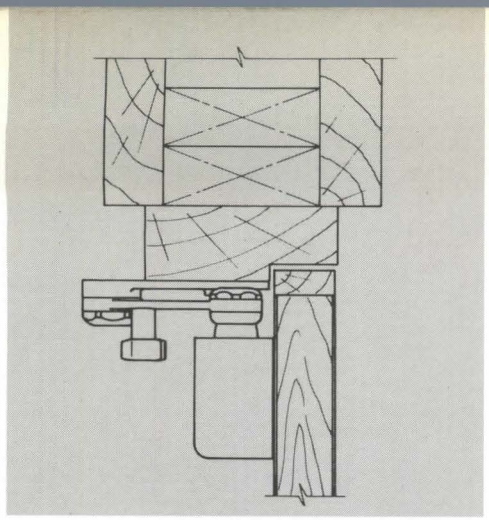
E ARCHITECTURAL FORUM / MARCH 1974 / $2.00

FORUM

KEVIN ROCHE JOHN DINKELOO 1964-1974



DOORWAY NOTES . . .

THIS HEAVY EXTERIOR DOOR IS CONTROLLED BY THE LCN CUSH·N·STOP,® A SMOOTHEE® CLOSER WITH A BUILT-IN DOOR HOLDER COMBINED WITH BACK CHECK AND A STOP. SERIES 4110H-CUSH LIMITS DOOR SWING AT 85°, 90°, 100°, OR 110°. DESIGNED FOR HIGH TRAFFIC DOORS, EVEN WHERE WINDY CONDITIONS ARE PRESENT.

Fisherman's Cove Restaurant, Atlanta, Georgia
Architects: Romweber-Bornhorst-Edwards-Brimm Associates

SEE SWEETS, SEC. 8 OR WRITE FOR CUSH·N·STOP® CATALOG.

On Reader Service Card, Circle 301

LCN

LCN CLOSERS, Princeton, Illinois 61356

THE ARCHITECTURAL FORUM / MARCH 1974
VOL. 140 NO. 2 • A BILLBOARD PUBLICATION

Cover: Detail of the Irwin Union Bank and Trust-Addition in Columbus, Indiana, photograph copyright by Yukio Futagawa.

THE ARCHITECTURAL FORUM: Published 10 times a year, combining Jan./Feb. and July/Aug. issues, at 130 E. 59th St., New York, N.Y. 10022, by Whitney Publications, Inc., subsidiary of Billboard Publications, Inc. EDITORIAL & ADVERTISING OFFICES: 130 E. 59th St., New York, N.Y. 10022. Telephone: (212) 764-7300. Yearly subscription price in U.S. and possessions, $14; 2 years, $26; 3 years, $36; Canada, $15 a year; elsewhere, $30. Send subscriptions with payment to: Architectural Forum, Subscription Department, 2160 Paterson Street, Cincinnati, Ohio 45214. Microfilm reels are available through University Microfilms Company, 300 North Zeeb Road, Ann Arbor, Michigan 48106—Tele: 313-761-4700.
BILLBOARD PUBLICATIONS, INC.

Microfiche copies are available through Bell and Howell Micro Photo Division, Old Mansfield Road, Wooster, Ohio 44691—Tele: 216-264-6666. Controlled circulation postage paid at Cleveland, Ohio 44114, and New York, N.Y. 10022. **Postmaster, please send 3579 to Whitney Publications, Inc., 2160 Patterson Street, Cincinnati, Ohio 45214.**

BILLBOARD PUBLICATIONS
NEW YORK: American Artist, The Architectural Forum, Gift & Tableware Reporter, Industrial Design, Interiors, Merchandising Week, Modern Photography, Photo Weekly, Vid News, Watson-Guptill Publications, Whitney Library of Design; GREAT BARRINGTON, MA: High Fidelity, Musical America, Stereo; LOS ANGELES: Billboard; CHICAGO: Vend; NASHVILLE: Amusement Business; LONDON: Music Week, Record Mirror, Easy Listening, World Radio-TV Handbook, How to Listen to the World; TOKYO: Music Labo.

OTHER ADVERTISING REPRESENTATIVES: Chicago: 150 N. Wacker Drive, Zip 60606. (312) 644-6763. San Francisco: Cole, Sweeney & Anthony, 85 Post St., 5th Floor, Zip 94104. (415) 397-7279. Los Angeles: Cole, Sweeney & Anthony, 1830 W. 8th St., Zip 90057. (213) 388-0521. Hilton Head Island, S.C.: Paul Yergens, 6 Cedar Waxwing Rd., Zip 29928. (803) 671-2740.

INTRODUCING TEXTURED DOORS FROM KAWNEER

Now, for the first time deep, rich, hand finished textures are available in aluminum entrances... Kawneer introduces I-Line Series 4000 Doors, a new appeal to the senses.

Series 4000 doors contrast the sleek I-Line one-inch stile dimension with crafted textured panels. Select pewter-like bonded aluminum or statuary bonded bronze in deep dimension Sierra, Quarry, and Stria textures. Bronze or charcoal black hard color or clear anodized finishes for new Lustra textures. Push-pull hardware for Series 4000 doors includes a sweeping variety of striking designs in cast bronze, aluminum and hardwood. And behind the beauty is a selection of high-performance hardware, for tested, smooth operation throughout the years. Series 4000 doors offer opportunities for the imagination. Textures. Finishes. Colors. Hardware. Panel placement. Each design combination is distinctive. The options to achieve them are covered in the new **I-LINE SERIES 4000** brochure available from your Kawneer representative. Or by writing Kawneer Product Information, 1105 N. Front Street, Dept. C, Niles, Mich. 49120.

KAWNEER
ARCHITECTURAL PRODUCTS

I-LINE SERIES 4000

On Reader Service Card, Circle 304

LETTERS

WILLIAM WURSTER

FORUM: William Marlin's sensitive remembrance of Bill Wurster touched me. Both he and his extraordinary wife Catherine Bauer represented personal and professional models for me as a student, and my memory of their ideas and of them as people continues to hearten my work. In the end of his piece, Marlin identified a number of architects whose works are probably known only to those of us who were soaking it up in the late forties. How different their ambitions and product from what has become magazine fare and the high architecture of the sixties and seventies. As a service to the profession and the country, might you not do a classic retrospective of the work of the people mentioned, demonstrating the extraordinary qualities to which Marlin refers?

MORT HOPPENFELD, *Director Planning & Design, The Rouse Company Columbia, Maryland*

FORUM: Thank you for the comment on William Wurster and the 1920's and '30's. Having researched some of George Fred Keck's work, I completely agree that "those *are* good years." The reticent quality of their architecture seems to require the architect's death in order to be remembered. This quiet dignity has also permitted these buildings to be unsympathetically altered, or destroyed without a murmur from the profession.

THOMAS M. SLADE
National Trust for Historic Preservation Washington, D.C.

FORUM: I agree with your thoughts on William Wurster. Could you do some sort of retrospective piece on his gentle, quiet life work. A whole upcoming generation of architects might find something of value in such an undertaking.

Chicago, Ill. RAY KRUEGER

The FORUM *is preparing a major study of pathfinders like Bill Wurster, assessing the nature of their work from the mid-Twenties through the Forties, and its relevance to contemporary problems and trends in architecture.-ED.*

NOVEMBER

FORUM: Wonderful were the November and December issues. Marlin's tribute to Wurster is fitting and so true. There aren't many who played it so straight.

The Nicollet Mall and the IDS center in Minneapolis suggest clearly (better than the Hyatt Regency) that the pedestrian customer should be accommodated rather than hindered by enough open space between street furniture and fountains.

To Robert Cahn's excellent article on "unrestrained growth" one may add an emphasis on the urgent need to recycle organic waste. The developing food shortage will dwarf the energy crisis. Arable land cannot be enlarged, and available fertilizer will diminish. Nitrogen manufacture takes large amounts of energy, and phosphorus, a vital supporter of our biological existence, is becoming a vanishing material. The first step in the recycling process must be to retain and reuse all nutrients, including phosphorus, in sewage instead of flushing them out into the sea. In view of the vast amounts to be spent on treatment plants in the near future, we should call for prohibition of discharge of effluents into surface waters. Three-stage treatment can provide for irrigation, fish ponds, methane gas, feed and fertilizer.

H.H. WAECHTER, A.I.A.
Creswell, Ore.

FORUM: Having just glanced through your November issue, I suffer from ambivalence—on one hand you're questioning the virtues of large scale rural development, i.e. the Warren, Massachusetts train station; applauding preservation as in SoHo, and possibly 22 East 89th Street; featuring articles by Jacquelin Robertson, former city planner cum sell-out to large real-estate entrepreneurs; extolling the delights of monstrous urban design mania a la Philip Johnson's Minneapolis and John Portman's San Francisco extravaganzas; and then a good article on old railroad stations and their potential preservation (good except it would be nice at this juncture in time to suggest that they might be restored into railroad stations and used again as such); and I don't know what you're trying to say to the people who await your informational presentments. Perhaps, it's good to get all sides of the issues, but I think The FORUM is in a position to do more, since we have the other magaines to perpetuate the myth of big time architecture, big time energy expenditure, and big time destruction of entire blocks of downtown area.

The FORUM, with a good, and first of its kind issue on energy conservation, is in a position to establish a trend—away from "big time" and into preservation (neighborhood type), restoration, housing rehabilitation for "lesser income tenants," energy conscious design, good environmental planning and maybe even an issue on urban bicycling; socially responsible architecture as in day care, neighborhood health facilities, vest pocket parks (not Richard Dattner $350,000 specials for Fifth Avenue nannies and their tots), anything that has to do with what's logically correct and sane in today's messed-up America. Let the other magaines show the latest $90 per square foot project—and if that's what they want to read, they'll continue to pay for it. However, The FORUM is free—to some extent, and you can afford, I hope, to alienate the likes of John Portman, if you say his buildings waste more energy per cubic foot than any built to date, and that other catalogue of a magazine which can publish $500,000 houses by Richard Meier, if people want to subscribe to that stuff. But we need a magazine that will write about a co-op tenant receivership building in Williamsburg that's been renovated with "sweat-equity" and municipal loan funds—that may not have 2 story spaces with travertine floors, but looks a whole lot better than when it was abandoned five years ago. We need articles on volunteer architects working to help communities obtain "seed money"; "Vista" volunteers working in rehab projects; the possible desecration of New York's Clinton area by the proposed Convention Center, and the parasitical real estate speculators, who hope to suck the blood out of the area; what causes good municipal employees to be bought up by private real estate interests, on quasi-public enterprises like UDC. Why isn't there a bike lane in New York City? Is it the taxi cab lobby, or is it that the powers that be don't give a damn about bicycling, and its inherent possibilities toward a more liveable city? How about cars in the city, parking requirements in public/private housing to encourage car-owning, forced use of electric heat in day care centers (until a recent mayoral directive), all of the day care centers designed by volunteer architects, approved by NYC/Department of Social Services, and never funded by New York State Youth Facilities. I could go on and on about what a publication like The FORUM *could* be devoting its pages to, and it might even make cities a better place to live if slum lords were exposed, architects who aid and abet landlords in "renovating" tenements into luxury housing units as in the rape of Yorkville.

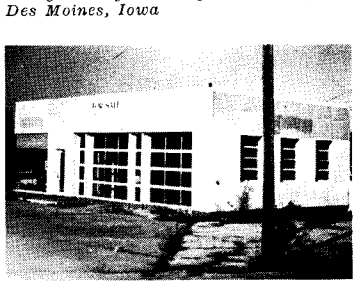
Anyway, it's all here (or part of it), and I think you should investigate the possible salvation of what we have, as opposed to twenty page spreads on new super blocks of commercial debauchery—never mentioning what was there before, like people working and living in places they could afford.

New York NED CHERRY, R.A.

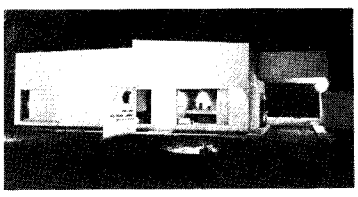
TIME CAPSULE

FORUM: In reviewing an article in November, I came across an item entitled "Time Capsule" that caught my eye. It pictured an abandoned gas station of the prototype my firm converted to a savings and loan branch. Our project received a Merit Award for excellence in architecture from the Iowa Chapter, AIA.

JAMES D. CHAMPION, A.I.A.
Lynch Payne Champion Bernabe, Inc.
Des Moines, Iowa



Gas . . .



. . . to Gold

(*Continued on page* 6)

Formal
elegance in 3-coat
lacquer finish walnut and
exacting craftsmanship to
bring you the quality you deserve.
The graceful, efficient appearance of your
outer office and right on through to the execu-
tive suite with the WELLINGTON 8000 Series. Choose
leather tops if you wish, but choose the finest from JOFCO.

by
jofco
P.O. BOX 71,
JASPER, INDIANA 47546

PERMANENT DISPLAY ROOMS—CHICAGO • FORT WORTH • LOS ANGELES • NEW YORK

WAREHOUSES—DENVER • FORT WORTH • LOS ANGELES • NEW YORK • SAN FRANCISCO • TACOMA

LETTERS

(Continued from page 4)

STREET SMARTS

FORUM: I want specifically to indicate my appreciation for your November, 1973 edition. The articles by Messrs. Robertson, Passonneau, Johnson, and your staff writer dealing with downtown Minneapolis are excellent —individually and collectively. They deserve to be reprinted as a miniature "primer" on the rationale and principles that should be involved in the design of pedestrian streets and open spaces. I hope you will be able to produce additional articles of this type and to begin to include critical comparisons of similar projects.

Chicago, Ill. RODNEY E. ENGELEN

SIC TRANSIT

FORUM: My compliments to you on the two railroad depot articles that appeared in November. A very thorough treatment of a most timely issue. Let's hope that this presentation of preservation possibilities combines with energy-crisis dictated revival of passenger service, Bicentennial efforts, and the passage of much-needed federal and state legislation, to make it possible to save some of our most unique architecture from going under the ever-present and seemingly unstoppable bulldozer blade.

DAVID L. PETERSON
Claremont, Ca. *The Depot Group*

GROWTH

FORUM: Mine is probably not the only letter you have received concerning the following mis-statement on page 44 of your December article "Where Do We Grow From Here."

"In theory, both local and state governments have the power of eminent domain. But in most cases, states have given this power to the localities."

This should read: "In theory and in practice, only the federal and state (but not local) governments have the intrinsic power of eminent domain. Cities, planning agencies, etc., can exercise this power only when it is specifically delegated to them by the states."

Atlanta, Ga. ALFRED WELLS

CULTUREPLATZ

FORUM: The December 1973 issue contained a most interesting article and excellent pictures of the Akron Performing Arts Hall. It is most unfortunate that one of the most impressive suspended glass installations in North America received only a passing notice. It is indeed regrettable that American architects are so poorly informed concerning this excellent means of providing an open, airy effect as evidenced by the pictures which illustrated the article. Most discouraging of all, perhaps, is that no domestic manufacturer of glass has the expertise to engineer and fabricate this type of assembly. Perhaps your article will inspire American architects and industry to catch up with their European counterparts in the use of glass.

STANLEY E. ARONOFF, *President*
The Southern Plate Glass Co.
Baltimore, Md.

FORUM: Robert Jensen's article, "Art Center as Artifact", offered a unique look of the Edwin Thomas Performing Arts Hall. Rarely is architecture seen on the same terms as fine art, and we applaud Jensen's presentation.

We were surprised, however, to see our firm's name written differently in two places in the article (incorrectly in the second paragraph; correctly in the "Facts and Figures" section).

CANDACE B. NORTON
Dalton, van Dijk, Johnson & Partners
Cleveland, Ohio

WAINWRIGHT

FORUM: The article on the Wainwright Building in your December issue mentions that the building was sold by Washington University 15 years ago. As this information came as a surprise to me, I asked for verification from the University records which is as follows:

Washington University received from the Estate of Ellis Wainwright in 1926 a number of shares of stock in the Wainwright Real Estate Company. Apparently the Wainwright Building was the major or only asset of the Company and Washington University was the majority stockholder. In May 1944 the Board of Trustees authorized the sale of the Company's stock, a sale which was consummated shortly thereafter. During the 1926/1944 period an outside real estate company managed the building.

From the information which can be obtained from the existing records, Washington University has had nothing to do with the Wainwright Building since 1944.

C. MICHAELIDES, *Dean*
Washington University
St. Louis, Mo. *School of Architecture*

MICHIGAN BANK

FORUM: It did take a little time to settle down after reading the article "Sensuous Surfaces" in your September issue.

I am told The FORUM is the No. 1 magazine in the architectural area, but then it follows that you should write in your area of knowledge. It escapes me as to why you would desire to poke fun at small town folks "just to ride the elevators," and lace your article with jabs at our Company, "a Landmark— no difficult task considering the size of a town with a population of 6,000."

If you would like to make your article a little spicier, a visit to the community and some conversation with our people would seem not only desirable, but absolutely necessary. The facts as to why we built what we did where we did would have been gladly given to you if you had only asked. I'm afraid that you have done a great disservice to us and to the community in which we live.

The article is done—and so be it. Still, we think you should pay us a visit. We are a small town but we are friendly. When you meet the warm people here and see the beauty that God has created around us, you will understand why we built what we did where we did.

K. D. SEATON, *President*
Detroit & Northern Savings &
Hancock, Mich. *Loan Association*

FORUM: With reference to Mr. Seaton's letter concerning the story about the D & N Building, I can only say his reaction is confirmation of the power of words and how they can be interpreted. I, personally, did not read into the article the meaning that Mr. Seaton does, and I do not believe you intended to poke fun at Hancock or D & N's praiseworthy demonstration of faith and support of the community of Hancock although in view of Mr. Seaton's strong loyalties, I understand his concerns. Each issue of The FORUM brings new and provocative subjects for its readers to consider and we delight in the challenge. I particularly enjoyed the November 1973 issue with "Rediscovering the Street," and am looking forward to reading the December issue this weekend.

MAURICE B. ALLEN, JR.,
Vice President
Tarapata/MacMahon/
Paulsen Corporation
Bloomfield Hills, Michigan

We are very sorry Mr. Seaton interpreted our comments as poking fun at the citizens of Hancock and would hate to sound like big city slickers (the author of the article in fact grew up in a town of 6,000 too). Nevertheless the sensitivity toward the townspeople of Hancock that Mr. Seaton has shown is truly exemplary: We only wish every client felt as much concern about the community in which he is building—ED.

EARLY AMERICAN MILLS

FORUM: In reference to: "Early American Mills" by M. & M. Zimilies, the book reviewed by Randolph Langenbach in October. The article is so justified; so correct, it could be used about so many like publications in relation to landmarks. So many pictorial essays, newspaper articles lamenting the passing of jaded places do not relate how substantial and useable most of the buildings could be if people thought of them properly. With a modern-use most mills could make a most attractive and useful building with real structural and decorative beauty.

KENNETH C. GERROLD
Honeoye Falls, N.Y.

AIA

FORUM: New York and Texas AIA components are not the only ones recognizing the virtues of women as elected representatives of the professional society (Letters, November 1973).

The Northern California Chapter, AIA elected Audrey Emmons to serve as Director of the Chapter for 1974-75.

MARIE FARRELL,
Executive Vice President
Northern California Chapter of the
American Institute of Architects

EUROPEAN TRAVELLERS

FORUM: In her article, "European Travellers," in your September Issue, Ms. Ayoub quotes Chateaubriand out of context. He liked it here very much. After all, where else could an obscure young man in his twenties ring the doorbell at the home of the head of State and get invited for dinner the next day— as Chateaubriand did at Washington's house in 1791.

JOHN MAASS, *Information Officer*
Office of the City Representative
and Director of Commerce
Philadelphia, Pa.

BOOKS

CENTERS FOR THE URBAN ENVIRONMENT-SURVIVAL OF THE CITIES
By Victor Gruen
Van Nostrand Reinhold Co., New York. 1973. $24.95

REVIEWED BY ROBERT C. WEINBERG

Of course, it is not surprising, in these days of inflation, that the sort of book one would have thought expensive at anything over $10.00 a few years ago should be priced more than twice that much today. I only hope that the income of professional architects and planners is rising proportionately so that they can continue to build up their personal libraries. And the first quick look at Victor Gruen's new book would seem to put it in a class with other comprehensive, well-illustrated, expensively produced books in the design field—of which one of the most welcome was Sybil Moholy-Nagy's "Matrix of Man." When that was published it cost only $15.00, and was even thicker and more copiously supplied with reproductions of plans, drawings and photographs than the book before us now. But all mercenary observations aside, one must report that, on second look, one has a sense of disappointment as to the substance and apparent purpose of the book.

Mr. Gruen is well-known for his remarkable, positive contributions to the design of shopping centers. He and his several firms which operate on the West and East coasts of the U.S.A. and now, since his "retirement," in Vienna as well, have turned out buildings of considerable architectural distinction, venturing beyond their other specialty, the designing of commercial centers, to the planning of entire inner-city communities and new towns. But Mr. Gruen's reputation remains based in the field of the shopping center and, when all is said and done, this book is really about that somewhat limited subject. In fact, as he notes in his Foreword, the idea for the present volume took form in 1969 when his publishers suggested an updated sequel to his "*Shopping Towns: U.S.A.*" (1960).

A closer reading of the book reveals it to be an example of the tail wagging the dog. Extrapolating from the design of central business districts to that of whole cities and even regions, with lofty generalizations about the "emerging new urban pattern" and the "downfall of urbanism," leaves the reader with the feeling that the shopping center—urban or suburban —or the completely renewed CBD within an existing city, is the be-all and end-all of planning; rather than that it is just one aspect, albeit an important one, of a much larger problem which this book either disregards or is unaware of.

Mr. Gruen starts out with an excellent review of the shopping centers his firm has designed in the U.S.A. and elsewhere, goes on to describe shopping centers in other parts of the world, and ends up discussing the function of the commercial core in the larger city (illustrated by a series of case studies of projects built or proposed in a variety of North American and European cities).

But the heart of the book is Section Five, "The Multi-Functional Center," which presents an interesting idea, with case studies from all over, to prove the author's theory of total rebuilding of the CBD, not only for retail trade, but also for many other functions going on at different levels. On this point Mr. Gruen outlines some valid and important suggestions, esthetic as well as technical, with their financial and social implications. In fact, since the author is a preeminent specialist in the field, this section is unique and is so much better than the other sections that precede and follow it that one is led to wonder why Mr. Gruen didn't concentrate on "the multi-functional center" and make a less elaborate (and consequently less expensive) book out of it. He would not then have laid himself open either to largely repeating and updating what he had written in his earlier book—or what readers of the architectural periodicals have been familiar with during the past decade of his firm's work. This would have provided readers with a concise, authoritative work on a subject with which he is not only fully familiar but of which he is a master.

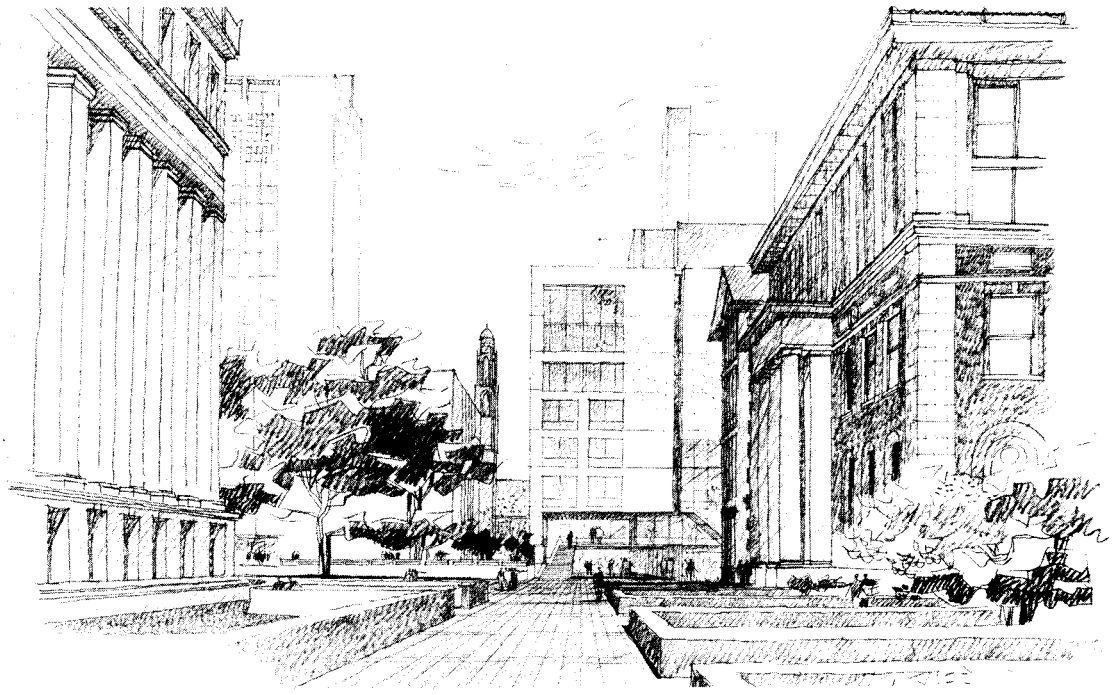
For example, among his various "case studies" of the "multi-functional center," he cites the Barbican development (not by Mr. Gruen) which replaced the bombed-out center of the City of London and which is, truly, a well-spaced-out megastructure that retains the human scale, preserves many surviving old buildings and goes well beyond being just a commercial retail center in its use and occupancy.

But it is the place of the CBD in relation to man living in cities as a social being, that seems to have evaded Mr. Gruen's imagination. He is a successful designer and planner on behalf of his client, public as well as private, in a sphere in which he is almost unparalleled in accomplishment as well as in theory. Even his famous Fort Worth proposal, although never realized, had a tremendous influence. But Mr. Gruen, unfortunately, tends to be more interested in professional and related financial success than in setting the world right, even at the risk of personal loss. Even the most brilliant professionals seem to lack regard for Utopia as a humanist concept. Mr. Gruen goes so far as to describe "Utopianism" as "something to be avoided at all costs," defining the term only as one to be applied to "impractical" solutions and "unenforceable" regulations. The concept of *greatness*, as envisioned by the makers of "no little plans" who conceive them as a source of pride to the citizen, by the builders of spacious, new capital cities to celebrate the spirit of the nation, or by the creators of "garden cities" selflessly working as reformers for the essential solution of the problem of the housing of middle or low-income groups as an end in itself, I have seldom found to be the driving force in so many people of Mr. Gruen's background and education. The scheme must "work," it must be "profitable" (or at least not lose money), either for a private developer or for a government agency. It must be striking and attention-holding, whether or not it appeals to the quieter and deeper emotions of those who will live, work and play in it.

If one approaches Mr. Gruen's latest opus realizing its shortcomings in content and concept, ignoring what comes before and follows after, studying its central section for what it can offer in the way of analysis, criticism and proposals for "multi-functional centers," it can indeed be a valuable handbook for those architects and planners practising in this hitherto specialized, but increasingly significant, sphere of design.

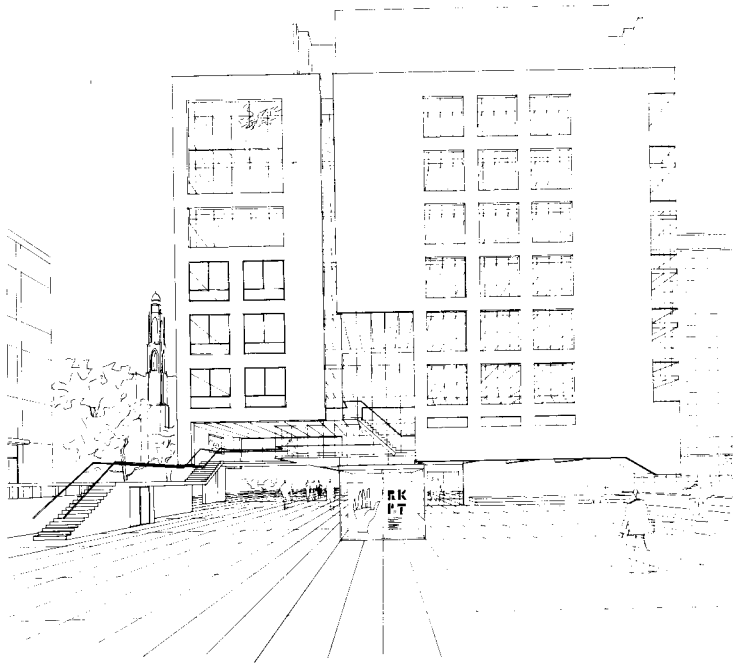
Mr. Weinberg is a director of Hancock Little Calvert Inc., planning consultants, and professor of urban planning at N.Y.U.'s Graduate School of Public Administration.

FOCUS

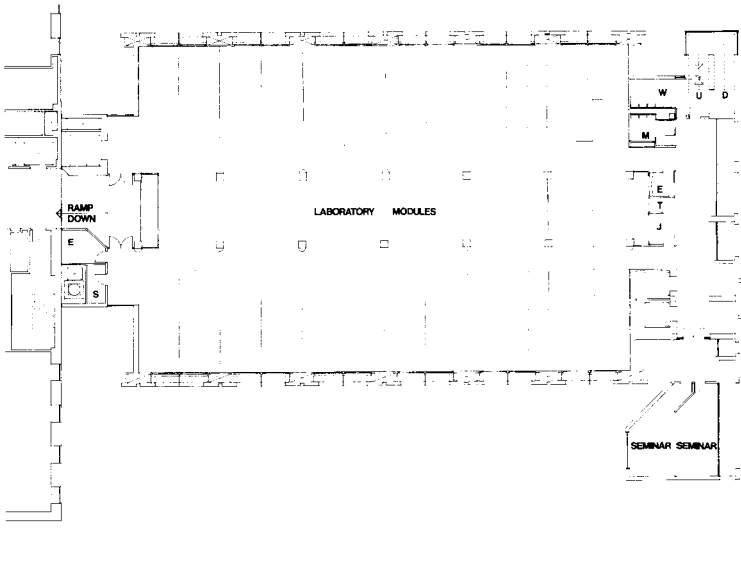


IN CONTEXT AT COLUMBIA

At the end of a campus walk flanked by beaux-arts classical buildings, Mitchell/Giurgola Associates is about to slip in a restrained addition—The Sherman Fairchild Center for the Life Sciences. This eight-story laboratory with a net area of 64,483 square feet will be adjacent to a large engineering building on the north and above an existing one-story connecting lounge. The Center will be composed of two components: a large rectangular space especially equipped to house laboratory and related facilities and a smaller, irregular, screen-like element housing administration, offices, conference-seminar rooms and social gathering areas.



Hovering above the ground level lounge will be a reinforced concrete fenestration screen appearing to float before the glass skin which envelopes the building. A vertical notch divides the south facade into two sections as though it were cleaved by the imaginary perspective vanishing lines of the Avery Library which forms one boundary of the walkway. The fenestration screen is set forward several feet to emphasize the continuity of the glass skin and act as a *bris soleil.*



Work will begin this spring on this subtly mannered adaptation of climate control in its tight site context. When completed, the Sherman Fairchild Center is going to be the best interface dialogue in the city.

SEATTLE FIRE STATION

This small fire station on Seattle's east side, brought to our attention by our itinerant Washington, D.C. correspondent, Carleton Knight, is typical of the high quality buildings that the city's design commission is trying to generate. The commission recommends architects for all public buildings in the city and is making a conscious effort to select young firms.

Architects Hobbs Fukui Associates were given a fairly simple program: to accommodate one company of the fire department; training as well as pleasant surroundings for living, and the structure, while it should be a physical asset to the neighborhood, must also be strong and stable to protect it from possible disturbances.

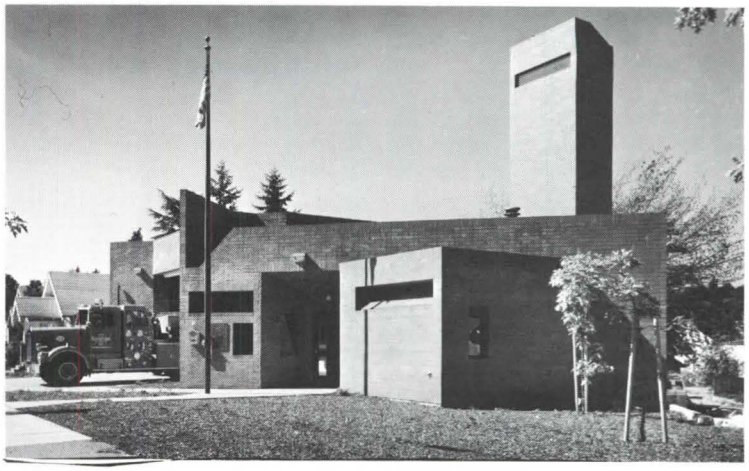
The station is in an urban setting characterized by older residences that under-utilize the multiple-family zoning and by commercial facilities on a nearby heavily used street. An alley divides the rear of the station from the rear of the commercial block.

According to architect Don Fukui, the layout was easily defined. There are two boxes, large and small, for equipment and people. The exterior design is what makes the building stand out from its more ordinary surroundings. The main elements of this design are geometric plane walls, a hose tower and the building's dark brown color.

Flange-like walls frame the truck entrance and diagonal parapets link the truck bay with the living quarters. The public entrance is deeply recessed as are some of the windows—to lower the chance for breakage. Fukui says the parapet walls serve two purposes. "They cut down the apparent overall width of the building and help unify the high and low sections."

The building's most dramatic element, the hose tower, was actually reduced in height by using the basement for the bottom of the tower and by placing it at the rear of the site, where there is a gradual slope from the front.

The oversized brown brick—8″ by 4″ by 12″—was selected because it lays up easily, compares favorably in construction time to concrete block and offers an attractive finish. The $165,000 building is single-wall construction with a wood frame.



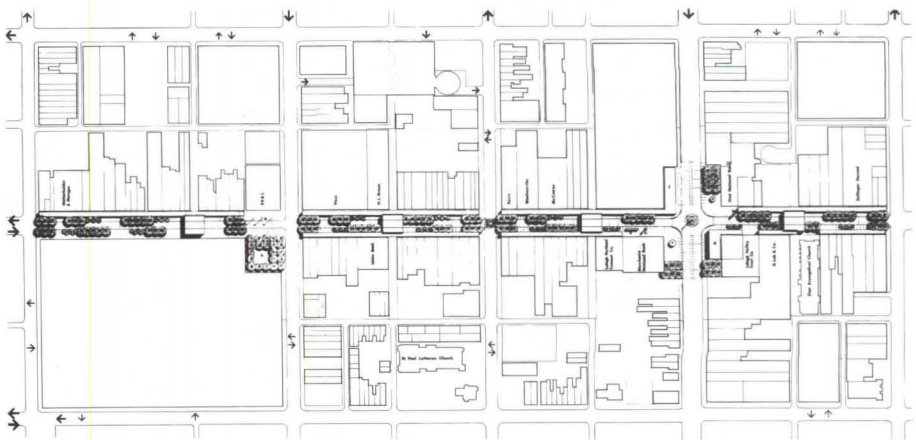
PLEXIGLASS ARCADIA

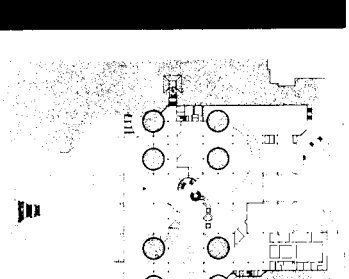
A mall-like redevelopment using plexiglass arcades has spurred economic regeneration in the downtown section of Allentown, Pennsylvania. The pedestrian mall, designed by Philadelphia architects, Cope Linder Walmsley, still allows local traffic to go in a one-way direction through the town's central business district. Nevertheless, the widened sidewalks, the coordinated system of street furniture—kiosks with mail boxes, drinking fountains, telephones and radiantly heated sitting places, planters and trees, trash containers and light fixtures—all create a special ambience that complements the canopy system.

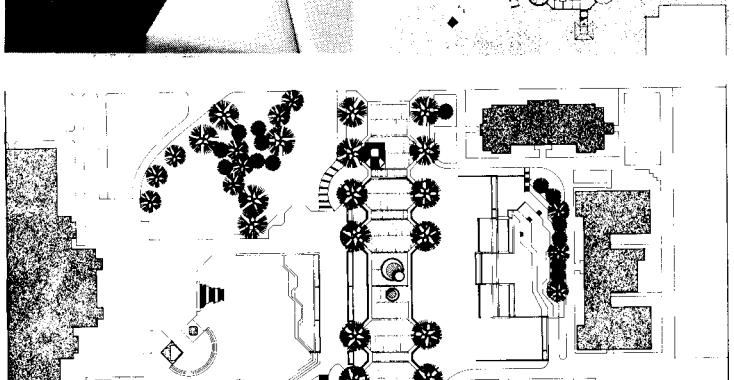
The glass canopies, which extend 2000 feet on two sides of the street through a four block area, link at mid-block with a cross canopy where major public facilities are located along with bus-stops and approaches from the peripheral parking lots. The plexiglass arches set in aluminum frames rest on cantilevered painted steel structures that allow the building faces to be clear, due to projecting basements under the sidewalk.

The unusual revitalization effort has been financed by local and state funds. For the $5 million investment on the open space improvement, private investment of at least $40 million is expected. Already new construction is underway, although Hamilton Mall has emphasized preserving existing buildings.

Local leadership was provided by William Scharf, executive director of the Allentown Redevelopment Authority and Director of the Department of Community Development. G. Edwin Pidcock Co. of Allentown were consulting engineers, along with Donald F. Nardy & Associates of Philadelphia. Simpson & Curtin Inc. of Philadelphia acted as transportation consultants, while Evans & Hillmann Inc. of New York designed the lighting.







BURROWED BOOKS

Rhone & Iredale, Vancouver architects, recently completed an extension for the University of British Columbia's Sedgewick Library. Asked to design a structure along the University's tree-lined pedestrian mall without destroying it or adjoining spaces as the hub of campus activity, the architects had to find a space large enough to hold 200,000 volumes and study space for an extra 1,500 students. An added problem was to save nine 40-year old red oaks lining the mall.

Since the elevation of the mall was 12 feet higher than the main library entrance, and an eight foot change in grade existed between the mall and mathematics building on the opposite side, Randle Iredale, partner-in-charge, designed the two-story structure under the mall, creating a two-acre site.

The extension, built entirely of pre-cast concrete uses 100 two-story columns, with support girders and tees spanning 42 feet. East and west exposures open onto courts, where gardens overhang glazed window walls. Poured concrete retaining walls form north and south ends of the building. The architects saved eight of the trees by encasing the roots in steel drums containing 500 cu. ft. of soil. The 42 ft.-in-span drums with air space insulation and clad in brick from grade down through both levels of the library, become part of the interior.

The library's lighting system was developed according to psychological research of the effect of color on habitual patterns in order to modulate noise and activity. Thus, red and yellow lighting illuminates high activity areas and green and blue lighting is used for study areas.

Completed in 1973, the structure won first place in the Royal Architectural Institute's 1973 design awards program.

RIVERSIDE MUSEUM

The new Ohio River Museum in Marietta, Ohio is a study in problem solving. A sanitary sewer runs through the sloping site, the scene of heavy flooding. The property is bordered by the Muskingum River, a heavily used highway bridge across the river, a main city street and a residential area which includes a large, unsightly trailer park. And, there was also a large maple tree that could not be removed.

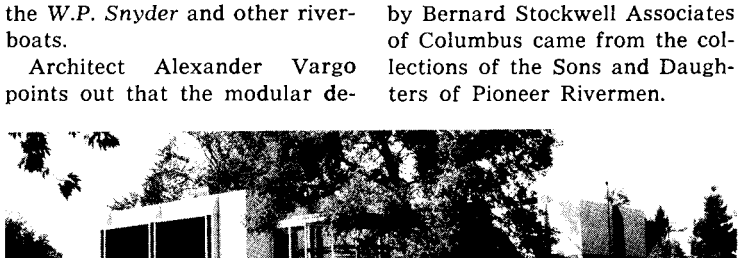
Architects Eesley, Lee & Vargo of Marietta developed a solution that takes advantage of the disadvantages. They designed a three-building complex, raised 12 feet off the ground and linked by open bridges. The three modules present a blank wall to the street and objectionable views. The only large windows look out on the river where the *W.P. Snyder*, a steam-powered paddlewheeler is moored.

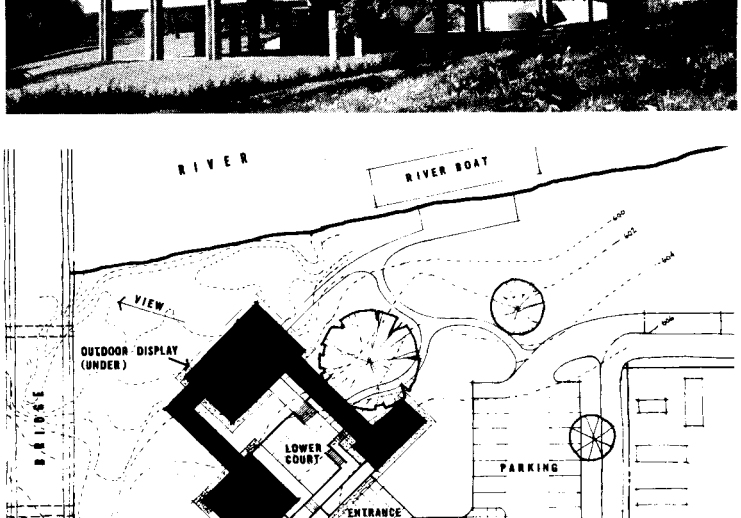
To thematically relate the exhibited contents of the museum to the exterior, the architects diagonally laid cedar shiplap siding on exterior walls and framed bridges like gangways with open trusses resembling the *W.P. Snyder* and other riverboats.

Architect Alexander Vargo points out that the modular design of the museum allows separation of the three general exhibit areas and permits easy expansion. Since the budget was small (approximately $450,000 including $100,000 for exhibits) the modular plan makes the museum appear larger, though it has only about 4,300 square feet of exhibition-related space including a sales area and a multimedia theatre.

By raising the modules, the architects were able to provide a large covered area for the outdoor display of steamboat artifacts. Because of the threat of high flooding, all mechanical equipment is on the roof and the electrical system is hung from the ceiling. All material within two feet of the floor is not susceptible to water damage. Terrazzo floors are on a sandblasted, poured-in-place concrete frame, with laminated wood beams supporting the roof.

The museum is a project of the Ohio Historical Society, which develops and maintains small museums all over the state. The construction was funded by a state capital improvement bond issue and by society funds. Exhibits designed by Bernard Stockwell Associates of Columbus came from the collections of the Sons and Daughters of Pioneer Rivermen.





PHOTOGRAPHS: Page 9 (top) Art Hupy.

Warnel Metal panels offer an imaginative new vocabulary of building surfaces. A wide range of sculptured textures are embossed in the following metals: bronze, copper, stainless steel, weathering steel and aluminum. Also available are long-life color and texture finished on galvanized steel or aluminum. Panel systems are engineered for lightweight, economical construction.
Forms & Surfaces Box 5215 Santa Barbara, Calif. 93108 Tel. (805) 969-4767

Zenith Building, Los Angeles, Ca.
Maxwell Starkman, AIA & Assoc.

FORMS + SURFACES

FACETS

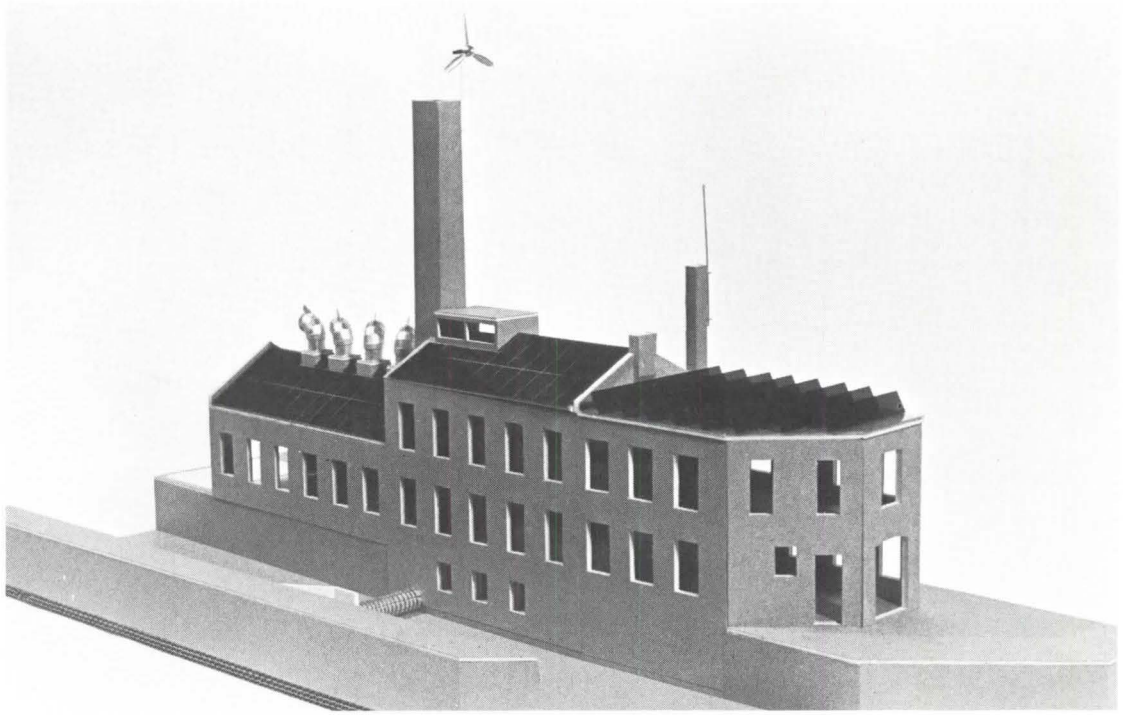
ENERGY

"RETROFITTING"

For a country that spends billions of dollars in applied research for space, arms and other big technologies, there has been pitiably little funding, either by government or private industry, for research into alternative sources of energy, or user conservation behavior. So, we'll be watching a new experiment called the Electric Energy Conservation Station with great interest. This impressive phrase refers to the first research facility in Rhode Island to demonstrate alternative sources of electrical power generation, and we are happy to report that it is now under construction.

The project is a cooperative effort of the Research and Design Institute (a private, not-for-profit group in Providence), Brown University, and private firms in Rhode Island (including the Narragansett Electric Company), which are contributing funds, materials and consultation. The program involves a "retrofitting" of an old building (a restored mid-nineteenth century mill in Providence) with solar-energy-utilizing systems. A team composed of Brown University faculty, graduate and undergraduate students and staff members of REDE will design solar collectors and other devices to be integrated into the mill.

The building will be heated and cooled by an electrically-powered heat pump with the solar system supplying thermal energy to the high temperature reservoir of the heat pump. The separately-wired d.c. high efficiency lighting system will be powered by a combination of photovoltaic solar cells, a wind-powered generator, and a small water turbine (the mill is situated on a river bank). After the restoration is finished, the three-story building's 5,000 square feet of floor space will become headquarters for REDE. It will also serve as a demonstration project for builders, architects, and the public of southern New England.



Model of the experimental Electric Energy Conservation Station, Providence, R.I.

In addition to exploring alternate sources of energy, the project hopes to encourage Rhode Island economic development, to foster the restoration of historic landmark buildings for both cultural and ecological reasons, and to investigate the effect of energy conservation on life styles. Will the staff of REDE be more conservative in their consumption of power if they are aware of the finite store of energy within the mill, and if they can observe the process of energy collection around them? How much heating do we really require for health and comfort? Is air conditioning preferable to natural ventilation? How much and what types of artificial light are required for good reading? These are some of the questions relating to the human element that will be posed.

Three alternate sources of energy will be utilized in the project: sunlight, wind and water. Panels of photovoltaic solar cells mounted on the mill will convert solar generated electricity directly. The power will be stored in banks of batteries within the building to provide electricity during night time and on heavily overcast days.

A highly efficient wind powered generator will be mounted on the tall stack of the foundry to catch the prevailing winds. The energy thus produced will also be stored in the batteries.

A water turbine will generate electricity day and night from the flow of the Moshassuck River, which passes by the side of the mill. It is estimated that thousands of buildings lining the New England river network could harness hydroelectric power from the rivers.

Absorptive heating and cooling will be another area of alternate energy to be investigated in the project. Superior insulation materials will also be studied.

Although it is hoped that the alternate sources will satisfy most of REDE's energy requirements, standard power will be purchased from the local electric utility to insure the dependability of the experimental generators. This power can be interfaced automatically to compensate for lapses in the sun, wind and water sources of energy.

RCA'S NEW AERIE

The announcement of a small addition to Rockefeller Center's RCA Building got some major ballyhoo early this year. New York City's new mayor, Abraham Beame, former Governor Nelson Rockefeller, and other notables were on hand.

The addition is a small management conference center that will be situated on a 12th-story setback of the 70-story RCA Building. One reason for all the ballyhoo: the new addition will utilize solar energy in the first commercial application of solar heating techniques in New York. Another reason: the RCA Corporation announced it had entered into a long-term rental arrangement for expanded corporate headquarters, thus relieving New York's anxiety that the giant communications company might leave the city altogether for a new corporate site in Connecticut.

Robert Sarnoff, chairman of RCA, called the new facility, which will be built early next year at a cost of $6 million, "a pilot project . . . to meet a portion of its heating requirements by capturing and storing solar energy."

In addition to conference and presentation space, the RCA Management Conference Center will house an up-to-date board room and new dining facilities.

Ford & Earl Design Associates developed the design, which demanded extensive use of glass for both practical and esthetic considerations. Ford and Earl's initial concept was to build a working space which relates to the natural elements of sun, trees, grass and water. The existing garden located on the set-back terrace will be extended into the interior of the new structure. Orientation to the sun and the use of glass also

will provide extensive natural lighting of the complex, requiring a minimum of artificial illumination. Finally, insulating glass, which reduces heat transfer 50 percent, meets the requirement that the new addition can be assembled of lightweight, pre-fabricated modular components.

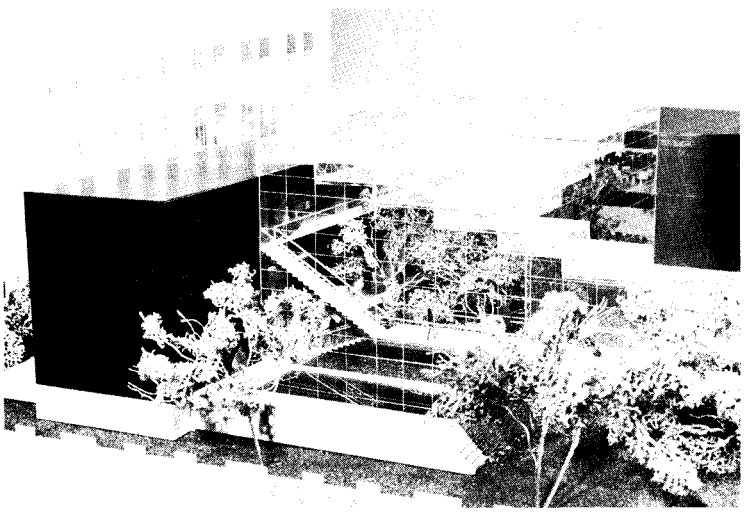
The mechanical systems of the conference center are designed to minimize consumption of energy. The roof-top site affords an opportunity to use existing and new energy technologies not previously possible in an urban location. The solar energy collection system, with collecting panels on the solid exterior surfaces facing south, and on the roof, will meet a portion of the heating requirements in winter. This same system will be flexible from within so that future application of cooling air conditioning may be made as the laboratory systems become feasible.

A heat recovery system will collect and store excess energy, both from surplus interior heat and direct exterior radiation, until ready for conversion to heat upon demand.

The variable air volume system will reduce air circulation in enclosed spaces according to needs. This is in place of the more common constant volume reheat system.

Provisions are also made for natural ventilation, through the use of operable panels.

A computerized monitoring system will sense and evaluate conditions both inside and out and automatically regulate the other building systems to minimize energy consumption.



Energetic Experiment.

TRANSPORT

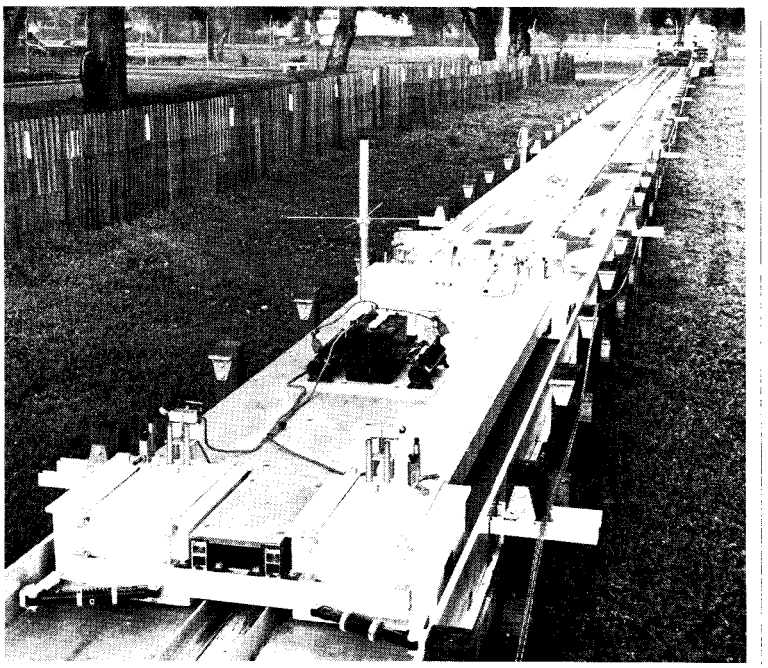
MAGLEV REVISITED

Last June we published a piece, "Mag Lev Not War," about research being performed in Canada and Germany on magnetically levitated vehicles—vehicles, that is, which lift up to one foot above ground by using chilled magnets. Free of the speed limit imposed on conventional ground vehicles by the contact between wheels and roadway or track, maglev vehicles can be propelled at extremely high velocities, becoming a real alternative to air travel in heavy traffic corridors like Bos-Wash.

After the piece appeared, Dr. Howard T. Coffey of Stanford Research Institute wrote and chided us for mistakenly implying that maglev research isn't taking place elsewhere—at SRI especially: "The Sandia Corporation supported studies of the feasibility of magnetically levitating rocket sleds travelling at ten times the speed of sound in 1967-68. This work was performed at SRI and the Atomics International Division of North American Rockwell Corp. . . .

"The U.S. Federal Railroad Administration (FRA) funded studies of the feasibility of this concept at SRI and the Ford Scientific Research Laboratories in 1971 and has continued support to the present time. We at SRI levitated a small scale test vehicle on a 500-foot long guideway . . . . To date, this is the only vehicle both levitated and guided by superconducting magnets. . . .

"The greatest effort currently being devoted to magnetic levitation is . . . in Japan, where a commitment has been made to install a 300 mph system between Tokyo and Osaka in the early 80's."



Maglev guideway

SRI's maglev differs from other systems by using "repulsive" rather than "attractive" magnetic forces, leading, Dr. Coffey notes, "to a labeling of the system with which we work as repulsive. Since this is an intolerable label, we coined the word *maglev* . . . . This prompted a staff member to say 'Maglev —Not War,' the title of your article. It is a purely American phrase and at least that contribution cannot be denied the U.S."

Far be it from us to wish to deny it.

ZONING

While the energy crisis may have left its future in doubt, suburbia will, presumably, continue to exist, even though its halcyon days may be over. Any facilities that help centralize the distribution of goods and services will, also presumably, be to the good.

Both considerations are presumed because a new publication from the Urban Land Institute, *Shopping Center Zoning*, does not specifically refer to them. But they are prompted by the thought that shopping centers—especially well-zoned and well-planned ones—can become the hub of mass transit systems in suburbia, can encourage car pooling, and minimize mileage wasted in chasing all over the county on daily errands.

So, the 80-page book, written by J. Ross McKeever and based on a ULI survey of 232 planning and zoning agencies, begins by noting that "The most significant fact revealed by the investigation . . . is the finding that zoning regulations in force for shopping center development are virtually chaotic.

"Few juristictions have the same set of rules. The welter of confusion, delay and friction that this condition creates is as difficult for planners and zoning officials to live with as it is for shopping center developers."

The book contains a general introduction on the concept of zoning, and sections on shopping centers as land use and building types; zoning for shopping centers; and elements in a solution. There is also a 26-page appendix and bibliography. The book is available for ten dollars from USI, 1200 Eighteenth Street, N.W., Washington, D.C., 20036.

AIA

NEW FORMS

Three new AIA standard agreement forms are now available.

The entirely new AIA form B801 is an owner-construction

manager contract that covers an area not previously clearly defined. Its use is recommended for architects who provide construction management services.

AIA B141 is an architect-owner contract. It replaces three earlier documents, B131, B231 and B331.

B141 is an advance over the previous forms because it includes four methods of compensation—including for the first time a fixed-fee method—in one form.

The forms are available for 25 cents each from publications marketing at AIA headquarters.

PRESERVATION

WAINWRIGHT SAVED

Governor Christopher Bond announced (as The FORUM was going to press) that the State of Missouri would buy St. Louis' Wainwright Building and remodel the ten story structure to accommodate state office space. The governor outlined plans to develop the block around the landmark with a new state office building complex. *More in April.*

YANTRA LORE

Once upon a time there lived in Jaipur a King (Maharaja Sawai Jai Singh II) who was so fascinated by the heavens that he became one of history's great patrons of astronomy. He collected all the information and astronomical instruments he could find. He studied the great early astronomical works of Hindu, Muslim and European civilizations. But alas, the more he learned the more he became convinced that the astronomical tables then in use were defective.

Jai Singh, who lived from 1686-1743, became increasingly unhappy, until finally he resolved upon a plan: new tables must be prepared, and bigger and better instruments must be constructed to take more accurate readings of the sun, the moon and other celestial bodies. After consulting with his scientists, he summoned his builders to construct huge plaster-covered masonry instruments, called yantras in Sanskrit, in Delhi, Jaipur, Ujjain, Varanasi and Mathura. Though they were similar in form and purpose to the small brass instruments used until then, they were enormously enlarged in scale, measuring up to 90 feet in height and 147 feet in length.

John Nicolais, a reader and sometime contributor to The FORUM, sent us photographs of yantras and other astronomical instruments taken while he was on a trip to India together with a description of them by George Rusby Kaye ("The Astronomical Observatories of Jai Singh," Archaeological Survey of India Reports, New Imperial Series, Calcutta, 1918).

Commenting on the well-preserved observatory of 1734 in Jaipur, Kaye observes: "That the instruments were no more accurate than the small ones is of little consequence now. That they are long out of use is unimportant. Now . . . we see the shapes, graceful yet startlingly unfamiliar . . . the patterns, and the textures. Many-shadowed and ruin-like under the blistering Indian sun, Jai Singh's instruments stand, their purposes dissipated, but their evocative power eternal."

TOURS

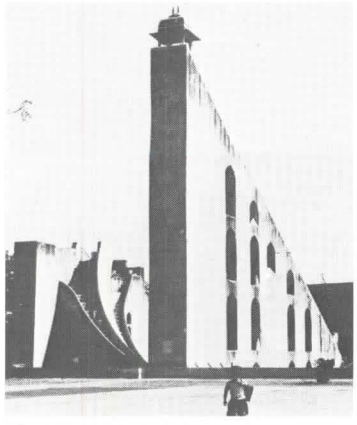
For years the National Trust for Historic Preservation has sponsored tours of areas rich in historical, preservation and conservation interest. On all of these trips private homes are opened that are not usually accessible to the public, and National Trust members are promised invitations to receptions, luncheons and dinners by the owners of some of these homes. At the same time, standard landmarks are also included on the itinerary.

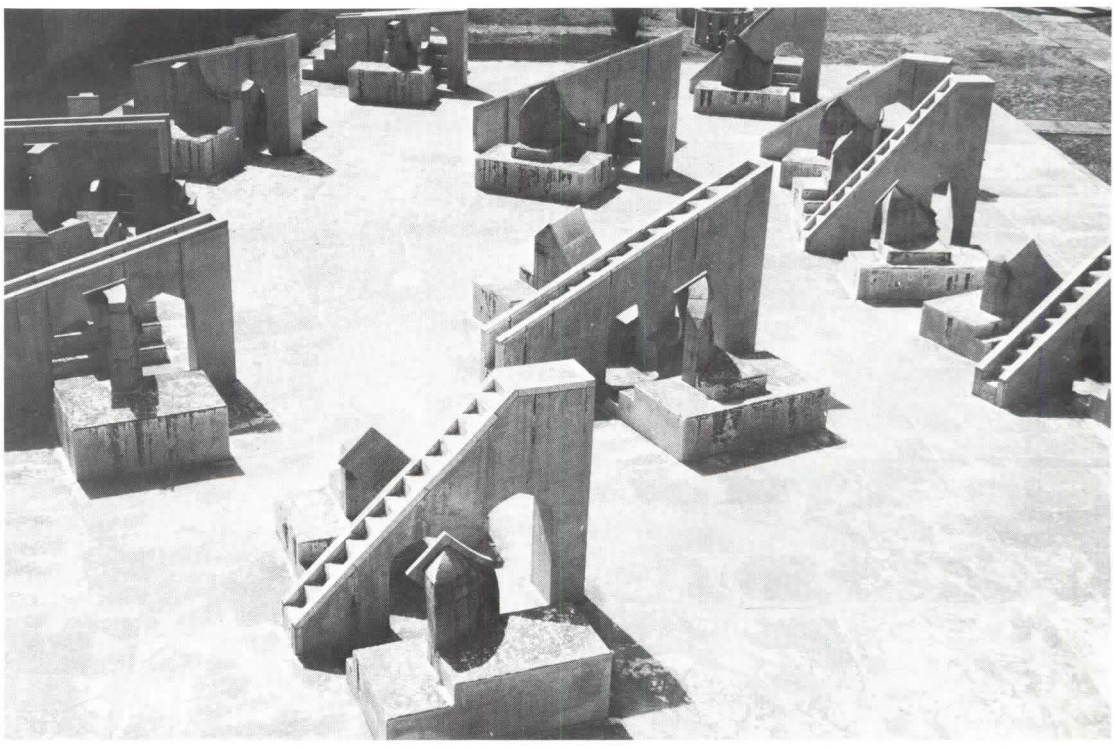
This year, the *Delta Queen* trip from New Orleans to Memphis has already sold out, but the cruise from St. Paul to Memphis scheduled from October 20 to 25 is still available. There will be shore stops in Minnesota, Iowa, Illinois and Missouri. Other 1974 tours and their dates: Provence, France (May 25-June 8); economy tour of the Midlands, Lake District and North Country of England (July 22-August 8), with usual National Trust tour standards but less expensive accommodations; Austria - Czechoslovakia (October 12-31), with several days each spent in Prague, Vienna, Salzburg and Innsbruck, as well as other places of historic or artistic interest.

Information about each tour is available from the Department of Public Affairs, National Trust for Historic Preservation, 740-748 Jackson Place, N.W., Washington, D.C. 20006.

WILD WALES

The Victorian Society's Ninth Anglo-American Study Tour is called "'Wild Wales' and the Welsh Marches." From June 21 to July 1 the tour will visit the Welsh border country and North Wales, stopping to see important buildings, houses and interiors. Noted lecturers and authors will address the tour group. Sites to be visited include buildings of George Borrow; Edwardian castles of Caernarvon, Harlech and Conway; Chirk, which contains important interiors by Pugin; Penrhyn; Kinmel; Wightwick Manor, with important furnishings by Morris and Pre-Raphaelite paintings; the bridges, viaducts and canals of Telford and Stephenson, etc. For more information write The Victorian Society in America, The Athenaeum, East Washington Square, Philadelphia, Pa. 19106.





The Samrat Yantra (above) and the Rasi Valaya Yantras (right).

CITIES

OVER THE RAINBOW

Syracuse—city of Hiawatha, the Onondaga Indians, the Erie Canal, and birthplace of L. (*The Wizard of Oz*) Frank Baum—has joined the growing ranks of American cities to come up with a downtown revitalization plan. With, however, a difference. Syracuse's downtown is not declining; in fact the office and retail sectors have been strengthening. But city managers and planners envision a greater future, built upon the past, for Syracuse.

The new plan, called SyracUSA, calls for recognition of all parts of the community's culture and incorporation of each facet into the whole city's culture. It also calls for more community involvement and new public activities, rather than just new public facilities. Why? Because the city recognizes the inefficiency of allowing the physical plant of its downtown to lie idle two-thirds of the day. Unless there is a place for people to come together in public for a full scope of social and cultural activities—a center where the action is—a city is not a community.

The SyracUSA plan calls for the reclaiming of Clinton Square —once the pride of the city— as the major public space in Syracuse. Pedestrian movement is given precedence and a variety of special events will be held throughout the seasons. Traffic lanes and pedestrian ways would be differentiated by paving patterns, planters, curbs, bollards (wooden posts) and lighting. The Erie Canal, which runs right through the square, would be reconstructed, and major buildings refurbished and expanded without destroying the still intact original scale.

Recommendations for revitalizing other parts of downtown (including Onondaga Creek Park, Downtown Community, Centro Center, East West Way, Madison Center, Civic Center Park and the Salina Mall) have also been made. The SyracUSA plan has been prepared with shared sponsorship and participation of the City of Syracuse, the County of Onondaga, the Metropolitan Development Association and the New York State Urban Development Corporation. McAfee, Malo, Lebensold, Affleck, Nichol, architects and urban planners, consulted on the plan.

Outdoor cafes, pedestrian ways, for Clinton Square, SyracUSA.

LAND USE

Planners, urbanists, owners and managers of medium size industrial facilities take heed. A new report based on a case study of Baltimore demonstrates that it's usually more efficient and economical to locate industrial establishments in the center city than in suburbia.

Taxes, the higher cost of automobile commuting, better communications, speedier deliveries, wider availability of job skills in cities as opposed to suburbs, and a host of factors usually ignored by the cost accountants, have made the move of city-based plants to the suburbs far more expensive than is usually realized. Further, the dispersal has aggravated job dislocation, unemployment or underemployment of less skilled workers, underutilization and misuse of multi-story buildings located in center cities.

The report, *Industrial Potential of the Central City*, was prepared by James H. Boykin, a professor of real estate at Virginia Commonwealth University's School of Business. The Baltimore region was chosen, says Dr. Boykin, "because its stage of growth is similar to other older industrialized urban centers in the United States which are, or will be, experiencing some of the land use problems discussed in this book."

Such characteristics of industrial location as product market orientation, site size, building age, proportion of building used for manufacturing, warehousing, and nonmanufacturing, and ratios of skilled, professional, and unskilled employees to total employment are analyzed. The end result of the study is to describe some of the strategic considerations for encouraging growth among industrial classes which the city finds compatible with its resources and economic and social needs. This information should be applicable to other cities with similar urban and industrial configurations.

One of the most useful points emphasized in the study is that real estate values, though much higher in the central city than in the suburbs, are offset, in terms of rent and taxes, by more intensive land use. Three times as many industrial establishments in Baltimore were located in multi-occupant buildings than in the suburbs. Taxes for land and improvements for building space averaged $.17 in the city, as compared with $.20 in the suburbs.

DEVELOPMENT

END OF AN ERA

The day when slick, high-pressure developers go around peddling underwater Florida lots to gullible couples seeking dream sites for retirement homes may be at an end. New regulations adopted by HUD now require interstate landsellers to make extensive disclosures to buyers about almost every conceivable aspect of a land offering, from annual rainfall to uncertainties about promised improvements . . . all the way down to whether the property is smelly with what the regulations call "unpleasant odors."

Although developers must immediately comply with the truth in advertising provisions of the rules, if their land offerings were registered before December first they're not immediately required to provide an audited financial statement of the company in any case where sales exceed 300 lots or $500,000 in value, or of past or pending "disciplinary proceedings, bankruptcies or litigation." However, developers who registered before December first will have to make these and similar disclosures after making "material" changes in their existing filings. HUD officials estimate that most developers will then fall entirely within the new rules' strictures within the next six months to two years.

Reaction to the new rulings has been, predictably, varied. "They literally should turn around the business practices that need turning around," says George Bernstein, administrator of the department's Office of Interstate Land Sales Registration. Bernstein, who took over this

(*Continued on page 86*)

FORUM

March–1974 Vol. 140 No. 2

The editors of The Forum gratefully acknowledge the artful assistance of Yukio Futagawa whose photography graces these pages. Mr. Futagawa's monograph covering the work of Kevin Roche and John Dinkeloo, 1964-1974, will be published later this year by his A.D.A. EDITA Tokyo Co., Ltd.

Kevin Roche
John Dinkeloo

David Powrie
Philip Kinsella, Jr.
James Owens, Jr.
Gene Festa
David Jacob

Chalmers Alexander
Harold Bextel
Bruce Detmers
Joan Jaggar
David Kilgore
C. A. Mogridge
Nicholas Ohly
John Owen
Ralph Price

The 14 people listed above, plus 50 or so others, make up the firm of Roche Dinkeloo and Associates.

During the past decade, this dedicated team—much of it put together under the late Eero Saarinen—has evolved a broad band of conceptual fibers off a stalwart parent stem and created, in its own right, a *corpus callosum* of work to be reckoned with. One is hard put to find, during this period, a sequence of projects and buildings more diverse in technique and, at the same time, more disciplined in intent.

The Roche Dinkeloo team is ensconsed, as it has been for 11 years, in the hilltop mansion which Mr. Saarinen bought shortly before his death in 1961. The burly brick pile was built by a German cigar manufacturer who, it is said, wanted a kind of castle on the Rhine—indeed, the mansion looks out over the reservoir in Whitneyville, just outside New Haven, Connecticut, where inventor Eli Whitney had his works. And there are expansive views of the East Rock bluffs. A dignified driveway winds up to the mansion, from beside the reservoir. The kind of driveway one would wish *every* architect were at the end of.

The seemingly impervious pose is strategic. Inside, what Kevin Roche calls "the day-to-day slogging, without much romance in it" goes on, tactfully set off from society's syndromes—especially, he hastens to add, the one pertaining to "artistry." In fact, Mr. Roche becomes more quiet than his usual quiet self when metaphysical questions, or the catchwords of scholars and critics, are introduced in a discussion. If one were to ask him what he was trying to "say" in this or that building, or ask him what "historical forces" the work embodies, or ask him what "issues" are being addressed, he will say (more often than not), "Maybe we shouldn't bother with this sort of thing."

The reason is that the Roche Dinkeloo approach to getting jobs out, and up, is highly pragmatic, and a seven-days-a-week operation. John Dinkeloo, who has an immensely affable way with things like gaskets and glazing, and has developed an unnerving knack for finding architectural spin-offs in the processes of industry, is sardonically tolerant when too much profundity is read into the firm's designs: "You have to understand how we *do* things. And if you understand that, you can almost forget about *design*—because design is the way something is carried out.

"If you ask me to sit down with such-and-such a design, you are asking me to sit down, in our shop anyway, with many months and, in a good portion of the work, with many *years* of thinking and testing and trying. You are asking me to sort out the various values of things which came up, were considered, some of which were dropped, modified, or kept. You are asking me to tell you what values we attached to a project's site, to locale culture or custom, to labor conditions, or to the suitability and accessibility of various possible materials and building techniques.

"*A* direction is what you would be asking me about—this is the thing, you see. And our work consists in defining that direction, discerning some configuration from all the influences which affect a job. We don't computerize this, though some of our consultants *do* use computers, naturally. And we don't have all sorts of charts and diagrams and hard-and-fast titles for people."

So, while there are a lot of adjectives one could assign to the work of Roche Dinkeloo Associates, both men distinctly prefer these adjectives *least*: individualistic, original, and (God forbid!) "creative." One is reminded of Andre Segovia's remark when someone asked him about a certain unforgettable virtuoso performance: "There is no virtuosity in my performances, but only in my *preparation* for them."

This is underscored by David Powrie, who has been with the firm since 1956, when Mr. Saarinen brought him in from Toronto on the say-so of, among others, Oscar Niemeyer, for whom he had worked in Brazil: "A building takes on a life of its own, if you really look for the life within the problems a building represents. So it's pretty deceiving to get mystical about such things as 'creative forces' and especially deceiving to equate yourself personally with them. There is hardly any concern here for making a personal mark, because that kind of fulfillment really comes in developing the capacity to know what mark the *building* problem suggests.

"Another factor to be considered, or so I feel, is the size of the office. We've gone from a little over 90 people, ten years ago, to a little over 60 at the moment. At any rate, this range seems just about right for approaching problems the way we do. The problems are more effectively comprehended, the search for solutions more effectively controlled. This office *does* work in a fairly defined way, but this strengthens the flexibility of mind which we bring to each problem—a constant, close give-and-take which, you might say, is almost on the level of craft."

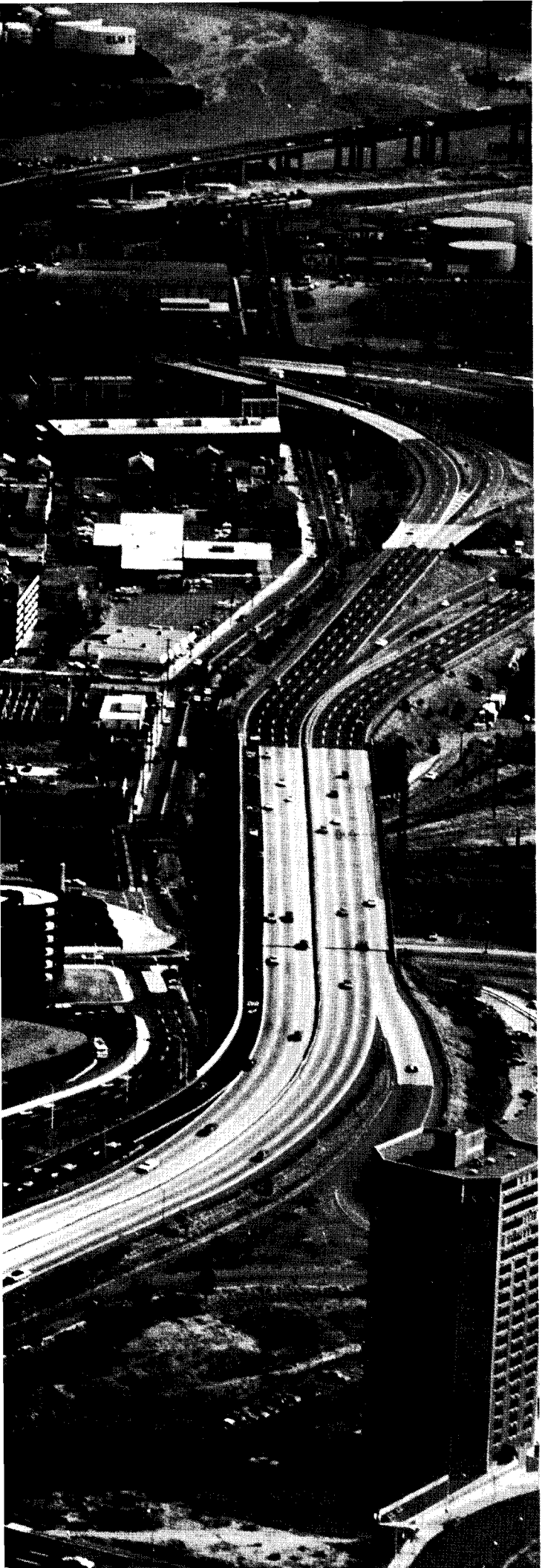
There is probably no firm on earth which uses models as fully as this one does. Models represent anywhere from 60 to 80 percent of what most architects call "schematic design." And from 30 to 50 models, at this stage, are not uncommon.

There are several reasons for this. One is, obvious or not, that architecture is three-dimensional and, if you take the little element of time into account, four-dimensional. Roche Dinkeloo does not view this as so much rhetoric, but as a working reality. So models become a tool for discerning a direction and refining its dividend—the design.

Steuart Gray, from Georgia Tech and a stint with John Portman, is a veteran of many "design days" at the shop—meaning, invariably, Saturdays: "If architects spend their time with a problem at hand, what is that? A few sheets of paper, a lot of data, and some lines connecting the two? For us, it's a matter of studying a problem at hand. Sure. But if you study a problem at hand, something interesting happens—you find there is a next *larger* problem. Always. And we study that. Models are indispensable to this process. Anytime there is a question, one is built—whether to study a structural detail, or the effect of some arrangement on a downtown street. We want to anticipate and visualize every conceivable result that a decision will have on the whole—and we want the client to be able to envision exactly what he's getting. Because of this, things don't spring on us, out of the blue. And a problem becomes something more than a thing you're just confronted with."

The next 70 or so pages try to explain why.

—William Marlin



THRUWAY AND CRYSTAL PALACE

The symbolic design of Roche and Dinkeloo

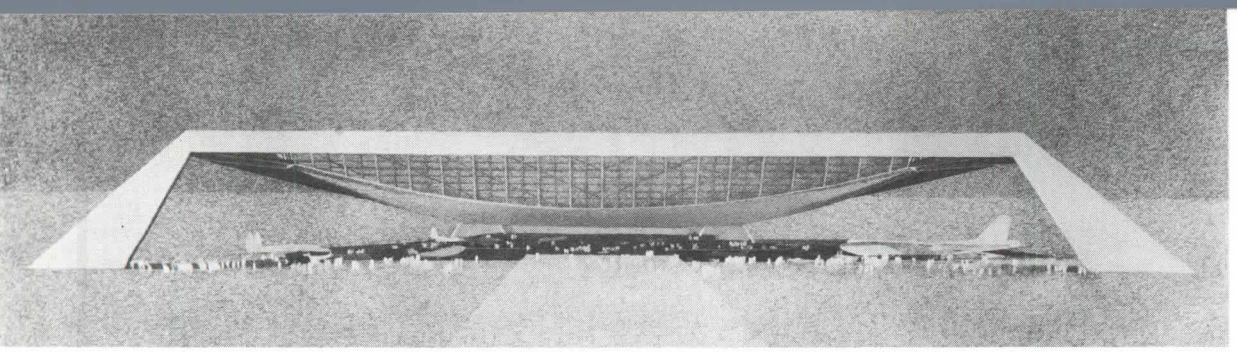
BY VINCENT SCULLY

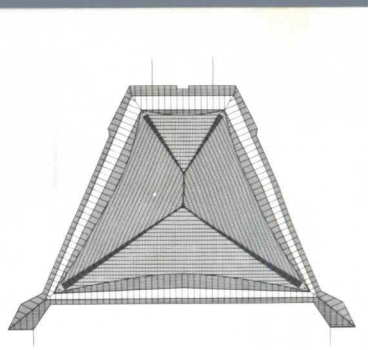
The first problem we have with Roche-Dinkeloo's work is that of scale. How big is it in relation to us and to everything else? Normally we have no idea. This is as true for the tremendous, brilliantly conceived project for an Air Force Museum, which was intended to engulf the end of an enormous runway in one vast hangar-shape, as it is for the Fine Arts Center at Wesleyan, which is equally appropriately conceived and sited by being broken down into a strung-out sequence of comparatively small, cubical units. One reason for the problem as applied to these buildings and to Roche-Dinkeloo's other works is the stark simplicity of the basic shape whether large or small. It gives us no subsidiary scale of reference within itself. Along with this goes a uniform absence of what might be called qualifying detail. No intermediate changes of plane lead from one major element to another, from wall to glass, for example. They are juxtaposed without the complication or the celebration of that event. Therefore all the buildings look like models; their intersections give the impression of retaining at built size only the articulation in detail that those of a model can easily possess. And all the projects are of course extensively studied in model form in the Roche-Dinkeloo office. Another reason for the scale problem is the schematic character of the designs. Each embodies a large and simple *Idea*: not, it must hastily be said, a sentimentally literary one like so many of Saarinen's, or an agonizingly sculptural one like some of Paul Rudolph's, but an Ideal concept none the less, and always a very abstract one, a rigid *schema* beyond qualification, uninflected by any feeling for human happenstance or foible. That may be why, though the big machines can be entirely at home in the Air Force hangar, it is harder to believe that Wesleyan's cubes can house or encourage the complexity, exasperation and irrationality of the human imagination. They, like all Roche-Dinkeloo buildings, are pristine in material and shape, and this, while it intensifies their quality, adds to their remoteness and suggests a certain entranced simple-mindedness in them. Embody this in a structure of enormous limestone blocks, as of solid little Greek treasures shorn of their scale-giving elements of columns, pediments, and entablatures, and the resultant forms tend to take on a persistently Surrealist aura. Perhaps they most specifically recall the purely geometric intrusions we find in some of the paintings of Magritte, arrestingly alienated in the more complexedly detailed and scaled urban landscape.

If all these things are so, the next question is, are they all necessarily "bad" things at all times: scalelessness, avoidance of detail where it can reasonably be avoided, absolute abstraction, disquieting remoteness? Perhaps they can conceivably be "good" things in the special, emblematic terms of art. Maybe they embody meanings and express qualities of the contemporary human condition which are true and moving ones. Certainly they rarely leave us indifferent; they attract or annoy or disconcert and sometimes even repel us. The Knights of Columbus Building has always repelled me, for example. I have felt that its flak-tower massing, designed in 1965, was a perfect expression of the way American civilization was going in the late sixties, and I called it "para-military" in character. On the other hand, I have also felt that it could so easily be

Mr. Scully teaches history of architecture at Yale. Viking will release his "Pueblo: Mountain Village Dance" during the summer and Braziller, which has just published an enlarged edition of his "Modern Architecture," will also publish his "The Shingle Style Today, or The Historian's Revenge," later this year.

At left, the Knights of Columbus and the New Haven Coliseum.





The unbuilt Air Force Museum projected for Wright-Patterson Base.

changed over into something more reasonable—exactly what I perhaps rather naively believed about our foreign policy during those years—by putting two enormous crossed K of C's on top. In that way the towers, at present disturbingly overscaled from a visual point of view, might be empathetically sanctioned by seeming to have something to lift. The resultant irony would also take a lot of the curse off the uncompromising aggressiveness of the form as it stands. It is in fact only one step away from becoming visually direct, vernacular symbolic art. It is not far even from what is more or less erroneously called the "Pop architecture" of contemporary semiologists like Venturi. There is some certainly most unexpected link between their forms which bring such architects closer to each other than either of them is to Skidmore, Johnson, or Ulrich Franzen, for example.

Even the Knights of Columbus as it stands and the other buildings which can be most closely grouped with it may show related interests. Take the semiologists' current concern for Road symbolism, for the Thruway and the Highway, and what can be seen from them. Take that interest and turn it around to focus on the Thruway not in terms of what is around it but of how it is constructed, especially its great bridges and overpasses. True enough, the approach to the form is in this case not a humanistic (man- and use- centered) but a technocratically formalistic one. Roche has said that the Knights of Columbus Building, the Coliseum next to it, the Ford Foundation, the Power Center for the Performing Arts at the University of Michigan, even the disquieting little Post Office in Columbus, Indiana, were all inspired by highway construction, specifically by its massive masonry piers supporting wide-spanning steel girders. *It sounds weird,* but art does tend to work like that, and if we look at those buildings in those terms we can see that they in fact become more convincing to our eyes the closer they call up the special highway condition. The Knights of Columbus is least convincing because the piers are too close together and are organized in a tight square bay rather than in a laterally-strung-out sequence of pairs. This may have resulted in part from another direct inspiration for it: four factory chimneys joined by metal girders that Roche saw from the highway passing through Springfield.

In the same way, the Ford Foundation, despite its truly Babylonian courtyard, is just a little unconvincing, too. Its piers are terribly high and closely grouped (though less disturbingly scaled than those in the Knights of Columbus Building) when judged with the span they carry—even though it is a big one in fact, so making possible that Jardin des Plantes which takes over the central void of the building. But, in highway terms, the Coliseum is stronger. Its piers lift a great stretch of elevated road, carrying real, if parked, automobiles; the vast steel members span from widespread concrete pier to pier high up in space above the city, advancing right alongside the Thruway Connector itself.

Inside, the Coliseum, though strictly symmetrical, is as madly technological and ridden with ducts as are any of Archigram's fancies. Roche is not sympathetic to Archigram's generally unbuildable and consciously amusing aspects, but he captures here, inside and out, much of its dynamically science-fiction intention—and in his own terms of the airborne highway form. Even the Post Office in Columbus, disturbingly reminiscent of early Mies-Behrens pre-World-War I classicism as it is, still takes on a less chilling character when it is seen in these terms: in the dynamic continuity of the road-like roof plane that its squat piers support.

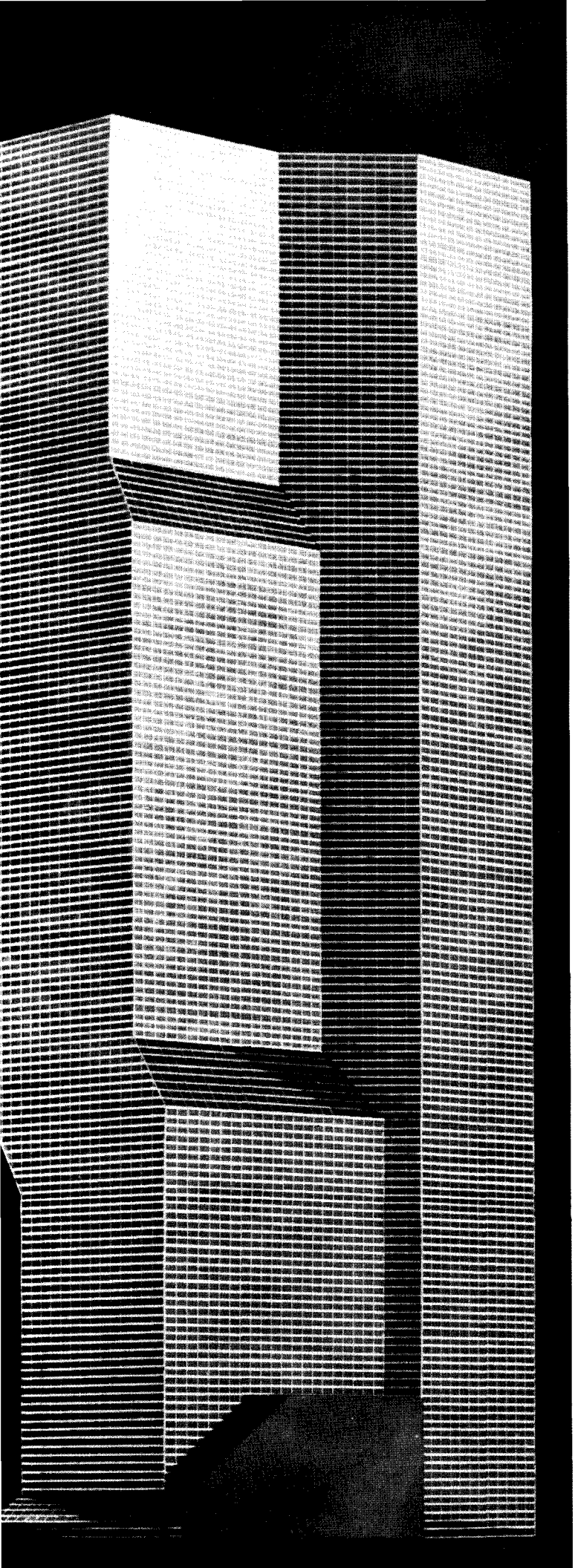
The Power Center for the Performing Arts at the University of Michigan, though in the same vein, comes close to achieving a gentle aspect, as its beautifully conceived, curved glass surfaces reflect the green and quiet park at the edge of which it is set. Its white column-piers are rounded, and its slab is treated to look like a concrete roadway carried on lateral concrete beams between them. So the building is intended to be read as a more homogeneous form than the others, where span and support are contrasted in material. Still, looked at this way, it remains a chopped-off segment of elevated highway poised above the grass.

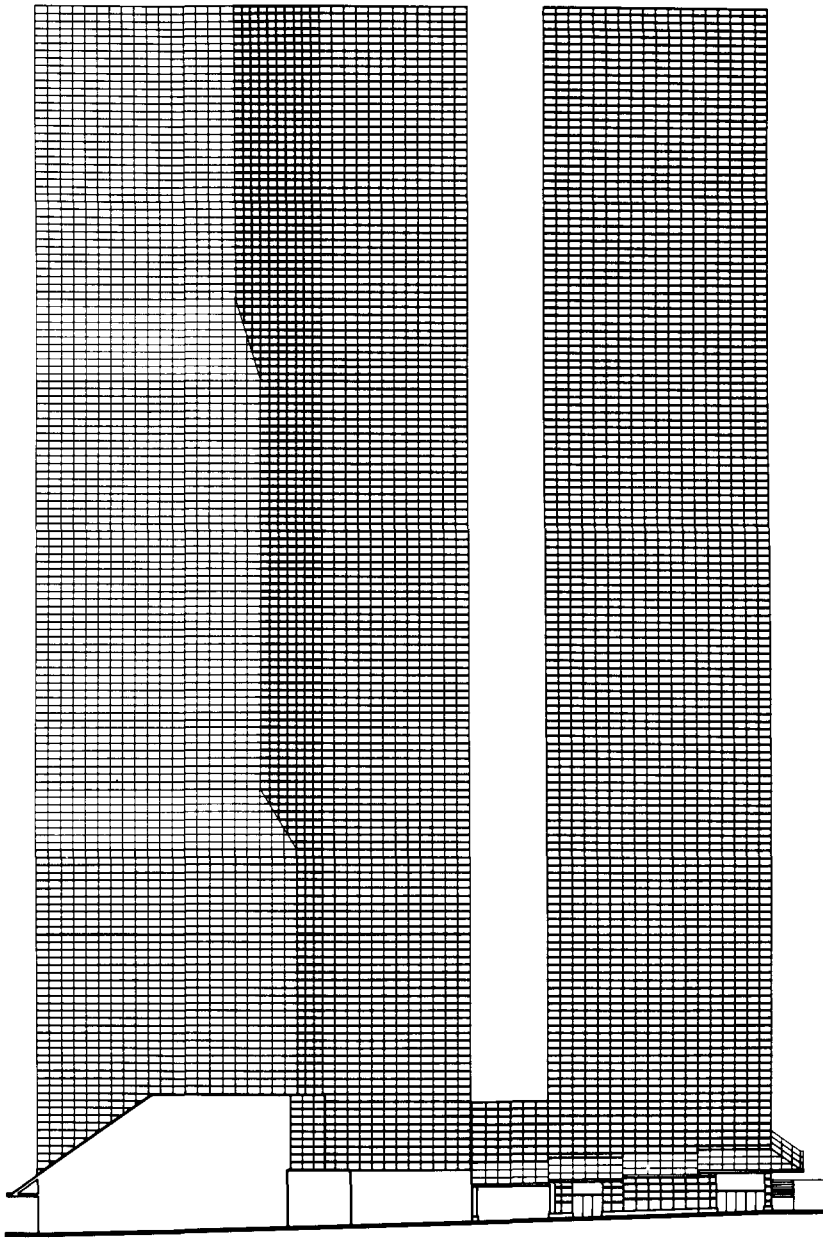
All these highway-inspired buildings are clearly *schema,* idealized abstractions applied to their particular functions—or, it would be truer to say, abstractions which are nevertheless made to house their functions very well indeed. They specifically derive from Kevin Roche's experience of America. He was technically trained in Dublin and worked there with Michael Scott, who built his own house on the "bend of bay" directly below Joyce's Martello. A true son of Dublin, with its gently ordered squares and flatly detailed row-house facades, Roche was constitutionally drawn to the work of Mies, and came to study with him in Chicago. While there he was bowled over by the bigness and power of American industrial architecture (this begins to sound like the story of all the Irish in America). And then, when he came to New Haven with Saarinen's office, which he and Dinkeloo were indeed running by that time, he loved to ride the train to New York, watching the old industrial buildings and the roundhouses pass eerily by.

Roche especially loved, as so many of us have done, the great elevated train ride into Penn Station across the Hellgate Bridge, with every conceivable kind of monument to industrial power spread out smoking below (like an illustration for the World of the Future in one of those pictured encyclopedias on which our generation, now in its fifties, was raised). As an Irish-American myself, I am not unaware of the tendency toward overassertiveness which overtakes the (in Ireland) surprisingly diffident and quiet Irishman when he is thrown into the American pot. Something of that may be surmised in Roche-Dinkeloo's less successful projects like (Good Lord, how appropriate) the building for the Knights of Columbus, in which I hasten to add that my father was once a Grand Knight. Yet, approached this way, Roche's design is Irish-American in the most syncretic sense: the scale pure grain-elevator, the linearity of detail Dublin-elegant.

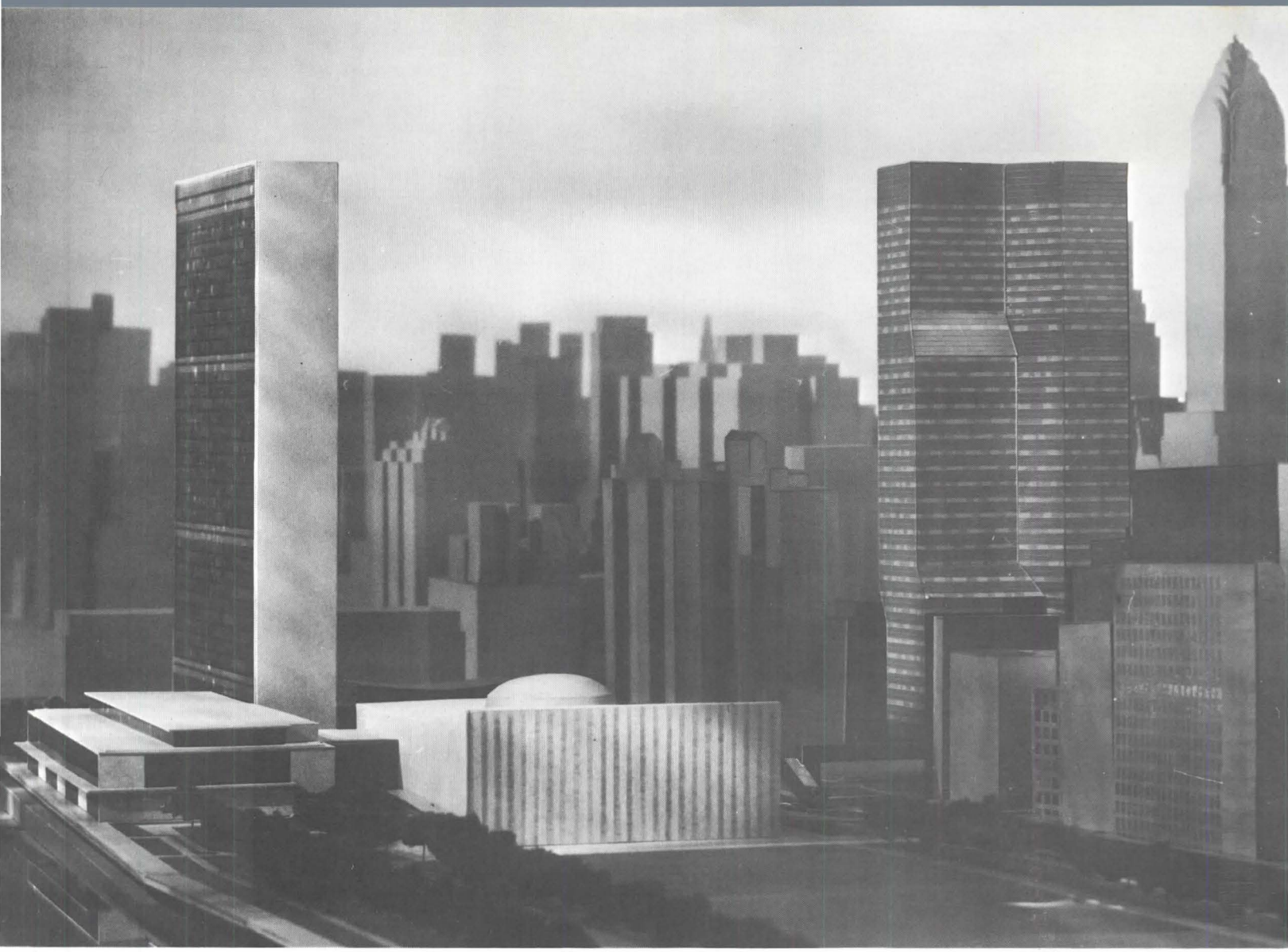
Whatever the case, it seems obvious that the most ingratiating of the Highway-inspired schemes also partake of another Roche-Dinkeloo Ideal: the Greenhouse. This one is no less abstracted than the other, but it tends to be more conceptually and visually sympathetic to most of us at the present time. It picks up, after all, one of the oldest, most Utopian, and bravest dreams of modern architecture: the Crystal Palace, the great house of sunlight which was to shelter us all in the glorious future, wholly liberated from the somber prisons of the past. A long series of projects shows that Roche-Dinkeloo have pursued that vision more consistently and at larger scale than any contemporary architects since Paxton have done. It also enables them, of course, to make their work even more generalized in detail, tauter, more elegant, and more pristine.

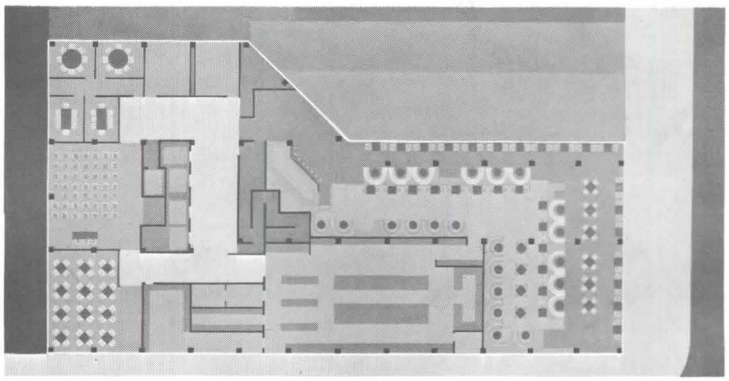
The American Institute of Higher Education, of 1964, with



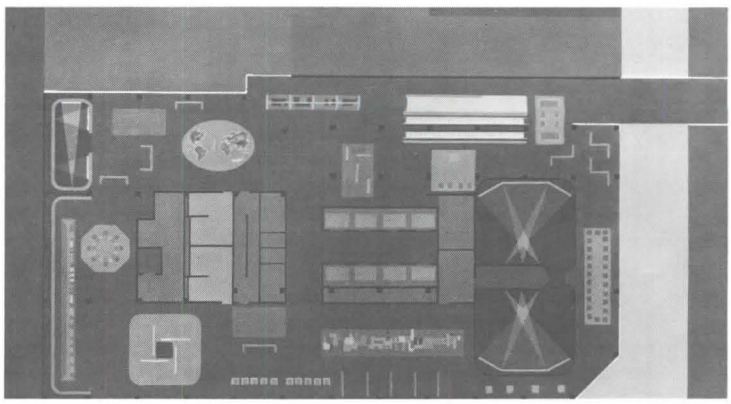


The United Nations Development Corporation project, New York City, will be a 39-story mixed-use building containing 23 office floors and a ten-floor hotel of 295 rooms. The steel-frame structure, its aluminum curtain wall with reflective glass, will offer a ground-floor restaurant-bar, seating 125, 5,000 sq. ft. of retail rental space, canopy-covered sidewalks, and an enclosed bridge reaching across a street to the permanent U.N. headquarters. The 580,000-sq. ft. building occupying an 18,900-sq. ft. site will be finished in 1975. The presence of the new structure on the Manhattan streetscape will be strengthened by its physical links to the existing movement patterns of the U.N. district, while stepped-back and stepped-out glass facades will lend some degree of scale to what is in actuality, a superscaled complex.





The first scheme for the United Nations Development Corporation project (above) offered an immense urban hollow, a sky-scraping greenhouse flanked by mixed-use office towers. The slightly modified first stage of this modified scheme (top photo and previous page) is now in construction. This work *brings to fruition*, a series of studies of the U.N. area begun in 1966. It also represents, just west of the General Assembly, one of the first major developments to be undertaken in that area in a quarter century.



its enormously high glazed court, was the first project along the greenhouse line. Its streamlined massing and shiny spandrel bands also attest to Roche's admiration for Owen Williams, a distinguished British precursor in such design. Roche feels that Williams was more systematic and tough-minded, no less than more integrally jazzy, than any of his Bauhaus and Corbusian contemporaries of the thirties. This project too, unhappily never built, connects Roche with later semi-Pop, jazz-modern developments.

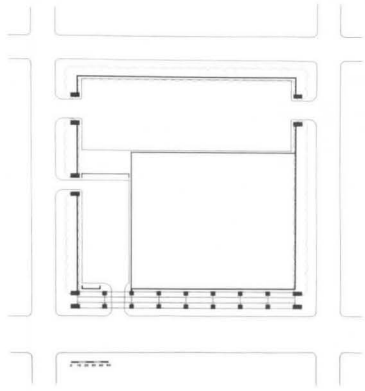
The beautiful Aquarium scheme, of 1966, was the first of Roche-Dinkeloo's projects to employ the long sloping roof-wall of glass which was to become so formally striking in them later. It was possible to construct in terms of weather protection because of the rubber gasket in which the panes of glass were set. The ancestry of that detail is to be found in the window detailing of the General Motors Research Center, designed when Roche was first working in Saarinen's office.

The Aquarium was to have functioned as a true greenhouse, containing a whole section of the Everglades with all their flora and fauna wiggling and flapping about in the warm sunlight under the glass. Similarly, the Irwin Bank used the greenhouse as a long passageway full of plants, gleaming on the exterior in prismatic changes of reflecting planes. The next step, though, required some measure of protection in the glass against heat loss and heat buildup for structures less wholly like greenhouses in actual use. Here the firm was able to employ the various insulating glasses which were becoming available at the time: double glazing, reflecting glass, and so on.

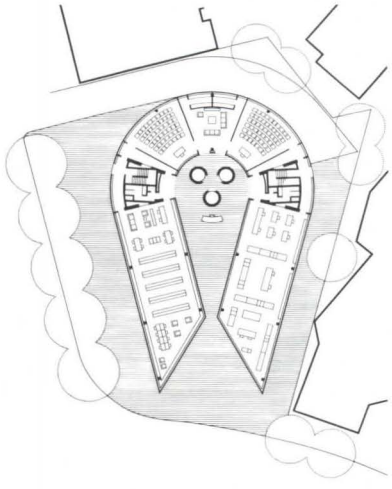
Their College Life complex was made possible by this, its sloping glass sides winking in the sun. The glass walls slant in on two sides, while the wholly windowless concrete slabs of the back-up walls stand behind them straight up in elevation but slanted inward in profile. It was absolute scalelessness carried to the utmost; and the rigid plan of the group as a whole emphasized that quality. However arbitary and abstract it may be, that scalelessness can hardly be felt as other than pitilessly correct and moving as it is developed here. The repetition of identical gleaming shapes, evocative of some sort of obsessively massed pyramid group, occurs without transition at the edge of a cornfield: farm life and corporate man presented as they really are, utterly divergent from each other. The problem of the relation of men to nature in terms of the use of her power is also involved. On the one hand we cannot help but question the economy of the relationship, despite the special insulating devices we mentioned before. On the other hand, the slanting surface is already perfectly suited to accommodate a solar heating system, so that the prophetic reasonableness of the scheme in ecological and economic terms cannot be ruled out.

The projects for the Metropolitan Museum of Art, for the IBM Museum, and for the Office Building Complex in Toronto, all continue to exploit the greenhouse mode, as many of Roche-Dinkeloo's other designs also do. The superiority of that mode to other aspects of the firm's design is clearly demonstrated at the Metropolitan, where the glass pavilion, though intrusive on the park, shows Roche-Dinkeloo off to much better advantage than does their proposal to destroy the great interior stairway, or their bowdlerization of the main hall, or their sterile remodelling of the entrance front on Fifth Avenue. Their neo-classic obsession with the pristine is probably at its cruellest when applied to such old Beaux-Arts, neo-Baroque buildings as the Met.

It is of special interest to me, on the other hand, that the Banking Room of the Worcester County National Bank shows an attempt to combine the concept of greenhouse with that of street: to wed, that is, the Ideal to the Real in a common rather than an idealized urban situation. That attempt was carried further in the firm's project for the United Nations Office Building in New York. Now it is the Mies of the glass skyscraper projects of 1919-21 who is recalled. But where Mies' glass towers were contained shapes, though superscaled, the Roche-Dinkeloo complex would have become a proliferating hollow environment of glass, consuming vast areas of urban space, stepping across its own interior streets and roofing them over



The U.S. Post Office, Columbus, Indiana, was initially sponsored by the Cummins Foundation as a regional prototype in the genre. Begun in 1966, completed in 1970, the low-lying building is comfortably poised within the city's streetscape. The arcade, off which is the main entrance, is marked with the dignity of repeated pier elements. Parking and services are thus politely screened from the public while presenting them with a work of function and beauty. Silo tile and weathering steel are the principal materials.



The American Institute of Higher Education (1964), Washington, D.C., would have been a seven-story response of its wedge-shaped Dupont Circle site. Its V-shaped plan, caressing a cavernous internal court, reads out with a streamlined, shiny effect created by alternating spandrel bands and reflecting glass. The design was particularly dramatic because the swept facades, bent sharply back from the street at the building's Dupont Circle site, carefully unfolded the glazed court to view and experience.

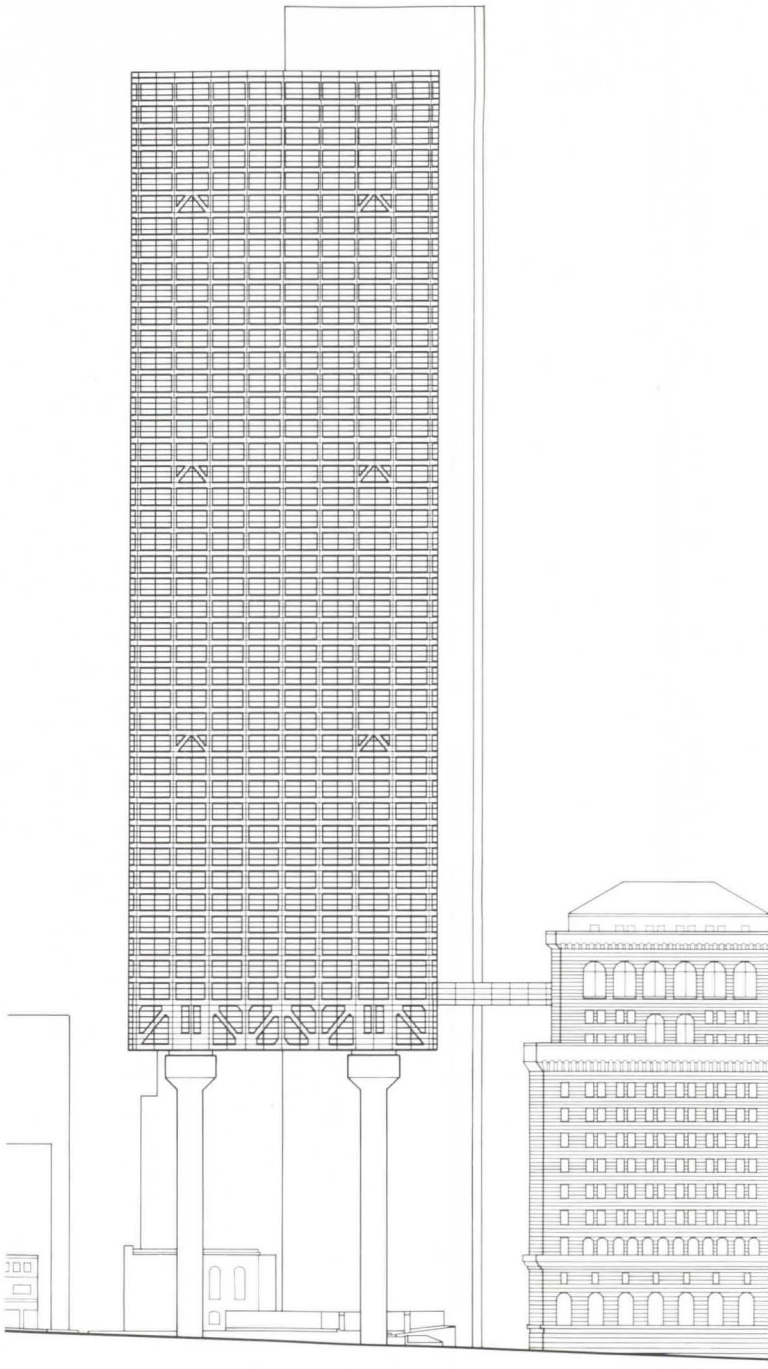
to create new greenhouse-city spaces high enough, as Craig Whitaker pointed out, to contain (nay, to dwarf) Cape Kennedy's monster rockets, to say nothing of St. Peter's dome. The whole complex, with its gleaming, highly reflective mass, has been a subject of prolonged contention in New York planning circles.

Its glass panes go so far as to turn all surfaces into reflecting ones by sliding down as a sheathing skin over all solid walls. Stirling and Gowan had already done the same thing in part of their Engineering Building at Leicester, of 1962—which, along with Stirling's later History Faculty at Cambridge, must be considered an early international example of the greenhouse movement as a whole. Yet glass is no more expensive or fundamentally unreasonable than most other kinds of cladding are, and Roche-Dinkeloo even employed it to fabricate a Western-Main-Street type of projecting canopy for the lower, street-defining buildings of the United Nations project. Here the link with architects like Venturi who value the vernacular becomes explicit—always with Roche's Ideal difference in the perfectly gleaming, generalized profiles and the abstracted surfaces of his forms. Nevertheless, this suggested combination of approaches carries, I think, considerable hope for the future with it, more perhaps than some of Roche-Dinkeloo's own more spectacular combinations of highway piers with vertical greenhouses, for projects in New York and elsewhere.

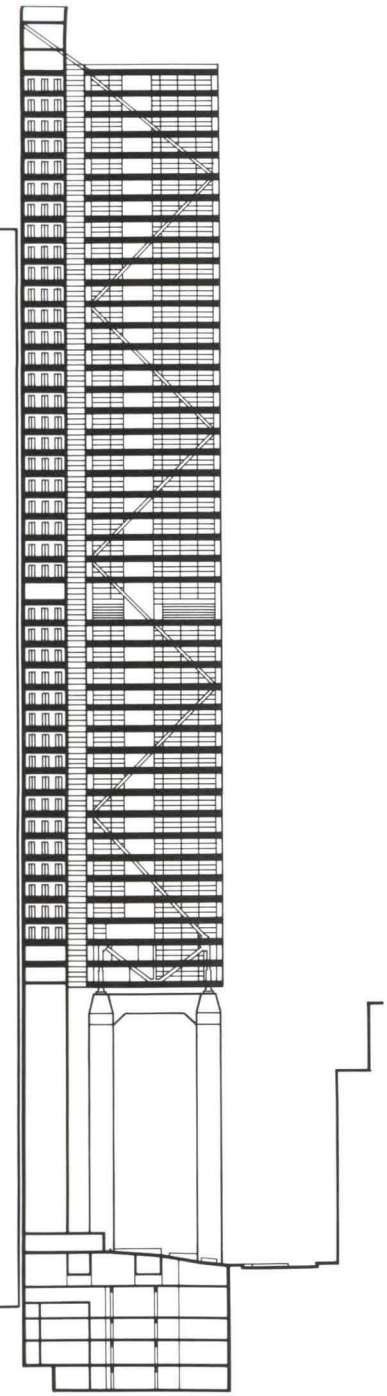
That hope might be especially cogent in terms of actual production because of the way Roche-Dinkeloo continue to enjoy—like Saarinen before them and most unlike, for example, Venturi so far—the unqualified confidence of large corporate employers. They've got the money behind them to make art wholly without compromise and they make the kind of art that the money likes. This remains true despite the various technical problems which have sometimes arisen in their work and which have occasionally cost everybody a certain amount of extra money all around. For those corporate clients, Roche-Dinkeloo have built symbolic monuments which may have been more apt than their owners knew, but which they financially supported and enthusiastically inhabited nonetheless. In this way, Roche-Dinkeloo have been dealing with the truly inhuman scale of modern corporate society as it actually is, and have created arresting images of it which reveal more about it to us than we knew before. For example, even the Knights of Columbus Building and its group have already left the old body images of physical power far behind them. So the single dark shape of the Coliseum, riding at a totally new scale above the city, utterly wipes out the neo-Corbusian physical contortions of a recent government building below it.

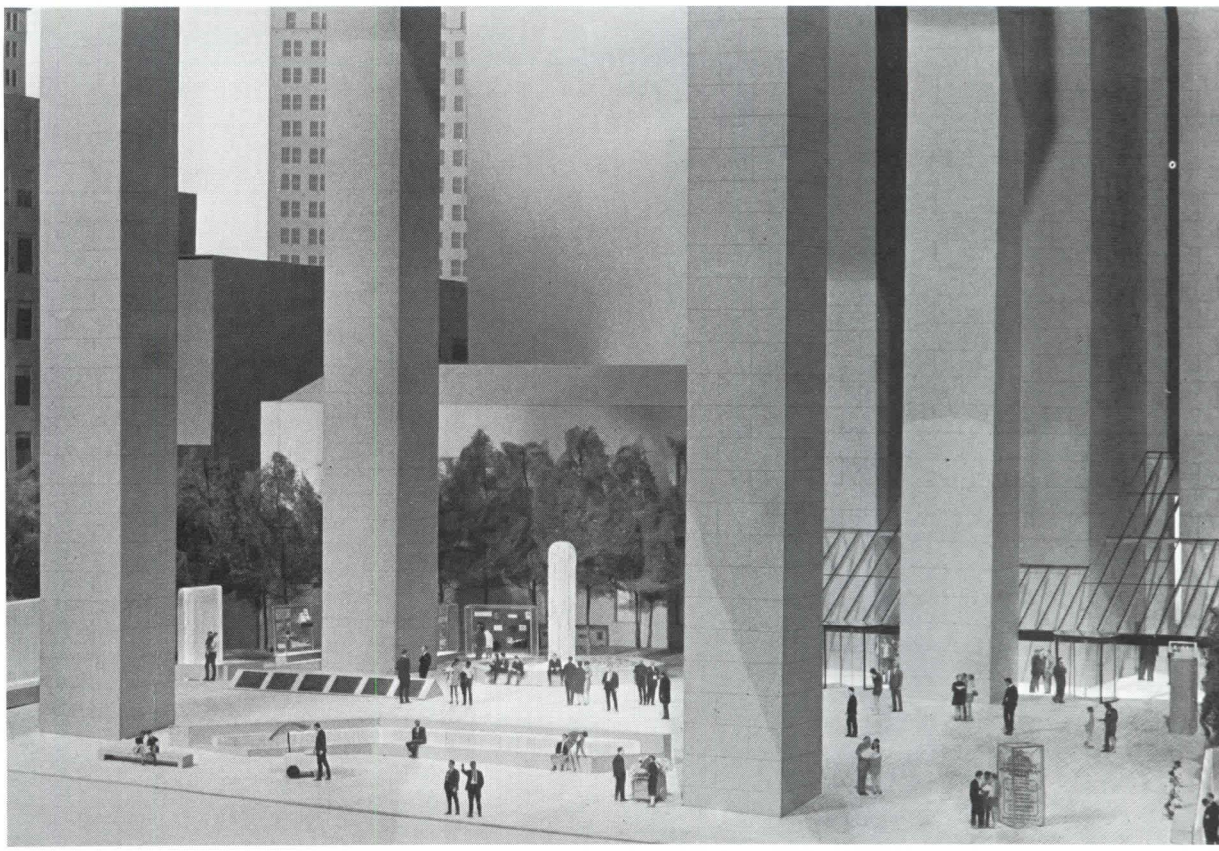
Power does not reside in the *kouros* or even in the soldier any longer. That is why there is in fact nothing for the Knights of Columbus piers to lift but the letters of the alphabet, a sign. Even the piers of the Federal Reserve Bank are so high as to become much more science-fiction unreal than physically aggressive. And most of Roche-Dinkeloo's later forms turn out ever more schematic because they are instinctively embodying something which has no body at all, but in which the real operating force of modern society lies: its massive depersonalized groupings, its vast computerized abstractions, and the essential emptiness of its presidential chair.

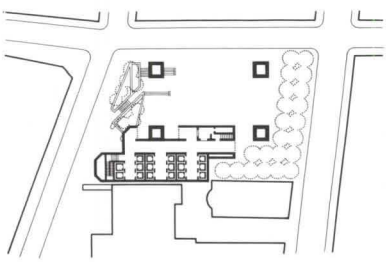
It is the special power of Roche-Dinkeloo's buildings not simply to reflect such realities, as for example the average building of today may be said to do, but to comment on them through a curiously implacable set of expressive forms, to find visual symbols for them, and to make them emotionally unforgettable through that intensification of reality which is art. One would not want those buildings to lose such qualities, disquieting though what they have to say may sometimes be. Yet for architecture as a whole, the firm's recent gestures toward less schematic aspects of the world can only act for good, generally leading, one hopes, toward some increased respect for the particular, some ironic self-deprecation, and even some decent pity for mankind.

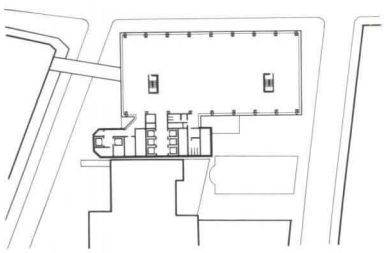


PHOTOGRAPHS: Pages 18 and 19 copyright 1974 Yukio Futagawa.

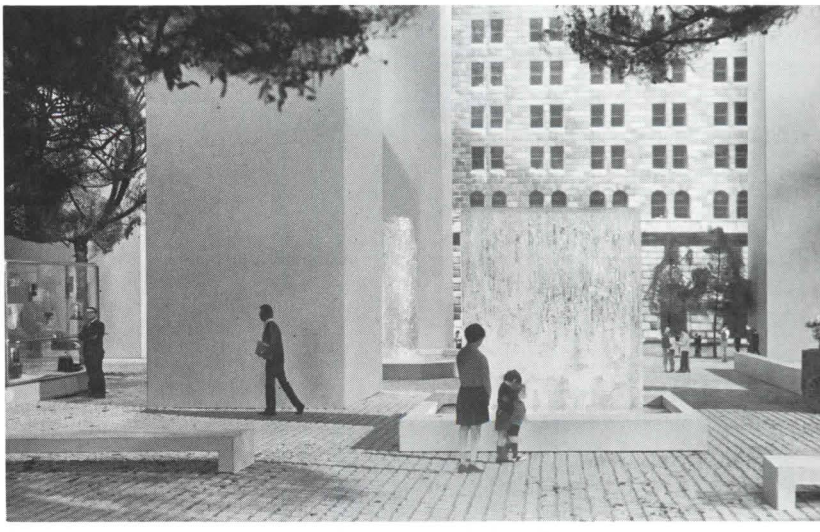






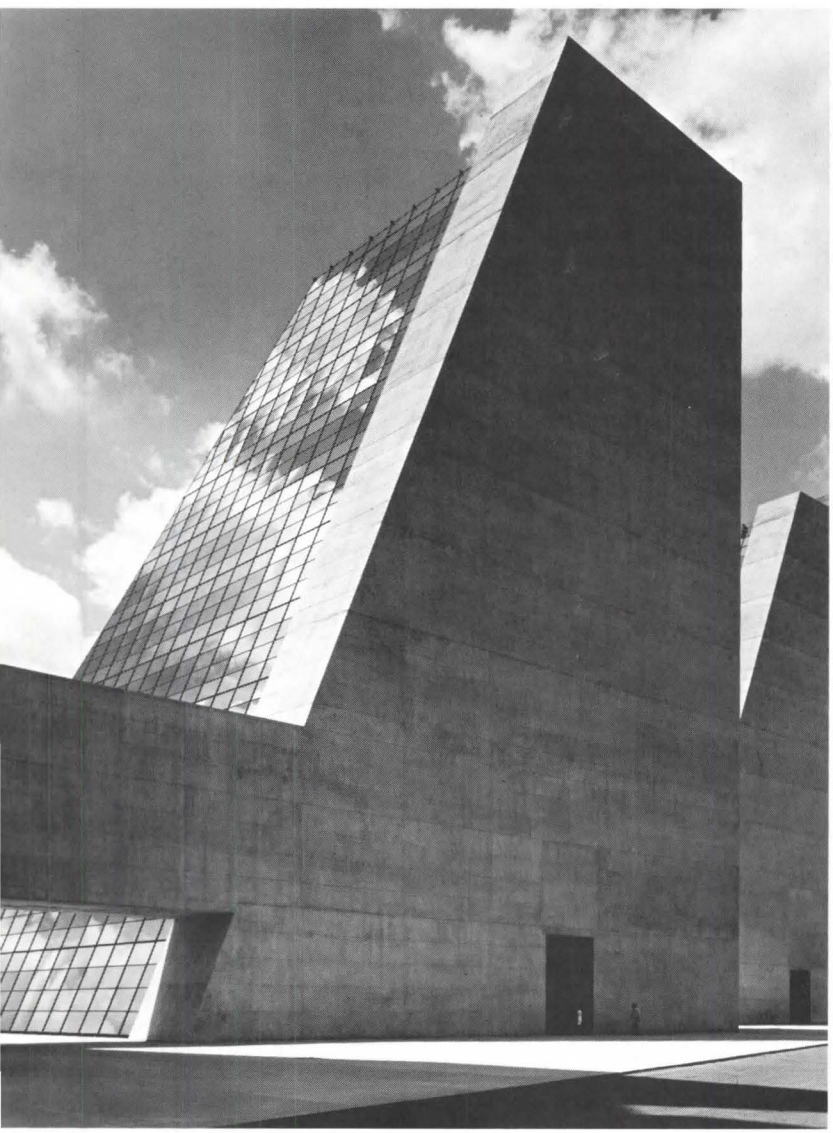


The Federal Reserve Bank Building in lower Manhattan, now about to break ground, will rise from an irregular site of 21,300 sq. ft. bounded by Nassau Street, John Street and Maiden Lane. The client presented the straightforward requirement of a 400,000 sq. ft. office structure, but expressed keen concern for sponsoring a work which would contribute to the identity and activity of the district. Thus, despite a constricted site and the presence of an old church building, Roche-Dinkeloo produced a tower which, perched on massive piloti, leaves open at ground level, a street-smart array of public amenities. The tower is anchored by and to an adjoining service core. The four piloti rising about 165 feet, enclose mechanical systems and support the beams which in turn carry the tower.



THE COLOSSUS OF ROCHE

Discrete and resolute repetitive forms pose questions of architectural definition and concept



Three eleven-story high pyramids (opposite, top), sitting on a concrete deck, overlook a man-made lake. The embankment's contours correspond thematically to the angle and slope of each of the pyramid's two glass walls. The pyramids occupy 159-acre core of a 640 acre gross planned development owned by College Park Corporation, a real estate arm of College Life Insurance. Right now, besides the office pyramids, a dinner theatre has been built on the site along with apartment units, single-family-detached houses and several one-story office buildings. A shopping center will be built on the southwest corner of the site at some future date. When the College Life Headquarters master plan is completed (35 to 40 years hence), six more office pyramids will supplement the three already completed. Window walls of the two planes facing south are fitted with regular reflective glass panels (opposite, bottom) with a metal mirror deposit that varies the degree of light transmission. A special window washing roof rig runs on a scaffold down the walls against the mullions. From the 1,500 car parking lot (above) each building can be entered through doorways incised in each massive concrete core wall. Pedestrian bridges double-height, connect the three units on the second and third levels.

The College Life Insurance Company headquarters on the outskirts of Indianapolis easily qualifies as Kevin Roche and John Dinkeloo's most uncompromisingly formal work to date. Since the design was initially executed, the project has generated substantial controversy. There are those who maintain that Roche carried his reductive geometric tendencies too far at College Life. These three mega-monoliths may be invested with an expressive physicality, critics assert, but the user/spectator has no place, nor relationship to that physicality. There is no sense of human scale. Furthermore it would seem doubtful that actual functions of the insurance company could be more than just arbitrarily tucked into its abstracted typology. On the other hand, more formally oriented architects constantly refer to the complex's arrestingly evocative sculptural forms; some, such as Philip Johnson, cite it as proof that the art of architecture is still alive (FORUM, January/February 1973).

These inert, almost disembodied masses have further occasioned allusions to historical predecessors—everything from the work of Claude-Nicolas Ledoux to Druidic churches. And indeed, such a scheme easily tempts speculation regarding its sources, conscious or unconscious (next to come should be a Jungian archetypal analysis of the buildings, relating them to the 6th Century Oratory of Gallerus, County Kerry, in Roche's own homeland of Ireland).

But Roche matter of factly describes the genesis of these forms a little differently. Basically, an incremental additive scheme was required to satisfy the company's long-range expansion plans. (Eventually nine such buildings will occupy the 640-acre gross site, replete with housing, shopping, and other service facilities.)

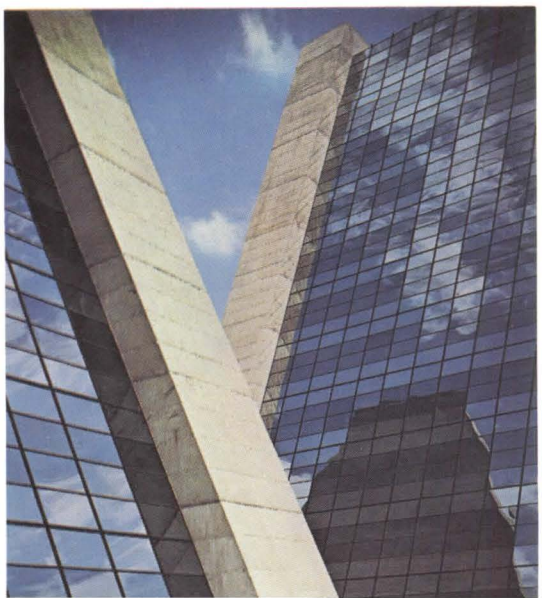
Rather than designing one 25-story tower to start, as the client initially suggested, Roche and Dinkeloo decided to break up the 421,000-sq.-ft. floor area into three 11-story buildings. Since the site would soon be bounded on the north by a superhighway, intersecting with an existing highway to the west, the architects sought a design that would face away from these roads into the countryside. Therefore, they took the core functions for the office buildings and grouped them in two 90-degree-angle concrete walls along the highways. The solid concrete core masses, 14 feet deep, thus contain elevators (in the highest wall), stairs, toilets and storage. The two walls are pulled slightly apart at the corners so that a vertical strip of glass allows natural light to penetrate these core masses into the interior.

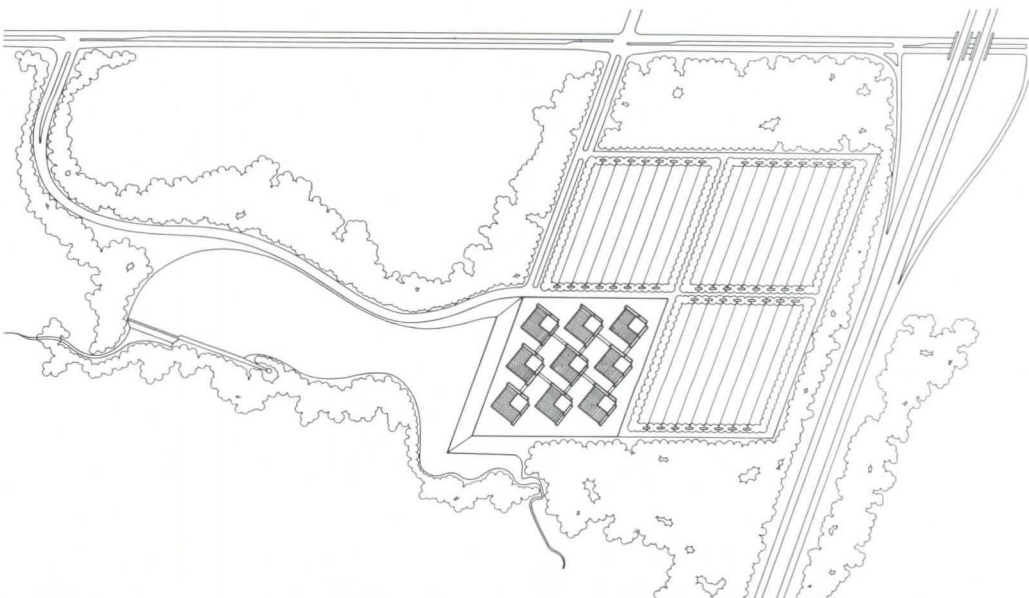
Turning to the elevations overlooking the man-made lake and surrounding plain, Roche and Dinkeloo reasoned that sloping the buildings' profiles would permit floors of different sizes to accommodate more efficiently the different functions. For example, most of the office population and the heaviest traffic is now concentrated on the first two floors. Generally such functions as computer storage and cafeteria service occur on the larger floors, while the smaller departments are placed on the upper levels (with the top executives sharing the topmost floor).

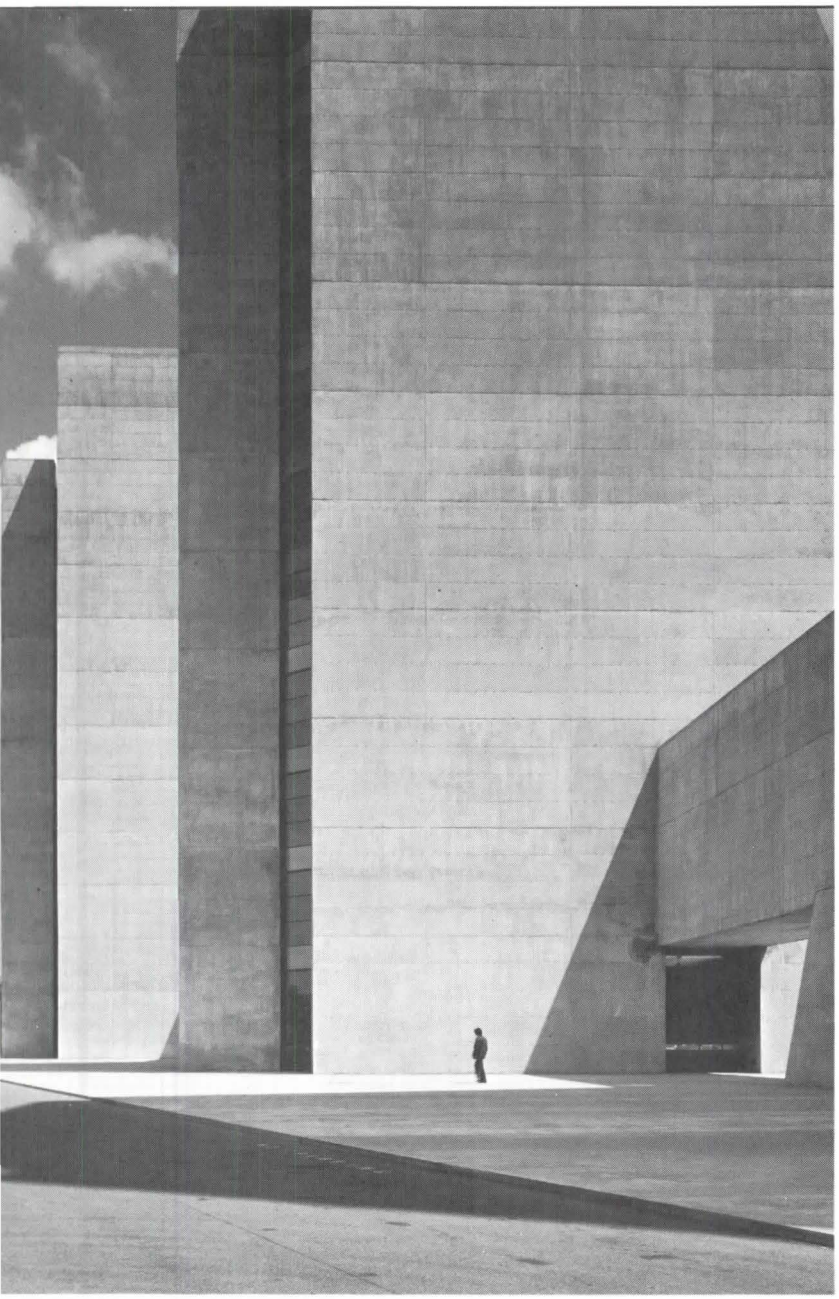
While Roche emphasizes the programmatic considerations over the formal, the College Life complex, in photographs and actual experience, insists on a more art-oriented assessment. The scale of the three buildings within their context fosters this kind of apperception primarily because man is *not* taken as the measure to which the architectural elements must relate. Nevertheless, man's size *in relation to* the buildings has very much to do with their impact.

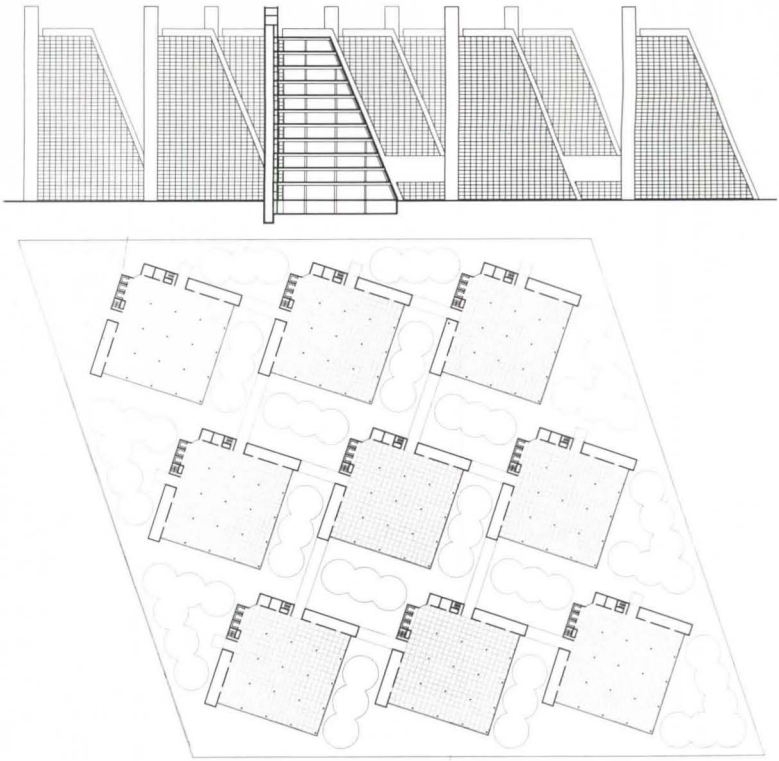
Oddly enough, any predictability of the sense of scale once again proves elusive. One would normally postulate that from the road, the buildings would appear to be monumental, but impressive, while up close, on foot, they would become so overwhelming as to be ridiculous. Actually, if anything, the reverse can be said. From the roadway, the three buildings loom up *rather* absurdly, as isolated phantasmagoria without meaning. (Although College Life has an Indianapolis address, the nearest city, by all appearances, could be 500 miles away.)

On that incredibly flat Indiana terrain, there are only three realities: the farmland dotted with an occasional farmhouse, the highway with its watered-down version of the commercial









A parking lot (opposite), is located to the rear of the first three buildings, where six more such structures have been projected as part of the master plan (above). The double concrete core walls, fourteen feet deep, carry elevators, stairs, toilets, and storage, so that the office space on each floor is only interrupted by the grid of columns. The higher of the two concrete walls accommodates elevator over-runs (section top). The first building (foreground, opposite) contains loading docks in its basement, with computer facilities on the first two floors. These floors are designed to "float" 12 inches over the normal floor elevation to allow additional wiring and air conditioning to be installed and made accessible through removable panels. Both first and second buildings are sublet to other tenants for the moment, while the main offices for College Life, replete with training rooms in the basement, are concentrated in the third building (rear, opposite).

strip, and the sky. Since architectural form and the environment surrounding it form a perceptual totality, such a contrast (now at any rate) means they are seen as quite separate phenomena.

On the other hand, at a closer perspective something else happens. When one gets out of the car and walks around the complex, the three buildings begin to take on a compelling sort of monumentality, a striking sense of majesty and muteness. Part of their mystery, of course, comes from the fact that the use of reflective glass on the sloping walls of the three buildings prohibits any awareness of their internal functions. Experienced sequentially, the serially arranged forms become large pieces of minimal sculpture due to their stringent detailing, simplified massing, and repetitious use of modular elements. Experiencing College Life buildings on foot is crucial: As one moves around the complex, the size of the impassive forms, the way they reveal themselves slowly and rhythmically, consolidates the esthetic experience.

Criticism of human scale becomes meaningless in this context since the actual impact and power of the forms is dependent on the *alienation* in scale between the human and the artifact. In fact, College Life has a scale sculptor Carl Andre once claimed for art—not a human scale: "It has to do with things being internally consistent with their own parts." Since this "art" scale does not require that the buildings make any connection to the perceiver, in architectural terms, they would be called "scaleless."

The domination of the College Life pyramids over the entire field of perception cannot occur from the road, however, because both the vehicular speed and the distant perspective reintroduces scale. The buildings therefore seem architecturally "over-scaled" rather than scaleless. The awareness of the real world on the highway—the cornfields, gas stations and hamburger joints—is so pervasive, forming an all-over pattern, particularly when traveling, that no figure/ground relationship can emerge in any powerful way. Back on foot, College Life works because the ground, the surrounding countryside does fade away, allowing the figure complete mastery. The buildings' impact is thus undiluted. And their impassivity in terms of internal activities increases that impact. Because of this effect, the buildings function much as ruins from another age, where the actual use for which the building was intended has less meaning than its architectural presence.

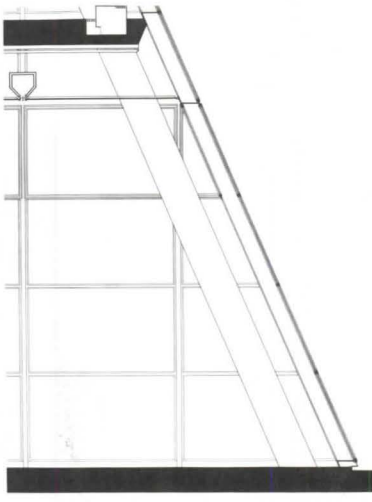
Yet these factors tend to

underscore other architectural questions. For if architecture actually begins using a formal language of scale, details, and forms that refers more to a sculptural code than to an architectural one, what kind of relationship can be established between the building's form and its social, cultural, and functional uses or content?

Other problems of exterior form and architectural concept present themselves at the same time: one inherent in open-ended, serially placed elements, and the other in its lack of hierarchical signification. An open-ended scheme has to imply a complete whole, while still being complete in its component parts. Obviously, the buildings at College Life imply a series based on the number three, but there is no physical factor that indicates nine must be the ultimate number of units possible in this series. One building certainly would not have been sufficient to establish the integral add-on nature of the master plan; therefore three were constructed to begin with (although two are presently being rented out by College Life). But three units in the whole scheme of things still have to be viewed as arbitrary. In the same way, the 11 floors seem programmatically arbitrary. One could argue that a twelfth floor would be too small, given the angle of the buildings' sloping profiles. But then how can the angle of the profile be justified on other than purely formal grounds?

The second issue, the one of hierarchy becomes evident when arriving at the College Life headquarters. There is no main entrance, no main pyramid. (Actually you enter Pyramid Three.) Different activities may be housed in each of the three buildings, with little communication in design terms about that fact (a signification problem likely to become more prevalent as the project expands). The Formal Idea reigns.

Because of the buildings' external image, the inside comes as a surprise: a humanly scaled, intimate, warm environment. The largest floor in each of the buildings is only 14,400 (net) sq. ft. An office landscape system with 52-inch-high partitions allows all employees to have generous views and ample light through the floor - to - ceiling canted window walls. Since the modular partitions, surfaced in stainless steel, dissolve in the landscape, one sees first the people within, and secondly the view without. Space now, instead of being a void in which volumes sit, expands outward—controlled however by the Cartesian grid of black metal mullions framing the 3 foot 9 inch by 6 foot glass panels. These orthogonal lines continue across



The cafeteria for the College Life Headquarters is framed by a mirrored stipple glass-panelled wall matching in opacity and texture the plastic panels of the hung ceiling above. The counter area is surfaced in polished stainless steel; while a cordovan-like vinyl covers the walls of the serving section. The 3,500 sq. ft. executive level (opposite), not surprisingly, occupies the top of the pyramid, where the Chairman of the Board of College Life University Corporation, John Burkhart, and President of College Life Insurance Company, John Petticrew, share an "open" landscape office.

the ceiling and down the interior glass partition walls: The grid, ironically one of the scaleless elements on the exterior planes, now divides the space inside to give it an intimate scale (including forming the association with "window"—a familiar referent which relates directly to the observer).

Materials within the grid retain a continuity: The clear glass panels of the exterior walls are backed at the top by panels of stippled glass in order to cut glare. Plastic panels, strongly relating in texture and opacity to the stippled glass, are used for the hung ceiling. These in turn diffuse the artificial light from the fluorescent fixtures above. Finally clear glass appears once again in the ceiling-height partitions dividing major areas or enclosing conference rooms.

The round concrete columns carrying the concrete floor slabs have been left unfinished, and with the rough texture of the concrete core walls, assert the structure's massive presence. These cold, rather harsh textures and sleek polished surfaces are balanced by the use of rust carpeting on floors and interiors of work space partitions, plus an abundance of potted plants and trees.

All of the offices in College Life—even the top executive offices—make use of office landscape planning, a programmatic solution necessary for the spatial success of the scheme in perceptual terms. A major flaw in the office landscape concept however has been made apparent in the two buildings College Life has been leasing to tenants. Here office landscaping could not be easily applied to floors shared by small competing insurance companies who felt the need for visual and acoustical privacy. Therefore floor-to-ceiling partitions were installed, totally obliterating the space, view and natural light.

If there are programmatic or technical kinks (glass panes were popping at the beginning), or even the need for high maintenance, must the formal concept be considered inappropriate? In reality of course, there are always kinks, even in the most functionally conceived buildings. And it would seem from first glance that the College Life complex has solved its program very well with regards to satisfying the personnel and the clients.

Surprisingly the building is much less expensive than it looks—$22 per sq. ft. John Dinkeloo explains the firm was able to bring the building in actually under the budget while still using luxurious materials (polished stainless steel, pile carpeting, reflective glass and so on) primarily because of

their trimming costs of the mechanical and electrical equipment. For example, the hung ceiling of plastic panels, while looking nicely "luminous," actually covers very inexpensive strip fluorescent fixtures that cost $9 per fixture as compared with the usual $70 ones. Plus the wiring is easier to accomplish with conventional fixtures.

For another thing, building materials were chosen with an eye to market "buys" at that particular time. Furthermore, Dinkeloo was knowledgeable enough about building technology to resort to 12-inch flat concrete slab construction in which supplementary heating and air conditioning ducts could run through the floor to pockets by the window walls.

In terms of context and architectural concept (that is architecture talking about itself, not minimal sculpture), the solution *appears* weakest. Its presence and the power the complex achieves has always been considered an essential ingredient to what many define as Architecture. For this reason, College Life remains important.

Yet still unresolved is that meshing of form, task, technique. Those elements all have to be communicated in a coherent comprehensive "symbolic" way for one to really understand what the buildings have to say about their uses and users, their immediate environment, and the culture and society at large. The lack of resolution in form and content finally explains why the building offers three different experiences of scale—from the road, from the ground and from the interior. The schism between these thus becomes a symptom of that problem—rather like a three faces of Eve syndrome.

It's true that with a concept so distilled as these three bifurcated truncated pyramids, more "inclusivist" or "elaborative" architects will gag. But worse yet, many others will copy. For here is the real danger of a seemingly generalized and generalizable solution. Given any other person's understanding of materials, volumes—and even scale, than Roche's and Dinkeloo's, the building would be a bomb.—SUZANNE STEPHENS

FACTS AND FIGURES

College Life Insurance Company of America Headquarters Building. 3500 DePauw Boulevard, Indianapolis, Indiana. Owner: College Life Insurance Company of America. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Severud Associates (structural); Hubbard, Lawless and Osborne (mechanical); Hubbard, Lawless and Osborne (electrical). Contractors: Mid Republic Construction, Inc. (general); W.L. Evans (mechanical); Sanborn Electric Company (electrical). Building area: 421,000 sq. ft. (For a listing of key products, see p. 93.)


WORCESTER COUNTY NATIONAL BANK

WORCESTER PLAZA

A Massachusetts bank with lots of angles

BY CARLETON KNIGHT, III

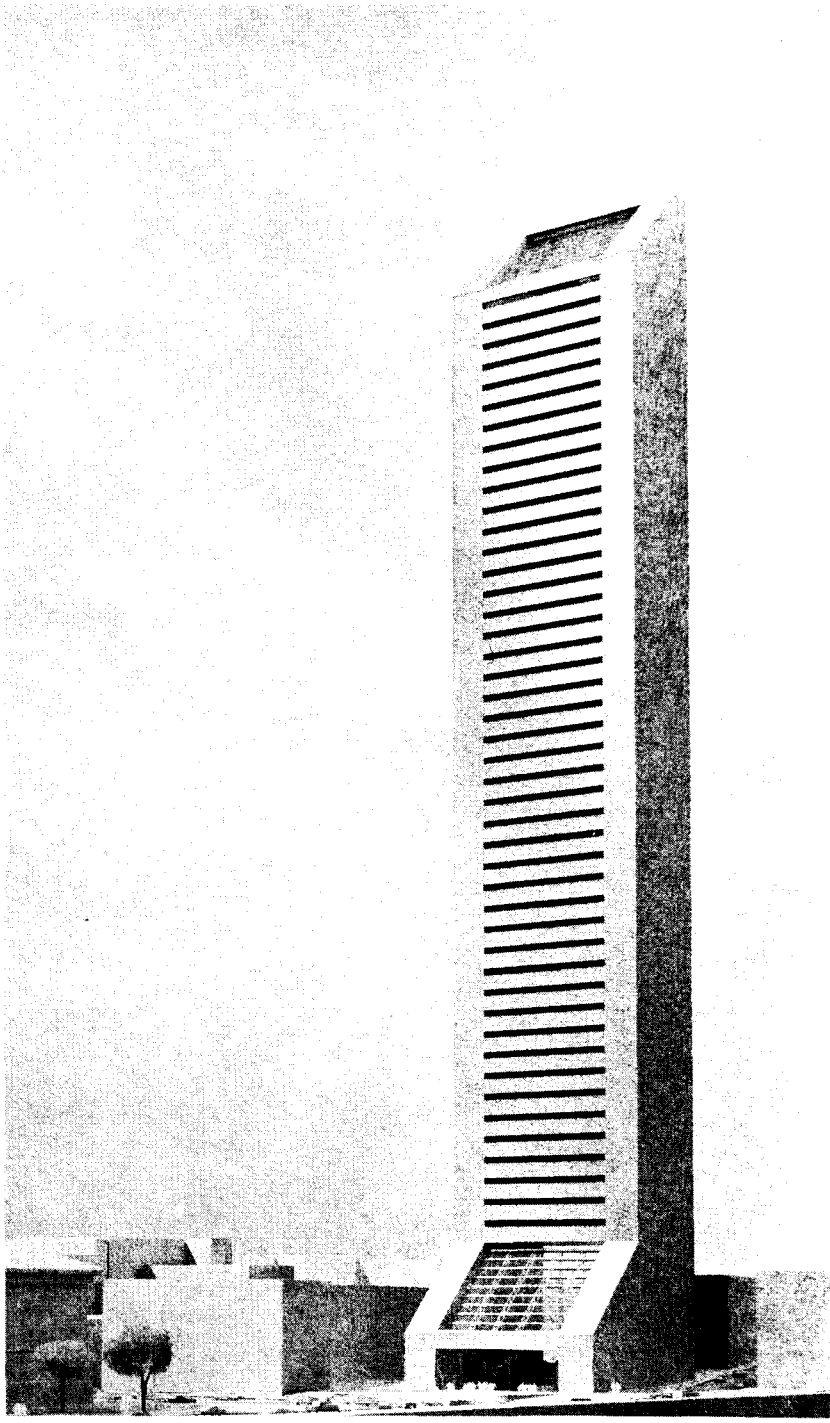
Worcester County National Bank first contacted Kevin Roche and John Dinkeloo in 1967 about designing a new headquarters on Harrington Corner in the center of downtown Worcester, Mass. So they explained to the architects that they wanted "something distinctive and something that will mirror its surroundings."

Seven years later (and after an earlier Roche scheme—a 46-story tower—was down-designed because of cost) the bank has its new building: literally reflecting the city, a 24-story twin tower covered with mirror glass. The bank will move into Worcester Plaza on April 1; tenants for the one-half commercial space in July.

The nearly completed tower is actually the third proposal for the site. In the mid-1960's, the bank commissioned a New Orleans firm to plan a commercial/office block. These plans were turned down shortly after plans for Worcester Center—another commercial / office complex across the street—were announced. Bank President Edward L. Clifford then asked an old friend, J. Irwin Miller of Columbus, Ind. (page 46), whom he should commission; he suggested Roche-Dinkeloo.

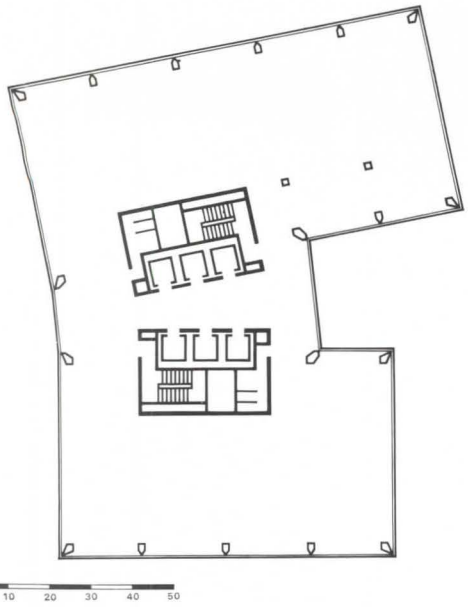
Their 46-story design was kept secret for two years before it was revealed to a stunned audience at City Hall in April 1969. The poured concrete tower had a sharply angled, solarium-type glass roof at the top that echoed a similar shed roof at the base, under which was placed the 80-foot high, tree-lined lobby. The 695-foot-high tower, when added to the site elevation of 485 feet, would have made the building the highest structure above sea level in New England, thus "assuring Worcester's prominence," a bank brochure noted. Worcester had never seen anything like it—and never got to see it either.

This 400,000-square-foot version was rejected by the bank after bids came in considerably over budget. Other problems included the fact that no contractor was willing to construct that high a building using the continuous-pour method desired by the architects; and the bank's

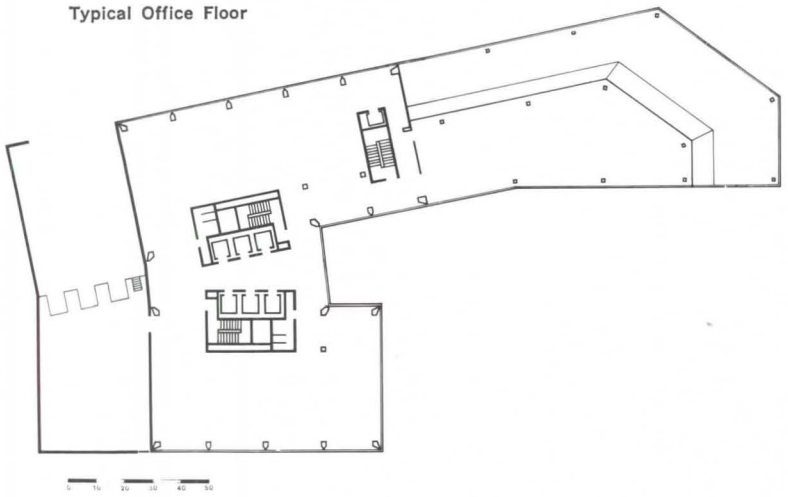


Worcester Plaza, just west of the City Hall and Common at Pleasant and Main Streets, is a 24-story twin tower of steel and mirror glass (opposite). Front Street, lined with stores opposite the Common, runs east (opposite, right foreground), linking to the Worcester Center complex (not shown). Like an out-stretched arm, the two banking levels line Pleasant Street, turning the corner at Main, meeting up with the older building of the Worcester County National Bank. The tower itself is set 135 feet back from Main. The completed job is in contrast to the 1969 Roche-Dinkeloo scheme (above) which called for a 46-story poured concrete tower rising from a vast greenhouse of a lobby—a scheme which the late Aline Saarinen considered one of the firm's finest moments. Mr. Roche has described the earlier as well as completed design as having been conceived to satisfy two extremes of scale—that of a highrise symbol for the city, as seen from the superhighways which skirt it; and that of a close-density, downtown structure which both respects the street line and invites public use.

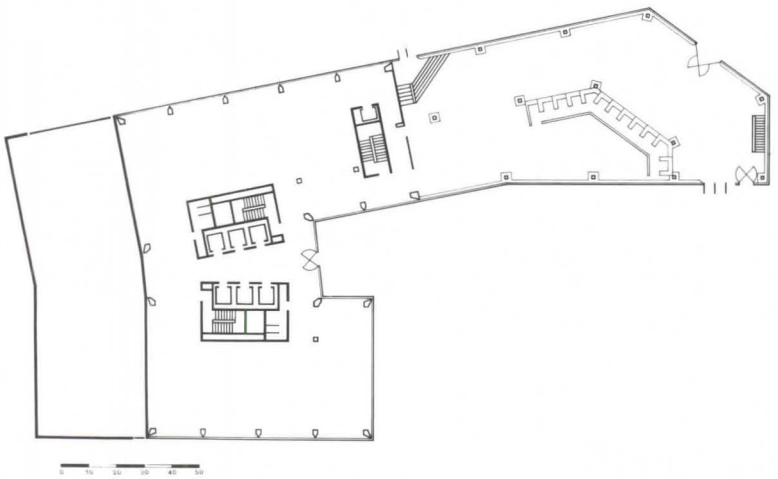
Mr. Knight, Washington correspondent for The Forum, was raised in Worcester, Mass., and has followed development of Worcester Plaza since its original announcement.



Typical Office Floor



Mezzanine Level



Main Banking Level

concern that the tower floors were not large enough—about 6,000 square feet—to make the building economically feasible.

The bank and Roche-Dinkeloo then started over. The bank still wanted a distinctive structure, but only about 280,000 square feet of space (about half for itself and half for rental).

The result is actually two steel-framed towers (24 and 22 floors) joined by an elevator and utility core. The towers are angled 11.5 degrees from each other to accommodate the wedge-shaped site and, something both client and architect felt important, to preserve the street lines. Furthermore, although the tower itself is set back about 135 feet from Main Street, the main banking lobby follows the lot line down Pleasant Street and around the corner to Main much like an outstretched arm (see plan).

The curtain wall is made up of slightly different color bands of mirror glass (first used on the Bell Telephone Laboratories in Holmdel, N. J., by Roche-Dinkeloo's predecessor firm, Eero Saarinen and Associates, and used by Roche extensively since). Roche explains that the three bands accommodate three levels of reflectivity to shed the heat load, thereby reducing energy requirements, and still allow persons to look out without sun glare. The lightest band is at eye level; the darkest at the floor. The 10-foot-wide windows are held in place by neoprene gaskets covered by bright metal stripping. The horizontality of the bands delineates the floors.

An indentation at the core divides the two 50-foot wide tower sections (one is 100 feet deep, the other 80 feet). This core section is walled in clear glass front and back, which allows a view completely through the building for the full 24 floors. The original intent was to have the entire core lit at night to create a beacon-like effect for downtown, but the energy crisis has forced a change.

The sharply angled core roof (locals have taken to calling it a ski jump) covers a two-story lobby for the restaurant and private club that will take up the 23rd and 24th floors. This lobby roof is also glass, and the wall facing the elevators will be done in mirror-finish stainless steel, as will the interior walls of the club and restaurant. Thus, patrons in those facilities will be able to look in at the core and see the view outside.

The most dramatic element in the building is the view when one steps off an elevator. The space literally opens up before you—because of the angled towers—for a view of the Worcester Common and the city's seven hills. Roche notes that in most buildings, a visitor gets off an elevator into an enclosed core with no view. Worcester Plaza, both inside the building and outside, offers "a better experience to the visitor," he says.

The twin-tower design offers an unusual number of extras—each floor has six corner offices and two large lobbies with views, for example. The building is good for large or small tenants, having two rental packages on each floor. One is about 4,500 square feet, the other is about 3,500 square feet. Rents are about $8.50 per square foot and the floors are designed on a five-foot module. The bank is taking the first nine floors and the top two.

When Bank President Clifford first talked to Roche, he was uncertain about who would do the interiors. Roche made it quite clear that he would, "much to my relief," says Clifford. As with the exterior, the interior has its share of reflected surfaces.

The two-story ground floor banking lobby has a stippled glass roof; sun is kept off the tellers by a mirror sunshade that extends out over the main counter. The public side of this counter has a mirror surface that stops a few inches above the brick floor. When looking at this, the floor seems to disappear under the counter, which appears to float in space.

The executive offices have, among other fixtures, a mirror-finish fluorescent lighting fixture suspended from the ceiling over the desk. The side of the desk facing visitors has a mirror panel. Bank officers will each have two Roche-designed wooden desks with built in bookcases.

After the bank vacates its current quarters in front of the tower, that structure will be demolished and the space used to create a large plaza with trees, benches and a fountain. There is also additional open space at the south side of the tower. Roche-Dinkeloo has designed a 600-car parking garage at the rear, linked to the tower by a

fourth-floor bridge. It is a scissors-type structure made up of precast columns and tees.

Because the building is so different—it is the tallest in the city as well as the first sheathed in mirror glass—it has received mixed reactions. Worcester is a basically conservative industrial community of 180,000. Most nearby buildings are masonry; and new construction, with few exceptions, is rather ordinary.

"It doesn't look like a building—it's all glass," says one storeowner who looks out on the mirror wall. An executive whose own sixth floor offices in Worcester Center overlook the Common, City Hall and Worcester Plaza, thinks that the building overpowers all that is around it. "It's too big," he says. "In Europe they wouldn't let that size structure be built." (He obviously hasn't been to Europe recently.)

Another executive, however, sees Worcester Plaza as the epitome of "good taste and individuality in design." It is modern and cubic, he says, but it offers a distinctive look to downtown. He thinks that Worcester Plaza may help to rescue Main Street, many shops of which are in financial trouble since the opening of Worcester Center.

Many bank officials are favorably impressed: "Roche-Dinkeloo is able to combine the functional with the aesthetic," says Stewart F. Oakes, the bank's current president. "He is not trying to represent something, but rather create a building for us to work with." Adds Clifford, "No detail is too small to attract his attention. Also, every day we keep finding things that he has done that we didn't know about."

For his part, Roche is satisfied with his client. "They wanted to do all the architect wanted to do," he notes, "and to do the best possible job within their budget."

Worcester Plaza is a building the likes of which have not been seen before in Worcester. As with anything new, some people are turned off. However, after it has opened and visitors see the spectacular views from the upper floors as well as Harrington Corner and Worcester reflected in the facade, the criticism will temper. They will begin talking up their Roche-Dinkeloo like a work of art; after all, not too many cities can claim to have one.

Worcester Plaza, currently the city's highest structure, is nevertheless calculated to reflect and reinforce the streetscape of downtown. The walls are composed of three different color bands of mirror glass to accommodate varied levels of reflectivity, thus conserving energy while allowing a nonglare view to the outside. At the corner of Main and Pleasant Streets (above), the two-level banking arm of the building also turns, shoring up street scale.

FACTS AND FIGURES

Worcester County National Bank. One Worcester Plaza, Worcester, Massachusetts. Owner: Worcester County National Bank. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Pfisterer Tor and Associates (structural); Hubbard Lawless and Osborne (mechanical); Hubbard Lawless and Osborne (electrical); Interior Designer: Kevin Roche John Dinkeloo and Associates. Contractors: Blount-Fontaine (general); E.A. Berman Company (mechanical); Coghlin, Inc. (electrical); Paragon Plumbing and Heating (other). Building area: 281,000 sq. ft. (For a listing of key products used in this building, see p. 95.)

RUSH HOUR AT RINK SIDE

"A big brawny building which, in a very real sense, demonstrates the strength and skill of athletes—it makes no attempt to conceal its purpose."

ex-Mayor Richard Lee

The Veterans Memorial Coliseum in New Haven is 560 feet long and 454 feet wide. The height from street to roof is 106 feet and to the underside of the garage, 70 feet. The columns are 6 feet by 29 feet and spaced at intervals of 62 feet by 184 feet. Clear span over the arena is 184 feet. The seating capacity of the arena is 9000 for hockey; 10,200 for basketball, 11,500 for a center stage or boxing. The maximum floor area for exhibition is 30,000 square feet. The ice rink area (200 feet by 85 feet) is 18,096 square feet. Ceiling height of the arena is 80 feet and distance from wall to wall is 336 feet by 336 feet.

Big and brawny it is. But the New Haven Veterans Memorial Coliseum is far more. It is a unique architectural concept and the capstone of Mayor Lee's $96 million redevelopment program for the center of the city.

In his 16 years as mayor, Lee realized his vision of New Haven reborn. That vision was often focused on the nine squares in the heart of the city, laid out by dissenting Puritans in 1638 after their arrival in southern New England.

As they displaced the Quinnipiac Indians from their lands, so the auto displaced the focus of business in the post World War II decades. Downtown New Haven became a Sargasso Sea of decaying 19th Century stores, warehouses and nostalgic fragments of the Benny Goodman era. Only Yale anchored the heart of the city, remaining a diamond of intellectual life in the rhinestone of the East Coast as some have described New Haven. Aside from a few old money enclaves on St. Ronan Street and Cold Spring Park, the middle class fled to the surrounding towns: Hamden, Orange, Branford and Guilford. Shopping followed them.

To stem this exodus, Mayor Lee, the Redevelopment Agency and Planning Department initiated a bold scheme to rebuild the southeast and southwest sides of the nine squares, adjacent to the Green with its fine late - colonial and neo - gothic churches.

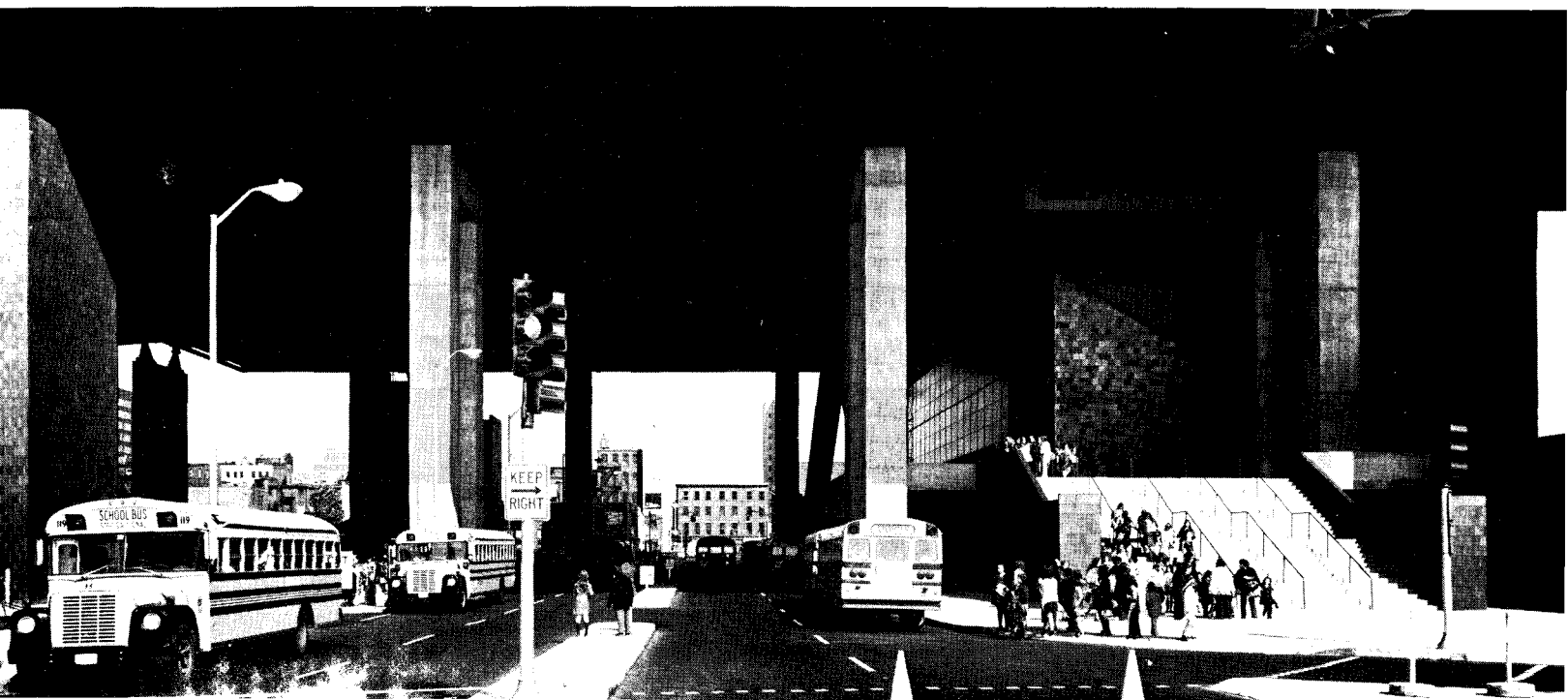
Into the historic heart of the city, Lee and the city agencies pumped financial and architectural adrenalin. First came the Chapel Square Mall with its interior arcade of 50 stores, a 14-story office tower and the 19-story Sheraton Park Plaza which ride piggy-back over the mall. The office tower set off a spree of similar building on Church Street which is still going strong. The Park Plaza replaces the Taft Hotel, famed service center for Yalie weekends, which by the 1960's had slid with majestic aplomb into a peeling heaven for the social security set. Chapel Square Mall alone would not have brought shoppers back into New Haven. With it came large new garages. Paul Rudolph's College Street Garage and the Temple Street Garage plug into route 34 (the Oak Street Connector) which ties into Interstate 91, the coastal tollway from New York to Boston, and Interstate 95 to Hartford and Vermont. Macy's was enticed into building beside Rudolph's garage as was Malley's, a staid New Haven emporium one block farther west.

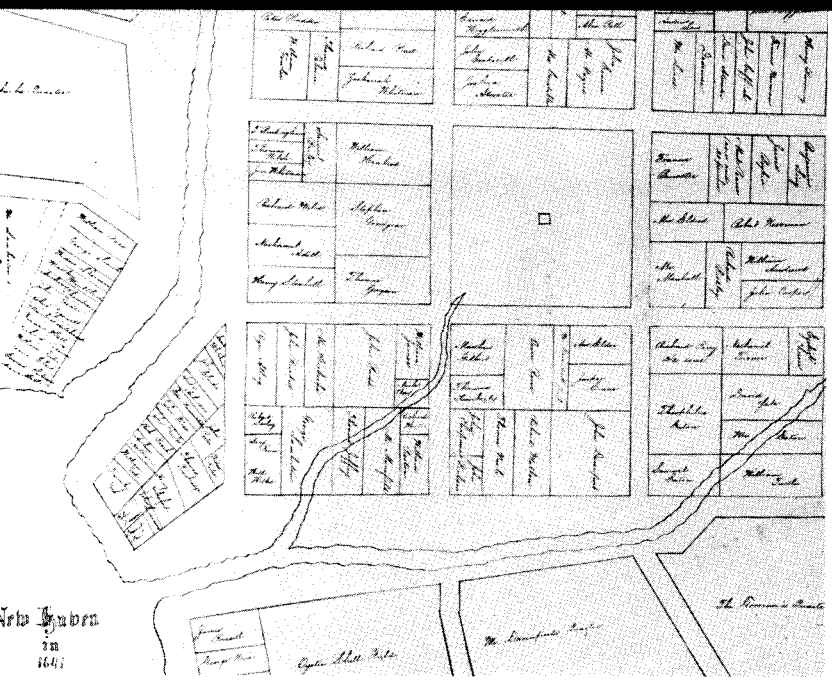
Both the northwest and northeast sides of the Green were eminently stable, socially and economically, secured as they are by Yale's architectural melange of victorian gothic, authentic and neo-colonial and 'Twenties Cotswold. On the south side of the Green, Henry Austin and David Russell Brown's 1862 neo-gothic city hall fronted for an urban renewal getting underway. Demolition proceeded for the vast State Street mega-garage that will stretch for five blocks along the Penn-Central tracks. By the late 1960's the center of New Haven was almost secured by a mix of shopping, office towers and the *de rigueur* parking facilities of that auto fixated era.

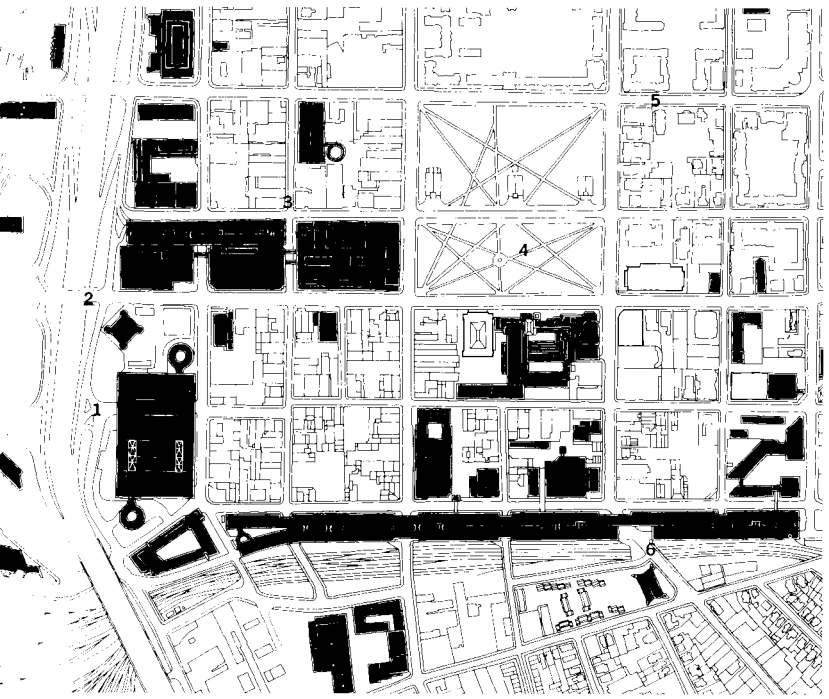
Missing in the mix was a major amusement magnet to generate evening activity. At the south edge of the nine squares was the appropriate site for such a facility: an eight and a half acre landbank created by the headache ball from decaying 19th century warehouses and markets at the edge of the filled-in New Haven harbor on the Long Island Sound. The landbank had the advantage of being close to the Oak Street Connector and Interstate 91 and 95.

The first move to secure the landbank for prestige development came when John McDevitt, Supreme Knight of the Knights of Columbus, and Mayor Lee agreed (as two good Irishmen should) that the K of C national headquarters should remain in New Haven. The Knights planned to leave their huge mustard yellow neo-romanesque offices which were gently sinking into the landfill of New Haven harbor. But the mayor made McDevitt an offer he could not refuse.

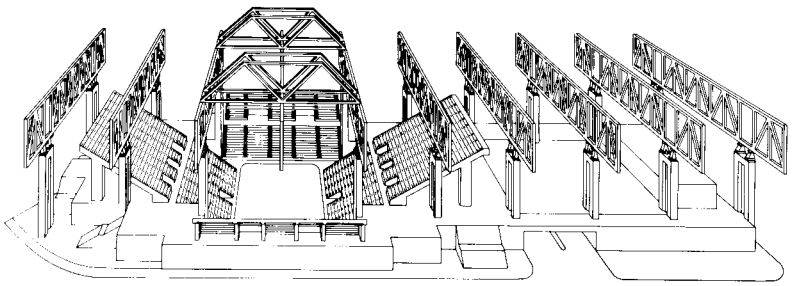
Roche and Dinkeloo Associates were suggested as architects for the K of C tower by Mayor Lee because Roche had designed the Lee High School a few years before. The K of C tower is a dramatic sight for drivers as they hurtle by on Interstate 95 or from the swaying cars of the decrepit Yankee Clipper as it creaks up the line to Boston. But it is not a


SCHOOL BUS
KEEP
RIGHT





A 1641 map (extant only in copies) shows the original settlement situated at the edge of New Haven harbor on Long Island Sound. The original nine squares are still clearly evident in the second map (about 1970). It shows the Coliseum (1) beside Route 34 (the Oak Street Connector), Church Street (2), Chapel Square Mall (3), the Green (4), Yale University (5), and the yet to be constructed State Street Garage paralleling the Penn-Central tracks (6). Supporting the 18 poured concrete piers (6 feet by 29 feet) are reinforced concrete spread-footings on compacted fill. The bridge type construction garage has 9 fireproofed steel trusses which are 36 feet deep and with a span of 184 feet. There are a total of 2400 parking spaces within the three levels of the truss and above its top chords.



civic symbol of the years when Lee turned around the fate of central New Haven.

By 1964 or 1965 Mayor Lee had cranked himself up for a new arena and the idea was being pushed around city hall. The existing arena on Grove and Orange Streets constructed in 1927 was heavy on atmosphere but light on civic dignity. It was the center of boozy Saturday night hockey games and roller derbies in which live chickens and beer cans were pitched onto the ice by drunken fans and the games were often climaxed by a grand free-for-all by the players. The arena had that cozy, sweaty charm unique to the middle Connecticut shore towns, but it was inadequate in size and parking facilities for New Haven of the 1960's.

The auto-logic of those gas-full days of the mid-sixties pointed to some broad flat field near the tollway where the sports arena could be plunked down in the middle of a sprawling parking lot. Long Wharf, fronting on the Sound beside I-95, fit that requirement—as did another site near the New Haven reservoir. Both of these sites were traffic engineers' Linus blanket solutions — simple ways of keeping the cars out of the center of New Haven.

Lee's logic was that the arena had to be downtown to bring night-time vitality, excitement and business. As he said, "The heart of the city is kept alive by making it live." The other two sites had nothing to do with downtown (meaning the nine squares). Might as well put the new arena on Podunck Road in Guilford or in Yalesville as at Long Wharf or the reservoir. Only the landbank beside the K of C would meet Lee's requirements.

Undoubtedly the knees of the traffic engineers' staff went weak as they envisioned all those cars pouring in for sporting events, creating a massive traffic jam of shoppers, commuters and sports fans which would nip the economic second-growth in the bud. But Mayor Lee remained adamant. The Redevelopment office did a feasibility study which backed up Lee's contention that adequate parking and access could be had for shoppers and fans. There would be no glutting of central New Haven by cars stuffed with impassioned sports fans—*if* the new arena had its own garage.

Its own garage became the key, not only to the problem of traffic congestion but also the financing of the new arena: But *only* if the arena-garage was close to Macy's, Malley's and the Chapel Square Mall. The planning study showed the landbank site beside the K of C tower was close enough to the Mall and department stores for the garage to be a day-to-day money-maker during the periods when events were not scheduled.

To expand the money making potential of the arena-garage, Lee decided that a convention-exhibition hall should be included. This would stimulate evening business and create the need for additional hotel space —right across the street from the Coliseum.

As many functions as possible had to be plugged into the new parking and amusement facility to save the city from financial bondage for a bigger place in which to throw beer cans and chickens.

Lee went to the City Council armed with a unique architectural mix that would pay for itself partly from parking income and partly from sports, conventions and entertainment events. The landbank site which he and the Redevelopment Agency selected was economically a generator of downtown, had easy access to the Hartford and coastal tollways, and offered the chosen architect an opportunity to create a grand symbol of the reborn New Haven to the world as one whizzed by on the way to New York or Boston.

How to package all of these functions and, at the same time, make them amenable to the Knights of Columbus tower was the question. Since the tower would be within a stone's throw distance of the Coliseum, the only appropriate choice was Kevin Roche and John Dinkeloo. That is, if the site relationship was to be finessed.

Roche and Dinkeloo made a careful study of the alternatives of a combined arena, convention/exhibition hall and garage. An underground garage was ruled out because of the high water table—the site is landfill in the old harbor. The city projected a garage of 2,400 spaces about four and a half acres to make a go of the facility, which meant a four-story structure on the site. Putting

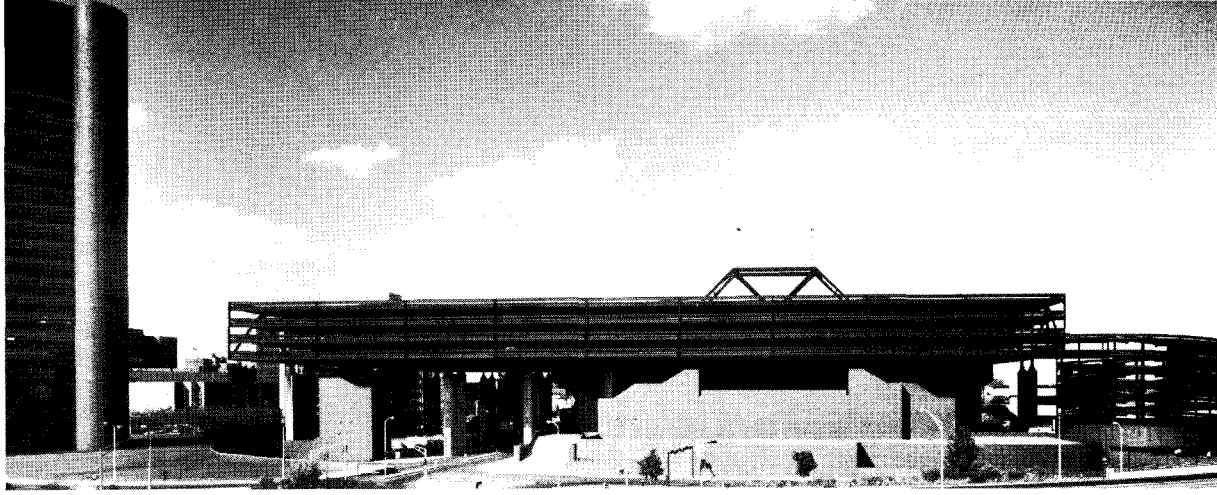
the arena on top of the garage would remove it too far from normal pedestrian access and also create an unpleasant environment at pedestrian level. A totally separate parking garage would place either the arena/convention hall or the garage too far from the Chapel Street shopping complex.

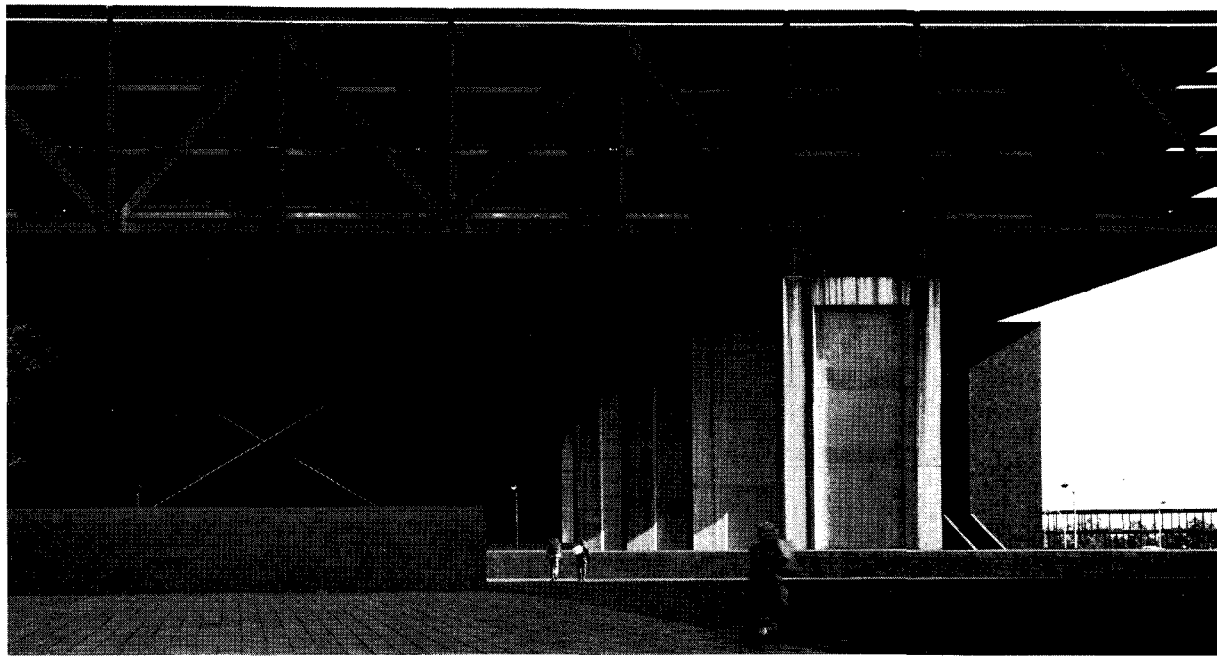
But the reverse—putting the garage on top of the arena and convention hall has several advantages. If the parking could be integrated into the truss needed to span the functions below, direct pedestrian access is gained without losing proximity of parking near Chapel Street. Nine clear span trusses, 184 feet in length and 44 feet in depth, are supported 70 feet above the ground by 18 massive reinforced concrete piers which measure 6 by 26 feet. Cars reach the computerized four-level garage by two helical ramps, one located on George Street near Chapel and the other on State Street.

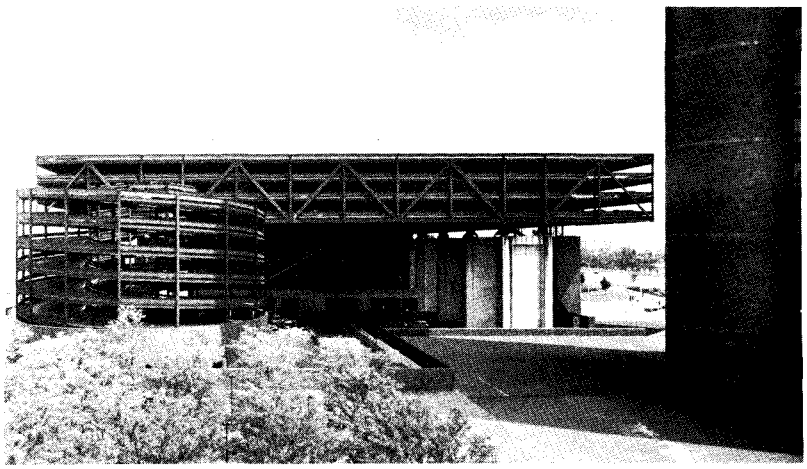
The arena beneath, measuring 360 feet by 360 feet, required unimpeded sight lines. Therefore one pair of piers was omitted, and the truss they would have carried was suspended from two rooftop trusses bridging the 128 foot gap.

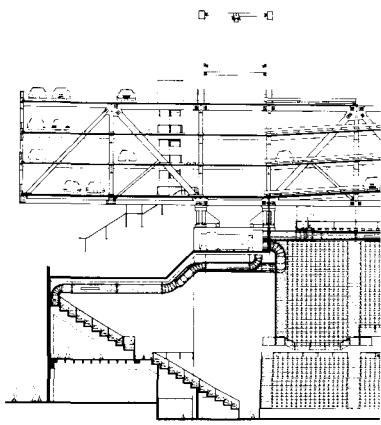
Since Orange Street had to connect into Route 34, both the arena and the convention hall had to be raised one story off the ground. A truck entrance to the underground service loop beneath Chapel Square Mall reinforced the architects' desire to create a podium level for the convention hall and arena entered from the plaza common to both the Knights of Columbus and the Coliseum, up a wide staircase through the 38,000-sq.-ft. convention/exhibition hall and into the 9,000-seat arena which can be expanded to 11,500 seats for conventions. Connecting the bridge structure garage to the arena and convention hall below are two vertiginous escalators which swoop down to the arena level 40 feet below. There are also elevators and escape stairways.

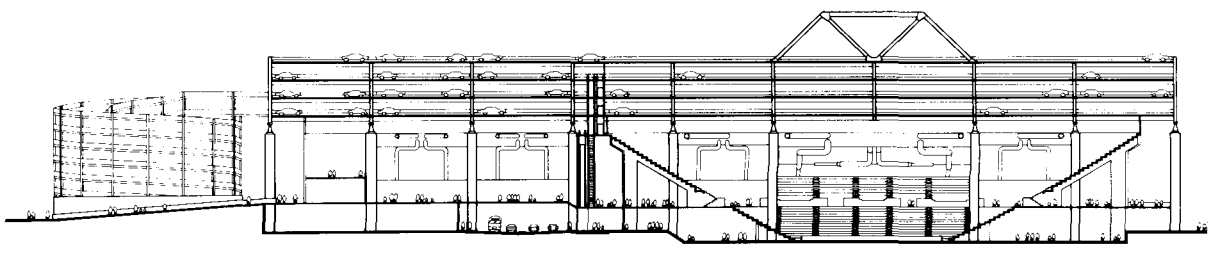
Starting at about $15 million in 1965 when first publicly announced, the cost of the Coliseum had risen to $19.5 million when the ordinance for the New Haven Coliseum Authority was passed on June 15th, 1966. It was approved by the mayor on June 21 and went into effect

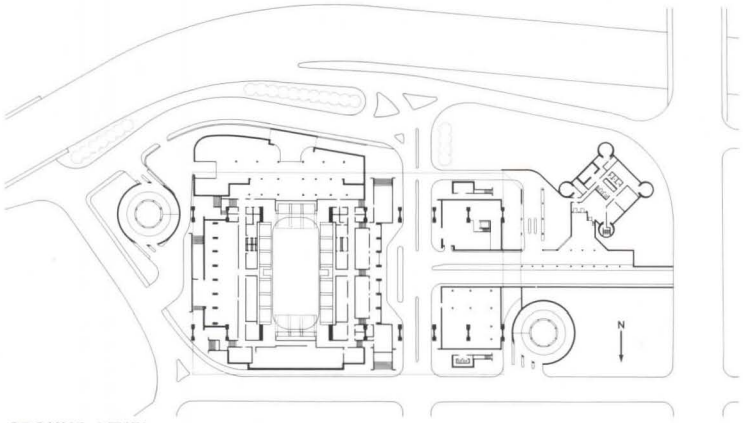




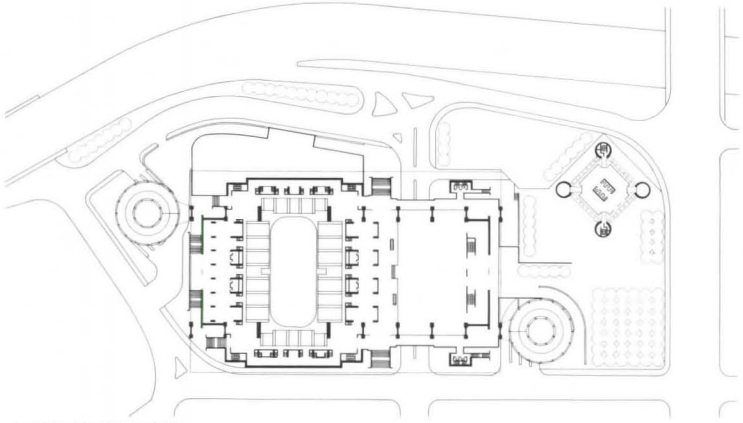




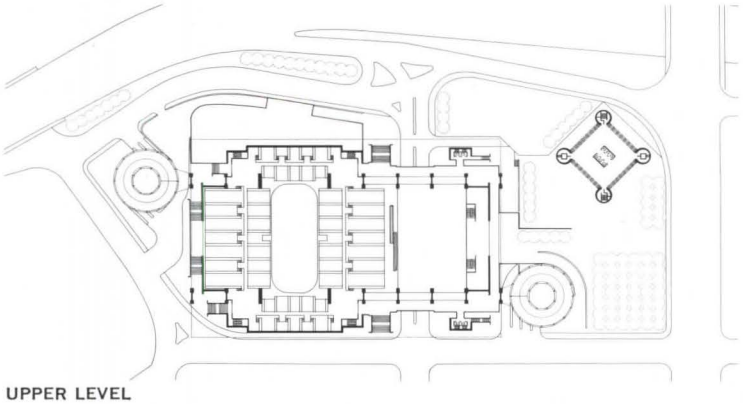




GROUND LEVEL



CONCOURSE LEVEL



UPPER LEVEL

on July 1 of that year. Revenue bonds immediately went on the market.

Content they had remained on the right side of $20 million, a figure which the aldermen dreaded, they were shocked to discover in 1969 that a second bond issue of $3.5 million would have to be floated. This came about when the original consultant working for the architects and the city suggested a full-time professional director was needed to oversee progress of the Coliseum. At this point, the building was only 18 massive piers rising from the ground. The new director went over types of events which would take place in the arena: the New Haven Hawks, members of the American Hockey League, Harlem Globetrotters, professional tennis, boxing, wrestling, rodeos, motorcycle racing and the roller derby would retain the old arena crowd. New input included the Ringling Brothers Barnum & Bailey Circus, the Moscow Circus, the Ice Follies and Ice Capades, and the Royal Lippizzan Stallions. Studding this mix, and probably the real money-getter, would be pop concerts like Johnny Cash or Led Zeppelan.

Hockey required dasher boards and matting as well as a Zamboni ice resurfacing machine. A movable floor over the ice rink was needed since the ice would be used 80 percent of the winter by the New Haven Figure Skating Club and the general public when the Nighthawks were not battling toward the Stanley Cup.

When the Royal Lippizzan Stallions and Johnny Cash were thrown into the mix, expensive back-up equipment followed: a sound system, spotlight cages and a central lighting control panel, as well as dressing rooms and an expanded administration office. The storage facility on the west side of the arena was deemed not large enough for the Ringling Brothers' 23 elephants or the usual four to nine semi-trailer trucks of road shows. That part of the building would have to be expanded and with the new equipment and other refinements of the interior, an additional $3.5 million was needed beyond the $19.5 million approved by bonds in 1968.

A frantic whittling process began. Throughout the spring of 1971, the aldermen carved away at the original program. The tile cladding for the piers and the helical ramps were peeled away. And finally the whole of the podium, with the main entrance on the Knights of Columbus plaza, the convention hall and atrium over Orange Street, were modified. They worked on the assumption that the garage and the arena were proven money-makers; the cost/benefit ratio of the convention hall was more problematic at that date. The convention hall would have to wait.

To date the bill for the Coliseum is $23 million without the convention hall. The weathering steel truss bleeding onto the piers, and the lack of the convention hall give the building a Piranesian grandeur.

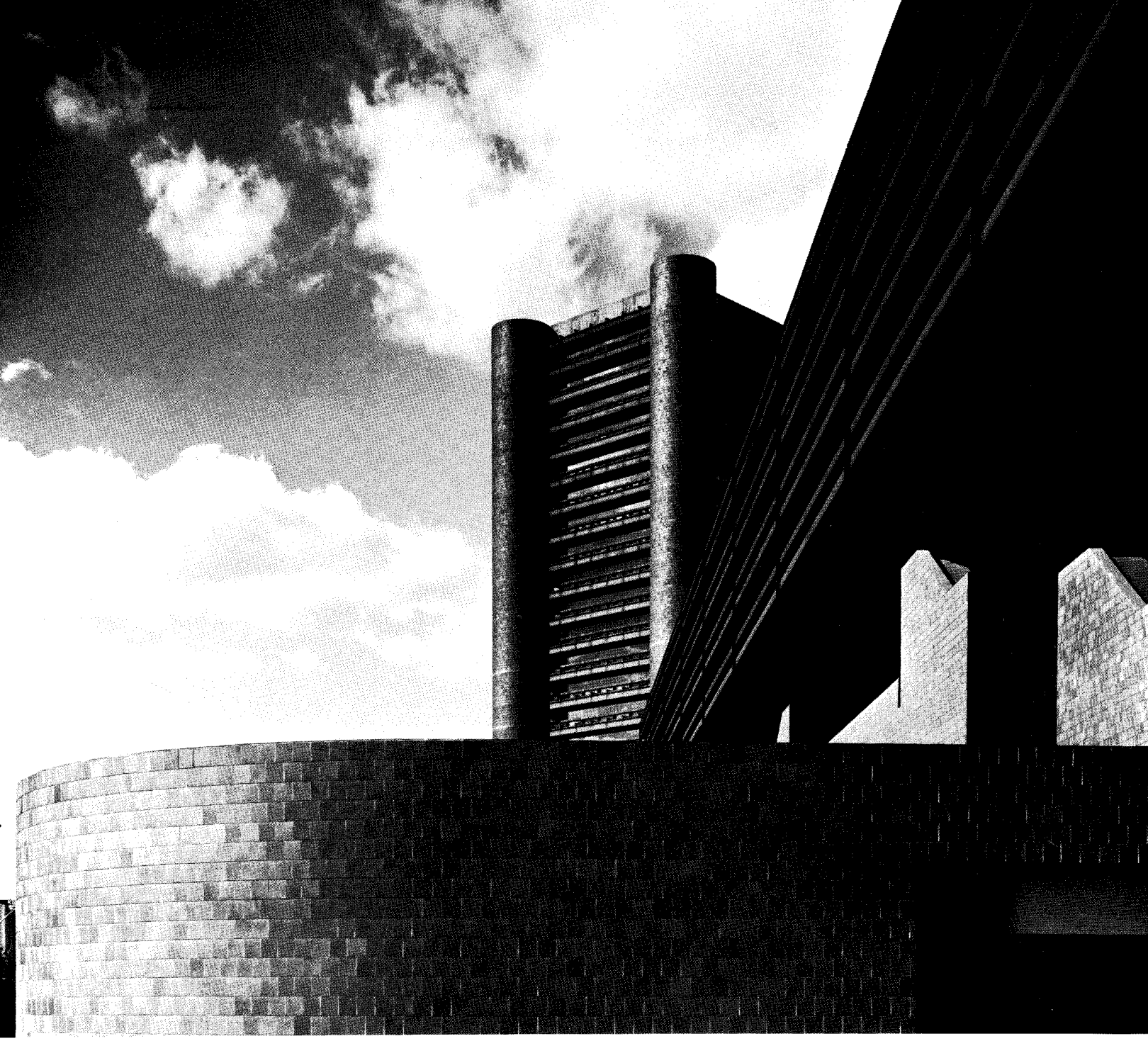
But to fulfill the Coliseum's role in Lee's alchemical transmutation of New Haven, the convention hall will have to be there. Thanks to Roche and Dinkeloo's concept, the convention hall can be plugged in this year, or next year, or thirty years from now — that is the beauty of their concept.

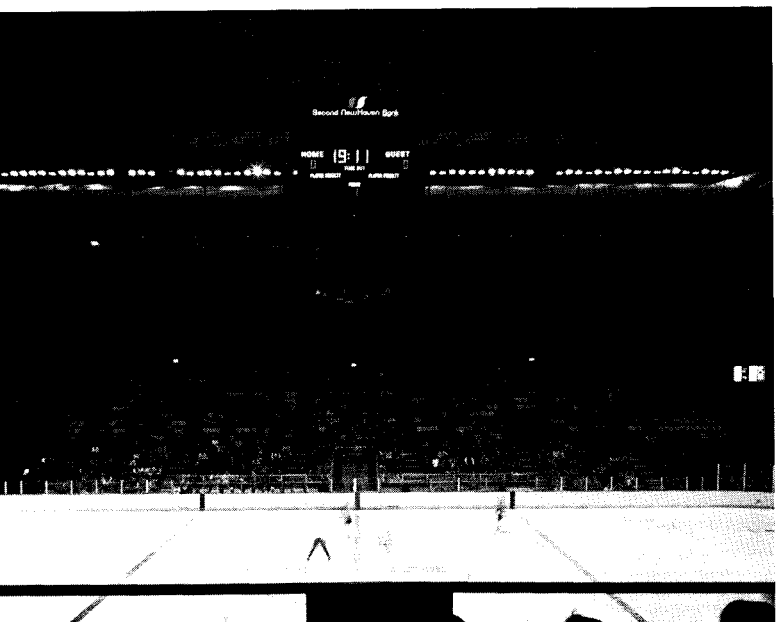
The garage-use figures for 1972 and 1973 show the architects and Redevelopment Agency were on the right track. In 1972, 157,270 cars parked in the garage, even though events in the arena did not start until late September of that year. In 1973, some 264,346 cars parked there, surpassing the estimated goal of 200,000 cars for the first year in which the arena is in operation. Attendance at the arena events has matched expectations.

Now when people leave events, they just spill out into side streets. The great procession of spaces from the plaza through the convention hall is lacking. They would mediate the transition of scale from super-size Interstate tollways and the garage of the Coliseum to the pedestrian ambiance of New Haven.

Though the Knights of Columbus tower, guardian of the gateway (Route 34), is fully armored, the Coliseum is not. You don't hand a hockey goalie his head and chest protectors, but leave the bottom half of his outfit in the locker.

Whatever magical words Mayor Bart Guida or his successor must say *should* be said to finish the Coliseum. It is the right building in the right place saying that New Haven is very much alive. —ROBERT COOMBS





Pedestrian access is via escalators from the parking garage to the arena level and from the street by stairways at George, Orange and State Streets and Frontage Road. Two passenger elevators on the George Street run from street level to the garage. Covered passenger pick-up and drop-off area is provided at the Orange Street entrance. Truck ramps to storage areas are situated beside Route 34. A truck tunnel from Chapel Street Mall runs beneath the Knights of Columbus Plaza and connects to Orange Street. The loading ramps beside Route 34 connect to the main playing floor of the arena to accommodate fork-lift trucks and refuse vehicles. A freight elevator capable of carrying vehicles provides access from the playing floor to the concourse above.

FACTS AND FIGURES

New Haven Veterans Memorial Coliseum, New Haven, Connecticut. Owner: City of New Haven/New Haven Coliseum Authority. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: LeMessurier Associates, Inc. (structural); Hubbard, Lawless and Osborne (mechanical); Hubbard, Lawless and Osborne (electrical). Acoustical Consultants: Bolt, Beranek and Newman. Contractors: Gilbane Building Company (general); Buckingham-Routh Company (mechanical); Norfolk Electric Company (electrical). Total Building area: 1,132,136 sq. ft. (Arena and Support Areas: 225,860 sq. ft.; Parking Deck: 906,276 sq. ft.). (For a listing of key products, see p. 93.)

PHOTOGRAPHS: page 36, 37, 39 (center), 41, Copyright Yukio Futagawa.

DRAWING: page 38 (top) New Haven Colony Historical Society.

Construction underway on the expansion of the Metropolitan Museum of Art: groundwork on the Rockefeller and European Wings (right foreground); the Lehman Pavilion (left foreground); the American and Temple of Dendur Wings (middle background); and the dramatic wall of Fifth Avenue apartment houses, in the distance, opposite Central Park.

A MUSEUM WELL MET

New York's Metropolitan Museum of Art makes architectural overtures to Central Park

BY PAUL GOLDBERGER

The strong, almost flamboyant structural gestures which mark such Kevin Roche-John Dinkeloo structures as the Knights of Columbus tower and the projected Federal Reserve Bank of New York, the careful site planning and precise formal arrangement of his College Life Insurance buildings (page 26) and the Center for the Arts at Wesleyan University (page 64)—these aspects converge in the master plan for the Metropolitan Museum of Art.

The plan, announced in 1970, calls for adding 325,000 square feet to the Museum's present structure in Central Park, increasing gallery space by a third, as well as reorganizing and redesigning existing facilities. By the time the several new Roche-Dinkeloo wings are completed in 1977 or 1978, the total cost may reach $50 million.

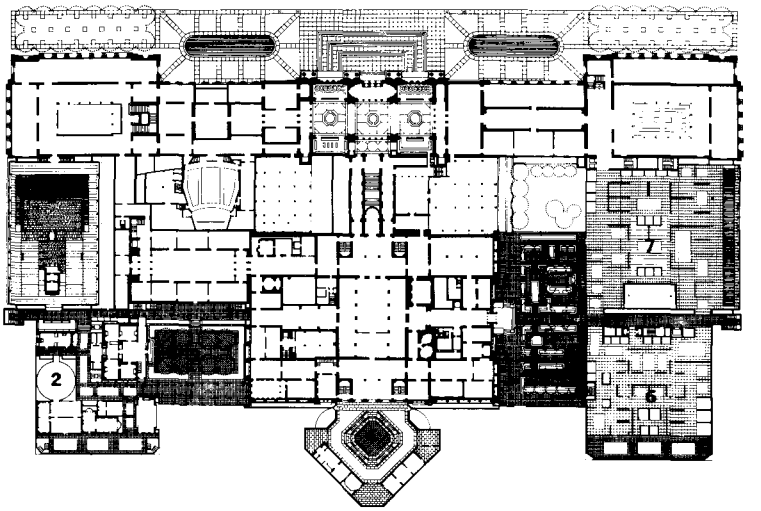
The project has been mired in political controversy from the start, unfortunately obscuring the architectural details of the plan. Indeed, although the Met buildings have probably been the subject of more public discussion than any other Roche-Dinkeloo work, built or unbuilt, the architects' names and the specific architectural solutions they sought have hardly entered into the controversy at all. Rather, public debate has centered around the ethics of the Metropolitan's expansion of its already large physical plant—at the expense, critics have charged, of park land.

The Roche-Dinkeloo scheme is the fifth comprehensive plan to be proposed for the Metropolitan. Museum officials quickly point out that it is smaller than earlier ones by Richard Morris Hunt (1885) and McKim, Mead and White (1904)—neither of which was ever completed, although the present Fifth Avenue facade is an amalgam of Hunt and McKim wings. An earlier plan by Calvert Vaux, who designed the first wing of the Museum in 1881, called for a series of long galleries arranged around open square courts. A 1943 plan by O'Connor and Embury suggested gallery reorganization and the completion of the building in a sort of modern beaux arts, "federal government classical" style.

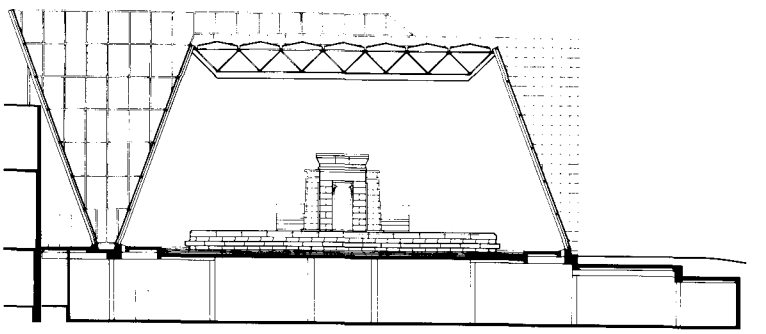
In any event, there was clear precedent for Roche's and Dinkeloo's expansion and, indeed, given the number of major gifts which came to the Metropolitan in the late 1960's, such as the Temple of Dendur, the Rockefeller collection of primitive art and the Lehman collection, new space was critically needed unless a policy of decentralization were to be adopted. (The Museum's critics argue that a number of special collections, such as the Lehman, should be housed separately around the city, but there is little indication that the trustees ever came close to adopting such a plan.)

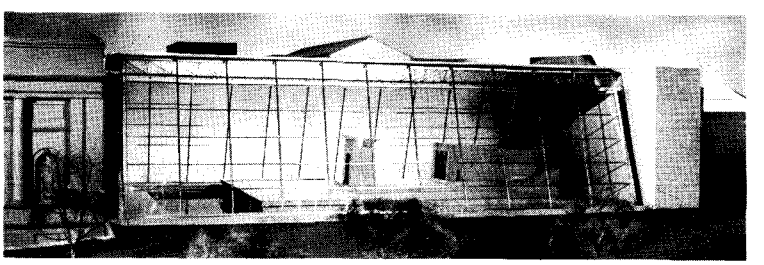
If the premise of vastly increased gallery space on the present site is accepted, the Roche-Dinkeloo plan is a superbly thought-out, and at times truly exciting, means toward that end. The overall plan, most importantly, brings an order to the side of the building facing Central Park that it has not had since the McKim, Mead and White buildings — which have always spurned the Park—were added early in this century. There is a symmetry which, with a major space in the center, flanking wings slightly set back, and end wings projecting, subtly reflects the Hunt-McKim Fifth Avenue facade. More vital than the sense of order to the Roche-Dinkeloo

Mr. Goldberger is an architecture critic of The New York Times.

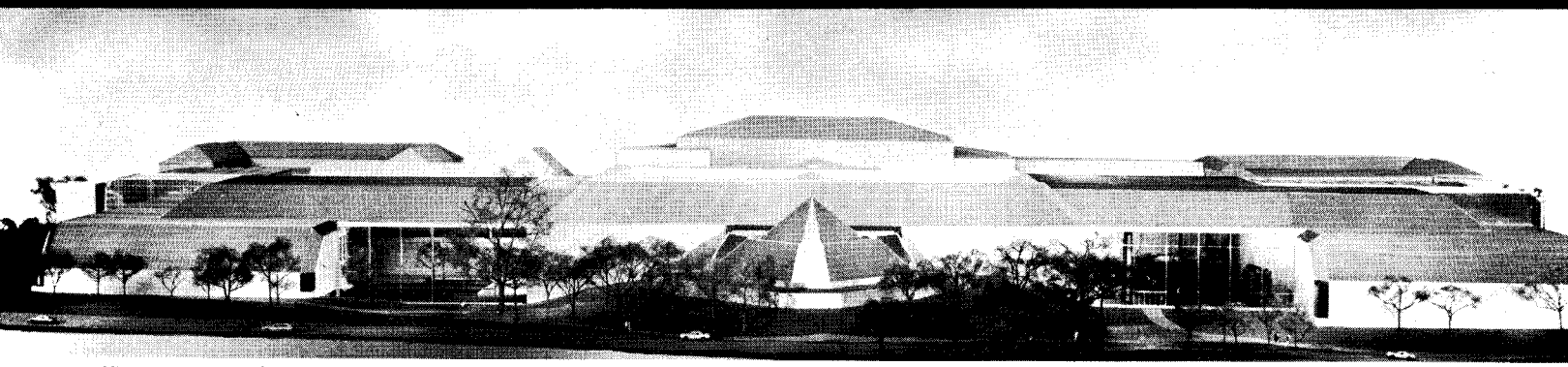


Master Plan, from left: The Temple of Dendur Wing (1); American (2); court (3); Lehman Pavilion (4); court (5); European (6); Rockefeller Wing (7).



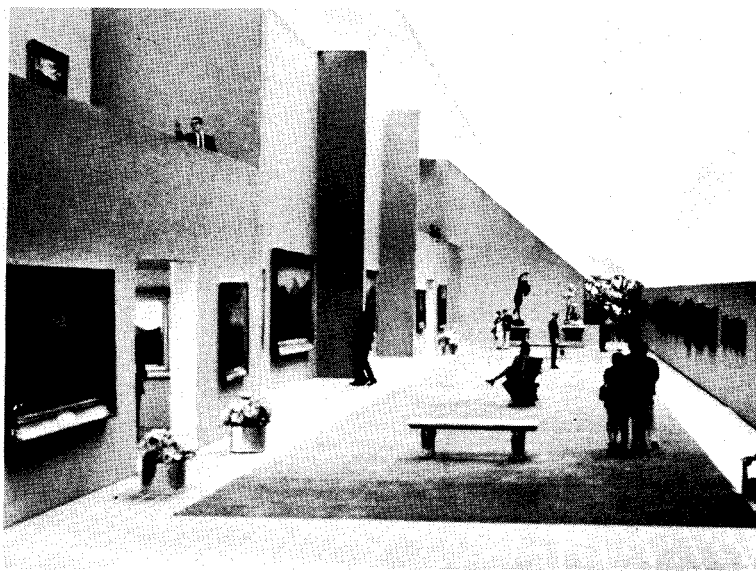


The Temple of Dendur Wing (sections, model) will define the north edge of the Museum with a pristine canopy of glass. A moat, supposedly evoking the mood of the Nile, will enhance the ancient work.



View to the east from Central Park: the American Wing (far left); the European Wing (far right); the crystalline Lehman Pavilion (middle).

This glass-enclosed garden court, off the American Wing, will be oriented around the 1823 facade of the Assay Office.



Sloping roofs, chamfered corners and multiple exhibition levels characterize the galleries.

wings' relationship to the Park, though, are the new entrances through glass-roofed courts which tie the galleries to the Park and restore the Park access which the earliest Museum wings permitted.

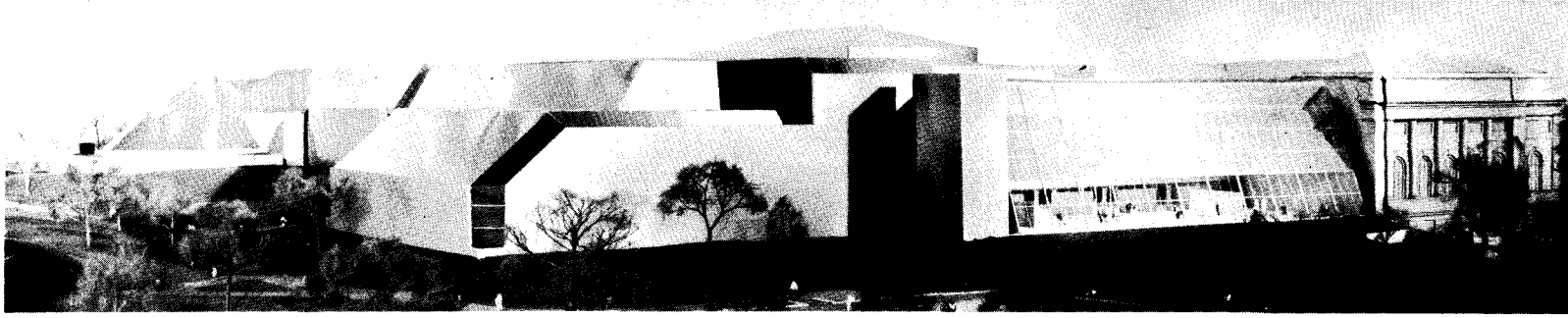
The imagery of the buildings themselves is clearly Crystal Palace, an appropriate one considering the desire to emphasize a Park relationship. Roche's and Dinkeloo's work has employed glass extensively for some time, so the large-scale use of glass cannot be attributed solely to this association; nonetheless, Roche has spoken of the influence of the Botanical Garden in Golden Gate Park, San Francisco, an elaborate greenhouse surrounded by lush plantings. The landscaping of the Museum will attempt to reflect this lushness, with heavily planted berms sloping up to cover much of the masonry of the lower part of the facade, leaving the glass visible above. The Museum is in a fairly busy section of the Park, with a road running the length of the western boundary of its site, so there is little chance that the observer will be surprised by an unexpected glimpse of glass, glimmering through the trees in an otherwise tranquil landscape. Still, the basic vocabulary is right for the urbanistic (if one can use that word) role the new buildings must play; and moreover, the sharply articulated combination of glass and limestone relates intelligently to the Italian Renaissance Hunt and McKim wings, making neither false gestures of imitation nor of defiance.

Although the formal vocabulary is essentially the same for all sections of the master plan, the buildings themselves differ considerably. The first to be completed will be the Lehman wing, a diamond-shaped pavilion which juts out from the center of the Park facade, providing the focal point of the composition. The two-story pavilion is to be open to the east, adjoining the original Calvert Vaux wing, which will function as its entrance and east wall. In the center of the Lehman pavilion is a two-story garden court which echoes the building's diamond shape. Period rooms from the Lehman house on West 54th Street will line the outer edge; between them and the court wall will be a painting gallery. The roof will be of glass and will come, pyramid-like, to a point in the center. Drawing galleries will be on the lower floor, free from natural light.

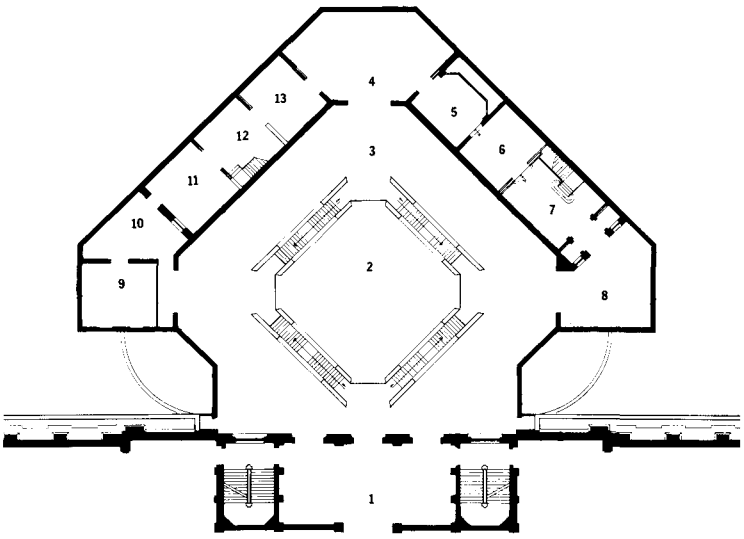
The pavilion, which is expected to be finished late this year or early next, will probably be the most interesting space at medium scale in the entire complex. The double limestone walls around the garden, which have staircases between them and large windows opening up the garden space to the main gallery, create much the same sense of sliding planes as do parts of Roche's distinguished arts complex at Wesleyan. The diamond-shaped plan permits not only an interesting axial vista across the space but also a number of interesting diagonal views through the central court to the Vaux facade, which, suddenly off-axis, appears almost to be set in motion.

To the south of the main building will be the Rockefeller collection of primitive art and to the north, the Temple of Dendur, housed in essentially similar glass boxes with sloping walls. In both cases, objects of large scale will be displayed in great space, visible from outdoors as museum displays rarely have been. The spaces themselves are ambitious ones, and it is difficult to predict how they will function as galleries—although the use of a large, dramatic room of glass is inherently more logical for a museum which will display something of the scale of an Egyptian temple than it is for a conventional painting gallery, as in Mies' Berlin and Houston museums.

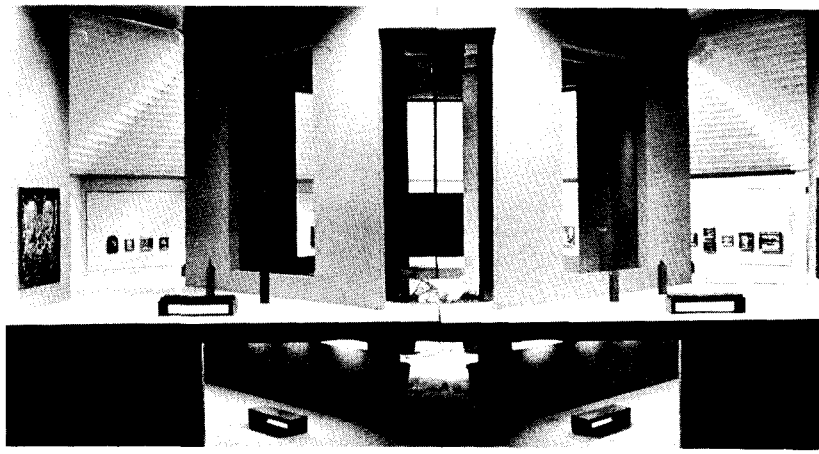
West of the Rockefeller wing, and last on the master plan's construction schedule, is additional gallery space for Western European Art. West of the Dendur enclosure, completing the symmetry, is the new American wing, scheduled for completion in 1977. Both buildings are of glass and limestone, with

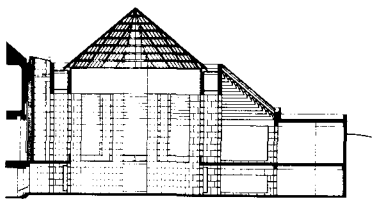


View to the northeast from Central Park: the Lehman Pavilion (left background); the European Wing (middle foreground); and just right of that, the sloping glass walls of the Rockefeller Wing, containing the collection of primitive art.



1 ENTRANCE FROM EXISTING MUSEUM. 2 OPEN TO GARDEN COURT BELOW. 3 MAIN PAINTINGS GALLERY. 4 SPECIAL GALLERY. 5 DINING ROOM. 6 FIRST FLOOR BACK ROOM. 7 ENTRANCE HALL. 8 SPECIAL GALLERY. 9 THIRD FLOOR FLEMISH ROOM. 10 JEWELRY ROOM. 11 SECOND FLOOR FRONT ROOM. 12 SECOND FLOOR LANDING. 13 SECOND FLOOR VELVET ROOM.





The Lehman Pavilion (plan, section, cut-away model view), to be complete late this year or early next, is a crystal-like container for a $100-million collection. A glass-roofed, two-story structure at the mid-point of the Central Park facade, the upper level surrounds a high garden court. Paintings are above, drawings below.

sloping roofs and chamfered corners, all of glass, to reflect the Dendur and Rockefeller wings. There is a sharpness to the articulation and angularity of these wings that recalls, in model form at least, the work of James Stirling or even Albert Kahn's early factories as much as it does any sort of Crystal Palace.

The end galleries will be lighted almost entirely by daylight; as in the Lehman wing, the sloping glass roof will begin about ten feet up, allowing pictures to be hung along the outside wall. The glass roof will wrap around the edges of the wings, coming down to the floor at the corners to provide a glimpse of the Park. Second floor galleries will begin as balconies overlooking this large end space, and continue back into the building with light provided through the glass roof.

What will probably be the most spectacular spaces are not galleries at all, but glass-enclosed garden courts, clearly descendants of Roche's and Dinkeloo's oft-praised garden space in the Ford Foundation. The courts, which will complete the rough square of the building by filling out the spaces south of the American wing and north of the Western European Arts wing, will function as public park space. Each will be oriented more or less around the preservation of an old facade—at the north court the 1823 facade of the Assay Office from Wall Street, moved years ago to the Met, and at the south court, the Museum's own elegant 1888 south front, which will once again be an entrance.

This desire to not only preserve but also emphasize the more distinguished parts of the existing building is also shown in the only part of the master plan already complete—the restoration of the Richard Morris Hunt Great Hall of 1902 and the renovation of the facade. Here, the architects have been less successful — the Hall, once a gray space with a splendid air of mystery about it, has been relit, given an apricot-colored tone, and filled with planters. It is all too pretty, as if a tough workman's face were given makeup; it didn't need the fussing, and the sense of depth is gone.

Conversely, the vast expanses of concrete now on the Fifth Avenue side add rather than remove a coldness. While the new steps are an obvious improvement, and the trees in front of the far wings are welcome, it is difficult not to feel that when the entire building is finished, it will be the new Park facade, and not the traditional Fifth Avenue front, which will be more inviting. That would be ironic, indeed, given the criticism which has been leveled at the new buildings by park defenders.

FACTS AND FIGURES

Rockefeller Wing, Metropolitan Museum of Art, New York, New York. Owner: Metropolitan Museum of Art and New York City. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Severud-Perrone-Sturm-Bandel (structural); John Altieri, P.E. (mechanical); John Altieri, P.E. (electrical). Contractors: for Phase 1—Parking Garage only: Ingram & Greene (general); Simpson Metal Industries (mechanical); Charles Hyman (electrical); Otis Elevator Company (other). Building area: 177,000 sq. ft. (garage); 121,000 sq. ft. (museum); (excludes European Wing.)

Temple of Dendur Wing, The Metropolitan Museum of Art, New York, New York. Owner: The Metropolitan Museum of Art and New York City. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Severud-Perrone-Sturm-Bandel (structural); John Altieri, P.E. (mechanical); John Altieri, P.E. (electrical). Contractors for Phase 1 only: DeFoe Corporation (general); Stanley Rowland (mechanical); Charles Hyman (electrical); Wolff & Munier (plumbing & sprinklers). Building area: 80,800 sq. ft.

Lehman Pavilion, Metropolitan Museum of Art, New York, New York. Owner: Metropolitan Museum of Art and New York City. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Severud-Perrone-Sturm-Bandel (structural); John Altieri, P.E. (mechanical); John Altieri, P.E. (electrical). Landscape Architect: Coffey & Levine. Contractors: Ingram & Greene, Inc. (foundations); DeFoe Corporation (concrete superstructure); Wolff & Munier, Inc. (mechanical); Charles Hyman (electrical); Joseph Weiss & Sons, Inc. (limestone); Ickes Braun (skylights). Building area: 45,457 sq. ft. (For a listing of key products used in these buildings, see p. 93.)

The main street in Columbus

Patrons are what architects often wish they had, but don't. They come to the architect with a commitment to something beyond the most purely utilitarian and lowest-cost structure. They are sympathetic to the architect's needs. And they don't stop with just one building commission, or, for that matter, just one architect.

However, the patron as client seems to be a dying breed, a role not convincingly passed on as a cultural responsibility of the affluent.

It could be the fault of the architect who takes the patron/client's generosity too much for granted. Or it could be simply the spirit of the times that only encourages the most commercial and economically-based motives. Then again, perhaps it's that architecture's dependence on patronage in the first place proved to be its fatal flaw—only further isolating architectural appreciation and understanding to those few who could afford it.

Many nevertheless decry its steady demise, seeing the need for patrons, even today, when architects as professionals still depend on clients who don't really need them. So like any other art, it seeks the added commitment to survive.

That's why so many architects like J. Irwin Miller. They may not know him, or ever build in Miller's hometown of Columbus, Indiana. Nevertheless he provides an example *par excellence* of the patron as client.

In Columbus, where Miller's ancestors (seven generations back) homesteaded, established banks, and finally started the Cummins Engine Company, he has been responsible for bringing in some of America's best-known post-World War II architects to design the town's schools, churches, banks and health and recreational facilities (FORUM, December 1965, October 1955). As Chairman of the Board of Cummins Engine, Chairman of the Board of Irwin Union Bank and Trust Company, and Chairman of the Board of the real estate development office of Irwin Management Company, Miller carries some clout.

J. Irwin Miller became involved in his architecturally-oriented efforts after his return to Columbus following an education at Yale and Oxford. The First Christian Church congregation had decided to hire an architect to design its new church with funds donated by Miller's uncle, William G. Irwin. Though not on the building committee, he pushed the elders to hire Eliel and Eero Saarinen.

The church, built in 1941, became the town's first piece of modern architecture, although some fine examples from the late 19th Century had cropped up in Columbus previously: the Bartholomew County Courthouse by Isaac Hodgson (1874); and the Irwin mansion by Henry A. Philips, from the early 1900's.

Ten years later, in the early 1950's, Miller himself commissioned Eero Saarinen to design the Irwin Union Bank and Trust building on the town's main thoroughfare. At the same time, he initiated a program with the school board whereby Cummins Foundation would pay the design fees if the Board would select an architect from a list of six drawn up by a panel of two architects. Saarinen and Pietro Belluschi were named to the first panel.

Roche - Dinkeloo's relationship not so surprisingly began at this time, when both architects were associated with Eero Saarinen. Although Roche was not involved much with the design of the 1954 bank, he actively participated in the design and construction of the house Saarinen executed for the Millers in the mid-fifties, and the North Christian Church Saarinen designed for Columbus before his death in 1961.

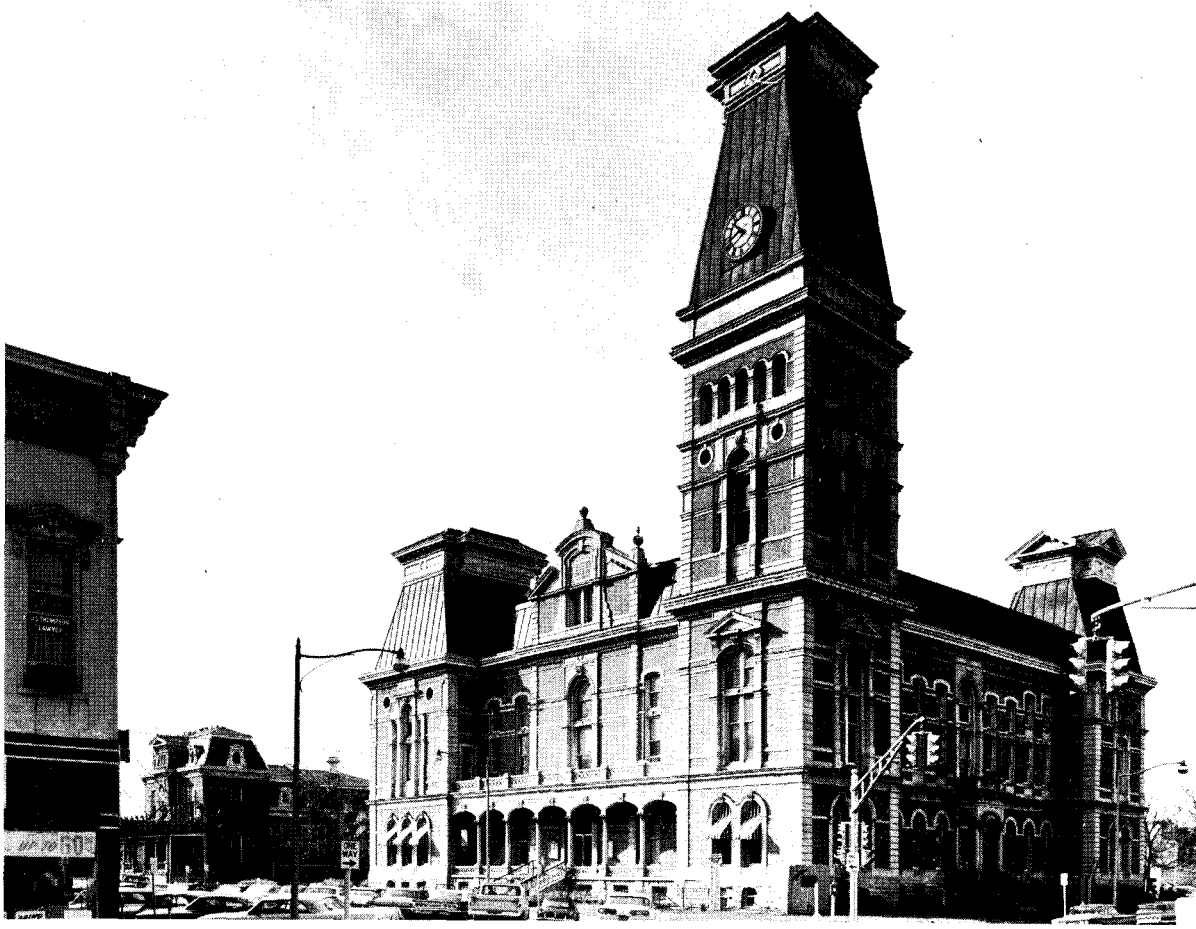
After Saarinen's death, Roche and Dinkeloo, first as official heirs to the Saarinen office, then as their own partnership, continued to execute buildings with Miller as the client. In those years, they designed the Cummins Engine Plant in Darlington, England (FORUM, October 1966); the Post Office for Columbus (FORUM, December 1970) in which the architect's fees were paid by the Cummins Foundation; the Walesboro Component plant for Cummins Engine of 1973 (page 49), and the addition to the Irwin Union Bank and Trust of 1973 (page 54). They are now designing the new corporate headquarters for Cummins Engine for a site in downtown Columbus (page 52).

Obviously the two men maintain a good working relationship with Irwin Miller. And good client relations may not necessarily be confined to direct commissions. When the Ford Foundation interviewed architects for their new headquarters (from a list submitted by advisor Pietro Belluschi), it probably didn't hurt Roche and Dinkeloo to have Miller on the Board of Trustees.

Within the entire system of

MEDICI OF THE MIDWEST

The special relationship between J. Irwin Miller and Roche-Dinkeloo Associates embraces the same expectations and obligations found in more commonplace client/architect situations



The Bartholomew County Courthouse

patronage (in the "good angel" sense of the word) there can be this kind of halo effect. For example, the architect who has benefited from such patronage, may himself have the opportunity of acting as a patron to a younger generation of unestablished architects. By this token, a number of East Coast architects are indebted to Philip Johnson for his client referrals.

In this manner, Roche has been cast in the "patron" role in Columbus. For the last ten years, he has served on the architectural advisory committee, providing a list of architects to the school board (or to Miller) when a new building is being discussed. Roche usually bases his recommendations on building type and job size. So far, Venturi and Rauch, Cesar Pelli of Gruen Associates, James Stewart Polshek, and Hardy Holzman Pfeiffer—all of whom have built in Columbus—were on that list.

Of course the question must be raised whether this patronage system is the fairest way of passing on commissions to younger architects. To some, patronage appears to be a fairly closed system of who-you-know. But no route could be called perfect. The patronage system is less open than a competition, for example, but in many ways it's less expensive for both client and architect, and more assuredly guarantees the client a well-considered, buildable solution over an arresting visual image.

Just because the patron/client is motivated by an enthusiasm for architecture, he or she does not have to relinquish concern over the building's program or budget. As Irwin Miller plainly states, he is not attracted by visual imagery, and in fact shies away from architects who start by talking in terms of how the building will look. The architect who impresses Miller in an interview, he claims, is the one who will quiz him in depth about the program, critically pulling it apart. Miller desires, first of all, a thorough comprehension of the problem: Rather than having architects flaunt their past oeuvres, he prefers their exhibiting a keen insight into his needs.

Roche and Dinkeloo's quick understanding of the program, and willingness to pursue the line of discussion to its logical conclusion are reasons given by Miller for returning to them so often. Miller looks for a commitment and interest on the part of the architect to stay with the job once it has been designed, supervising it to the last detail.

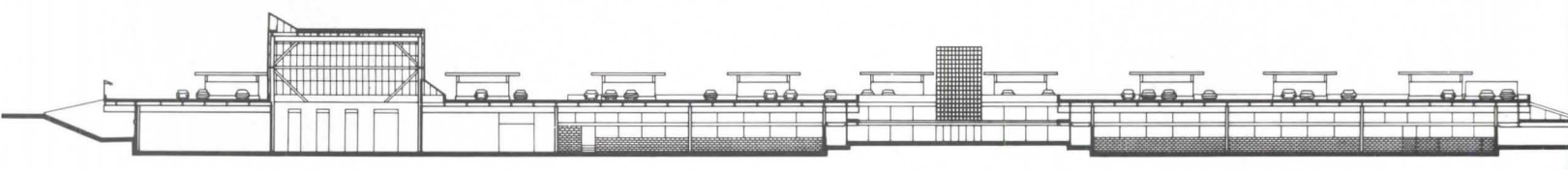
But he adds that confidence in the architect, such as Roche or Dinkeloo, doesn't guarantee an easy relationship. A degree of antagonism always persists. Yet this tension should be construed as constructive, Miller contends, arguing that if either party sacrifices his standards or needs for the other, the solution will ultimately suffer.

Budgets, even with "big-name" architects, are never carte-blanche. After a project has been bid, if the costs come in over the budget, Miller would expect the architects to happily make modifications in the design (where feasible). He looks for architects who will ally themselves with local contractors to work out the most expedient materials and construction techniques. In fact, Roche-Dinkeloo's excellent method of initially estimating costs particularly has impressed Miller.

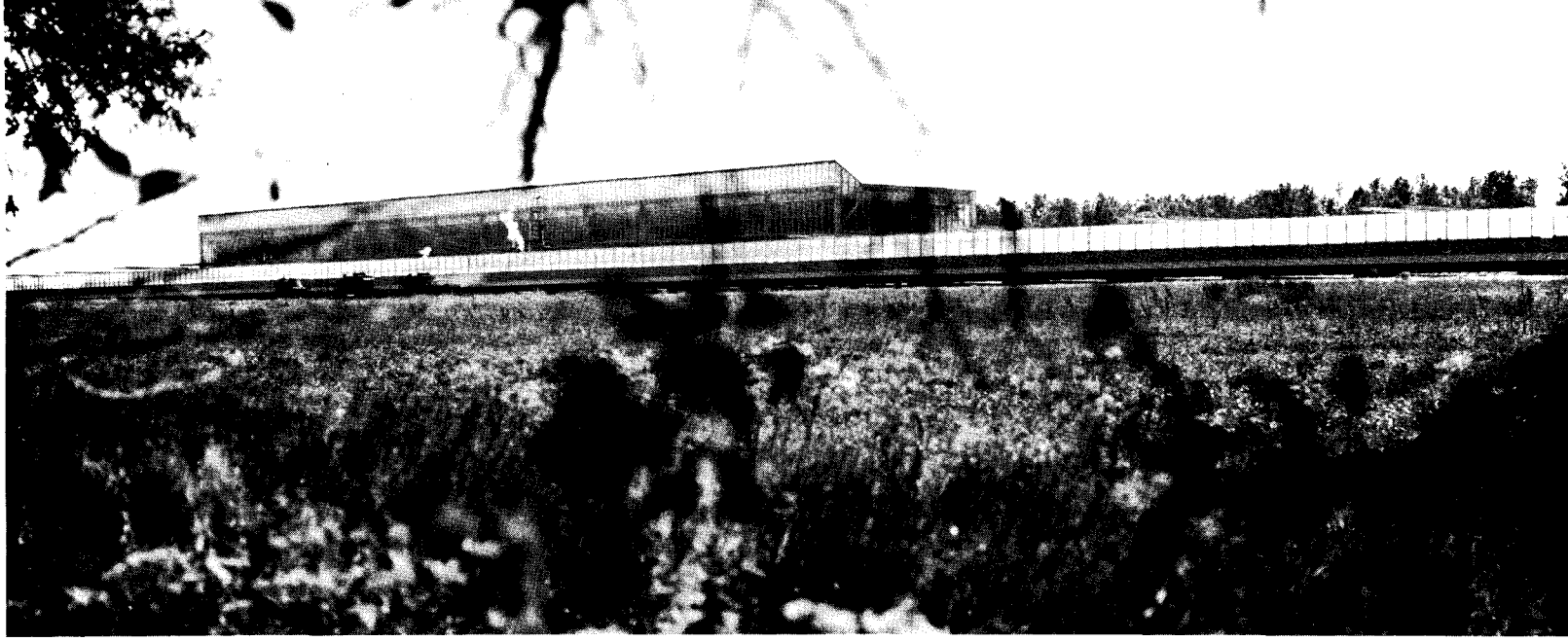
Their cost estimating procedure, they explain, does not depend on a complicated computerized system. Rather, Dinkeloo simply keeps up with the market costs of materials, and knows when and where they will rise in price, or decrease in availability. From the earliest phases of design, Dinkeloo is investigating local suppliers and construction techniques so that from the start this input is determining the design concept. Often Dinkeloo closely oversees the design of new materials for specific needs. And from their long experience, not only can they make accurate cost predictions but know the place where corners can be cut.

Roche-Dinkeloo also comment that Miller, while interested in getting his dollar's worth, expresses sympathy for the problems an architect faces, which a less-experienced client doesn't often comprehend.

As a result, both parties have benefited in Columbus—not to mention the community. Roche-Dinkeloo have been able to work out design concepts and technical details that can have application on a larger scale later; Miller in turn has gotten design that solves small or very functional programs with a great deal of imagination and concentration. And the community (without making any suppositions regarding the effect of architecture on their lives) obtains a sense of pride and identity from the town whose buildings made it famous.



Transverse Section



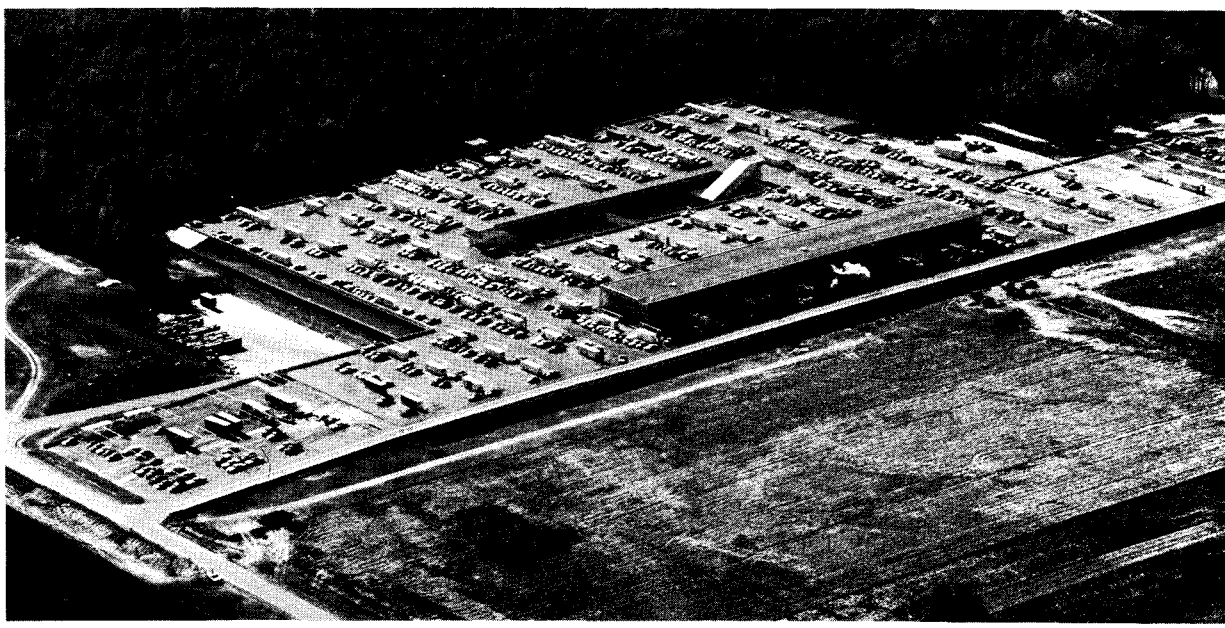
WALESBORO COMPONENT PLANT, CUMMINS ENGINE COMPANY

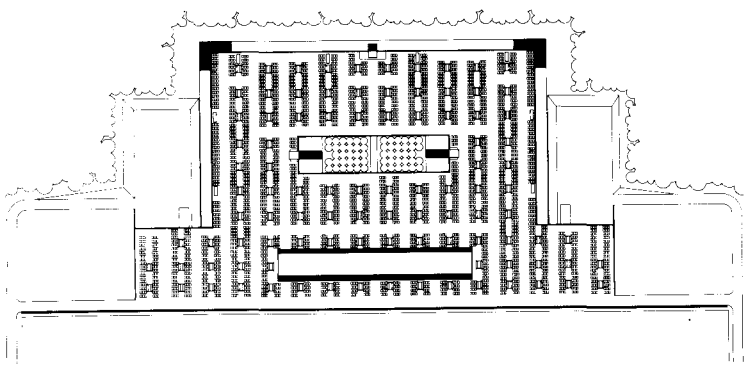
The test of an architect's commitment to client, program, budget and the surrounding natural environment is keenly apparent with the Walesboro component plant for Cummins Engine. The fascination with glass and the extreme functional demands of the manufacturing plant, so prominent here, bring back memories of early moderns: Behren's AEG turbine factory in Berlin (1908-1909); Gropius and Meyer's Fagus factory (1911); or their model factory at the Werkbund Exposition (1914); not to mention the later factories of Albert Kahn in the U.S. (e.g. Ford Motor Company in Dearborn, 1917) or Owen Williams' Boots factory at Beeston Nolts in England of 1932.

But in this latest case, Roche and Dinkeloo have further dematerialized the factory form by burying it, with only glazed portions projecting above the ground.

Depressed six feet below grade, the building also carries parking for 1,400 cars on top. With a beefed-up steel frame, needed for the cranes carrying engine components, the plant was provided with a strong enough structure for the parked cars and additional snowloads (aerial, right).

Entry ramps on either side of the building are carefully bermed up to the 16 ft. 3 in. roof line, and the rooftop parking lot hidden behind an 8 ft. 7 in. glass wall. Thus from the highway (photo above), the factory appears to be shimmering long bands of grey-green glass hovering slightly above the plain. All that shows are the glass walled ramps and the glazed elevations of the high bay storage unit protruding 40 ft. above roof level. Both architects and client assumed a responsibility to the environment uncharacteristic of large industry. In building this low but large factory, they picked a site where it was not necessary to cut down trees. Furthermore, a process sewer system has been built into the factory preventing pollutants from being put back into the creek. In addition, a mist and dust collector filters the air so that no fumes are sent back into the atmosphere.

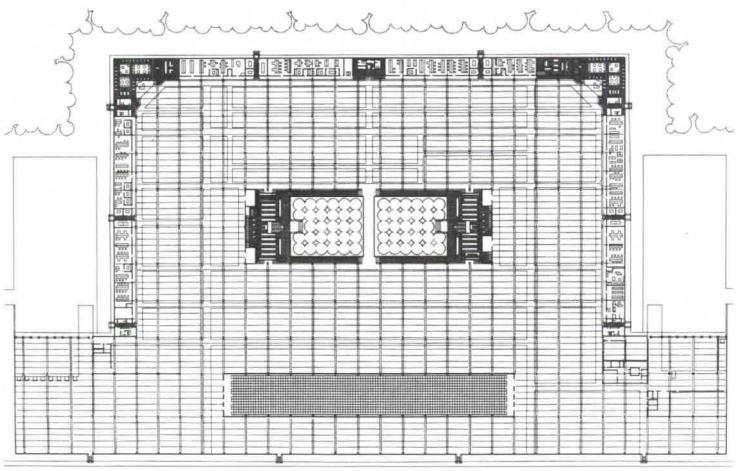


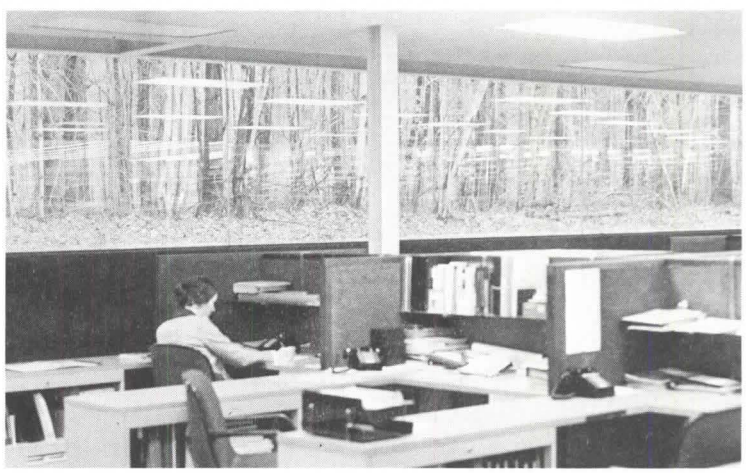


Roof Plan

Glass sheds on the parking level cover stairs and escalators to the main factory level (photo, opposite). In the center of the plant, a rectangular courtyard 250 by 100 feet, and accessible from the half-flight landing between roof and manufacturing level, has been carved out of the 572,000-sq.-ft. building.

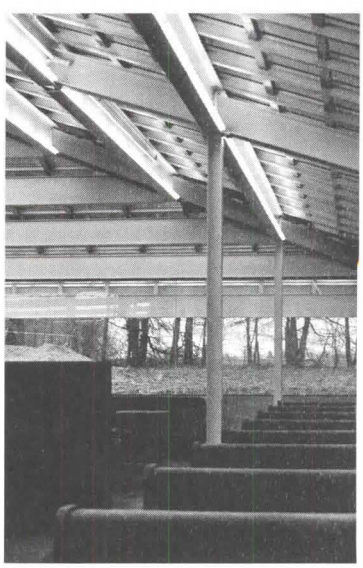
Heating and air conditioning units are contained in sheds on the parking lot/roof. Fluorescent strip lighting, mounted on the sheds, provides light needed for nighttime shifts.





Meanwhile, offices of the supervisors and foremen wrap around three exterior sides of the manufacturing space, unlike most factories in which administration wings are kept separate (plan, above). The office wings, with their single-loaded corridor connecting them, are raised three feet above the factory level, but depressed three feet below grade. Therefore, the band of butt-jointed glazing enclosing the administration portion actually touches grade (photo, above right). Office workers look directly out into the grass and woods to the rear of the building. The offices themselves are partitioned with a modular system of 52 inch-high dividers, carpeted on the inside, so that the view is accessible to all. Since the walls dividing the office and corridor from the manufacturing area are also glazed, further visual access is permitted, along with acoustical privacy. (Fortunately the manufacturing floor isn't that noisy.) Floor-to-ceiling partitions, needed around conference rooms, received glazing also; albeit outfitted with blinds for privacy.

Employees' cafeterias have been located at the two corners of the building where the three office wings intersect (photo, right). These corner dining/recreation lounges not only look out into the countryside in two directions, but receive additional natural light through an overhanging glass shed roof. The cafeterias are furnished to resemble a sun porch or outdoor patio: Redwood picnic tables, benches, lounge chairs and booths support the illusion, along with garden umbrellas (although one suspects that on sunny days those umbrellas might really be necessary for heat and glare).



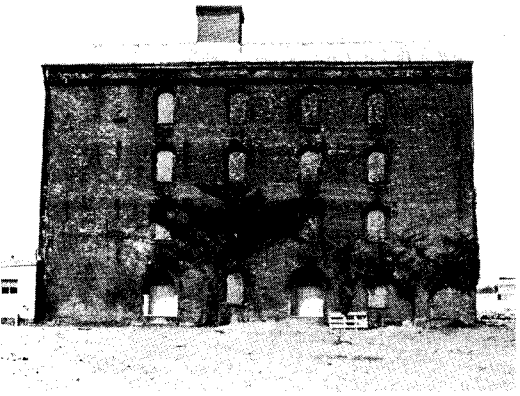
FACTS AND FIGURES

Cummins Engine Company—Walesboro Components Plant, Walesboro Road and I-65, Columbus, Indiana. Owner: Cummins Engine Company. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Pfisterer Tor Associates (structural); John Altieri, Consulting Engineers (mechanical); John Altieri, Consulting Engineers (electrical). Interior Designer: Kevin Roche John Dinkeloo and Associates. Consultants: Bolt, Beranek and Newman, Inc. Acoustical Engineers. Contractors: F.A. Wilhelm Construction Co. (general); Baker McHenry & Welch (mechanical); Robbins Electric, Inc. (electrical); International Steel, Inc. (structural steel); Tousley Bixler, Inc. (site grading). Building area: 572,022 sq. ft. (For a listing of key products used in this building, see p. 93.)

Three-feet deep girders carry the concrete roof deck used for parking. Elsewhere, concrete retaining walls and flooring complement the steel frame. Enclosed passageways transverse the courtyard to connect one work area to another (photo, opposite).

A gallery-like lounge encloses the courtyard, separated from the factory level by a seven foot-high brick wall. Midway in elevation, between the depressed manufacturing floor and the courtyard at grade, the gallery further eases the transition between inside and out (photo, below).

Bright colors such as yellow or green appear on the inside of the concrete load-bearing wall of the high bay storage unit (photo, left) which, in turn, is washed with natural light from the strip of skylight above. Flooring in the main manufacturing area has been comprised of blocks of wood the size of brick, since the architects found wood appealed to the workers more than concrete.



CUMMINS ENGINE CORPORATE HEADQUARTERS

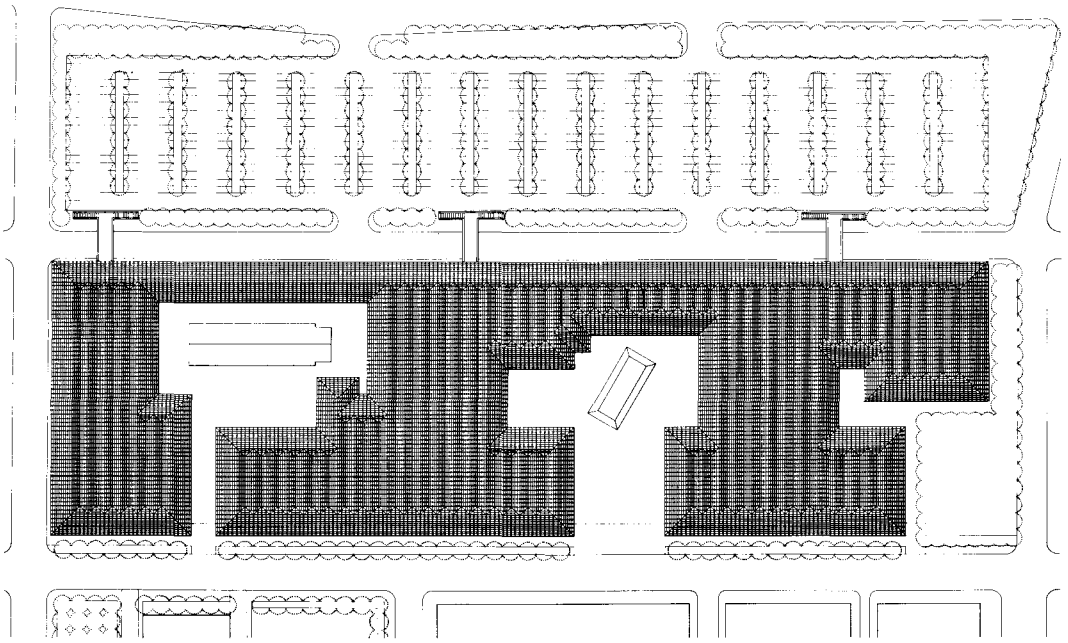
Behind the *Irwin Union Bank and* Trust and next to the Roche-Dinkeloo Post Office is a swatch of Columbus for which the architects have proposed a new Cummins Engine headquarters. Right now the corporate offices are lodged in a renovated 19th Century building, once the town's best hotel. On the 15 acre site, which backed onto the town's railroad tracks, they have conceived of a 167,000-sq.-ft. (per floor) two-story building that would actually wrap around two existing structures: One, a four-story old mill building, turned on a diagonal, would be renovated as a conference and dining hall; the other, a former railroad freight shed, would be remodeled as a large auditorium (photos, top, left and right).

The basic parti of the new headquarters calls for the main office floor to occupy the second level, while conference rooms, toilets, and so forth would be placed on the interior of the ground floor. At the periphery of this street level, spaces could be subdivided and rented as retail shops, the architects maintain, to integrate the office building into the town's fabric, and further help revitalize downtown.

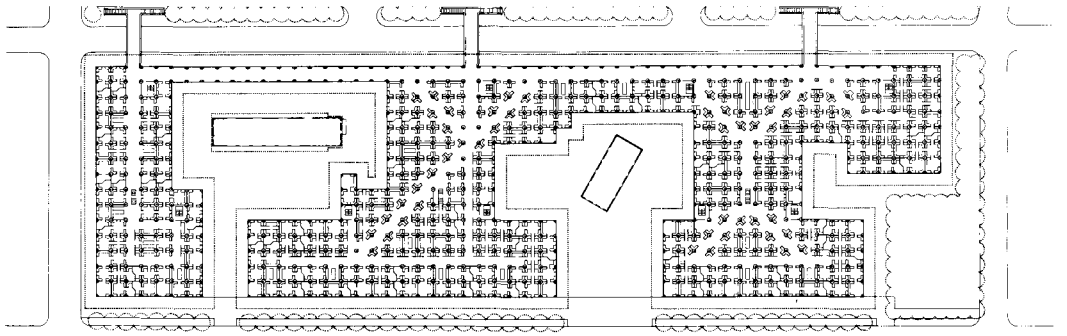
Parking was placed at the rear of the building, on the other side of a street, but accessible via a second level pedestrian bridge (plan, left).

The most interesting part of the proposed scheme again is the use of glass—in this case, a glass roof created by a series of ridge and furrow pitches with a deep overhang at the roof's periphery. A glass roof was desirable to the architects, increasing the use of natural light so that artificial light could be task-oriented.

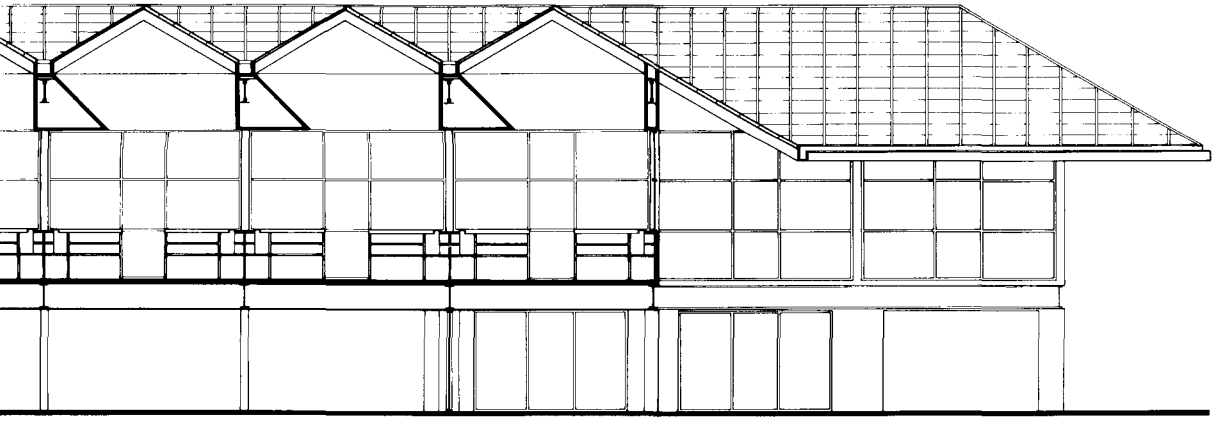
To cut glare and heat gain, they propose installing either opaque glass or translucent panels in the south-facing pitches of the roof; clear glass would be used for the north-facing pitches. Baffles attached to the structural grid of interior columns (section, left). would be lined with mirror-like surfaces on both sides to reflect the sky which is visible through the clear glass north pitches of the roof. The scheme has intrigued Miller, and it is currently being analyzed for heat and air conditioning loads. Nevertheless, responding to natural light, the scheme would appear energy-conscious—and was so even before the current crisis took architecture by surprise. Sensitive to Columbus' social, economic as well as physical scale, it combines corporate, community and commercial life—and does so in a way that strengthens the identity of both existing streets and, as noted, two existing old structures. With a rambling two-story scale, and the subtle repetition of pitched-roof elements, the Cummins headquarters would exhibit the sureness and serenity of a contemporary Katsura.



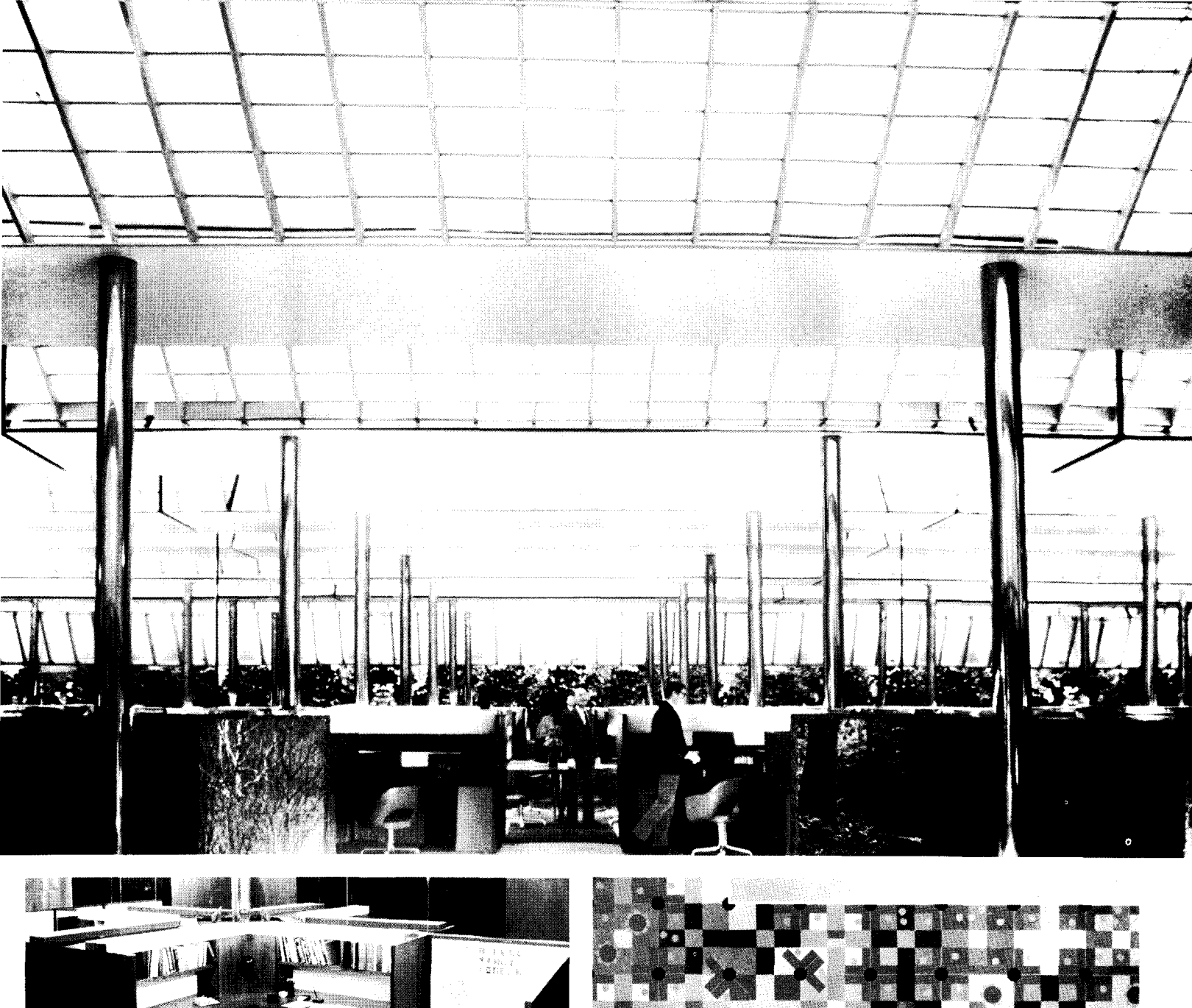
Site Plan

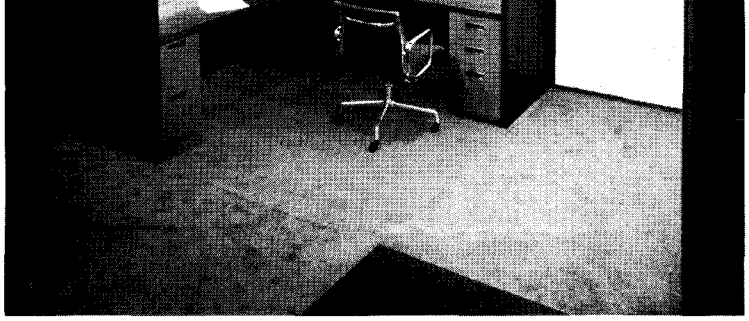


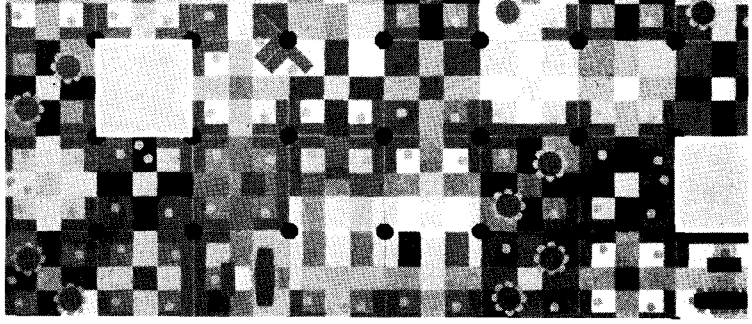
Second Floor Plan



Section



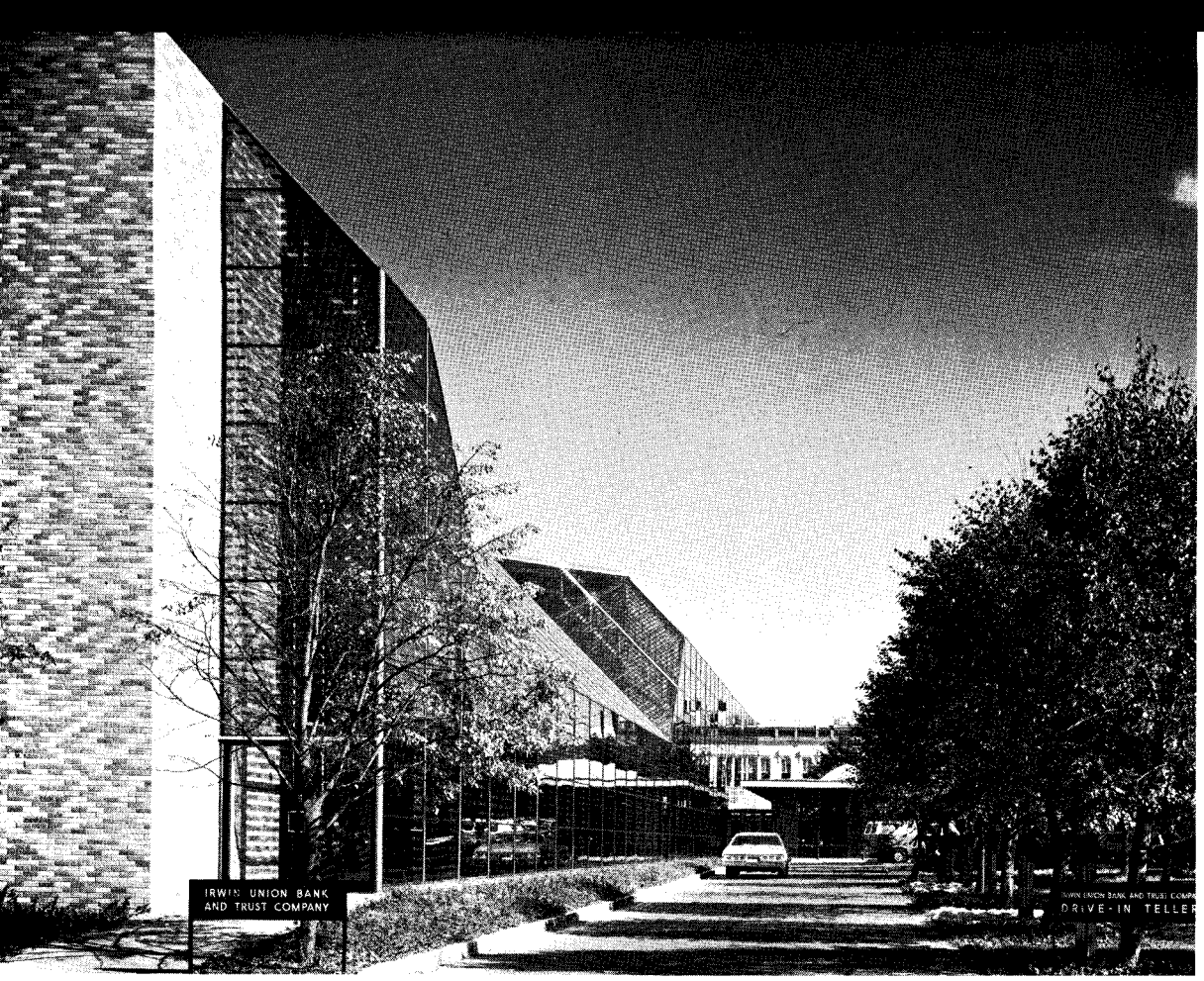


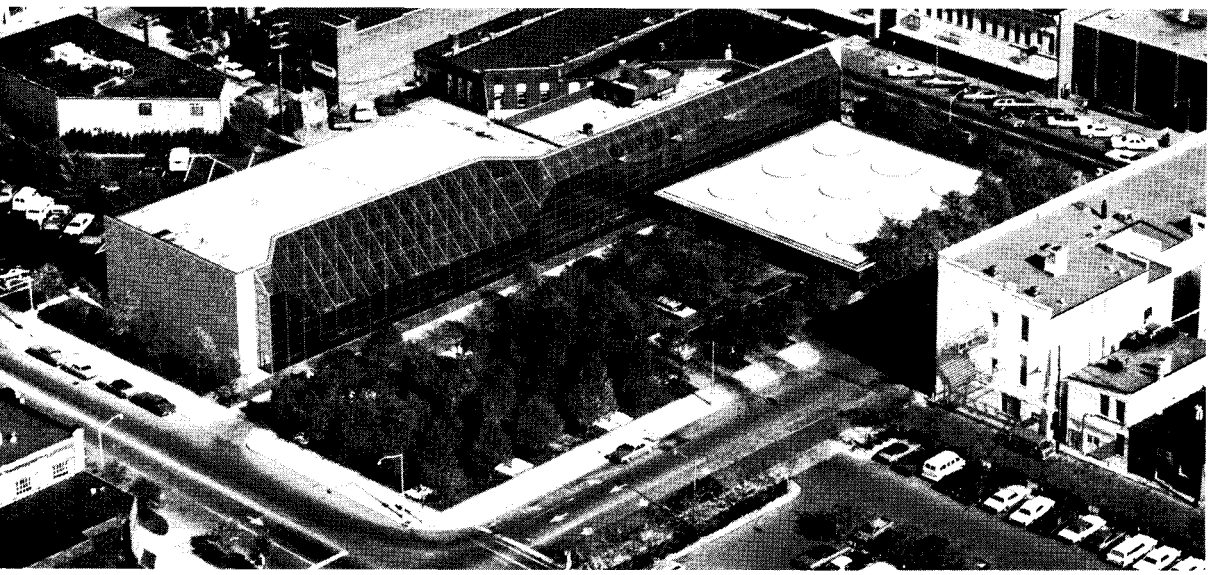


Again an office landscape system appears in their scheme, this time with work stations based on four desks around a column. Roche-Dinkeloo has spent a good deal of time researching and planning these, as the actual size mock-up shows (photo, above).

The arrangement, as now organized, would create four-person modular work areas, separated by 57½-inch-high wood partitions. As in their schemes, the interiors of the partitions would be carpeted to match the floors. As the mosaic pattern (above, right) indicates, each work area could have a different color carpet to personalize the individual work spaces.

Desks are grouped around the structural columns (model photo, top), with corners beveled to accommodate wiring for phones and electricity. The fluorescent light fixture is designed to diffuse light upward as well as downward.





IRWIN UNION BANK AND TRUST ADDITION

When Irwin Miller commissioned Roche-Dinkeloo to design the addition to the Irwin Union Bank and Trust building which Eero Saarinen built in 1954, the architects turned to glass to thematically relate the two structures. Since the site is through-block, the glass galleria acts as an enclosed public pass-through to the Roche-Dinkeloo Post Office behind. For the most part the galleria overlooks a park and the drive-in facility they designed several years ago for the rear of the original bank (photos, left and top).

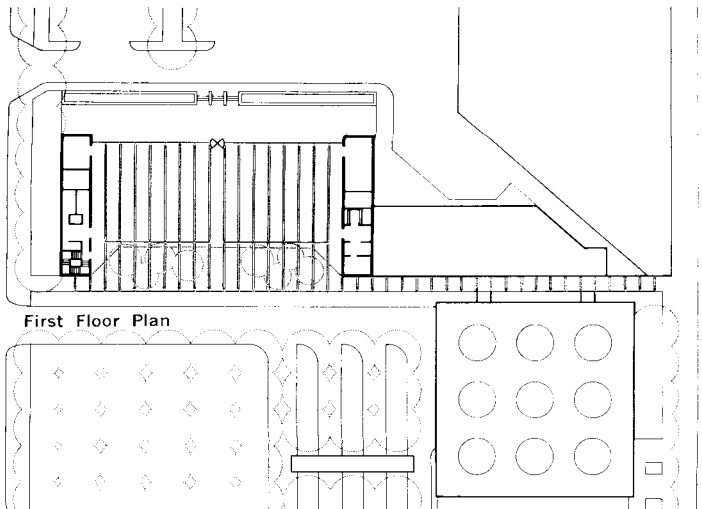
To keep the sunload in the south-facing galleria at a reasonably comfortable level, the architects have used laminated glass panels that combine strips of metal deposit mirrored glass with green tinted glass (photo right).

Meanwhile on the opposite side of the building, the glazed wall is protected only by a metal trellis (photo, page 56) on which wisteria and trumpet vines will grow, apparently the only protection needed for the north-facing wall.

Prospective clients may enter the 50 by 122-foot banking room of the 44,618-sq.-ft. building by either the galleria or the trellised patio (which will also be used for exhibits and bake sales in warm weather). Ceilings inside the new building are low—12 feet high floor-to-floor, allowing the three-story bank to retain the scale of adjoining 19th Century buildings. Therefore, to augment the banking room space, the steel beams and trusses were left exposed, with acoustical finishes lining the concrete slab between the trusses. Open fixtures of fluorescent light are attached to the bottom chord of the truss to diffuse light upward and downward (photo, page 57, top).

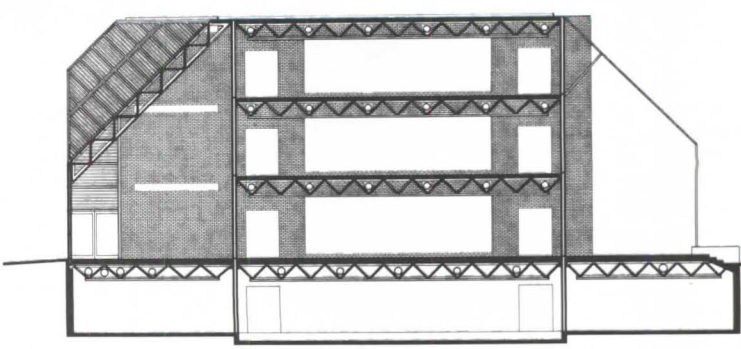
The banking floors were kept column-free on the interior by placing two load-bearing structural cores containing stairs, elevators and toilets at either end (photo, page 57 top) with supplementary steel columns along the periphery of the long walls.

A grey brick was chosen to cover concrete core walls inside and out: this same brick had been originally chosen to surface the side wall of an older building facing the Saarinen bank, now part of the narrowest portion of the galleria.

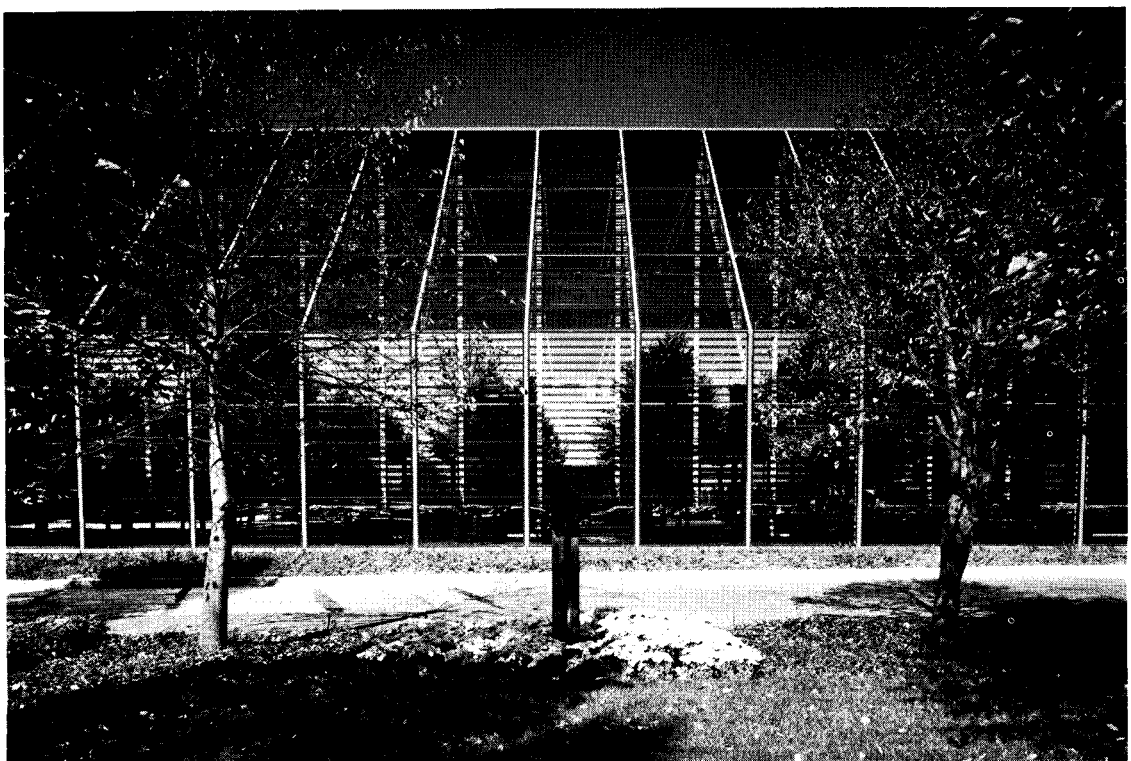


First Floor Plan

A metal trellis (above), on the north elevation of the bank building, will carry trumpet vines and wisteria, forming an enclosed outdoor space for warm-weather activities. The main banking floors (opposite, top), are free of interior columns since the structural loads are carried by concrete cores at either end with steel columns along the periphery to support the exposed trusses and beams. Open fixtures of fluorescent light are attached to the bottom chord of the trusses to diffuse light upward and downward. Fifty-two inch high wood and carpeted partitions again separate office areas to enhance openness. Trusses from the banking floors extend out into the galleria to form buttress-like supports for the glazed arcade. Brick paving covers public walkways, while carpeting has been used in the actual banking areas.



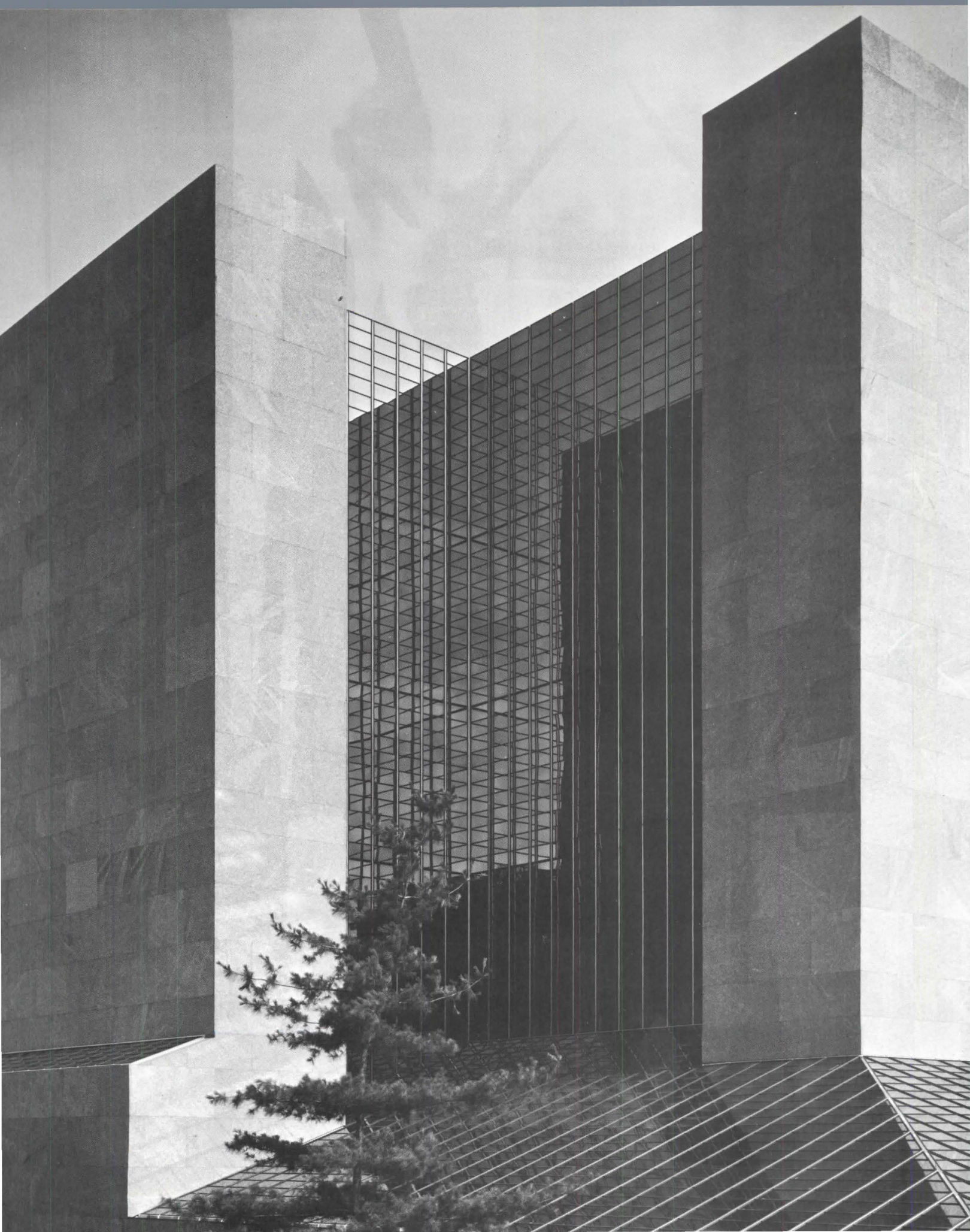
Transverse Section



FACTS AND FIGURES

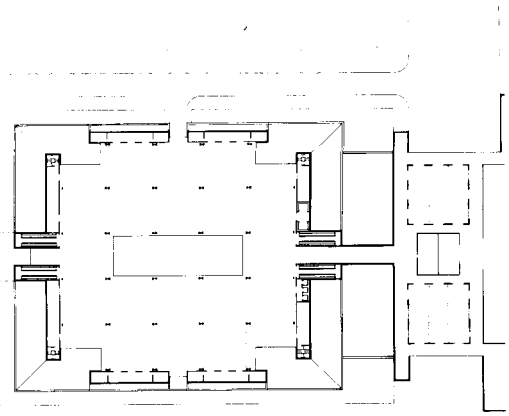
Irwin Union Bank and Trust—Addition. 500 Washington Street, Columbus, Indiana. Owner: Irwin Union Realty Corporation. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Pfisterer Tor and Associates (structural); John L. Altieri Consulting Engineers (mechanical); John L. Altieri Consulting Engineers (electrical). Contractors: Taylor Brothers Construction Company, Inc. (general); Pardieck Mechanical Services, Inc. (mechanical); L & L Electric Services, Inc. (electrical); Brooks Plate Glass Company, Inc. (other). Building area: 44,818 sq. ft. (For a listing of key products used in this building, see p. 94.)

PHOTOGRAPHS: Pages 46, 47, Balthazar Korab; page 50 (bottom), Suzanne Stephens; all others, Copyright Yukio Futagawa.

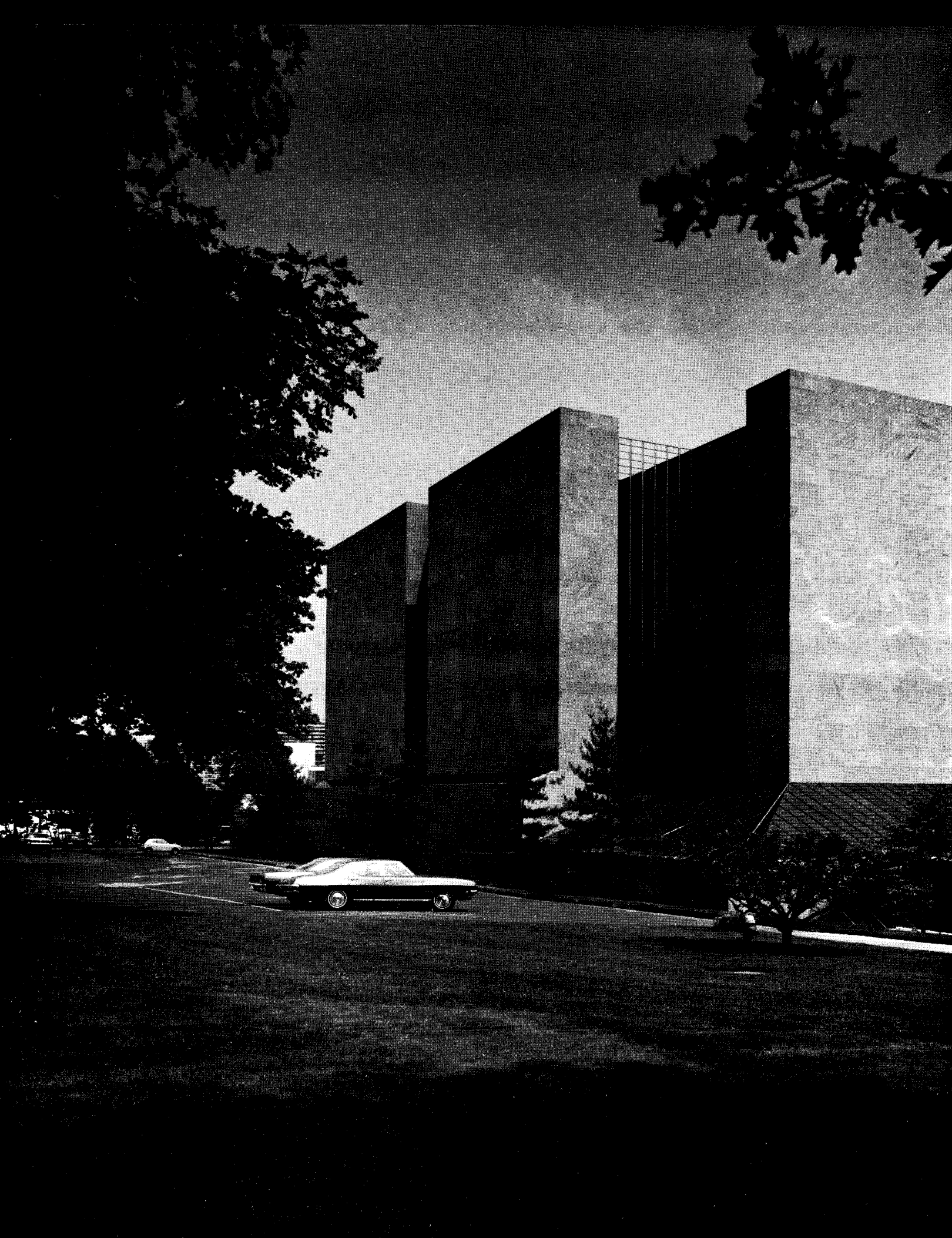


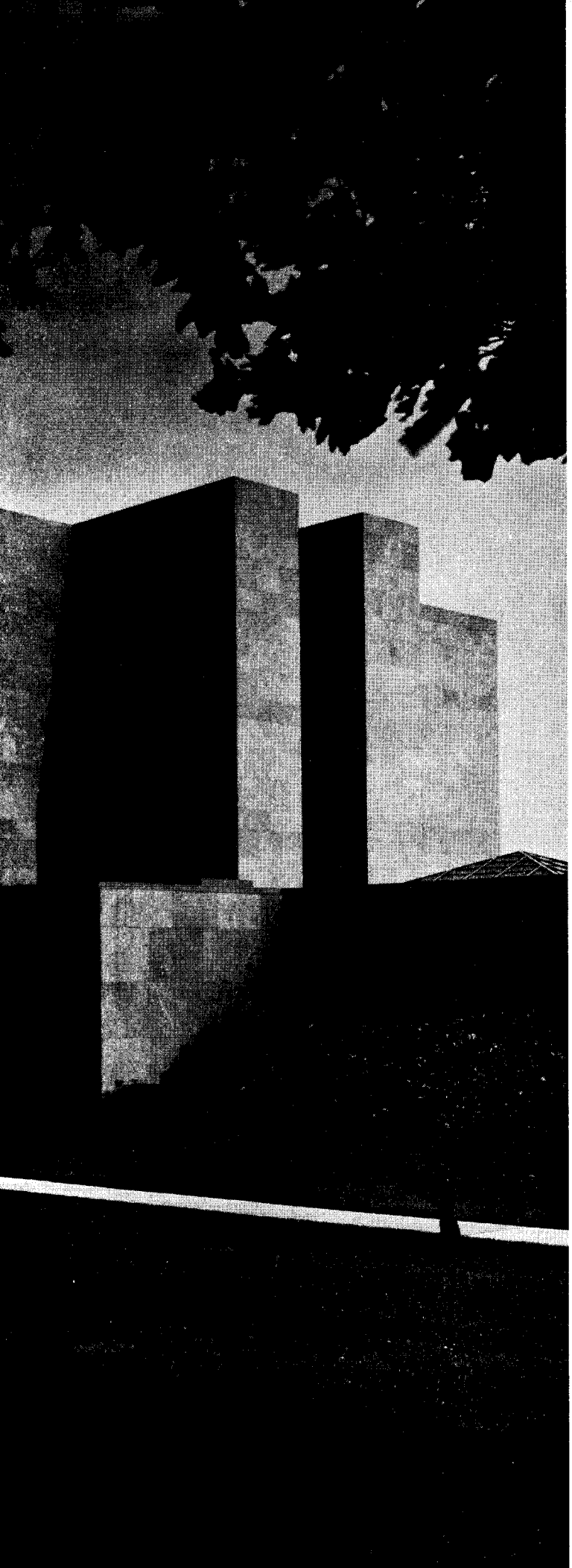
TOWN AND COUNTRY

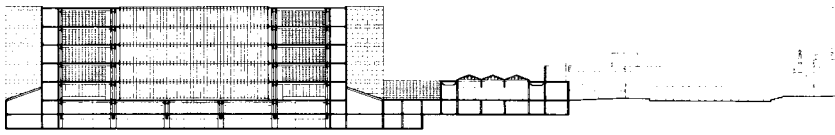
Two companies set their sites on a working environment

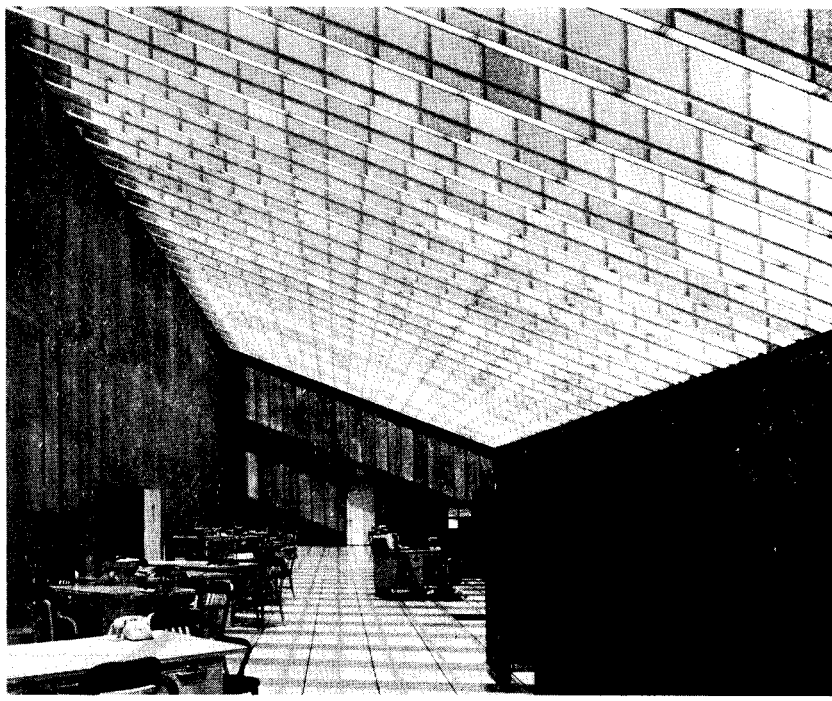


The Aetna Life Insurance Company Computer Center, Hartford, Connecticut, is a seven-story (two below grade), 747,000-square-foot structure of concrete with granite cladding on the exterior walls. Its 364 x 307 foot base contains three floors of computers and related activity, above which rise great sheets of reflective glass skylight to form a setback for the four upper floors containing 440,000 square feet of offices. These floors are lit by a 6,700-square-foot central court and, on the outside, by more reflective glass at the corners and at the center-point of each wall. A 22,000-square-foot cafeteria for the 3,000 or so employees is encased below the court, surrounded by a regiment of massive concrete columns which, in turn, compose the 52-foot structural bay. The columns support a criss-cross system of double concrete girders (see plan, section) and, bridging them, concrete beams. Overall, the building gives a first impression of being impervious to its surroundings, even introverted. In actuality, the slanting skylights, windows (both mounted in ladder-gaskets) and court lend considerable openness and movement, with space alternately encased and released as you move through the building. Externally, it is carefully posed in the environment. A highway runs along one side, and the building turns suitably inward—an armature against traffic, noise and fumes. On the other hand, the building's geometry, together with the granite, create a civil, if assertive, connection with Aetna's adjacent office building of neo-Colonial design. This job can be grouped with other Roche-Dinkeloo compositions of load-bearing concrete structure with reflective glass skin: College Life (page 26), the Metropolitan Museum expansion (page 42), and the Worcester Bank (page 32). Its contrapuntal surfaces of glass, most markedly the shed-style skylights, also relate to the greenhouse tradition, discussed by Ludwig Glaeser (page 76).



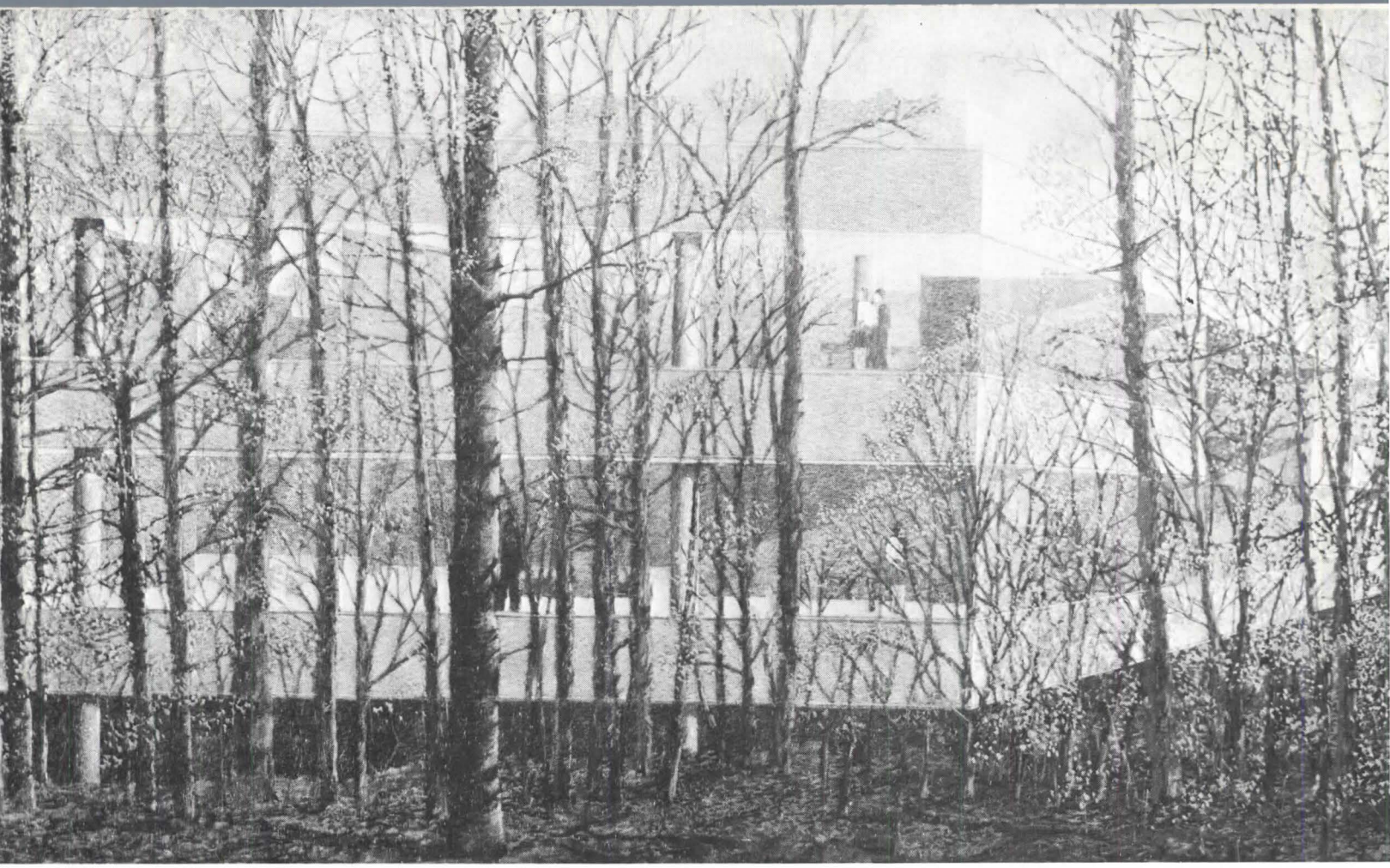


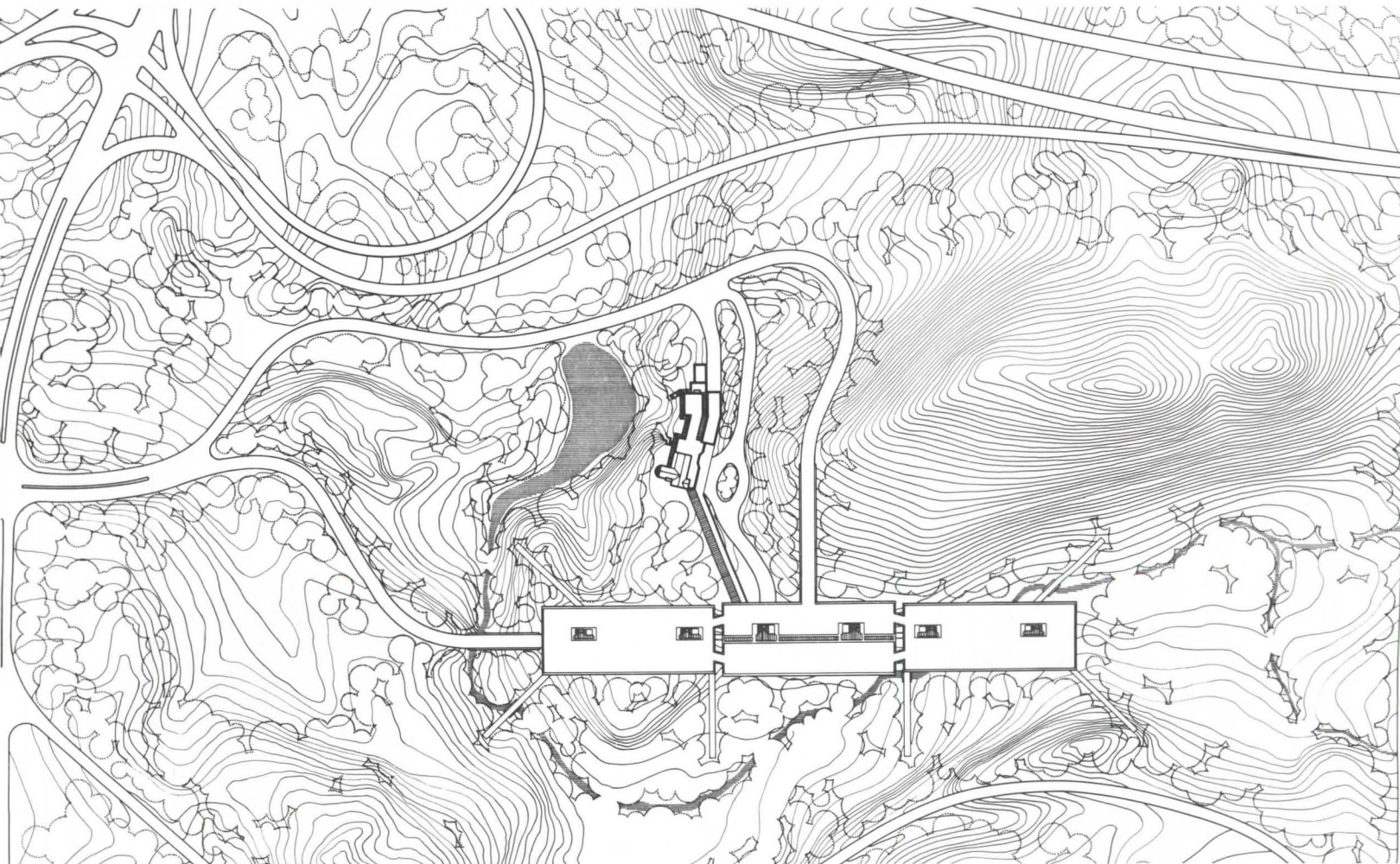


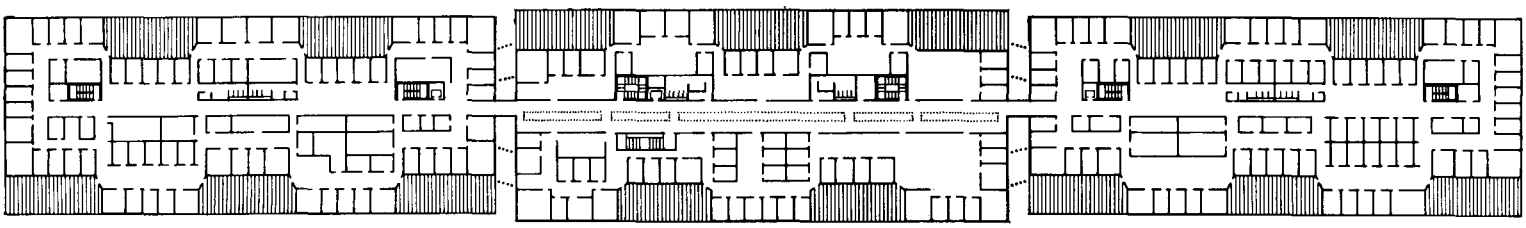


FACTS AND FIGURES

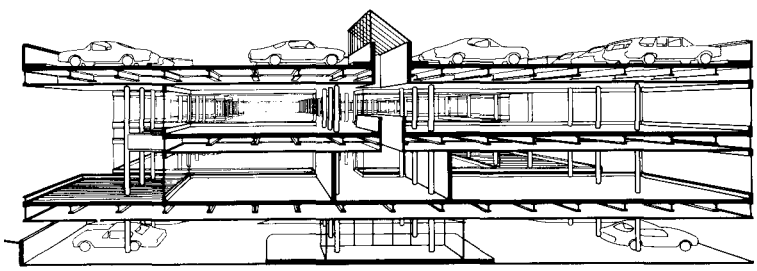
Aetna Life Insurance Building, 151 Farmington Avenue, Hartford, Connecticut. Owner: Aetna Life Insurance Company. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Severud Associates (structural); Cosentini Associates (mechanical); Cosentini Associates (electrical). Contractors: McCloskey and Company (general); C.N. Flagg & Company, Inc. (mechanical); J.F. Langan, Inc. (electrical). Building area: 750,261 sq. ft. (For a listing of key products used in this building, see p. 94.)







The Richardson-Merrell Headquarters, Wilton, Connecticut, will be completed this August. Located in the woody midst of a rolling 57-acre site, the 196,500-sq.-ft. weathering steel structure, its two office floors measuring 120 by 812 feet, consists of 12-inch-diameter double tubular fireproofed columns, with steel beams supporting concrete slabs on metal decking. In deference to the site, parking is suppressed directly below the building, partially below grade, while a second parking level is located on the roof, concealed by parapets. Reflective glass angular skylights admit light through a well into the office floor corridors which are, in turn, experienced more as esplanades than as mere hallways. Reaching out through the landscape from the headquarters is a 210-foot greenhouse connector, linking up with an existing house nearby, around which new employee dining and lounge areas have been created. In a period of corporate pilgrimage to suburban and rural areas, the Richardson-Merrell job, its setting enhanced by brooks and ponds, attains presence in the landscape without imposing. In any office, the views will be part of daily activity, with trees no more than 15 feet away. And unlike too many examples of the countrified corporation, this one will not find itself in the middle of a parking lot.



FACTS AND FIGURES

Richardson-Merrell Corporate Headquarters Building. Wilton, Connecticut. Owner: Richardson-Merrell, Inc. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Severud Associates (structural); Cosentini Associates (mechanical); Cosentini Associates (electrical). Contractors: Edwin Moss and Son, Inc. (general); Bridgeport Pipe Engineering Company, Inc. (mechanical); Ducci Electric Company, Inc. (electrical). Total Building area: 196,455 sq. ft. (Office Building, 176,805 sq. ft.; Cafeteria Building, 14,891 sq. ft.; Connector 4,759 sq. ft.) (For a listing of key products used in this building, see p. 94.)

It happened all over America. The arts finally came into their own. Drama, music, painting and sculpture grew from outer fringe university departments to center stage stars of the culture happy sixties. The arts gained a prestige and mass audience they had not experienced since the great museum building days at the turn of the century. Then culture was a Sunday commodity, but by the sixties it was big business. When American Abstract Expressionism and Pop were bought in Europe, we suddenly had arrived.

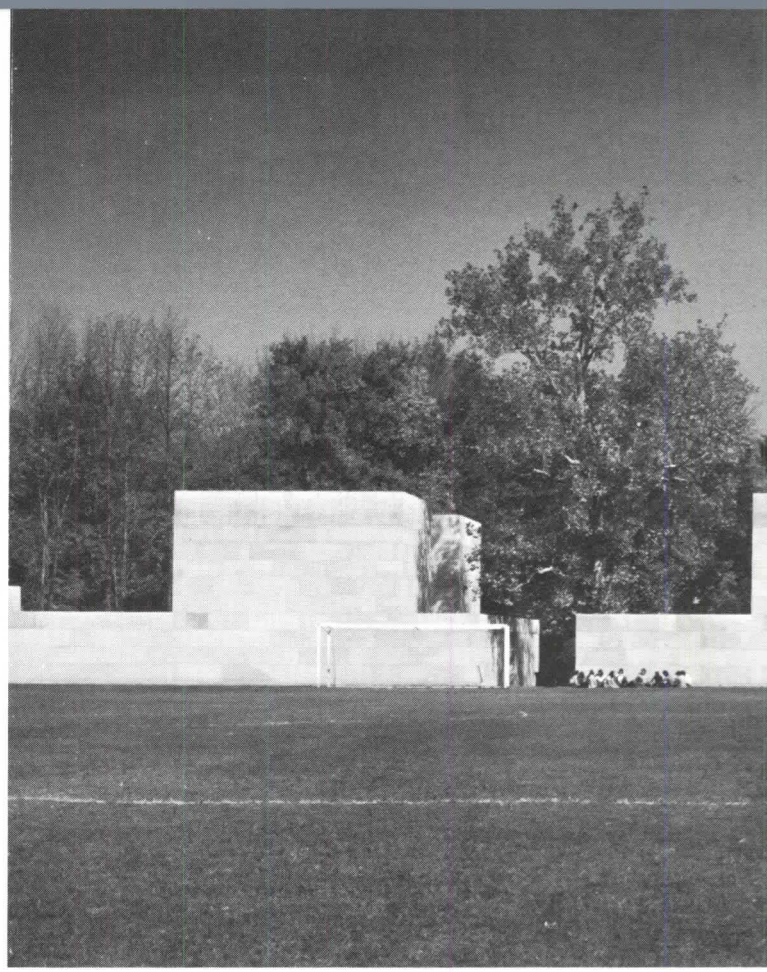
The Beatles and macrame stretched from coast to coast. Andy Warhol's "Jackie" and Jasper Johns' "Love" reproductions covered dorm walls and cocktail napkins from Bangor to Fresno.

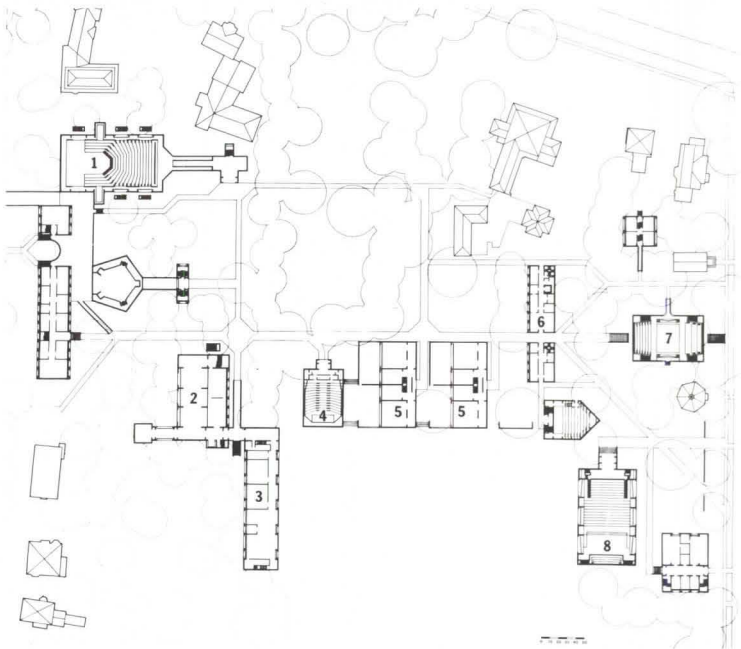
Then the money came. Trustees, alumni and state legislatures opted for art centers the way they had for cyclotrons in the fifties. Sputnik was out and Joan Baez in. Now we are on a downer—low profiling it out. But the momentum of the sixties culture spree has sprinkled the American landscape with creative arts facilities that would make Leonardo or Picasso reel. Probably in no other time in history has so much money been spent on arts buildings.

Unique about the sacred groves' new centers for the arts is the fact they serve parts of the country which otherwise could not have performing or educational facilities of this scale. If superb studios, theaters, concert halls and recording studios can give academia a Periclean age in the arts, these by Roche and Dinkeloo certainly should. The Power Center for the Performing Arts at the University of Michigan; The Center for the Arts at Wesleyan; and the Fine Arts Center at the Amherst campus of the University of Massachusetts—are temples to the performing arts.

SACRED GROVES

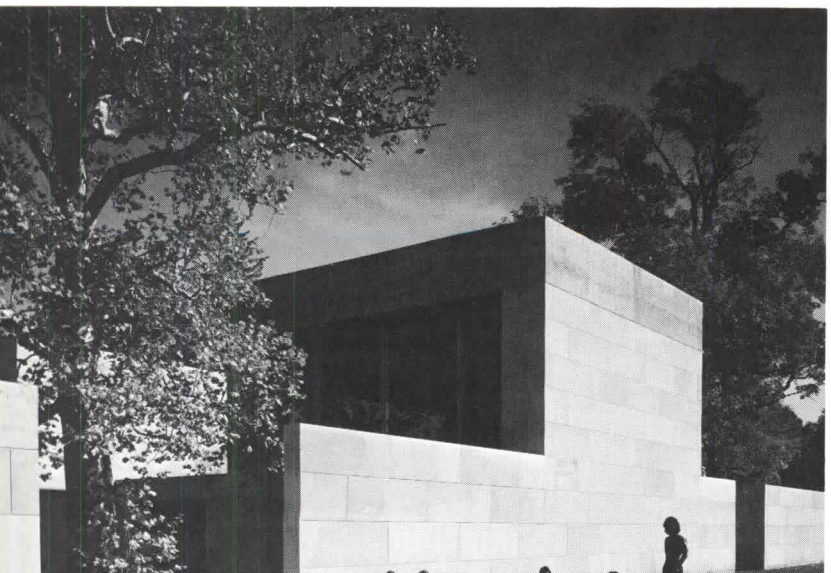
THREE UNIVERSITY FINE ART CENTERS





Forming the northern boundary of the playing field is the graphics workshop (3) and the 20,000 square foot Wesleyan Art Gallery (2) overlooking the playing field. At the center of the spine is the 414 seat Cinema Hall (4) with 16 mm and 35 mm projectors and screens for multi-media events. Flanking that are the studios and faculty offices of the Art (5) and Music (6) departments. Undergraduate painting and sculpture studios (5) are prismatic double cubes with two-story window walls facing the north walled courtyards which serve as additional studio space in the warm weather.

In the continental style 548 seat theater (1) Roche has broken with several established traditions. The 23,700 square foot theater and stage are a single room with a continuous metal grid near the ceiling for lighting systems. A flexible system of movable panels permits the combined thrust-proscenium stage to be converted into a theater-in-the-round. Large windows with motor operated blinds look out onto the grove. As the house lights dim, the blinds close and at intermission re-open. As at the Power Center at Michigan, the lighting control booth is at the rear of the house and visible to the audience as they enter. The Gamelon (7) and Recital Hall (8) are far right.



WESLEYAN CENTER FOR THE ARTS

In 1829 Wesleyan University was founded in Middletown, Connecticut as a Methodist college for the preparation of young men for the ministry, the law, medicine and the other professions. In the 145 years since, it has retained a small scale, rather like that of a spacious country manor as much as that of an important educational plant. Today its student body numbers only 2,400, but its endownment has grown from an original $40,000 to over $151 million, making it one of the wealthiest private schools in the United States.

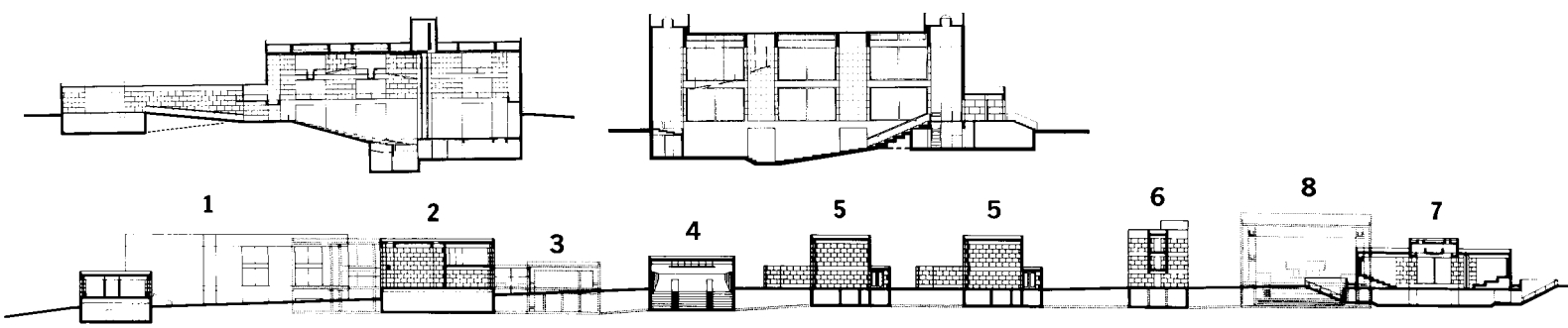
Since World War II, the arts have held an increasingly strong position in the curriculum. During the fifties and sixties all students were required to participate in at least one of the humanities workshops which involved actual practice in the arts. Today 20 percent enroll in the arts program.

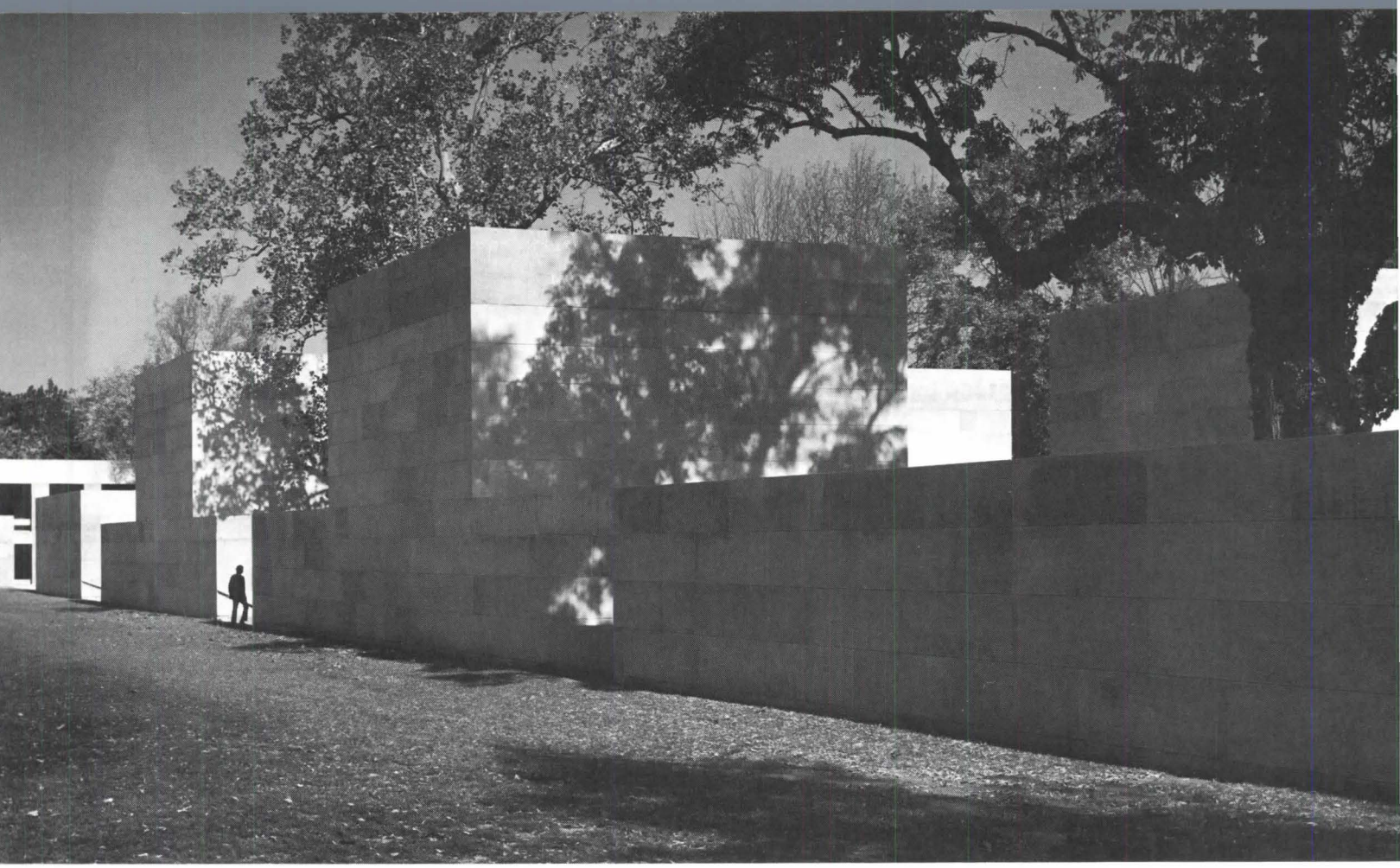
Before the Center for the Arts was constructed, courses in the visual arts were held in the Davison Art Center, an elegant antebellum residence which had been added to over the years. Small converted commercial spaces at the edge of the campus took up the slack, but it became increasingly evident by 1965 that an adequate up-to-date facility for art, drama and music would have to be provided. In that year, a committee of arts faculty was established to find an architectural firm which could undertake this project. The firm would be chosen on the criteria that it must be responsive to the functional requirements, the spirit of the creative arts program at Wesleyan, and would interpret the program in the closest possible collaboration with the committee. Another requirement was that it be a medium-size architectural office in which close contact between the designer and the arts committee would continue throughout design and construction. Finally, and possibly of greatest importance, was the requirement that the design be characterized by adaptability to the site and program; and that the designer's style be free not only of superficial aspects which might "date" the work in the future, but also free of personal idiosyncracy or pre-conceived theories. Kevin Roche—John Dinkeloo Associates met these requirements for the $11.8-million complex.

The site of the Creative Arts Center is unique: an evenly wooded six-acre grove behind small neo-classic 19th Century residences, many of which house so-called secret societies: curious undergraduate organizations which evolved in that period from literary groups or, as at Yale, from eating clubs. Since the members can never reveal the rituals, we must presume they are a cross between Freemason mysteries and Boy Scout meetings.

To one side of the grove is a large playing field which had to remain inviolate. Wesleyan wanted to preserve the magnificent hemlocks, beeches and sycamores as much as possible.

Early in the initial design phase, Roche-Dinkeloo settled on



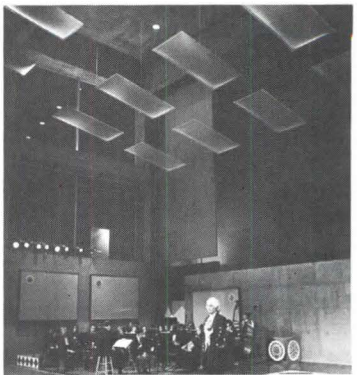


a series of small separate buildings, or clusters of buildings, for art, drama and music which would be interspersed in the grove beside a walk parallel to the playing field—this to maintain the small scale of the houses, and to retain the pristine formal relationship of lawn meeting the walls of the buildings reminiscent of New England school houses. Customary broad stairways and plazas were omitted to enhance the juxtaposition of ground to wall.

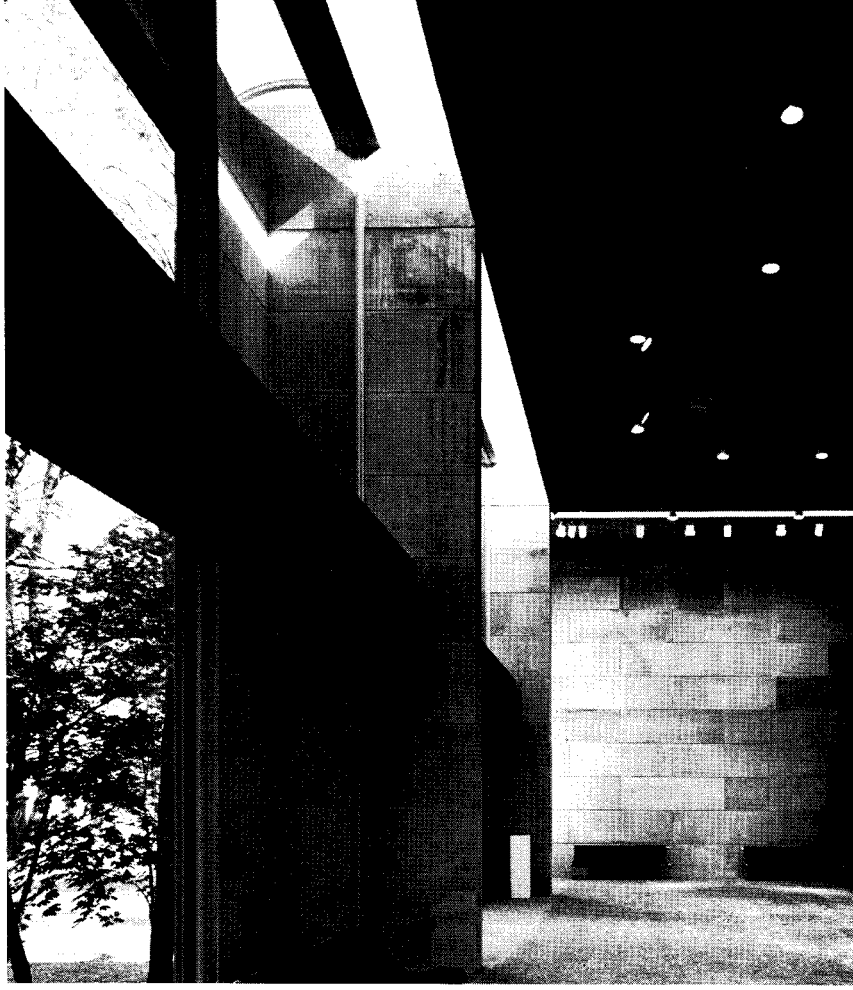
To keep the mass of the larger buildings—the Recital Hall, Gamelon Hall and Theater—down to the desired scale in the landscape, Roche set them partly underground, at the edge of the grove, both for ease of excavation and to preserve the tranquility of the woods. To meet objections of some of the faculty and students—that going outside from building to building was a problem in winter—Roche inserted a corridor beneath the walk.

Preservation of the trees imposed a design and construction method on the architects. Instead of a basement for the smaller buildings in the grove, a series of individual pier foundations are used for the walls, with concrete slab spanning between the foundations. Initially Roche planned to use an aggregate concrete block of a standard module: three feet-eight inches by two feet-six inches by 14 inches. The module stayed, but the material was changed to limestone due to competitive cost of limestone and concrete block at that time. This brought a whole new range of textural and formal values into play. Concrete as a spanning element is expressed both internally and externally, and it enhances the delicate variation in color and hue of the limestone walls. The small size of the blocks consciously or unconsciously strengthens the classicizing tendency already inherent in the overall conception of the site-to-building relationship, recalling the temples at Delphi. The walk reinforces a sense of procession moving from the theater complex to the arts studios and the music buildings (or from temple to temple). Each building is a prismatic cube, isolated and serene. The formal purity heightens an awareness of nature in the same way a Greek temple does. To enhance the experience, Roche went so far as to have a limestone gateway wall constructed along the walk to the Recital Hall, blocking out a group of buildings across Wyllys Avenue which clashed with its form and material.

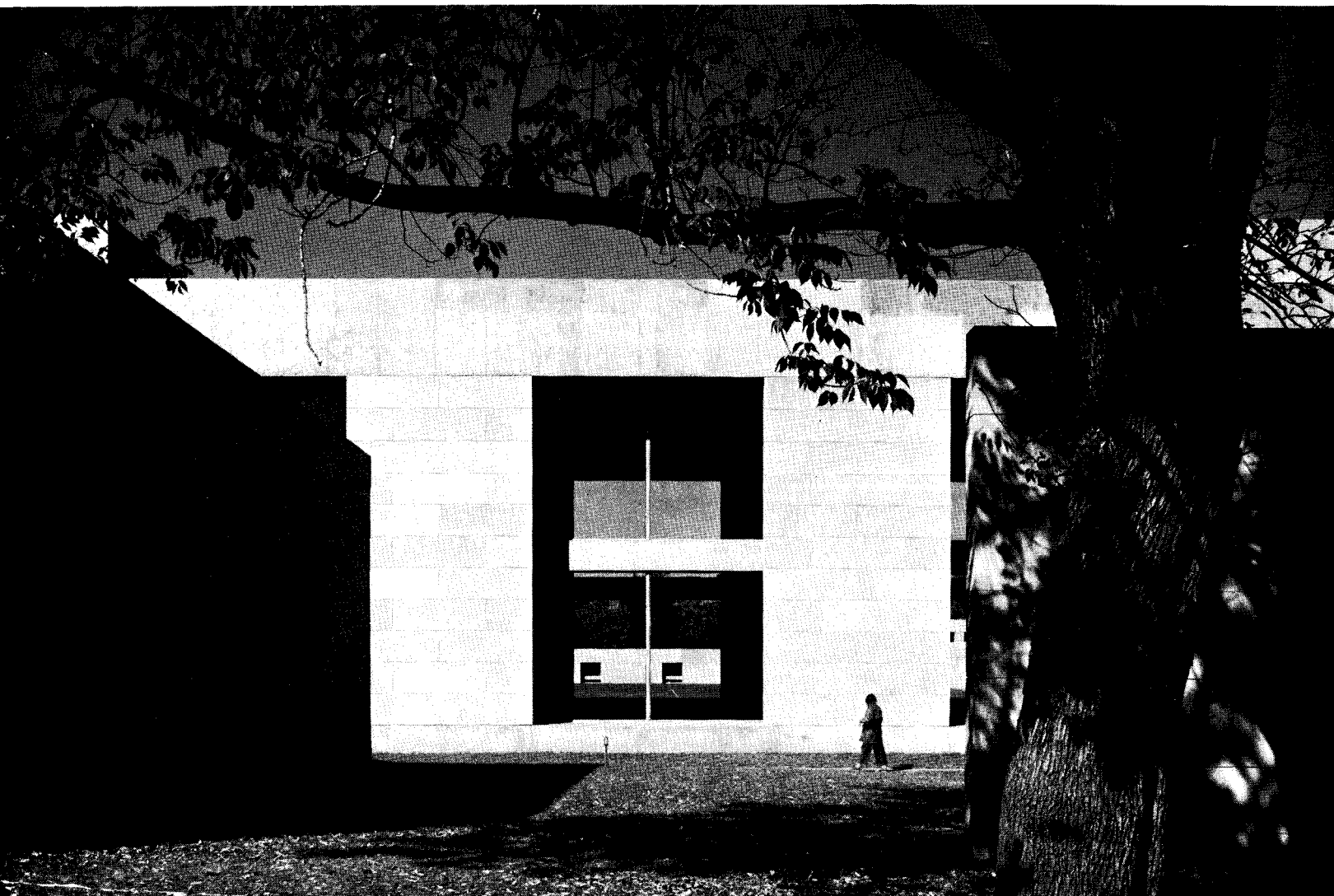
The Arts Center for Wesleyan unquestionably creates the most consistently classical environment in America since the Federalist period. Not the classicism of Washington or its inversion—potted Palladianism, but a classical sense of construction, materials, proportions and procession. Without the iconographical image-trigger of perverted pediments or misplaced metopes, he has taken up the classic tradition and, like a latterday Thomas Jefferson, given it both functional and symbolic presence.

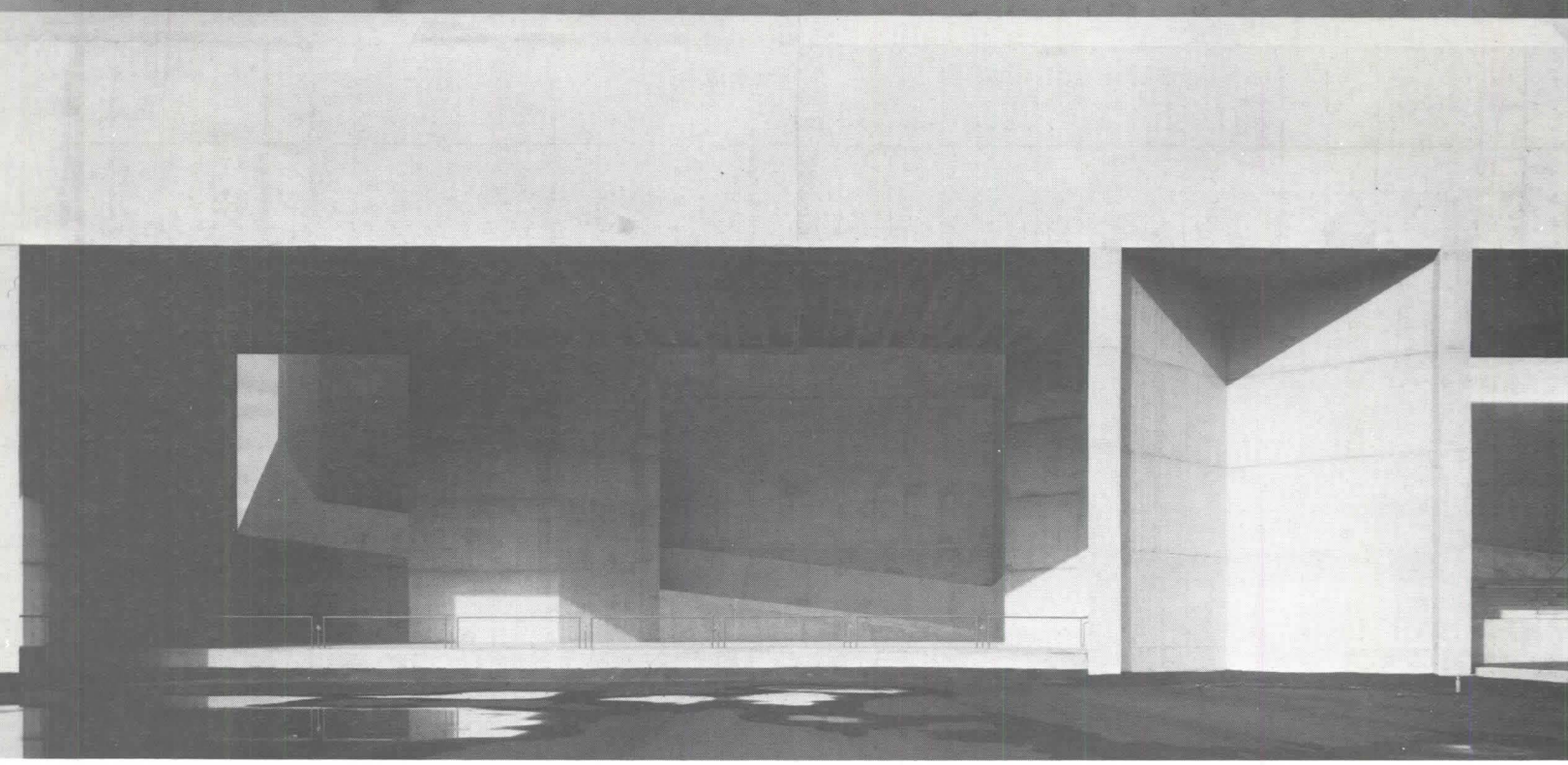


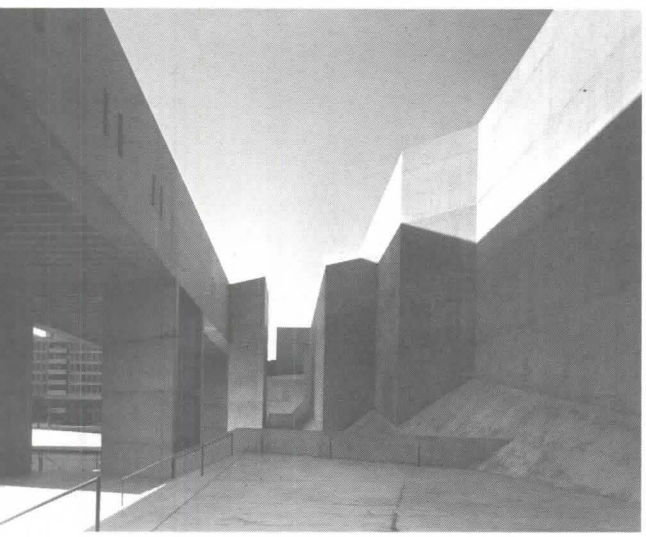
An Indonesian gamelan orchestra is housed in the 10,000 square foot Gamelan Hall (7). The tuned gongs and metallophones which produce a subdued and homogenous tone when struck with padded hammers are arranged on three broad steps at one end of the hall. Across the center oak floor are carpeted and pillowed step-seats for the audience. An acoustically curved concrete beam spanning the hall is sonically reinforced by the angle of the windows below.

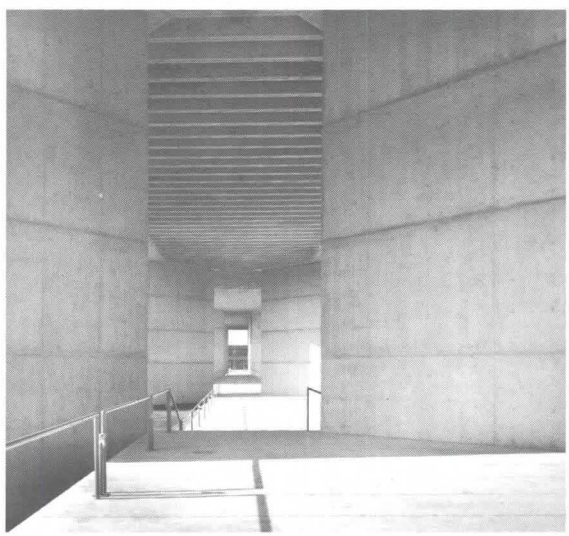


Above is a view of the acoustically curved beam spanning the center of the Gamelan Hall. The angled windows below it act as acoustical resonators. To the right is the interior of the 4100 square foot main exhibition space of the Art Gallery. Above the entrance is a seminar room overlooking the gallery. A second smaller gallery lighted only by an oculus is linked to the main exhibition space by a glazed colonnade.









An interplay of sculptural forms dominates the relationship of the studio bridge to the pass-through between the theater and auditorium. The studio bridge serves as a vast canopy leading to the theater and auditorium. It is also a colonnade or stoa linking the humanities and science sides of the campus. Beyond these functions it is the symbolic gateway to the heart of the university.

UMASS FINE ARTS CENTER AT AMHERST

The problem faced at the Amherst campus of the University of Massachusetts was not subtle integration of new facilities within a setting of 19th Century gems, but to interweave a scattered melange of strong architectural statements of the last 20 years.

The University of Massachusetts had 4,000 students in 1954 and, by 1972, 28,000. This overwhelming increase—part of the national education explosion—converted the cozy agricultural school, nestled in the Berkshires, into a sprawling over-extended educa-polis.

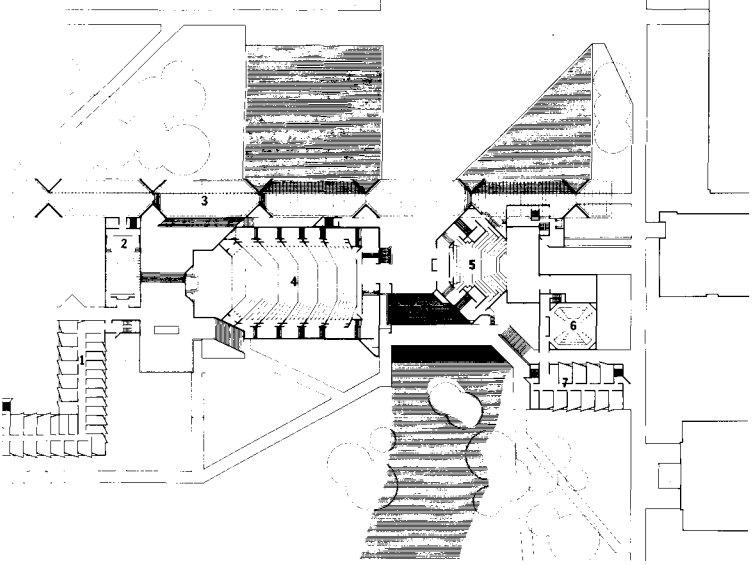
Sasaki, Dawson, DeMay Associates attempted to bring some semblance of order to this confusion in their master plan of 1962. Hideo Sasaki recommended strengthening the planning process: "first formulating a complete development program based on a strong statement of educational policy; second, by clearly defining the planning structure of the university.

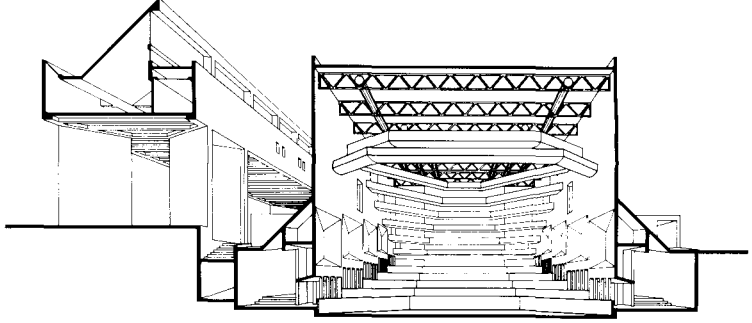
In the 200-acre campus, "order" grew around a duck pond. Sasaki proposed establishing a ceremonial mall (a sort of Boston Commonwealth Avenue) linking North Handley Road—the main artery into the campus—to the duck pond framed by Edward Durell Stone's 25-story University Library and Marcel Breuer's 10-story Continuing Education Center. Around these new large-scale buildings are a sprinkling of period pieces from the 1870's to the early 1950's.

Roche-Dinkeloo's Fine Arts Center not only has to bind together this architectural smorgasbord around the duck pond and its scrubby park, but relate it to the new mall and make a symbolic link between the sciences and humanities.

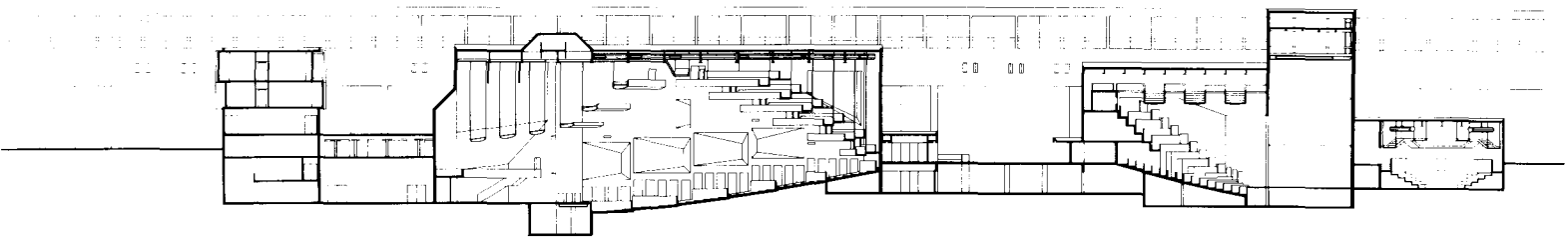
To one side of the mall is the four-story white reinforced concrete Administration Building by Campbell, Aldrich and Nulty and, on the opposite side, is the low red brick School of Business Administration. To meet these site problems—and the needs of the art, drama and music departments in the new Fine Arts Center—Roche proposed a relatively low linear megastructure, and a cluster of buildings, framing views of the pond from the mall. A continuous 646-foot reinforced concrete bridge supported by "V" shaped pilotis contains the undergraduate art studios. This megastructure frames the main pass-through to the duck pond. On the left side of the pass-through is the 700-seat theater and on the right side is the 2,200-seat auditorium—beneath is the art gallery. To reinforce the relationship of the mall to the duck pond, and to ceremonially prepare for it, two reflecting basins flank the mall promenade to the pass-through. Beyond supporting the north-facing studios, the bridge forms an open-air colonnade, or stoa, facing on the mall, linking the science and humanities sides.

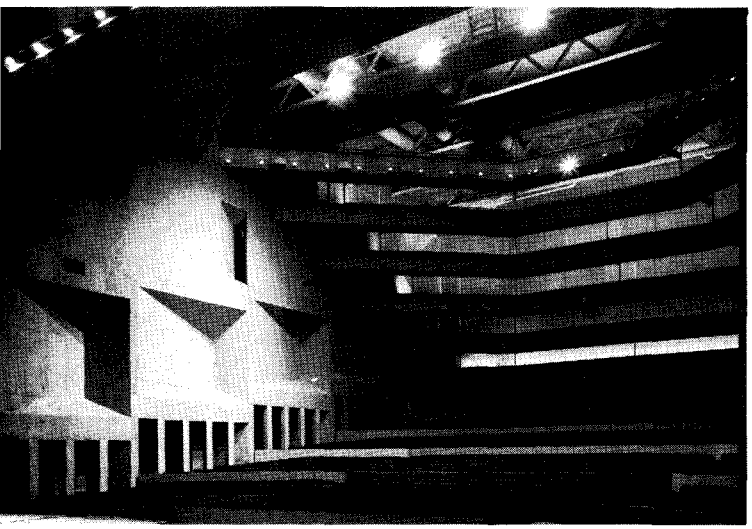
From Breuer's Continuing Ed-

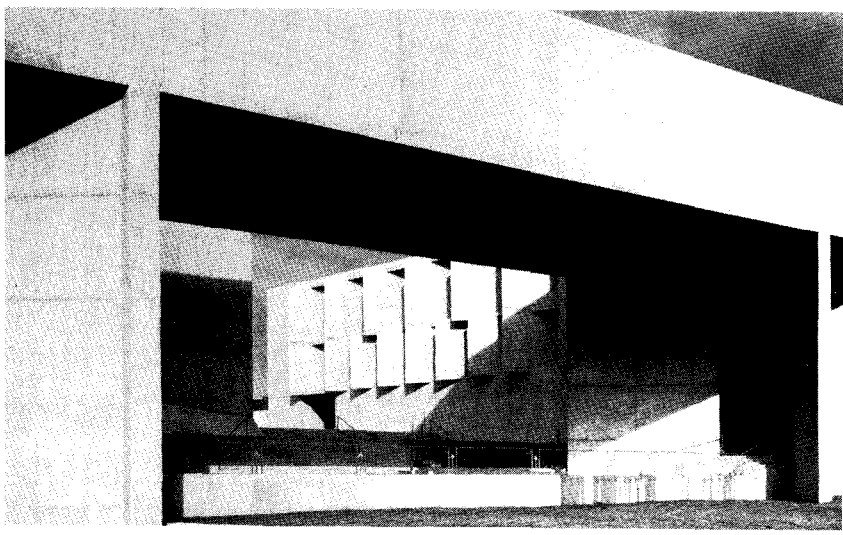




Faculty studios (1), the studio bridge (3), and the drama department (7) frame the small 221 seat recital hall (2), vast 2,029 seat auditorium (4) and the 668 seat theater (5). The dramatic reverse tiering of the auditorium balconies is accomplished by hanging them from the main trusses of the roof. Three tiers of sound baffles and lighting catwalks rise from the proscenium of the auditorium to frame a central octagonal lighting platform. The concrete walls of the auditorium are acoustically faceted. In the theater, continental style seats and banquettes are steeply banked and upholstered in the orange of the carpet, picking up the atmosphere of the lobby lighted by Charlie bulbs. A studio theater (6) has bleacher seats entered from a continuous gallery above an X plan catwalk facilitating rapid lighting changes.







ucation Center across the pond, the main theater, concert hall, studio theater and lecture building—17 classrooms, 75 laboratory/studios and 56 faculty offices—are a series of semi-independent buildings. Their faceted white concrete surfaces capture the sun like the peaks of a mountain chain illuminated and defined as the sun moves across the sky. As Roche said, "We tried to design a sun machine."

This $13.8 million arts center was designed to serve the university community and the two million people of the Connecticut River basin—at least in terms of theater and music. To facilitate the access to public areas, and to keep studios and laboratories separate, Roche has used the same concept he applied in Wesleyan (page 65): breaking down grouped functions into independent or semi-independent buildings. The studio bridge is a vast canopy for the theater and concert hall —the ceremonial entrance. The attending work facilities—studios, lecture rooms, offices and shops—are grouped at either end of the Fine Arts Center and *in* the bridge. They frame the big public events as they frame the pond. And the smaller scale of the wings ties the Center into the architectural ambience.

In Wesleyan, the rectilinear nature of each building is sharply defined to isolate each form. In the Fine Arts Center, Roche-Dinkeloo reminisce about Eero Saarinen's San Gimignano-esque grouping of Morris and Stiles Colleges at Yale, and their own road-bridge Coliseum at New Haven (page 36). Confronting the insistent rhythm of the skylights of the art studio bridge are the picturesque, shifting forms of the theater and auditorium. Each system is brought into relief, but they comfortably co-exist. Crucial to this co-existence are the "V" politis supporting the studio bridge. Their form and the long intervals between them prepare for the pond side of the Center. The whole of the building is in a constant state of self-revelation as you move around it. Suggestive glimpses prepare for sequences of form only partially revealed. You can never get a comprehensive view of the total building complex even though each of the primary facades can be seen as a composition from either the mall or Breuer's Continuing Education Center. Forms only partly glimpsed—these give the Arts Center its mystery.

Like a magical coin, the obverse side, toward the mall, is classical in nature; the reverse side, toward the pond, is almost wholly romantic. Because you can not visually separate one side from the other, and because each intermittently suggests the presence of the other, they evince special tension—saying, among other things, that while the classical and romantic *traditions may* be different roads to the same Rome, intersections *are* possible and constitute yet another tradition.

POWER CENTER FOR THE PERFORMING ARTS

When Robert Schnitzer and Marcella Cisney, his wife, went to the University of Michigan at Ann Arbor, their goal was to create a pilot project in the professional theater that would become a model for the rest of the country. During their twelve years at Michigan, the Schnitzers produced more than 125 plays including 23 sent to New York for Broadway and off-Broadway production. In 1964 the Power family, long time patrons of the theater at Michigan, contributed $3 million for construction of the professional theater, and the University another $½ million.

In collaboration with Jo Mielziner (one of the foremost set and theater designers) Roche and Dinkeloo have given the Schnitzers and Michigan a crisply elegant theater which interplays illusion and reality outside as well as inside.

Facing small, wooded Fitch Park, the reflective skin of the theater foyer extends the park by day. At night it is energized by light and commands the exterior space. Separated into horizontal bands by sophisticatedly detailed mullions, the glass skin acts as a foil for the massive eight foot thick columns supporting 145-foot built-up plate girders which span the theater. To preserve the integrity of the structural system, the reflective surface gives way to a wide band of clear glass inserted between the girders revealing their spanning of the foyer. Two reinforced concrete spiral staircases break the continuity of the foyer facade, and the reflective glass skin swells outward in response to the staircases. Roche has set up an illusionary promenade—illusionary because the columns rise directly from the grass of the park which edges up to the reflective glass skin. Since the foyer is entered from both ends and not at any point along the colonnade, the question is: Are you supposed to walk there or not?

The juxtaposition of concrete, steel and glass expresses Roche's structural philosophy: concrete, strong in compression, supports steel which is capable of spanning great distances with less weight and depth. Glass is a membrane infill. The fan-shaped theater holds 1,420 people; 720 on the main floor and 700 in the balcony, which can be closed off. No seat in the theater is more than 72 feet from the combined thrust and proscenium stage. Actually, the last row of the balcony is only six feet farther back than that of the main floor. This visual and auditory intimacy is possible because the seats and aisles are steeply banked in the manner of medical operating theaters, a method which Roche applied in the theater of the Fine Arts Center for the University of Massachusetts at Amherst (page 68). The only disadvantage to this arrangement is that less agile people find it difficult for entrance and exit. Thus they tend to ask for seats at the rear of the main floor.

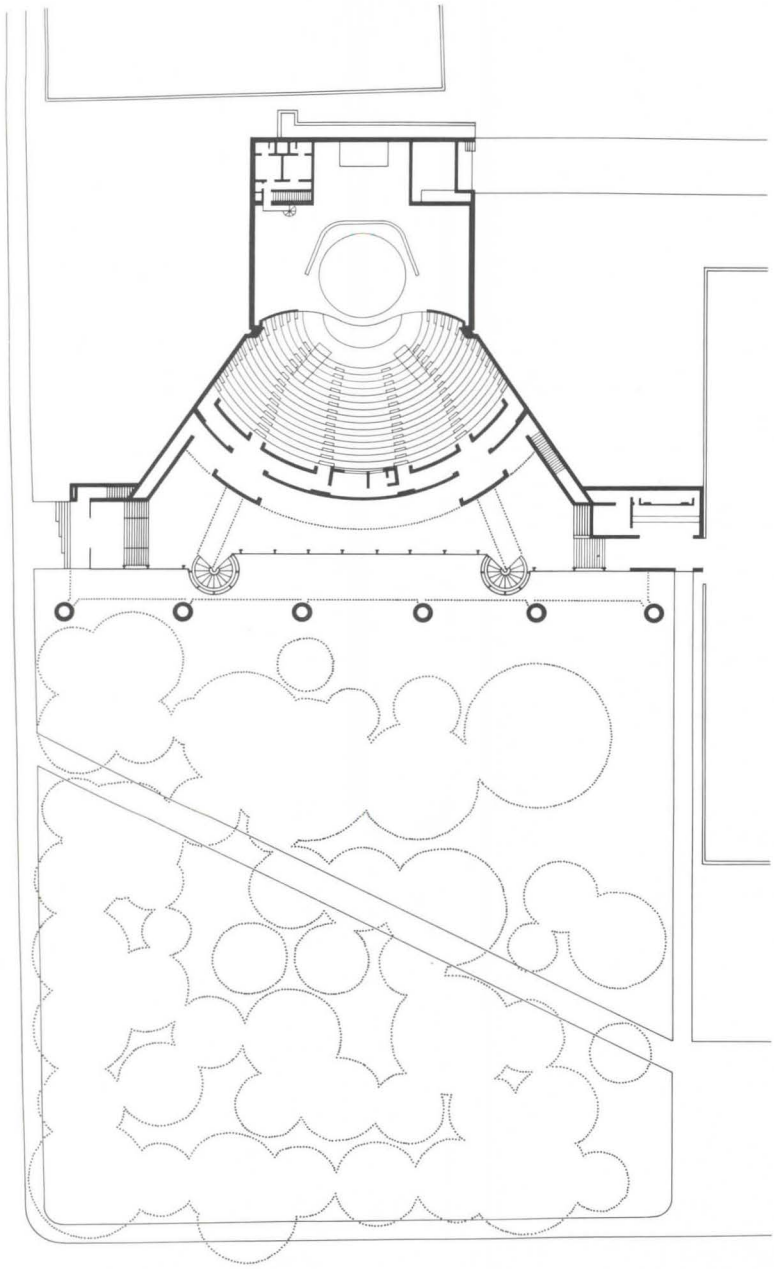
As in most university projects, modifications in the original plan occurred as faculty and trustees went through the revolving door of academia. New faculty opinions differed from old faculty ones. Funds were slashed for offices, shops and rehearsal rooms. The audience has to go outside and around the theater to get backstage—a rather uncomfortable trek in Michigan winters. Saved from the budgetary axe was the innovative placement of the lighting control booth, at the rear of the balcony, which permits the lighting director the same visual experience as the audience.

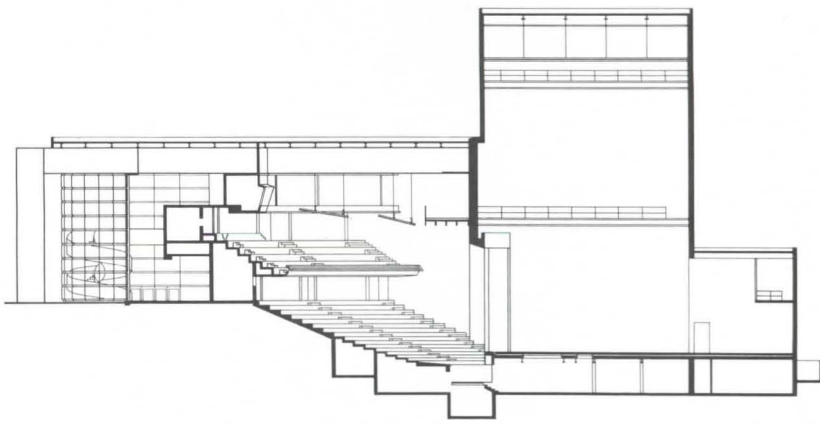
In spite of these minor irritations, the university is completely happy with the overall result. In the Power theater, the audience and actors are brought into a direct intimate relationship. In a sense, the audience is the actor, for its response heightens the emotional tenor of the actor's presentation.

The reflective, but transparent skin of the foyer mirrors the delicate dialogue between reality and illusion, between actors and audience, and speaks out to its surroundings in a meditative soliloquy.

The fan shaped theater of the Power Center for the Performing Arts has a net area of 12,000 square feet (gross area for the Center is 45,700 square feet), and 1,420 seats divided between the main floor (720) and balcony (700).

With its curved glass stairwells and horizontal banding, the reflective glass facade (pages 72, 73) recalls Walter Gropius and Adolf Meyer's model factory in the 1914 Werkbund Exhibition in Cologne. The roof of the theater, some 94 feet above the ground, is supported by 7-foot by 2-foot-8-inch steel box girders with rolled purlins which span the 145 feet from the fly space over the stage to the 7½ foot diameter poured concrete columns along the lobby facade. The spiral flying staircases and bridges to the balcony are also of poured reinforced concrete.





FACTS AND FIGURES

Creative Arts Center. Wesleyan University, Middletown, Connecticut. Owner: Wesleyan University. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Pfisterer Tor and Associates (structural); John Altieri, P.E. (mechanical); John Altieri, P.E. (electrical). Interior Designer: Kevin Roche John Dinkeloo and Associates. Acoustical Engineering Consultants: Bolt, Beranek and Newman. Contractors: E & F Construction Company, Inc. (general); Marino Plumbing and Heating Company (mechanical); S. Freedman Electric, Inc. (electrical). Building area: 156,310 sq. ft.

Fine Arts Center. (Classroom and Laboratory Building, including Theater and Auditorium, College of Arts and Sciences), University of Massachusetts, Amherst, Massachusetts. Owner: Commonwealth of Massachusetts. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: LeMessurier Associates (structural); Greenleaf Engineers (mechanical); Greenleaf Engineers (electrical). Acoustical Consultants: Bolt, Beranek & Newman. Contractors: Fontaine Brothers (general); HVH Mechanical Contractors (mechanical); Collins (electrical). Building area: 214,500 sq. ft.

Power Center for the Performing Arts, University of Michigan, Ann Arbor, Michigan. Owner: University of Michigan. Architect: Kevin Roche John Dinkeloo and Associates. Engineers: Associated Engineers (structural); John Altieri (mechanical); John Altieri (electrical). Landscape Architect: University of Michigan. Lighting and Stage Co-designer: Jo Mielziner. Contractors: O'Neal Construction, Inc. (general); W.A. Brown Company (mechanical); General Electric Supply Company (electrical); Div. of Secoa (stage equipment-stage decoration & supplies, inc.). Building area: 45,107 sq. ft. (For a listing of key products used in these buildings, see p. 94.) PHOTOGRAPHS: Pages 64, 65, 66 (top), 67, 68, 69, 70, 71, 72, ; page 66 (bottom) Debbie Thomas.

GREENHOUSE ARCHITECTURE

Notes on a genesis of form for Roche-Dinkeloo's recent work

BY LUDWIG GLAESER

Glass, as everyone knows, is the stuff the dreams of modern architecture are made of. It is the metaphorical material of this age, not just a technological improvement in construction, as is concrete over traditional masonry. Aware of the potential of glass, the first generation engaged in a visionary exploitation that made it the one and only material of all "things to come." In the fantasies of the German expressionists, even in the skyscraper projects of Mies, glass assumed an almost mystical quality. Buildings were seen as cubist crystals, their transparency, a promise of purity. Exposing its internal structure, glass architecture was made to profess a truth that alone could justify its beauty in the eyes of puritan revolutionaries.

The aspirations of the pragmatists who reasserted themselves in the mid-1920's were no less utopian. By dissolving facades into glass skins, early modern architects sought to bring light into the worst slums. In a number of European countries where a considerable percentage of public housing was actually built by these architects, the undeniable improvements were, admittedly however, achieved without a substantial increase in the use of glass. The real advance in glass designs happened where the extravagance of continually more transparent facades was not only desirable but also profitable, as seen in department stores. A generation later the office building appropriated the curtain wall and prompted its eventual widespread use.

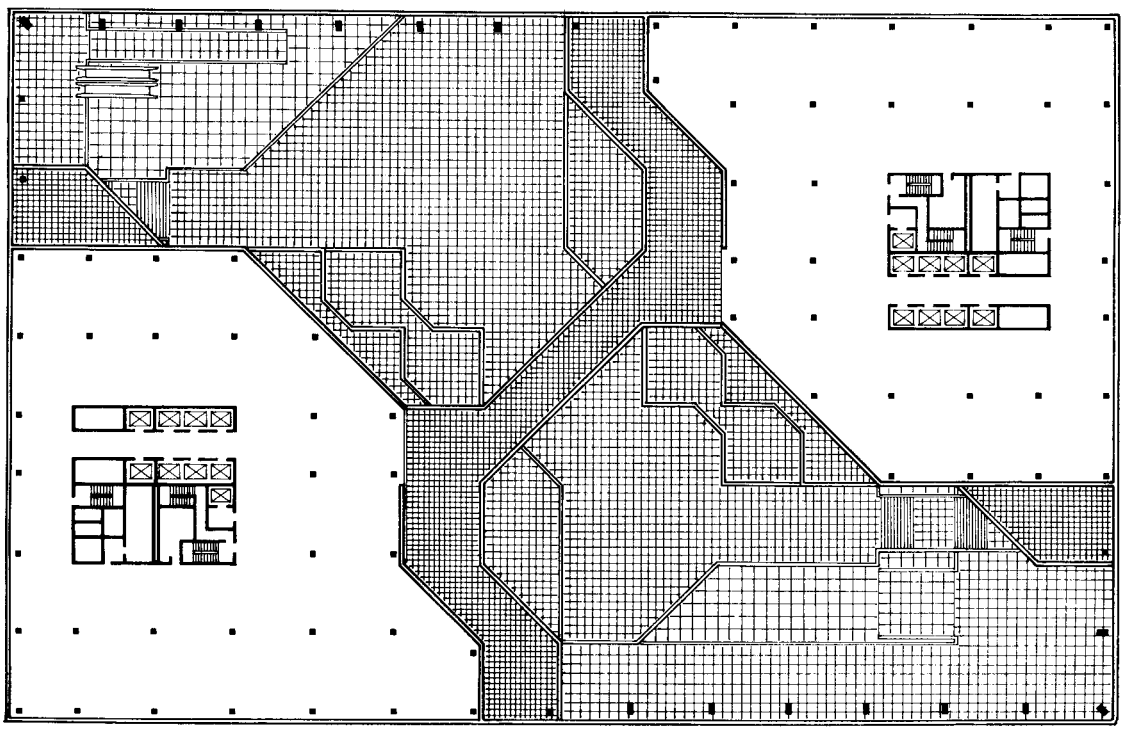
Mr. Glaeser is Curator of the Mies van der Rohe archive at the Museum of Modern Art and teaches Architectural History at the City University of New York, Graduate Center and at Cooper Union. For the last four years he has been putting together an exhibition on greenhouses, to be accompanied by a book on the subject.

This nature and range of glass application made it more dependent than other materials on economic conditions and technological developments of the age. This is particularly apparent with one building type, the greenhouse. It is not only an all-glass structure, but also the container of a controlled environment. The much maligned 19th century had produced one building canonized unanimously by the modern movement, the Crystal Palace. As free of historicizing decoration as one could wish, its industrialized construction also made it an even more legitimate ancestor of the modern movement.

For the participants in this 1851 event, the Crystal Palace was, of course, not just the largest exhibition hall ever built, but held promise of the promethean possibilities of the new era. More miraculous than the size or the material, was the fact that the glass building, almost three times larger than Versailles in circumference, had taken less than a year to erect. Standardization, the secret to become the century's commonplace mode appeared here with utmost consistency down to the smallest, most numerous elements. All the sash bars, the total of which amounted to no less than 200 miles, were mass produced on site by Paxton's patented machine. It seems no coincidence that the extrusion technology developed a century later played an equally important role in the revival of the large-scale glass enclosure. Hardly comparable with the intricate systems of today, Paxton's gutter and sash bars nevertheless show a certain degree of sophistication.

Paxton's experience as gardener for the Duke of Devonshire, gave him ample opportunities to design greenhouses and make

OFFICE-RETAIL PROJECT, CANADA (1969).



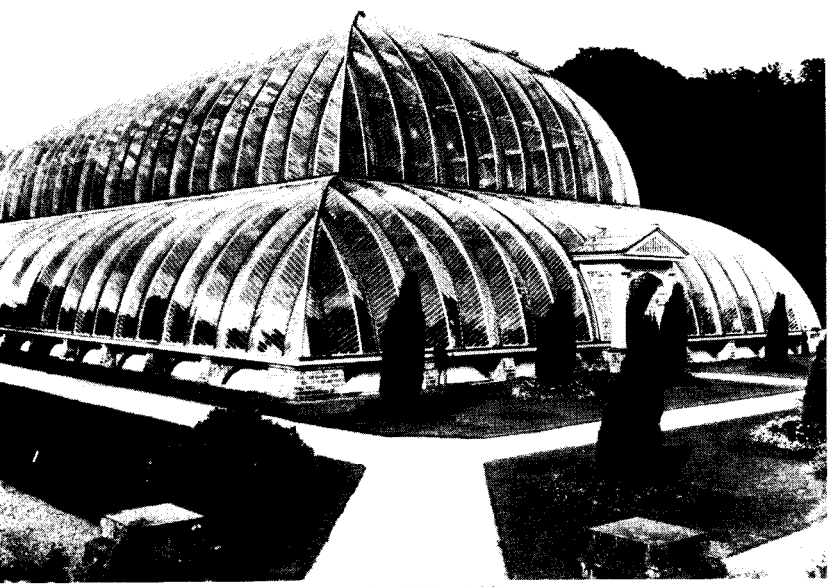
Office-Retail Project. Designed in 1972, this unrealized glass-enclosed gallery scheme for a wintry Canadian climate (preceding page) contains an indoor skylit public plaza and promenade, soaring 22 floors. The multi-level concourse, with retail and entertainment facilities, occupies more than 50 percent of the ground level: Each of the two office wings, separated by the public space, contains 29,700 sq. ft. (see plan) while the concourse itself totals 66,600 sq. ft. Horizontal bands of fenestration are wrapped tautly around a weathering steel frame (top) inside and out, allowing natural light to permeate the building horizontally as well as vertically. Occupying a city site of 270 by 420 feet, the building and its soaring interior achieve a powerful monumentality—one based on the dramatic modulation of space and light.

inventions such as the Great Conservatory at Chatsworth, completed ten years before the construction of the Crystal Palace. In one of the most remarkable greenhouses of all times, Paxton introduced ridge and furrow glazing applied at a large scale over a vaulted section. Later this kind of configuration appeared to be the logical choice for vast roof expanses of the Crystal Palace and permitted another device Paxton had invented to help mechanize the erection procedure: The glazing crews worked from wagons that used the furrow gutters as tracks.

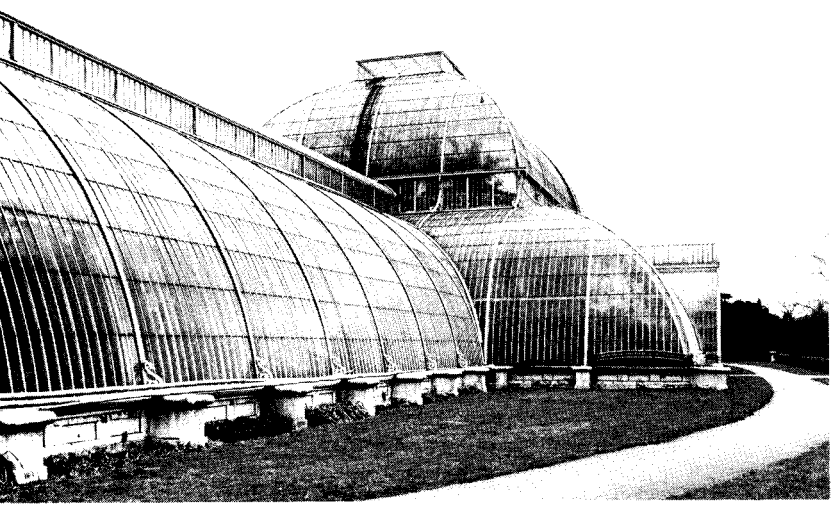
While the earlier size limitations in the manufacture of glass have long been overcome, the ridge and furrow formula still remains in favor. Its capacity for covering and at the same time articulating flat surfaces obviously appeals to today's practitioners of glass architecture. Kevin Roche and John Dinkeloo with their unique understanding of the material, have employed the formula repeatedly from the Ford Foundations to their latest project, the Fiat headquarters (page 85).

In the 19th century era of great greenhouses where Paxton's exploits were numerous, others did contribute equally spectacular structures. Some, like the Palm House in Kew Gardens 1844-1866, or the Kibble Palace in Glasgow 1872, still survive. These efforts that succeeded in creating artificial climates began modestly enough. In 1805 appeared "A Treatise on Several Improvements Recently Made in Hot-Houses" by John Claudius Loudon, now considered one of the most influential theoreticians of early greenhouse design. The only precursors for his work were the elaborations gentlemen gardeners and scholarly horticulturists had made on the common forcing frame.

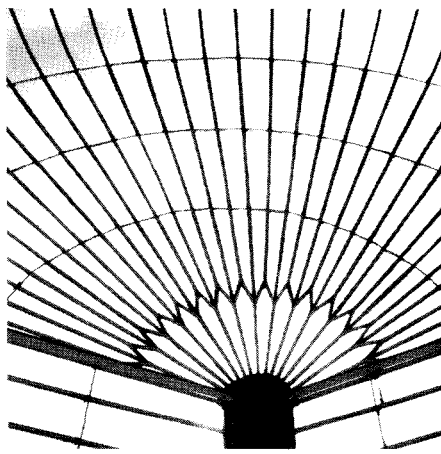
There is, of course, another predecessor, the orangerie, which the Baroque period had added to the repertory of palace architecture. Merely a seasonal shelter for fruit trees in planters, it is mentioned here because Kevin Roche is the rare architect who was asked to design an orangerie. In his unexecuted project of 1968, the half-dozen trees the orangerie is designed to accommodate are overwhelmed by the complex de-



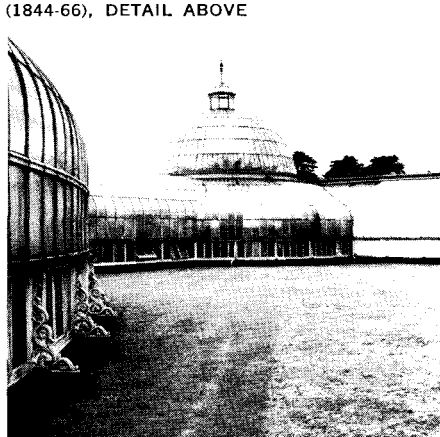
THE GREAT CONSERVATORY, CHATSWORTH (1841)

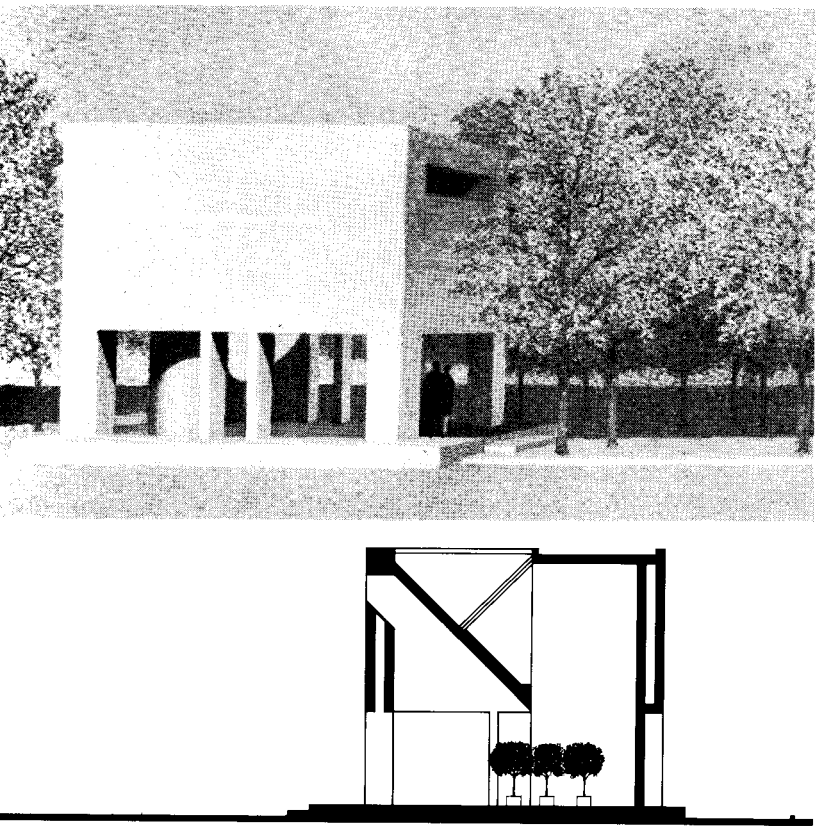


KIBBLE PALACE, GLASGOW (CIRCA 1870) ABOVE, CRYSTAL PALACE, LONDON (1851) BELOW, FORD FOUNDATION, NEW YORK CITY (1967) ABOVE

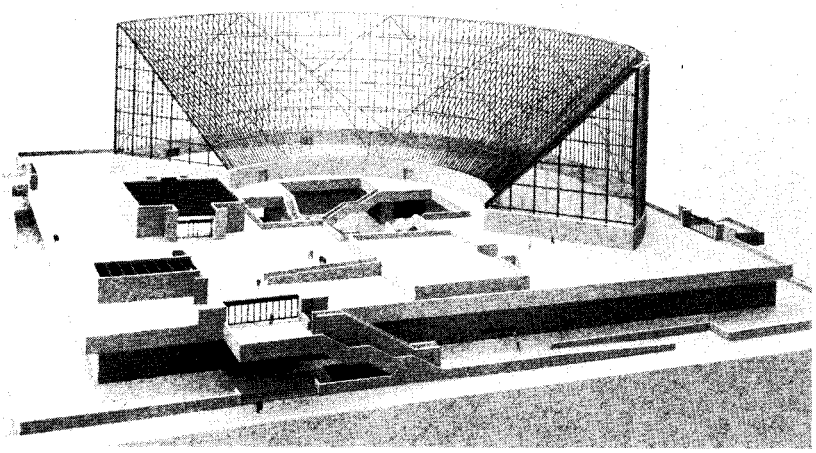


PALM HOUSE, KEW GARDENS, BELOW, (1844-66), DETAIL ABOVE





THE ORANGERIE, PROJECT (1968).



NATIONAL FISHERIES CENTER AND AQUARIUM, PROJECT, WASHINGTON, D.C. (1966).

vice used to trap the sunlight, thus the design conjures up science-fiction images of tree specimens surviving a future ice age in elaborate containers.

The early 19th century greenhouses were light-weight structures that followed certain design configurations. The inclined surface required for maximum sun exposure often resulted in a one-sided lean-to version abutted against a solid wall. The two-sided type, a clear span or supported on center columns, is the standard greenhouse still in use. Additive by nature, its linear extensibility asked for terminating accents, commonly formed by end pavilions, that also corresponded to the prevailing neoclassicist taste of the period. The larger conservatories, however, reverted to more baroque solutions where a domed pavilion was flanked symmetrically by two lower wings. In either case, the pavilions housed the higher growing trees, while the curvilinear roof forms were justified as more closely following the sun's movements. Some of these iron structures, like the famous Palm House in Kew Gardens, support a glass skin of a thinness and tautness that anticipates today's pneumatic membranes.

Kevin Roche's preference, however, tends clearly towards the angular, sharp edged forms that only glass can achieve with such perfection. Since no "windows" or openings in the envelope are required, nothing disrupts the immaculate surface plane. Glass indeed provides the ideal material for an architecture that attempts a new geometric monumentality, and projects the coordinates of minimal sculpture onto a heroic scale. Only once, with the National Fisheries Center and Aquarium project of 1966, did Roche design a curved glass enclosure, yet even then it was a classic lean-to in section.

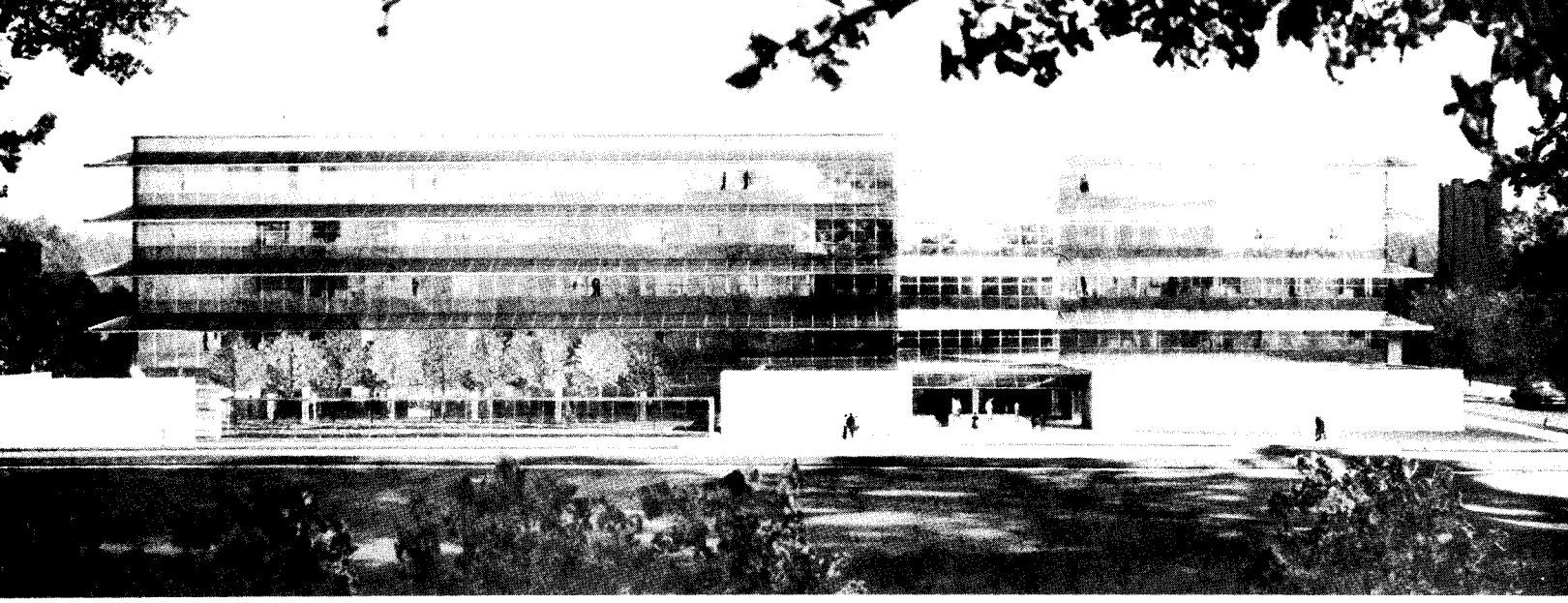
Its dramatic hundred feet vertical elevation, also transparent, was like the entire structure, a semi-circle. This greenhouse portion of the National Aquarium, meant to house life-size reconstructions of aquatic ecologies is placed on top of a solid square podium that encloses the remaining exhibit and research facilities. If built, the great greenhouse would have no doubt added to the Capitol's skyline a modern yet inoffensive accent.

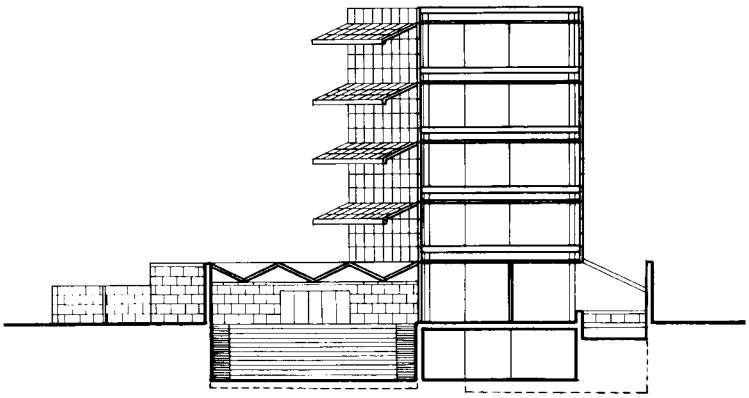
Kevin Roche knows only too well the immaterial quality of these transparent structures that makes them ideal links to existing buildings. When the additions to the Metropolitan Museum are completed according to his plans, Kevin Roche will not only have given the buildings a face toward the park, he will have done it in such a restrained way that the opposing arguments will appear rather irrelevant (page 42). It will be interesting to see here in one complex the greenhouse principle in various applications: The glass enclosures engage in alternate roles, covering solid and void spaces, both exposing internal elements to the outside as well as pulling the park landscape to the inside.

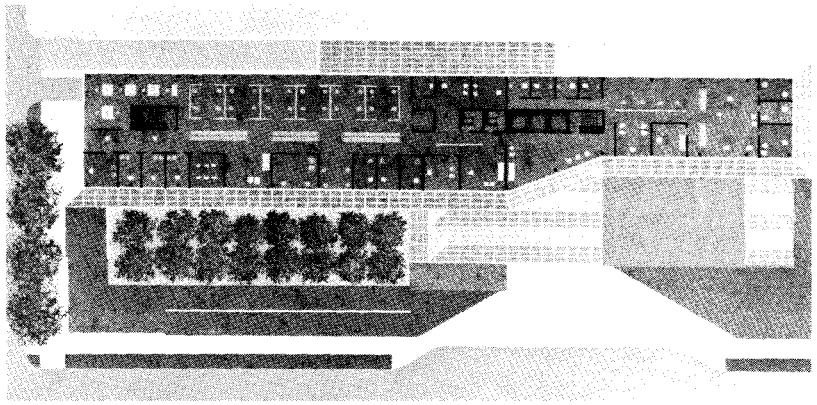
Kevin Roche has a particular flair for the contrapuntal use of glass, balancing its lightness and fragility against the massiveness of Aetna Life Insurance Building (page 58), for example, or suspending it between weighty steel beams. In the Fiat headquarters project, stippled glass panes serving as sun protection, are inserted horizontally between the protruding ends of the floor beams—a motif taken from Saarinen's Deere Administration building, in which Roche played a major part.

Another more subtle form of juxtaposition occurs when reflective glass is used to mirror images such as clouds moving in reverse direction to the action of real clouds. The truncated pyramids of the College Life Insurance buildings (page 26) also kaleidoscopically reflect multiple sky segments in accordance with the viewer's movement. The projected Cummins Company headquarters (page 46) will surprise visitors with a similar juxtaposition in the interior. The traditional ridge and furrow roof has clear glass on the north, a partially transparent panel on the south side, and a triangular baffle system underneath the furrow beams which will deflect the light on its inclined surface and mirror it on the vertical one (section, page 78). While it may prove distracting, it should save energy and eyesight.

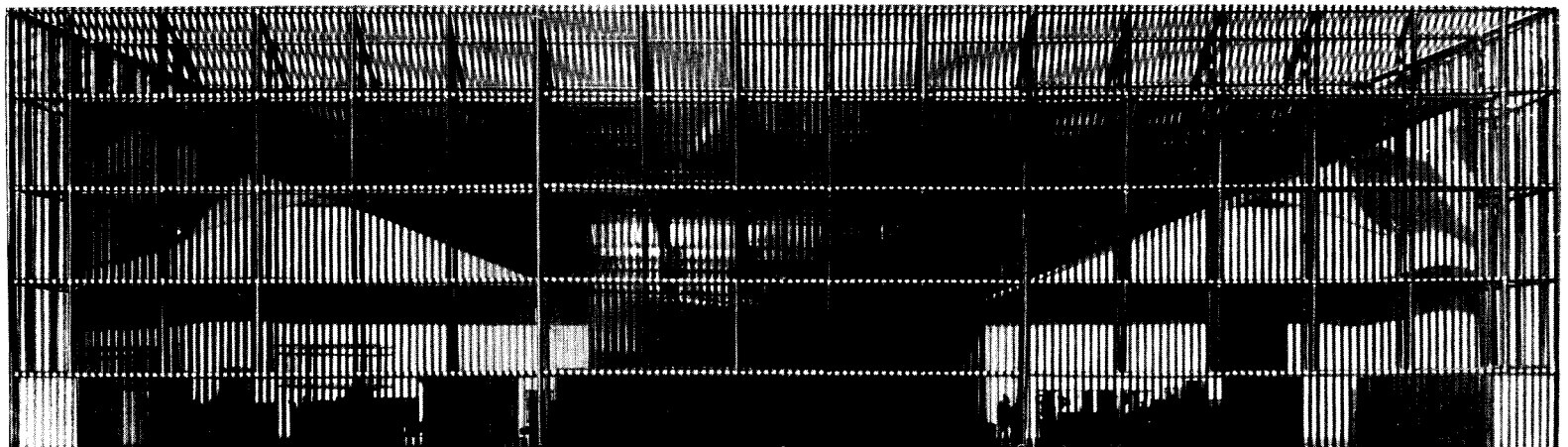
The technical innovation making such buildings possible is the reflective glass which admits light in acceptable amounts with-

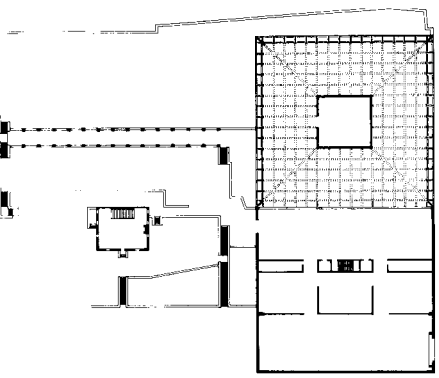


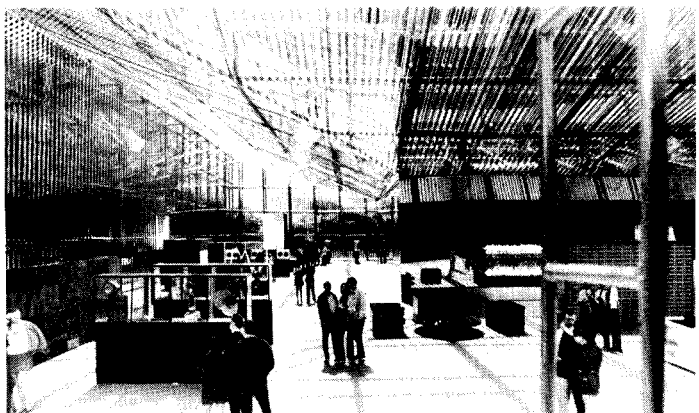




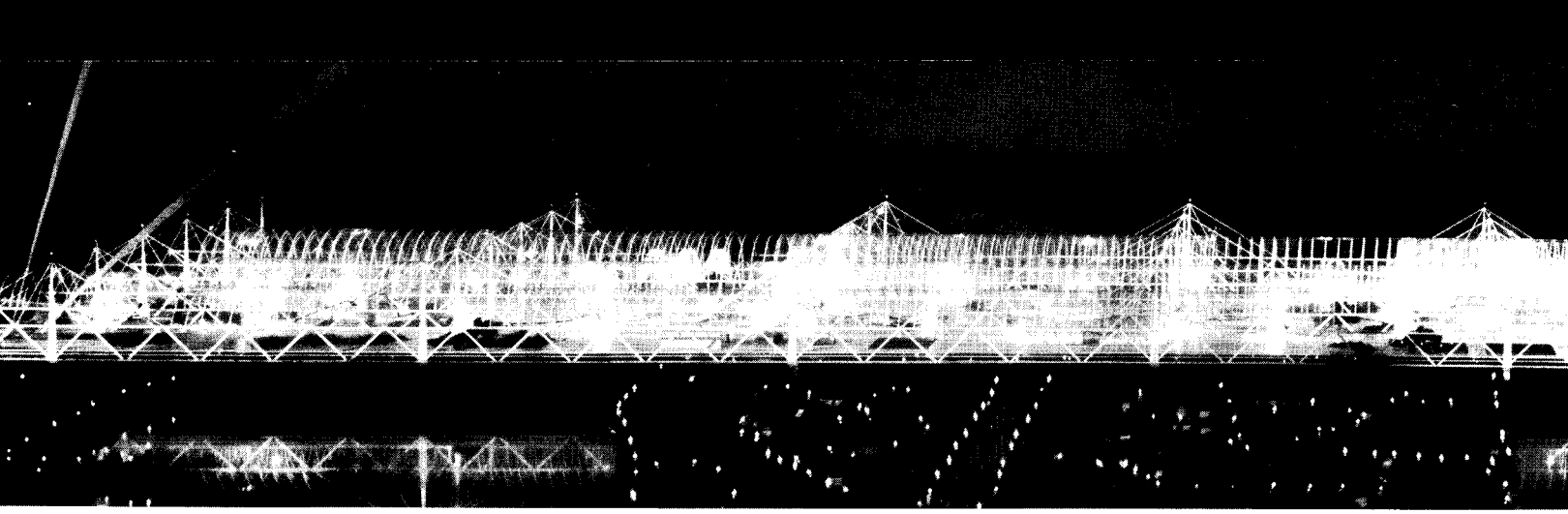
Ashland Office Building. Now in the design development stage, this steel frame and glass-walled office building for Ashland, Kentucky, makes use of a large glazed canopy for its entrance. The ground level of the five story 85,600 sq. ft. building will have 6,000 sq. ft. devoted to exhibition space plus a one-story auditorium with 300 seats (enclosed by a concrete block wall shown, right in the rendering above). The upstairs offices (plan) are framed by narrow glass awnings for additional sun protection on the elevations facing southwest and southeast.







IBM COMPUTER TECHNOLOGY MUSEUM, ARMONK, N.Y. (1969).



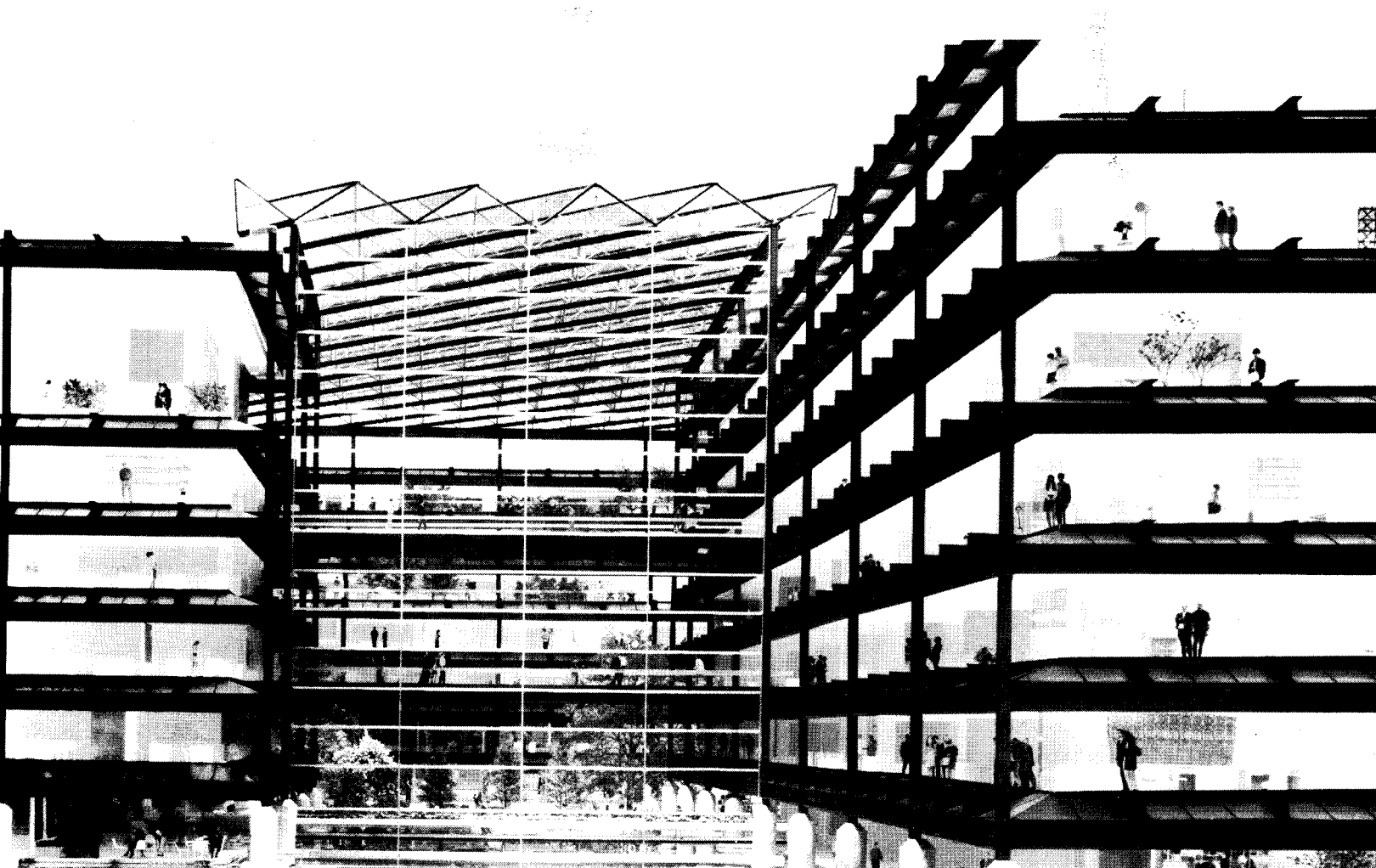
BICENTENNIAL PROJECT, PHILADELPHIA (1972)

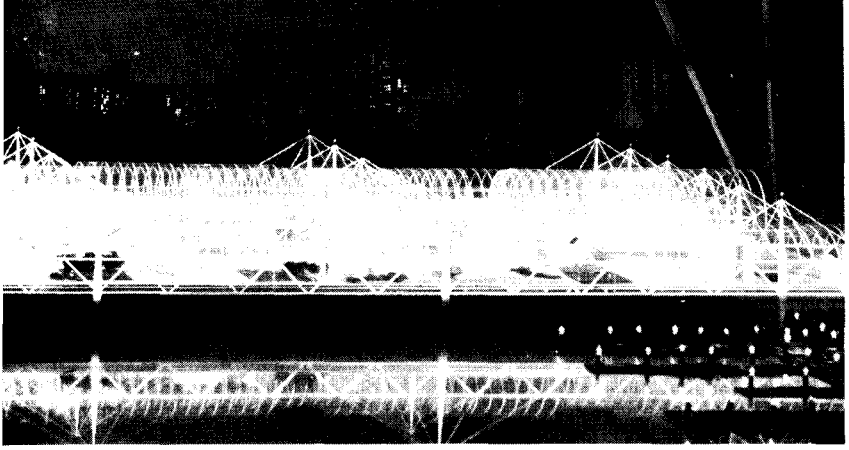
out glare. Sun control has always been a particular problem in greenhouse design; many precious plants have been scorched on cloudless days even in England. Early attempts with tinted glass, for instance in Kibble Palace, where the green color must have reinforced its metallic skin quality, were abandoned in favor of more flexible devices like external canvas or wood strip shades.

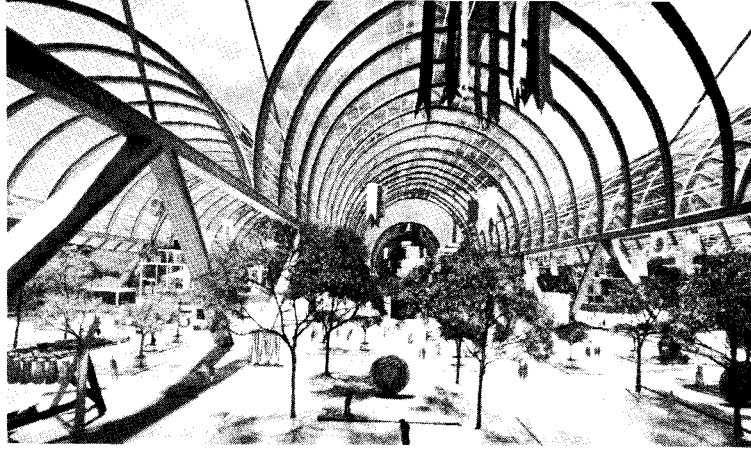
Climatic considerations, in fact, have determined largely the early modern architect's relationship to use of glass and the treatment of the wall plane. The diffuse light of cloudy Northern European skies made the open glass wall as natural to Mies as the brilliant sun of Mediterranean latitudes prompted the brise-soleil and sharply articulated wall openings of Le Corbusier.

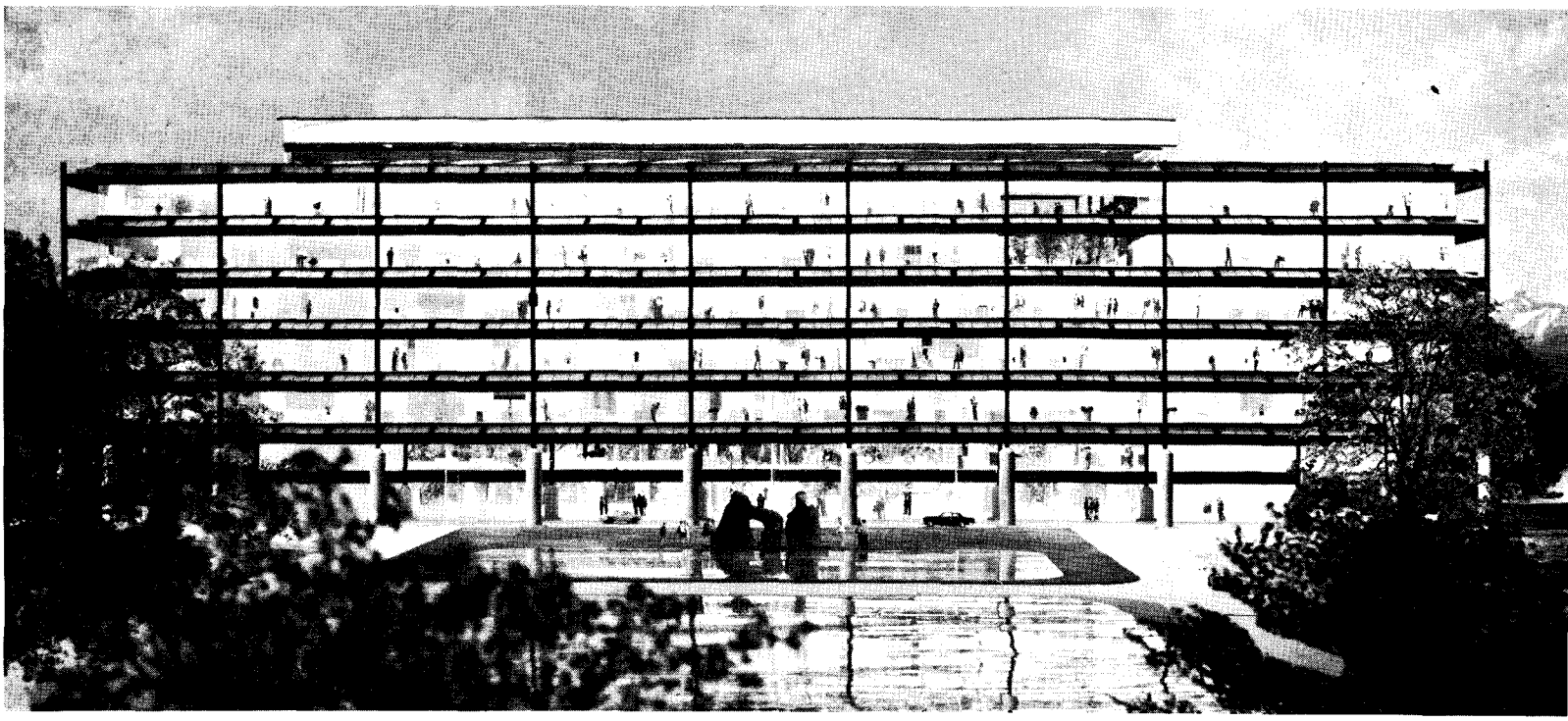
In his repeated attempts to create transparent buildings, Kevin Roche urged manufacturers to develop new types of glass according to his specification. One kind, combining mirror glass with the effects of Venetian blinds, was produced and used in a horizontal arrangement in the Irwin Union Bank of 1966 (page 54). A vertical application was planned for the Computer Technology Museum which IBM commissioned in 1969. In this project, a double glass wall, eight feet apart, encloses the supporting steel structure. Both glass walls were to have six inch wide silver strips that would reduce sun and heat load but allow a view of the landscape outside. The 280-foot square building with a glass roof descending from the four, 80-foot high facades to the core, would thus have appeared to be a solid and rather mysterious glass cube on the exterior.

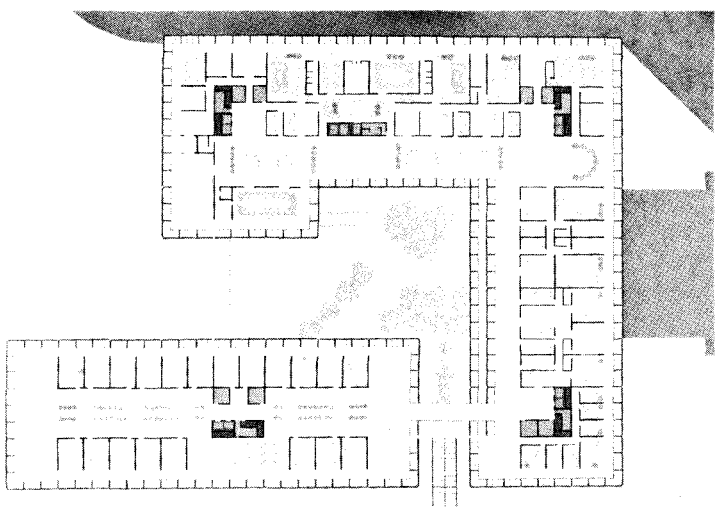
While the greenhouse transmogrified into the exhibition building of the 19th century, another tradition of glass enclosures also grew up at the same time to serve new transportation needs, (railroad stations), or increased commercial activities (gallerias). Kevin Roche, invited on short notice to submit a Bicentennial proposal for Philadelphia, suggested combining both types of the historical glass enclosures in a

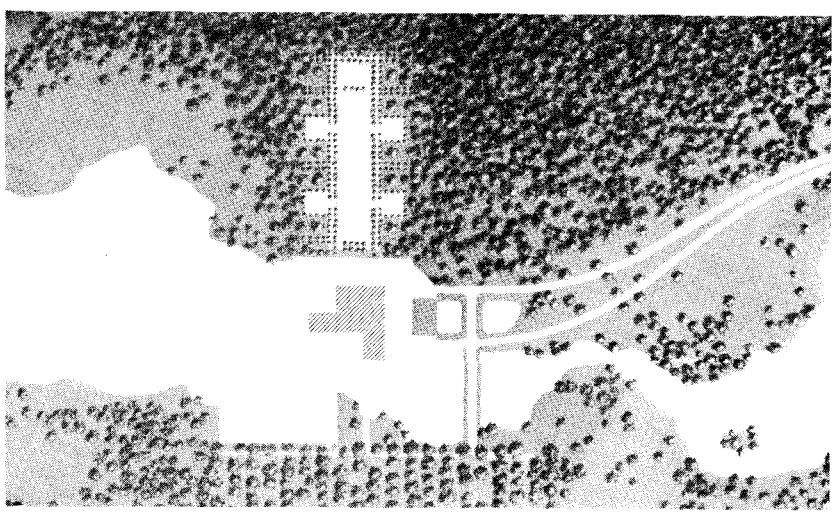












Fiat Headquarters is rising on a 400-acre wooded site near the vast baroque hunting lodge of Stupinigi, outside Turin. Each of its six floors of 80,000 square feet will be open-plan offices, with views of the surrounding Piedmont landscape or the 20,000-square-foot interior courtyard. The offices are linked by bridges which frame views of the Alps. A small lake to one side of the headquarters artfully intrudes into the courtyard. With a height of 80 feet and total dimensions of 300 by 300 feet, the headquarters of Fabrica Italiana Automobile Turino will rival the grandeur of Stupinigi. But the similarity stops there, for it is a further evaluation of the steel and glass greenhouse structure which Roche-Dinkeloo explored in their unbuilt office-retail project in Canada (page 76). Completion of the Fiat Headquarters is expected sometime in the middle of 1976.

bold new version. He designed a 7,700-foot-long bridge to cross the Delaware River in which exhibition space placed over two parking decks would be covered by glass vaults.

Without question, Kevin Roche has made the most important architectural contribution to the current revival of the glass enclosure. The affinity of the material to his monumental forms is as obvious as his comprehension of glass's potential. Furthermore, Roche's knowledge of precedents has led in many cases to a valid interpretation of classic formulations. The energy crisis may in many eyes turn this preoccupation into last glances at a doomed species of buildings. In fact, the energy necessary to maintain artificial climates in greenhouses has been a dominant factor in their design from the beginning. Loudon's treatise, mentioned earlier, indicates that the improvements will save "four fifths to nine tenths of the fuel commonly used." The cost to reerect the Crystal Palace at its new site in Sydenham after its closing at the 1851 Exposition was ten times higher than the original expenditure and half of the sum was spent on the heating system. Each of the recessions following the world wars saw the abandonment of great conservatories. Chatsworth was demolished after World War I; Lyndhurst in the U.S. after World War II (although efforts are now being made to restore this remarkable neo-Gothic structure, which established the reputation of Lord and Burnham. The fate of the greenhouse reflects perhaps more clearly than that of other buildings, the social changes of the last two centuries. Still the current economic conditions may just prove to be another challenge for technological advances on a broader front. Since greenhouses are by nature heat traps, practical ways of storing and using solar energy could be developed with their application. As far as Kevin Roche is concerned, glass still has claim to being the ideal architectural material.

PHOTOGRAPHS: Page 79 (top right), Courtesy MOMA and The New York Times; (bottom left) Courtesy MOMA and The Architectural Press; (top left) Courtesy Country Life, London; (middle left) Werner Blaeser, Basel; 80 (top and bottom), 81 (plan bottom left), Courtesy MOMA.

FIAT HEADQUARTERS PROJECT, TURIN, ITALY (1972-76).

FACETS

(Continued from page 15)

office in 1972, has earned a reputation as a tough enforcer of an earlier (1968) law requiring interstate sellers to register with HUD and provide property reports to buyers.

Land developers aren't so sanguine about the new rules, and have expressed concern that their $6 billion annual sales could be hurt. "Not since the original enactment of the Interstate Sales Full Disclosure Act (1968) has anything had the potential impact of these regulations on the industry," said William Ingersoll, general counsel to the American Land Development Association.

EXHIBITS

UTOPIA OR MYOPIA?

Houston's stainless steel parallelogram Contemporary Arts Museum was recent witness to the opening of a show jointly sponsored under a $20,000 grant from the CAM and the National Endowment for the Arts. Entitled "20:20 Vision" it is an assemblage of images, simulations, actual objects and models billed as a look at tomorrow.

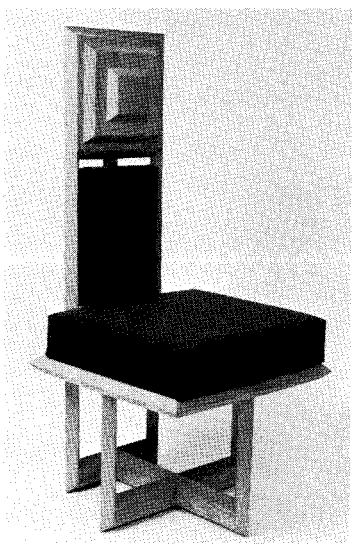
The show created by Ant Farm of San Francisco is less a vision of things to come than a fairly loosely structured retrospective of Ant Farm itself and the American Dream since 1950. For those interested in the former, the best single piece in "20:20 Vision" is the catalogue (although posters, other books, and yes, even T-shirts are there for sale). For those interested in the latter, the framed collages of various themes seen in the show are clever, occasionally enlightening in their pointed puns and representative of the Farm's primary accomplishment: a slick personal style of image-making in graphic media.

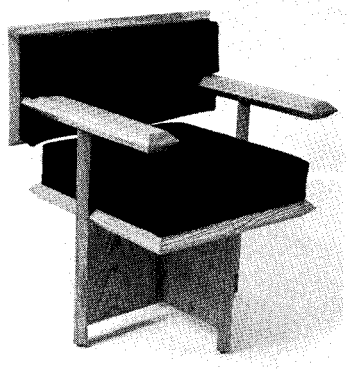
"20:20 Vision" is not meant for a "professional" audience however and was designed to serve the purposes of Houston's CAM: to bring the avant garde to the general public. One can perhaps thus justify the absence of an intellectual framework for the content of what is shown, but some of "20:20 Vision" is downright campy or bizarre: close examination of the model for "Kohoutek-Doll House of the Future" discloses a scenario where an all-female colony of Barbi Dolls is being raised as a food supply for giant ants, the true evolutionary winners. Freakout!! Ant Farm really got into *Them* when it appeared at the local drive-in around 1956 and never forgot it.

While avant garde and far-out funky are not necessarily the same The FORUM's Houston correspondent Peter Papademetriou reports that "20:20 Vision," whose themes and images are dominated by the myths of post-War automotive Dream Car styling, brought back fond pre-Energy Crisis memories of his own first car, a straight-8 1949 Buick Special. The Ant Farm show is entertaining primarily because it brings us the future the way it really was.

YUP, FOLKS, IT'S WRIGHT

The master builder himself admitted he was black and blue all his life from using his own furniture, and one glance betrays why. Believe it or not, these chairs were originally designed for Heritage Henredon Fine Furniture in 1955, long after the phrase "human factors" had entered the vocabulary of designers. They were recently shown at a comprehensive exhibition, "The Selected Work of Frank Lloyd Wright: 1887-1959," at the Yellowstone Art Center, Billings, Montana. Since they were never produced by Henredon, they had to be built specifically for the exhibit by Yellowstone Art Center craftsmen.





Wright low back arm chair (above) and (left) high back chair.

ARTS

ARTS RENAISSANCE?

Judging from a flurry of reports, publications and miscellanea crossing our desk lately, 1974 is shaping into another good year for state aid for the arts. Over Governor Reagen's signature, California increased its arts support last year by a whopping 389 percent, to $1.025 million annually, making it the second highest arts appropriation in the country. New York State leads with $16.445, followed, after California, by Ohio ($846,623), Illinois ($795,-300), Pennsylvania ($758,000), Missouri ($654,920), Massachusetts ($600,000), Michigan ($485,000), Maryland ($417,-411), and South Carolina ($360,-896).

Foundation executives and arts lobbyists are heartened by the trend. Associated Councils of the Arts president John Hightower assessed its significance in these words: "I'm very bullish about the fact that the arts are beginning to attract strong national constituency. At a time that is extraordinarily joyless, the arts do have a positive capacity for making life more bearable. I think legislators in particular are beginning to understand this to a remarkable degree."

WAR ON UGLINESS

In medieval and later times, a tithe — or one-tenth — of one's profits or produce was commonly exacted to support church and clergy. Now the same concept, only more modest, is being urged for the arts. A guide prepared by RTKL Associates and written by Bernard B. Perlman, *1 Percent Art in Civic Architecture,* recounts the City of Baltimore's experience in enacting such a law ten years ago. It has since spent over $1 million to commission some 150 works of art to be incorported into its new civic architecture, including schools and parks as well as government buildings.

The first section, "The Need for Art in Architecture," is written in almost wide-eyed Victorian prose style awestruck by the grandeurs of the past and the possibility that they might serve as example and inspire emulation today: "Who can contemplate the legacy of Ancient Greece or Rome without envisioning buildings resplendent in their Art: The sculptured maidens which substitute for columns on the porch of the Erechtheum in Athens, the wall frescoes and glowing floor mosaics which mark Hadrian's Villa and Pompeii? Or Egypt, where 4000-year old limestone walls still reveal their painted sculpture reliefs. Or Persia, where structures were infused with variant geometric patterns of decorative brickwork?"

Etcetera. Going on to conclude that "The collaboration of artist and architect is necessary to do battle against the common enemy, urban ugliness."

The remaining sections of the guide get into the nitty-gritties of formulating community art legislation. There is a description of the operation of a one percent-for-art law, and discussion of the criteria for project evaluation, selection of artists, and so on. Baltimore works by such artists as Bonet, Halegua, Kepes, Majowicz are illustrated. There is also a discussion of Philadelphia's one percent-for-art law, which was enacted in 1959.

ARTS IN NEW TOWNS

The Place of the Arts in New Towns is an almost classic product of the interlocking foundation-government endowment complex. It's a report published by Educational Facilities Laboratory that began when the Architectural and Environmental Arts program of the National Endowment prepared another report of a conference of new-town developers, arts planners and advocates exploring the place of the arts in new-town planning. EFL at the time was

initiating a project on planning for education and related social services in new towns. So, it teamed up with the American Council for the Arts in Education, whose director of research, Judy Murphy, wrote *this* report.

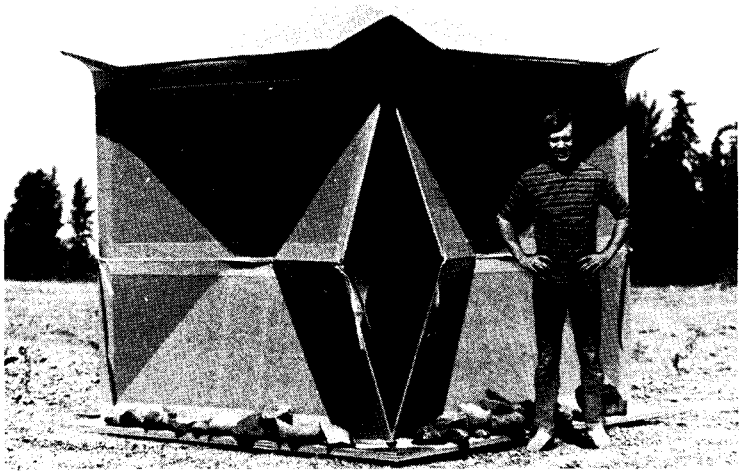
After we are briefly informed what a new town is, we are plunged into a chapter entitled "What Do You Mean by 'Arts'?" Here, we find that a "Community arts" emphasis is one person painting; groups singing, dancing, putting on plays; enthusiasts organizing film clubs—often housed in found spaces or in the environment at large, is the most appropriate one for new towns. In most cases the money to support an adequate facility for large performing groups is not present, and in a few cases when established art galleries opened branches in new towns, interest did not sustain them. Rouse's Columbia accepted a benefactor's offer to build a $1-million pavilion for the town, envisioning it as a summer home of the Washington National Syhphony—a kind of Southern Tanglewood or Ravinia. But after misunderstandings and unforeseen expenses, the plan fizzled, and now, in the author's words, "the pavilion stands imprisoned behind a maximum security fence. The symphony rarely performs. There is a full summer schedule, almost entirely pop. The pavilion's operating deficit is now over $1 million."

There are many other similar cautionary tales in the report, as well as some real success stories.

Eight new towns are looked at in detail—Reston, Va.; Columbia, Md.; Riverton and Granada, N.Y.; Jonathan and Cedar-Riverside, Minn.; Park Forest South, Ill.; and Jamaica, New York —and reference is made to the staggering economic and social forces with which they must deal to become successful communities.

SHELTER

Choose among the disaster scenarios: flood, earthquake or fire. Here is a pop-up temporary shelter for victims of such calamities designed by Architecture Student James Brennan studying with Guntis Plesums at the University of Oregon. From a package weighing 250 lbs. and six inches high, measuring only 32 cubic ft. springs an enclosure of 320 cubic ft. (eight by eight). Erection time is five minutes exclusive of leveling and anchoring, but the shelter has an estimated life expectancy of 1 year. It consists of re-usable or biodegradable plastic-laminated, corrugated cardboard with wood edge stiffeners and tape hinges. The base has a one-quarter inch protective plywood skin.



James Brennan to the rescue.

Erection should be incredibly simple with the package providing all of the clues (please, no mental references to Buster Keaton or Charlie Chaplin). Just lift the upper layer. Tying the corners stabilizes the shelter and opens the screened vents, with one corner acting as the entrance which can be secured from the inside. So here is that biodegradable, disposable dream shelter (we hope).

HOUSING

"HOUSING-DEPRIVED"

13 million of us are "Housing Deprived", and 23 million housing units are supposed to be built between 1970 and 1980. Those are the housing statistics given in *America's Housing Needs:* 1970 *to* 1980, a study undertaken by the Joint Center for Urban Studies of MIT and Harvard.

Dr. Bernard J. Frieden, director of the MIT-Harvard Joint Center, defined three types of housing deprivation: physical inadequacy of the housing unit, overcrowding, and excessive rent burden. A fourth type—inadequacy of the neighborhood environment—is of growing importance, but the Center was unable to deal with it due to data limitations.

The nature of housing deprivation has changed dramatically. The problem is becoming one of excessive cost rather than poor physical condition. An effective solution of the problem would be an increase in income, or a direct housing allowance, rather than the production of additional units. Therefore a mix of housing programs, not solely new production, is needed. The study identified a very large housing deficit among the poor and those with moderate incomes.

Of the 23 million new units required by 1980, metropolitan areas will need 14.7 million units, or 63 percent of the total, and non-metropolitan areas will require 8.6 million or 37 percent. The Joint Center sees greatly differing rates of regional growth, with the South and West hosting a good part of the "boom." The East and North Central sections, because of their large base, will still account for a large share (37 percent) of the country's absolute increase.

Florida, Arizona, and Colorado are expected to have the fastest growth rates, with many of their cities experiencing household growth in excess of 40 percent. Conversely, the cities in the plains region and the East are growing at a much slower rate than the national average, and most cities in New York, New Jersey and Pennsylvania will fall below the national rate.

Housing deprivation is a kind of national rickets for which more is needed than a warm bedside manner by the Federal government.

COMPETITIONS

MAXIMUM SECURITY

Houston Architect Howard Barnstone got in touch with us recently, all upset about the 1974 Lloyd Warren Fellowship for (how times have changed) an American Enclave in Peking.

As Howard started explaining, it occurred to us that times haven't changed enough, what with the competition program calling for secure administrative, residential, educational, recreational and general facilities. In fact, it fell just short of calling for the year's most creative answer to the problem of building a barbed wire fence.

"If our student architects are encouraged to continue the concept of colonialism, which created American enclaves in Shanghai, Nanking and Peking, what hope is there for a real understanding and give-and-take between this programmed American Mission and the Chinese?

"If our security is so hazardous," Howard huffed, "then we should not *have* a mission there. All the lessons of the private clubs and enclaves for Englishmen only—in Cairo, Bombay, Delhi and everywhere — are thrown to the wind by this programming. If we get kicked out of China again, it will be due to the kind of thinking as presumed in this competition."

If you'd like to take a whirl at this 61st Paris Prize in Architecture, submissions can be done during any six consecutive weeks before June first of this year, the deadline for receipt of material. That means the absolute last date you can start working is April 20. The competition brief can be obtained by writing the National Institute for Architectural Education. The first prize winner will get $6,000, with $1,000 to the first alternate.

M.I.T. STUDY PROGRAM

"Management in the Construction Industry," an advanced study program designed for key managers representing owners, designers and contractors, will be held at M.I.T. from June 17 to 28. The program will contain segments on human interactions, project evaluation and finance, labor management relations, legal issues, control and organization. Contact: Director of Summer Session, M.I.T., Room E19-356, Cambridge, Mass.

AWARDS

New York City's Regional Plan Association, world's oldest metropolitan planning organization, is the recipient of the 1974 Architecture Critics' Citation for its program, "Choices for '76: A Series of 20th Century Town Meetings." RPA's program to inform citizens and enable them to participate in the problem-solving process consisted of five television shows dealing with subjects like housing, transportation, environment and poverty. They were broadcast by 18 stations in the New York City region.

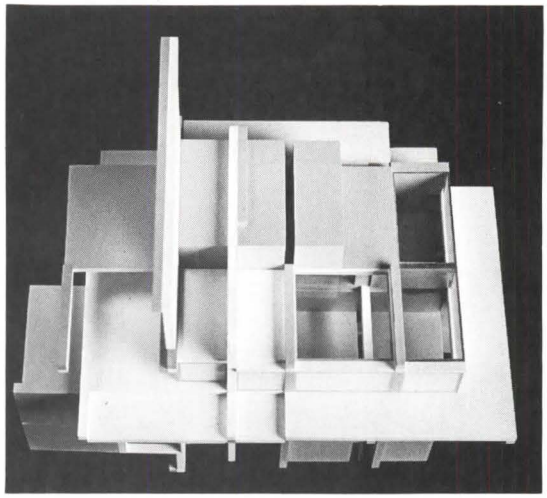
• The New York State Urban Development Corporation has been cited for special recognition for its accomplishments in the field of low and moderate-income housing. Since its creation in 1968, UDC has worked to meet housing needs that could not be fully satisfied through private enterprise alone.

• Walter McQuade has received the Architecture Critics' Medal for distinguished architectural criticism. An architect who joined the staff of The FORUM in 1947, he has published in such magazines as *The Nation, Fortune, Life, Reader's Digest* and the *AIA Journal.* He has written several books, and also served on New York's City Planning Commission. He is now a member of the board of editors of *Fortune.*

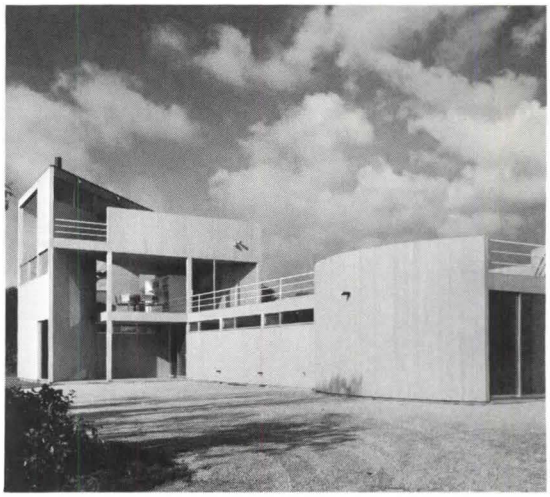
NYC/AIA AWARDS

The New York City chapter of the AIA has awarded citations for residential design excellence to Gwathmey Siegel, Architects (for the Tolan Residence in Amagansett, Long Island) and Maurer & Maurer, Architects (for renovations to the Handler residence in Manhattan). Receiving mentions in residential design were Stanly Abercrombie and Paul Vieyra (for the Abercrombie residence in Southold, N.Y.), Peter D. Eisenman (for a house owned by Mr. and Mrs. Frank of Cornwall, Conn.), and T.M. Prentice, Jr. (for the Bar Seven Ranch Condominium in Ennis, Montana, now in the planning stage).

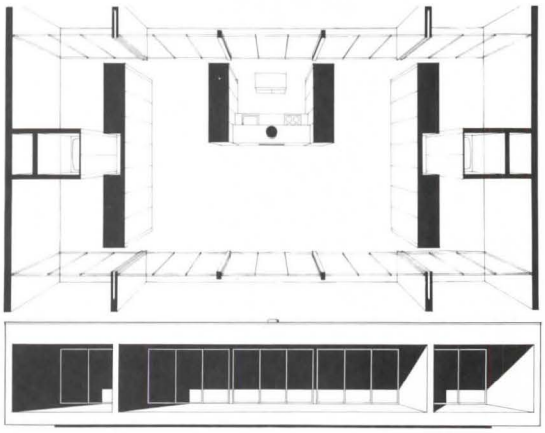
Of great interest to the jurors in the 1973 Residential Design Awards was the concept behind the designs, rather than the resulting buildings.



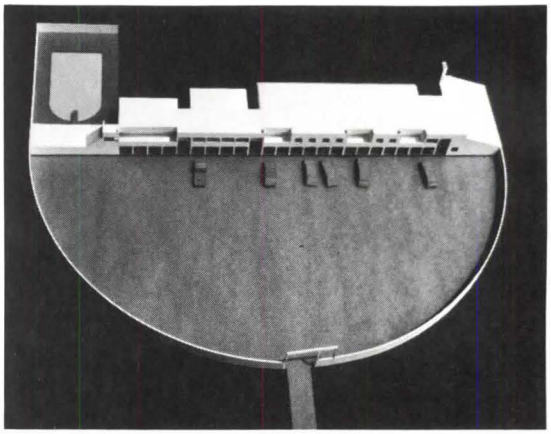
Frank house, Peter D. Eisenman, Architect.



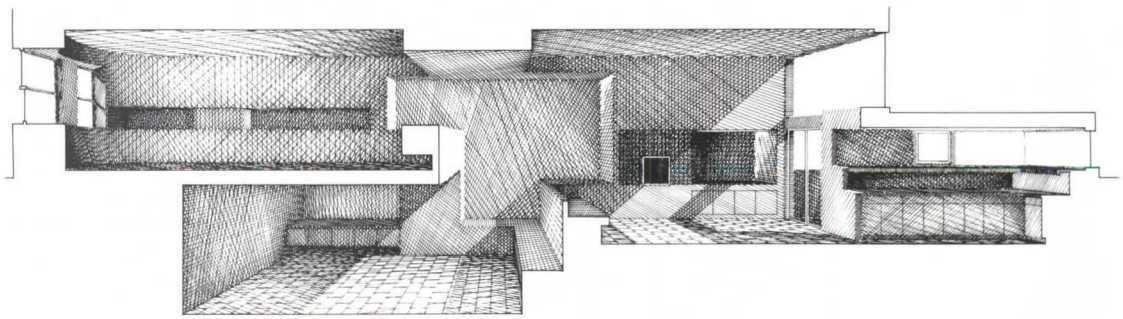
Tolan residence, Gwathmey Siegel, Architects.



Southold, N.Y. residence,
Stan Abercrombie and Paul Vieyra, Architects.



Bar Seven Ranch Condominium,
T.M. Prentice, Jr., Architect.



Handler house, Maurer & Maurer, Architects.

OBITUARIES

Albert Christ-Janer, 63, widely exhibited lithographer and watercolorist, in Como, Italy. Christ-Janer's career as teacher, artist and university administrator spanned three decades. Educated at St. Olaf College, Yale and Harvard, he taught at Stephens College in Columbia, Missouri; Northwestern University; Michigan State University; Cranbrook Academy of Art; and, until his death, at the University of Georgia. He held administrative posts with the University of Chicago; New York University; Pennsylvania State University, as director of the School of Arts; and at Pratt Institute, as dean of the School of Art and Design from 1958 to 1968.

• John Gravely, 89, senior partner of Gravely and Gravely, Jacksonville, Florida. Throughout his long career, he had architectural practices in Chicago and Jacksonville, and also practiced in New Orleans and New York. He was engineer for structural design of Wright's Midway Gardens in Chicago, making many of the working drawings.

APPOINTMENT

Eugene R. Kremer has been named head of the department of architecture at Kansas State University College of Architecture and Design. He was director of the Institute of Environmental Design of NAHB before joining KSU, and before that he practiced with O'Connor and Kilham, with Ulrich Franzen and Associates, and with C. Michaelides in St. Louis.

PHOTOGRAPHS: Page 14, John Nicolais; page 88, Richard Frank (top left), Bill Maris (top right).

SINGLE POINT PERSPECTIVE

Learning about Las Vegas: or the critical difference between looking at pretty pictures of hell and actually having to live there.

A blind architect is a contradiction in terms. Vision is not only the principal channel of sensory information by which he comprehends the organization of the physical world; visual means—drawings, photos, the printed page—are also his principal instruments for reorganizing that world. It is thus impossible to imagine contemporary architectural activity being carried on without our present apparatus of graphic communication. (Though it is worth recalling that architecture managed quite well for millenia without the blueprint, photograph or, for that matter, the printed word.)

Nevertheless, with its awesome power of scanning and retrieval, vision is also a dangerous capacity precisely because it synopsizes (and so persuasively) so small a portion of experiential totality. All graphic means of communication are hazardous guides to architectural action: the photograph most of all. Unless we are constantly on guard, we are apt to make this two-dimensional facsimile a surrogate for actual, four-dimensional, multi-sensory reality. The state of architecture today is living proof of this hazard. The whole corpus of our theory and practice derives from value judgements based upon *looking* at pictures of buildings or *reading* someone else's description of them. Seldom, if ever, do we check out such information against actual exposure to or submergence in the building itself. (Wayne Andrews is perhaps our only living critic who can claim to have confronted each building before he writes about it—if only to photograph it!) The result is that the image takes precedence over the original, the facsimile obliterates the prototype and world architecture is reduced to a handful of cliches.

It is not that photographers consciously set out to falsify architectural reality (although many of them are not above fudging it now and then—a tree branch to hide an embarrassing neighbor, flood lamps to dramatize an otherwise murky corner). It is rather that, by the very nature of their medium, they can bring us only a pinpoint of visual truth from the billion-pointed continuum of time and space. Consider the following proposition: any building stands on a plane of 360° in circumference and under a hemisphere of 180°. Assume that it can be photographed only from points one degree apart (an absurdity, of course: there are an infinity of points within each degree). This would mean that the photographer must choose a single vantage point from among 64,800 positions in space. Then assume that it requires a full second to expose his film (another absurdity, given the speed of light). This requires that he must select one point in time (winter, summer; night, day; good weather and bad; early and late) from among 31,536,000 (60 sec. x 60 min x 24 hrs x 365 days). If we push this arithmetic to its bitter end, we find all photographers are always compelled to select one point in time-space from among 2,043,532,800,000!

Thus, even optical reality is fantastically narrowed by the still photograph: all the other channels of sensory input—temperature, smell, sound, touch—are omitted altogether. Nevertheless, on such a meager basis of factual information, many a million-dollar decision turns.

Color adds a dimension to the black-and-white photographic facsimile, bringing additional information on the artifact depicted. But with it come new hazards to factual accuracy: color is all too easily manipulated by flash-bulb and flood lamp; and each stage of reproduction—film quality, engraving, inks, paper stock, printing press—adds additional obstacles to visual veracity. Thus for all its glittering verisimilitude, the four-color print is not necessarily more informative or truthful than the black-and-white.

If motion picture techniques were systematically applied to the study of architecture, our critical standards would rest upon a sounder base. The time-and-motion filmic studies now being carried out by William White on the behavior of pedestrians in New York's new vest-pocket plazas and parks are brilliant demonstrations of the rich potentials of such techniques. Using telescopic lenses, and shooting at three speeds (slow, normal and accelerated), White's film can tell us more about the consequences of a flight of steps, a bench or a shade tree upon the behavior of the pedestrians than a hundred plans, sections and small scale models could ever do. But most architectural history and criticism is based, alas, upon studying photographs and drawings. And most of this studying, alack!, takes place in middle class livinng rooms, or air-conditioned offices—that is, in environmental contexts far removed from that depicted in the filmic facsimile. Such a situation introduces into the very process of communication the danger of grotesque miscalculation. This danger is demonstrated in Robert Venturi's and Denise Scott-Brown's *Learning from Las Vegas.*

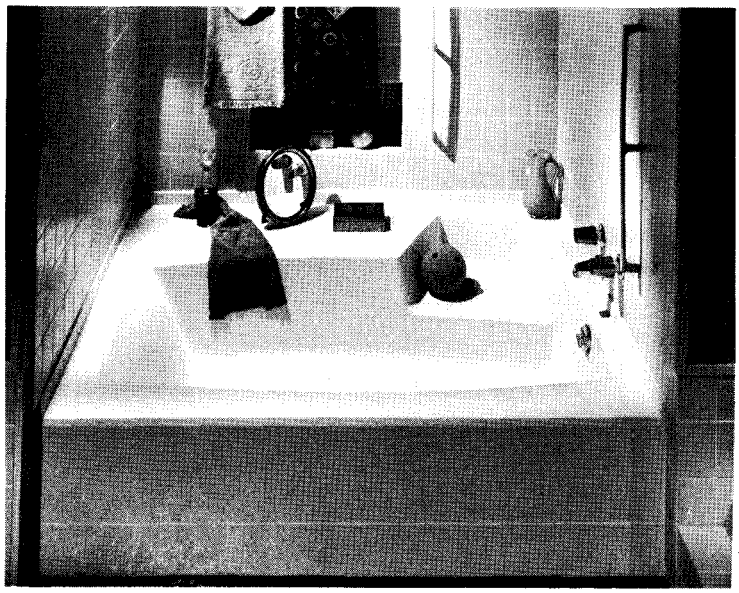
The propositions of this witty and immensely erudite book are, of course, based not at all upon the multi-sensory reality of that desert hell-hole but upon two-dimensional visual facsimiles from which all intimations of environmental stress have been filtered. Perhaps the only way to demonstrate the enormity of this oversight would be to give each reader an expense's paid trip to the site. Then he would be in a position to learn for himself what's to be learned from Las Vegas. He should be required to *walk* through the town (not drive around it in air-conditioned cars, as the Venturi's student researchers must have done). Then he would learn why there is so little evidence of life in these pictures. Like the pack rats and side-winding rattlers of the open desert, the pedestrians of Las Vegas have all been driven into diurnal hibernation; only the air conditioned pleasure domes offer protection from the ferocious temperature, glare and dust—not to mention the stupefying noise and stench of gas-swilling trucks.

Like any other natural landscape, the one into which Las Vegas was dropped must, originally, have had its sensuous attractions—moments when it was lovely to look at, delightful to listen to, pleasant to smell. There would have even been some moments—at dawn and dusk and at mid-day in midwinter—when the thermal balance between the clean, cool, dry air and the brilliant sunshine would have been exhilarating. But those moments are gone forever in Las Vegas. They were always sharply limited in time and place, as Frank Lloyd Wright perceived so clearly at Taliesen West. Accepting these environmental parameters, decades before the possibility of air conditioning, he designed a house to be occupied between November and March. It sits as elegantly in the desert as the nest of a dove. Las Vegas, on the other hand, looks as if it had been trampled by a drove of hogs.

One can, in truth, learn nothing about Las Vegas from photographs of it except visual generalities which apply with equal force to every ruined town in America. Las Vegian realities can only be appreciated by submerging ones's self in them. Visit Las Vegas to learn how every attraction of the natural desert has been systematically destroyed by the builders of Howard Hughes' capital city. The fragile amenities of Nature have been obliterated, the dangers and discomforts enormously exacerbated. Every dimension of the physical world has been distorted. Even the "burning sands" of Valentino's day have been replaced by infinitely hotter blacktop and Astro turf.

It is easy to make handsome photographs of this urban squalor. In the same way, Soutine could make handsome paintings of disembowelled cattle. But Soutine did not paint in an abattoir; nor did his patrons view his paintings in a butcher shop. Even more important, neither party ever made the mistake of thinking that his painted meat was edible. Yet this is precisely the error that we in the architectural profession make. Blind architects or critics may be a contradiction in terms; but we employ visual data as recklessly careless of the actual consequences as if we were indeed sightless. Anesthetized by our cocoons of literacy and personal comfort, we do not see that Las Vegas is the prototypical demonstration of our present dilemma. By manipulating the physical world according to purely visual criteria, we have become in fact one of the principal agents of the present state of environmental degradation.

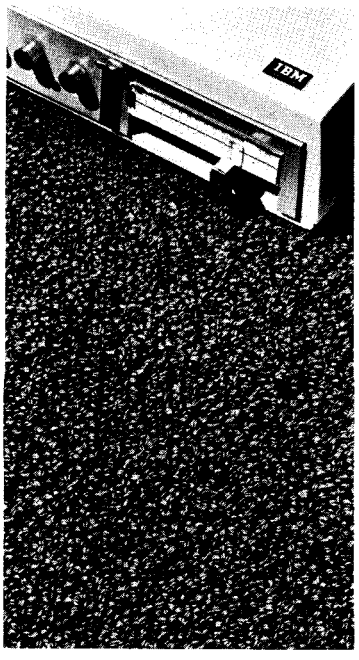
PRODUCTS



GOTHIC POOL

Shown here is American-Standard's new Gothic Pool, one of three over-sized bathing tubs made of heavy-duty fiberglass-reinforced polyester, to be featured at Apartment Builder/Developer show in Miami. This model—whose size and unusual shape make it big enough for two—measures 6 feet long by 4½ feet wide. It features a curved rectangular design, which is interrupted at the right, rear corner by a unique, built-in seat that doubles as an accessory holder. A wide back apron serves either as a second seat or to hold accessories. The new pools will be marketed in six colors to match other Designer Line models—Gold, Bone, Fawn Beige, Regency, Blue, Bayberry and White.

On Reader Service Card, circle 101.



CARPET COMFORT

Philadelphia Carpet Company has turned to pure wood for its latest contract carpet introduction. Named Fleet Street, it features heavy four-ply wool yarns densely applied in a strongly textured level-loop construction. Styling in four natural wool tones and nine multicolors is described by the carpet company as "non-commercial", a growing trend today for contract facilities. Permanently mothproofed, Fleet Street is recommended for offices, board rooms, banks, reception areas, and public spaces. Philadelphia Carpet Co., division of Shaw Industries, Inc., is based in Cartersville, Georgia, with showrooms in New York, Chicago, Atlanta, Dallas, San Francisco and Los Angeles.

On Reader Service Card, circle 102.

FURNISHINGS SHOW

Fortress Incorporated and Atelier International, Ltd. joined forces at their San Francisco showrooms in the Icehouse for a memorable display of their new lines. Pictured here is Mario Bellini's modular seating systems; Camaleonda, a selection of Atelier's contract chairs and tables; lighting collection by Flos; Gianfranco Frattini's "Sesann" upholstered armchair with polished chrome frame (left); and Jim Dine's "Valentine" tapestry.

On Reader Service Card, circle 103.

LEATHER LOUNGING

Harter Corp. of Sturgis, Michigan is offering new office desk chairs, Model 870 and 880. According to Harter, the contours within the design offer a high degree of air circulation for greater comfort. Designed by Earl Koepke, the gathered seams permit the material to conform under pressure without stretching. Both are adjustable for seat height and include a swivel-tilt mechanism. The base is available in chrome, bronze finish, or laminated oak. Seats come in selected fabrics, vinyl or leather.

On Reader Service Card, circle 104.

(Continued on page 93)

JUST A REMINDER

If you're planning for spring remodeling, it's a good time to remember the GF Business Equipment's Environmental Systems Program shown at the June NEOCON show in Chicago's Merchandise Mart. Pictured here, the GF program, known as ESP, includes not only complete work stations but also panels and screens.

At that time, GF introduced the new high-back body chair for executives—complete with fully upholstered box arms and back, ball-bearing casters, swivel and tilt capabilities and height and tension adjustments.

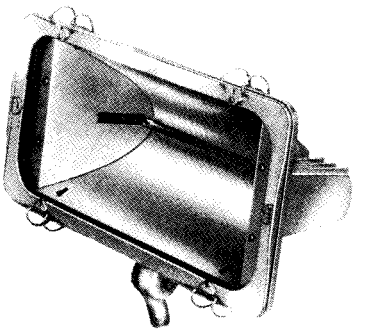
GF has also developed a new smaller-shelled body chair, featuring smaller arms and comfortable work at center-drawer desks.

But back to that ESP: Six new components and two new features have been added to Product System Omega, the line of to-the-floor work stations, an integral part of GF's ESP for open-office installation. Now available are legal-width pedestals with box drawers wide enough to permit flat storage of standard 11″ x 15″ forms. And to protect records, a central locking capability can be specified on all Omega products. Another optional feature is a full-length 30″ work station desk top.

The basic Omega work station consists of a simple free-standing unit with minimum storage capacity. Coordinated pedestals, extension units or companion pieces expand both the work area and storage capacity. And the Omega unit can be converted to a totally private work station when used with GF panels and screens.

On Reader Service Card, circle 105.

QUARTZ FLOODLIGHTS

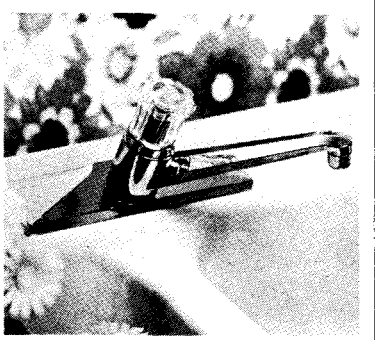


Using tungsten halogen lamps, the Lighting Division of Harvey Hubbel, Inc. has introduced the Quartzliter Series of floodlights for all purpose areas and sports lighting applications.

Available in 300 to 1500 watts, the operating temperature meets NEMA standards and is suitable for wet locations, according to Hubbel. The parabolic reflector and door frame are aluminum, and lens, of clear, thermal-shock glass is gasketed with high temperature silicon to seal out dust, moisture and insects.

On Reader Service Card, circle 106.

FAUCET FINISHES



A new chrome-finish single-handle thermoplastic kitchen faucet has been introduced by Bradley Corporation's Faucet and Special Products Division. An extension of Bradley's Aurora line of plastic faucets in colors, the new chrome-finish model is designed to appeal to contractors and consumers who like the lightness of plastic and the brightness of a metallic finish.

Price will be between the company's popular line of Cascade metal faucets and the rest of the Aurora line.

The faucet will utilize Bradley's Bradtrol cartridge control for water temperature and volume. Lubricated internally and with just one moving part, it carries a 1000-month replacement warranty against leaks.

Also included in the kitchen faucet line are lavatory and tub-shower controls. Clear plastic control knobs are standard, optionally available with chrome finish. Chrome plated parts are electrolytically plated, in a process similar to plating metals, to produce a bright, smooth durable finish that cleans with a damp cloth.

On Reader Service Card, circle 107.

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

RICHARDSON-MERRELL CORPORATE HEADQUARTERS BUILDING, Wilton, Connecticut. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Karnak Chemical Corp. WATERPROOFING: Carlisle Tire & Rubber Div. CONCRETE AND CEMENT: Telesco Mason Supply. BRICK, BLOCK, AND STONE: Georgetown Colonials; Plasticrete Corp.; Stiles Brick Div. Genlite Block; Genovese Supply Co. STRUCTURAL STEEL: Bethlehem Steel. CURTAINWALL: Bethlehem Steel/ASG Industries, Inc. FLOOR AND DECK SYSTEMS: MacFab Products, Inc.; Mac-Core. ROOF MATERIALS (ROOFING, GUTTER): Johns - Manville. ACOUSTICAL MATERIALS: U.S. Gypsum. GLASS: ASG Industries, Inc. INTERIOR PARTITIONS: U.S. Gypsum. ELEVATORS: Martin Elevator & Hydraulic Corporation. DOORS (EXTERIOR AND INTERIOR): American Steel Products Corporation. HARDWARE (LOCKSETS, HINGES, CLOSERS): Sargent-Stanley-Sargent. TILE: American Olean Tile Company. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): ITE Imperial Corp. STANDBY EMERGENCY POWER: Teal Battery Emergency. LIGHTING FIXTURES, LAMPS: Pefeclite, Inc. PLUMBING FIXTURES, TOILET SEATS: Kohler of Kohler. HEATING BOILERS: Lattner Mfg. Co. UNIT HEATERS: Nesbitt Unit Heaters. RADIATORS, CONVECTORS: Federal Pacific Co. AIR CONDITIONING COMPRESSOR, FAN UNIT: Westinghouse. DIFFUSERS, DUCTS, PUMPS, ETC.: Tempmaster; Weinman Pump Company. INTERCOM SYSTEMS: ITT Corp. RADIO AND TV SYSTEMS: Turner Engineering Division. PNEUMATIC TUBES, CONVEYORS: ACCO-Olsen Div. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIP.: Viking Corp.; W.D. Allen Mfg. Co. CEILING MATERIALS: Armstrong. KITCHEN: Jacob Licht, Inc.

COLLEGE LIFE INSURANCE COMPANY OF AMERICA HEADQUARTERS BUILDING, Indianapolis, Indiana. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Gates Eng.; Gacoflex. WATERPROOFING: Gates Eng.; Gacoflex. CONCRETE AND CEMENT: Penn Dixie Cement. CURTAINWALL: Hoosier Fence. ROOF MATERIALS (ROOFING, GUTTER): Philip Carey. THERMAL INSULATION: Dow Chemical Styrofoam. GLASS: Libbey - Owens - Ford Glass; Stanlock Gaskets. ELEVATORS AND ELECTRIC STAIRWAYS: Westinghouse Electric. DOORS (EXTERIOR AND INTERIOR): Firedoor Corp. HARDWARE (LOCKSETS, HINGES, CLOSERS): General Lock; Stanley; Yale & Towne. INTERIOR MATERIALS (TILE, PLASTIC): Romany Spartan. PAINT: Pittsburgh Paint. ELECTRICAL DUCTS AND WIRING: Walker Parkersburg. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Federal Pacific; Westinghouse. STANDBY EMERGENCY POWER: Cummins. LIGHTING FIXTURES, LAMPS: Kenne, McPhilben, Marco. PLUMBING FIXTURES, TOILET SEATS: Kohler. HEATING BOILERS: York. UNIT HEATERS: Trane. UNIT VENTILATORS, RADIATORS, CONVECTORS: Trane. HEATING VALVES, PIPING, CONTROLS: Honeywell. AIR CONDITIONING COMPRESSOR, FAN UNIT: Trane. DIFFUSERS, DUCTS, PUMPS, ETC.: Tuttle & Bailey. SPECIAL FANS AND VENTILATORS: Trane. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIPMENT: Seco. CEILING MATERIALS: Rohm & Haas Acrylic. MAIL BOXES AND CHUTES: Cutler. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: Foremost McKesson. FINISH FLOORING AND CARPETING: Alexander Smith Carpeting. FURNITURE AND SEATING: Thonet; Steelcase; Herman Miller, General Fireproofing.

ROCKEFELLER WING, METROPOLITAN MUSEUM OF ART, New York, New York. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architect.) CONCRETE AND CEMENT: Colonial Stone and

PRODUCTS

(Continued from page 93)

Sand Company; Hudson Cement. ELEVATORS AND ELECTRIC STAIRWAYS: Otis Elevator. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Lexington. PARKING EQUIPMENT: Auto Parking Devices, Inc.

TEMPLE OF DENDUR WING, THE METROPOLITAN MUSEUM OF ART, New York, New York. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) (PHASE 1 ONLY.) CONCRETE AND CEMENT: Colonial Sand and Stone Co.; Hudson Cement; Penn Dixie; Shrinkage Compensating Cement. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Empire Switchboard. STANDBY EMERGENCY POWER: Light Alarms. LIGHTING FIXTURES, LAMPS: Westinghouse. PLUMBING FIXTURES, TOILET SEATS: American Standard. UNIT VENTILATORS, RADIATORS, CONVECTORS: Standard Fin-Pipe Radiator Corporation. HEATING CONTROLS: Robert Shaw. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier. PUMPS: Weinman. SPECIAL FANS: ILG.

LEHMAN PAVILION, METROPOLITAN MUSEUM OF ART, New York, New York. ARCHITECT: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) CONCRETE AND CEMENT: Colonial Sand & Stone Company; Hudson Cement. BRICK, BLOCK AND STONE: Penn-Dixie; Indiana Limestone. STRUCTURAL STEEL: White Plains Iron Works. CURTAIN-WALL: Ickes Braun. GLASS: Libbey-Owens-Ford. ELEVATORS: Dover. DOORS (EXTERIOR AND INTERIOR): Williamsburg Steel Products Corporation. HARDWARE (LOCKSETS, HINGES, CLOSERS): Sargent; Stanley. ELECTRICAL DUCTS AND WIRING: Royal Switchboard Company; Kliegel. LIGHTING FIXTURES, LAMPS: Lighting Services, Inc.; Westinghouse; National Cathode. PLUMBING FIXTURES, TOILET SEATS: American Standard. UNIT VENTILATORS, RADIATORS, CONVECTORS: Vulcan. HEATING VALVES, PIPING, CONTROLS: Johnson Service Co. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier. UNIT AIR CONDITIONERS: Buffalo Forge. DIFFUSERS, DUCTS, PUMPS, ETC. Tuttle & Bailey. VENETIAN BLINDS AND SHADES: Levelor.

CUMMINS ENGINE COMPANY — WALESBORO COMPONENTS PLANT, Columbus, Indiana. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Sonneborn Hydrocide Mastic. PILING: Philip Carey. CONCRETE AND CEMENT: Burnside; Southwest Cement. BRICK, BLOCK, AND STONE: Handley Brick Company; Divening Corp. STRUCTURAL STEEL: International Steel Company, Inc. CURTAIN-WALL: Engineered Products, Inc. FLOOR AND DECK SYSTEMS: Martin Fireproofing Corporation. ROOF MATERIALS (ROOFING, GUTTER): Toch Brothers; Philip Carey. ACOUSTICAL MATERIALS: National Gypsum Company; Martin Fireproofing Corp. GLASS: ASG Industries, Inc./L.O.F. ELEVATORS AND ELECTRIC STAIRWAYS: Montgomerey Elevator Company. DOORS (EXTERIOR AND INTERIOR): Pioneer. HARDWARE (LOCKSETS, HINGES, CLOSERS): Best Universal Lock, LCN Closers; Stanley. INTERIOR MATERIALS (TILE, PLASTIC): Handley Brick Company, Inc. PAINT: Devoe. ELECTRICAL DUCTS AND WIRING: ITE; Walker. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): ITE; Continental. STANDBY EMERGENCY POWER: Cummins. LIGHTING FIXTURES, LAMPS: Westinghouse; Sylvania. PLUMBING FIXTURES, TOILET SEATS: Bradley; American Standard. HEATING BOILERS: Babcock and Wilcox. COOLING UNITS & UNIT HEATERS: Miller Picking Corporation. UNIT VENTILATORS, RADIATORS, CONVECTORS: S.E. Fenesternmaker and Company, Inc. HEATING VALVES, PIPING, CONTROLS: Crane; Hayes Controls. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier Air Conditioning Company. UNIT AIR CONDITIONERS: Blazer Corporation. DIFFUSERS, DUCTS, PUMPS, ETC. Tuttle & Bailey. SPECIAL FANS AND VENTILATORS: Acme. PNEUMATIC TUBES, CONVEYORS: P and H Company; S.I. Handling Systems. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIPMENT: Grinnell and Reliable Automatic Sprinkler Company. CEILING MATERIALS: National Gypsum. WATER COOLERS: Halsey Taylor. VENETIAN BLINDS AND SHADES: Levelor Lorentzen, Inc. FINISH FLOORING AND CARPETING: Jennison Wright Corporation; Williams East. FURNITURE AND SEATING: General Fireproofing; Steelcase.

NEW HAVEN VETERANS MEMORIAL COLISEUM, New Haven, Connecticut. ARCHITECT: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION DAMPPROOFING: Rubber and Plastics Compound Company, Inc.; Bird & Son. DAMP PILING: Carlisle Tire & Rubber Company, Inc. CONCRETE AND CEMENT: Penn-Dixie. BRICK, BLOCK AND STONE: Plasticrete Corp.; Glen-Gery Corporation. STRUCTURAL STEEL: Bethlehem Steel. CURTAIN-WALL: Potomac Iron Works. FLOOR AND DECK SYSTEMS: EPIC Metals; Inland-Ryerson. LOW ROOF MATERIALS: Johns-Manville. THERMAL INSULATION: Owens-Corning. ACOUSTICAL MATERIALS: Cafco Blaze Shield; U.S. Mineral Products Company. GLASS: PPG; Mississippi Glass. TRANSLUCENT PANELS: Johns-Manville. ELEVATORS AND ELECTRIC STAIRWAYS: Dover Elevator (Elevators); Hitachi, Ltd. (Escalators). DOORS (EXTERIOR AND INTERIOR): County Firedoor; North American Door. HARDWARE: Stanley (Hinges); Sargent (Locksets); Sargent & LCN (closers). INTERIOR MATERIALS (TILE, PLASTIC): American Olean; Murray. INTUMESCENT COATING: Albi Mfg. Co.; DeVoe. PAINT: DeVoe. ELECTRICAL DUCTS AND WIRING: Westinghouse. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): Westinghouse; Auto Switch Co.; Leviton; Appleton. LIGHTING FIXTURES, LAMPS: Incand-Omega; Stonco; Lightolier; Spear; Artmetal; Infranor; Curtis-Electro/Flour; Sylvania & McPhilben. PLUMBING FIXTURES, TOILET SEATS: Josam; Kohler; Olsonite; Weil Pump. PIPING: Walworth; Victaulic Co. of America. UNIT HEATERS: Chromalox. HEATING VALVES, PIPING, CONTROLS: Walworth; Honeywell. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier; Carrier/Cooling Tower-Marley. DIFFUSERS, DUCTS, PUMPS, ETC.: Tuttle & Bailey; United Sheet Metal; Ingersoll-Rand. SPECIAL FANS AND VENTILATORS: ILG; Emerson/Transfer-Robbins & Myers; Westinghouse; Breidert. INTERCOM SYSTEMS: Dukane. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIPMENT: Automatic Sprinkler Co.; Firealarm-Simplex; W.D. Allen Co.; Peerless Pump. CEILING MATERIALS: Johns-Manville. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: Ogden Foods. FURNITURE AND SEATING: American Seating; Universal Bleacher. FABRICS (UPHOLSTERY AND DRAPERIES): Ford Fabrics. TOILET COMPARTMENTS: Global Steel Products. TOILET ACCESSORIES: Charles Parker. ARENA LIGHTING CONTROL CONSOLE: Hampden Engineering Corp. HOCKEY DASHERS: Safeway. SCOREBOARD: General Indicator.

AETNA LIFE INSURANCE BUILDING, 151 Farmington Avenue, Hartford, Connecticut. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Gates Eng. Co.; Gacoflex. PILING: Steel Piles—Raymond (contractor). WATERPROOFING: Gates Eng. Co.; Gacoflex. CONCRETE AND CEMENT: Penn Dixie Cement. BRICK, BLOCK, AND STONE: Martineau & Deschambault. STRUCTURAL STEEL: Southern Iron Works. CURTAIN-WALL: G.R. Habgood Company. ROOF MATERIALS (ROOFING, GUTTER): Koppers. THERMAL INSULATION: Owens-Corning Fiberglas. ACOUSTICAL MATERIALS: Owens-Corning Fiberglas. GLASS: Kinney Vacuum; P.P.G.; Stanlock Gaskets. ELEVATORS AND ELECTRIC STAIRWAYS: Otis Elevators & Escalators. DOORS (EXTERIOR AND INTERIOR): American Steel Products, Ellison. HARDWARE (LOCKSETS, HINGES, CLOSERS): Corbin, Stanley. INTERIOR MATERIALS (TILE, PLASTIC): Romany Spartan. PAINT: Kyanize Paints. ELECTRICAL DUCTS AND WIRING: Jones & Laughlin. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): General Electric. STANDBY EMERGENCY POWER: Onan. LIGHTING FIXTURES, LAMPS: Daybright, McPhilben, Omega. PLUMBING FIXTURES, TOILET SEATS: American Standard. HEATING BOILERS: Babcock-Wilcox Co. UNIT HEATERS: ILG Industries. UNIT VENTILATORS, RADIATORS, CONVECTORS: Chrysler; Carrier. HEATING VALVES, PIPING, CONTROLS: Johnson Service. AIR CONDITIONING COMPRESSOR, FAN UNIT: Chrysler; Ingersoll-Rand; Carrier. DIFFUSERS, DUCTS, PUMPS, ETC.: Worthington, Anemostat/Waterloo. SPECIAL FANS AND VENTILATORS: Swarthout, Inc. RADIO AND TV SYSTEMS: Motorola. PNEUMATIC TUBES, CONVEYORS: Mathews Conveyor Div. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIP.: Automatic Sprinkler Corp.; Pyrotronics, Inc. WATER COOLERS: Halsey-Taylor. VENETIAN BLINDS AND SHADES: Alcan Building Products. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: Peters and Company. FINISH FLOORING AND CARPETING: Barwick Carpeting.

CREATIVE ARTS CENTER. Wesleyan University, Middletown, Connecticut. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) WATERPROOFING: Koppers. CEMENT: Atlantic. STONE: Indiana Limestone Company. ROOF MATERIALS (ROOFING, GUTTER): Koppers. THERMAL INSULATION: Roof - Owens / Corning. ACOUSTICAL MATERIALS: Owens/Corning. GLASS: PPG. ELEVATORS: Martin Elevators. DOORS (EXTERIOR AND INTERIOR): Superior Door and Sash Company. HARDWARE (LOCKSETS, HINGES, CLOSERS): Russwin Locks; VonDuprin. PAINT: DeVoe. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): I.T.E. STANDBY EMERGENCY POWER: Onan Eastern Corp. LIGHTING FIXTURES: Lightolier; Stonco; Swivelier. PLUMBING FIXTURES, TOILET SEATS: Kohler. UNIT HEATERS: Trane. UNIT VENTILATORS, RADIATORS, CONVECTORS: Trane. HEATING VALVES, PIPING, CONTROLS: Honeywell. AIR CONDITIONING COMPRESSOR, FAN UNIT: Trane. UNIT AIR CONDITIONERS: Trane. DIFFUSERS, DUCTS, PUMPS, ETC.: Bell & Gossett; Barber Colman. SPECIAL FANS AND VENTILATORS: Acme. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIP.: W.D. Allen. MOVABLE PARTITIONS: Vecta & Coil Wall. VENETIAN BLINDS: Leveler. FINISH FLOORING AND CARPETING: Williams East. FURNITURE AND SEATING: Heywood Wakefield. SEALANTS: Pecora. SKYLIGHTS: Wasco.

POWER CENTER FOR THE PERFORMING ARTS, UNIVERSITY OF MICHIGAN, Ann Arbor, Michigan. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) CONCRETE AND CEMENT: Penn-Dixie. STRUCTURAL STEEL: Mississippi Valley Structural Steel Company. CURTAIN-WALL: Ornamental Iron Works, Inc.; Special Fabricators, Inc. FLOOR AND DECK SYSTEMS: Ornamental Iron Works, Inc. ROOF MATERIALS (ROOFING, GUTTER): Bilco Co.; Fisher Skylights; Ruberoid 203A, Inc. ACOUSTICAL MATERIALS: Cafco Blaze Shield Fireproofing Insulation. GLASS: LOF Varitran. ORCHESTRA PLATFORM LIFT: Dover Elevator. DOORS (EXTERIOR AND INTERIOR): Atlantic Metal Products; Edwards Company. HARDWARE (LOCKSETS, HINGES, CLOSERS): Mosaic Tile Co. PANELING: Tectum Acoustic Panels. PAINT: Durako Paint & Color Corporation. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Westinghouse. STANDBY EMERGENCY POWER: Dual Lite Company. LIGHTING FIXTURES, LAMPS: *Gotham;* G.E.; Curtis-Electro; Appleton; Presolite; Wiley Hallite; Swivelier; Stonco; McPhilben; Lightolier; Sylvania; Lithoniz; Omega. PLUMBING FIXTURES, TOILET SEATS: J.R. Smith; Kohler; Olsonite. UNIT HEATERS: Chromalox; Carrier. UNIT VENTILATORS, RADIATORS, CONVECTORS: Carrier fan coil units. HEATING VALVES, PIPING, CONTROLS: Johnson Control. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier. DIFFUSERS: Titus. PUMPS: Bell, & Gossett & Aurora; Ric-Wil. SPRIN-

PRODUCTS

KLER SYSTEM AND FIRE PROTECTION EQUIP.: Great Lakes Viking Fire Protection Company; Elkhart Brass Mfg. Co., Inc. CEILING MATERIALS: Armstrong Ceiling Systems. MOVABLE PARTITIONS: Hough Mfg. Corp. FURNITURE AND SEATING: American Seating. STAGE EQUIPMENT: Stage Equipment Company of America. STAGE LIGHTING & EQUIPMENT: Major.

IRWIN UNION BANK AND TRUST—ADDITION, 500 Washington Street, Columbus, Indiana. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Toch Brothers. WATERPROOFING: Carlisle Tire & Rubber Div. CONCRETE AND CEMENT: Kenlite; Burnside, Inc. BRICK, BLOCK, AND STONE: Kaufman Masonry; Devening Block, Inc. STRUCTURAL STEEL: Bedford Misc. Iron and Steel Co., Inc. CURTAIN-WALL: Stanlock Gaskets. FLOOR AND DECK SYSTEMS: L.W. Conc.; Bedford Misc. Iron and Steel Co., Inc. ROOF MATERIALS (ROOFING, GUTTER): Philip Carey. THERMAL INSULATION: Owens-Corning; Dow Chemical Co. ACOUSTICAL MATERIALS: U.S. Gypsum. GLASS: ASG Industries, Inc. INTERIOR PARTITIONS: U.S. Gypsum. ELEVATORS AND ELECTRIC STAIRWAYS: Dover Corp. DOORS (EXTERIOR AND INTERIOR): Ellison Bronze Co.; Emenco; Crane Revolving Door. LOCKS: Best. CLOSERS: Russwin. HINGES: Hager Hinge Co. PAINT: Sherwin Williams; Glidden-Durkee. ELECTRICAL DUCTS AND WIRING: Walker Brothers. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): I.T.E. Imperial Corp. LIGHTING FIXTURES, LAMPS: Gotham; Lightolier; Benjamin Products. PLUMBING FIXTURES, TOILET SEATS: Kohler. UNIT VENTILATORS, RADIATORS, CONVECTORS: Edwards Fin-Pipe. HEATING VALVES, PIPING, CONTROLS: Johnson Controls. AIR CONDITIONING COMPRESSOR, FAN UNIT: Baltimore Aircoil Company; Trane. UNIT AIR CONDITIONERS: Carrier. DIFFUSERS, DUCTS, PUMPS, ETC.: Tuttle & Bailey; Bell & Gossett; Semco. SPECIAL FANS AND VENTILATORS: Loren Cook Company & Swartwout. FIRE PROTECTION EQUIP.: Standard Electric Time Corp.; Allenco. CEILING MATERIALS: U.S. Gypsum. WATER COOLERS: Halsey Taylor. MOVABLE PARTITIONS: Custom Made Business Furniture. VENETIAN BLINDS AND SHADES: Levelor-Lorentzen, Inc. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: Heath. FINISH FLOORING AND CARPETING: E.T. Barwick Mills; Williams-East, Inc.; V'soske-Kent.

FINE ARTS CENTER, UNIVERSITY OF MASSACHUSETTS, Amherst, Massachusetts. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Philip Carey. WATERPROOFING: Gates Eng.; Gacoflex; Philip Carey. CONCRETE AND CEMENT: Penn-Dixie Cement. STRUCTURAL STEEL: Augusta Iron Works. ROOF MATERIALS (ROOFING, GUTTER): Koppers Roofing. THERMAL INSULATION: Owens-Corning. ACOUSTICAL MATERIALS: Armstrong Mineral Acoustic Tile; Owens-Corning. GLASS: PPG. ELEVATORS AND ELECTRIC STAIRWAYS: Dover Hydraulic. DOORS (EXTERIOR AND INTERIOR): Superior Fireproof Door Company. HARDWARE (LOCKSETS, HINGES, CLOSERS): Best Locks; LCN; Sargent; Soss. INTERIOR MATERIALS (TILE, PLASTIC): Keystone Ridgeway. PAINT: Pittsburgh Paints. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): Federal Pacific; Circle Mfg. Co. STANDBY POWER: Onan. LIGHTING FIXTURES, LAMPS: Metallic Arts; McPhilben; Lightolier; Daybright. PLUMBING FIXTURES, TOILET SEATS: American Standard. UNIT HEATERS: Airtherm. UNIT VENTILATORS, RADIATORS, CONVECTORS: Stirling Radiators. HEATING VALVES, PIPING, CONTROLS: Honeywell. AIR CONDITIONING, COMPRESSOR, FAN UNIT: International Air Conditioning; York. DIFFUSERS, DUCTS, PUMPS, ETC.: Barber Colman; Titus; Bell & Gossett. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIP.: Automatic Sprinkler Corp.; Seco Mfg. WATER COOLERS: Sunroc Corporation. FINISH FLOORING AND CARPETING: Williams East Carpeting. FURNITURE AND SEATING: Heywood Wakefield Theater Seats.

WORCESTER COUNTY NATIONAL BANK, One Worcester Plaza, Worcester, Massachusetts. ARCHITECTS: Kevin Roche John Dinkeloo and Associates. (Materials and Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Western Waterproofing. WATERPROOFING: Western Waterproofing. BRICK, BLOCK AND STONE: Whitacre-Greer. CURTAIN-WALL: Engineered Products; Sale Glass; Ayercroft. FLOOR AND DECK SYSTEMS: Rollform Products, Inc. ROOF MATERIALS (ROOFING, GUTTER): Philip Carey Company. THERMAL INSULATION: Owens-Corning. ACOUSTICAL MATERIALS: United States Gypsum. GLASS: Libbey-Owens-Ford. INTERIOR PARTITIONS: Partition Systems and Virginia Metal Products. ELEVATORS: Westinghouse. DOORS (EXTERIOR AND INTERIOR): Alumaline and Superior Firedoor. HARDWARE (LOCKSETS, HINGES, CLOSERS): Corbin. INTERIOR MATERIALS (TILE): GAF. PAINT: Glidden. ELECTRICAL DUCTS AND WIRING: Jones & Laughlin. ELECTRICAL EQUIP. (SWITCHES, BREAKERS): Square D. STANDBY EMERGENCY POWER: Cummins. LIGHTING FIXTURES, LAMPS: Smithcraft; Gotham and Omega. PLUMBING FIXTURES, TOILET SEATS: American Standard. HEATING BOILERS: Superior. UNIT HEATERS: Trane. HEATING VALVES, PIPING, CONTROLS: Powers Regulator. DIFFUSERS, DUCTS, PUMPS, ETC.: Tuttle and Bailey; Connor Engineering. SPECIAL FANS AND VENTILATORS: Trane. SPRINKLER SYSTEM AND FIRE PROTECTION EQUIP.: Superior & Paragon Plumbing. CEILING MATERIALS: USG. WATER COOLERS: General Electric. MAIL BOXES AND CHUTES: Construction Products Co. FINISH FLOORING AND CARPETING: GAF; Williams East. FURNITURE AND SEATING: Vaughn Woodworking; General Fireproofing. FABRICS (UPHOLSTERY AND DRAPERIES): Knoll; Herman Miller.

ADVERTISING INDEX

THE ARCHITECTURAL FORUM
CLASSIFIED ADVERTISEMENTS

RATES: 50¢ per word for Position Wanted, Position Available, Miscellaneous, Instruction, and Employment Service. $12 minimum.
70¢ per word for Products. $50.00 minimum.
PAYMENT MUST ACCOMPANY ALL CLASSIFIED ORDERS
Allow 10 words for box number address.
CLOSING DATE: 1st of month preceding publication date.
ADDRESS ALL ORDERS to Classified Ad Dept., Forum, 1515 Broadway, New York, N. Y. 10036

POSITION WANTED

R.A./NCARB—New York and Connecticut licenses. 14 years experience—general commercial buildings. Heavy bank experience. Initial client contact through field supervision. Administrative duties over production team on line management level. Desires position in New York Metropolitan area. Project management responsibility in architectural construction management or corporate environment. Box 103, Architectural Forum, 1515 Broadway, New York, N.Y. 10036.

ARCHITECT, NCARB, with proven capabilities in design with award-winning firms plus related experience in project and office management. Programming, planning and design experience in educational, governmental, commercial, religious and multi-family housing projects. Recently sold my interest in Chicago based firm which I founded in 1969. 38 years old, single (again) and looking for a new challenge in any location. Reply: Box 104, Architectural Forum, 1515 Broadway, New York, N.Y. 10036.

POSITION AVAILABLE

HELEN HUTCHINS PERSONNEL AGENCY: Since 1954 Specialist in Architecture, Industrial Design, and Home Furnishings. Interviews by appointment. 767 Lexington Avenue, New York, N.Y. 10021 TE 8-3070.

FACULTY POSITION—Department of Building Construction, University of Florida, Gainesville 32611; starting September 15, 1974.

ARCHITECT/DESIGNER: Design oriented A & E firm with offices in Northern, Central and Southern Illinois seeks two graduate design architects. At least one with 3 or more years experience, preferably registered. Outstanding opportunity for advancement in growing firm with challenging projects. Comprehensive hospitalization, life and disability insurance, vacation, sick leave and profit-sharing plan. Send resume or contact: George Magee, FGM, Inc., P.O. Box 1668, Mt. Vernon, Illinois 62864. Phone 618-2402-5620. "An equal opportunity employer."

PROJECT ARCHITECT: Salary range: $15,515 to $19,631 per annum. Requires college degree in architecture plus six years experience in architecture or architectural engineering including 2 years supervisory and current architectural registration. Excellent fringe benefits. Opening: State Public Works Board, Carson City. Contact: Nevada State Personnel Division, Carson City.

CONSTANCE GARNER—ARCHITECTURAL SPECIALIST (national and international): A careful, quality service in the selection of screened personnel in all phases of architecture and interiors. By appointment at: Garner/Jackson Personnel Agency, 155 East 42nd Street, New York, N.Y. 10017. 212-697-8310.

SERVICES

COLLECTION OF PAST DUE ACCOUNTS receivable need not be awkward or embarrassing to either side when handled by knowledgeable professionals. We're fast. We cover entire United States with persistence and intelligence. No charge where we don't succeed. Alfred Greenberg, New York Collection Control Corporation, 210 Fifth Ave., New York, N.Y. 10010. Telephone 212/255-7987.

INTERNATIONAL WRITERS' BUREAU-CLUB-SCHOOL, Helene Erickson Associates, Inc. (212)658-1698. Manuscripts evaluated and submitted. Library (Research) Ghostwriting - Editing - Revisions - Resumes - Speeches - Articles - Books - Brochures - Flyers - Columns - Specialized Artwork, etc. IBM Executive and Copying Services. Contract or Freelance. Write—84-48 Manton St., Jamaica, N.Y. 11435.

BOOKS ABOUT ARCHITECTURE and related topics. To receive price lists, write desk AF, The Rigley Book Company, P.O. Box

Some habits are difficult to break.

Editorial excellence has been a habit at The Architectural Forum for over 80 years.

Proof of this is the fact that William Marlin, Editor-in-Chief of The Forum has won his second consecutive Jesse H. Neal Award for Editorial Excellence. This marks the eleventh time in the twenty year history of this award that an editor of The Architectural Forum has been so honored.

The Neal Award, presented annually by the American Business Press, is the Pulitzer Prize of the business publishing profession. It is highly prized and hotly contested for among business press editors, representing a critical judgement by their peers as to their editorial quality.

In winning his second consecutive award for the special January/February 1973 issue on Philip Johnson, Marlin has achieved a rare distinction. He was also awarded a Certificate of Merit for his feature "Formed In The Faith," about the Boston Christian Science Center which appeared in last September's issue.

The Forum is the only architectural publication to be singled out with two Neal Awards and two Certificates of Merit (it received one in 1972 also) in the last three years.

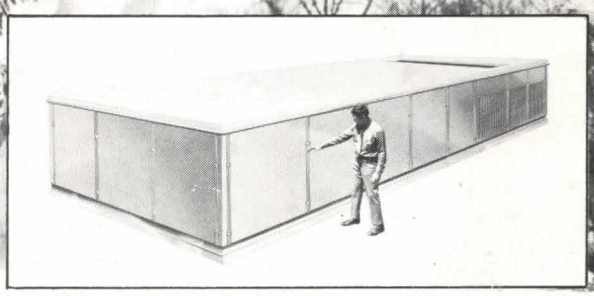
This eight-decade history of editorial excellence is the key to why more registered, practicing architects read The Architectural Forum than any other publication in the field. It's also the reason why important industry leaders—those who have an interest and, oftentime, a voice in the shaping of our physical environment—pay $14 annually to read it.

This award-winning editorial environment offers a compelling reason for you to sell this unique, influential readership on your products and services. The best way is with a consistent advertising program.

Make it a habit . . . in The Architectural Forum.

THE ARCHITECTURAL
FORUM

Weather changes never get ahead of Modine rooftop units.



Modine HVAC units offer uniform comfort at all times, in all seasons or regions, in all parts of your building. Our Multizone and Singlezone rooftop units adjust instantaneously to outside . . . and inside . . . variables. They do it quietly, economically. Sizes up to 60 tons. Learn more about Modine rooftop HVAC. Write to Modine, 1511 DeKoven Ave., Racine, Wis. 53401.

MODINE®