
FORUM

Shown: new Kentile® Colonial Brick Solid Vinyl Tile. Colors: Georgetown Red, Woodstock White, Williamsburg Pink. Tile size: 9″ x 9″. Thickness: ⅛″. Available in either 2 or 3 "bricks" per tile.

KENTILE
VINYL FLOORS

Kentile's newest vinyl tile! Colonial Brick is a solid vinyl tile that looks like brick, even feels like brick...but won't ever chip or powder. Because it's vinyl, Colonial Brick is comfortable underfoot, won't show spiked-heel dents. Easy to clean, greaseproof, and long wearing, too. Has a brawny, authentic beauty that's ideal for commercial and residential use. Like some samples of new Colonial Brick? Call your Kentile Representative.

THE ARCHITECTURAL FORUM
Vol. 122 No. 1. April, 1965
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PUBLISHER'S NOTE

Last May, two issues in advance of the sad event, we announced our impending death—a death, it developed, somewhat less certain than taxes. Though we anticipated the sound of respectful taps, we didn't expect the stirring reveille our public blew.

Three universities, recognizing the Forum's direct importance to the architectural profession and its educational role in an urbanizing America, sought to acquire the magazine, but first administrative, then financial entanglements kept us down.

History, however, had not then run out on us nor does it seem now it ever will. Under the ownership of Urban America Inc. (formerly American Planning and Civic Association), we are one part of an association which for over 60 years has played a significant educational role in helping improve America's physical environment. With us as a bright new acquisition and a newly elected Board of Trustees, Urban America's most exciting years must be just ahead.

Our part will be to raise a critical voice in American architecture at this very time in history when the profession is changing in scope and technique to assume broader responsibility for the urban scene. We will attempt to help give the architectural profession the information it needs for this new role, and to alert our other readers to the importance of architecture, planning and urban design.

This job is no new one to us. We've been at it for so many years, it is not remarkable that many of the old familiar names are still with us: Blake, Grotz, Canty, Wilson, Dennehy. And, there are new ones too who heard the bugles call and joined up: Bailey, Dixon, Evans, Wilder, Friedlander.

So here we are back again with an open invitation to renew old acquaintance and make new ones too at our new offices at 111 West 57th St., New York City—and, of course, in the pages of each subsequent issue of the magazine.

For those who might not have received the circulation announcement which we sent out a few weeks ago, we have bound in a postage-paid reply card facing page 108.—L.W.M.

Acoustical tiles and panels

We think new about ceilings

Gold Bond acoustical products are made for people.

That's precisely why we make *so many* kinds and sizes. A style to solve any design situation, such as an attenuation or humidity problem. Or to offer noncombustibility and fire-rated protection. Modular ceilings. High absorption. Ceilings that ventilate. It stands to reason, the company with such a wide product selection has the best chance to meet all these needs. And Gold Bond goes still further with two exclusive products with benefits no one else can offer . . . Fire-Shield Acoustimetal for permanent,

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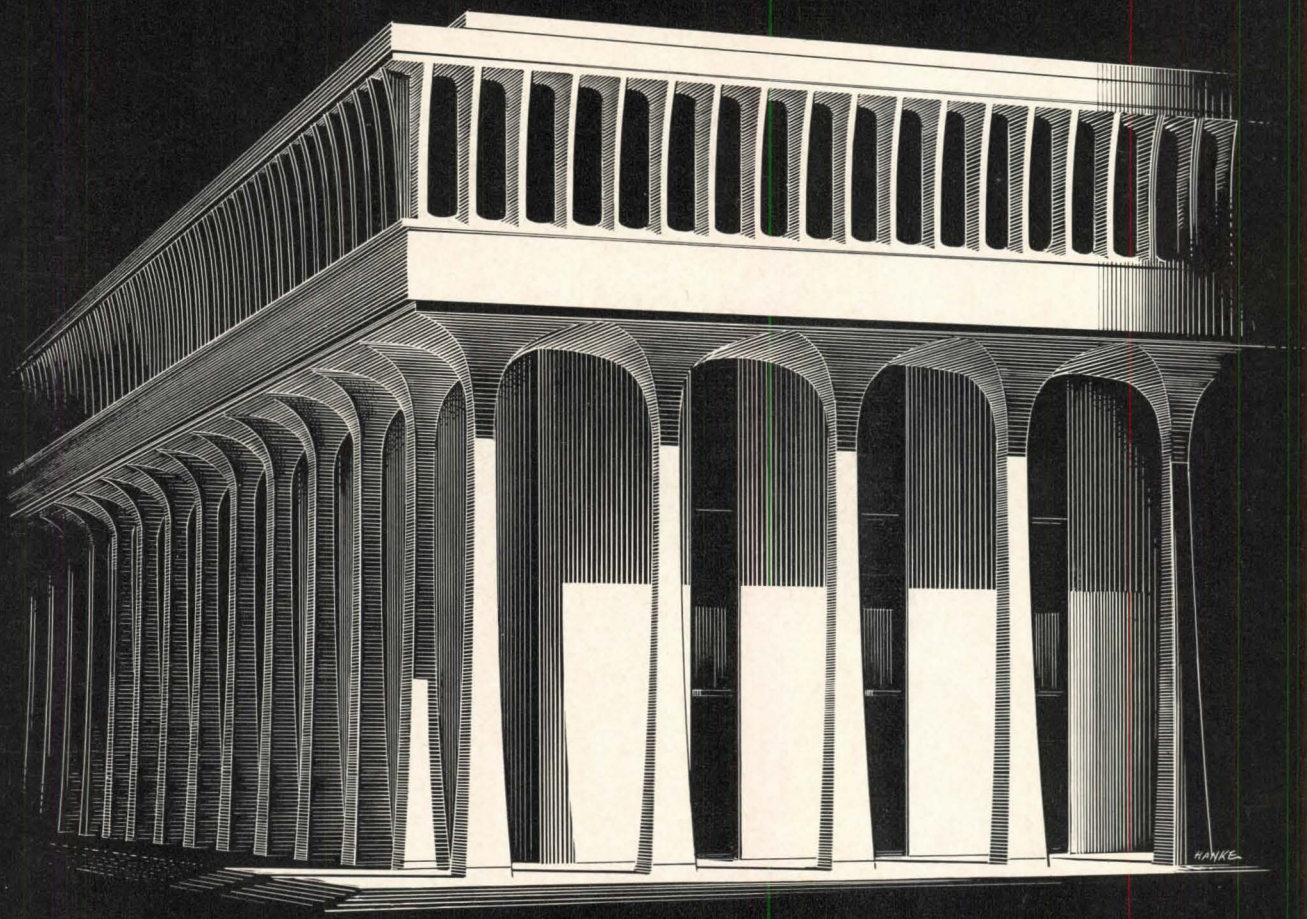

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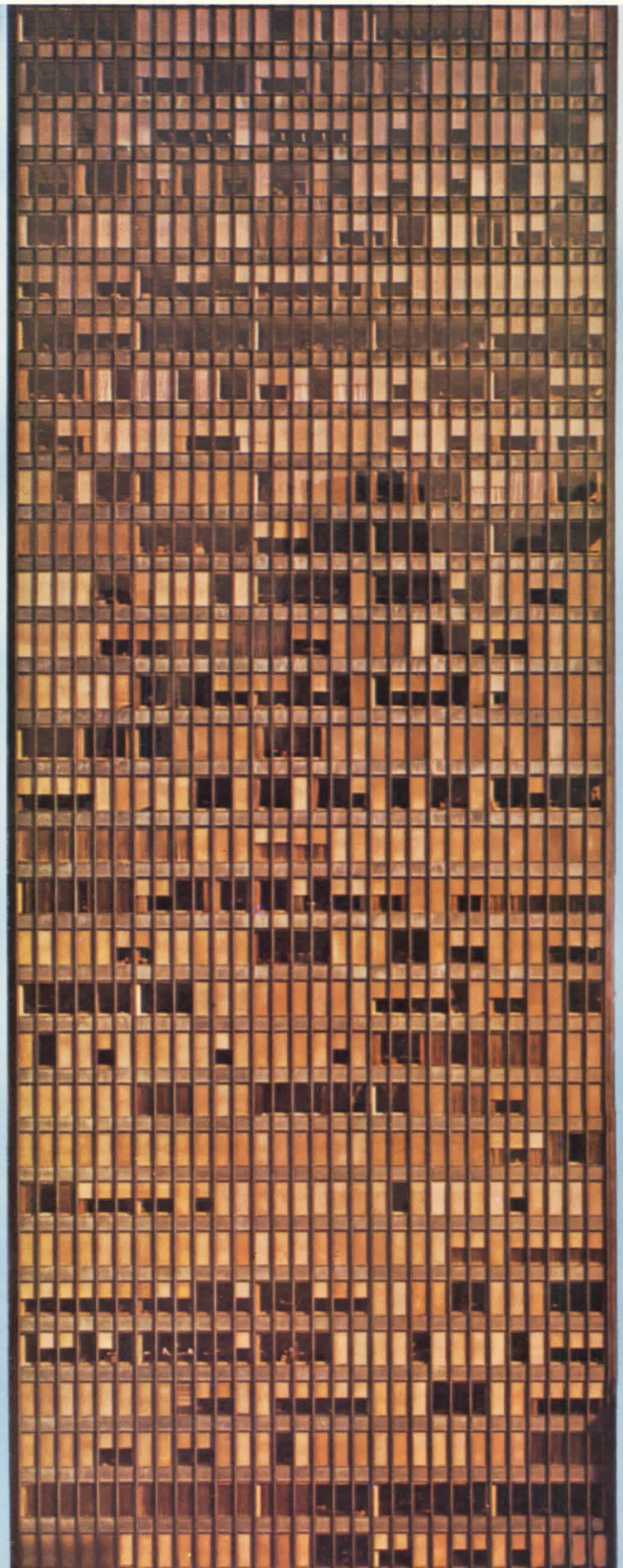
The Building

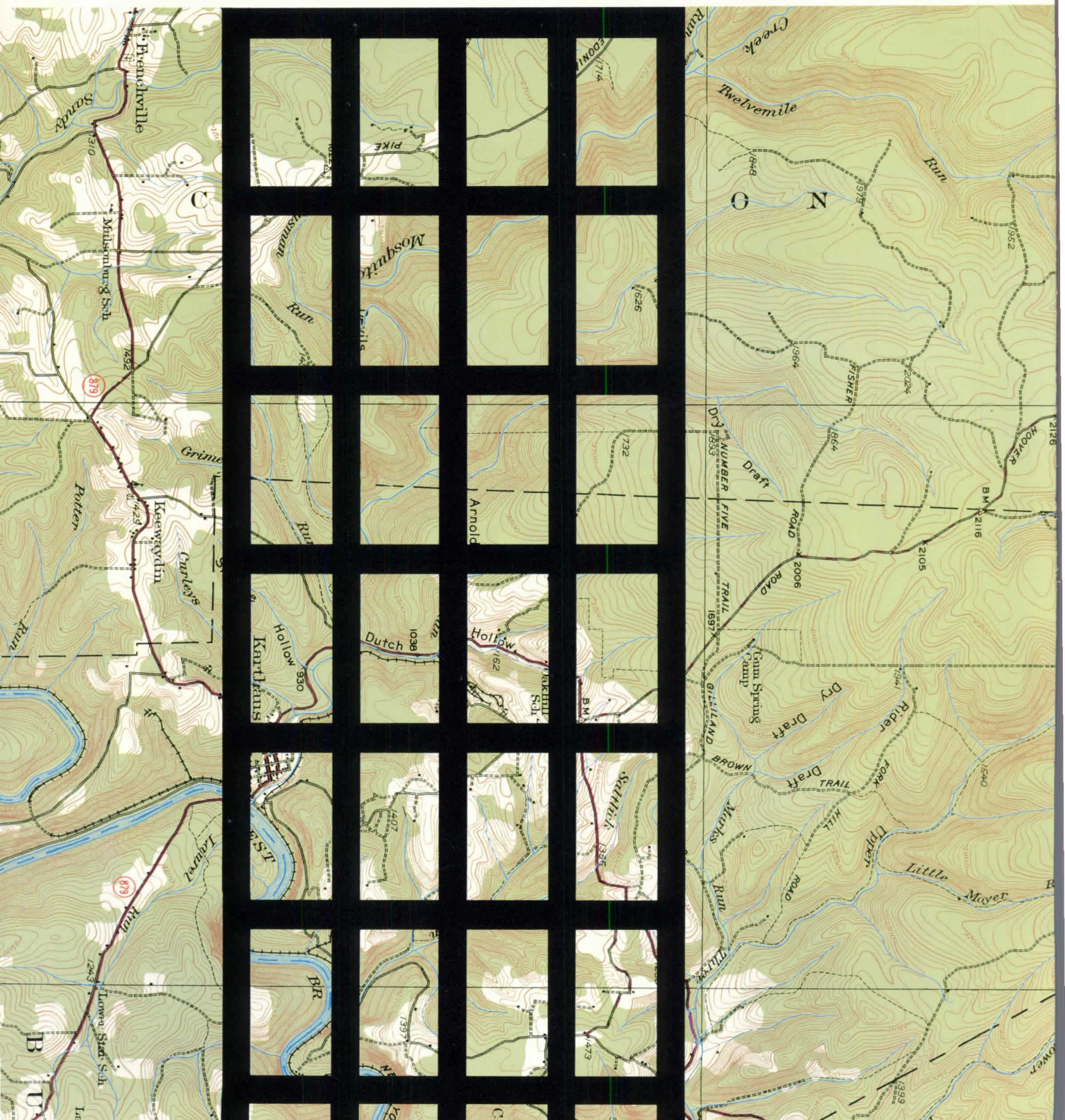
. . . made alive by a system of wires, cables, meters, ducts, transformers, relays, switches, motors, coils, lamps, compressors, partitions, surfaces, people . . . and power.

Here's the story of **Westinghouse** and total construction capability.



The Building and its environment

Westinghouse has a new computerized environmental analysis technique to aid building designers. It analyzes and predicts the total effect of such elements as material density, composition and conductivity; solar exposure through the times of day and seasons of the year; climatic factors of precipitation, temperature and wind; and building occupancy. The technique accurately determines the heating, cooling and energy requirements for each individual building.

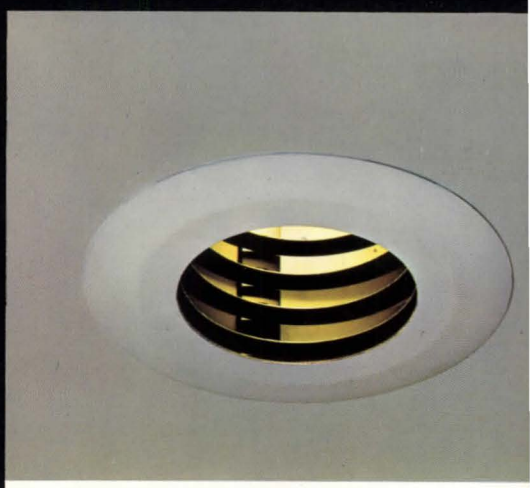


The Building and its illumination

Westinghouse creates lighting for offices, showrooms, sales floors, conference rooms, auditoriums, reception rooms, hallways, lobbies, entranceways, stairways and exteriors.

Westinghouse Airliner luminaires make design and installation a snap. Cantilever hangers snap fixture in tight. Air is quietly diffused into the room from an uncluttered ceiling.

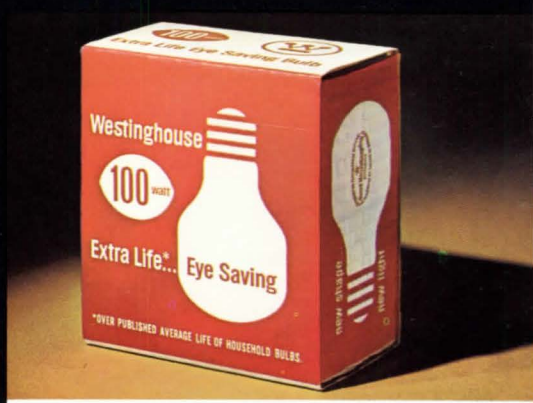
Versatile Westinghouse "eyeball" units are easily turned to beam a spot of light in any direction. Come in shielded or open types for counters, displays or show windows.



Westinghouse low brightness aperture units conceal the source of light, yet project enough for general illumination. Widely used in concourses, lobbies and under marquees.

By lighting entirely from within, Westinghouse floodlighting is used in an artistically unusual way. Effect is heightened by revolving light shields of red, blue, yellow and white.

New Westinghouse Colamar Mark 50 controls air, acoustics and lighting in one space-saving ceiling system. Flexible to fill individual requirements and to give complete design freedom.



New Shape bulb is one of many Westinghouse lamps that do thousands of lighting jobs. Regular replacement of building's lamps proves more economical under Westinghouse Group Relamping Plan.

Specially designed decorative pylon lighting creates atmosphere and mood on exterior walks and concourses. Used as supplementary lighting to give soft illumination.

Luminous ceiling brightens kitchen. Westinghouse Stripliner luminaires are installed above plastic panels. Panels easily removed for simple lamp replacement and cleaning.

The Building and its transportation

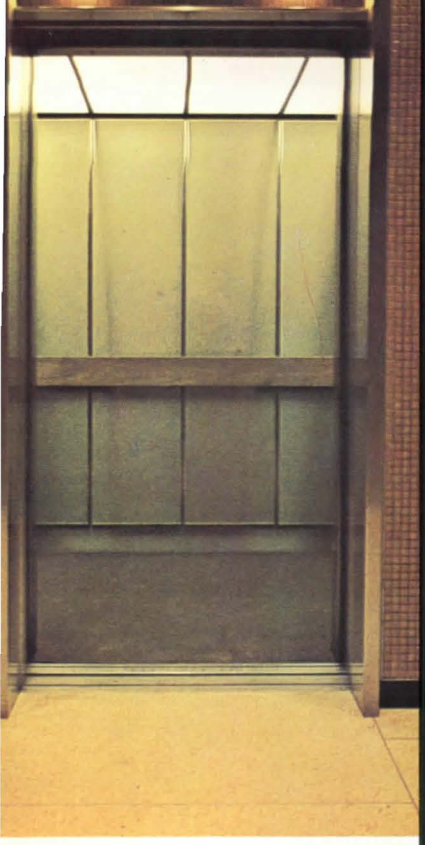
Westinghouse builds elevators that are fast, prompt, smooth and quiet. Electric Stairways that are beautiful. Walks that move.

Mark IV elevator answers calls 30% sooner tha the most efficient elevators ever could befor Car sent where needed by electronic brain instea of resting at top or bottom.

The Building and its air conditioning

Westinghouse builds air conditioning equipment that can heat, cool, purify, dehumidify, even blend with light and sound conditioning in a single integrated system.

Westinghouse Centrifugal Fans combine low horsepower with high efficiency to maintain lower operating costs—part of an air handling line ranging from fans and air distribution units to coils and Precipitrons®.

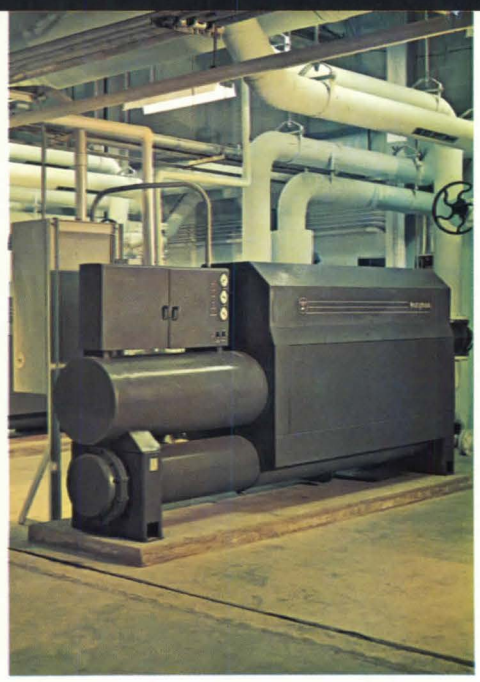


Westinghouse Selectomatic elevators are completely automatic. Westinghouse will engineer, install and maintain.

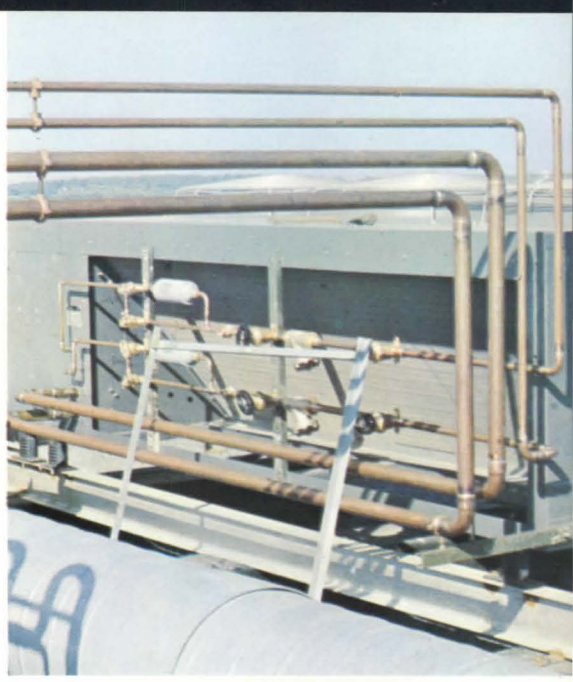
Westinghouse Electric Stairway rides smoothly, quietly. Glass balustrade and tasteful use of color add airy beauty to installation.

Moving walks are easy on shoppers and travelers. Westinghouse has installations in several major cities.

Westinghouse Type "Y" Year-Around air conditioning system provides individual room-controlled heating and cooling. Compact thru-the-wall unit for apartments, motels, offices, hospitals.



First completely packaged, direct expansion, hermetic-type, centrifugal liquid chiller available in 100- to 140-ton range. Completely factory assembled, pre-tested and charged. Fits through 30-inch door.



Westinghouse heat recovery system saves up to 50% of heat usually lost in exhaust. Heat exchangers recover heat in exhaust air to warm fresh air supply. No stale air recirculates.

The Building and its interior

Westinghouse makes partitions that can become large offices or small, long corridors or short, half high or ceiling high. Westinghouse Micarta® surfaces are protective, colorful, durable. Westinghouse appliances equip offices and apartment buildings with fountains, televisions, ranges, refrigerators, washers and dryers.

(1) Modern Westinghouse kitchens for apartments. Westinghouse supplies ranges, refrigerators, dishwashers, waste disposers, panels, surfaces and lighting.

(2) Rich, "oil-rub" finish on conference table is Westinghouse Micarta® laminated plastic surface. Wall paneling is also Micarta.

(3) Movable or stationary partitions from Westinghouse Architectural Systems. Thin profile saves space. Can be sound controlled to suit needs.

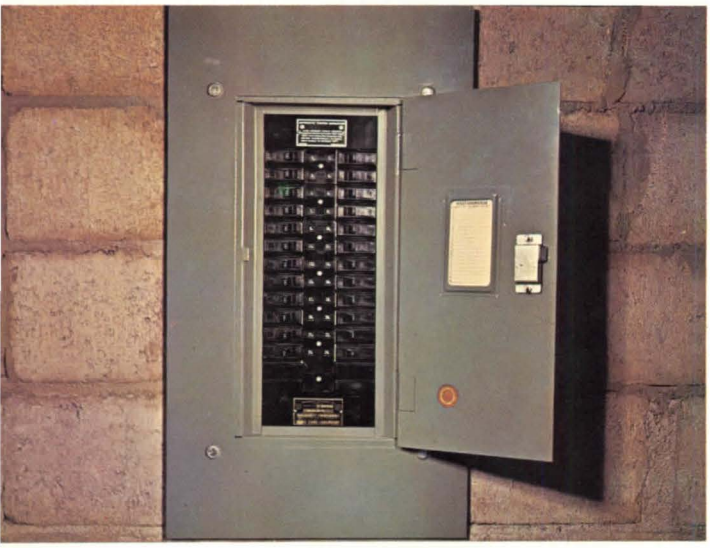
(4) Ceiling-high partitions can be used alone or in combination with other heights. In minutes, panel can be replaced with one of different color, a glass unit or a door.

(5) As smart and functional as modern architecture, Westinghouse on-the-wall water cooler sets at any height. Compact design saves space. Open floor is easy to clean.

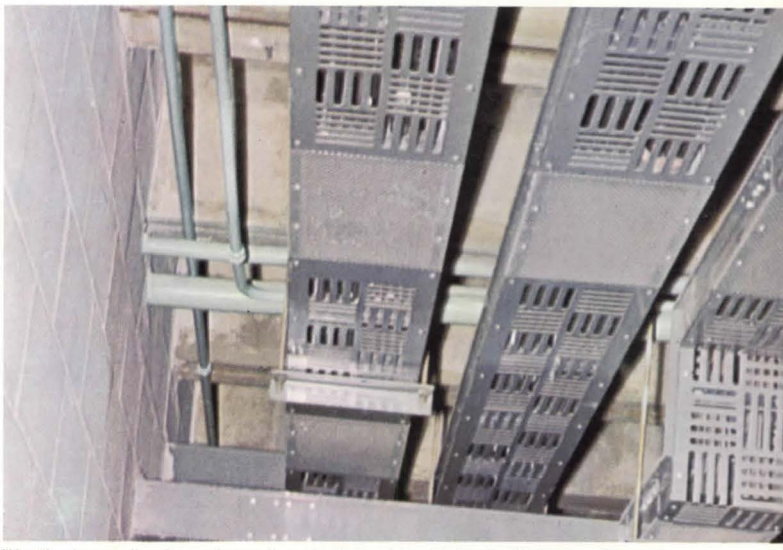
(6) Bryant Fashion Plate wall switch needs only a touch to turn lights on or off. Tops for styling, versatility, decorating possibilities. Available with transparent actuator to accommodate matching wallpaper or fabric.

The Building and its power

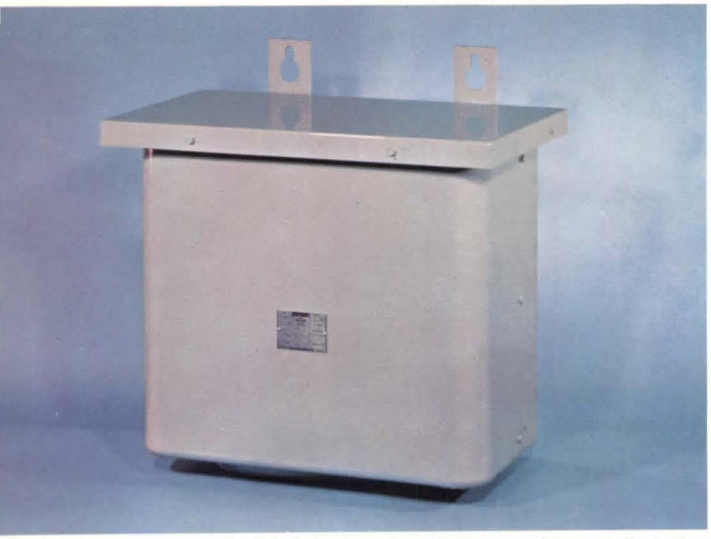
Westinghouse electric power distribution equipment carries, transforms, controls, measures and records electric power.



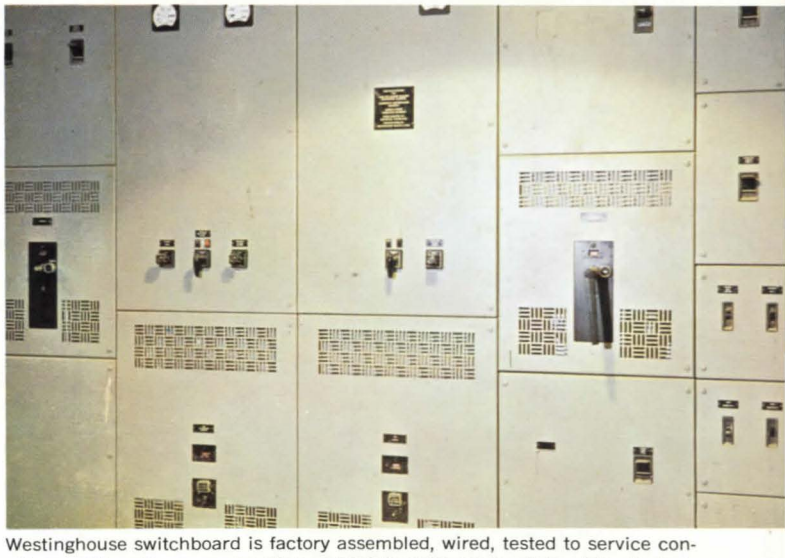
Custom-fit for each installation, Westinghouse panelboards feature AB De-ion® circuit breakers to control and protect against overloads and shorts.



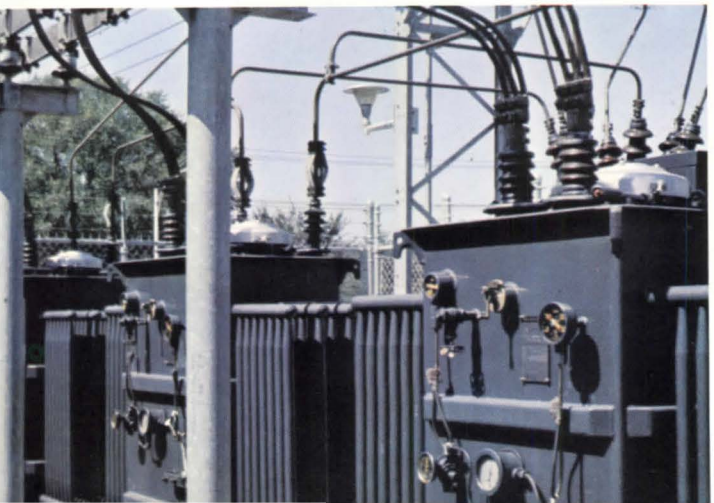
Westinghouse low-impedance bus duct provides highest efficiency of power distribution. Custom-fitted to job for fast, positive installation.



New EPT sand-epoxy resin filled dry-type transformer provides smallest size and lowest sound level performance.



Westinghouse switchboard is factory assembled, wired, tested to service conditions. With uniform construction, conduit layouts can be planned in advance.



Westinghouse space-saving transformers have lower impedance, lower losses and lower exciting current.

The Building and its builders

Westinghouse works with each member of the building team. A single contact coordinates every detail with architect, contractor, engineer, owner, investor. For more information write: Construction Group, Westinghouse Electric Corporation, 24-E, Three Gateway Center, Pittsburgh, Pa. 15222.

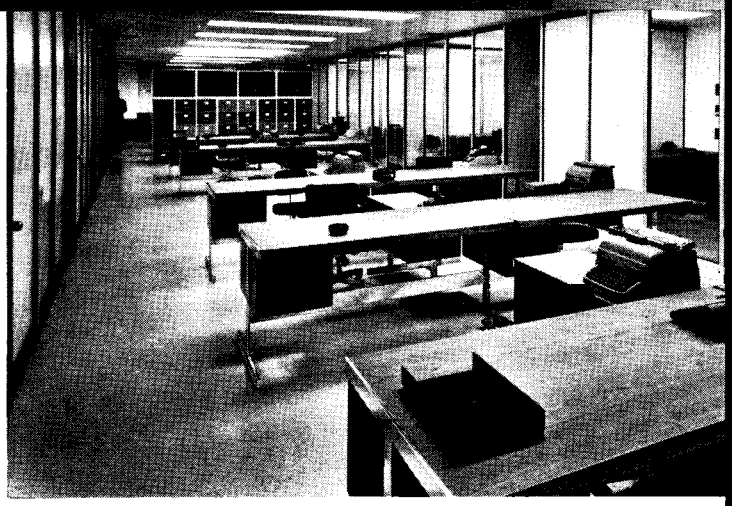
Westinghouse region construction representative discusses building's function, needs and financing possibilities with owner.

Westinghouse contact suggests to architect how product line can be modified or combined to better fit the design.

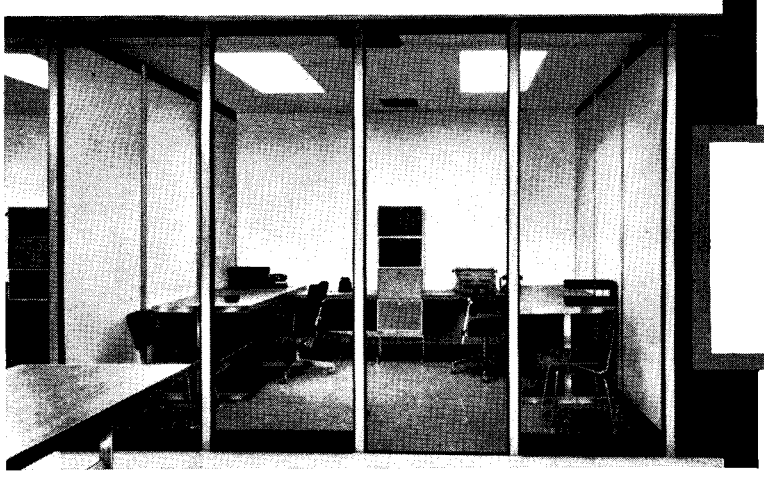
Westinghouse contact answers another question from engineer about new developments in air handling equipment.

In the field, Westinghouse and the contractor coordinate delivery and installation.

You can be sure if it's Westinghouse



General office space is predominantly white area divided by a partition of multicolored file cabinets. Peerless Formal Line furniture throughout. Note the dominance of the Peerless off-floor filing cabinets in the illustration below.



Luxury in the Office

There's a luxurious air to this office furniture. Peerless, of course. The Formal Line that's appearing in the finest of office settings; in the outstanding contract installations.

These are the new corporate offices for diverse operations of the Maritime Overseas Corporation, New York City. The focal point of the Peerless furniture is the sturdy I-shape that takes the form of leg, upright and work-top anchorage.

The complete Peerless Formal Line is detailed in Brochure 164. Request your copy on your letterhead, please. Write: Peerless Steel Equipment Company, Philadelphia, Pa. 19111.

PEERLESS

stylized office furniture

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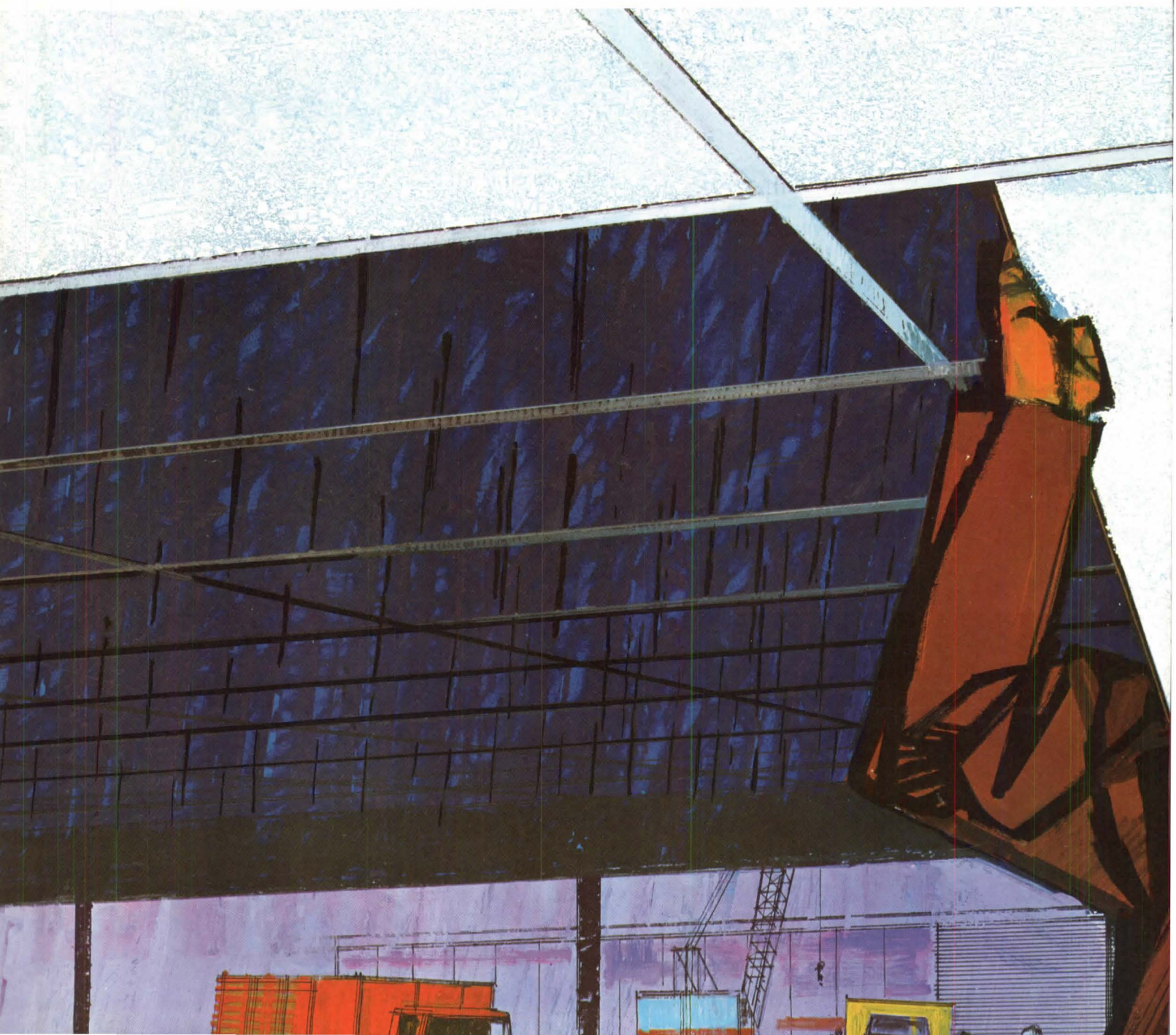
ACOUSTIFORM®: new medium-density lay-in ceiling panel by Celotex

Won't warp or sag under high humidity conditions

Rain, snow, fog, mist—nothing slows down the installation of new Celotex Acoustiform medium-density mineral fiber panels. They're made for jobs where fast occupancy is critical. Acoustiform panels can go in before or during wet-work such as plastering, grinding terrazzo, or pouring floors.

Celotex Acoustiform panels are the



. . . allows earlier installation for faster occupancy

low-cost way to get top acoustical properties in an easy-to-install, no-sag suspended ceiling. Sound attenuation value, 35-40 range. Excellent sound absorption—NRC .80-.90 range.

New Celotex Acoustiform panels are available in four distinctive patterns. A range of thicknesses and sizes (24″ x 24″ to 48″ x 72″) enables you to meet any design, installation or span requirement. Acoustiform panels are available as Class A (noncombustible) conforming to the 0-25 flame spread classification by ASTM-E-84. Also as Protectone® panels for UL time-rated assemblies.

Call your Acousti-Celotex consultant-distributor for complete product information, samples and guide specifications—see the Yellow Pages. Or write The Celotex Corporation, 120 South LaSalle St., Chicago, Ill. 60603.

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Norton Uni-trol Unitized door control performs all *five* door control functions

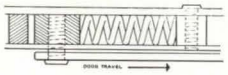
For the first time a single unit has been designed to assure complete coordinated door control. By combining all five door control functions into a single product you have a clean, uncluttered appearance at the door. You also have simplified specifications, only one product to specify. It's even non-handed to facilitate application and installation.

Ask your Norton representative to show you a sample of Norton Unitized Door Control. Or write for Manual U.

COMPLETE COORDINATION OF ALL *FIVE* DOOR CONTROL FUNCTIONS

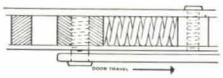
(1) Cushions the opening of the door

At almost full open, the arm engages a spring in the shock absorber mounted to the soffit plate. Opening momentum is absorbed.



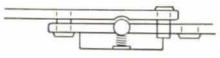
(2) Stops the door

As the spring in the shock absorber is compressed, the door is stopped. There's no shock to the door, hinges or Uni-trol.

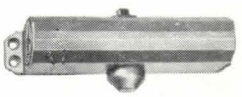


(3) Holds the door open

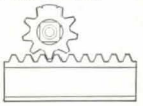
Spring loaded hardened steel ball in the holding mechanism is engaged by a recess in the Uni-trol fore-arm. The door is held open.



(4) Closes the door

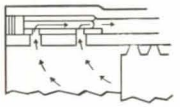


When released a dependable Norton spring-loaded rack-and-pinion mechanism supplies power to close the door.



(5) Regulates closing and latch speeds

Dependable Norton hydraulic system provides key-operated control to regulate both closing speed and the latch speed.



NORTON® UNITIZED DOOR CONTROL 372 Meyer Road. Bensenville, Illinois

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Freedom!

Design, decorate, coordinate with the most exciting collection of fabric-backed vinyl wall coverings there is—Guard*, Satinesque and Wall-Tex. Freedom for your imagination. Scope—almost unlimited design and weight choice, unsurpassed physical characteristics.

Send for samples and complete technical specifications, including resistance to tearing, abrasion, mildew, chemicals (we list 137), flame spread, etc. You get specific data to work with. Write to our Wall Covering Division. Dept. AF-45.

*Guard vinyl wall covering meets Federal Specification CCC-W-408, Underwriters' Laboratories approved.

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No other building material can match Georgia granite in the variety of colors and finishes available to the architect. From light airy grace to solid magnificence, a color and texture can be chosen to reflect the design and purpose of the structure. Samples are available upon request and our staff of engineers and draftsmen will be glad to give you the benefit of their skill and experience. Fast delivery of granite in any quantity, from the fabricating plant to the job site, is assured.

georgia granite

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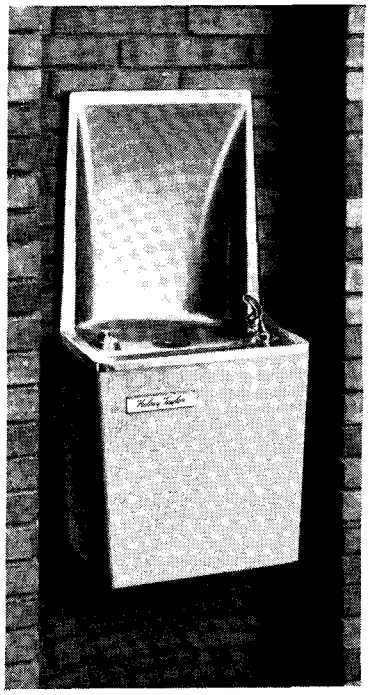
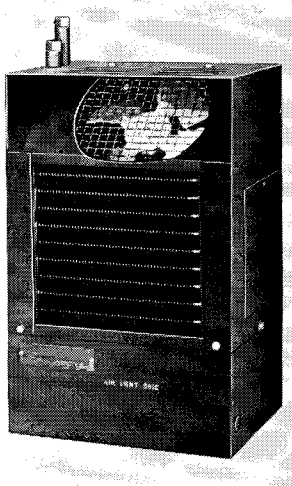


WALL-MOUNTED WATER COOLER TUCKS INTO A 10″ RECESS

Self-contained unit extends just 10 inches from finish wall. Receptor and back splash are gleaming stainless steel. Cabinet in choice of colors, stainless steel, or vinyl laminated steel.

THE HALSEY W. TAYLOR COMPANY
1554 Thomas Road, Warren, Ohio



NEW! PACKAGE-TYPE REMOTE WATER COOLER

Refrigeration unit HR 6A designed for remote installation. Will supply one or more fountains. Size only 13-1/4″ wide, 21″ high and 10″ deep. Hook-in type ventilating grille is attached with vandal-proof screws. Model shown is rated at 6 gallons per hour. Other remote units up to 20 gallons per hour.

THE HALSEY W. TAYLOR COMPANY
1554 Thomas Road, Warren, Ohio

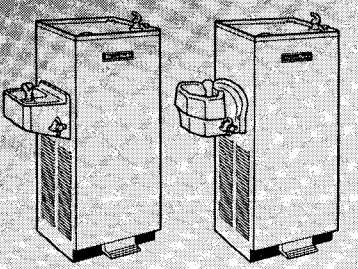
for the special convenience of the younger set

BI-LEVEL FOUNTAINS & COOLERS

The convenient, practical way to serve refrigerated water to both adults and children. Ideal for supermarkets, department stores, and public buildings frequented by different age groups. Bi-Level installation consists of factory-adapted, wall-mounted cooler with low-level accessory fountain. Insulated cold water line connects through adjacent panels — only single waste line is required to serve dual units.

Stainless steel receptacles; cabinets are available in Bonderized steel with choice of colors, stainless steel, or vinyl-laminated steel in silver, spice, or mocha brown.

For complete information about the Halsey Taylor Bi-Level wall-mount assembly or other Halsey Taylor coolers and fountains, write for NEW CATALOG. Also advertised in SWEET'S ARCHITECTURAL FILE and the YELLOW PAGES.



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DAVE BRUBECK
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CONTEMPORARY
POST AND BEAM

ARCHITECTS: Lawrence Michaels and David Thorne. GENERAL CONTRACTOR: Joseph A. Marino. STEEL FABRICATOR: Westchester Steel Products Co.

Pianist Dave Brubeck wanted his new Connecticut home to be as avant-garde as the cool chords of his famed jazz quartet. Architects Lawrence Michaels and David Thorne translated the theme into this contemporary post-and-beam combination of wood, stone, glass, and steel. Secret of the airy, open appearance: USS NATIONAL Hollow Structural Tubing exposed and painted, that supports roofing, flooring, canopy, and even windows.

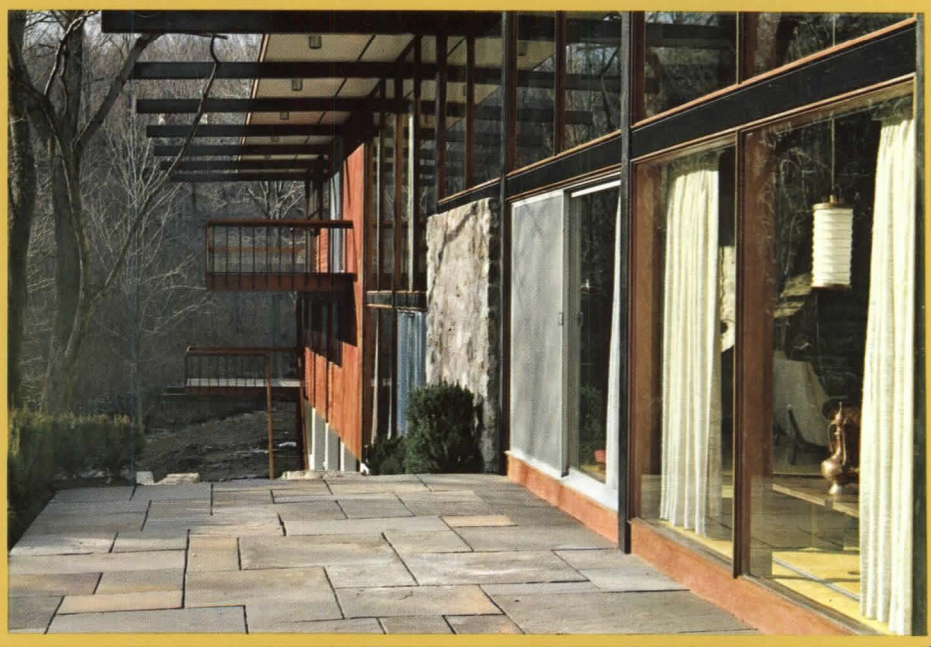
Wooden structural members for the long open spans would have been too massive for the desired effect. By using square and rectangular steel tubing, the architects retained traditional—but slimmer—post-and-beam appearances. Perhaps the best description of the over-all impression came from one of Brubeck's sons in a school essay about "The Home I Live In." Young Brubeck called it a "castle with the gloom taken out."

The Brubeck house—with about 10 tons of USS NATIONAL Hollow Structurals—is one of the first major residential uses of this versatile new member, but architects have used exposed structural tubing for everything from branch banks to neo-Gothic churches to World's Fair pavilions. With efficient design, structural tubing can often reduce steel requirements by more than 30%.

Structural tubing accepts bending stresses in several directions and is used as posts, beams, columns, rafters and mullions. The flat surface simplifies beam and angle connections, eliminates the need to "box in." Hollow structurals often double as conduit and drain housing, too.

USS NATIONAL Hollow Structural Tubing offers advantages not found in any other structural tubing. Corners are sharper. It is manufactured to the closest underweight tolerance in the industry, minus 3½%. Its size range is the widest available, going up to 10" x 10" squares and now to 12" x 6" rectangles. Wall thicknesses range up to ⅝" in some sizes.

For more information on USS NATIONAL Hollow Structural Tubing see our catalog in Sweet's Architectural File, or contact our construction marketing representatives through the United States Steel Sales Office nearest you. (Just for the record, we have a new 22-minute, color-sound movie, "The Shape of Things to Come," available upon request.) Write United States Steel, 525 William Penn Place, Pittsburgh, Pennsylvania 15230. *USS and NATIONAL are registered trademarks.*



USS National Hot Rolled Hollow Structural Tubing meets the requirements of ASTM Specification A-501.

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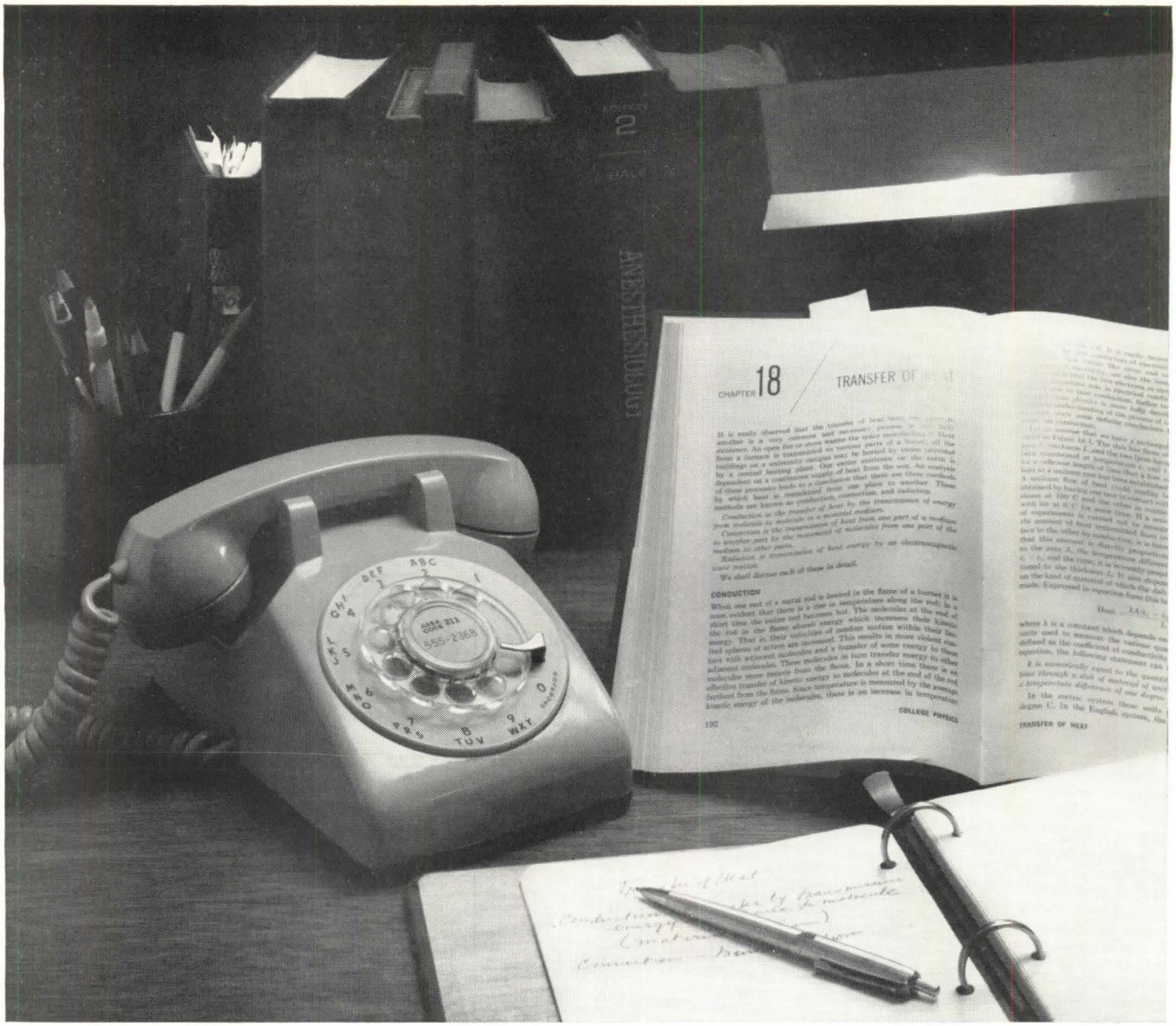

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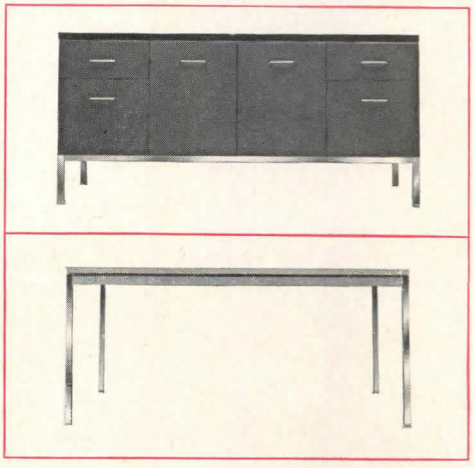

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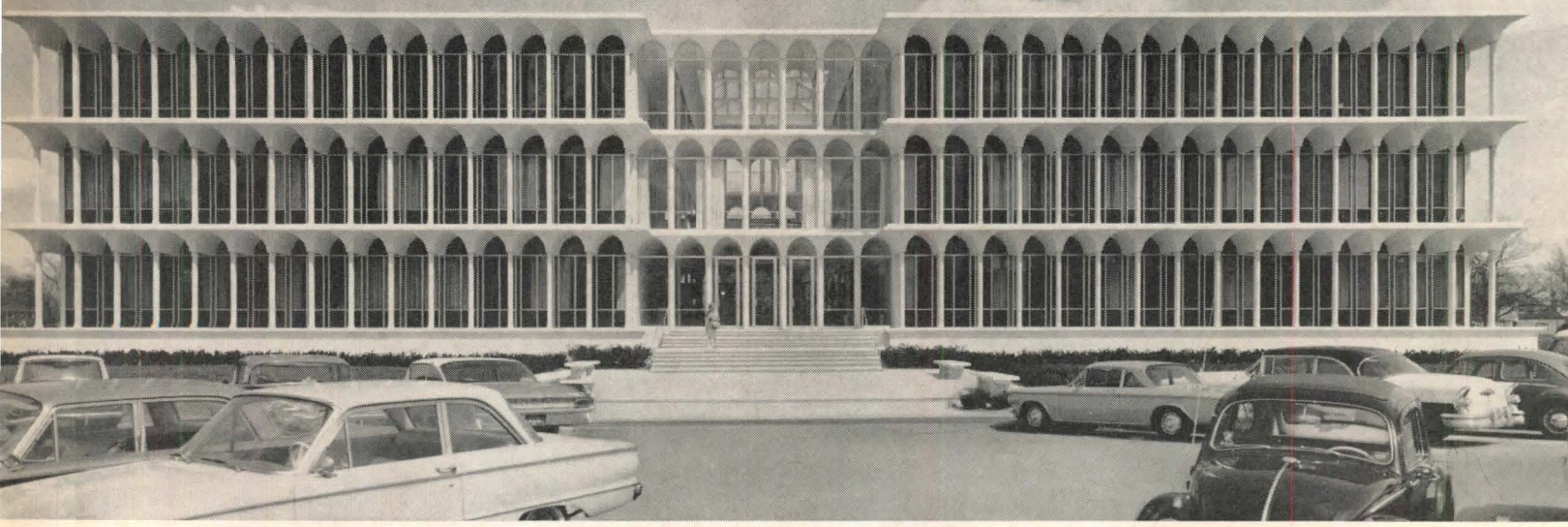
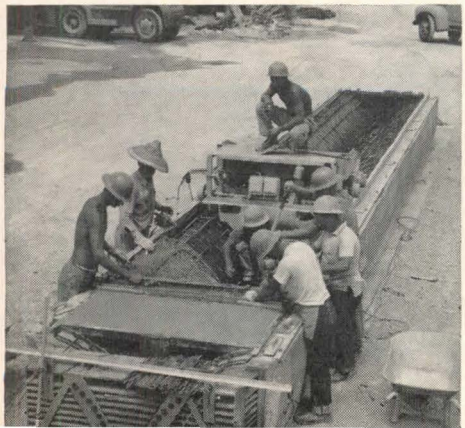


Trim beauty of prestressed construction is emphasized by skylight, fountain and pool in the atrium.

Rolled steel forms were used for the 228 vault units, each 5 ft. wide, 2 ft. 9 in. deep, 50 ft. long and weighing 11 tons.



BUTLER UNIVERSITY LIBRARY, Indianapolis, Indiana; Architects: MINORU YAMASAKI & ASSOCIATES, Birmingham, Michigan; Structural Engineers: WORTHINGTON, SKILLING, HELLE & JACKSON, Seattle, Washington; General Contractor: CARL M. GEUPEL CONSTRUCTION CO., Indianapolis, Indiana; Precast, Prestressed Concrete Members: SHUTE CONCRETE PRODUCTS, INC., Richmond, Indiana

Architect Minoru Yamasaki has used prestressed concrete in a highly imaginative way in this Butler University Library. The result is a graceful, almost delicate appearance, but a highly functional, durable and fire-safe structure.

Prestressed concrete was chosen, says Mr. Yamasaki, "in order to express a structural form in a pleasing and direct manner... and to keep the sizes and shapes relatively thin and in good scale."

The structural frame is composed entirely of precast, prestressed members. The vaulted beams are placed on columns so that flat surfaces on top form the floors and curved surfaces underneath form a vaulted ceiling. Extending through to the front of the building, these beams create an attractive scalloped effect. Fluorescent lights are placed in recesses in the base of the beams, keeping the vaults uncluttered.

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FORUM

To be pronounced dead before your time is an interesting experience, for it gives you a chance to read your own obituaries.

On the occasion of our own premature burial a few months ago, some of our brethren in US architectural journalism were piteously (though not always *quite* convincingly) moved to tears. We really felt awfully sorry for them, and we hope that our resurrection will help cheer them up a bit. To be honest, US architectural journalism has seemed a trifle dull these past months, since we gave up the ghost temporarily. We'll try and remedy that situation, starting right now.

One last comment about our temporary conk-out, and then we'll turn to more interesting matters: Outside the US, in professional journals in almost every part of the world, there were comments about us of the kindest, most flattering sort. Closer to home, the *New York Times* editorialized that our demise was a "blow to better building," and then went on to say some outrageously generous things about our influence on the American scene.

Thank you very, very much, one and all—including all those many, many readers who wrote, wired, telephoned, buttonholed, commiserated and protested. We hope you will understand that it is physically impossible for us to reply to each of you, individually. (We have to get out a magazine, among other things.) Our collective note of thanks, we hope, will be this issue of the new Architectural Forum, and every single issue that follows it.

AS WE WERE SAYING . . .

when we were rather suddenly interrupted, the best way to make any sense out of the modern, American city is to compare it to a single, gigantic building, in which different kinds of utilities, different kinds of transportation systems, and different kinds of rooms

are all sorted out and separated from one another, and then reassembled into one organic whole, whose every part supports and complements every other.

We still think this is a pretty good analogy, and we plan to return to it now and then, starting this month. In this issue of the new FORUM there are several examples of such "organic," single-building cities, ranging in scale from the little hilltop development near Urbino, not far from the Adriatic coast of Italy (below, left, & page 44), to the vastly impressive moonscape now taking shape in the center of Chicago (pages 38-39). This particular "city," otherwise known as the Chicago Campus of the University of Illinois, is shown under construction —and architecture in the raw is seldom mild.

BUILDINGS AT THEIR BEST

Well, we're not overly ecstatic about mild architecture under the best of circumstances; like most other sidewalk superintendents, we are fascinated by things under construction—especially things on this scale and of this quality.

The other day, Harry Cobb, one of I. M. Pei's closest architectural collaborators, told us that the *very worst* time to publish a building is at the moment of its completion, just as the last carpenter sneaks out through the back door, and the ribbon is cut out front. Most buildings, Mr. Cobb pointed out, are much more fascinating

either *during* construction, or some months or even years after they have been occupied, and the lofty theories have been subjected to all the acid (and human) tests.

We agree: one of the nicest buildings we know is the Ghandi Memorial Hall in New Delhi, by Mr. A. P. Kanvinde (above). The building has been "under construction" for some years now (budget-trouble), and while we feel for our friend Kanvinde, we rather hope his handsome frame-

Yasko's job—and effectiveness—in half by giving construction responsibilities to someone else, leaving only "design" to Yasko.

The whole affair contains a built in dilemma for President Johnson: good politics vs. good design. His handling of it may give the best clue to date of his commitment to beauty.

A FRIENDLY GRAVE

Jack Warnecke, who was chosen by the Kennedy family to design the late President's permanent grave site at Arlington, produced a most creditable solution to a very difficult problem.

We happened to be in Washington last November 22nd, and we thought that we should go over to Arlington. It was a fairly brisk day, and there was a longer line than usual. After we left, we felt that, perhaps, the grave should be kept just as it was: the hasty improvisation, the touching little tributes left there by thousands of visitors—all this seemed to suggest that JFK was still very much alive in the minds of a great many of his contemporaries. Somehow one could not quite face the idea of a permanent stone slab, however simple, being placed over him. Perhaps it might be better, even if impractical, to maintain that friendly little picket fence.

Still, a great nation wants its martyred Presidents grandly entombed. So, we suppose Jack Warnecke did the friendliest job possible under such circumstances—and a job in good taste, which is more than can be said of *some* of the JFK memorials projected.

QUALITY BY COMPETITION

Washington's Fine Arts Commissioner William Walton, one of the late President's appointees, did *his* bit to keep the legacy going by arranging for an architectural competition for the design of the Inaugural Reviewing Stand, from which President Johnson observed the cataclysmic pageant arranged in his honor. Well, the stand (below) was a vast improvement over past edifices of this type, and bullet-proof (in its vital areas) to

boot. It was designed by a young architect, Peter M. Hasselman, who received $750 as his award and fee as design consultant to the Department of Buildings and Grounds of the District.

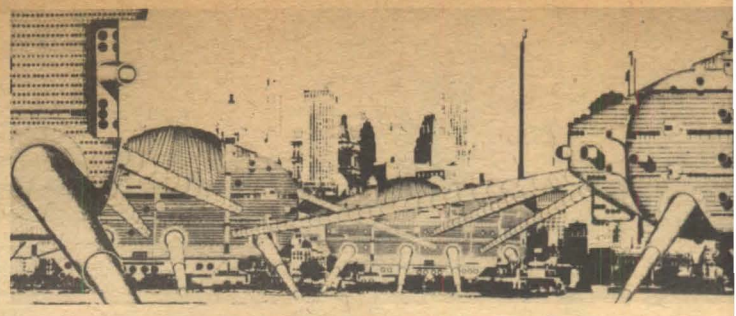
His design also received more TV exposure than any recent structure except, perhaps, Captain Kangaroo's Treasure House.

UNDERGROUND

DALLEGRET RIDES AGAIN!

We have had Underground Movies and Underground Literature, but it wasn't until these past few months that we got Underground Architecture. (No, we don't mean Subway Architecture; we mean architecture that is so far beyond Beat it makes Beat look like Pop—a statement we have no intention of trying to explain to anyone, including ourselves.)

OK. Underground Architecture makes its debut in this first issue of the new FORUM with *Le Drug* (page 63), a combination drugstore, restaurant, and nightclub (if we got our facts straight, which seems unlikely). *Le Drug* was recently put up in Montreal by our favorite Underground Architect, François Dallegret—a gentleman some of our readers may recall from our May 1964 issue, which was graced by his incredibly precise drawings of his incredibly incredible automobiles. We wish M. Dallegret plenty of luck, too!



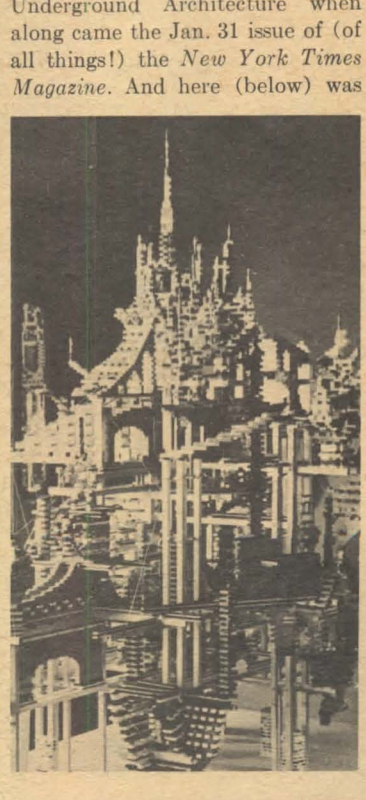
OVERGROUND

CITIES IN ORBIT?

Our next most favorite Underground Architects are, in actual fact, so far *above*ground that we expect they will soon splinter off and form their own movement. As we indicated last September, just before going into limbo, the (foreign) architectural magazine we like best is a sheet put out, we gather, by the British Mafia. It is called *Archigram,* and this past January Issue No. 5 arrived in a plain wrapper, by ICBM.

It was devoted to the subject of the METROPOLIS and contained, among other nice little housekeeping hints, a fairly detailed design for a "Walking City!" The Walking City (top of page) was the brainchild of two British Mafiosi with the obvious *noms de guerre* of Ron Herron and Bryan Harvey. (No, you won't catch us wishing *them* the best of luck!)

We had hardly recovered from this particular message from Underground Architecture when along came the Jan. 31 issue of (of all things!) the *New York Times Magazine*. And here (below) was



one of our other favorite Underground Architects, Norman Mailer, whose memorable bout with Yale Historian Vincent Scully enlivened our April 1964 issue—and Mr. Mailer was proposing almost the same sort of thing, only *his* metropolis was, let's face it, nowhere near as cool as that Walking City. Still, we were glad to see that the Communications Gap between the far-out and the avant gardes had, at long last been narrowed to a mere mile or two.

PLANNING BIG

We like to think that Mr. Mailer was inspired by a proclamation of New York's imperturbable Mayor Robert F. Wagner who designated October 1964 a "City-Planning Month." (Mayor Wagner may remember that particular October for some years to come, as the month a new subway tunnel being blasted under Manhattan's Sixth Avenue collided with a 20-inch diameter pipe which was not to be found on any of the City's official plans. That was also the month the City admitted that it wasn't quite sure what land it owned, if any, and where. Unhappily, the Mayor *did* discover, a few days later, that he owned Madison Square Park and promptly ordered a garage built under it—despite the violent protests of his City Planning and Park Commissioners.)

That, to repeat, was the month that was City-Planning Month in New York; but Mr. Mailer may have been fired not so much by the proclamation itself, as by the subsequent three-day conference on the subject of "The Future by Design." Actually, the conference closed to mixed notices and everybody's relief, including that of Planner Henry Fagin, who said that the proceedings reminded him of "letters to Santa Claus."

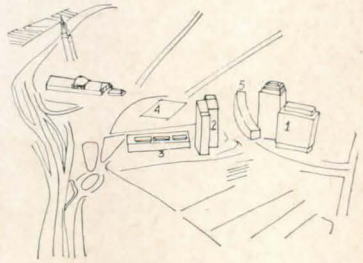
If so, Professor Fagin, those letters were certainly answered by former City Administrator Lyl

(continued on page 97

"This is the state of the Union: free, restless, growing, and full of hope."

So reported the President as the year began. Nearly all of the growth, much of the restlessness, and somewhat less of the hope were to be found in the nation's widening urban areas. America's cities are stirring and rebuilding; yet the principal result so far is to reveal how massive the rebuilding job must be. On the following pages is a pictorial report on the state of the nation's urban development—and, not incidentally, on the new scale it is bringing to the architecture of the city (FORUM, August-September 1964).

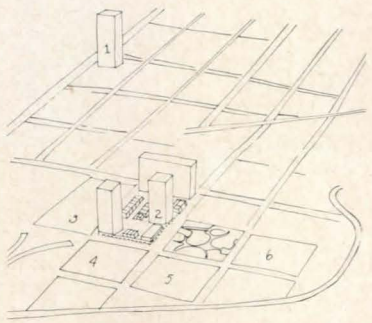
BOSTON is moving forward with the widely applauded Government Center, but at a pace that makes the applause difficult to sustain: the view still consists mainly of vacant land and the overpowering, underdesigned bulk of an expressway. The first unit of the Government Center nearing completion is the 22-story state office building (1, Emery Roth & Sons with Hoyle, Doran & Berry), ordinary enough to make Bostonians wonder what all the fuss has been about. The federal building, a brace of staggered 26-story slabs and a low-rise rectangle (2, The Architects Collaborative), is somewhat more impressive, but the acrobatic stars of this architectural circus —City Hall and the state service center—have yet to appear aboveground. Actually, the Government Center is moving at respectable speed for so large a project. It is just that the early land clearance (and some unfriendly timekeeping by the local press) have made it seem, here as elsewhere, a long time indeed between the conception and execution of urban renewal.



1. State Office Building: Emery Roth & Sons; Hoyle, Doran & Berry. 2 and 3: John F. Kennedy Federal Office Building: The Architects Collaborative; Samuel Glaser & Associates. 4. Foundations of City Hall: Kallman, McKinnell & Knowles; Campbell & Aldrich; 5. Framing of office building: Welton Becket & Associates. Photo: Aerial Photos of New England.

SAN FRANCISCO

is acquiring both a new silhouette and a new foreground. Its buildings are, for the first time, rising high enough to rival the hills. The stately, 32-story Hartford Insurance Tower (1, Skidmore, Owings & Merrill) stands with feet planted near the base of Nob Hill and head well above the crest. Hartford has been roundly damned for this effrontery, but coming now are two other giants (for the Bank of America and Wells Fargo-American Trust) which San Franciscans fear will have Hartford's height without its architectural stature. Downtown's new foreground is being provided by the Golden Gateway project (2, Wurster, Bernardi & Emmons, DeMars & Reay, Anshen & Allen), whose first units are now completed. Golden Gateway is a monument to the hold which the idea of variety had on urban design in the 1950's: maisonettes dot its garage-top plaza; above them, two point towers are played against a slab; and the bulk of the high-rise buildings is diminished by patterns painted on their walls. The San Francisco Redevelopment Agency strove mightily to make architecture of the Golden Gateway, holding a national competition and selling the land to the second highest bidder, the Perini Corporation, because the jury preferred its plan. The results to date are something less than the Agency, and this city, deserved.



1. Hartford Building: Skidmore, Owings & Merrill. 2. First unit of Golden Gateway project: Wurster, Bernardi & Emmons, DeMars & Reay; Anshen & Allen. 3. Future commercial block of Golden Gateway. 4, 5, and 6. Future residential. Photo: Clyde Sunderland.

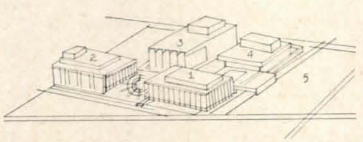

1660

RESTON, VA. is once again manifesting the persistent vision of the Garden City—a place of amenity, of closeness to nature, of living near work. In the first village of this new town 18 miles west of Washington (planned by Whittlesey & Conklin), three clusters of townhouses are nearing completion beside a 30-acre man-made lake and on the wooded hillsides. Near the water is a 15-story apartment building and an arc-shaped village center containing shopping, a library, a club, a community hall. The grouping is skillful, the buildings handsome, the respect shown the landscape complete. Reston is certain to take its place beside the greenbelt towns as a landmark of American community planning and residential design. The hope is that it, along with the best of the other new towns now abuilding, will be something more than an isolated landmark—that it will be a prototype of a better way to use America's remaining metropolitan land. The first village (there are six more to come, to house an eventual population of 70,000) is an upper-middle-class utopia. To fulfill the hope, Reston must fulfill its promise of economic self-sufficiency and of housing for a wide range of income groups.

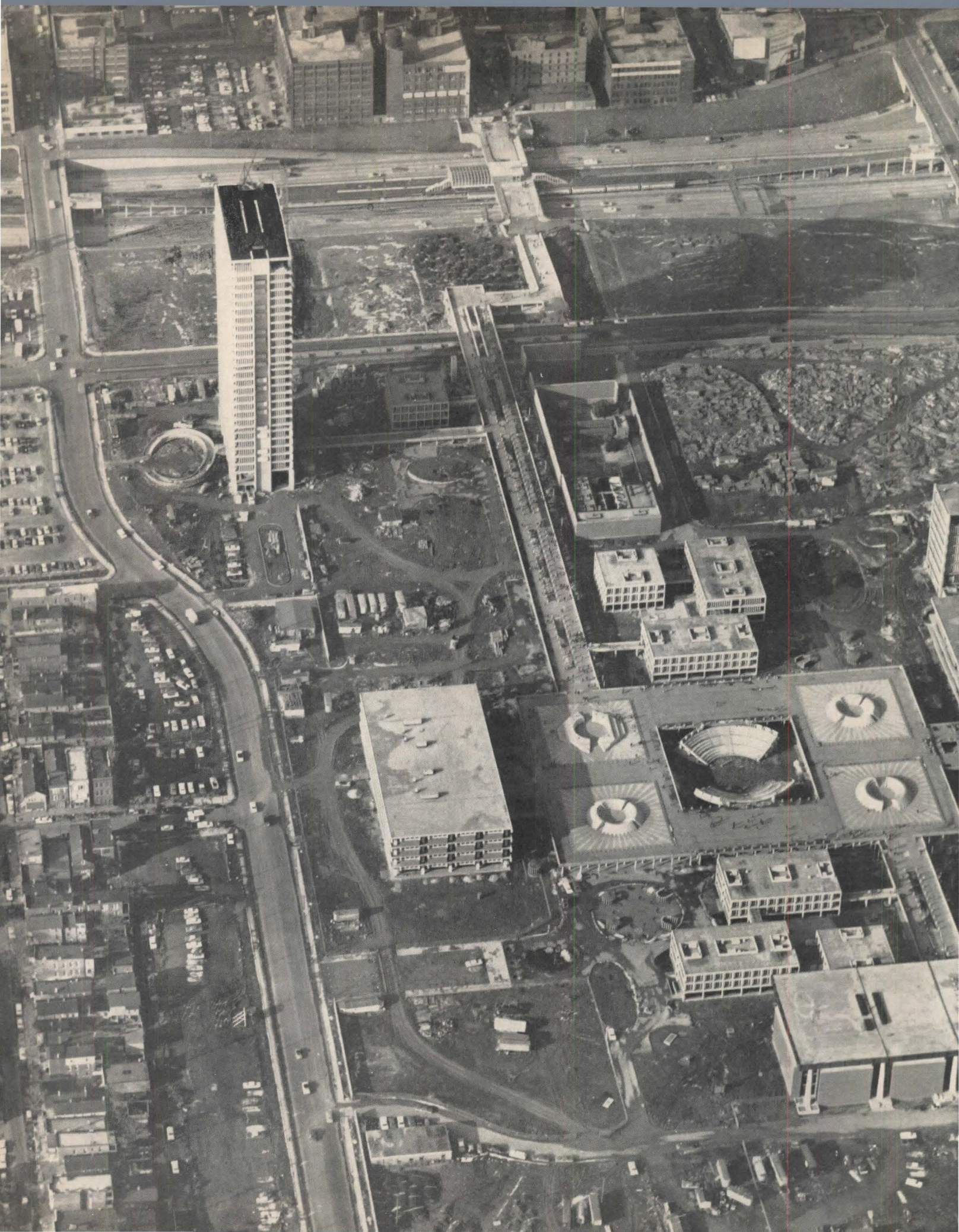
1. Village center, townhouses, apartment building: Whittlesey & Conklin. 2. Townhouses: Chloethiel Woodard Smith. 3. Townhouses: Charles M. Goodman. Photo: Capitol Photo Service.


HOTEL
EMPIRE

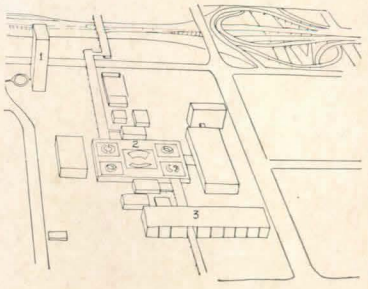
NEW YORK's Lincoln Center shines out from the drabness of the West Side like a cluster of temples in an ancient city. The triad of buildings at its core supports the analogy: Philharmonic Hall (1, Max Abramovitz), the New York State Theater (2, Philip Johnson), and the nearly completed Metropolitan Opera House (3, Wallace K. Harrison) all share, to some degree, a heavy contempo-classicism. The exception, at the site's northwest tip, is the Vivian Beaumont Theater (4, Eero Saarinen and Skidmore, Owings & Merrill), a bold composition of horizontal planes that owes nothing at all to the Acropolis. The plane to the right of the theater itself is a pedestrian bridge joining it to the future site of the Julliard School of Music. At the moment, however, the bridge leads to wasteland, a fact symbolic of the situation of Lincoln Center as a whole. The neighborhood on which it was grafted is in transition, and the change goes deeper than the continuous addition of faceless office buildings and apartments. Wrote the *New York Times* recently, "The language of the West Side —the Spanish, Yiddish, English, Greek, Russian, Polish, show biz and hipster—is becoming enmeshed in the genteel chatter of Park Avenue and Palm Beach." The quotation has some bearing on the fundamental question raised by Lincoln Center: whether cultural facilities should be clustered together, or placed like seeds about the city, each bringing its neighborhood a special life and character.



1. Philharmonic Hall: Max Abramovitz of Harrison & Abramovitz. 2. New York State Theater: Philip Johnson Associates. 3. Metropolitan Opera House: Wallace K. Harrison of Harrison & Abramovitz. 4. Vivian Beaumont Theater: Skidmore, Owings & Merrill; Eero Saarinen & Associates. 5. Julliard site. Photo: Fairchild Aerial Surveys.

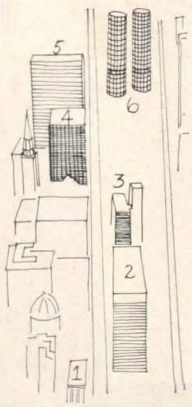


CHICAGO is once again flexing its architectural muscle. The skyline of the Loop is being filled out with the kind of boldness this city seems to draw from its builders (overleaf). The main event, however, is to the southeast, where the University of Illinois has just opened the first units of a 34-acre campus that eventually will have 20,000 students. The campus, designed by Skidmore, Owings & Merrill, is dominated by a broad-shouldered administrative tower (1); centered on a multi-chambered lecture hall, with an amphitheater as its core and a great plaza on its roof (2); and walled to the south by an engineering laboratory whose scale is staggering (3). The word for the entire complex, in fact, is colossal, but the size of the endeavor has not prevented SOM from exercising exemplary control of nearly every small detail. This is one lesson of the project, although not the only one: It demonstrates (and will further demonstrate, once the now shabby neighborhood makes its inevitable transformation into an academic community) the impact which a great university can have on the rebuilding of cities. And by its tautness of organization and strength of design, it shows modern architecture's emerging maturity in handling larger elements of the environment.



1. *Administration building.* 2. Lecture hall. 3. Engineering and Science laboratories. All by Skidmore, Owings & Merrill. Photo: Airpix.

CHICAGO 's Dearborn Street is the scene of a dramatic procession of modern skyscrapers, joining the Monadnock building (1). The newcomers do not suffer badly even by this comparison. Beginning at the bottom of the photo, they include the new Federal building by Mies van der Rohe (2), surely the most refined architecture ever to make its way through the General Services Administration; the earlier Inland Steel building by Skidmore, Owings & Merrill (3); the nearly completed Brunswick building by SOM (4), its Monadnockish base out of view; the Civic Center by C. F. Murphy Associates, SOM, and Loebl, Schlossman & Bennett (5), its great, purposely rusted steel cage just topped out; and across the river, Bertrand Goldberg's Marina City (6 and page 68), adding climactic twin exclamation marks. It is easily the nation's most spectacular single display of high-rise architecture, made the more notable by the fact that the multiple clientele includes the city, the federal government, a labor union and two corporations. The buildings benefit the street as well as the skyline: each adds a bit of open space to the dense drama of the Loop.—DONALD CANTY



1. Monadnock Building: Burnham & Root. 2. Federal Office Building: Mies Rohe. 3. Inland Steel Build- lmore, Owings & Merrill. 4. k Building: Skidmore, Owings 5. Civic Center: C. F. Mur- ciates; Skidmore, Owings & oebl, Schlossman & Bennett. ı City: Bertrand Goldberg. rpix.

The President has been issuing a stream of statements like the one at right, but do his urban programs match his eloquence? Below, a sampling of the Johnson urban prose; a report on his proposals; and a summary of informed reaction, pro and con.

"Our society will never be great until our cities are great."

I propose we launch a national effort to make the American city a better and more stimulating place to live.—STATE OF THE UNION ADDRESS

Many of you will live to see the day, perhaps 50 years from now, when there will be 400 million Americans; four-fifths of them in urban areas. In the remainder of this century urban population will double, city land will double, and we will have to build homes . . . equal to all those built since this country was first settled.—"GREAT SOCIETY" SPEECH, UNIVERSITY OF MICHIGAN

We have over 9 million homes, most of them in cities, which are run down or deteriorating; over 4 million do not have running water or even plumbing . . . The old, the poor, the discriminated against are increasingly concentrated in central city ghettos.—HOUSING MESSAGE

Let us be clear about the core of this problem. The problem is people and the quality of the lives they lead . . . We must extend the range of choices available to all our people so that all, and not just the fortunate, can have access to decent homes . . .—HOUSING MESSAGE

1. HOUSING

Keystone of the President's proposed housing legislation is a program of direct rent subsidies for people "stranded in the gap between low-rent public housing and the rents necessary to pay for decent standard private housing," people whose family incomes range between $3,000 and $8,000 a year.

Private, nonprofit, or limited-profit companies would build the housing under FHA mortgages; and the government, through subsidies paid directly to landlords, would make up the difference between the actual rent or purchase price and the amount families could afford to pay.

Initially, the program would be limited to the elderly, the handicapped, those displaced by urban renewal or other public works, and families now in substandard housing. The Administration estimates that it would initiate more than 500,000 dwelling units over the next four years with the government paying out some $50 million a year in rent supplements.

For those low-income families, who do not qualify for the new rent supplement program, Johnson would extend the public housing program at about its present rate—35,000 units a year.

To this Johnson would add three other tools. He would change the public housing formula so that funds could be more readily used to acquire and rehabilitate existing dwellings; he would permit local authorities to subsidize standard housing for leasing to low-rent families; and he would provide rehabilitation grants to homeowners in urban renewal areas, mostly in the low-income bracket.

What these boil down to for the first year is a total of about 53,000 new or rehabilitated units for low-income families, some 18,000 more than the current rate.

Johnson says that the new housing instruments, combined with such existing programs as 221(d)3 and FHA loan insurance, "should offer direct assistance to the housing of one million families."

PRO: The rent subsidy is a device long advocated by such statesmen of housing and planning as Charles Abrams. It would extend help to families in a broader range of income, and with greater flexibility, since the subsidies can be adjusted as family incomes rise or fall. It also would encourage a better mixture of income ranges within single buildings and areas. The inclusion of rehabilitation programs for low-income families would extend activities in this area.

CON: The rent supplement program, more than any other, has drawn urbanistic fire. One difficulty is its scope: the 500,000-unit figure contrasts with the Administration's own estimate of 6,240,000 families who are or will be eligible for such help in the next four years. Another, more serious problem is the program's aim: well over the heads of the urban poor, who need help most.

Johnson calls the low-income housing rate of some 53,000 units "a large increase," but compared with the magnitude of the problem, it is peanuts.

In New York City, for example, about 100,000 applications for low-rent apartments are made each year. According to Housing Authority Chairman William Reid, New York's share of the Federal public housing program would amount to only about 3,000 new units a year. "I'm bitterly disappointed," Reid said of the Johnson housing bill.

The Administration argues that New York's problems are special and that the public housing program should not be judged solely on its performance there. But judged nationally it falls even more depressingly short of the need. There are well over 5 million families with yearly incomes of less than $3,000 living in substandard units. The President's program over the next four years would reduce that figure by only about a quarter of a million—assuming that no more families join the low-income legions.

Many of our central cities are in need of major surgery to overcome decay.—HOUSING MESSAGE

(The urban renewal) program has done much to help our cities. But we have also learned, through hard experience, that there is more to eliminating slums and building neighborhoods than knocking down old buildings and putting up new ones.—HOUSING MESSAGE

We have concentrated almost all our past effort on building new units, when it is often possible to improve, rebuild, and rehabilitate existing homes with less cost and less human dislocation.—HOUSING MESSAGE

The City is not an assembly of shops and buildings. It is not a collection of goods and services. It is a community for the enrichment of the life of man. It is a place for the satisfaction of man's most urgent needs and his highest aspirations. It is an instrument for the advance of civilization. Our task is to put the highest concerns of our people at the center of urban growth and activity. It is to create and preserve the sense of community with others which gives us significance and security, a sense of belonging and of sharing in the common life.—HOUSING MESSAGE

As our cities spread, far too often we create the ugliness and waste which we call urban sprawl. At times we find we have built new slum areas in our suburbs.—HOUSING MESSAGE

The first step is to break old patterns — to begin to think, work and plan for the development of entire metropolitan areas. New and existing programs will be open to those cities which work together to develop unified long-range policies for metropolitan areas.—STATE OF THE UNION ADDRESS

Housing Administrator Robert C. Weaver claims that the 50,000-plus rate is "about the most we can realistically expect to get under contract and built." But in view of the staggering demand and need for public housing, it is difficult to see why the injection of more Federal money couldn't overcome this hurdle.

Johnson's critics say that he has yielded to pressures from home builders and others who claim that private enterprise can do the job. He seems to have ignored the painful fact that private enterprise alone could not —or would not—prevent the problem from reaching its present depths. Public housing is not a popular (or Congressionally digestable) idea, an unfortunate fact *emphasized by the* President's neglect.

2. RENEWAL

Johnson proposes an increase in urban renewal funds from $675 million annually to an eventual total of $750 million a year by 1968. He would place a greater emphasis on rehabilitation and would concentrate more urban renewal activity in residential, rather than commercial and industrial, areas. "Even some areas classed as slums can be made decent places to live with intensive rehabilitation," Johnson said in the housing message.

Part of the Johnson urban renewal strategy is a requirement that every city of 50,000 or more develop a community renewal program to qualify for Federal funds. CRPs, though widely used now, are not mandatory.

PRO: The proposed extension of urban renewal is an act of political courage, coming at a time when the program is under attack from both Left and Right. The changes in emphasis to residential projects, and also to rehabilitation, are a direct and humanitarian response to the problems of renewal's dispossessed—exactly the kind of redirection liberals have been calling for.

The renewal program itself, moreover, cannot be considered apart from other Great Society programs, notably the War on Poverty. Housing and renewal will be fortified and surrounded by Federal attacks on the root problems of urban blight—the social conditions by which physical deterioration is produced. In the fields of education, of job opportunities, of health, Johnson would strike at the fundamental enemies of a better urban order.

CON: By his minuscule increase in renewal funds, the President has bowed again to conservative pressures. Actually, a tremendous increase in renewal expenditures is necessary to make even a dent in the deteriorating cores of American cities. The nation cannot afford *not* to make this investment in its urban future.

Also, the shift to rehabilitation instead of clearance is easy to state and hard to achieve. Wherever it has been tried, rehabilitation has been found to be a painfully slow, painfully expensive process. There is no recognition of this in the Administration's budget proposals.

3. LAND

Johnson has produced a whole series of metropolis-scale proposals designed to stimulate farsighted planning for future urban growth and prevent sprawl and new slums.

The most important of these is a new-towns program, which Johnson unsuccessfully had sought to get through Congress last year. It would provide Federally insured private loans, backed by Federal mortgage purchases where necessary, to finance the acquisition and development of land for entire new communities as well as for planned neighborhoods and urban subdivisions.

A closely related program would provide loans to state land development agencies to acquire land for residential developments (including new towns), install basic facilities, and then sell the developed sites to private builders, who would build the new towns or subdivisions. About $25 million in Federal loans would be committed for this program the first year, coming from the revolving fund of the Public Facility Loan Program.

The Johnson Bill also includes three new kinds of land grants. One would permit local public bodies to acquire land for public works up to five years in advance of their need. The Federal government would spend about $25 million for this the first year. The Kennedy administration unsuccessfully tried to get Congress to pass a similar, but even broader-scoped "land bank" program. It would have provided Federal loans with which cities could acquire land reserves and hold them for future planned developments of all kinds.

A second set of land grants would offer matching money to states and cities for beautification and improvements of open-space and public lands—street landscaping, park improvements, tree planting, and general upgrading of outdoor public areas. These grants generally would cover 40 per cent of the cost, but in special cases that would serve as demonstrations, the Federal government would foot the whole bill.

A third program would help states and cities buy and clear sites in built-up urban areas for such small-scale urban amenities as pedestrian malls, small parks, waterfront restoration, neighborhood commons and play areas.

No dollar amounts have been placed on the last two approaches, but they would become part of the Federal open-space land program, which Johnson has asked Congress to broaden and extend by lifting the lid on its dollar limits and by upping the grant level from a 30 per cent to a 40 per cent maximum. This program, begun in 1961, has helped to add more than 100,000 acres of urban open space.

PRO: The new-towns proposal would add a potent weapon for directing orderly urban growth. Not only would the new com-

munities themselves have to be planned in a rational, orderly fashion, they also would have to contribute to the broader scheme for total development of the metropolitan region.

Dr. Weaver, who talks up the new-towns proposal every chance he gets, points out that it is "not aimed at merely creating a special variety of living mode. It represents a bold approach to . . . comprehensive land use, with the emphasis squarely where it must be to meet the challenge of growth—on planning in a metropolitan context."

One effect of Johnson's program for loans to state land development agencies would be to encourage more activity by states, which Johnson feels are not doing their share to insure orderly metropolitan growth.

Johnson has wisely included the requirement that cities must have sound, long-range development plans in operation before they can become eligible for any of these programs. He also has promised that, "wherever it can be done without leaving vital needs unmet," existing Federal programs will be keyed to planning requirements.

CON: Urbanists don't argue against the spirit and intent of Johnson's planning and land development programs, only against their size. Critics wonder whether Johnson has put enough money into his new approaches to give them a fighting chance to prove their worth.

Johnson's new-towns proposal is only half as large as similar legislation which he unsuccessfully sought last year. It would provide Federal insurance for loans as high as $25 million, rather than $50 million. This would be enough to get a new town started, but private backing would have to carry it the rest of the way. (Reston, Va., for example, will cost about $700 million.)

(The Great Society) is a place where the city of man serves not only the needs of the body and the demands of commerce, but the desire for beauty and the hunger for community. It is a place where man can renew contact with nature.—UNIVERSITY OF MICHIGAN SPEECH

4. DIRECTION

To tie his urban offerings together Johnson has asked Congress to establish a cabinet-level Department of Housing and Urban Development.

It would contain all the present and new housing programs and, in Johnson's words, "will be primarily responsible for Federal participation in metropolitan area thinking and planning, (providing) a focal point for thought and innovation and imagination about the problems of our cities."

An "Institute of Urban Development" within the department would help support training of local officials for metropolitan planning and development, administer grants for urban studies to states and cities, and support research in reducing construction costs through new technology.

The department also would contain a temporary national commission to study the effects of building codes, zoning regulations, and local and Federal tax policies on good planning and design and to "develop better and more realistic standards for suburban development."

PRO: The scope of urban problems and programs demands the kind of administrative efficiency that would be encouraged by a separate department of the government. Also, city dwellers deserve as much recognition as farmers and their cows.

The Institute of Urban Development and the commission on codes and standards could be two of the Johnson program's most significant "sleepers." They could have a long-range effect on urban planning and development.

CON: Say the conservatives, this would be simply another bureaucratic device to bring local affairs under Federal control; it would promote waste rather than efficiency. Say the liberals, the proposal is, in itself, a good thing—but no subsitute for more sweeping urban programs.

To deal with these new problems (of modern technology) will require a new conservation. We must not only protect the countryside and save it from destruction, we must restore what has been destroyed and salvage the beauty and charm of our cities. Our conservation must be not just the classic conservation of protection and development, but a creative conservation of restoration and innovation. Its concern is not with nature alone, but with the total relation between man and the world around him. Its object is not just man's welfare but the dignity of man's spirit.—NATURAL BEAUTY MESSAGE

Much of our hope for American progress will depend on the effectiveness with which (our urban) programs are carried forward. These problems are already in the front rank of national concern and interest. They deserve to be in the front rank of government as well.—HOUSING MESSAGE

5. BEAUTY

Some of Johnsons beauty programs constitute a direct attack on ugliness; others would have beauty as the major end result.

In the first, anti-ugly category are new legislation for stronger billboard control and the elimination or screening of junkyards, and vastly stepped-up Federal efforts against air and water pollution, including the injection of more and larger Federal grants for state and "multi-municipal" projects.

In the second category—with beauty as a positive goal—are the new grant programs for small parks and other open spaces in built-up areas, and others for landscaping and installing lights and benches along city streets. On the open road, there is a requirement that all Federal highways be landscaped, and proposals for enforcement of the 3 per cent Federal allowance for the preservation of natural beauty along highways.

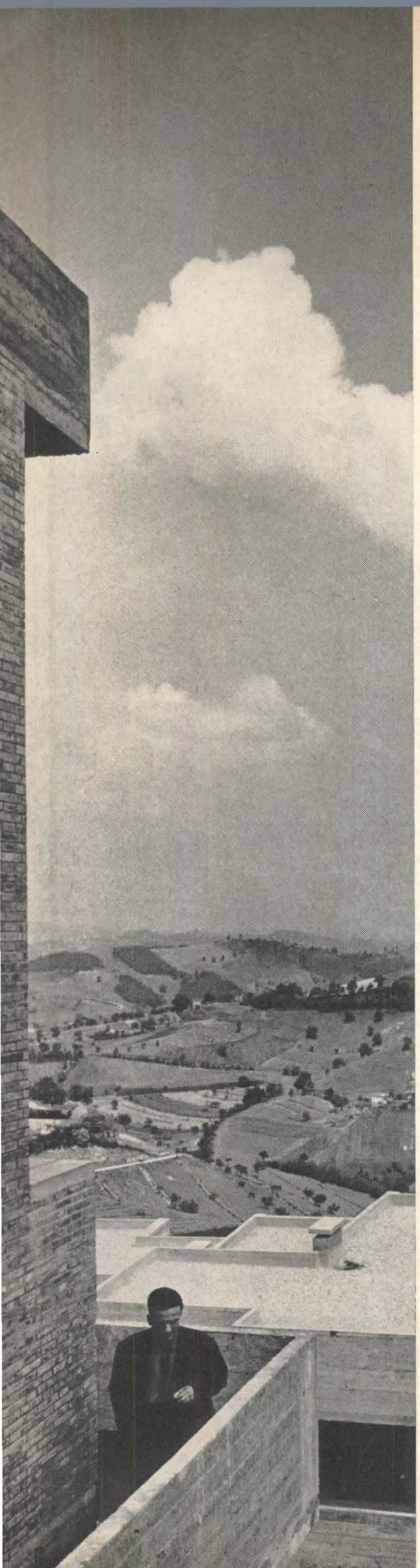
Still other ideas and programs for instilling beauty in the American environment may come from a White House conference on natural beauty which Johnson has called for May 24-25 under the chairmanship of Laurance Rockefeller.

PRO: The President has made a word that few politicians respect an essential part of his urban programs. He has also taken concrete steps to promote beauty precisely where they can be most effective: along our blighted streets and highways, and in our tragically polluted resources of air and water. The plans for small parks and street furniture shows the President's awareness that beauty is also a matter of small details.

CON: Coming out for beauty is like coming out for motherhood, and the Johnson messages and proposals that carry the word are unlikely to have much impact. At best, it will amount to planting a few petunias, and holding a few meaningless conferences. At worst, the emphasis on beauty could be a distraction from more serious problems.

BY JAMES BAILEY

Boston redevelopment chief Edward J. Logue summarized the critics' main contention. "Sooner or later," he said last month, "the Great Society is going to have to face up to the fact that it costs money."



URBINO

From the past emerge some significant principles to nourish the present

About 100 miles due east of Florence, not far from the Adriatic, there stands the magnificent old town of Urbino (below right)—a great architectural sculpture placed on a hilltop pedestal about 1,500 feet above sea-level. It is an annual attraction for discriminating tourists and for some 7,000 idealistic students. Its permanent non-student population, now as during the Renaissance, is 8,000 people. One of the natives of Urbino was the painter Raphael, born there in 1483. Among its visitors, in that same century, were artists like Piero della Francesca, Uccello, Botticelli, Bramante, and many others.

All this is tourist guide chronology. What is at least as significant, to *our* time, is what has been happening on the nearby "Hill of Cappuccini" during the past two years. For here, on a much smaller scale, but perhaps with much greater conscious deliberation, a young Milan architect has brilliantly demonstrated the uses of the past to help nourish the present.

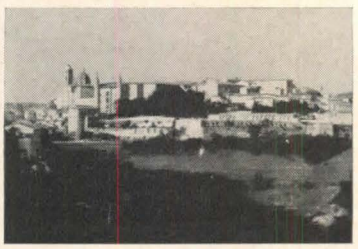
The young architect is Giancarlo De Carlo (left), and on the Hill of Cappuccini he has built a group of dormitories, plus communal facilities, for 150 of Urbino's students. It is not a large project, but it demonstrates certain principles that are applicable to urban design problems elsewhere.

The first of these principles is that to create a sense of continuity it is not necessary to make new buildings look like historicist re-interpretations of their older neighbors. For De Carlo's "Urbino" bears no surface resemblance whatsoever to the old city; it is a much more serious effort than that.

The second principle demonstrated is a logical extension of the first—for what Urbino taught De Carlo was how to conceive of *any* town, or of *any* sort of community, however small.

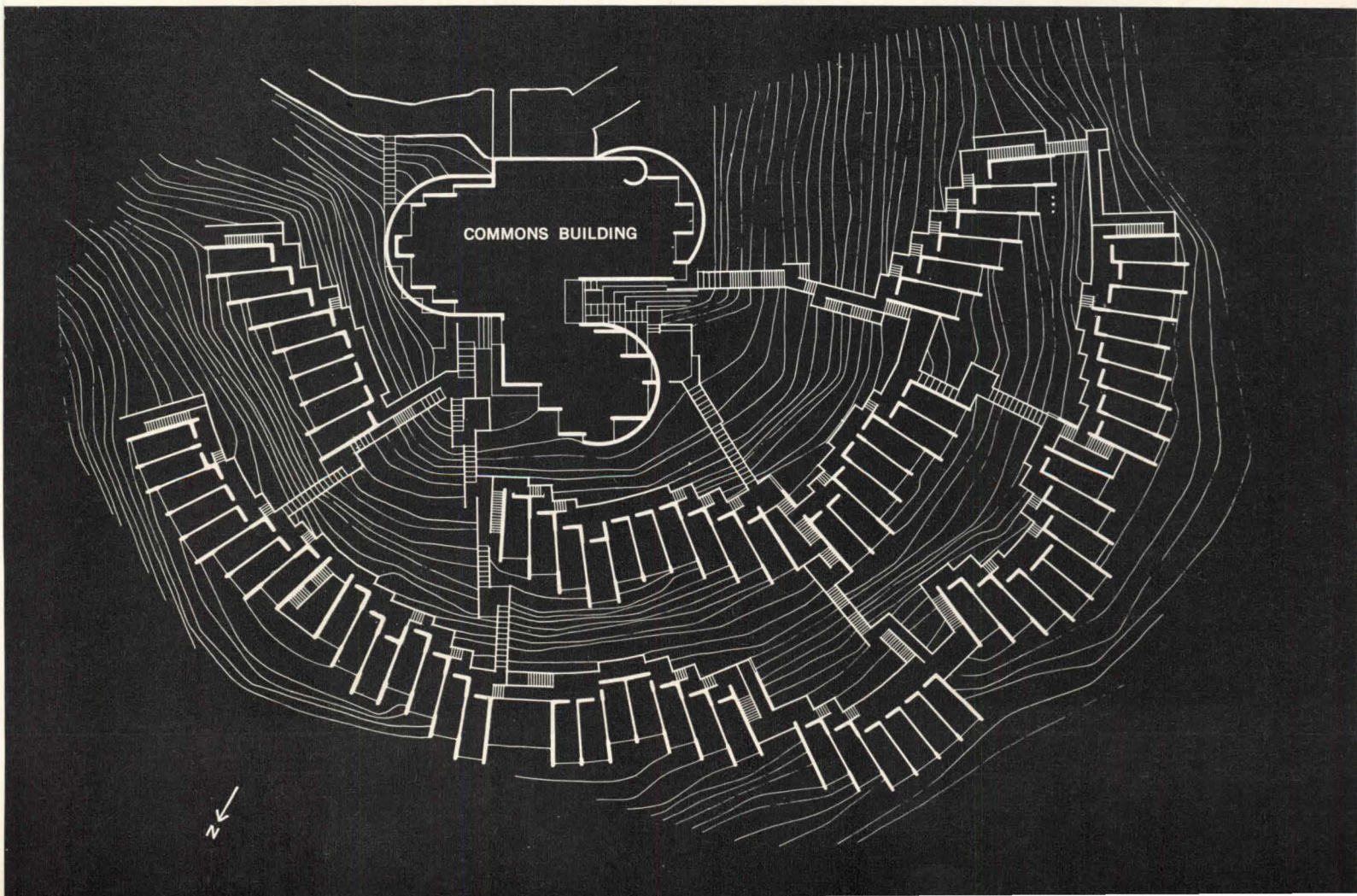
To him, the old town was really, *a single building*: a building with public corridors (streets) and private rooms (houses), with public spaces open to the sky, and private roofed-over spaces reserved for special assemblies; a building of similar roofs and similar walls, of similar floors and similar doorways and windows; a building that contained certain symbols of temporal as well as ecclesiastical power; a building that was, in short, a single perfectly unified organism.

This lesson of a city conceived as a single building De Carlo applied to his "Little Urbino." Here, too, he created an organism based upon a varied, but consistent, net-



work of covered and open walks; a "single building" consisting of 150 more or less identical little rooms, each subtly different from the next by virtue of its different outward views (plan, right). Here, too, he used identical walls (brick) and identical roofs (concrete parapets, white marble-chip decks—see gate-fold picture). And he crowned this hilltop with a dominant sculptural symbol, not a symbol of autocratic power, but a symbol of democracy—a commons building for relaxation, learning, communication. As in the old city, De Carlo's network of "streets" is full of surprising turns, unexpected openings to beautiful views, and unexpected spaces in which to meet.

In one essential respect De Carlo's Little Urbino differs from the old town: whereas the latter is an enclosed group of buildings, firmly surrounded by a system of fortifications, De Carlo's Little Urbino is an organism designed for growth and change. For the only governing principle of our century is, of course, the principle of constant change, and an architecture which does not permit and imply change and growth is alien to our time.


COMMONS BUILDING
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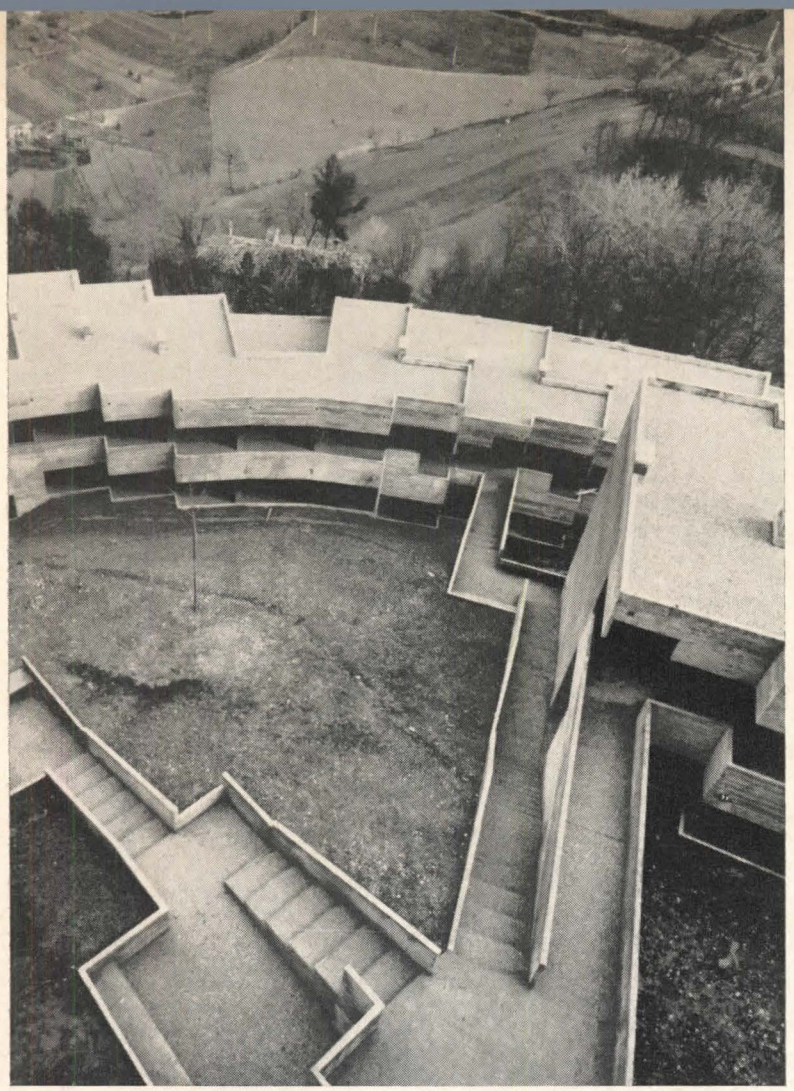


The old town suggested the basic patterns for De Carlo's new concept

The streets of Urbino are paved with bricks and good intentions. The bricks are not for our own impoverished age, but the good intentions very clearly can be. In De Carlo's dormitories, they are.

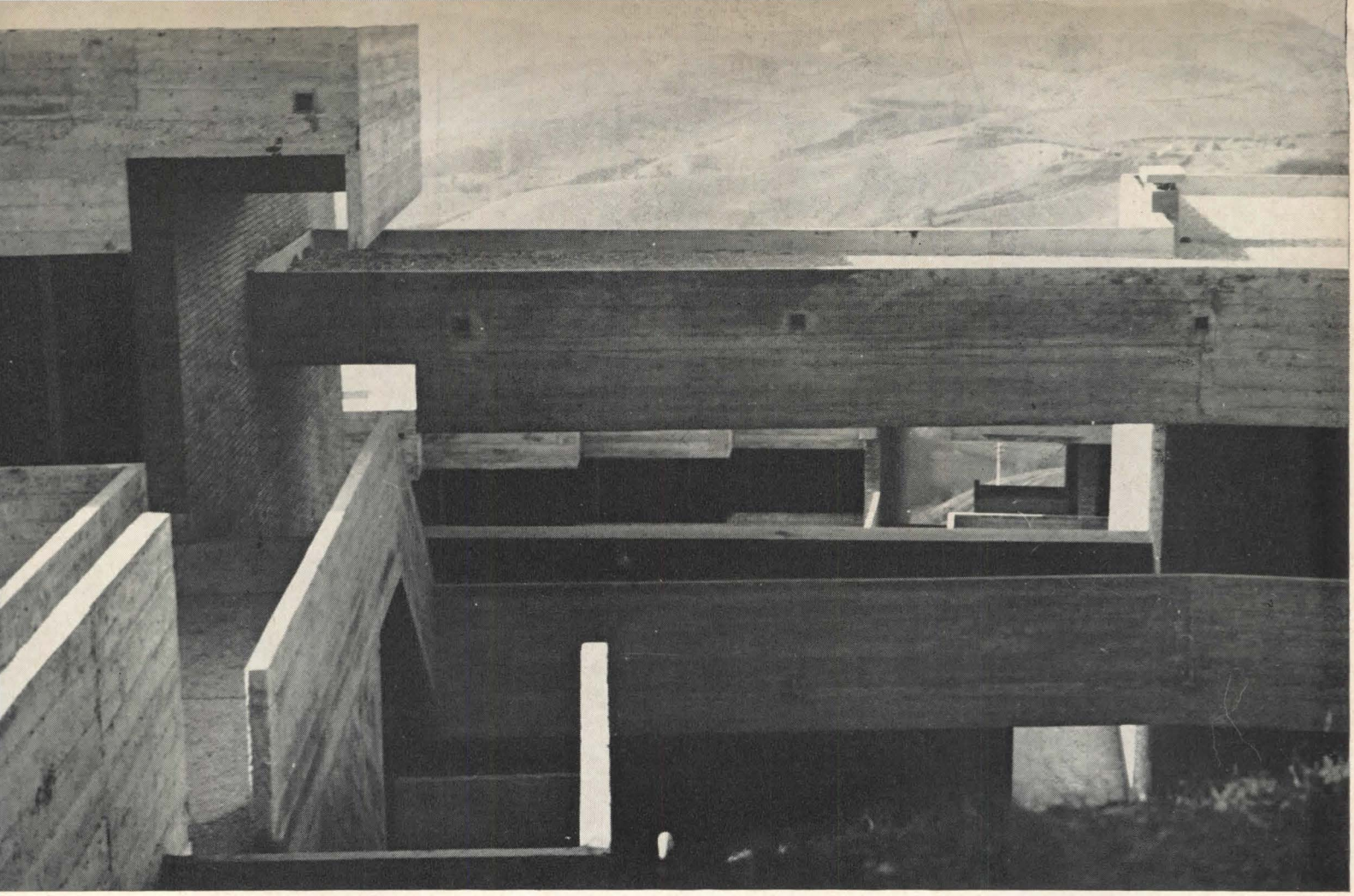
The streets of the old town (facing page) are not chasms that divide the community, but seams in an urban fabric that join rows of houses on opposite sides. These streets are meeting places, generally open to the sky; they turn and twist, widen into small places and larger squares, and contract again into alleys; they are rooms with views of a distant landscape or of a passage that wanders off to one side.

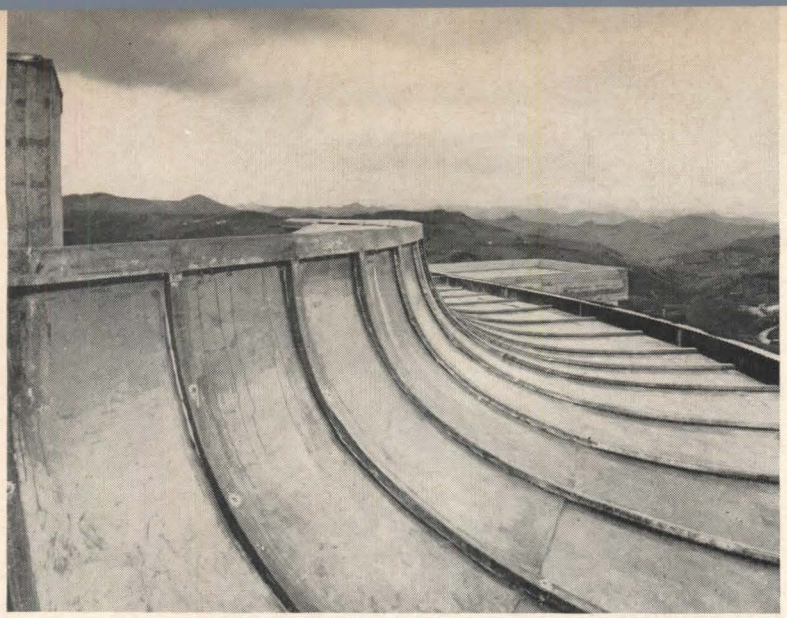
Indeed, until the streets of the old town were invaded by cars and motor scooters, the streets *were* the town. Under a new zoning proposal for Urbino, such traffic will be halted at the gates.

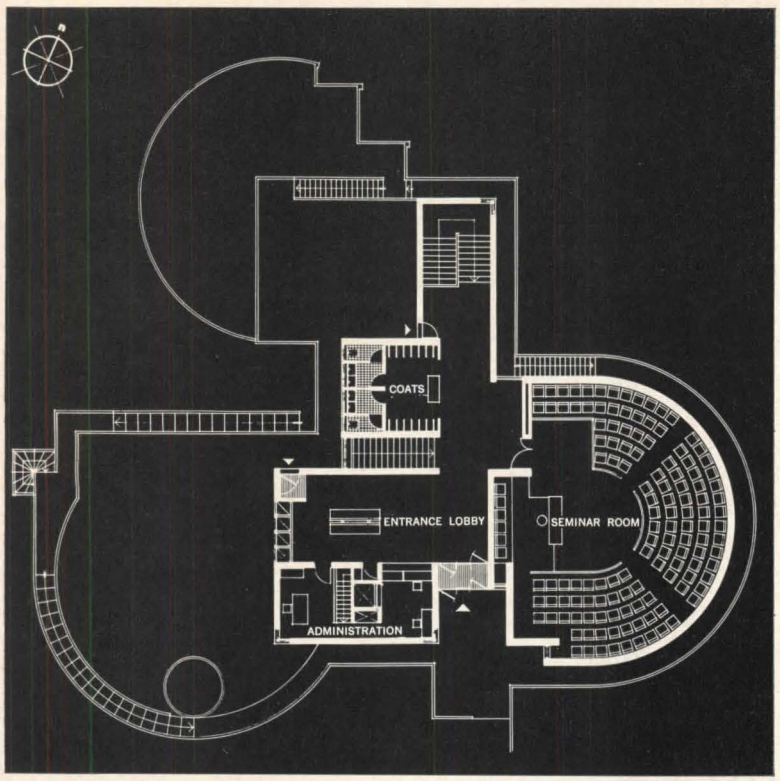
The "streets" of the small dormitory town (above, opposite) have all these characteristics, but they add a few significant twists: first, De Carlo's connecting passages are almost entirely covered; second, they are located on different levels, and often form bridges over other passages and terraces below; and third, they are formed like branches of some plant, capable of future expansion by at least one third—unlike the streets of the old town, which are stopped short by surrounding defensive walls.

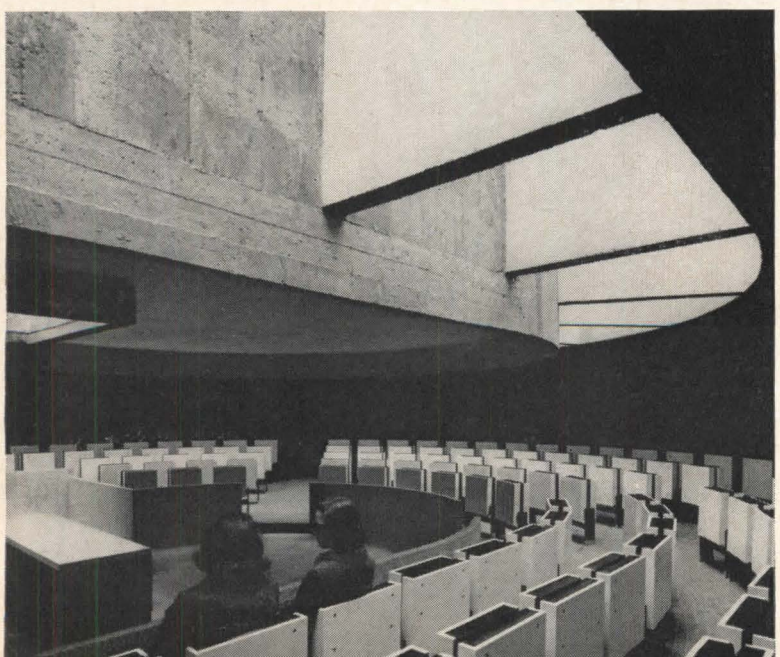
Moreover, De Carlo has made much more of the magnificent views of the Apennine hills than was made by the builders of the old town, who tended to wall out the potentially hostile surroundings. Because his dormitory passages are single-loaded, to avoid having dormitory rooms facing uphill and away from the view, De Carlo was able to make his streets both seemingly enclosed (between raw concrete parapets and deep fascias), as well as open to views he chose to frame.

The comparative bird's eye views (left) show these striking similarities, as well as the differences, in the patterns of the old and the new Urbinos. They also show the harmony achieved by the unity of materials employed—and the great variety that is possible within such self-imposed restraints.









The Commons Building, is the dominant feature of the "Little Urbino"

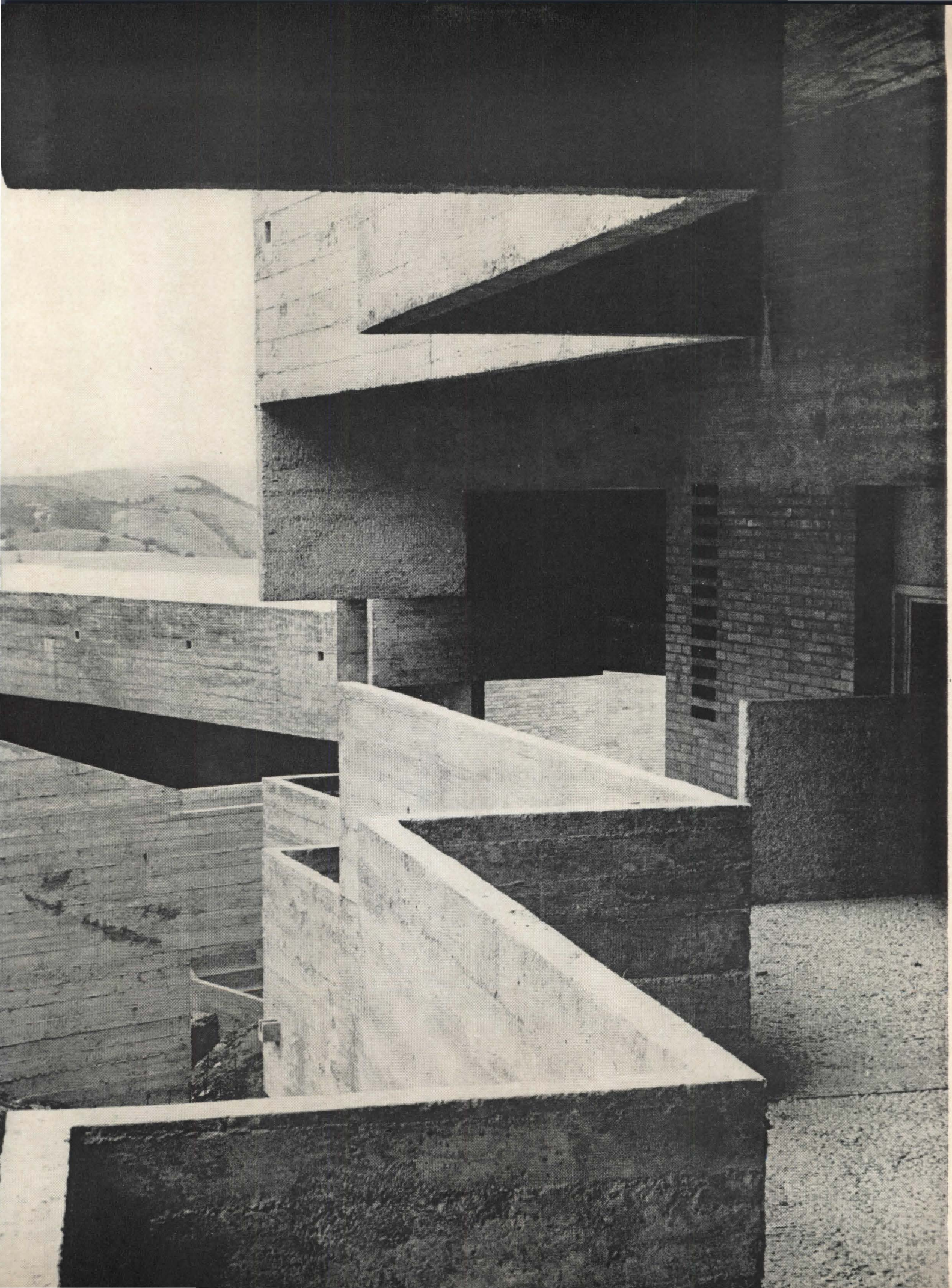
Like the *Palazzo Ducale* that dominates the old city (see page 44), the commons building that dominates the dormitory complex on the Hill of Cappuccini is very different from the buildings in its shadow: It is a multi-level structure, intricate in plan (main entrance level, with seminar room, is shown at left). Its forms are circular, as befits a crown, rather than angular as in the dormitories below. It has many terraces; winding peripheral walks; viewing-slots that give hints of the landscape beyond, without revealing its full spectacular sweep; and great skylights. (The semi-circular skylight over the seminar room is shown from above at top, left, and from inside that room in the bottom photo.)

Despite the deliberate contrast of forms between the commons building and the strings of dormitory rooms, there is also a clear kinship: for both echo the contours of the land, and both, though barely completed, are already an integral part of the landscape—as integral a part as the old town nearby, which seems to have grown out of its hilltop site by some act of nature rather than of man.

Not many urban problems today can be approached exactly as De Carlo approached the problem of the Hill of Cappuccini. But most of them can be approached in the *spirit* of this small project: a spirit that is respectful of the past, modest about the relative importance of the immediate present, and sufficiently open-minded to create buildings that will be given their ultimate form by other men and other needs.—PETER BLAKE

FACTS AND FIGURES

Dormitories and Commons Building, "Libera Universita di Urbino," Italy. Architect: Giancarlo De Carlo. Collaborators: Francesco Borella (design); Vittorio Korach (structure); Lucio Seraghiti and Astolfo Sartori (supervision). General Contractor: Impresa Montagna, Pesaro. Building area: 71,300 sq. ft. Construction cost: $570,000. Furnishings and equipment: $90,000. Cost per student: $4,400 (All costs figured at L. 620 equals $1.) Photographers: Cesare Colombo on pages 44, 47, 48 and 49 (top), 50, 51. Franco Cianetti on page 49 (bottom).



ARCHITECT JOSEPH ESHERICK PREACHES MATHEMATICS, BUT IN HOUSES LIKE THIS ONE, HE PRACTICES ART.

BY CHARLES MOORE, THE FORUM'S WEST COAST CORRESPONDENT

action house

Joseph Esherick believes that architects most often miss the boat because they fail to analyze (or more often, even to recognize) the problems they are supposed to be solving. This leaves them taking refuge in vague programmatic generalities and irresponsible formal

ROY FLAMM PHOTOS

games, in Esherick's opinion.

Esherick's sessions with graduate students at the University of California are devoted to the development of an analytical design method, using mathematical tools, in order to effect more responsive and responsible solutions to problems (and to the problem of finding out what the problems are).

Esherick's houses, on the other hand, are more likely to use the instant analytical techniques of the painter, especially the action painter, than those of the mathematician. The McLeod house, on the top of Belvedere Island overlooking San Francisco Bay, is a strong case in point. There is the sense that the architect plunged down the steep hill past the oak to the marine view, gobbled it all up, and brought forth the house in chunks of light and outlook—the way the action painter flings his wet paint onto his canvas, then responds directly to it in whatever way the ensuing seconds seem to demand.

This is not to say that the McLeod house is careless: the detailing is meticulous, the workmanship

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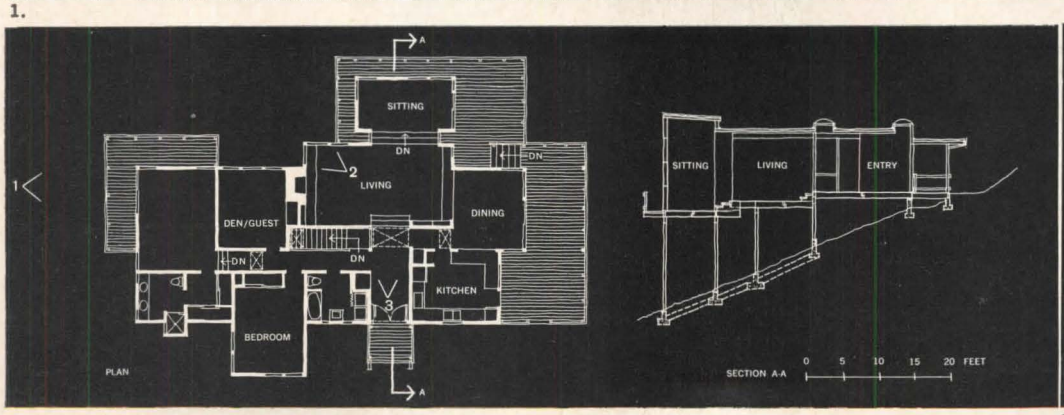
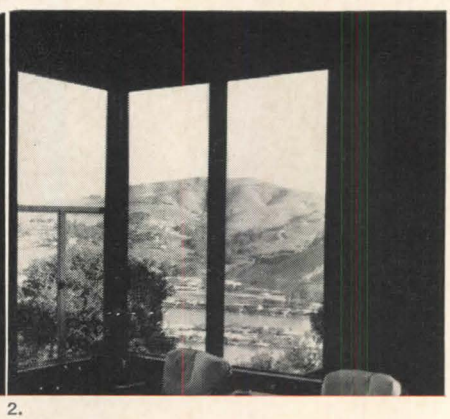




2.

neat, the range of materials and colors austerely disciplined, the strict budget carefully adhered to, and the attention to domestic comforts complete. It's just that the house maintains a permanent sense of casually exploding into its site.

The explosion is so casual, so easy to take, that Mrs. McLeod doesn't notice it any more, until she goes to anyone else's house and feels imprisoned. It is probably this easy to take because it is not an explosion of shapes crashing into other shapes, but of light, cushioned against the out-of-doors.

FACTS AND FIGURES

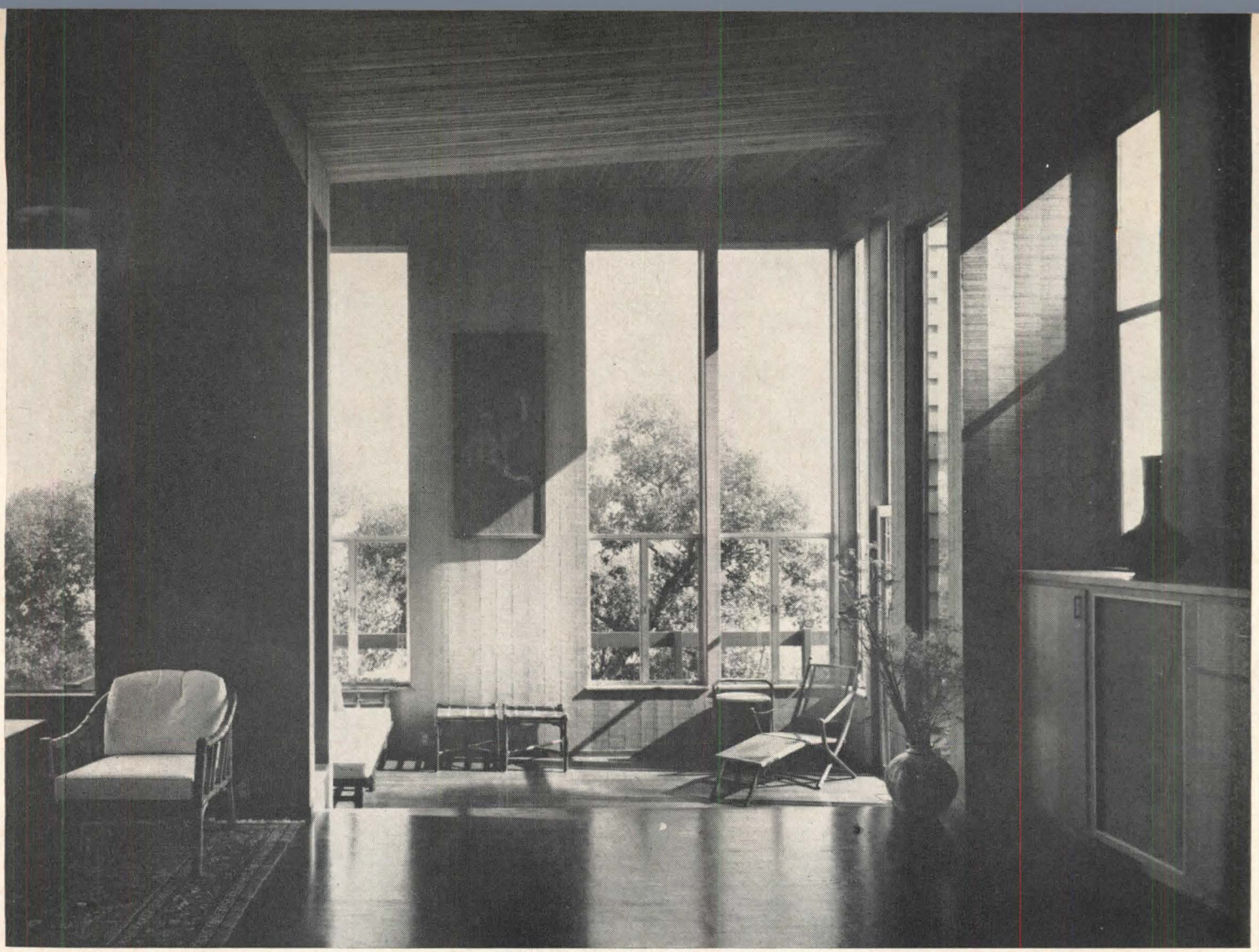
Residence of Mr. and Mrs. Donald McLeod, Belvedere, Calif. Architects: Joseph Esherick & Associates. Engineers: Gilbert, Forsberg, Diekmann, Schmidt (structural). Interior designer: Virginia Anawalt; Marianne Myers, associate. Landscape designer: Max Schardt. Contractors: Skaggs & Kirchmann. Building area: 2,082 sq. ft.

3.

The entry hall (3) is already unexpectedly light, because of the skylight above the front doors. Another is overhead at the first crossing point of action, where the 2x4 decking above takes off downward, down the hall to the left, to vanish in light at a white wall beyond the stairs down.

There is, however, scarcely time at first to grasp all this, because the floor is opening up downward straight ahead to the living room and then on to the sitting room. There are views down the hill to the bay unfolding to the left and right and ahead, heavily reinforcing the sense of downward motion. It seems limitless and inexplorable, and is actually some six risers' worth.

The movement doesn't end in the sitting room. From there the skylights above the crossing of



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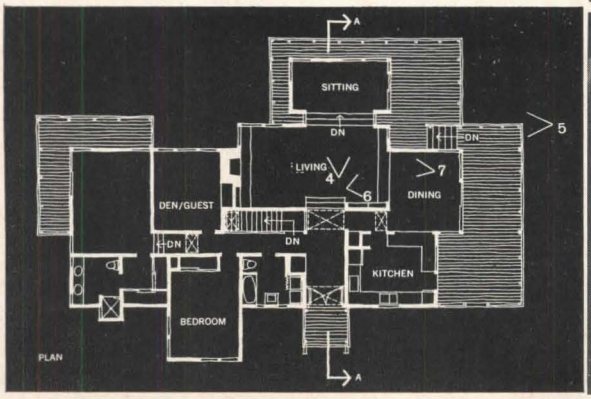

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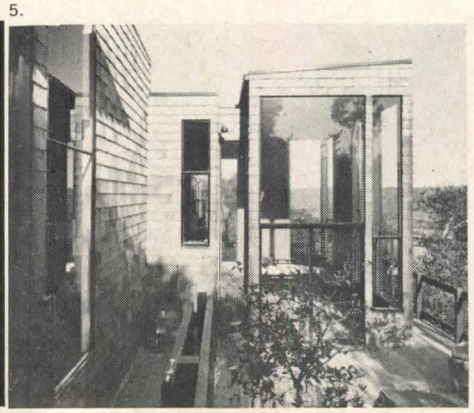

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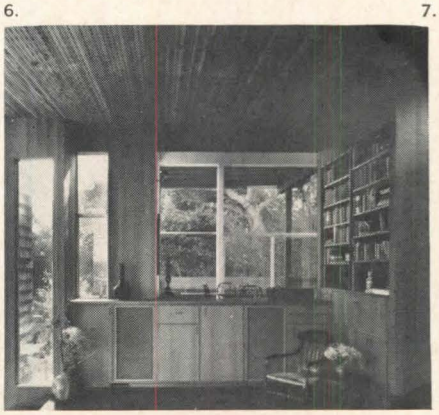

7.

paths and the entry, the high dining room ceiling, and the high glass onto the dining room deck—even the curious inverse little bays between the sitting room and the living room (5 and 6)—explode the house back up the hill. The sideways opening of space up from the living room is especially memorable, over a cabinet past the higher dining room to a trellis and a great oak tree (6).

All this works so well, perhaps, because there isn't any "design", if design means making objects with shapes. There are white walls, and soft warm wood walls of resawn redwood (7); there is a wood deck above, whose 2x4s show; there are wood floors with a few soft oriental rugs; there is a simple fireplace; there are some standard floodlights which shine onto the white-painted walls.

And there are lots of windows and skylights giving onto the site, each put there to respond to a special need but each conceived of as part of a more general requirement that is kinetic rather than static, dedicated to the moving user and not to the maker of form.

A CITY IS NOT A TREE

BY CHRISTOPHER ALEXANDER

THE tree of my title is not a green tree with leaves. It is the name for a pattern of thought. The semi-lattice is the name for another, more complex, pattern of thought.

In order to relate these abstract patterns to the nature of the city, I must first make a simple distinction. I want to call those cities which have arisen more or less spontaneously over many, many years *natural cities*. And I shall call those cities and parts of cities which have been deliberately created by designers and planners *artificial cities*. Siena, Liverpool, Kyoto, Manhattan are examples of natural cities. Levittown, Chandigarh, and the British New Towns are examples of artificial cities.

It is more and more widely recognized today that there is some essential ingredient missing from artificial cities. When compared with ancient cities that have acquired the patina of life, our modern attempts to create cities artificially are, from a human point of view, entirely unsuccessful.

Architects themselves admit more and more freely that they really like living in old buildings more than new ones. The non-art-loving public at large, instead of being grateful to architects for what they do, regards the onset of modern buildings and modern cities everywhere as an inevitable, rather sad piece of the larger fact that the world is going to the dogs.

It is much too easy to say that these opinions represent only people's unwillingness to forget the past, and their determination to be traditional. For myelf, I trust this conservatism. Americans are usually willing to move with the times. Their growing reluctance to accept the modern city evidently expresses a longing for some real thing, something which for the moment escapes our grasp.

The prospect that we may be turning the world into a place peopled only by little glass and concrete boxes has alarmed many architects too. To combat the glass box future, many valiant protests and designs have been put forward, all hoping to recreate in modern form the various characteristics of the natural city which seem to give it life. But so far these designs have only remade the old. They have not been able to create the new.

"Outrage," the *Architectural Review's* campaign against the way in which new construction and telegraph poles are wrecking the English town, based its remedies, essentially, on the idea that the spatial sequence of buildings and open spaces must be controlled if scale is to be preserved—an idea that really derives from Camillo Sitte's book about ancient squares and piazzas.

Another kind of remedy, in protest against the monotony of Levittown, tries to recapture the richness of shape found in the houses of a natural old town. Llewelyn Davies' village at Rushbrooke in England is an example—each cottage is slightly different from its neighbor, the roofs jut in and out at picturesque angles.

A third suggested remedy is to get high density back into the city. The idea seems to be that if the whole metropolis could only be like Grand Central Station, with lots and lots of layers and tunnels all over the place, and enough people milling around in them, maybe it would be human again.

Another very brilliant critic of the deadness which is everywhere is Jane Jacobs. Her criticisms are excellent. But when you read her concrete proposals for what we should do instead, you get the idea that she wants the great modern city to be a sort of mixture between Greenwich village and some Italian hill town, full of short blocks and people sitting in the street.

The problem these designers have tried to face is real. It is vital that we discover the property of old towns which gave them life and get it back into our own artificial cities. But we cannot do this merely by remaking English villages, Italian piazzas, and Grand Central Stations. Too many designers today seem to be yearning for the physical and plastic characteristics of the past, instead of searching for the abstract ordering principle which the towns of the past happened to have, and which our modern conceptions of the city have not yet found.

What is the inner nature, the ordering principle, which distinguishes the artificial city from the natural city?

You will have guessed from my title what I believe this ordering principle to be. I believe that a natural city has the organization of a semi-lattice; but that when we organize a city artificially, we organize it as a tree.

Both the tree and the semi-lattice are ways of thinking about how a large collection of many small systems goes to make up a large and complex system. More generally, they are both names for structures of sets.

In order to define such structures, let me first define the concept of a set. A set is a collection of elements which for some reason we think of as belonging together. Since, as designers, we are concerned with the physical living city and its physical backbone, we most naturally restrict ourselves to considering sets which are collections of material elements such as people, blades of grass, cars, bricks, molecules, houses, gardens, water pipes, the water molecules that run in them, etc.

When the elements of a set belong together because they cooperate or work together somehow, we call the set of elements a system.

For example, in Berkeley at the corner of Hearst and Euclid, there is a drug store, and outside the drug store a traffic light. In the entrance to the drug store there is a newsrack where the day's papers are displayed. When the light is red, people who are waiting to cross the street stand idly by the light; and since they have nothing to do, they look at the papers displayed on the newsrack which they can see from where they stand. Some of them just read the headlines, others actually buy a paper while they wait.

This effect makes the newsrack and the traffic light interdependent; the newsrack, the newspapers on it, the money going from people's pockets to the dime slot, the people who stop at the light and read papers, the traffic light, the electric impulses which make the lights change, and the sidewalk which the people stand on form a system—they all work together.

From the designer's point of view, the physically unchanging part of this system is of special interest. The newsrack, the traffic light, and the sidewalk between them, related as they are, form the fixed part of the system. It is the unchanging receptacle in which the changing parts of the system — people, newspapers, money, and electrical impulses—can work together. I define this fixed part as a unit of the city. It derives its coherence as a unit both from the forces which hold its own elements together, and from the dynamic coherence of

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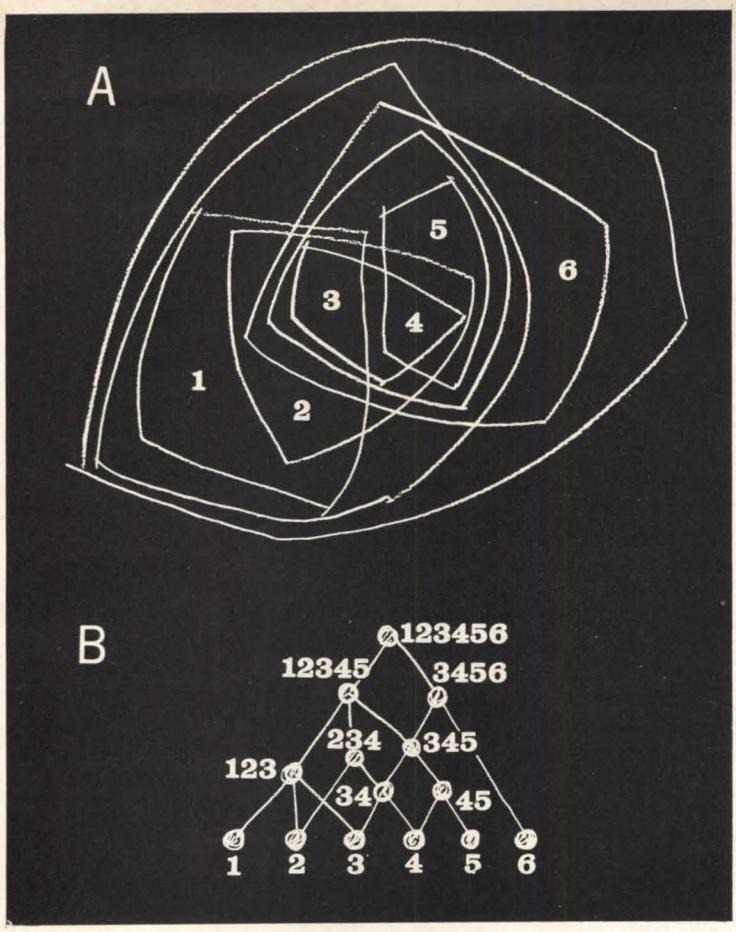
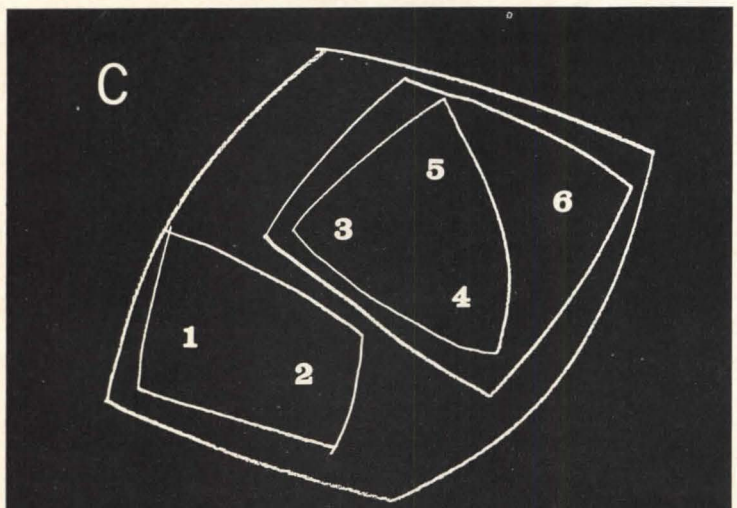
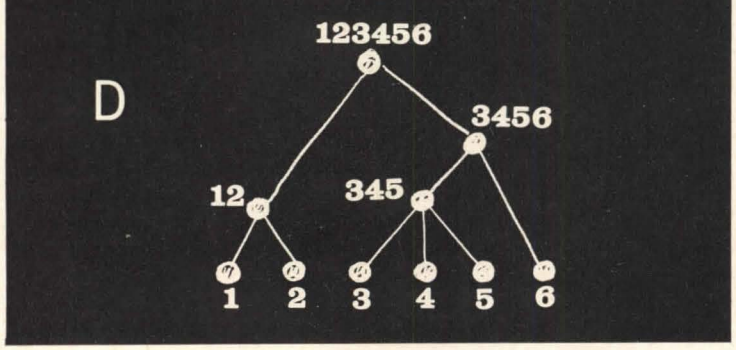






the larger living system which includes it as a fixed invariant part.

Of the many, many fixed concrete subsets of the city which are the receptacles for its systems, and can therefore be thought of as significant physical units, we usually single out a few for special consideration. In fact, I claim that whatever picture of the city someone has is defined precisely by the subsets he sees as units.

Now, a collection of subsets which goes to make up such a picture is not merely an amorphous collection. Automatically, merely because relationships are established among the subsets once the subsets are chosen, the collection has a definite structure.

To understand this structure, let us think abstractly for a moment, using numbers as symbols. Instead of talking about the real sets of millions of real particles which occur in the city, let us consider a simpler structure made of just half a dozen elements. Label these elements 1, 2, 3, 4, 5, 6. Not including the full set [1, 2, 3, 4, 5, 6], the empty set [-], and the one element sets [1], [2], [3], [4], [5], [6], there are 56 different subsets we can pick from six elements.

Suppose we now pick out certain of these 56 sets (just as we pick out certain sets and call them units when we form our picture of the city). Let us say, for example, that we pick the following subsets: [123], [34], [45], [234], [345], [12345], [3456].

What are the possible relationships among these sets? Some sets will be entirely part of larger sets, as [34] is part of [345] and [3456]. Some of the sets will overlap, like [123] and [234]. Some of the sets will be disjoint—that is, contain no elements in common, like [123] and [45].

We can see these relationships displayed in two ways. In diagram A each set chosen to be a unit has a line drawn round it. In diagram B the chosen sets are arranged in order of ascending magnitude, so that whenever one set contains another (as [345] contains [34]), there is a vertical path leading from one to the other. For the sake of clarity and visual economy, it is usual to draw lines only between sets which have no further sets and lines between them; thus the line between [34] and [345], and the line between [345] and [3456], make it unecessary to draw a line between [34] and [3456].

As we see from these two representations, the choice of subsets alone endows the collection of subsets as a whole with an overall structure. This is the structure which we are concerned with here. When the structure meets certain conditions it is called a semi-lattice. When it meets other more restrictive conditions, it is called a tree.

The semi-lattice axiom goes like this:

A collection of sets forms a semi-lattice if and only if, when two overlapping sets belong to the collection, then the set of elements common to both also belongs to the collection.

The structure illustrated in diagrams A and B is a semi-lattice. It satisfies the axiom since, for instance, [234] and [345] both belong to the collection and their common part, [34], also belongs to it. (As far as the city is concerned, this axiom states merely that wherever two units overlap, the area of overlap is itself a recognizable entity and hence a unit also. In the case of the drug store example, one unit consists of the newsrack, sidewalk, and traffic light. Another unit consists of the drug store itself, with its entry and the newsrack. The two units overlap in the newsrack. Clearly this area of overlap is itself a recognizable unit, and so satisfies the axiom above which defines the characteristics of a semi-lattice.)

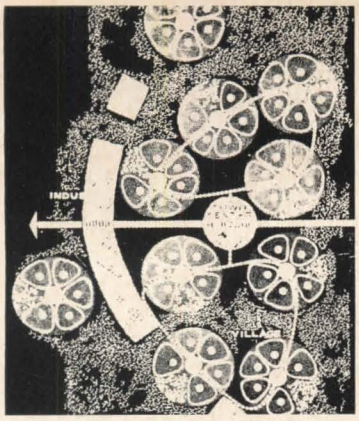
The tree axiom states:

A collection of sets forms a tree if and only if, for any two sets that belong to the collection, either one is wholly contained in the other, or else they are wholly disjoint.

The structure illustrated in diagrams C and D is a tree. Since this axiom excludes the possibility of overlapping sets, there is no way in which the semi-lattice axiom can be violated, so that every tree is a trivially simple semi-lattice.

However, in this paper we are not so much concerned with the fact that a tree happens to be a semi-lattice, but with the difference between trees and those more general semi-lattices which are *not* trees because they *do* contain overlapping units. We are concerned with the difference between structures in which no overlap occurs, and those structures in which overlap does occur.

It is not merely the overlap which makes the distinction between the two important. Still



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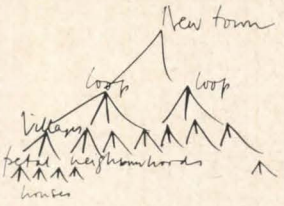

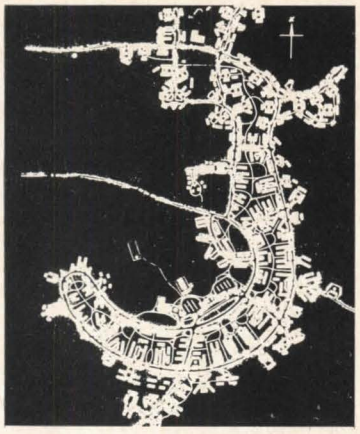

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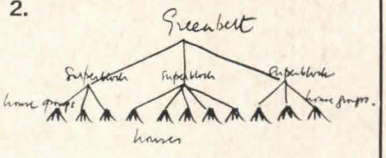

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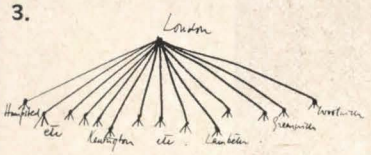


more important is the fact that the semi-lattice is potentially a much more complex and subtle structure than a tree. We may see just how much more complex a semi-lattice can be than a tree in the following fact: a tree based on 20 elements can contain at most 19 further subsets of the 20, while a semi-lattice based on the same 20 elements can contain more than 1,000,000 different subsets.

This enormously greater variety is an index of the great structural complexity a semi-lattice can have when compared with the structural simplicity of a tree. It is this lack of structural complexity, characteristic of trees, which is crippling our conceptions of the city.

To demonstrate, let us look at some modern conceptions of the city, each of which I shall show to be essentially a tree. It will perhaps be useful, while we look at these plans, to have a little ditty in our minds:

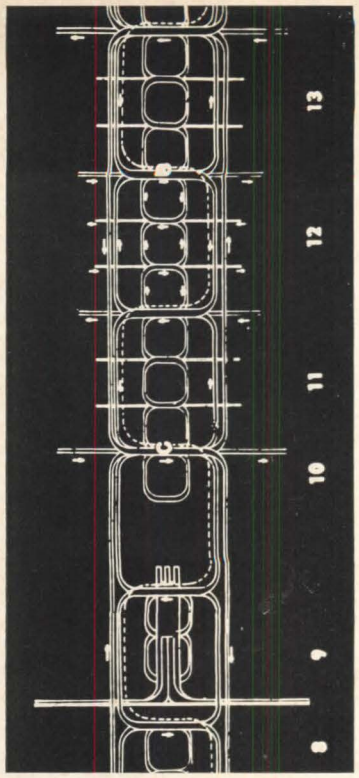
Big fleas have little fleas
Upon their back to bite 'em,
Little fleas have lesser fleas,
And so ad infinitum.

This rhyme expresses perfectly and succinctly the structural principle of the tree.

Figure 1. Columbia, Maryland, Community Research and Development Inc.: Neighborhoods, in clusters of five, form "villages." Transportation joins the villages into a new town. The organization is a tree.

Figure 2. Greenbelt, Maryland, Clarence Stein: This "garden city" has been broken down into superblocks. Each superblock contains schools, parks, and a number of subsidiary groups of houses built around parking lots. The organization is a tree.

Figure 3. Greater London plan (1943), Abercrombie and Forshaw: The drawing depicts the structure conceived by Abercrombie for London. It is made of a large number of communities, each sharply separated from all adjacent communities. Abercrombie writes, "The proposal is to emphasize the identity of the existing communities, to increase their degree of segregation, and where necessary to reorganize them as separate and definite entities." And again, "The communities themselves consist of a series of sub-units, generally with their own shops and schools, corresponding to neighborhood units." The city is conceived as a tree with two principal levels. The communities are the larger units



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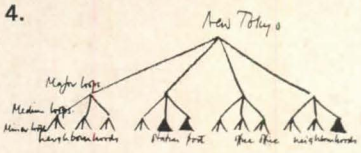

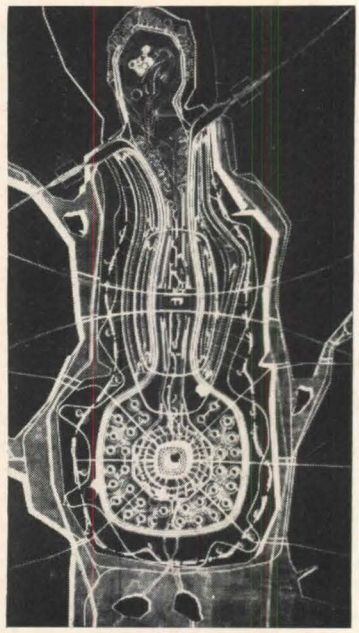

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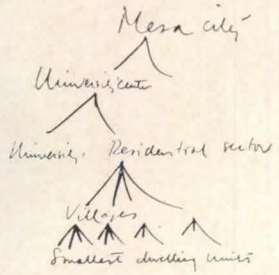


of the structure; the smaller subunits are neighborhoods. There are no overlapping units. The structure is a tree.

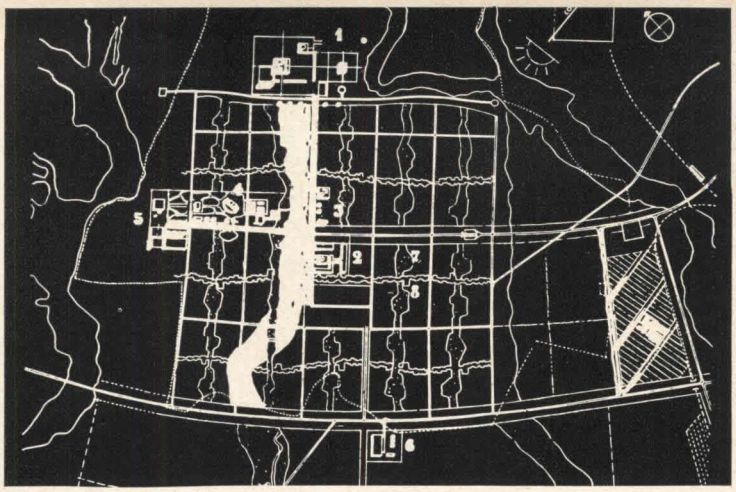
Figure 4. Tokyo plan, Kenzo Tange (left): This is a beautiful example. The plan consists of a series of loops stretched across the Tokyo Bay. There are four major loops, each of which contains three medium loops. In the second major loop, one medium loop is the railway station and another is the port. Otherwise, each medium loop contains three minor loops which are residential neighborhoods, except in the third major loop where one contains government offices and another industrial offices.

Figure 5. Mesa City, Paolo Soleri (left): The organic shapes of Mesa City lead us, at a careless glance, to believe that it is a richer structure than our more obviously rigid examples. But when we look at it in detail we find precisely the same principle of organization. Take, particularly, the university center. Here we find the center of the city divided into a university and a residential quarter, which is itself divided into a number of villages (actually apartment towers) for 4,000 inhabitants, each again subdivided further and surrounded by groups of still smaller dwelling units.

Figure 6. Chandigarh (1951) by Le Corbusier (top right): The whole city is served by a commercial center in the middle, linked to the administrative center at the head. Two subsidiary elongated, commercial cores are strung out along the major arterial roads, running north-south. Subsidiary to these are further administrative, community and commercial centers, one for each of the city's 20 sectors.

Figure 7. Brazilia, Lúcio Costa: The entire form pivots about the central axis, and each of the two halves is served by a single main artery. This main artery is in turn fed by subsidiary arteries parallel to it. Finally, these are fed by the roads which surround the superblocks themselves. The structure is a tree.

Figure 8. Communitas, Percival and Paul Goodman: Communitas is explicitly organized as a tree: it is first divided into four concentric major zones, the innermost being a commercial center, the next a university, the third residential and medical, and fourth open country. Each of these is further subdivided: the commercial center is



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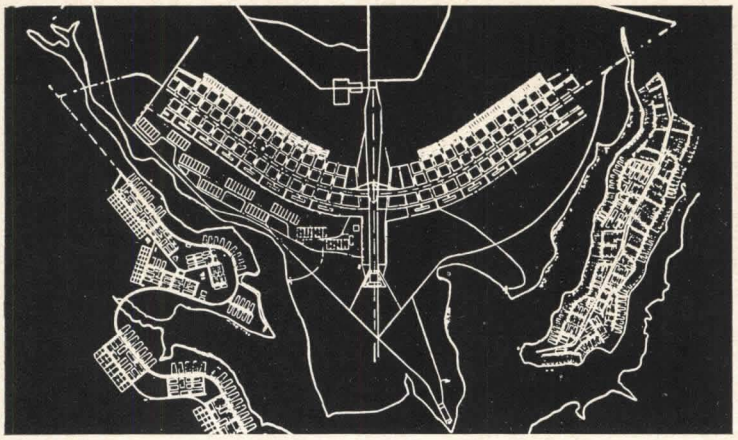

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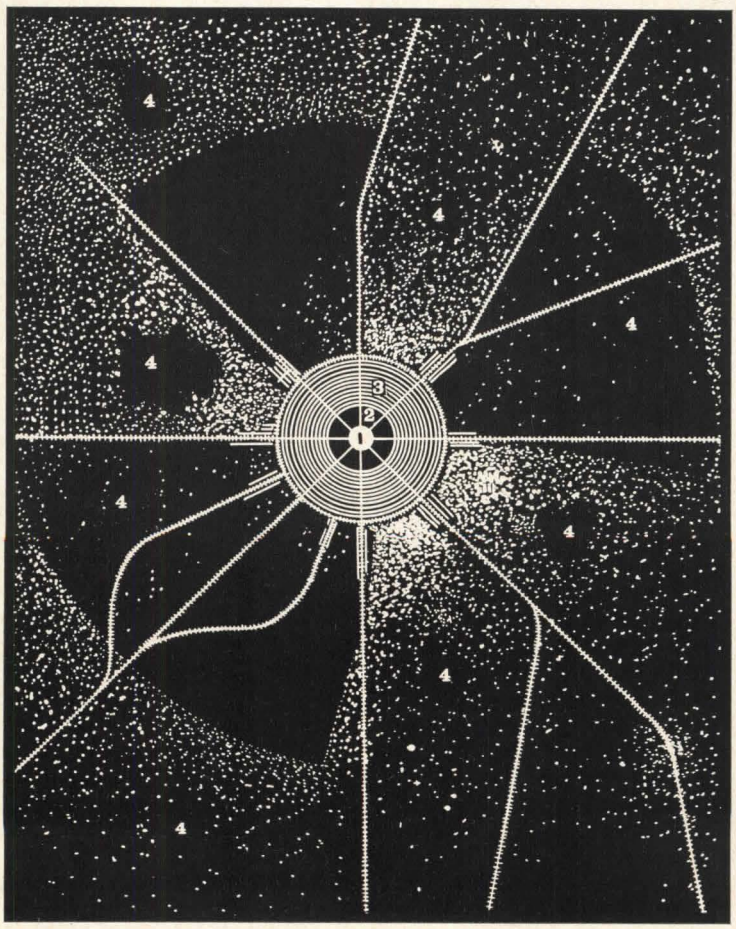

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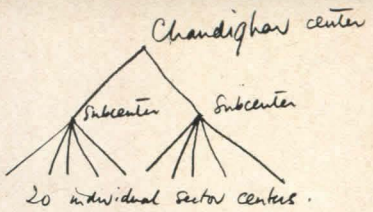
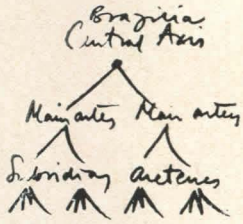
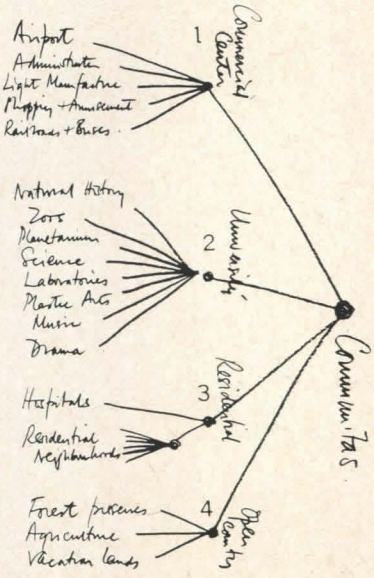






represented as a great cylindrical skyscraper, containing five layers: airport, administration, light manufacture, shopping and amusement; and, at the bottom, railroads, buses and mechanical services. The university is divided into eight sectors comprising natural history, zoos and aquariums, planetarium, science, laboratories, plastic arts, music and drama. The third concentric ring is divided into neighborhoods of 4,000 people each, not

consisting of individual houses, but of apartment blocks, each of these containing further individual dwelling units. Finally, the open country is divided into three segments: forest preserves, agriculture, and vacation-lands. The over-all organization is a tree.

Figure 9. The most beautiful example of all I have kept until last, because it symbolizes the problem perfectly. It appears in Hilberseimer's book called *The Nature of Cities*. He describes the fact that certain Roman towns had their origin as military camps, and then shows a picture of a modern military encampment as a kind of archetypal form for the city. It is not possible to have a structure which is a clearer tree.

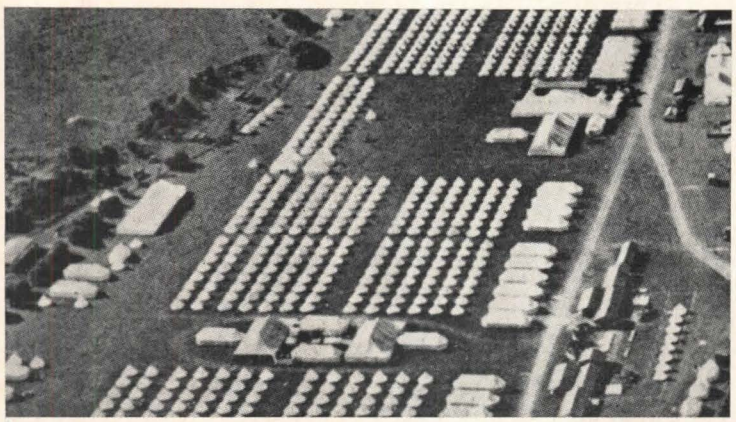
The symbol is apt, for, of course, the organization of the army was created precisely in order to create discipline and rigidity. When a city is endowed with a tree structure, this is what happens to the city and its people. The lower photo, is Hilberseimer's own scheme for the commercial area of a city based on the army camp archetype.

Each of these structures, then, is a tree. Each unit in each tree that I have described, moreover, is the fixed, unchanging residue of some system in the living city (just as a house is the residue of the interactions between the members of a family, their emotions, and their belongings; and a freeway is the residue of movement and commercial exchange).

However, in every city there are thousands, even millions, of times as many more systems at work whose physical residue does not appear as a unit in these tree structures. In the worst cases, the units which do appear fail to correspond to any living reality; and the real systems, whose existence actually makes the city live, have been provided with no physical receptacle.

Neither the Columbia plan nor the Stein plan, for example, corresponds to social realities. The physical layout of the plans, and the way they function, suggests a hierarchy of stronger and stronger closed social groups, ranging from the whole city down to the family, each formed by associational ties of different strength.

In a traditional society, if we ask a man to name his best friends and then ask each of these in turn to name their best friends, they will all name each other so that they form a closed group. A village is made of a number of separate closed groups of this kind.



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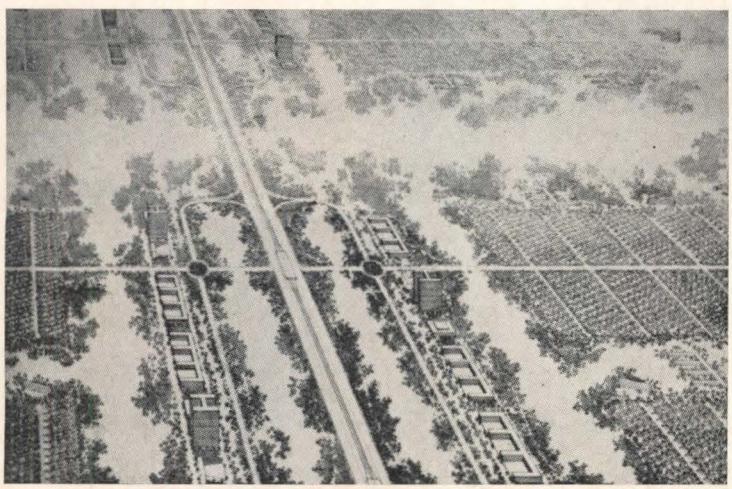
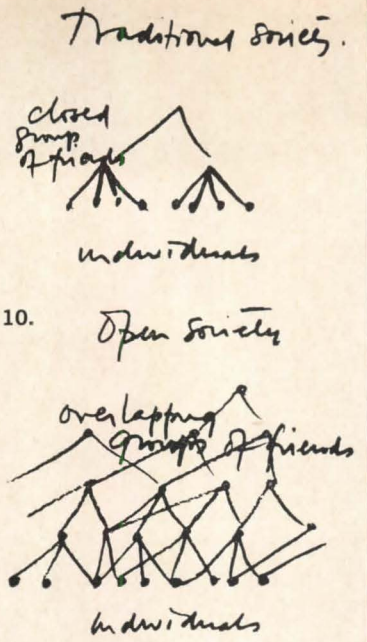




10.

But today's social structure is utterly different. If we ask a man to name his friends and then ask them in turn to name their friends, they will all name different people, very likely unknown to the first person; these people would again name others, and so on outwards. There are virtually no closed groups of people in modern society. The reality of today's social structure is thick with overlap—the systems of friends and acquaintances form a semi-lattice, not a tree **(Figure 10).**

In the natural city, even the house on a long street (not in some little cluster) is a more accurate acknowledgment of the fact that your friends live not next door, but far away, and can only be reached by bus or automobile. In this respect Manhattan has more overlap in it than Greenbelt. And though one can argue that in Greenbelt too, friends are only minutes away by car, one must then ask: Since certain groups *have* been emphasized by the physical units of the physical structure, why are just these the most irrelevant ones?

In the second part of this paper, I shall further demonstrate why the living city cannot be properly contained in a receptacle which is a tree—that indeed, its very life stems from the fact that it is not a tree.

Finally, I shall try to show that it is the process of thought itself which works in a treelike way, so that whenever a city is "thought out" instead of "grown," it is bound to get a treelike structure.

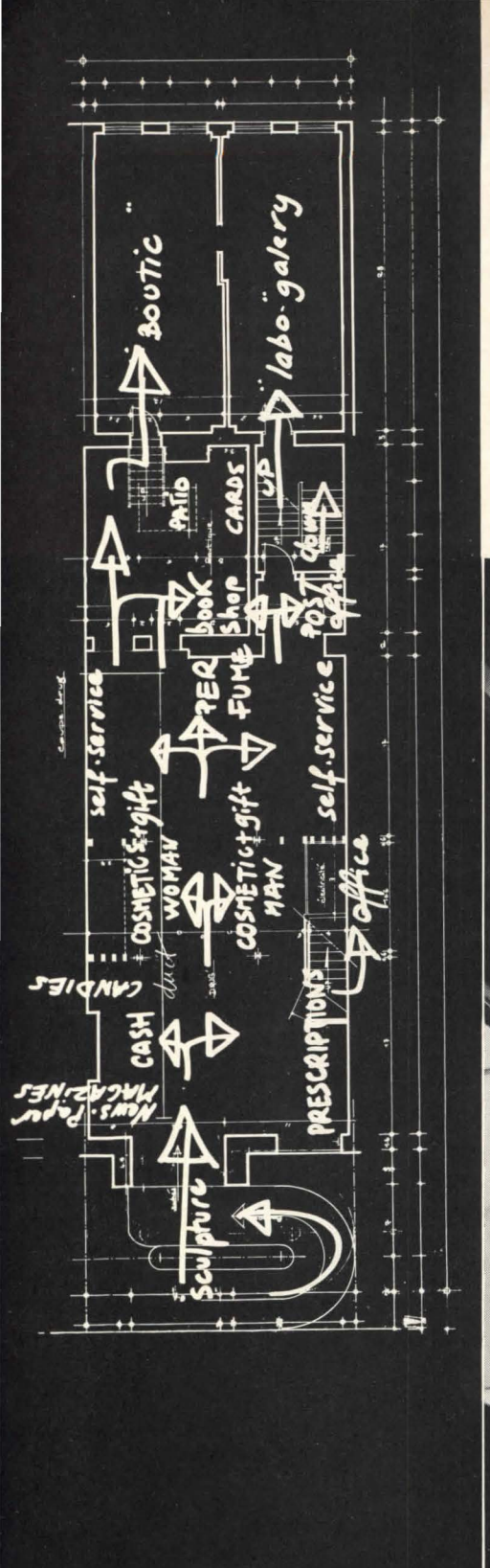
(The balance of Mr. Alexander's article will appear in May. Ed.)

drug

le drug
2130 de la montagne
william sofin chemist
844 8811
jour & night
le drug delivery rapid
le hot drug
restaurant take out
le drug boutic
le drug galerie
drrruuug drug

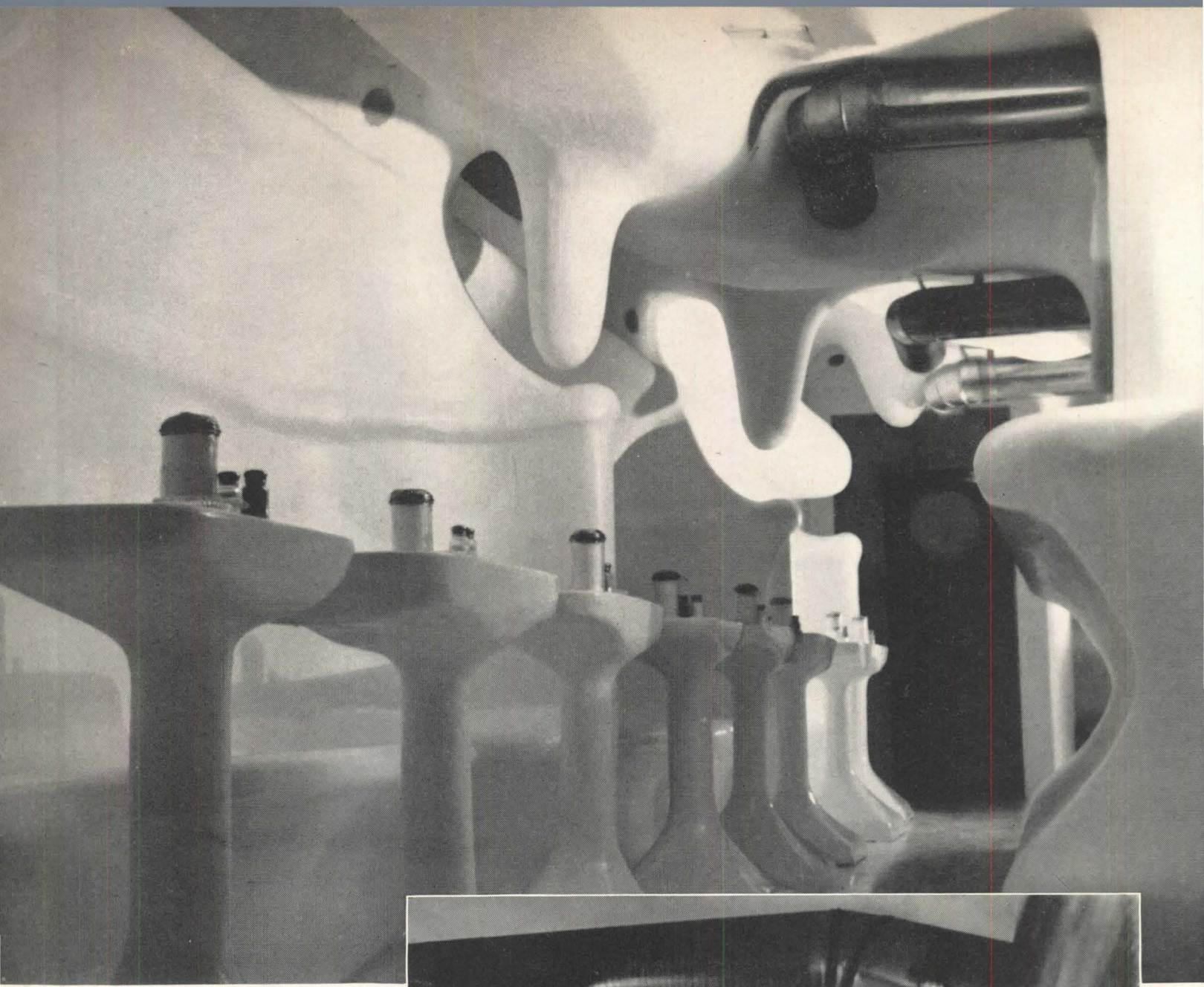
The photographs, drawings and other graphics shown on these pages (matchbook covers, posters, campaign stickers, etc.) were received shortly before this issue went to press. The material was submitted by the Forum's sporadic correspondent in UNDERGROUND ARCHITECTURE, M. Francois Dallegret (above), whose fantastic automobiles were on view in this magazine's May 1964 issue. M. Dallegret is presently at work in Montreal, where he has just completed this combination drugstore-boutique-restaurant-gallery-discothèque. The construction, known as LE DRUG, is on two levels, and entered by crawling through a wire-and-chain-mail sculpture. The text which accompanies this story, and which appears to be in Basic Cajun, was supplied by M. Dallegret also, and is reprinted precisely as received, since it seemed to lose some of its flavor in translation. —THE EDITORS.

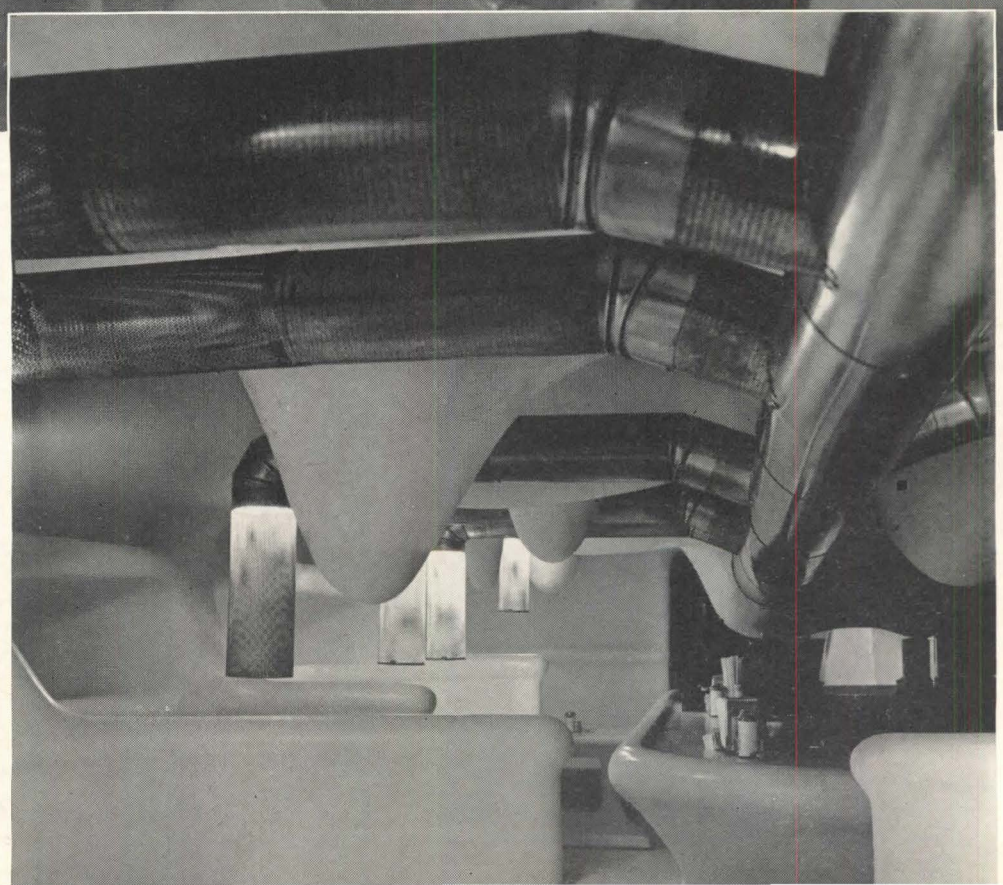
"the fashionable aera of mountain street, in a double level old canadian house corridor type 120' dept on 26' front and back width, I got the job to think draw and watch in 2 months the inside construction of a drug store boutique galerie book shop hairdresser beauty institut restaurant snack discotheque and dependance in the same time grafic and advertasing."



"droped duct for ventilation or heating. slides projection in one of the two sylinders over the perfume section. the book shop 16' on 16' is oblic ceiling, patio natural light and plants, multicolored bulbes."

"the drugstore 44' on 24' wooden constructed for vertical closed shelving, self-service + storage, and horizontal compters with the minimum of open displays and the maximum flat black and white facing the way to enter and go out. the ceiling is done for distraction..."

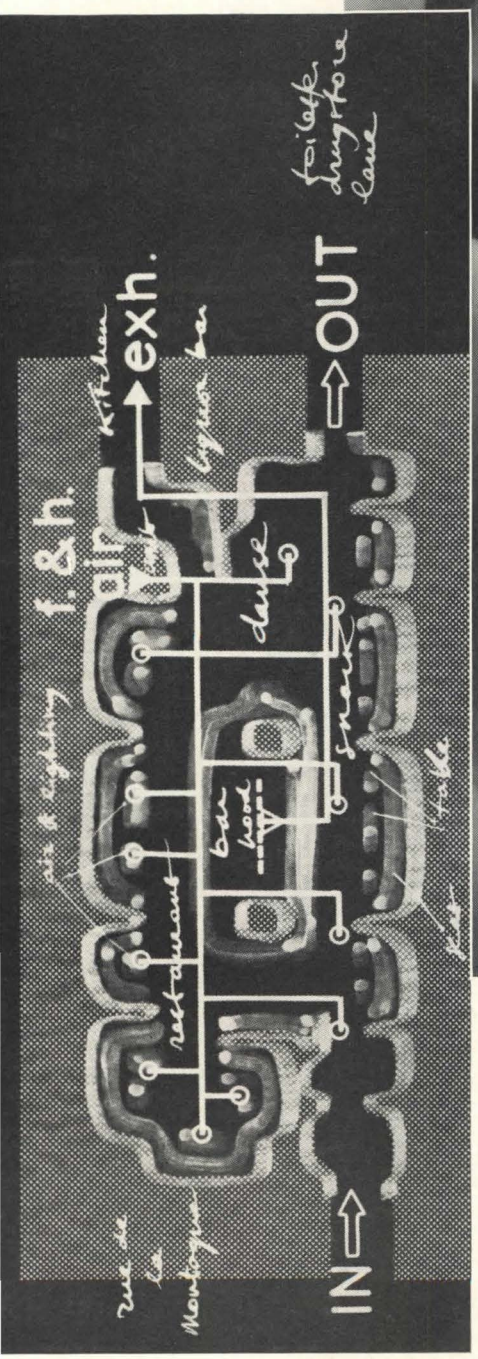




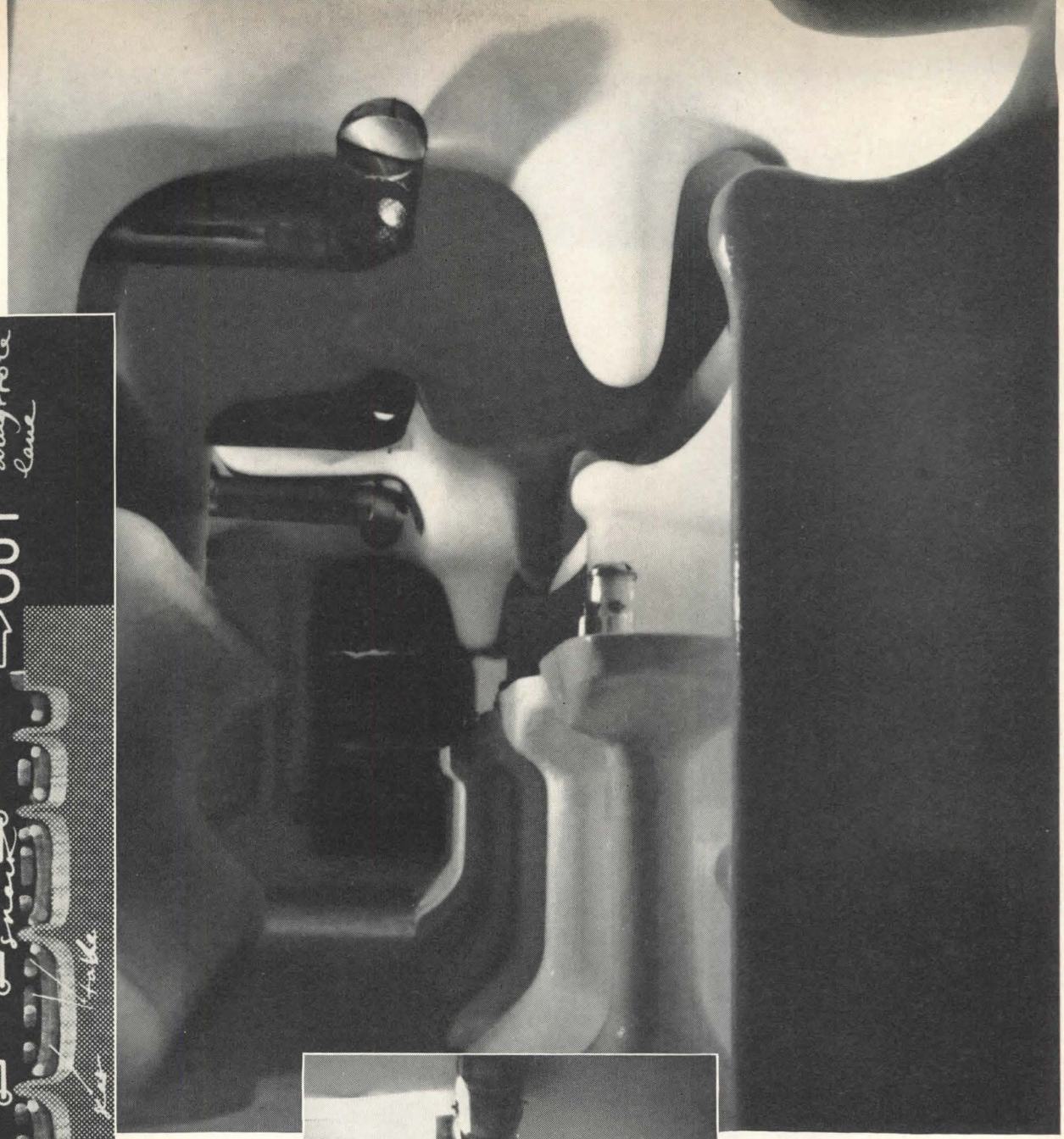
"the restaurant with all the droping the roof duct...is difficult for the public to knocke their head (mine safety helmets in plastic to protect are coming) -- they do'nt stand their feet under the table, as usual so they are frusted and enjoy themself because they feel unusual."

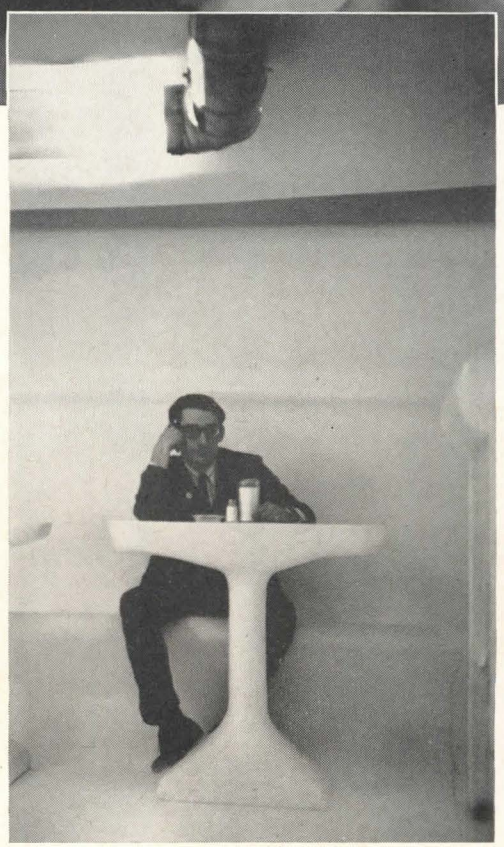
"the duct downstairs in the restaurant brings fresh air or heating + lighting + music with 1 loud speaker in the unit + (smoke + perfume smelling) -- (for some occasion)."

able lighting on deamers
ough the ends of the venti-
ion heating cylindrical
t system. one bar for
ck. one bar for liquor.
nac feeling music system."



"the restaurant...for 80 people sitting and 20 standing up and morein a sexxy labyrinth igloo mold on channel and metalic lath structure with cement paint white. clear fiber glass on floor tables and seats."

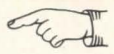




"GOD give me 6 months to finish the thingwith a marker and one thumb thew sketches on dinner table and mind changement."

François Dallegret

INVENTIONS



Marina City: Outer-Space Image and Inner-Space Reality

Everybody knows there is a Marina City, but how many of us believe it is real? For those who have not actually been in it—even for those who have—there is an air of unreality about this "city within a city."

The simple geometry of the two towers, their ingenuously direct expression of function, their emphasis on technological achievement call to mind the human silos of science fiction, Batman, or Space Angel—and of long-past Futuramas and Worlds of Tomorrow. What with their impressively real statistics—world's tallest residential buildings, world's tallest concrete structures—they have had immediate appeal for the public as symbols of Space Age urbanity. The power of this image has not been overlooked by our advertising agencies (right).

But Marina City is not only real, it is hardheadedly realistic in both its objectives and its execution. The people who created it are no dreamers. Their program may have seemed far-fetched in 1959, but it was firmly founded in elementary arithmetic.

The originator of the project, William McFetridge, President of the Chicago Flat Janitors Union, Local No. 1, and a Vice-President of the AFL-CIO, wanted to invest his local's reserve funds in urban-core, multi-family housing, thereby bolstering the market for its services. In 1959 he discussed this possibility with Bertrand Goldberg, an architect who had designed a small office building for the union, and a young entrepreneur-to-be, Charles Swibel, who has since become Chairman of the Chicago Housing Authority and President of Marina City Management Corporation. They decided to take an option on a piece of railroad property along the north side of the Chicago River, right at the edge of the Loop but surrounded by warehouses and light industry.

The economic equation

The sponsors had a clear idea from the outset who the residents of a project on this site might be, based on its outstanding attribute —proximity to the heart of the city. Most of them would be people who worked in the Loop, few of them would be retired people or families with children, for the site was remote from schools, parks, and other residential areas.

There was no intention of building a socially or economically exclusive development. The price-tag on the site dictated heavy density, hence appeal to a broad market. The project was to offer living places for all office workers, from typist to tycoon.

An economic formula was worked out that made it possible to rent masses of apartments (900 of them) at rentals low enough to assure 100 per cent occupancy, yet obtain a substantial return on the investment. The formula involved a combination of diverse facilities —some of which (apartments, offices, and recreation facilities) would yield only modest returns but create a dependable round-the-clock demand for commercial facilities yielding higher returns.

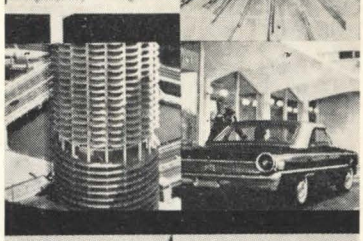
All the components of the intricate program were meant to enhance the others. A man who rented an apartment or an office (or both) here would also be able to swim, bowl, bank, shop, dine out, go to the theater, hold meetings, and keep both his car and his boat without ever going outdoors.

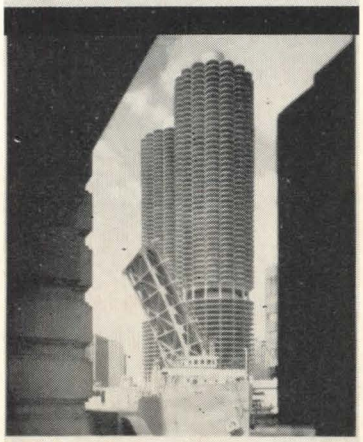
Clearing the FHA hurdle

With the union's entire investment of $3 million earmarked for site acquisition, Swibel set about obtaining the estimated $32 million needed for construction. Convinced that their proposal could benefit from FHA support, he went first to FHA to obtain loan guarantees.

But regional FHA officials had had little to do with urban housing and did not consider such a project within their range; FHA was concerned with housing for "families," and this was clearly no place for children. The mixing of residential with substantial commercial use was another unpopular feature of the proposal. At that time responsible city planners were still advocating segregation of uses, bankers were unwilling to back "living over the store," and FHA shrank from the problem of determining which parts of such a project were actually residential and which were not.

But Swibel and Goldberg carried their case to Washington, where—with some support from McFetridge's political allies (quite valuable even under a Republican administration)—they were able to convince authorities that a "family" was any person or group who had a fixed place to live. After obtaining FHA backing, Swibel still had to face the bankers, some of whom literally laughed in his face. But dogged persistence paid off and, backed with money from savings and loan companies in New York, the project was ready to go ahead by the end of 1960.





Bertrand Goldberg is known primarily as the man who designed Marina City. This may be inevitable, considering the impact of these twin towers on all conscious Americans, but it is also justifiable. Marina City is a material expression of his personal thinking.

However removed Goldberg's approach may seem from the lean, nonsculptural work of his Chicago contemporaries, it draws on the same sources—Midwestern pragmatism and Miesian discipline. Goldberg is, in fact, a third-generation Chicagoan and one of the few Americans who worked under Mies in Germany. He quit Harvard to go to Dessau, where he witnessed the last days of the Bauhaus. He has been disappointed with Mies's American career, recalling that "he was trying new directions in the Bauhaus days."

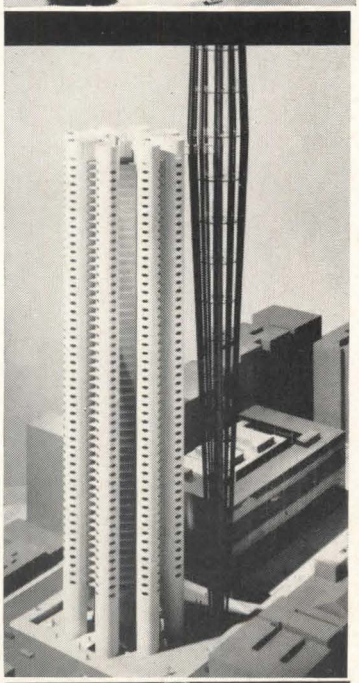
Goldberg thinks it is time for us to break away from the conventions of rectilinear, post-and-beam design. ("A nation that is attempting to reach the moon cannot go on building in such a primitive way.") He sees recent advances in structural theory, mathematics, and computation as leading to complex "crustacean" structural forms. At the same time, studies of behavior patterns may produce standards for shaping space more sophisticated than simple geometry.

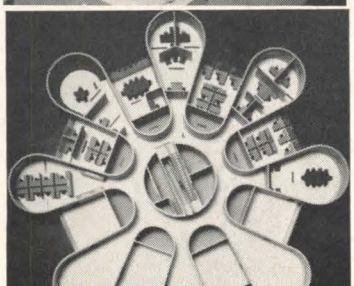
He finds nothing natural or basically comforting about rectangular spaces, which were not found in man's earliest dwellings. The use of non-rectangular spaces, he admits, is full of dangers, because our knowledge about space is lagging behind our technological skill.

Logic of the circular plan

In approaching the design of Marina City, Goldberg's design theories were supported by the practical advantages of the circular plan. Its logic had impressed others before—I. M. Pei, for instance, who designed a helical tower 15 years ago, (FORUM, January 1950). Such a scheme has a minimum ratio of perimeter to floor area, yielding theoretical savings on construction, heating and air-conditioning. Its central service core has minimal corridor space. The wedge shape of the apartments allows for smaller service spaces along the corridor and wider living spaces on the perimeter. And in a complex of several buildings, a circular tower obstructs a minimum angle of view.

The decision to use the circular plan at Marina City was related to another basic decision—even more unconventional—to place all of the apartments above 20 stories of parking. This device gave all apartments sweeping views, (with no close-ups of the immediate neighborhood), raised them above the densest layers of atmospheric pollution, and took advantage of the premium on high-floor apartments in the rental market. It turned out —happily—that a circular plan accommodating the apartments efficiently also accommodated a helical ramp parking facility.





Curving forms, and the vertical use of structural shells, are consistent Goldberg themes. In Marina City (and in another Chicago building, the square-plan Astor Tower Hotel), the shell is a tubular core. More recently, he has moved it to the exterior. A design for the Chicago Housing Authority (below) places most rooms in vertical structural tubes, clustered into circular towers or lined up in curved rows. In an unrealized office building scheme (bottom), the structural walls writhe in and out, cutting the floors into polyp-shaped compartments.

The vertical shell as a core

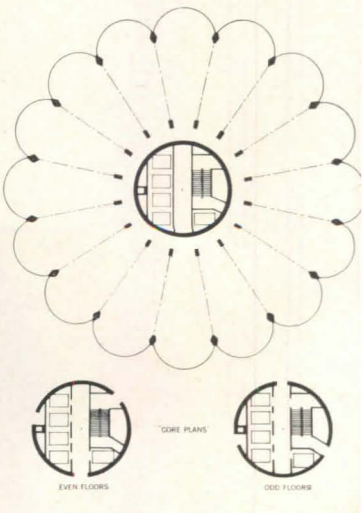
Related to Goldberg's planning concept was an idea for a structural system. He was interested in the possibilities of the vertical concrete shell as a structural core for high-rise buildings, which would accept all horizontal and vertical loads from cantilevered floor slabs. He hoped that such a system might provide greater rigidity than conventional steel-framed towers at no greater cost. (He knew of steel-framed towers in the Windy City that were sound enough from an engineering point of view, but "swayed enough on the upper floors to slosh a martini out of its glass.")

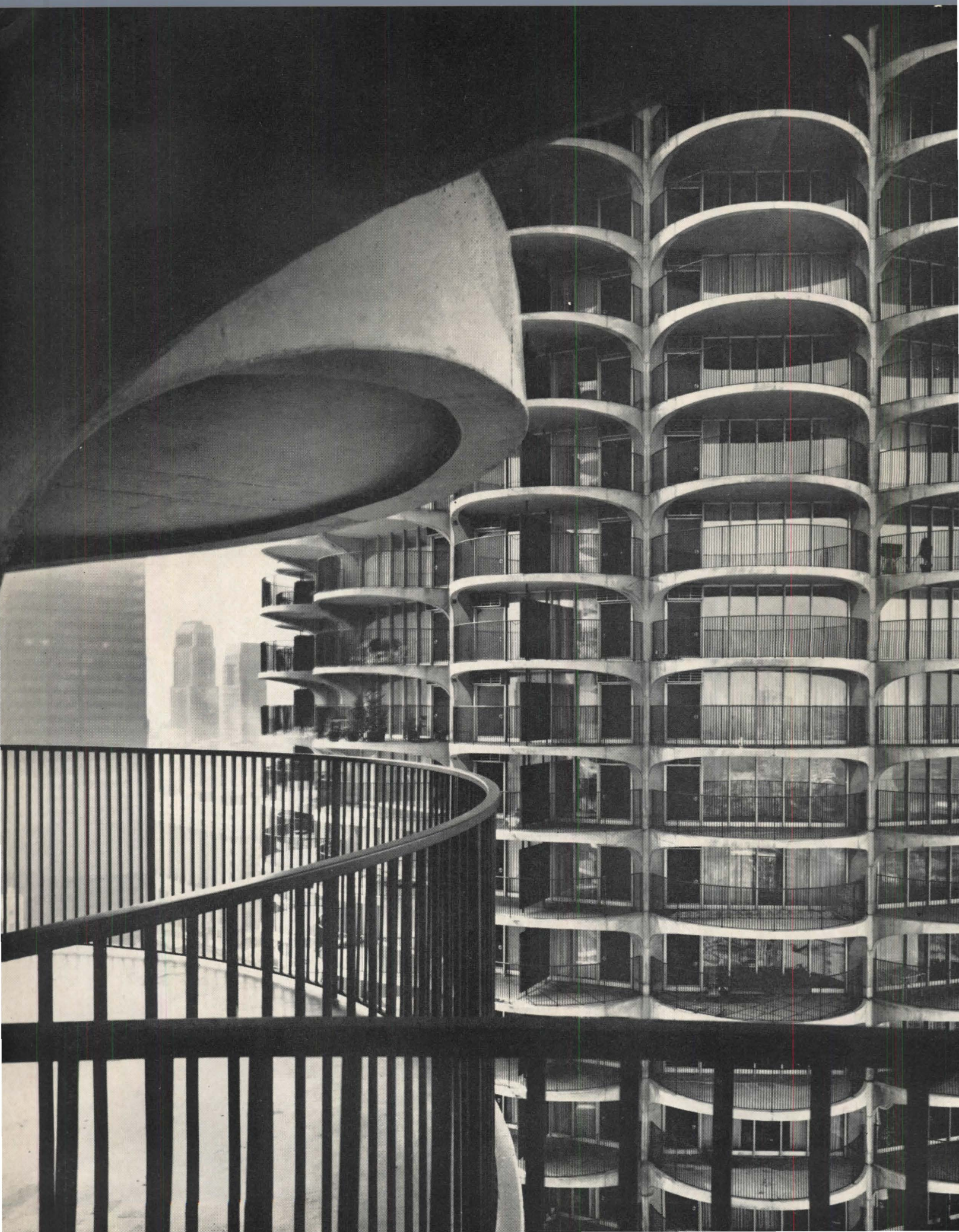
When he took the core proposal to his structural consultant, Fred Severud, he found that a ring of columns at the perimeter was required to avoid massive cantilevers at each floor. Severud even inserted an inner ring of columns along the corridor, to reduce the required size of radial beams and distribute loads on the caisson footings. In the final structural design the core is estimated to take about 70 percent of the horizontal load on the tower; the rest is borne by the "inevitable stiffness" of the post-and-beam cage around it.

The critical structural function of the core demanded an unusual planning device. In order to preserve its structural integrity, all openings in the core wall had to be staggered from floor to floor, so that two alternating core plans were required.

The only opening in the core that had to be larger than an ordinary door—the one from the elevator lobby to the corridor—was given a horse-shoe shape, to allow generous clearance at shoulder height without too large a gap where the floor slab joins the core. Goldberg feels that this is an appropriate shape for an opening in a structural concrete wall, easy to

Considerations of program, structure, efficiency—plus a fondness for curvilinear forms—shaped the twin towers





Studio apartments fit into petals of the floral plan, but *in larger units* the flaring structural members become intruders

form and expressive of the distribution of stresses around it.

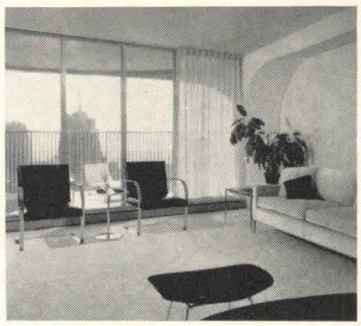
The semicircular cantilevered balconies provide a logical termination for the radial floor beams, turning the wedge-shaped bays into more complete "petals." In the initial design, carried through to the stage of full-scale mock-ups, both the beams and peripheral columns were rectangular in section. At that point, however, Goldberg decided to redesign the structural members to be more expressive of actual loading conditions. He was warned that members of irregular and varying section would add to the weight of concrete and complicate forming, but as it turned out the revision saved reinforcing steel and was easily executed with re-usable glass fiber forms.

The exposure of this sculptural framework inside the apartment, as well as on the balcony, is effective both for its reassuring suggestion of structural strength and for its indication of the place of the individual apartment in the total structure. This effect is strongest in the studio apartments, each of which occupies one complete "petal," defined by a pair of exposed columns.

Unfortunately, the relation of the interior layout to the structural bays is lost in the larger apartments. Some of the balconies are split in half by light partitions, and massive haunched columns in-

trude on the corners of most of the FHA-sized bedrooms.

The relation of the partitions to the sculptural concrete frame is uneasy at best. Even where they occur directly under beams the effect is reminiscent of the make-shift subdivision of an old mansion.



In order to keep rents within FHA range, mechanical services have been limited to those provided in a typical subdivision: cold water, sewerage, trash disposal, and electricity. Everything else is taken care of by units in the individual apartments. This "unitized" mechanical concept sharply cuts the client's maintenance and operation costs and insures him against obsolescence; equipment can be up-dated piece by piece as the need arises.

This unitized mechanical equipment, however, has a destructive effect on the apartments that only great refinements in its design could overcome. The exterior apartment wall—clearly intended as a transparent weather-shield—is encumbered with massive unit air-conditioners and electric baseboard heating units. Even without this equipment, however, the wall would fall short of its intended effect because of the bulkiness and inelegance of the mullions.

The spatial organization of the apartments demonstrates Goldberg's own admission that nonrectangular geometry is dangerous to cope with. Granted, he has been able to develop efficient plans, with no embarrassing wasted corners (and without resorting to triangular bathtubs). Granted, also, that these living spaces undoubtedly seem larger than rectangular spaces of the same area, since one judges size by visible dimensions.

But these spaces are disconcerting, even for people who feel no particular attachment for rectangular spaces. The partitions that define the rooms radiate from the core, which is not visible, and diverge toward the exterior. The result is uncertainty about their geometrical relationship and a feeling of over-exposure toward the space outside—a fear, for some, of being "pushed outward."

The impression of exposure to boundless space is reinforced by the character of the view itself. There are many objects on which to focus, but no visible boundaries —no definition of space by neighboring buildings (as at Pei's Society Hill towers, for instance), not even a rim of distant hills—only the flatness of lake and prairie.

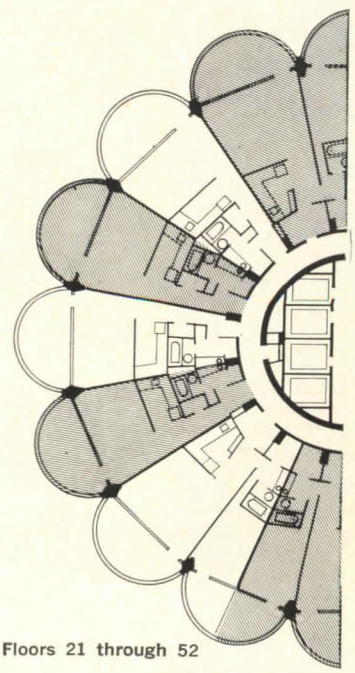
Some comfort is found, however, in the design of the balconies. The high, well designed railing and the exposed structural frame define a semi-circular termination of space that is most reassuring when one is on the balcony, less so when seen through the window wall.

The tenants love it anyway

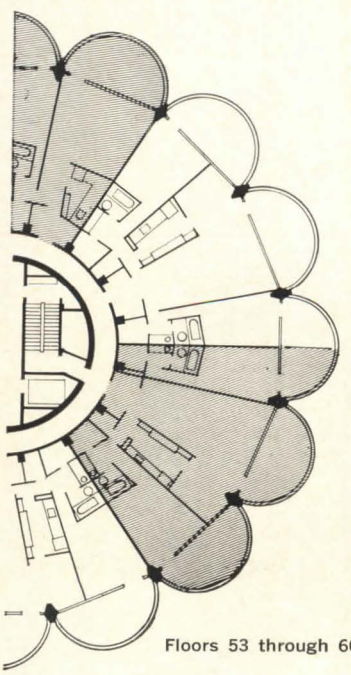
Whatever the drawbacks of the apartments at Marina City, there is no doubt about their popularity with tenants. Occupancy has been 100 per cent since the last units were completed, and turnover has been very low.

The characteristics of residents have run quite true to expectations. They are generally young, the mean age being in the mid-thirties, and most of them work. The range of rentals, from $115 for the lowest studio unit to $350 for the highest two-bedroom unit, has attracted a wide range of economic groups.

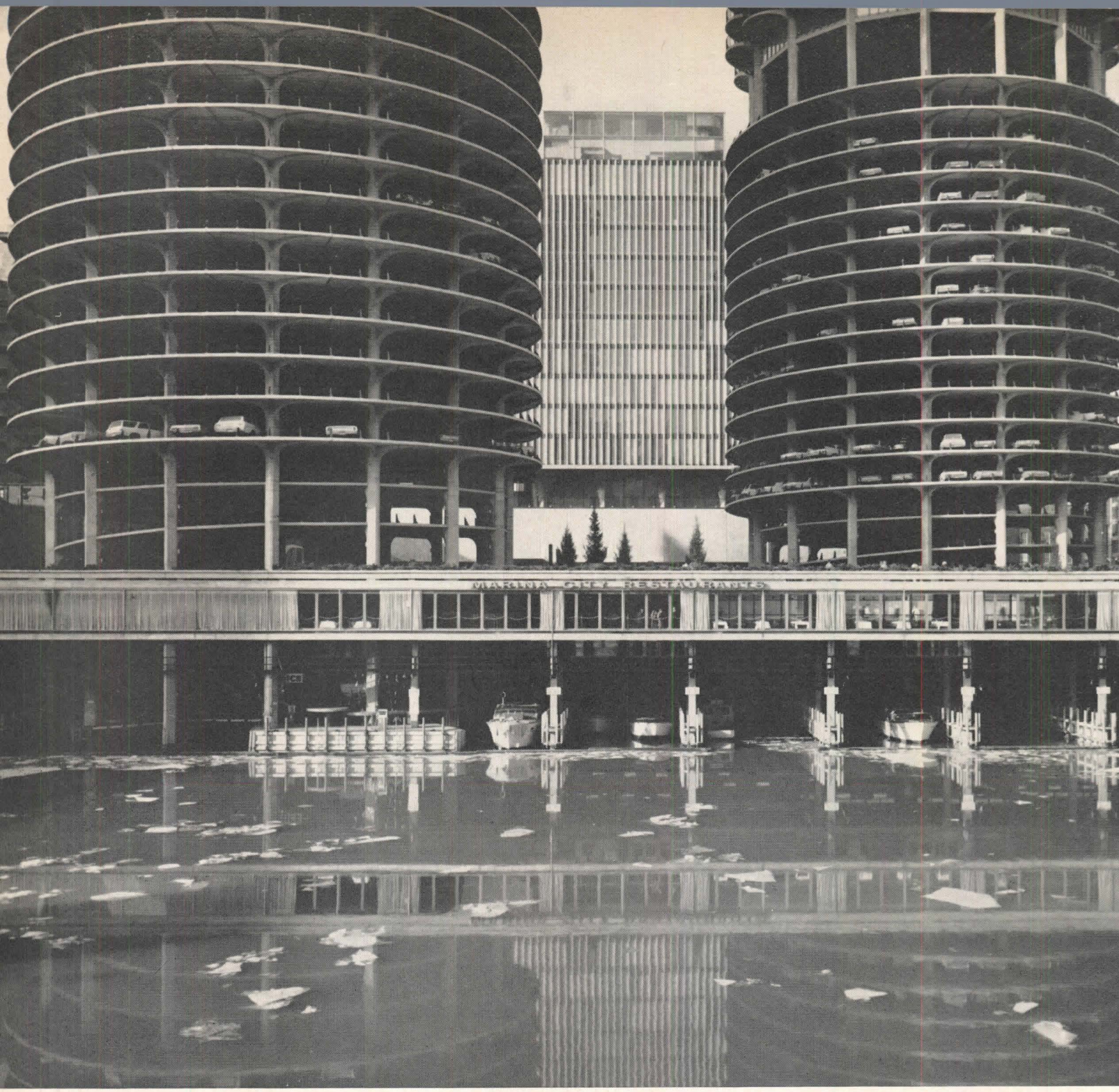
For all of them, a Marina City apartment offers a unique combination of comfort, economy, and convenient location, with a dazzling array of facilities only an elevator-ride away. And it provides the most dramatic—even spine-tingling —setting for an outdoor barbecue in the whole U.S.A.

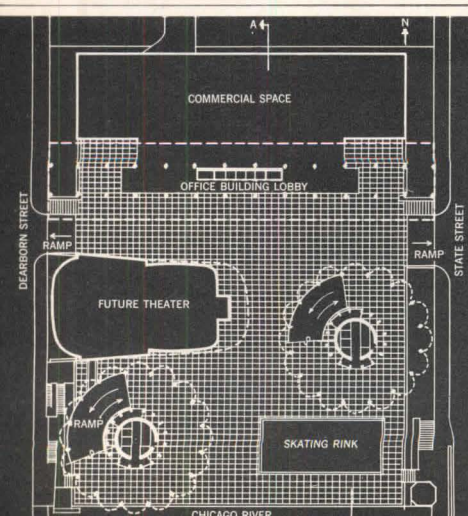


Floors 21 through 52



Floors 53 through 60


MARINA CAFE RESTAURANTS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N
COMMERCIAL SPACE
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FUTURE THEATER
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SKATING RINK
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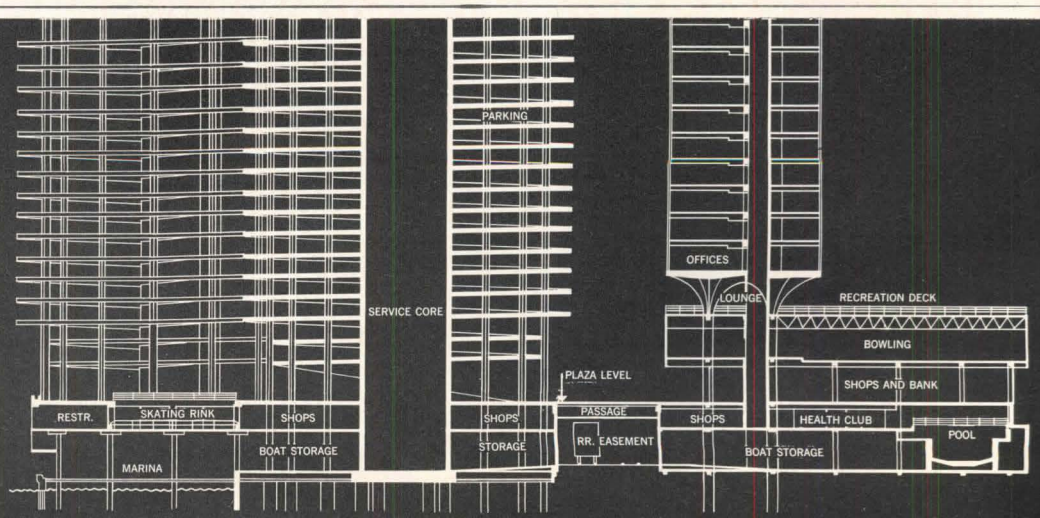
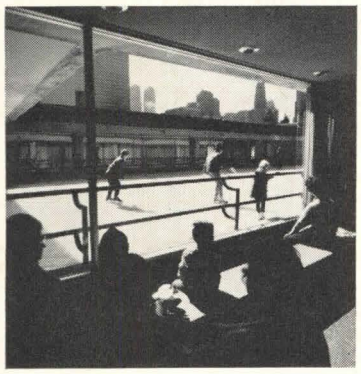

PARKING
SERVICE CORE
OFFICES
LOUNGE
RECREATION DECK
BOWLING
SHOPS AND BANK
PLAZA LEVEL
RESTR.
SKATING RINK
SHOPS
PASSAGE
SHOPS
SHOPS
HEALTH CLUB
POOL
STORAGE
RR. EASEMENT
BOAT STORAGE
BOAT STORAGE
MARINA

A multi-layered complex of commercial facilities at the base of the towers provides most of the project's economic support

Once the form of the towers was established, the other elements of Marina City fell neatly into place around them. A two-story drop from the street level to the existing grade allowed for two floors of commercial space beneath a bridge-level plaza—both floors divided in half by a railroad right-of-way.

The use of the lower level for a marina and boat storage not only gave the whole project a name, but took economic advantage of what might have been "problem" space. Facilities for pleasure boats were greatly in demand, required hardly any additional construction, and could co-exist with the practical necessities at this level: structural piers, railroad tracks, truck docks, and trash bins.

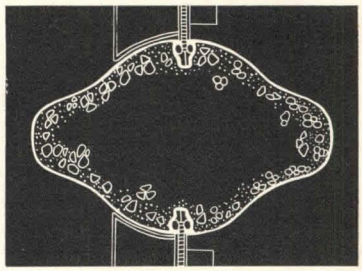
The layer of space between the marina and the plaza is a complex of commercial facilities: a restaurant and bar along the river frontage, and shops along an indoor street that links the two apartment cores. Cutting the rectangular skating rink into this level gave additional exposure and points of visual interest for some of these areas.



A tube-like bridge over the railroad links these facilities to other shops in the base of the office building. This level is served by a central heating and air-conditioning system; a heat-pump utilizes the Chicago River as a source.

The third major element of Marina City, rental office space, occupies a 10-story rectangular block set atop a base structure that rises three stories above the plaza. These three floors house a miscellany including shops and bank at the plaza level, the Chicago National Design Center, a health club with pool, and a bowling center.

The office floors themselves are clearly articulated on the exterior as a block of space readily divisible along the lines of its closely spaced (2 feet, 8¾ inches on center) structural concrete mullions. These mullions have a somewhat bone-like section—determined by the two coils of reinforcing inside them and the bearing needed for glazing grooves—that looks more sensual in plan than in reality.



Exposed ribs of the concrete floor structure, aligned with the mullions, define panels of a high-intensity ceiling lighting system that also supplies all heat for these spaces, except for supplemental electric heating along the window-walls (see page 86). Thus tenants of these spaces obtain their heating as a by-product of lighting, for which they buy the power.

In making the transition from the bearing-mullion structural system of the office floors to the conventional bays of the base structure, the architects saw an opportunity to relate this building to the forms of the apartment towers. The resulting vaults (lower right) give an appropriately "special" character to the employees' lounge and deck, but they destroy the consistency of the office building without establishing a relationship to the towers. The height of the office block has been adjusted to leave views from the apartments unobstructed, but otherwise the office building and towers are unrelated.

The Plaza as an urban space

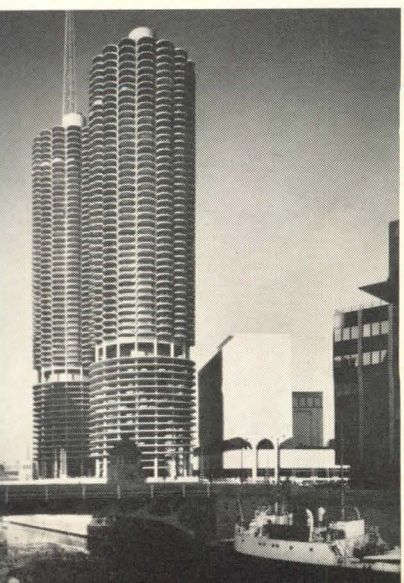
The office building does give strong definition to the north side of the plaza and protects it from the coldest winds. The space is also delineated sharply on the south by the edge of the river and somewhat less clearly on the east and west by the streets.

Whatever definition the plaza has, however, is obliterated by the towers, which reduce it to disjointed shapes like those left behind by a cookie cutter. The area around the sunken skating rink has some unity, defined by the rectangle of the rink itself and two edges of the plaza—but on the other two sides the space dribbles off between and through the towers with no clear boundaries.

Circulation patterns on the plaza are also indefinite. Cars and people mix freely over a large part of its area—a pleasantly informal situation in some respects, but unnerving for the pedestrian who must cross the complex paths traced by daredevil parking attendants on their way to and from the ramps.

The plaza is not yet complete, however. The last building in the project—a 1700-seat theater for movies and live productions astride a 1200-seat divisible auditorium—will soon rise at the west end of the plaza, fitting snugly between the office block and the west apartment tower. When that is completed and some proposed planting beds have been distributed, the plaza may be even harder to comprehend as a space, but at least car circulation may be restricted.

The plaza offers a final disappointment: it gives only the barest hint of all that goes on in the spaces below. The skating rink is a clue to the functions of the next level down, but its effectiveness merely leads to speculation about what might have been. By sacrificing only a few square feet of restaurant space, an opening could have been made through the entire sandwich, making its composition visible from the plaza, the skating rink, the restaurants, and even the marina—as it now is only from across the river. By such a device the marina could have become truly a part of Marina City.



No recent work of architecture has had more impact on the heart of an American city than Marina City. It is not only a conspicuous landmark, but one that takes its place in a distinct urban pattern.

Actually, the central area of Chicago shows two basic patterns of development. The Loop has a precise, rectangular grid and high density. There is almost 100 per cent coverage up to several stories above the streets, which are thus sharply defined linear spaces. The few gaps—the parking lots and the occasional new plaza—do not destroy the continuity.

Around the mouth of the Chicago River, however, this regularity gives way to a different, equally distinct pattern of free-standing towers on isolated, irregularly shaped plots. Here are the buildings like the Tribune Tower which strive for effects of loftiness. Their grouping offers some picturesque vistas, but it has the major fault of discontinuity at the ground level. Each building is on its own island bounded by streams of traffic and a twisting river.

Assertive forms like those of Marina City need this kind of setting. They would destroy the character of a tight-knit area like the Loop. The design of these buildings exploits their exposed, isolated position to the fullest, giving them a consistent, identifying image from all angles of view.

Marina City, so far, has had little effect on development of neighboring properties, although efforts to assemble the blocks to the east and west have been reported. It has had an evident effect, however, on the thinking of developers and the public in Chicago about the mixing of land uses. When a story about a proposed 100-story building to be designed by Skidmore, Owings & Merrill came out in Chicago newspapers (see page 96), the functional arrangement of the building—apartments over offices over parking—was not treated as revolutionary. This kind of mixture had been tried in Chicago and had worked.

A form for every function

The functional parts of Marina City are clearly articulated in the forms of its buildings. The internal character of each—cellular apartments, continuous parking ramps, divisible office space—is clearly visible from the exterior.

Some of the parts are housed in such simple forms—so self-contained and separated from their context—that they look like objects set in place by some massive hand. Indeed, they seem to have been designed as objects, with little attention to the spaces either inside or outside them.

The major design virtues of these buildings—logical internal organization, direct expression of function, comprehensible form—are those of good industrial design. The aura of industrial design is reinforced by the duplication of the towers, implying that they could be reproduced indefinitely.

But even if its spaces fail—even if its buildings are no more than well fashioned objects—Marina City makes some challenging points about what can be done to our cities. It demonstrates that a private development, designed primarily for profit, can enrich a city—and do it by being startlingly unconventional. And it shows that Americans—even American architects—can still be excited by acts of sheer audacity in building.

—John Morris Dixon.

Viewed as a group of giant objects—deficiencies of space and detail aside—Marina City demonstrates the value of audacity

FACTS AND FIGURES

Architects & Engineers: Bertrand Goldberg Associates. Structural Consultants: Severud-Perrone-Fischer-Sturm-Conlin-Bandel; Mueser, Rutledge, Wentworth & Johnston; Dr. Ralph Peck.

Building area: Apartment Towers: apartment floors, 1,300,000 square feet; garage floors, 300,000 square feet. Office building: 180,000 square feet. Base structure commercial space: 168,000 square feet.

Costs: Site, $3,000,000; Towers, $16,800,000; Office building & base structure, $15,200,000.

Rentals: Apartments $115–$350; Office space $5.50 per square foot; Commercial space $4.00-$6.00 per sq. ft.

Photos by Orlando Cabanban, except: p. 70 (top) Arthur Siegel; p. 70 (models) Bill Engdahl, Hedrich-Blessing; p. 71 and p. 73 (apartments) Hedrich-Blessing; p. 75 (skating rink) Joseph Sterling; p. 76 (aerial) Aerial Photos of New England.


PARKING
LEFT TURN
PARK
INSIDE HEATED
Drake's
MAYORS RO
RESTAURANT-LOUN
BANQUET
FOR ALL
United Artists

Catherine Bauer Wurster

1905-1964

An appreciation by Douglas Haskell

We had no appreciation of how important Catherine Bauer Wurster was until her life was accidentally snuffed out, before she reached the age of 60 years. She was a forerunner, a prototype. She embodied, in her womanly way, but with directness and toughness, the characteristics of the coming leader in the art of making this earth a tolerable abode—a suitable habitation, a good place, a setting for human action, an expression of human aims, a theater for human life.

Even while Catherine was being praised in the pages of the Forum a score of years ago for having made her name "synonymous with housing," she had already far enlarged her realm. As early as the late twenties, Catherine had learned the larger art of regional planning through a New York group of architects led by Clarence S. Stein and Henry Wright.

Subsequently the history of our times merged the two arts of architecture and planning into the comprehensive art of "environmental design," thus named by her husband William W. Wurster through the title of the school at Berkeley, California, which she helped him found. Had this art maintained an army, she would have been appointed a general, if not chief of staff. As a master of strategy she was unsurpassed.

Her friend Charles Abrams, the lawyer turned housing and planning consultant, remarked of her, "She knew her real influence came from her ability to manipulate, identify the strategies, see the right people who were the forces, and gain the objective." Coleman Woodbury, who watched how she lobbied in the early days, remarked on her uncanny ability to "disagree with somebody explicitly without insulting him."

The rounded preparation

She could not have prepared herself more completely for her ultimate statesman's role if her life had been preplanned. Not yet knowing what would be her career, at Vassar College she majored in English, the great medium of communication, and skipped over to Cornell during her third year to study architecture, the language of social form. (But she fled Cornell when she found it all Beaux-Arts.)

Of her style in personal letters, Lewis Mumford compares its flair in observation and its manner to

Virginia Woolf, whom Catherine visited in 1938. She would have written brilliant novels, he thinks; and just that, she told her mother last fall, she was anxious to do.

In her later papers, readers rarely paused to note the vividness and precision of her prose; they simply noted how clear and right she was. But she did plant vivid words for keeps: "sprawl" she popularized, and "scatteration" was hers.

On graduation she went whooping over to Paris with the "lost generation," stockingless, with slicked-down bobbed hair, and dipped into the magic, then at its brightest, of modern art. It gave to her concepts the body and color and bold large imagination which 999 out of one thousand planners and reformers lack.

Returned to New York, she induced the despised bourgeoisie to give her fat jobs. As advertising manager, no less, of publishers Harcourt Brace & Company, she met Lewis Mumford, had hot arguments over the esthetics of the Bauhaus, learned from him about the social contexts of art, and was brought to the fountainhead of the biggest ideas for building America as a just and beautiful new world.

Research and writing

This fountainhead was the regional-minded architects already mentioned. They were 30 or more years ahead of where most people are now. Stein in particular took Catherine under his wing. He recognized her as "special," and gave her closely superintended jobs of research in connection with going jobs.

Her research gift was nourished by Catherine on two trips to Europe during the early part of the next decade. From a 1930 voyage to study modern architecture abroad, she returned with a bagful of pictures and information about housing; she entered this material in an "Art in Industry" contest in the then new magazine *Fortune;* won the $1,000 prize offered by Pittsburgh department store magnate Edgar Kaufmann; was sent back with writer Mumford by *Fortune* to research a housing series; and used her large overplus material to produce the classic book, *Modern Housing.*

It is interesting to recall that in 1934 there existed not one smidgen of a national housing policy in the US, and also very little of that foundation grant system without which the fat cats of today's research won't move. "Casey," as her friends called her, wrote *Modern Housing* while living thin and hopping about ahead of the demolition crews of Rockefeller Center to find cheap rooms.

The importance of politics

Lobbying next. How one of the first national housing bills was lobbied together by a pair of young architects and a pair of young researchers, man and girl, was one of the sagas of the New Deal.

In 1934 Catherine met Oskar Stonorov, the Philadelphia architect who, with Alfred Kastner, was designing the Carl Mackley Houses for the American Federation of Hosiery Workers as an early federally aided job. This was no peaceful venture but included one classical labor march, storming City Hall—and effective it was.

John Edelman, research director then of the Hosiery Workers (he was to rise high in the labor movement), was the son of none other than the architect John Edelman, who had introduced Louis Sullivan in Chicago to his future partner Dankmar Adler. Out of endless discussions, their first idea for a permanent US housing authority was hatched together in Edelman's cubby-hole office on a Sunday afternoon, and thence snowballed (with heavy accretions of mud and gravel) over a complex path to become the Wagner-Steagall Bill.

It didn't hurt that, as early as 1932, candidate for President Franklin D. Roosevelt had already attended a convention of the small, but highly able, Regional Planning Association of America when Casey was its secretary; for it was he who gave the influential, conservative Steagall virtual orders to support this first of a series of bills with which Catherine was to be concerned.

Along the way, however, Casey enjoyed a big variety of other support. She was liked by the steel-helmeted shipyard workers at Camden with whom she had put in 16-hour working days. Of course, the top labor leaders whom she charmed and persuaded into making her a labor spokesman were tougher than these, as were the Congressmen and the Senators. From the tough ones she always got respect.

Two fine forward-looking Senators of the time, Raines and Sparkman, both remember her cordially, Raines declaring her a "great listener"; but that warmhearted legislator, the elder Bob Wagner, was her special friend. He had grown up in the slums, and adored the bright practical girl who could tell him what to do about them. In 1940, when at 35 she decided to marry the Californian William W. Wurster, Wagner is reported to have demanded plaintively, "Catherine, couldn't you have found some nice young man in the East?"

Through a whole series of later housing bills, organization and administrative jobs and activities, Catherine in the late thirties spent an active but less significant part of her life. The log jam had been broken—whatever its remaining problems, housing was a fact.

The educator much beset

Her marriage, after a fast courtship, opened a new life. It was not simply that Catherine, late married and giving birth to daughter Sadie at 40, entered a new domestic career; it was that she entered education, of all occupations the most frustrating behind fair promises.

After a spell at Harvard, while her husband was dean of the architecture and planning school at nearby MIT, they went back west. Here, at their College of Environmental Design at Berkeley Catherine might finally have had the chance to put together a comprehensive published theory under the ripe wisdom gathered through her active life, except that California, her new *patria,* was so manifestly in a near disaster state. It faced the peril of fair fields and villages caught in the path of a fast-moving sea of lava flow—composed of a combination population increase, building spread, and traffic congestion.

Catherine had to devise new practical formulations of open land policy, on the run; and to organize workers too, to dash to legislatures and state officers, seeking measures that might channel and contain the flood. Nor had her old interests dropped. So, as Abrams remarks, "she was influencing national policy, trying to change state policy in California, getting Ford and other foundations to become involved, operating at political levels and trying to create a better university at Berkeley, all at once." And she was trying to set up projects in India too.

In part, the reason why confidence grew in any group when she approached was the flexible quality of her mind. For one thing, she put the practical first things first. True, this sometimes got her billed as less comprehensive in total purpose than she was—"people *still* don't know what I'm all about" was a complaint—but it got things done in a far healthier manner than can be attained by single-minded brutes.

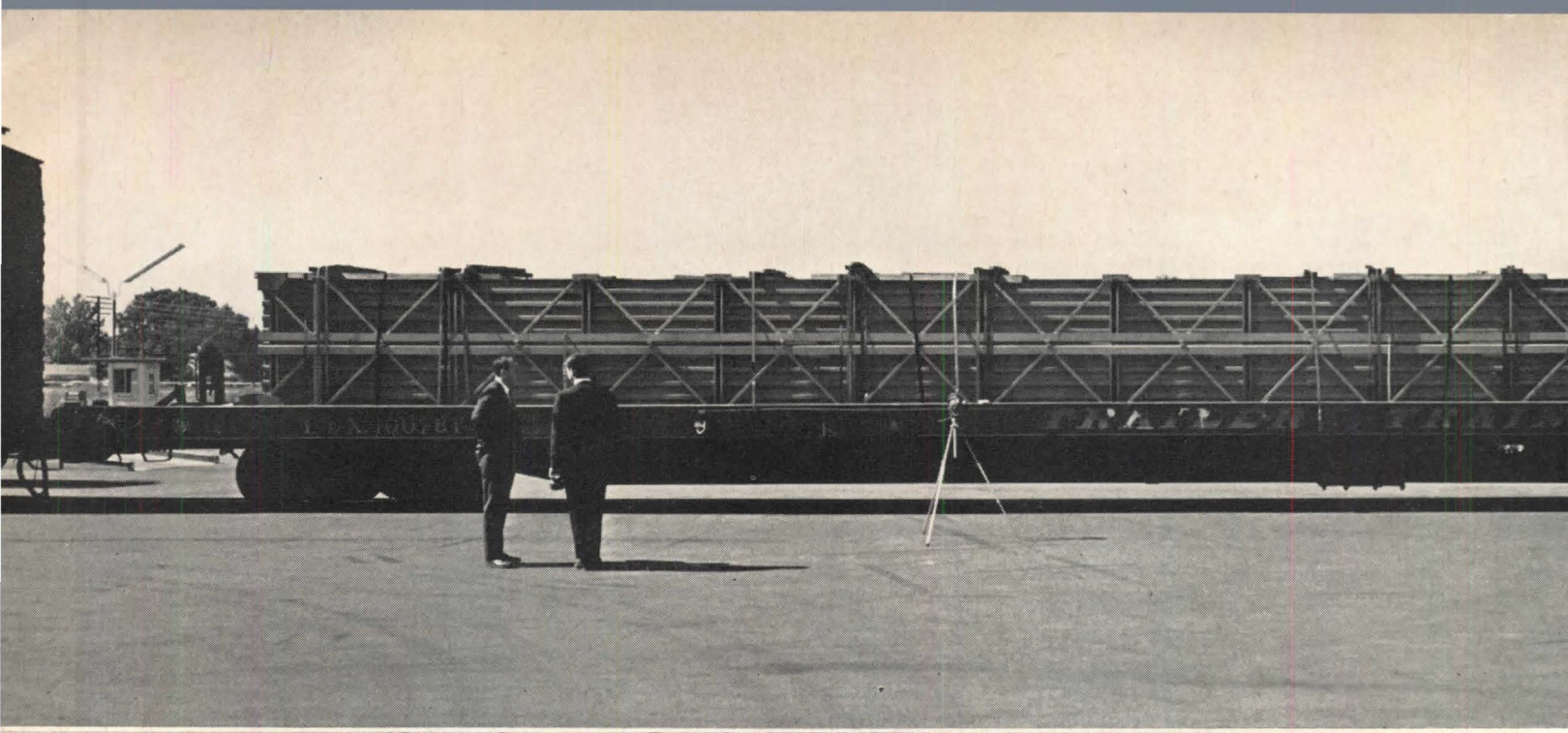
"Selfless like a saint"

She could change her mind even on major issues, and especially in order to bend or unite divisive influences rather than to oppose and attack. Her mind was rich, and her sensibilities strong, so that her infrequent architectural criticisms of later days sparkled as much as did her earlier ones.

Beyond this there was a quality of soul which Mumford describes: "She was selfless like a saint though not a saint," and of which Ed Bacon observes "Catherine affected my thinking and my life deeply, but because of some underlying *connection* rather than what she taught."

Even casual technical papers of hers reflected this. "Amenity," she remarked of Californians, "is our fundamental economic resource. We are by and large self-selected to care for our physical surroundings: almost universally we like sun, scenery, flowers, water, mountains, houses with yards, barbecue parties, outdoor sports, camping, fishing, and a taste of the wilderness now and then." It was for this, she explained, that we bought the houses and roads and cars and built the towns which some mistake for our primary wealth. In her chapter in "Goals for Americans" of 1960 with all its closely reasoned strategy, this was evident.

So her life ended, suddenly, on a walk on the big gentle hills. One of those who found her described the brilliant day of the search. They found her, he said, stretched out full-length as if asleep, one arm extended, face calm, her very clothes "faded into the color of the surrounding plants" in the land she loved; and among all the hundreds who helped there was surely not one whom this great love of hers had not personally touched.



ARCHITECTURE BY THE CARLOAD

The elegant pavilion below is the most convincing demonstration in the US to date that building with standardized components need not diminish architectural quality. It is the prototype for the School Construction Systems Development program (FORUM, February 1964), erected on the Stanford University campus.

The biggest element of the 3,600-square foot building—the entire roof, complete with decking—arrived on a single flatcar (above left). Once this frame was unfolded and set upon its eight cruciform steel columns, co-ordinated ceiling-lighting, air-conditioning, and partitioning systems were popped into their predetermined places. Finished with exterior walls and fascia of the designer's choice, the components added up to a highly sophisticated work of architecture.

The process will soon be repeated in 22 new California schools, some of which are shown on page 84. The savings in California alone are expected to total more than $2 million—plus months pared off construction time.

The 13 districts building the California schools were rounded up two years ago by the SCSD program and its sponsors, the Educational Facilities Laboratories, to assure that the immediate market for the components would be big enough to attract manufacturers. An SCSD team headed by Architect Ezra Ehrenkrantz analyzed the schools' programs, and came up with a set of performance specifications covering all elements of the building except exterior walls.

Performance standards were deliberately aimed well above those of available components to stimulate research. Nevertheless, when five collaborating manufacturers were chosen from among 26 bidders in early 1964, their combined figure was $6.85 per square foot of typical building—18 per cent below the cost of comparable (but not equal) components then on the market.

The next step, just completed, was construction of this prototype. Designed for testing of components in specified arrangements, the building has a single divisible interior space 60 feet square (corresponding to the capacity of a single rooftop air-conditioning unit). Partitions are now being rearranged periodically, but when they finally come to rest the building will serve as SCSD headquarters and demonstration model for two years, after which it will be turned over to Stanford.

In his design for the building, Ehrenkrantz laid out the roof trusses to span 70 feet, supporting them on eight slim columns outside the exterior walls. Overhangs cantilevering 10 feet beyond the glass provide sun control to meet the conditions of the air-conditioning specifications.

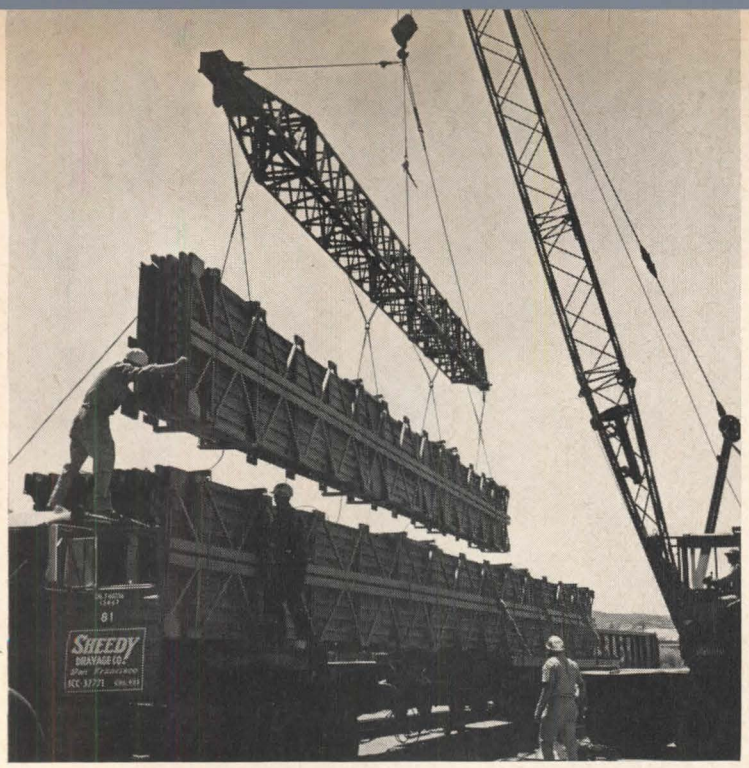
As a means of adjusting the exterior walls to the many intended changes of layout, Ehrenkrantz detailed the mullions to accept the snap-on panels of the interior partition system, so that areas of wall can be made opaque at will. (Use of gray tinted glass reduces the problem of unsightly dust accumulation behind the panels, and joints are tight enough to keep out insects.)

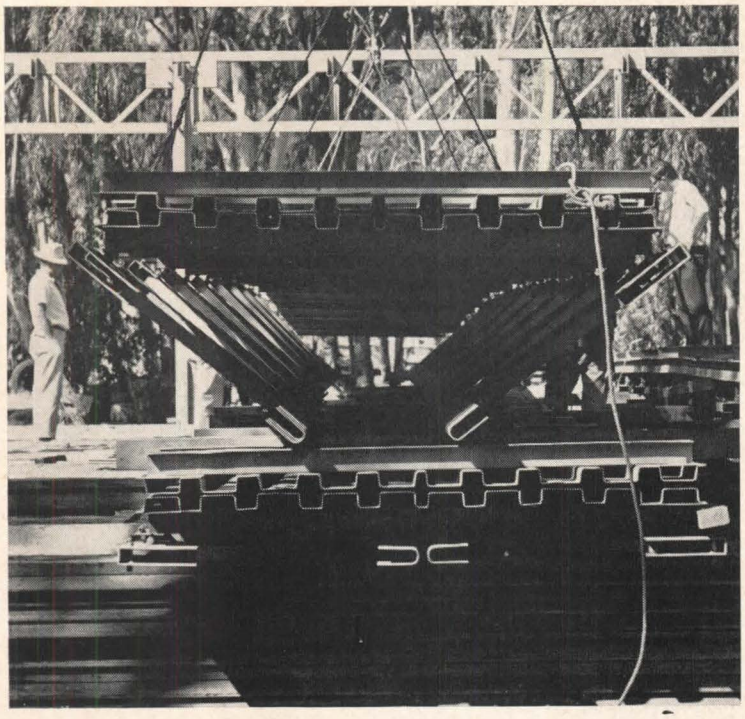
In the tests conducted so far, many components have performed beyond specifications, but other results have been "borderline." In some areas, where the specifications went far beyond existing standards, requirements have not yet been satisfied.

The movable partition manufacturer, for instance, is only now within striking distance of the chalkboard specifications. Using a type of epoxy coating on steel panels, the manufacturer hopes soon to produce a board with prescribed resistance to impact, abrasion, hair oil, lipstick, and household bleach. Who uses household bleach on chalkboards? It's generally on hand in the schoolhouse, says Ehrenkrantz, so sooner or later somebody will.

Another component not yet perfected is the air diffuser, which is built into the ceiling runners. So far it has been possible to meet the acoustical specifications or the ventilation specifications, but not both at once.

In some cases, required changes in one component system have led





Pre-assembled truss-deck units (top) unfold as they are lifted into place (middle). The top layer of decking, attached by hinges, is then flopped over to meet the next truss-deck unit and welded in place. A ceiling of sheet metal lighting coffers (bottom), assembled at the site, is one of several alternative suspended ceilings designed for the system.

FACTS AND FIGURES

School Construction System Development Program Demonstration Building, Palo Alto, California.
Client: First California Commission on School Construction Systems. Architect: Ezra D. Ehrenkrantz, AIA Collaborating Manufacturers: Inland Steel Products Company (structural-roof and ceiling-lighting systems); Lennox Industries (air-conditioning system); E. F. Hauserman Company (movable partition system); Western Sky Industries (panel-type operable partitions); Hough Manufacturing Company (accordion-type operable partitions).
Building area: 3,600 square feet.

Photographs: Rondal Partridge

Parts fit neatly into place, but some problems remain

to adjustments in others. One problem, now solved, involved redesign of the structural support for the rooftop air-conditioning unit, which then forced rearrangement of mixing boxes to fit new clearances.

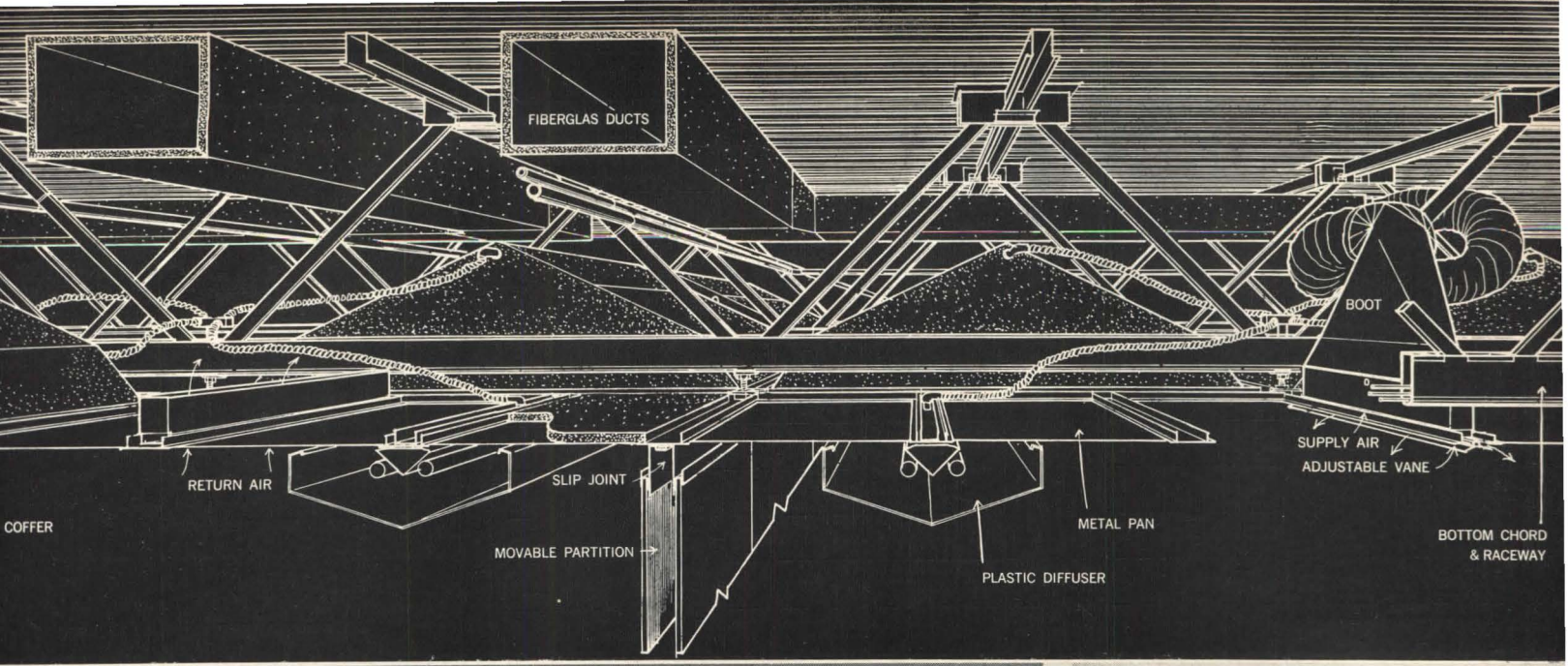
The fact that some problems remain unresolved a year after contracts were awarded is no cause for embarrassment, Ehrenkrantz points out. It merely proves that —even with extraordinary good will and collaboration—the development of coordinated component systems to meet high performance standards is a very complex undertaking.

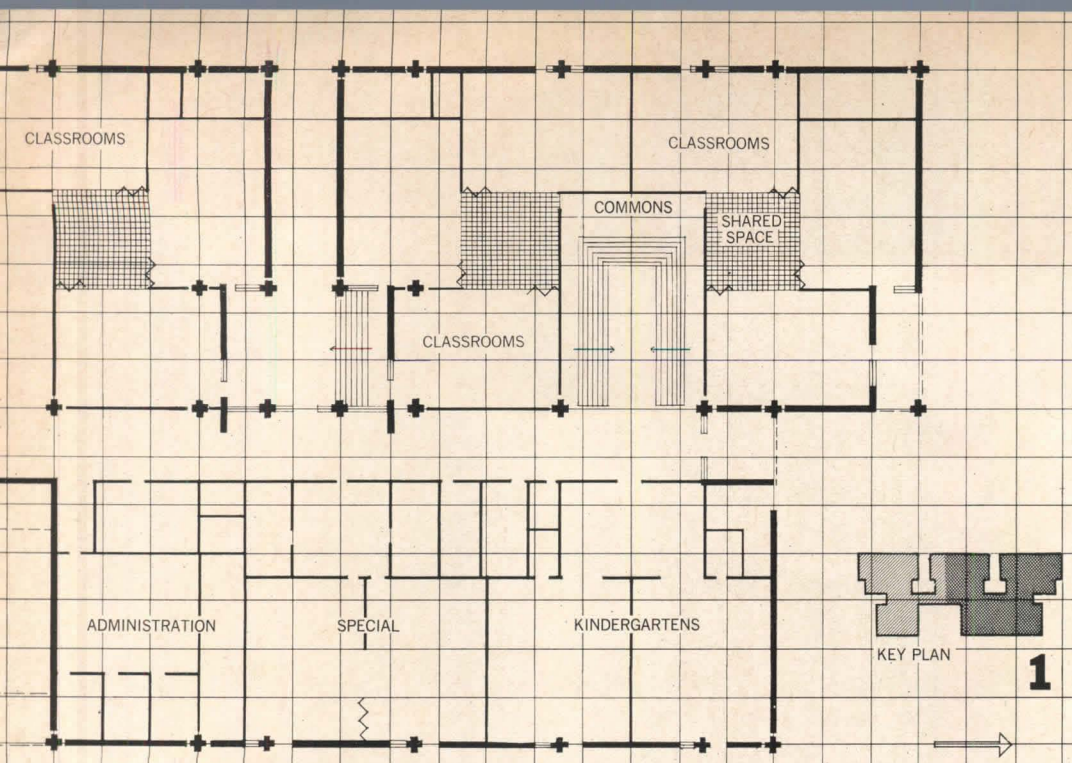
The first physical realization of the system demonstrates several of Ehrenkrantz's theories. One is that modular coordination must be more than mere repetition of a module in three dimensions and for all components. "Every component," he says, "has its appropriate dimensions."

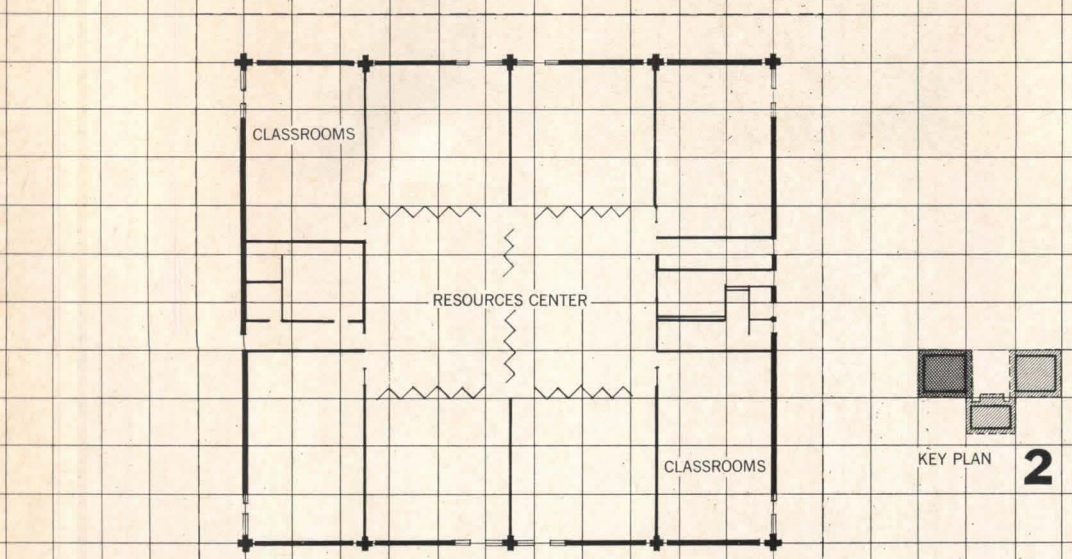
The SCSD system thus embodies several co-ordinated modular systems: 5-foot ceiling modules (appropriate for lighting, ventilation, and structural framing); 40-inch partition panels (related to doorways, stairs, and corridor widths); and a basic vertical module of 2 feet (a reasonable minimum increment of ceiling height).

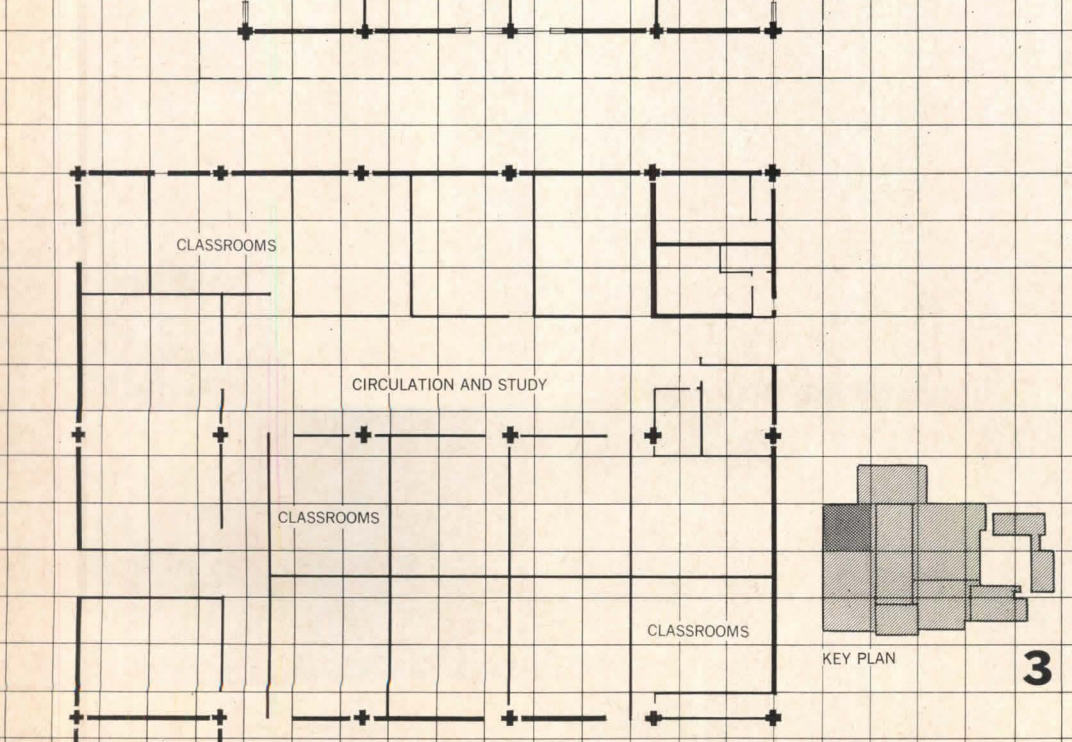
Ehrenkrantz's convictions about the "sociology" of the building process were also reinforced by his experience with this project. Some members of the building team are particularly sensitive about economic losses through preassembly—not necessarily labor, but others such as structural engineers and electrical contractors. He has found that members of these groups are willing to make some sacrifices if others are making similar adjustment.

Technological innovations also require collaboration between producers and clients—and someone must bring them together. "Building methods will change," says Ehrenkrantz. "The question is whether the architect will direct these changes. This battle is going on today, although many architects don't know of it." The objective in this battle, for Ehrenkrantz, is more than mere self-preservation for the architect: it is the survival of professional service in building design and construction.


FIBERGLAS DUCTS
BOOT
SUPPLY AIR
ADJUSTABLE VANE
RETURN AIR
SLIP JOINT
COFFER
MOVABLE PARTITION
METAL PAN
PLASTIC DIFFUSER
BOTTOM CHORD
& RACEWAY







The final test: quality and cost of 22 actual schools

The real test of the SCSD system will take place in the 22 participating schools, now in preliminary design. The actual economies achieved in these schools will be a critical measure of the system's success, determining in large degree how widely it will be used elsewhere.

The range of architectural character and layout attainable using the system will be another significant measure. Although Ehrenkrantz is justifiably pleased with his treatment of the system in the prototype (facing page), he sees no reason why some of the schools should not be "architecturally superior." The variety of plan possibilities is indicated in the sampling at the left:

1. An elementary school for Santa Cruz by Ehrenkrantz's own firm (Ehrenkrantz & Leefe) demonstrates the adaptability of the system to complex layouts. Clusters of three classrooms for each grade open into a central shared space. Two such clusters share a larger common space, which leads into the "interior street" that ties the whole school together. System components permit complete rearrangement of each six-classroom block.

2. The Mountain View Elementary School for the Simi Valley District, by Daniel, Mann, Johnson & Mendenhall, one of the smallest of the SCSD schools, uses close to the maximum allowable span of the system to cover a highly flexible classroom building.

3. The Fullerton Union High School by William E. Blurock & Associates exploits the economy of the structural system by sheltering an entire "campus plan" complex under a continuous roof. Within the "buildings" of this campus, classrooms are clustered around common spaces that serve for both circulation and individual study.

The SCSD system is now being considered for use in many areas *outside* California. In fact, the first SCSD school to reach the construction stage is in Barrington, Illinois (a middle school by Cone & Dornbusch of Chicago).

The SCSD program will not end with the construction of these first component-system schools. Continuing studies of these schools in use may lead to even more sophisticated component systems.

HEATING WITH LIGHT

BY BERNARD P. SPRING

For years we have been wasting millions of dollars worth of heat in buildings during the coldest months of winter.

Except in the dead of night, or when outside temperatures drop to the teens, most modern structures actually suffer from a surplus of heat — heat generated by people, by equipment, but mostly by lighting fixtures.

Until recently, engineers simply threw away these billions of BTU's. But today, at least a half dozen systems of heating with light are in operation in major buildings, and 15 more are being installed.

Three factors contributed to the sudden emergence of such heating systems:

► First and most important has been the steady increase in lighting levels. While lighting specialists are still debating the relative merits of more footcandles versus better control of glare, high-intensity lighting is enjoying an increasing popular acceptance.

At the level of 150 footcandles, calculations show that heat from the lighting system, people, and equipment can make a building self-heating until the temperature drops to a few degrees above zero (graph, opposite page).

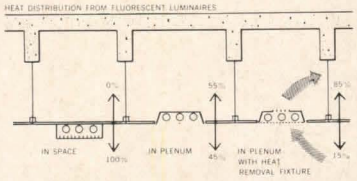
► Second, research over the past six years has produced intricate systems for recovery of heat—and for its transfer to the outside walls where losses actually occur. The research has been led by the engineers of General Electric's Nela Park laboratory (even though GE does not make light fixtures, and so leaves the manufacture of the systems to others).

Essential to each of the systems is modification of the familiar fluorescent fixture to make it a heat gathering device.

About 85 per cent of the energy supplied to a fluorescent lamp comes out in the form of heat. With conventional fixtures, all of this heat pours into the room below.

The new fixtures use a stream of air (or in one case, water) to capture this heat before it gets into the space (diagram below).

► Finally, a pivotal factor in the increasing use of heat recovery systems has been the entry, full



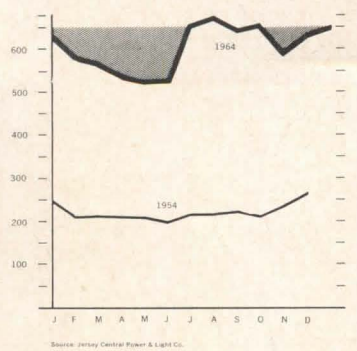
tilt, of the electric power companies into competition with fossil fuels for heating.

The burgeoning use of air conditioning over the past ten years has produced a valley in power consumption during the heating season (graph below). To fill this costly valley, power suppliers in many areas are offering special rates and technical assistance to anyone who will consider the use of electric heating.

Once levels above 100 footcandles are accepted, systems that heat with light can bring savings up to 8 per cent in annual costs to the building owner (combining first cost and operating cost). With all that it has in its favor, however, the heating-with-light concept is suffering the usual growing pains of new building technology.

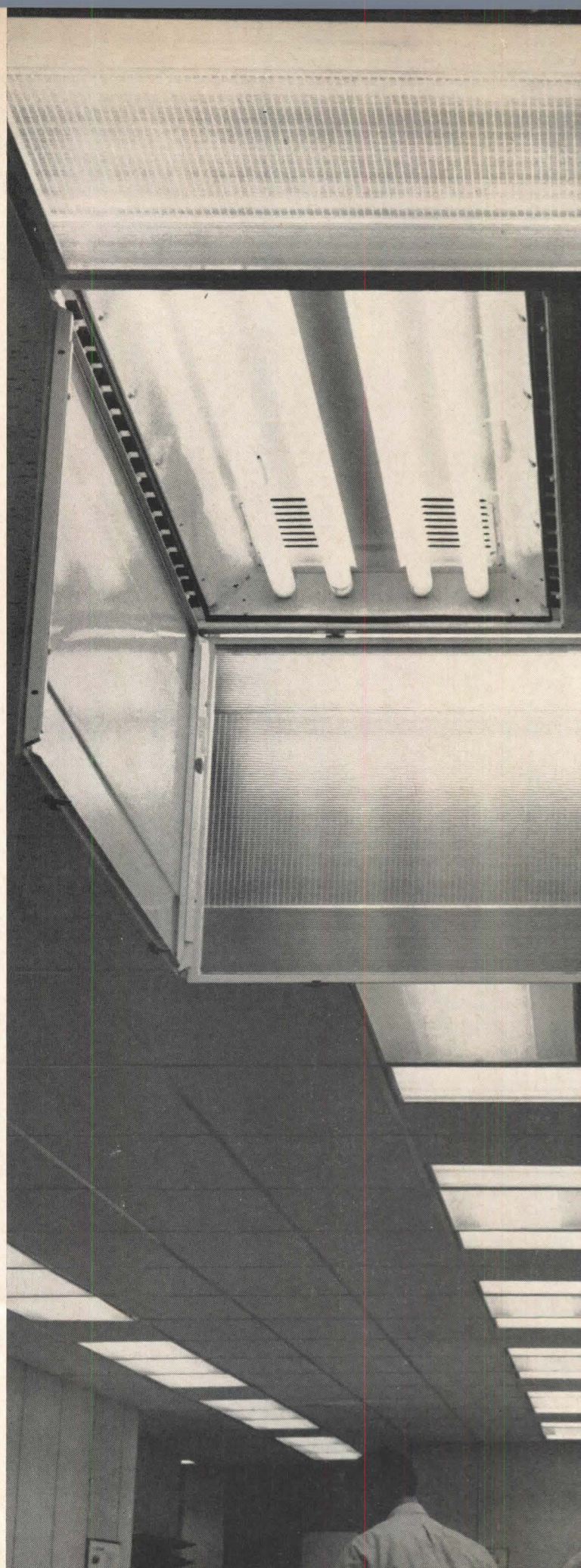
The use of such integrated systems requires that boundaries between accepted spheres of influence be broken. Once the inevitable jurisdictional squabbles are ironed out, as they have been in the examples that follow, perhaps the greatest benefit of the new systems will emerge: a fresh approach to building design as a single system.

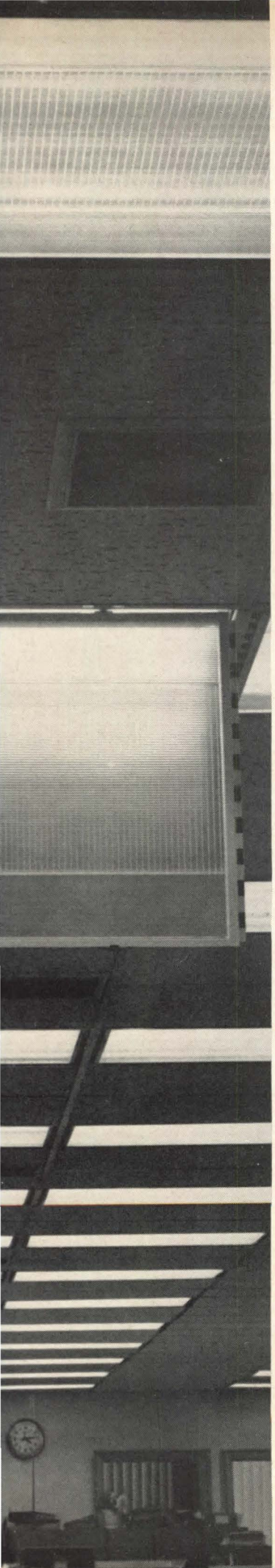
TYPICAL SHIFT IN POWER CONSUMPTION PEAKS IN 10 YEAR PERIOD



Source: Jersey Central Power & Light Co.

Mr. Spring is the former Technology Editor of the Forum, and a member of the Board of Contributors.





A New Jersey system makes multiple use of heat from lights, people, machines

The new 94,500 square foot administration building of Electronic Associates Inc. (EAI), a fast growing computer firm in Long Branch, N.J., uses only electricity for heating. Last January, the power bill for heat came to $36.

It could have been even lower, according to William Hennum, the company's plant engineer who worked out the heat recovery system with Consulting Engineer Thomas Beers. Some heat was wasted because the central monitoring and control console had not been completed.

Hennum and Beers determined that the building, designed by Architect Bernard Kellenyi without any special thermal insulation, had a surplus of heat until the outside temperature reached 15 degrees. They therefore devised their system to recapture and reuse the surplus heat in three ways:

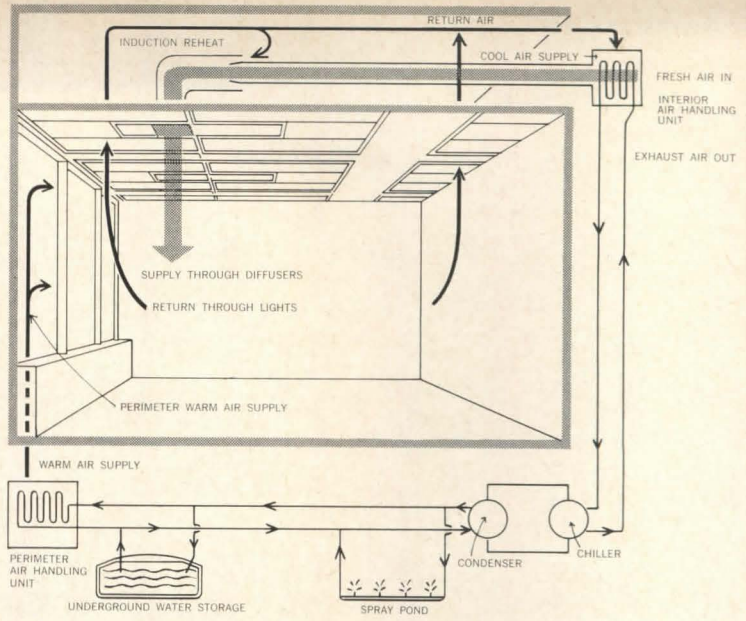
Since the conventional air conditioning machine acts as a heat pump, surplus heat in the form of return air at 90 degrees is converted to hot water at about 120 degrees. At this higher energy level, the heat is easily transferred to an air stream which warms the outside walls.

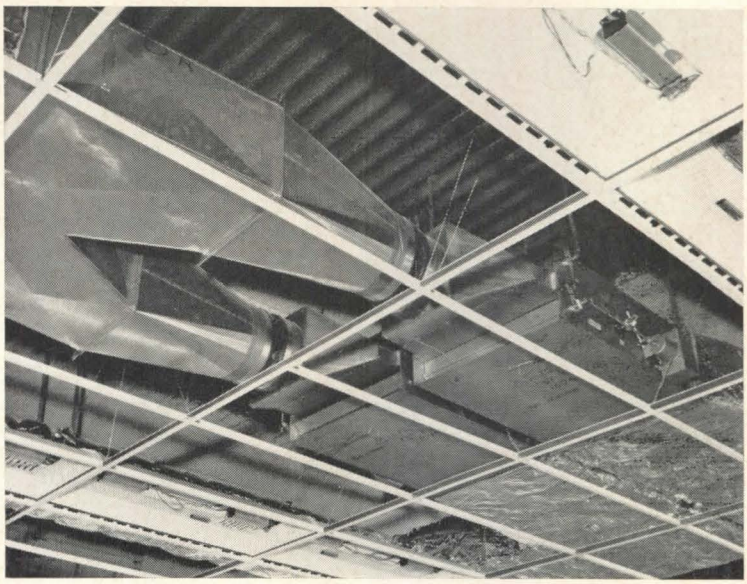
Second, the surplus heat is stored for use during the night when the lights are out. Storage is accomplished by heating the water in a 150,000 gallon underground tank which was needed anyway as a fire reserve.

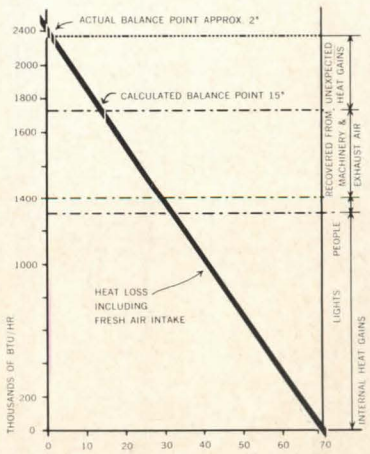
The third method of reuse is more direct. An induction unit mounted in the ceiling plenum (photo right center) mixes a varying amount to the warm return air with the stream of cool air coming from the chiller.

This last use of the surplus lighting heat allows the kind of precise control of interior zone temperatures previously possible only with much more expensive systems. Because of this new device, EAI's offices have the luxury of 40 separate thermostatically controlled interior zones.

For every unit of electrical energy needed to run the air-conditioning machine, four units of energy are made available for heating. Electric heat thus costs EAI no more per BTU than the least expensive fossil fuel.

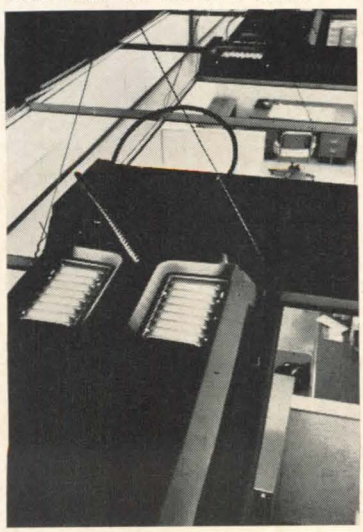






HEAT GAINS & LOSSES VS. OUTDOOR TEMPERATURE

PHOTOS BELOW AND OPP. DAVID HIRSCH



A utility uses special light fixtures to cut the cost of thermal comfort

This giant eggcrate of a ceiling, designed by Gilbert Associates for the Ithaca office of New York State Electric & Gas Corporation, represents one of the most complete environmental control systems yet devised.

A single unit handles the shielding of glare, the absorbtion and attenuation of sound, the supporting of partitions, and the supply and return of air. The only thing the system does *not* do — and it easily could be made to — is reuse surplus heat to warm the outside walls.

It makes effective use of lighting heat in other ways, however. By placing return air slots directly over the fluorescent lamps, the system (in common with other heat extraction fixture designs) introduces no less than six cost-saving factors:

1. When the lamps are cooled by the return air stream, their output goes up by so much as 15 per cent. This extra output is not entirely free, since power consumption rises almost as fast as light output. But fewer fixtures are needed to attain the desired footcandle level in a room.

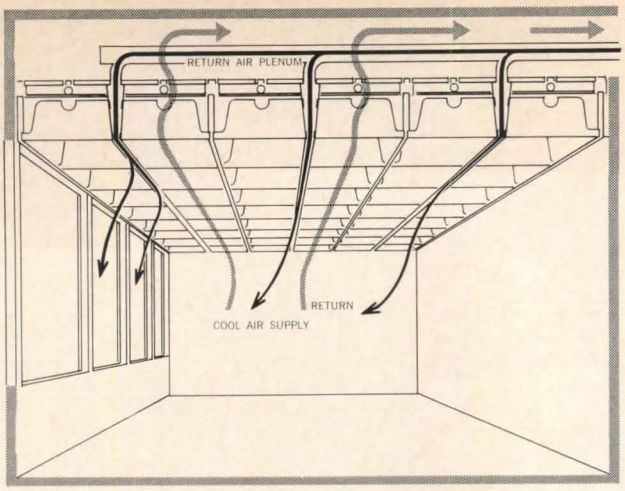
2. After it washes over the lights, the return air temperature will be some five degrees higher than it would be in a conventional system. Thus, every cubic foot of air will carry away a little more of the load than it would have in the conventional system. Less air is required for the job.

3. With this reduction in the quantity of air handled by a system, fan sizes can be cut down with a saving in first cost and operating cost.

4. The higher the temperature of the air returning to the air conditioning machine, the more efficiently the apparatus will perform. Thus cooling costs somewhat less per BTU.

5. The higher the temperature of the air exhausted from the building to make way for ventilation air, the less energy is thrown away. This cuts down the size of the chiller.

6. Finally, higher temperature return air can be used in the winter to preheat incoming ventilation air. This can eliminate the preheat coil, plus the cost of the energy supplied for preheating.



BILL ROTHSCHILD

In Marina City, heat from the lights is taken to the glazed outer walls

A visitor to Bertrand Goldberg's new *Marina City office* building (page 75) may not realize the lights are on unless he looks straight up. The closely spaced fixtures are shielded with parabolic louvers which eliminate direct glare.

The draftsmen in Goldberg's own fifth floor office know that they are working under 250 footcandles, however. They report being far less weary at day's end.

With this much illumination, the lighting system requires 12.5 watts per square foot of floor area. If Goldberg had not used heat-exhaust fixtures, office workers would have felt as though they were under the noonday sun.

Goldberg has used these fixtures in a uniquely simple system for heating the floor-to-ceiling windows of the outside wall. The floors are framed with deep concrete joists, and each floor is air conditioned by 13 individual units.

Spaces between joists are divided into three layers of services. The

Water also can put wasted heat to work. Here it runs through window blinds

Unlike the other schemes shown on these pages, the heat transfer system devised by Engineer Gershon Meckler uses water to cool lighting fixtures, plus a vertical venetian blind in which water circulates to heat and cool glass areas (photos, right)—both sufficient departures to raise doubts about the system's practicality in the engineering fraternity.

But Meckler recently completed the third successful installation of the system. And a few months ago one of the larger manufacturers of lighting equipment brought Meckler in to run a new division which will produce necessary equipment.

The feature of the system which promises extraordinary economy is the removal of both lighting and solar loads from the refrigeration plant. It works this way:

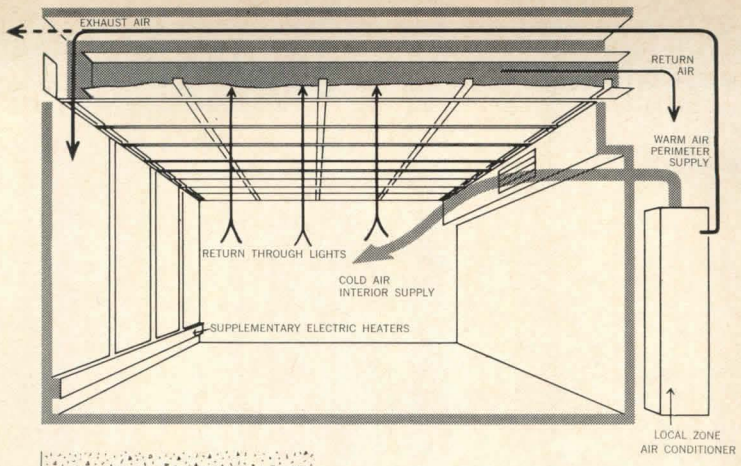
On a cold, dark, winter day, the water which is circulated through the lighting fixture housings is then run through the window blinds where it performs a heating

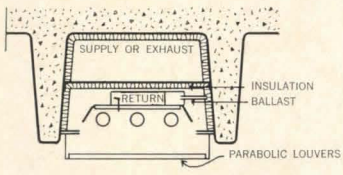
bottom layer contains the lights. Next comes a 3x10 inch return air duct that draws off at least 50 per cent of the lighting heat before it gets into the room, sending it back to the mechanical rooms along the building's centerline.

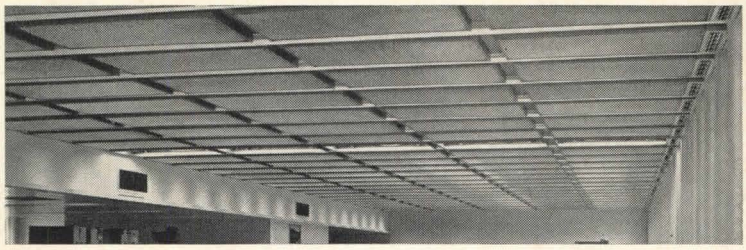
The top layer of the space between joists is used as another set of ducts. When the temperature outside falls, the warm return air is re-routed through some of these ducts to outlet grilles just over the glass panels of the outside wall. When the glass no longer needs heating, the return air is sent back through other top-layer ducts to be exhausted directly to the outside. An occasional duct space is used for fresh air intake.

At night, the outer row of lights is kept on for decorative effect and to help maintain indoor temperature in winter. An electric resistance baseboard heater supplements the lighting heat in the coldest weather.

Since the lighting is used for space heating, Commonwealth Edison charges at the space heating rate of 1.25 cents per kwh. With this rate, the total cost for lighting and heating is expected to average only 70 cents per square foot.



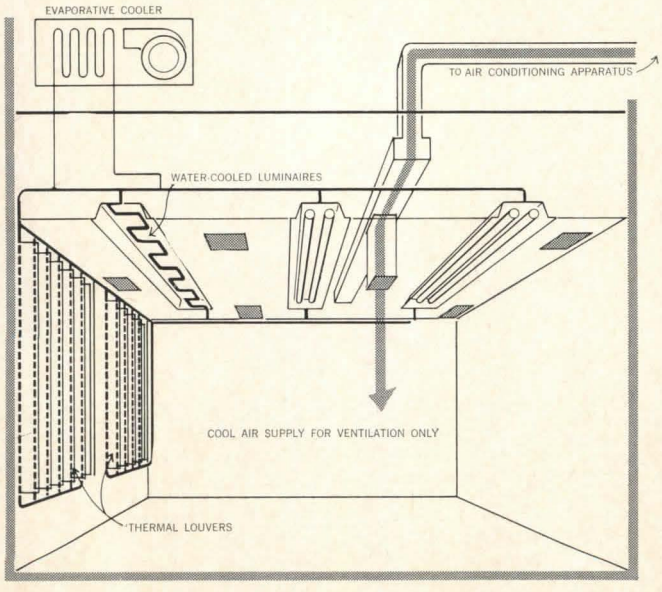


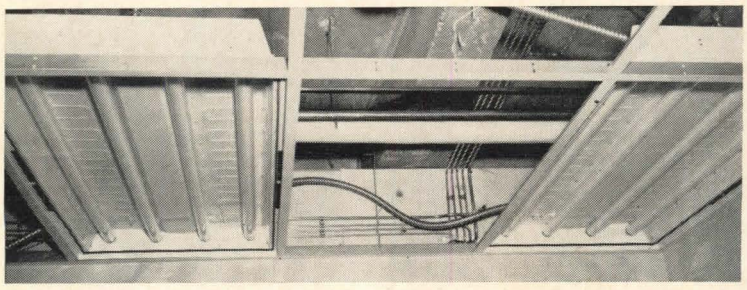


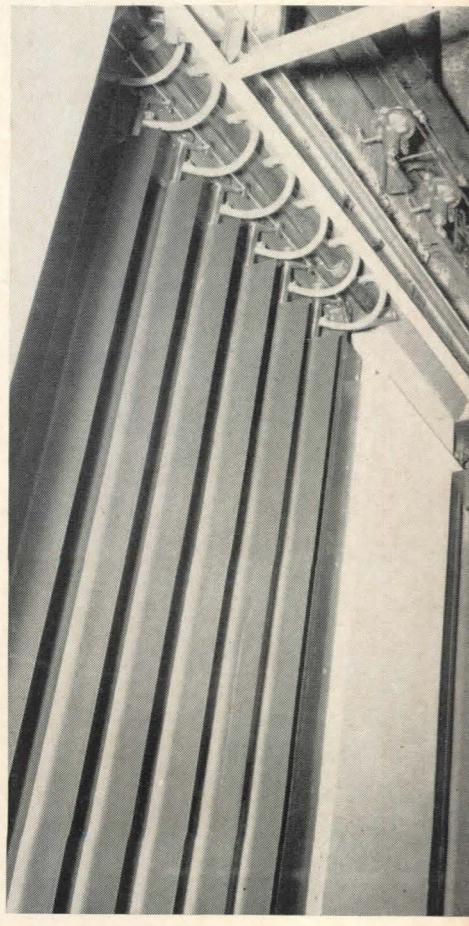
function. This cools the water enough so that it is once again able to remove heat from the lights on the next pass through the fixtures.

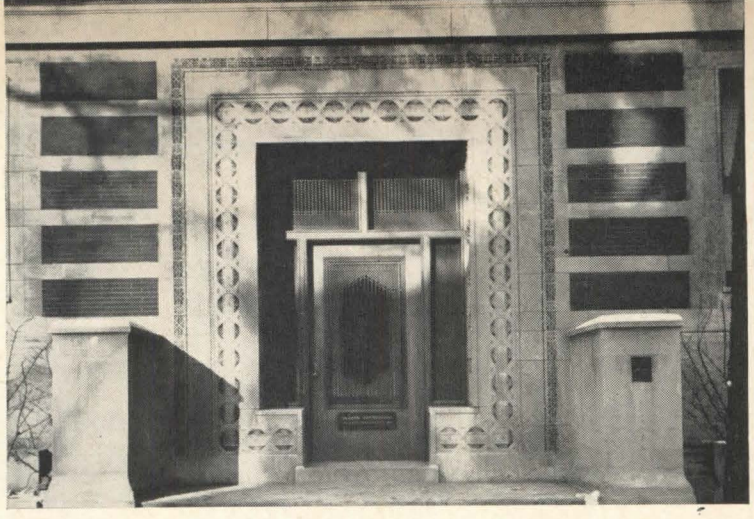
If the sun comes out and warms the outside wall enough so that heating is no longer needed, the water is circulated through an evaporative cooler. Although the evaporative cooler may only be able to bring the water temperature down to 80 degrees in the summer time, it is still able to pick up heat at higher energy levels from the lights and glass. With this water transfer, the air conditioning system need only supply enough air to control odors and humidity in the space.

In the first installation of Meckler's system, a building for Chicago's Commonwealth Edison Company in suburban Crystal Lake, some 40 per cent less refrigeration capacity and 60 per cent less air were used than would have been with a conventional system. Recovery of 60 per cent of the seven watts per square foot going into the lighting is enough to eliminate the need for any supplementary heating system when the building is occupied.









IMPROVING ON HISTORY

Behind this fine, proud entryway is a classic example in the sensitive treatment of architectural history. Built in 1903 as one of the mansions of Chicago's Gold Coast, the work of Hugh Garden of the Richard E. Schmidt office, the building is now headquarters of the Graham Foundation for Advanced Studies in the Fine Arts.

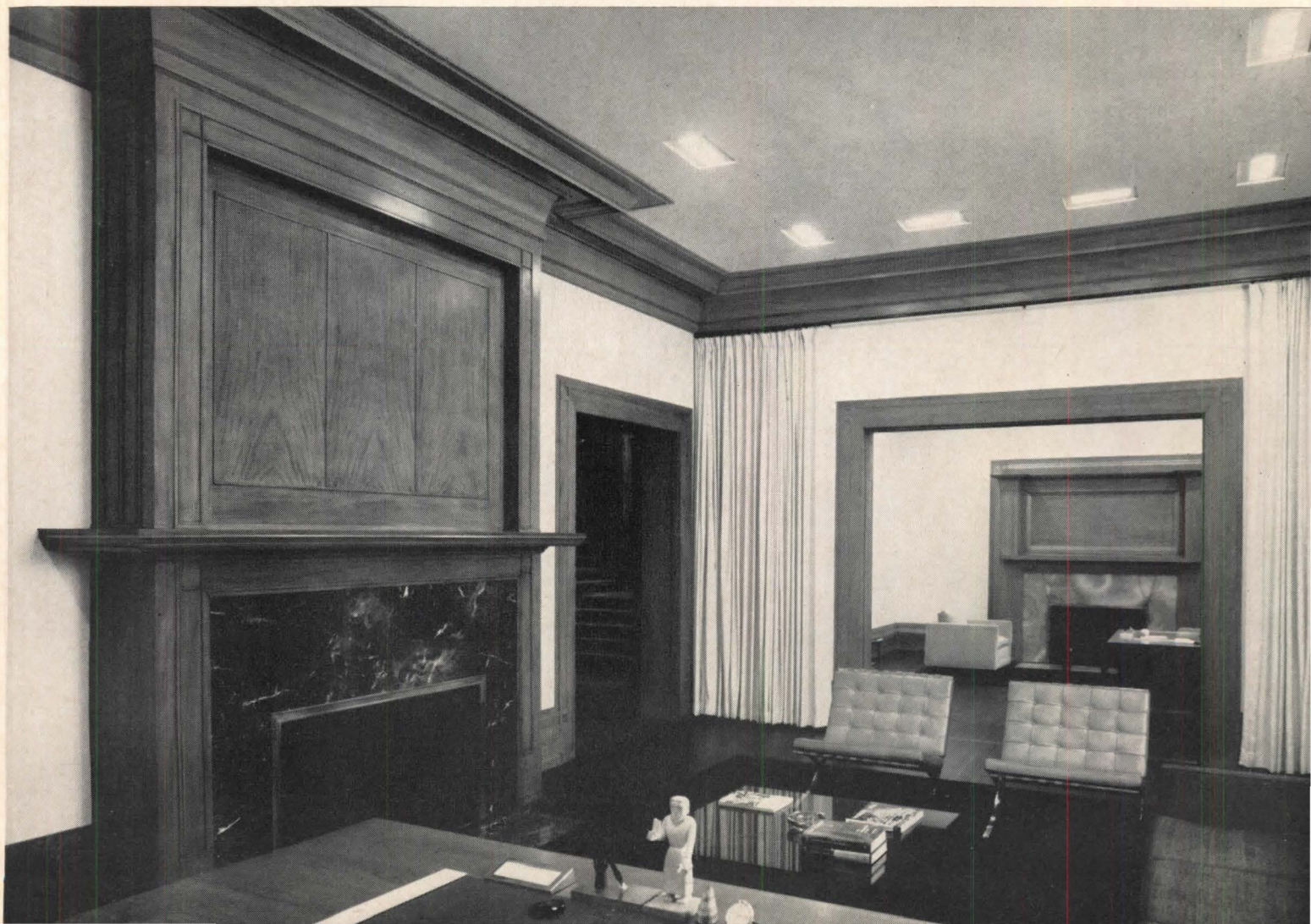
"I don't quite know what to call the job we did here," admits Daniel Brenner, the young architect and former Mies van der Rohe associate principally responsible for the mansion's transformation. Certainly it was not a remodeling. His firm, Brenner-Danforth-Rockwell, kept reconstruction to an absolute minimum.

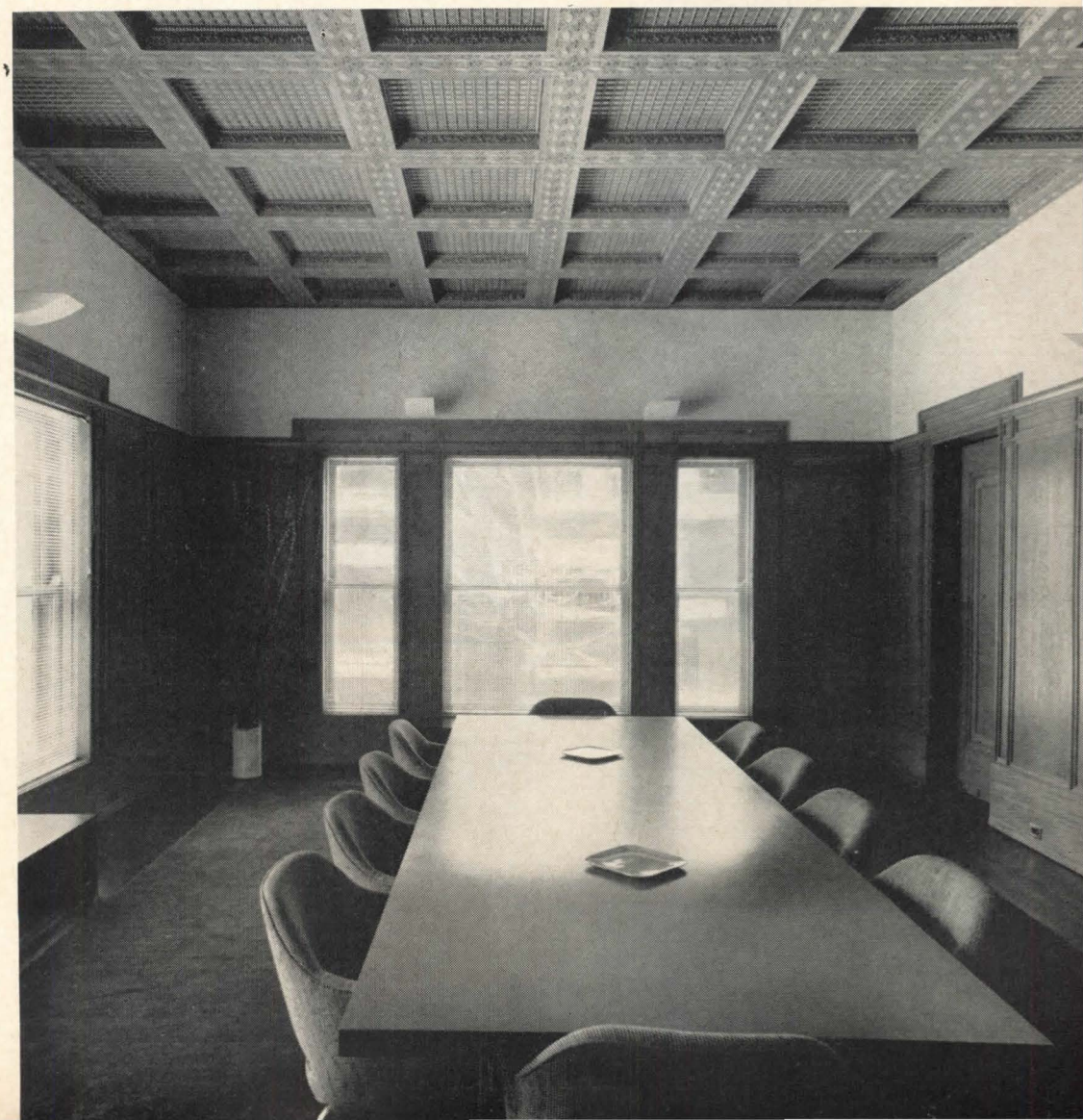
But neither was it a restoration. From the time of its building, the Sullivanesque strength of the mansion's interiors had been buried beneath the layers of decoration that *fin de siècle* fashion demanded. Comments Graham Foundation Director John Entenza, "I am convinced this is a better piece of architecture now than it ever has been."

Perhaps the job that Brenner did might best be termed an evocation—a calling forth of the inherent architectural quality of the original. The principal tool was simplification. The rich woodwork (as in the main hall, below) was stripped of the stain and varnish it had accumulated over decades and coated with a clear, flat lacquer. Walls were covered with burlap, painted white, and washed with light from recessed perimeter fixtures. The only window treatment was installation of delicate, tapeless venetian blinds. The Foundation's architects obviously knew precisely when to stop.

They almost had no chance to begin. The death in early 1962 of Mrs. Albert F. Madlener, owner and lifetime resident of the mansion, raised widespread fears that it would be razed and replaced by high-rise apartments.

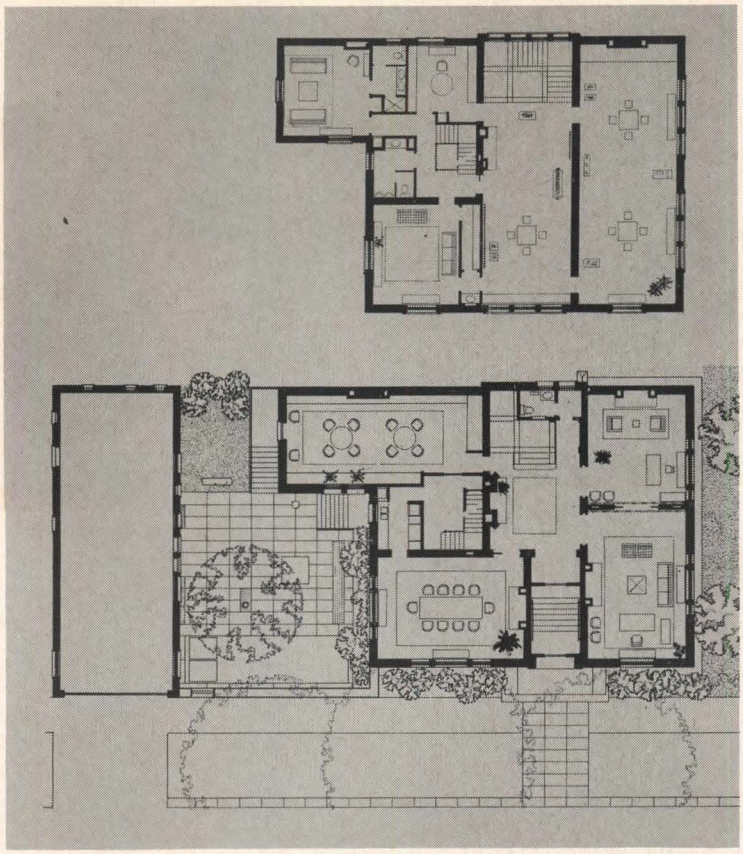
The Chicago Heritage Committee sounded an alarm, but was unsuccessful in attempts to interest the city in making the mansion an official residence. It remained for the Graham Foundation trustees, in May 1963, to make Chicago a significant bequest of the past.

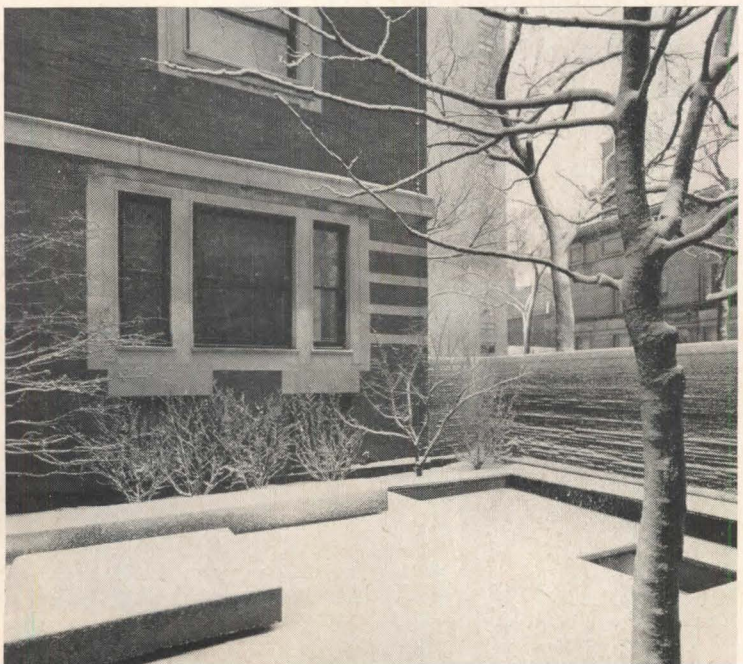




The heavy original decor (above, left) led to an impression among history-minded Chicago architects that, while the mansion's exterior was imposing, its interiors were not. The lower photo —the offices of Entenza and his secretary—shows the strength which Brenner found beneath the clutter.

The filigree ceiling of the board room (right), formerly the dining room, is emphasized by upturned quartzite fixtures. The window in the background of the lower photo represents virtually the only change which affected the mansion's exterior: its depth was increased to match other sill heights.



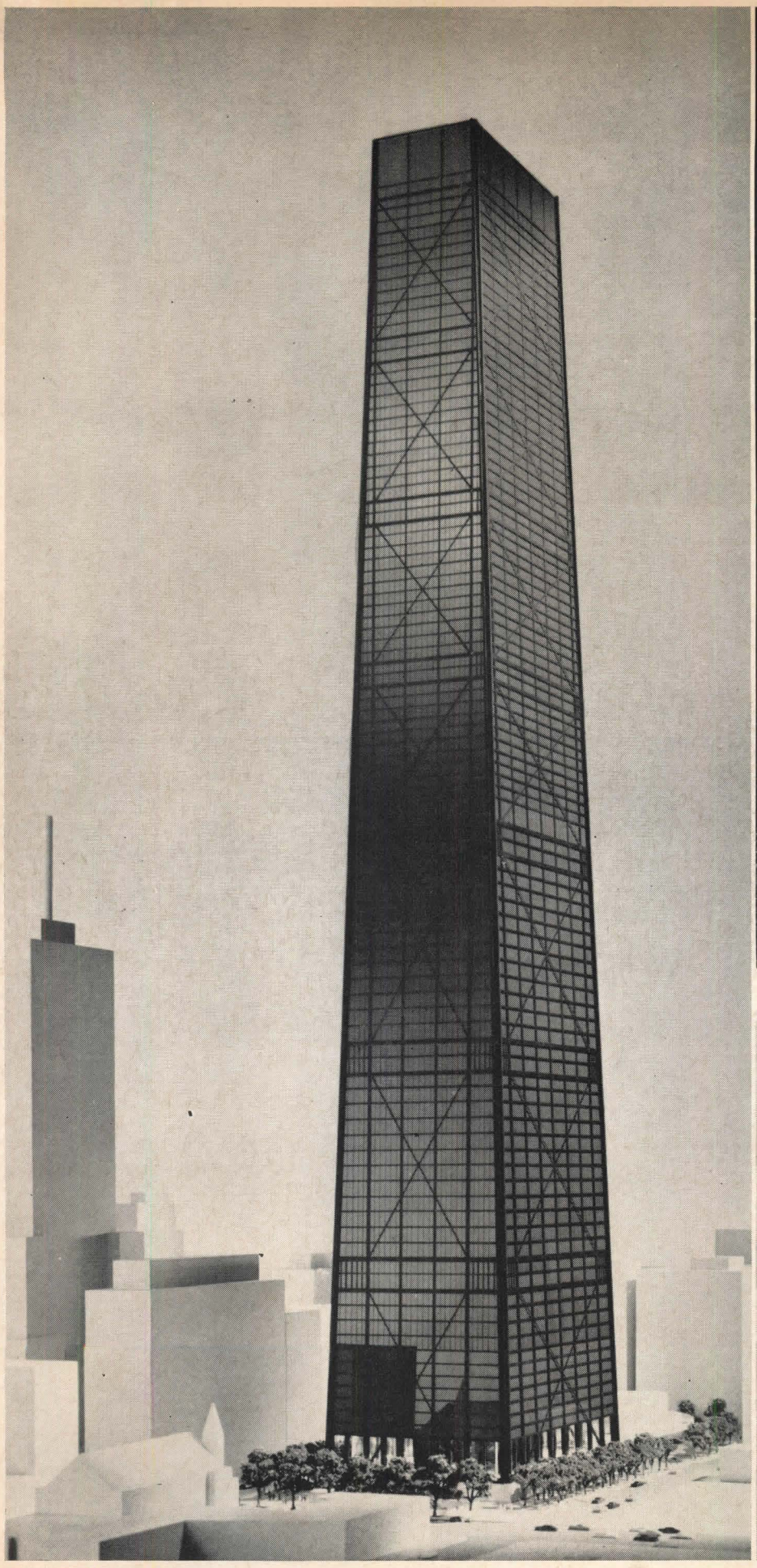


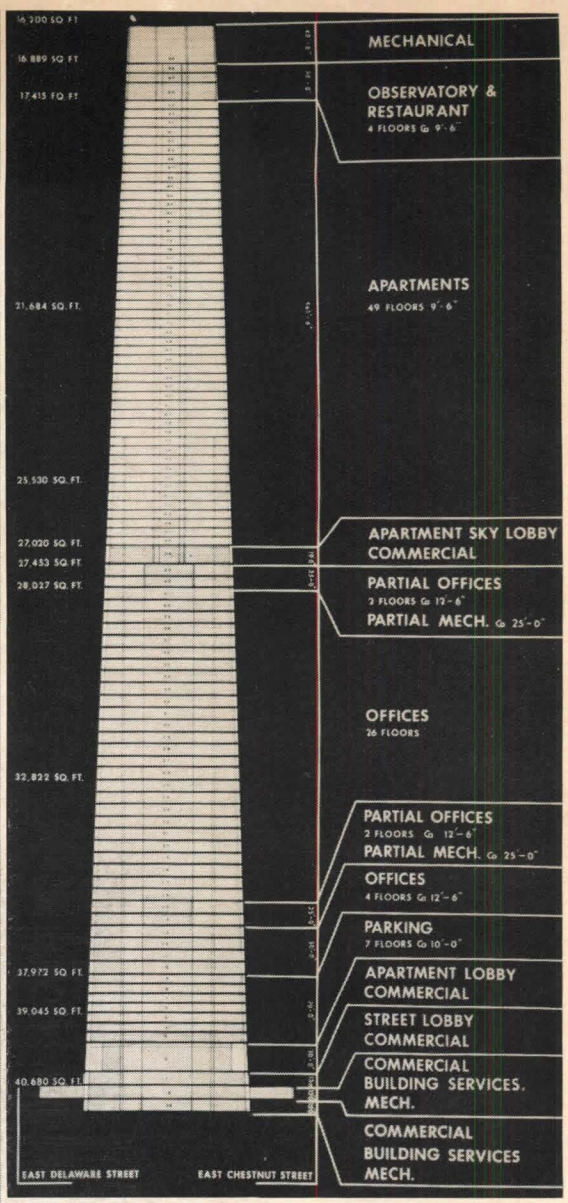
A small court (left, below) was created between the sturdy mansion and its coachhouse. The plan places offices, board room, and library on the first floor. Most of the second is taken up by two parallel galleries (photos right), and the third by a large ballroom used by the Foundation for lectures, panels and conferences. The Foundation's activities cover "the field of architecture and the fine arts contributive to it," and include fellowship grants, a travelling scholar program, and sponsorship of books and exhibitions.

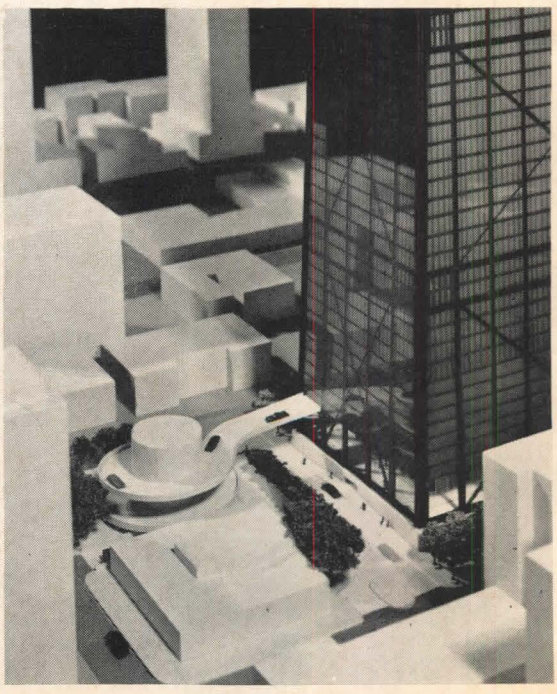
FACTS AND FIGURES

Offices of the Graham Foundation for Advanced Studies in Fine Arts, Chicago, Illinois. Formerly the residence of the late Mrs. Albert F. Madlener. Original architect: Richard E. Schmidt; Hugh Garden, designer. Architects for the Foundation: Brenner-Danforth-Rockwell. Associate Architects: C. F. Murphy Associates. Contractor: Paschen Contractors Inc.

Photographs: Top of pages 92 and 93 by Henry Fuermann, all others by Richard Nickel.







HEDRICH-BLESSING

FORUM CONT'D

100-STORY 'EIFFEL TOWER'

John Hancock himself might applaud the latest venture of the insurance company that bears his name. This time it has matched the reputation of his signature for unexpected prominence and scale.

Ground will be broken this month for the $95-million John Hancock Center in Chicago—a "center" in the sense so common today, but architecturally a single colossal building. This one tower will house roughly the same functions as Marina City (page 68), but 2,800,000 square feet of them, as compared to Marina City's 1,800,000. Its 1100-foot height will dwarf all existing Chicago skyscrapers—and top all skyscrapers anywhere, except for New York's Empire State Building.

An apartment in Hancock Center will be more prestigious than in equalitarian Marina City. The lowest apartments here will be on the 46th floor, far above the 21-story abyss, where Marina City's apartments start. And Hancock's North Side locale will offer more of the amenities essential to gracious living. Rents will start at $195 and mushroom with story height and unit size (two-and-a-half to seven rooms) up to the high three-digit level.

The tower will occupy only 40 per cent of its 104,000 square foot site—the remainder to be devoted to a plaza with pool (convertible to skating rink), a spiral ramp to the garage, and a Casino Club (lower right photo). Another pool—for all-year swimming—will be on the 44th floor.

The tapered structural frame makes use of a principle rarely applied since the Eiffel Tower. It works like a huge open-web box beam: horizontal loads on any face are transmitted by the diagonals to the opposite face, virtually without bending stresses. (In the final design, the diagonal members will meet at the corners of the building. The joints have not yet been worked out.)

The design was worked out by SOM's Chicago office, under Bruce Graham's direction, in a mere five months. The trick was turned with the help of computers—in which Graham sees great promise—to solve the enormous functional, mechanical, and structural problems. Whether computers can also provide solutions for human needs—which would seem to be rather more varied than is suggested by the exterior of this building—remains to be seen.

Fitch announced that "the money to build the future is available now!"—and that was all the encouragement Mr. Mailer needed!

INSTANT BUCKY

Mr. Mailer wasn't the only one encouraged by ex-Administrator Fitch: Mailer's frequent employers, the editors of *Esquire*, grabbed a hold of Mr. Buckminster Fuller, who has been "tooling up" in Montreal (where he is designing the official US Pavilion for the 1967 Fair) and got him to design an Instant Slum Clearance Project for Harlem (bottom of page).

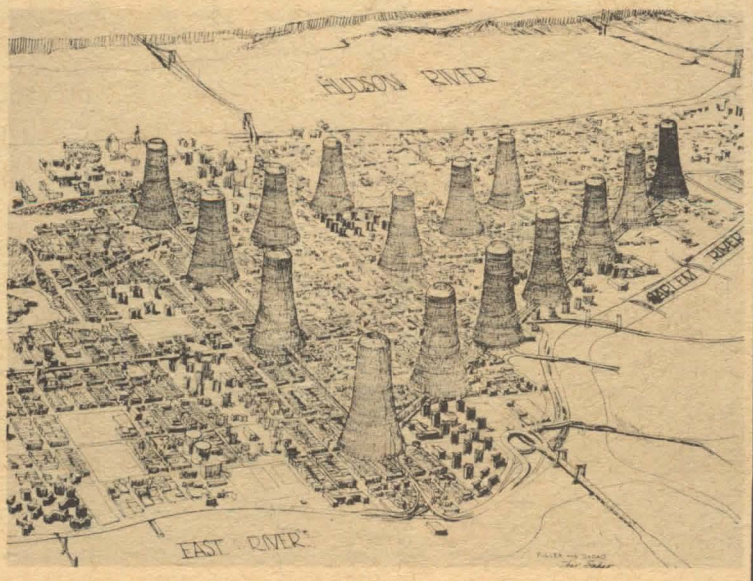
Bucky's solution consists of 15 "Skyrise" towers spaced far apart. Each tower is to be a sort of streamlined Christmas tree, made up of 100 concentric, circular decks suspended by cables from a central mast. Those decks would be where you live. Within the trees there would be spiral ramps for vehicular traffic; and the 15 trees would be connected, about 10 stories above ground, by a system of highways. *Esquire*, presumably quoting Bucky, says that "Private financing . . . should regard this undertaking as an obvious, regenerative investment." Bucky's Skyrise project is planned to house 110,000 families, which is about three times the annual number of families currently being supplied with public housing in the entire US.

THANKS, BUT NO THANKS

March was anti-planning month also in rolling Howard County, Md., between Baltimore and Washington. A three-man Board of County Commissioners issued a set of guidelines for development of the new town of Columbia, which James W. Rouse's Community Research and Development Inc. had been planning in a most enlightened way (August-September 1964 issue).

The guidelines would effectively reduce Columbia from dream city to slurb. The Commissioners allowed as how they didn't like row houses; they were not convinced cluster zoning is "a workable approach to development" since the open space thus gained could become a "future tax loss to the county"; and that, in any case, they were unwilling to rezone Rouse's entire 15,000-acre tract at one whack.

Having thus tossed away nearly all that would make Columbia unique, the Commissioners cheerfully announced: "We have every wish to see this ambitious undertaking succeed." So have a few other people, including Mr. Rouse, President Johnson, and us.



TIME CAPSULE

Many others made news, also, these past few months by what they said, by what they did, by the awards and rewards they won. Here are a few items among many that seem worth recalling:

PEOPLE

Paris dress designer ANDRE COURREGES, whose latest creations have been authoritatively described as having a "space-age air," announced that he owed the "logical composition" of his clothes to a careful study of the "great architects of today, above all others Le Corbusier and Saarinen." (He didn't specify whether Eliel or Eero.) ▸ An artist called THOMAS SIMPSON exhibited a collection of his "Fantasy Furniture" at Manhattan's PVI Gallery. Among the pieces on display was this desk

(which we have always wanted) and something called a "People Bouquet" (below), which was described by an *Art News* critic as a "particularly eye-catching piece, a Pointillist plant stand, female, (supporting) a garish pot painted with *Art Nouveau* flowers filled with massive wood mushrooms."

We have always wanted one of those, also. ▸ Berkeley's Dean MARTIN MEYERSON of the College of Environmental Design, was chosen to be Acting Chancellor of that University of California campus during the so-called Free Speech row—a great loss to Environmental Design, and a great gain for Free Speech and Berkeley. (Happily, former Dean William W. Wurster was persuaded to come out of retirement to serve as Acting Dean for the time be-

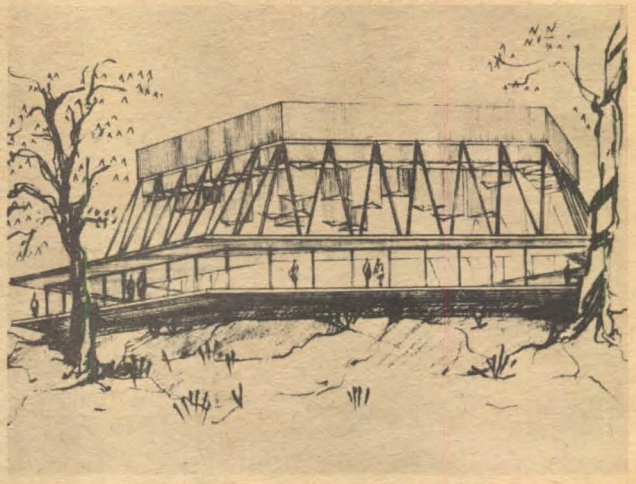
(continued on page 99)

the 1950's most widely discussed competitions, could be completed. He was 54. ▸ DAN COOPER had a great deal to do with introducing modern furniture to the U.S. An architectural student turned designer of interiors and furnishings, he died in March at the age of 64. ▸ ALFONSO IANELLI, Chicago sculptor, worked with Frank Lloyd Wright on many of Wright's early works (including the ill-fated Midway Gardens). He died last month at 77.

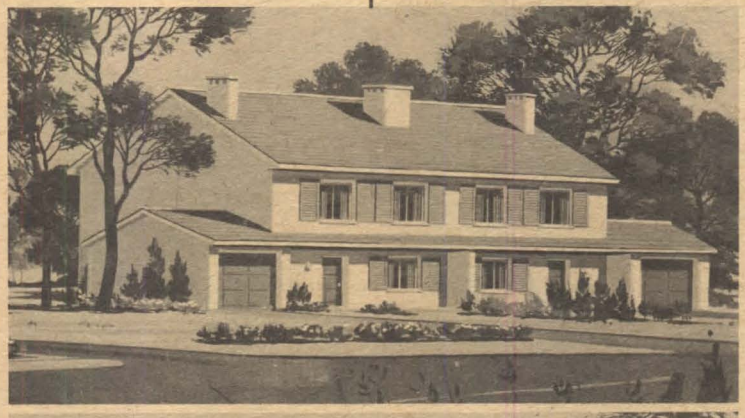
UPS & DOWNS

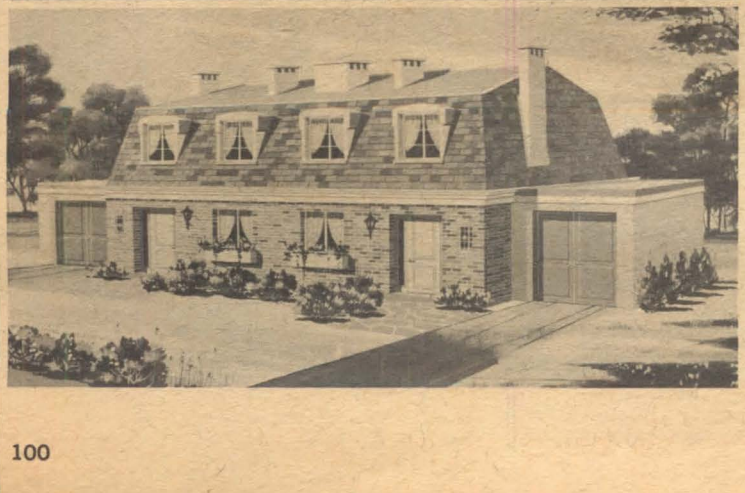
UCLA announced the appointment of GEORGE A. DUDLEY, present RPI Dean of Architecture, to head UCLA's new Pereira-designed School of Architecture and Urban Planning, a post to which Dudley brings unusually extensive design, planning and administrative experience gained throughout the world. ▸ Princeton's School of Architecture named ROBERT L. GEDDES, of Philadelphia, to be *its* new Dean, to succeed Dean Robert McLaughlin this summer. ▸ Kansas State appointed the Architectural Forum's one-time Managing Editor, HENRY WRIGHT, to be its "Regents Distinguished Professor" at the College of Architecture and Design. ▸ The Franklin Institute, in Philadelphia, presented its Frank P. Brown Medal to Architect LOUIS I. KAHN. ▸ New York's Citizens Housing and Planning Council elected Architect FREDERICK G. FROST, JR., to be the Council's President. ▸ And the voters of Peru, who had earlier elected Architect FERNANDO BELAUNDE TERRY to be *their* President, proceeded, a year-and-a-half later, to give him a whopping congressional majority to help him carry out his ambitious plans.

Closer to home, the Philadelphia firm of STONOROV & HAWS, Architects, won the competition for a monumental fountain (above) on the Benjamin Franklin Parkway in that city. (OSKAR STONOROV and JORIO VIVARELLI were the collaborating sculptrors.) ▸ An Ohio State architectural student, DOUGLAS TREES, won the Reynolds Aluminum Prize for Students with



a design for what was termed a "Botanical Display Building" (above), which seemed to be a new way of spelling "greenhouse." ▸ President CHARLES DE GAULLE, of France, was rewarded for raiding Fort Knox by having the Prefecture of *Seine-et-Oise* raided by President WILLIAM J. LEVITT, of Levitt and Sons, Inc., who announced that he was going to build 680 residential units (samples at left) 20 miles outside Paris. ▸ And the Swiss rewarded their finest living artist, ALBERTO GIACOMETTI, by starting a campaign against the establishment of a foundation that would acquire and house some of his best work. A leading Swiss art historian (sic!) said the project was too expensive.

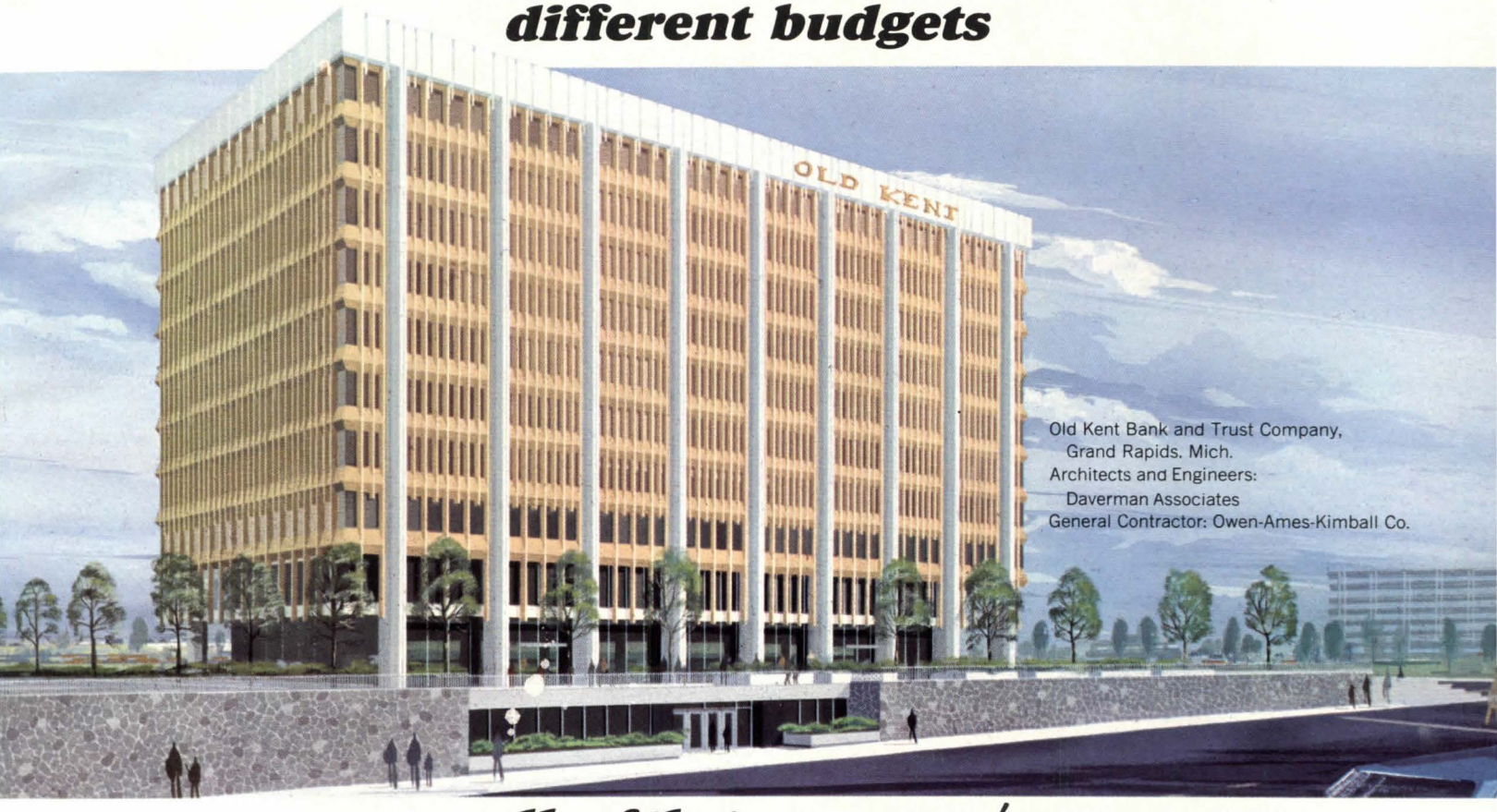




That, in a big nutshell, was the hiatus that was.

PHOTO CREDITS: *Page 26: St. Louis Post Dispatch; George Cserna; Keystone Press. Page 27: Gil Amiaga; New York Times. Page 28: Robert Lautman; AP; Fred Mc Darrah. Page 97: Charles Uht. Page 98 Oliver Baker; Japan Architect; London Daily Express. Page 99: Art James.*

different buildings, different budgets



Old Kent Bank and Trust Company,
Grand Rapids, Mich.
Architects and Engineers:
Daverman Associates
General Contractor: Owen-Ames-Kimball Co.

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The Montgomery Bldg., Bethesda, Md.
Architect: John Samperton
General Contractor: Thomas H. Ryon Co.
Mech. Elec. Engineers: Frieden & Arey
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The Inland Radiant Comfort System is making indoor climate history. Each building on this page provides the most advanced heating, cooling and air treatment ever available to man. Yet, each building has a different plan, a different client to please, and a different budget. The Inland Radiant Comfort System is completely flexible and meets the requirements of every building. It is designed as an integral part of the building itself, and each component is tailored to give utmost performance. The IRC System assigns heating and cooling loads primarily to radiant ceilings, reducing air volumes to those required only for ventilation. Chemical air conditioning keeps close control of humidity and airborne contamination. For a complete explanation, send for the booklet, "Breakthrough in Office Comfort Control." Write for it today to Inland Steel Products Company, 4400 W. Burnham Street, Milwaukee, Wisconsin.

Administration Building, State College
Of Iowa, Cedar Falls, Iowa
Architects: Altfillisch, Olson Gray & Thompson
General Contractor: John G. Miller,
Waterloo, Iowa
Mechanical Engineer: Harold E. Rucks
Structural Engineers: Peterson and Appell

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EP-46

LETTERS

FORUM'S REBIRTH

Forum: Like so many others, I am delighted to hear that the tremendous talents and momentum of the people involved with Forum are not to be forever dispersed, denucleated and de-flowered. With best wishes, much gratitude and all hopes for all of your continuing efforts.

ROBERT A. LITTLE
Cleveland — *Architect*

Forum: We are more than happy to know that the Architectural Forum will resume operations again in April.

ALBERTO ROSSELLI
Milan, Italy — *Architect*

Forum: Your letter to the architects of America telling us that Forum is about to launch its ship again is a hearty and welcome bit of information. We who have read the Forum most of our professional lives are happy to know it will be published again.

WALTER T. ROLFE
Houston — *Architect*

Forum: It is wonderful to know the Forum is alive again.

HARRY WEESE
Chicago — *Architect*

Forum: We are delighted to learn that publication of Architectural Forum will resume. The loss of the old Forum was especially keen to the building products industry. Within its pages were some of the most thoughtful commentaries ever expressed on where we are going in building this world of ours. We are also very happy to see that the new Forum will include all phases of building, "from the small house to large complexes of multi-storied structures."

JAMES R. TURNBULL
Executive Vice-President
American Plywood Assoc.
Tacoma, Wash.

Forum: The news of your resumption of publication is most heartening. I can't think of anyone better able to fill the void created by the Forum's suspension than you yourselves.

RICHARD G. STEIN
New York City — *Architect*

Forum: We have all read with pleasure that, like Phoenix, you have risen from the flames with a new and permanent lease on life.

EDWARD L. BERNAYS
Cambridge, Mass. — *Architect*

Forum: The news of the Forum's rebirth makes about the best Christmas present I could think of.

ROGER MONTGOMERY
St. Louis — *Architect*

Forum: One of my hopes for a Happy New Year is the news that the Architectural Forum is due to publish again.

LANDIS GORES
New Canaan, Conn. — *Architect*

Forum: Just a word to tell you how delighted I am with the final word on the reestablishment of the Forum. We shall all be watching, and I am sure that the publication in its new life will serve a useful role not only to the architectural profession but to all who care for our cities and our landscape—indeed for the whole physical aspect of America.

AUGUST HECKSCHER
Director
The Twentieth Century Fund
New York City

Forum: We were delighted when we heard that Forum would soon be back in publication. The architectural world just didn't seem the same without you.

ROY P. HARROVER
Memphis — *Architect*

Forum: I was delighted to hear that the Forum will have a resurrection and I will be amongst the many people awaiting eagerly its appearance.

WILHELM V. VON MOLTKE
Professor of Urban Design
Harvard University

Forum: I am glad that Forum is still alive.

MIES VAN DER ROHE
Chicago — *Architect*

Forum: It is great news that Architectural Forum is back.

ROBERT L. GEDDES
Philadelphia — *Architect*

Forum: It is good news indeed to hear that the Forum will be opening up again, particularly in the area of urban design.

R. J. THOM
Toronto — *Architect*

Forum: I was very happy to read that the Architectural Forum will continue.

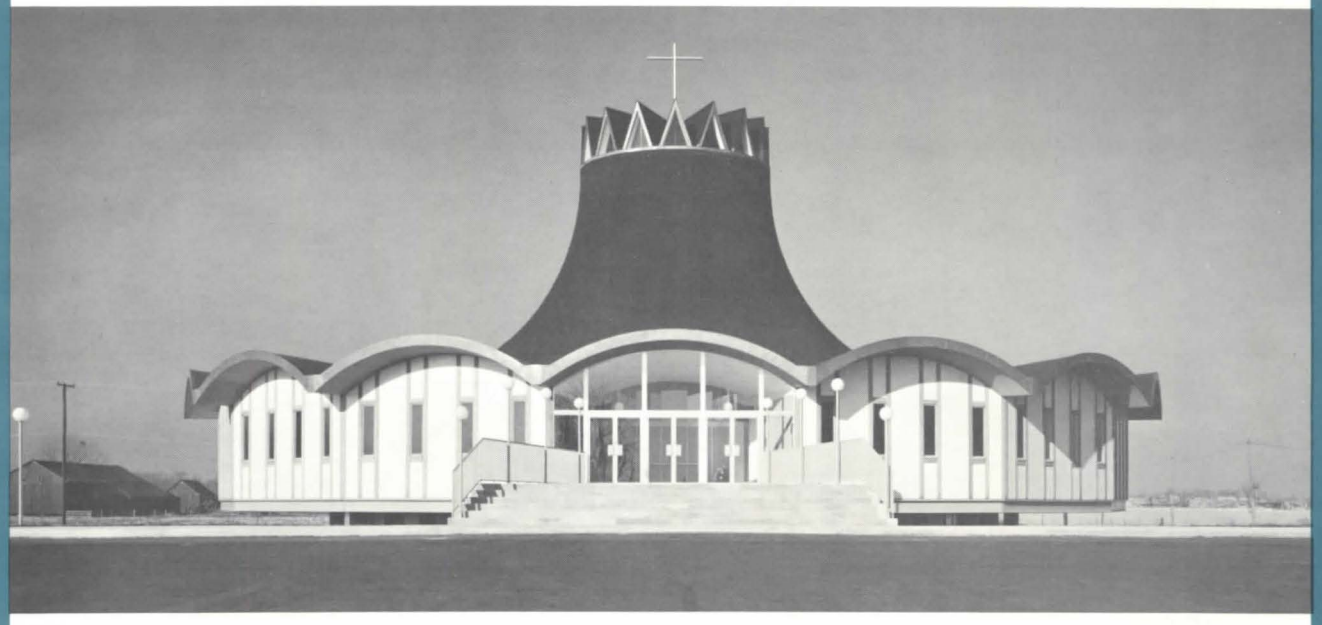
CHARLES M. GOODMAN
Washington, D. C. — *Architect*

Forum: I am looking forward to reading your magazine again!

C. M. CORREA
Bombay, India — *Architect*

continued on page 105

Electric Heat Makes New Concept in Design Possible and Economical for the Immanuel Baptist Church



FORT WAYNE, INDIANA — The decision to install electric heat in the Immanuel Baptist Church here was based on esthetic as well as practical considerations. The result is a new concept in church design. There are no outside chimneys to destroy the perfect symmetry of the building and none of the ordinary restrictions on interior design that a flame fuel system would have imposed.

Flameless electric heating also helped keep the cost of the church, which accommodates 583 persons in the auditorium and 700 persons in the classrooms, under the budgeted figure of $315,000.

Architect Orus Eash started with a round form for the interior. The auditorium, although comparatively small in area, dominates the design. Gently curved corridor walls separate the auditorium from pie-shaped classrooms which can be divided by partitions.

The unusual design of the roof combines symbolism with architecture. Pleasant curves give a feeling of spaciousness yet contain little volume that requires heating. A duct system introduces warm air at a level of eight feet, distributes it horizontally, then returns it at floor level under the podium.

The building is thoroughly insulated for maximum comfort and operating cost economies. Six-inch glass batts are used in the towering roof, polystyrene with metal backing is used for the prefabricated outside walls of the second level and four inches of glass fiber insulation is installed in the floor of the overhang between the ground floor and the main level.

Operating costs for space heating, water heating, lighting, cooking, and all other electrical uses in the 18,750 square foot building came to $2,847.99 for the 12 month period 12/13/63 to 12/14/64.

Details of the Immanuel Baptist Church are listed on the following page. The categories of information were developed by the Electric Heating Association with the assistance of editors of leading trade and technical journals. These have been reviewed by the Consulting Engineers Council USA, Washington, D.C., and the Council agrees that the information provides a thorough evaluation of this project.

SEE REVERSE SIDE FOR DETAIL INFORMATION ▶

1 CATEGORY OF STRUCTURE:
Religious–Church

2 GENERAL DESCRIPTION:
Area: 18,750 square feet
Volume: 270,700 cubic feet
Number of occupants: 583 in the Sanctuary
700 in classrooms
Number of floors: two
Number of rooms: 30
Types of rooms: auditorium, classrooms, offices, kitchen, music room, dining room

3 CONSTRUCTION DETAILS:
Glass: Double
Exterior walls: metal panel with 3½" polystyrene (R/8). U-factor: .08
Roof or ceilings: Built up with 6" glass fiber (R/24). U-factor: .06
Floors: concrete and steel with 4" glass fiber (R/16). U-factor: .07
Exposed wall area: 6,180 square feet
Glass area: 1,220 square feet

4 ENVIRONMENTAL DESIGN CONDITIONS:
Heating:
Heat loss BTUH: 497,000
Normal degree days: 6,000
Ventilation requirements: 7.5 CFM per person during occupancy
Design conditions: –10°F outdoors; 75°F indoors
Cooling: none

5 LIGHTING:
Levels in footcandles: 50-60
Type: Quartz lamps, fluorescent and incandescent

6 HEATING SYSTEM:
Central forced air electric system in Sanctuary, baseboard in classrooms, convectors in other areas.

7 ELECTRICAL SERVICE:
Type: underground
Voltage: 120/208V, wye
Metering: secondary

8 CONNECTED LOADS:

Heating	158 KW
Lighting	30 KW
Water Heating	40 KW
Cooking	10 KW
Other	10 KW
TOTAL	248 KW

9 INSTALLED COST:

General work	$275,000	$14.66/sq.ft.
Plumbing	16,390	.87/sq.ft.
Electrical (including heating)	21,174	1.13/sq.ft.
TOTAL	$312,564	$16.66/sq.ft.

10 HOURS AND METHODS OF OPERATION:
Two church services on Sundays and one on Wednesday evenings. Church is also used evenings for choir practice and meetings. Pastor's office and library are used daily.

11 OPERATING COSTS:
Inclusive dates: 12/13/63 to 12/14/64
Normal degree days: 6,000
Actual KWH: 219,000*
Cost per KWH: 1.3 cents
Actual cost: $2,847.99*
*All electrical usage

Billing Period	KWH	Actual Billing
12/13/63 to 1/ 4/64	51,000	$ 630.64
1/ 4/64 to 2/12/64	34,080	431.17
2/13/64 to 3/12/64	32,040	405.12
3/12/64 to 4/13/64	28,320	360.87
4/13/64 to 5/13/64	8,760	128.66
5/13/64 to 6/12/64	4,200	65.78
6/12/64 to 7/14/64	2,880	46.05
7/14/64 to 8/13/64	3,000	47.68
8/13/64 to 9/14/64	2,040	33.39
9/14/64 to 10/14/64	7,440	112.50
10/14/64 to 11/12/64	12,360	171.02
11/12/64 to 12/14/64	32,880	415.11
TOTAL	219,000	$2,847.99

12 UNUSUAL FEATURES:
In the Sanctuary, horizontal discharge of supply air at 8′ level effectively thermally isolates the space from this level up to the vaulted ceiling.

13 REASONS FOR INSTALLING ELECTRIC HEAT:
Offered the least restrictions to the proposed design and type of construction. Saved on installation cost, offered individual temperature control in offices and classrooms, provided true comfort, convenience and economy of operation.

14 PERSONNEL:
Owner: Immanuel Baptist Church
Architect and Engineer: Orus Eash
General Contractor: Civilian Building & Supply Co.
Electrical Contractor: Henry Electric Co.
Utility: Indiana & Michigan Electric Company

15 PREPARED BY:
Charles H. Marks, System Heating & Air Conditioning Sales Engineer, Indiana & Michigan Electric Company

16 VERIFIED BY:
Orus O. Eash

Orus O. Eash, Architect

NOTICE: This is the ninth in a series of case histories which will cover all categories of buildings. Some of these histories will be published in leading trade and technical journals and some will not. If you wish to receive all histories as they become available, please fill out the strip-coupon at the left and mail it to Electric Heating Association, 750 Third Avenue, New York, N. Y. 10017.

Gentlemen:
Please send the complete series of Electric Heating Case Histories as they become available to me at the following address:

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LETTERS

continued from page 102

Forum: It is certainly wonderful to know that the Architectural Forum is going to continue and that the new Forum will be out with its first issue in April.

CLIFFORD C. SOMMER
President
Security Bank and Trust Company
Owatonna, Minn.

Forum: It is a relief to know Forum has come to life again.

HARWELL HAMILTON HARRIS
Raleigh, N. C. *Architect*

Forum: It is great to hear that you've not only rescued the Forum but have managed to keep it so intact. I look forward to seeing the first issue.

ROBIN BOYD
Melbourne, Australia *Architect*

Forum: Along with thousands of others, I am intensely glad that you gentlemen have found the means of keeping the Architectural Forum as an active voice in architectural reporting and criticism. This is a triumph that should give heart to others who are confronted with apparently lost causes.

GEORGE MC CUE
St. Louis Post-Dispatch

Forum: I am very pleased that Architectural Forum will again resume publication; there has been a noticeable void in the intervening months. Forum was undoubtably the best American architectural magazine prior to its closure by Time-Life, and you have my very good wish to regain that position with your initial issue.

W. EASLEY HAMNER
New Orleans *Architect*

Forum: I believe it would have been a real tragedy for the profession to have lost the Forum and I am sure that with the present team and its new start it will achieve a complete success.

J. ROY CARROLL, JR.
Philadelphia *Architect*

Forum: You were much too distinguished a journal to become an historical memory at this point in the developing architectural culture of the U. S.

NANCY WILLIAMS
Daniel, Mann,
Los Angeles *Johnson & Mendenhall*

Forum: We have all missed Forum's monthly inspiration and certainly are looking forward to the rejuvenation of an excellent chronicle.

RUSSELL O. DEETER
Pittsburgh *Architect*

Forum: Our society as well as our profession needs the contribution you have been making.

WILLIAM P. WENZLER
Brookfield, Wis. *Architect*

Forum: May I congratulate you on the reconstruction of the Architectural Forum? I had occasion to announce it before a large group here and I think you would have taken great satisfaction had you been able to witness the amazed relief and enthusiastic response of the audience. I am sure that the Forum will continue its long and distinguished career as a vitally necessary illuminator in a sea of cant.

JOHN D. ENTENZA
Director
Chicago *The Graham Foundation*

Forum: We wish you wisdom and great success.

ROBERT DAMORA
Bedford Village, N. Y. *Architect*

Forum: Good fortune to the reincarnation!

SERGE CHERMAYEFF
New Haven, Conn. *Architect*

Forum: I want to express to you my heartiest congratulations and my very best wishes for the success of your venture.

VICTOR GRUEN
Los Angeles *Architect*

Forum: I do hope that you will have the greatest success and that the Forum will again become the influential force that it was.

MAX O. URBAHN
New York City *Architect*

Forum: You have our best wishes in the new venture. We are looking forward to it with great anticipation.

JOSEPH SALERNO
Westport, Conn. *Architect*

Forum: Congratulations and huzzas on the re-birth of the Forum.

ALBERT MAYER
New York City *Architect*

Forum: All my cordial best wishes for the success of your new Forum.

VINCENT SCULLY, JR.
Professor, Department of the
Yale University *History of Art*

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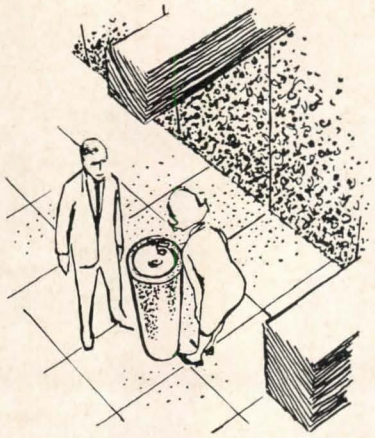
HAWS model 30



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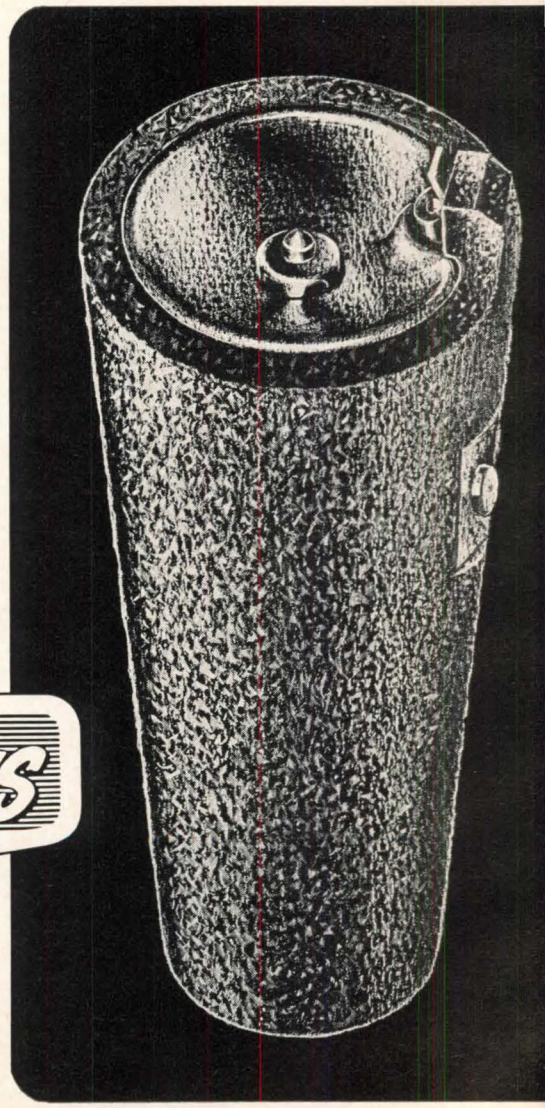
concrete ideas in fountains



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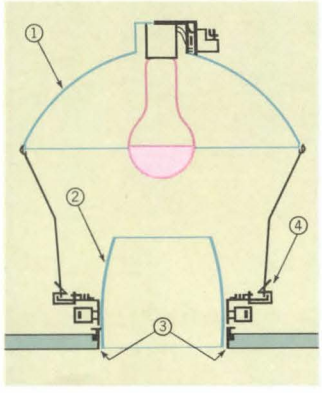

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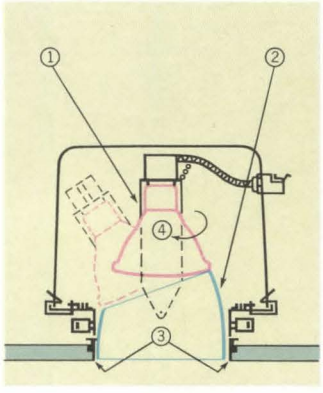

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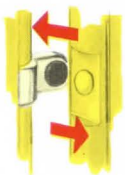
AND THEY'RE SAFE  because they're smooth and flush. Recessed hardware, welded corners, controlled hinges AND THEY'RE QUIET  maximum sound-deadening insulation... theft-proof rubber door bumpers AND SMOOTH, ECONOMICAL, INSTALL EASIER, LAST LONGER AND.....

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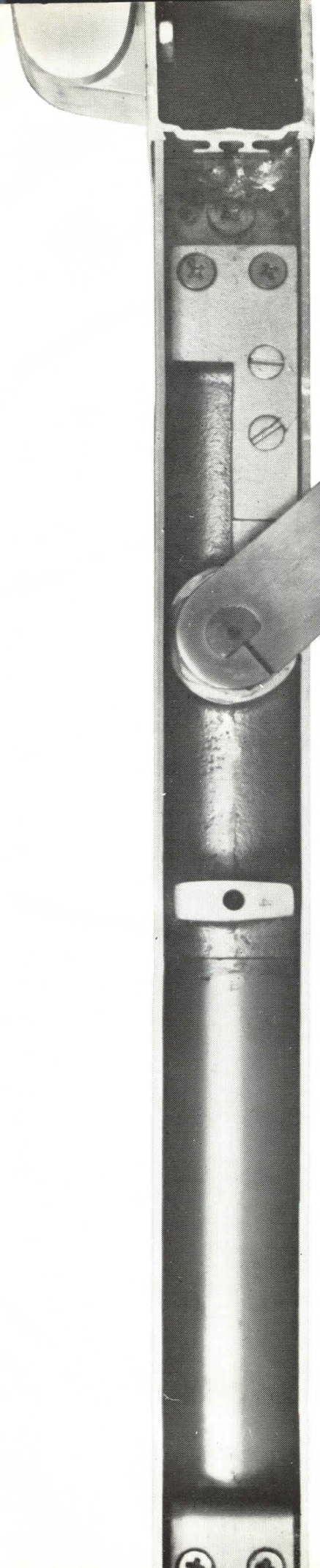

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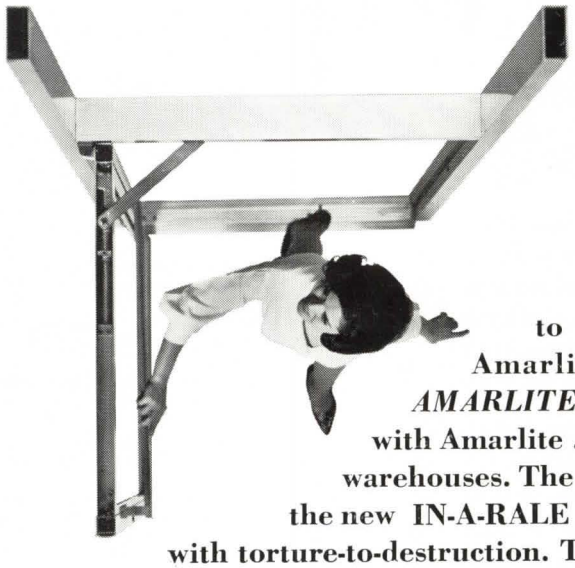

You may never see this new closer. That's the beauty of it. It's part of the door itself, installed in the Amarlite factory, and that saves a major part of field installation time . . . prevents errors too. The *exclusive* new IN-A-RALE Closer is ***invisible!*** Nothing to bulge or project to spoil the slim, trim lines of an Amarlite aluminum entrance. *ONLY AMARLITE HAS IT!* IN-A-RALE is *standard* with Amarlite . . . available through all Amarlite warehouses. The price is right! Equally important, the new IN-A-RALE closer has been tested for months with torture-to-destruction. Today, it operates under all conditions. It works!

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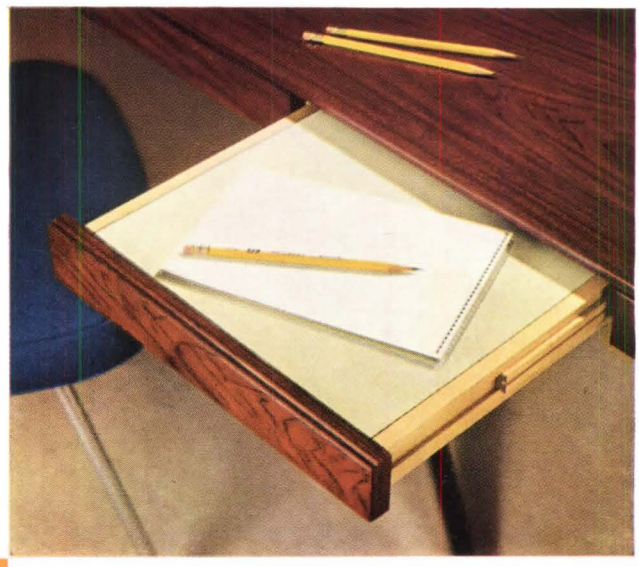

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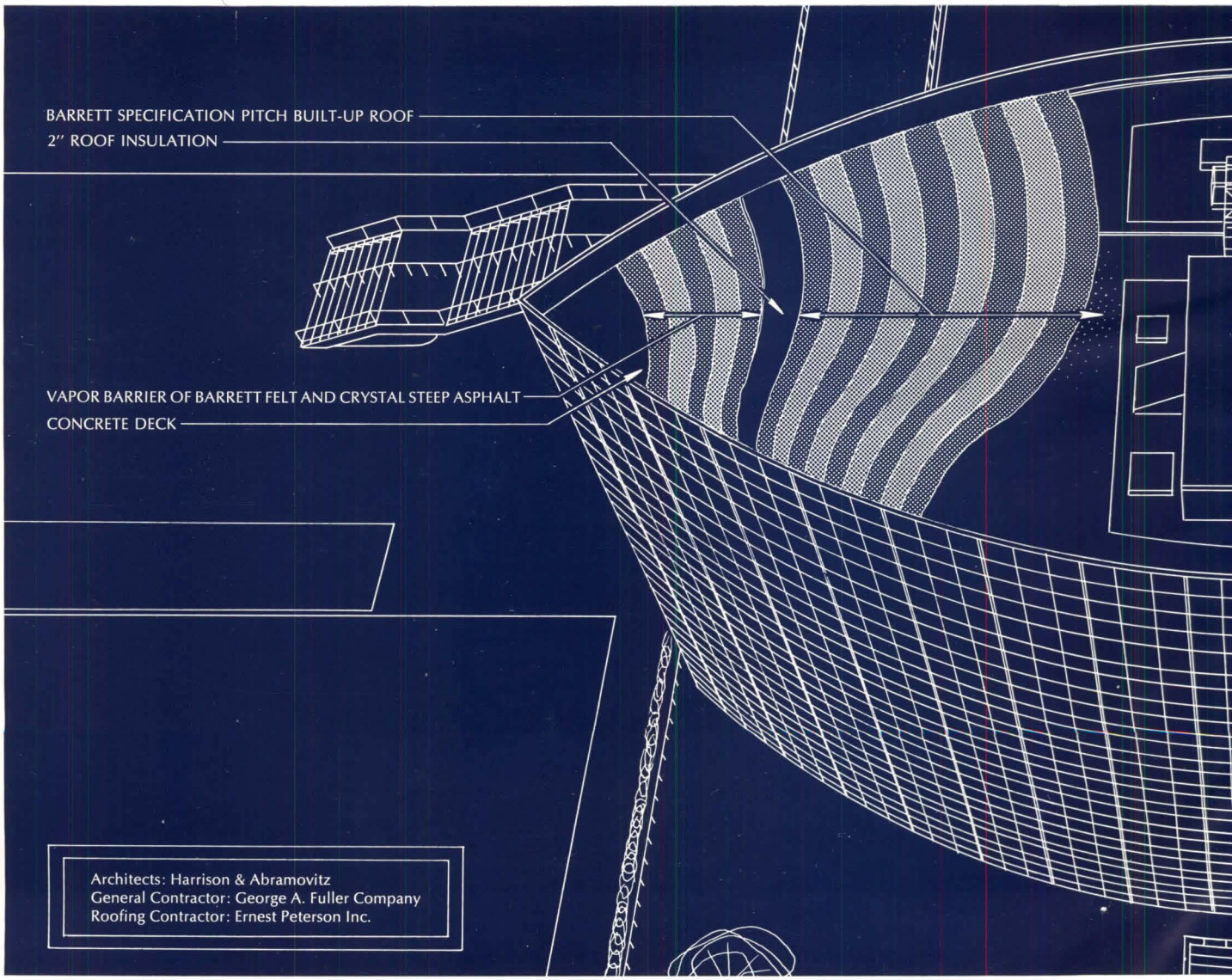

"Package" of Barrett products wraps up exciting design of new Phoenix Mutual Building

When Harrison & Abramovitz were designing this unusual building for Hartford's A.I.A. award-winning Constitution Plaza, they specified a Barrett built-up roof to assure lasting protection against New England's changeable climate.

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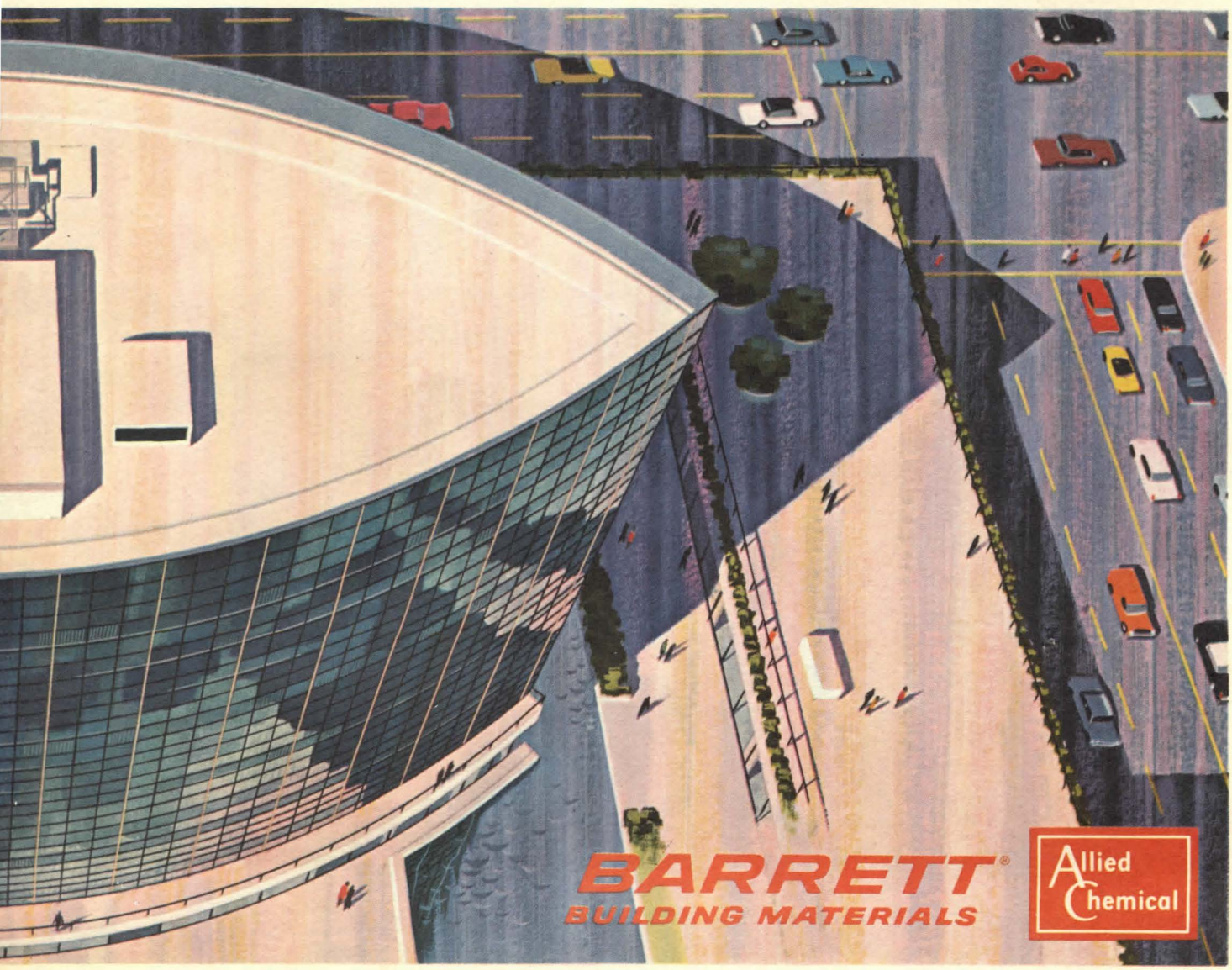

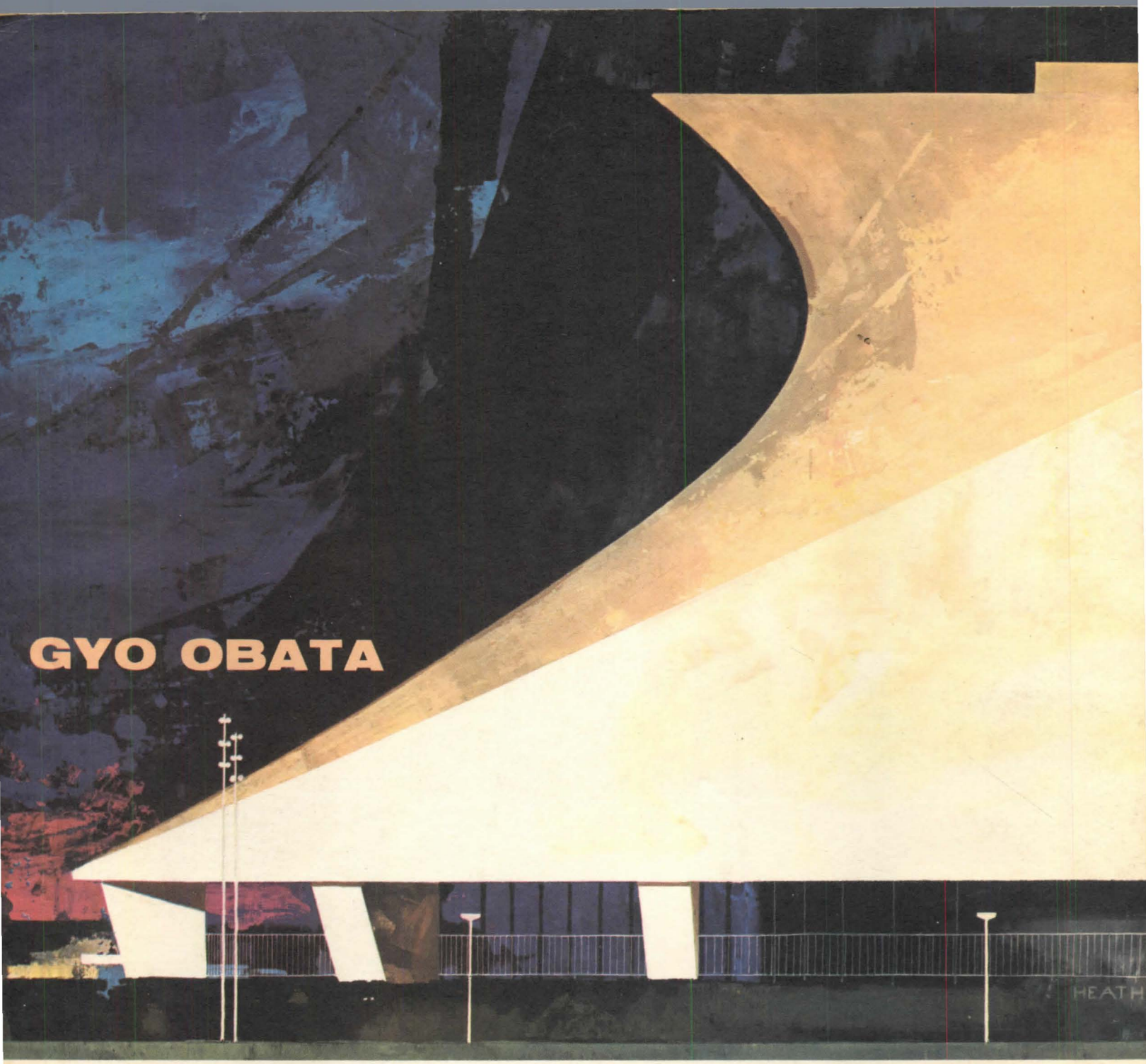

GYO OBATA *"Structure is only one part of architecture. Another factor which strongly contributes to the total design of any building is visual environment created both by natural and artificial light. Light helps give shape to space. This is highly critical, not only for functional reasons, but also from the standpoint of mood and 'feeling'. After all, the final evaluation of any building or space must be in terms of human values. The creative use of light is part of the art in architecture . . . one of the intangibles that make certain buildings stand out over others and fully communicate their meaning to the occupants."*

Pertinent to the observations of Gyo Obata, Day-Brite research offers creative development services to help architects and engineers achieve maximum utilization of lighting. Included are, 1) a THERMAL LABORATORY where lighting and air-distribution products are tested and evaluated to demonstrate their role in architecture, 2) a LIGHTING INSTITUTE where principles of lighting quality and quantity are demonstrated and discussed, and 3) an ARCHITECTS' FIELD SEMINAR covering subjects such as Creative Lighting, Environmental Control Through Lighting, and Lighting as a Structural Component. To take advantage of these technical aids, just contact your Day-Brite representative. He's eager to help and there's no obligation.

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