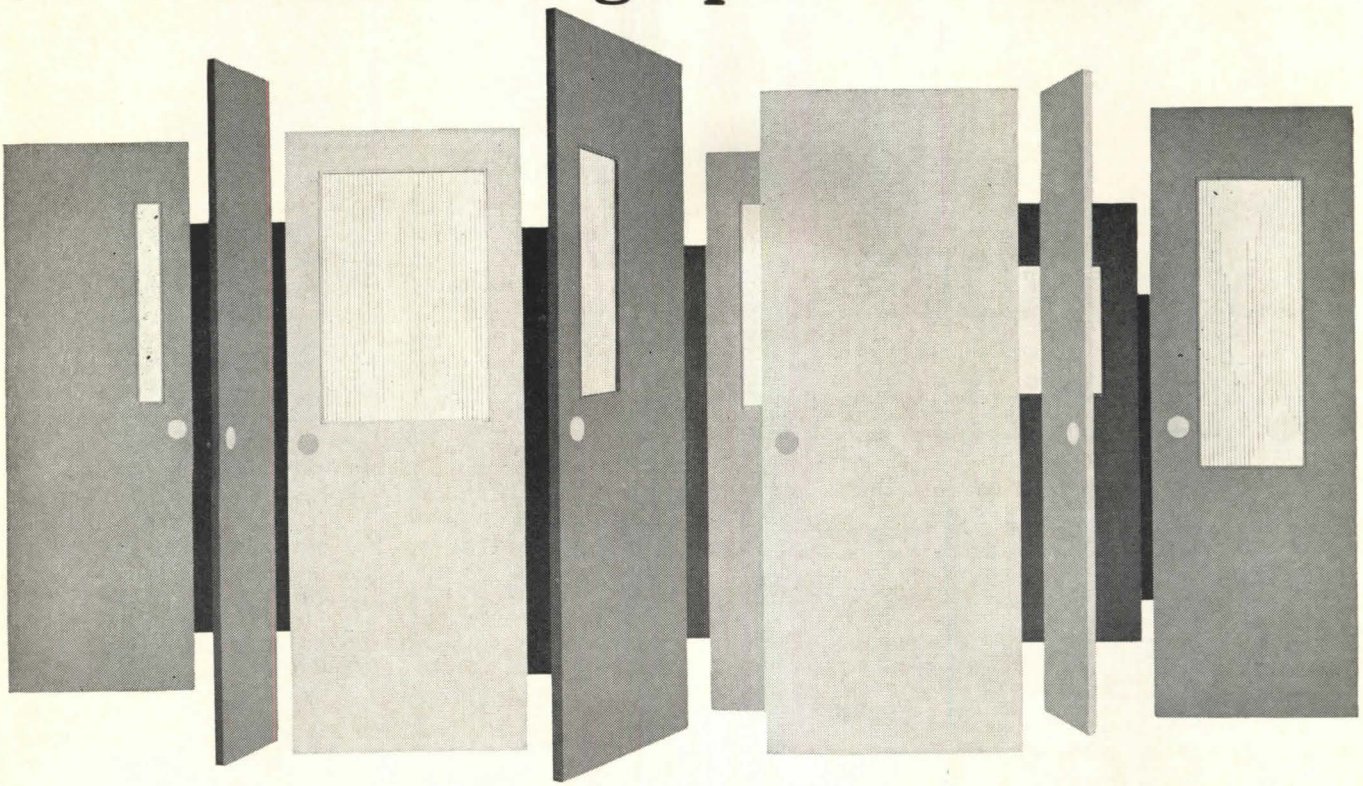

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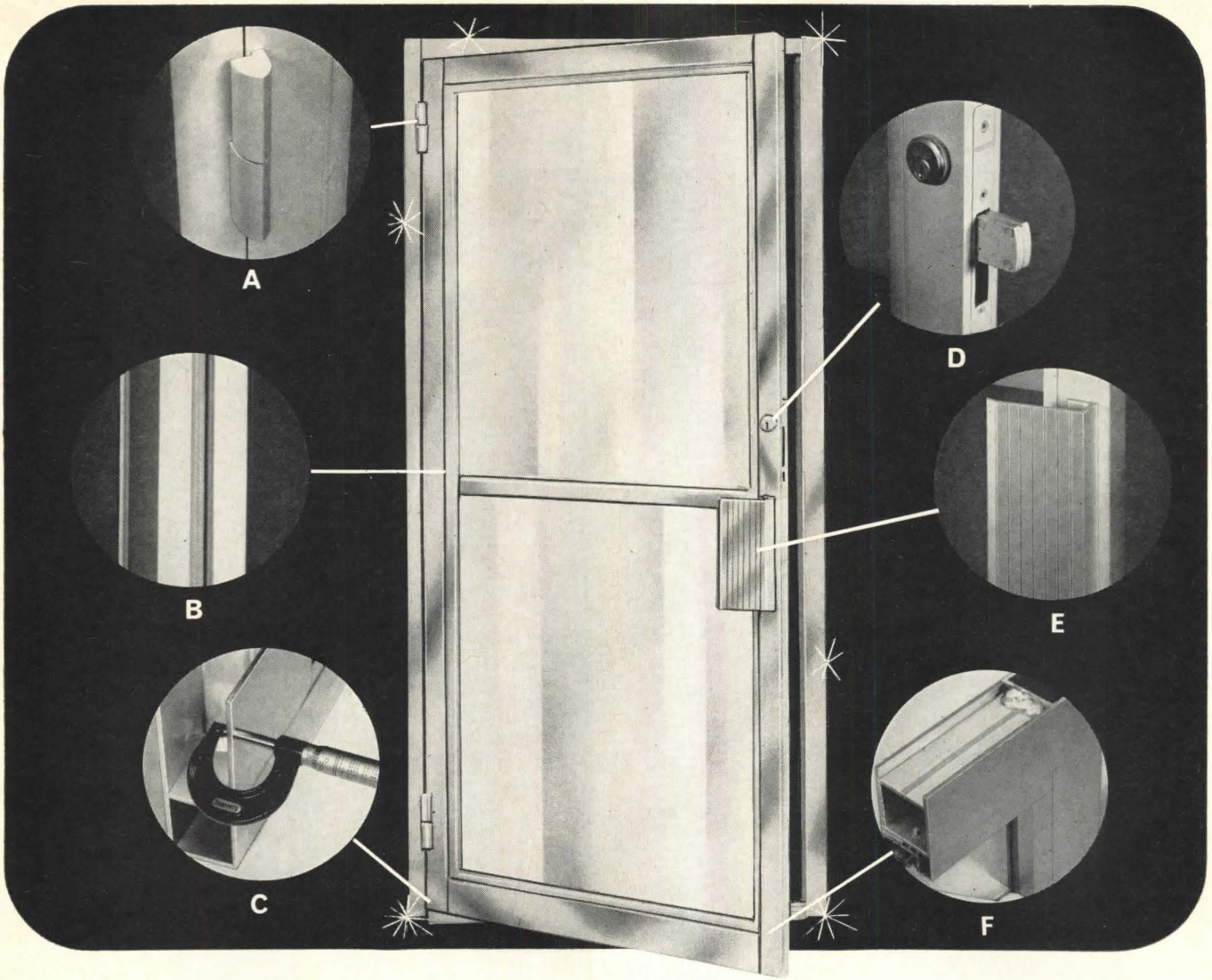

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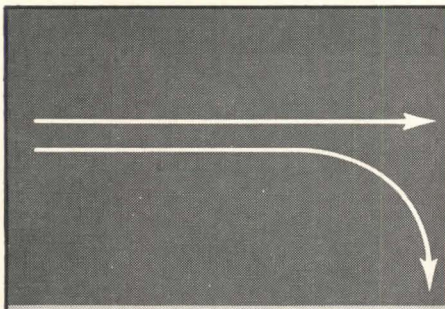

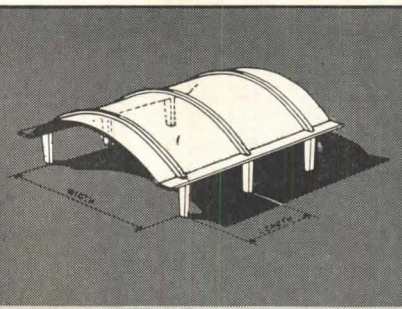

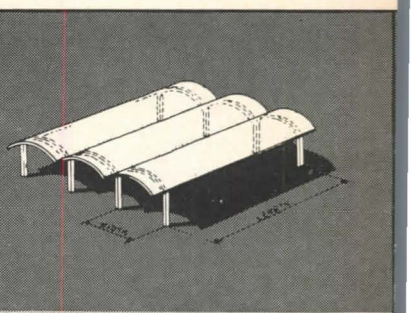

Type of Roof	Short Barrel Shell	Long Barrel Shell
*Typical Bay Dimensions**		
Width	100 to 250	30 to 60
Length	30 to 50	80 to 150
Main Features	Usually cast-in-place but can be pre-cast.	Barrel shell roofs are capable of providing large areas free of interior columns.

SYSTEMS

Clip for a.i.a. file 4-a

Prepared as an industry service by Portland Cement Association

In evaluating structural costs, the roof system is a basic factor, and its square-foot price is quite often the most meaningful cost guide available to a prospective owner.

In most cases, concrete roof systems are in the $1.00 to $3.00 per square foot range. Construction costs, of course, are not uniform throughout the nation and are dependent upon variables such as spans, loads, bay sizes, and manufacturing requirements. Local builders can provide accurate estimates geared to local labor costs and other considerations.

Since the roof system is such a basic factor in most industrial or one-story building construction, the selection of roof type and the spacing of its supports are especially important. The roof and its column spacing must be designed to meet specific occupancy requirements. These include the arrangement of machinery, processing ductwork, accessory equipment and production layouts. Concrete roof systems can be efficiently and economically designed to meet all industrial and commercial needs. The chart below compares some common concrete roof systems.

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The light, spacious look of concrete roof systems is accentuated here by the repetitive forms of these folded plates. Capitol Federal Savings & Loan Assoc., Denver, Colo. Architect: Bank Building and Equipment Corporation of America, St. Louis, Mo.

Portland Cement Association

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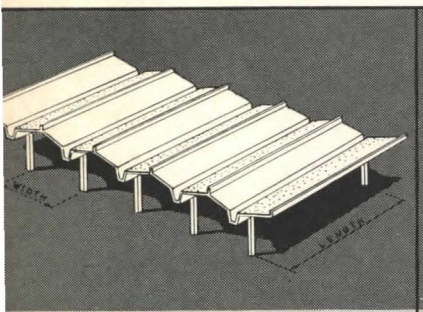
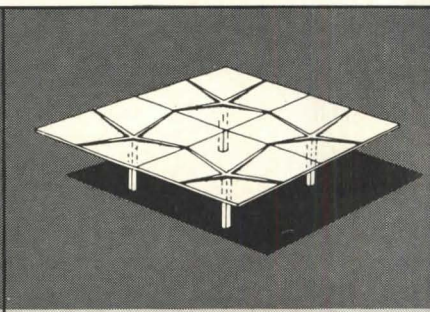
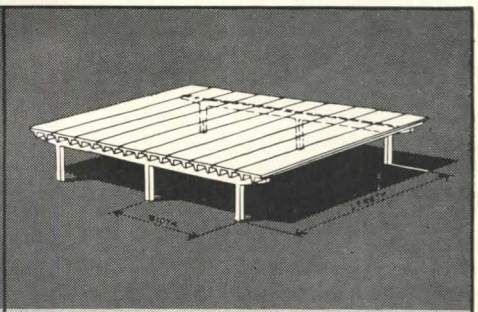
An organization to improve and extend the uses of concrete, made possible by the financial support of most competing cement manufacturers in the United States and Canada.

		
Folded Plate	Hyperbolic Paraboloid	Prestressed
15 to 30	20 to 100	25 to 50
50 to 150	20 to 100	30 to 100
Versatile designs can accommodate a wide variety of span and processing requirements.	Adaptable and very economical.	Structural members provide long, clear spans with esthetically pleasing shallow depths.

**Representative dimensions only. Specific column spacing and spans may vary for individual designs. Dimensions given in feet.*

Continued from page 224

"Supervisors of Los Angeles County" support the Museum's effort. The "Californiia Design" exhibition at the Museum showed articles for domestic use, designed and/or manufactured in that state. Handcrafted, one-of-a-kind art works comprised half the exhibition and manufactured articles the other half. Designers and manufacturers are listed and credited throughout. Everything in this book is interesting and much of it is excellent.

Concrete Technology and Practice. By W. H. Taylor. American Elsevier Publishing Co., 52 Vanderbilt Ave., New York, N. Y., 1965. 639 pp., illus., five appendices, glossary, $15.00.

Directed mainly at engineers, rather than architects, this corpulent volume is a comprehensive and up-to-date source of information on the properties and behavior of concrete. Every phase is covered—from laboratory testing to operations on the site.

A Guide To Architecture In Southern California. David Gebhard and Robert Winter. Publication Dept., Los Angeles County Museum of Art, 5905 Wilshire Blvd., Los Angeles, Calif. 164 pp., illus.

A complicated little book that strives to give a broad cross-section of all the architecture of note in southern California. Half the pages contain small maps locating architects' buildings; the other half has photographs and an index of architects.

Lettering Today. Edited by John Brinkley. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1965. 143 pp., illus. $12.75.

Included in a book that is devoted mainly to calligraphy, printing on advertisements, packages, books, and magazines, is a section on signs and their effect on the visual environment of cities. The message: "When an intelligent architect consorts with a graphic designer who is sympathetic to his requirements, they can produce a result which is vigorous, sensitive and, above all, completely integrated with the architecture." Examples are given and designers are credited throughout.

Physics Buildings Today and **Checklist For Physics Buildings.** The Education and Manpower Division of the American Institute of Physics, 335 E. 45 St., New York 17, N. Y., 1965. $3.00 and $1.50 respectively.

*Supported by a grant from Educational Facilities Labs., these two booklets were prepared to assist both architects and physics faculties charged with the design of new physics buildings. **Physics Buildings Today** illustrates and lists data on 26 buildings constructed in the last five years at colleges and universities across the country. The **Checklist** lists important features of building design in physics and its purpose is to encourage consultation between physics faculties and architects.*

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Continued from page 24

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RUSSELL & DAWSON, Architects-Engineers, 740 Asylum Ave., Hartford, Conn.

SMITH & SMITH, Architects, 7310 Axton St., N. Springfield, Va.

U.S. ANGER, INC., manufacturers of plastic machinery, 1501 Broadway, New York, N.Y.

New Partners, Associates

JACOBS Engineering Co., Pasadena, Calif., has appointed PRAVEEN SHAH as process engineer.

JENSEN & HALSTEAD, Architects-Engineers, Chicago, Ill., have admitted RALPH B. THOMAS as a partner.

LOBEL, SCHLOSSMAN, BENNETT & DART, Architects-Engineers, Chicago, Ill., have appointed nine new associates: ROMAN FRANCZAK, DONALD J. HACKL, KENNETH JACOBS, DAVID C. JULIANO, IMRE S. LANGMAR, DONALD E. MADGWICK, JOSEPH F. PAPPALARDO, JOHN I. SCHLOSSMAN, FRANK A. SZILVASY.

MILLS, PETTICORD & MILLS, Architects Engineers, Washington, D.C., have named ROBERT W. WENING, JR., a junior partner.

SCRIMENTI, SWACKHAMER & PERANTONI, Architects, Somerville, N.J., have appointed RICHARD BYRON SHIVE and MARTIN J. SPINELLI associates.

EBERLE M. SMITH ASSOCIATES, INC., Architects-Engineers., Detroit, Mich., have named ARTHUR K. HYDE an associate.

Elections, Appointments

LEO KORNBLATH ASSOCIATES, Architects, New York, N.Y., have appointed IRVING ROSENFELD chief draftsman.

IRVING D. SHAPIRO & ASSOCIATES, Architects-Landscaping, Los Angeles, Calif., announce the appointment of THOMAS S. BALLINGER as vice-president.

Name Changes

HOAG-WISMAR-HENDERSON-ASSOCIATES, ARCHITECTS-ENGINEERS, Cleveland, Ohio; formerly MCGEORGE-HARGETT & ASSOCIATES.

BERNARD PEPINSKY & ASSOCIATES, formerly PEPINSKY, SCHRAND & SHORR, ARCHITECTS, Cincinnati, Ohio.

ZURHEIDE-HERRMANN, INC., Consulting Engineers., St. Louis, Mo.; formerly SMITH-ZURHEIDE & ASSOCIATES.

Miscellaneous

A. EPSTEIN & SONS, INC., Architects-Engineers, Chicago, Ill., is newly affiliated with RICHARD COSTAIN LTD. of London, England and IMRE ROZSA, A.R.I.B.A. of Nairobi, Kenya.

WILSEY, HAM & BLAIR, INC., San Mateo, Calif., has absorbed the Phoenix, Ariz. and Santa Ana, Calif., offices of MOOTE, KEMPA & GALLOWAY, Consulting Engineers.

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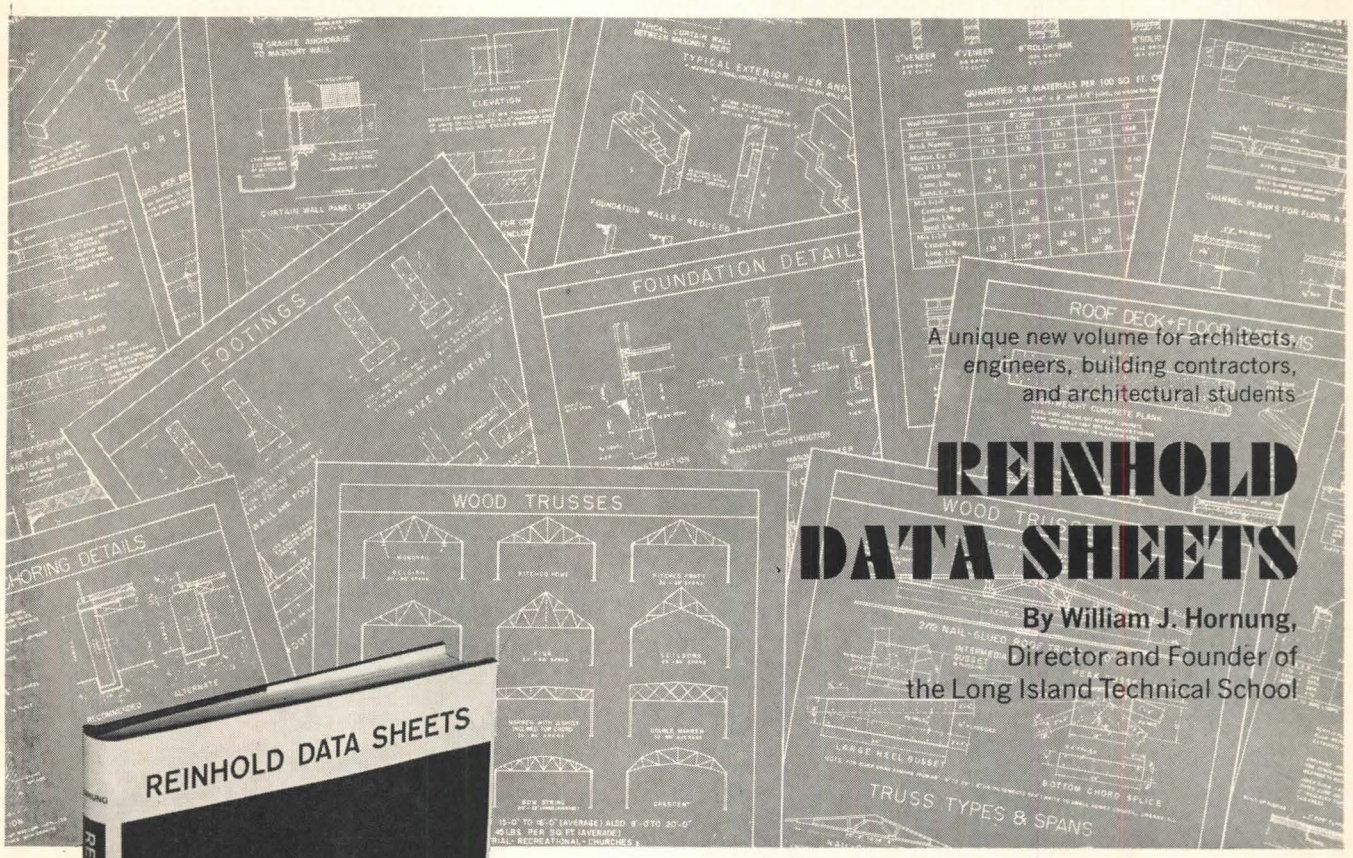

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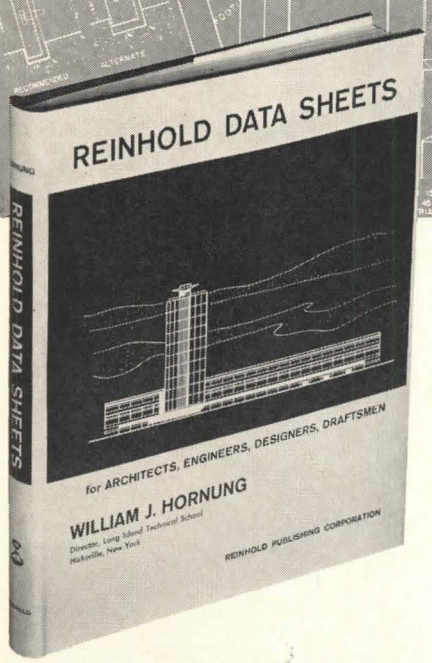

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The arrangement of the subject matter is distinguished by the fact that where materials in a certain construction system have been shown in detail, the methods of estimating quantities of these materials have been included. Questions and answers pertaining to mechanical and electrical equipment of buildings have been added for the benefit of those preparing for the Registered Architect's examination.

The practical applications of this book within the building construction, cement, building materials, and equipment manufacturing industries are exceptionally broad. Architects, engineers, and builders will find it especially useful as an up-to-date source of ready reference, and for the contractor it can prove a most efficient aid to becoming better acquainted with new methods of construction. In addition, it is highly adaptable for reference use by students of architectural design and mechanical drawing in technical schools and colleges.

September 1965	256 pages	8¼" x 10¼"	$15.00

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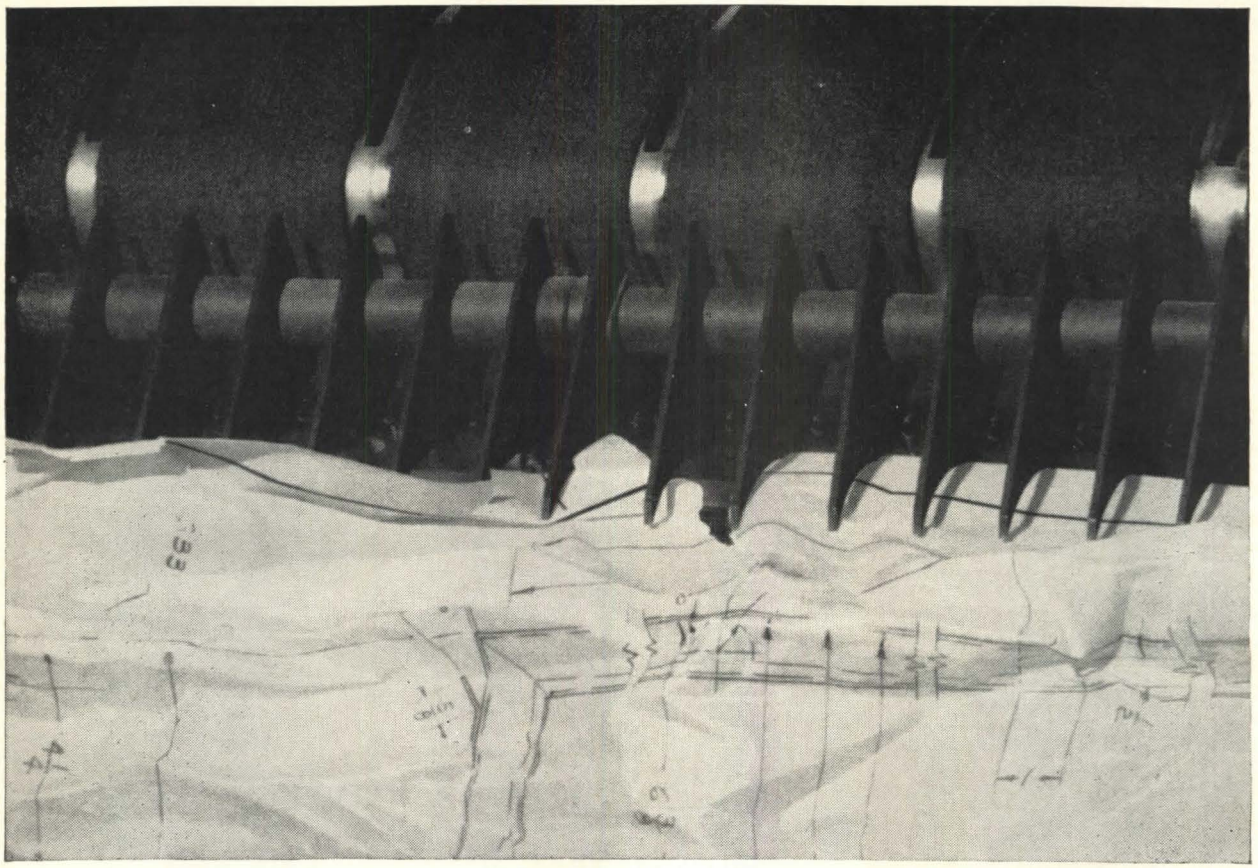

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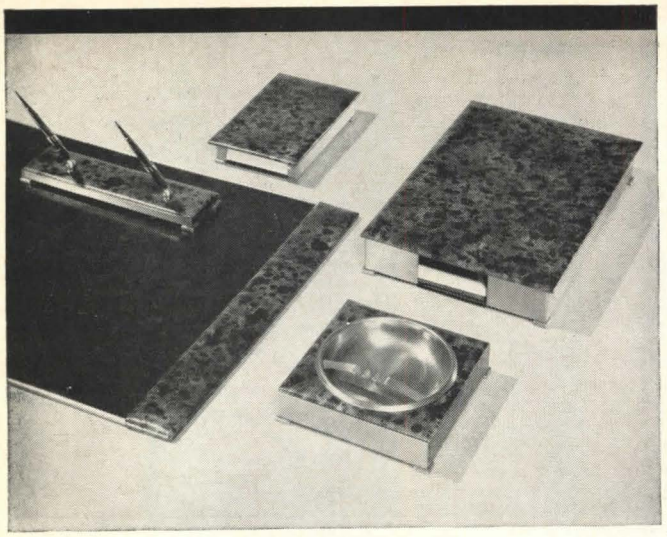

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Teak paneling in Zeffran & Zeffran Law Offices, Los Angeles, with WATCO Oil Finish. Architect: Claude Beelman. Photo: Julius Shulman. Partitions and Paneling: Vaughan Walls, Inc., Los Angeles.

Danish Oil Finishes bring out the natural beauty and depth of grain inherent in all fine woods—walnut, teak, rosewood, cherry, oak, birch, mahogany and the exotic hardwoods. In fact, the American Walnut Manufacturers' Association, and many others, recommend Watco. And, the soft, natural patina provided by Watco protects the wood—indefinitely.

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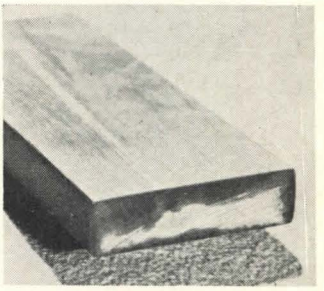

Watco's secret is its exclusive polymerization process that puts the finish *inside* the wood, not on the surface. The deep-penetrating Watco formula saturates wood fibers and pores to prime, seal, preserve, finish and harden in one low-cost application. Properly applied, Watco penetrates up to about ¼-inch in solid wood, and down to the glue line in veneered plywood. Inside the wood, Watco changes from a liquid to a solid, actually making the wood 25% harder! The result is a finish tough enough to resist burns, scratches and all forms of normal wear—an extra bonus to the client who enjoys the "hand-rubbed" beauty of Watco-treated wood.

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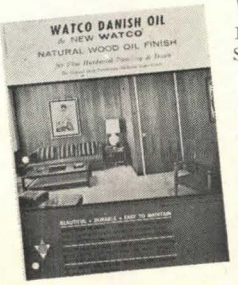

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Continued from page 242

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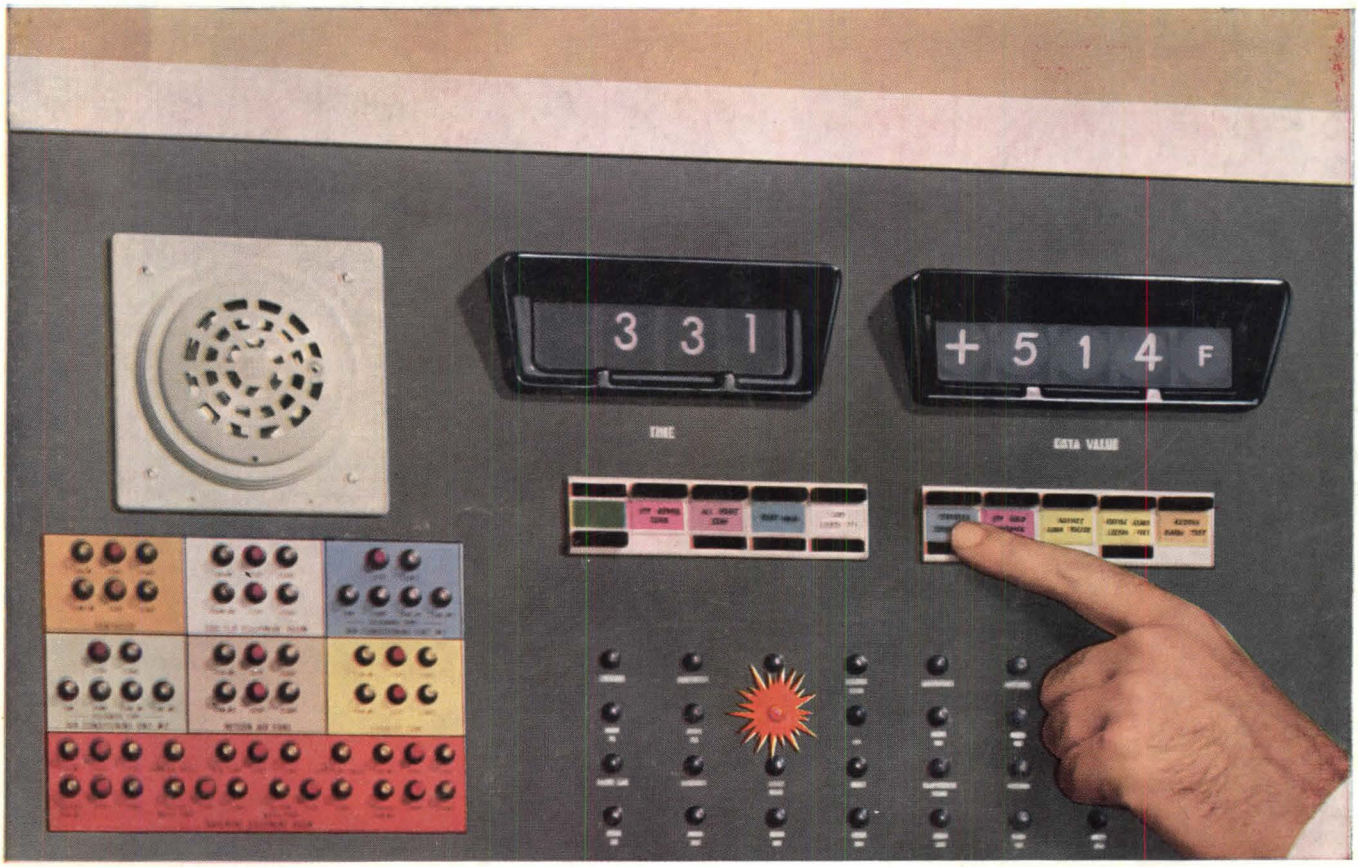

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