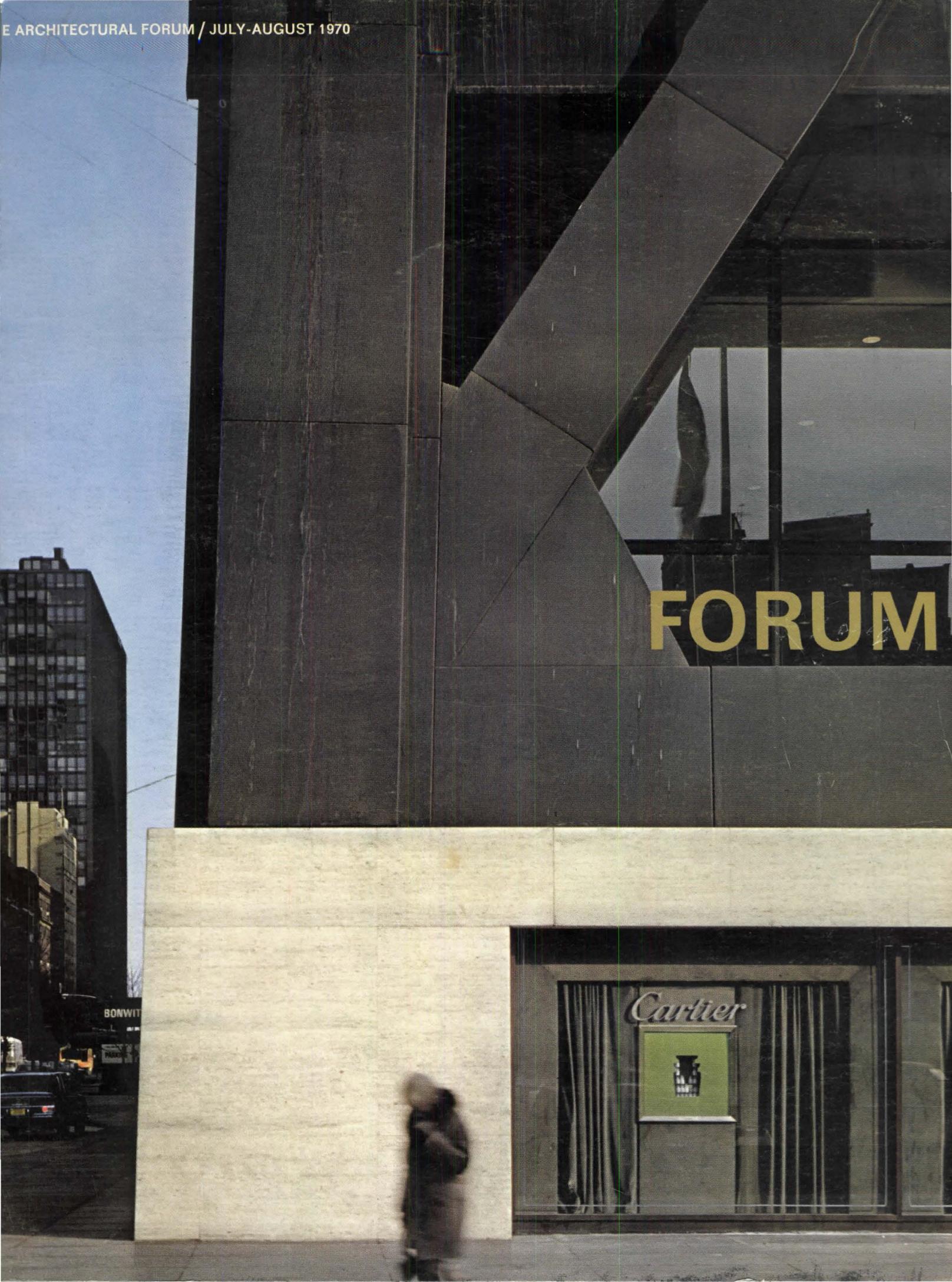
E ARCHITECTURAL FORUM / JULY-AUGUST 1970

FORUM



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Cover: From a photograph by Ezra Stoller of the John Hancock Center in Chicago (p. 36).

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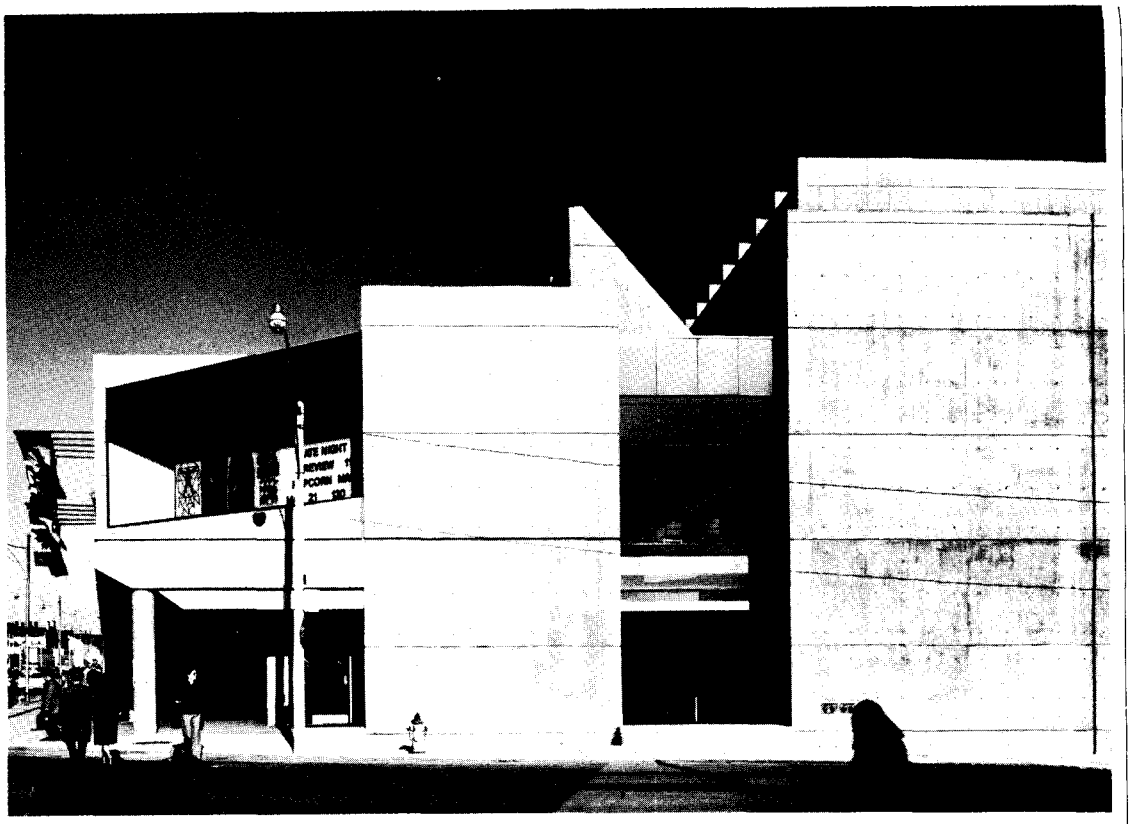
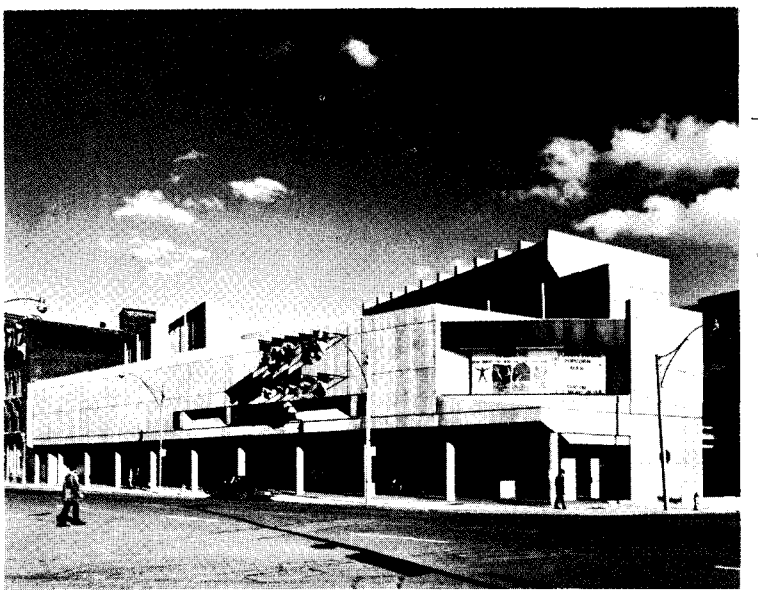
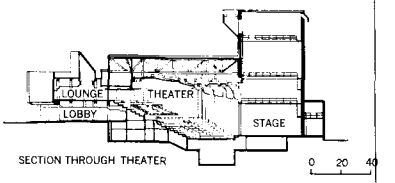
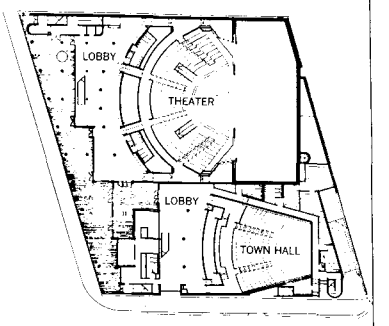


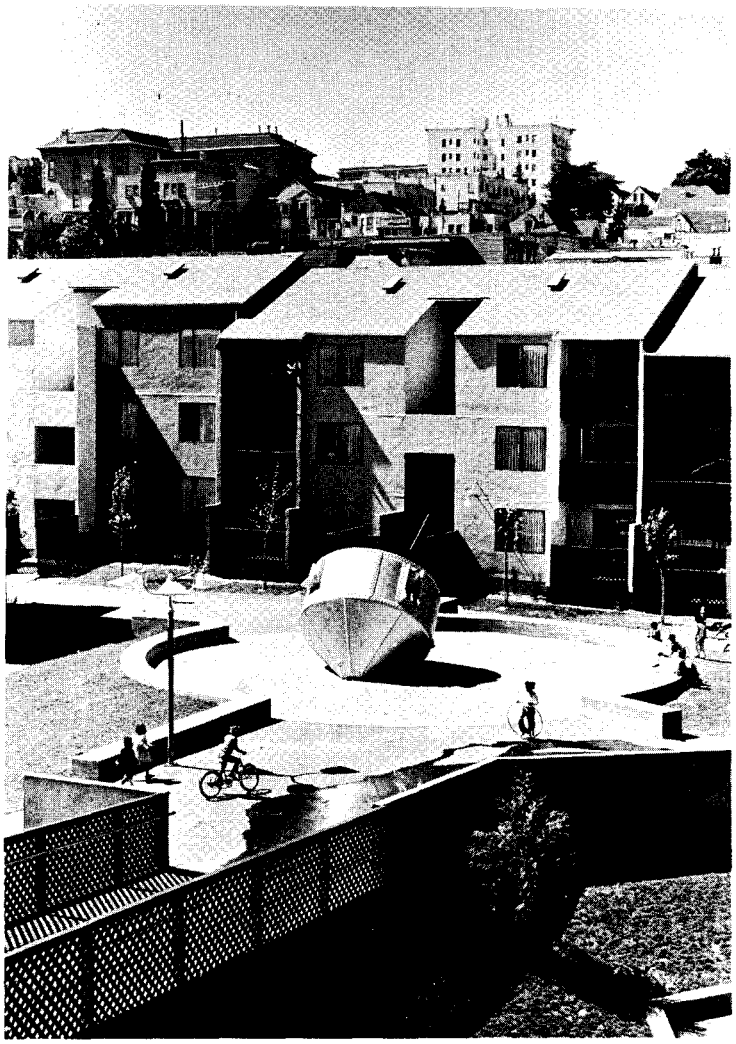






CANADIAN ARTS CENTER

A tight lozenge-shaped site of 36,000 sq. ft. and a limited budget of $3.5 million were two restrictions imposed on Architects Gordon S. Adamson and Associates for the design of the St. Lawrence Centre for the Arts in Toronto, Ontario. A theater, adaptable for all the performing arts, plus lectures, debates, fashion shows, etc., and a smaller concert hall called Town Hall, share an open entrance foyer—or arcade—set back under a continuous soffit (plan and photo above). Plate glass with glass mullions allows an unobstructed view to and from the lobbies just inside. Seating for both theaters—831 in the larger, 483 in the smaller—is on a slant corresponding to the 9-ft. slope of the site from front to back, and allows entrance for equipment, scenery, etc. directly to the two stages. The stage for the larger theater can be arranged into three basic forms to accommodate different presentations. Skylights at the second level (right) offer views of the city and light for changing art exhibits. Bearing walls are of poured-in-place concrete; other surfaces are of paving brick, plaster and natural concrete.

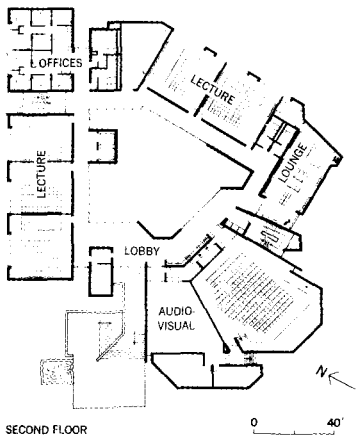


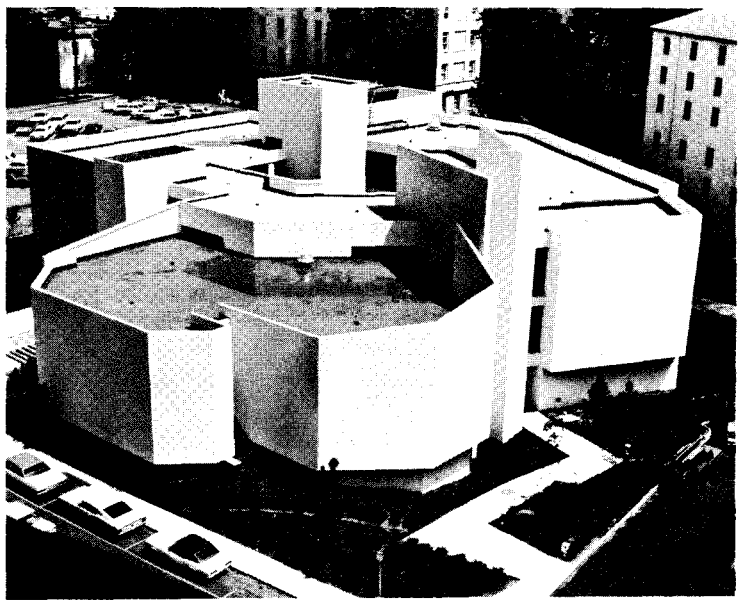
BREWERY TO APARTMENTS

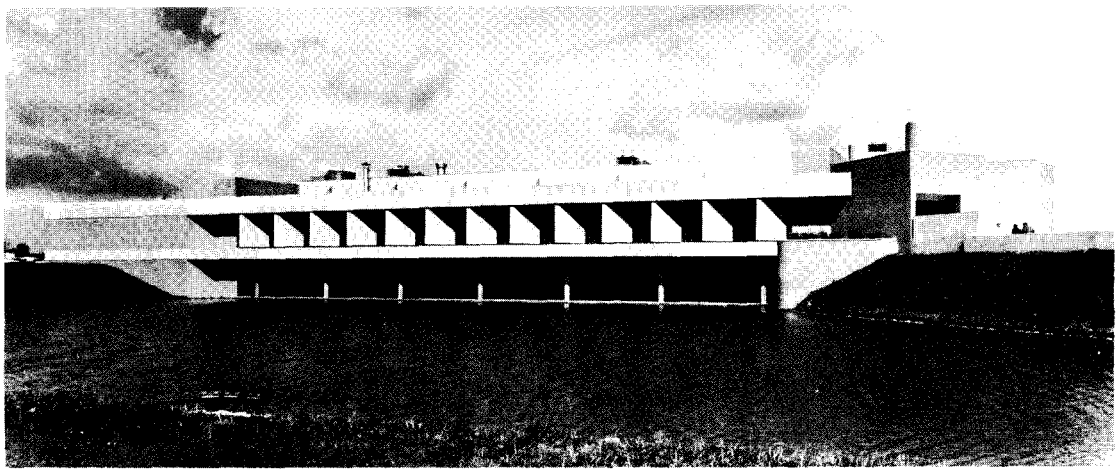
What looks like the site of an Apollo "touchdown" is actually the central plaza of a low-income housing project called Banneker Homes in a redeveloping area of San Francisco. The site, once a brewery, keeps this half of a rice cooking vat for whimsy; more seriously, Architects Joseph Esherick and Associates used two levels of the former brewery building as the garage and ground floors of the apartment dwellings. Seven buildings with 108 apartments (with one to four bedrooms) are grouped around the plaza and a play area. The structures are of wood framing sheathed in plywood and finished in plaster, and painted, all at a cost of $14 per sq. ft.—financed under the provisions of the FHA 221d3 program. Construction crews were comprised primarily of minority groups.

COURT FOR NURSES

A wooded ravine that had been ignored for years at Emory University in Atlanta, Ga., recently became the site for their new school of nursing. Robert and Company Associates, Architects, created what they call a "free angular arrangement" of volumes: all exterior walls are parallel to those of existing buildings surrounding the school. They accentuated the polygonal shape by massing the different volumes of the school around an interior polygonal courtyard. An interior corridor with bronze-tinted windows overlooks the court at every level. The school is of reinforced concrete painted white to match other structures. Closed-circuit TV links the school to other hospitals and medical agencies under a joint teaching program.

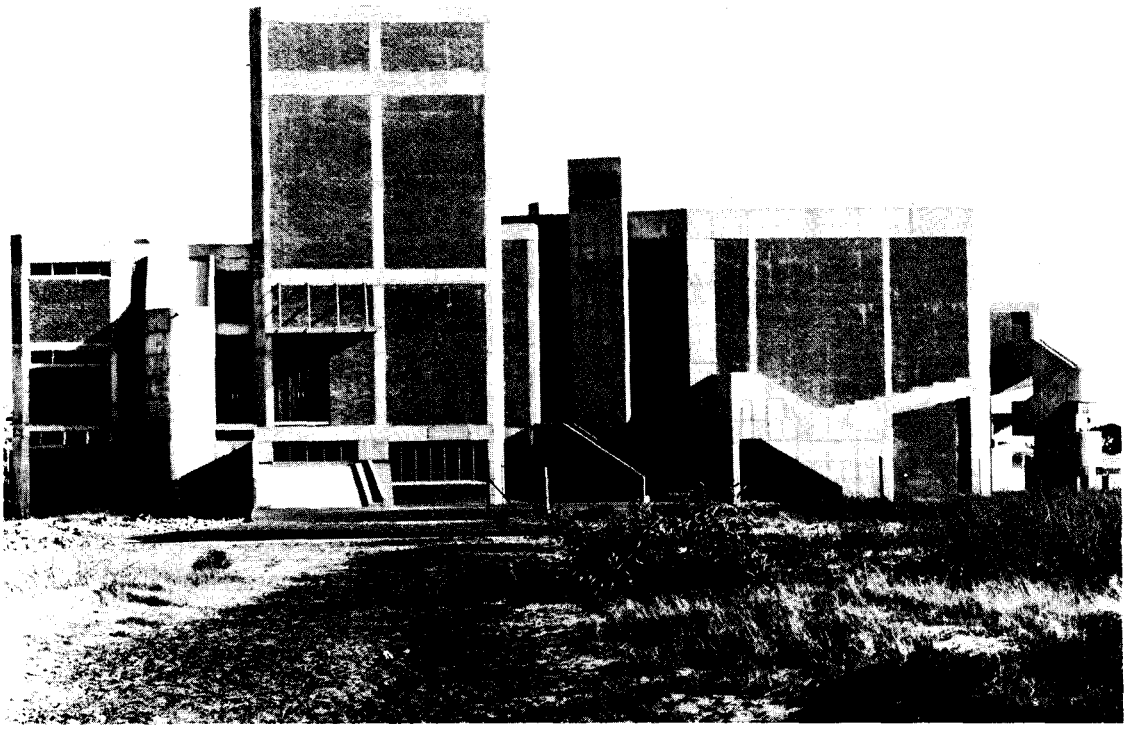






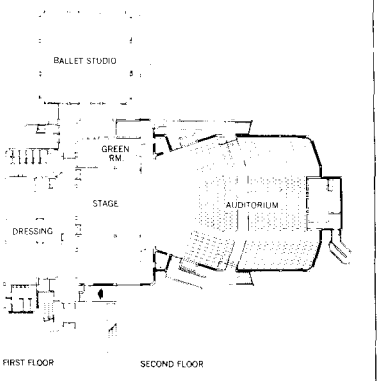
SUPER TOOL SHED

Overlooking a small man-made reflecting pond in Cortland, N. Y., is the office wing of the Monarch Machine Tool Company building, Edlund division. The offices are part of an expandable two-part scheme, designed by William Downing Associates, Architects; the other part contains a factory. The two are linked across a lawn; to the northeast is a parking lot, also expandable. The factory is of exposed steel frame, and consists of one large room. The offices have sunscreens as protection against glare from the water in the pond.



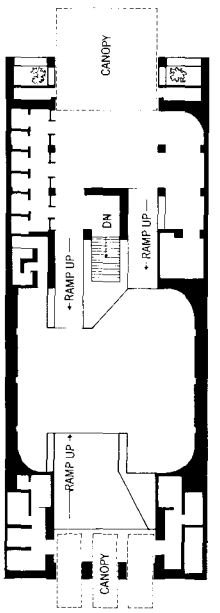
CULTURE IN CAPE TOWN

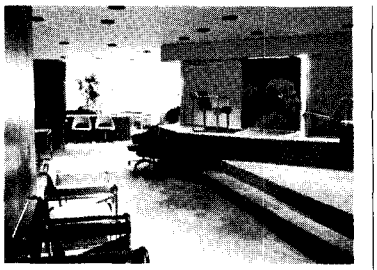
The Joseph Stone Auditorium in Cape Town, South Africa, is a cultural center for presentations and classes by the Eoan Group which was formed by and for the Colored population in that city in 1933. The center concentrates on opera, plus theater and dance; these three are accommodated in separate facilities designed by Architect Revel Fox, and converging at the central stage "tower." The entire building is exposed brick, inside and out.



MALL FOR CITY AND SCHOOL

A number of years ago the New York chapter of the AIA proposed a series of pedestrian walkways between Manhattan's Bryant and Central Parks; the ground-floor mall of the City University Graduate Center is a small step in this direction. Seventy-five ft. wide and 200 ft. long, it connects 42nd and 43rd Streets between Fifth and Sixth Avenues. The mall was part of a $9-million renovation of the center's 17-floor building, and is open daily to the public. Special events can be held there as well. Low concrete bulkheads for seating and planting make it a pleasant environment. Walls are of board-formed concrete and the floor of bluestone. Architect Carl J. Petrelli designed with Samuel J. DeSanto as project architect.





KNOLL ALL'ITALIANA

Knoll International, renowned for its collection of furniture by such designers as Mies van der Rohe and Eero Saarinen, has just opened its new Fifth Avenue showroom in New York. Italian Designer Gae Aulenti created the 15,000 sq.-ft. space focusing on a 1,200-sq.-ft. multilevel stage where prototype furniture units are to be displayed. Beyond the stage—set apart by "free-standing columns," themselves containing alcoves for display or for working space—are areas for specific furniture arrangements for office, residence or whatever. These areas are further defined by "zones" of lighting worked out by Raol Bernardo with Miss Aulenti. Accessories are set off in tubular glass showcases; descriptions of pieces and photos of designers are set on plexiglass panes along walls.

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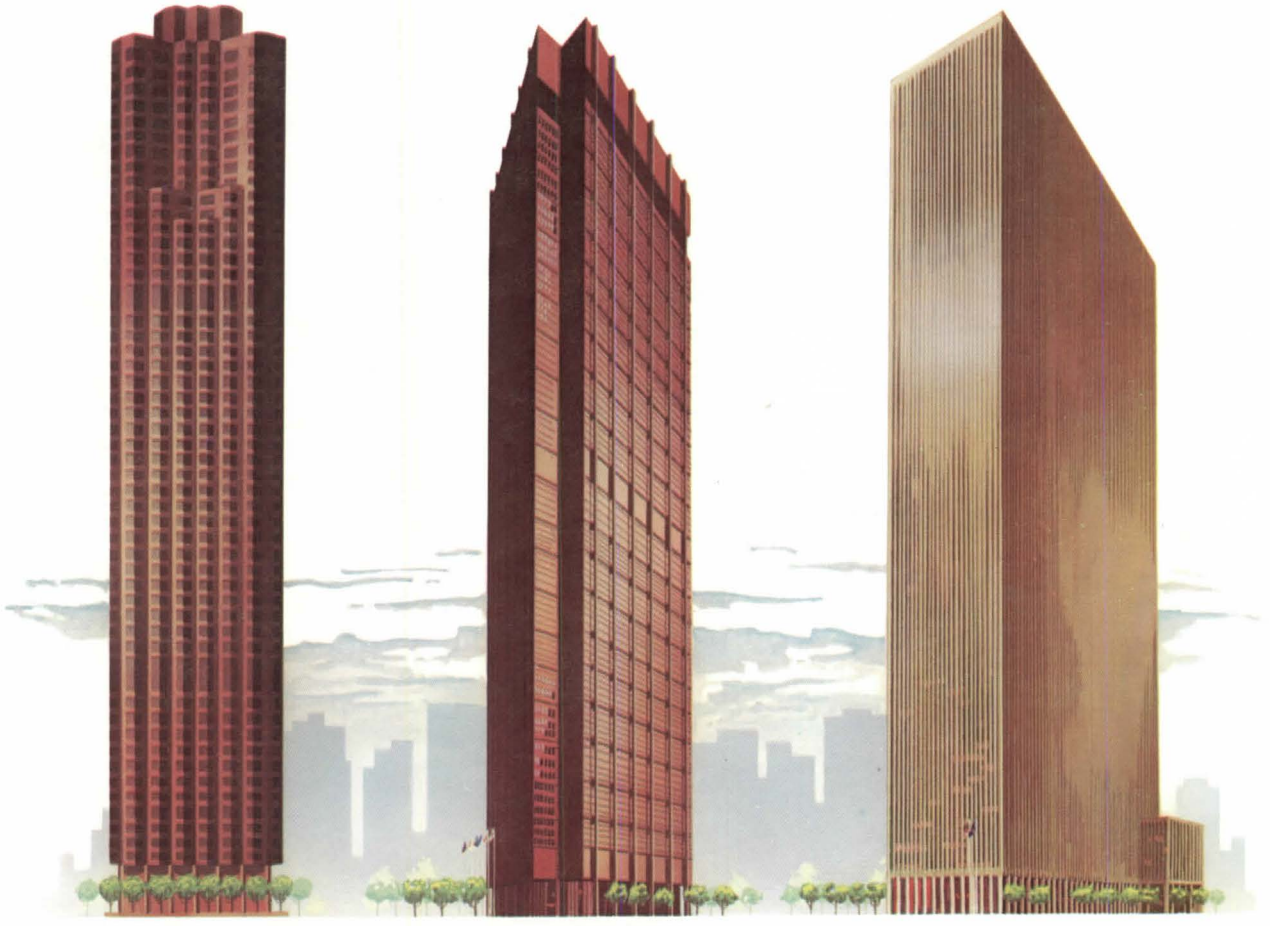

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San Francisco, Cal.
Occupancy—1969.

World's Largest Steel Company

United States Steel Building
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64 stories—841 feet high.
Architect: Harrison and Abramovitz, and Abbe, New York, N.Y.
General Contractor: Turner Construction Company, New York, N.Y.
Occupancy—1970.

World's Largest Oil Company

Standard Oil of New Jersey
Rockefeller Center Building, New York, N.Y.
VMP will install over 20 miles of Corporate type movable steel partition.
54 stories—750 feet high.
Architect: Welton Becket and Associates New York, N.Y.
General Contractor: George A. Fuller Company, Inc., New York, N.Y.
Occupancy—1971.

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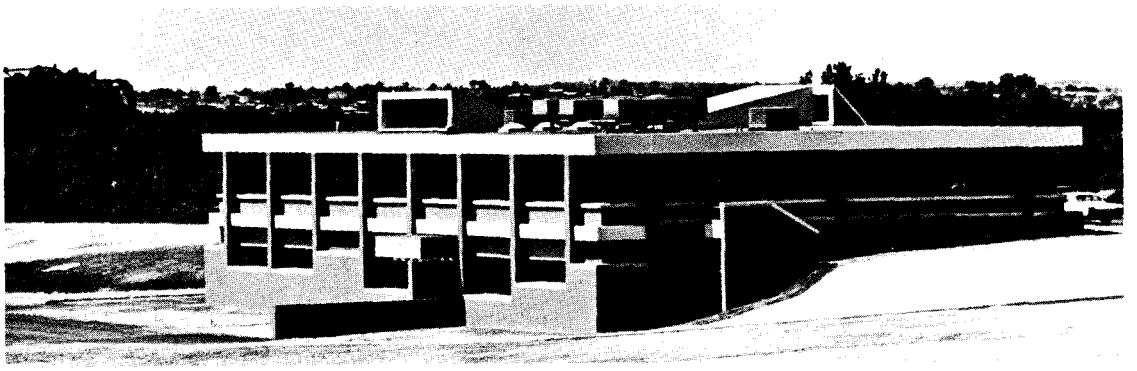
FOCUS

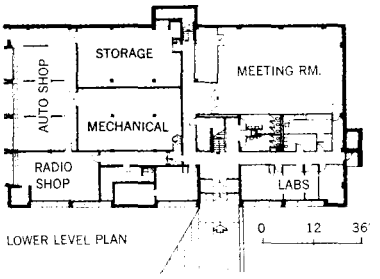
(continued from page 7)

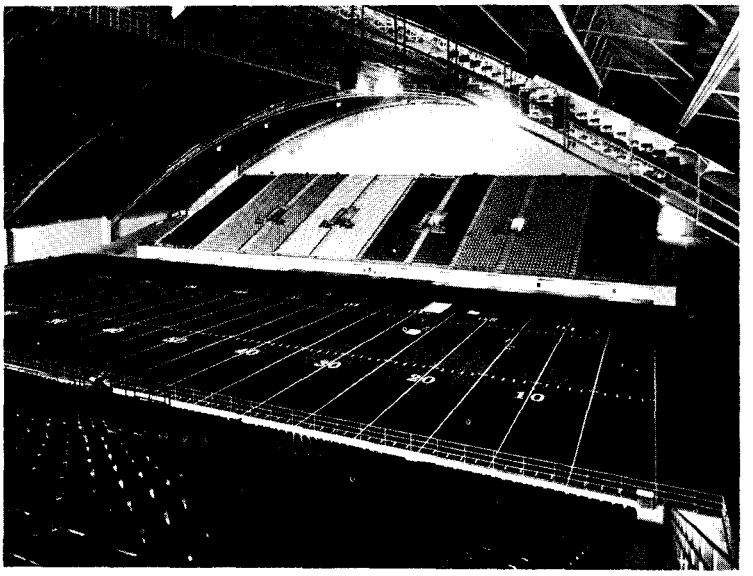


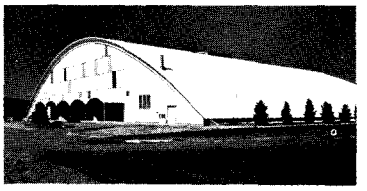
HEADQUARTERS FOR TROOP C

Scott • Thompson Architects have designed the Troop C headquarters for the Missouri State Highway Patrol so that there would be a clear separation of staff and public spaces. The building is set on the brow of a hill; the public enters on the upper level of the two-story structure and the staff below. Staff offices ring a Communications Center (for contact with highway officers and police network), and this center is visible from the public lobby through glass; it is lit by skylights.

The structure is of reinforced concrete and steel frame and is clad in brick and limestone with bronze-tinted glass.

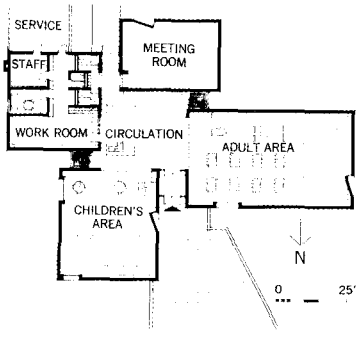


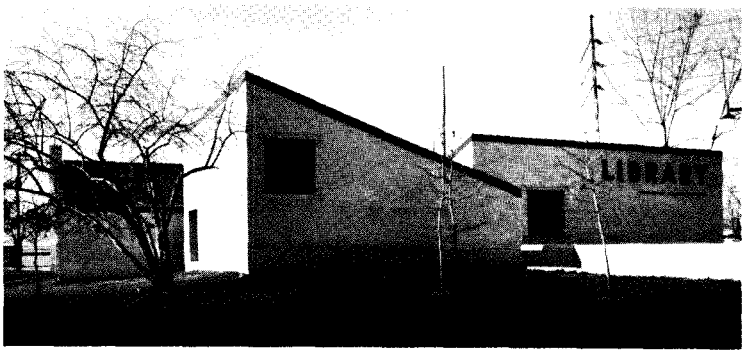




DOMED STADIUM

A new multipurpose facility for Idaho State University near Pocatello replaces the 30-year-old Spud Bowl. Cedric M. Allen was architect of the new structure. With a budget of $2.8 million, he designed a stadium sunk 20 ft. into the ground that is covered by a dome with a clear span of 420 ft. The stadium can seat 13,000 for athletic events; the university also hopes to use the facility for commencements, etc.





SIMPLE SHEDS FOR BOOKS

Close to a ghetto and an urban renewal area in Dayton, Ohio, is the Madden Hills Branch Library designed by Richard Levin Associates. So that the library would not intimidate the underprivileged young people and adults it is meant to serve, the architects planned a simple cluster of shed-roofed volumes, each defining a specific area: adult reading, children's reading, community room and administration. The four spaces are joined by a common circulation area entered via a funnel-like approach from the street.

PHOTOGRAPHS: Page 5, Clive Clark; page 6 (top left) Kathleen Kershaw; (bottom left), Norman McGrath; page 7 (center and bottom right), Olga Gueft.

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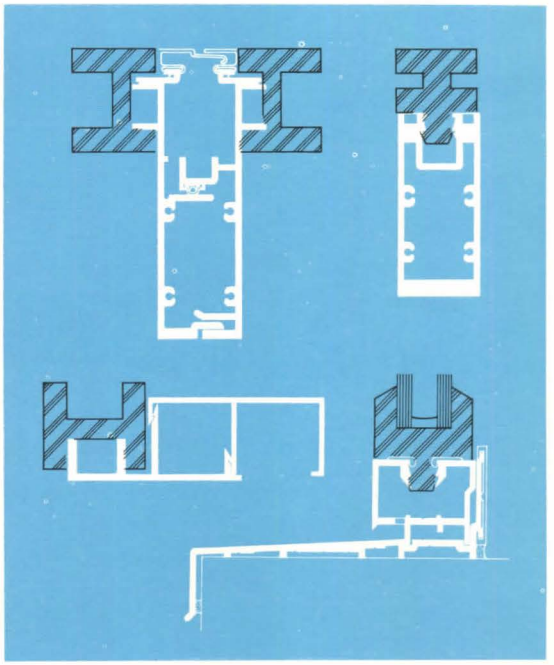

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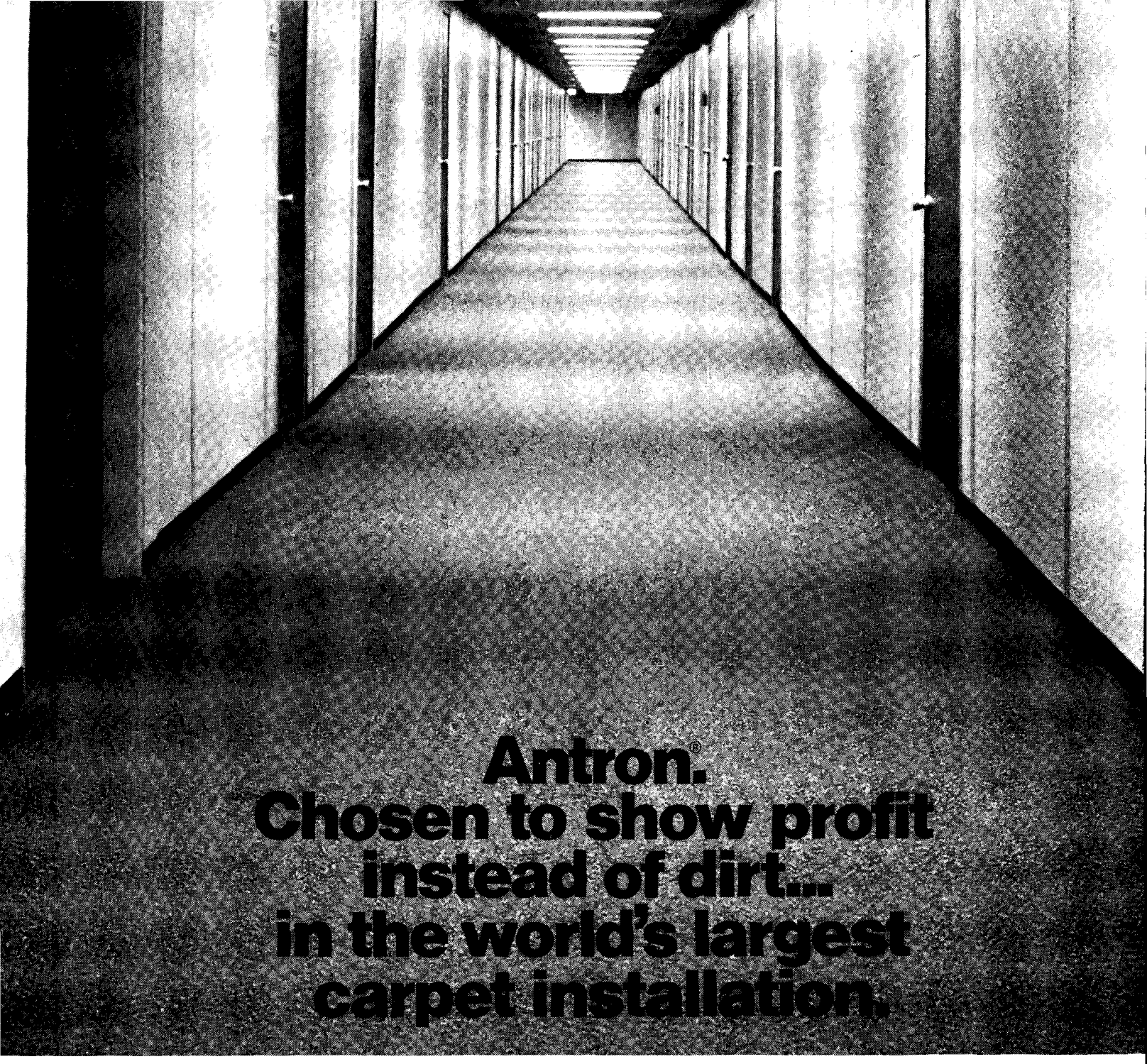

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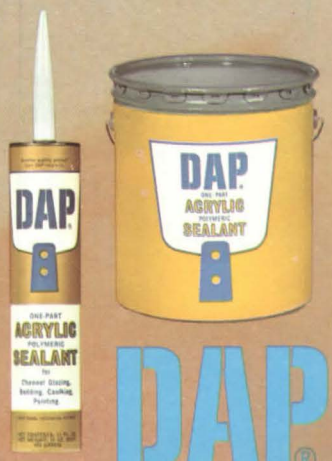

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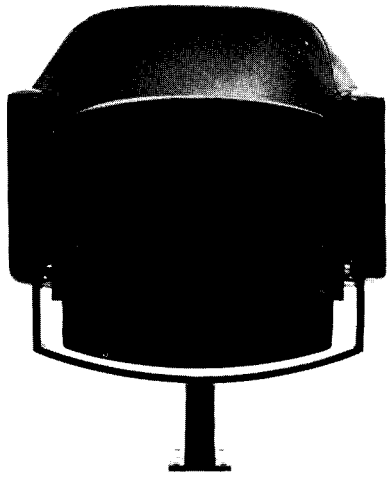

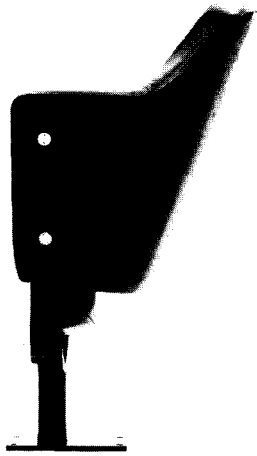

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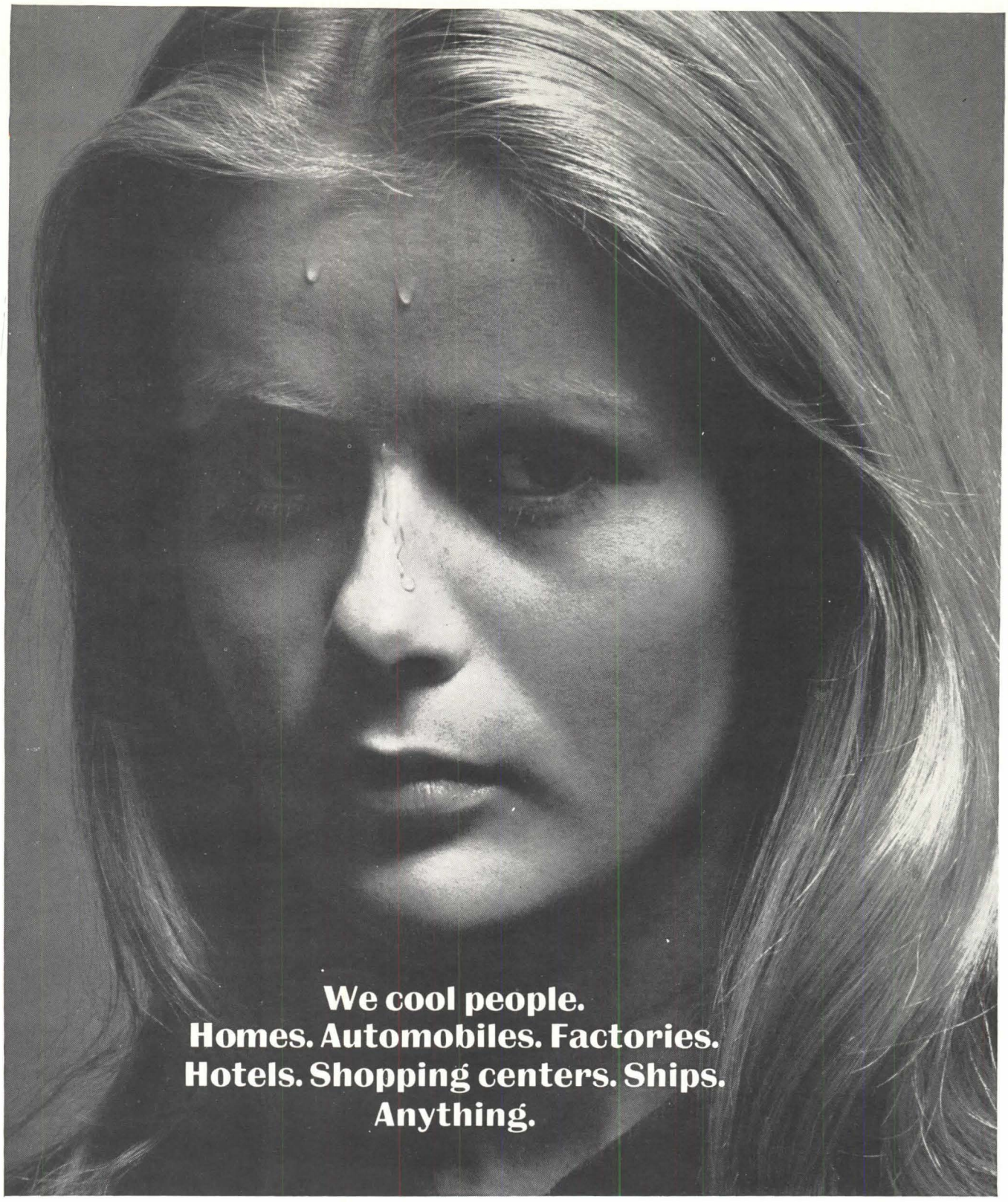

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LETTERS

THE SEDUCTION OF KITSCH

Forum: It is without surprise that I note that Mr. Helmut C. Schulitz hails from Los Angeles, a place in which passion to alter or refine existence becomes easy platitude in the market of that vast gelatinous aspic. In his article, "The Message as an Architectural Medium" [May], Schulitz presents a salad of banalities that any Yahoo might got at with gusto.

His first sentence must certainly put us at ease: "Architects have often mistaken agglomeration of graphic communication all over the world for visual disorder." Hundreds of us who have seen the chaos of visual disorder, and have tried to alter that spectre, have quite simply *been* mistaken. Not only that, but since hucksterism and its icons are "symptoms of new economic, cultural and technological forces," there is no reason to assume that they be beyond criticism nor to make the absurd leap to suggest that we restructure our environments about those icons. I might remind Mr. Schulitz that pollution from autos, intolerable noise levels from jets, the war in Vietnam—to name a few—are also symptoms of these "new forces." And, in his entreaty for use of other esthetics to judge the cityscape, I am assuming that he would censure our mistaken ways in combatting these symptoms—and have us view noxious pollution through the esthetic of perfume, and noise, as the rhythms and melodies of our "new technological forces."

The author is in thrall of a most subtle tyranny—the tyranny of *now*—and the possibly of the triumph of Mass Media, Mass Man, and the G.N.P.

In a heterogenous society which lacks a common root culture, the best we have managed to assemble has been a set of shared values; and, major among these is the deliberate, manipulative process of making money, no matter what the psychic expense to the individual.

The Mass Media is composed of people hungry for money and hungry for power. Not that they have any moral sense or goal or ideal worth a battle. No, the reason is that they are gripped by a profound sickness, and power is the only thing which will relieve this seizure. The illness is the illness of the 20th century: totalitarianism, an illness which kills within the psyche itself. Totalitarianism comes in any form; it is not just strictly political. It comes through the Church, the F.B.I., Public Housing, Social Welfare—even through Architecture. Totalitarianism is a monstrous mode of deadening reality by smothering it in lies.

This is precisely what "commercial vernacular" does, and, precisely what Mr. Schulitz would have happen on a grander scale. He is mistaken in his premise that the "commercial vernacular" is not fully integrated into our Architecture, and, by inference, into our society. Not only is it integrated; but such hucksterism is one of the bedrocks of our society. The seduction of Kitsch seems to have captured the imagination of a wide hunk of our profession. These Architectural Agnews insist that mediocrity be the measure, since Mass Man is, at best, mediocre. The measure of Mr. Schulitz's architectural vision, unequipped to deal with the metaphor of form, is the surface effect of deeper troublings of man—of the totalitarian illness.

So, at root, his proposal is not so much architectural as it is an attempt to commander that which is False, that which is crude, and that which steals energy from individuals and aborts expectation, a proposal which in the end makes us all a bit more murderous, a bit more violent, a bit more insane.

THOMAS R. AIDALA
San Francisco *Architect*

Forum: Helmut Schulitz did it; let us all re-examine our prejudices against signs and billboards and enjoy the vast artistic potential of the message. It took me awhile to realize that the author was not seriously suggesting that well-designed buildings or public places would be enhanced by indiscriminate application of aleatory signs. After all, the examples of his own work at the end of his article contradict most of what he said before: his buildings or structures have been designed specifically to receive messages, indeed would be incomplete without them.

The present urban sign chaos may appear picturesque at a Picadilly Circus, but becomes merely disgusting like any other refuse heap dumped into our cities. As architects and artists working with functional or illusionary ornament and supporting Mies or Venturi respectively, we must control visual pollution and the false romanticism of the slums. That does not deny the tremendous opportunities of the sign industry to use the messages, accidentally arranged within a predetermined frame to be an artistic medium as shown by the author's project for the Mohave Desert.

But the article posed more challenging questions: are our buildings expressing their function, as outdated as gothic cathedrals? Why not have geodesic domes, which incidentally would make lovely billboard supports, conceal within Dimaxion dwellings or industrial complexes? Is the return of the baroque contemporary architecture, revealing its "complexity and contradiction," the true message of Schulitz's article?

J. H. OSTWALD
Berkeley, Calif. *Architect*

TAKING SIDES ON ZONING

Forum: I read with interest Clarence Funny's article, "Zoning: The New Battleground" [May], but I would like to take issue with two items stated as fact.

With respect to the statement, "Space is not available in the central city areas for modern manufacturing needs," I can testify, as a resident of the city of Albany, that there is much space available in the central city for manufacturing and I can believe that this obtains in other cities as well.

As for, "The job shifts are non-reversible. The suburbs are where the action is and will be" —here again, I do not believe this is true. If the land in the central city were made attractive to investors they would come, and manufacturing and other businesses would follow—and the jobs would again be in the central city.

It is obvious to me from personal observation, and reading more articles such as this one, that zoning as it was originally conceived is simply not working. One of its major objectives was to protect property value, and in this city—and others—property values are way down.

I offer two answers: one, a complete revision of our real-estate tax structure to tax land at current market value regardless of use, with no taxation of buildings. This will provide ample financial incentive to initiate the greatest round of all kinds of building the country has ever seen.

Two, development of completely new zoning standards based on performance. For example: noise/odor level, solution to the automobile problem that the building would create, density of people per acre.

If we could encourage these changes and obtain them, I foresee a delightful mix of commercial, industrial and residential which could be very liveable and solve many of our urban and tax problems.

ALBERT S. HARTHEIMER
Albany, N. Y. *Architect*

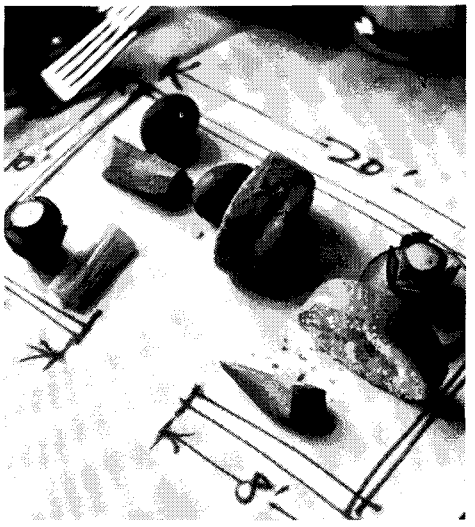
MR. FUNNYE REPLIES:

Architect Hartheimer's letter might be answered by pointing out that our central cities are more than overburdened with adverse spin-offs of superdensity, pollution, and lack of space for housing, transportation, recreational and educational facilities.

All of our central cities and their environs occupy less than 2 per cent of the country's total land area, yet contain approximately 70 per cent of the nation's population. There is a real question as to the social desirability of trying to bring manufacturing jobs back even if central city land could be made "attractive to investors," a non-solution, which in view of the above has implications bordering on economic insanity.

A large part of my article suggested that traditional "solutions" to the problem of land use and housing in the suburbs for moderate-income people were note likely to succeed unless we come to terms with the multitude of socio-psychic, sexual and racial underpinnings of hostility towards our cities.

Mr. Hartheimer's comments give no evidence that he is prepared even to entertain such thinking. Perhaps this, more than anything else, illustrates the massive mental inertia afflicting our profession and the extent to which we are a part of the urban problem.



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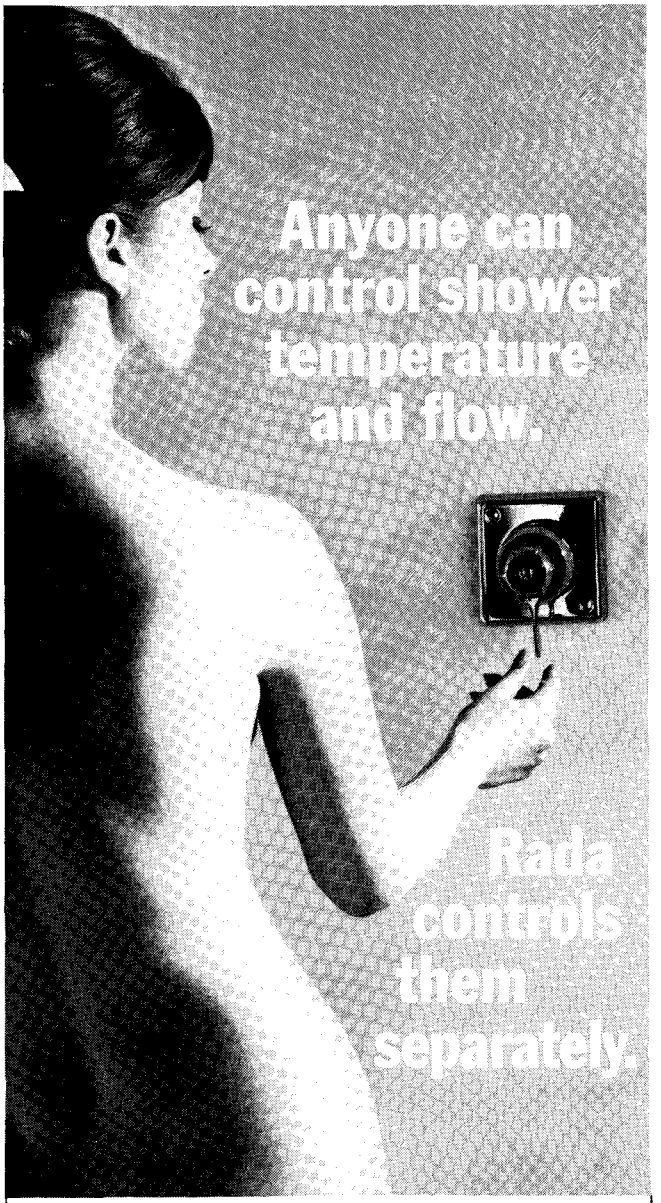

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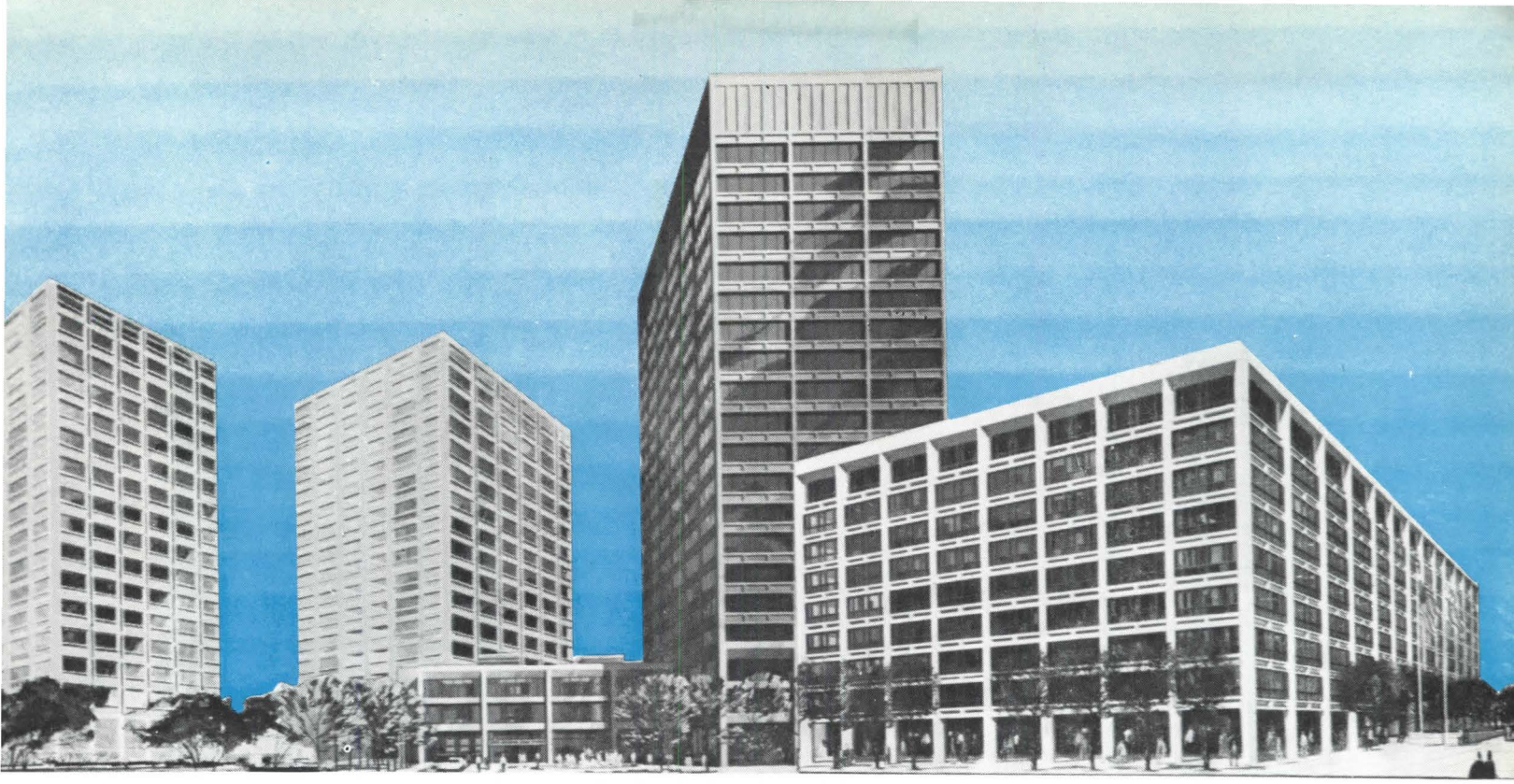

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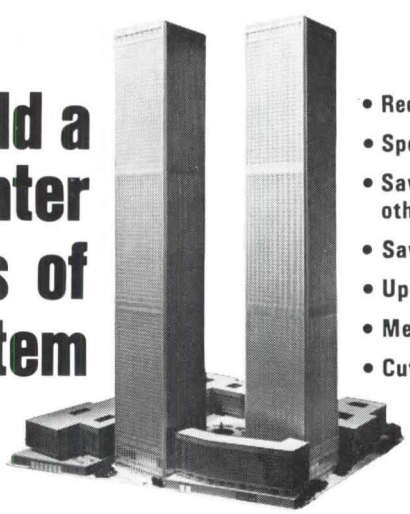

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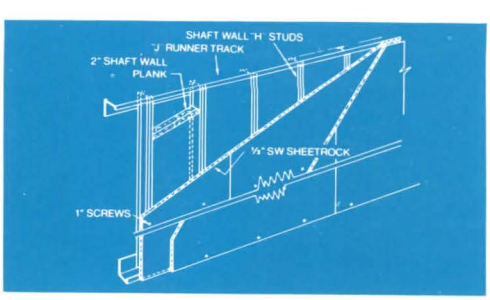

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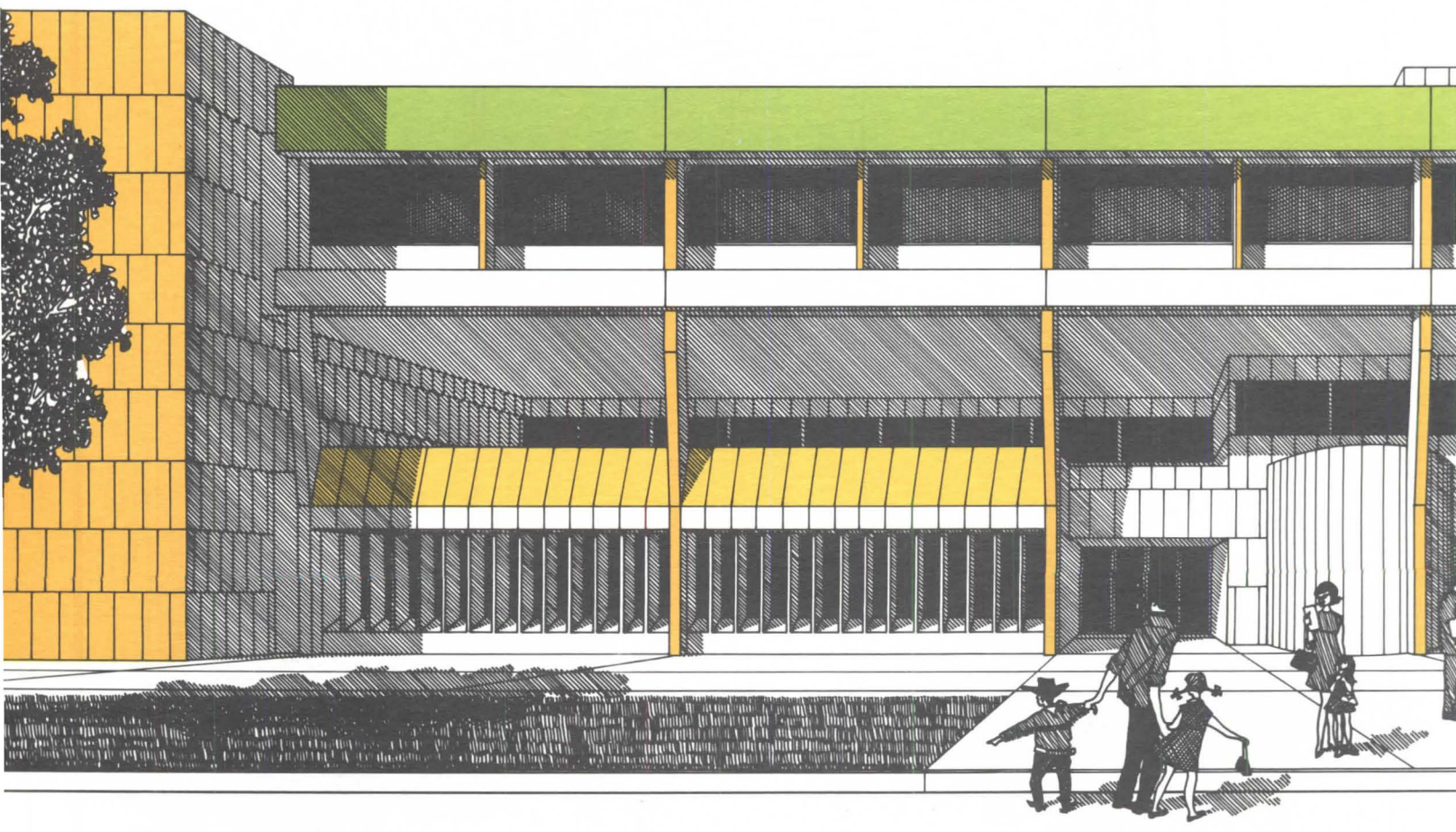

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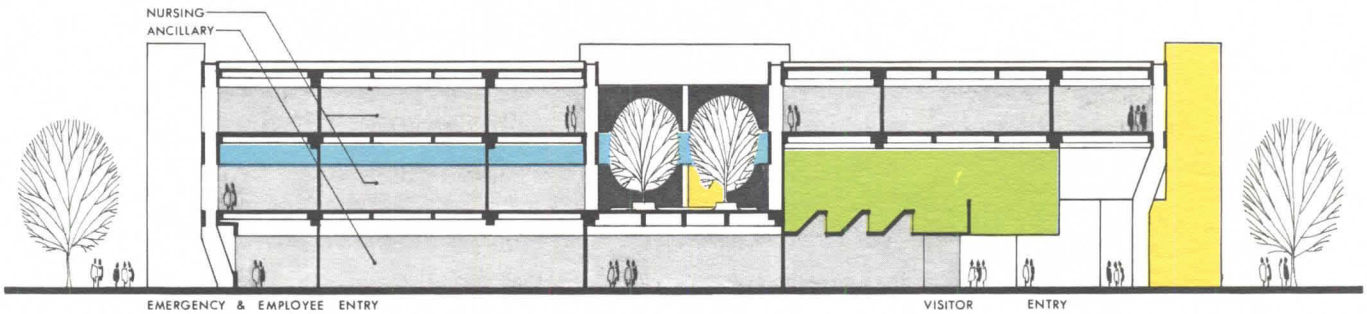

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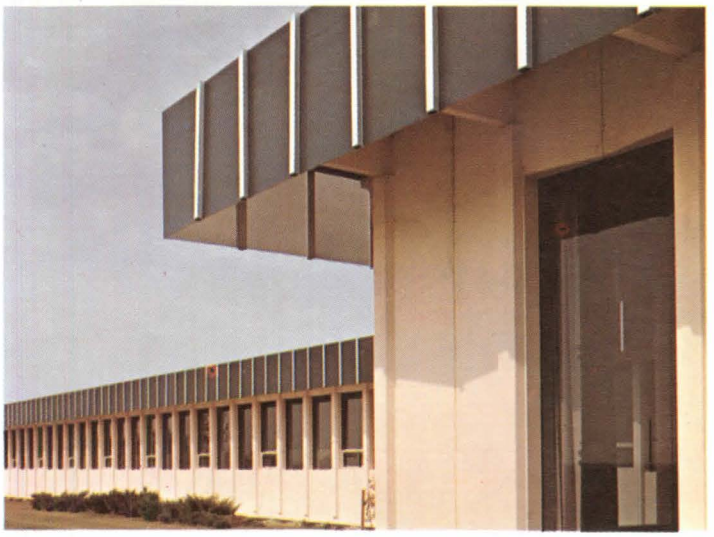

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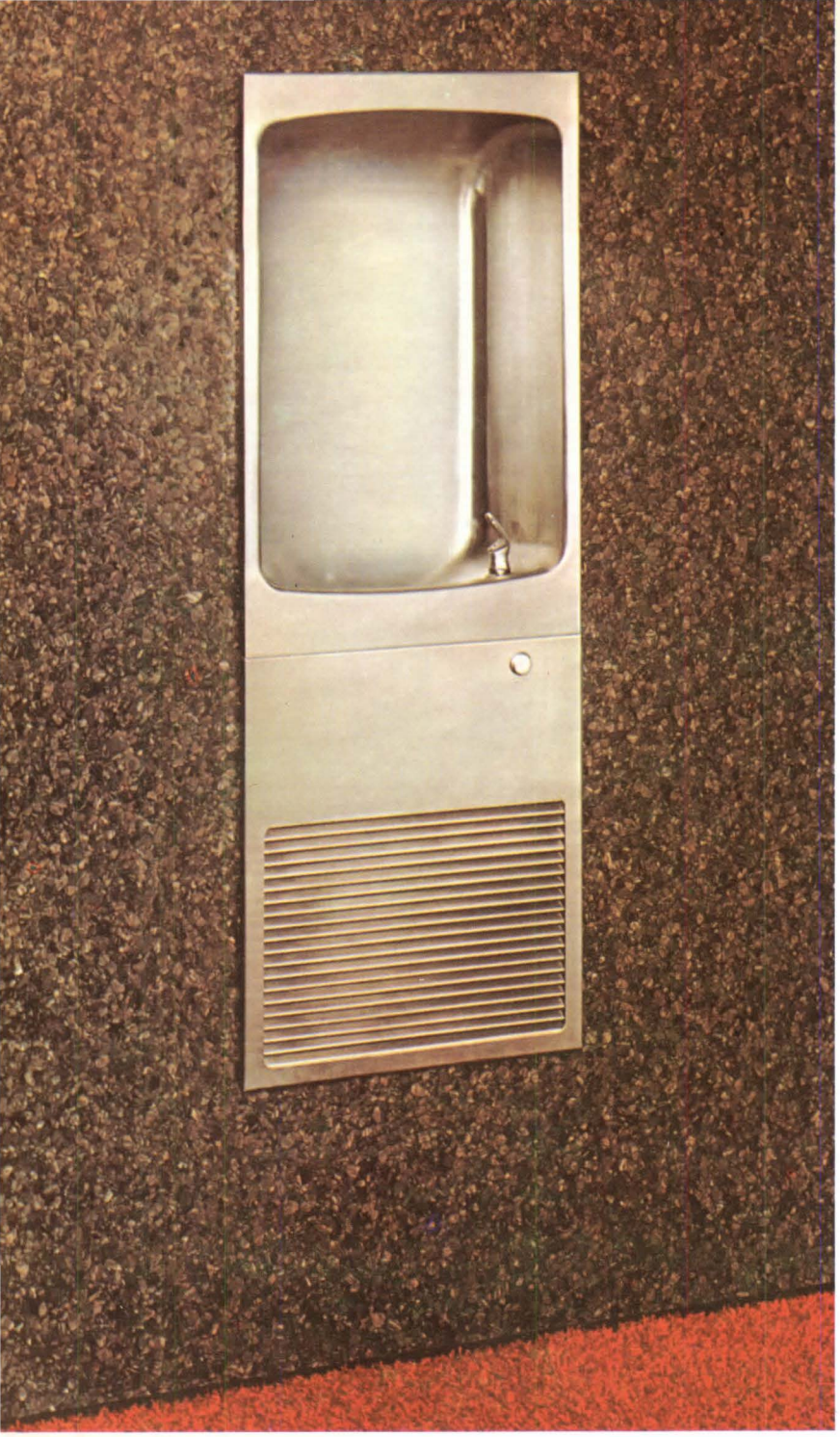

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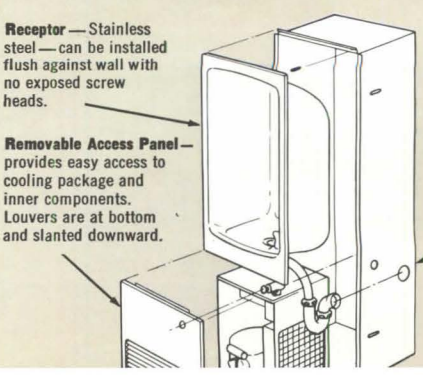


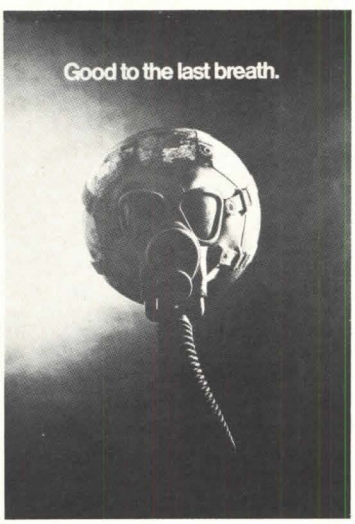
Mounting Box — Sturdy steel box can be quickly secured in any type wall. Permits roughing-in of electric and plumbing connections prior to mounting of receptor fountain and cooling unit.

FORUM

END OF ASPEN?

Some 50 miles due west of Climax, Colo. (and rapidly heading in the general direction of Berkeley) lies Aspen, the Shangri-La of architects, designers, and vicarious thrillers. There, as it perennially must, the International Design Conference came in June for the 20th time to some 1,200 seekers of beauty. It came with a bang, as well as a couple of whimpers.

Aspen's proximity to Climax held a certain significance: for the past umpteen years, the Climax Molybdenum Co. has been spewing grey sludge over tens of thousands of acres of a



once lovely Colorado valley, poisoning plant-life, wild-life, water, air, and humanity indiscriminately; and this year's Aspen Design Conference was of course devoted (as what 1970 conference was not?) to the subject of our environment. The verdict: it's awful, and probably a crypto-capitalist plot.

Everything started off neatly enough: Stewart Udall (right), Secretary of the Interior under Kennedy-Johnson, pointed out that those who like to project inevitable trends for the next 30 years or so have just about preempted 95 per cent of our future, leaving a mere 5 per cent to possible change by way of human initiatives. Deplorable, he said, and also inaccurate.

Dean Richard Farson of the School of Design at California's Institute of the Arts followed this with a challenge to virtually all accepted notions in current design education. He declared that only the young have something to teach, and only the old something to learn. He also suggested that victory for Women's Lib would revolutionize U.S. society and solve most of its other ills. Applause—and time out for lunch, a shared delicatessen picnic in the meadows of Aspen, which left some of the environment deplorably fouled. (On the edges of the festive throng, some of the young—who have so much to teach all the not-so-young—met the U.S. low-cost housing problem with a radically new solution by erecting the 2,578,453rd geodesic dome constructed on this continent ever since Alexander Graham Bell invented tetrahedral spaceframes almost 70 years ago. Understandably, the applause this time was scattered.)

So far, so good, but not for long. Next on the program was Sim Van der Ryn, the Guru of Berkeley. Like everyone else this year, he brought along his inflatable passion pit, activated it, and summoned a dozen of his followers to check it out. Applause. There followed a game of Musical Identity Cards, in which conferees swapped their name-badges until the collective identity crisis was complete. More applause. An hour later, after order and identities were restored, the conference became

comatose from sheer physical exhaustion. That night, Paul Friedberg, the urban landscape man, and Carl Koch, the pioneer in systems building, tried their best to recoup the losses.

On the next morning there were talks by Koch and by Jim Lash, on bread-and-butter issues. And there was an extraordinary staccato presentation by Philadelphia's Richard Saul Wurman, who pointed out that half the surface of our cities belonged to *all* their citizens, proposed to reshape that 50 per cent, and summoned the conferees to dedicate half their time, gratis, to that heroic effort—as indeed *he* has done. Heartfelt applause.

That afternoon there appeared on Aspen's green horizons a strange machine—a 40-ft. long bus painted with Stars-and-Stripes supergraphics. The vehicle, it seems, is the property of an outfit called The Moving Company—a group of about a dozen rather unattractive flower children who operate a street theater in Berkeley. The Moving Company had set out from San Francisco Bay several days earlier, carrying with it such assorted shock troops as Ecology Action, Peoples Architecture, Pacific High School, and, finally, an enigmatic group known as Ant Farm. They had been assembled by Sim Van der Ryn and one Mike Doyle; some of their expenses had been covered by the Design Conference itself; and here they were, ready to blow up the dump—or, at least, make it uninhabitable. (They started to do so by thumping, strumming, and blowing their instruments to generate earsplitting decibels. Happily, earsplitting decibels don't carry very far at 8,000 ft. above sea level.)

Relentlessly, there was another morning—this one graced (if that is the word one is groping for) by the Guru of Berkeley once again. His message, this time, was a capsule history of Western Man—a chronology with which some members of the assembled throng were really rather more familiar. He was succeeded by Cliff Humphrey, the Billy Graham of Ecology Action, who put on a little environmental charade that reduced his audience to tears.

Next came Professor Reyner Banham, who (after outlining his new environmental education game in London) warned rather pointedly of the preach-

ers in our midst. Banham, in turn, was followed on the next morning by Geographer Peter Hall (Reading, England) who explained British planning policy and, incidentally, announced that the Labour Government had won re-election; by Dr. Walter Orr Roberts, the head of Boulder's fantastic atmospheric research complex (Oct. '67 issue), who put the earth into its proper perspective vis-à-vis the universe; and, finally, and happily, by Mrs. Cora Walker, the Harlem co-op champ who has done more than most ghetto advocates to change the economic, social, and physical nature of her neighborhood.

As Mrs. Walker walked off the platform, the Moving Company noisily invaded the Aspen tent, took over the stage, and put on the kind of theatrical performance that has given the West its bad name. A group of dignified black students and designers, under the leadership of Chicago's Stephen Frazier, immediately walked out. The Moving Company, and its sponsors, seemed quite unaware of the insult they had visited upon Cora Walker.

To make the shambles complete, Mike Doyle, on the last day, bullied the conference into voting an endless resolution that expressed opposition to just about everything ranging from Cambodia to Dutch Elm Tree Disease, and promised Alaska to the Indians.

Curiously enough, it was a small group of invited French designers who made the best sense in the end: in a statement read on the last day, the French declared, in effect, that the environment issue was being used by reactionary governments to divert people's attention from much more serious issues (e.g. Vietnam). "Aspen," said the French, "is the Disneyland of Environment and Design." They might have added that the reactionaries of the left were using the issue in much the same way —i.e. to divert attention from their own, true objectives.

When it was all over, the Board of the IDC picked itself up off the floor, elected Designer Jack Roberts (L.A.) to succeed Eliot Noyes as President, asked Dean Farson to put together next year's program—and voted, almost unanimously, that there would be a 21st conference, regardless. Then everyone left the beautiful valley, except for a member of the Moving Company who had, in a fit of pique, bitten the Chief of Police, and was detained.

CITIES

PROMISE AND PROBLEMS

For some, Houston, Tex., is a boom town. Sixth largest city in the U.S., it is fourth in dollar volume of construction; a concerted effort is on by its businessmen and developers to lure corporate headquarters away from what they view as the decay of northeastern cities.

Two building projects indicate the scale of their effort: Kenneth Schnitzer's $400-million Greenway Plaza office-and-apartment development is now under construction on 127 acres seven miles from downtown and will house 25,000 persons and contain 5 million ft. of office space; the Texas Eastern Transmission Corp. will build Houston Center on a land parcel comprising 32 contiguous city blocks immediately adjacent to the central business district. The TET parcel (above), which is equivalent in size to the existing downtown business center, was acquired from over 100 property owners in less than a year.

Bernard H. Siegan, a Chicago attorney with 20 years experience in zoning and real estate law, says that these land purchases have been possible in so short a time because Houston is the only major city in the U.S. without zoning laws. Siegan points out that the Greenway Plaza land was purchased by promising the residents they could stay in their homes rent-free for five years if they would sell on an all-or-nothing basis. Zoning, he says, would have made the development so difficult and expensive, it might never have been attempted.

The boom in Houston may seem remote to some northeastern executives who prefer their politics more liberal, their cultural life more diverse, and their weather less hot. But the boom may seem even more remote to some Houstonians.

The U.S. Equal Employment Opportunity Commission met for three days in Houston in June. It reported that the city was "already living on borrowed time" and the "patient doesn't even realize he's sick."

The commission found that minority hiring by many of the city's leading employers was below the city's over-all average and worse than the records of these same concerns in other cities. Humble Oil was typical: of 29,000 employees, 8.2 per cent were black or Mexican-American. Blacks comprise 25 per cent of the population.

Several witnesses at the hearings predicted that if the situation were not markedly improved, the minority communities would make Houston even hotter this summer.

INDIANS

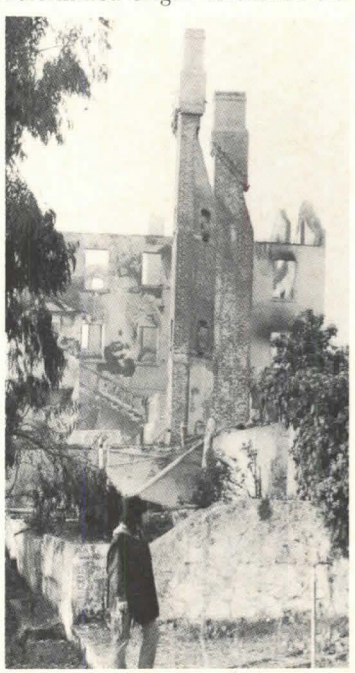
ALCATRAZ BLOCKADE . . .

With a growing Indian militancy more and more manifest, the Federal Government has apparently committed itself to a war of attrition with the movement's vanguard on Alcatraz Island. There, the Indians have maintained a holding force, some 50 strong, since they occupied the island last November demanding it be turned into an Indian culture center. But the government is learning how resourceful the Indian can be, given little more than White Man's promises.

First the Department of Interior announced that Alcatraz would become part of a Bay Area national park, with some "Indian flavor" but no resident Indians. The Indians said no. So the GSA, Interior, and the White House jointly decided to remove two federal caretakers from the island and to cut off its water and electric power. The lighthouse beacon, which had shone for 126 continuous years, was darkened. And the Coast Guard removed key parts from a stand-by generator on the island, then set up off-shore buoy lights to aid navigation.

The Indians began hustling bottled water from the mainland with the aid of Captain Cliff Anfinson of the *Bass Tub*, who has ferried them back and forth since the take-over.

On June 2, a fire of undetermined origin blackened the



lighthouse tower and destroyed four historic buildings (above), while nine Coast Guard launches idled offshore, hoping to evacuate the Indians. The Indians said no, and announced they would begin sightseeing tours to the island at $5 a head using Captain Anfinson's boat. The GSA said no.

Ten days after the power cut-

off, Scott Newhall, yachtsman and editor of the *San Francisco Chronicle*, donated a portable generator and the Indians relit the beacon to the delight of Bay navigators. It was, said Indian Leader John Trudell, "a symbol of the rekindled hope that some day the just claims and rightful dignity of the American Indians will be recognized by our fellow citizens."

. . . AND A NEW FRONT

Meanwhile, about 50 Indians, led by the original Alcatraz occupation leader, Richard Oakes, were being arrested, repeatedly, for alledged trespass on a six-acre stretch of Lassen Volcanic National Park, 100 miles west of Redding, Calif. The Pit River Indians were claiming the land—now used as a campground for Pacific Gas & Electric employees—as part of some 3.5 million acres they say were stolen from them by the Feds during the gold rush of the 1850s. That's roughly comparable in size to Connecticut.

The Pit River tribe's lawyer, Aubrey Grossman, contends that PG&E has not proved its rightful ownership, and any action to move the squatters will amount to a violation of the Federal Civil Rights Act.

SHELTERS

MORNING AFTER A BLAST

One hundred feet underground, beneath Building 22 of the complex of New York State offices in Albany, is a setting worthy of the malignant humor of Cartoonist-Playwright Jules Feiffer. It is the Emergency Operating Center and Alternate Seat of Government—in layman's language, a fallout shelter.

In the event of a nuclear blast, 700 selected government officials and employees would be housed beneath a 6-ft.-thick ceiling and behind a 7½-ton steel door. The guest list, of course, includes the governor and a personal staff of 30, 25 legislative leaders, officials of state agencies and the judiciary, a specialist in breaking codes, two from the Human Rights Commission, the Commissioner of Environmental Conservation, and, so help us God, a member of the Salvation Army!

They will find there for their convenience a hospital equipped for major surgery, decontamination showers fed from underground wells, four dormitories with bunks already made up with sheets and pillowcases, and a walk-in refrigerator for storing dead bodies.

At the bottom of the hierarchy of the select are four policemen whose sole duty it will be to patrol the entrance tunnel (above) to keep out irate voters. If Feiffer were doing it, those turned away might be husbands, wives, and children of the guests, for whom there are no accommodations. Unless, of course, they have pull and can get themselves on the 14-member "housekeeping staff," and scrub clothes and serve "survival biscuits" with the instant mushroom soup.

AIA

FLIES IN THE HONEY

Last year's AIA convention in Chicago committed the institute to raising $15 million for a program of social action, and a Task Force to implement it. At this June's convention in Boston, Taylor Culver, leader of the student-induced, $15-million program, announced that only $1.3 million had been raised. The Task Force chairman, George Rockrise, reported that his fund for last year was $150,000 of a total AIA budget of $3,800,000. Culver didn't think the AIA was serious about funding the project. (On Tuesday the members voted a dues increase but refused to allocate 50 per cent of it to the Task Force, as students were demanding.) In a question-and-answer period following the Monday A.M. session, when someone suggested "We should tell them where to put their dues increase," someone else countered with, "We can catch more flies with honey." Said Culver: "We tried that last year. The flies ate all the honey and split."

Later that night, at the Boston Architectural Center, where students were holding their own convention, Culver suggested disruption of later business if the convention did not substantially allay his doubts. Neither the convention, nor Culver, ever made their move.

There were, however, other attempts at drama. A saffron-robed and turbaned architect ended a speech being delivered by a student-chosen environmentalist —S. P. R. Charter—by standing in his seat and screaming. No one knew why. To quiet the mild hubbub that ensued, students proceeded with a staged multimedia happening, which included a kind of sanctified group grope (below).

The seeming passion to avoid confrontation carried over into the resolutions adopted. Privately, dwindling architectural commissions were a common topic. Publicly, despite a lobbying attempt by The Architects Resistance to document the connection between the war in Southeast Asia and the money crisis at home, members beat back several attempts to put teeth into an antiwar resolution.

The convention resolved to be *for* the environment but declined to stop investing in companies that pollute it. It also resolved to make funds available for community design centers,

(continued on page 82)


The Drake

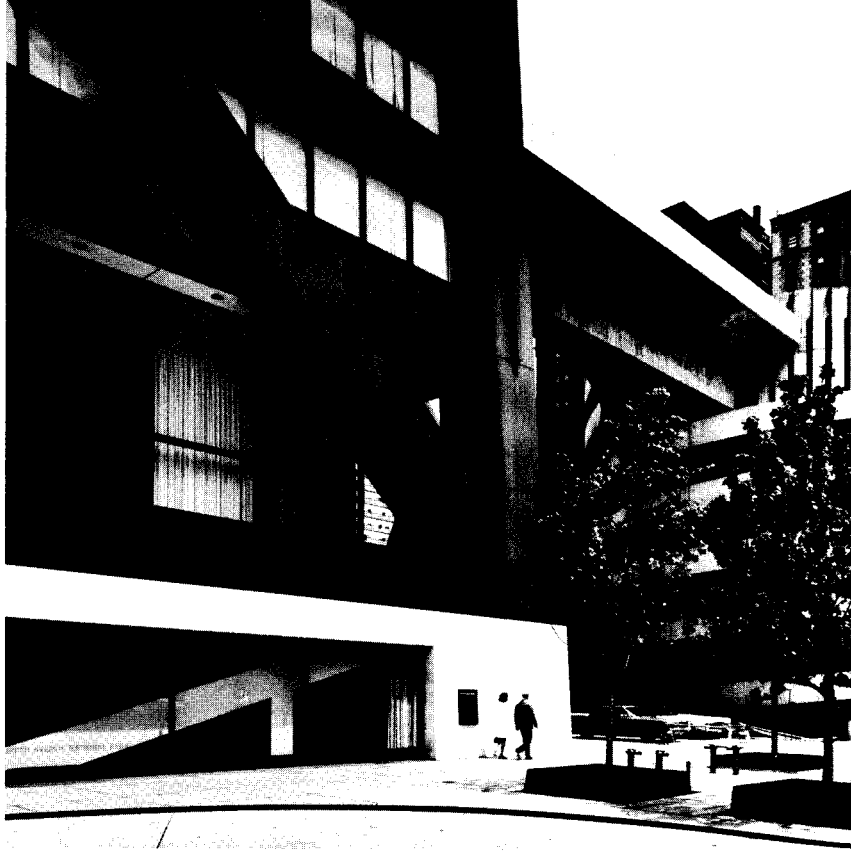
THE TALL ONE

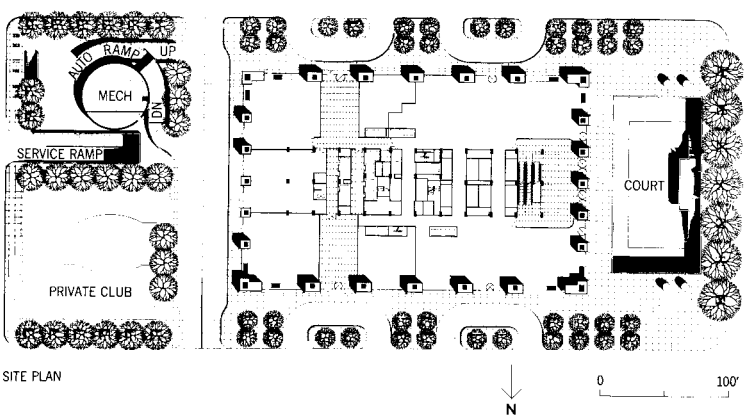
The blunt, black obelisk of John Hancock Center, rising more than 1,100 ft. above Lake Michigan, changes the whole image of Chicago. Or perhaps it just brings out a latent image; somehow it seems inevitable for Chicago—where the world's first steel-framed building went up—to have one climactic skyscraper symbolizing the city's faith in technology and commercial development. And it seems almost equally inevitable that the giant firm of Skidmore, Owings & Merrill, which also started in Chicago, should have designed it.

John Hancock is only the second tallest building in the world—and it will lose that distinction when the twin towers of New York's World Trade Center are topped out at 1,350 ft., bumping all competitors down a notch (or two, depending on how you count them). But right now no other building in the world has higher *occupied* floors than John Hancock—and no taller building, existing or planned, has the unique mix of uses that makes John Hancock a "city within a city." It is possible to live there, work there, keep a car (or rent one) there—to shop, bank, swim, dine out, or go skating without leaving the premises.

If current plans go through, another structure—or maybe two—will soon top John Hancock on the Chicago skyline. That will be unfortunate, because "Big John," as it is known locally, is well shaped to be a singular symbol. Its form is based on a structural idea that can be grasped intuitively, like that of the Eiffel Tower. But it is not a suave abstraction like the Eiffel Tower; instead, it is as foursquare and bluntly articulated as an oil derrick, to suit its frankly mundane purposes.

The Hancock tower is basically a bearing-wall structure. At first glance, portions between the big diagonals look like non-structural infill, but actually all of the columns and spandrel beams are part of a structural grid extending over the entire exterior. The purpose of the diagonals is to brace the power against wind—to transfer





SITE PLAN

The massive joints at the base of the tower (left) are one story above the sidewalk so that the building frame can be seen as a whole above street traffic. Structural members are clad in black anodized aluminum; bronze-colored aluminum frames the bronze glass. The site layout includes separate automobile entrances for various functions. Most pedestrians enter on the west side (above), around a sunken court with a skating rink (a reflecting pool in summer); a grand stair down from Michigan Avenue leads to the rink-side restaurant, the observatory reception area, and shops. At the southeast corner (above right) is the double-helix garage ramp. Visible through a street-floor window is part of the complex framing that supports the big corner joint from below.

lateral forces from the windward wall to the opposite side of the building, where the wall grid absorbs them in compression. The vertical core of the building carries a fraction of the floor loads, but takes none of the wind loads.

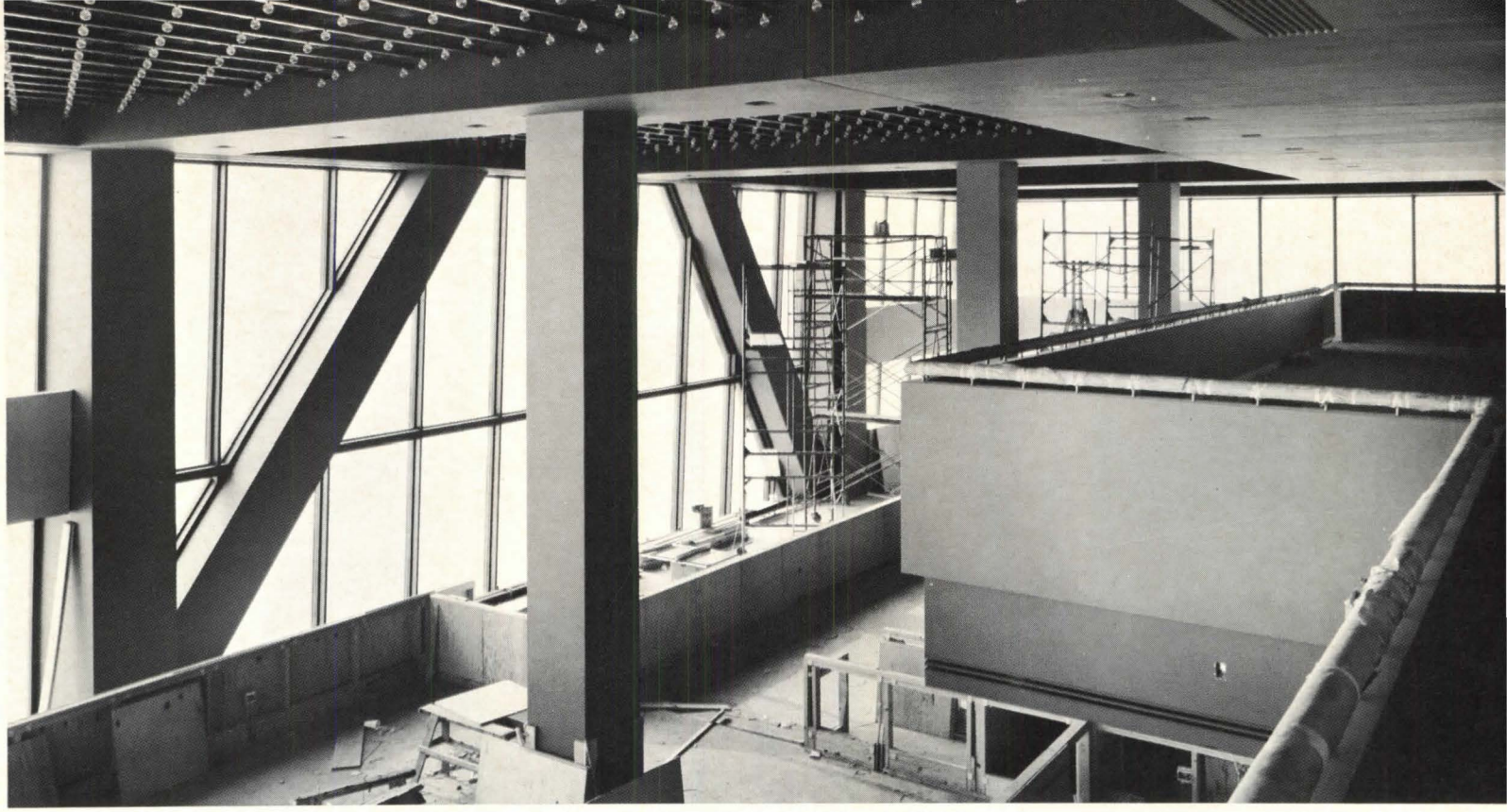
Since the stiffness of this frame derives from its geometry, not from rigid joints, its assembly could be simpler and its members lighter than in a strictly rectangular system. The taper of the tower also lightened the structure, in two ways: by angling the walls toward the forces they must resist and by reducing the total wind load on the tower—its "sail" effect. The amount of steel used here (less than 30 lbs. per sq. ft. of floor area) is low compared to even medium-rise conventional steel frames, and none of the steel here is of the more costly high-strength type.

The diagonal members are similar in principle to those of an old-fashioned triangulated truss, which efficiently convert bending stresses into simple tension and compression. But only the principle is old-fashioned; stress calculations for the thousands of members in this three-dimensional frame would have been literally impossible before the age of sophisticated computers.

The floors in this structural system play only a minor role in stiffening the building (except, that is, for the rigid bracing floors at roughly 18-story intervals). Even after the structural frame had been designed, it was possible to leave out floors wherever double-height spaces were desired. In fact, the framing was designed—and the steel ordered—before preliminary interior plans were completed.

John Hancock's unique form has been familiar to Chicagoans ever since the structure was topped out in May, 1968. It was only this spring, however, that the building was revealed as something they could walk right up to—or into. Some of them still find it hard to accept the building as finished. A typical cab-driver wonders why the biggest building in the city's richest neighborhood—the Near North Side—isn't "classier." By that, it turns out, he means covered with polished stone, like the new First National Bank skyscraper in the Loop.

The location of John Hancock Center had a lot to do with making it a multiple-use building. It stands among the city's most prestigious shops and professional offices, on a stretch of Michigan Avenue



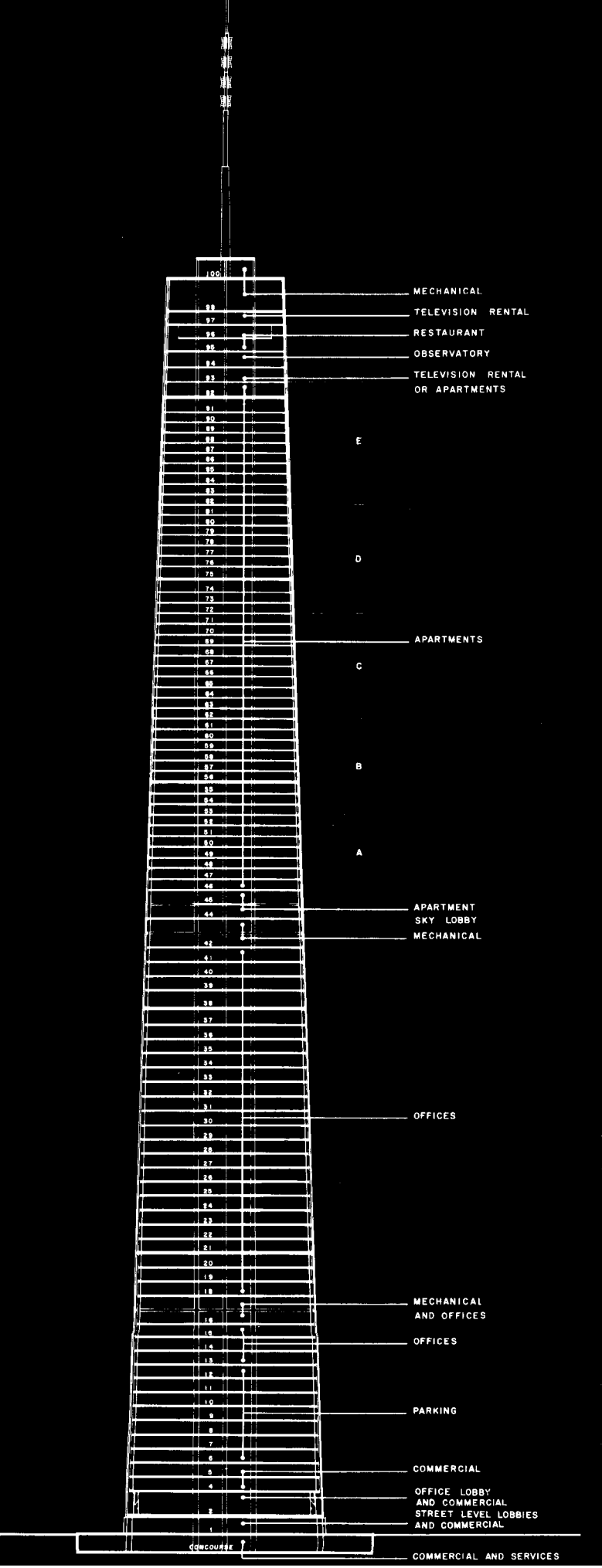
John Hancock's structural frame is dramatically visible from some interior spaces. In the 44th-floor sky lobby (left), where passengers transfer on the way to apartments, intersecting diagonals are directly ahead as the elevator doors open. In the two-story restaurant soon to open on the 95th and 96th floors (above), diagonals converge toward the very top of the tower. Two-story spaces can be opened up almost anywhere in the building since floor slabs are not needed to transfer wind loads to the central core. The inward angle of the walls, apparent in all outside rooms, has a disturbing out-of-plumb effect at first glance; once recognized as part of the tower's geometry, it reduces the vertigo one expects to feel looking out of broad windows from high elevations.

that boosters call "The Magnificent Mile." Down the side streets are sedate townhouses, hotels, restaurants, and clubs, surviving amidst a burgeoning crop of high-rise luxury apartment buildings. The market here is excellent for restaurants, shops, and medium-sized office spaces, but the site is too far from transit lines and commuter railroad stations to support vast office operations. The market is also good for apartments, especially apartments high enough to get sweeping views of the city and the lake, and far above the noise of Michigan Avenue.

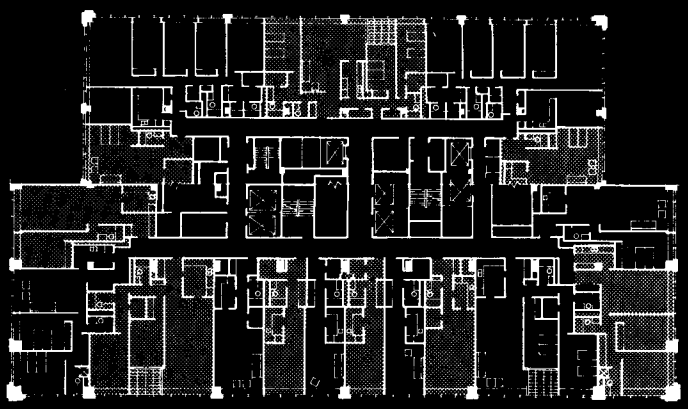
Like the structural frame, the internal functions of the building seem to follow an almost inevitable logic: extensive lower floors for a large retail store and garages; slightly smaller medium-rise floors for offices; smaller floors above these for apartments, with their lighter elevator demands. Above the apartments, the inevitable observatory, and then a restaurant-at-the-top to top them all, on the 95th and 96th floors.

One of the virtues of mixing uses is that it produces no monumental surges of rush-hour traffic. The building's 900,000 sq. ft. of office space—equivalent to a medium-sized office building, by Chicago standards—will house about 4,000 workers, divided among many tenants so that traffic peaks will not be sharply defined. The 1,700 residents and the 4,000 visitors expected daily will come and go at widely distributed hours; restaurants and observatory will draw many of their visitors in the evening. Theoretically, rush-hour traffic could be reduced sharply if many of the residents commuted to work by elevator; actually very few have arranged their lives so conveniently, but many people do walk to offices in John Hancock from the surrounding neighborhood.

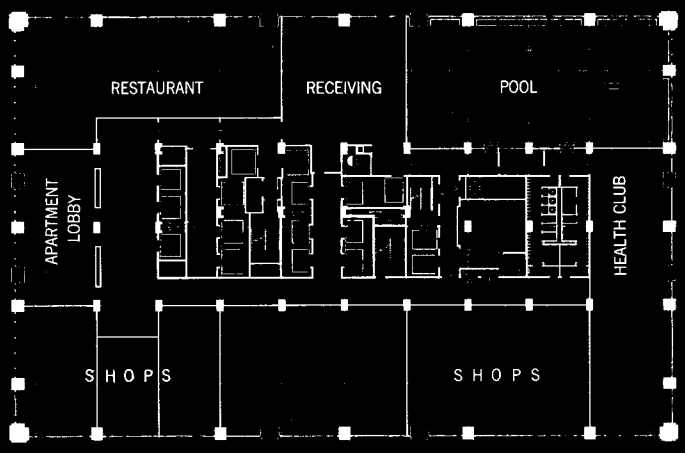
The logic of multiple use has not stemmed the stream of dire predictions from newspapers and neighborhood spokesmen about traffic congestion generated by John Hancock. It is natural to expect the most traffic from the city's tallest building; you wouldn't want a John Hancock to move into your neighborhood, either. Now that the building is 80 per cent occupied, the additional traffic on Michigan Avenue buses is noticeable; so is congestion on local streets that link the 1,200-car garage to commuter arteries. Some current annoyances may be transitory: the number of buses bringing sightseers to the observatory is likely to taper off soon; and truck



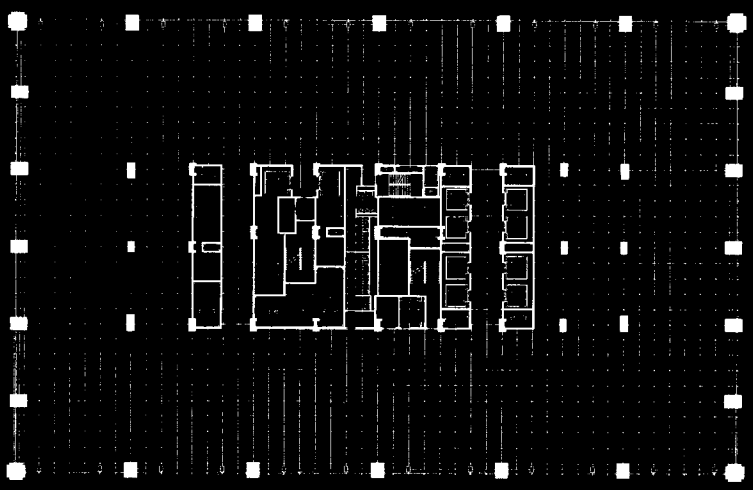
APARTMENTS 82ND–92ND FLOORS



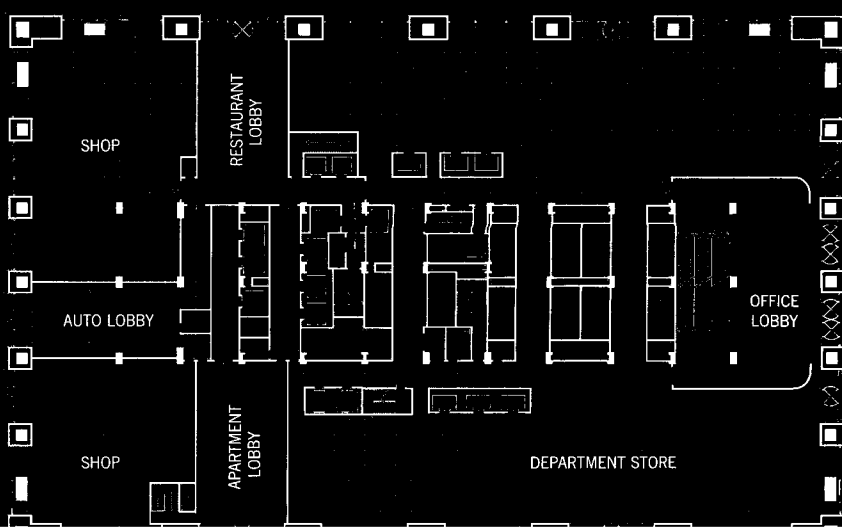
APARTMENTS 42ND–52ND FLOORS



SKY LOBBY–44TH FLOOR



TYPICAL OFFICE FLOOR–26TH-33RD



traffic, now running as high as 150 movements per day, is expected to drop below 100 once work on tenant spaces and moving-in operations have been completed. On the other hand, the number of cars using the garage ramp at night—and disturbing neighbors with noise and moving headlights—is likely to increase when the restaurants are opened this summer; there have already been demands that the ramps be enclosed.

The critical question architects usually raise about John Hancock is why such a diversity of functions is packed into a container of such insistent unity. Isn't this deceptive packaging? SOM's answer is that only a rigorously logical structural shape made it possible to build 100 stories at a reasonable price. And any separation between the frame of the building and its walls would have complicated the problem of insulating the frame against temperature extremes. Besides, design partner Bruce Graham—a steadfast Miesian—believes that structure should determine architectural form. For him, expressive ins and outs of the building form are just expensive gestures.

Of course, if you look closely, you can see differences between the various parts of John Hancock. The careful observer can read locations of offices, mechanical floors, apartments, etc., from differences in story height and wall detail on the facades.

The real complexities of John Hancock Center are deep inside. The circulation system is, of course, extraordinary. Separate elevator banks, reached through separate lobbies, serve offices, apartments, restaurant, and observatory (the latter two are allotted elevators from the same bank, depending on passenger demand). Other elevators serve the self-contained Bonwit Teller store on the first, fourth, and fifth floors (the two floor gap is hardly noticed by customers), a man-lift carries car hops between the garage and the automobile lobby. Office elevators are boarded from a second-floor lobby, reached by escalator, so that the street floor can have uninterrupted retail space.

All traffic to the apartments goes first to a 44th-floor "sky lobby," where passengers switch to apartment elevators stacked above the office elevator banks. At sky lobby level are shops, restaurant, commissary, swimming pool, and other facilities open only to residents. Service traffic also switches elevators at this

In section (left), the tower is like several buildings stacked one above the other. At street level, each of them has its own lobby. The small office lobby at street level is linked by escalators to a tall, second-floor elevator lobby (above), which is separated from a vast, U-shaped banking room only by sliding glass doors. The column-free office floors range in area from 40,000 sq. ft. at the 13th floor to 30,000 sq. ft. at the 41st. The 44th-floor swimming pool (above right)—a science fiction setting come to life—is one of the facilities on the "sky lobby" floor, where residents change elevators; the pool itself is hollowed out of the mechanical floor below. The apartment floors at the top of the tower go through five changes of layout between the 46th floor and the 92nd, adjusting to diminishing floor areas.

floor, passing through a receiving room control point on the way.

The apartments at John Hancock are spectacular. For one thing, there are simply no other apartments in the world above the 60th floor. Because the walls of the structure slope in 6 in. per story on the north and south, 3 in. on the east and west, the apartment floor plans have to be rearranged five times between the 46th floor and the 93rd. Smaller units are concentrated on the lower floors, where their high proportion of baths and kitchens fills spaces far from the outside wall. On upper floors are the larger units, many with several bedrooms along the exterior. Rents range from $190 for the lowest studio apartments to $750 per month for the highest four-bedroom unit.

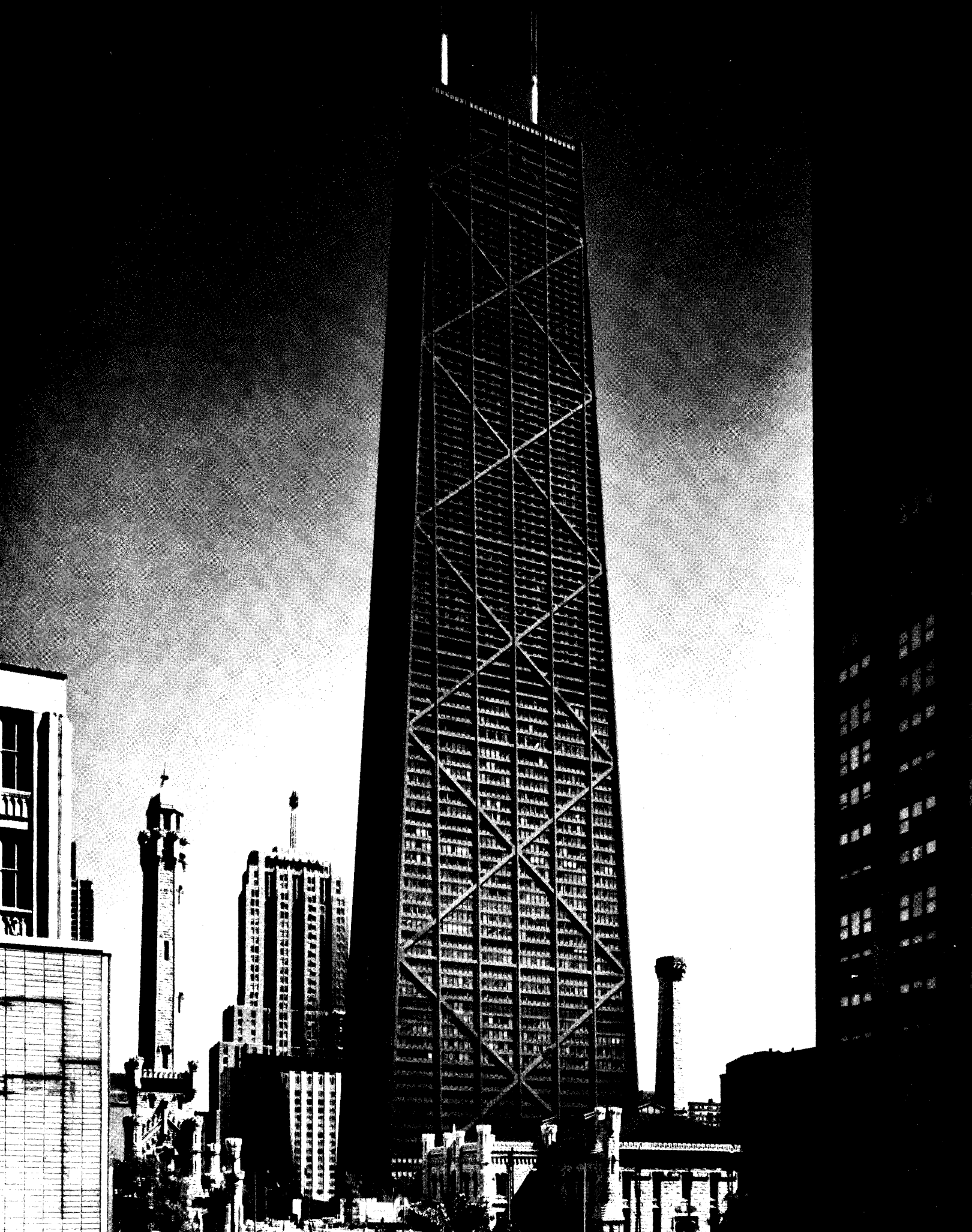
The location of the big diagonal braces had to be considered in apartment floor layouts, so that they would not block the views from small rooms. That is why the floor plans, like the bracing, are symmetrical about both east-west and north-south axes. About one third of the units have "sky terraces." These sane alternatives to the high-rise balcony have tile floors and windows that fold out of the way, and they are separated from interior rooms by sliding glass doors.

The 94th-floor observatory can accommodate 500 people at a time. Traffic flow is controlled at a concourse-level reception area, from which visitors shoot up 95 floors non-stop in 39 seconds. Snack bars and souvenir shops originally planned for the observatory have been banished; the lack of distracting elements is especially appreciated at night, when lighting is kept low to minimize reflection on the glass.

Looking down from the observatory is like looking down from an airship at Chicago as it was before John Hancock went up. Nothing out there has any visible relationship to the tower. You get the same feeling looking down from the Empire State Building, for instance, but not from the Eiffel Tower, or the Washington Monument, or a medieval campanile; each of them has a meaningful place in its surroundings, apparent in views both from them and toward them. John Hancock looks like an isolated monument, almost accidentally placed. As the symbol of Chicago, this tower is superbly expressive. But shouldn't the tallest landmark in a metropolis be part of a larger plan? In a typically, tragically American way, John Hancock Center is not. —JOHN MORRIS DIXON

Strongly articulated framing gives the world's highest apartments (top left) a feeling of security. Dropped beams, placed across the 8-ft. 8-in. ceilings. Along the outside wall, beams, deep sills, and angled columns frame window alcoves. From the observatory (above), landmarks such as Marina City look amazingly small. The twin TV antennas on top of John Hancock (right) were imposed on the tower as the price for being the tallest structure in Chicago. FAA required that the masts be painted reflective white and orange.

FACTS AND FIGURES
John Hancock Center, Chicago, Ill. Architects: Skidmore, Owings & Merrill (Bruce Graham, partner in charge of design; Albert Lockett, partner in charge of management; Robert Diamant, associate partner in charge of design; Richard E. Lenke, project manager; Dr. Fazlur Khan, chief structural engineer; H. Srinivasa Iyengar, project structural engineer; George Larson, interior designer for public areas, bank, and observatory). Structural consultants: Paul Weidlinger; Ammann & Whitney. General contractor: Tishman Construction Co. Gross building area: 2,800,000 sq. ft. Construction cost: $91,000,000 (fees: $9,000,000).
PHOTOGRAPHS: © Ezra Stoller (ESTO).



THE RESTLESS GENIUS OF NORMAN BEL GEDDES

BY ARTHUR J. PULOS

"I have never known a man with so free wheeling a mind as Norman Bel Geddes . . . the past sits upon him not at all. He never approaches a problem-in-hand with what has been done before. His ingenuity is endless, his practicality proven, his sense of function brilliantly direct." *Howard Lindsey, Theatre Arts Monthly, 1948*

To many of his illustrious contemporaries, Norman Bel Geddes was a dynamic and voluble showman—the P. T. Barnum of Design. To others he was everything from an impractical visionary to an emotional little devil. Yet in an era of impresarios and entrepreneurs in the arts, this restless genius stood out as the first American to feel the cultural surge of the 20th century.

Bel Geddes sampled most of the arts of his day and gave new form and vitality to all of them. He was, at one time or another, a painter, an illustrator, a graphic designer, a set designer, a filmmaker, an architect, an inventor, an interior designer, an industrial designer. One moment he proposed that a revolving restaurant be set high on a stalk overlooking a fair city and the next, that another be tucked under the lip of a dam. He offered New York the idea of a floating airport that would turn like a weather vane to keep its single runway into the wind. His idea for an ocean liner looked like a whale and his streamlined automobile was the first beetle. He designed a commemorative medal for General Motors one day and redesigned the Ringling Brothers, Barnum & Bailey Circus another. He refused to be bound by the narrow boundaries of the established professions, for to him "the principles of designing a building, a painting, music, a poem or a drama are basically the same. Every detail must spring from a design necessity in terms of use and be accomplished with . . . simplicity."

He was the catalytic and almost indispensible man of his generation, possessed with an uncanny ability to see beyond traditional patterns and believing that the artist of the 20th century could and should relate to industry. "Industry is the driving force of this age," he wrote, and "art in coming generations will have less to do with frames, pedestals, museums, books and concert halls and more to do with people and their life."

All too seldom the spirit of man erupts in a flow of new ideas welling up from pressures beneath an encrusted surface of established ideas. For more than three decades this volcanic man was the epicenter of American design. He attracted, inspired and shaped the imagination of hundreds of young rebel artists, architects, engineers and designers. He fired them all with a sense of purpose and a promise of realization. He gave undeniable thrust to the fact that art and technology were not incompatible. His forays into every aspect of the industrial world established industrial design as a new profession unique to the American 20th century.

Norman Bel Geddes was called the "Leonardo of our times" by one of his contemporaries. And like da Vinci, he became almost as renowned for his unrealized dreams as he did for his concrete realizations. Ideas which never got off paper were so logical and practical that they were issued patents and honored in publications. They established a legacy of hope which "challenged the public fancy," as Sheldon Cheney put it in *Art and the Machine,* and released artists, designers, architects and engineers from traditional restraints. Critics of his time observed that his concepts struck terror in industrialists, not because they were so far from the attainable, but rather because they were within reach. If they were to be adopted, they might "cost industry a billion dollars" because they would make factories obsolete by capturing imagination with promises of better things

His prophetic imagination struck a responsive chord in a public anxiously looking toward a better environment promised by an enlightened technology. In the depths of the great Depression his vision gave credence to the concept that the fruits of science could be applied intelligently to eliminating human drudgery and providing beautiful objects for a carefree existence. "The mass of people," he declared in *Horizons* (Little, Brown, 1932), "have a deep-rooted craving for satisfaction from the appearance of things around them."

In 1931, undoubtedly at the peak of his prophetic power, he was asked by *Ladies Home Journal* to predict what technology

Mr. Pulos, a Fellow of the Industrial Designers Society of America, is professor and head of the industrial design program at Syracuse University, and is the head of Pulos Design Associates Inc. also in Syracuse, N.Y.

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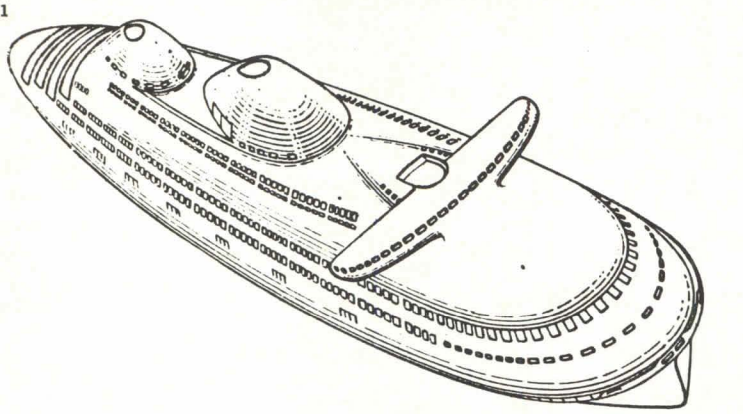

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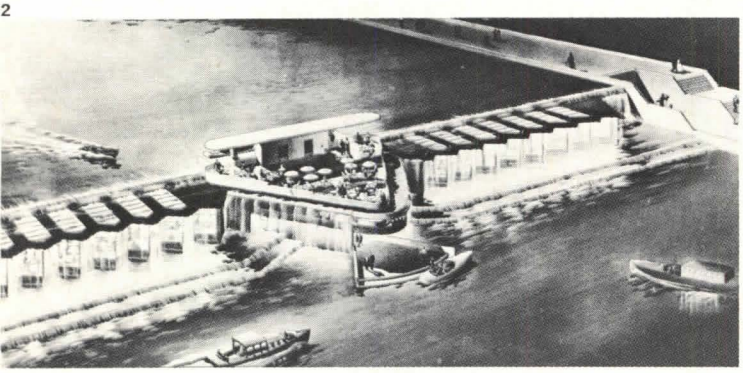

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1. Stage set for Dante's **Divine Comedy** (1921); 2. patent drawing of ocean liner (1932); 3. aquarium restaurant for Chicago World's Fair; 4. model of aerial restaurant.

held in store for the end of the decade. His predictive capacity, tempered by practicality, enabled him to anticipate the future. He sensed that the automobile would so affect domestic living that the garage would become part of the house and be placed toward the street front. Most people today have forgotten that the garage began as a stable, situated at the back of the lot for obvious reasons. In one generation it has crept forward toward the street, extended a breezeway to join the house, and is now an architectural part of the home. In the process the so-called back door, or garage door, or kitchen door has become the main door of the house, with the original front door remaining as a vestigial reminder of an older grandeur.

He speculated that homes to come would be ventilated by artificial means with washed air, heated or cooled according to the season, delivered from a central plant. Therefore, he saw no need for windows to open. Domestic lighting would be accomplished by neon tubes as replacements for the incandescent lamp. The home itself would be a mechanical marvel with photoelectric cells operating devices which open doors, serve meals and remove dirty dishes.

All of the great artists, he forecast, would one day be heard and seen in the home through the medium of television. Momentous events of national interest would become available to everyone simultaneously with their occurrence. Television would also bring education from cities to hundreds of rural branches, with talking pictures replacing talking professors.

At his most prophetic, he claimed that a new fuel of vastly increased power but of infinitesimal bulk will supercede gasoline. In transportation, he predicted that electricity would replace steam, at least on eastern railroads. Aircraft would attain a speed of 6 miles a minute, and networks of airlines would encircle the globe. Aircraft would be able to take off and land vertically, and entire blocks in city centers would become terminals and hangers, with their roof serving as landing fields. On land, automobiles would use the science of aerodynamics to increase performance per horsepower by lessening wind resistance. Artists would think in terms of the industrial problems of their age and utilitarian objects would be as beautiful as "works of art." He believed that beauty, utility and profit ability could be mutually beneficial.

The world of the theater was Norman Bel Geddes' first love, and although he was to turn away from it at the height of his career as "my fickle mistress," his ideas revolutionized every aspect of the make-believe world. He was one of the first men of this century to create happenings in which production, performers and audience became one expression. He realized that in the contrived environment of the theater human experience could be modulated by shaping space, sound, light and action. These intangible elements are, more than physical objects, the very substance of the environment. In the hands of a sensitive person they can be blended to achieve a symbolic atmosphere and create emotional beauty.

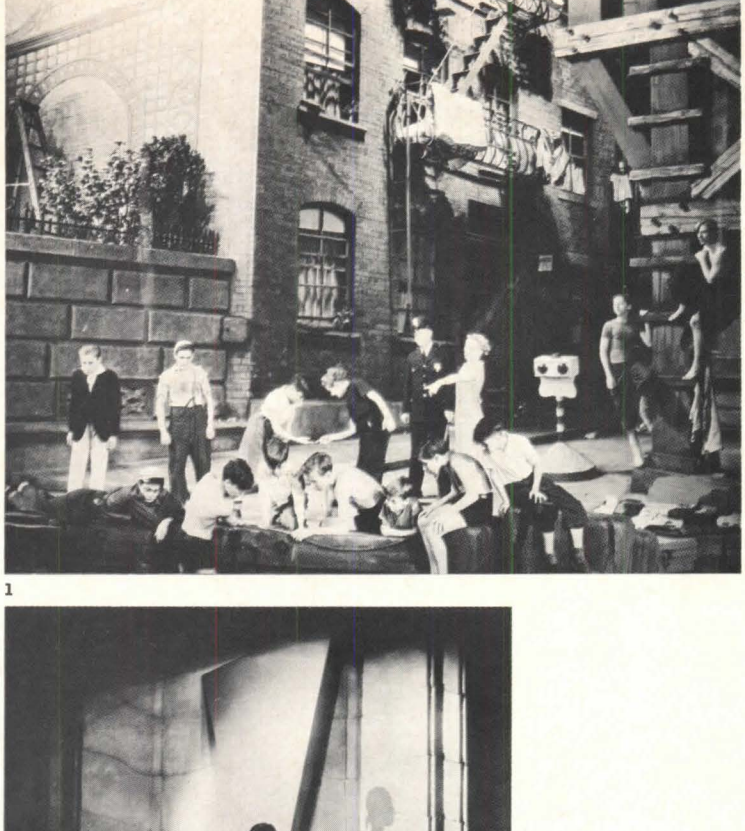
So intent was Bel Geddes on molding an unforgettable experience that he did not hesitate to demand physical changes in theatrical form in order to achieve his purpose. No element was too small to escape his attention. One of his first innovations was to change the quality of stage lighting by moving the spotlights from their traditional slot at the foot of the stage to the face of the balcony. No element was too large for him to undertake. He did not hesitate to rip out the proscenium of the theater in order to dissolve the traditional separation of the unreal and the real.

His first great set for the theater was a proposal for staging Dante's *Divine Comedy*. Although never realized, its theatrical promise was such that it gave him an instant reputation as master of the theatrical environment. Conceived in 1921 to commemorate the 600th anniversary of Dante's death, it called for a massive single set in which Hades, Purgatory and Paradise were to be played in a massive stepped stage crater. Light for the production was to come first, from the bowels of the crater representing Hell; then as the play progressed, the light was to shift to high above

the stage, representing Paradise. A writer for the *New Republic* was moved to write about his set that "when you look long at it, it darkens the imagination and stirs you, seeming to rise out of the magic substance and shadow of the earth."

The interest generated by his set for the *Divine Comedy* led to an invitation in 1923 to join Max Reinhart to produce *The Miracle* in the United States. Bel Geddes ignored the form of earlier productions of that play in Europe to conceive a scheme whereby the entire interior of the old Century Theater in New York City would be transformed into a symbolic gothic cathedral. He cut away the proscenium in order to install a 30-ft.-high altar and altered the auditorium to include 11 40-ft.-high stained glass windows and 20 groined gothic arches. The audience of 3,100 became members of the cast by sitting on pews rather than standard theater seats. *The Miracle* was an unqualified success, running for two seasons in New York and then on the road for four years. This one achievement confirmed his genius and made him a celebrity and champion of grandeur. Moreover, the influence of this work on the great movie palaces of the 1920s was unmistakable. Bel Geddes understood the public predilection for grandiose historic style as a proper theatrical atmosphere. As a result, movie houses across the country were transformed into Renaissance palaces, Egyptian temples, Elizabethan castles and on, and on. This affection for historic environment still prevails. There are now synthetic Shakespearian taverns hidden in the bowels of brutalistic piles of concrete and Danish country kitchens between glass-and-bronze architectural boxes.

Later in his career he realized that the present and hyperreal could be as absorbing as the historical and ephemeral within the closed environment of the theater. In 1935 he designed the sets for Sidney Kingsley's *Dead End* in which he recreated a mid-Manhattan wharf front with the Dead End Kids dropping off the edge of the stage wharf into water out of sight of the audience. The background "music" consisted of actual sounds of the street, crowds approaching, dogs barking and boat whistles recorded along the East River by a sound truck. He wrote a sound plot for the 129 sound cues picked up by three operators from 15 records.



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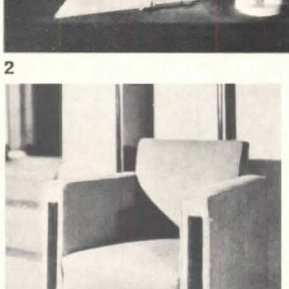

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1.Stage set for Sidney Kingsley's **Dead End** (1935); 2. window display for Franklin Simon & Co. (1928); 3 and 4. chair and conference room for J. Walter Thompson Company.

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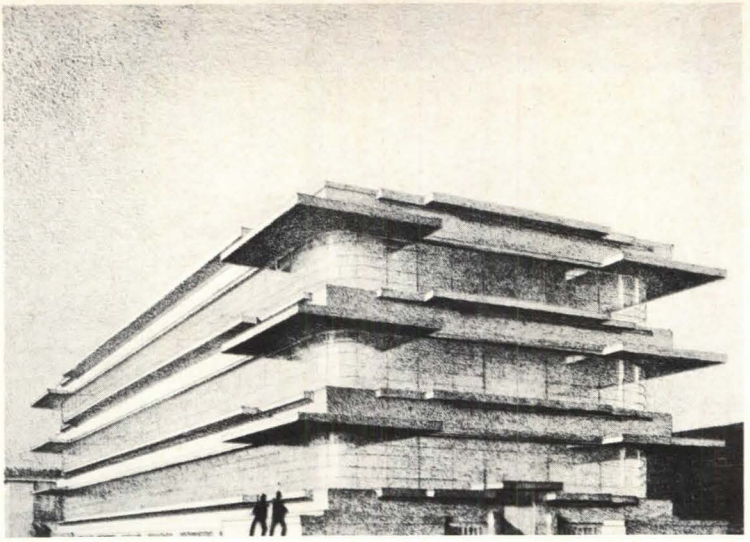
Although Norman Bel Geddes created many other theatrical stagings, his interest in the world of make-believe began to flag and he gradually became an environmentalist, concerned more and more with the real world. His first venture into the real, or almost real, came in 1928 just after he had declared that he was leaving the theater for industrial design. Franklin Simon, a department store at Fifth Avenue and 38th Street in New York City, invited him to decorate its windows for Christmas. Proceeding on the principle that the show window is also a theater of sorts and its merchandise the players, he attracted gaping crowds by reducing the usual mass of displayed objects to only three items. He clothed a Modiglianilike aluminum bust in a Meary Agnes turban and scarf in vermilion and blue and placed it with a handbag on a glass disk. Several triangular shapes formed the background across which concealed spotlights cast shadows of the objects at center stage. True to his belief that the first element of a good design is to attract the sympathetic attention of its audience, his windows stopped traffic on Fifth Avenue and revolutionized display design in the United States. For the first time an American designer had made modern art a popular successful instrument of merchandising.

For Norman Bel Geddes the Century of Progress Exposition planned by Chicago for 1933 offered an opportunity to make a massive contribution to the American environment. It promised to be everything he believed in. It was theater, yet on a real scale and in the open daylight rather than the darkened auditorium. He was only a consultant to the Architectural Commission for the Fair, yet his own projected schemes for theaters and restaurants, none realized because of the Depression, went far beyond the final structures built in Chicago. One of his restaurants was conceived as an island dance restaurant; another, perhaps his grandest

scheme, was for an aerial revolving restaurant 278 ft. high—or rather, three restaurants, each catering to a different clientele. This concept, combining his sense of theater and dining, paved the way to acceptance for the innumerable restaurants perched high today on stilts and television towers overlooking city- and fairscapes.

It was a short step for Norman Bel Geddes from theater to interior design. His most elegant interior was conceived for the J. Walter Thompson offices in 1929. It championed the application of modern design to high-level business by creating a dramatically simple and thoroughly masculine suite wherein every detail was an organic outgrowth of the real life dramas that were played there. He placed lights on dimmers behind translucent panels in a two-story-high ceiling so that, like the theater, he could modulate light so that it would fall only upon the lectern at the foot of the T-shaped room or across the board room table at the cross bar of the T. The power and drama of a major advertising agency was played on a cool gray carpet against walls alternating gray fabric with black vitrolite panels and from modern cube-like chairs covered in an intense green velour. His successful association with J. Walter Thompson came full circle a few years later when that agency made it possible for him to project his visions for a new environment conceived around the incursion of the automobile into the national landscape.

For most men of ordinary talent the collapse of the national economy during the Depression after 1929 brought down with it their expansive dreams of the 1920s. However, to Norman Bel Geddes this great crisis offered a challenge and gave momentum to his plans for the future. If the disappearance of investment capital stopped other men in their tracks, it only stimulated him and lent wings to his dreams. Even before that Black Tuesday of the Stock Market, Bel Geddes seemed to have sensed that change was in the air—that the make-believe world was no longer where the action was. "In 1927," he wrote in *Horizons,* I decided that I would no longer devote myself to the theater but would experiment in designing motor cars, ships, factories, railways, sources more akin to life today than the theater." He saw industry as an entirely new kind of opportunity for artists—not, condescendingly, as only arena for sensitive men who could serve society at the same time as they found an outlet for their creativity. He knew as much as anyone of his day that the United States had produced an economic aristocracy based on manufactured products and sensed that it would accept a temporary source of income—but rather as a rich and varied product esthetics as an opportunity to act as a patron of the arts without diminishing its profit capability.



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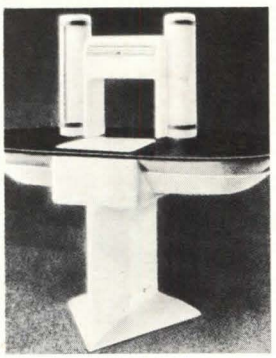

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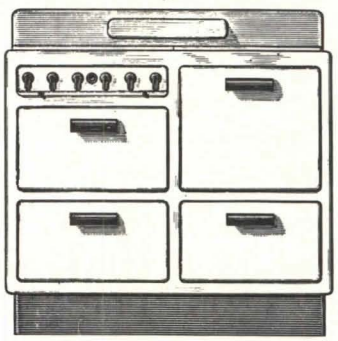

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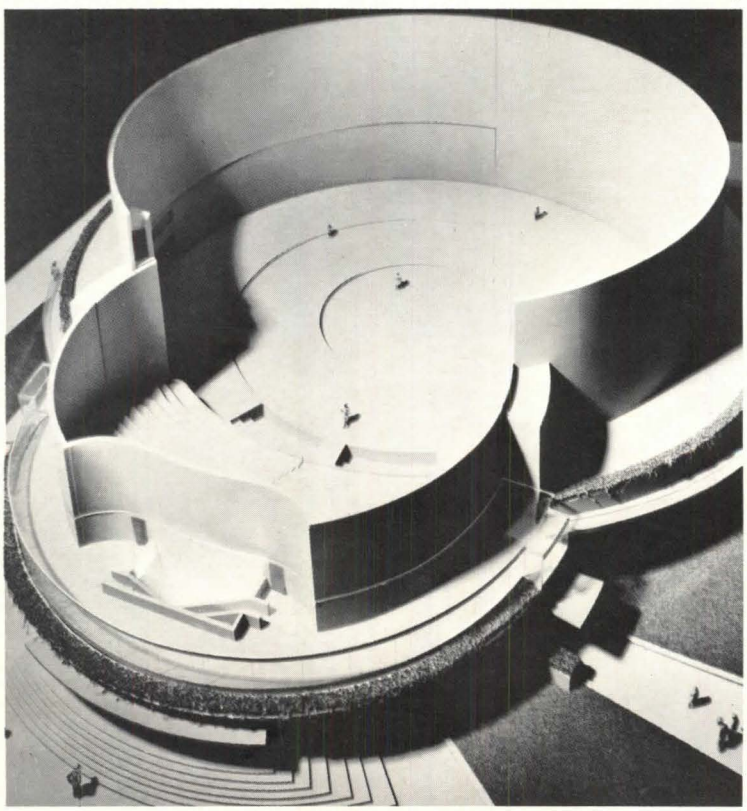
1. Laboratories designed for Toledo Scale Co; 2. scale for same client; 3. patent drawing of gas range (1933); 4. model of TV theater for NBC.



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Bel Geddes was convinced that design could be employed successfully by industry to create better utilitarian objects. He believed that people desired and deserved better products and claimed that well-designed products would "find immediate acceptance because of their simplicity, their perfect fitness to the use to which they are devoted and their freedom from misleading detail and ornamentation." Beauty and utility could be made inseparable in mass-produced objects by freeing them of historic forms for service. By some curious form of esthetic myopia, cultural historians have ignored industrial designs produced by Bel Geddes and his younger American associates as the true source of contemporary mass-produced form. The handsomely proportioned clean forms which he originally proposed (1928) in his designs for the Toledo Scale Company were certainly the source or, at the very least, anticipated the idolized and much more recent German Braun products. And, even before the Bauhaus usurped the interest of American esthetics, he and his associates had applied this same philosophy of form to the development of a line of modular stove elements for the Standard Gas Equipment Company. Even more importantly, he pioneered the concept of design analysis by which 12 interchangeable modules replaced 100 earlier stove combinations. These first all-sheet metal, all-enamel stoves doubled the sales of the company, revolutionizing

that industry. Within two years all other stove manufacturers had followed suit. On both of these landmark products, Bel Geddes demonstrated his unique *ability to begin* with a rather simple assignment in product esthetics and expand it into a true design project culminating in a major contribution.

Norman Bel Geddes, it has been pointed out, was embarrassed at being called the father of streamlining, and unfairly credited with applying the laws of aerodynamics to such stationary objects as toilet bowls and pencil sharpeners. He had, indeed, promoted the application of streamlining to transportation forms—to ocean liners, trains, transcontinental buses and automobiles—not as a means of achieving greater speed, but rather with a conviction that, as he put it, "the object of reducing air resistance is not more speed, but rather to increase efficiency and economy of operation." He knew that clean forms with no protruberances such as headlights, fenders, doors, hinges, spare tires, etc. would reduce air resistance. However, despite his efforts to convince those about him that reason and practicality should rule design, his designs became paradigms of the mania for speed and the progress which it implied that ruled the early Thirties.

In 1929, he and a German aeronautical engineer, Otto Koller, conceived and proposed a mammoth airliner to carry 400 passengers at a cruising speed of 72 miles an hour in luxury complete with promenade decks and a dance floor. His only contact with reality, however, was to be an assignment to design the interiors of the Pan American Clippers. Even so, his innovative practicality led him to combine safety, comfort, compactness and appearance in a cluster of recommendations which established the type form for commercial aircraft interiors. Fold-away tables, food and food services for dining aloft, and zippered covers for ready inspection of the air frame were among his recommendations.

Bel Geddes was, indeed, the prototype industrial designer—forever dissatisfied with things as they are—always anxious to undertake new assignments—always eager to make a real contribution to his environment. Despite his limited education, or better still, perhaps because of it, he was not encumbered with cultural baggage and traditional patterns of knowledge limiting the range or direction of his search. "He starts as if nothing had ever been designed before," observed Sheldon Cheney, "applying an intensely imaginative power to every detail of the design problem. . . ."

He moved easily from simpler problems in streamlined forms to traffic studies, and then on to city and even continental planning. By 1937, his interest in transportation had grown into a concept for automotive planning for a hypothetical city of tomorrow to which citizens would flock to work in the morning and then, reversing their flow in the evening, escape to the peaceful suburbs. On assignment through the J. Walter Thompson Agency he designed and built a model of *Metropolis* as part of an advertising program for the Shell Oil Company. His traffic system concept included many ideas which are common today such as, one-way roads, traffic lanes for various speeds, access lanes and supplementary lanes for loading and unloading. Other innovative ideas such as taking the headlights off of the automobiles and placing them on roadway guide rails to be lit by approaching traffic and incorporating stop and go lights on the dashboard of every car to be energized according to the traffic condition at each intersection have yet to be realized. In today's world, when automobiles have been found guilty of air pollution, it is interesting to note that when the Metropolis model was being photographed in the J. Walter Thompson offices, traffic haze, a sign of progress and prosperity then, was simulated by smokepots located within the model.

All of the great dreams which Norman Bel Geddes nourished came into full fruition in his design for the Futurama Exhibit for General Motors at the 1939 New York World's Fair. It was a direct outgrowth of the Shell Oil job and had already been passed over by the Goodyear Company when GM decided to

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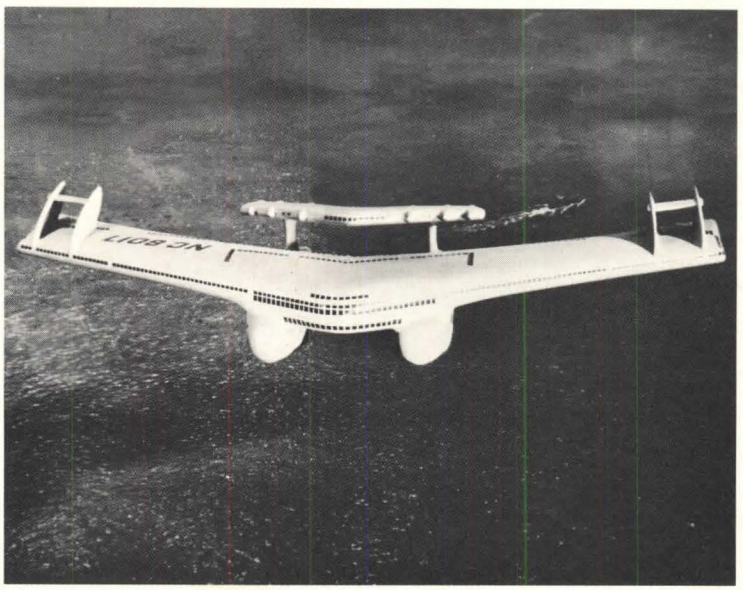

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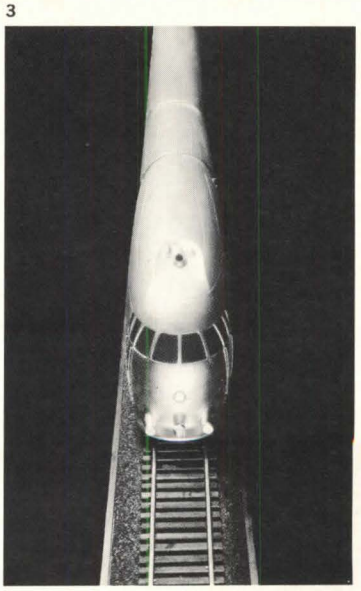

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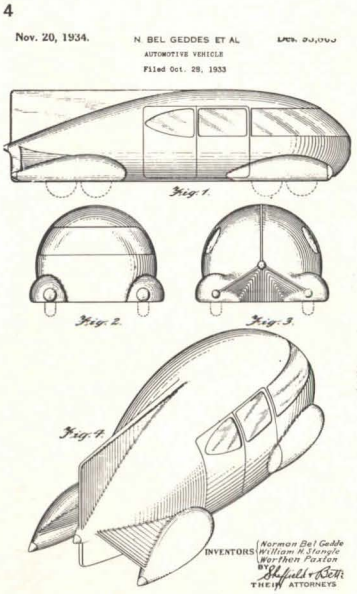


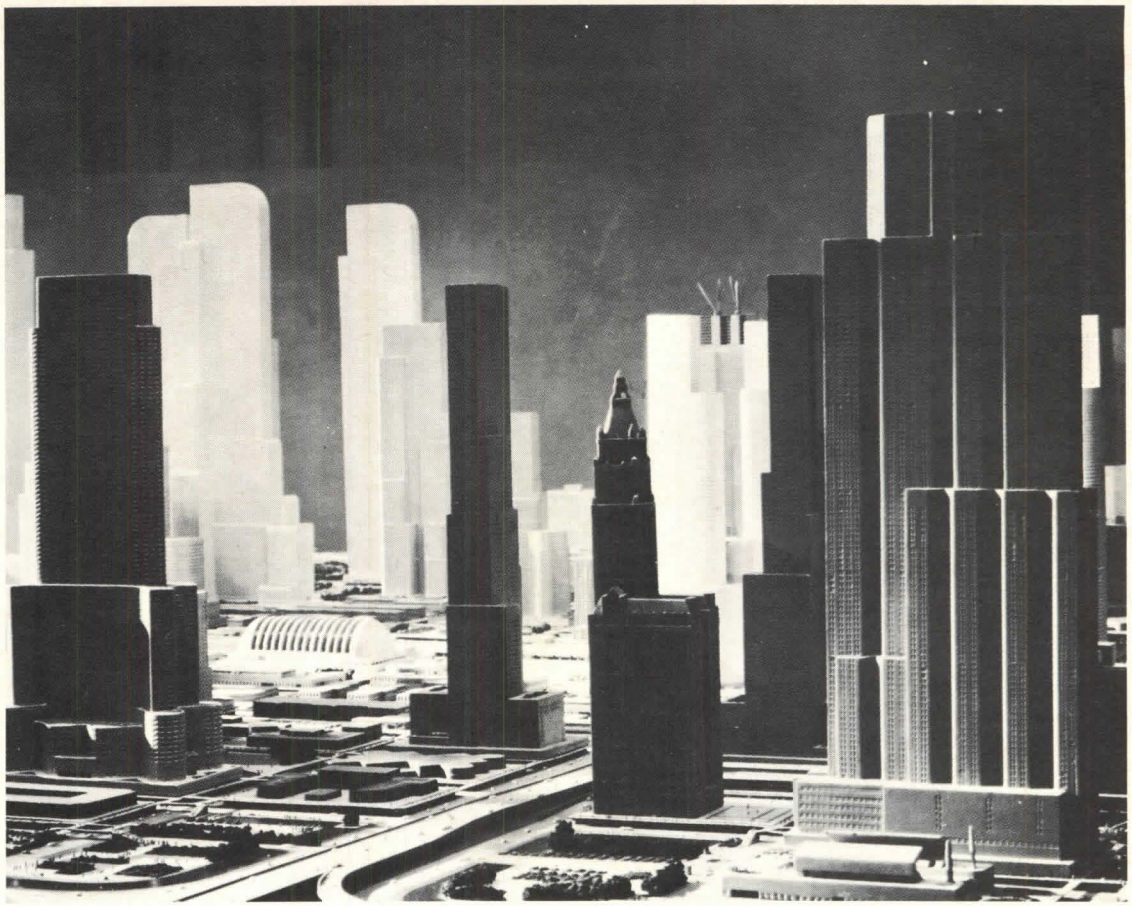
1. Patent drawing of ocean liner; 2. airliner holding 451 passengers and a crew of 155 (1932); 3. streamlined steam express train; 4. patent drawing of automotive vehicle.

take a chance. Although Futurama was still theater in a way, it provided more than nine million people with a 13-minute sound-chair ride across a world of tomorrow. It was not an illusion as much as it was a prediction. It was fantasy based on the logic of transcontinental multilane, multilevel highways leaping from ocean to ocean, driving through mountain ranges and flying over valleys and rivers. Upon emerging from this trip into the future, spectators were treated to a visit to a full-scale Manhattan intersection of tomorrow (still to come) wherein pedestrians moved casually and freely on overhead walkways, while service vehicles went about their work on the level below. To Norman Bel Geddes the entire environment had become theater within which men could relate to one another, sharing experiences with dignity and elegance, sanity and serenity.

Norman Bel Geddes had a deep faith in the American blend of technology and democracy. He was convinced that, as the common objects of every day life are refined, they will become even more beautiful and culturally significant. Given free choice he believed that people had a deep craving for good things over bad and that public taste would continue to improve and demand even better products. Americans, he felt had achieved the beginning of a true expression of their time. "Just as surely as the artists of the 14th century are remembered for their cathedrals, so will those of the 20th be remembered for their factories and the products of their factories."

He found it difficult to believe that technology could work against the best interest of the public and, although he warned that there was always the danger that people could become "the victims rather than the masters of their own ingenuity," he felt that in the end men would achieve complete mastery of the machine.

Such ideas may seem strongly naive in the contemporary climate of runaway affluence and technology misadventure. Yet, isn't this just the moment to invoke the optimism and faith of Norman Bel Geddes? Isn't this just the moment to honor once again the vision and courage of this first American designer of the 20th century?



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1. Model of The City of Tomorrow sponsored by the Shell Oil Co. (1937); 2, 3 and 4. the General Motors building at the New York World's Fair (1939).

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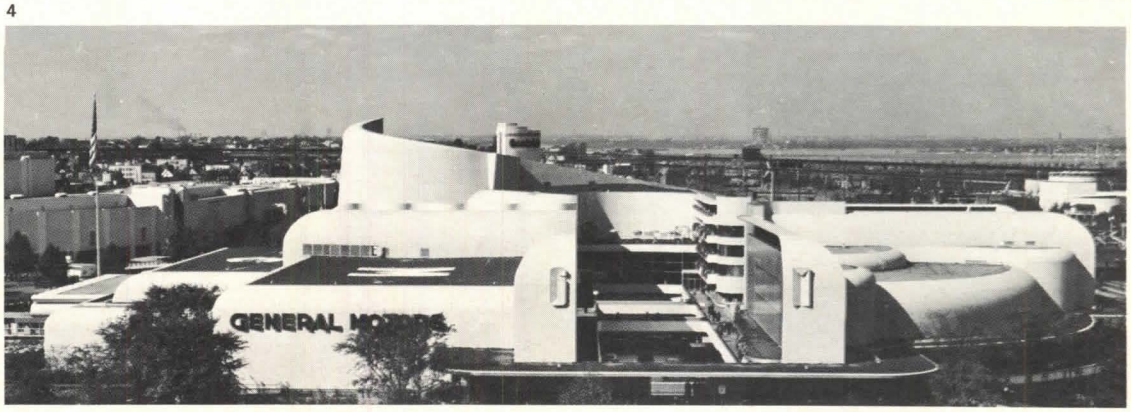
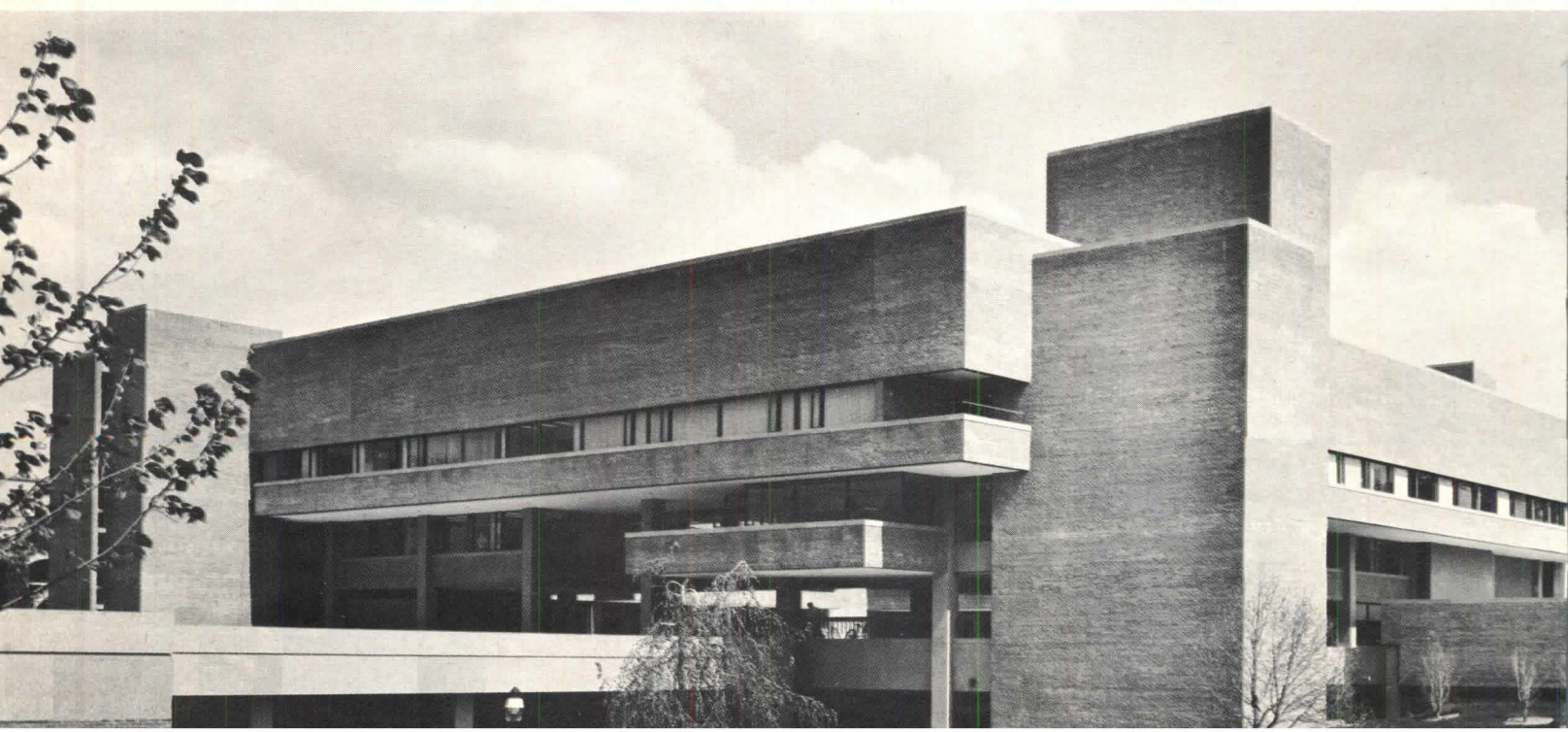




TWO PARTS INTO ONE WHOLE

The most interesting fact about the handsome, new building complex just completed at Princeton University is that it is the work of two separate firms of architects, operating quite independently, yet quite in harmony.

At the northern end of the complex (left in aerial view) is Henry Burchard Fine Hall, the mathematics building—a faculty tower and classroom wing designed by Warner Burns Toan Lunde; and at the southern end of the complex is the square doughnut-shaped Stanley Palmer Jadwin Physical Laboratory, designed by Hugh Stubbins and Associates. The two buildings are shown at left—above and below, respectively.

Between the mathematics and the physics buildings is a spacious plaza. This is actually the roof level of a two-story building, designed also by WBTL, and containing the jointly-used math-physics library. The library area also forms an enclosed pedestrian link between the two major buildings.

There are two reasons why this joint effort produced such a harmonious building complex: first, the two firms involved quickly agreed upon a single, architectural vocabulary of materials and colors; and second, they both agreed on the manner in which their new complex should relate to existing movement patterns on the Princeton campus.

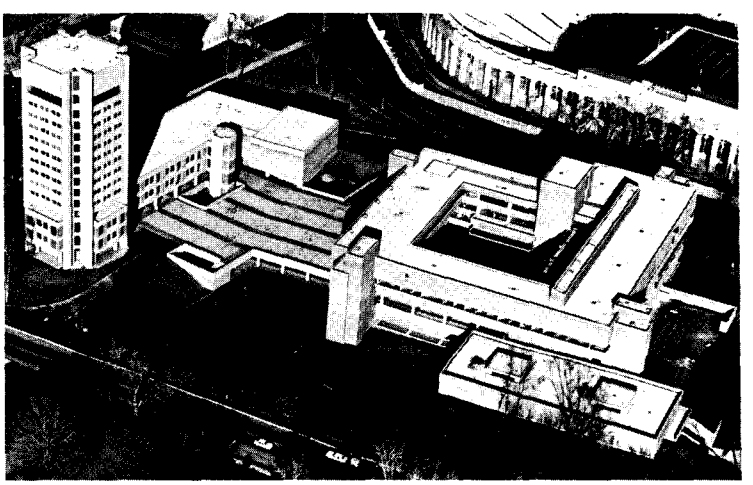
The materials agreed upon were a fairly hard brick ranging in color from a near-green to a dark pink; granite (more of this in the mathematics than in the physics building); and glass framed in off-black sash. The physics building uses clear glass, because Stubbins did not want the color distortions that go with tinted glazing; the mathematics wing uses bronze-tinted glass. Otherwise the exterior and much of the interior detailing of both buildings is remarkably similar.

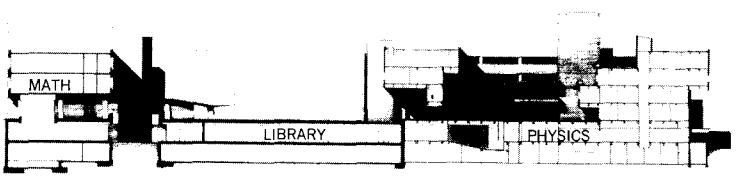
And the massing of the new complex in relation to existing movement patterns on the Princeton campus was quickly agreed upon also: the plaza lies at the east end of College Walk, an important circulation route that connects the academic area of the campus with the stadium. Rather than cut across College Walk, the architects agreed to use their new plaza as a kind of way-station along this traditional, pedestrian link.

Within those two fundamental areas of agreement, each architectural firm had to work out its own solutions to some very different programs. The Jadwin Physical Laboratory contains large, loft-type spaces, adjustable to change—including a cyclotron in a separate block visible at bottom right in aerial, whereas Fine Hall contains many small spaces that serve as studies for faculty members and students, or as seminar and meeting rooms for small groups.

FINE HALL

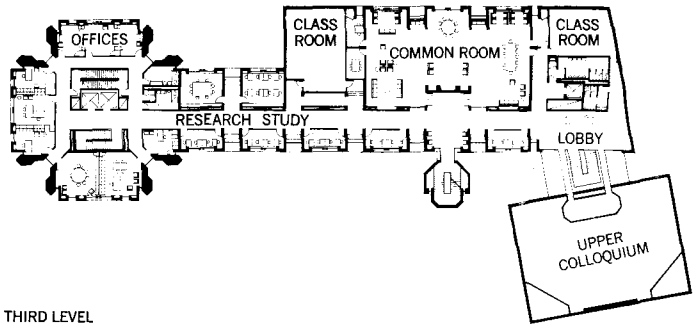
JADWIN HALL



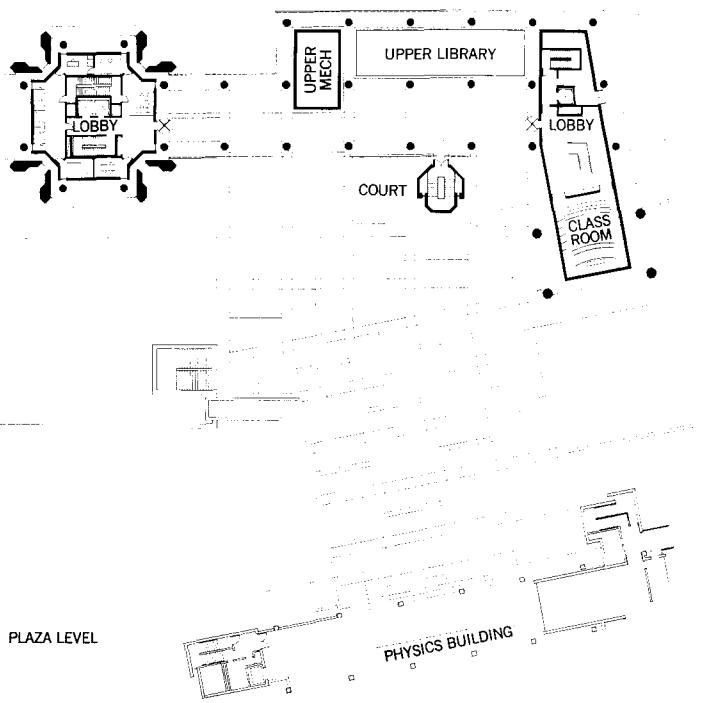


Fine Hall (top left) is Princeton's new mathematics and statistics building; Jadwin Hall (bottom left) is the university's new six-level physics laboratory. The two structures are linked by a plaza that is really the roof of the two-story mathematics-physics-statistics library. The aerial view and the section explain the connection.

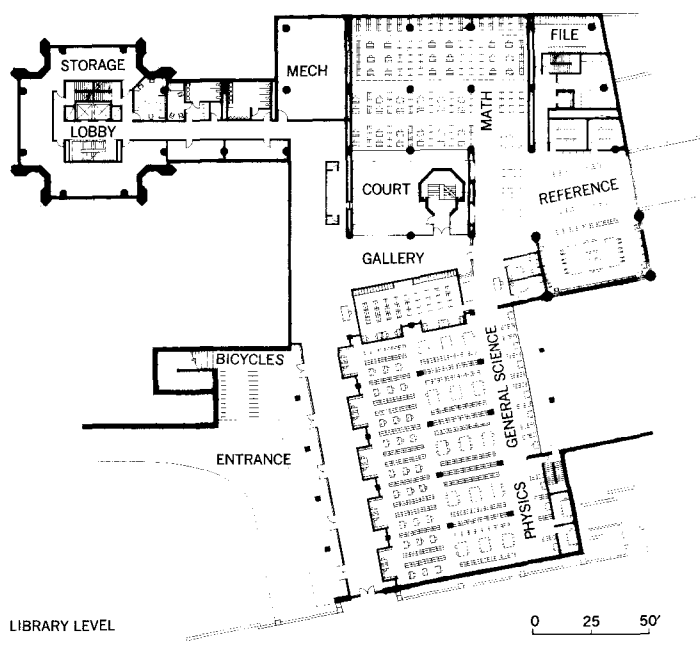
FINE HALL



THIRD LEVEL



PLAZA LEVEL



LIBRARY LEVEL

The most striking feature of the new mathematics and statistics building by Warner Burns Toan Lunde is its 13-story tower. According to the architects, the tower form was developed for two reasons: first, it would punctuate the new plaza and give it a sense of place; and, second, the tower form is reminiscent of other, neo-gothic Princeton towers, without being imitative of them.

The tower contains faculty offices and seminar rooms—no more than eight offices per floor, each of them somewhat oddly and differently shaped to get away from the usual monotony of institutional plans. Access corridors radiate from the circulation core to the four corners of each tower, and terminate in slot windows between the double-columns that form the corners. The rooms as well as the corridors enjoy varied and often dramatic views. The tower is sheathed primarily in tinted glass and granite.

To the east of the tower is a three-story wing that contains study places, classrooms and seminar rooms of different shapes and sizes. Each of these has been given a pleasantly residential character, consistent with the countrylike surroundings. At the plaza level (top plan) the three-story wing is quite open, and there are views into the library areas below. At the extreme east end of this wing there is a large seminar room—a "colloquium" as yet left unfinished for budgetary reasons. Its form is very different from the insistently octagonal shapes found elsewhere in the mathematics building. This is because the colloquium comes closest to the physics building to the south, and it seemed only polite to relate it to *that* structure in general form.

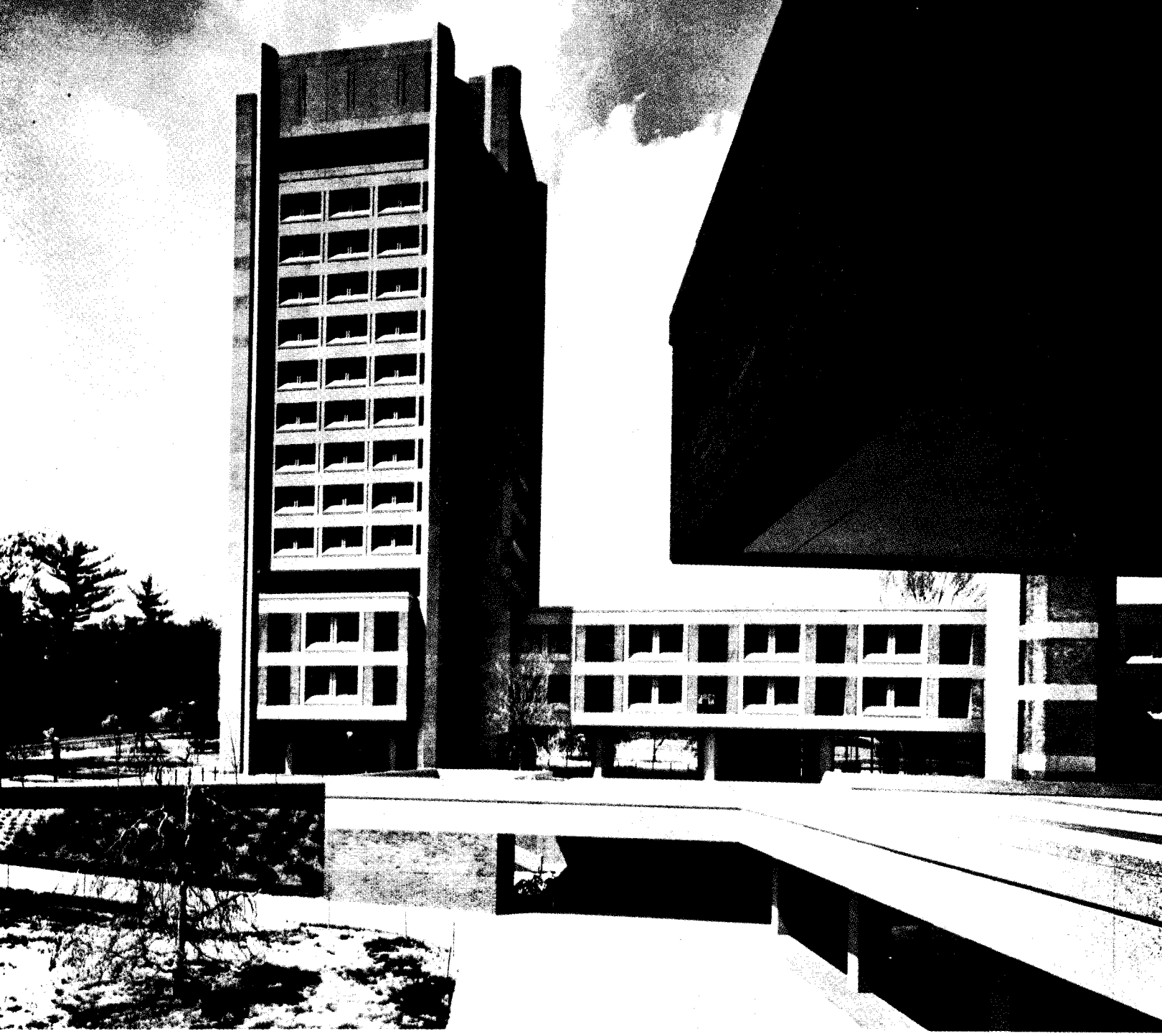
WBTL also designed the connecting plaza and the library spaces under it. To avoid a sense of basement living, the architects manipulated the landscape so that the glass walls of all library spaces look out over sloping lawns and planted courts. At the main level of the library, one level below that of the plaza, there is a wide, glass-walled foyer that forms the main entrance to the reading areas when the two major buildings are closed. (The entrance to this foyer is visible just under the plaza level in top photo opposite.) This wide foyer is also the enclosed, pedestrian link between the mathematics and the physics buildings.

At present, the plaza seems a bit barren. But there will soon be additional landscaping and a large "stabile" sculpture by Alexander Calder. The most important factor to give it more life than is visible in these photographs, however, is its location in the path of College Walk—between the heart of the campus and the stadium.

FACTS AND FIGURES

Henry Burchard Fine Hall, Princeton University, Princeton, N.J. Architects: Warner Burns Toan Lunde (Charles H. Warner Jr., Robert Burns, partners in charge; Erdmann K. H. Riedel, project architect). Engineers: Severud-Perrone-Sturm-Conlin-Bandel (structural); Meyer, Strong and Jones (mechanical and electrical). Landscape architects: Clarke and Rapuano. General contractor: Irwin and Leighton Inc. Area: 165,000 sq. ft. Cost: about $5,000,000. PHOTOGRAPHS: David Hirsch.

Plans show typical faculty-office and study level at top, plaza level, and library level below plaza at bottom. The top view on the opposite page looks north from the physics building. Entrance to the library area is below the plaza. Smaller photos show top floor faculty lounge and view across plaza to physics lab.



JADWIN HALL

The most successful space of Hugh Stubbins' physics building is the court in its center. It is also the most unexpected space to find in a laboratory complex, for the "ideal" lab—from the point of view of those who work in it—is a completely controlled, completely flexible, and preferably completely windowless environment. It is to the architect's credit that he came up with a delightfully human environment instead.

Admittedly, the program here did not call for a typical laboratory loft. About half the space was allocated to "think" offices and learning spaces, and these were grouped around the open court shown in the photo at top, right. The experimentalists' "do" laboratories, by and large, are located in a research block to the south of the court. These labs are surrounded by access corridors, and ventilated through five huge interior exhaust shafts, (five others are in the stair shafts). Although the labs overlook their perimeter corridors, these views *can* be controlled with vertical blinds.

One of the real problems encountered in doughnut-shaped plans is that of orientation: people—especially those not too familiar with the building—can easily lose their sense of direction as they move along ring corridors, especially ring corridor systems as complex as some of those required in this building. To solve this problem, the architect has created a whole series of little outlooks all along his corridors: views into the court, but also out of the building in all directions. These little nooks and crannies work in other ways as well—they bring in natural light, unexpectedly, along stretches of interior corridors; and they provide alcoves with built-in seating and blackboards along the way, where students and faculty can discuss theoretical problems.

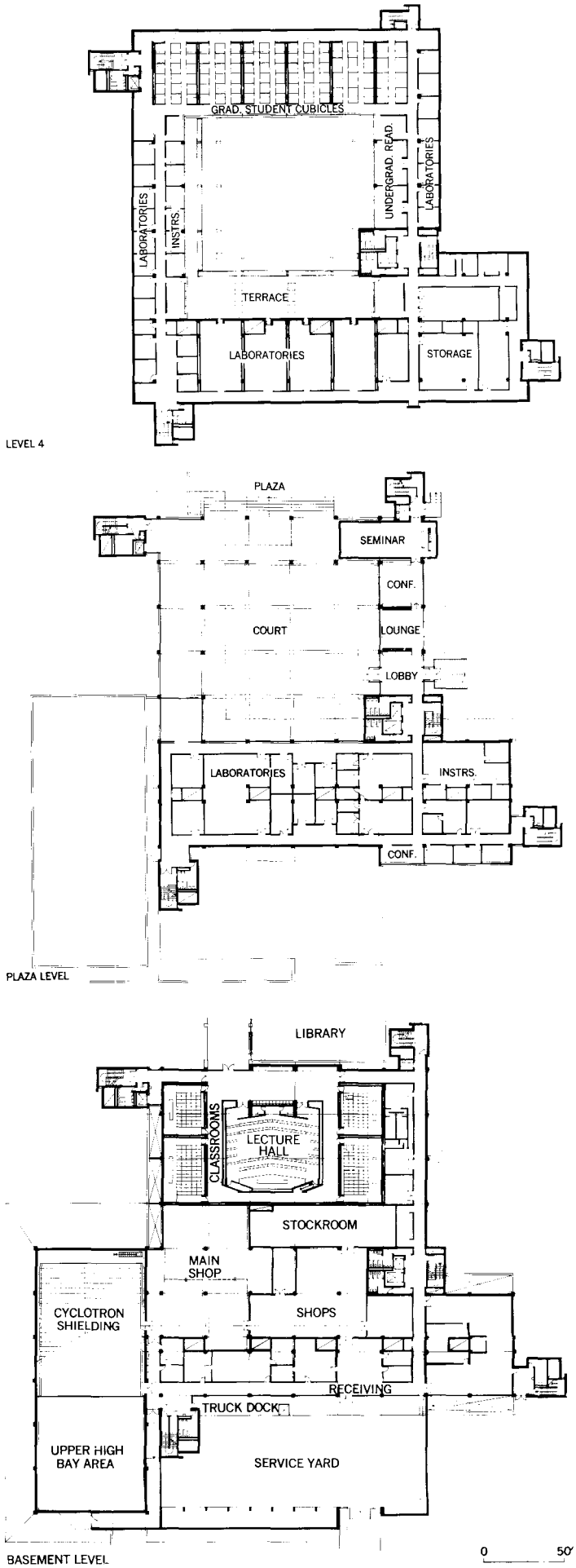
The cyclotron—a 50-million electron-volt job—is housed in a separate wing that juts out from the southwest corner of Jadwin Hall. It is surrounded by earth berms and massive concrete—including 24-ton, 4-ft.-thick concrete doors that are opened and closed by electric motors—and it makes Jadwin Hall one of the best equipped teaching labs of its kind in the world.

Some have said, and with justification, that many of today's architects seem to be off on everlasting ego-trips, determined, in every situation, to outshine their fellows, regardless of the visual damage this might do to the environment as a whole.

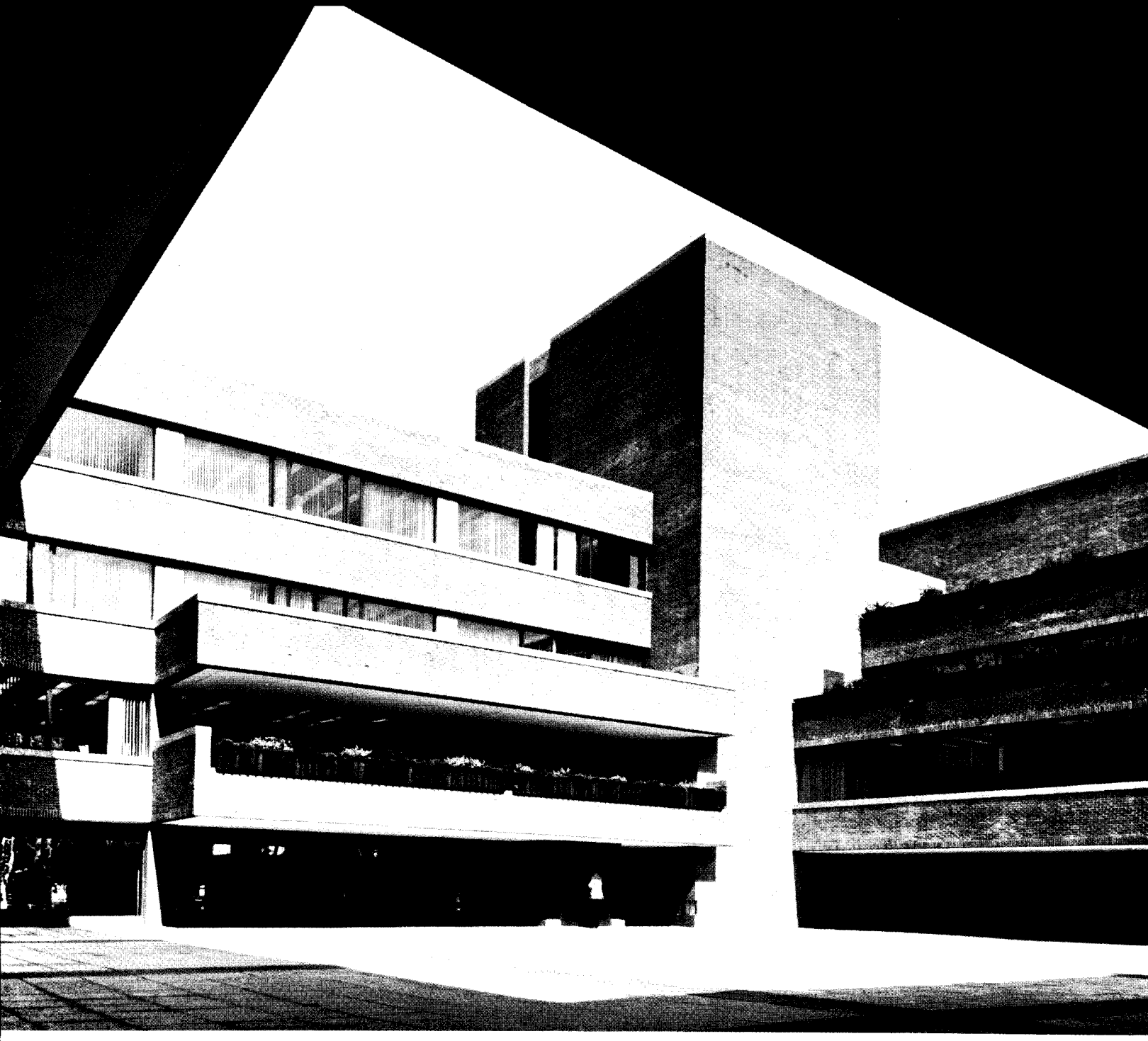
The real importance of this new complex of buildings at Princeton is that it proves an old adage—that the whole can often be greater than the sum of its parts. It takes modesty on the part of the individual architects to subscribe to that, and it also takes vision.

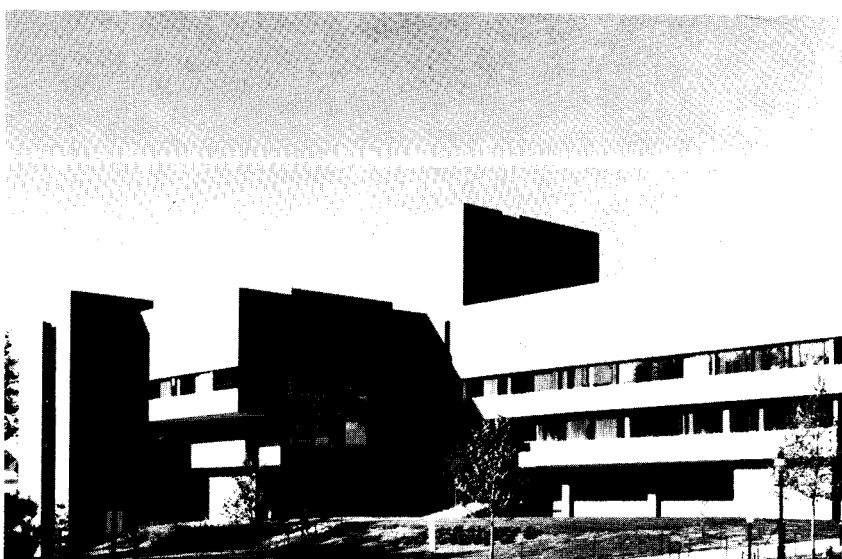
FACTS AND FIGURES

Stanley Palmer Jadwin Hall, Princeton University, Princeton, N.J. Architects: Hugh Stubbins and Associates (Hugh Stubbins, designer; Paul Grayson, project architect). Engineers: LeMessurier Associates Inc. (structural); Meyer, Strong and Jones (mechanical and electrical); Bolt, Beranek and Newman (acoustical). Landscape architects: Clarke and Rapuano. University consultant: Louis A. Turner. General contractor: Irwin and Leighton Inc. Building area: 232,344 sq. ft. Cost: $8,219,800, including cyclotron. PHOTOGRAPHS: © Ezra Stoller, ESTO.



Plans, from top to bottom, show the cyclotron floor (with nuclear physics research below the main building). This is at basement level. Next, the main floor, at the level of the plaza and the central courtyard. Last, a typical upper floor, with offices ringing the court on three sides, and labs to the south of it. Photos opposite, show the central court. Balconies accessible from offices have planting boxes along parapets. Conference area at the second level is shown at bottom left; and the view at bottom right is from the stadium to the east.





TECHNOLOGY

A new government and industry partnership for building more housing

BY DAVID PELLISH

If industry is to fill the nation's housing needs with the high-volume production and cost-saving innovation required, there must be fundamental changes in the homebuilding process. The separate roles and responsibilities of industry and government must be realigned. The entire process must change, so that all participants, including the consumer, take part in making relevant decisions.

The huge volume of housing needed, 26 million units by 1978 according to the Housing Act of 1968, and the critical condition of our cities, particularly those with riot-torn neighborhoods, dictate radical procedures. Last year, production fell far below half of what is needed, to only 1.2 million dwelling units.

Operation Breakthrough, the U.S. Department of Housing and Urban Development program that aims to increase housing production by introducing mass-production methods to this country, cannot succeed because it does not provide for long-term construction volume. HUD protest to the contrary, there is little program thrust beyond demonstrating new housing prototypes. Sixteen months after Breakthrough was announced, several "winners" have yet to determine how they can finance building new factories for full-scale production.

Europe has demonstrated the kind of commitment a housing crisis demands. Faced with demolished cities and severe shortages after the war, governments took the initiative to support innovation and mass production building techniques. The Building Research Station and the National Building Agency are typical examples. The former maintains centers and labs to study key problems and develop products. By 1968, they had helped introduce industrialized building methods into over 42 per cent of public-assisted housing in the United Kingdom (50 per cent of all housing constructed).

In the U. S., unfortunately, there seems to be no such government commitment to housing. If there were a shortage in water, there is no doubt that government would do whatever necessary, regardless of cost, to restore the supply. But housing enjoys no such priority despite the fact that shelter, like water, is a basic human requirement and should be treated as a public utility.

Changing the process

How institutional constraints in the U. S. work to create housing shortages is easily demonstrated by the simple hypothetical case of a man deciding to build a home.

Government inhibits the choice and development of his building site through zoning ordinances, subdivisions, building codes, taxes and national policies affecting the flow of money for loans and mortgages. If he wants to save on construction costs through new technology, the owner is inhibited by the nature of the building industry, local construction practices, and the absence of effective collaboration among the professionals, contractors and subcontractors that could facilitate expeditious construction at reasonable costs. These difficulties are further compounded when a merchant builder seeks to construct housing on a particular site.

The process, then, is a series of decisions and actions affecting the assembly and preparation of land; the planning, organization and flow of labor, materials and financing; and adherence to standards to protect health and safety and to meet user needs.

It is clear, however, that the housing industry, left to its own devices, is unable to solve the country's housing crisis. This doesn't imply that, from a purely technical viewpoint, American homebuilders are incapable of producing high-quality housing. They simply cannot, given the factors of supply and demand that control homebuilding, produce at a sufficient scale to meet national needs. Yet this is precisely what Breakthrough asks the industry to do by providing only token support in permanently lifting the constraints to mass homebuilding.

In fact, only government can start the necessary process of change, and then only by initiating a coordinated attack on all of the constraints. There is no single villain, despite efforts by many people to name one. Take for example, building codes.

With over 3,270 localities administering their own codes, the local building department is fair game. Many are understaffed, underpaid and unsophisticated in this era of new technology.

The government has two principle responsibilities in homebuilding:

- To protect public health and safety through code enforcement.
- To expedite construction to meet urgent national needs.

But many officials, in their uncertainty, enforce the first function to the virtual exclusion of the second.

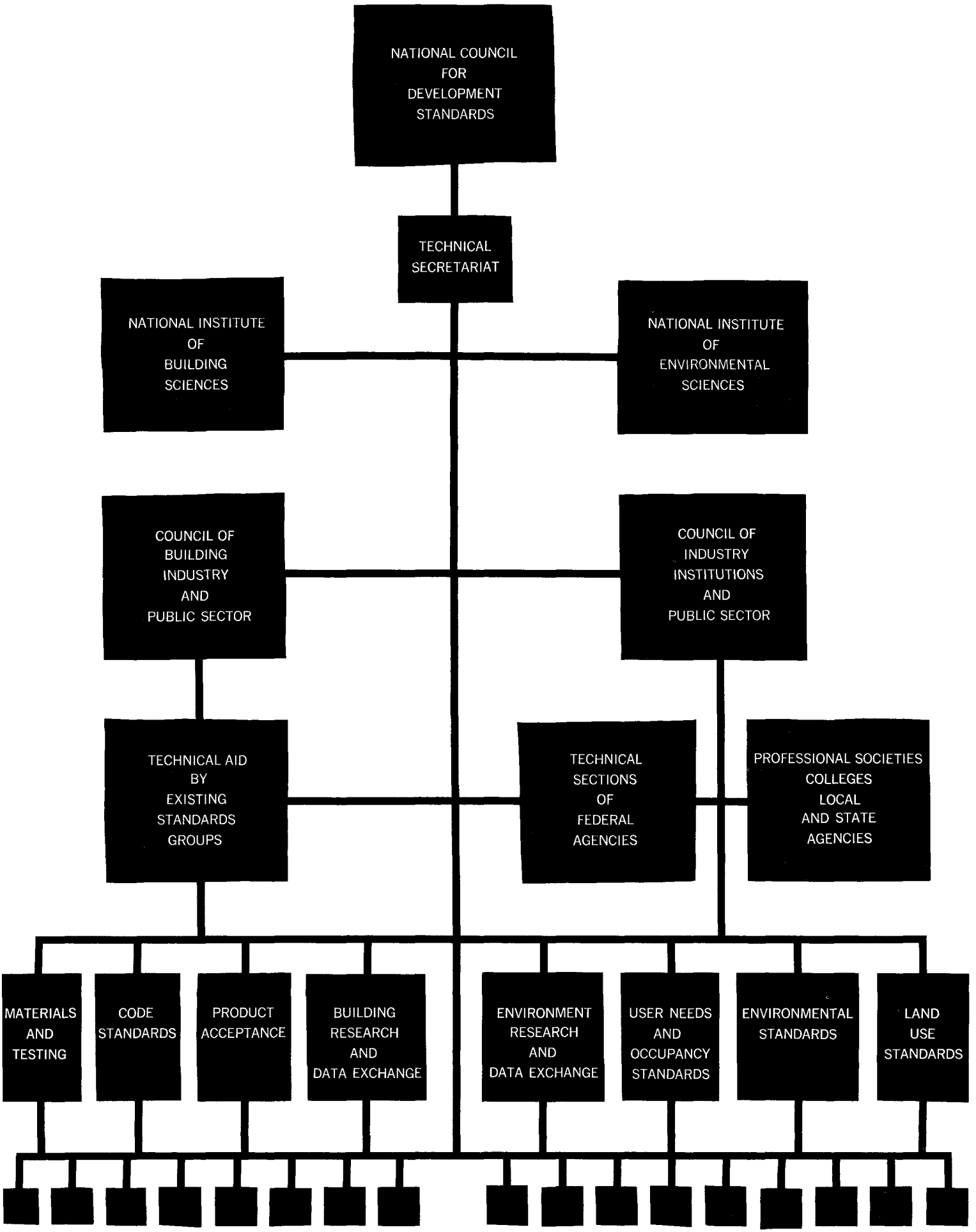
A national code system is the most frequent method proposed for loosening such constraints to the building industry. Unfortunately, the usual descriptions are very vague. Some refer to a single code, with administration still retained by local building departments. But a recent Census Bureau survey conducted for the National Commission on Urban Problems (the Douglas Commission) found that 76.2 per cent of local building codes are already based on one of the four national model codes. The model code, therefore, isn't the problem; the administration is. The same survey showed that less than one-sixth of the local code jurisdictions bothered to follow the updated version of the model codes, which are updated every three to five years to include new technology.

Changing such a situation should involve introducing a new form of institution that will allow for the exchange and flow of building and research information. The building industry does not have an equivalent of the National Institutes of Health, yet the need is tremendous for the kinds of services their counterpart could provide.

Proposal for a National Council

A National Council for Development Standards, including an Institute of Building Sciences, has been proposed to provide technical groups involved in standards making and product evaluation with a non-governmental agency to which all could refer for objective technical analysis. Under this approach, those concerned with updating building codes could work closely with research scientists in advancing the art of building.

Mr. Pellish is Housing Technology Officer of the New York State Urban Development Corporation. An architect and professional planner, he has held many posts, including that of assistant director of the Douglas Commission. The views he has expressed in this article are personal and do not represent official UDC policy.


NATIONAL COUNCIL FOR DEVELOPMENT STANDARDS
TECHNICAL SECRETARIAT
NATIONAL INSTITUTE OF BUILDING SCIENCES
NATIONAL INSTITUTE OF ENVIRONMENTAL SCIENCES
COUNCIL OF BUILDING INDUSTRY AND PUBLIC SECTOR
COUNCIL OF INDUSTRY INSTITUTIONS AND PUBLIC SECTOR
TECHNICAL AID BY EXISTING STANDARDS GROUPS
TECHNICAL SECTIONS OF FEDERAL AGENCIES
PROFESSIONAL SOCIETIES COLLEGES LOCAL AND STATE AGENCIES
MATERIALS AND TESTING
CODE STANDARDS
PRODUCT ACCEPTANCE
BUILDING RESEARCH AND DATA EXCHANGE
ENVIRONMENT RESEARCH AND DATA EXCHANGE
USER NEEDS AND OCCUPANCY STANDARDS
ENVIRONMENTAL STANDARDS
LAND USE STANDARDS

By specific intent, the Institute would not have any governmental authority. The wide range of experts needed for the complex work envisioned and the inevitable clash of competing private interests in accepting or rejecting new products dictate that the organization operate outside of governmental influence.

The Institute would:

- Develop and update standards for building codes.
- Evaluate and certify new building products, equipment and construction techniques.
- Promote and coordinate research concerned with building technology.
- Assemble, store and disseminate technical data.

The National Academies of Sciences and Engineering could organize the proposed national framework by bringing together all groups. The Academies would lay the ground rules for operations so that no single sector would dominate its activities. After the Institute's governing council and technical secretariat established the administration procedures, the Academies would withdraw from activities.

The proposed Institute is designed to be self-supporting, through subscriptions and fees for services. The federal government could help by providing funds until the organization could get off the ground. Then it would operate throughout the country under the auspices of various institutions and technical societies.

As shown in the drawing, institutions such as the American Society for Testing and Materials (ASTM), American National Standards Institute (ANSI, formerly USASI) and the National Bureau of Standards (NBS) can be assigned areas of responsibility in the Institute framework. A technical secretariat would work with technical committees of experts in each area of the building process. Where roadblocks result from insufficient technical data, the Institute could provide funds and organize the work.

The Institute was first proposed in early 1968, to the National Commission on Urban Problems. At the end of that year, the proposal was incorporated into the commission report. The concept was endorsed also by the Kaiser Committee and the Commerce Department's Panel on Housing Technology. In 1969, this writer helped draft a bill, that was introduced into the Senate by Senator Javits (R-N.Y.) and into the House by Congressman Morhead (D-Pa.).

They asked the federal government to provide an annual start-up grant of $5 million for five years. There was testimony before the Senate Housing subcommittee of the Banking and Currency Committee and there, amid subtle opposition, the bill died. The American Institute of Architects and the Council of Housing Producers testified for the bill.

HUD did not oppose the proposal overtly. It merely added some amendments. The objective of the proposal . . . "to establish a nongovernmental agency . . ." was accepted by HUD without change. However, in a later passage, an amendment was made to give the HUD Secretary "primary responsibility" for activities relating to the evaluation and certification of building innovations. One wonders how long it would take to assess new products if the pace of Operation Breakthrough is an example.

Initial push

Some questions were raised about whether or not local governments would abide by Institute standards. Why, for example, would a town building inspector honor a product certification?

To deal with this, there must be legislation so that states can withdraw local powers where localities enforce standards that are more restrictive than those recommended by the Institute. The states, not the federal government, should assume new responsibilities by providing in-service training programs for local officials and by establishing appropriate technical agencies to advise localities and serve as an appeals forum for local decisions.

The federal government, on the other hand, should make the Institute an integral part of its efforts to coordinate and update building technology by lending it financial aid in the beginning and by using it as part of its research programs. Given the hypothetical scope of a $50-million effort, HUD could use the Institute to increase housing production through a new program quite unlike the Breakthrough sweepstakes.

These could be the program guidelines:

1. Start with digestible amounts of research expenditures. A four-year budget for a building program at HUD could proportion its support so that a basic research program and initial support of the Institute of Building Sciences would each run $5 million annually. An Industrialized Building Program could therefore be funded at $5 million the first year, but absorb up to $40 million in the fourth year.

2. Concentrate efforts at the beginning on applied research tied to production. Thus, funds would pay for possible overruns at the beginning to eliminate uncertainties that raise start-up costs. Funding for long-term housing production runs should be committed in advance from other HUD programs.

3. Basic research with new materials and innovations in management should be directed by a joint-venture industry council, based on long-term needs, not so much on a project-by-project basis. Strategies would be developed in conjunction with the proposed Council on Development Standards.

4. Promote the establishment of a chain of research centers in universities to provide for regional needs and to develop research specialists.

A sister proposal

An Environmental Institute is an intrinsic part of the National Council plan to coordinate standards to improve the man-made environment. It is designed to fill a gap, to eliminate duplication and to provide for a more rational approach to the institutions and regulations that govern urban development.

This section of the National Council could both develop, as well as coordinate, standards to improve indoor and outdoor living conditions. Among other innovative guidelines, a new type of code called a Neighborhood Conservation Code could be developed. Standards could then be applied to all areas and all types of property, not only housing. Unlike housing codes, standards would apply to more than the interior of a house. Property owners and architects could obtain one-stop service and avoid the duplication and contradictions of working with many agencies. Maintenance could be ensured and the spread of blighting conditions stopped.

The roles that the National Institutes could play in the building and housing industry are clear, but the Institutes alone are not enough. They must have the back up provided by clear government commitment to assure industry there will be adequate supplies of land, materials, labor and money for housing production to increase.

Assembling house sites

Aside from urban renewal procedures, there is now no feasible alternative for central cities to provide land for housing other than to use marginal land, where the costs of foundations are very expensive. For example, in New York City, there are no available downtown sites, so it has planned projects over water or on fill that require pipes, caissons and fill, such as Waterside.

On the other hand, there is underdeveloped land in the New York City metropolitan area, outside the city limits, to provide the flow of land needed to meet New York City's housing needs. But first the restrictive and abusive codes and ordinances must be removed so that there can be construction of multifamily houses.

To overcome zoning restrictions government must strike at the foundation of these abuses, i.e., the fundamental constitutional question of whether or not a community can use state-granted police powers to deny entry to lower income families by requiring large building sites. This problem will be resolved only when the Supreme Court reviews the entire basis of zoning. Unfortunately, it has dealt with too few cases since the historic Euclid vs. Ambler decision in 1926, which formally recognized the constitutionality of zoning. Until the court takes action against exclusionary zoning practices, the states and federal government must take interim steps.

Acting on Governor Rockefeller's initiative, the New York State legislature did authorize the establishment of the Urban Development Corporation—granting it powers to override local restrictive codes and ordinances. A state government thus, confronted with a crisis in housing production, literally took back some of the police powers granted to localities and assigned them to an agency that was established to

get on with the business of building housing.

Other states, such as Massachusetts, have begun to develop innovative, though less comprehensive, approaches to surmount local zoning obstacles. The proposal there is to provide state machinery to override local zoning decisions.

The greatest threat to similar action by other states is the sacred cow of home rule. State legislators are, after all, sensitive to their constituents and the one-man, one-vote rule means more power to the suburbs, the primary source of local zoning abuses today.

The federal government is also showing new signs of wanting to get into the zoning game. Secretary Romney of HUD recently warned communities against exclusionary practices by taking a page from the Kaiser Commission Report and requesting congressional authorization to preempt local zoning regulations where they exclude lower-income housing.

HUD appears to be taking the position that it would disregard local wishes, as expressed by their master plans, and impose Washington's planning standards in particular areas for constructing housing. The motivation may be laudable but the practice can never work. Even if there were agreement on the social objectives of such a policy, it is pure fallacy to believe that planners, armed with federal powers, can effectively determine how a community shall grow. HUD's proposal lacks real comprehension of the true purpose of zoning—providing planning standards and controls to promote the orderly growth of a community.

It is also unfortunate that HUD has not seen fit to follow the example established in the Kennedy Administration when the Justice Department aided civil rights causes in its court battles. The HUD Secretary could serve as an *amicus curiae* (friend of the court) in cases to end abuses of zoning powers.

The federal government could make another contribution towards opening up suburban land for housing by providing "impact grants" to absorb increased populations. These are the types of grants that now go to localities near army bases to provide school and other facilities for soldiers' families.

Problems such as relocation of families and business prior to demolition make land assembly extremely difficult within built-up urban areas. We must therefore expand the fundamental philosophy of the urban renewal program. Without undermining the legal basis of serving a public purpose, it must be made possible for communities to assemble land in unsubsidized programs. Government powers of eminent domain could be used in this case to acquire sites and prepare them for new housing construction. The costs would be borne by the future housing occupants or, if public-assisted, by the government housing program using those sites. This device has already been used for many years by communities in New York State.

Supply of labor and materials

Looked at over the long run, the supply of skilled labor will become critical in the not too distant future. The evidence is irrefutable when you examine such factors as the average age of our skilled craftsmen and compare the rates of entry and attrition.

The real supply of skilled construction labor has not even been determined yet. The number of workers who drift in and out of construction has never been known. For example, construction labor statistics reported by the Department of Commerce exclude force accounts. Therefore, labor employed by a company to build its own buildings are never accounted for.

Government policy should be to make construction as stable as possible. But in many instances government policy accomplishes just the opposite. Large public projects often draw upon the local labor force to such an extent that shortages instantly appear in that region. Work schedules of public agencies overlap so that they compete with one another.

In recent years, the federal, state and local governments have been responsible for about one-third of the annual construction volume. The U. S. Department of Commerce reported that in 1969 the public sector accounted for over $28 billion of new construction put in place, out of a national total of $91 billion.

Two ways government can use its influence are through its decisionmaking role in awarding contracts and by developing sophisticated information systems.

To start this effort, the federal government could select a given region in which state and local agencies agree to participate in an information exchange that could guide decisionmakers on schedules, costs and available supplies of labor and materials. Local, state and federal agencies would be required to submit necessary data to regional information centers. The feedback would enable administrators to anticipate critical periods well in advance.

Shifting work schedules is one way to stabilize employment patterns. It has been traditional to expect construction employment to increase 30 per cent between February and August. There should be a special subsidy program where winter construction projects could be aided. The intention would be to lower the costs of unemployment insurance by subsidizing production, not nonproduction.

In England and Europe, construction sites are enclosed in polyurethane sheets with heating inside, so that the men work indoors all year around. The U.S. has not followed their example because contractors are uncertain of the costs of special supplies (heat, clothing, cover, etc.) and government has not forced the issue.

The supply of money

Housing production is a key element of the country's economy, but it is not protected. It is the constant victim of monetary policies and there is no government mechanism to insulate the flow of money for housing industry experiences overreactions to the fluctuations within the broader economy.

Romney's answer has been to suggest pouring more money into housing and permit FHA to insure mortgages at higher rates. That, however, could isolate whole sections of the populations that cannot afford to pay the higher costs that would result.

The large volume of housing intended for lower-income families will require government subsidies. Despite claims of substantial cost-savings potentially through new technology, we cannot expect the drastic reduction required to reach their income.

The current practice of providing federal subsidies in year-to-year appropriations is completely illogical. The Highway Trust Fund assured that highway construction funds would be isolated from the annual appropriation politicking. Is it not time for government housing to be treated as seriously as automobiles?

Legislation has been discussed in New York State requiring all institutions holding or dealing with public savings, including banks, life insurance companies and pension funds, to invest a minimum portion of their portfolios in housing for lower-income (including low-, moderate- and lower-middle-income families). The risks would be negligible because most housing for lower-income families is insured by some type of federal, state or local housing programs.

There is a precedent: Insurance companies voluntarily set aside $1 billion, then another $1 billion for housing, and they didn't stop to ask their stockholders' opinions. If even five per cent of public savings were set aside for lower-income housing it would change the picture tremendously.

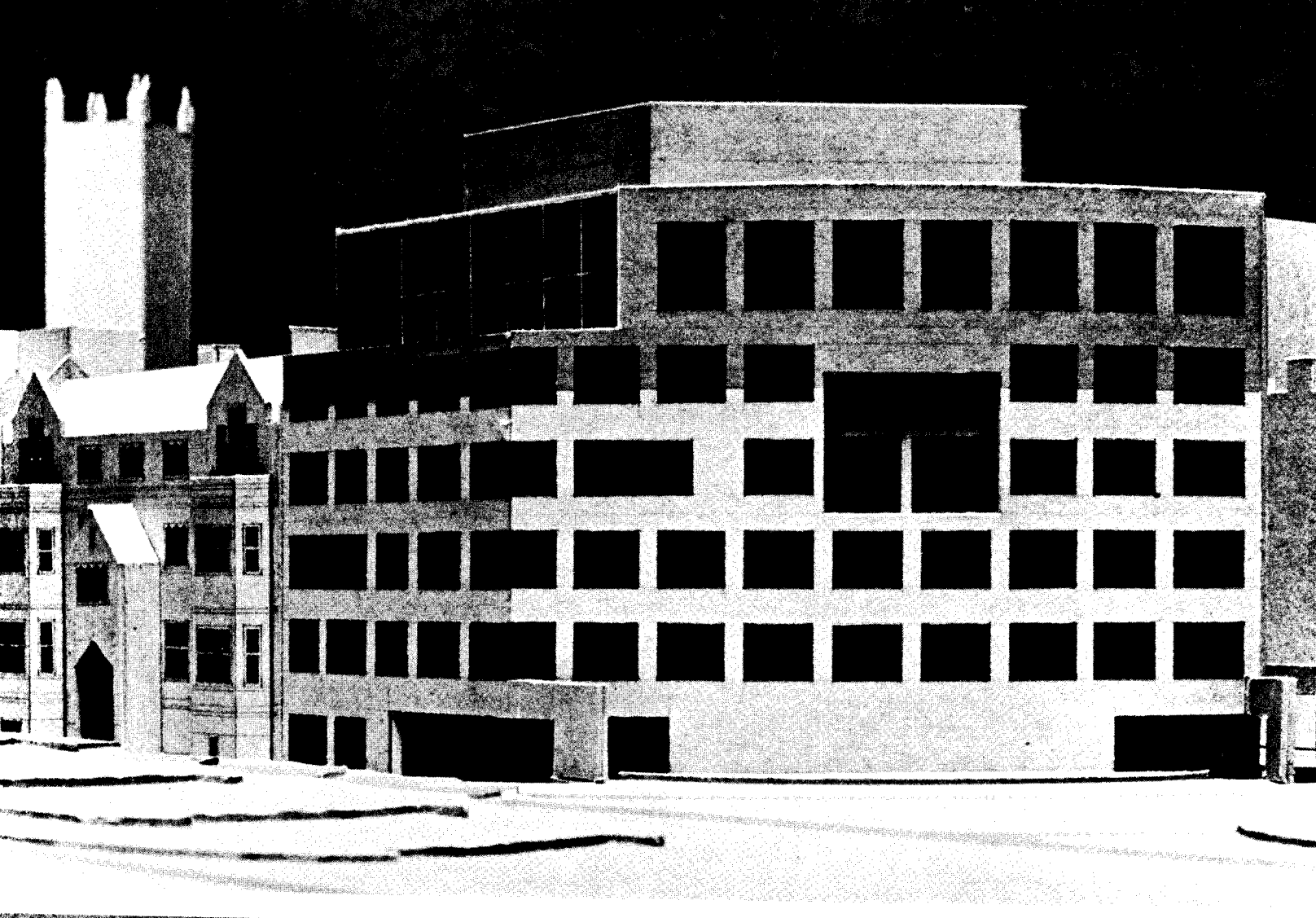
Professional commitment

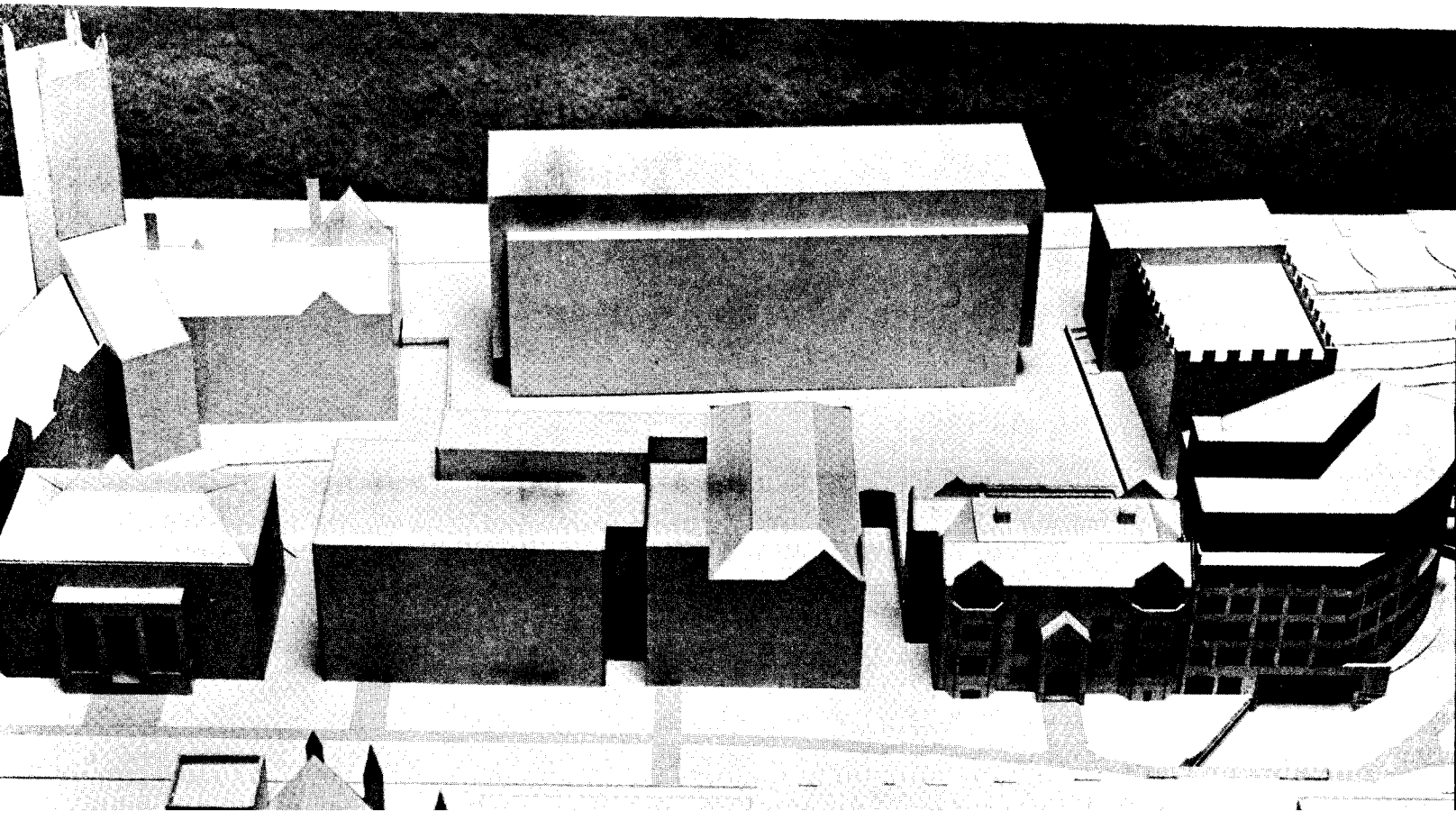
The magnitude of the task requires more than token contributions by a few. One approach I proposed to the New York State Association of Architects was that it establish community development centers, run by all professionals committed to resolving urban problems—ranging from the design professions to doctors, lawyers and sociologists. The centers would not only be concerned with building, but with people problems, such as new community day care centers for children and the infirm. The staff could actively assist low-income housing programs by determining the actual needs of the ultimate occupants—before the design programs are established. The experiences of OEO and Model Cities could be used for organizing and administering these centers.

Although the federal government can not, nor should it, assume the role of big brother in each area, it can wield influence and lead other sectors of the economy to assume their responsibilities. If constructive steps are taken now, by government at all levels, it would be possible to see tangible results in five to ten years.

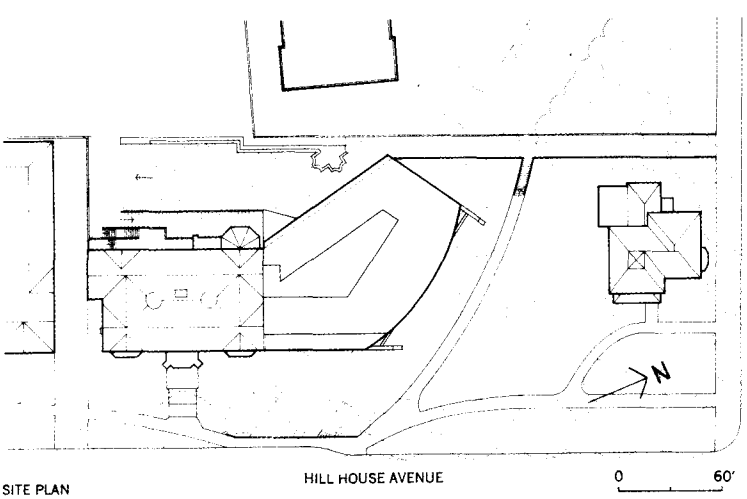
The nation can no longer afford to wait. If not now, when?

(Technology cont. on page 101)





MATHEMATICS AT YALE



SITE PLAN

Winner of the competition for Yale University's new mathematics building, designed by Venturi & Rauch. Opposite top: the building is very much dependent on the old mathematics building next to it. Opposite bottom: the block has a large interior space; directly behind the old math building is the Breuer-designed Becton Center. Above: crucial to the site planning was the relationship to the national historic landmark north of the site.

Everything about the competition for Yale's new mathematics building is out of the ordinary. A distinguished jury has voted unanimously, with great enthusiasm, for the entry by Venturi & Rauch, one of the most controversial names in American architecture today. The program was unusual in calling for a building that would fit in with the existing fabric. The site, too, is extraordinary—a generous slot along New Haven's short, but grand, Hillhouse Avenue; complications occur at every corner and every level of the site (railroad tracks make a deep cut across virtually the center of the available land). And the campus itself is unique among American universities—with major buildings by Saarinen, Kahn, Rudolph, Bunshaft, Johnson, Breuer, it has been called the country's "greatest open-air museum of modern architecture."

This is precisely why a competition was indicated. According to Charles W. Moore, its professional adviser: "Kingman Brewster [president of Yale], Ed Barnes [as Campus Planner] and I all felt it wasn't the time or place for 'important' buildings any more. The best part of Yale anyway is its integrated environment, and the monuments never became part of the fabric. Not many people can do the kind of building we wanted, but a competition would give many people to choose from." The program spelled out quite clearly what was wanted: "the integration of new buildings into the strong existing fabric"—the "superbly integrated fabric" of Gothic and Georgian buildings and courts dating from around 1930.

A competition had been suggested for the Mellon Gallery, four years ago, both by Moore and by Barnes independently. Brewster disagreed. By 1969, however, the university's director of development was also pushing for a competition, and Brewster was interested.

Some 1,600 architects were interested, too, registering for the competition when it was announced last fall. Ultimately, 479 sent complete entries—still a sizeable number. Because of the interest this competition has aroused from architects, because of the change in direction by a major institution (in having a competition at all, and in seeking a building that wouldn't be another monument), and because the winning solution is considered by one of the jurors, Romaldo Giurgola, "like a door opening on the future," the competition has major significance for the 1970s.

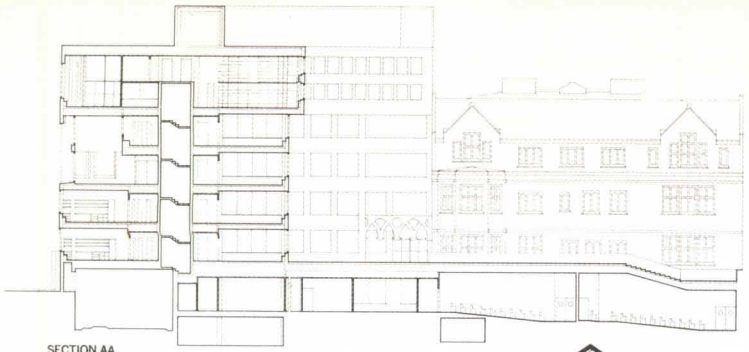
A detailed program

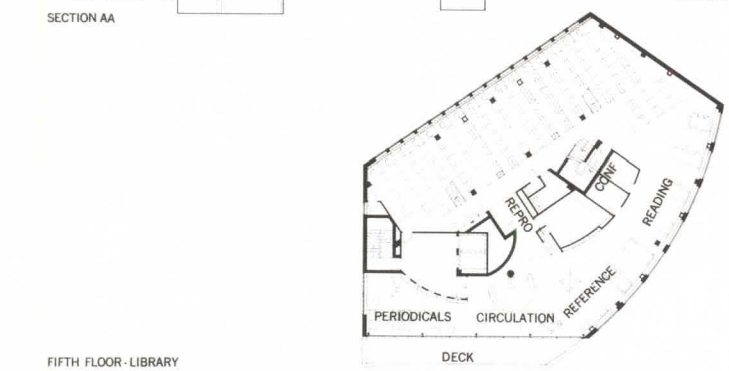
The program, in brief, called for slight remodeling of the present mathematics building (Leet Oliver Memorial Hall), and the construction of a new building adjacent to it. The new building would provide offices for faculty, administration and teaching assistants ("an office is as important to a mathematician as is a laboratory to an experimental scientist"); comfortable gathering space for faculty and graduate students, on a day-to-day basis and for departmental social events; four conference/seminar rooms; two large lecture rooms; and a substantial library. All of this totalled 31,500 sq. ft. of net usable space; maximum square footage was pegged at 60,000, and maximum ground coverage at 12,000.

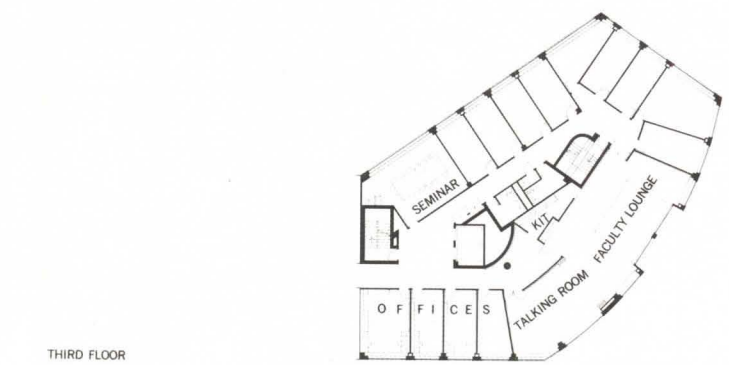
The site presented complex constraints. The two-block Hillhouse Avenue, says the program, "must have been one of the most elegant residential streets anywhere" in the late 19th century. The first block now has some newer buildings, but the second "still has its fine old piles, mostly of the Tuscan villa persuasion, with frequent Egyptian overtones." The competition parcel is the first block of Hillhouse, separated from the cross-street by a small National Historic Landmark, Dana House.

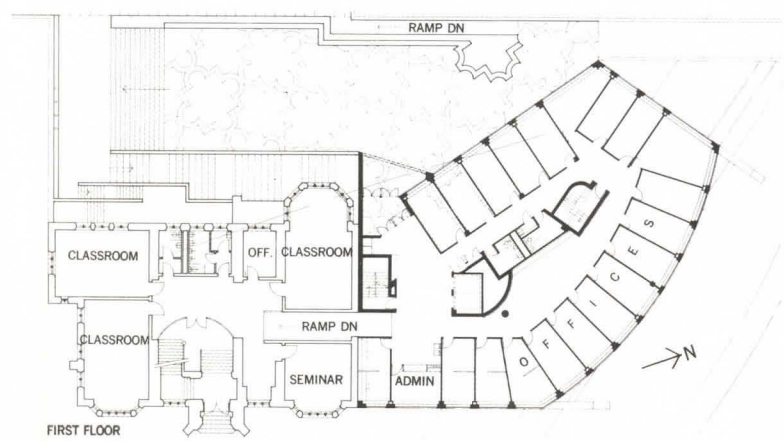
The program assumed that the new building would acknowledge the scale of Dana House at the same time that it would respect the existing building line and height line of the other buildings along Hillhouse. The railroad tracks must also be respected; the program assumed their continued light use (one or two freight cars a day). Further requirements were: 1) a continuation of the block's interior plaza, recently extended by the new Breuer-designed Becton Center Plaza, and 2) a link between Leet Oliver and the new building (not mandatory, but advantageous).

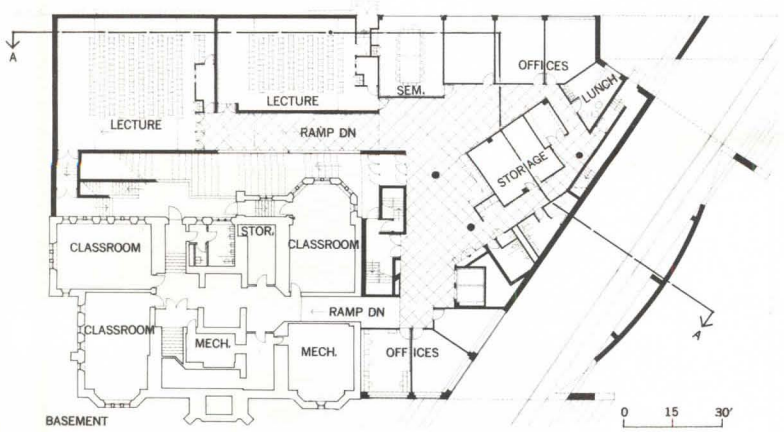
The program was essentially the work of the math department (and principally Professor Charles E. Rickart, later one of the jurors), with assistance from Buildings & Grounds Planning. Moore's contribution to the pro-











Section at top is as indicated on plan at bottom. Note relationship to existing math building. Library, with outdoor deck, is on fifth floor, with mezzanine above it. Office floors are similar throughout; third floor has two-level faculty lounge. First floor has outdoor patio at rear as congregating space for the large lecture halls in basement.

gram was its preamble, calling for "workable, economical, generally non-monumental space" and for the integration of new with old. "What we meant," says Moore, "is that it should fit in with Hillhouse Avenue, not make a separate statement, not call attention to itself." He admits that the phrase "generally non-monumental" may be hedging; to meet the demands of the program, the building would have to be sizable, and Hillhouse Avenue is already a street of monuments. But "self-effacement" was the quality that was wanted, says Moore.

Another contribution by Moore was the site visit required of each competitor. "I'd never heard of its being mandatory before." (Professor Rickart reports that some competitors stayed to talk; most, including Venturi, just looked and measured and photographed.) Moore also selected the jury: Edward Larrabee Barnes, E. Kevin Roche, Romaldo Giurgola, and John Christiansen, representing the architectural profession (the last, an architecture student, already licensed in Florida and finishing up his M. Arch. degree at Yale); and three from Yale (Rickart, Vincent Scully, and Edward Dunn, director of Buildings & Grounds Planning).

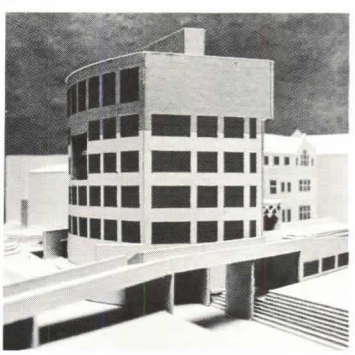
The jury's enthusiasm

Jury members speak of the Venturi & Rauch building without reservation. "It addresses itself completely to the program," says Rickart, "but it also senses the organism behind the program. He sensed our informality, and our needs as a community of mathematicians. The more I study the plans, the more things I discover that I like."

Says Scully, "It is absolutely straightforward, eloquently simple. The form, which is so much more modest than any of the others, just swells with generosity of space, in the most economical terms. This building takes the vernacular of architecture and makes an art of it. We have not a single qualification about it."

Says Roche, "The key was in the program, if people had read it carefully. They wanted a very modest, very direct solution." To Roche, the building's great subtlety shows "the very highest level of the ability to design."

Giurgola, in his jury report, calls the building "a fresh statement of great hope for an architecture of measure, of selectivity, of passion for the simplest thing, and highly sensitive to the human condition." Speaking about it later at greater length he says, "It opens a new possibility for the interpretation of architecture no longer as an exceptional object. The real importance of the Venturi building is in discovering a proper language, in finding a proper relationship with all the



View from west

things that are part of the existing situation. Certainly not everything common is good. And it is not a matter of subduing yourself, or you have nothingness."

Dunn looks upon the building as "an excellent solution." His approach was pragmatic, he says, in that he was looking for a compact plan, minimal site coverage, an economical building. Less pragmatically, he was "sensitive to university people getting together easily."

Christiansen sees in it "hope that architecture can cease to be a manufactured esthetic, with many of its rules made up by architects for architects. This building is interested in solving problems and making an environment for those who will use it, not manufacturing a 'style' or making niceties that don't count.

The building is very responsive to a real situation, yet very poetic, brilliant; at every turn, Venturi's decisions were right."

And Barnes: "We were all very much moved by it, his unpretentious approach, and his not going in for 'form for form's sake.' It takes real sensitivity to do something so simple and understated. The strength of this one made all the others look like a struggle. They all had 'competition elevations,' but Venturi didn't want to win that way."

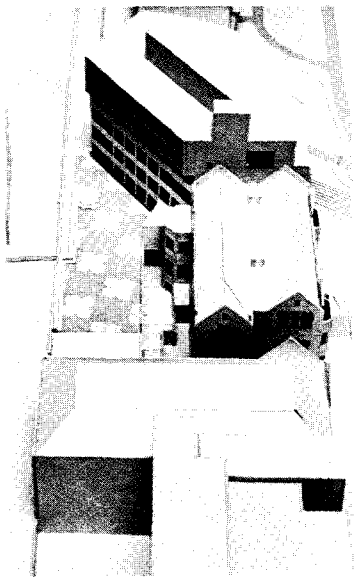
An unassuming tone

Even though it is bigger and bulkier than Leet Oliver Hall, the new building is very much dependent on the old. In Robert Venturi's words, the new one "inflects toward" the old, does not stand apart from it. And although Venturi denies that the bowed-out facade is a response to the old building's gentle interior arches, it is clear that the spirit of Leet Oliver has found many incarnations in the new building—the Collegiate Gothic of Leet Oliver Hall is surely an ancestor of the Venturi Gothic plaza portico and paving.

Connection with the old building is subtle—the same color (light grey) but a different material (glazed brick); the same height—up to a point—then a higher portion of a darker color. "It's bulky," says Venturi, "but they wanted a lot of square feet. A tower would have been the easy way out." (And indeed, a few competitors tried it, to their misfortune.)

The building continues along Hillhouse barely across the railroad tracks. "To put anything on the other side of the tracks," says Venturi, "would have meant isolating it from the rest of the building. We couldn't justify going up over the tracks in order to go down—nothing would have fit except the mechanical." The building then runs parallel to the tracks, slightly bowed out, "crosses the tracks very directly, then home." The curved facade serves to round out the line of buildings on this part of Hillhouse Avenue; it also makes the most of the main view, up the second half of Hillhouse. "We leaned over backward to avoid the Wagnerian."

Inside, "you don't think it's an office building," says Venturi, "yet it's economical, there's nothing dramatic." The old building has a lumpy sofa in every hall,



View looking north

and in the new building, too, one feels that people will be at ease in its generous corridors, and will enjoy an easy and rewarding contact with each other.

The structure is "kind of impure," says Venturi. There is a standard way of dealing with columns on the exterior, but not on the interior. The only structural gymnastics occurs at the two buttresses at ground level; otherwise the building is simply a flush facade over a structural frame. Windows change slightly at the seminar rooms (and considerably at the faculty lounge); otherwise they are "regular and boring." The mind doesn't take in the minor changes, says Venturi, but they give "a kind of tension."

Robert Venturi had control of the whole, but his two partners, John Rauch and Denise Scott-Brown (Mrs. Venturi), were extremely important as critics, and much of the pre-design analysis was done by other members of the office, particularly Steve Izenour. (Others involved were W. G. Clark, Jim Greifendorf, Arthur Jones, Doug Southworth, David Vaughan.) The total number of hours spent on the project was 2,209½, about one-sixth of it by principals.

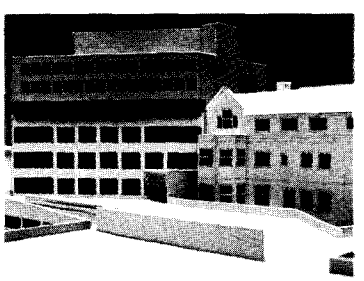
Judging the competition

Contrary to possible expectation, one of the strongest jury members was Rickart of the math department. "I was always interested in the floor plans," says Rickart; "the architects always wanted to see how it would look." Moore probably speaks for the architect-jurors when he says, "Just because we were saying it shouldn't be monumental, didn't mean it shouldn't look good." (But one architect laughs, "Rickart thought he'd have to fight us for the Venturi project.")

Jurors did not know the names of the competitors during the first stage of the judging; for the second stage, three months later, they knew the names of the five finalists (these had been publicly announced) but did not know which was which. For the second stage jury (competitors had made some changes and submitted more detailed information), the Buildings & Grounds department did mechanical analyses of all five, and the George A. Fuller Company checked the competitors' cost estimates.

On the final day, jurors spent a long morning reviewing all five. A preliminary vote turned out to be the final vote, as all seven jurors—a group of individuals with major differences in frame of reference—voted unanimously for number five (numbers had been assigned in order of date received).

One juror intimates that they had a hard time picking four others, although Moore (comparing these entries with the Thousand Oaks city hall competition) says that a much higher percentage of Yale entries were competent—all but ten or 15. Moore is disappointed that "the majority felt they had to make some kind of graphic play of the angle formed by Hillhouse Avenue and the railroad tracks, which was already 'designing' in the monumental sense." And



Rear plaza, looking northeast

Scully says: "I have the terrible feeling that most architects can't deal with everyday reality; they're in a world of fantasy, knocking themselves out with great heroic gestures, imitating someone else. Venturi's was almost the only building that grew out of its own nature."

The jury did find four runners-up (see next two pages), which they presented without rank; each represents a somewhat different direction in today's architecture. "We were looking for a really technological clip-on solution," says Scully, "but it wasn't there."

There will inevitably be some changes in the Venturi & Rauch scheme, but the winner has been accepted by Yale's president, provost, Buildings & Grounds department, and development office. The university must now raise the money—$5 million by an earlier estimate, although Ed Dunn thinks that this building may possibly come in at $4½.

Inevitably, too, perhaps, there has been some grumbling—that the program (or jury) was "slanted" toward Venturi, that Yale faculty should have been excluded, and/or that Venturi should have simply been given the commission without causing almost 500 architects to enter a competition they ostensibly had no chance of winning. One young man in this group admits that his own entry was "monumental" and that "maybe this is sour grapes"; nevertheless, he looks at the single photo of the winner published recently, and feels that it adds fuel to his many-faceted complaint. "You can't tell much from one photo [and no plan], but it's a pretty bad building."

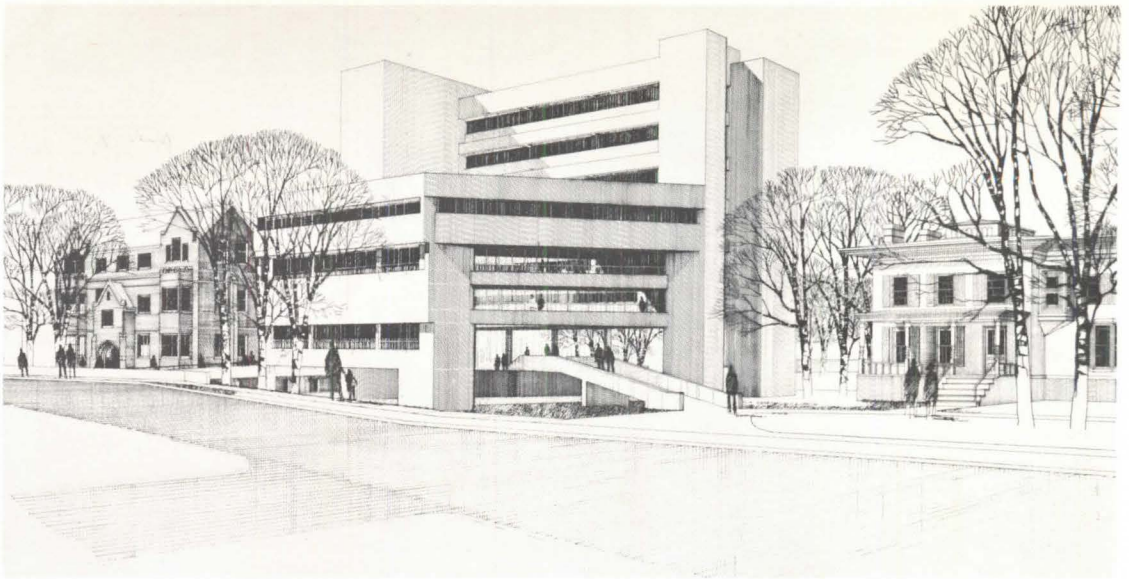
Some will not even recognize the Venturi & Rauch solution as legitimate—"nonarchitecture" is the current term of opprobrium. "I don't know what that means," says Roche, "certainly the winner employed all the methods of architecture, and the competition asked for the very highest level of professional competence." Giurgola, too, has an answer: "At a time when we are searching for what architecture is, who can say what is architecture and what is not."

The building is certain to be controversial—Yale is used to this by now. But it is disturbing to see architects so certain of the rightness of their own views that they cannot imagine a jury of integrity choosing another kind of building. It is disturbing, too, that their architectural frame of reference has no room in it for a building that may well belong more to its users and its surroundings than have many recent buildings at Yale.

At the close of the judging, one jury member commented, "We're going to come in for a lot of flak on this one." An architect-juror answered, "It's worth it."

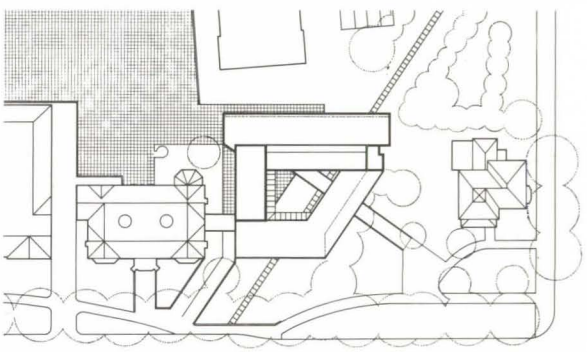
—Ellen Perry Berkeley

VAN SLYCK • CALLISON • NELSON
SEATTLE, WASH.

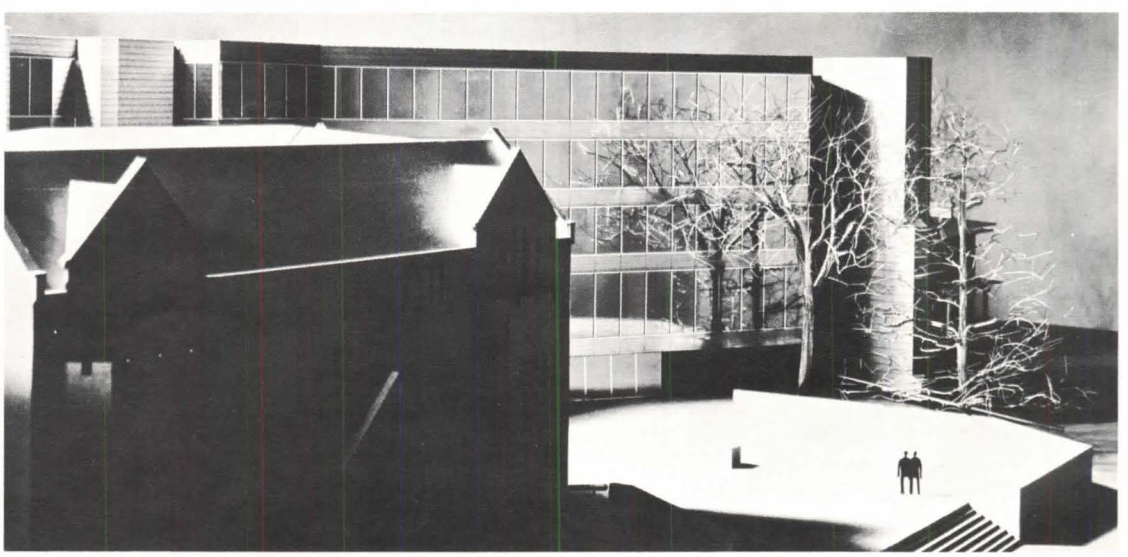


The architects consider their site solution to be the main contribution here; "all the rest was program solution." To respect the scale of Dana House—a requirement "of utmost importance"—they left maximum open space on Hillhouse. To respect the existing buildings on Hillhouse, the new building continues the wall-line, then turns at an obtuse angle "to terminate and strengthen this important design requirement." The team desired to "complete Becton Plaza," and thus they related higher office elevations to the Becton Plaza buildings. Leet Oliver is "not enveloped" on the Becton Plaza side, in order to "keep a balance of old and new architecture in the plaza."

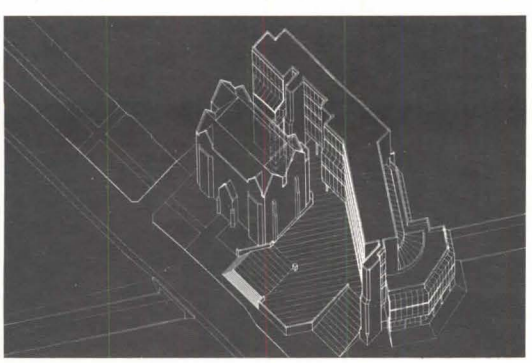
Associates: Albert W. Nelson Jr., partner in charge; Donald Wilcox, project designer.

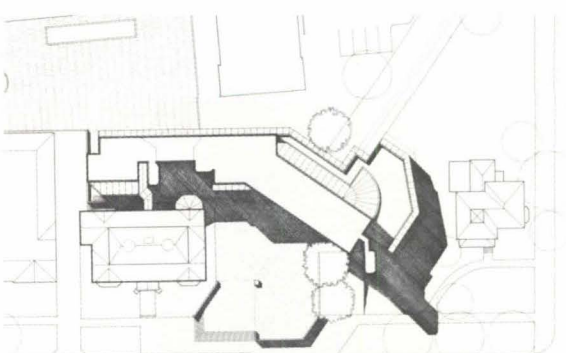


MARVIN VERMAN, YVES LEPERE, PAUL PETIT
PHILADELPHIA, PA.



"Even less than a building; just an extension of a building already there," this entry maintains the same entrance, same building width, same roof line, and same floor levels (getting two offices out of the existing floor-to-ceiling height). "From the outside," say the architects, "it is merely one more university building. The life is all read from within." In the long block, a spine down the center divides the offices (facing the rear) from the library (facing the street). The library's stacks and carrels are in a three-story block along Hillhouse; the reading room runs along the spine, under a six-story light well. The small square seminar rooms at the end make a transition to Dana House; the larger square block at the rear, transparent, contains auditoriums. Site planning is an attempt to continue Becton Plaza "and still offer something different."

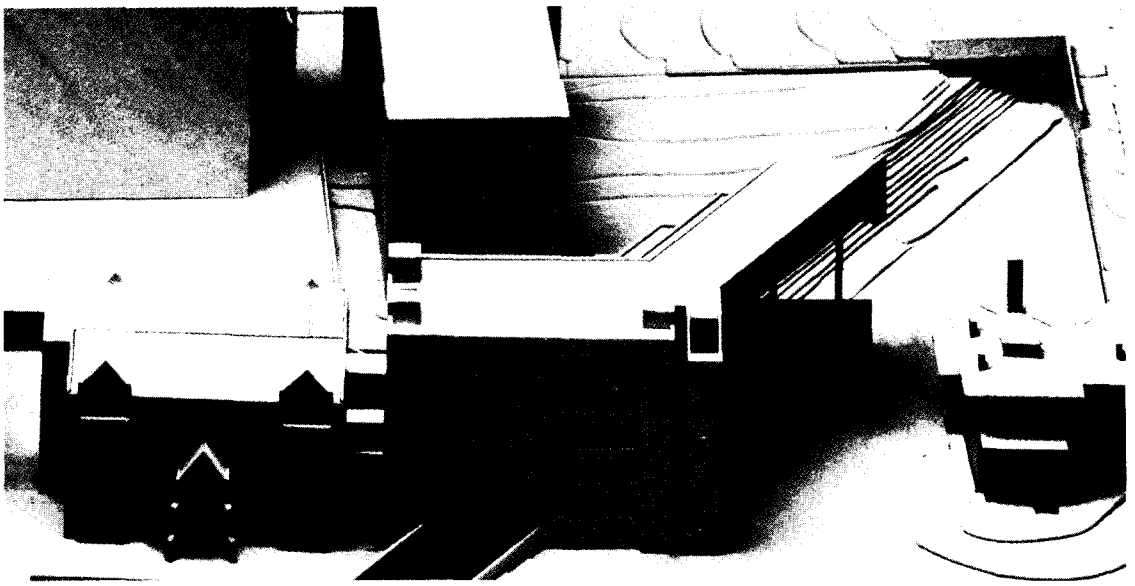


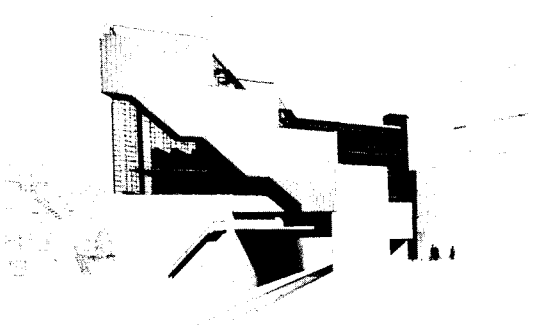


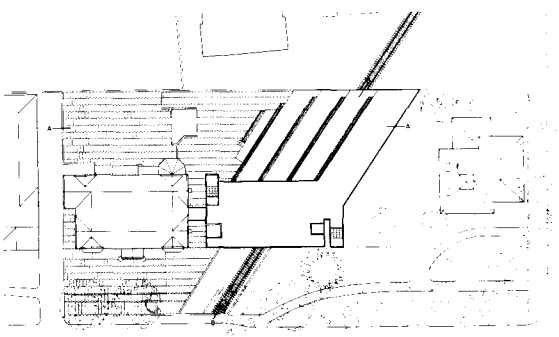
OFFICE OF FITZHUGH SCOTT ARCHITECTS INC. MILWAUKEE, WISC.

"Although our building may look a bit complex, we tried to deal with it as simplistically as possible." There were two objectives: 1) to reinforce Becton Plaza, intensifying its activity; 2) to give the library and offices a feeling of community, with a psychological as well as visual relationship between them. "Maybe the three-story library space went beyond the bounds of the program, but having the railroad go through the building suggested the possibility of a dynamic space." The library facade was intended as an anonymous foil to Dana House.

Associates: Fitzhugh Scott, David Kahler, Thomas Briner, Gordon Pierce, Bruce Jackson.

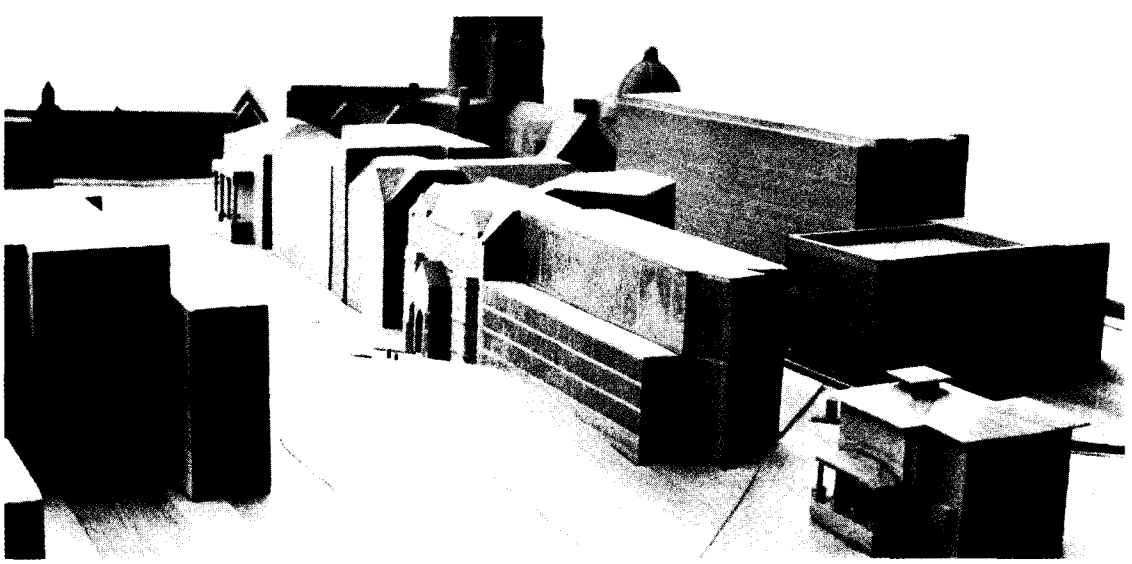


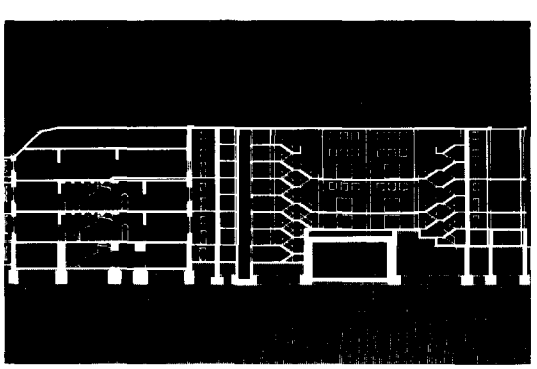


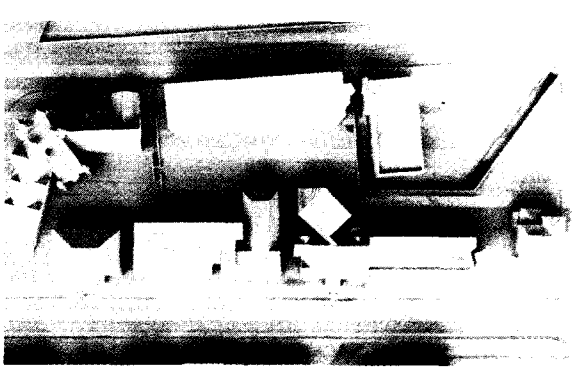


JOHN FOWLER, JOHN PAUL McGOWAN NEW HAVEN, CONN.

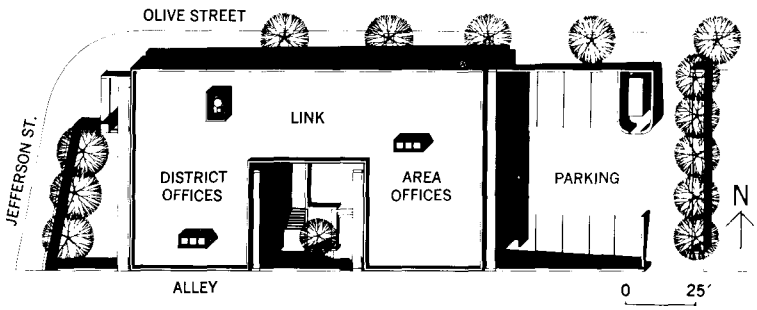
"We wanted to interfere as little as possible with Leet Oliver," says John Fowler, "which is a building with substantial integrity. The program allowed this, with its separation between graduate and undergraduate facilities." Because of the difficulty of continuing the facades on Hillhouse and of relating to Dana House at the same time, the offices of the new building cut a diagonal through to Becton Plaza ("to help that plaza"); the lower element behind this (the library) relates especially to Dana. The common room and library are at the centroid of the building, visually and physically connected for "a sense of community." The character of the solution is "very direct and brutal, but not brutal in the ugly sense; the concrete pan structure is also very direct."

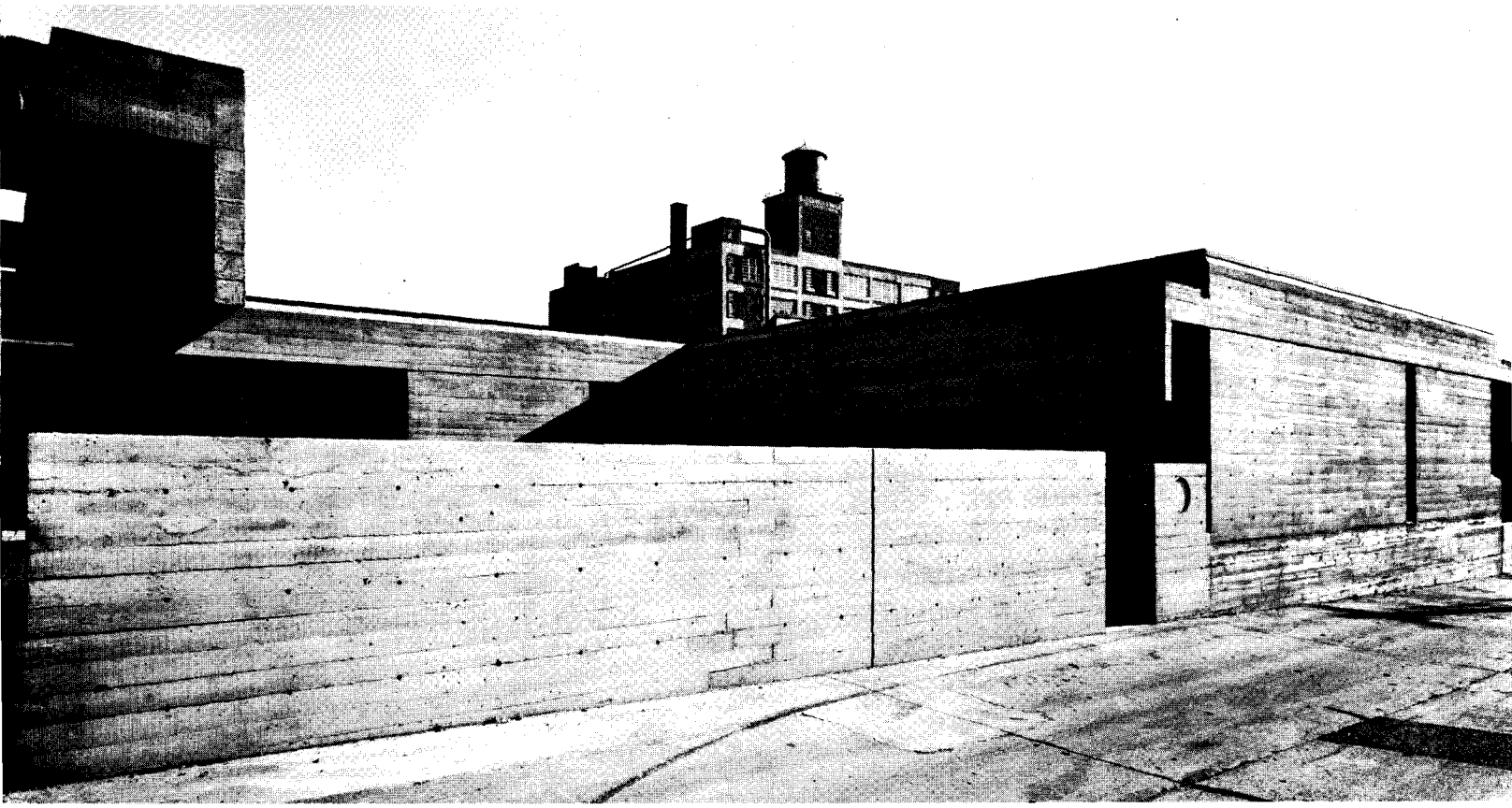






DUAL SPACE FOR A UNION



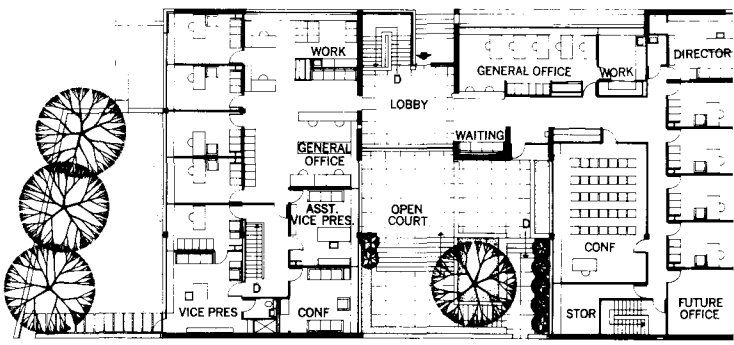


At the edge of the large Mill Creek urban renewal area in St. Louis, Mo., one small office building creates a working environment that is far from ordinary. With its private courtyard and covered parking, and with each elevation a response to unique conditions, the building is a rarity among small offices. Says George Anselevicius, of Anselevicius/Montgomery/Rupe, architects, "Our main intent was to de-institutionalize an office building, to make it almost a house."

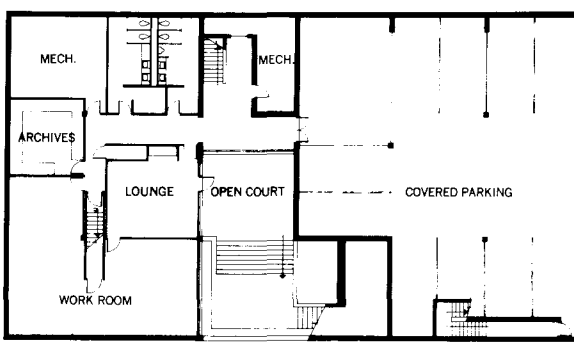
The building is owned by the Communications Workers of America; sole occupants are its district and area offices. (The union didn't want rental space, and, in any case, more floor area would have required more parking space.)

The local and area-wide organizations require separate office arrangements, but can share certain other facilities (reception area, workroom, employees' lounge, toilets). Because of the parallel requirements of the two groups, the plan is binuclear—the district office in the west wing, on the upper floor, and the area office in the east wing. Between them are the reception area, facing the street, and an open courtyard facing the alley. This two-level courtyard is a link in other ways, too, connecting upper and lower floors both visually and physically.

Parking space, at the lower level, is partly contained within



UPPER FLOOR PLAN



LOWER FLOOR PLAN

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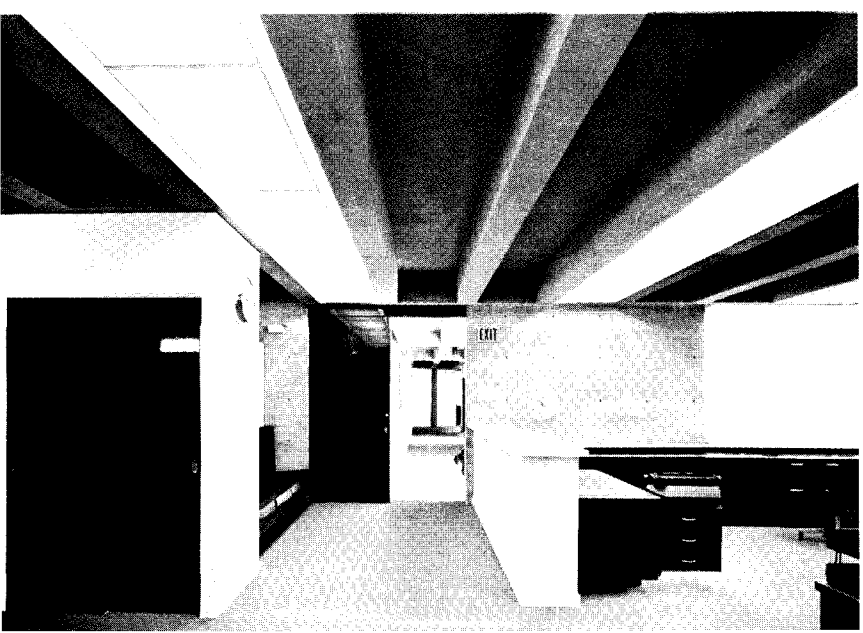


The structure is cast-in-place concrete for walls, columns, beams and one-way floor slabs. Structural module is 3 ft. 3 in. All interior walls are dry-wall. The internal corridor system has two skylights, each giving a sense of place as well as light; one is outside the large meeting room, identifying that special room, and the other is in the small private hall leading to the office of the chief executive. Concrete sunshades are painted white inside, for higher reflectivity of light to the offices.

the building for protected access to the offices. Open parking space is provided just beyond the building to the east, and on another parcel across the alley. Office space can expand into the covered parking places if necessary in the future.

Privacy was an important factor in the planning, says Anselevicius. On the west, a narrow court buffers major offices from the street; on the east, the landscaped parking area gives breathing space to offices overlooking it. The main courtyard in the center gives a special private environment to all other offices in the building.

In detail, too, the architects wanted to avoid designing "by formula." Note the selective use of sunshading, on east and west elevations. Note, too, the fenestration that varies in type, position and size according to conditions unique to each facade. One ingeniously recessed window, facing the major street, gives privacy to the upper-level office, at the same time that it gives light and air to the lower-level garage.

FACTS AND FIGURES

Communications Workers of America Headquarters Office Building, District 6, 2334 Olive St., St. Louis, Mo. Architect: Anselevicius/Montgomery/Rupe (Charles R. Nash, job captain). Engineers: Albert Alper (structural); Londe • Gordon • Parker (mechanical). Consulting landscape architect: George Dickie. General contractor: Gamble Construction Co. Building area: 14,000 sq. ft. (gross). Cost: $450,000 (including site development). PHOTOGRAPHS: Balthazar Korab.

THE CASE AGAINST PERCENTAGES

BY PAUL B. FARRELL JR.

This hypothetical case emphasizes a major inconsistency in architectural practice. The architect claims to be an agent of his client, motivated by an ethical code which discourages profit-taking conflicts of interest. Yet an anomaly exists in the percentage-of-construction fee, the principal method of paying the architect for his services. Unlike the lawyer's or banker's compensation, which increases when his client also receives a larger sum, the architect's compensation may go up if he does a poor job (and forces his client to pay out more money)—and go down if he does a good job (and saves his client money). In short, the percentage fee is inconsistent with professionalism, for it results in an unethical conflict of interest between the architect and his client.

U. S. Dept. H.U.D. v. State Architects' Registration Board, 383 F. 2nd 419 (10 Cir. 1970)

This action is a collateral suit against the architect of a high school, brought by the United States Department of Housing and Urban Development. In the other principal suit brought by the Federal Government, the plaintiff sought recovery of civil damages for losses resulting from the architect's negligent failure to control costs on the Southside Senior High School, which was originally budgeted at $3.5 million and was built for $12.4 million.

In this suit, the plaintiff seeks a writ of mandamus directing the State Architects' Registration Board to begin proceedings against the architect for the purpose of determining whether the architect's license to practice should be revoked. The Board had previously dismissed the complaint on the grounds that the complaint was "unfounded or trivial."

The United States brought its charges against the architect on two grounds:

1) that the architect's percentage-of-construction method of compensation results in a conflict of interest prejudicial to the best interests of the local school system, and of the United States, which supported the construction with grants; and

2) that the architect was negligent in failing to advise the governmental authorities of the

Mr. Farrell is a mortgage banker with the Detroit office of Sonnenblick-Goldman Corp., and is an attorney, urban planner, and graduate architect. He frequently writes and speaks on the professional practice of architecture.

effect, on total cost, of changes in the scope of the project, in choice of materials, and in buying power of the dollar during an inflationary period.

Section 4281 of Act 42 of the Public Acts of 1937 as amended gives the Architects' Registration Board the power to:

". . . revoke the certificate of registration of any registered applicant who is found guilty of: . . . (b) any gross negligence, incompetency or misconduct in the practice of architecture. . . . Any person may prefer charges of fraud, deceit, gross negligence, incompetency or misconduct against the registrant."

The Architect's Registration Board dismissed the charges, relying generally on Section 4272 of Act 42, which reads in part: "All charges, unless dismissed by the Board as unfounded or trivial, shall be heard by the Board. . . ." The Board reasoned (a) that Act 146 of the Public Acts of 1952 requires architects to be paid on a percentage-of-construction basis, and (b) that the collateral civil suit for monetary damages has not yet concluded in a finding that the architect was negligent.

We hold that the defendant Architects' Registration Board was acting arbitrarily and prematurely, and therefore issue the writ of mandamus directing it to conduct hearings on the charges brought by the United States.

We will summarily dispose of the second basis of the complaint; whether or not favorable to the architect, the subsequent outcome of the civil suit is not controlling on the decision of the Architects' Registration Board. The Board must make its own findings of wrongdoing by the architect, and moreover, may have different standards for judging the facts indicating improprieties by professionals.

The United States also argues that the method of compensating the architect—by a percentage of the cost of construction—is a violation of Section 4251 of Public Act (1937) as amended. This section reads in part: "No registered architect shall . . . have *any* interest in any project or structure, prejudicial to his *professional* interest therein. . . ." [emphasis added].

In the case of this school, we are dealing with public construction and monies. The architect was clearly not engaged in the sale of building materials or contracting services and, therefore, did not have a direct chance to profit from the increased cost of labor and materials. He also did not have a property or financial interest in the completed public facility.

The architect did, however, have an interest in the cost of the school in that he received a percentage of all construction contracts, and this is an interest sufficient to fall under Section 4251. More important is the fact that his fee increases if he performs his services ineffectively and the cost of construction increases, to the detriment of the school board paying for his services.

We make no findings that the increased costs of the school were, in fact, a result of the architect's actions. We do, however, find that *this method of compensation is inherently a conflict of interest* and, therefore, contrary to the professional interests of the architect acting as an agent of the school board.

The fact that other statutes require this method of compensating architects emphasizes the seriousness of the United States claim. Conflict between statutes is not new. But this is not the proper time to resolve such conflicts. Our purpose is merely to determine whether the United States claim is "unfounded or trivial," as determined by the Board. We find it is not.

The Architects' Board of Registration also argues that the laws of agency require only that a professional agent fully disclose all sources of profit and, therefore, even if the percentage fee involves a conflict of interest, the school board was aware of the conflict. That knowledge, it is claimed, is sufficient to remove the conflict of interest.

The United States, on the other hand, makes its point with this illustration: On a $4-million project, the architect will receive a 5 per cent fee, or $200,000. A reasonable profit of 15 per cent or $30,000, is programmed into this estimated fee, and the architect allocates his time according to this assumed fee.

Thus, if his overhead and direct costs are $70,000, he has $100,000 for professional working time, and at an average $10 per hour, he can justify spending 10,000 man-hours on the project. About 80 per cent of his services are finished before any construction contracts are awarded, and before the cost of construction and his fee are known.

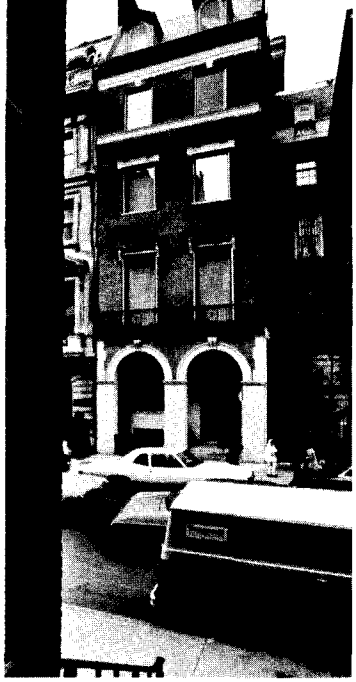
If the architect designs an efficient project and the construction cost is less than estimated, he is penalized by a reduction in fee. In fact, his $30,000 profit would be wiped out if the project's actual cost were only $3.4 million. By the same token, if the actual cost were $4.6 million, the architect's profit would increase by 100 per cent, even though he may not have performed any additional services for the client. In fact, his profit could be enormous as a result of normal inflation.

In such a situation, the architect has no incentive to hold costs down, except perhaps if he is required to redo drawings completely when the cost exceeds an agreed-upon maximum. Even then, however, he has no incentive to design a building that will cost less than the maximum, after he had budgeted his time based on the estimated maximum cost of construction.

Even if full disclosure were possible—with the school board having the right to audit the architect's records at the conclusion of the project, the school board would not have the right to recover such profits.

We find that a more ethical and professional form of compensation for architects would be a fixed fee based on actual services to be performed, and specifically defined in the contract between owner and architect. Such a fee could be renegotiated where the scope of the services is expanded. This method of compensation would avoid placing the architect in a position of conflict of interest with his client.

We, therefore, find that the United States complaint should not have been dismissed by the Architects Board of Registration and direct them to hold hearings on whether the architect's license should be revoked.



HUMANIZING AUTOMATION

House for communications, forum for group debates, gallery for technology and art—this is Automation House which opened recently on East 68th Street in New York.

The house itself is a visual symbol of the conflict between stability and change. One of three 19th-century townhouses formerly owned by the Soviet Embassy and later saved from demolition, it retains a classical facade (left). But behind, a flexible audiovisually-equipped interior can be changed within minutes to accommodate any event from a collective bargaining session to a job training class or labor mediation meeting to a multimedia exhibit.

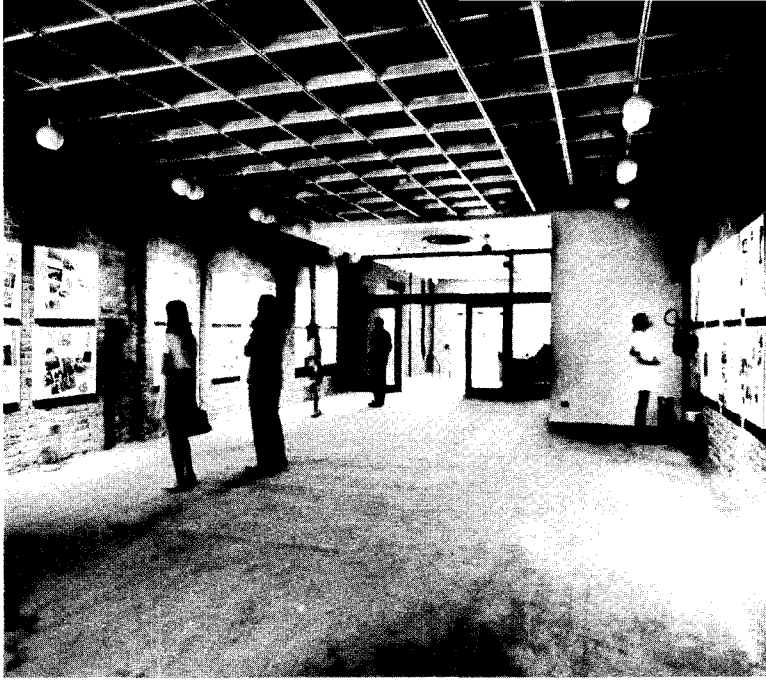
The American Foundation on Automation and Employment, owners, retained Lehrecke & Tonetti, architects, to fulfill their chamelion demands. Each floor is open straight through, to be divided at the will of the client. Walls are exposed brick (with plumbing chases left for a sculptural effect); window sashes are replaced by single sheets of tinted glass which don't disturb the facade's appearance.

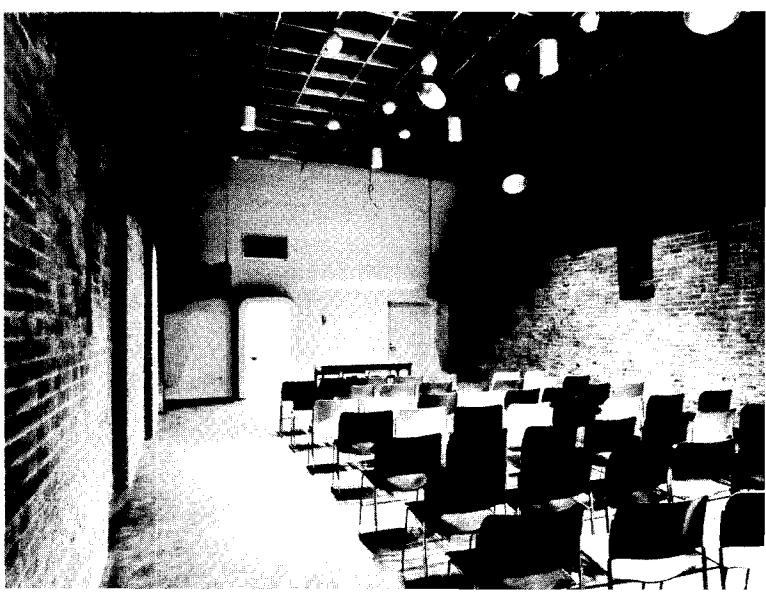
The open space on each floor is defined by an enclosed stairwell, serving also as the structural core. The well (opposite) becomes a theater for slides projected from revolving carousels. Fluorescent tubing ringing the stairs makes them appear to float, adding to the theatrical effect.

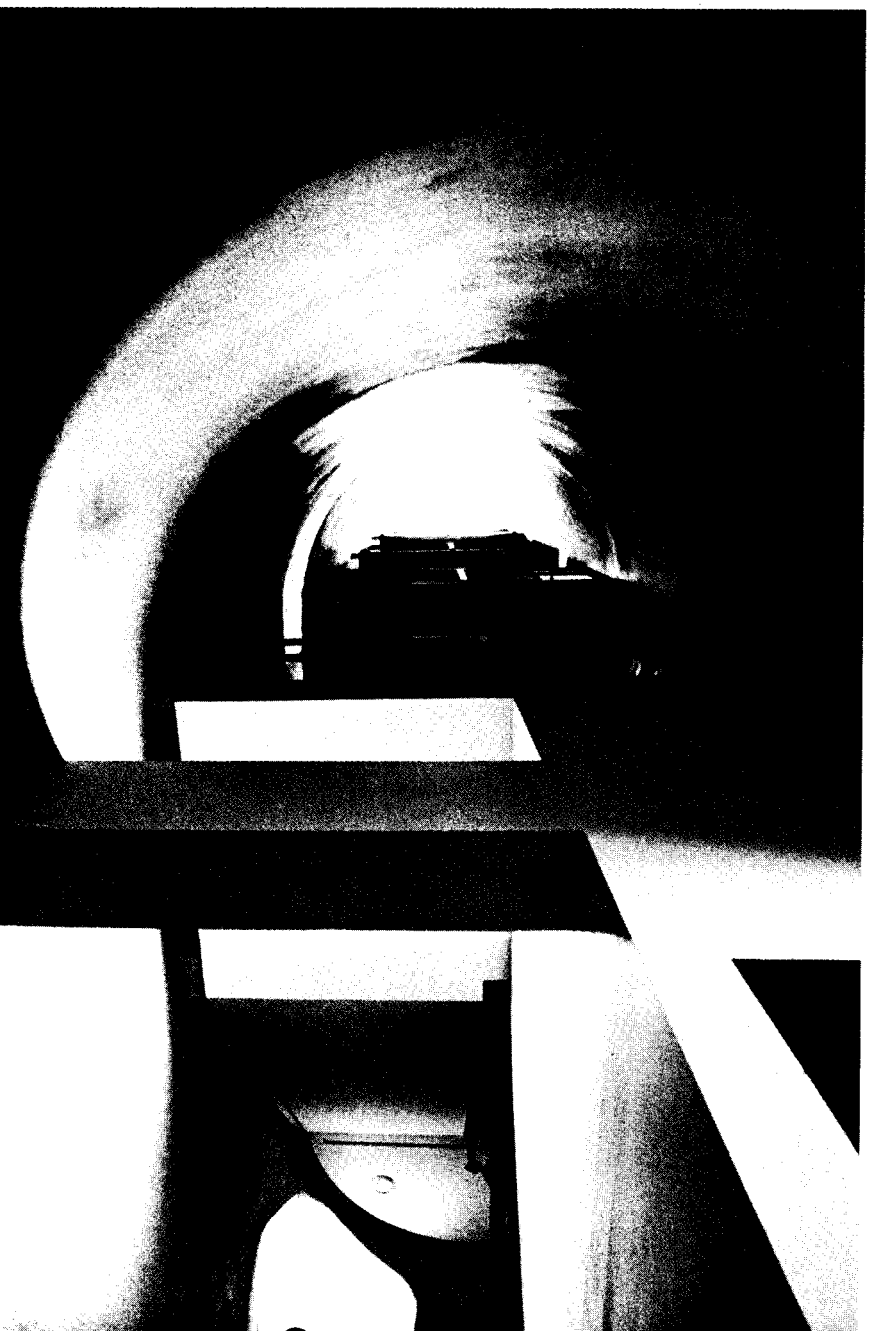
Color planned for doors to the stair and for audiovisual control boxes alongside—to offset the stairwell's stark white—was abandoned by the foundation. The only color remaining is the brilliant yellow of the tiny, first-of-its-kind fiberglass elevator cab, designed to fit a former maids' staircase. Fluorescent tubing here, too, makes the cab "float."

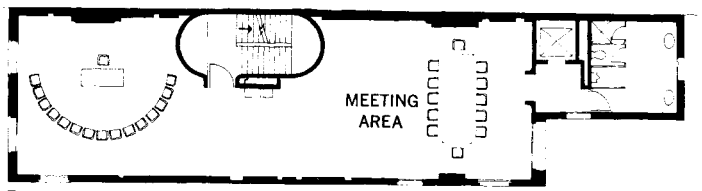
To allow for the equivalent of a city block of electrical power—for closed circuit and standard TV, for speakers, and for lighting—an aluminum ceiling grid was designed to carry both high and regular voltage wiring. All equipment can plug in and move on tracks on the grid. As yet the House's sound crew hasn't resolved the system completely, and some equipment dangles precariously from the openings.

Office space on the top two floors is divided by modular furniture units; the roof acts as an open-air meeting/reception area as there is no garden.

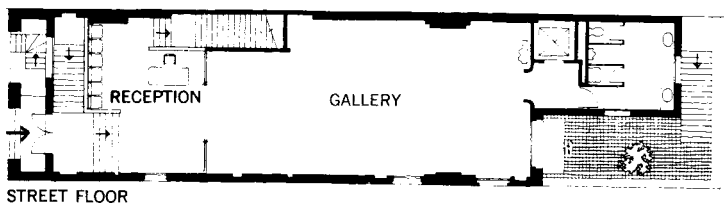




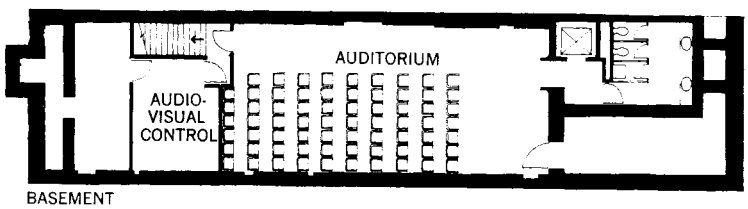




THIRD FLOOR



STREET FLOOR



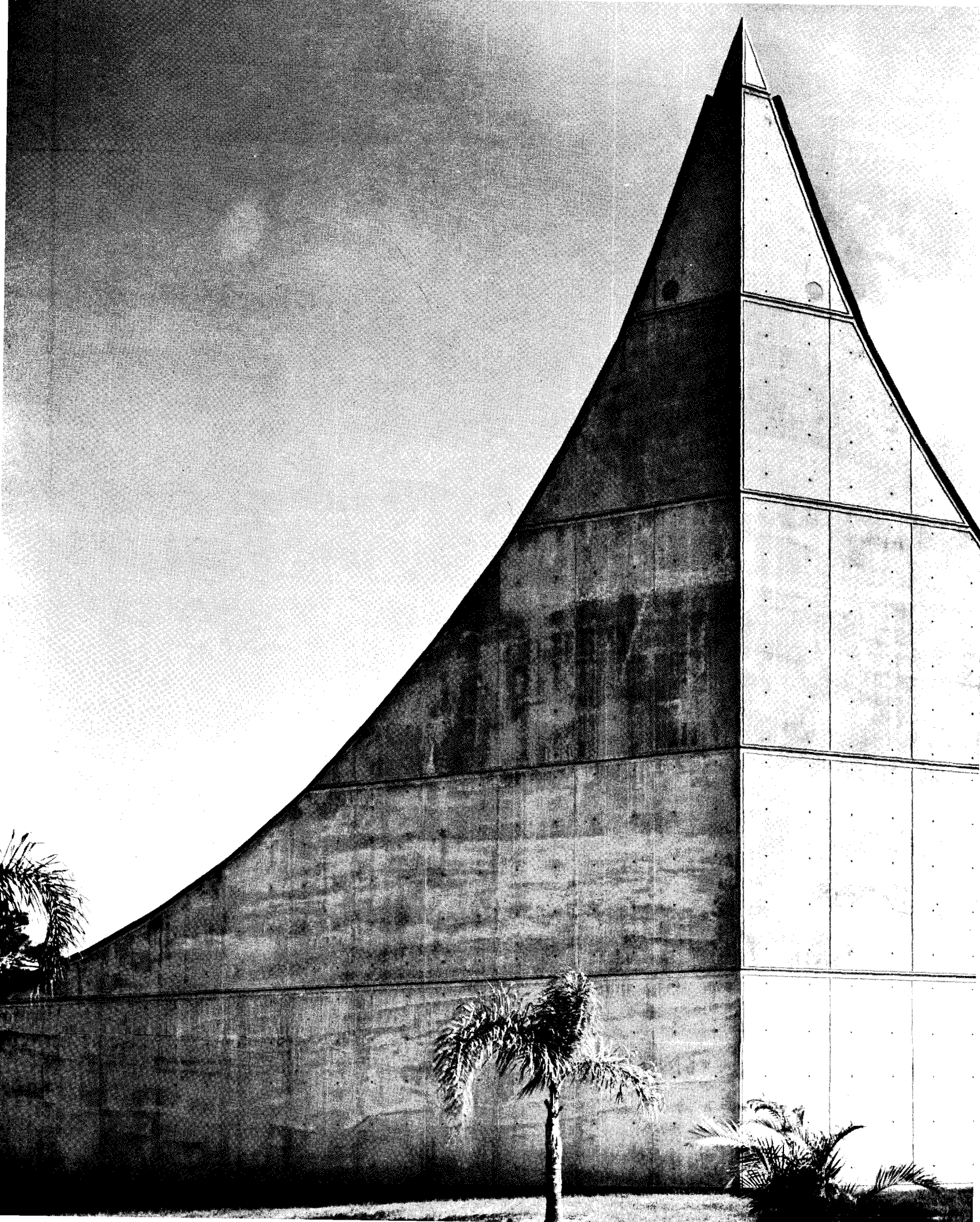
BASEMENT

All organizations share space provided by five levels (clockwise around stairwell): basement auditorium, reception area and gallery beyond, (second-floor gallery not shown), third-floor meeting area, and offices. Plans (bottom to top) show basement, ground and third floors. Stairwell defines open space (left above) and is a theater for slides as well (left).

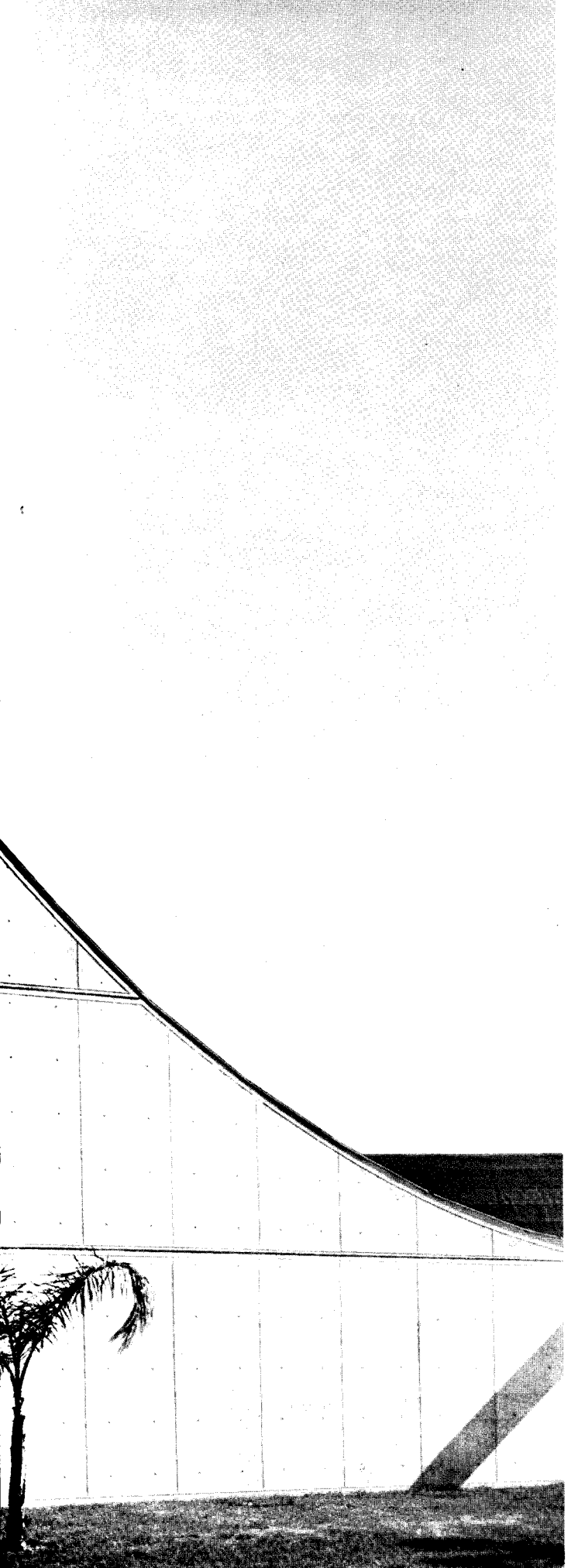
FACTS AND FIGURES

Automation House, 49 East 68 Street, New York City. Owner: The American Foundation on Automation and Employment Inc. (also: Institute of Collective Bargaining and Group Relations Inc., Center for Job Training Information, and Experiments in Art and Technology Inc.—E. A. T.). Architects: Lehrecke & Tonetti. Engineers: Paul Weidlinger (structural), E. A. Kahn (mechanical and electrical). General contractor: Tishman Realty & Construction Co. Inc. Area: 14,000 sq. ft. Cost: $500,000 (general construction), $100,000 (electrical).

PHOTOS: George Cserna, except stairwell and facade, by Whitehouse.



CHURCH UNDER A GREAT TENT

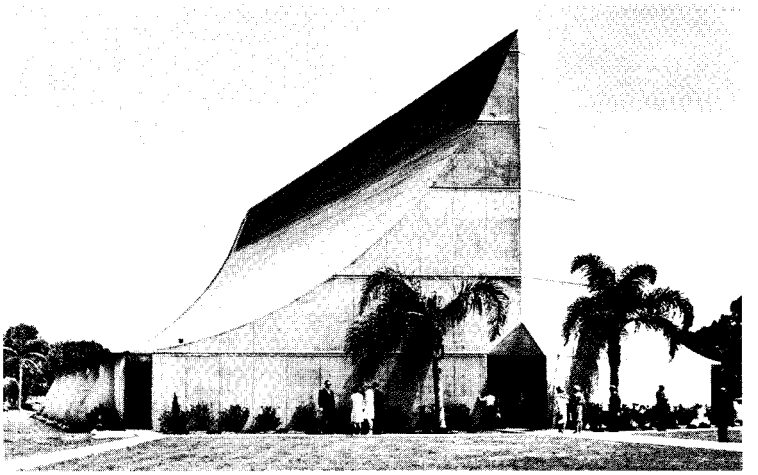


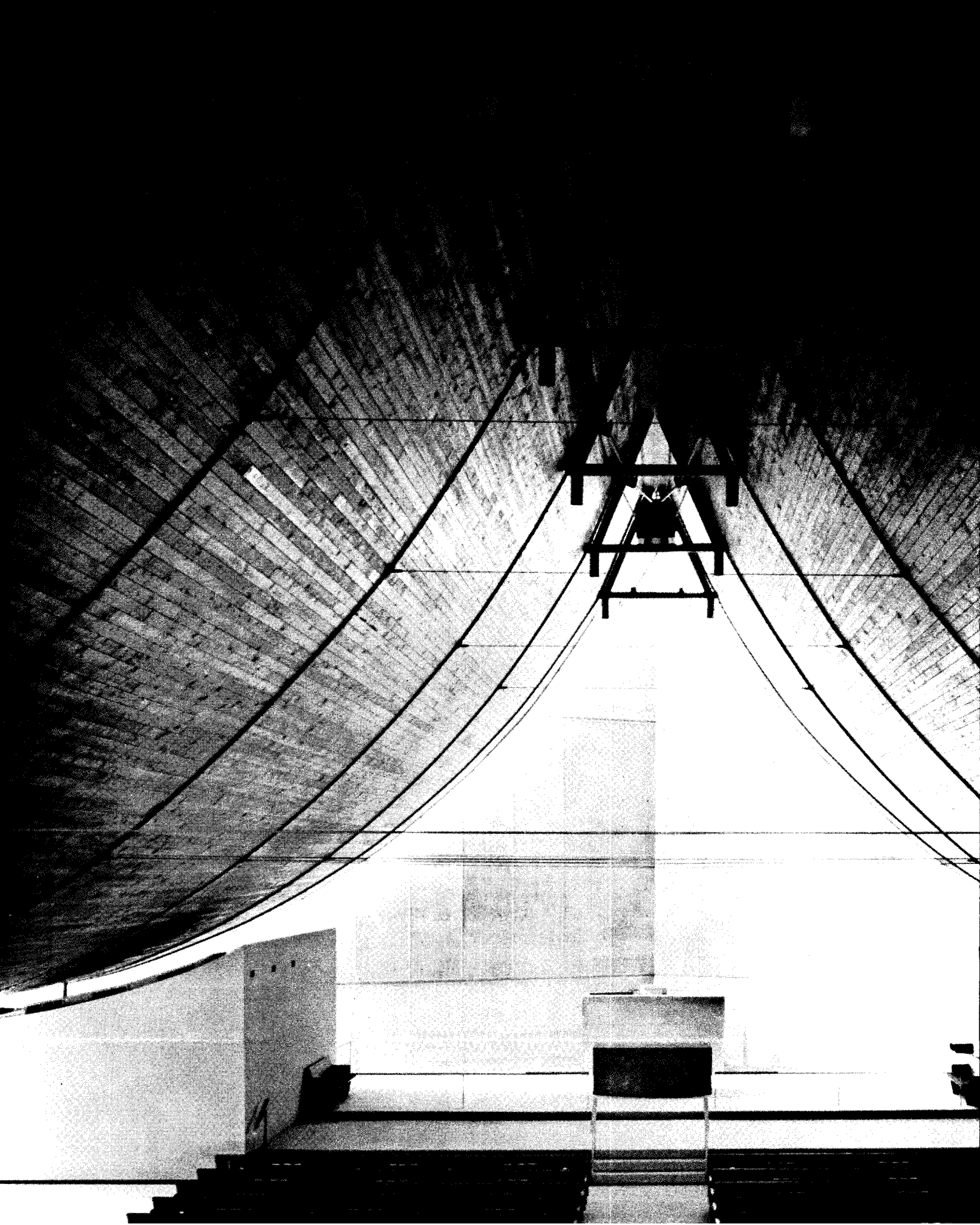
There is nothing obscure about Victor Lundy's design of St. Paul's Lutheran Church in Sarasota, Fla. Photographs show quite clearly just what is there. But we always want to know *why* things take the forms they do, and nobody can explain that better than Lundy himself. Below, some of his comments on the origin of the design, on the structure, and on some of the details:

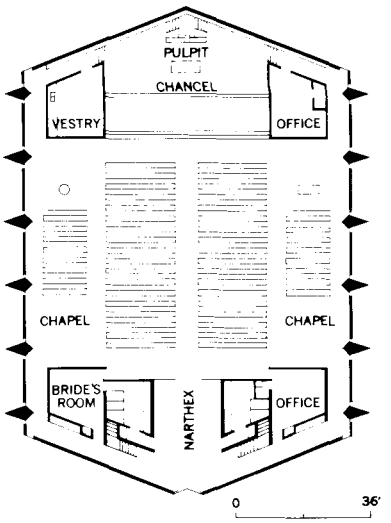
"At a time when so much building is either angry and chaotic or competent and sterile, I wanted to use the small budget available here—$309,000—to make a serene, perfectly simple space. I wanted a form that developed logically out of engineering, proportions, dimensions, and purpose. The result is a tent form, one of the most ancient of enclosures. And the promise of the form outside is fulfilled inside. The building is essentially one clear-spanned space, 90 ft. wide by 139 ft. long by 50 ft. high at the center.

"The walls and piers supporting the tentlike roof are entirely of monolithic cast-in-place concrete, exposed inside and out. The outlines of the 4-ft. by 12-ft. plastic-coated form panels are articulated with V joints. These joints and the pattern of tie holes on interior and exterior surfaces were carefully laid out so that one is made aware of the dimensional discipline with which everything was put together.

"I am very concerned these days with the control of light. In the St. Paul's sanctuary, I wanted to make a great, cool, dark space—a place of shade in contrast to the persistent brightness outside. There is a burst of light at the entry, a faceted indentation in the concrete wall which brightens the narthex. One walks through a passage under the choir loft and into the large open space. Here, light is kept out purposefully, except at the concrete end wall, which is washed with sunlight through a narrow band of skylight.



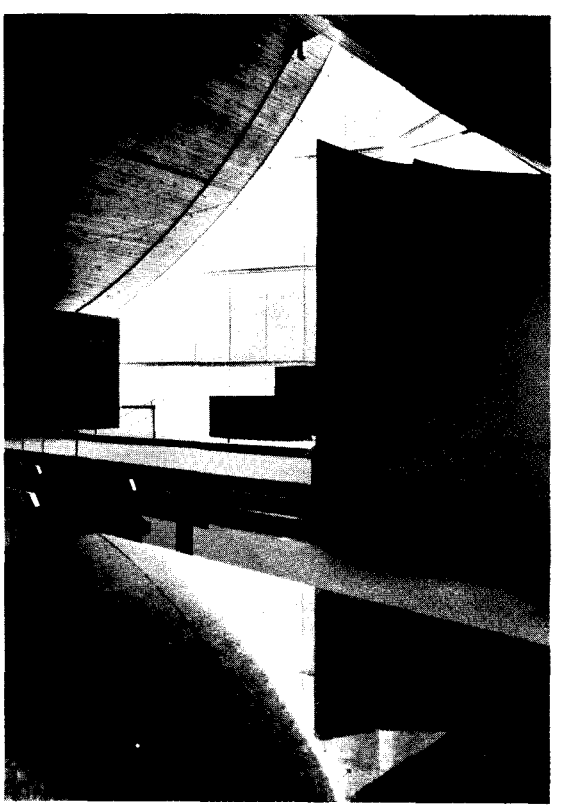


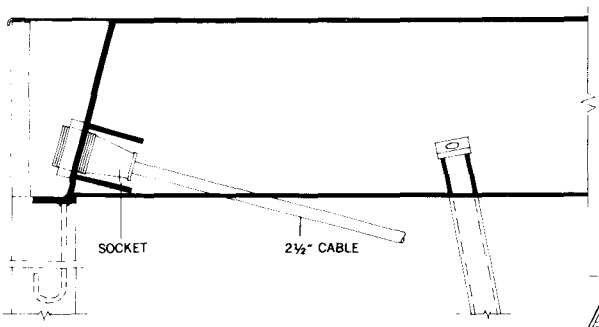


"So there is light at the beginning, where one enters, and light at the end of the sanctuary, where the word is spoken from the pulpit and where the monolithic granite altar, polished on top and flame treated at the sides, stands [below right]. At the sides of the sanctuary [below left], there are only narrow cracks of light between the concrete piers that receive the cable ends and the concrete walls between them. Letting so little light squeeze through, except at the end wall, gives direction and drama to the interior.

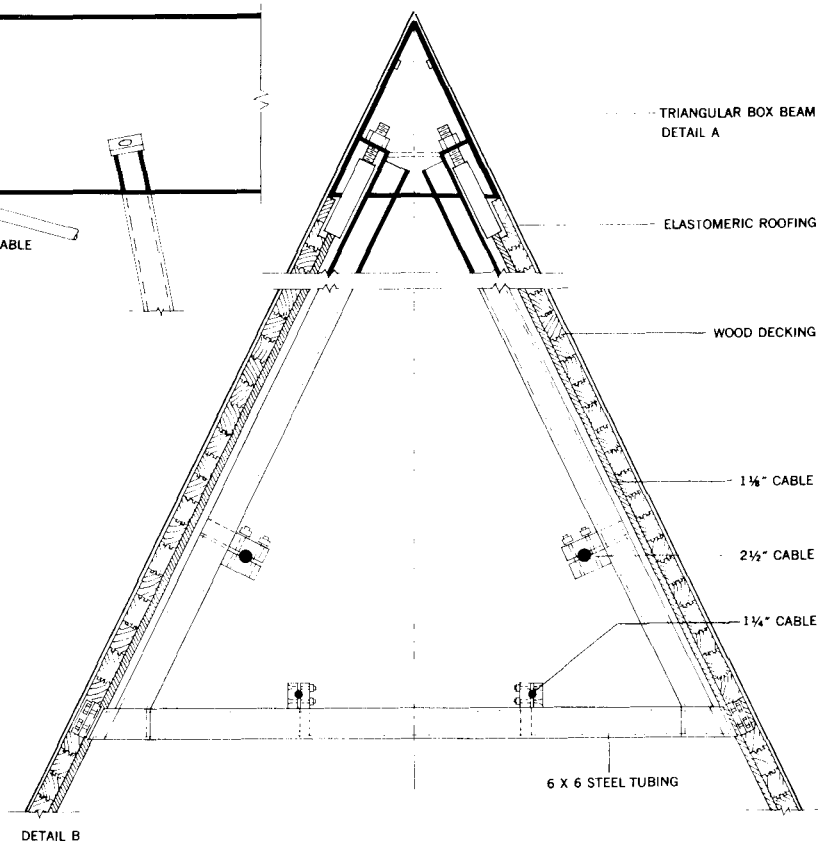
"I tried to make the space an uninterrupted volume sheltered by a great curtain of wood—without an insistent pattern of structural framing to break it up. The smaller spaces at the entry and the chancel end are housed in lower sculptured forms that are separated from the main structure overhead.

"The roof is supported by a system of steel cables, hanging in catenary curves from a ridge member made up of steel and cable which spans the long dimension of the space—139 ft. between the concrete end walls. The suspended cables are spaced 18 ft. apart, which is the natural span for the wood decking they carry. Wood is a live material and works well with the steel cables. The roof acts like a folded plate; the fold line is the ridge, and the sides of the fold are the downward-sweeping wood flanks. It spans between the end walls like a big beam, with compression at the top and tension at the lower edges. One is always aware of the three materials of the structure—concrete, supporting from below, wood and steel working together in the roof."

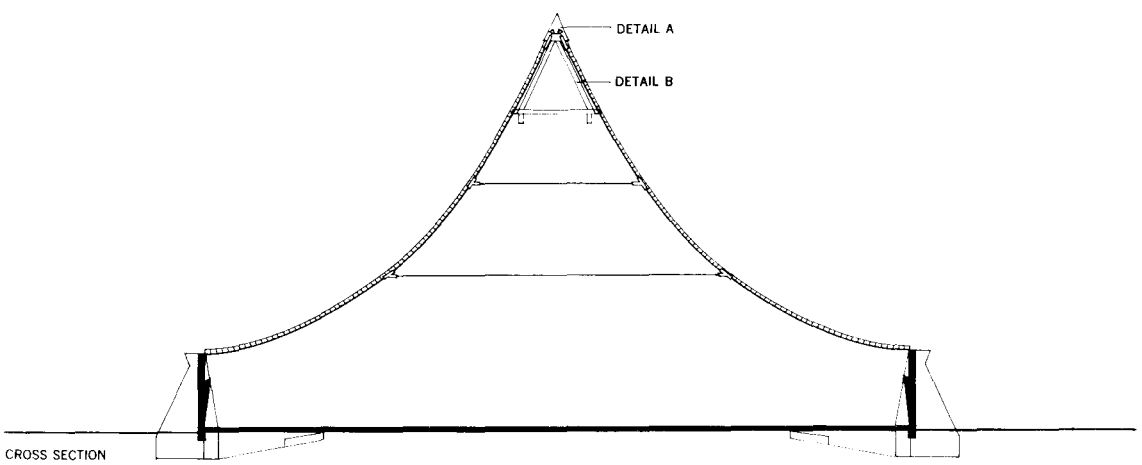




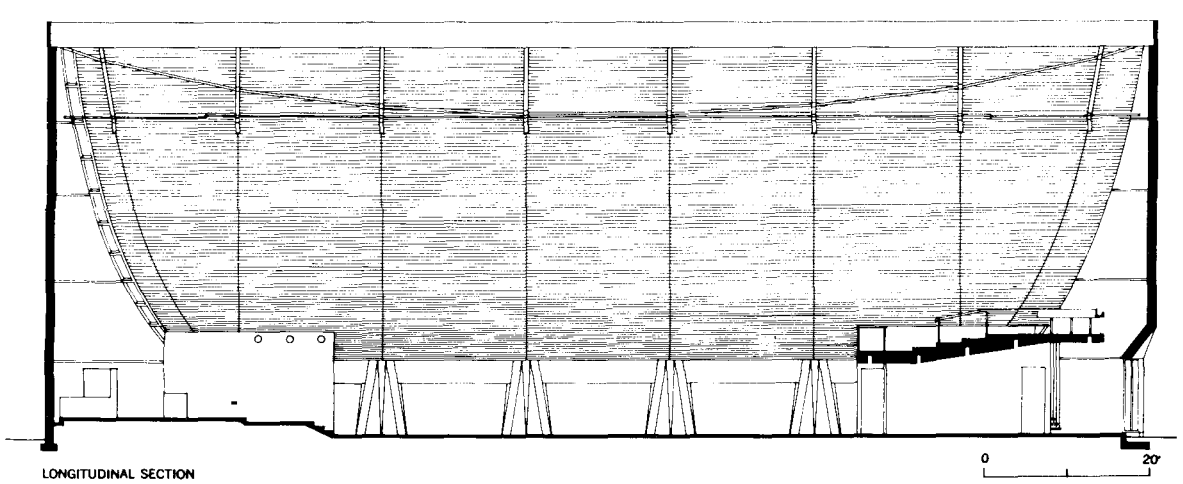
DETAIL A TRIANGULAR BOX BEAM



DETAIL B



CROSS SECTION



LONGITUDINAL SECTION

The entire roof is suspended from an unusual truss which spans 139 ft. between end walls (details above; photo right). The top member, which forms the ridge of the roof, is a 3-ft.-deep triangular box beam. Hanging from it at 18-ft. intervals are triangular frames of square steel tubing, to which two sets of cables are attached. A pair of 2½-in. cables, draped in a parabolic curve along the sides of the frame (longitudinal section, left), resists vertical stresses; a pair of 1¼-in. cables, running in opposing curves along the bottom members of the frames, absorbs horizontal wind loads. Cables suspended from the ridge beam to carry the roof decking are tied together by ⅜-in. cables at two levels (cross section, left). Further stability is provided by the weight and stiffness of the 4-in. decking, which is fastened together with spikes and adhesives.

FACTS AND FIGURES

Sanctuary for St. Paul's Lutheran Church, Sarasota, Florida. Architect Victor A. Lundy. Engineers: Severud-Perrone-Sturm-Conlin-Bandel (structural), Emil L. Tiona (mechanical). General contractor: E. E. Simmons. Supervising architect: Carl Abbott, Jr. Building area: 10,648 sq. ft. (main floor); 1,188 sq. ft. (choir loft). Cost: $309,000 (excluding furnishings).

PHOTOGRAPHS: George Cserna.

FORUM

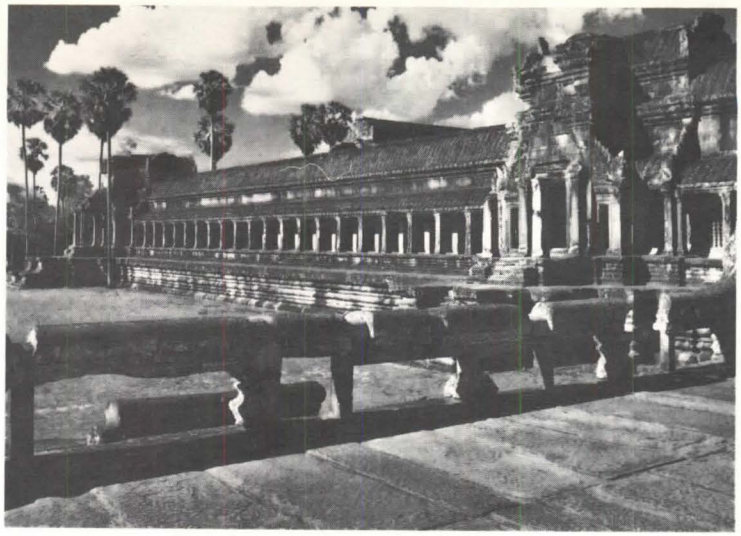
(*continued from page 35*)

having first deleted a provision for employing a fund raiser.

Discussion was most animated over whether or not to admit other building professionals to membership—no—and whether or not they should still honor their own as Fellows—yes.

Robert J. Nash, vice president, was the first black elected to AIA national office; and Max O. Urbahn, first vice president, will assume the presidency next year.

MONUMENTS



THE ENEMIES OF KHMER

A chill went down the spine of the so-called civilized world at the news in June that Communist forces in Cambodia had mined the entrances to Angkor Wat and set up an anti-aircraft gun emplacement on the high ground of the temple complex.

Speculation grew that deposed Prince Sihanouk's government in exile might attempt to regain the ancient seat of his royal ancestors as a propaganda ploy to "liberate" his people. Sihanouk and Hanoi both denied that the temples had been taken, and Cambodians were powerless to do anything except to declare the Angkor complex an "open city" for its protection, and appeal to world opinion.

In 1440, it was the Thais who sacked and plundered Angkor, then the capital of the Khmer Empire. Since then, it has had more to fear from nature than from man. The Thais retreated, the Khmers moved their capital to Pnompenh, and the jungles invaded the 20 major monuments covering some 10,000 acres. The temples were not liberated from the hostile vegetation until the end of the 19th century, following their rediscovery by Henri Mouhot, a French botanist.

In 1967 and 1968, UNESCO sent an expert mission in art restoration to Angkor Wat. They reported that reconstruction had proceeded at an impressive pace (above) but nature was a persistent enemy. The catalog of ills: bacteria which fed on the droppings of bats and which were eating into the bas reliefs; incrustations of manganese oxide that looked like the traces of a great fire in the Temple of Bataneye Srei; sandstone that looked healthy but came off in layers in the hand; and lichen attacking the magnificent heads of Buddha which adorn the capitals of the Bayon Temple towers. The experts would like to get back to their work.

Said British scholar Malcom McDonald: "[Angkor Wat's] glory should abide unspoilt as long as any scrap of evidence of human civilization lasts on the planet earth."

SACRED TO THE SIOUX

For nine months the Indians have defied the government on Alcatraz, but Sculptor Korczak Ziolkowski has been doing that for two decades while moving a mountain in the Black Hills of South Dakota to honor the Indians in his own way. He is blasting and carving *the mountain* into a monument of the great Sioux chief, Crazy Horse, mounted on horseback and pointing out across the long-lost lands of the Sioux nation (sculptor and model below).

For purposes of comprehending the project's scale, one turns to nearby Mount Rushmore where Ziolkowski apprenticed as a mountain carver under Gutzon Borglum. All four of the 60-ft.-high heads of the Presidents on Rushmore could be hidden behind the head of Crazy Horse.

Ziolkowski's experiences with the Feds began over 20 years ago when he traded the Interior Department a parcel of land he owned for the mountain. Then, while the few who knew he was there thought him mad, he opened shop, set his record-breaking project in motion, and began raising money from tourists and private donors. Then, $1.25 million, and 2½ million tons of rock later, "Lyndon Johnson's boys came out here to see me," he says.

"They tried to get title to the mountain in return for guaranteed financing. They said Uncle Sam also wanted to do something for the American Indian." Ziolkowski laughed in their faces.

"They weren't willing to sign a contract that would finance an Indian museum, college and hospital, which I hope visiting fees to Crazy Horse will do.

"The other reason I wouldn't sign was that another Johnson—Andrew—once signed a contract with the Sioux that said: 'as long as the rivers run, the grasses grow and the trees bear leaves, the Black Hills will forever and ever be the sacred land of the Indian.' "

DALLAS REMEMBERED

A memorial cenotaph in memory of President Kennedy was dedi-

cated in Dallas, Tex., June 24, some 200 yards from the site of his assassination Nov. 22, 1963.

The simple structure was designed by Architect Philip Johnson, who donated his services. Four walls, 32.5 ft. high, are set in a square and raised 2½ ft. from the plaza. Slots 5 ft. wide in the center of two facing walls give entry to the roofless interior.

Inside, a 4-ft.-sq. marker of unpolished granite 6 in. high bears nothing but the name John Fitzgerald Kennedy on two sides, inset with gold leaf.

In the photograph above, Johnson kneels beside a plaque which reads in part: "It is not a memorial to the pain and sorrow of death but stands as a permanent tribute to the joy and excitement of one man's life."

SQUABBLES

WHAT TO DO WITH THE MESS

London's Hyde Park, unlike New York's Central Park, has traditionally had trees for a skyline. The first highrise to mar the view was—not surprisingly—a Hilton Hotel. That was on the east end. Then came another hotel on the north. Now, on the south, is a 36-story tower (right) containing 112 apartments for members of Her Majesty's Household Guards, those elegant horsemen in silver and black, familiar to tourists around Buckingham Palace.

With attention seldom lavished on barracks as a building type, the government hired Sir Basil Spence to design the guards' quarters, then built them over the objections of the London County Council and the Royal Fine Arts Commission. Then Parliament got into it. "A monumental excrescence," said Baroness Stocks, labor party member of the House of Lords. "A monument of mediocrity," echoed two Conservatives from Commons. The average man in the park didn't like it either.

Sir Basil came briskly to his own defense: "The officers wanted their mess right at the top," he explained, "along with a lift strong enough to carry a horse up to it. Once a year, you see, a horse is ridden into the mess and given champagne—it's a special ceremony."

By putting the mess on the ground level, said Sir Basil, he was able to reduce the bulk of the tower. In other words, it isn't as big as it used to be, once, on his drawing board.

The Londoners are still mad.

UNIONS

HARD HATS FOR COUNTRY . . .

The violent melee pictured above between flag-waving hard hats and war dissenters took place, not in New York City (see June issue, page 21), but in St. Louis, in America's heartland.

The occasion was a parade on June 7 sponsored chiefly by the St. Louis Building and Construction Trades Council. The Council headed up the march with its executive secretary, Joseph Cousin, in a lead car, followed by members of Local 27 of the Boilermakers Union, who marched behind placards inscribed with the pledge of allegiance.

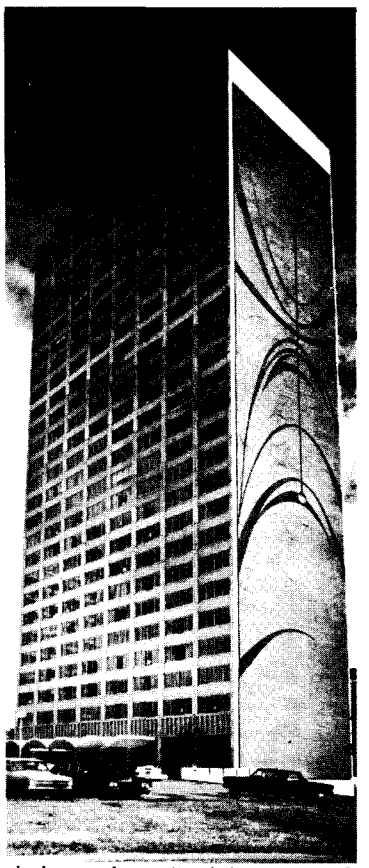
A group marching with Local 27 left the parade to attack seven people on the lawn of their home (above) when one of them (seen protecting his face from kicks) held up a sign which read, "Veteran for Peace." He had been discharged from the Army only two days before. All seven suffered cuts and bruises. At left, in the photo, a parader casts aside an American flag to charge another of the group. The photographer who took the picture was hospitalized after being struck with a bottle.

In all, about a dozen persons were injured at various points along the route. One suffered a bloodied nose and lacerations for calling out to the marchers, "Where are the black men?" (Elsewhere that day, Neil Onerheim, a student at Grinnel College, Iowa, sat in a tree counting black marchers in the construction workers parade for what he called "a summer research project." His total of blacks: 38. The police estimate of marchers: 45,000.)

. . . AND FOR GOD

Construction workers and free spirits had another confrontation in St. Louis over the past year. This one ended well. The meeting place was the entire end wall of a highrise building in a complex for the elderly, on which Artists Saunders Schultz and William Severson were commissioned—by the Teamsters Union—to produce a bas-relief.

Schultz and Severson, who call



their work a "striving towards God," (above) outlined the relief onto the 250-ft.-high concrete wall just one and one-half stories above a crew of brickmasons, tuckpointers and painters, who set some 100,000 bricks with the design, recessed and painted.

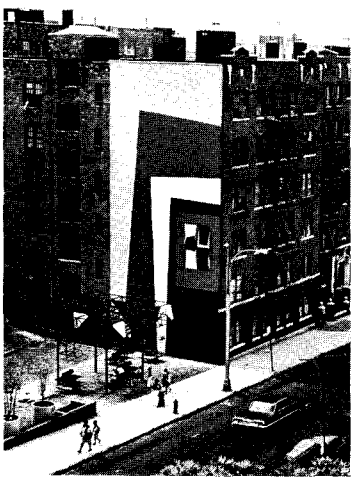
The relief, which some say looks like a thermometer, could perhaps be better termed an index of high blood pressure, for Schultz combatted intense vertigo and a couple of hair-raising incidents while on the job. A tiny sideless elevator started plummeting towards the ground while he hung on until the operator heard his cries; a cable slipped on the scaffolding leaving him and a tuckpointer suspended at a vertical.

But Schultz did not quit, and the fruit of his 15-month labor was a relief in both senses of the word. And the union men, who had given Schultz a lot of ribbing, acquired a respect for his guts if not, necessarily, for his bas-relief.

AWARDS

SPOTLIGHTING THE WALL

The New York City chapter of the AIA last month awarded City Walls Inc. a special citation for "the improvement of the physical environment of the community." City Walls, organized in 1969, is a nonprofit clearing house for artists and property



owners with a wall and a will to "improve" it (mural above by Tania). The FORUM discovered this trend back in 1967 (Sept. '67 issue, page 88) and we applaud the delayed reaction.

REYNOLDS WINNER

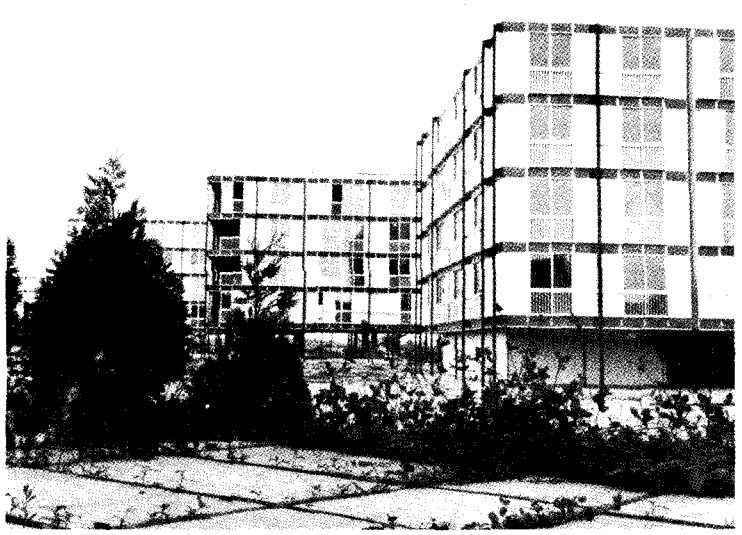
The *Projet Experimental de la Grand'Mare*, a low-cost housing development site-assembled in Rouen, France, from factory-produced components, has won the $25,000 R. S. Reynolds Memorial Award. Presented in Paris on July 1, the award went to the Parisian architectural firm of Lods, Depondt, Beauclair "for distinguished architecture in which significant use is made of aluminum."

Owned and operated by the city of Rouen, the project consists of 25 five-story buildings (below), with five walk-up apartments on each of the upper four floors and utility spaces on the ground floors. The structural frame is of weathering steel; the exterior is formed entirely of painted, natural anodized, or cast aluminum panels and glass, with sliding aluminum louvers to block the glass when desired. The roof is surfaced with high-ribbed aluminum sheets.

Construction costs averaged $10.50 per sq. ft., with 85 per cent of the cost represented by the factory-made components.

"The economy was entirely in the unskilled labor requirements," said Paul Depondt.

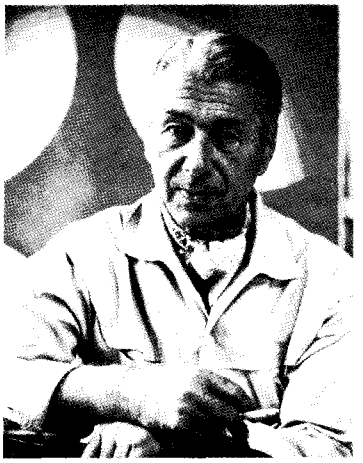
Depondt will represent the Paris firm in Chicago, where it has joined with The Engineers Collaborative and the W. E. O'Neil Construction Co. to build a 450-unit urban renewal housing project with methods evolved from the Rouen project.



PEOPLE

GRAPHICS MEDAL

Herbert Bayer has been an architect, a graphic designer, a photographer, a typographic designer, an industrial designer, an exhibition designer, a sculptor, a painter, and a teacher. He has been a pioneer in every one of these fields. In his spare time he also initiated the Container Corporation's remarkable "corporate identity" program, which has since been emulated by many



other businesses. In June, the American Institute of Graphic Arts presented Bayer (above) with its Gold Medal. It was a fine gesture, elegantly performed by AIGA President Allen Hurlburt; but in view of Bayer's extraordinary and innovative performance in all the fields in which he practiced ever since his early days at the Bauhaus, the Gold Medal came approximately 30 years too late.

APPOINTMENTS & AWARDS

Architect Marcel Breuer received two honorary degress this spring, one from Harvard and one from the Budapesti Mszaki Egyetem (Technical University).

The Hungarian Doctorate of Fine Arts came on the recommendation of Hungary's Order of Architects and was unanimously affirmed by the university council "for his internationally recognized achievements in the field of modern architecture and industrial art."

The Doctorate of Art, awarded at Harvard on June 11, described Breuer as "a talented teacher-architect whose incomparable designs affirm the spirit of our age."

- At the end of May, Historian Lewis Mumford was awarded the Gold Medal for Belles Lettres by the National Institute of Arts and Letters. At the same ceremonies, Architect Kevin Roche was named a new member of the institute.
- Architect Charles Luckman has been appointed by President Nixon to the Pennsylvania Avenue Commission, established in 1965 to develop an "orderly," phased program for the improvement of "The Avenue of Presidents." Luckman has served former Presidents as a special advisor to the U.S. delegation to UNESCO, and in other capacities.

PHOTOGRAPHS: Page 34, Wide World Photos (right). Page 35, The New York Times *(top). Page 82, © Ezra Stoller [ESTO] (top); courtesy, National Sculpture Society, Korczak Ziolkowski (bottom). Page 83, Lynn T. Spence for* St. Louis Post-Dispatch *(top); UPI (left); Pictorial Parade (bottom); Arteaga Photos (right). Page 84, Joel Peter Witkin (top left).*

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The building's "heat of light" system incorporates simultaneous control of air temperature, humidity, cleanliness, and distribution.

Under summertime conditions, the reflective *Solarban* Units assist this environmental control by turning back much of the solar radiant energy rather than permitting it to become a load on the cooling system.

Even on chilly winter days, enough heat is produced by the lighting alone to require some cooling of the room air (with outdoor temperatures down to 40 F) before reintroduction. The same low-emissivity reflective coating on the *Solarban Twindow* Units (normal insulating glass constructions with a ½" air space) enables them to perform like triple glazing in reducing conducted heat loss. No chilly downdrafts, no condensation. And no supplementary perimeter heating devices are required.

As John Borum, Consulting Mechanical Engineer, said: "The premium cost of this glass could be justified not on an air or tonnage savings necessarily . . . although there was that . . . but, more importantly, on the reduced sophistication of the mechanical system required. If you don't have a great swinging load, the system is more stabilized and can be designed more simply. With *Solarban Twindow* Units, we're dealing with a glass with a U-Factor that's actually the same as the wall."

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Architect: Curtis & Davis, New Orleans-New York
Associate Architect and Structural Engineer: Milton B. E. Hill, Gulfport
Mechanical Engineer: Lazenby & Borum, Atlanta

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Mississippi Power Company's seven-story concrete and glass general office building in Gulfport withstood Hurricane Camille's 200-mph winds and storm tides with only minor damage to the 24,000 square feet of glass.

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BOOKS

MEANING IN ARCHITECTURE. Edited by Charles Jencks & George Baird. Published by George Braziller, NYC. 8 in. by 10 in. Illustrated. $15.00.

REVIEWED BY PETER D. EISENMAN

BUILDING IN MEANING

As late as 1961 English architects preparing for a first trip to Yale, "Tchicago," or "Hooston," could be heard to say they were going "out to America." The single word "out" seems to summarize a very complex relationship between England and the U.S., the understanding of which is a necessary precondition to the appreciation of this book. If this relationship can be considered as an initial theme, there is a second theme growing out of it which is symptomatic of a deeper and more difficult problem concerning the state of architectural theory today.

The phrase "out to America" is at once colonial English, condescending and pejorative. At the same time it contains a kind of DeToquevillian esteem for the "noble savage" cousin. To an English architect in the late '50s and early '60s, American architecture was considered with polite embarrassment, and an irony about the financial resources Americans had available to implement their technology. On the other hand, to an American architect, England was a place of debate, of ideas—a kind of intellectual refuge of the Modern Movement.

It is against such a background that the arrival of two "Americans" in England circa 1964 must be understood. And furthermore, it is necessary to elaborate this context if their eventual coalition as co-editors of a book entitled *Meaning in Architecture* is to carry its proper significance. And while the invention of history is often necessary to the understanding of current phenomena (indeed it has been the polite occupation of several of the contributors to this anthology), it is not the intention here to suggest the use of history for any purpose other than to clarify a state of affairs which seems partially responsible for the particular structure and orientation of this anthology.

Charles Jencks, one of the two "Americans" co-editors, recently attempted to produce a similar scenario in his article *Pop and Non-Pop* which appeared in the *Architectural Association Quarterly*, to which this book can only be considered an epilogue. It is possible, however, to resurrect the same set, with a similar cast of characters, only this time through the use of a different plot, to see the book in another light–now as merely a prologue to a future history. Interpretations of this kind are perhaps best left to the private fantasies of their authors, encapsulated history being difficult to sustain intellectually. However, in this particular case, in order to clarify what might be called a crisis in theory presented by this book, such a journalistic analysis might be considered appropriate.

Ten years ago, the Architectural Association and Cambridge were two centers of intellectual debate in England. Characteristic of these two places was a phenomenon peculiar to England—the polemical group. In a general perspective, these groups must be seen as exiles both in time and space from continental Europe of the 1930s. They were often misunderstood and held in contempt by their mainland counterparts. Small group division and their particular polemic can be considered a primary characteristic of such an exile body. While these various enclaves were tiny and even marginal when compared to the number of architects in England, they were somehow effective in a way in which similar groups have not been in the U.S.

Within the space of three years, by 1963, the theoretical directions which were developing in these centers seemed to have been lost, and the various groups in disarray. In London, the Smithsons had given up teaching at the AA, and withdrawn to the confines of their own practice; Stirling and Gowan were on the verge of breaking up; Bob Maxwell was about to jump from the AA to the Bartlett (the import of which being the subject for an article in itself); and Ken Frampton was shortly to leave *Architectural Design*. Even Reyner Banham, who had produced a commendable series of articles in the *Architectural Review* in the late 1950s, and who acted as the self-appointed piper of post-1950 history, namely Brutalists, was reversing directions, attempting to create another aspect of English revisionism.

In Cambridge, Colin Rowe had once again removed to the United States, leaving behind a trail of adherents who would be successively scattered from the university context to various parts of London. In this group were such people as Alan Colquhoun, John Miller, Patrick Hodgkinson, in addition to younger students such as James Madge and others. These people along with Sam Stevens and Joseph Rykwert, at that time both somewhat isolated, seemed to provide a nucleus capable of a clarification, if not a possible revision of modern architecture, on a stronger theoretical basis than ultimately produced by Team 10. With Rowe's departure much of the unity provided by his presence was dissipated.

Jencks' history, while aspiring to a tradition of English wit, misses what seems to be the underlying philosophic conflict, which not only defined these groups, but also was to be the cause of their eventual fragmentation. The central issue with which these factions never quite came to terms, and which persists as an unstated theme in this book, is not "Palladianism or Pop," nor that architecture with a capital "A" was merely out-of-date, but rather that architecture, in any sense, was considered by certain of these factions to be ultimately elitist.

If you take this position, which traditionally was considered particularly English, emanating from some revised form of Fabian socialism, and since World War II, mixed with a latent neo-Marxism; then fuse this with a hard headed scientistic attitude, recently acquired from America, favoring the social and behavioral sciences; add a bit of Pop in the form of the new technocracy predicted by the tubes of Archigram to be somehow a space age replica of the lost new world—then you have an attack so devastating in its intensity, so bewildering in its many directions, and so corrupting in its quasi-American anti-intellectualism, that it is small wonder Baird and Jencks

(continued on page 90)

Mr. Eisenman is director of the Institute for Architecture and Urban Studies in New York City.

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(Continued from page 88)

might seek refuge in the thought-to-be academic neutrality of semiology.

It was from quite opposite perspectives that they reached this position; Jencks under the not-so-neutral tutelage, in respect of semiology, with Banham; and Baird from his eventual association with Rykwert. In this context it is Joseph Rykwert's article "Meaning and Building" *(Zodiac 6)* which must be considered the most influential thesis on Baird's movement to semiology—and parenthetically on the title of the book—a course which produced the special issue of *Arena,* from which this book is an elaboration. Rykwert's article which brings the linguistic idea of "semantic" into an architectural context, was written partly in reaction to his experience at Ulm (probably the subject of another article) and partly as a statement of a slightly variant "formalist" position.

One is not prepared to speculate on the particular infighting which may or may not have been the reason for elaborating the original *Arena* issue; (there was supposed to have been a second issue of the magazine devoted to the same subject which never appeared). For example, part of Banham's contribution to the book was originally an attack on Baird's *Arena* article, which, now substantially rewritten, has lost some of its initial vitality.

This somewhat gothic introduction, with its esoteric cast, is necessary to substantiate the more important issue which, again, remains unarticulated in the book. What one is arguing, is first, that there was an inevitable cross-fertilization which occurred, especially in England, when the first English architects returned home with their particular version of the American experience; and second, while the ideas were thought to have changed, the same basic argument was being debated.

It is thus understandable that this book, far from developing the semiological theme of the original *Arena* issue, becomes a battleground for a new, emerging alignment of ideas, on the surface seemingly engaged on different grounds than before, but in reality only reiterating the uncertain ambivalence between what Colin Rowe has called "social guilt," and the desire to alleviate this condition through the projection of a populist image of the physical environment. The focus of this new attack on "architecture" appeared in the guise of a new "non-style," content-free functionalism, which was argued by Banham and Cedric Price. Thus the introduction of semiology, while again not acknowledging the underlying elitist-populist debate was at least an attempt to refute the "new-functionalist" position.

However, there is a two-fold problem with the Baird argument. First, his thesis is unstructured by a general theoretical framework, and second, his use of such a tentative hypothesis as a polemical stick is characteristic of the empirical attitude concerning semiology present here.

For example, both Baird's and Jencks' reliance on the Sausurrian concept of *langue* and *parole* seems to present a fundamental difficulty. Sausurre's use of *parole,* according to Noam Chomsky, is unconstrained by a concern for linguistic rules except as they concern the forms of words and the patterns of sounds; *langue* becomes merely a systematic inventory of observable items. This in itself leaves unexpressed the problem of basic regularities which pertain to particular languages as well as to language in general. Syntax in this view of language becomes a rather trivial matter, and as can be seen from Jencks' diagrammatic formulation, it is not even considered.

In brief, to talk about meaning in architecture is one thing; to then shift the ground to semiology is quite another issue. To further equate semiology with semantics, hence to return to the problem of meaning, seems an elision at least worthy of some mention. But then further to almost totally deny the existence of pragmatics and syntactics in a semiological framework must be considered more than an accidental oversight.

A discussion of semiology in architecture confined specifically to semantics is one possible structure for such a book; then presumably people like Umberto Eco, Roland Barthes, Abraham Moles, Vittorio Gregotti, Nelson Goodman, and Paul Ziff would have provided a more definitive text. On the other hand, if a discussion of meaning is the central issue, then questions of metaphor, rhetoric, and image certainly should have been presented. The question of meaning is after all a problem of value, and in a climate of opinion so eroded by facts, the reintroduction of a discussion of values would have been welcome.

It is the conflation of these two themes, semiology and meaning, plus the addition of peripheral issues to this discussion, which seem to cut across and blur the intention of the argument. In addition, the side note comments become particularly annoying because of their brevity and lack of context; they simply appear as another form of vintage English sniping, usually reserved for votes of thanks. In this case they become symptomatic of not only an *ad hoc,* empirical and unfortunately English approach to theory, but also their general tone reveals the more pervading problem of the manner in which theory is regarded today. As an issue of *Arena,* the contributions of Colquhoun, Rykwert, Baird, and the Sam Stevens translation of the Luigi Moretti piece, were both polemical and, in the context of a magazine, commendable. In its expanded state, even though one values the addition of Frampton, Norberg-Schulz, and Choay, the book becomes diffuse. It is neither polemical nor academic; neither definitive nor directional.

To see this book as merely poor semiotics would be to miss a quite interesting *coup d'oeil* of recent architectural history. To consider each article in its individual context would be to miss the point of their juxtaposition. This collection remains provocative partially because of these flaws, which serve as an initial indication of a larger debate: the still undrawn lines between architecture as an elitist phenomenon, and architecture as a popular social remedy.

Certainly the publisher George Braziller should be commended for giving us in America a book, which for many might be considered as having little chance on the commercial market. However, even if this book did not signal a deeper problem, for the *contributions* mentioned above it would be more than adequate. In the end it is probably too much to ask of an anthology that it be consistent in both orientation and quality of presentation. It may be that one is asking for an elegant soufflé in an era when architectural theory and criticism can hardly provide us with enough bread.

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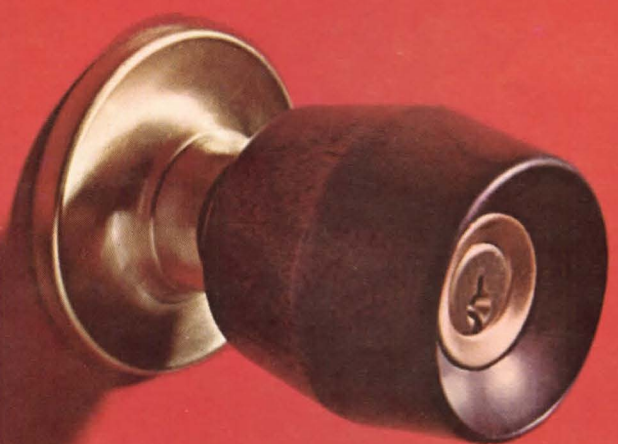

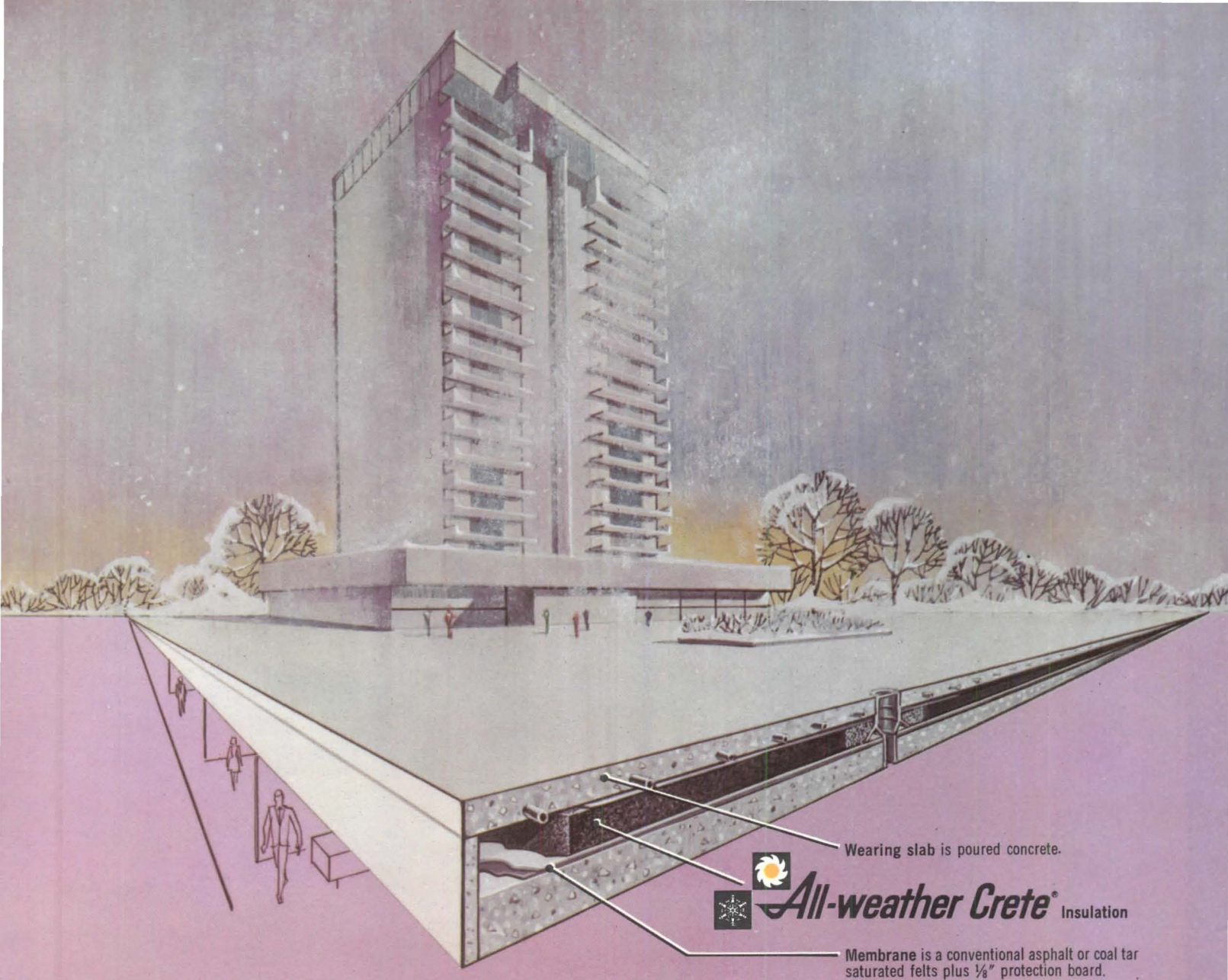

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SILBRICO

Selection of Electric Heat-Recovery System for Dallas Office Building Based on Versatility and Economy

The new headquarters building for the Gifford-Hill Company in Dallas, Texas.

PROJECT: The Gifford-Hill Building, Dallas, Texas. ARCHITECTS: Harwood K. Smith & Partners, Dallas, Texas. CONSULTING ENGINEERS: Zumwalt & Vinther, Dallas, Texas.

DESIGN CHARGE: To design a headquarters building containing executive and engineering offices for a large manufacturing corporation that would express architecturally the nature of the company's business—the manufacture of concrete and cement products.

DESIGN RESPONSE: The Gifford-Hill Building is a 6-story structure constructed of reinforced, sandblasted, natural colored concrete with textured precast concrete panels on two sides and reinforced concrete and solar bronze glass on the other two sides. All six floors of the building are given over to executive, general, and engineering offices. A partial basement contains a mechanical room for the structure's electric space conditioning equipment. At the outset of the design, it was apparent that the building would have an excess of internal heat the year around, a fact that led to the selection of an electric heat-recovery system because it would make it possible to economically acquire heat where it was in excess, deliver it to spaces needing it, and reject the overage out-of-doors. Consulting Engineer Clarence Gilmore's design is a hybrid medium-pressure, constant-volume, ducted heat recovery system incorporating a single-duct network for the interior spaces and a double-duct network for the peripheral areas. (Described in detail in Item 6, Page 2.)

The system has proved to be very satisfactory, Mr. Gilmore reports, and adds that it offers the desired balance of compactness, modernity, reduced maintenance, and economy of operation. A major advantage of the system is its ability to handle the steady-state heating requirements of the peripheral zones during even the coldest weather without supplementary heat. Spaces near the two masonry walls, however, are affected by the thermal inertia of the masonry which tends to slow the return to normal temperature after a period of setback. At such times, duct heaters installed in these spaces are energized to aid in bringing them up to design temperature.

1 CATEGORY OF STRUCTURE:
Commercial—Office Building

2 GENERAL DESCRIPTION:
Area: 102,498 sq ft
Volume: 1,230,500 cu ft
Number of floors: six and a basement
Number of occupants: 475
Number of rooms: 100
Types of rooms: executive and engineering offices, meeting rooms, kitchen, cafeteria

3 CONSTRUCTION DETAILS:
Glass: single
Exterior walls: glass and insulated metal-panel curtain walls on two sides; 8" precast lightweight textured concrete sections (R=8) on other two sides; U-factor: 0.13 avg.
Roof and ceilings: built-up tar and gravel on 1" rigid insul. (R=4) over concrete deck, steel deck and joists; U-factor: 0.18
Floors: concrete
Gross exposed wall area: 38,600 sq ft
Glass: area: 13,700 sq ft

4 ENVIRONMENTAL DESIGN CONDITIONS:
Heating:
Heat loss Btuh: 1,240,000
Normal degree days: 2363
Ventilation requirements: 20,000 cfm
Design conditions: 10F outdoors; 75F indoors
Cooling:
Heat gain Btuh: 1,930,000
Ventilation requirements: 20,000 cfm
Design conditions: 100F dbt, 78F wbt outdoors, 75F, 60% rh indoors

5 LIGHTING:
Levels in footcandles: 80-200
Levels in watts/sq. ft: 2-8
Type: fluorescent and incandescent

6 HEATING AND COOLING SYSTEM:
Two centrifugal chillers, one rated at 167 tons and the other at 133 tons, with double-bundle condensers supply warm and cool water to two air-handling units, one for the three higher floors, the other for the lower floors. The air handlers deliver cool air year around to induction boxes in the interior areas through a single-duct network. Pneumatic controls and dampers regulate the mix of cool primary air and warm air induced from the return plenum above the ventilating tile ceiling in response to zone temperature. Heat recovered from interior zones is transferred by the chillers to the warm water loop for the peripheral areas or to a roof-mounted water tower for dissipation outside. In the heating season both warm and cool air are delivered by the air handlers to mixing boxes in the peripheral areas through a double-duct system.

7 ELECTRICAL SERVICE:
Type: underground
Voltage: 265/460v, 3-phase, 4-wire, wye
Metering: secondary

8 CONNECTED LOADS:

Heating & Cooling (300 tons)	562 kw
Ventilation	127 kw
Lighting*	400 kw
Water Heating	42 kw
Cooking	108 kw
Other	138 kw
TOTAL	1377 kw

*Including outdoor lighting

9 INSTALLED COST:*

General Work	$ 954,207	$ 9.31/sq ft
Elec., Mech., Etc.	509,500	4.97/sq ft
TOTALS	$1,463,707	$14.28/sq ft

*Building was completed 1/66

10 HOURS AND METHODS OF OPERATION:
Building is occupied 57 hours a week; computer room operates 24 hours a day.

11 OPERATING COST:
Period: 7/12/67 to 7/11/68
Actual degree days: 2450
Actual kwh: 4,674,960*
Actual cost: $39,332.74*
Avg. cost per kwh: 0.84 cents*
*For total electrical usage

Billing Date	Degree Days	Demand	kwh	Amount
8/10/67		686	331,920	$ 3,059.10
9/11/67		673	357,840	3,167.44
10/10/67	13	686	314,640	2,974.49
11/ 8/67	178	764	328,320	2,724.46
12/ 8/67	239	777	356,400	2,880.50
1/11/68	792	920	480,240	3.691.02
2/ 9/68	404	855	432,000	3,362.02
3/12/68	608	894	524,160	3,868.93
4/11/68	191	816	464,400	3,464.96
5/10/68	23	803	352,800	3,361.03
6/11/68	2	777	369,360	3,405.42
7/11/68		777	362,880	3,373.37
TOTALS	2450		4,674,960	$39,332.74

12 FEATURES:
The double-duct system is capable of handling the steady-state heating requirements of the peripheral zones during even the coldest weather without supplementary heat. Spaces near the two masonry walls, however, are affected by the thermal inertia of the masonry which tends to slow the return to normal temperature after a period of setback. At such times, duct heaters installed only in these spaces are energized to aid in bringing them up to design temperature.

13 REASONS FOR INSTALLING ELECTRIC HEAT:
At the outset of the design, the physical characteristics outlined for the building indicated that it would have an excess of internal heat year around. The electric heat-recovery system was specified because it would make it possible to economically acquire heat where it was in excess, deliver such heat to spaces needing it, and reject the overage out-of-doors.

14 PERSONNEL:
Owner: Gifford-Hill Companies Retirement Trust
Architects: Harwood K. Smith & Partners
Consulting Engineers: Zumwalt & Vinther, Inc.
General Contractor: Gotham Electric Co.
Electrical Contractor: Bock Const. Co.
Mechanical Contractor: Geo. Linskie Co.
Utility: Dallas Power & Light Company

15 PREPARED BY:
C. B Mallet, Jr., Supervisor, Commercial Sales, Dallas Power & Light Company.

16 VERIFIED BY:
R. R. San Miguel, Architect

Clarence F. Gilmore, P.E.

TOP: GLYPHIC CAMEO GOLD
BOTTOM: GLYPHIC TERRATONE

TOP: AZTEC TERRATONE
BOTTOM: AZTEC CAMEO BLACK

TOP: TAPESTRY TERRATONE
BOTTOM: TAPESTRY CAMEO BROWN

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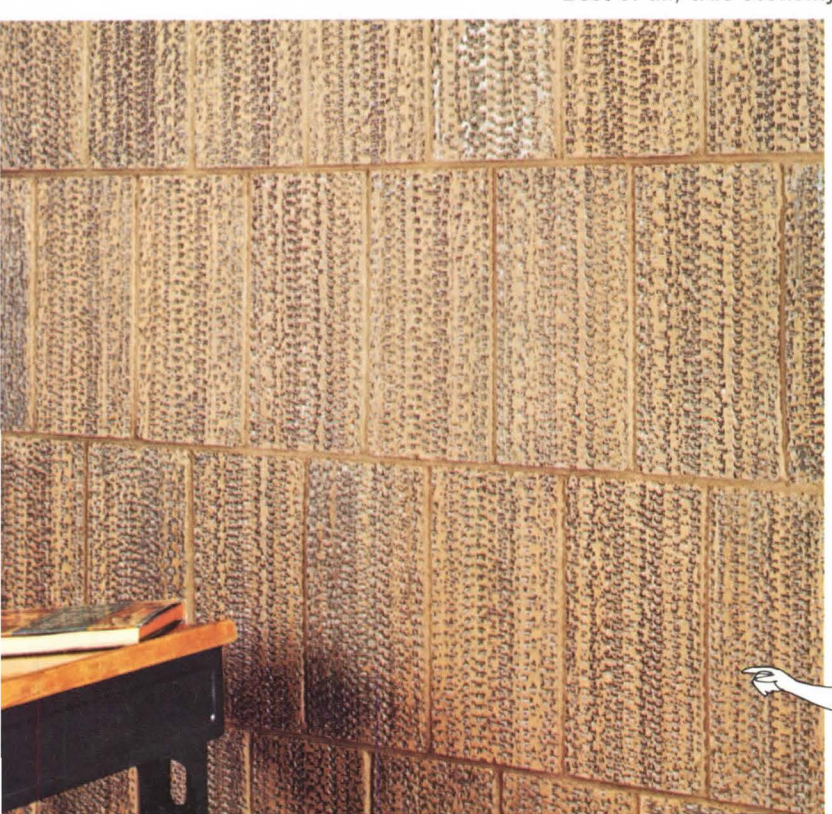
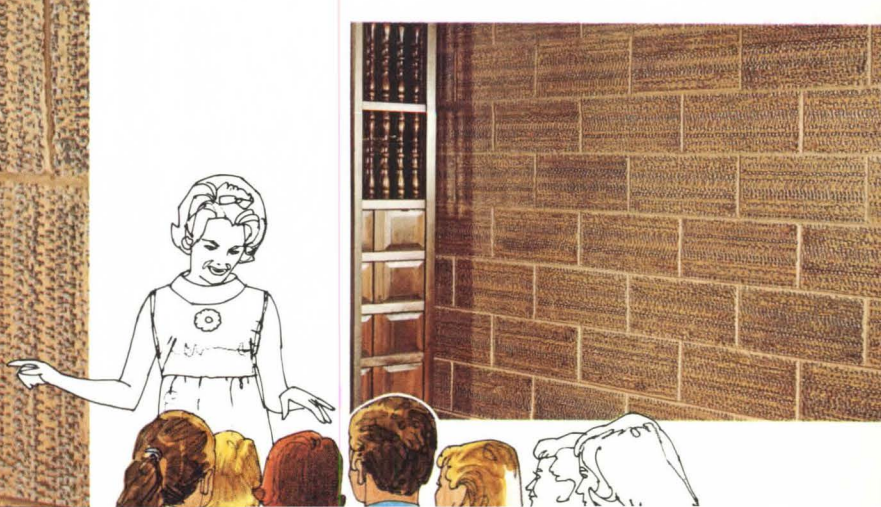
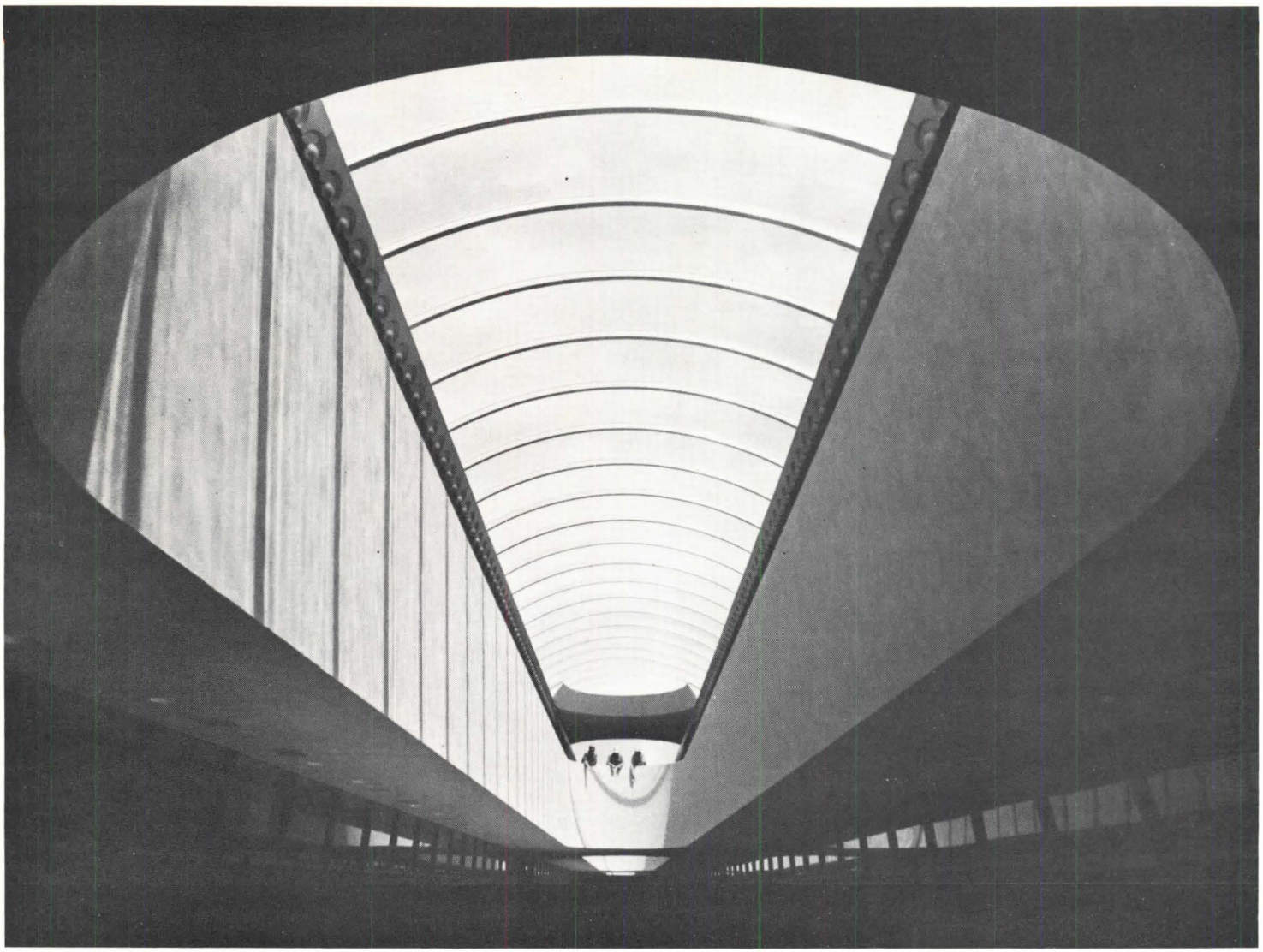




The right acrylic for the Wright building.



As usual, when Frank Lloyd Wright designed the Marin County, California government building, he designed a building that was years ahead of its time.

In some ways it was even ahead of the products available with which to build it.

Frank Lloyd Wright designed this building with vaulted skylights made from acrylic sheet. The only problem was that the acrylic sheet available when the building was constructed wasn't up to the demands of the design.

In the few short years since it was built, the skylights in the original wing of the building have deteriorated from exposure to ultraviolet rays to the point of opacity. And the welded seams have collected dirt particles in such quantity that they're unsightly.

In the meantime, a new wing was built. This time, Swedcast—the only continuous cast acrylic on the market—was used for the vaulted skylights.

Because it's continuous cast, Swedcast is available in practically unlimited lengths. So you seldom have to worry about welded seams leaking or collecting dirt.

Swedcast's unique formula and the continuous casting process give it higher resistance to ultraviolet degradation. So, in the period of time it took the original acrylic to deteriorate, the Swedcast skylights still look like new.

So now you can follow Frank Lloyd Wright's lead. Feel free to make architectural use of acrylic sheet. Because now there's an acrylic sheet that's up to your designs.

Swedcast, the continuous cast acrylic sheet. Just think what you could do with it.

New dimensions in acrylic technology

SWEDLOW SWEDCAST

Swedlow, Inc., 7350 Empire Drive, Florence, Kentucky. 41042

On Readers' Service Card, Circle 224

On Readers' Service Card, Circle 228

A chair that works, for people who work

If you're like most of us, you and your clients spend about a third of your lives sitting behind desks, working.

So, each of you needs a chair that is comfortable, good looking and well priced, yet is built to help get your job done.

Our new Double-Shell chair is that kind of chair.

It helps you work better.

It's good looking, very comfortable, well priced, and has some terrific engineering features that no other chair has.

For example, the Double-Shell construction lets us fasten cushions and covers so they can't come loose or bunch up. This helps you work better.

The Double-Shell idea also gives an incredibly strong and stable fastening point for the chair base. It won't wobble.

This also helps you work better.

And, a unique trim channel on the outer shell protects both chair and desk from getting all nicked up, and saves you from aggravation.

This has to help you work better.

It has many other good ideas, all built into eight models that swivel, tilt, roll or telescope according to your particular needs.

See them now at your Steelcase showrooms. Steelcase Double-Shell chairs, the general office chairs of the 70's.

Showrooms and Offices:
New York - Chicago - Grand Rapids
San Francisco - Philadelphia
Boston - Cleveland - Dallas
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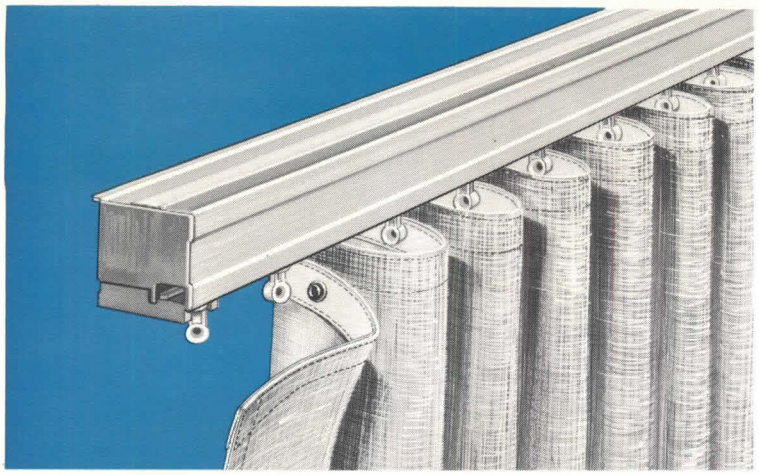
Steelcase

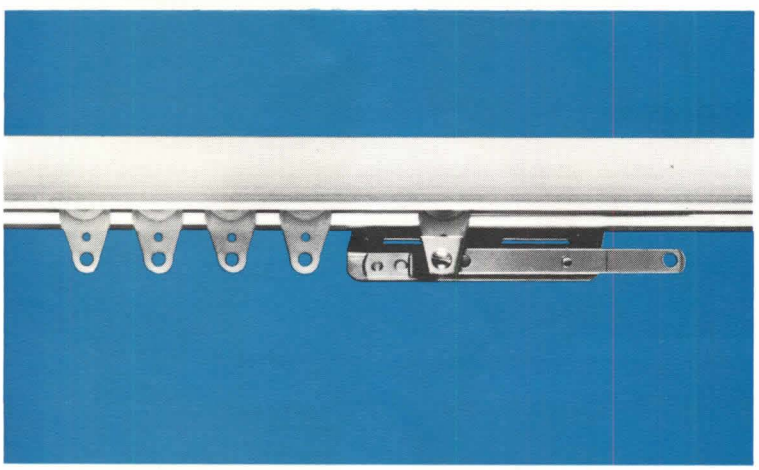
Furniture That Works
For People Who Work.



Ripplefold® Drapery Heading System

Only Kirsch offers this unique draw drapery system that eliminates pleats and pins, reduces both original "tailoring" and future maintenance costs.

Ripplefold is contemporary styling at its best. Flat panels of light or heavy, thickly or loosely woven fabric, fall into graceful, undulating folds. And drapery hanging is quick and easy. Draperies simply "snap" on and off.



Architrac® Traverse Systems

Versatile is the word for these systems. Four dual track and five single track styles provide choices for wall, ceiling or overhead mounting; recessed, corner or perimeter treatments; and cord or hand operation.

Anodized aluminum tracks complement contemporary casings for windows or sliding glass doors. Dual-channel styles permit one- and two-way draw to 40', multiple-draw to 80'. Draws for single-channels are 24' and 48'.

Electrac® Traverse System

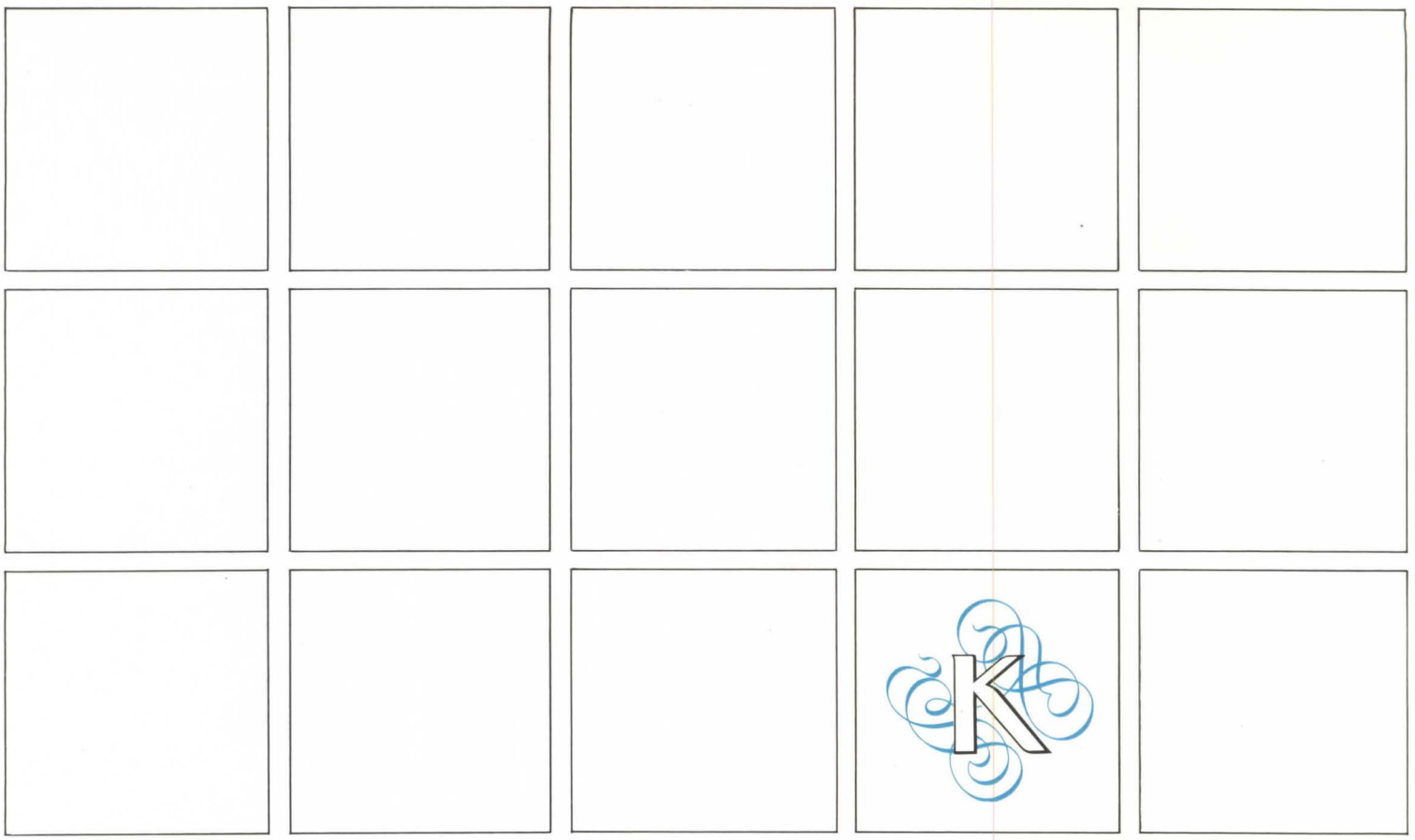
Operates draperies without draw cords, pulleys, gears or separate motor. A revolutionary power capsule is magnetically powered along the rear of the rod, drawing draperies as it goes.

The power switch can be located anywhere, and you can either build in Electrac to new designs, or simply plug Electrac into existing outlets. Operates on any 110 v. outlet. Electrac is available in Ripplefold and Accordia-Fold, as well as in a wide range of decorative finishes.

Accordia-Fold® Drapery Heading System

Snap-on, snap-off simplicity, plus the slimly tailored look to complement today's crisp architectural lines. Accordia-Fold utilizes Compact Architrac; a track that is just one-half inch deep. Mounts flush to ceilings, behind cornices.

This system gets its name from the sharp, trim, accordion-pleated folds into which the panels fall. And drapery materials stack into half the space needed for pinch-pleated draperies, look the same from either side.



LATITUDE

Who else but Kirsch gives you so much to work with? Who else has the breadth and depth of product line to give you all the latitude in the world in designing your window effects?

So if you're thinking about a particular design but aren't sure it's practical from the drapery point of view, call us and ask.

One thing is certain: when it comes to window treatments, if Kirsch drapery hardware can't do it—it can't be done. So give us your problem and see what we can do. Fair enough?

Who else gives you so much to work with?

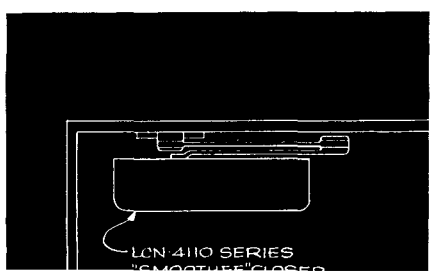
Kirsch
DRAPERY HARDWARE

On Readers' Service Card, Circle 227

Oakland-Alameda County Coliseum, Oakland, California. Skidmore, Owings & Merrill, Architects/Engineers, San Francisco.

Get your doors ready for action

with LCN Smoothee® surface-mounted door closers. "Smoothees" are famed for the flawless door control they provide . . . for their simple good looks . . . for the way you can count on them for *year-in, year-out,* trouble-free, attention-free service. Look them



TECHNOLOGY

Automated parking system speeds cars underground

An automated underground parking garage, imported to the U.S. from Switzerland, empties out cars faster than city streets can absorb them, according to its developers.

Called Rotopark, the computer-controlled system can be installed underground, leaving air rights free for construction and commercial development and earning money in the meantime. Theoretically, the system could also be installed underneath an existing structure if the building configuration allowed it.

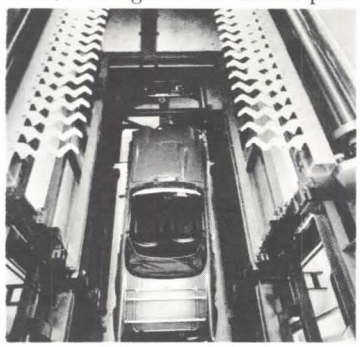
The key to the system's installation possibilities is its shape—roughly that of an underground doughnut, which leaves a central core free for building utilities.

Even with the central core, the developer says the system holds more cars than a conventional garage on the same sized plot.

The size of the system may vary to include from three to six parking levels, each containing two to five independent concentric rings. Each ring level has a train of rubber-wheeled parking platforms connected in carousel fashion. Each train has one empty space through which the vertical conveyor for delivering cars can pass up and down.

To use the system, a driver merely drives into a street-level booth after stopping for his key-punched ticket. Then he leaves the car and walks outside. A fail-safe device signals the system that there is no one in the booth, the doors lock and the parking cycle starts. A computer preselects a parking space for the car and moves an open platform in line with the vertical conveyor.

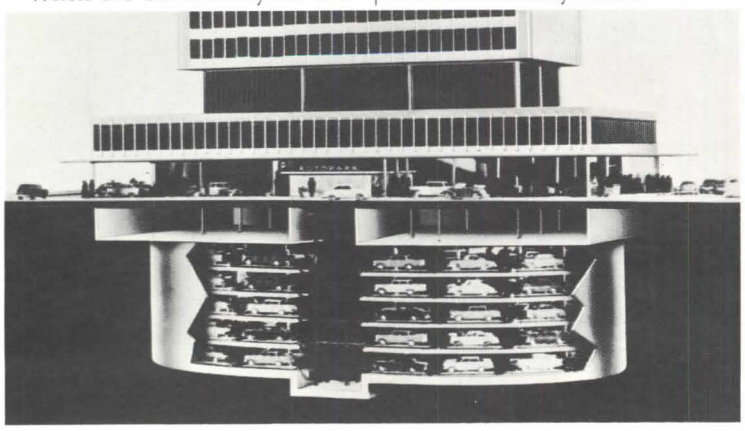
When the car is ready for storage, the floor of the booth lowers slightly and retracts, revealing the comb-like racks (see photo, below) of the vertical conveyor, which supports the car wheels. Then the conveyor lowers the car to the designated parking place. The transfer to the open platform occurs when the conveyor combs pass through similar combs on the edges of the parking platform, leaving the car on the platform. The conveyor then continues its descent to the bottom of the shaft. Simultaneously, a new set of combs is positioned at the top of the shaft.

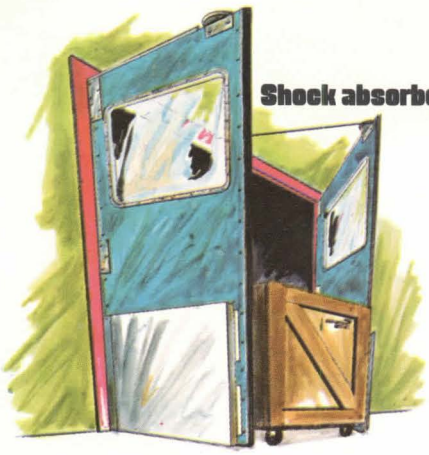


The system has an electronic control to insure that the various operations are synchronized. And, with conveyor racks always ready at the bottom and the top of the shaft, the system is always ready to either store or retrieve a car. The whole operation for one car takes less than one minute.

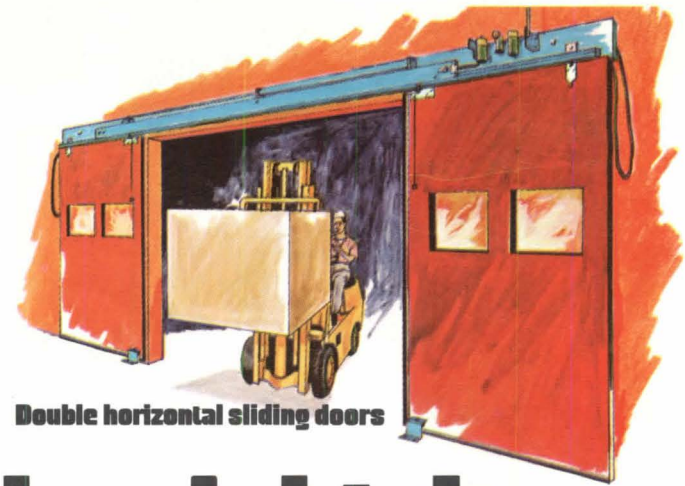
The system was developed by the Swiss company Rotopark, which has installed it successfully in Europe. The Otis Elevator Company will work with Rotopark to manufacture, install and maintain it in the U.S.

According to Otis, the primary advantage of this system over other automated parking methods is its simplicity—there are only two stop systems and precise leveling is not necessary. Also, a back-up system is built in and when it goes into use, an operator and service department are automatically called.



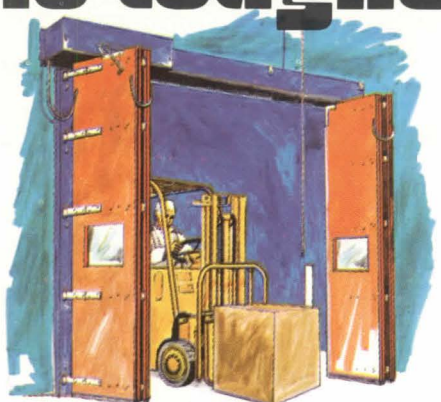


Shock absorber doors



Double horizontal sliding doors

Choosing the right door is tougher than you think...



Hinged bifold doors

But Clark can put you on the right track.

Each door installation encounters a number of different materials handling, temperature and building requirements. That's why we make the widest range of manual and automatic Industrial and Cold Storage Doors in the industry. Not to make your task more difficult, but to make sure that you can select the *one* door type that best suits your needs. Our specialists can help you make that selection. Send for your catalog. Specify whether Cold Storage or Industrial. Today.

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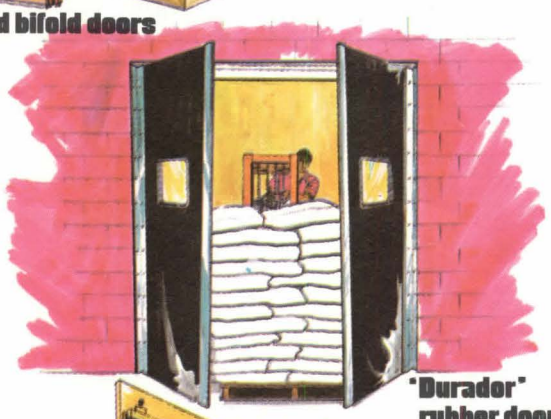
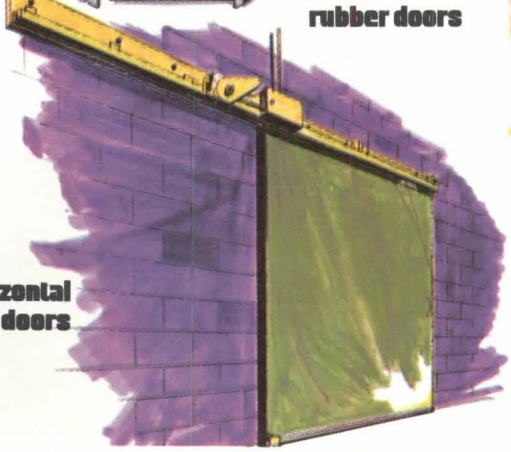
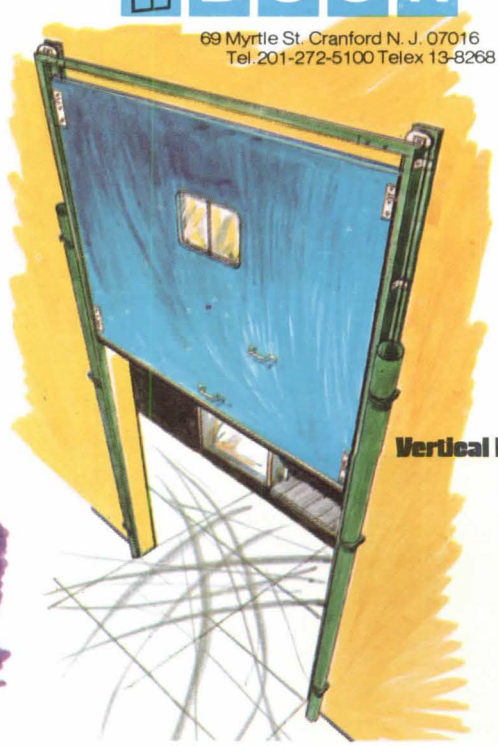


"Durador" rubber doors



Single horizontal sliding doors



Vertical lift doors

READERS SERVICE FILE

PRODUCT LITERATURE

To order material described, circle indicated number on self-addressed Reader Service Card, facing page 104.

DOORS/WINDOWS 601

Industrial and cold storage doors, manual and power operated, with, galvanized steel, aluminum or Kayon (TR) plastic skins over urethane cores. Clark Door Co. On Reader's Service Card, circle 101.

Catalog includes technical information on LOF glass; includes VariTran (TR) and Vigilpane (TR) SA 68. Libbey-Owens-Ford Co. On Reader's Service Card, circle 102.

Catalog 170/OV covers typical installations, specs, test performance data, ASTM acoustical testing and rating procedure. Door, frame, acoustical seal details. Overly Mfg. Co. On Reader's Service Card, circle 103.

4-pg performance data sheet details acoustical, visual and structural characteristics of Acoustic Twindow (TR), new environmental control window unit, ideal for noise reduction applications. PPG Industries, Inc. On Reader's Service Card, circle 104.

Plexiglas in Architecture-24-pg full-color catalog shows full range of architectural uses for acrylic sheet: glazing, fascia, sunscreens, domes. Rohm & Haas Co. On Reader's Service Card, circle 105.

ELECTRICAL EQUIPMENT 602

4-pg 4-color brochure on Norelco intercom systems. Describes applications and features. Philips Business Systems, Inc. On Reader's Service Card, circle 106.

FLOOR COVERING 604

"Anso is the Answer." A color brochure answering the most frequently asked questions about commercial carpeting. Allied Chemical Corp. On Reader's Service Card, circle 107.

Catalog #FL104 details and illustrates properties of Enjay's laminated floor tiles. Enjay Fibers and Laminates Co. (Nevamar) On Reader's Service Card, circle 108.

Complete catalog file in true color reproduction available for LATCO, featuring specialty and popular mosaic tile such as: Venezico, Valencia, Granada, Candysticks, many others. LATCO PRODUCTS. On Reader's Service Card, circle 109.

FURNISHINGS 605

New 20-pg brochure presents the traditionally-styled 1400 Series desks. Illustrates double and single pedestal desks, Convertible storage units, credenzas and tables. Steelcase, Inc. On Reader's Service Card, circle 110.

HARDWARE 606

12-pg booklet on Architectural Hardware for Schools and Colleges covers wide variety of hardware items; many unusual designs, information re Corbin's Master Keying System. Form No. K-873. P & F Corbin Div., Emhart Corp. On Reader's Service Card, circle 111.

24-pg fully illustrated booklet gives information on choosing correct type of hardware for every type of entrance. Kawneer/Amax Co. On Reader's Service Card, circle 112.

"Electrac by Kirsch." 12-pg full-color brochure with complete technical information on linear motor-powered drapery traverse rod. Kirsch Co. On Reader's Service Card, circle 113.

16 pgs of catalog and special information on LCN Door Closers, includes surface mounted, overhead, concealed and floor models. LCN Closers. On Reader's Service Card, circle 114.

Fire control devices—8-pg brochure contains illustrations and diagrams of complete line of fire control equipment for doors. Norton Door Closer Div., Eaton Yale & Towne, Inc. On Reader's Service Card, circle 115.

1970 Condensed Catalog. New 20-pg catalog describes full line of advanced architectural hardware including specs and function charts. Sargent & Co. On Reader's Service Card, circle 116.

INSULATION 608

Thermal insulation for roof decks, reroofing, parking decks, plazas and ice rinks. 16-pg technical brochure including charts, tables, specs, etc. Silbrico Corp. On Reader's Service Card, circle 117.

COATINGS/SEALANTS 614

AROFLINT (TR) Two-Package Polyester-Epoxy Systems. Technical bulletin details use and performance of AROFLINT high durability resins. Describes ways to gain design flexibility, durability with spray, roller, brush coating. Ashland Chemical Co. On Reader's Service Card, circle 118.

Manual of sealant caulks and glazing products shows techniques and materials used as architectural sealants. Form 3568. DAP, Inc. On Reader's Service Card, circle 119.

Stain samples on wood: AIA information manual and 16-pg Stained Wood Idea Book. Olympic Stain Co. On Reader's Service Card, circle 120.

Thoroseal brochure explains how to waterproof basements, foundations, concrete and block buildings; how to eliminate rubbing concrete. Standard Dry Wall Products. On Reader's Service Card, circle 121.

PLUMBING EQUIPMENT 615

12-pg 2-color catalog shows American's complete line of laundry machinery. American Laundry Machinery Industries, Div. McGraw-Edison. On Reader's Service Card, circle 122.

Form C 150. 12-pg color catalog of water coolers. Architect illustrations. Cordley Prods., Dispenser Div., Eaton Yale & Towne, Inc. On Reader's Service Card, circle 123.

1970 16-pg catalog on Oasis Water Coolers. Gives spec data, applications, with full-color illustrations. Includes selector guide. Ebco Mfg. Co. On Reader's Service Card, circle 124.

Comprehensive 4-pg color brochure together with reply paid postcard enabling enquirer to obtain specific quotations/information from manufacturer quickly. Richard Fife, Inc. On Reader's Service Card, circle 125.

1970 24-pg catalog illustrates drinking fountains, plumbing fixtures and trim. Includes drawings, special application data. The Halsey W. Taylor Co. On Reader's Service Card, circle 126.

ROOFING/SIDING 616

12-pg illustrated brochure on Alliance Wall porcelain on steel and aluminum . . . laminated veneer and insulated panels. Includes illustrations, specs, detail drawings, sample finishes. Alliance Wall Corp. On Reader's Service Card, circle 127.

New 16-pg full color 1970 brochure contains specs, applications and warranty information on U.S. Gypsum roofing and siding products. Includes color charts, illustrations. United States Gypsum Co. On Reader's Service Card, circle 128.

WALLS/LAMINATES/ PARTITIONS 618

8-pg color brochure on wall coverings. Complete specs including physical property information, color collection, and so forth. Columbus Coated Fabrics, Div. Borden Chemical. On Reader's Service Card, circle 129.

"Panel Systems 1970." 8-pg 4-color illustrated booklet gives installation, application and maintenance data on panels for high-moisture areas and large-area commercial applications. Formica Corp. On Reader's Service Card, circle 130.

Spec information on all panels includes Marlite plank and block, Korelock and firetest panels. Marlite Div. Masonite Corp. On Reader's Service Card, circle 131.

Textured structural tile data sheets available. Short form, specs, sizes and trim units available. Stark Ceramics. On Reader's Service Card, circle 132.

4-pg full color brochure illustrates VMP Movable Steel Partitions. Gives specs, special features of these flexible partitions. Virginia Metal Products, Div. Gray Mfg. Co. On Reader's Service Card, circle 133.

READERS SERVICE FILE

ADVERTISERS INDEX

ADVERTISERS INFORMATION SERVICE

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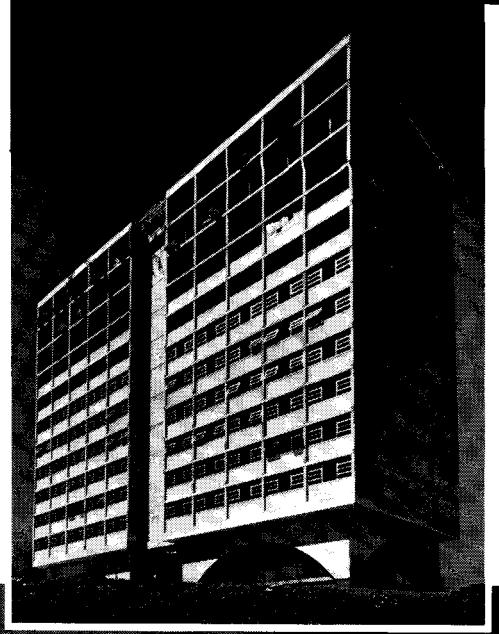
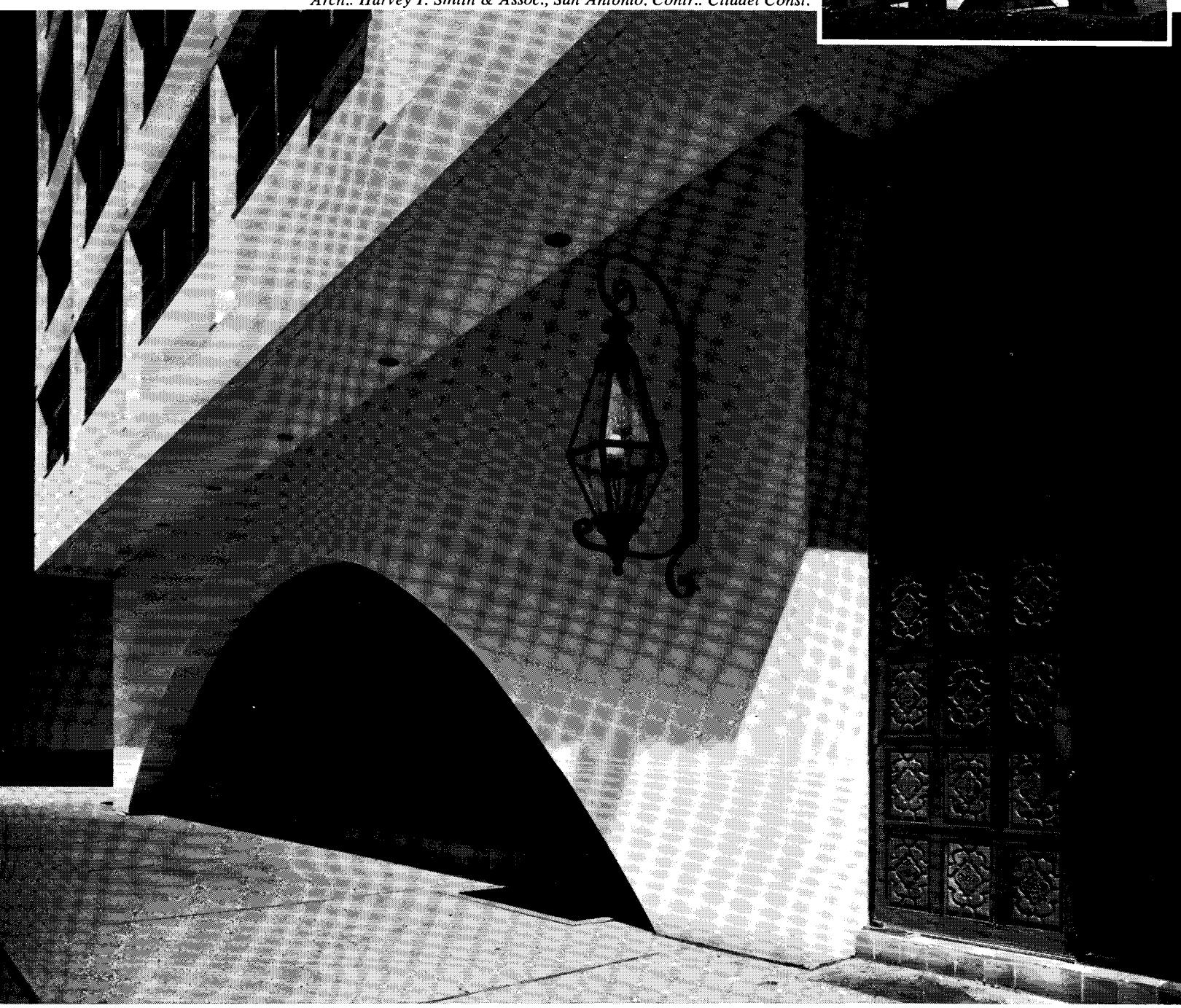
THOROSEAL PLASTER MIX spray-on finish was applied to the entire exterior and some interior poured-in place concrete surfaces of this new men's residence hall in Texas. An interesting, rough texture was achieved, which gives added character to the attractive appearance. It was decided that best results could be obtained by an applied cement-base finish that would also waterproof at the same time. Again THOROSEAL PLASTER MIX has lived up to its reputation as an outstanding protective-decorative, lifelong finish.



STOP RUBBING CONCRETE!

THORO PRODUCTS waterproof-finish concrete economically

Jackson Hall, Southwest Texas State College, San Marcos, Texas. Arch.: Harvey P. Smith & Assoc., San Antonio. Contr.: Citadel Const.



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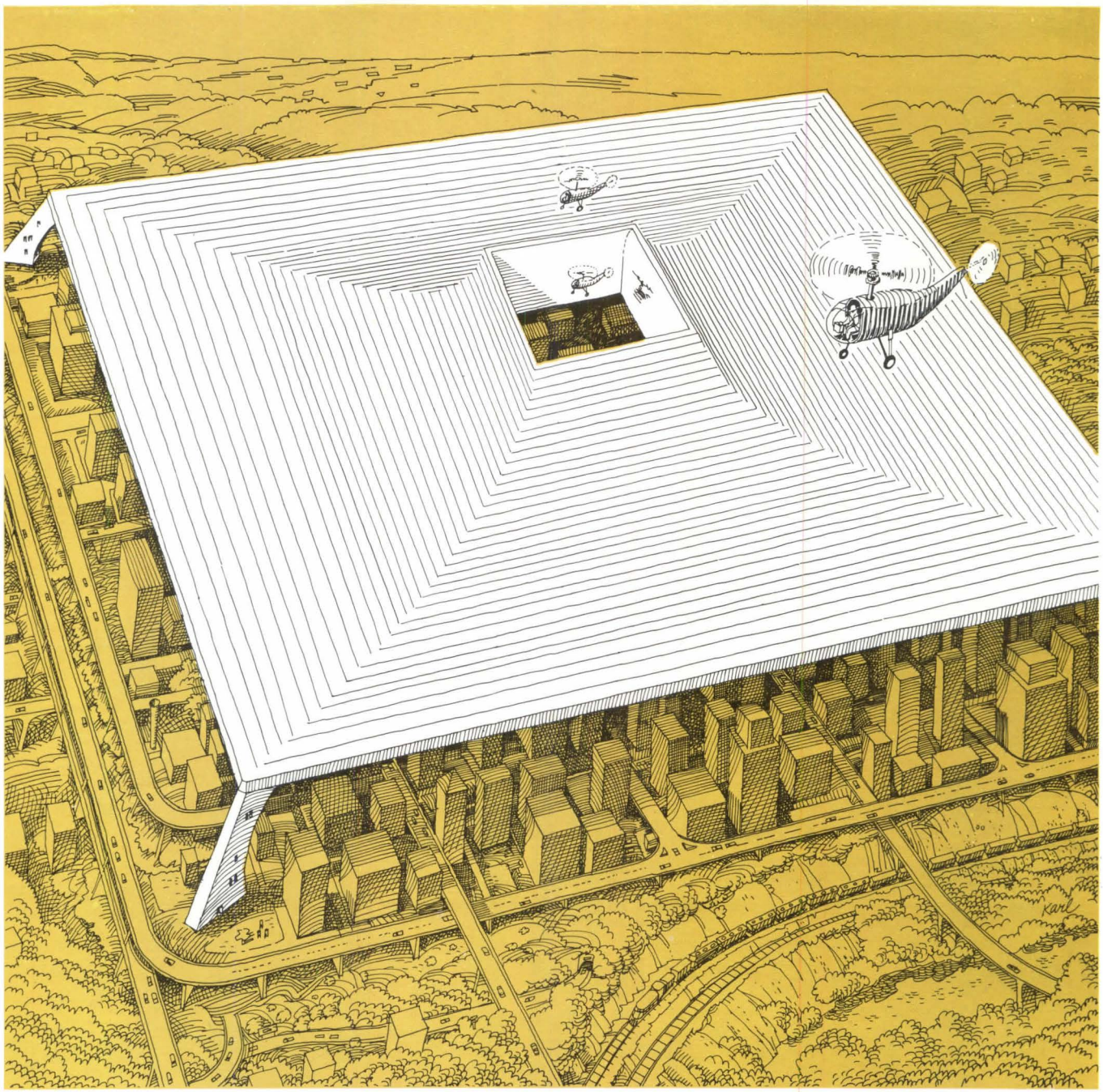
We're known as difficult people.



We do the difficult metal roof jobs.

Maybe you'll never be asked to design a city-sized snow shelter, but you may be interested in some of our smaller jobs. We've been putting roofs over people's heads for more than 80 years now and have covered up more things than the CIA.

We offer a 20-year warranty against leakage and workmanship on any roof erected under our supervision. All Overly roofs are metal, and none of them are dependent on sealants of any kind. All joints are designed around a mechanical interlocking joint system which permits expansion and contraction even during extreme weather changes. We believe water is for drinking, not for dripping.

The next time you're asked to cover something up, give us a call. At Overly, one of our favorite games is "Can You Top This?"

Overly Manufacturing Co., Architectural Metal Division, Department 1G Greensburg, Pa. 15601.

Overly
MANUFACTURING COMPANY

When you call in your architect, it's time to consider the Norelco Mastercom M100. This new intercom system now sets the standard for modern internal communications. It offers instant hands-free operation . . . assured privacy of conversations . . . and superb voice reproduction. Matching handset also available.

Installation is simplified, using a single 8-pair cable and noiseless all-electronic control pack, only 3.1 cubic feet *small*. The handsome rosewood stations can be easily relocated without rewiring. And the system allows for unlimited expansion.

A Norelco specialist will gladly survey your intercom needs and supply facts on costs and savings. Call him today. See the yellow pages under "Intercommunication Equipment" or mail coupon today.

Norelco®
PHILIPS BUSINESS SYSTEMS, INC.
A NORTH AMERICAN PHILIPS COMPANY
100 East 42nd Street, New York, N. Y. 10017

Gentlemen:
Please send full details on the Norelco Mastercom M100

Company Name_____

My Name_____

Street Address_____

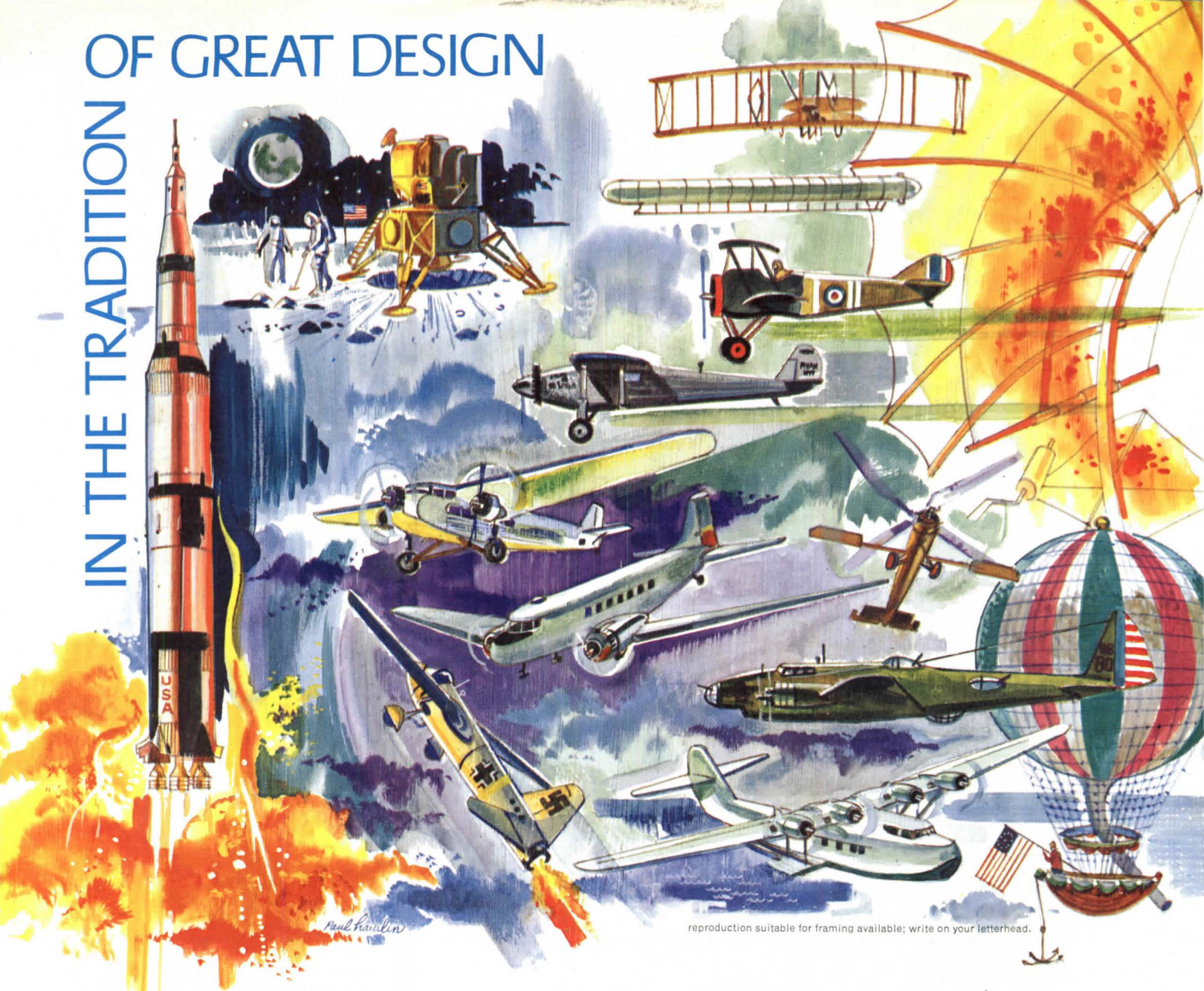
City, State_____ Zip_____

AF 770

DICTATION EQUIPMENT · MASTERCOM SYSTEMS · ELECTRONIC PRINTING CALCULATORS · OFFICE COMPUTERS

On Readers' Service Card, Circle 235

IN THE TRADITION OF GREAT DESIGN



reproduction suitable for framing available; write on your letterhead.

Flight, from man-made wings, to the moon landing, has been a constant improvement in technology and design. The new Norton Apollo closer represents a similar evolution.

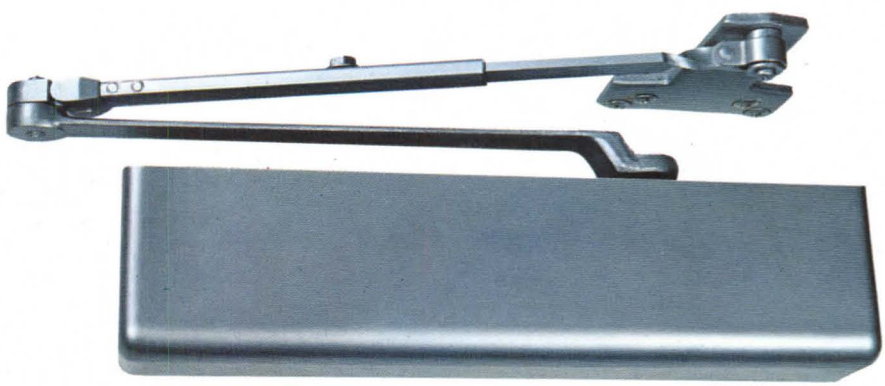
Power adjustment (plus or minus 25%) to tune the closer to its environment. An improved rack-and-pinion design plus adjustable back-check to protect closer and door on all types of mounting. Easy application with non-handed installation; just specify regular arm, parallel arm or top jamb.

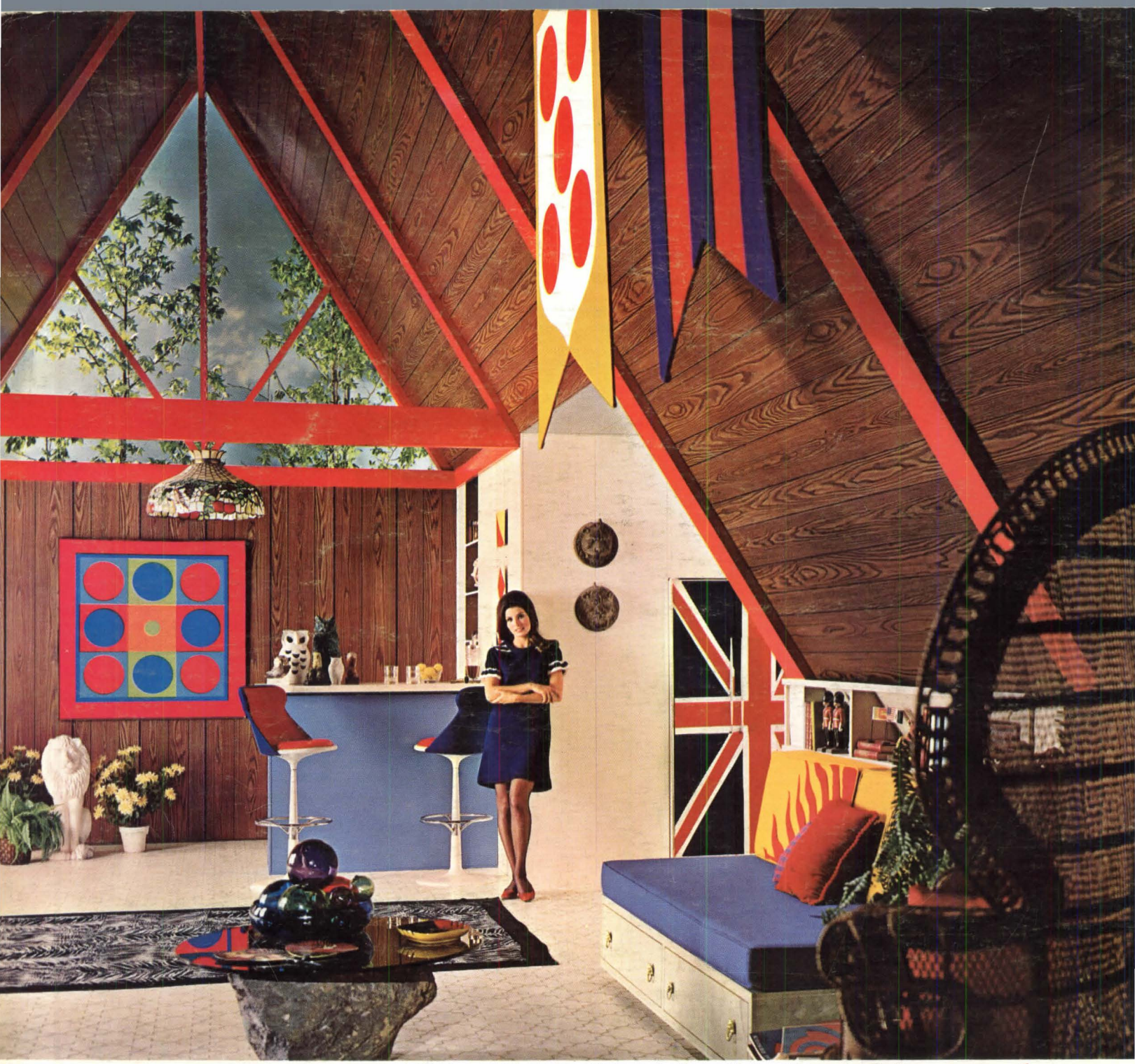
Narrow projection for the needs of contemporary decor. With covers; in anodized bronze, brass or clear aluminum; in 67 exotic and native woodgrains for job-site finish; plus all other popular finishes.

A new Norton Closer, an evolution of closer improvements, for today's architecture.

NEW NORTON® APOLLO

SERIES 7700 CLOSERS





Walls: Textured Oak and Oyster White Marlite Planks. Sofa Base: White Leather Marlite.

Looking for ideas? Marlite has 80 more where these came from.