



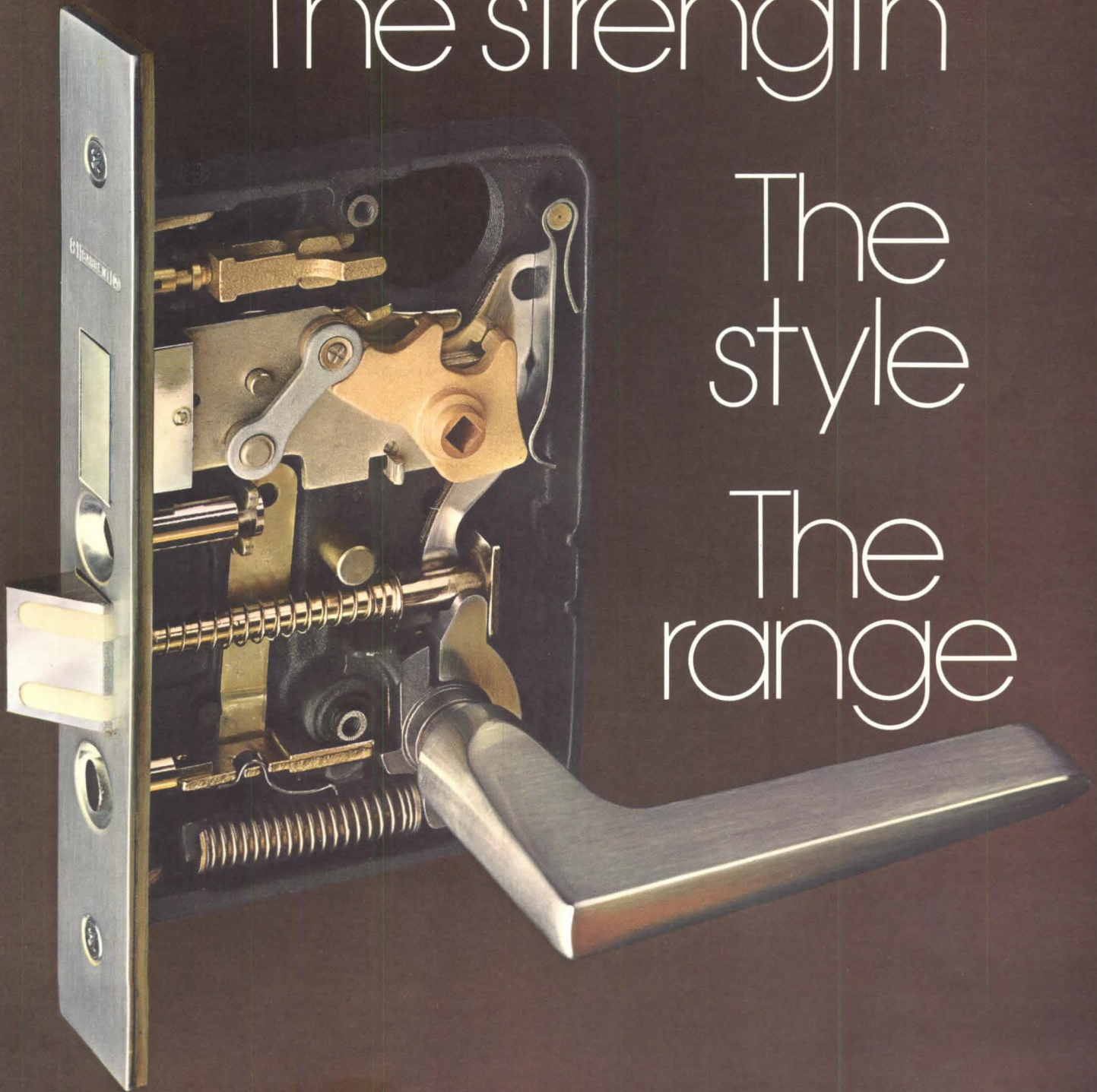
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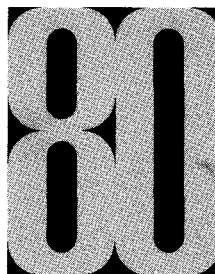
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Cover photograph of Old Boston waterfront coal bin by William Marlin.



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YEAR
OF
PUBLISHING
1892-1972

THE ARCHITECTURAL FORUM Vol 137 No 3, October issue

Published 10 times a year, combining Jan./Feb. and July/Aug. issues, by Whitney Publications, Inc., 130 East 59th St., New York, N.Y. 10022. Sent without charge to architects registered in the U.S.A. and Canada. Qualified persons are invited to write the Circulation Manager on company letterhead. Please give your principal state of architectural registration, your title, and the kind of work you do. Correspondence regarding service, change of address, etc., should be sent

to Marc Oppenheimer, Circulation Manager. Subscription rate is \$12 within the U. S. A. and possessions and Canada. Elsewhere, \$20. College Rate for Students and faculty members of U.S. and Canadian accredited schools of architecture, \$6. Single Copies, \$2.00. Member of Business Publications Audit of Circulation, Inc. Controlled circulation postage paid at Cleveland, Ohio and New York, N. Y. ©1972 by Whitney Publications, Inc. All rights reserved.

PPG's Total Vision System gives business a totally open look.

Joe King's automobile showroom in Spartanburg, South Carolina, is something like the hardtops he sells. The concrete roof of this glass cube is supported by a central core inside the showroom. So there are no support columns to mar vision through any part of the all-glass exterior. The building is simply a clearly beautiful auto showcase with a strong visual invitation to potential customers.

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Owner: Joe King Oldsmobile, Spartanburg, S.C.
Architect: Lockwood Greene, Spartanburg, S.C.

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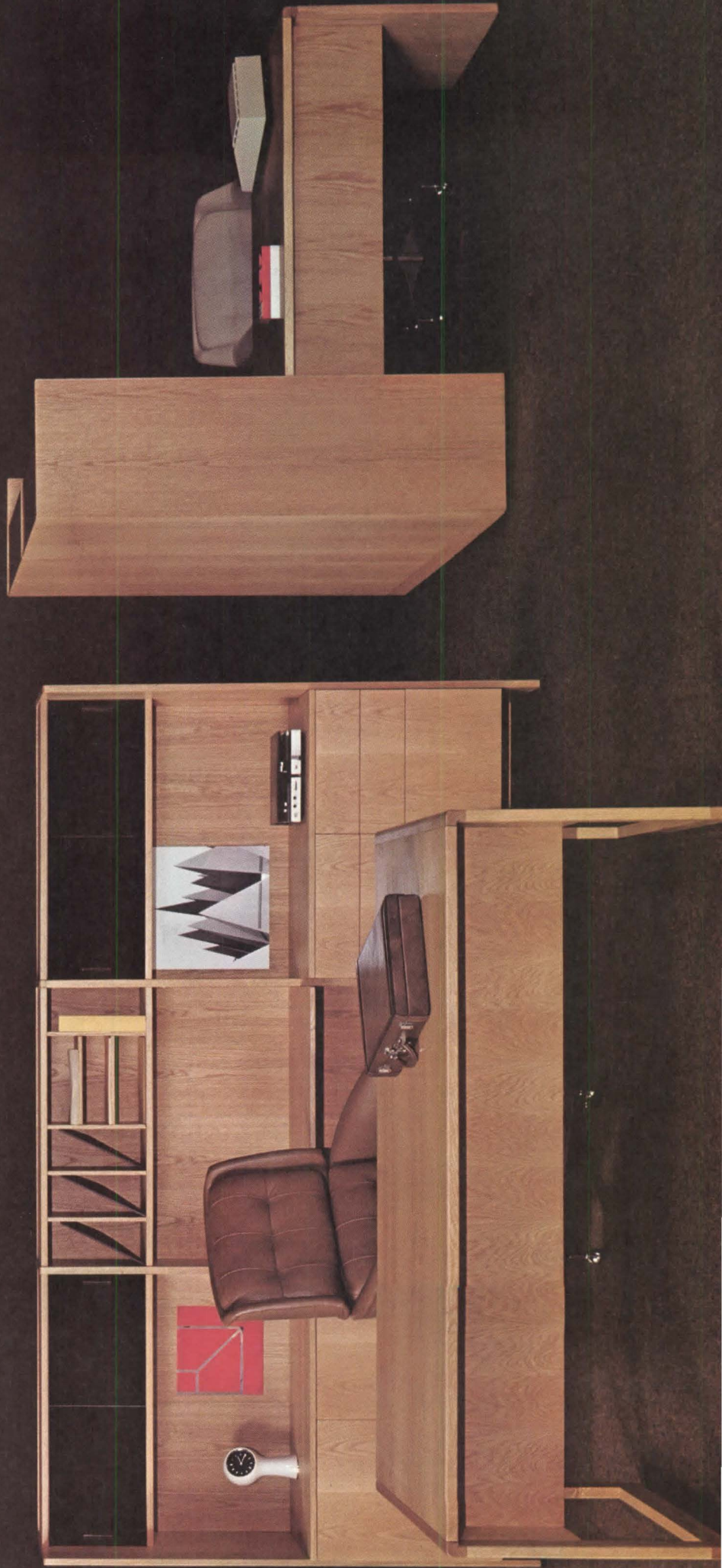
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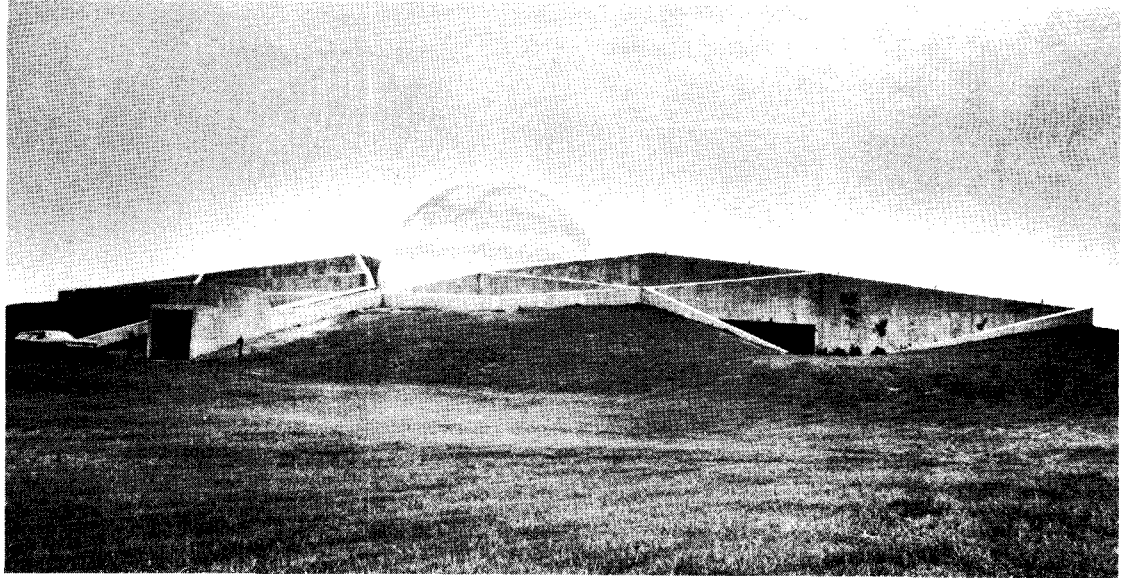
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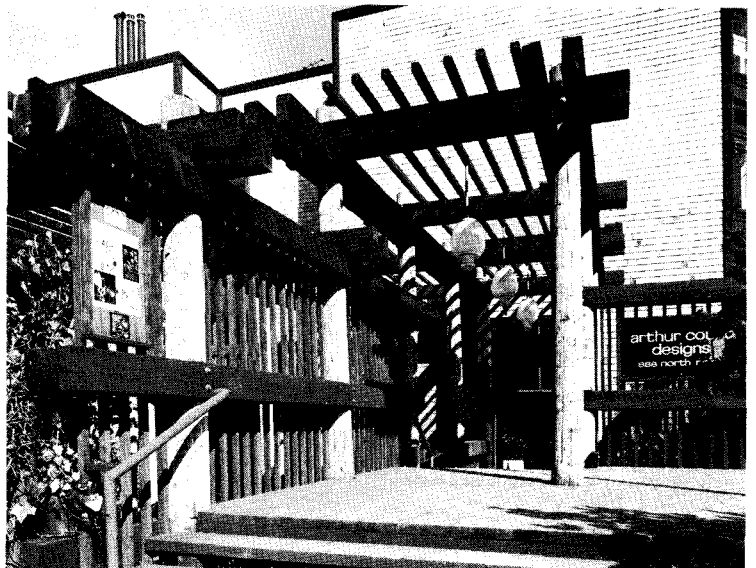
The Neil Armstrong Air and Space Museum in his birthplace, Wapakoneta, Ohio, was designed to break people away from their earthbound orientation and bring them back to earth with greater appreciation for it. As described by Arthur A. Klipfel, III, design consultant and exhibit designer, upon entering (at left of photo) visitors encounter the more mundane exhibits, old photos, etc., but then start down a sound tunnel with two speakers, one with outer space sounds and the other with astronauts talking to mission control. Then there's an area with video-tapes of Armstrong's mission. After that, an infinity box with 16 x 16 x 16 ft. mirrored cubes through which one walks on a central bridge seeing lights going off into infinity. This should

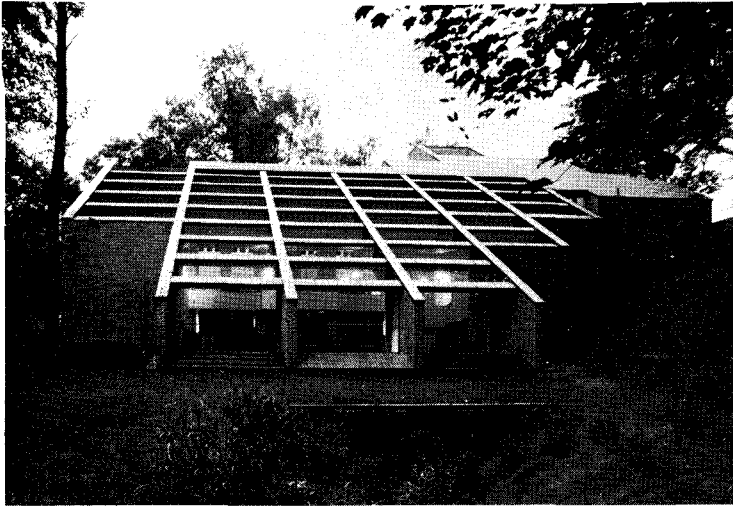
have prepared you for walking into the astro theater where Klipfel says you get "that feeling you get in a gothic cathedral," adding, however, that it is filled with computer generated sounds. Instead of the normal, 180° planetarium hemisphere with fixed seats from which you look up at an overhead projection, this dome is an almost complete sphere wrapping around under a carpeted shelf for sitting and standing from which you look out rather than up. This creates more of an illusion of being in outer space. The starball which projects the star images is rotated 45° from the ordinary planetarium position. One of the reasons for this scheme was to maintain a flow of visitors through the dome and avoid any waiting in line for the next show. The

show never repeats itself, has no beginning and no end. There are seven projectors, each swinging in a prescribed course, but the relation between their films in time and space is not programmed. You can spend seconds or hours there. But your reentry is controlled. You walk out of the dome into a very narrow space with a lot of vegetation which you have to push through to get to the landscaped patio (at right in photo). The designer hopes you will see the earth in a new way. He says many people in Cambridge were helpful in the project: for instance, a physicist from MIT designed an orbit table which is a learning device by which kids can get the feel of orbits. The working drawings and site supervision were done by Freytag & Freytag of Sidney, Ohio.

TIMBER-R-R-R

The Arthur Court Gallery Entrance Park two blocks from San Francisco Bay in the North Point/Fisherman's Wharf area was designed to provide a place for children to play while their parents shop in the jewelry and antique gallery and to serve as platforms for summer bazaars where craftsmen who supply the gallery could demonstrate and display their crafts. The pole park is on a 44 x 80 ft. site with a 10 foot slope that allows both an upper and lower entrance to the gallery. The architects Onarato/Panko/Sinclair, felt that the poles—which are coppery-green from the preservative—would be reminiscent of the nearby waterfront.





A NEW AWARD FOR MASONRY DESIGN

The first Louis Sullivan Award for Architecture created by the Bricklayers, Masons and Plasterers International Union and administered by The AIA has been awarded to Hartman-Cox of Washington, D.C. The award will be made biennially to U.S. and Canadian architects. It will not go to single projects but will recognize an architect's contribution throughout his career to masonry design. And it will emphasize environmental im-

provement. The jury this year was chaired by William W. Caudill, FAIA. Other members were Robert Cerny, FAIA; Ulrich Franzen, FAIA; Statler Gillfillen, architecture student at Kent State; and John Joyce of the union. The dormitory for Mount Vernon College in Washington (photo below) will house two groups of 48 students. The National AIA Honor Award winning chapel for the same college (photo above) seats 300.



BASTION FOR BOOKS

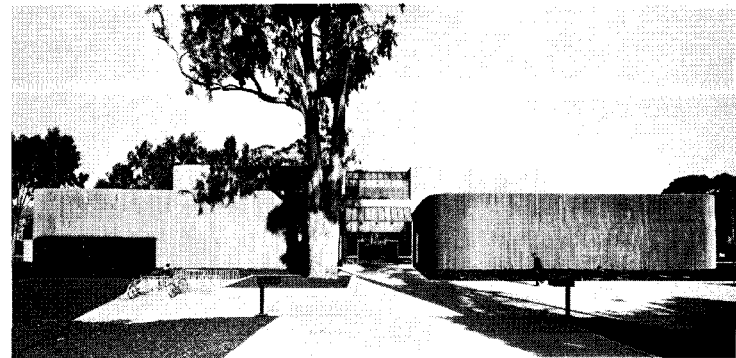
The Dudley Wright Knox Library at the U.S. Naval Postgraduate School in Monterey, California houses 400,000 volumes in 50,200 sq ft. The \$1.6 million project was designed by Welton Becket And Associates to eliminate noise from a nearby airfield; the natural concrete walls are virtually soundproof. The bottom level has large vertical ribs in buff tones and the upper level has smaller ribs in

natural cement color. Fully luminous ceilings allow total flexibility of stack arrangement. The main level contains general circulation bookstacks and library service departments. The upper level has stacks, reader's alcoves, study rooms and carrels. The basement also has stacks, mechanicals and expansion space. There is a security vault for classified documents and a document destruction room.

ARCHITECTS' DONATION

The Lincoln Heights Community Facilities Building, in the center of a black suburb north of Cincinnati, is a "supermarket of social services" housing welfare offices, Head Start, a medical and dental clinic, a well baby clinic, a pregnant teens' clinic, a branch library, the Youth Movement Record Shop, day care, arts and crafts, a multi-purpose room (photo below) and Lincoln Heights Neighborhood Services which coordinates the use of the building. It is the result of cooperation between six faculty members of the Department of Architecture at the University of Cincinnati who became TAG (The Architectural Group) and the community. Having obtained a reservation of \$340,000 on a federal Neighborhood Facilities grant from HUD, Lincoln Heights (with an annual budget of \$200,000) needed to raise the local share of matching funds, \$170,000. The one hope was that project costs other than payment to the general contrac-

tor could be contributed in the form of services. With the Lincoln Heights Foundation picking up the tab for office expenditures TAG contributed \$75,000 in services. The design won a Cincinnati Chapter AIA Honor Award. One of the chief features of the building is that it does not disrupt the neighborhood's foot traffic patterns; it was designed with them in mind so children can walk through the building on their way to and from school for instance. No fences were built around the construction; the only guard on duty was a member of the community; and no effort was made to hide materials or protect the glass; but there was no window breakage and no vandalism or theft. "This seems to suggest that people protect what they feel is really their own," said J. William Rudd, one member of TAG. The others were Dennis Alan Mann, David Lee Smith, Donald E. Stevens, Richard Stevens and William Widowson.



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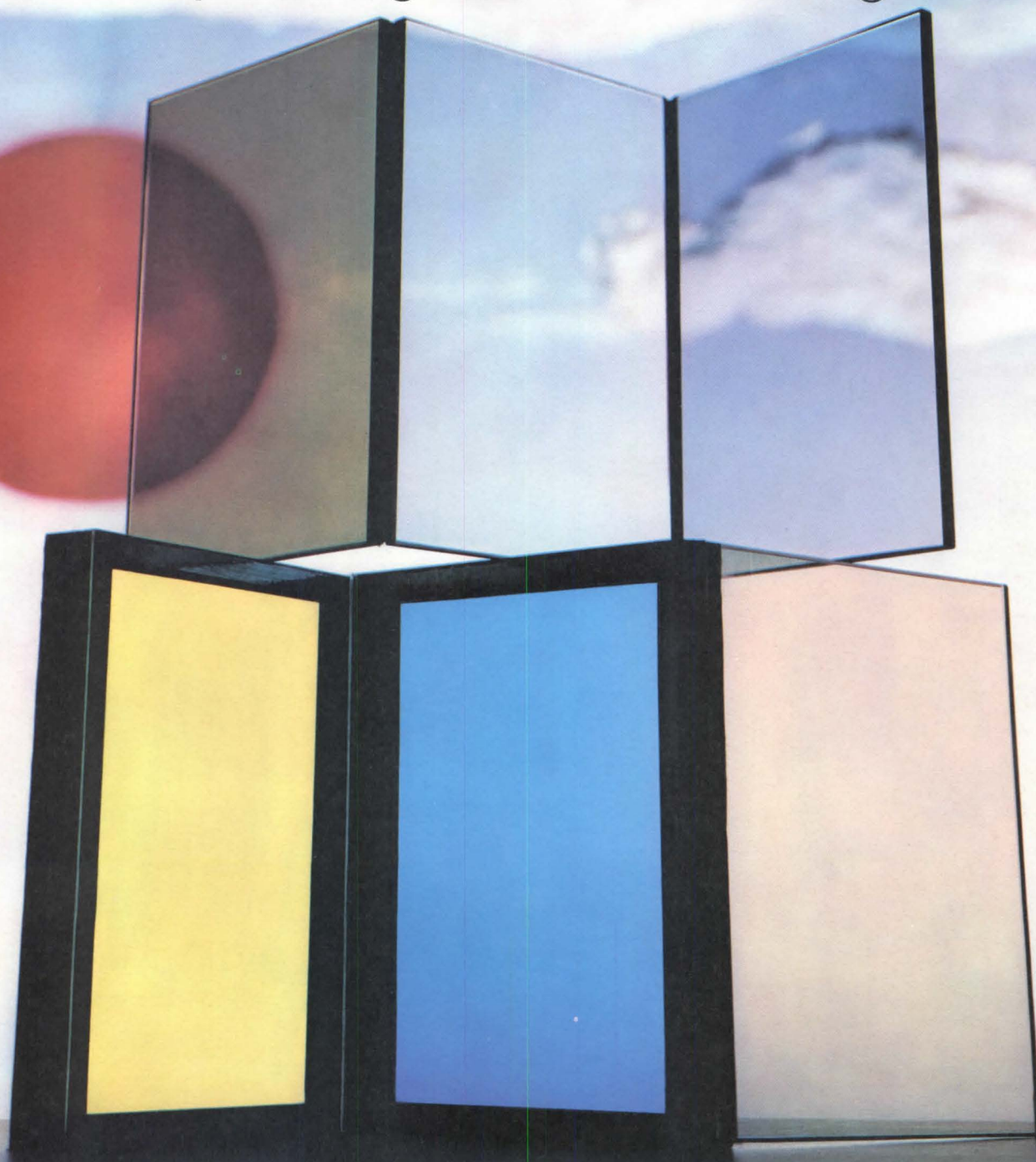
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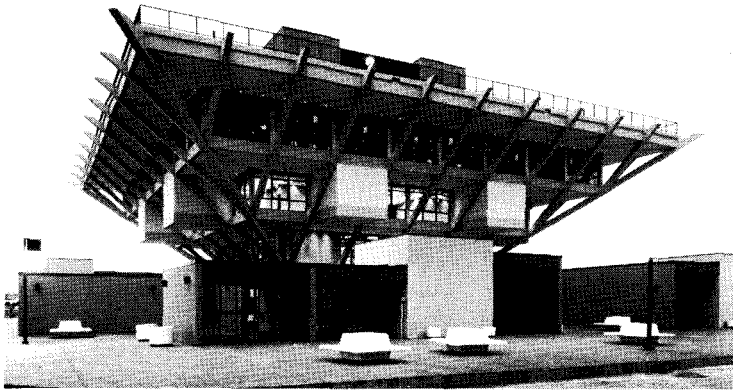
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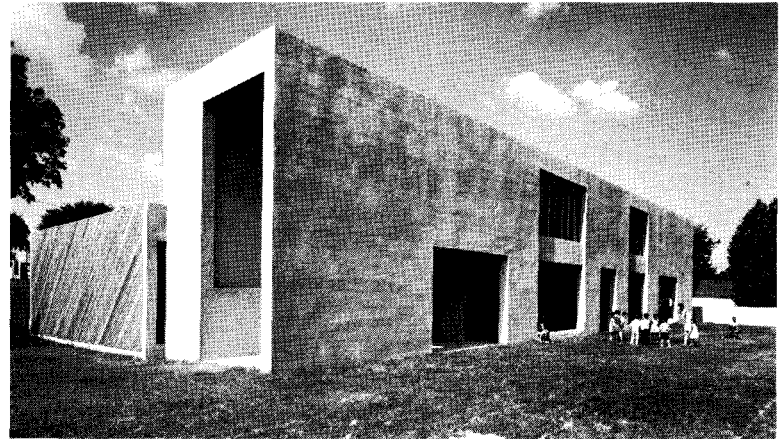
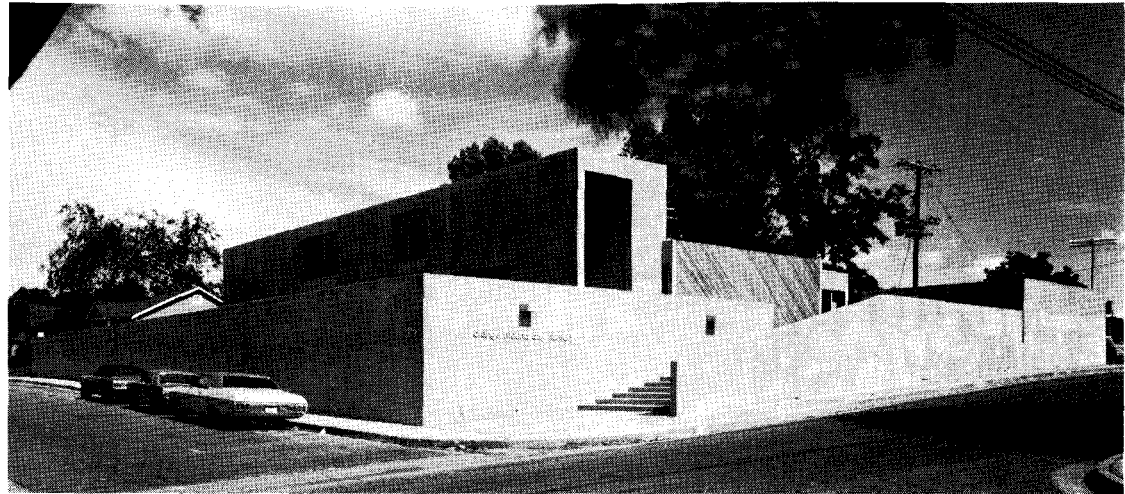
TUT—TUT

"I've always felt that we've done our client a disservice if there isn't a lot of public feed-back on what we design for them," remarked architect William Harvard of Harvard and Jolly who designed this noticeable tourist pier in St. Petersburg, Florida. The inverted pyramid doesn't float. It is supported by four pilings which dive through the pierhead 75 feet into the bay

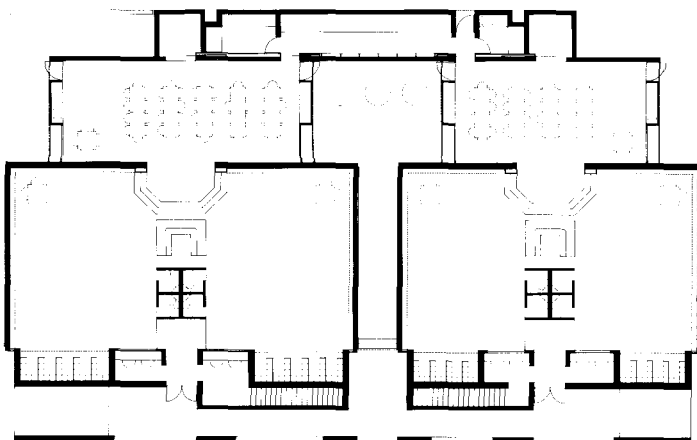
floor. Its 16 ft. overhangs protect the extensive glass from the elements. The first floor has shops; the second, an exhibition area; the third, a public assembly space; the fourth, two dining facilities and a cocktail lounge; the fifth, an observation deck with landscaping and refreshment facilities. The inversion conserves ground space for pedestrians and affords an almost unobstructed waterfront view.

DAY CARE ENCLOSURE

The Orange Mound Day Nursery in Memphis, Tennessee accommodates four groups of 20 children from two-and-one-half to five years old. There are two hard surface areas (at top of plan) for finger painting and dining with an adjacent kitchen. A carpeted amphitheater separates these areas from the carpeted group activity areas. The teachers' stations are in the center of each wing between the amphitheatres and lavatories. The observation rooms overlooking the activity areas have transparent mirror windows. On the first floor is a covered walkway opening onto the enclosed play yard. On the mezzanine above the walkway are offices. The concrete block bearing walls, retaining walls and fences are all covered with cement plaster. Wood siding and window frames are rough sawn cedar left unfinished. Walk Jones/Francis Mah Inc. are the architects.



PHOTOGRAPHS: Page 5 (bottom) Moss Photography. Page 6 (bottom) Welton Becket And Associates. Page 8 (top) Maddock Photography; (bottom) Otto Baitz.





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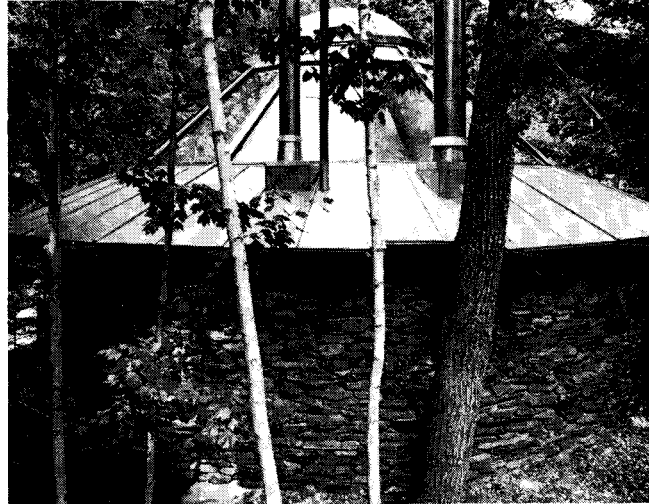
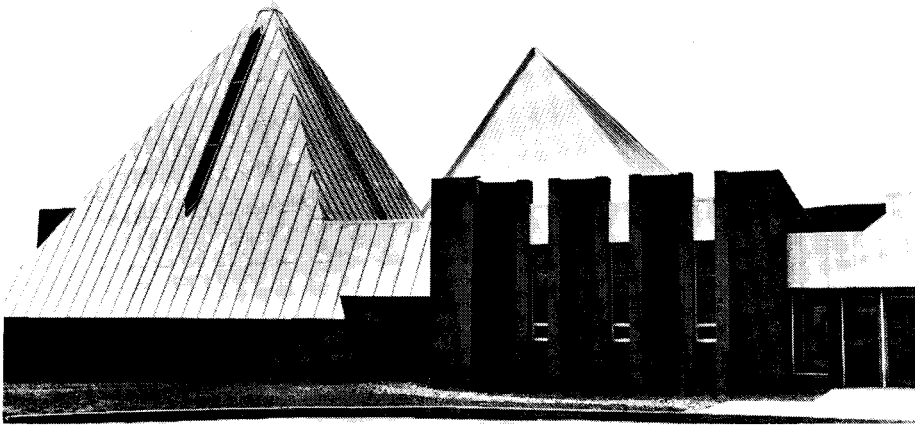
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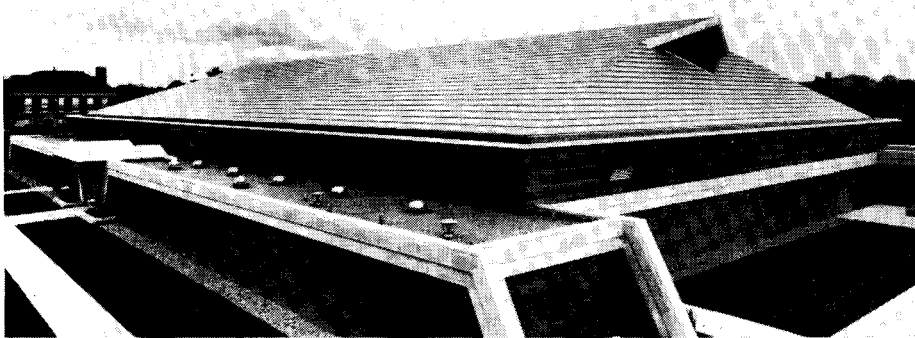
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These ideas could change your mind about roofs.



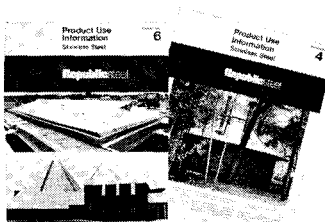
(Upper left) Roof and walls in one piece . . . and of stainless steel! This is the new Temple Adath Yeshurun, Syracuse, New York. 24,000 square feet of DUROFLASH stainless was used.

(Above) The unusual dodecahedron roof of this space-age ski lodge in Vermont features DUROFLASH stainless in 24 planes, joined to 12 trapezoidal Plexiglas* windows.



(Lower left) America's largest bermuda roof. The Benjamin F. Yack Recreation Center, Wyandotte, Michigan. Thirty tons of DUROFLASH roofing sheets. Forty-one thousand square feet. Installed with spectacular ease.

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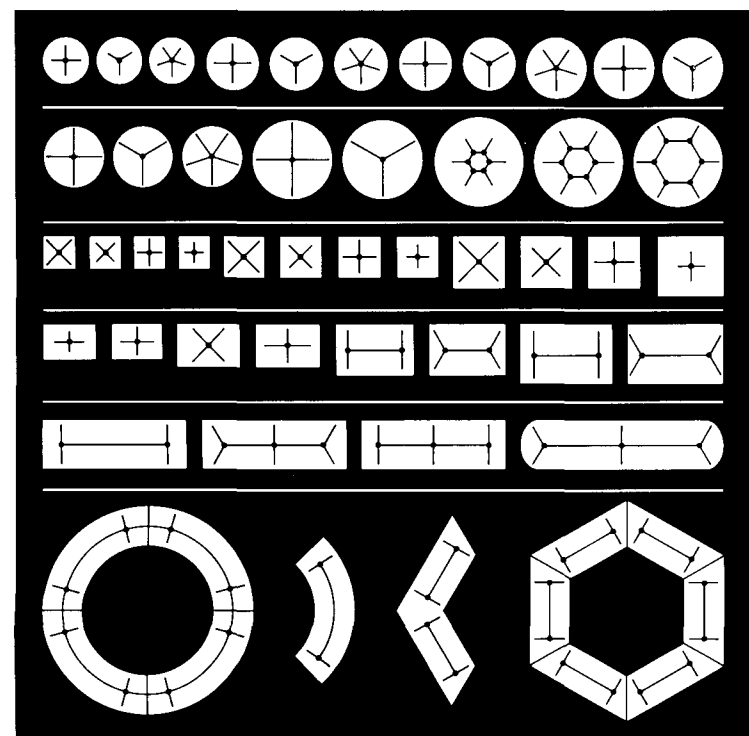
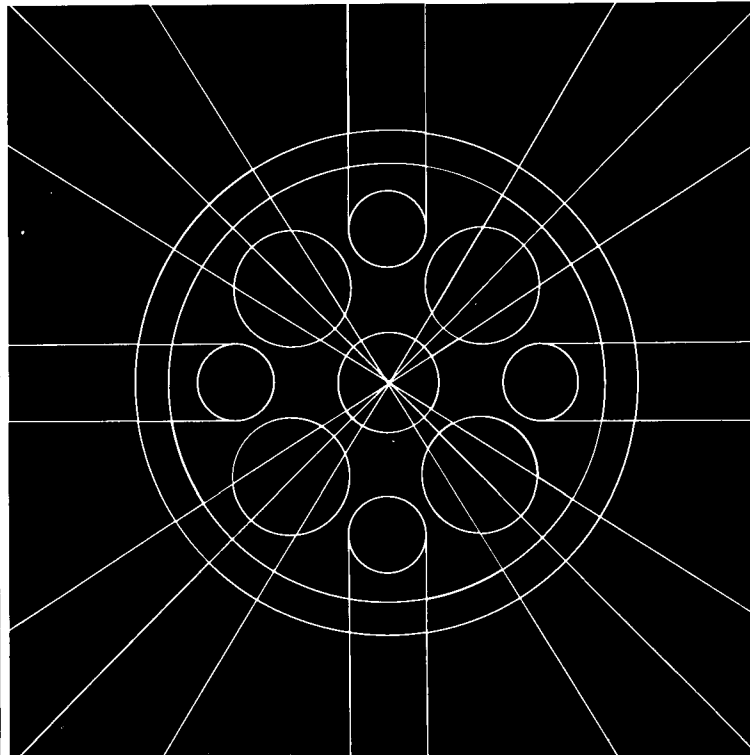
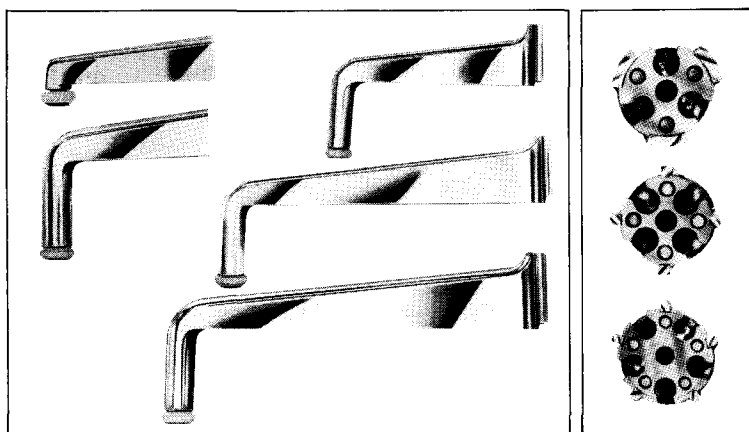
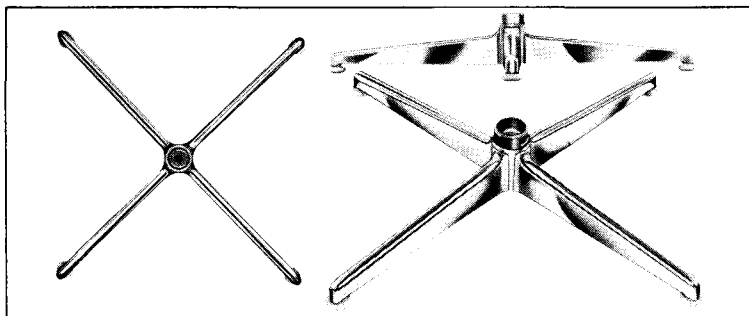
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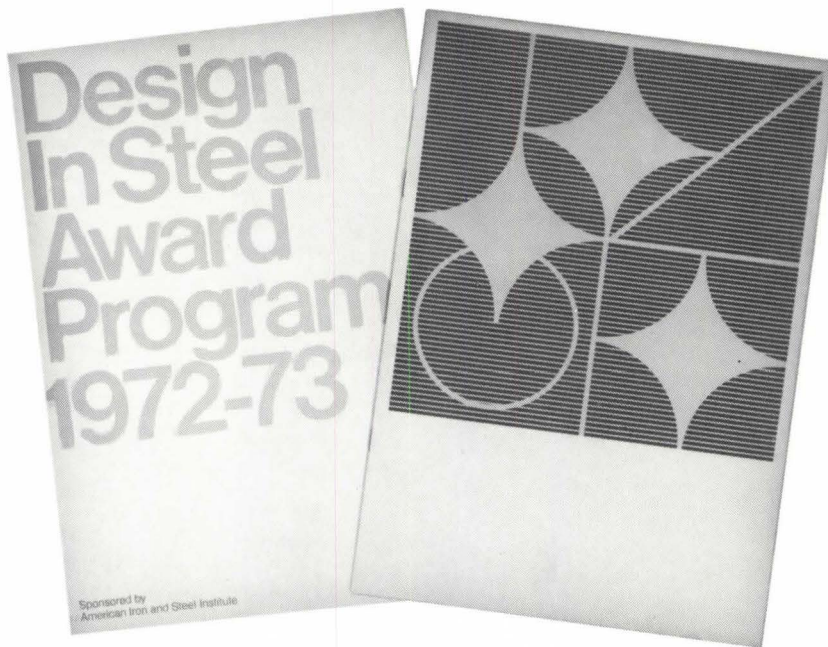
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LETTERS

KAHNTEXT

FORUM: I was glad to see what appears to be an abandoned section of the Paris subway on the July-August cover of the FORUM with its tracks removed and paved with tile to make it easier for tourists on walking tours to admire the brick vaulting overhead. Europeans have always been 'way ahead of Americans when it comes to historic preservation.

I was also intrigued by the archeological find in Dacca, Bangladesh which reminded me of the Mayan ruins of Yucatan, although not appearing to be in as good a state of preservation because natives no doubt had removed the stone surface decoration for construction of their homes nearby and only the bare shells remain.

The Citadel lacked the steep stairway of the Temple of the Dwarf in Yucatan I almost fell off twenty years ago. On closer inspection the mass looked more like an abandoned plaster of paris Hollywood set left over from the Genghis Khan movie and on further reading I discovered the whole Citadel was indeed new and designed by none other than our great architect Louis Kahn who I understand fell right out of bed after drawing up his masterful conception. During a turbulent nightmare he was able to ask a brick what it liked and the brick said "I like an arch" and even the sun never discovered how great it was until it struck the side of a building.

The mind of Kahn may be a cross between a gaslight and a laser beam. With his Volume Zero he can bamboozle a lot of gullible businessmen of the fast buck variety, thus setting a new trend for architects to get jobs with super profound statements a la Gertrude Stein.

University students swallowing all this gobbledygook might just as well quit school and make mud pies in their own backyard to get that down to earth feeling of design. Barnum was right when he said America wants to be humbugged.

Jersey City, N.J. THEODORE CONRAD

P.S. I just discovered the vaulted arches are from the Presidential Plaza at Dacca and not an abandoned stretch of the Paris subway. Sorry.

FORUM: I thoroughly enjoyed your July/August issue about Lou Kahn. I congratulate you on what is to date the most comprehensive study of Lou's work. It's a darn shame that Lou Kahn's integrity won't allow him to become just a bit "commercial" so that his great thinking can rub off on some of us who can't get the same kind of well-heeled clients that he manages to land. Or, to put it another way, if I told one of my present clients that "Architecture is the embodiment of the unmeasurable" or that "... Form has the integrity of inseparable elements," my client would squirm. He would ask to change the subject and let's get down to brass tacks and tell me how much my building is going to cost and when are you going to get it out to bid. Lou Kahn has been a tremendous influence on me, even if the expression of this influence has been unavoidably little. I just don't have the nerve to design a building that has so much Architecture for so little Function, and at \$120/sq. ft. at that. Also, my partner would scream at me for spending the whole fee just in schematics. It's a shame we architects have so completely lost our Master Builder image that a truly great man like Lou Kahn has become a relic of the Past. He has so much to offer, but the World isn't listening.

The World, and some of my clients, might listen if Lou could (or would) design bonafide low-cost housing or get into the kind of commercial work that can't afford cluster columns or travertine marble. Many of the lessons that would derive from such (mundane) projects would be useful to all of us. I can just imagine the revolutionary ideas that he could evolve should Lou get into sys-

tems buildings. These ideas and the spreading influence that results would make the Canadian SEF program look like the International Style of the Seventies, and we'd all be better off.

One of Kahn's favorite philosophies is "We grow old, learning." In this way, I'd love to see him dive into commercially relevant fields . . . so we can learn.

SIDNEY SCOTT SMITH, AIA
Moorestown, New Jersey

GIMME SHELTER

FORUM: In reply to Mr. E.W. Dykes who quarrels with your article suggesting a "Right to Shelter" may I suggest that he not be too eager to cast aspersions on "fuzzy thinking" until he reviews his own thoughts. While a right to shelter is not spelled out in the Constitution, it was so simply supplied by the natural system of the Eighteenth Century that we must excuse the Founding Fathers if they overlooked it in the Bill of Rights. I'm positive that they could have no concept of Twentieth Century building codes which demand elaborate sanitary, safety, fire, landuse, and other requirements which preclude a man building his own home using materials available on his own site. (A site which was abundantly available and unthreatened by Urban Renewal.) I don't think that the framers of the Constitution had any concept of migrant workers crisscrossing the country in search of temporary farm work. I doubt that the Authors of the Bill of Rights could imagine that the rural population of the country would be uprooted and its poorest members thrust by circumstance into teeming Megalopoli.

Mr. Dykes seems benignly ignorant of the cast housing programs undertaken in most industrialized countries to meet that "Right to Shelter" which he so lightly denies. I wonder what he thinks those massive linear cities of Corbu's were. What does he think the satellite towns around Stockholm are? His provincialism is the root of America's attitude towards the massive revolution which has engulfed this country since 1929. Until this country takes a good inward look at what its encouragement of "bigger-is-better" has wrought with its less fortunate members, crime and aber-

rational social behavior will continue to increase. No amount of hardware security or well designed mental institutions will solve the problems caused by backward, Victorian minds. It is my hope that useful work can be found for those who must depend on society's good will and also people like Mr. Dykes who have none.

TOM E. MORRIS, ARCHITECT
Denver, Colorado

OVERKILL

FORUM: In his otherwise excellent review of Kenneth R. Schneider's *Autokind Vs. Mankind*, Robert C. Weinberg includes an outrageous and indefensible slur on Robert Moses. One whose energies and activities were as far-ranging as Moses' could not help but be controversial. However historians may assess him, we can be sure that they will never say that he favored, proposed, planned or committed murder, genocide, pillage, rape and atrocity. Mr. Weinberg evidently compares Moses' activities by puny analogy to these horrors, by coupling his name with the author of *Mein Kampf*. This is not only an unspeakable slander but grossly unfeeling toward its author's actual victims.

New York AUGUST MATZDORF

SEMANTICS

FORUM: The niceness of the distinction between "monotonic" and "monotonous" and the fierce passion with which Ian Brown argues the difference (April '72 issue, p. 50) resembles nothing so much as the violent controversy in the early Church recounted by Edward Gibbon: "The profane of every age have derided the furious contests which the difference of a single diphthong excited between the Homooosians and the Homoiiosians." He continues with a comment that I will update for this important discussion: As it frequently happens that the sounds and characters which approach the nearest to each other accidentally represent the most opposite ideas, the observation would be itself ridiculous if it were possible to mark any real and sensible distinction between the doctrine of the Rigorists, as they are properly styled, and that of the boring, hysterical anti-rationalists.

SIDNEY ROBINSON
Ann Arbor, Mich.



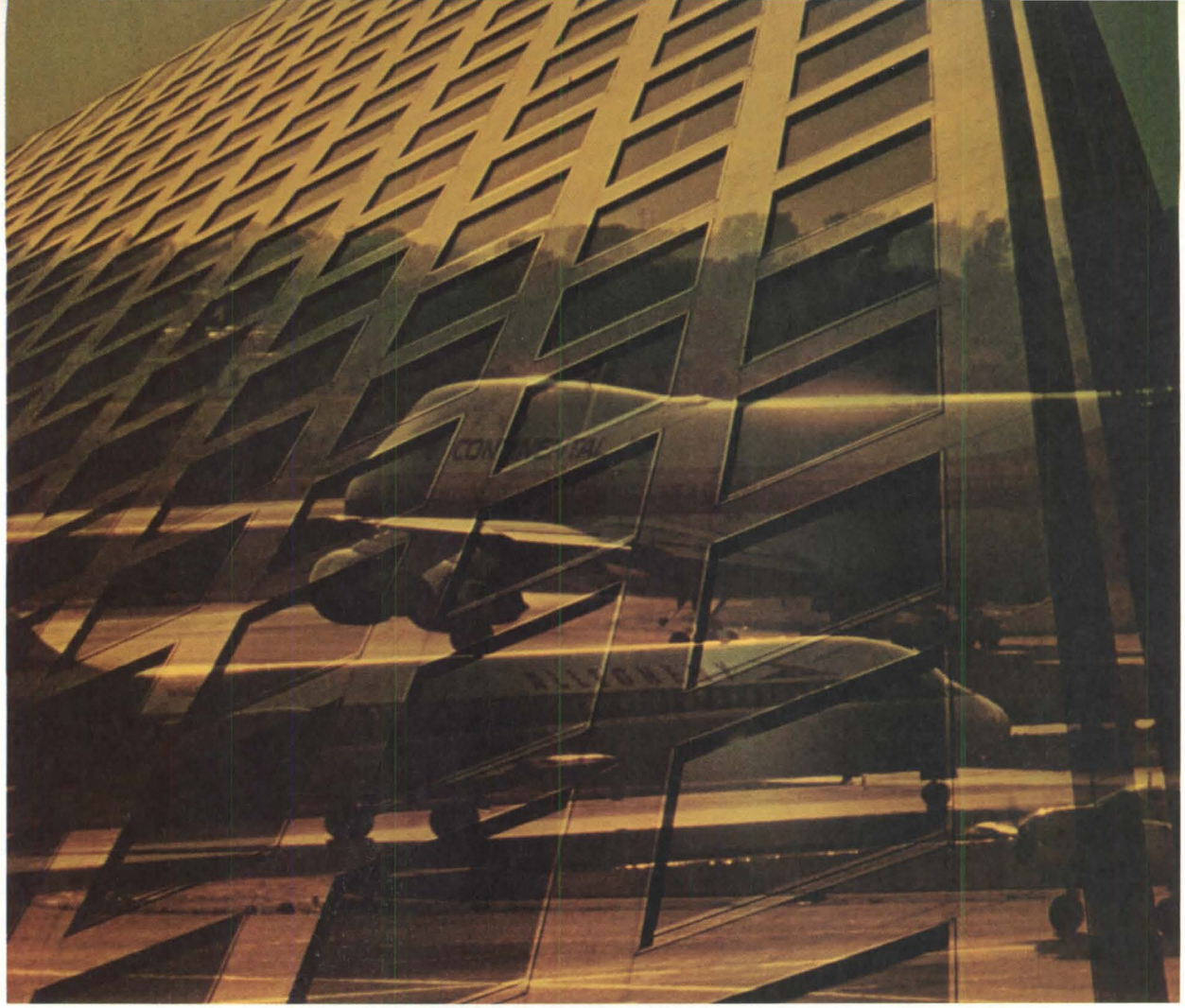
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BOOKS

NEW TOWNS RESEARCH SEMINAR. Volume I. New Community Development: Planning Process Implementation and Social Concerns. Mimeograph Document. Published by Center for Urban and Regional Studies, University of North Carolina, Chapel Hill, N.C. \$6.50. 526 pp.

REVIEWED BY ALBERT MAYER

"New Towns Research Seminar" definitely is not research. Indeed, out of the 13 papers, only one can be thought of as research. I raise this point not to be technical or hypercritical, but so that the prospective public can make up his/her mind about prospective interest.

Having said this much in an overall way, it will be most fruitful I think to devote the bulk of this review to two outstanding contributions:

New Communities: One Answer to the Employment Problems of Rural and Urban Poverty Areas, by Joseph F. Maloney and Donald J. Williams, Urban Studies Center, University of Louisville.

The academic identification of Messrs. Maloney and Williams is only part of the story. They are also in the thick of innovative legislation and New Town action. Their stance is rooted in the Kentucky-Appalachian scene, but leads them into staking out theory and application in policy areas that cry out for national attention, now conspicuously absent. Here, excessively compressed, are some highlights.

Migration: needs to be more than relocation of poverty, from rural to urban poverty. "Relocation should be a social and economic move upward," and this you can't count on happening accidentally. They propose "... subsidizing a family that is moving . . . in the form of training . . . and helping get a house where he is moving to . . ."

Migration & New Communities: A new strategy, pre-identifying families who want to move, moving them as part of a system of migration, not as haphazard misfortunes, but including pre-migration orientation and training and services, and

Mr. Mayer is the author of *The Urgent Future: People, Housing, City, Region.*

post-migration services. Estimated cost roughly \$7000 per family.

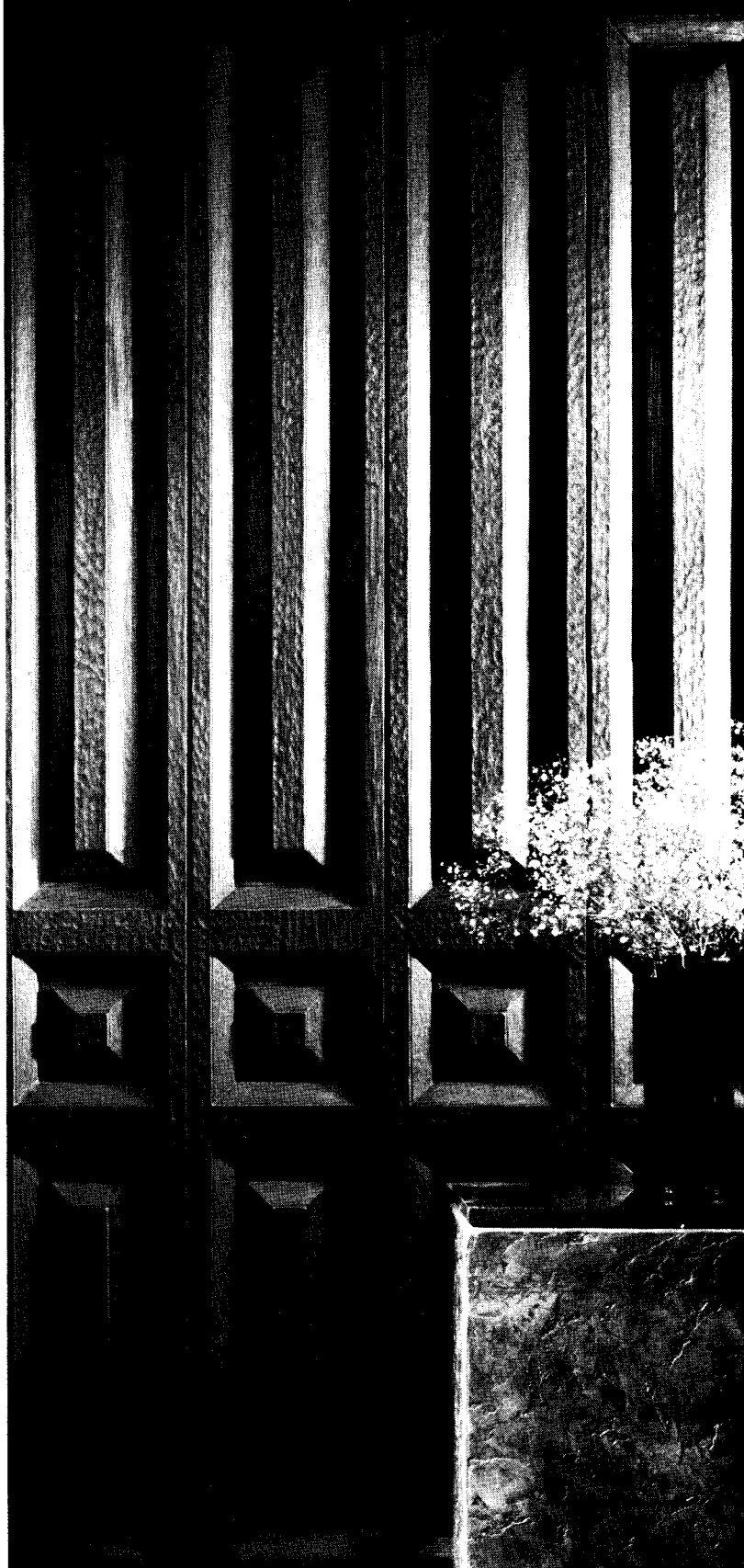
The Role of the Federal Government in New Community Development: Present and Projected, by William Nicoson, Director, Office of New Communities, HUD. An admirable combination of clear statement and analysis of what are the opportunities under existing legislation, what is available to whom, and how.

The major mechanism he sees for urban planning is federal partnership with state government. A first product would be design of a development chart for each state to show in phases why and where growth should occur over a 30-50 year period. This on a state level corresponds to what Maloney-Williams have outlined for the Louisville region.

Reverting now, briefly, to the overall aspects of the Seminars, certain major elements are not covered: The total framework of the Seminars is within New Towns by private-profit entrepreneurship. No conderation of non-profit public-interest organizations, or of development corporations on the British New Towns model (government corporations with directorate of eminent private citizens) in their effect on absorption of typical cross-section of urban-rural population, of all income levels and ethnic mix. This is of paramount importance from the national viewpoint.

There is no speculation-exploration as to national locational policy and possible means of effectuation. The Kentucky paper considers it for a region (Louisville area); Nicoson at the state level. But nowhere, the national level. We *should* be engaged in a 20th century updated "Winning of the West," but this time analyzed and debated.

Lastly, since its early origins in architecture, more or less exclusively, all sorts of new disciplines have been injected into planning, and in New Town development. But, in the process, architecture and the three dimensions have tended to become a poor relation as it were, except for specific structures and ensembles. What is needed is very full-dress consideration of the three dimensions in their psychological, symbolic, effects and potentials.



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FORMS & SURFACES

A Bold Corporate Look.

Exposed steel, mirror glass and a park-like setting are the distinctive and highly visible elements of Burlington Industries' bold new Corporate Offices at Greensboro, North Carolina.

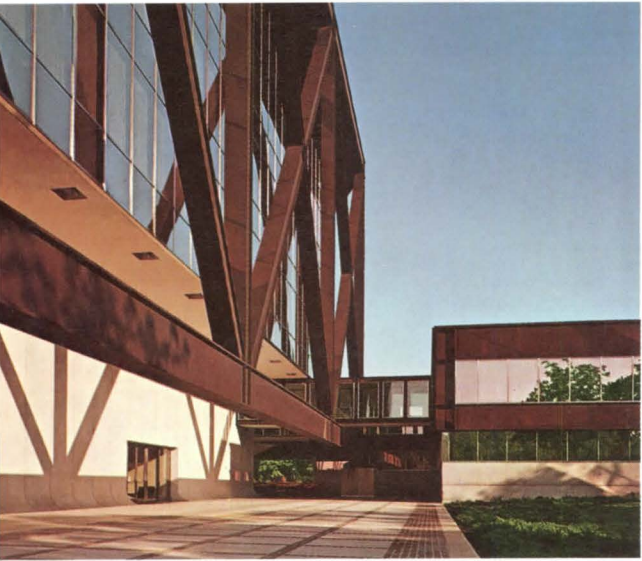
The requirements for a structure which would project the owner's corporate identity and provide maximum flexibility were handsomely met by steel—used both structurally and aesthetically.



The complex is comprised of two distinct structural systems. The dominant, six-story tower of exposed painted steel trusses and reflective glass, houses executive and staff functions. The tower is 152' square with a welded, steel-framed central core housing its services. The top four floors are suspended by hangers from the roof grid while the lower two floors are supported by columns on a caisson foundation. Surrounding the tower on



Defined in Steel



three sides and connected to it by three pedestrian bridges is a bolted, steel-framed, three-story structure which houses corporate, departmental and divisional offices and auxiliary functions.

Exposed steel in the trusses and in the 5/16-inch plate facia around the low-rise structure

were painted a dark earthen hue.

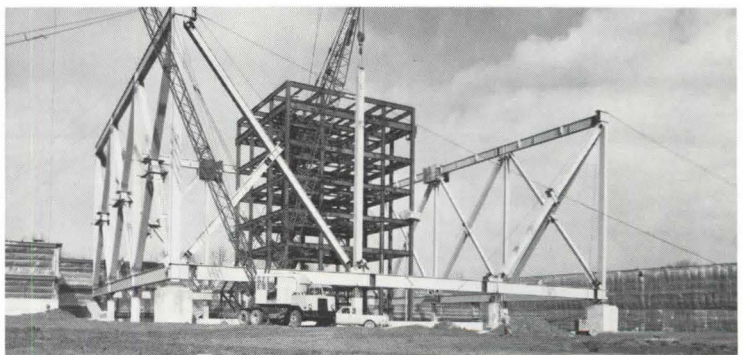
Studies to determine the materials to be used indicated that steel would be the most economical system to satisfy both functional needs and the strict timetable that was set for completion of the structure.

For more detailed information, we'll be happy to send you a copy of our new Structural Report titled Burlington Industries Corporate Offices (ADUSS 27-5084-01). Contact a USS Construction Marketing Representative through your nearest USS Sales Office or write: U. S. Steel, 600 Grant St. (USS 7450), Pittsburgh, Pa. 15230.

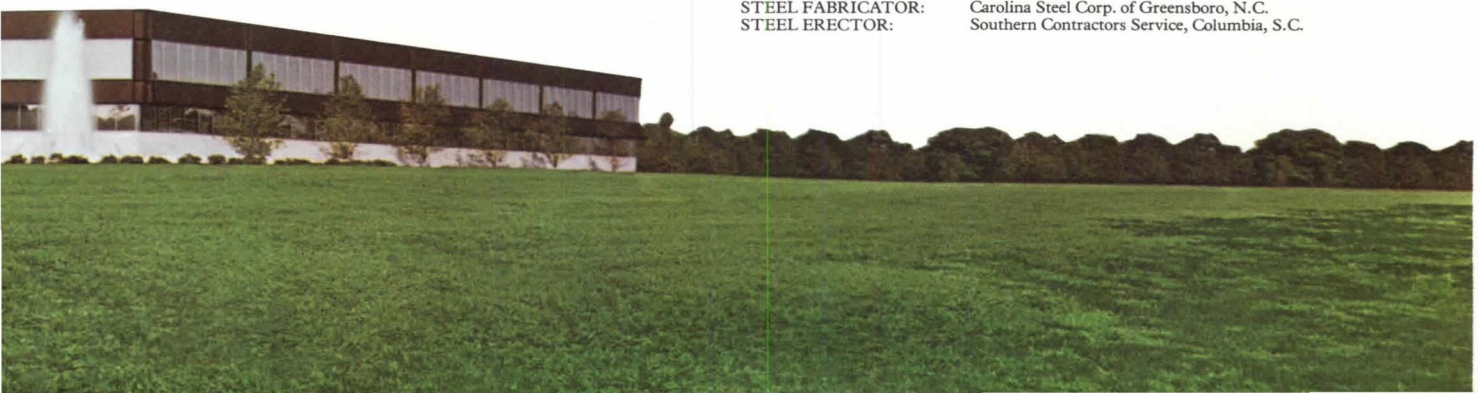


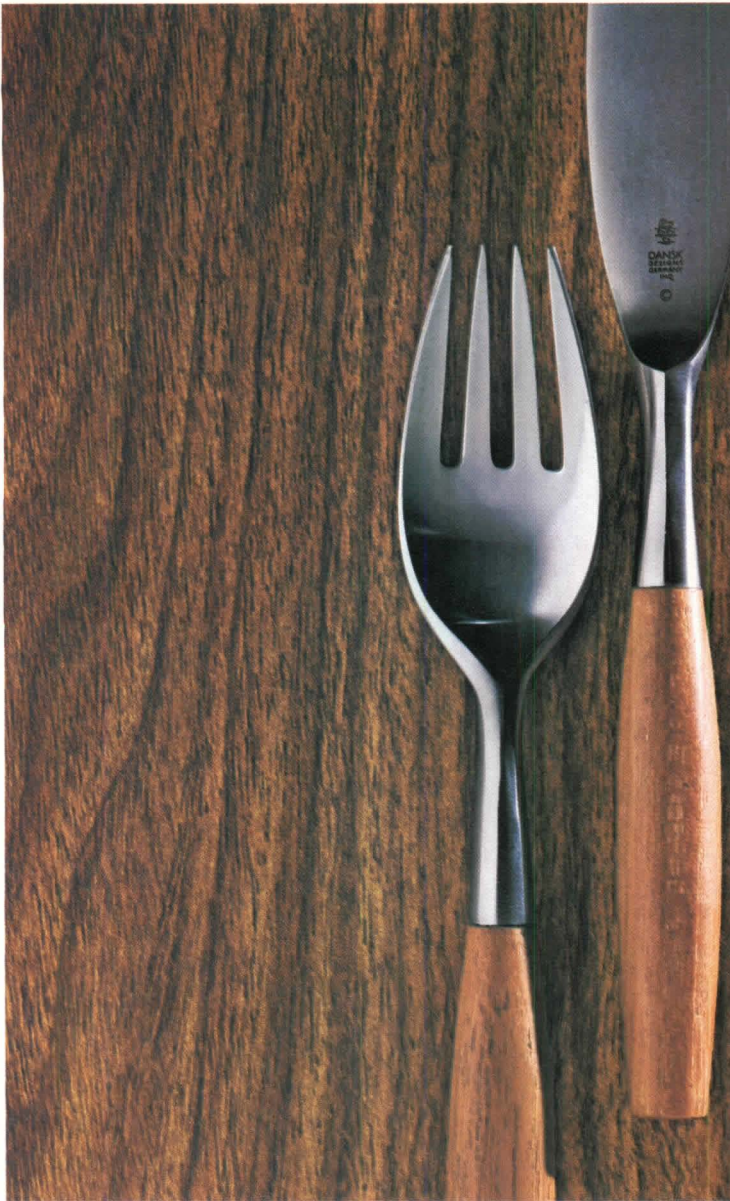
United States Steel

TRADEMARK

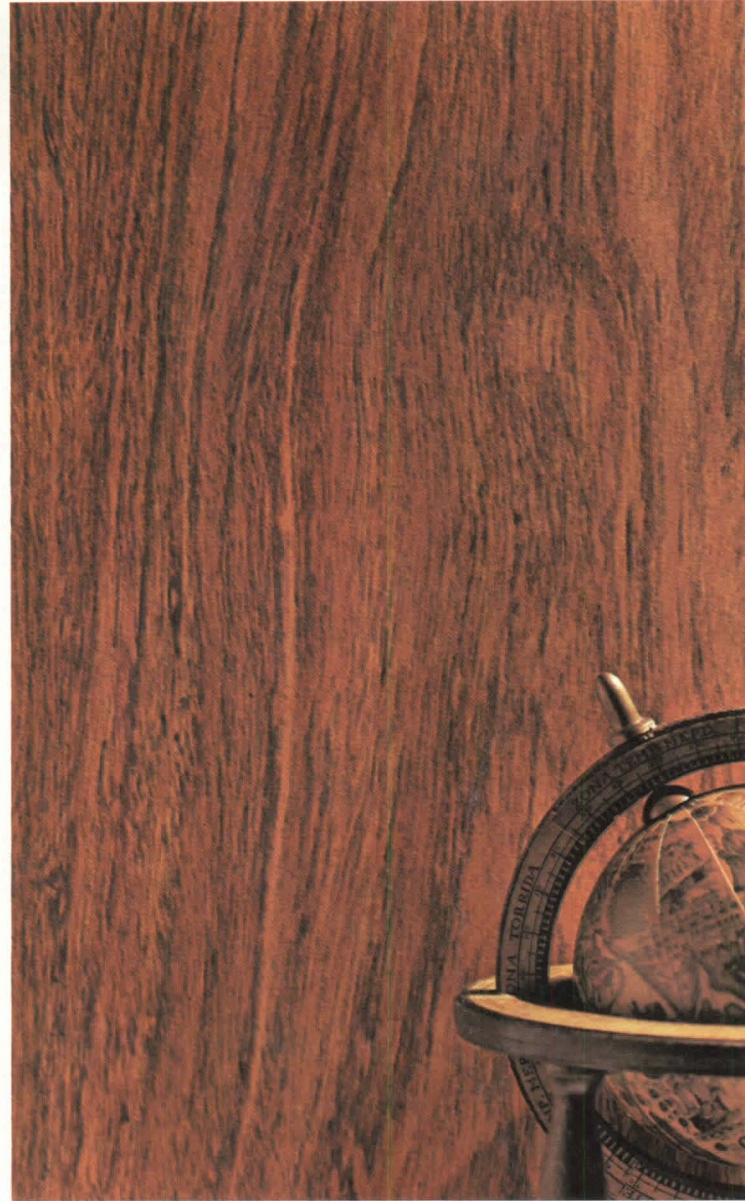


OWNER: Burlington Industries, Inc.
ARCHITECT/ENGINEER: Odell Associates Inc., Charlotte, N.C.
GENERAL CONTRACTOR: North Carolina Division, Daniel International Corp., Greensboro, N.C.
STEEL FABRICATOR: Carolina Steel Corp. of Greensboro, N.C.
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FORUM

Most probably, you are going to hear a big commotion coming out of Washington next April.

It will not be a jet landing on the roof of the Kennedy Center (as some have predicted). It will not be the cornerstone of the Sam Rayburn Building crumbling (as some have hoped). Nor will it be the Commission for the Extension of the Capitol, extending it. It will be, most probably, the mournful sound of about 450 federal agency directors being dragged by their J. Press lapels to the first Federal Design Assembly.

Rest easy. This is no election surprise.

Actually, it began early in 1971 when Mr. Nixon told the heads of 63 federal agencies to report how their programs could assist and, in turn, be enhanced by better design—including, believe it or not, more beautiful buildings and, of course, more dignified medals for such salutary heroes as astronauts, and for those Americans who really *believe* the mails are efficient, nicer postage stamps.

Last spring, about the time Mr. Nixon ordered that the long-threatened San Francisco Mint be restored for use as a national museum, and was showing a keen (if quiet) interest in architectural preservation generally, he responded to the agency reports by asking the Federal Council on the Arts and Humanities to sponsor and set up the Design Assembly. The Council asked Carter Brown of the National Gallery to head a task force of design professionals in making recommendations about what such an Assembly should accomplish. These were received and endorsed by the Council on October 2nd. Given the green light, Lani Lattin, who used to work for Senator Javits, now has the enviable (sort of) job of putting together a two-day dialogue which will be convincing (meaning *comprehensible*) enough to sustain itself on an annual basis.

Don't rest too easy on that score.

To be effective, the Assembly must be conceived and operated as a communications tool at several levels. It must convince the various design experts who participate that they are talking, not just to each other (for a change), but to a bevy of bureaucrats who think, out of habit, that architecture is a seasonable crop which, somehow, has no permanent effect on either the marketplace or metabolism. You don't rotate a crop like the Rayburn Building.

For another thing, the Assembly must put economic and artistic values back on speaking terms and convince government experts that good design is good business, whether you are talking about a single structure, a street or a city. Federal projects are usually big, and they are usually sited in such a way that they can either weaken or energize a downtown district, depending on how delicately the government's blue-pencil was applied. They should be measured for their *social* dividends, as well as for square footage, and they should be thought of as foci for urban life—not just as intemperate, utilitarian objects in space.

This year, the federal government will spend about \$6-billion dollars on new construction. That's a lot of design; but, beyond design and dollars, that's a lot of human interaction, which good design is meant to improve. If this first Federal Design Assembly can educate public servants to the need for measuring *these* dimensions, all the commotion next April may yield some needed signs that our nation is maturing.—WILLIAM MARLIN



From Cape Cod . . .

ENVIRONMENT

TO SUR WITH LOVE

Recently, we took a few days to drive up the 1,100-mile California coastline and discovered how little there is left of it.

From Malibu through Santa Barbara, on up to Big Sur and through Marin, speculative plunder is accomplishing, gradually, what the San Andreas Fault may yet accomplish, suddenly. Shocks are not solely seismic.

Next month, California will vote on a coastal zone proposal which, if passed, would establish a coastal conservation commission and six regional boards to regulate development. Surfside realtors would have to get permission to build, and the state would have to enact a comprehensive coastal protection act by 1976.

A lot of millions are being spent to beat back the ballot.

And, of course, this lobby includes developers, realtors and building-trades unions which are pounding their chests about property rights and construction jobs. Meanwhile, the Sierra Club and others are trying to dispel fears that the proposal would halt building. Its advocates say it would, instead, modulate development in the direction of more sensitive siting and scale; further, it could be amended at any time by two-thirds vote of the state legislature. So somebody *could* sneak in another Dairy Queen, or two.

Coastal conservation has already caught on in other states. Oregon now has a development commission, and Washington's new Department of Ecology has a protection plan before its voters in November. Maine, Massachusetts, New Jersey and Delaware have passed strict shoreline laws.



. . . to Carmel

From Carmel to Cape Cod, the trend is definitely toward protection, and these various local initiatives seem to be building up to federal action. A Coastal Zone Management Bill, which has been approved by the Senate, would provide \$320-million in grants over five years to help states set up land-use programs to save their shorelines. There are over 100,000 miles of it in this country—including the Great Lakes, the estuaries, and the tidal rivers. That is some resource, and the question is whether its salvation will be insured soon enough or, that failing, remain a dream somewhere over the MacDonal's rainbow.

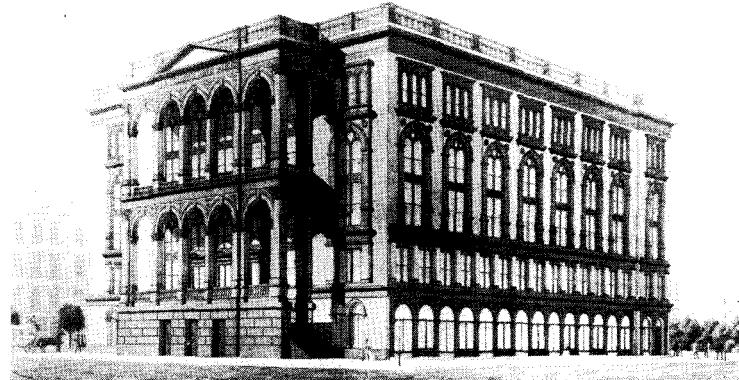
STATE OF THE UNION

Peter Cooper, the industrialist who gave us the Tom Thumb locomotive, also gave New York City its first steel frame building—using rolled steel sections, steel rails and cast iron columns—and its first elevator shaft. The story goes that Peter Cooper put in the shaft, which is round, for what he called an elevator before the elevator had been invented.

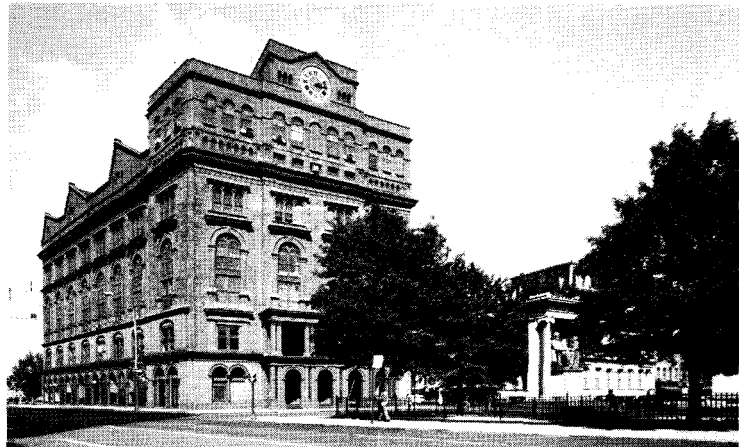
Now the landmark Cooper Union, housing the tuition-free

school of science and engineering, is undergoing a thorough renovation which will begin immediately and include restoring the facade as closely as possible to the 1853 original. Any exterior changes will have to be approved by the Landmarks Commission. This work may help to reverse the image of an area that is rapidly becoming known as Times Square South.

What architect John Hejduk (who heads Cooper Union's architecture school) had to work with was a dearth of construction records or plans, and ultimately a shell. The building, as it stands, is completely illegal according to current codes. It is structurally unsound and hardly fireproof. Some of the decorative cast iron columns—from Cooper's Trenton, New Jersey ironworks—will have to go, and some are being reinforced with metal angles and fireproofed by pouring concrete into surrounding cardboard tubes. New steel beams are going to be put under existing rails—taken from Cooper's Baltimore and Ohio railroad—to reduce their spans, and this will all be sprayed with fireproofing and hidden by a hung ceiling.



Cooper Union as it looked in 1853



Looking north at Cooper Union

The most complicated part of the renovation is meeting the square footage requirements of the library and the humanities departments. Using mezzanines, the architects got three floors in the space of two original ones. The most stunning aspect of the job may be the top floor, where all partitions will be removed to create a large, skylit loft.

The renovation, aided by a grant from HEW, will take at least two years. Hopefully, funds will allow converting part of the East 7th Street and 3rd Avenue intersection into a courtyard.

NO KIDDING AROUND

From week to week, it's hard to tell whether mankind is making love or war. Actually, there is a lot else involved in population statistics. And recent ones show that the changing work ethic is having a profound effect on the population of developed countries. For example, the birthrate in the U.S. has stabilized at 2.1 children per woman of child-bearing age. Stabilization has already occurred in western European countries. While the pill is one reason, social re-orientation is proving to be another form of birth control. More women are taking their place in our service economy; like a lot of men, they are better educated; and, like a lot of men, they are marrying later. In addition, the work week is shrinking on many fronts; companies offer greater flexibility when it comes to sabbaticals, leaves of absence and vacation; institutions of higher learning are putting more emphasis on night school programs, open admissions and on continuing education. In short, Americans have greater amounts of free time in which to improve themselves and, as a result, are spending less time reproducing themselves. Increasingly, they are spending more time with the children they do have. In case you are wondering what all this has to do with architects, think a little about the increased need for daycare facilities, the surging demand for community-oriented colleges, and the interest in community centers which are accessible to people and offer them a variety of experiences and services. The changing work ethic, which will be studied in an issue of *The FORUM* next spring, offers new options for the imaginative archi-

tect and, of course, makes the population picture for the year 2000 a little less bleak.

ARTS

POOR ART

The National Research Center of the Arts, an affiliate of Louis Harris and Associates, has taken a bone-dry look at the least attractive, fiscal aspect of the arts. Reading the 194 page survey entitled "A Study of the Non-profit Arts and Cultural Industry of New York State" (sponsored by the Performing Arts Association of New York in cooperation with the State Association of Museums, with funding from the New York State Council on the Arts), you feel the vitamins have been taken out of the carrot but here are some of the facts. The report reveals an \$86.5 million deficit in the arts by comparing total expenditures against total income earned through admission fees or sales by the 543 organizations studied. These groups earned only 54 per cent of their 1970-71 income. They had \$31 million in unearned or contributed income. 18 per cent of their total income was government money, and 26 per cent was private contributions from individuals, foundations and corporations.

The art industry in '70-71 had 31,000 employees receiving a

\$103 million payroll out of a \$177 million grand total for operating costs. There were 27,000 administrative and artistic volunteers; and considering the subaverage salaries, the report says: "It is fair to conclude that arts personnel are themselves a major form of subsidies for the arts." The report sees one solid plug for investing in the arts. They generated \$23 million worth of goods consumption that year. Another is that they are a "feeder" industry developing talent and innovations which bring returns to other industries.

82 per cent of the organizations studied thought the government should play a larger role in subsidizing the arts; and three out of five felt such support would have "a major influence" on their programming. Which way?

The federal appropriation for the arts for fiscal '73 is \$38.2 million. Some want to see federal funds raised to \$100 million in 1974, \$150 million in 1975 and \$200 million in the Bicentennial year. That would still be less than \$1 per capita and a lot higher than the present 15¢. In 1970, 97 per cent of Boston's taxpayers approved a municipal subsidy for the arts which now amounts to \$1 per capita.

There is a movement afoot, under the national chairmanship of Amyas Ames (who is also chairman of Lincoln Center and

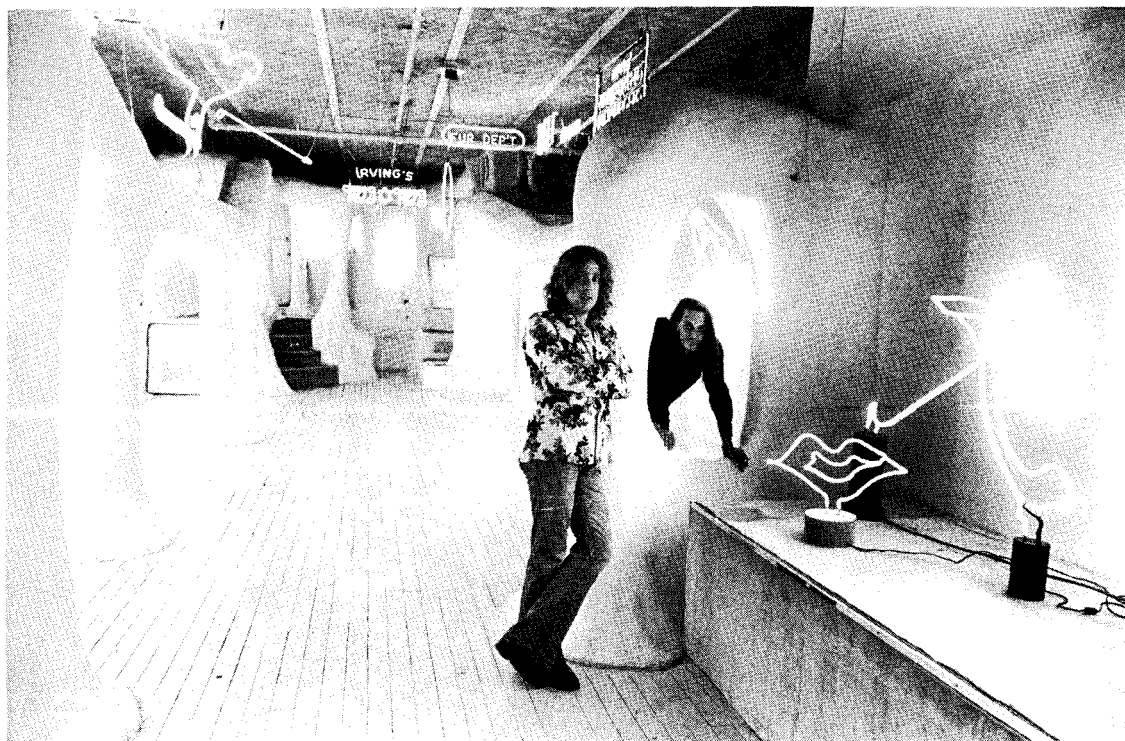
the New York Philharmonic Society), to establish an arts partnership in every state, the idea being to create an effective arts lobby. Each partnership consists of three members, a local vice-chairman, usually a business leader active in the arts; a partner, someone affiliated with a cultural group; and a member of the Young Lawyers Committee of the American Bar Association.

So it looks as if the arts may be looking forward to injections of plain power. Will it be good for their health or their images, after having played it poor and rebellious?

The report which covers much more—including comparisons among the art forms and between New York City and upstate organizations—is available for three dollars through the Performing Arts Association of New York State Saratoga Performing Arts Center, Saratoga Springs, New York 12866.

NEON NOSTALGIA

The neon sign business is dying, and two Manhattan gallery owners, Rudi Stern and Mel Romanoff, want to save what's left of it, not by cramming more advertising into city streets, but by getting neon into homes and museums where it can be seen as a valuable part of Americana. They view such signs as sculpture, made by craftsmen whose skills are disappearing as more



Mel Romanoff, Rudi Stern and "Let There Be Neon"

old stores are torn down and new ones advertise their names in plexiglass.

Stern and Romanoff have placed a "Let There Be Neon" sign in the window of their 451 West Broadway gallery and filled its grotto-like interior with a collection of over 80 buzzing, glowing "antiques" plus some new pieces, such as a neonized telephone, an umbrella, a half-violin, and a pair of lips.

MUSEUM GIVES EQUAL TIME

A lively collection of artists, architects and designers—including SITE, Mayers and Schiff, Vittorio Giorgini, Les Levine, Hans Haacke, Alan Sonfist, Vito Acconci, Christo, John Giorno, Yoko Ono, Will Insley, Nick de Angelis, Dennis Oppenheim, Juan Downey, Robert Whitman and Claes Oldenburg—are contributors to an exhibition at the New York Cultural Center running through November 9th. The first of a series of instant exhibitions based on an equal time premise, this is a reaction to the previous show, "Making New York Understandable," conceived and assembled by the Art Directors' Club. The current contributors felt their megalopolitan thoughts weren't represented in the establishment show so they asked for and got a chance to make them known.

Two of the works which caused the Guggenheim to cancel Hans Haacke's one man show last spring will be in this show. They consist of photographs of facades of slum properties, maps showing their locations and lists of the owners. Now *that* makes New York understandable.

BOOKS

The Conservation Foundation has just released a report called "National Parks for the Future: An Appraisal of the National Parks as They Begin a Second Century in a Changing America." Based on a year long study, it recommends an immediate moratorium on road building, parking lots, and other auto-oriented improvements. The report emphasizes that environmental preservation and exemplary resource management should be the main mission of the Parks system and suggests that historical and cultural functions be separated from

it. The report favors expanded citizen participation in National Parks planning but proposes that private concessions be phased out so the public can regain full control of park facilities. And it recommends the establishment of federal information centers in major metropolitan areas to help city-folk plan their outings to public lands. In addition the book contains the findings of task forces on park values, the role of the parks in outdoor recreation, education and culture, urban needs, and ways and means, plus an account of the Yosemite symposium on the task force findings. There are also several related papers. The book is available in paperback from The Conservation Foundation, 1717 Massachusetts Avenue, N.W., Washington, D.C., at \$3.50 prepaid.

HISTORY

DANGER

The Roman Coliseum has been temporarily closed to tourists and gussied up with scaffolding for repairs after a thorough structural exam revealed dangerous weaknesses which are attributed to new subway excavations and heavy traffic nearby as well as the elements.

LONDON FOG

Now that London planners have decided to make their city a roofless ruin replete with agonized, anodized renewal schemes, you will be happy to know the government has come out for preservation anyway. Witley Court near Worcester, one of Victorian England's staliest homes, will be restored and open to the public, presumably to help raise funds to finish demolition of the rest of England. How, Witley?



Witley Court, unoccupied since 1937



Brunelleschi's dome of S. Maria del Fiore

DRY BONES

The tomb of Italian Renaissance architect and sculptor Filippo Brunelleschi (1377-1446) has been discovered beneath the floor of the Florence cathedral whose cupola he designed. And his remains are said to be well preserved. The inscription reads "The Body of a Man of Great Genius . . ."

CARRIED AWAY

The Superintendency of Roman Antiquities has reported the theft of 230 feet of the Cassian Way and more than half a mile of the Appian Way, both an-

cient consular roads. The basalt paving blocks are hauled off to stud villa patios or are abandoned in nearby woods. The most prized are those with names of the builder or the reigning emperor or with highway directions in Latin.

WANT TO PLAY PHAROAH?

You may get a chance. Cairo is considering building a public park, a second cafeteria and a souvenir market in the pyramid area besides providing pharaoh-style carriages.

COWBOY PARK

The Grant-Kohrs Ranch National Historic Site in the Deer Lodge Valley of Montana is the first National Park area devoted primarily to cattle ranching. The ranch, on which an estimated 300,000 head of cattle roamed free on unfenced lands, is complete with houses, barns, out-buildings and corrals and a vast collection of equipment—saddles, tools, buggies—used since the establishment of the ranch in the 1850's. The previ-

ous owner has granted access to the papers—including correspondence with Teddy Roosevelt—which give an unbroken account of the ranch's development.

ACADEME

TECHNICIANS

The AIA has granted official approval to the architectural technology program at Southern Illinois University at Carbondale. This is the first two year technician program in the nation approved by the AIA under guidelines issued this spring. Formal approval is effective for four years and, says AIA Executive Vice President William L. Slayton, "acknowledges that the university offers curricula which form both the foundation for current support activities in architectural practice and the framework for proficiency in emerging and future activities in the profession." The SIU program was established in 1954 and had an enrollment of 68 last year.

MINORITY SCHOLARSHIPS

Forty-four minority students have received the 1972 AIA/Ford Foundation Architectural Scholarships. Among the winners are four women, 37 blacks, two Orientals, two Mexican-Americans, a Puerto Rican and an American Indian. This brings the number of students receiving this aid to 95 scattered among 47 schools. The aid varies according to need and is renewable for five or six years until the first architectural degree is awarded. The program began in 1969 with the AIA and the Ford Foundation each pledging \$500,000 to support three groups of students. This is the third and final group, but the AIA will look to its own membership, other foundations and industry to continue this effort. The recipients were nominated by high school counselors, community design centers, architects, local chapters and architectural schools.

AMBASSADOR

At Saint Louis' Washington U. Aulis Blomstedt of Helsinki is Visiting Professor from September to December 1972. He has been Professor of Civic Archi-

ecture at the Institute of Technology in Helsinki and is now practicing architecture in Tapiola. He has been editor of ARKKITEHTI and LE CARRE BLEU. His buildings are in Turku, Tapiola and Helsinki, and he has lectured in Scandinavia, Russia, France, and Japan.

M. A. COMBO

And Washington University also has established, beginning this fall, what is believed to be the first masters program in which a school of architecture and a school of social work jointly train students to become professionals responsive to specific community needs. There are six students in the program now; they will receive two master's degrees upon successful completion of the two and one-half year curriculum. It is funded by a grant of \$67,193

from the experimental and special training branch of the National Institute of Mental Health. The program was announced by George Anselevicus, Dean of the School of Architecture, and Ralph Garber, Dean of the School of Social Work, who said jointly that "this new program is the outgrowth of the realization that many architectural efforts are either impersonal or too personal . . ." Dr. Donald C. Royse, chairman of the master's program in architecture and urban design, will serve as acting director. James Chaffers who holds doctoral degrees in social gerontology and architecture and is a professor at Southern University will participate part time. The University has already received requests for the students of this program to work as interns.

HONORS

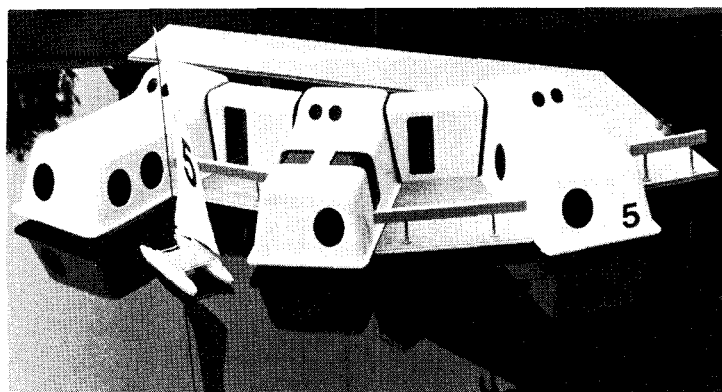
- Double honors to Charles Thomas Walgamuth, a fifth year architecture student at Ball State, for his design of a "Consciousness Center" for the Bicentennial; the 1972 Lloyd Warren Fellowship (the 59th Paris prize in architecture) which provides \$6,000 for 12 months of travel and study in Europe. The other honor: a medal from the National Institute for Architectural Education.

- Dr. Paul N. Ylvisaker, currently Dean of the Graduate School of Education at Harvard and former Commissioner of the New Jersey Department of Community Affairs, has been awarded a citation from the New Jersey Society of Architects for his "notable contribution to the profession of architecture and

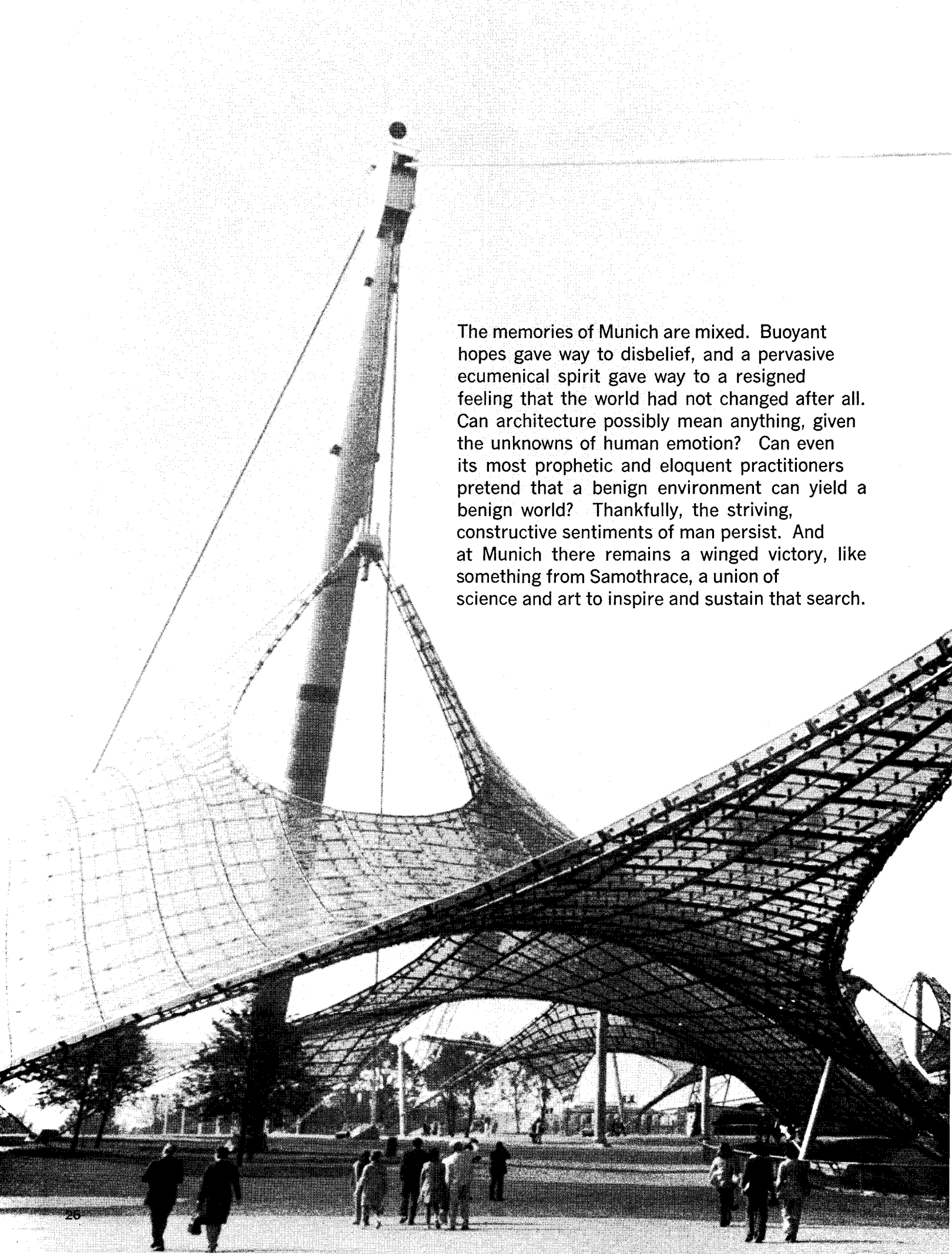
for his humanitarian accomplishments." A Fulbright scholar, with a Ph.D. in Political Economics and Government from Harvard, Dr. Ylvisaker was a member of the AIA's National Policy Task Force.

- There are six winners in this year's Student Design Program sponsored annually by Alcoa in search of innovative uses for aluminum. Schools selected for participation in the program receive an unrestricted \$1000 grant, a supply of aluminum, a technical library and consulting assistance from Alcoa's Design Division. Danny Shung-kee Chan of the Art Center College of Design in Los Angeles designed modular floating housing (photo below) for areas where building expansion is limited by water. David Denis of the Layton School of Art

(continued on page 63)



Chan's modular floating housing



The memories of Munich are mixed. Buoyant hopes gave way to disbelief, and a pervasive ecumenical spirit gave way to a resigned feeling that the world had not changed after all. Can architecture possibly mean anything, given the unknowns of human emotion? Can even its most prophetic and eloquent practitioners pretend that a benign environment can yield a benign world? Thankfully, the striving, constructive sentiments of man persist. And at Munich there remains a winged victory, like something from Samothrace, a union of science and art to inspire and sustain that search.



Olympiastadion

By VICTOR MAHLER

The great, green roof encompassed much more than space, and sheltered much more than sport.

Like a vast wave, its translucence broke gently over bygone darkness. And, like an incoming tide, it raised all the boats. Those of science and art, those of technology and humanism, even those of philosophy and faith.

To experience the Munich roof is to know architecture as the embodiment of all these. It is, as a physicist might put it, a time warp, a visible resolution of the positives and negatives of existence. For it is in the warping of time and the bending of inertia that we discern the course of events, that we perceive the nature of space, that we garner new grids on which to plot our future.

At Munich, activities as well as the structures serving them required philosophical foundations. That was the intent; technology followed.

The physical and psychic ravages of the War were supplanted by reason and, because of reason, a certain romantic view—the practical view.

As Architect Gunther Benisch explains, intellectual expenditure took precedence over material expenditure. The emphasis was to be on light, and on lightness. What you see now at Munich has as much to do with great music as with great architecture. The mathematics of Benisch's great roof are not so much those of the digital computer as those of the Moog Synthesizer, embodying not just calculation but composition, not just analysis but synthesis—"frozen music," to recall Goethe, in the truest sense.

Benisch's relatively young Stuttgart firm won the 1967 international competition for the Games facilities. They did so, quite simply, by being too bold to be ignored.

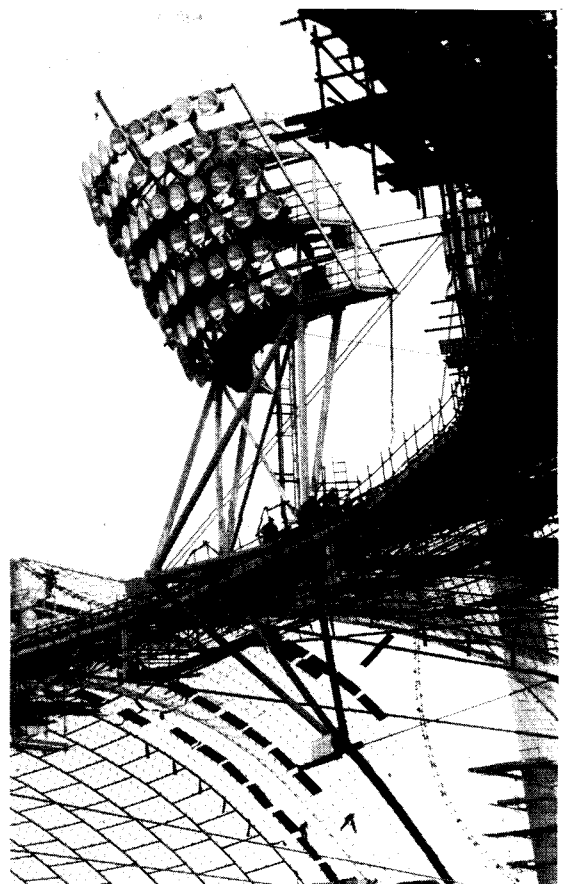
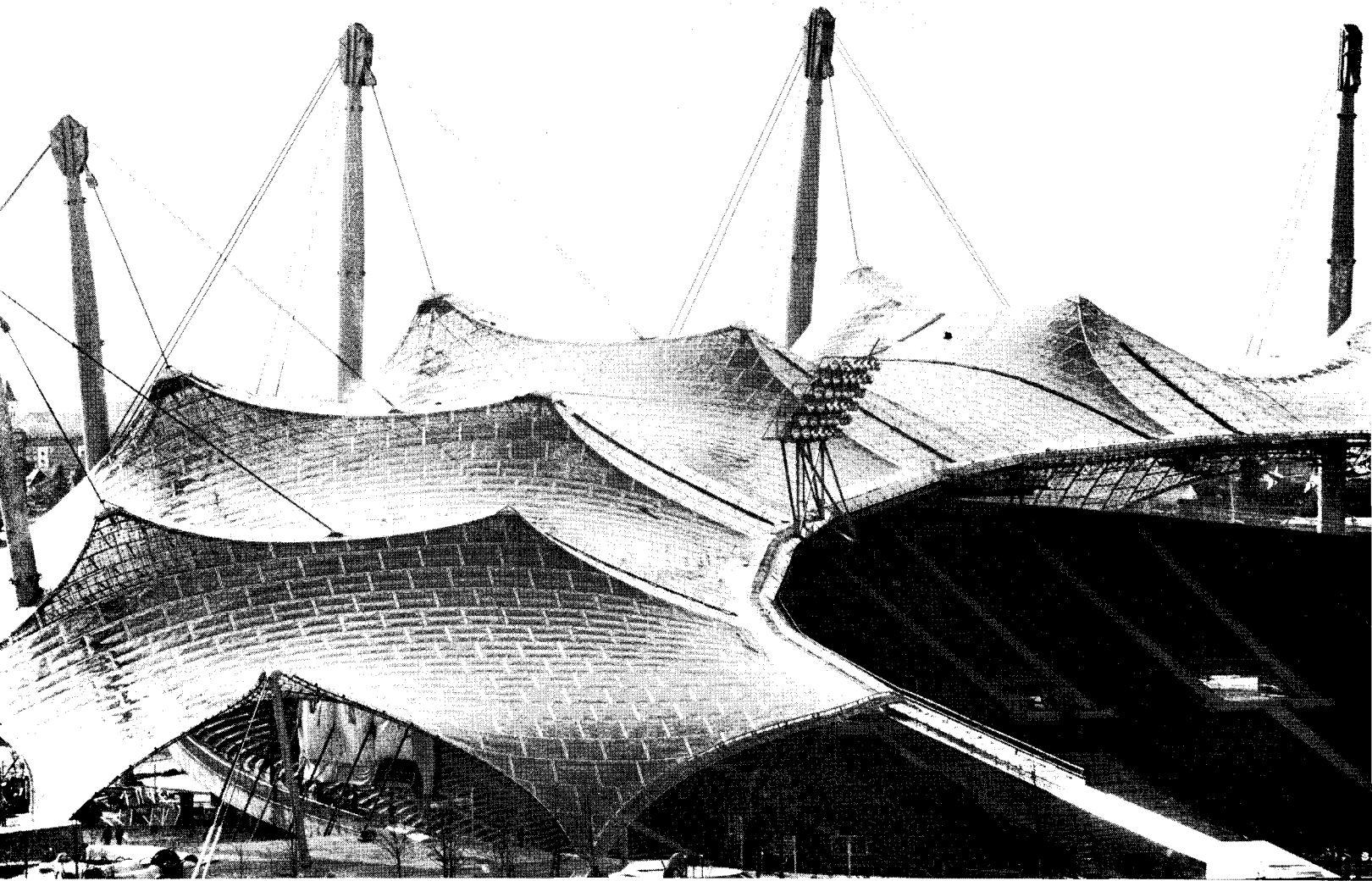
Their proposal, as finally executed, involves two systems; one, the various facilities at ground level, suppressed like ancient amphitheaters into the terrain; and, two, the now familiar prestressed lattice of cables and acrylic panels, suspended (rather slung) over the grounds. As Benisch says, "The overall form arose from the overlap of the two systems."

The objective, and the result, was an "architectural landscape" in which single facilities or features are subordinate. The terrain was left alone, and at all points, its contours are present and recognizable. The first system of Benisch's landscape is part of the site; the second, apart from it. In both visual and functional terms, the great roof is an integrating element, evocative of the surrounding terrain, yet lifting off from it, like one of those manned kites in the sketchbooks of Leonardo.

The first system accommodates three distinct areas of action: the Olympic Stadium, seating 80,000; the sports arena, seating 12,000; and the swimming stadium (also known as Spitz Hall), seating 9,000. These, as well as all other Olympic facilities, are to be a permanent resource of enjoyment for the people of

Mr. Mahler is a project architect with the New York office of I.M. Pei & Partners and has frequently visited Munich in recent years.





These details of the big roof, just before completion, show it suspended over the swimming stadium (opposite above); swooping down over the entrance area (opposite below and near right); and hung from towering, metallic tent spikes over the Olympic Stadium (above) where floodlights, each a meter in diameter, are attached to the chief bridge cable (far right).

Munich, 60 percent of whom are under 40, and 36,000 of whom are students in its many universities and institutes. So this nautical, free and fluid roof is for them—both resource and symbol.

Similes applied to the roof are inevitable. A kite. A scow sail. A sea-faring Crystal Palace. A P. T. Barnum Big Top. Whatever it resembles, there was manifold expenditure of intellect to see this ship down the ways. And there was, because of its prototypical nature, manifold expenditure of money. The project, complete, cost in the neighborhood of \$600-million; of that, the great roof, containing 255 miles of cable and 1,053 miles of wire, came to around \$60-million. That's a lot of bratwurst.

There are a number of reasons for this, but the main one is that bureaucracy, however well-intentioned, has its own zeitgeist. And, from the start, it had cold feet. It wasn't until mid-1968, a half year after the competition jury, that the Olympic Building Authority gave the go-ahead for the Benisch scheme, deciding to embark on a spaceshot-style crash program to develop the required (but mostly unknown) technology.

Out went the call to Delphi, meaning Stuttgart University, where the oracle of lightweight structures, Professor Frei Otto, heads an institute devoted to the subject. Otto, you recall, designed the German pavilion at the Montreal Expo (one-eighth the size of that at Munich), and he was brought in as a consultant to Benisch. So was the engineering firm of Leonhardt and Andrea, famed for their knife-edge thin bridge spans of prestressed concrete. The final structural configuration at Munich is really Otto's.

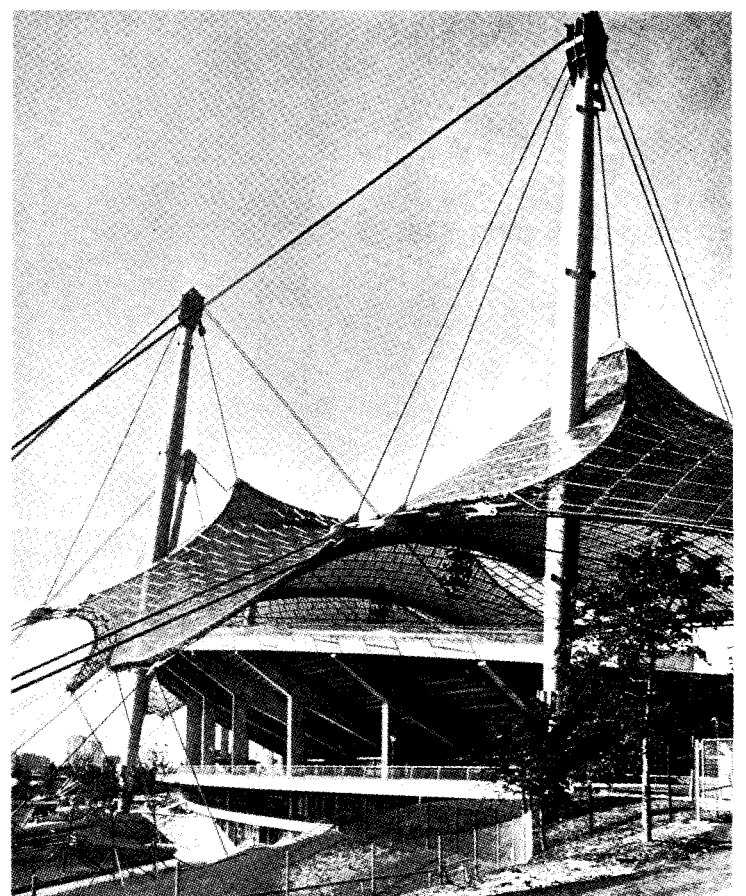
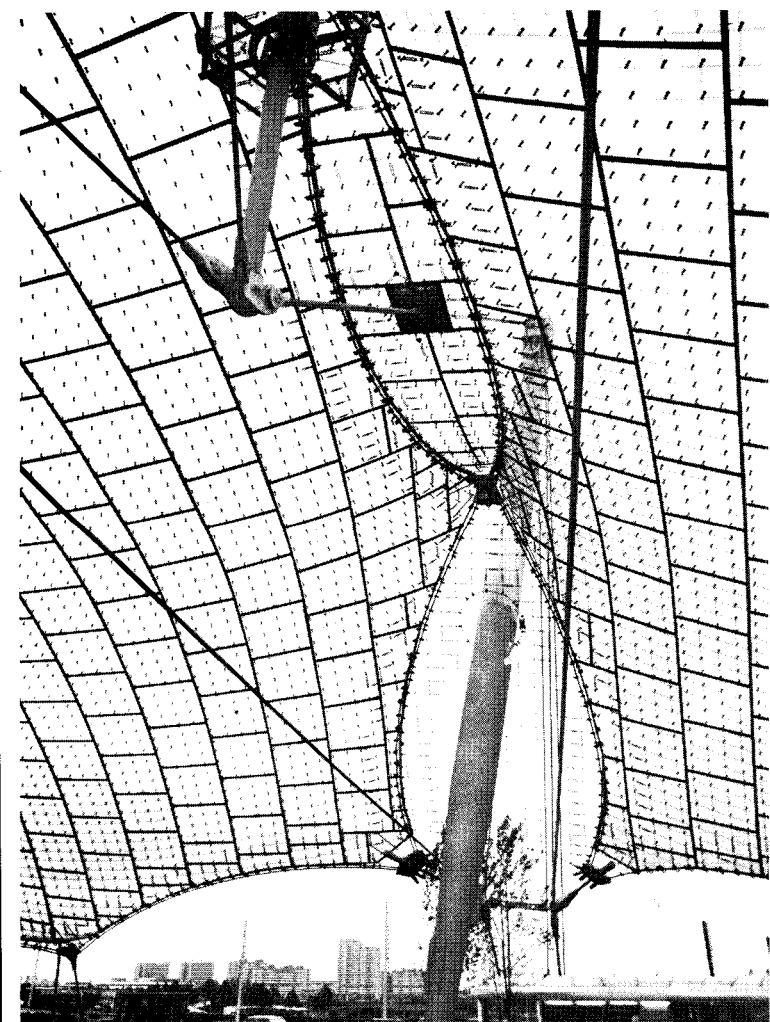
Several factors influenced the final solution. One was the local code which, like most codes, was so calcified that it precluded the use of the prestressed concrete foundations offered by the design team. More costly (and cumbersome) deadweight foundations were decided on to balance the tensile forces with their own weight.

Up on the roof, so to speak, there were other problems. Professor Otto wanted to cover the cable lattice with lightweight concrete, sprayed with plastic. This and other opaque solutions were debated until, finally, that other oracle, the American Broadcasting Company, let drop the simple fact that their television cameras needed a shadow-free, diffuse light with minimum differential. That is why the green-tinted acrylic panels, though more expensive, were decided on. These are secured to the 120,000 intersections of the cable lattice by screws and washers which are separated by neoprene, thus giving some "give" to the roof. With 800,000 sq. ft. of it, that's some "give," but necessary considering that both the cables and the panels had to move; otherwise, it was feared, the big umbrella might buckle under thermal, snow or wind abnormalities.

120,000 cable intersections add up to a lot of unknowns, and these would have been enough to make any computer go bananas. For each intersection,



3,000 pigeons rehearse opening of the Games in the expansive Olympic Stadium (above). Visitors enter it and the other facilities from the center of the site (opposite, above right), and come upon the Stadium as a suppressed, if vast element in the landscape. The close-up of the roof (opposite) shows the cable lattice in place just before installation of the acrylic panels which shield the sun. Seen from the northeast (opposite, below right), the roof hovers gently over the stands with visitors galleries hugging the contours.



there were two crucial factors to be calculated; one, the angle at which two given cables cross each other; and, two, the altitude of separation between them. This means that the computers had to solve 120,000 simultaneous equations at once in order to predict the behavioral properties of the roof as one structural system. Somehow, it all worked out, and officials were relieved last winter when the roof, barely one-half in place, withstood gales and heavy snow.

In retrospect, even the engineers report they could have been more daring. For example, it is said that the eight gigantic pylons, from which the sinewy bridge cable of the main stadium is suspended, really could have been more slender. Again, in the nautical spirit of the structure, the pylons were assembled and welded, like sections of a ship's hull. And the main cables, from the big Schoeninger works, swoop down from them to grasp the bridge cable which hangs free over the stands. Thus, the almost incomprehensible stresses worked up by the roof as a whole are distributed over a broad area as the structure responds, quite imperceptibly, to changing environmental conditions. In use, the main complaints, from both athletes and fans, concerned the unusual drafts caused, ostensibly, by the roof; and, of course, what is now known in the German press as the "frying pan" effect wherein the acrylic panels, instead of filtering the sunlight, intensified it, turning the 80,000 spectators into a mess of squirming smelt.

Despite these drawbacks, an airy, ecumenical ambience pervaded the Games site. The surrounding grounds were left open, free of fences. A generous, wide bridge connects the facilities with the Olympic Village to the north, and spans a recently completed ring road (one of three new ones encircling Munich). At this point of entry from the Village, the roof hovers close to the ground, on its flight from one facility to another. As for other approaches, new subways from downtown Munich, a 10 minute ride away, stop to the east and west of the site; and there is a tramway station at the southern boundary. Parallel paths, interweaving each other at various points, thread through the surrounding slopes (the highest rising almost 200 ft.), and these actually conceal the rubble of Munich, over 50 percent of which was destroyed during the War. Landscaping, which was done by Gunther Grzimek and Associates, consists of grass (which is meant to be cut across, not just looked at), and clusters of linden, willow and maple trees. Thus, foot traffic is somewhat dispersed; the short strolls to or within the facilities are easy-going; and harassment by motorists has been eliminated. To accomplish this miracle, over 90 miles of new roadways were built between 1963 and this year, with costs shared (as is also the case with the Olympic site and its facilities) by the city, state and federal governments. Private transportation is encouraged only in less populated areas; elsewhere, mass transit has been beefed up, and

beautifully. In downtown Munich, where the intown and regional systems intersect beneath the Karlsplatz, there are new underground garages and concourses of commercial space. At ground level, hiding all this, a stretch of road between the Karlsplatz and the Marienplatz has been given over to amenities, which means (among other things) no cars. This provides an encounter-like atmosphere, full of excitement, which would not have been implemented for years had the Olympics not occurred. New construction has been kept to the scale of the old buildings of the city center, many of which have been restored. And most of the new hotels have been pushed, with Prussian finality, to the outskirts where they belong. Would they were out of sight. It is once again a city for people.

The 1972 Olympiad proved, despite the sorrowful episode last August, that Apocalypse is not inevitable. Gunther Benisch's roof, like the enthralling spectacle it sheltered, expressed and evoked the better instincts, as well as the more benign technologies, of an all too rancorous world. That is a useful as well as beautiful example. And in Munich, we saw that utility and beauty are really the same thing.

PHOTOGRAPHS: Erich Pabst, except p. 29 (bottom) and pp. 30-31 (top center) by Keystone, and p. 31 (bottom right) by Olympiaphoto.





The Olympiad, located South of Munich, was a catalyst for the restoration of the old city center. The Marienplatz (opposite and above) has become, more than a thoroughfare, a car-free collection of amenities which conceal a modern rapid transit system.





Almost any materials—mud, boards, boxes—are more educational and enjoyable

LANDSCAPES FOR URBAN PLAY

Too often, neighborhood renewal means turning vacant lots into vacant playgrounds

BY NANINE CLAY

I see children playing in cities. They're swinging from fire escapes, paddling in gutters, building with old cardboard boxes, raising animals on rooftops, and dreaming in the ruins of dilapidated houses. They're climbing chainlink fences to play games in rubble-strewn lots. They're exploring intricate and exciting routes through alleys and dumps.

The new playgrounds, built with so much effort and money, are empty most of the time. No matter what the equipment—traditional swings and slides, elaborate manufactured space ships, simple wooden climbers, or expensive customized designed stone mountains—many are unused. I've visited over two hundred small neighborhood playplaces, some of them many times, and all but a few on pleasant afternoons, and find few children in them. Some of these places are badly vandalized, others simply ignored. But as soon as I arrive kids often appear out of nowhere, leap on the equipment to show off for a photo, ask me a dozen questions about cameras, and remind

me of my own three—loud, shy, curious to learn.

After our boys grew up I had time to look around more thoroughly at my own city and others and saw oversized, gimmicky, expensive playgrounds being provided for urban children—in sharp contrast to the simple loose materials—old boxes and boards, mudpuddles and trickles of water that had been the usual playthings in our neighborhood. In order to gain a better understanding of the way playgrounds in city neighborhoods were being developed and used, in 1968 I accepted an invitation from a longtime friend, Karl Linn, landscape architect and child psychologist, to review the lessons of his own work with the Neighborhood Commons programs, as well as to see the quite-different vest-pocket and miniparks being developed by others.

My own experience raising children drew me to Karl's concept of a place where urban neighbors could gather to share work and play—something our old suburban neighborhood in



than the expensive playground equipment being manufactured for kids.

Louisville had almost no opportunity for. He had turned to Lawrence K. Frank, sociologist and author, as his mentor for inspiration in the American tradition. "In our pioneering past and in our agricultural living," Frank wrote, "there was a well established tradition that neighbors should come to the help of each other, not only in times of emergency, such as sickness, death, fire, but in such projects as barn raising and other tasks exceeding the capacity of any individual family. With ever-larger urban populations, composed of people from diverse locations, largely unacquainted with their immediate neighbors . . . this old practice of mutual aid was lost or given up. Accordingly we have seen the rise of a variety of helping professions and agencies and the development of formal organizations and institutions that supply physical facilities but not occasions for much neighborliness or shared living." Frank urged instead that newly forming neighborhood renewal programs of the early '60's "evoke

voluntary participation and leadership and contributions of time and energy," and create neighborhood groups responsive to the needs and expectations of the local people.

The Neighborhood Commons movement, originated by Karl Linn in the late '50's, was designed to discover and engage the energies of neighborhood adults, youths, and children; to create settings within which work and celebration could take place; and find occasions on which men, women, teenagers, grandparents and children could share in decision making and each contribute his or her own unique talents. Like a barn raising, work methods were so conceived that the community, including its children, would be welded together as it engaged in a neighborhood enterprise.

The original experiment began with the Neighborhood Renewal Corps in Philadelphia, its first project being Melon Common, a community meeting place built on a vacant lot leased from the city by neighbors and volunteer professionals—landscape

architects, architects, artists, and lawyers. An amphitheater, its seats of salvaged stone doorsteps, worn and familiar, a children's sandbox adaptable to circles of teenagers at night, trees for old neighbors to sit under, a slope where kids coasted in homemade carts combined into a setting for spontaneous public life, a place where, as Karl says, "people can be in each other's presence but not in each other's way." Neighborhood Commons were organized in four or five other cities and in Chicago, for example, became a chartered corporation operating a store from which the financial rewards could remain in the neighborhood. Neighborhood Commons have been mistakenly identified as "miniparks" but were actually locally managed projects orchestrating the talents of resident neighbors, including the children, with interdisciplinary teams of volunteer professional advocates.

It was against this backdrop of Karl's aspirations and concepts of what autonomous neigh-

borhood life and enterprise might be that we measured the new tot lots, playgrounds, and miniparks, asking: Does this place or program contribute to an increased sense of community? Does it bring together all members of the urban extended family, now related by proximity rather than blood? Does it give people mastery and control over the place they live in? Does it contribute to child development?

What we often saw were gimmicky playgrounds, vest-pocket and miniparks injected into neighborhoods by agencies financially and administratively unable to tie these expenditures into other higher local priorities, such as education or jobs, and unable to produce facilities flexible enough to respond to spontaneous patterns of neighborhood life. Nevertheless, a rash of these small parks and playgrounds have sprung up from coast to coast, often copied without evaluation from one city to the next. We learned that according to HUD's Division of Land Development Fa-

A tank in a playground, like this one in Louisville (below) is installed on the assumption that children like pretending they're killers. Recently, an F-86 jet donated to a New York minipark was stuffed with rubbish and burned. Missiles, bunkers and the like are available from catalogues.



cilities, about \$30 million was spent in 1969 in Federal and local funds for urban open space, much of it neighborhood facilities; about \$75 million in 1970; and at present, Nixon's urban park program calls for \$100 to \$200 million for land acquisition and physical development, but little or nothing for programs or maintenance. Numerous playgrounds and miniparks have been built simply because a lot was vacant. Demolished buildings, riots, fires, even private owners who don't want to cut their weeds, have caused in some cities a building boom in miniparks, more to tidy up the neighborhood than fit a daily need of either children or adults. Small parks have been a way for "city hall" to give evidence it is doing something while delays were occurring in more difficult programs such as housing. The *Washington Post* not long ago ran a story on the disuse and neglect of the Capital's early-Nixon, post-riot neighborhood parks, and in St. Louis, a misplaced \$15,000 vestpocket park was returned to a parking

area—for a second \$15,000.

In the U. S., the idea that children will stay in playgrounds (out of our way?) if only we can buy them the right equipment is a longstanding fallacy. Each equipment fad is as boring to children, I believe, as the one before. From traditional slides, swings and seesaws, we've espoused rustic logs, old streetcars, painted sewer pipes, concrete animals, one-of-a-kind sculptures, and cast-off military equipment—all on the assumption kids will leap in uninterrupted big-muscle play from one perch to another, like birds in a cage or "imagine" what adults want them to imagine.

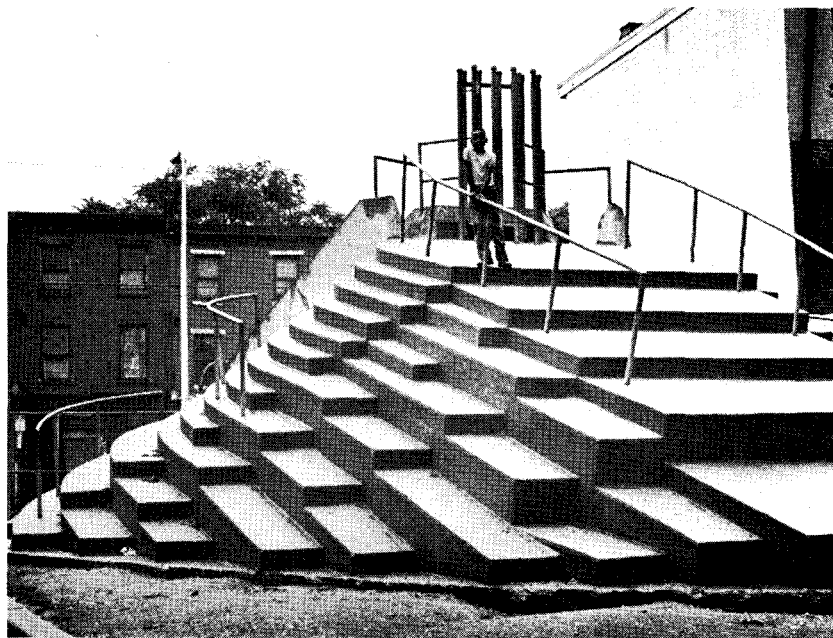
Happily, it may be kids, finding their imaginations cramped by adult-designed shapes, ignore the dictates of this overly specific equipment. Mayer Spivack of the Harvard Medical School's Laboratory of Community Psychiatry says one way a child manipulates his environment is by superimposing "the landscape of his imagination over a passive reality." The child, he says, needs generalized simple forms

and spaces that will adapt to a great range of play behavior. "These spaces," he observes, "have about them the kind of poetry and mystery belonging to great art"—a far cry, I say, from the aggressively realistic equipment we saw. Not only have these over-programmed objects preempted the child's right to his "landscape of imagination" but their static quality has also taken away his chance to manipulate and alter the physical world. To get away from manufactured and cast off equipment, condemned often by adult aesthetics as "bad design," landscape architects, architects, artists, and others have fallen into the same trap: New custom-designed forms made of rigid materials preclude manipulation and adaptation by children. Built of concrete, stone, brick and steel, showcase playgrounds costing from \$50,000 to \$375,000 have received national publicity. Their cost may be fortunate in one way: few cities can afford to repeat them. But nonetheless, directions they've set are being widely copied.

As we visited Boston, New York, Philadelphia, Washington (and later other cities in the Midwest and West), assembling the story of neighborhood park and playground development, talking with old friends who had worked on the Commons and many others, five separate groups gradually crystallized in each city: 1) designers, 2) neighborhood residents and their advocate planners, 3) representatives of municipal agencies and 4) donor foundations, 5) university researchers and student volunteers. Understanding of their work was often far ahead of actual projects. Soon realizing they could best speak for themselves, a meeting sponsored by the American Society of Landscape Architects Foundation in the spring of 1969 and staged by Karl as an encounter workshop, brought face-to-face, without a preconceived program, the actual decision makers. Participants from these four big eastern cities representing the five roles were identified by colored badges. First, they caucused, each with his own



For children, urban surroundings can become a prison of massive, immobile structures where creative action is impossible. Without money for programs, personnel, or maintenance, playgrounds have steadily grown more fortress-like, victims of a cycle intending to stop vandalism but only encouraging it.



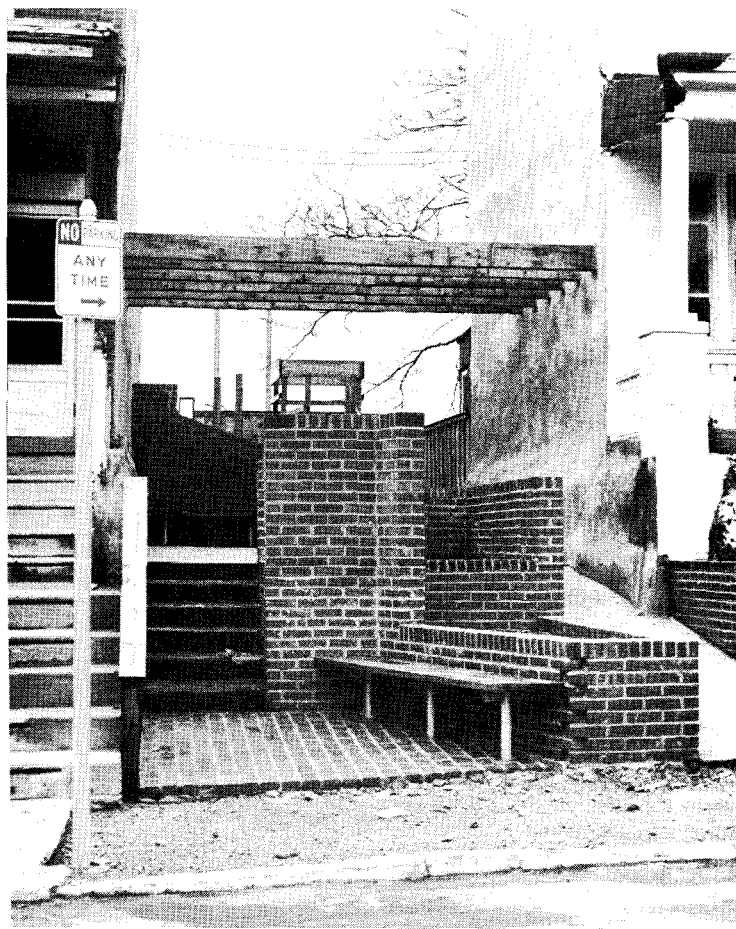
kind, and strength and confidence grew that they were not alone with their problems. Next session groups were formed with equal distribution of roles and knowledge grew of others' experiences. The final forum brought together everyone so strong voices were heard by all.

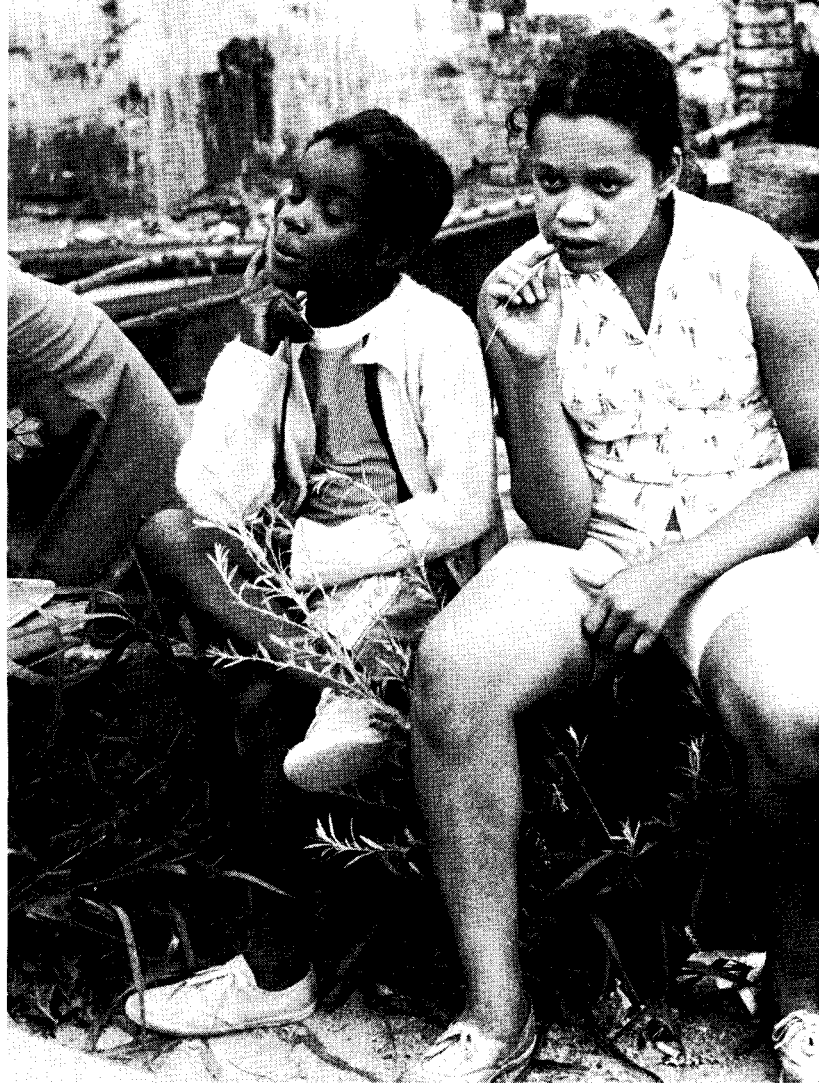
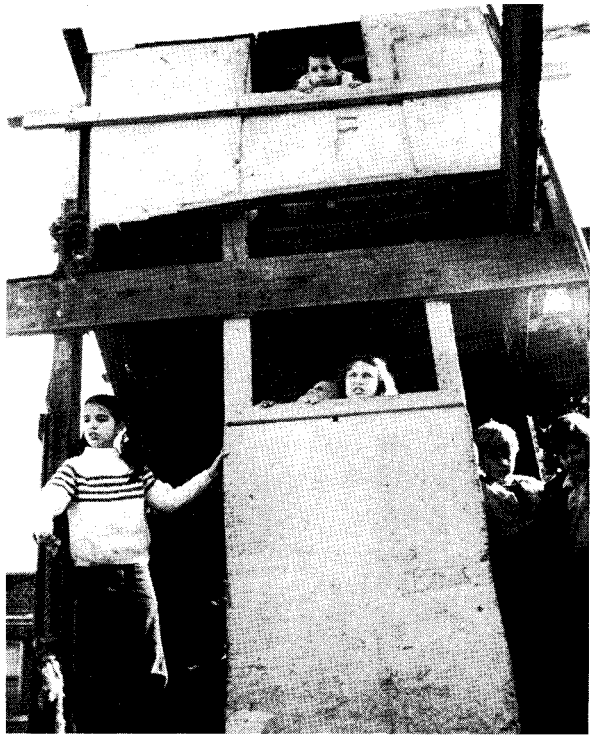
Of the many recommendations of the Workshop (which could be used as a decision making model), one stands out above all: the expressed urgent need for neighborhood control over expenditures for community open space development, with all the recreational, educational, job training, and business profits that can derive from it. The workshop revealed that many a playground and neighborhood park had been shaped by outside political, financial, and professional pressures that did not provide settings or programs contributing to the development of children, a serious priority in black neighborhoods newly aware of what their children were missing.

Simon Nicholson, English designer who has experimented

with components for school-play areas, says in an article "How Not to Cheat Children: the Theory of Loose Parts," ". . . in any environment, both the degree of inventiveness and creativity, and the possibility of discovery are directly proportional to the number and kind of variables in it." We are taught, he says, that "creativity is for the gifted few: the rest of us are compelled to live in environments constructed by the gifted few, listen to the gifted few's music, use the gifted few's inventions and art, and read the poems, fantasies and plays by the gifted few. This is what our education and culture conditions us to believe, and this is a culturally induced and perpetuated lie."

The problem then is how to provide "loose parts" so children can be creative in an urban setting. For nearly forty years, the Scandinavians and British have invested in Adventure Playground programs where building material, real tools and an adult "technical assistant" allow children to make houses, huts, tow-





ers, swings, slides, pens for pets, vegetable gardens, cooking fires, water wheels, and icy slopes for sliding.

And in the U. S. adventure-type building programs have opened and closed in Minneapolis, Berkeley and New York for lack of community support, lack of operating funds, and difficulty in finding playlot leaders with warm personal qualities, rapport with the neighborhood parents, and the ability to tread that fine line between overstructuring and chaos. Of eager children, there has been no lack. Two to three hundred were using Brooklyn's Rugby Adventure Playground during its first summer.

At present, as far as I know, an Adventure Playground in the Bronx sponsored by the Parks Council of New York is the only one operating in this country. However, last summer in a small park in Boston, I came upon a smiling carpenter helped by a dozen small boys. He should have been paid never to finish the job! The right

playlot leader is often a real father figure, and in some London play places, an older woman becomes a "grandmother figure" understanding the problems of lonely young mothers living far from their own families.

While Adventure Playgrounds offer children needed privacy for exuberant and messy building, they again isolate the young, and adults are forbidden to join in the fun of creation. Yet national statistics show our third largest recreational expenditures are for do-it-yourself equipment.

Examples from around the country indicate adults will jump at the chance to get into creative playplaces of their own: a Chicago boatbuilding shop has a long waiting list; on an Oregon beach, adults delight in an annual sandcastle contest; at a New York sidewalk workshop, adults and children build together with tri-ply cardboard and electric power tools. Creative "playgrounds" where all ages can experience the pleasure, stimulation, and learning that



A child whose environment forbids expression is deprived of steps that are irreplaceable in his or her normal growth. The landscape of fantasy lives in a child's head and needs only the simplest props—cardboard, discarded tires—to become far more real than the physical setting of the street.



children so obviously find are a barely-explored direction for play in the city.

"Adults," says Mayer Spivack, "often separate the activity of children into two opposed categories: play and work. But for the child, things are not so clear." If a child is inspired by "playing," he puts in a staggering amount of "work" and many adults do the same.

I believe it's impossible for architects, landscape architects, or artists to design equipment (no matter how aesthetically pleasing to adults) that will keep children in a playground long. Our present financing system, however, encourages the designer to over-design and monumentalize playgrounds, even though the results are boring to kids. Far better that he be on a retainer basis to continually work with neighborhood planners and developers so they can take inventory, preserve, layout or recreate networks of deliberately underdesigned, loosened up areas where children can explore and discover;

or team up with behavioral scientists and educators to find what semi-structured outdoor environments allow children to learn by doing.

For example, a school playground might be an extension of the classroom, a place where a rope swing becomes a highly scientific pendulum, a shadow reveals the tilt and orbit of our planet, and the commonest plants and insects a living laboratory. Possibilities are endless. Moreover, low income neighborhoods should reject pretentious equipment on the grounds that it's not as educational as much simpler loose parts—something more sophisticated groups have long known. Twenty years ago, the best nursery school in our city was using only boxes and boards in its play yard, far more developmental and economical than the static objects given to inner city children today.

To over-design with inflexible materials is to steal away from children (and adults) the right and delight and developmental

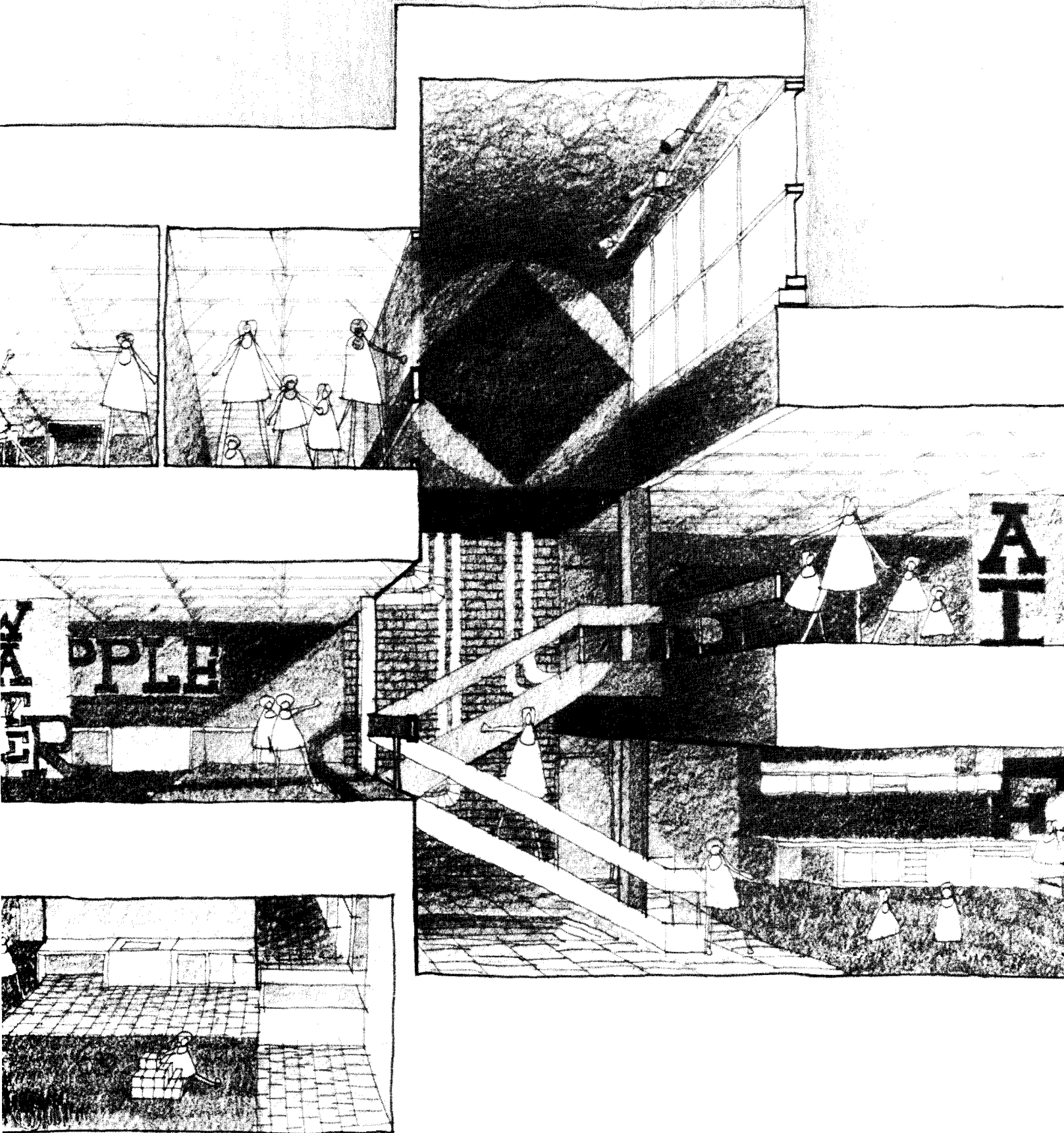
value of creating for themselves. This does not mean stepping out of the picture and leaving chaos. Disorder can be equally uncreative as any parent knows who has seen children abandon a room strewn with blocks but regain interest as soon as "components" are organized on the shelves.

Janine Wagner, San Antonio artist, illustrated the facilitator role of the designer at Hemisphere's child care center when she gave children large pieces of plywood, odd-shaped scraps, paste and certain paint colors. Each child designed his own bas-relief. Put together, these created a mural that held its own architecturally with the largest buildings at the fair, and yet the smallest child could say, "Look! I made that!" The designer semi-structured a process that allowed creativity in others and the combined result was far greater than the sum of the parts.

A somewhat similar role is being played by Robert Nichols, landscape architect, in lower

Manhattan where children and youths work in concrete, pipe frames, wood and mosaics. In Washington five years ago, Karl organized a workshop where young men poured concrete into forms to make slabs for a sidewalk. Each decorated the surface of his block and when laid together, these had variety and intricacy no one could have created alone, and yet it was the indispensable concept of the designer that opened up creativity in the others.

As kids are more and more excluded from adult work, imprisoned in apartment towers, fenced in by dangerous traffic, forced to live where digging and building are outlawed, a small person must feel he or she is a perpetual underdog in uncontrollable surroundings. To roam safely, to fantasize, build with tools and materials, care for pets, and share (perhaps with his parents, too) creative work-play, would bring the child, as Karl Linn says, "a sense of mastery over the place he inhabits."



EVERYDAY BUILDINGS

The Boston Public Facilities Department gives esthetics and economy equal time.



The Boston Public Facilities Department was set up in 1966 to resolve problems and consolidate responsibility for the city's municipal construction.

These are just everyday buildings, of course. Schools, civic centers, fire and police stations, libraries. You know.

Unfortunately, Boston's "municipal plant," as such buildings are called in agency parlance, reflected a century of neglect. PFD's mandate was to undo that; and to simplify and spur the design and construction of new facilities.

Naturally, this Hausmanian effort was going to take a heroic expenditure of funds, and a heroic-size staff. But realizing that first-instance funds, properly controlled, can yield long-range savings, Mayor Kevin White, taking office in 1968, initiated a 10-year capital improvement program which, since then, has built more schools, libraries and fire stations than any mayor, in any mayoralty, in the city's history. In Boston, where history is not exactly beans, that's saying something.

PFD's first director was Robert Kenney, who now heads that behemoth, the Boston Redevelopment Authority.

Last year, he was replaced by Robert Vey, an amiable bureaucrat who knows, somehow, the ways to make an agency as big and powerful as PFD look be-

nign, which, as a matter of fact, it really is.

At least its objectives are, and, as we shall see farther on, so are its accomplishments.

These objectives sort of revolve around four basic ideas. One is the realization that even in staid Boston, neighborhoods are changing fast—actually, it's been that way since the Potato Famine drove all the Irish over. And since wars and other crises drove the Italians over. And the Poles. Remember the "melting pot"? That whole concept got started in Boston. The point is that PFD, in recognizing neighborhood change, also recognized that the scourge of such instability might be lessened by improving city facilities and services in those areas—buildings that people can not only look at and walk by, but buildings that neighborhoods can identify with and feel part of.

Another basic idea is that the first objective could be better achieved by placing greater emphasis on good design and doing this through strict time and cost controls.

The third basic idea has to do with schools. And PFD decided to plan them and design them as *more* than that; schools that would be adaptable for various community uses after school hours, or during summers; in short, not just facilities, but *amenities*.



The Blackstone Elementary School (opposite) in Boston's South End is being designed by Stull Associates as a year-round community resource, combining community services and a little city hall with the open-area teaching spaces.



Just open are Benjamin Thompson's Olney Street Elementary School (above) in the community of Dorchester and Earl Flansburgh's Kent Elementary School (below) in Charlestown. The massing of both projects is consistent with the close-knit character of the areas in which they are located. Both are systems buildings.



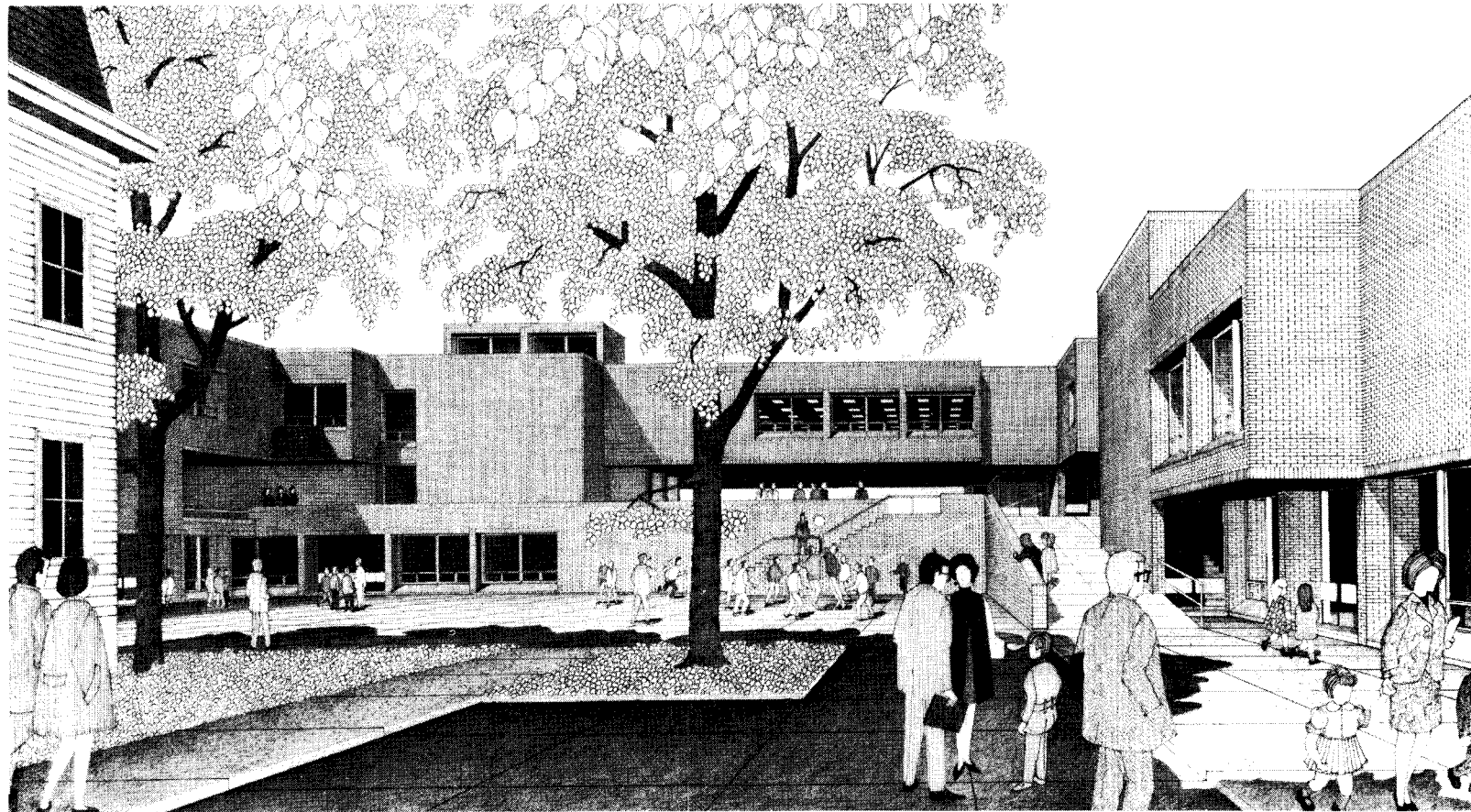
The fourth basic idea ties into all the others, and that is that there should be community input at every stage of planning. Believe it or not, Boston took the harrassed concept of advocacy, and made it work—at city scale. There has been no hassle about big bureaucracy trouncing on local turfs. If PFD keeps *this* up, bureaucracy is going to get a good name.

Would you think *architects* did all this? Well, largely. PFD's first Chief Architect was Richard Joslin who came on with Kenney and moved upstairs to the BRA-house with him in 1971. His successor is Stuart Lesser who, like (and looking like) St. Thomas, wields a T-Square as though it were the cross of salvation.

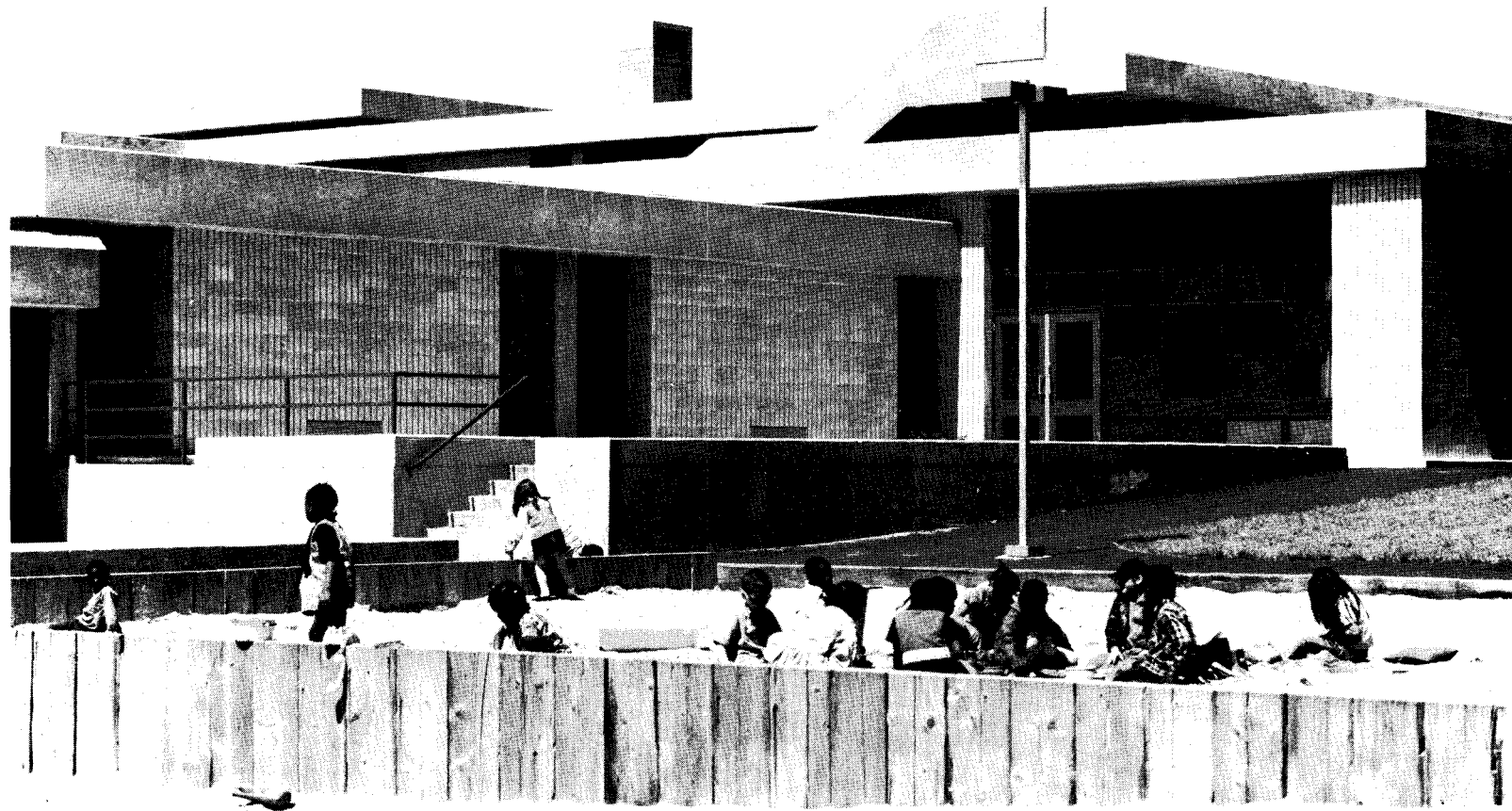
What Joslin, and now Lesser, have developed is a policy by which PFD works with community-written programs and, especially in the case of schools, in consultation with resources like the Harvard Graduate School of Education, the school department, and EFL.

Thus, both subjective and objective viewpoints are sought and become the basis for an architectural translation which is presented to neighborhood organizations at the various stages of design decision. What's more, PFD hangs in a neighborhood once something is built; and the reason is, quite simply, what the computer guys call *feedback*—something which architects (and architectural magazines, for that matter) should be getting a lot more of. By keeping a finger on the pulse of community response to a given facility, PFD can better gauge whether or not they were on the right fast-track—conceptually. As Director Robert Vey notes, "After the ordeal of completion, there is the ordeal of use. It's only right, only professional that we live with 'our' buildings a while."

Speaking of concepts, you will be hard put to beat the architectural talent which PFD has summoned to service. Unlike *other* building agencies, which usually regard architects as pharmacists who fill prescriptions rather than prescribe them, PFD brings the architect in as a *central* decision maker, and brings him in *early*. That makes the architect part of, rather than peripheral to, crucial decisions about budget, schedule, research and programming—all of which



The Hart-Dean Elementary School (above) in South Boston was designed by Chapman & Goyette. The structure is built right up to the property lines of the old, adjacent houses surrounding it. The library spans a former street, which was kept as a walkway through the grounds. The Hennigan Elementary School (below) was designed by the PARD Team.





are steadily steered and reviewed by PFD staffers. And it leaves the architect free to do what he is *supposed* to do—*design*.

That is why names like these show up on PFD project descriptions: Eduardo Catalano, Jose Luis Sert, Marcel Breur, Benjamin Thompson, Kallman & McKinnell, Mitchell/Giurgola, Anderson / Notter, Cambridge Seven, TAC, Frederick Stahl. This is not exactly an intellectual backwater.

PFD performs the role of a supporting resource for talent like this; at the same time, it maintains control of the program, design and construction phases.

Says Stuart Lesser, "We've found that hiring the best people to design our facilities is, by far, the best kind of control. Through our organization and the information it commands, the architect is kept in proximity with

key staff people and with the pace at which crucial decisions must be made. Furthermore, you have to understand that each project is not an isolated thing when it comes to the design process. That process is an ongoing, *evolutionary* one, and each project is sort of plugged into the process. At strategic points, we can supply the required expertise and consultation, whether it's in program, design or technical matters, and we can thereby expedite project decisions. That's essential when economies of time and cost economies are as important as quality design."

With this kind of support, PFD reports that around 20 percent of the architect's fee goes into preliminary design, and around 30 percent into design development. Since spending enough time to do a thorough, thoughtful design job has be-

come more and more a problem for architects in our hurried marketplace, architects generally might do well to hurry to PFD, or some entity like it, where efficiency, economy *and* quality are one package.

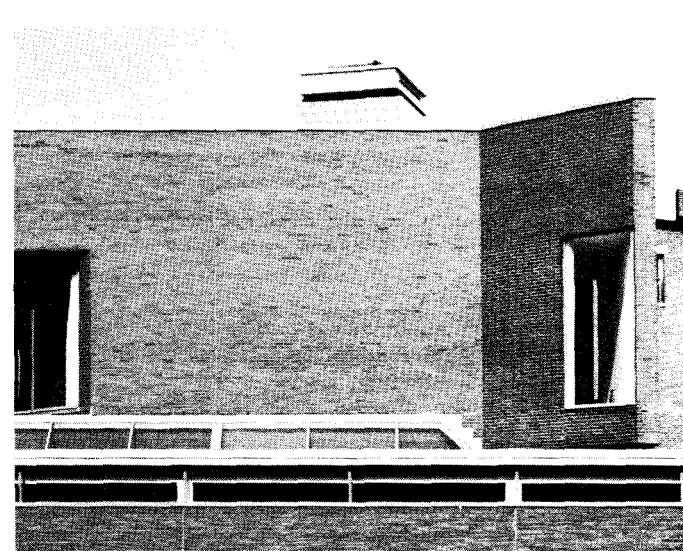
For here, architects are, in effect, *paid* to be thoughtful professionals, not just Sweets-thumbing pencil pushers. PFD considers that the time and dollars spent on defining and refining a concept will be amortized during the decisive contract and construction stages where incessant reworking and changes of mind all too often create fiscal disaster. At PFD, you change your mind *before* the contract is signed to cover construction documents and supervision fees, which are on a fixed basis.

PFD policy has it that the Director must notify an architect of his approval of design de-

velopment documents within six months after their receipt. At that point, working drawings under the new phase two contract can proceed. And, at this point, roughly 50 percent of the architect's estimated initial fee has been spent. As one architect put it, "The rest is downhill and, if you work it right, gravy."

This kind of contract, covering two distinct phases of architectural service, is, of course, a departure from the standard we have all come to know and love.

The standard, single-shot contract was negotiated out of the PFD picture during 1971, and dropped altogether in October of that year. The Boston Society of Architects carried the ball on this score, realizing that a first-instance, estimated fee (covering preliminaries and design development), followed by the fixed fee (for construction



The Brighton Library by TAC is a serene, streetside structure which surrounds an outdoor court (opposite above). The Charlestown Branch of the Boston Public Library by Eduardo Catalano (above) and the South End Library by Mitchell/Giurgola (near left with window detail) indicate PFD's preference for innovations which do not overwhelm their surroundings.



documents and supervision), would, while disciplining professional input, also liberate it in many ways—again, in the direction of a conscientious, conclusive design.

This kind of cooperation between architects and a city agency is not what you could call frequent. The reason is, really, that architects recognize that PFD means business, and it means business to such an extent that there are now 180 projects, either complete or in process, in a 50-sq.-mi. area. That includes both new ones and the adaptive renovation of old structures—like the “recycling” of historic Quincy Market by Frederick Stahl; and of the burly Back Bay Fire Station by Ashley-Meyer-Smith; and of the former Boston Art Club on Newbury Street as a “magnet school” by Coletti Brothers; and of an old coal bin as a new waterfront fire and police station by Anderson/Notter.

In fact, the next time you see some hulking “eyesore” in some part of Boston, it’s a good bet that Stuart Lesser and Bob Vey have already driven by to size it up for a new function. It’s worthwhile reconnaissance. And,

in many cases, such derelicts have ended up on PFD rolls, housing valuable community services.

The functional aspects of nostalgia aside, PFD’s priority was, and remains, school construction. In 1968, half of Boston’s schools were over 100 years old. To Mayor White, revitalized schools meant revitalized communities, and revitalized communities meant keeping middle income families in town. And keeping such families in town meant a more dependable electorate, right? And, of course, a more dependable tax base.

By last September, just four years after PFD got its marching orders, 12 new schools were open, and eight old ones had been renovated. Another 30 are either planned, in working drawings or under construction.

As indicated earlier, the schools are expressive, both visually and functionally, of community needs, as set forth in consultation with the communities themselves, and of community scale. PFD would sooner build around a cluster of old, occupied houses than bulldoze them.

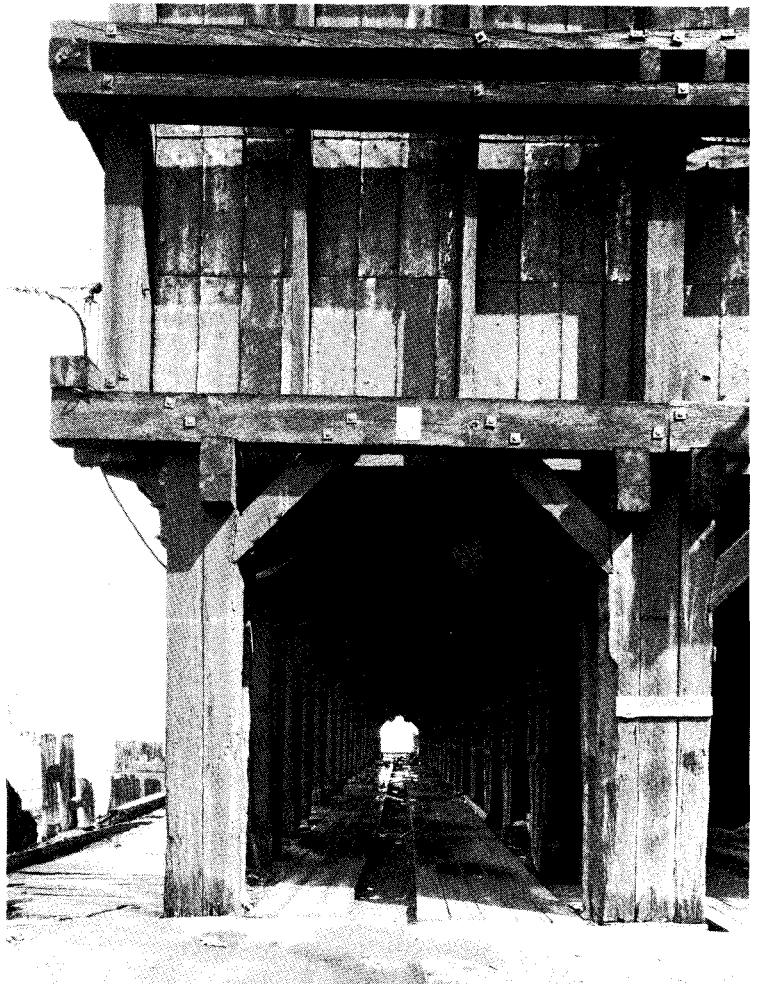
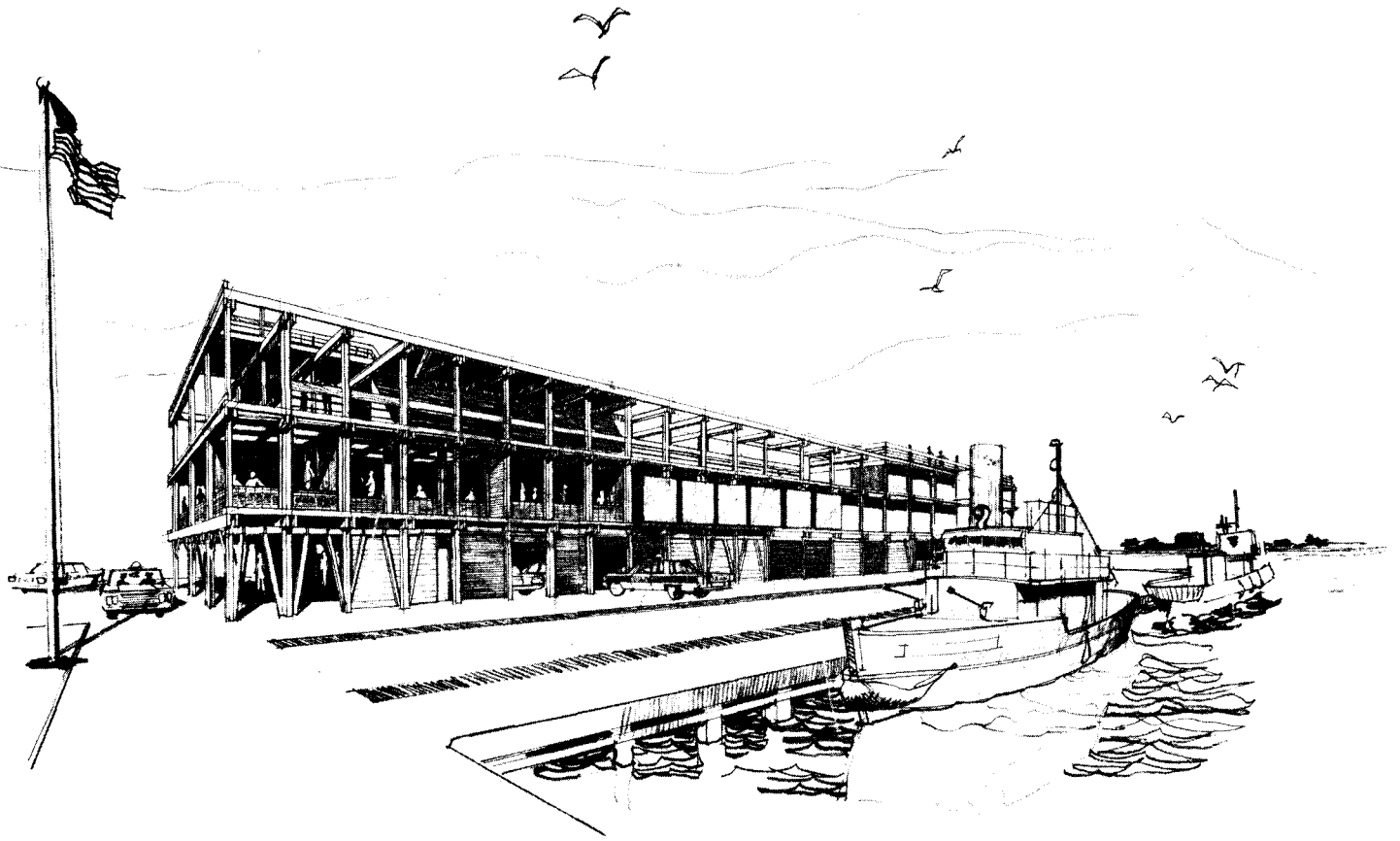
What’s more, the new schools

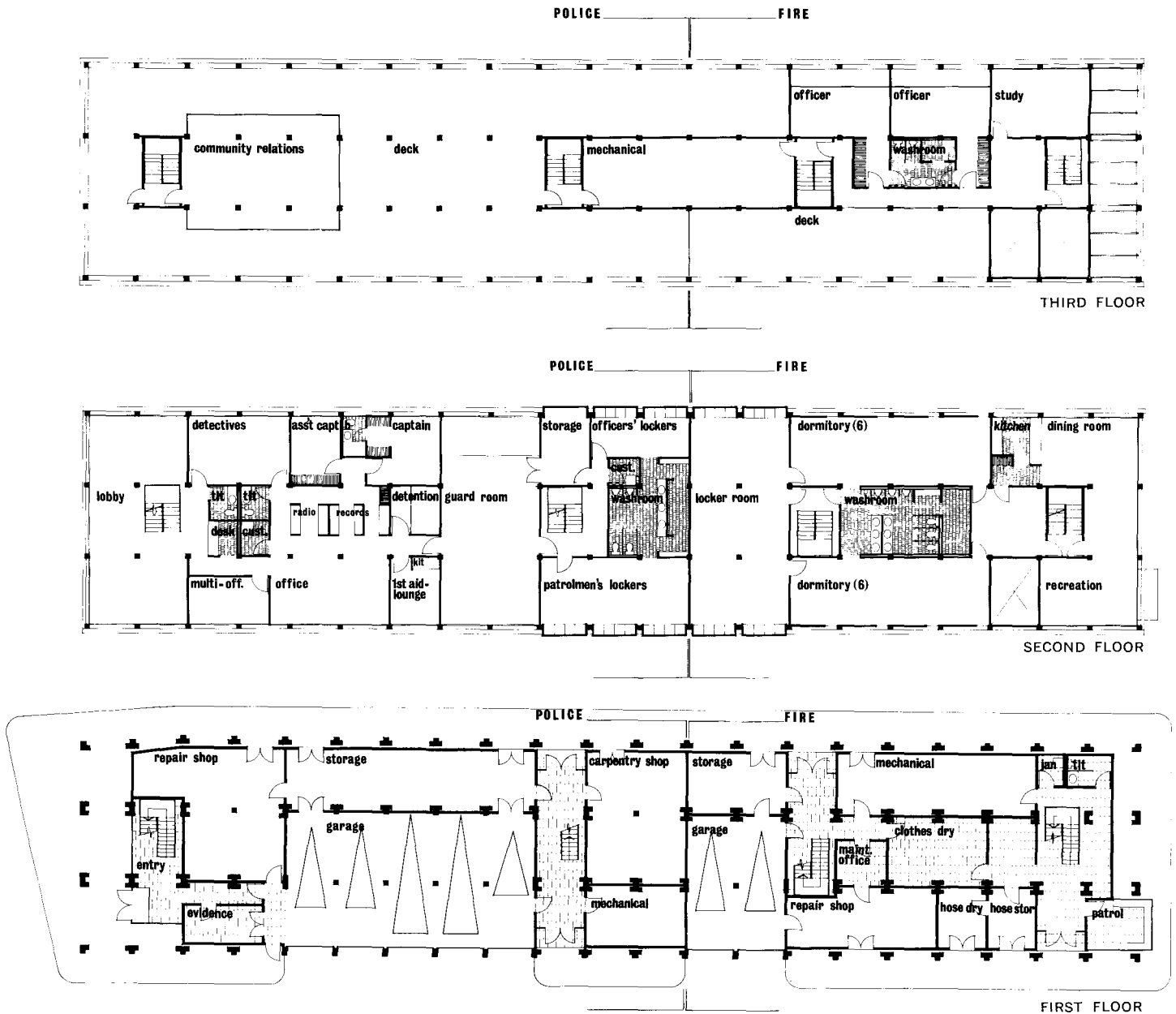
all have open area classrooms, ready for adaption to changing instruction and technology; many contain community facilities—meeting rooms, pools, gyms, theaters. You name it, it’s being thought of. The idea has been to make the school a catalyst for experience and activities of many kinds, not just a place to crack books (or heads). This way, PFD is, in the best sense, generating stability by building places people can use—all hours of the day. Places which, in constant, constructive use, police *themselves*—or, at least, help do so. Needless to say, the dividends of design quality are not just visual.

We described, earlier on, PFD’s program as evolutionary. And there is, perhaps, no better example of this than the systems methodology which has been developed to keep costs down—and quality up.

Since 1969, PFD has been working with Environment Systems International (owned by Architect Earl Flansburgh of Cambridge) and R. V. W. J. Systems of Toronto in setting up BOSTCO, which is Beantown’s answer to California’s SCSD program of the early ’60s. In-

The Field Corner Police Station by Cambridge Seven (above left) has a sense of invitation to it, and includes community counseling as well as law enforcement activities. An old waterfront coal bin on the Boston waterfront (opposite below) is to be transformed by Anderson/Notter into a fire and police station (opposite above).





dustry, responding to PFD's exacting performance specifications, has come up with several compatible prefabricated systems which, design-wise, lend themselves to numerous combinations and, hence, configurations.

BOSTCO's first phase, or Track I, involved two demonstration schools which used the SEF (Study of Educational Facilities) system from Toronto. They were completed in 12 to 14 months and suggested, among other things, that maybe a rapid transit freight line should be established between Toronto and Boston.

Once these two schools had demonstrated cost and time savings, and once the potential range of components had been researched, BOSTCO began the

Track II, using a generic kit of components PFD had judged preferable. A systems group and a systems manual are now part of PFD procedure, and both are supplying up-dated guidelines for the private architects working on Track II and, soon, Track III projects. The latter ones add up to four new schools; the former, to six. 100,000 students in the Boston area need them. And what they are getting are buildings, like Ben Thompson's newly opened Olney Street Elementary School, which combine high humanism and sensitive siting with advanced technology—this, for 1,000 pupils.

Boston has what an English critic once called "negotiable diversity." For one thing, it's walkable. For another, it's a

city, as we pointed out in these columns last month, where permanent values count and where a sense of place matters. You can sense this on one level, walking by or going in such big symbols as City Hall in Government Center; those are values which span generations. But what about those symbols of personal and neighborhood sustenance? Those everyday buildings which comprise the warp and woof of daily life?

Public facilities seems almost too mundane a description for what Boston is doing; as we said, public amenities are more like it. As one PFD man said only half jokingly, "Before too many years, every Boston building will be ours."

—WILLIAM MARLIN

Anderson/Notter's waterfront fire and police station (above) will be a dramatic example of PFD's emphasis on the adaption of old structures for new uses. Its original structure (opposite) will be even more evident when the transformation is complete. Like similar facilities in other parts of the city, this one will include considerable space for community relations programs.



POOL PARTI

Architect Roger Taillibert has designed a pool facility in Paris that changes to suit the weather

Most indoor public pools tend to be cold, damp and saturated with the odor of chlorine, whereas most outdoor pools are closed in winter. When Roger Taillibert designed this swimming pool complex on Paris' Boulevard Carnot, he wanted only the *best* of both worlds.

Though Taillibert has, of late, concentrated his efforts on projects like the 50,000 seat Parc des Princes stadium, the problem was already as familiar to him as the solution. Earlier, he had designed a convertible, umbrella-like roof for an open-air theatre in Cannes.

Wild as the canopy may appear, the calculations and structure of the system were carefully predetermined and verified on working scale models.

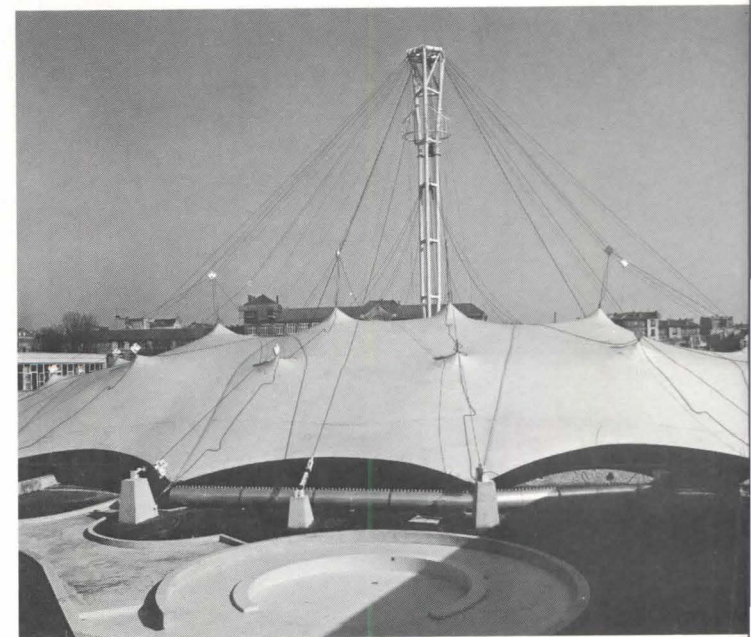
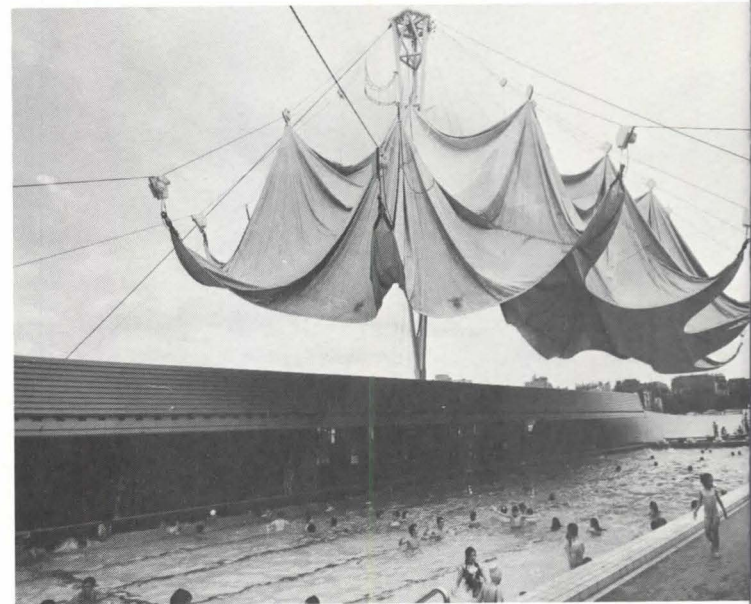
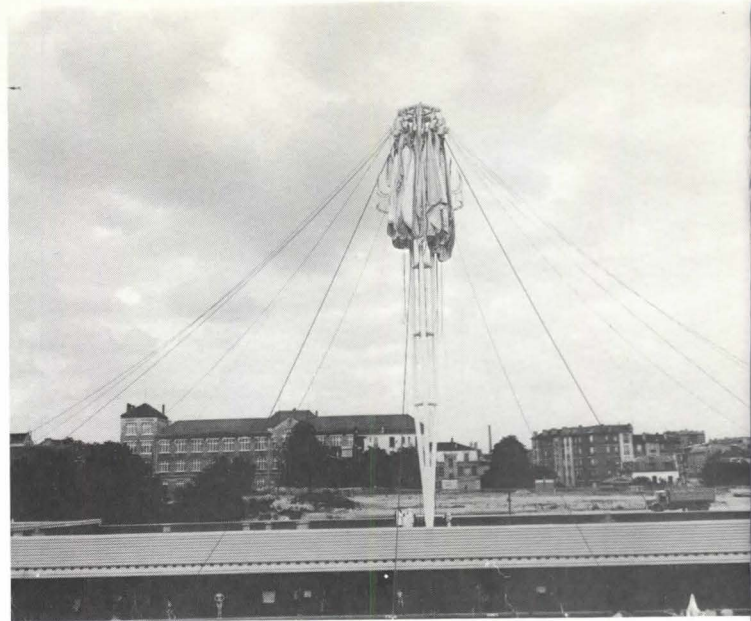
The entire project consists primarily of a tall, central mast mounted on top the administrative area (see drawing). The mast is composed of three vertical tubes joined triangularly to provide additional strength. It is securely anchored to the ground by three main cables connected to massive, concrete foundations.

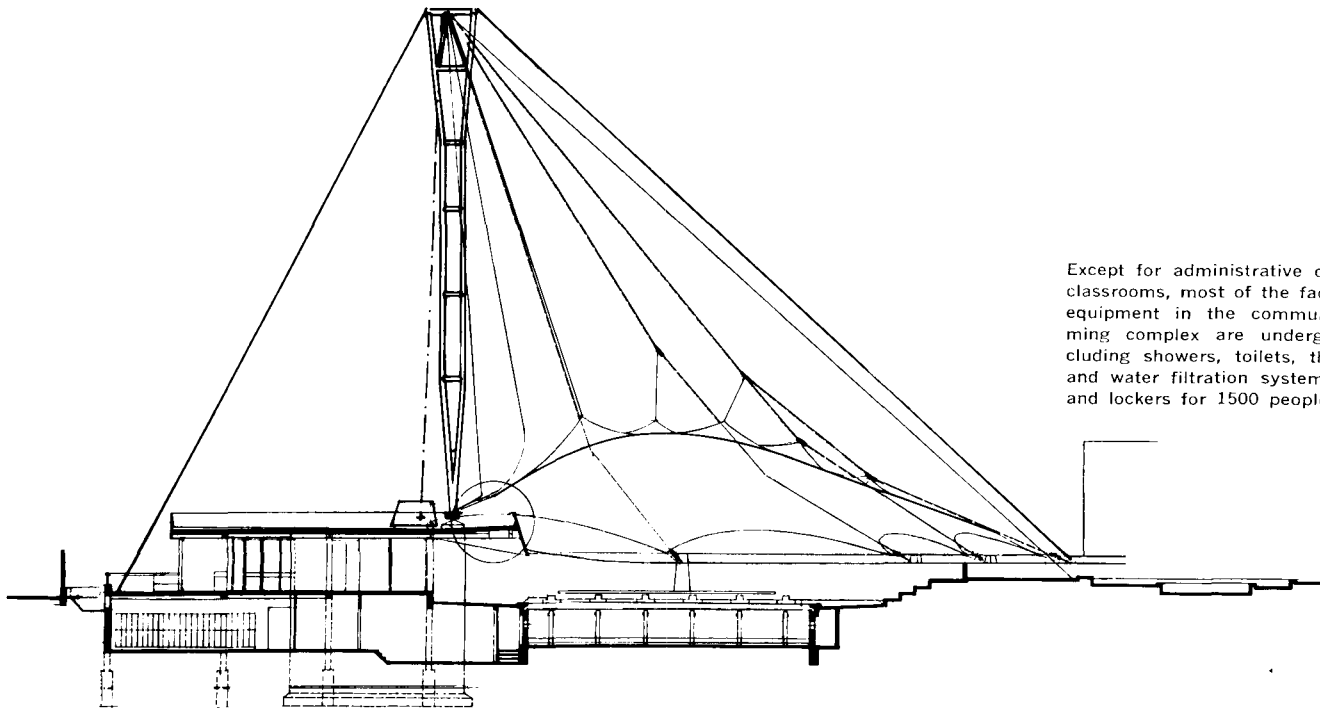
The synthetic roofing material, tough, yet light and flexible, is supported by ten cables attached to the mast and equally distributed along 180 degrees. Each of these is anchored to the ground with 14 more points of attachment to the canopy.

Small, sliding motors pull the canopy along the cables. They are controlled by a central power and monitoring system that allows the whole roof to move up and down at the touch of a button. Like the heating and water treatment equipment, this was installed underground to preserve the open space.

Taillibert's project is not the last such pool for France. Already there is talk of one that will be even more automated. At the first sign of rain, the giant parasol would descend; or if the weather turned cold, the heating system would turn on immediately.—PAUL VIOLI

Unlike an umbrella, the canopy moves down the mast to open. At the push of a button, it covers the racing pool, the largest of three in the complex. The others are a recreation pool and a diving pool that has an adjustable platform mounted on a telescoping column.





Except for administrative offices and classrooms, most of the facilities and equipment in the community swimming complex are underground, including showers, toilets, the heating and water filtration systems, a store and lockers for 1500 people.



PHOTOGRAPHS: Ch. Baer.

THEORY IN PRACTICE

PART TWO

BY ROBERT GEDDES
WITH AN INTRODUCTION BY CARL KAYSEN
AND A CRITIQUE BY KENNETH FRAMPTON

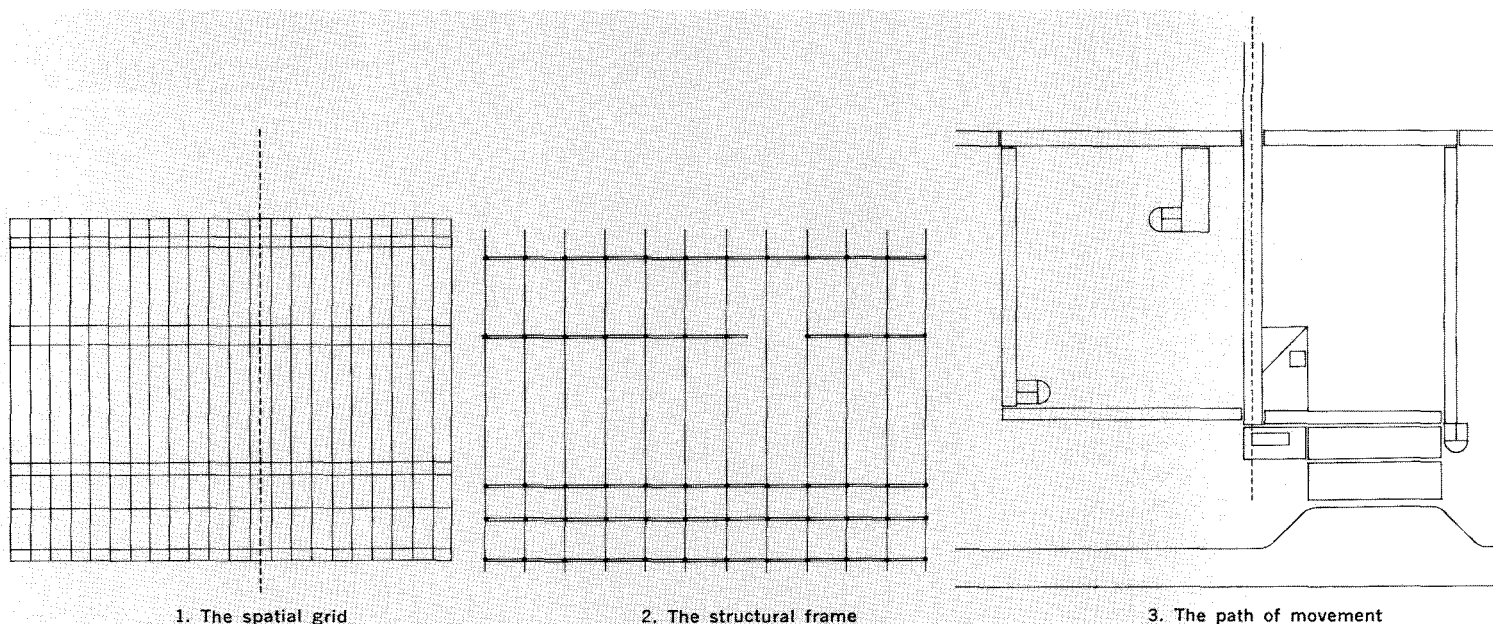
Last month, Robert Geddes introduced the philosophy of his work and presented a series of five buildings. This month, one work is analyzed in depth, the new Dining Hall Commons and Academic Building of the Institute for Advanced Study at Princeton

Academic institutions are often called "ivory towers." The Institute, which is more "academic" than most—in the sense of focusing on problems of the greatest intellectual appeal and difficulty without reference to their practical importance—has been described as the "penthouse on the ivory tower." In this connection the phrase "ivory tower" denotes isolation from the hurlyburly of the market place, but it also, and appropriately, carries the suggestion of rarity and beauty. This, too, is appropriate to the nature of our enter-

prise. Ultimate standards in the intellectual world are aesthetic; terms such as originality, depth, and rigor are now used in an approving way to characterize intellectual work, conveying judgements that are essentially aesthetic. Thus, it is appropriate to the Institute's purpose that it seek beauty as well as utility in the structures that house its activities, and embody it in visible form.

The original buildings of the Institute do not now appear to have reflected a strong concern with the importance of beauty. Fuld Hall, the Institute's first building, has a solid and imposing character and the grounds

Mr. Kaysen is the Director of the Institute for Advanced Study.



1. The spatial grid

2. The structural frame

3. The path of movement

To understand a building is always a complex task of cultural analysis, the more so when the building serves an unusual institution. The Institute for Advanced Study is dedicated to "the encouragement, support and patronage of learning—of science, in the old, broad, undifferentiated sense of the word." The Institute has some of the character of a university, and some of a research institute. But it is different from both. Unlike a university, it has no separate, identifiable student body because its members are both teachers and students. It offers no sched-

uled courses of instruction and no degrees. It is small—its academic membership is about one hundred fifty, including both permanent faculty and temporary members. A major function is the provision of opportunities for members who come for short periods, one or two years each. It differs from a research institute in its primary devotion to learning, "in the double sense of the continued education of the individual, and of the intellectual enterprise on which he is embarked."

The Institute's academic work has been carried forward in its three schools—Mathematics, Natural Sciences, and Historical Studies. In recent years, a new program has been added in the Social Sciences, aimed at "pro-

Mr. Geddes is Dean of the Princeton School of Architecture and Urban Planning. He is design partner in charge of the Princeton office of Geddes Brecher Qualls Cunningham.

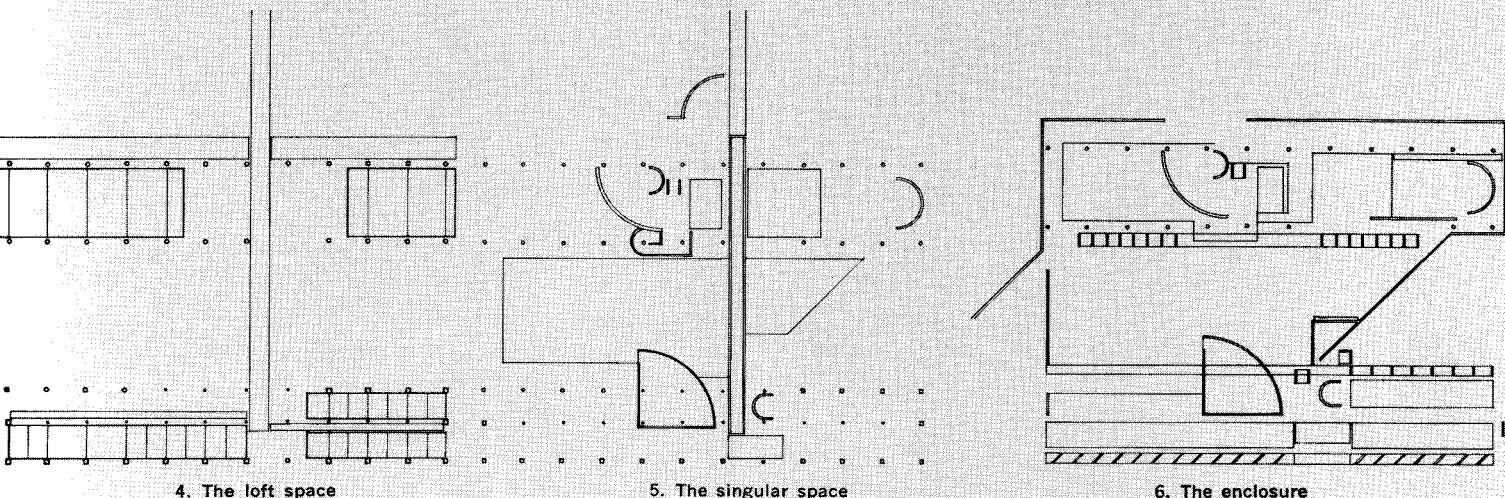
in which it is set are spacious and handsome. But the building itself has little architectural distinction. Yet, as we know, age can sanctify indifferent architecture, and over nearly 35 years Fuld Hall has acquired certain symbolic and representational qualities that, for those who know it, more than make up for its aesthetic shortcomings. The same cannot be said of the several small buildings which were added to accommodate the Institute's growth in the post World War II period.

The first explicit recognition of the need for beauty was shown in Marcel Breuer's Members' Housing (1954-57), and in

Wallace Harrison's Library of Historical Studies (1964). Robert Geddes' new office building and dining hall carry this recognition further. Together with the space they enclose, they create an area of quiet harmony. In the short time they have been in use, the several hundred scholars who have talked and eaten in the dining hall, met, talked and listened in the seminar and lecture rooms, and worked in the offices, have all benefited from the sense of order and form which they provide. Not all have been explicitly aware of the source of their gratification, but nearly all have experienced it. Further, the site, the roof lines

and the landscaping of the new buildings connect them harmoniously with the old. Thus we can enjoy what is new without feeling a sense of conflict between it and what has already existed.

The Institute has, in another figure, been likened to an academic monastery. At their peak the European monasteries were the chief and often the only guardians and repositories of learning and culture. They remain monuments of the greatest achievements of their times. It is most fitting that an institution which has succeeded to their intellectual tasks should also seek to emulate their aesthetic achievements.



providing the stimulation of discussion of common perspectives by scholars working on a variety of related problems, who will benefit from the stimulus of interchange and collaboration." The social and academic program for the Institute's new building responded to two different sets of needs: on the one hand, to provide a milieu for the new faculty and program in offices and seminar rooms; and on the other hand, to provide a milieu for the institution as a whole, in a new dining hall and commons. This structure of the social task sought its equivalent structure in spatial form.

The new buildings were also charged with the responsibility of responding properly to the Institute's existing group of build-

ings (six neo-Georgian and one modern), and to its landscape. In the best tradition of the English landscape garden, the Institute is situated in a clearing, that is, a gently rolling meadow surrounded by the forest edge. The existing buildings look outward to the open meadow; by clear intention, the new buildings also look inward to a courtyard garden, a cloister-like landscape place.

The Institute's landscape is punctuated by the vertical axis of a Georgian tower, and all of the existing buildings are organized along its two horizontal axes. The GBQC master plan recommended that the north-south axis retain its symbolic function and that the east-west axis be developed as the main

pedestrian path of movement. The new academic building and the dining hall commons are the first of the new buildings to be built along this cross axis, serving as entrance and terminus at the western edge of the campus.

From the outset, it was recognized that a major part of the building task was in influencing or enabling the inhabitants' social interaction. Buildings can divide and bring people together; milieus are created that enable public or private activities. A milieu in this sense is characterized by its "possibilities for social life." A planned milieu should recognize that it serves a purpose in human communications, that it creates expectations, guides behavior, disappoints or satisfies. In the Insti-



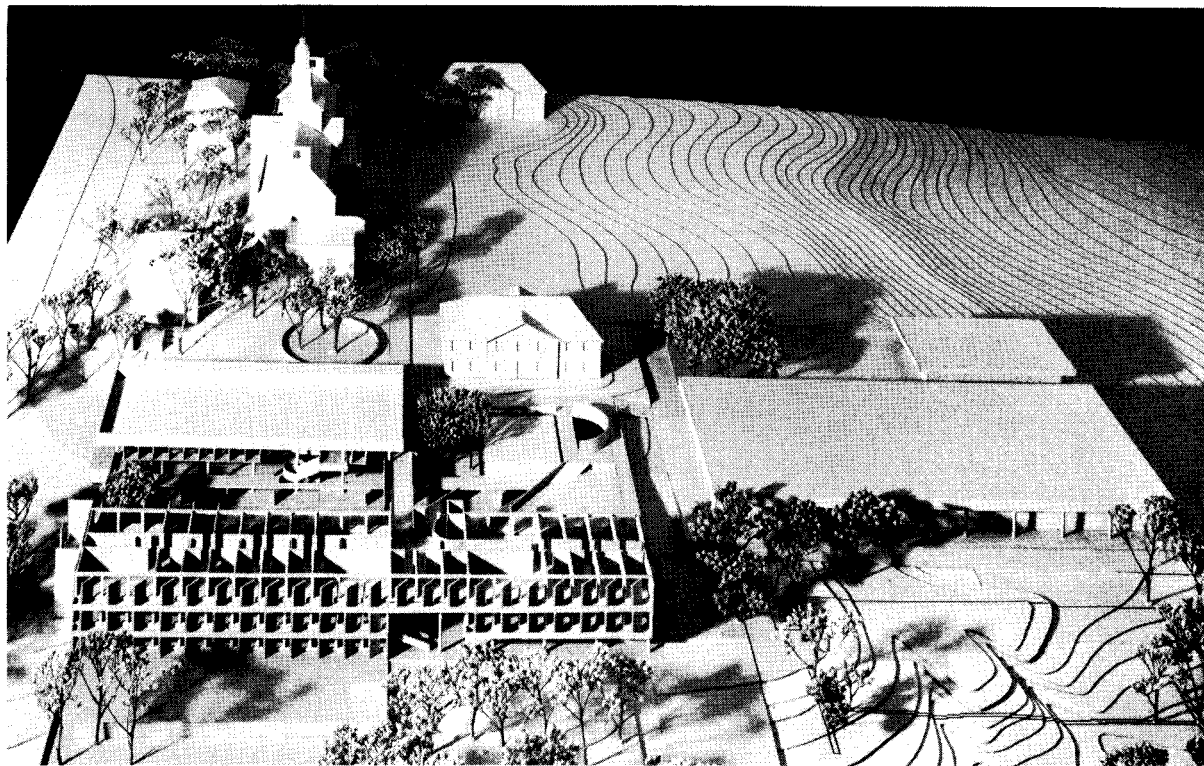
tute's site and building composition, the behavioral consequences were fundamental factors in the relationship between the academic offices (their need for privacy) and the commons (needing a sense of community); in the relationship between the paths of movement (bridges, stairs and ramps) and the types of spatial enclosures (especially the multiple-layered transparencies) that create the social milieu.

The formal intentions of the design are graphically analyzed on page 52. The diagrams closely follow the idea of a general system of architectural form (that is, of elements and their relations) that was presented in last month's FORUM. The six elements of the formal system (1. the spatial grid, 2. the structural frame, 3. the path of movement, 4. the loft space, 5. the singular space, and 6. the enclosure) are separately identified in the diagrams. As a totality, the architectural composition consists of a layered group of linear elements. The two parallel buildings create a third element in between, the cloister garden. This double-line composition of edge buildings can be read, at a larger scale, as one figure in a coherent field.

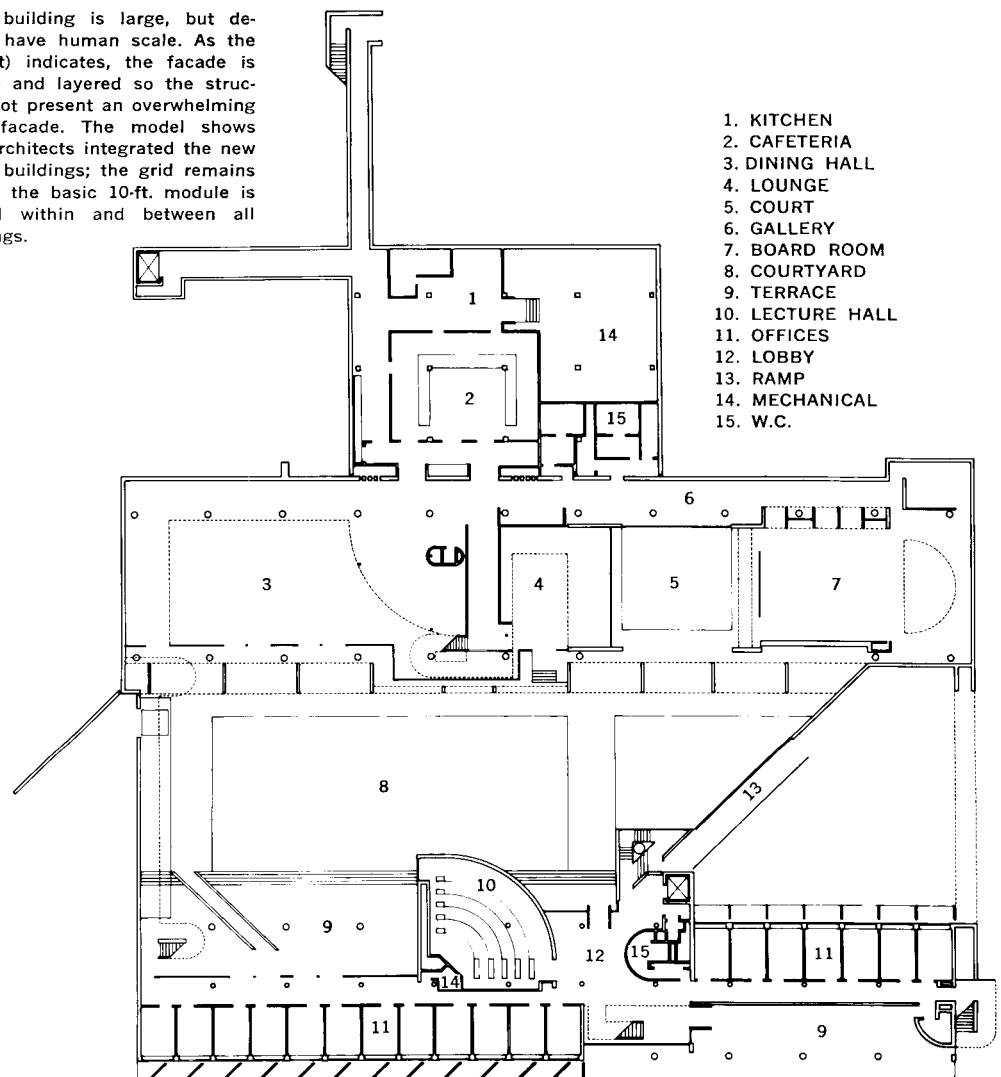
The continuous grid of the Institute's existing buildings has a module of ten feet, which is the basis for subdivisions in the lofts. This module is remarkably effective in maintaining human scale throughout.

The structural frame has five major beam lines, supported regularly by columns that are two modules on center. Having eliminated the load-bearing function of the wall, the structural frame has either free-standing round or engaged square columns, depending on their location in the enclosure. The linear frame is closely related to the building services required by the linear loft spaces, which, in the academic building, are carefully planned to allow changes in use.

The new campus cross-axis is the spine of the circulation, a positive spatial element that serves as the magnet for singular places such as the lecture hall and the cloister garden. The armature of this composition is the walkway network that weaves itself through the buildings and into the campus.



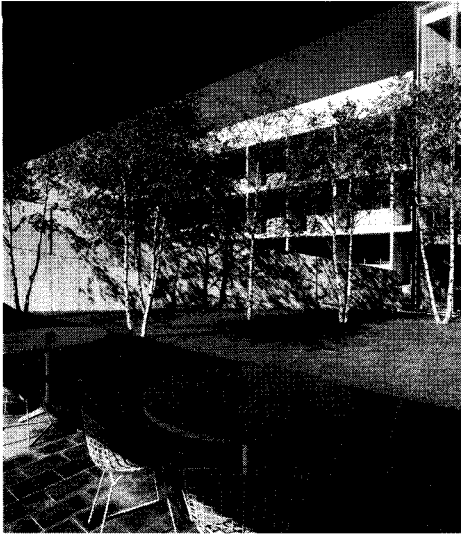
The new building is large, but designed to have human scale. As the photo (left) indicates, the facade is broken up and layered so the structure will not present an overwhelming scale of facade. The model shows how the architects integrated the new and older buildings; the grid remains intact and the basic 10-ft. module is maintained within and between all the buildings.

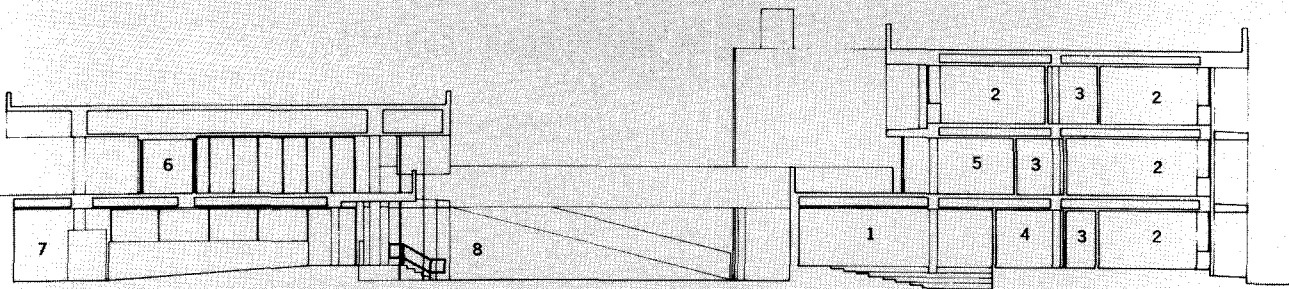


1. KITCHEN
2. CAFETERIA
3. DINING HALL
4. LOUNGE
5. COURT
6. GALLERY
7. BOARD ROOM
8. COURTYARD
9. TERRACE
10. LECTURE HALL
11. OFFICES
12. LOBBY
13. RAMP
14. MECHANICAL
15. W.C.

GROUND FLOOR PLAN

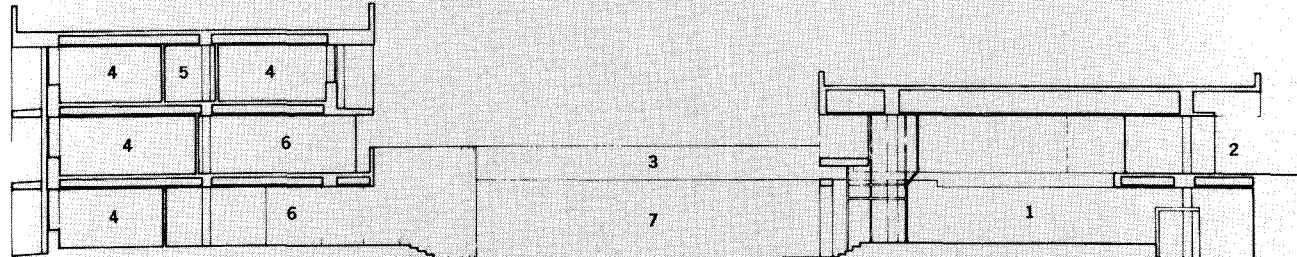
The liberal use of clear glass throughout the building meant that the architects had to manipulate the facade of the building to provide shape and cut down air-conditioning loads. Thus the face of the building (photo bottom) extends beyond the glazed areas in a variety of forms. The glass had the esthetic benefit of integrating the building and the campus. The dining hall is physically extended outside with tables and chairs (middle).





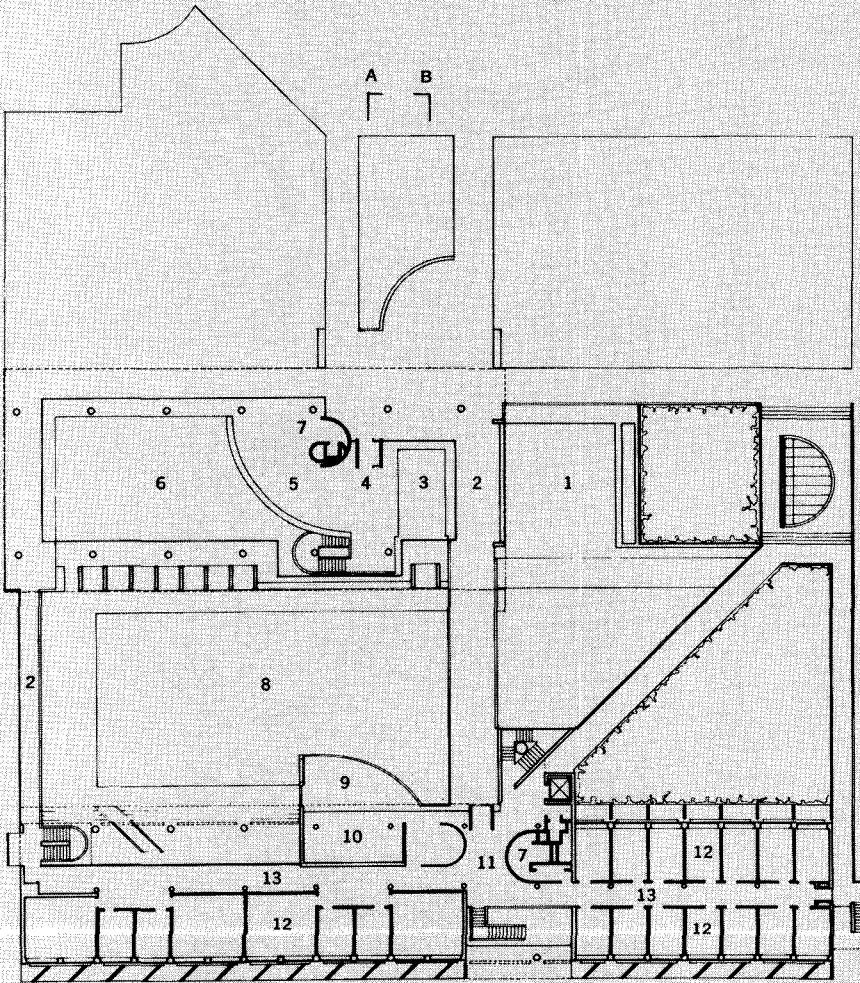
TRANSVERSE SECTION A-A

- 1. LECTURE
- 2. OFFICE
- 3. CORRIDOR
- 4. UTILITY
- 5. SEMINAR
- 6. ENTRANCE
- 7. GALLERY
- 8. COURTYARD



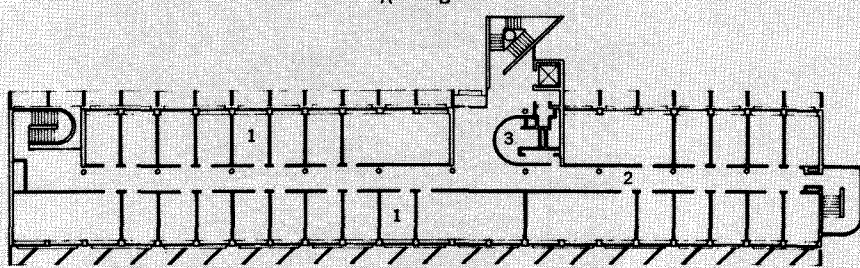
TRANSVERSE SECTION B-B

- 1. DINING HALL
- 2. ENTRY
- 3. BRIDGE
- 4. OFFICES
- 5. CORRIDOR
- 6. LOBBIES
- 7. COURTYARD



SECOND FLOOR PLAN

- 1. COURT BELOW
- 2. BRIDGE
- 3. LOUNGE
- 4. ENTRANCE
- 5. COFFEE LOUNGE
- 6. DINING HALL (BELOW)
- 7. W.C.'s
- 8. COURTYARD
- 9. TERRACE
- 10. SEMINAR ROOM
- 11. LOBBY
- 12. OFFICES
- 13. CORRIDOR



THIRD FLOOR PLAN

- 1. OFFICES
- 2. CORRIDOR
- 3. W.C.'s



PARNASSUS REVISITED

BY KENNETH FRAMPTON

Despite a spate of extravagant programs dedicated to the expansion of our institutions of higher learning and culture, there have been few enough buildings over the past decade whose main effect has been both to house and evolve the essential substance and spirit of Western Humanism; to represent the house of intellect and sensibility as the guardian of culture. We are commonly treated, in the name of operational efficiency, to the iterations of the building process as found, or, in the name of art, to the picturesque banalities of a paper-thin monumentality that intends nothing more than to further substantiate the already insatiable ego of the designer. Not so, in essence, the facilities recently added to the Institute for Advanced Study at Princeton, New Jersey, to the designs of Geddes, Brecher, Qualls and Cunningham.

In the distant past, as the Institute Director, Carl Kaysen reminds us, the *stoai* of thought were the monasteries of Christendom, the cloisters of the Dark Ages, where the custodians of a mythic Golden Age unwittingly nurtured the roots of the Enlightenment, while maintaining both the rigour of their faith and the scholasticism of thought.

These were men whose daily discourse eventually resulted in the generation of an impeccably lucid architecture; thesis and counter-thesis, thrust and counter-thrust. As the late Erwin Panofsky was to write: "Like the High Scholastic *Summa*, the High Gothic cathedral aimed, first of all, at 'totality' and therefore tended to approximate, by synthesis as well as elimination, one perfect and final solution."

It would be surd to attribute such a parallel intent to the design of the new Institute facilities at Princeton, yet the *partis* adopted in its disposition, lie deeply embedded within a modern architectural tradition whose ultimate root is monastic, both as form and content, and even more significantly in this instance as the context for a particular way of life. I am

referring to the role played by the Charterhouse of Ema in Tuscany as the essential paradigm informing the whole of Le Corbusier's work of which he wrote in 1912: "Within each crenellation is a garden completely hidden from view . . . Behind is the cell itself linked by a cloister to other cells, to the refectory and to the church located in the center . . . I felt that an authentic human aspiration was gratified here; silence, solitude, but also daily contact with mortals."

The conditions obtain at the new Institute, where the contemplative life is structured (as in the Medieval cloister) by the progression of a *promenade architecturale*; the inescapable itinerary for the sequential experience of space that Le Corbusier built into every one of his works. As at Ema, so at Ahmedabad; as at Ahmedabad so (at least in intent) at Princeton. Thus we proceed *en promenade* via the main cross axis of the campus (still to be firmly established), past an intermediate public realm; a coffee lounge suspended at grade, within the double height of the refectory below. We descend via an open switch back stairs to a foyer some three feet above the hall, where furniture arrayed beneath a 5th Century mosaic testified to the presence of the elite at play. (Shades of All Souls). We complete our descent by ramp. To our left the expanse of the refectory unfolds, clerestory lit on three sides, opening up to a fountain court on the fourth. To our right a *salle des pas perdus* extends to a conference room, where someone is playing a Bach cantata.

We move out to the court, into the perpetual presence of the fountain, to wander amid birch saplings, poised above green, showing white against the grey of the concrete or alternatively we may choose to eat outside under the concrete loggia. Whatever our choice we are perpetually divided by fixed glass from the public realm of the refectory; the symbolic space-use potential,

here and elsewhere, being unduly restricted by the hermetic demands of air conditioning.

After refreshments *al Fresco* we may wander across the court, to enter the study block, to genuflect at the threshold before an aloof bust of Abraham Flexner, the founder of the Institute. Here the ambulation abruptly ends or rather disintegrates into a proliferation of circulation that cannot be regarded as rational. Here the *Summa* finally collapses. Here the evident public open stair terminates its generous flight at the second floor, leaving one to gain access to the third through the discontinuity of the fire stairs and the elevator. The awkward injection of a lecture hall at this juncture emphasizes an evident conflation of two ill related architectural conceptions, whose separate provenance merits some examination. On the one hand we have built form as gridded neutral loft space, delimited only by cross axial nodes of access and service. (The GBQC work for SIU at Carbondale). On the other we have the hierarchic differentiation of public and private space, the thesis of stasis versus process; the essential constituents of a Humanist architecture. Thus the Institute appears to embody two contrary models drawn respectively from the Rationalist and Humanist traditions, without adequately resolving their potential disjunction. These are (1) the dining hall block cradled within a constant grid, denoted by bridges set at regular intervals, (a system which in theory is infinitely extendable) and (2) the cellular study block disposed in effect symmetrically about two axes and centered upon the lecture hall and its adjacent public access, (a system which is ostensibly finite). The paradox here resides in the reversal, since the infinite grid houses elements which are exclusively public.

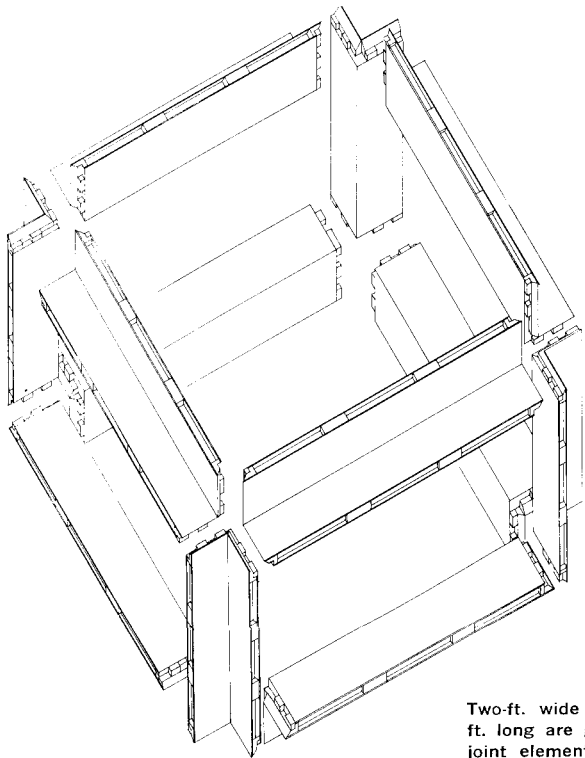
The basic incompatibility reveals the latent weakness of a work which in many other respects remains the creditable piece which has already drawn

the praise of distinguished critics. The fallability seems to reside in the incapacity of the formal language adopted to serve, without systematic restructuring, the complexity of the discourse attempted; to relate, for instance, the demands of hierarchy to the determinants of process and extendability. One cannot, to paraphrase Panofsky, infer anything of the whole from the parts, nor (the architects' protestations notwithstanding) can one discern any truly sensitive level of formal consistency. This last failure is most evident in the *modernature* where gratuitous sculptural gesture fails to account for *brise soleil* that are self supporting in one instance and suspended in another or which are inclined against the Western sun in one plane and open to its penetration in another. The appeal of sensuous gratification affords no account to the intellect for the irrationality of such an arrangement, just as the claims of comfort do not really account for the anomaly of the bourgeois carpet set into the otherwise rigorous slate floor of the refectory. In the last analysis we are confronted with a pragmatic success and a syntactic failure. The link between the two, an appropriate semantic system, has yet to be adequately developed.

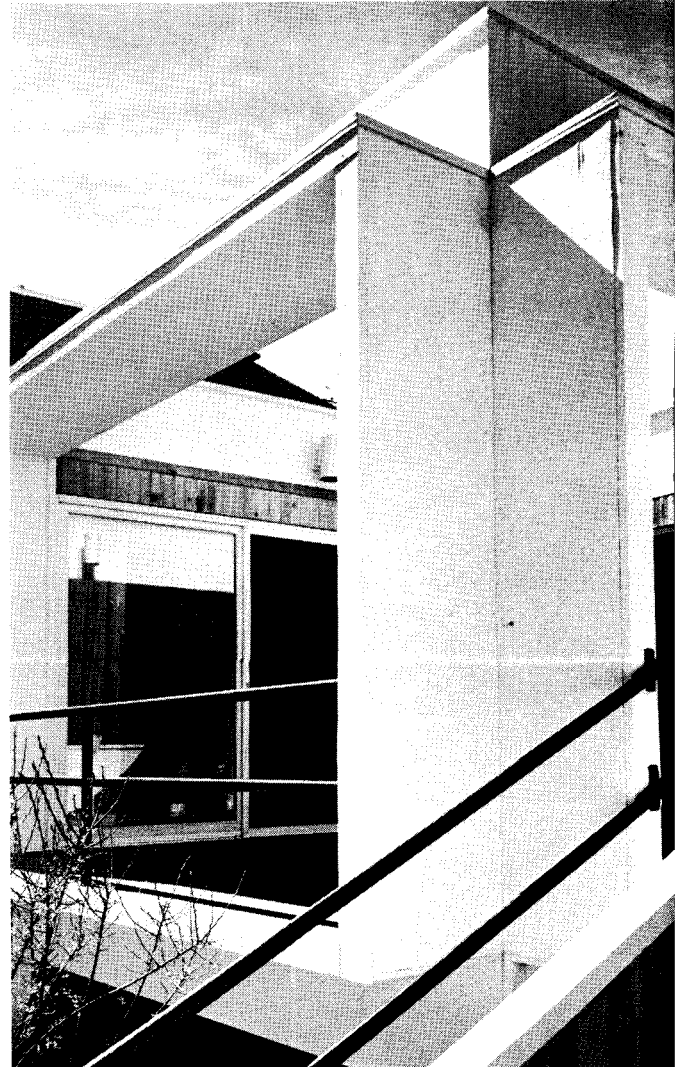
FACTS AND FIGURES

Dining Hall Commons & Academic Office Building for Institute for Advanced Study, Princeton, N.J. Architects: Geddes Brecher Qualls Cunningham. Designers: Robert Geddes, Neville Epstein, Roland Gallimore. Landscape Consultant: Zion & Breen Assc. Contractors: Lewis C. Bowers & Sons Inc. (general); J.B. Redding & Son Inc. (mechanical); N.W. Maul & Son (electrical). Structural Consultant: David Bloom Inc. Architectural Lighting Consultant: Raymond Grenald. Food Service Equipment Consultant: Edward M. Elliot. Mechanical & Electrical Consultant: Meyer, Strong, & Jones, Engineers. Interior Design: GBQC. Interior Consultant: Semanko-Bobrowicz. Bldg. area: 55,000 sq. ft. (For listing of key products see p. 70.)

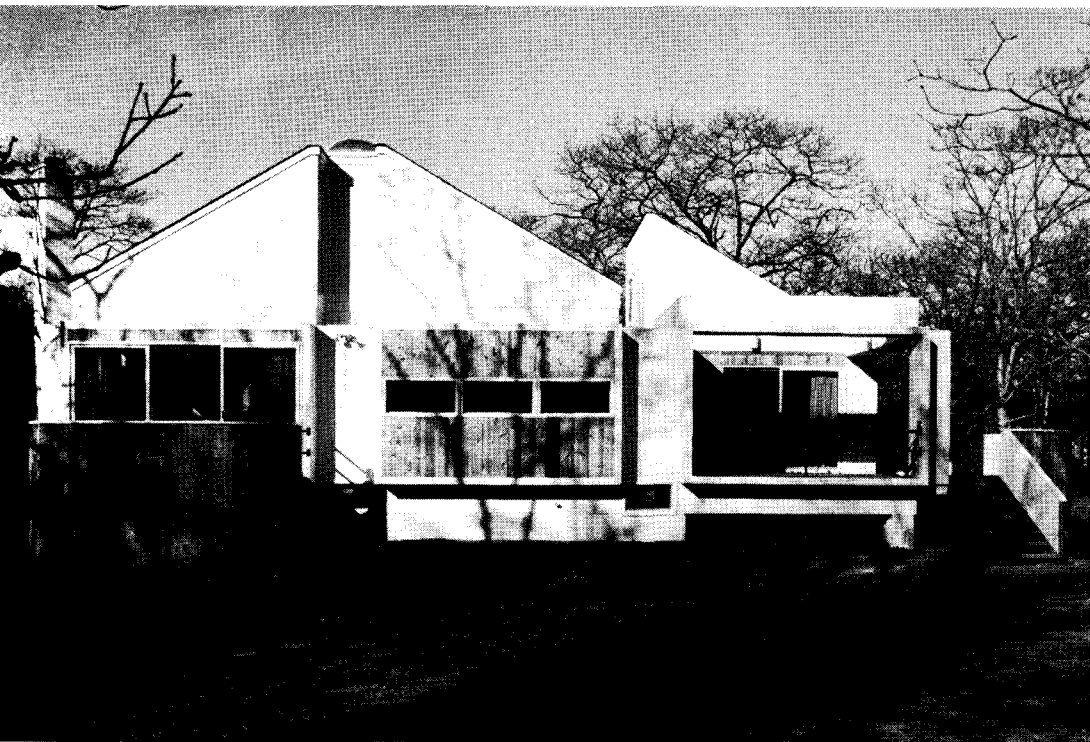
PHOTOGRAPHS: Bottom, p. 56 by Harvey Krasnegor. Model photo by Skomark Associates. All other photographs by George Cserna. Graphics by Bruce Abbey and Jay Laughlin of GBQC.



Two-ft. wide structural members, 12 ft. long are glued in the factory into joint elements. On site, these angle shapes are assembled into box frames that may be stacked up to three high, for a three-story house. The configuration provides 16-ft.-sq. wall, ceiling and floor areas with only 12 ft. sq. infill.



A MODULAR HOUSE THAT'S DIFFERENT



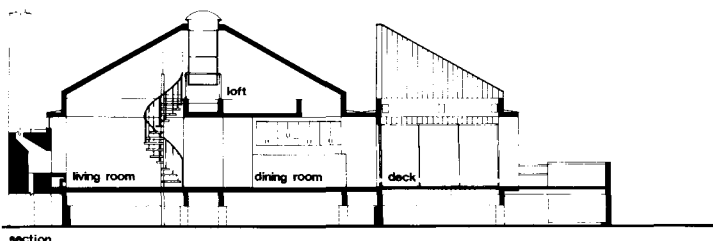
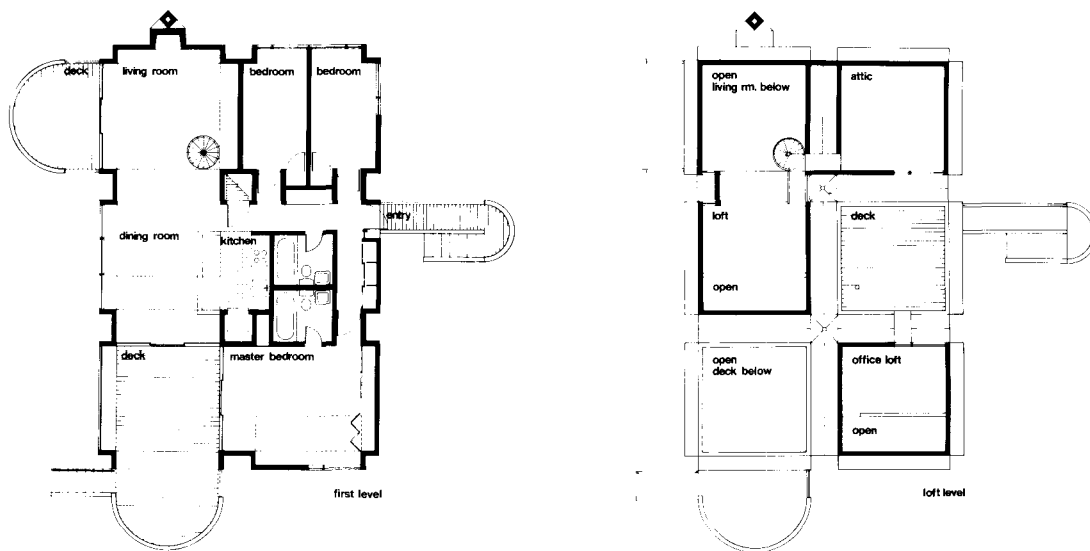
Architect Richard Dattner demonstrates a reverse approach to prefabrication: he made the joints in the factory, the infill panels in the field.

Richard Dattner started to design a low-cost modular house about eight years ago and today his prototype is complete. It is not cheap, partially because it is a prototype and was denied the economies of full mass production. But the house works architecturally and so does the system. The frame took four men only three days to erect and the whole house was built in only nine weekends.

What distinguishes this modular house from others is the basic component used. It is not a box, which highway regulations generally limit to 12-ft.-sq. floor space, and it is not a panel system, which must be joined on site. Architect Dattner decided instead to prefabricate the angles or joints of the house, then use conventional panels, doors, windows, etc. for infill.

The basic unit is composed of 12 L-shaped units (see diagram), which are made in the factory and assembled into rigid cubes on site. The factory joints are glued because glued joints are strongest and the on-site joints are spiked through predrilled holes and glued. The resulting box is 16 ft. sq., yet no single element is more than 12 ft. long. Infill is optional to the structural strength of the box frames; used with open sides, the unit easily becomes a porch, for example.

Three standard 4 ft. by 12 ft. panels are used for infill of floors and ceilings. They are made of stressed skin plywood and include insulation in the sandwich. The wall panels have natural cedar exterior finishes, which weathers to a silver color. The interior wall finishes are sheet rock. The roof of the



The plans and elevation clearly reveal the modular basis of the house. It is comprised almost entirely of three primary forms: the box frame illustrated at left; a round wall section used on porch and entry areas; and a triangular, or wedge-shaped, roof module (the left two in section are joined by a skylight).

modules is a fiberglass reinforced membrane, with black undercoats and a white topcoat.

Dattner used only one level of box frames, but the modules are designed to stack three high, with steel angles for joining. In this house, the modules are topped by prefabricated wedge-shaped roof sections; the pitched areas have conventional roofing. The third prefabricated element in the house are the round forms used for terraces and porch extensions. The frames were made in the factory and sheathed on site.

The house is honest, in concept and execution. It is modular, designed to look modular—in the best sense. This is part of its esthetic, which included painting factory elements white to distinguish them from conventional building. The modules are exposed inside and outside and the total form of the house is clearly the composite of its parts. The architect has made this modular design a worthy example of his work. Functionally, the spaces are well suited to young family life; the mood is open and colorful, the outdoors everpresent.

Some of the spaces are odd-shaped and difficult to reach, but this was the owner's intent, not a requirement of the system itself. An example is a small studio over the master bedroom that can be reached only by a steep ladder (that could be removed). The owner wanted privacy here and he is likely to get it.

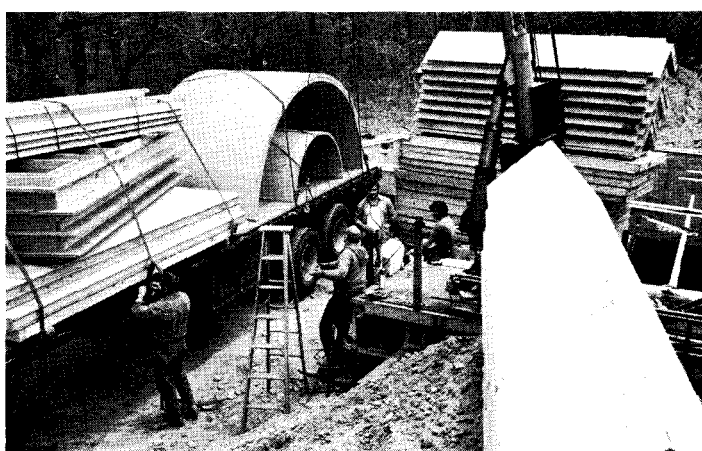
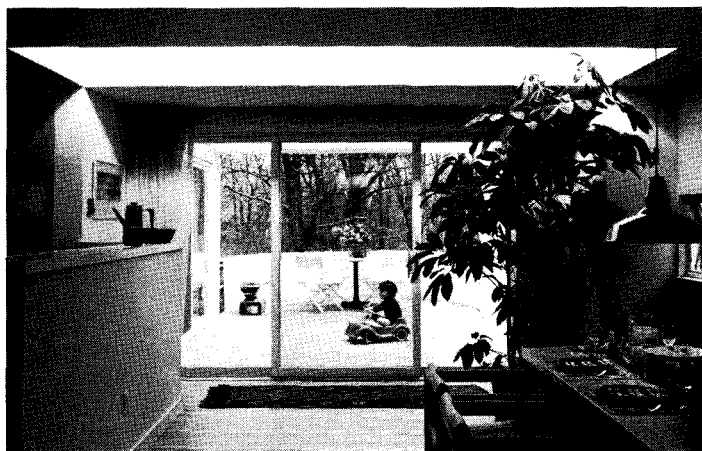
Were the system in mass production, more work would have been completed in the factory. This would have lowered the price from \$26 per sq. ft. to about \$16 per sq. ft., says the architect. Even at its present price, the house is slightly less costly than other architect-designed houses in the area.

Now Dattner would like to build the house in quantity and in new materials, perhaps in plastic or lightweight concrete. A version in fiberglass is already being worked on.

As for this house, "I'm glad I did it," he says. Future clients may be also. Dattner not only tested paper theories, but gained on-site building experience—rare for too many architects. He admits, however, that "the contractor only let me do menial chores, of course, like carry nails or sandwiches. . ."



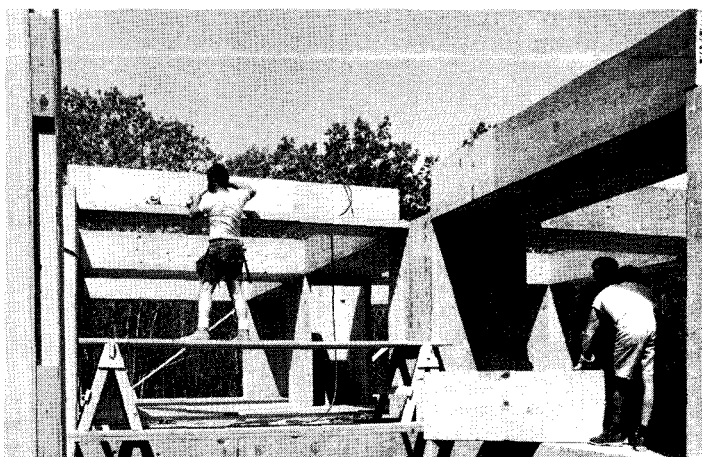
The interior of the house is light and casual, as reflected in the living room (top), which features white and glass walls against brightly colored tapestries and simple furnishings, and in the dining room (right), which opens out to a second terrace area. The two lower photos show how the factory-made parts are delivered by truck, then crane-lifted to the ground. Erection is entirely by hand, with the heaviest elements weighing less than 300 lb.



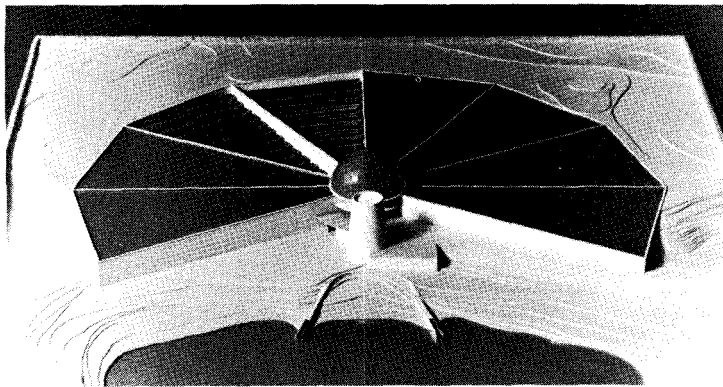
FACTS AND FIGURES

Residence, Amagansett, N.Y. Architect: Richard Dattner & Associates. Mechanical and electrical engineers: Seymour Berkowitz & Associates. Contractor: Ormar Building Corp. Plywood Fabricator: The Champlin Co. Building Area: 1,950 sq. ft. exclusive of decks, etc. Construction cost (prototype): \$26 per sq. ft., including built-in furniture and fixtures.

PHOTOGRAPHS: Upper two photos this page by Robert A. Propper, Copyright © 1972 by the Conde Nast Publications, Inc. All other photos by Richard Dattner. (For a listing of key products used in this building, see p. 70.)



(continued from page 25)



Denis' shrimp farm

and Design in Milwaukee designed a shrimp farm (photo above). The other winners were Frank Bellay of Carnegie-Mellon University for an emergency back-pack medical care unit; Chuck Flanigan of San Jose State College for a device for exercising children with cerebral palsy; Michael McManus of the University of Bridgeport for a decorative window shutter containing an emergency escape ladder; and John C. White of Kansas City Art Institute for

"an integrated personal activity system," i.e. multi-functional furniture including a desk, partition, storage and bookshelf.

- Robert H. Motzkin of New York City has won the 1972 Le Brun Traveling Fellowship, \$5,000 for travel and study of architecture outside of the U.S. for six months, awarded every two years to draftsmen and architects under 30 by the New York City AIA. Edgar Bermudez received honorable mention.

■ LIMBO NEWS

SO TOGETHER

MINERVA, which stands for Multiple Input Network for Evaluating Reactions, Votes and Attitudes (as well as the Roman goddess of wisdom) is a research project headed by a Columbia University sociologist, Dr. Amitai Etzioni. The MINERVA system would use existing telephone, radio, television and communications satellite technologies to engage masses of people in participatory democracy. According to Dr. Etzioni more than 24 million people could discuss an issue and be polled on their views within eight hours. Etzioni feels his system would greatly expand public involvement in decisions effecting the public; for instance, many who are not sufficiently committed to an issue to go to a meeting might turn on their radio. He feels "MINERVA provides an opportunity for the shy and the timid. They can respond without the anxiety that direct exposure to the group would arouse. Also, it allows persons who cannot afford baby-sitters, are not well, or fear to leave their homes at night to attend meetings."

Another idea which Etzioni looks at from the optimistic side is that geographically separate communities could speak to each other in joint electric town hall meetings. Harlem and Watts are the example given. So what if someone wants to start a riot? What about spreading like wildfire? Dr. Etzioni outlines his proposal in an article in the current issue of *POLICY SCIENCE*.

■ CONFABS

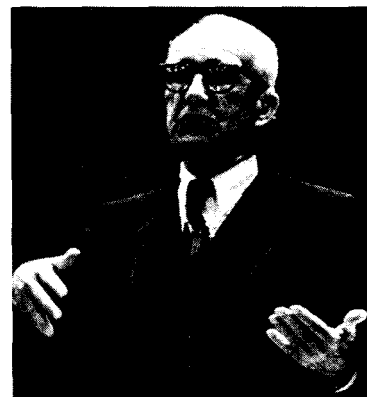
- Transportation Systems Within Buildings, October 26-27, at the University of Wisconsin, aims to introduce architects and designers to building transportation systems. William Dries at the Department of Engineering is the Program Director, 432 North Lake St., Madison, Wisconsin 53706. For program information call 608-262-2061. For enrollment call 608-262-1122. The fee is \$100.

- The AIA's 9th Architectural Research Conference in Chicago on November 17-18 aims to elicit research needs from architectural practitioners and researchers. It will be an interaction conference with no presentation

of papers, but they will be disseminated and are to be in camera-ready form at AIA headquarters by October 31, mailed to Don Conway, Director, Research Programs, 1785 Massachusetts Ave., N.W., Washington, D.C. 20036.

■ PEOPLE

- Bucky Fuller (Jan/Feb '72) is moving to Philadelphia, where he will be "World Fellow in Residence" at the University Science Center. The goal of the Center, a regional non-profit corporation owned by 25 colleges, universities, medical schools and hospitals, is to foster cooperation between scientists and non-scientists—a goal Fuller has pursued for half a century. Martin Meyerson, President of the University of Pennsylvania, and one of the originators of the residency, describes



Bucky Fuller

Fuller as "one of the creative giants of the century, who has shown us that the technologist, the humanist and the policy analyst can be combined in one man." In case any Midwestern readers are worried, he will continue to maintain his office at Edwardsville, where he has been a Distinguished University Professor at Southern Illinois University.

- The Hayden Library at Arizona State University is establishing a Paolo Soleri archive to contain publications by and about him, drawings, exhibition catalogues, correspondence, slides, photographs, tape recordings and posters. Address inquiries to L. Schneberger, Paolo Soleri Collection, Special Services Hayden Library, Arizona State University, Tempe, Arizona 85281.

- Robert Martin Engelbrecht has been appointed to the National Academy of Science Building Research Advisory Board following three terms as director of the Academy's Building Research Institute during which time he organized three new technical divisions and an international conference for each: "The state of the Art of Modular Construction", "New Towns, Frontiers or Failures", and "The State of the Art of Air Structures".

- The Graham Foundation for Advanced Studies in the Fine Arts has appointed Carter H. Manny, a partner in the Chicago



Carter H. Manny

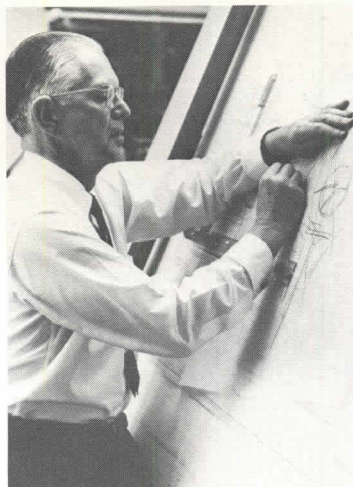
firm of C.F. Murphy Associates, as Director. Architect Philip Johnson the subject of FORUM's forthcoming January-February issue, will be one of the speakers in this season's Graham Foundation lecture series.

DIED

- Every so often, we received little notes from Henry Dreyfuss. Invariably, they were written at 30,000 ft. And, invariably, they contained golden nuggets of criticism about something FORUM had done—usually months before.

Henry Dreyfuss was, need it be said, too busy to bother with magazines. He let them pile up, and he did so because his real interest was in making the everyday world more legible and pleasant. He was, quite simply, the industrial designer of the century. And the century thanked him with high honors—and continued visual chaos.

Occasionally, in the long night of our mediocrity, two ships would pass. And they were probably of his design. But, beyond those liners, (the S.S. Constitution and Independ-



Henry Dreyfuss

ence), there were also trains, and planes, and telephones, and cameras and farm equipment for John Deere. Amputees wore his prosthetic limbs. He collected symbols like Franklin Roosevelt collected postage stamps and, early this year, put them together in a "Symbols Sourcebook" (April 1972 issue), an international dictionary to help people get around more quickly, safely. For Henry Dreyfuss, everything was a signpost. And for everyone of us, Henry Dreyfuss, who passed on October 5th in South Pasadena, is to be remembered as one, indelibly.

- Contractor George N. Cohen, who worked with Frank Lloyd Wright on the design and construction of the Guggenheim Museum, passed on, October 4th.

In earlier times, he would have been called an "arch contractor." And, with an artist's feeling for materials (especially concrete), it is no surprise that his company was called Euclid.

According to Architect Edgar Tafel of New York, one of Mr. Cohen's oldest cohorts, he loved competition and, for a reprieve, rough construction stories.

Tafel recalls the roughest. "I had a set of Guggenheim plans. George poured through them, and asked me to ask Mr. Wright to allow him on the bidding list. Mr. Wright's response was no, until one Saturday when my phone rang at 7 a.m. "Edgar! Where's your contractor? The bids all came in high!"

"They sure had—the lowest was double the budget."

Tafel reports that he had to talk Mr. Cohen out of a golf foursome to get him to Wright's

Plaza suite, where he was literally pulled into the room by the anxious architect. Subsequently, Mr. Cohen talked Wright into using Gunitite instead of the more expensive and heavier concrete, and he kept to the complex, curvilinear design at a budget the clients could afford.

For 10 years, Mr. Cohen was part of the Wright entourage and became a regular guest at the Taliesins. "Where else," he once said, "could I have dinner sitting between Adlai Stevenson and Claire Booth Luce?"

COMPETITIONS

- The Rome Prize Fellowships for 1973-1974 are for young (although there is no age limit) artists and scholars ready to do independent work in architecture, environmental design, landscape architecture, musical composition, painting, sculpture, history of art, and classical studies; plus one fellowship in humanistic studies from 300 to 1800 A.D. with Roman source material. The competition is open to U.S. citizens and is for two years beginning October 1, 1973 with an option to accept for one year. The prize is \$4,500 allocated as \$3,000 for stipend, \$700 roundtrip transport New York-Rome, \$300 studio supplies, \$500 European travel, free residence and studio, use of the academy library and other facilities. Married fellows with children who must live outside the building receive \$1,200 more toward rent. Applications must be in New York by December 31, 1972. Requests for details, specifying field of interest, should go to the Executive Secretary, American Academy in Rome, 101 Park Ave., New York, N.Y.

- Nominations are now being received for the 1973 annual R.S. Reynolds Memorial Award for distinguished architecture with significant use of aluminum. The winner receives \$25,000 and an original aluminum sculpture. Nominations by architects or others may be submitted by writing the Reynolds Architectural Award Programs, The American Institute of Architects, 1785 Massachusetts Ave., N.W., Washington, D.C. 20036. Submissions must be postmarked January 22, 1973 or earlier. The jury will meet January 29 and January 30.

Professional critics have been virtually unanimous in regarding Harry Weese's Arena Stage as a major landmark in American architecture. Wholly original in concept, superbly functional, and elegant in detailing, it has "an ambiance which suggests that magic is made, after all, in a working place," as one commentator remarked. Among other significant developments which were foreshadowed in this exciting structure was the utilization of roof perimeters as an important element in contemporary design, particularly when executed in metal.

Our initial gratification when Mr. Weese and his associates selected Follansbee Terne for these roof areas has thus merely been enhanced with the passage of time. And we were therefore doubly gratified, nearly a decade later, when Terne was again specified on the adjacent Kreeger Theater, a building of comparable distinction.



FOLLANSBEE
FOLLANSBEE STEEL CORPORATION
FOLLANSBEE, WEST VIRGINIA

NORMAN R. McGRATH photo

KREEGER THEATER, WASHINGTON, D.C. WITH ARENA STAGE IN BACKGROUND.
ARCHITECT: HARRY WEESE AND ASSOCIATES, CHICAGO, ILLINOIS, WASHINGTON, D.C.
ROOFER: MATHY COMPANY, FAIRFAX, VIRGINIA.

PRODUCT REVIEW



PLAYHOUSE

Designed for kindergartens, day care centers and nursery schools, the Developlayhouse invites children to assemble various cover components into an actual play shelter. Offered by PlayLearn Products, the playhouse, is in effect a large, child-scaled "puzzle" with side flaps, windows and a door. The vinyl plastic

cover is laced, buckled, snapped and zipped over a pipe frame that is 4 ft. high and utilizes a 4 ft. x 4 ft. floor space. Portable, it is designed for indoor or outdoor use and can also serve as a weatherproof storage area for toys and tools or gardening equipment.

On Reader Service Card, circle 101.



HOTEL FURNITURE

The R-Way Furniture Company's new hotel/motel group, available as room settings or individual pieces, offers the three tier concept which allows flexibility in the arrangement of TV and luggage units with a desk to satisfy most requirements. All top surfaces possess a high pressure plastic laminate medium brown teak pattern with the balance of the case finished to match. Known as "The 9200 Bonaparte," this group has antique brass hardware and black pilasters accented with gold trim. Also offered: antique white finish with gold trim and brown teak pattern top.

On Reader Service Card, circle 102.

EMERGENCY LADDER

This emergency escape ladder is contained in an aluminum shutter. The slats of the shutter act as the rungs of the ladder and drop into place as the shutter is swung away from the window. It can be used for two or three-story structures. This is one of six winning designs in the fourteenth annual Student Design Program sponsored by ALCOA. The designer, Michael McManus, is demonstrating the use of the product.

On Reader Service Card, circle 103.

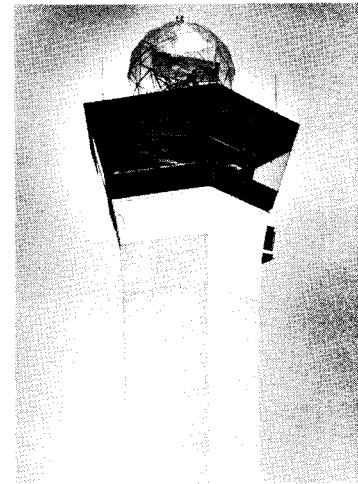


RADAR DOME

The new radar dome at Chicago's O'Hare airport is made of Lexan resin sheets, stretched over stainless steel. The dome sits atop a 199-foot tower and gives all-weather protection to radar equipment. The Federal Aviation Administration wanted to make the structure out of optically clear material, which would allow visitors to observe the rapidly rotating radar antenna housed inside and have the necessary low dielectric qualities since the electronic impulses transmitted and received are not impeded by such material. Lexan, one of the chemical products from General Electric, because of its weather-resistance and impact strength,

has been used in schools, stores, banks, and transit vehicles.

On Reader Service Card, circle 104.

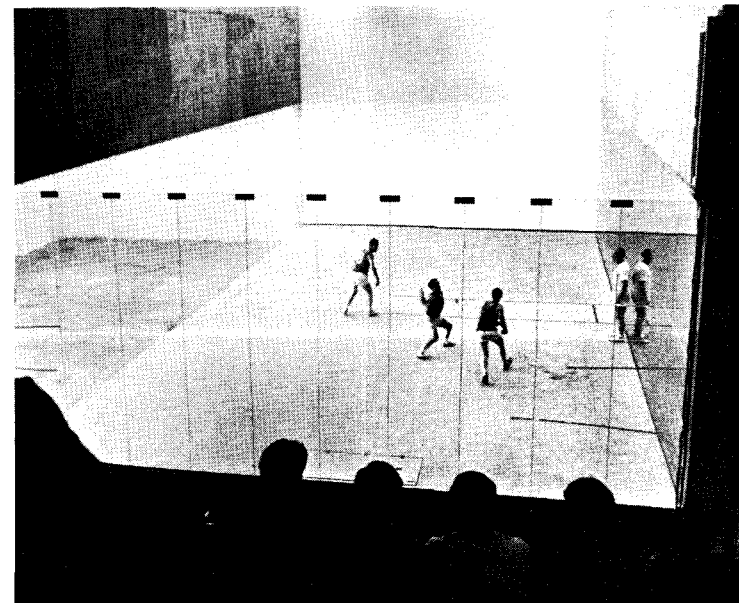


GLASS WALL

An all-glass backup wall, suitable for separating spectators from sports events and other such uses, is available from Pilkington Brothers Ltd. The wall is the first of its type, says

the company, and is made of 1/2-in.-thick Armourplate, a toughened glass up to five times stronger than ordinary glass of comparable thickness.

On Reader Service Card, circle 105.



(continued on page 69)

On Reader Service Card, Circle 105.

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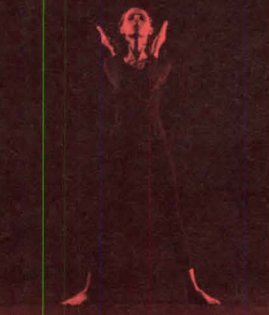
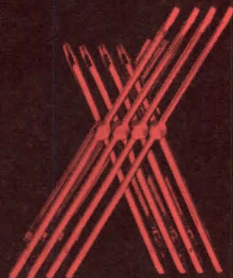
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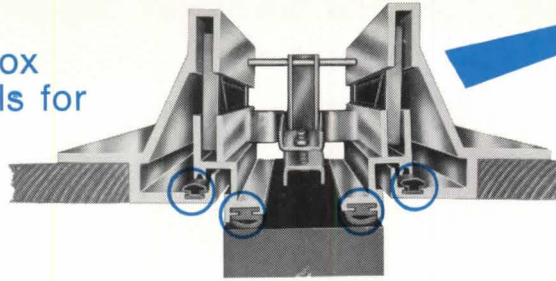
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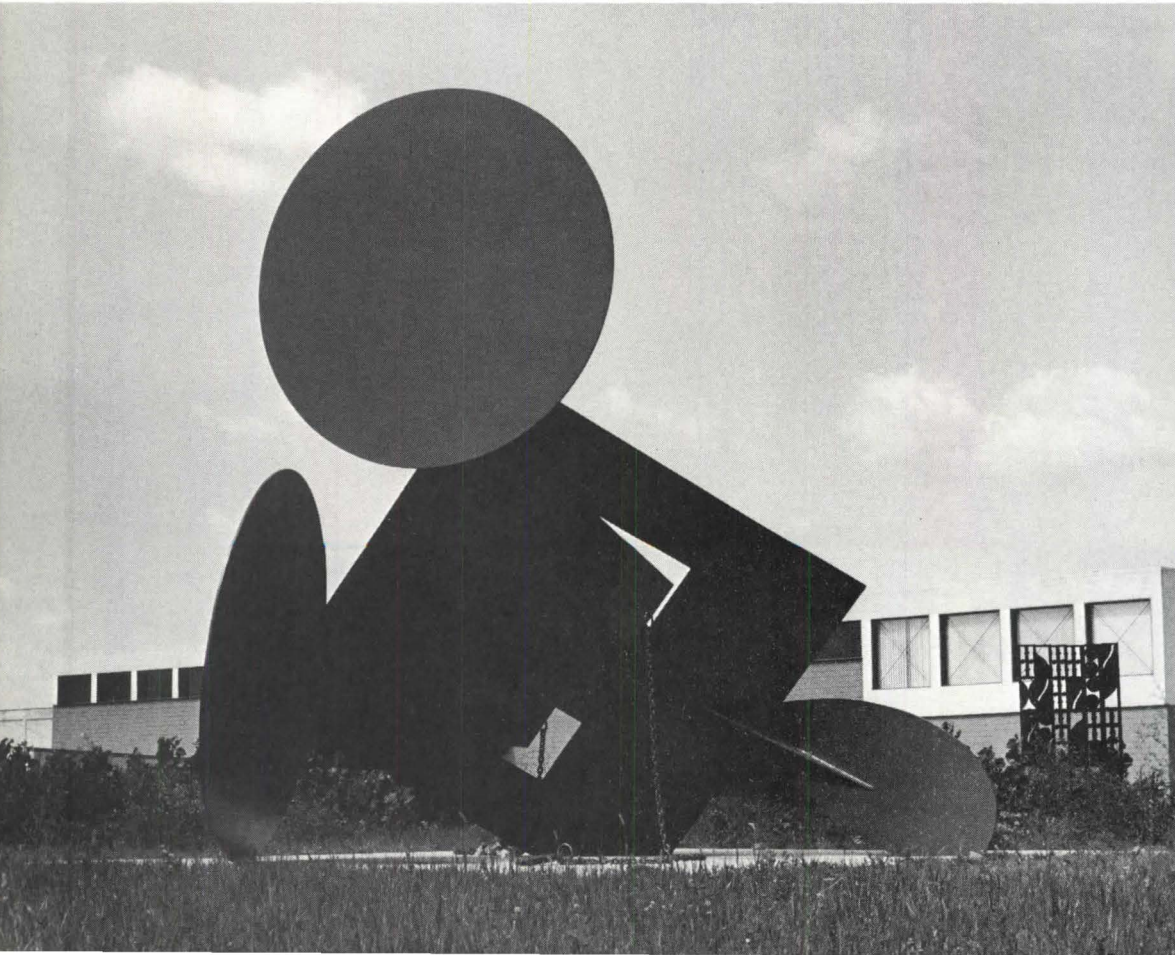


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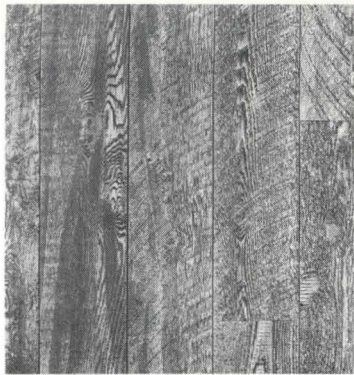
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Claes Oldenburg
GEOMETRIC MOUSE SCALE X
Steel, painted Golden Gate Red

PRODUCT REVIEW

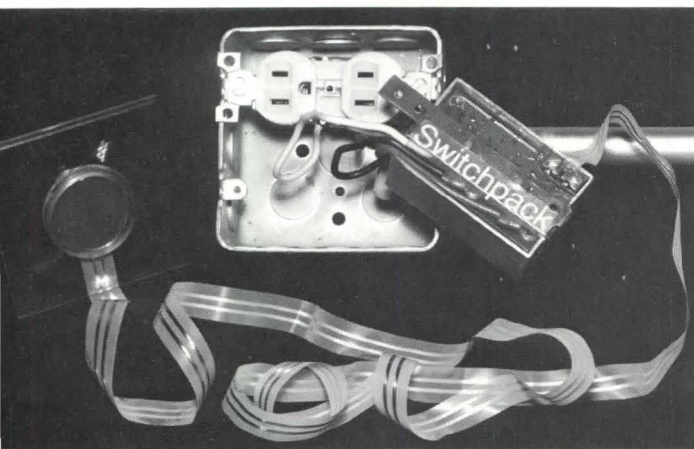
(Continued from page 66)

ANY
 Inside, a new wall paneling by Elite, a division of Masonite Corporation, simulates the rich, weathered wood siding of planks. Composed of masonite veneered Duolux, with a class 1 slow burning fire rating, it comes in tongue-and-groove planks 16" x 8' x 1/4". Because of a scoring down the center of the planks it has the appearance of a wall of 8" wide planks. It comes in a newer looking brown planked with grey, and more weathered looking dark grey planked with silver. It even simulates saw marks. The texture is all there but the splint-
 It is being introduced to



the residential market at the end of this month with a complementary line of "harmonizing" vinyl-wrapped aluminum moldings including inside and outside corners, edge and division moldings. It can be applied to furring strips or to solid backing. It resists scuffs and stains and the company asserts it is maintenance free even in high traffic areas.

On Reader Service Card, circle 106.

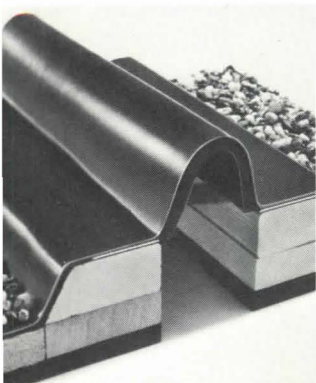


SWITCHING SYSTEM

A new low-voltage, surface-mounted switching system has been developed by Switchpack Systems, Inc. The series 15 Switchpack can substantially reduce the costs of installing light switches and electrical outlets,

especially in existing buildings, where it eliminates the need to go into the walls. The device is for 110-volt electrical circuits and comes with 15-ft. of adhesive-backed signal wire and an adhesive-backed wall switch.

On Reader Service Card, circle 107.



ROOF EXPANSION JOINT

The new Lexspan roof expansion joint combines low cost and high performance, says its manufacturer, Lexsuo, Inc. The joint is watertight, insulated and prefabricated. It consists of a flexible, neoprene foam insulating center strip, rigid nailing strips, and an outer cover of vinyl that resists deterioration. Installation is simple and the joint is adaptable to all nailer joints.

On Reader Service Card, circle 108.

(continued on page 70)

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PRODUCT REVIEW

(continued from page 69)

VIEW SHADES

Plastic-View Transparent Shades of mylar provide day time privacy—you can see out but outsiders cannot see in; spaciousness, especially in small areas, because the view is retained; glare protection—it's like putting sunglasses on your windows; heat protection—New Ice with aluminum laminated between sheets of mylar reflects 89.5% of infra-red heat; and protection from fading. There are three basic colors currently available: New Ice which has the external appearance of a

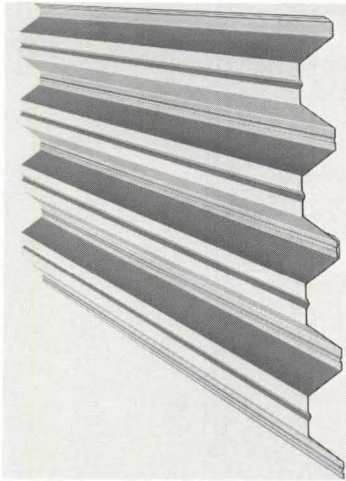
wavy mirror; Smoke Grey which looks from the outside as if there is no shade at all; and Eclipse with a heat barrier laminated between two grey sheets of mylar, thus not having the tin foil appearance of other aluminized shades. The manufacturer says combinations of Blue and Aluminum and Green and Aluminum will be stocked should inquiries warrant it. The manufacturer says the material is virtually tear-proof and scratch proof. This product does not increase heat load as tinted glass can do. It takes care of the two to four hours of sun problems and then rolls away restoring the full window function. New Ice is available in the following widths: 57", 48", 36", 21". Smoke Grey comes in 57" widths.

On Reader Service Card, circle 109.

SIDING AND ROOFING PANEL

The Cyclops Corp. has announced a new strong metal siding and roofing panel, called Dyna Span. It can be erected as an insulated panel system or as uninsulated exterior sheet. The bold, four-in.-deep profile was designed especially for massive buildings. The super-strength of the panels allows extra spanning distance between girts. It is available in plain or embossed galvanized steel and aluminized steel. A single cell version is available for roofing applications.

On Reader Service Card, circle 110.



The following is a listing of the key products incorporated in some of the buildings featured in this issue:

DINING HALL COMMONS AND ACADEMIC OFFICE BUILDING FOR THE INSTITUTE FOR ADVANCED STUDY, PRINCETON, N.J. ARCHITECTS: Geddes Brecher Qualls Cunningham. (Materials & Manufacturers as submitted by the architects.) **FOUNDATION WATERPROOFING:** Koppers. **WATERPROOFING:** Tremco. **CONCRETE & CEMENT:** Whitehall. **BRICK, BLOCK & STONE:** Best Block Co. **CURTAIN-WALL:** McKeon Inc. **FLOOR AND DECK SYSTEMS:** Concrete. **ROOF MATERIALS:** Koppers. **THERMAL INSULATION:** Dow Chemical. **ACOUSTICAL MATERIALS:** Owens-Corning. **FENESTRATION:** Wassau. **GLASS:** Libbey-Owens Ford; Mississippi Glass. **INTERIOR PARTITIONS:** U.S.G. Imperial System. **ELEVATORS AND ELECTRIC STAIRWAYS:** Security Elevator Co. **DOORS:** Haggerty Millwork; Atlantic Mtl. Pro. **HARDWARE:** Stanley, Butis, Schlage Locks, Norton Closers. **INTERIOR:** tile Romany. **PANELING:** Hag-

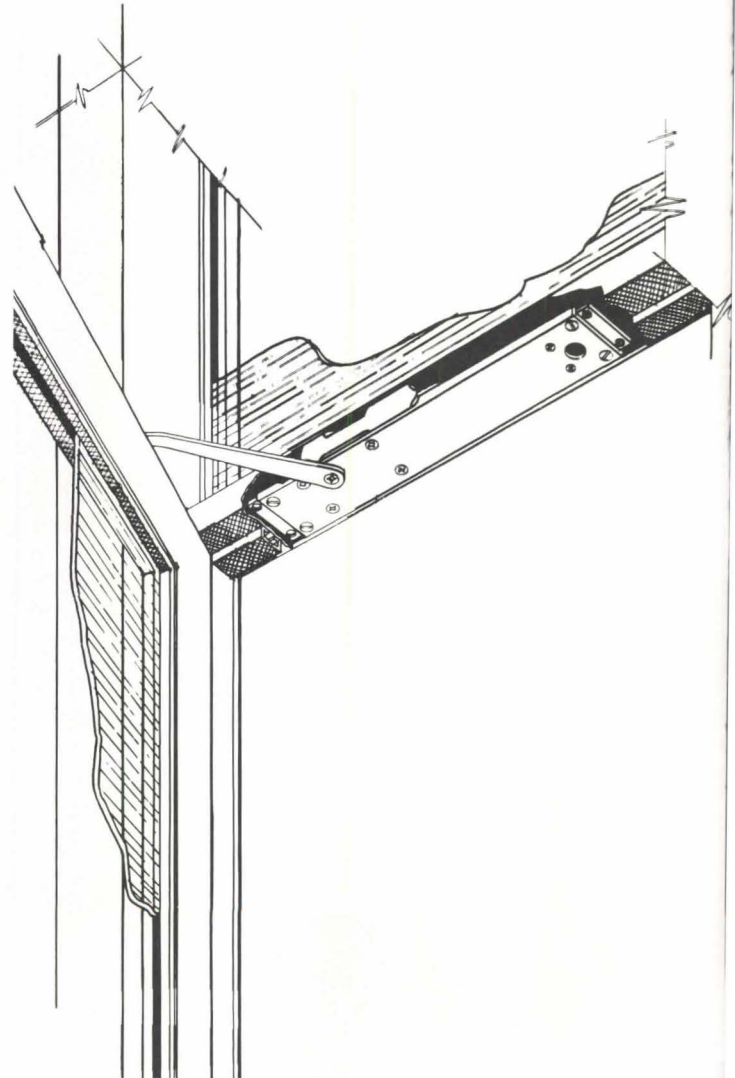
gerty Millwork. **PAINT:** M.A. Broder. **ELECTRICAL DUCTS AND WIRING:** Anaconda & GE Co. **ELECTRICAL EQUIPMENT:** Westinghouse. **LIGHTING FIXTURES, LAMPS:** Moldcast, Lightlier, Klemm. **AUDIO VISUAL EQUIPMENT:** Exotone. **CEILING MATERIALS:** Jacobson & Co. Inc. **FINISH FLOORING AND CARPETING:** Structural Slate Co.

AMAGANSET RESIDENCE. ARCHITECT: Richard Dattner & Assoc. (Materials and Manufacturers as submitted by the architect.) **ROOF MATERIALS:** Nerva-Clad Elastomeric membrane. **THERMAL INSULATION:** Fiberglass batt. **FENESTRATION:** Anderson windows & sliding doors. **INTERIORS:** U.S. Gypsum drywall. **HARDWARE:** Stanley. **INTERIOR MATERIALS:** American Olean tile. **PAINT:** Murallo. **PLUMBING FIXTURES, TOILET SEATS:** American Standard. **HEATING BOILERS:** Singer Co. **SPECIAL FANS AND VENTILATORS:** Nutone. **CEILING MATERIALS:** U.S. Gypsum Drywall. **KITCHEN:** GE washer, dryer, refrigerator, stove. Kitchen-Aid dishwasher. **FINISH FLOORING AND CARPETING:** Elon quarry tiles. **FURNITURE AND SEATING:** Nordling; Stendig; La Mode. **SPIRAL STAIR:** Mylen Co.

Eastern Airlines' Reservations Center, Oakbrook
Architects: Holabird & Root,

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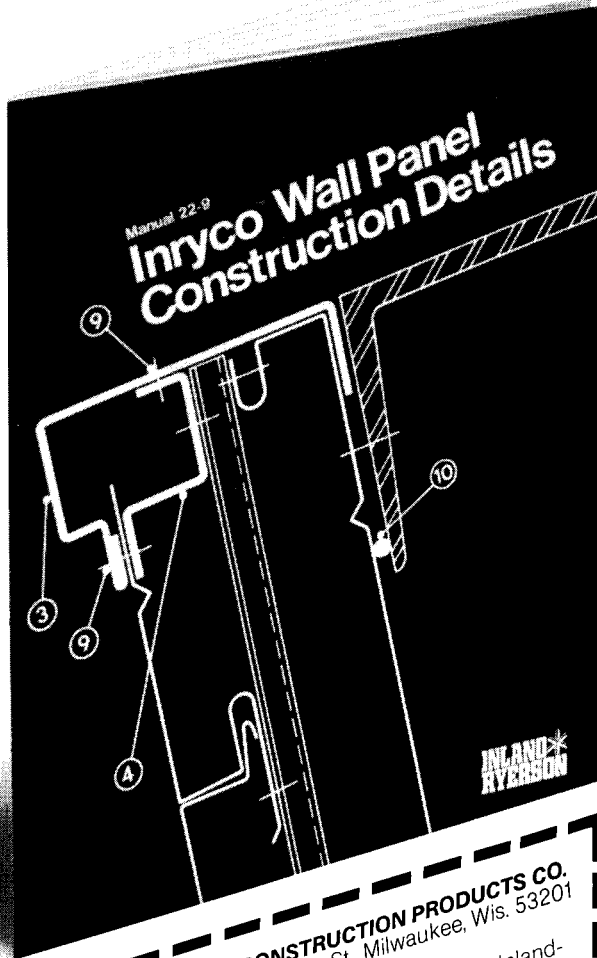


LCN CLOSERS, Princeton, Illinois 61




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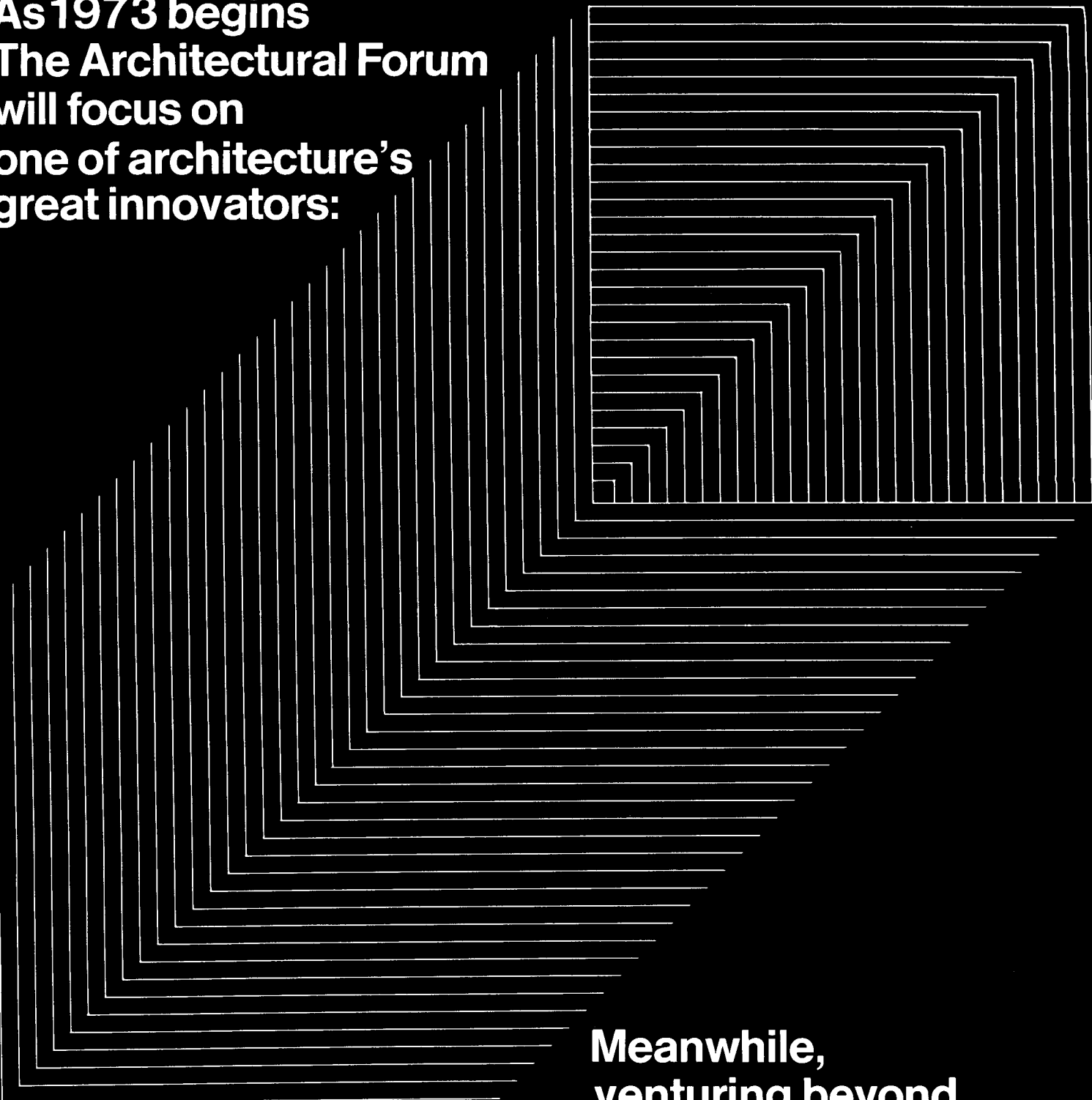
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**As 1973 begins
The Architectural Forum
will focus on
one of architecture's
great innovators:**

**He worked
within the establishment
which enabled him
to become
the establishment's
most challenging critic...**

**Meanwhile,
venturing beyond
his early miesian style,
he has evolved
a personal architecture
which expresses
our strongest hope
for 20th century
urban life...**



In a special January-February 1973 issue the audience of The Architectural Forum will meet

The Seagram Building may have brought Mies van der Rohe's International Style to its zenith, but the zenith is still ahead for Mies's co-architect. The glass and bronze tower became Philip Johnson's professional home, but also his point of departure. His urbane, independent mind has since ranged far afield in many directions—directions which one can only hope future architecture will pursue. In this hope, the ARCHITECTURAL FORUM will assess Johnson's latest plans and structures in a major January-February issue.

What approach will the FORUM's editors take? Remember those two major publishing events of 1972: "The World of Buckminster Fuller" which celebrated the FORUM's 80th year last January, and "The Mind of Louis Kahn" which appeared in July. The coming Philip Johnson issue will have the same éclat as these, but this double-number of the FORUM will be—as it can *only* be—purely Johnsonian.

A featured writer of this issue will be Johnson himself, speaking out once again with the flair for criticism that marks him as one of the few truly eloquent voices in architecture. In other areas of the issue, the FORUM's editors will cover his latest thrusts towards a more socially oriented and humane environment.

His elegant new buildings fit into the broad patterns of time and history, but also meet the immediate, desperate needs of modern city life. He has enriched our urban culture with structures, lobbies and parks which complement their surroundings and give the pedestrian public a fresh feeling of expansiveness, indoors and out. He has raised the grammar of masonry and concrete construction to a high level of refinement. He has mapped out some of our finest new city development plans.

He has beaten the box and shown how many workable forms a skyscraper may take. He has given the office building facade strong new textures and compelling rhythms. And meanwhile, though a leader of the establishment, he has criticized, more eloquently than anyone, the prevailing domination of the dollar which often condemns building projects to esthetic bankruptcy.

Johnson's new buildings, seen in the January-February '73 issue of the FORUM, reflect the evolutionary steps which this architect has taken in his mid-sixties:

In Minneapolis, his *IDS Center*, a strong octagonal skyscraper, now dominates the skyline, rising more than 50 stories from its base where a glass honeycomb encloses a lobby that is one of the most exciting public spaces the corporate world has seen.

In Niagara Falls, New York, he has created a convention center where a web of steel supports a magnificent arched roof with a clear span of 385 feet.

At Montvale, New Jersey, he planned the *Mercedes Benz headquarters* to enhance that company's reputation for sophisticated design.

For Allentown, Pennsylvania, Corpus Christi, Texas and Purchase, New York, he has designed *art museums* with a strong art of their own, seen in such dramatics as an oval masonry turret, sawtooth skylights, a lobby roofed by a lofty glass gable, a broad masonry wall punctured by narrow windows rhythmically spaced to create a fresh architectural syncopation.

For Boston, Mass., he has designed a *library annex* as an elegant gesture to historic Copley Square.

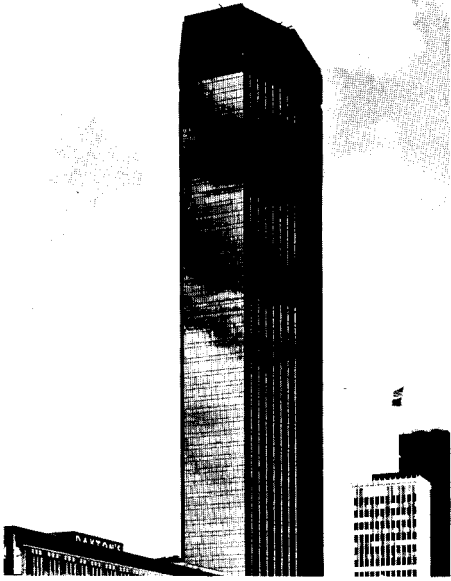
For Houston, Texas, he has developed a major skyscraper project—a pair of buildings joined at the base by a mutual entrance lobby of crystalline glass and steel.

For New York City, he has mapped out new development plans for *Welfare Island* and *Lower Broadway*, designed the *Lehman Brothers* office tower, planned a state office building for *Harlem*, and a heavy masonry contemporary structure that will stand handsomely in the historic repose of *Washington Square*.

At his own New Canaan, Conn. estate, already an architectural mecca, he has created a timeless cluster of domestic buildings which the FORUM will assess along with a photographic essay in the January-February issue.

Philip Johnson

I.D.S. Center
Minneapolis, Minnesota
Photo by Nathaniel Lieberman



Pennzoil Place
Houston, Texas
Photo by Ezra Stoller

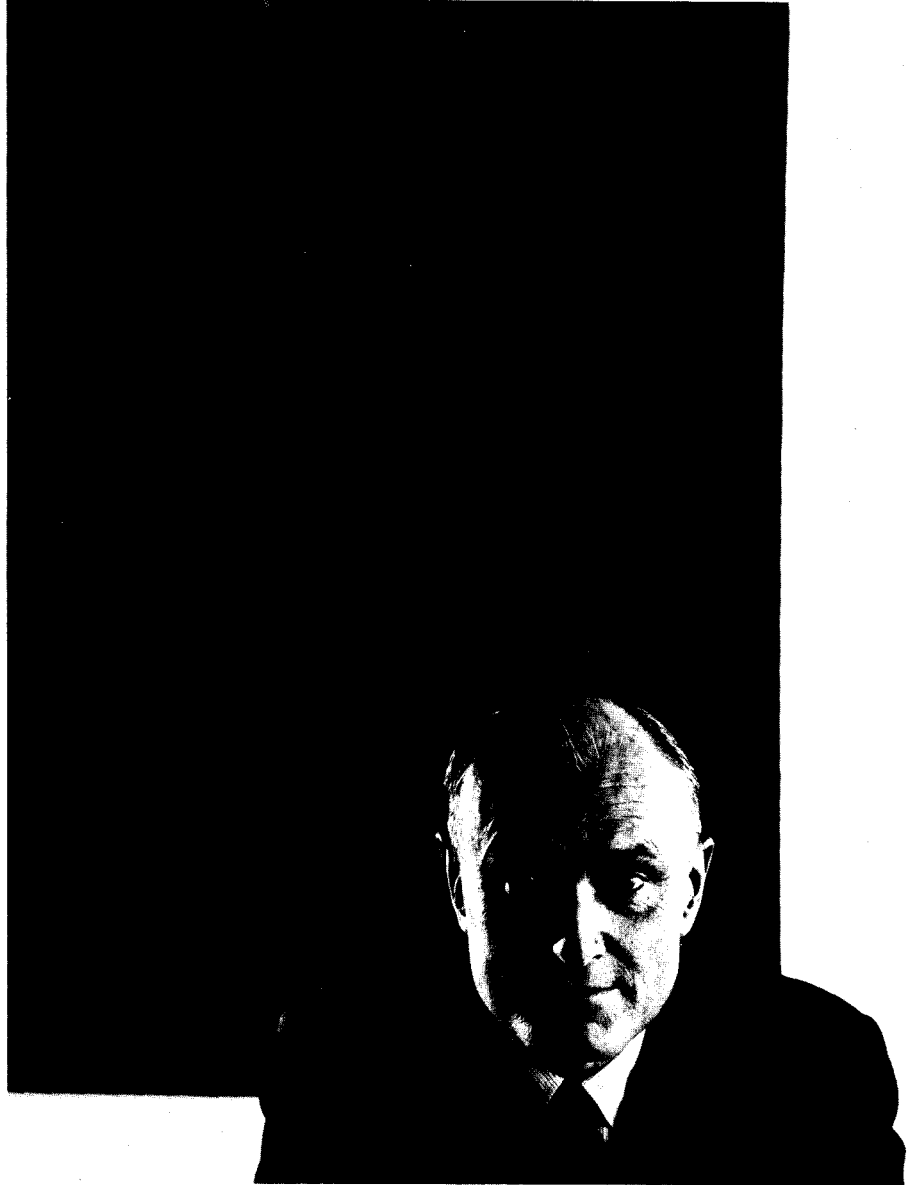


Photo by Arnold Newman



Photo by John Amarantides

A new editor

In appraising these and other Johnson ventures, the FORUM will not merely round up a catalogue of new buildings, and not merely amass a collection of photographs—but relate each building to its environment and give readers an insight into Johnson's demandingly disciplined, but boldly inventive mind. This insight for readers will be the undertaking of a journalist who has insight to spare, the FORUM's new Editor, the writer and critic, William Marlin.

Having studied architecture and urban history at the Illinois Institute of Technology, Marlin has himself practiced architecture in the offices of Karl Kamrath, Ludwig Mies van der Rohe, Perkins & Will and Bertrand Goldberg. Since 1968, he has written extensively for magazines, served as architecture critic for the Chicago Tribune in 1970-71, and regularly writes on architecture and urban design for the prestigious Christian Science Monitor. Perhaps his crowning editorial achievement may have been his success as Guest Editor of the FORUM's 80th Anniversary issue, "The World of Buckminster Fuller."

Now, as the FORUM's regular Editor, Marlin has worked with his staff on mapping out a 1973 Editorial Calendar which will include architectural visits to two major cities where both building and controversy are booming—*San Francisco* and *Chicago* . . . also a preview of *I. M. Pei's* recent contributions to the development of Back Bay Boston . . . a special double-issue on *Energy* that will make news at a time when the USA's energy crisis is at a flashpoint . . . and another double-number that will give readers a definitive first look at the architectural and planning scene in Mainland *China*.

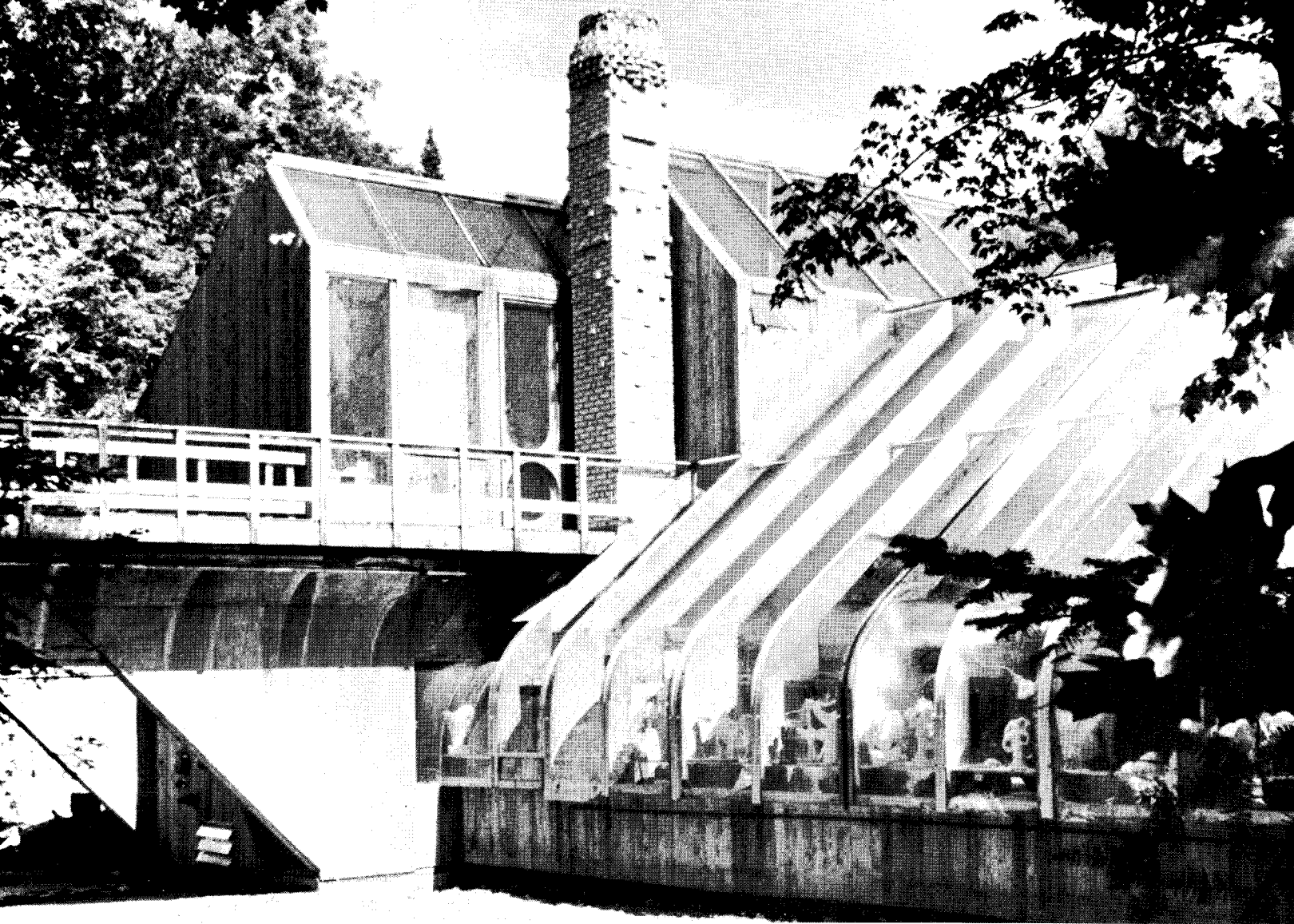
Such editorial events as these will continue the progress which the FORUM has made since joining the Whitney Group of Design Publications. And we hope you will join our readers and advertisers when the 1973 editorial calendar opens with an encounter with the man who holds a strong hope for bringing urban beauty back to us: Philip Johnson.

Memo to Advertisers

Advertising forms for the January-February issue of The Architectural Forum will close on December 15.

The Architectural Forum

Whitney Publications, Inc.
130 East 59th Street
New York, New York 10022



Sculpture Building, Goddard College

Swedlow, Inc. salutes the faculty and design group students of the Goddard Architecture Department on the completion of this, the second campus building the students have designed and constructed. It should be noted that the department was only established in the fall of 1970.



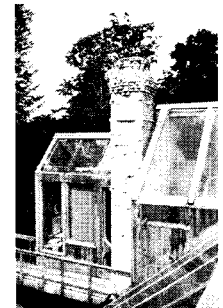
We salute, too, the philosophy of the college as applied to architectural education. Here, the students are being trained to conceptualize a project with real materials and, without formal working drawings, pick up the tools and do it themselves from the ground up. The Sculpture Building is the first structure of a four-part Arts complex project of the Goddard student design group.

To carry out the design of the Sculpture Building, more than 4500 square feet of continuous-cast Swedcast® acrylic were used for glazing. The most prominent use

of the Swedcast is shown above, in the north-lighting of a spacious, ground level studio. The design called for a glazed wall of 48 inch x 28 foot Swedcast panels that slope from roof to sill. As Swedcast is available in almost unlimited length, the design was completed without resorting to unsightly, welded seams.

Professional architects and designers are invited to write for our Swedcast data file.

Sculpture Building, Goddard College, Plainfield, Vt. ARCHITECT: David Sellers with John Mallery, John Kruse and students of the Design Center. Project worked out in collaboration with students and instructors in sculpture. MAJOR MATERIALS: Cedar siding, plywood bents and box beams, sheetrock inside walls and ceilings, spruce decking, sheet metal roof, Swedcast acrylic glazing.



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READERS SERVICE FILE

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New six-page brochure describes seven basic advantages of porcelain-on-steel panels for walls of food processing plants. Inexpensive to install, the panels effect a 70% savings in maintenance. The panels are both vermin-and-rat-proof. They are approved by the Dept. of Agriculture. It is impervious to odor and disease-bearing bacteria, and paint-flaking and plaster-chipping are eliminated. Alliance Wall Corp. On Reader Service Card, circle 206.

NON-COMBUSTIBLE CLASS A ROOFING

A new, full-color brochure describing the capabilities and applications of Fireless Safe-T-Shake roofing is available to all interested architects, designers and builders. Fireless Safe-T-Shake is a permanently non-combustible Class A roofing product, with the look of natural medium to heavy cedar wood shakes. The brochure contains material description, specifications and illustrations. Fireless Products Co. On Reader Service Card, circle 207.

ROOM DIVIDERS

Making the most of "people-places" in apartments, townhouses, condominiums and single family homes is the object of a new 10-page brochure from Modernfold of New Castle, Ind. Modernfold uses "people-places" to describe indoor areas where people live, sleep, work, play, etc. According to the brochure, Modernfold's folding doors require less floor space than most conventional doors and are more economical. On Reader Service Card, circle 208.

ROOF INSULATION

Fresco Dri-Deck Roof insulation and Drainage System for flat or nearly flat roofs is described in a brochure from Johns-Manville. The Brochure explains how Dri-Deck System can be engineered to provide positive drainage of any roof and provide superior insulation efficiency. A typical appli-

cation is illustrated and the components of the system are shown being applied. On Reader Service Card, circle 209.

PERMANENT PARKING AREAS

The National Crushed Stone Assoc. announces a 3rd edition of this 36-page publication entitled "Design Guide for Permanent Parking Areas" featuring crushed stone bases in flexible pavements for automobile and truck traffic. This publication is written for the architect, engineer, planner, developer, public agency official, and others who have the responsibility to design and construct ground-level parking. On Reader Service Card, circle 210.

CAFETERIA-BUFFET EQUIPMENT

An eight-page catalog is available from the Theodore Equipment Corp., describing two new lines of mobile food service equipment, "Cafe-Teddy" and "Buffe-Teddy". Both are designed to transform any room for mass feeding in schools, churches, hotels, institutions, or wherever food services are needed. The lines feature sneeze guards, fold down tray slides, vinyl clad steel front panels and aprons in three decorator colors. On Reader Service Card, circle 211.

WATER HEATER

The Clean Air Waste Oil Burner and Water Heater, Model PB-10 is described in a new bulletin. According to the manufacturer, this model is capable of burning a broad range of waste oils. These units are being used to provide hot water for hotels, apartments, commercial buildings, hospitals, schools, etc. They may be connected to new or existing central hot water heating tanks. Space heating uses include all of the conventional requirements plus special applications such as Greenhouse. On Reader Service Card, circle 212.

EPOXY FLOORING

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prepared. The Preparation Primer for Hallemite® Epoxy Flooring Products covers proper methods of substrate inspection and testing, as well as specific and detailed information on substrate repair and preparation. This 14-page manual also outlines general application instructions, and offers advice on specialty applications and problem areas. Lehn and Fink Industrial Products Div. On Reader Service Card, circle 213.

NAIL HOLDING

The Perlite Institute, Inc. has announced publication of a 12-page report detailing the holding power of self-clinching nails in lightweight perlite concrete roofs and decks. The report covers nail holding power of perlite concrete of different densities and age, three types of nails, as well as U. S. Testing Co. reports covering test procedure and data. On Reader Service Card, circle 214.

SLIDE BEARING

Fluorogold Slide Bearings, which compensate for thermal expansion, seismic displacement, and multi-directional movements in bridges, buildings, and other large structures, are described in a new eight-page brochure from The Fluorocarbon Co. The brochure clearly illustrates how Fluorogold Slide Bearings are used in a variety of structural applications to provide the lowest coefficient of friction and highest load carrying capability of any bearing material. On Reader Service Card, circle 215.

INTERCOM SYSTEM

A new line of apartment house intercom systems is described in a four-color brochure of American Device Mfg. Co. It includes details on the Inter-Call 1,000, 2,000, and 3,000 Systems, which provide private lobby-to-Apartment communications and entrance door opening service for high rise, low rise and garden-type multifamily buildings. On Reader Service Card, circle 200.

AIR CONDITIONING SYSTEMS

Carrier Air Conditioning Company has

a 28-page brochure which provides detailed information about energy conserving air conditioning systems for modular buildings. The heavily illustrated publication presents the features, operations and benefits of the Dual Moduline Ceiling—Recessed All-Air Systems. It describes how these systems fit the modular building concept to reduce moving-in costs and the costs incurred by future tenant changes. It also shows how units control air flow for different applications, and how their operating costs compare with other systems. On Reader Service Card, circle 201.

GLAZED MASONRY

The Burns & Russell Co. has a free full-color brochure on the colors available for Spectra-Glaze®. The wide range of colors are for use on interior and exterior construction. On Reader Service Card, circle 202.

MODULAR PLASTICS

Reinforced Plastic Industries offers a brochure which highlights a revitalized product line and introduces an imaginative new modular play system, with four basic components. A prototypical bus stop shelter is also included. The RPI Product Lines also includes planters, benches, and ash and waste receptacles. On Reader Service Card, circle 203.

CEILING SYSTEM

A new advanced ceiling system that includes lighting, acoustical control, air supply and return and partition attachment is being introduced in a brochure from the Celotex Corp. Called Vari-Tec 1400. It has a patented partition track which permits partition attachment in any direction with no need to modify the air track. On Reader Service Card, circle 204.

OUTDOOR GAME AREA

U.S. Playground Equipment Corp. has a brochure on its pooltables, checker/chess table and benches. "Outdoor Pool" can be used by architects, housing authorities, motels, etc., and is designed for use in recreation. On Reader Service Card, circle 205.

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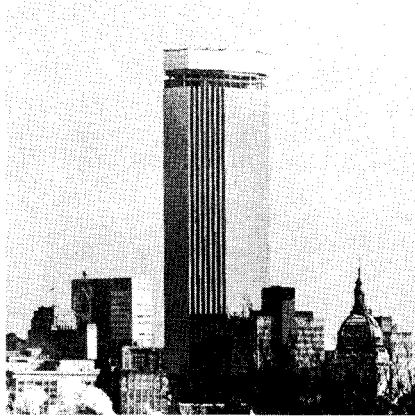
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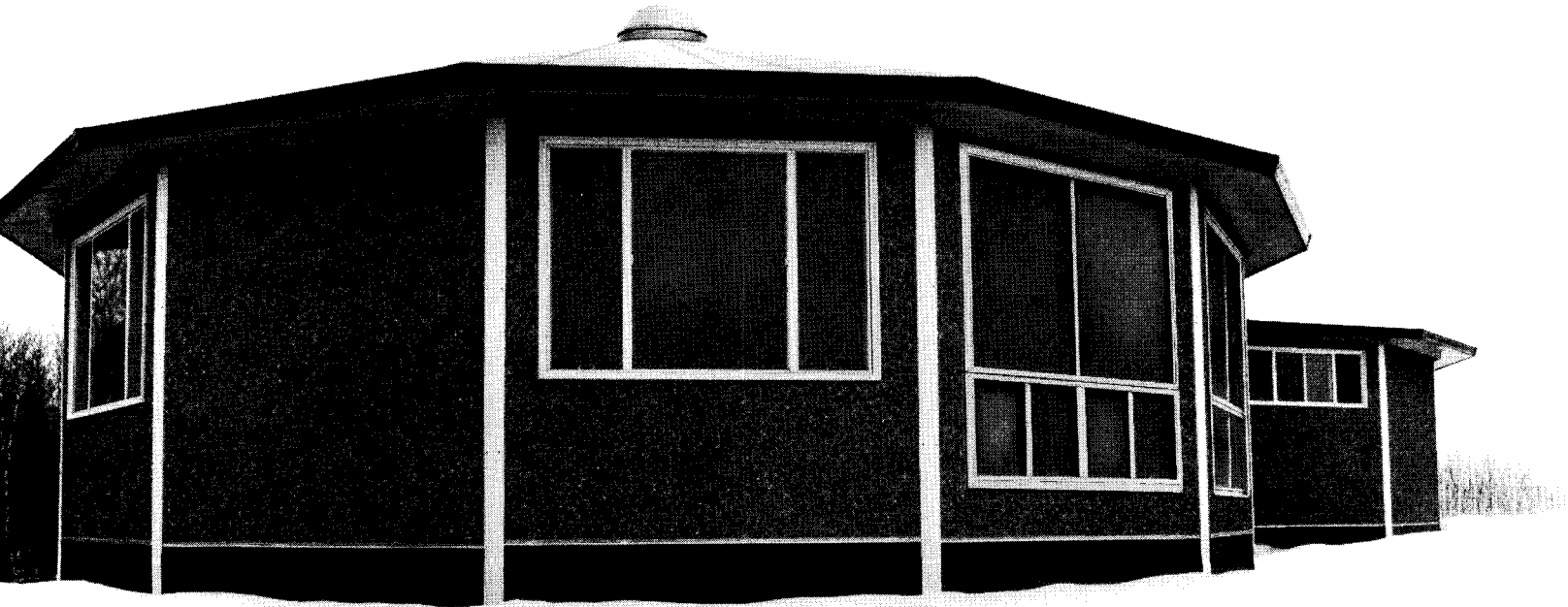
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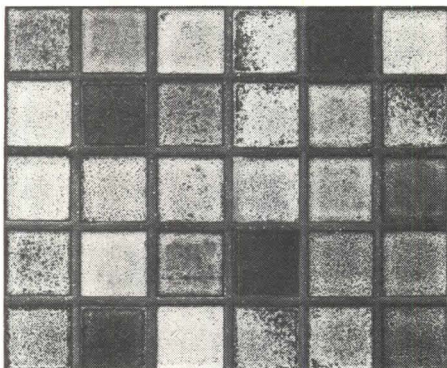
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