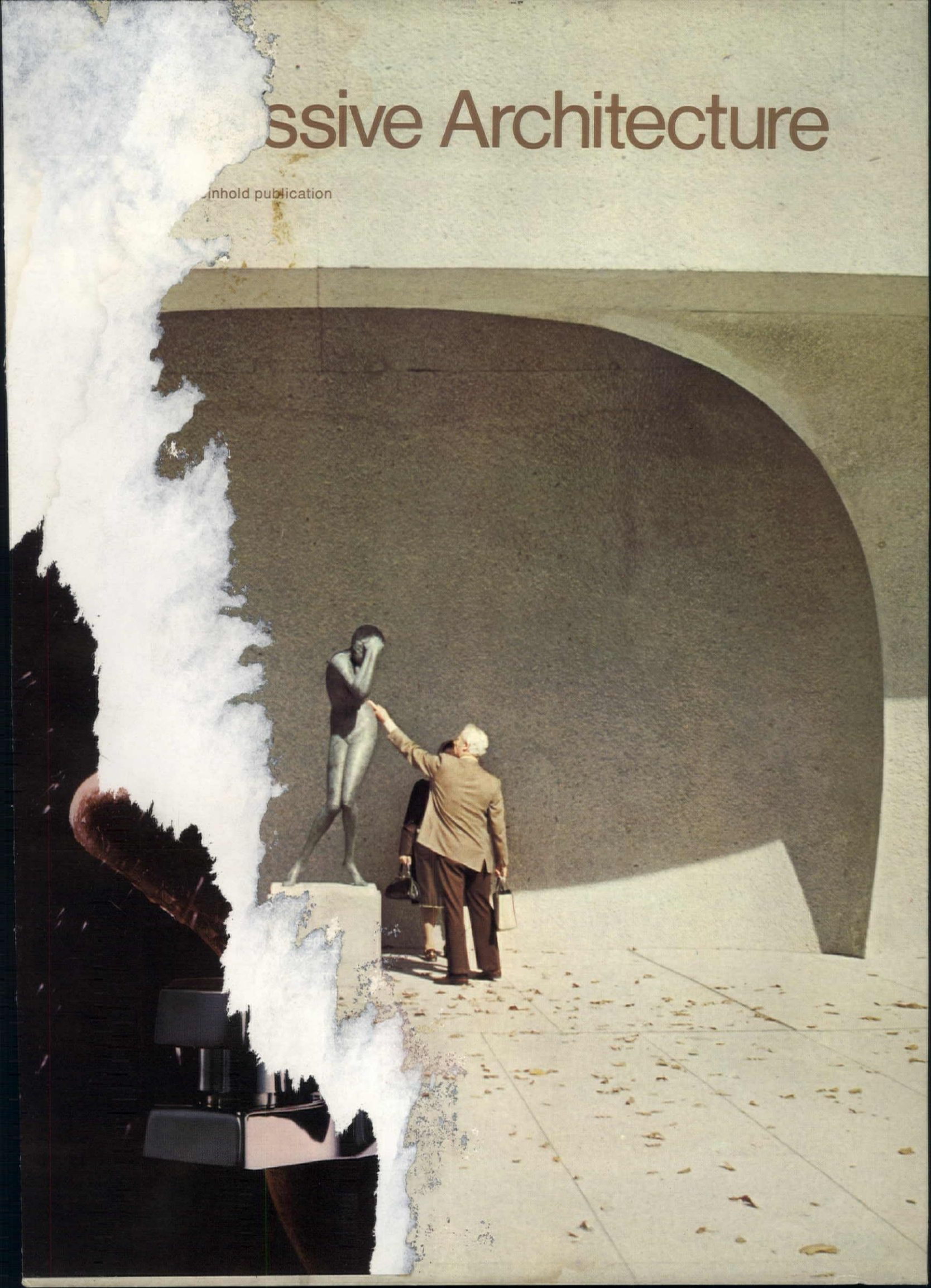


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March 1975

Progressive Architecture

Museums

Design and planning

Editorial: The museum

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Museum as monument

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The Hirshhorn Museum and Sculpture Garden, an imposing structure makes a culture statement of our times. By Skidmore, Owings & Merrill.

Too little from Tange

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The Minneapolis Society of Fine Arts Park by Kenzo Tange is not a representative example of this talented architect's finest work.

Varied reflections in Houston

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Cover: visitors to the Hirshhorn Museum and Sculpture Garden (p. 42) examining the sculpture *Eve* by Laura Ziegler. Photo: John Morris Dixon.

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Views

Awards program

I am in agreement with the P/A planning and urban design jurors that a careful distinction between urban design and planning should be recognized. It is evident that the jurors followed their own suggestion of "narrowing planning submissions to a more specific direction closely related to urban design" in their choices of

three essentially urban design proposals for award/citation selection.

I do find it unfortunate that they have tended to undersell the primary strength of a good planning proposal—rigorous data-gathering, analysis, and evaluation—from which conclusions and recommendations usually emerge as a logical consequence. The very essence of planning is involved with the process. If there is one area where planning proposals can be compared and evaluated in spite of their subject matter it is in the comprehensiveness, rigor, and clarity of their methodology. It is time to recognize planning as a distinct discipline by establishing a

separate category for planning submissions with appropriate criteria for review or by removing "planning" altogether from the apples and oranges category called "urban design and planning."

*Henry A. Abernathy, Planner
New York, N.Y.*

[While we do not agree that our jury was biased towards urban design, we can confirm that they were looking for more than mere accumulations of data from which conclusions would simply "emerge."—Editors]

How can you give an award to this "Remment Koolhaas-Laurinda Spear" house? Don't you realize that it is a joke—someone is pulling your (and Eisenman's) leg?

Carl Mezzoff

Ann Arbor, Mich.

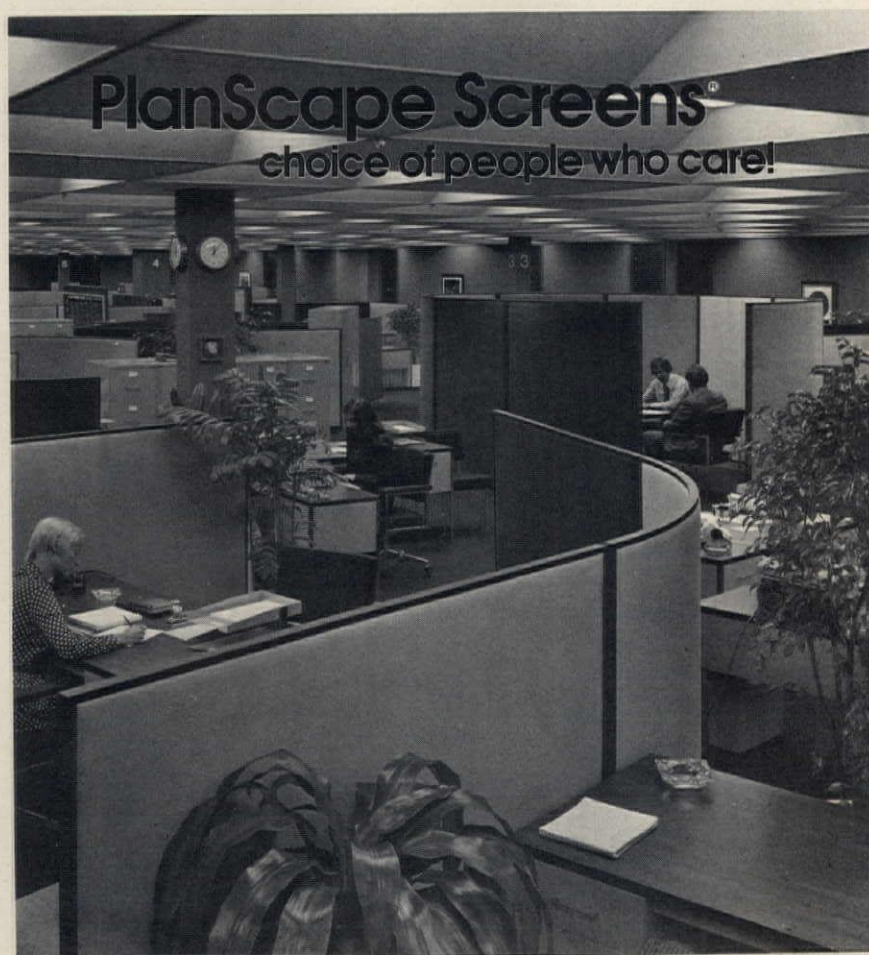
[If Chermayeff, Eisenman, Rudolph, and Zeidler did not see the joke, it may not be a joke. We are reminded that Ant Farm's winning House of the Century project (Jan. 1973 issue), perhaps the most improbable of recent winners, was completed in time for an article in our June 1973 issue—Editors]

For more years than I can remember I have subscribed to P/A and have read each issue thoroughly—sometimes with elation and sometimes with disappointment—but never transferring my thoughts to writing. I cannot restrain myself any longer: most of your 1975 awards, including the comments of the jury members, are an insult to the profession of architecture.

*Eugene A. Delmar, FAIA
Silver Spring, Md.*

It's unbelievable! To think that at one time the magazine now known as *Progressive Architecture* was called *Pencil Points*! It seems that all I see in P/A is freaked-out subject matter and projects. Wouldn't it be a surprise to find a sane, artistic, architectural solution to a problem without the usual weird mock-ups encountered in P/A!

It seems that the professional publications today are all aimed toward the large plan factories with little or no useful information for the small office. What a shame that the uniquely professional publication, *Pencil Points*, was ever allowed to slip by the wayside. I would suggest you pick up an old copy [continued on page 11]



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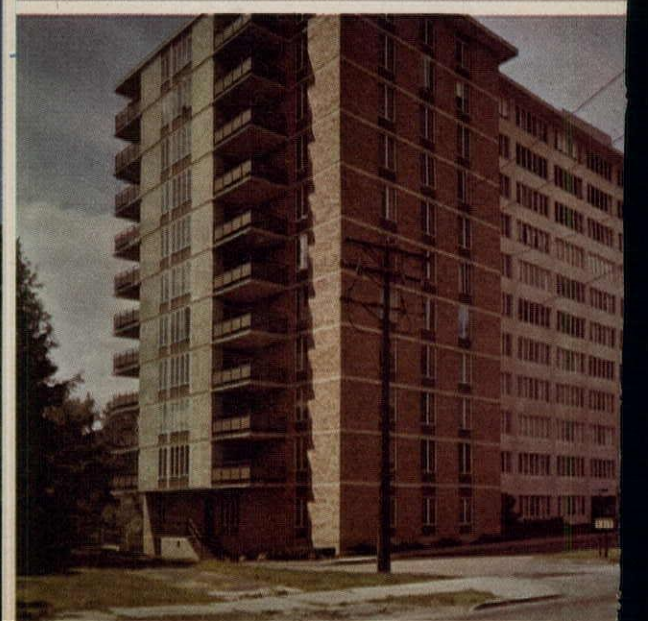
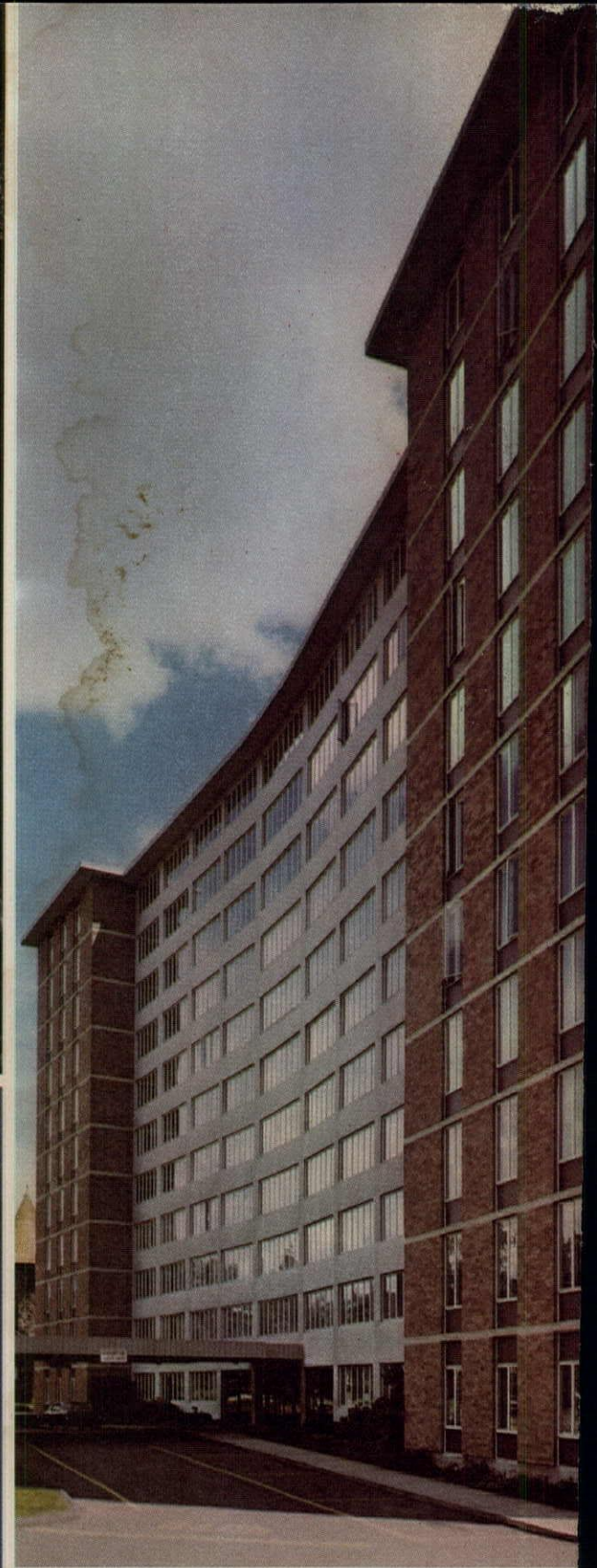
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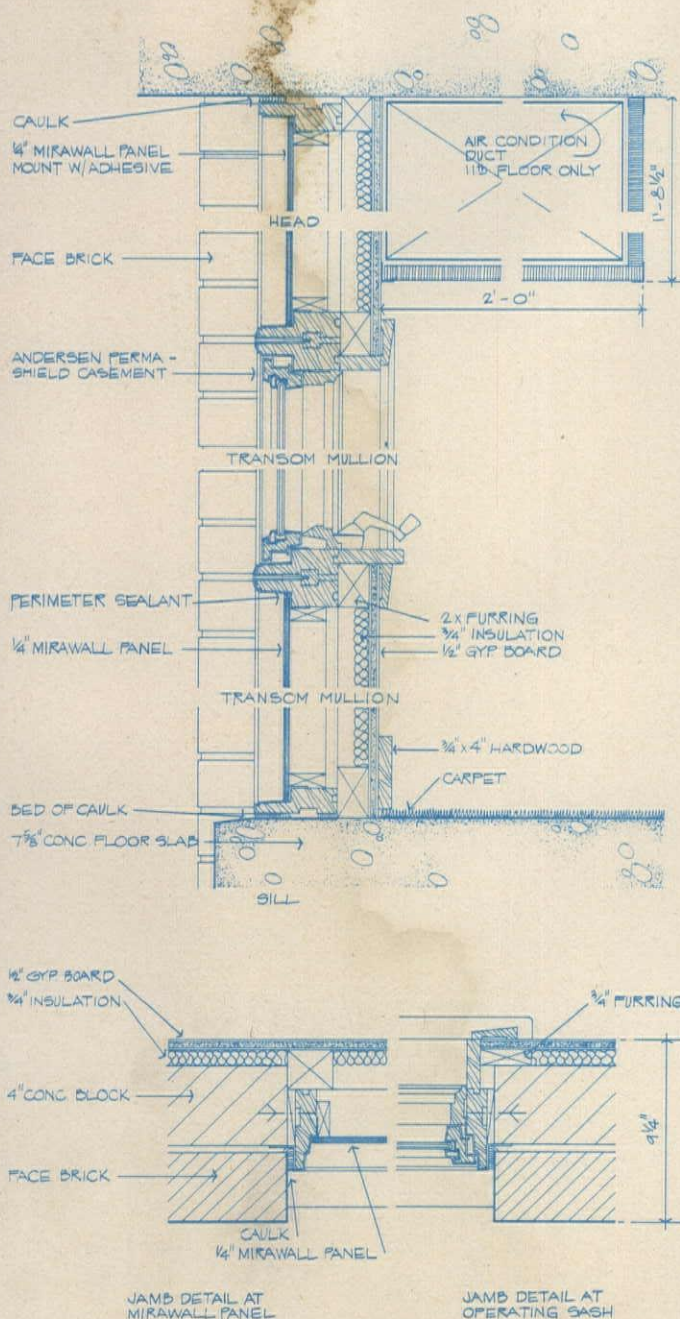
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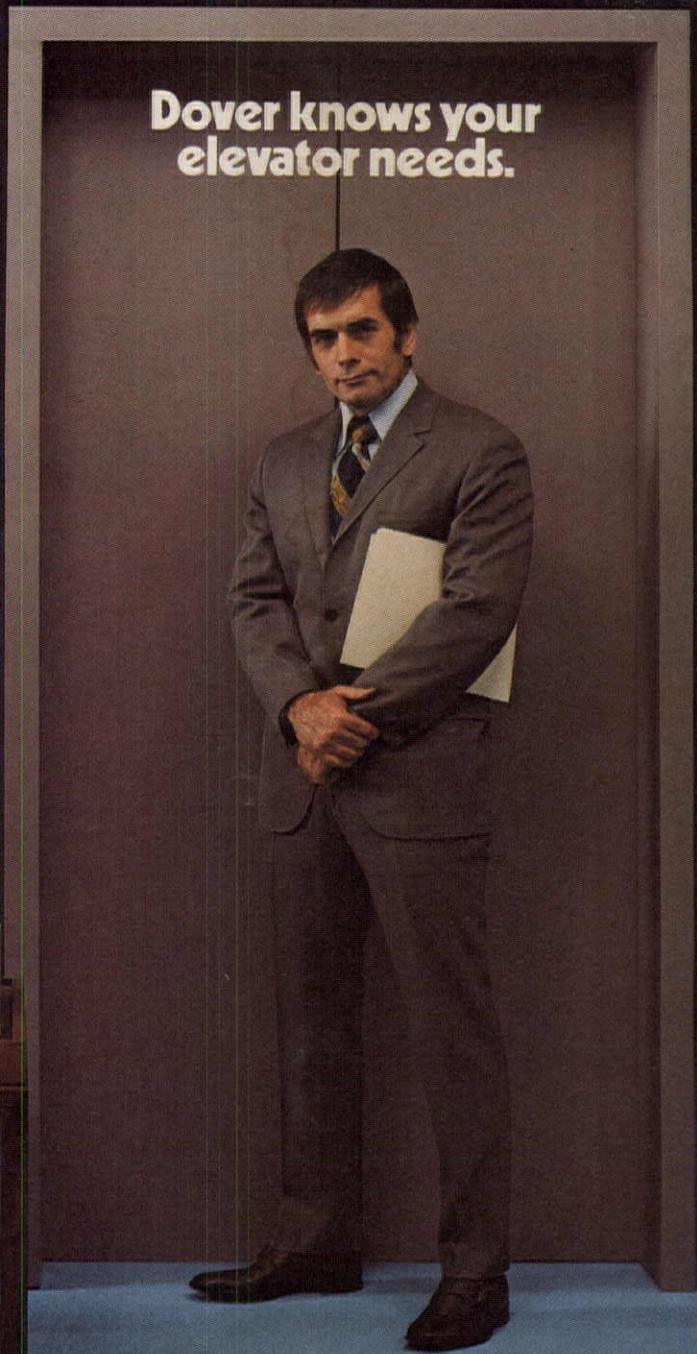
Five Riverside Towers,
Binghamton, N.Y.
Architect:
George E. Yurchison, A.I.A.,
Rochester, N.Y.

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Views continued from page 6

of *Pencil Points* and thumb through it—you'll be amazed that the same principles adhere to today's design problems only they're solved in a much more artistic, professional way.

Edward A. Kane, Jr.

Edward A. Kane & Assoc. Architects
Edwardsville, Ill.

Disregarding the myriad of advertising, P/A with its awards issue has now achieved the statis [sic] of junk mail.

Barry D. Ehrmann

Design Group 1 Architects
Hartford, Conn.

[We have asked the writers of the three letters above if they can identify the objects of their wrath more specifically—Editors]

The Power Broker

So frequently after one has written an article (review of *The Power Broker: Robert Moses and the Fall of New York*, P/A, Dec. 1974, p. 110) and sees it printed, one says "Oh I wish I'd remembered to also say that." A letter

like that by Mr. Burns (Views, P/A, Feb. 1975, p. 6) gives me that opportunity.

First, in terms of Robert Caro's contribution to learning, I could refer Burns to Bruce Biggs' review in the December issue of *Commentary*. Mr. Biggs contends that Caro's material is permeated with half truths, innuendos, and biased data, and that in fact Caro's basic hatred of Moses was as deep as any of Moses' own.

Second, Burns is a believer in the importance of citizen participation in decision-making, in small neighborhoods, and in the rights of individuals. So am I. Nevertheless, many times in terms of getting anything accomplished in planning and building it is important to make decisions that will be unpopular in certain quarters. It is rare that city planning decisions of any magnitude can be accomplished with universal acclaim.

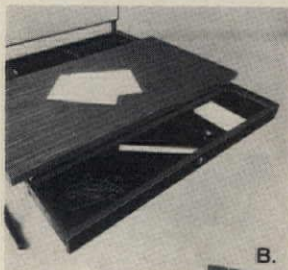
Worse, if the particular opponents are intelligent, vocal, and with strong motivations, they can and will make you out as a villain and can sink your proposal. Architects and planners know this only too well. It is not that Burns merely objects to breaking eggs

in making an omelet. In fact when he goes into a restaurant he wants to tell the chef how to make the omelet, a position under which it is difficult to be either a good chef or a good architect.

Burns' letter gives the classic example of the problem. The 1974 Housing Act plus HUD's implementation says that no new public housing can be built and in fact no plans can be approved unless full consultation has been had locally with regard to 1) civil rights 2) citizen participation 3) environmental protection. Already the social action groups are tooling up—not, unfortunately, to see that housing gets built—but rather to see that no rights are violated. And in fact the amount of housing that will come out of this legislation will be minimal, partially because of the inadequacy of the law, partially because of inflation, but in good part because of those "safeguards" that Mr. Burns so cherishes.

Robert Caro should have a field day. Even Robert Moses couldn't have beat these safeguards. Or could he?

J.S. Fuerst, Assistant Director
Graduate Program in Urban Studies
Loyola University of Chicago



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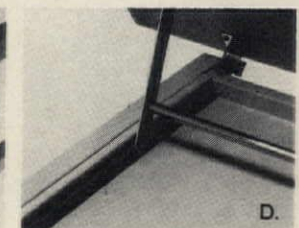
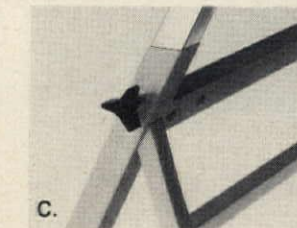
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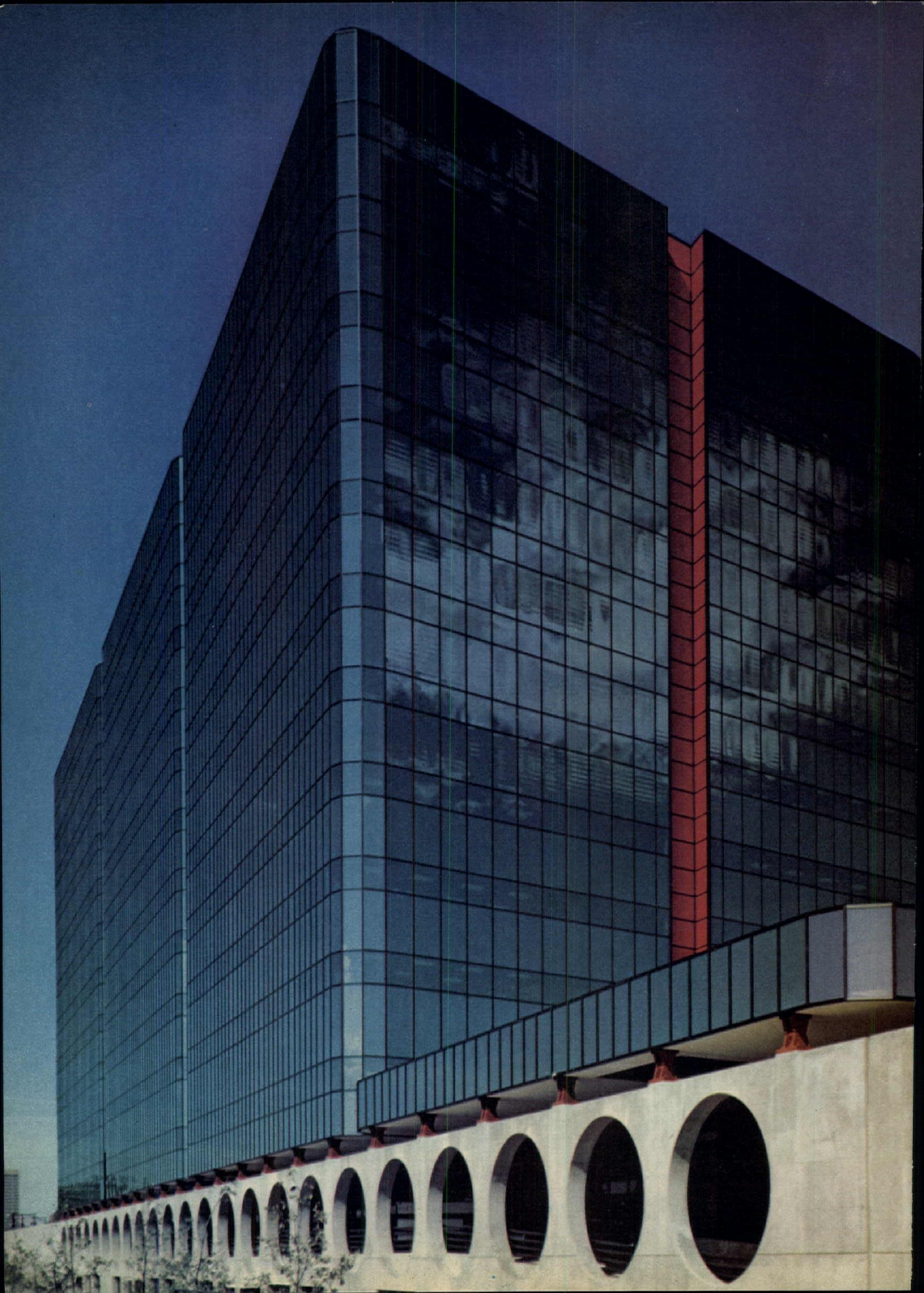
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Jackie leads drive to save Grand Central

Jacqueline Onassis joined a newly formed group of architects and other interested citizens in late January to take legal and popular steps to save New York's Grand Central Station. At a press conference, Mrs. Onassis expressed hope that even an "11th hour" effort—backed, hopefully, by a nationwide expression of support—could prevent Penn Central Railroad from constructing a 55-story office tower over the station.

The Committee to Save Grand Central Station is chaired by former New York Mayor Robert Wagner; co-chairmen are Mrs. Onassis, Bess Myerson, Philip Johnson, Brendan Gill, and Jimmy Breslin. The Committee has both a national committee (co-chaired by William Marshall, president of the American Institute of Architects, and James Biddle, president of the National Trust for Historic Preservation), and a New York committee (co-chaired by four individuals including architect-sculptor T. Merrill Prentice Jr., who also is president of the Municipal Art Society which spearheaded the Committee's formation).

To join or to obtain further information write the Committee to Save Grand

Central Station, 41 E. 65 St., New York, N.Y. 10021.

A Penn Central spokesman denied charges raised at the press conference that railroad operations were being phased out of Grand Central and being transferred to Penn Station. Ridership is on the increase, he said, commenting that at peak hours a train a minute leaves the terminal.

In 1967 Marcel Breuer designed a 55-story tower to replace the terminal. An alternate Breuer scheme, with the tower occupying air rights above the preserved exterior walls and main waiting room, was proposed in 1969. After the New York City Landmarks Preservation Commission disapproved the second proposal, Penn Central took the commission to court to remove the station's landmark designation. In January this year the State Supreme Court decided in favor of Penn Central, saying landmark status deprived the bankrupt railroad of income which a new tower would bring.

Penn Central's real estate attorney Frederick Rovet said in an interview that he expects the city to appeal the

recent court decision clearing the way for the air rights development and that litigation probably will continue for several years. In any case, he stated the developers—Realty Hotels Inc., a subsidiary of Penn Central, and the British company UGP Properties Ltd.—had no immediate plans to build due to the economic climate.

Members of the Committee to Save Grand Central challenge the feasibility of another new office tower earning a profit in today's economy, and furthermore contend that tax abatements to date for preservation of Grand Central represent a "public investment" which must be protected. Lending his support, Rep. Edward Koch (D-NY) said that the millions in federal dollars backing Penn Central "should not be used to demolish but to enhance."

Davis/Brody firm heads AIA awards

The New York City architectural firm of Davis, Brody & Associates has been named winner of the Architectural Firm Award by the American Institute of Ar-

Photo: N.Y. Daily News



In front of Grand Central (from left) architect Hugh Hardy, Bess Myerson, Philip Johnson, Jacqueline Onassis, and Rep. Edward Koch

News report

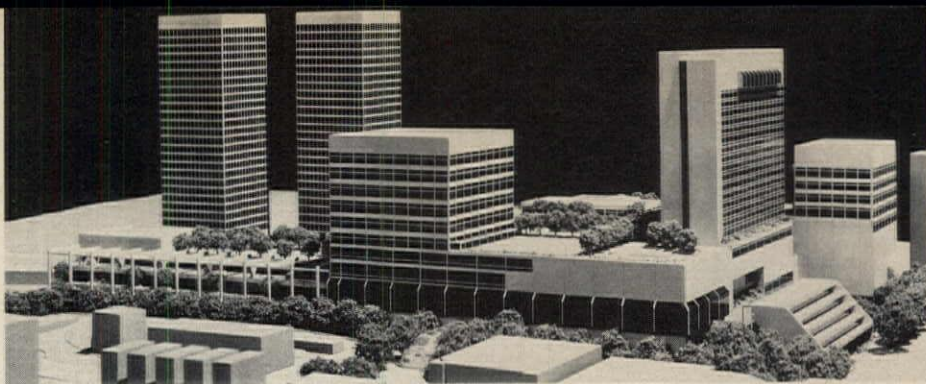
chitects. This honor is the highest the AIA can bestow upon a firm. The reasons cited by the Jury on Institute Honors were continuity of project development and a consistent output of excellent designs.

The office, founded in the early 1950s, is headed by partners Lewis Davis, Samuel Brody, and Alan Schwartzman. Past honors from the AIA are three national Honor Awards—in 1968 for the Humanities and Social Science Center at the Brooklyn Center of Long Island University, and in 1971 for the U.S. Pavilion at Expo '70 in Osaka and for the Estee Lauder factory, Melville, N.Y.

Carl M. Sapers, partner in the Boston law firm of Hill & Barlow, was named recipient of the Allied Professions Medal, an award normally given to an individual in the design profession. However, the jury felt that Sapers' work representing more than 50 architectural firms over the years "has made a much-needed contribution to architecture." In this pioneering field he's handled the legal aspects of such innovations as design/build teams, construction management, and industrialized building.

Artist **Josef Albers**, best-known for his ongoing series of work entitled "Homage to the Square," was selected to receive the Fine Arts Medal. The Jury praised Albers' intellectual vigor and the architectonic quality of his work in naming him for this honor.

The Industrial Arts Medal was awarded to **Gemini GEL**, a Los Angeles Lithography firm, for its research and development of materials and techniques and its technical assistance offered to artists.



Clayton Center outside St. Louis

Clayton vs. Mercantile: round one

Financing has been obtained for Clayton Center, a hotel, office building, and condominium complex scheduled for first phase completion in 1977, near St. Louis. Architects are Anselevicius-Rupe Associates of St. Louis and Cambridge (William Rupe, St. Louis, and George Anselevicius, former dean of Washington University School of Architecture, St. Louis, now chairman of Harvard's architecture department).

Clayton Center will intensify rivalry between downtown interests and suburban Clayton, only a few years ago the somnolent seat of St. Louis County turned burgeoning center of gleaming towers and corporate offices.

The project began with an estimate of \$70 million and now is budgeted at \$125 million. The initial phase will be the first of two 25-story condominium towers, the most expensive in the St. Louis area, a 500-room hotel, 8-story office building, and a landscaped atrium containing 300,000 sq ft of retail space. The second phase will be another condominium and office building, galleria, and recreational center—to be completed in 1980.

The downtown recently witnessed the topping out of the 35-story Mercantile Tower, part of phase one of the \$150 million Mercantile Center, a 6-block redevelopment which will include an 800-room hotel with 28-story atrium and two office-retail towers. Land clearance is about two-thirds complete



Mercantile Center in downtown St. Louis

for this development by architects Thompson, Ventulett & Stainback of Atlanta associated with Sverdrup & Parcel & Associates, St. Louis. Mercantile Center will be second only to the Gateway Arch in skyline dominance. [George McCue]

Yamasaki taped interview available

An hour-long taped interview with architect Minoru Yamasaki, who speaks at length about the design evolution of his World Trade Center in New York, and a show of 160 slides illustrating his remarks are available from the Meadow Brook Art Gallery, which recently held a major retrospective Yamasaki exhibition organized by curator Kiichi Usui. The show included photographic panels and models of such projects as Century Plaza Tower, Los Angeles, and office buildings for the Colorado National Bank, Denver; Montgomery Ward and Company, Chicago; and the Federal Reserve Bank of Richmond, Va. The interview was conducted by two women from Meadow Brook Gal-

Davis, Brody & Associates—architecture firm of the year

Photo: Robert Gray





World Trade Center panel
from Yamasaki exhibit

lery Associates under the direction of Usui. Taped comments include discussion of the Dhahran Airport in Saudi Arabia and the Michigan Consolidated Gas Co. building, Detroit. Further information is available from the gallery, Oakland Univ., Rochester, Mich. 48063.

Rookery Ball benefits Chicago architecture

The Rookery, designed by Burnham & Root in 1886 in the heart of Chicago's financial district, will be the place of merrymaking April 18 when The Rookery Ball gets underway to benefit the Chicago School of Architecture Foundation's educational programs. Co-sponsor of the event, along with the foundation, is the Continental Illinois Bank and Trust Company which has facilities in the landmark building. Proceeds also will help further restoration of H.H. Richardson's Glessner House, headquarters of the foundation. Tickets to the ball cost \$30, available by calling (312) 326-1393.

James L. Nagle of Booth & Nagle is president of the foundation, and Marian Premer is benefit chairman.

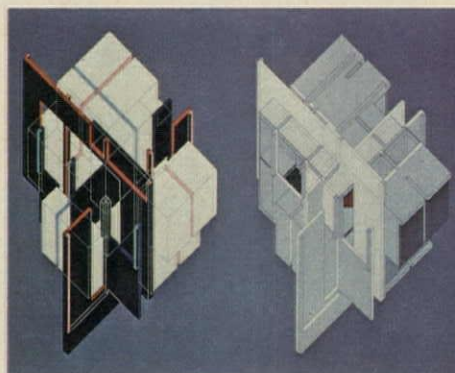
The evening's festivities will include a "silent auction" of architectural ornaments and a buffet dinner in the bank's newly remodeled offices by Graham Anderson Probst & White. The white marble lobby of The Rookery was remodeled in 1905 by Frank Lloyd Wright as a graceful semiprivate courtyard surrounded by shops and offices.

MOMA drawings show March 12-May 15

Architectural drawings by 21 American and European designers will be exhibited at New York's Museum of Modern Art March 12 through May 15. Works in the show will be for sale through the Art Lending Service. Among those represented in the exhibit are Peter Cook, Michael Graves, Hans Hollein, Event Structures, and Superstudio.



Drawings by Friedrich St. Florian
(above) and Peter Eisenman



Architecture for undergraduates

A mildly successful mid-winter conference sponsored by the Architectural League, the Institute of Architecture and Urban Studies (IAUS), and Columbia University's Graduate School of Architecture and Planning in New York concerned itself with "Undergraduate Non-Professional Architectural Education." The day-long seminar focused on to what extent architectural education for undergraduates needed to be professional. Most participants assumed a major should prepare students for further architectural training,

much like a pre-med program. There was little discussion about programs for the people who might remain "non-professional," becoming enlightened clients, politicians, (or journalists).

Thus issues revolved around academic vs. technical emphasis, but even these areas were not discussed adequately. Speakers tended to stress course descriptions, credits, and design studio projects as if to impress others with how "professional" each "nonprofessional" majors were. [SS]

Russian planning: an overview

In planning new communities, the need for recreation space and parks is recognized everywhere, and the Russians love flowers and greenery, yet their new communities often look like a victory of the system over people.

Photo: Fran Hosken



Town center of Bratsk

Nowhere is this more apparent than in Bratsk, the new town built in the middle of Siberia's "taiga" forest next to the largest hydroelectric installation anywhere in the world. But the city has no center except for a movie house and hotel located where two main highways cross. Facilities and services are entirely dispersed, despite freezing temperatures up to nine months of the year. Shopping still requires standing in long lines. The school and the market, as well as social facilities are in different parts of the community, and this requires constant walking in the cold as there are few private cars.

The incentives to come to Bratsk (and to much of Siberia) are great: 40 percent more pay than in Moscow and 10 percent above that for each additional year after the first.

Observing Russian new community planning and housing one concludes that people do not matter, and it is the system that rules all. [Fran Hosken]
Ms. Hosken is a freelance architectural writer
[News continued on page 26]

HOW STEEL FABRICATORS, INC. TAUGHT EVERYONE A LESSON AT THE HARRISBURG MIDDLE SCHOOL.

The lesson was how to cut three to six months off the design and construction time for completing a school.

The teaching materials were Vulcraft's steel joists and joist girders as utilized in Steel Fabricators' "Fab-Lok" structural subsystem, which made "fast track" construction scheduling possible for this job.

By using Vulcraft steel joists and joist girders instead of concrete, the structural work on the building could be started before the final design was completed. Because Vulcraft's joist girder system utilizes a standard five-foot panel point spacing.

Knowing this allowed designers to standardize lighting/ceiling components as well as heating, ventilating and air conditioning components. And layouts for wiring, ducts and pipes. Also, because Vulcraft's steel joists use an open web construction pattern, installation of all wiring, ducts and pipes goes easier and faster. They actually can

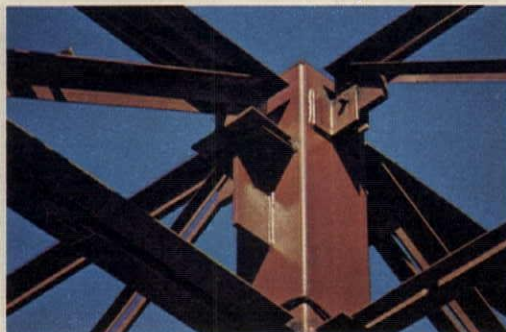
pass right through the joists and joist girders.

The light weight of Vulcraft's joists and joist girders offers other advantages, too. Erection is easier and faster. Supporting columns can be spaced further apart to provide for larger bay areas. And foundation size can be decreased.

The "fast track" technique worked in Harrisburg, Pennsylvania. Plus ten other schools throughout the country where Vulcraft steel joists and joist girders have been used by Steel Fabricators, Inc.



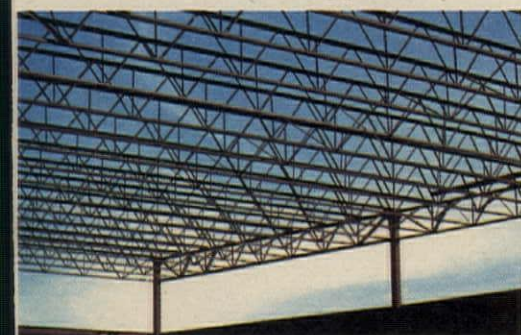
Vulcraft's steel joists and joist girders allow a standard five-foot module between connecting points.



The standardization of column connection also speeds up construction. And requires fewer connecting bolts.



The light weight and simplicity of Vulcraft's steel joists and joist girders make erection fast and easy.



The open web feature of steel joists and joist girders allows ducts, pipes and wiring to pass directly through the steel members.



The high strength of steel joists and joist girders provides increased clear span area, allowing larger bays.



The ease and versatility of designing with steel joists and joist girders solve otherwise complex design problems.

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After all, when school time rolls around, nobody wants to be late.

VULCRAFT

Architect: William Lynch Murray & Associates, Harrisburg, Pennsylvania. Erector: Walsh Steel Services, Pittston, Pennsylvania. General Contractor: Ritter Brothers Construction, Harrisburg, Pennsylvania. Steel Fabricator: Steel Fabricators, Inc., Fort Lauderdale, Florida. Consulting Engineer: Quentin Bowers, P. E., Harrisburg, Pennsylvania.

In perspective

Barnes gratia artis

The concept of the cultural center flowered early and vigorously in Pittsburgh, where the Carnegie Institute and Library (1895–1907) shelters under one vast roof museums of art and natural history, a library, a concert hall, etc. Recently opened and nearly completed is a \$12.5 million addition to this complex, the Sarah Scaife Gallery, designed by New York architect Edward Larrabee Barnes to house the Institute's famous modern art collection.

Barnes has brilliantly resolved the whole network of functional and aesthetic problems that come with such a commission: accommodating circulation between two key new entrances and the old building; relating galleries in the new wing to remodeled existing spaces; giving the addition a distinctive exterior that nevertheless complements the main block. On the outside, he has clad his carefully scaled cubic forms with a handsome brownish, flame-treated granite that somehow matches the whole range of colors in the old building's sooty Beaux-Arts detail. On the inside, he has cleanly segregated the new wing's functions on two main levels: an active street floor for circulation, cafe, theater, museum shop, etc.—treated as a stone-surfaced extension of outdoors—and a quiet upper level exclusively for the contemplation of art. At the center of the new wing, separated from its main corridors only by vast sheets of mullionless glass, is a handsome sculpture court.

For all the architectural delights of its corridors and courtyard, the most memorable spaces at the Scaife are the rigorously ascetic exhibition gal-



Glass wall, braced only with glass, extends full 40-ft height of stair hall. Severity of north entrance is tempered by fountains and Nevelson sculpture.

Photo: Dick Brehl, Associated Photographers

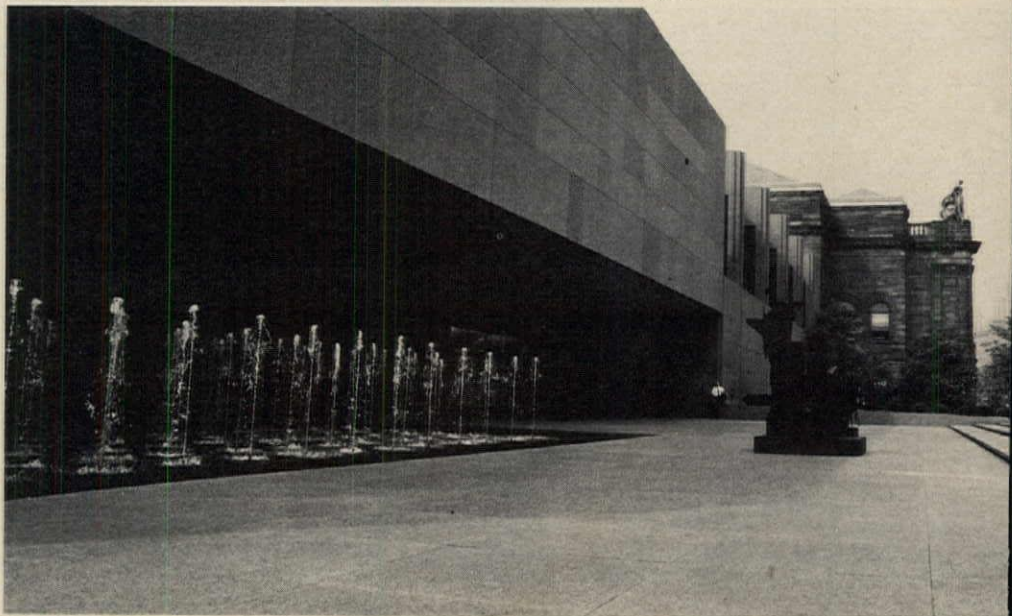
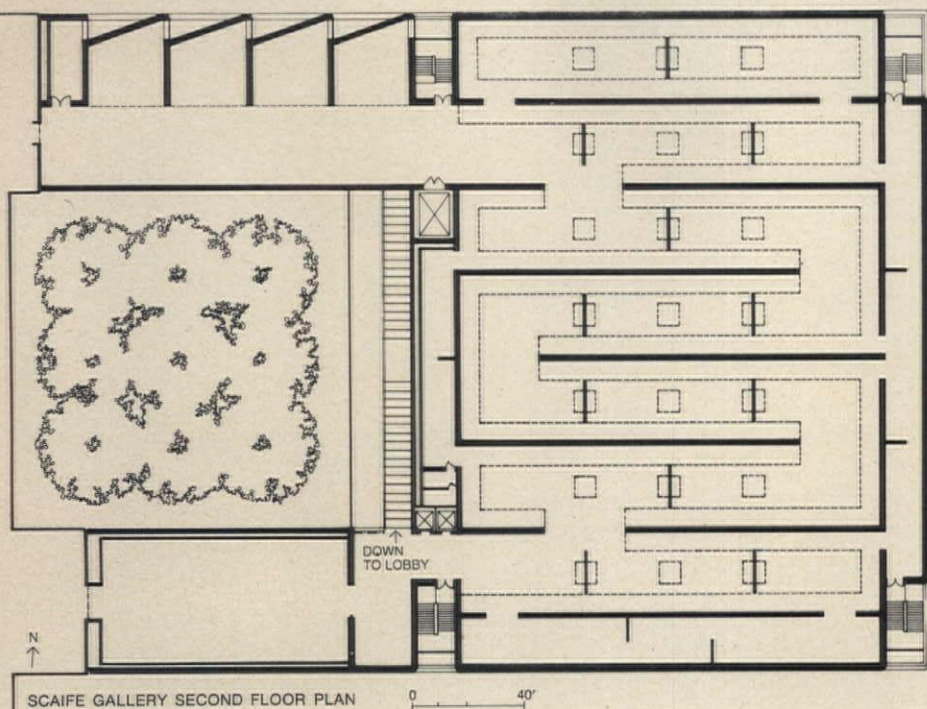


Photo: Lando Inc.



All painting galleries at the Scaife are on the second level. Labyrinthine layout is related to linear skylights, which supply light to coves at top of display walls. Off-white walls and floors disperse light.



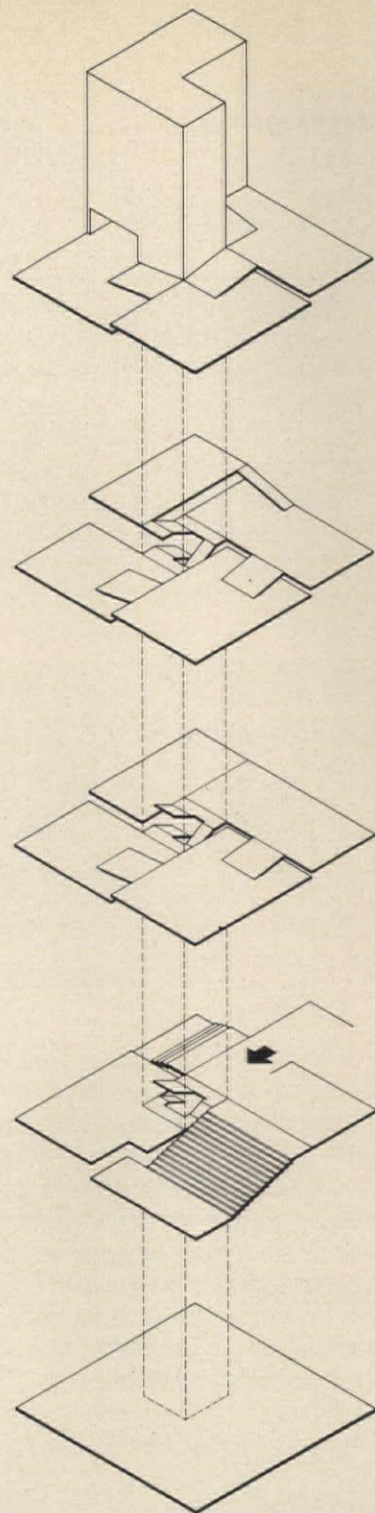
eries upstairs. As at Barnes' recent Walker Art Center in Minneapolis (far right) the galleries here are organized on a strong and uncompromising circulation pattern—helical at the Walker, labyrinthine here.

At the Scaife, the visitor's single-minded interest in art is both encouraged and tested by threading him through a sequence of visually identical galleries, all neutral, windowless, and toplighted. (By-passes are provided, through long print and drawing galleries, and one gallery offers glimpses of the street.) When remodeled spaces in the old structure are finished, they will complete a circuit of galleries leading back to the spectacular glass-walled stairhall.

The Scaife gallery plan is integrally related to its superbly effective system

of natural lighting. From skylights above the center of each linear gallery, light passes through vertical panels of frosted glass into coves at the top of the main display walls. Knockout panels in the gallery ceilings allow for direct lighting of the movable crosswalls, but off-white plaster walls and terrazzo floors disperse light so thoroughly that this has not been needed. Artificial lighting at the ceiling is used only for evenings or very dark days.

"The visitor will find," says museum director Leon Arkus, "that nothing intrudes upon his seeing painting and sculpture." Nothing, that is, in the architecture of the galleries. The Scaife galleries will be ideal for serious art-viewers and guided tours, unsettling for visitors with small children or short attention spans. [JMD]



At Walker Art Center, Minneapolis (1970), Barnes arranged galleries on helical path, with sculpture terrace on roof. Like Scaife, Walker was added to an older landmark (Rapson's Guthrie Theater).

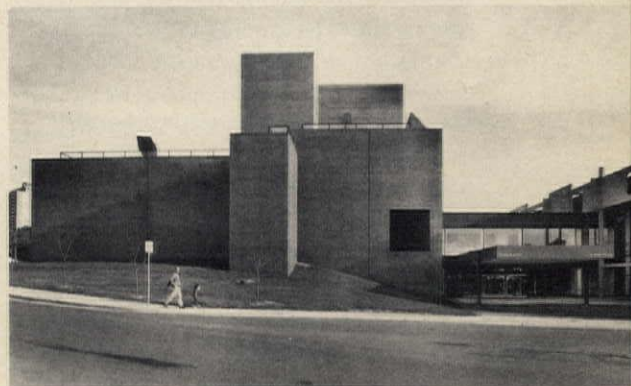
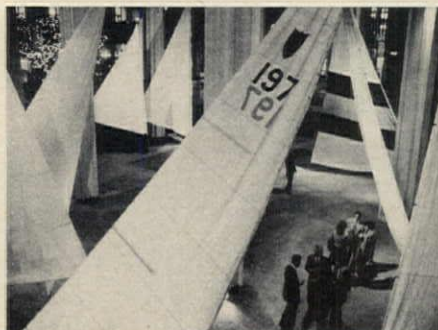


Photo: George Cserna

'SAIL' exhibition attracts lunch crowd

Unrented ground floor space in I. M. Pei's 88 Pine Street building, lower Manhattan, was taken over for two months this winter by Creative Time Project which staged a multimedia environmental sculpture exhibit called "SAIL." The artist, Anne Healy, took 26 sails of various types and strung them about the space where they billowed and shifted in fanned breezes.



"Sail" installation

Music created by Jim Burton on 80-ft-long piano wires was electronically programmed to respond to the motion of the sails and spectators. Attendance was so good that additional concerts were hastily devised for noon hours to satisfy mounting interest as word spread. Creative Time, which specializes in cultural activities for unrented spaces, will hold its next event in late spring or early summer.

Chicago mid-north nears landmark status

The Commission on Chicago Historical and Architectural Landmarks recently voted unanimously to designate the mid-north residential neighborhood a city landmark. One property owner has threatened to appeal the decision, and numerous others at the hearings spoke out against the designation, including architect Bertrand Goldberg, who owns property and lives in the district on Astor St., the most prestigious street of them all. In recent years condominium towers have replaced several townhouses on the street and elsewhere in the district.

Goldberg's protest was based on the inequities a landmark designation would bring to bear on property values

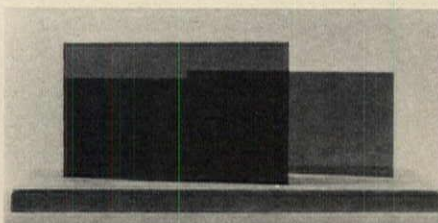


Potential landmark neighborhood

(up to \$28 per sq ft decrease) and on its "hidden" effect of spot zoning. In 1956, he said, he opposed re-zoning Astor St. from single family homes to apartments. That being done, however, Goldberg maintains "the neighborhood no longer deserves designation as a Landmark District," and he suggests, instead, naming individual landmark buildings. The final vote will come from the Chicago Council of aldermen, who already have delayed up to three years on other landmark votes.

Argentinian artist shows glass sculpture

The first New York exhibit of glass sculpture by Argentina-born artist Raquel Rabinovich at Susan Caldwell Gallery was composed of three large works up to 9 feet high and 15 feet long. Ms. Rabinovich designs the sculpture both for outdoor gardens and plazas and for the indoors, as partitions or free-standing objects. Tinted panes from 1/4 to 1/2 inches thick, in juxtaposition, offer subtle interplay of light and shadow.



"Omega," gray glass sculpture 1975

Dedicated . . . but not desired

"5 in 1," a weathering steel sculpture by New York artist Tony Rosenthal, was dedicated last October at its site in front of New York's new Police Headquarters building by Gruzen & Partners, but reportedly the policemen are not all that fond of it. Rosenthal, who has two additional large outdoor works in New York and others elsewhere in the country, said he's never before met such resistance. He feels the rusting steel perhaps is interpreted by the passersby as neglect rather than beauty. The \$80,000 sculpture was commissioned by the Department of Public Works.

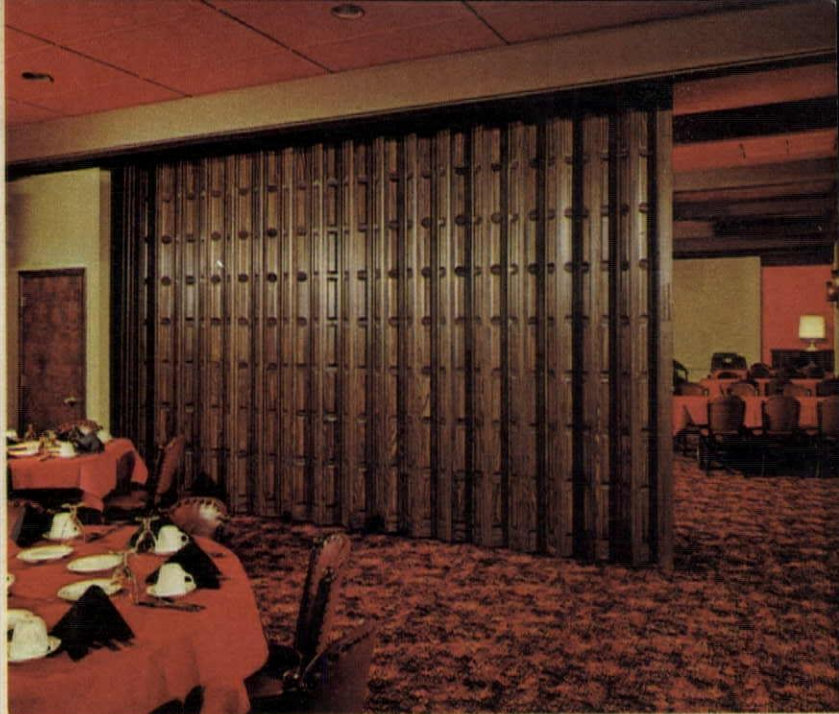


Weathering criticism: "5 in 1"

New York AIA steps up lobbying efforts

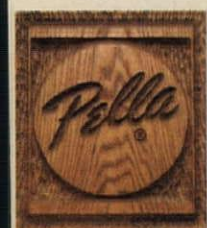
With the economic crunch hitting the construction industry hard, the New York State Association of Architects has moved its headquarters from New York City to the state capital in Albany hoping to secure a "closer liaison" with the legislature. Top in the NYSAA's legislative program for 1975 is a request for state funds to put architects back in business. This would help designers get out of a slump as bad as or worse than that of the Depression, and also ensure that construction projects will be ready when an anticipated improved economy makes money available for building.

The state association is proposing these funds be channeled through existing state agencies, which now are practically at a standstill regarding construction projects. The relatively modest amount of state funds involved for design, if appropriated, "will help [News continued on page 30]

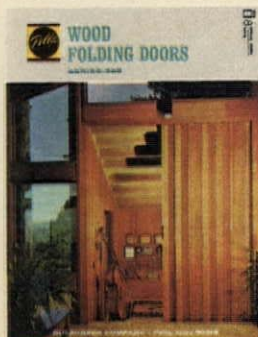


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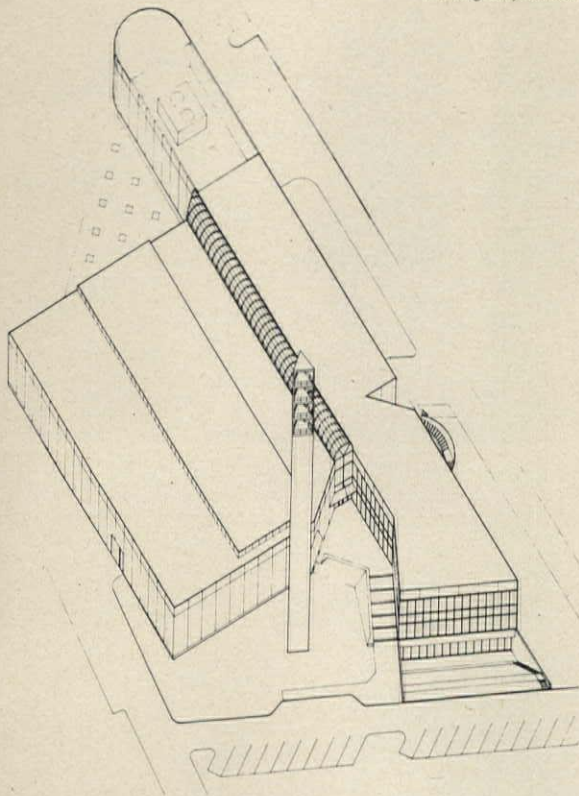


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Drawing: Guy Jackson



Largest totally integrated TV/Radio facility in the Southwest: a symbolic tribute to Houston's highways

level out the lump which inevitably develops when the economy eases, money is available, and everybody says, 'Let's begin,' " said Michael Maas, chairman of the association's Political Affairs Committee. Also included in the campaign is mobilization of statewide chapters of the AIA to meet with local lawmakers on various points of the program. By mid-March the entire effort should be in operation, said an NYSAA spokesman.

Freeway frontage

Houston's Southwest Freeway has for the last decade gradually extended the limits of the city farther into the Texas hinterland, only occasionally generating a development adjacent to it which seems to actually belong there. A building which operates effectively on this strip is the NBC affiliate KPRC Radio/Television headquarters and broadcasting facility designed by S.I. Morris Associates (successor to Wilson, Morris, Crain & Anderson).

Administration is defined by a chrome-glass skin above the radio station. A notch in the side of the building complements the presence of the main lobby and sets the front of the linear block apart from the film production and radio/TV news sections. Terminating the linear block are the servicing area for media trucks and the mechanical plant, which abuts the rear staff entry. The main block on the other side of the spine contains the engineering controls, three TV studios of varying size and their prop rooms, all insulated against sound.

The overall result is both a working environment which unifies the various functions of the station and an up-front image for KPRC. Exposure is gained through its architectural statement: the creation of a bold symbol in scale with freeway movement.
[Peter Papademetriou]

Calendar

- Apr. 3-5.** Tääst, the Annual Architectural Spring Thing at the Univ. of Tenn., Knoxville: seminars, exhibits, lectures, picnic, party.
- Apr. 14-16.** National Interfaith Conference on Religion and Architecture, Hilton Palacio del Rio, San Antonio, Tex.
- Apr. 16.** Submission deadline, Birch Burdette Long Memorial Award for architectural drawings. Architectural League, 41 E. 65, N.Y., N.Y. 10021.
- Apr. 20-23.** Sixth annual conference of the Environmental Design Research Association, School of Architecture and Urban Design, University of Kansas at Lawrence.
- May 12-16.** Seventy-ninth annual meeting of the National Fire Protection Association, Palmer House, Chicago.
- May 18-22.** Annual convention, American Institute of Architects, Atlanta.
- June 18-20.** U.S. National Conference on Earthquake Engineering, University of Michigan at Ann Arbor.
- June 23-25.** Nineteenth annual convention and exhibit of The Construction Specifications Institute, The Rivergate, New Orleans, La.
- July 7-9.** Third International Conference of the Design Methods Group, Berkeley, Calif.
- [News continued on page 33]



Photos: Rob Muir



KPRC's reception area

KPRC is the largest totally integrated TV/Radio production facility in the Southwest, and the building design was a deliberate attempt to relate all functions to each other and mix the station personnel in their use of the building. The \$3,160,000 complex is several buildings in one (80,000 sq ft), tied together by a glass-roofed two-level interior spine which expands at the public entry into a major intersection of functions.

New "Rite-On, Wipe-Off"® Writing System Paints A Pretty Picture

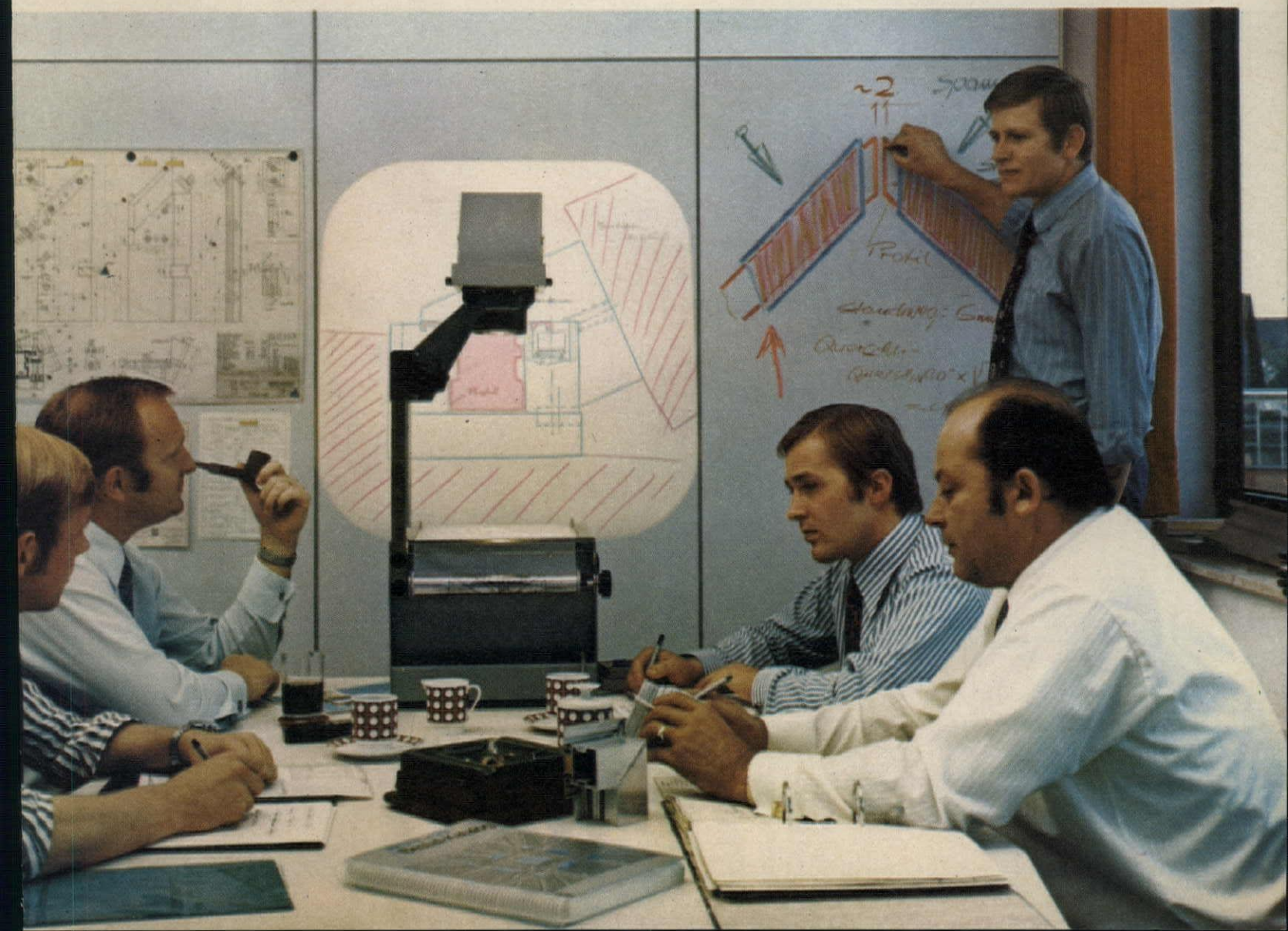
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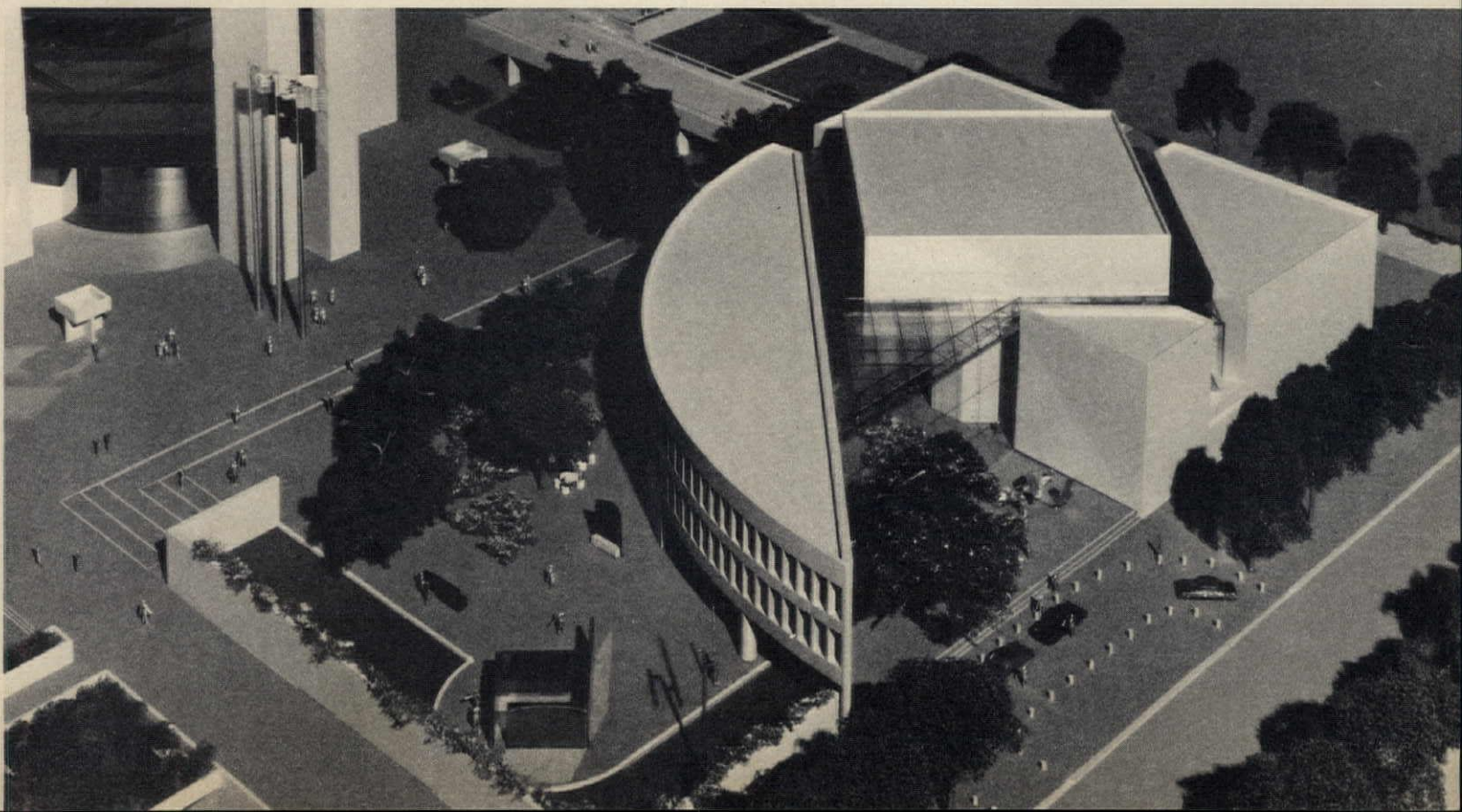
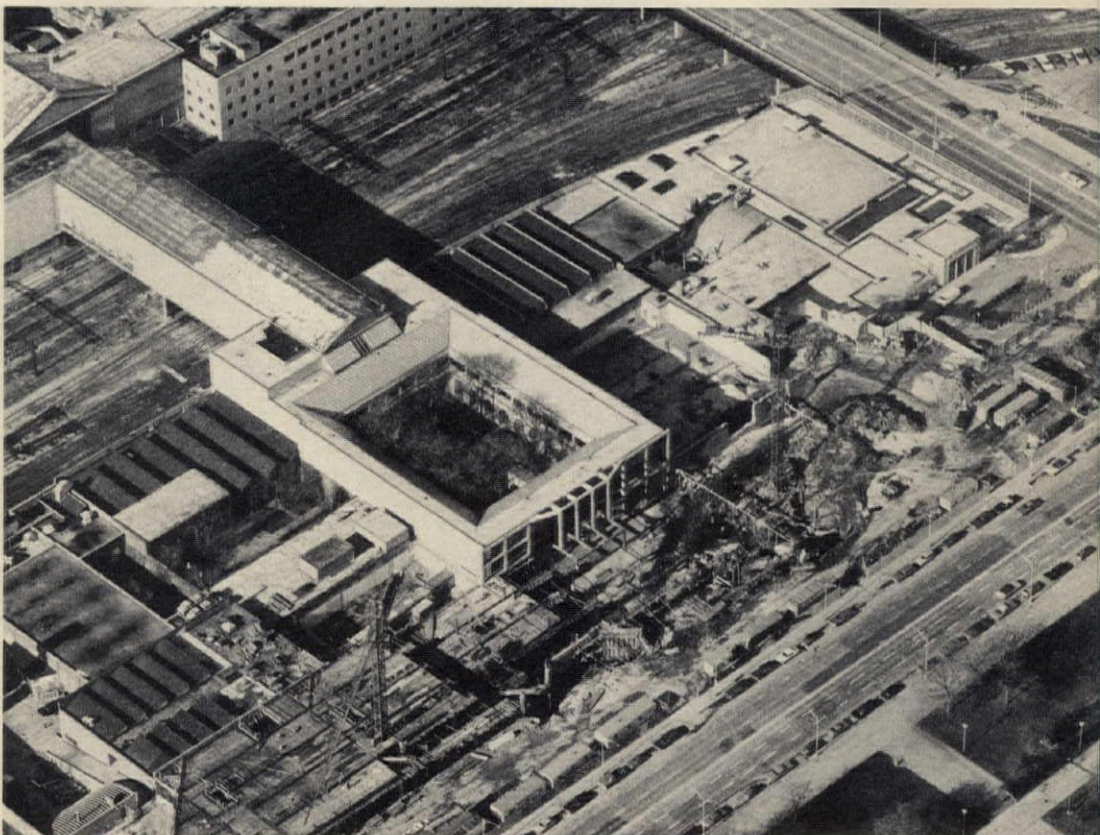
1 Chicago Art Institute—To celebrate its centennial, the Art Institute of Chicago is adding 216,500 sq ft to its sprawling quarters in Grant Park and remodeling another 46,000 sq ft. The first phase, to be completed in 1976, includes a new east entry, dining facilities, auditorium, galleries around McKinloch Court, and an addition to the School. The high-ceilinged trading room and ornate arched entrance of Louis Sullivan's Stock Exchange Building destroyed in 1972 also will be incorporated in the new construction. Architect Walter Netsch of Skidmore, Owings & Merrill has kept heights lower than the existing structures, a neoclassical building facing west on Michigan Ave. and other additions bridging the railroad tracks which cut through the park. The school's faculty reportedly isn't too happy with the plans saying the space will be insufficient and is actually less than what is now in use. Narrow windows facing the lake have been dubbed, somewhat uncharitably, "Walter Netsch's niches."

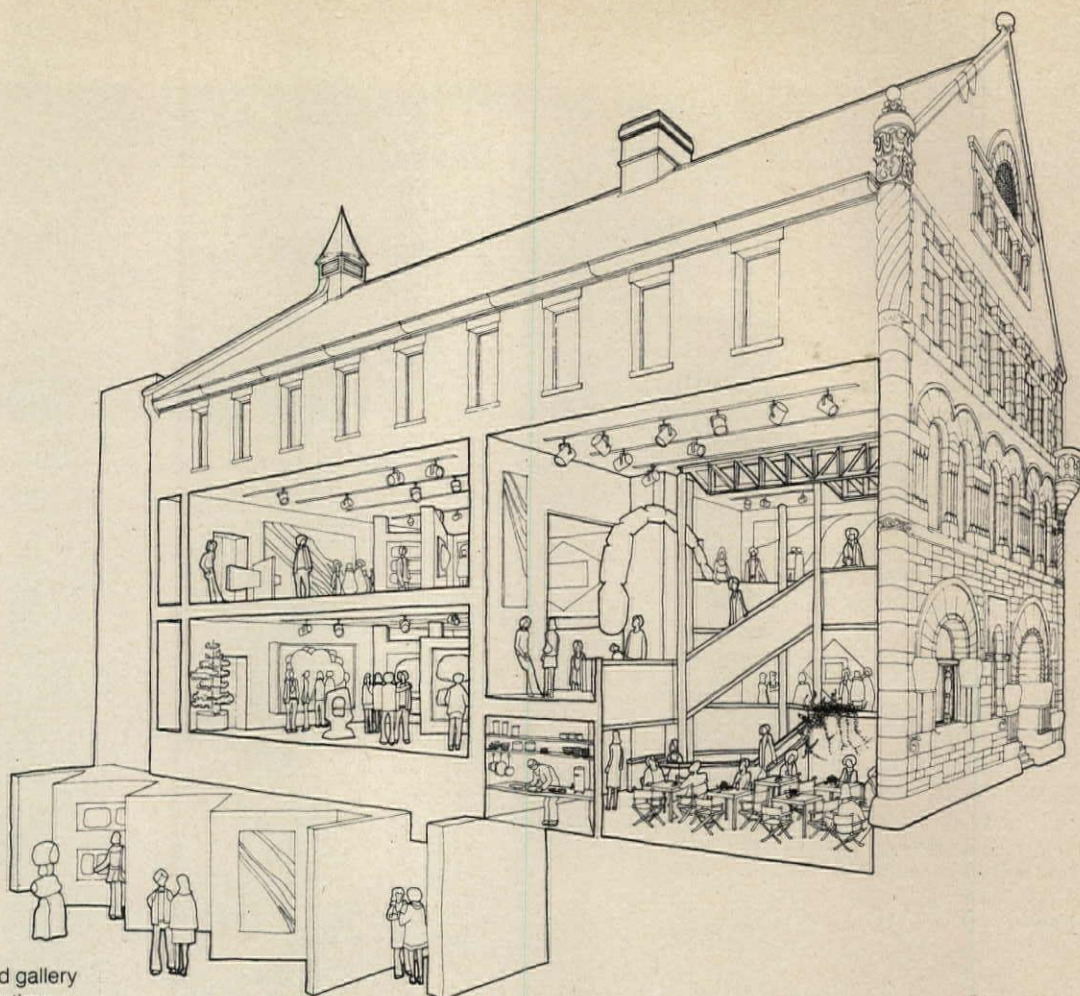
2 I.M. Pei—The recently approved \$7.3 million Long Beach Art Museum in California by I.M. Pei & Partners of New York will go up in a super-block shared with the new city hall and library. Pei breaks the form into semicircle, square, and triangle to separate functions, which include a television studio in the square structure and two 15,000-sq-ft galleries in the triangular buildings that embrace and penetrate the square. Entry is through a foyer-information center beneath a partially glazed roof. The museum is scheduled to open in 1978.

2 "Arts Forum," the Long Beach Museum of Art by I.M. Pei

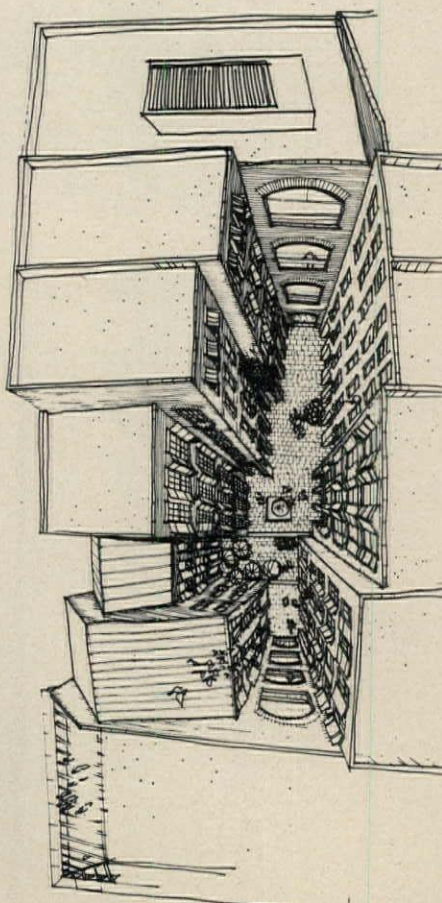
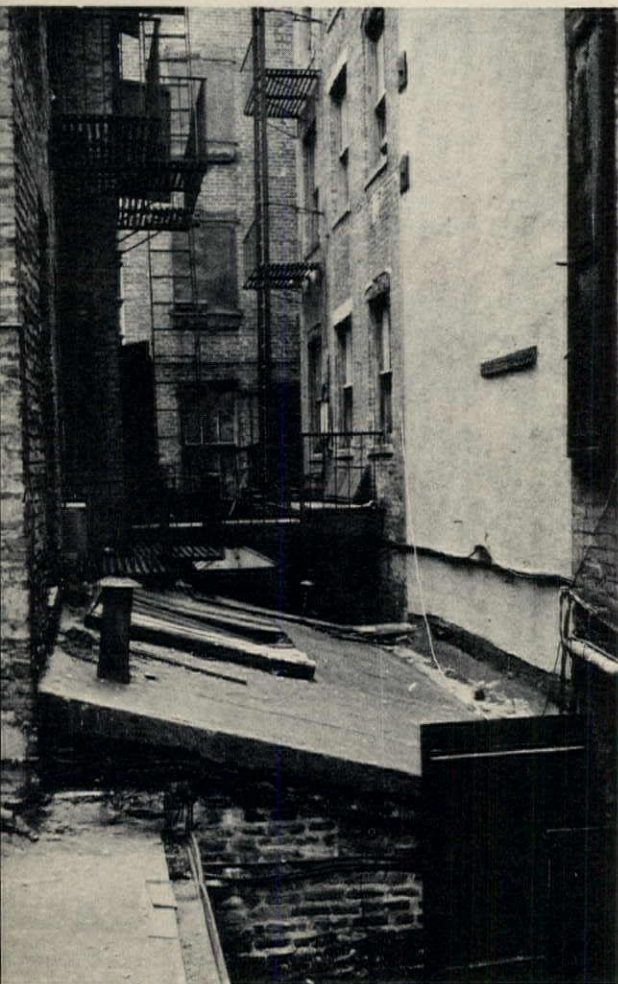


1 Art Institute of Chicago school addition to left (above) and museum's new east entry. Construction (below) a year from completion.





3 Architects combine restaurant and gallery so each can enjoy amenities of the other

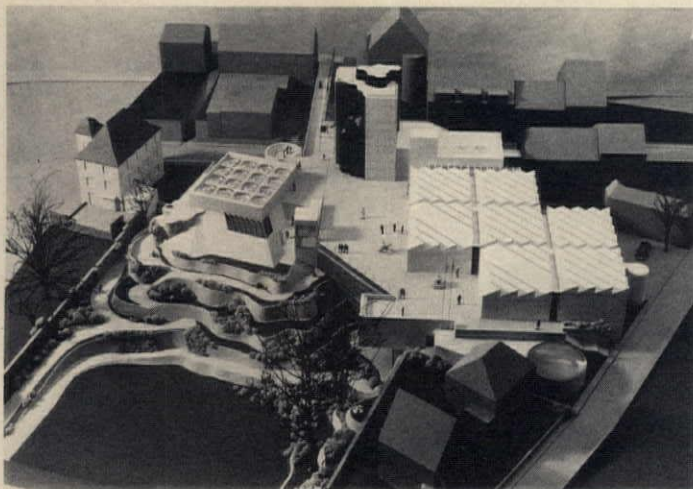


4 Existing courtyard (left) and after renovation (above)

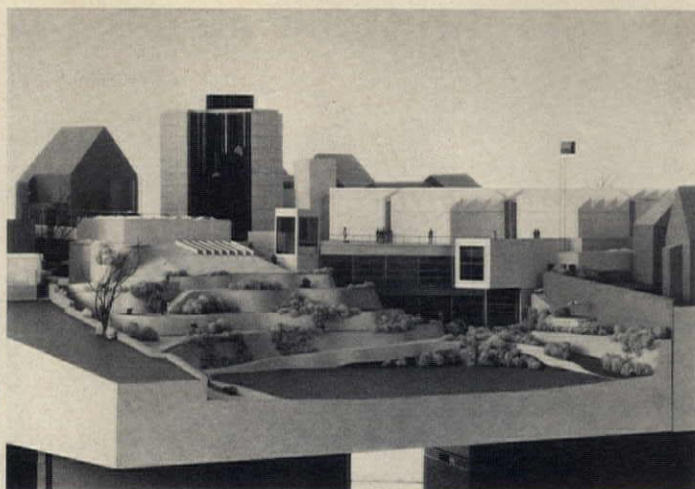
3 Institute of Contemporary Art—Looking for new quarters, the Institute secured the abandoned Police Station # 16 in Boston's Back Bay section. Graham Gund Architects of Boston had the task of giving identity and flexibility, while also accommodating another tenant, a 2000-sq-ft restaurant which, with the Institute, will share a common entry door. This was achieved by creating a 2½ story space containing both. The gallery gradually winds up to the second level, overcoming the tight envelope of bearing walls and random-spaced columns.

4 Urban infill—The South Street Seaport Museum is a proposal for unifying buildings in this former New York fish market area into a living new entity. The architects are Beyer-Blinder-Belle of New York, who have connected the buildings by a common corridor and provided a courtyard in the center. Some of the structures date from the 1790s and will continue to be used now as shops and restaurants. This block is the first of 11 scheduled for renovation.

5 Main street museum—Viennese architect Hans Hollein recognized the need to attract people to the art museum he was designing for an out-of-the-way site in Moenchengladbach, a small German town (population 150,000) near Dusseldorf. His solution is a connector which extends the passage of a main street through an existing building and over a bridge before depositing the pedestrian at the roof of the cultural center, which steps down a hillside towards an old baroque garden. The interior is a flexible space with no given path to follow. Lecture

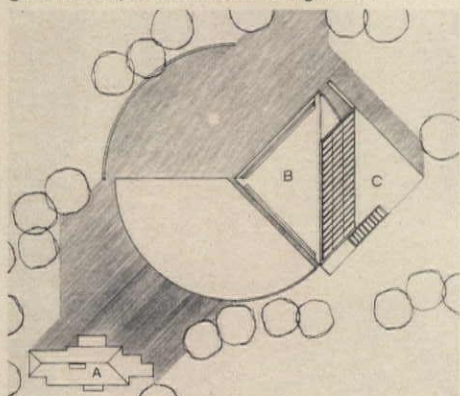


5 Museum roof connects with "main street" as galleries step down hillside to a garden.



Photos courtesy Hans Hollein

South view shows administration tower and the cantilevered cafeteria.

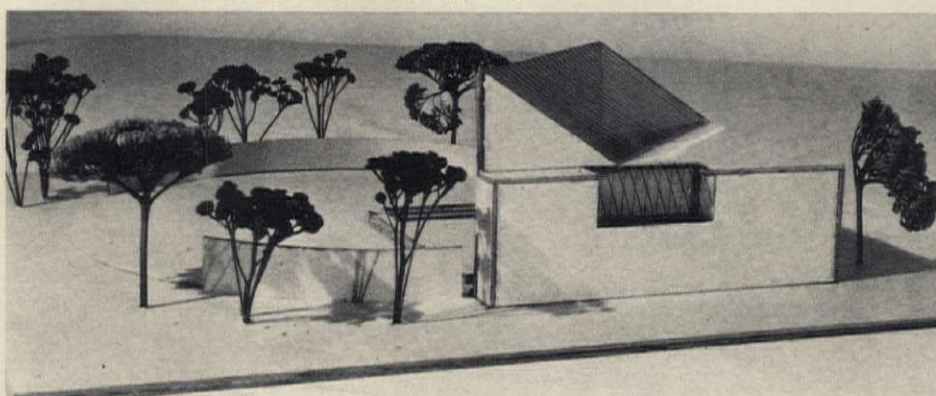


6 A-18th century house B-plaza C-museum

rooms and studios accommodate educational programs. Administrative offices, a library, and artists' apartments are located in a tower. The first stage of construction begins this year.

6 Theater of thoroughbreds—A museum of racing horse lore is being projected for a six-acre site in the "horse" country of Long Island near Oyster Bay. It is part of a complex comprising a training ground for thoroughbreds and a private club for owners. The 10,000 sq ft museum and the adjacent 17th-Century wood frame house—oldest in the area—will be geared to attract a general public. Architects Potter & Golder Associates, New York, have designed a two-story concrete structure with a 14-ft-high curved wall at ground level for outdoor projections of racing horses to be viewed by spectators seated in the stepped plaza. Inside, rear-screen projections and conventional installations will be in a near-windowless environment; however, skylights will provide ample natural illumination for the two levels.

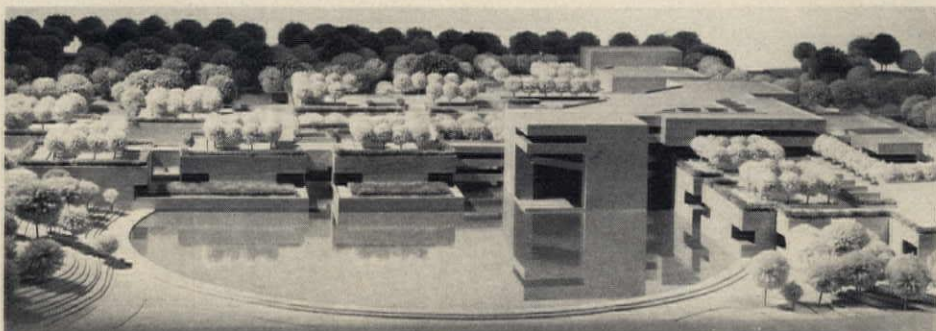
7 North Carolina Museum of Art—Edward Durrell Stone & Associates of New York designed a low, landscaped museum complex near Raleigh for the state of North Carolina. The building consists of a series of pavilions which step down to a lake. Galleries surround interior gardens, and the flat roofs are to be used as sculpture courts. Parking is at a distance, below the ridge. Part of the program called for the use of native materials whenever possible. The structure is exposed, cast-in-place concrete with local granite for paving and interior floor areas.



Curved wall will double as screen for film projections.



7 Central galleries from entrance (above) resemble a shopping mall rather than traditional museum. South-east view (below) shows library/lounge projecting into lake.



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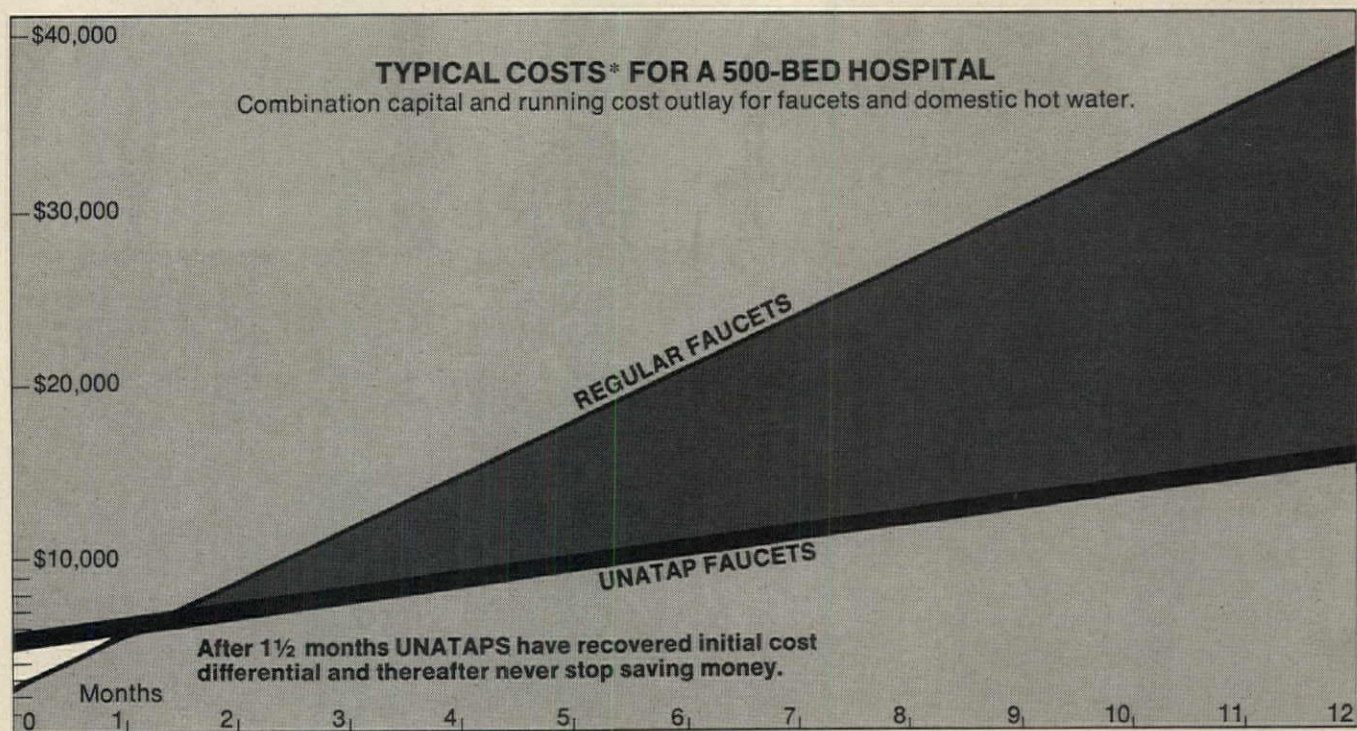
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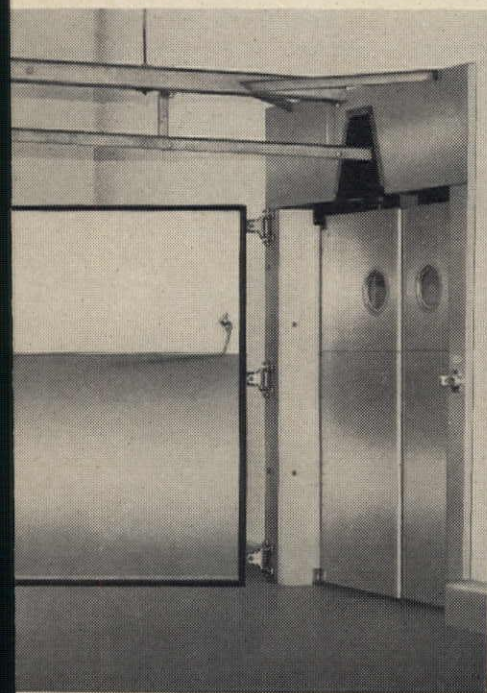


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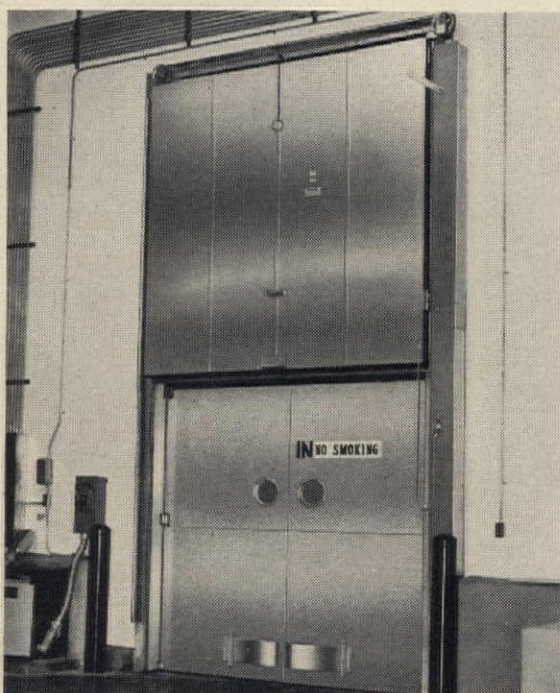
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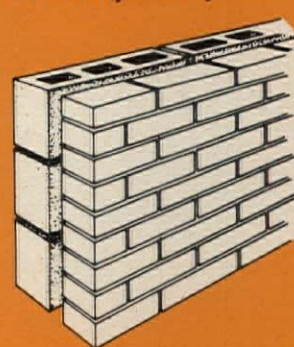
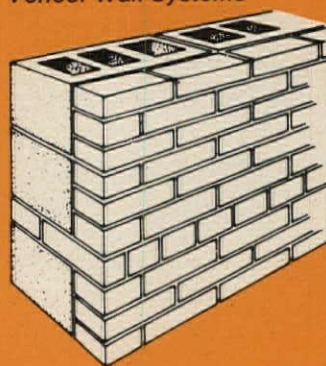
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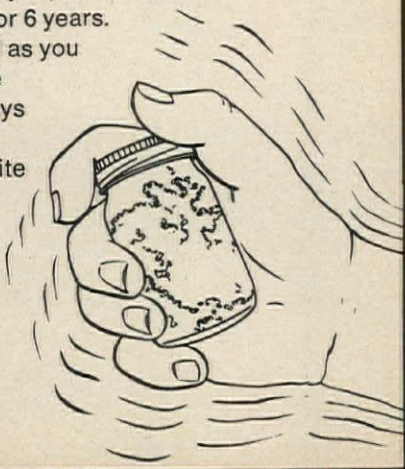
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The museum

March 1975

A public treasure house? A conspicuous display of private acquisitions? An agent of social uplift? A community bulletin board? A monumental coffee table?

There are many roles for museums in our society, and all of them have some effect—if only indirectly—on the architecture that contains them and symbolizes them. In the pages of P/A over the past few years (list at right) you can trace a sequence of museum concepts as the “cultural explosion” peaked and subsided. The sleekly modern, 1960 version of the traditional museum—monumental form, neutral interior volume—was followed by the mid-1960s Expo-style programmed exhibition, and the late 1960s decentralized storefront model. We are now seeing construction of an occasional new monumental museum—like the Hirshhorn, shown in this issue—and many extensions of older monuments in New York, Washington, Chicago, Pittsburgh, Minneapolis. The timing of this issue was, in fact, determined by the number of representative efforts reaching completion at the end of 1974.

A parallel trend, growing stronger, is the conversion of fine old buildings into museums—not just restored buildings to be guided through, but museums with real programs. So long is the time-lag in actual construction of museums that most of the ones we show completed in this issue represent conceptions of the late 1960s. Although P/A has already shown a number of buildings that have been effectively recycled as museums, it is no accident that the only works of this type included here are projects; this movement is still growing.

The storefront ideal survives, but by and large the leaders of the established museums (like the architects who design them) have lost their zeal for carrying art to the people, or embracing people's art. Most of the architecture now produced for this field reflects the conservative idea to which most of the available money is dedicated: that the museum exists to protect a heritage of acknowledged art and to welcome those who enjoy it. If little else has changed over the past two decades, this welcome is usually more graciously expressed now in entrances, gardens, cafes, and gathering places. Architecturally, there has been an almost universal recognition—clearly demonstrated in all of the examples

featured on the following pages—of the need to be respectful of existing buildings and patterns.

Public treasure houses? At best, yes—well-guarded, well air-conditioned, their administrations preoccupied with survival, striving for expansion. More power to those who would continue to expand the roles of the museum. Gratitude to those who merely build well for time-honored purposes. We need all the communal treasures we can save.

John Morris Diefen

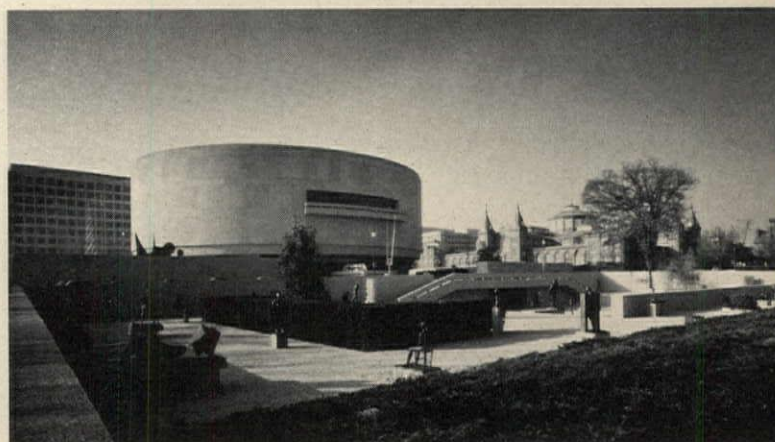
Selected list of museum articles in past issues of P/A: The Great Museum Debate (Dec. 1969) includes coverage of Hudson River Museum by SMS Partnership, Oakland Museum by Roche-Dinkeloo, New England Aquarium by Cambridge Seven Associates, and others; Douglas County Museum, Roseburg, Ore., by Backen, Arrigoni & Ross, and Mansfield Art Center, Mansfield, Ohio, by Don M. Hisaka & Associates (Dec. 1971); Winnipeg Art Gallery by Gustavo da Roza (Sept. 1972); Pittsburgh History and Landmarks Museum, re-use (Nov. 1972); Smith College Art Complex, by John Andrews Architects (Feb. 1973); Fairmont Theater Museum by Hardy Holzman Pfeiffer Associates (Sept. 1973 News report); lighting of Kimbell Art Museum, Fort Worth, by Louis Kahn (Sept. 1973); Museum extension, Woodstock, N.Y., by R.M. Kliment (Jan. 1974); Hopi Cultural Center, Oraibi, Ariz., by Bennie M. Gonzales (March 1974); Queen Mary conversion, Long Beach, Calif. (July 1974); Whatcom Museum of History and Art, Bellingham, Wash., re-use, by George Bartholick (Aug. 1974); construction of addition to National Gallery, Washington, by I.M. Pei & Partners (Sept. 1974); ArtEl, Lewiston, N.Y., by Hardy Holzman Pfeiffer Associates (Feb. 1975). **Featured in this month's issue:** Hirshhorn Museum and Sculpture Garden, Washington, D.C., by Skidmore, Owings & Merrill; Minneapolis Institute of Arts, by Kenzo Tange & URTEC; Contemporary Arts Museum, Houston, Tex., by Gunnar Birkerts; Museum of Modern Art, Florence, Italy, by Richard Meier & Associates; Interior architecture: Museum exhibition installations. **News Report, this month's issue:** Scaife Gallery, Pittsburgh, Pa., by Edward Larrabee Barnes (In perspective); Chicago Art Institute by Skidmore, Owings & Merrill, Long Beach Art Museum in California by I.M. Pei & Partners, Institute of Contemporary Art, Boston, by Graham Gund Architects, South Street Seaport Museum, New York, N.Y., by Beyer-Blinder-Belle, Main Street Museum, Moenchengladbach, Germany, by Hans Hollein, Museum of racing horse lore, Long Island, N.Y., by Potter & Golder Associates, North Carolina Museum of Art by Edward Stone & Associates (In progress).

Museum as monument

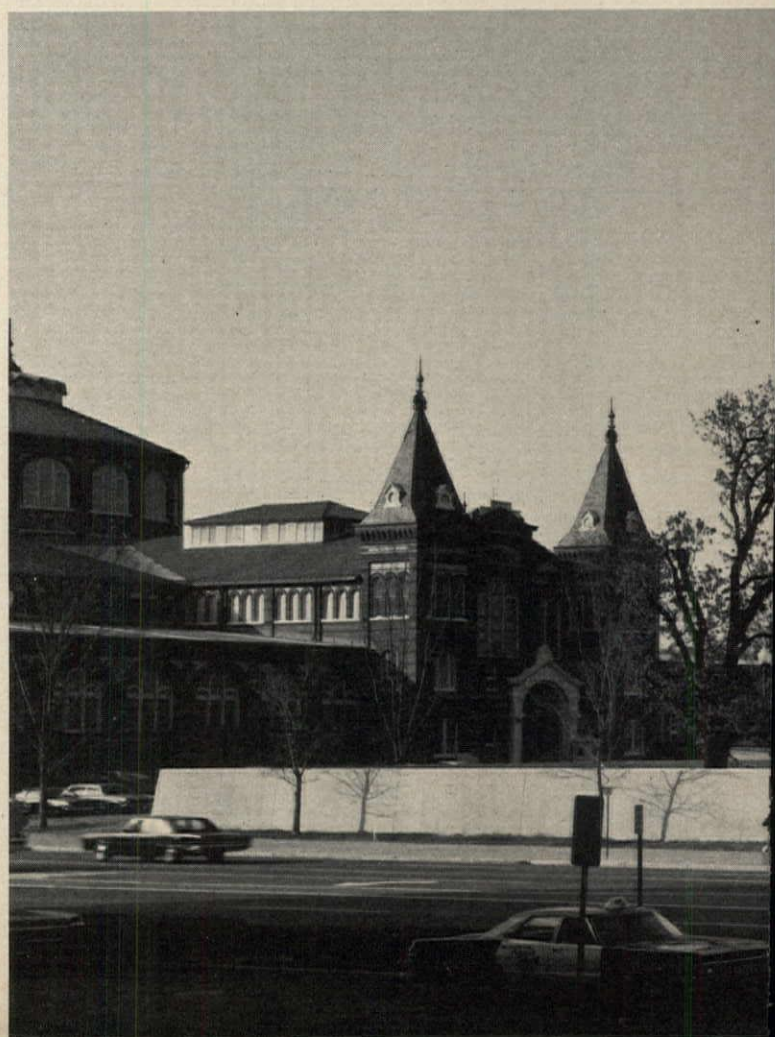
While this imposing structure for modern art could merely indicate architect Gordon Bunshaft's penchant for geometric abstraction, its monumental form also reflects the values and myths of the sociocultural context from which it came.

For years, writers like Sophy Burnham and Jack Anderson in the *Washington Post* have questioned the political process that led to the creation of the Hirshhorn Museum. Since its opening in October, architecture and art critics have had a field day with its design by Gordon Bunshaft of SOM. Even the softest architectural critics admit that this monolithic, classically symmetrical, self-contained building easily embodies the 1960s notion of museum as culture palace. The strongest critics, such as Ada Louise Huxtable in the *New York Times*, long ago described its architecture as "colossal funerary superscale meets superbuilding," and called the Hirshhorn a "maimed monument on a maimed mall." Stating that "Bunshaft is known for a kind of monumental absolutism so unyielding that the environment crumbles before it," Huxtable explains that its "neo-penitentiary modern" is partly due to budget problems which excluded the rich materials and details for which Bunshaft is known. Paul Goldberger, also in the *Times*, questioned the windowless, granite aggregate-clad structure's ability to fit in with its physical context: "From the street it reads only as a gesture of urbanistic arrogance."

In answer to those complaints, architect Gordon Bunshaft of SOM gruffly denies that it's a 1960s period piece. Because a museum has to respond to unique programmatic constraints, site conditions, and clients, he argues, the Hirshhorn Museum and Sculpture Garden is unique—as any museum solution should be. "Some like it, some don't," Bunshaft acknowledges, but points to Benjamin Forgey's critique in the *Washington Star News* as a good level-headed piece of criticism. (Forgey wrote "though immovably formal and from certain points of view almost impressively emphatic, Bunshaft's design also is sufficiently resourceful, intelligent, and sensitive to ride out the storm.") In answer to the criticism that the round museum turns its back on nearby buildings, Bunshaft argues that he intended the shape and the pinkish granite aggregate to act



The monolithic doughnut-shaped museum sits on a 4.4-acre site on the south side of Capitol Mall, between 7th and 9th Avenues.



as a visual link between the large, boxy concrete Air and Space Museum on one side, and the 18th-Century brick Smithsonian buildings on the other. Regarding the museum's particular choice of site, he explains that the design forms an integral part of the updated plan for the Mall, based on the intentions of both Pierre L'Enfant's original scheme of 1791 and the McMillan Commission's amplifications of 1902. In response to the charge that the Hirshhorn lacks elegance of detail, Bunshaft reasons that his is a museum for large crowds—with simple circulation and minimum detail, because art is the important thing on view.

Is this a case of misunderstood genius or simply a misguided architect out of step with his times? Hardly likely in either case. While the building exemplifies a 1960s design solution (and in fact was designed in the mid-60s), Bunshaft is very much in step. It's just that the pace, set by a generally affluent, culturally aspiring American public, is a little out of kilter. For more than any other cultural institution built this year, this structure honestly reflects the values of the society and cultural milieu from which it is generated. Sure, the building is controversial, ignores its physical context, and achieves an architectural banality. But as a cultural statement it's remarkably revealing.

And, through some ironic twist, Bunshaft has created an architecture of "inclusion," by capably capturing the imagery of the surrounding urban landscape of this capital city. With the exception of a few buildings, much of Washington has now become a city of medium-rise bulky buildings, gross in scale and detail, devoid of architectural quality, and boring in their limited selection of materials. Essentially a city straining after modernity and monumentality, it achieves only mediocrity. The Hirshhorn quite artfully acknowledges and mirrors this context.

Nevertheless, while the museum may allude to the Washington "modern" architectural context, its circular form raised on 14-ft-high piers easily sets the structure apart. From afar, the building is imposing, prominent, easily noticed, identified, remembered. Even so, it isn't readily perceived as a museum. There is, by virtue of the round form, a vague association with the Guggenheim of course, but the Hirshhorn signifies "museum" mostly by an unspoken common agreement. Actually, the museum resembles an object—an art object. Yet its minimal or reductive sculptural quality does not necessarily qualify it as a walk-in sculpture—it is too restricted by programmatic requirements to explore fully the nature of its sculptural form.

Nor does it meet one's expectations of architecture: Missing is the architectural code with its internal logic of columns, doors, mullions, etc. that give a building scale, articulate its internal functions, and create hierarchical definition. The most important aspect is human scale. In this case, the humanizing qualities of mass, space, and line so carefully argued years ago by Geoffrey Scott have been subsumed to Order. The building/object works in reverse of normal expectations: where the architectural model usu-

The concrete drum contains three levels of galleries, office, and storage space. Four large sculptural piers, housing stairs or elevators lift the weighty drum 14 ft off the ground. While the 168,000-sq-ft structure was originally planned to be sheathed in travertine, budgetary constraints necessitated a switch to Swenson pink precast granite aggregate panels, 7'-6" x 15'. The pinkish color and round form are intended to visually relate the museum to the Air and Space Museum to the east (not shown) and the irregular turreted brick Smithsonian buildings to the west (left in photo below). Rather than the building acting as a mediating force between two styles, scales, and materials, it seems to arrive as a third party, caught accidentally between two extremes.



Hirshhorn Museum and Sculpture Garden

ally represents the real version in miniature, here the actual structure appears as a blown-up model.

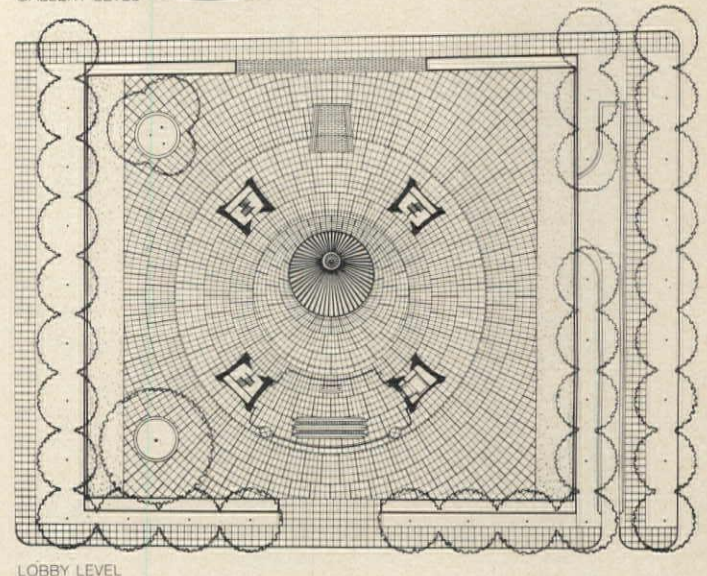
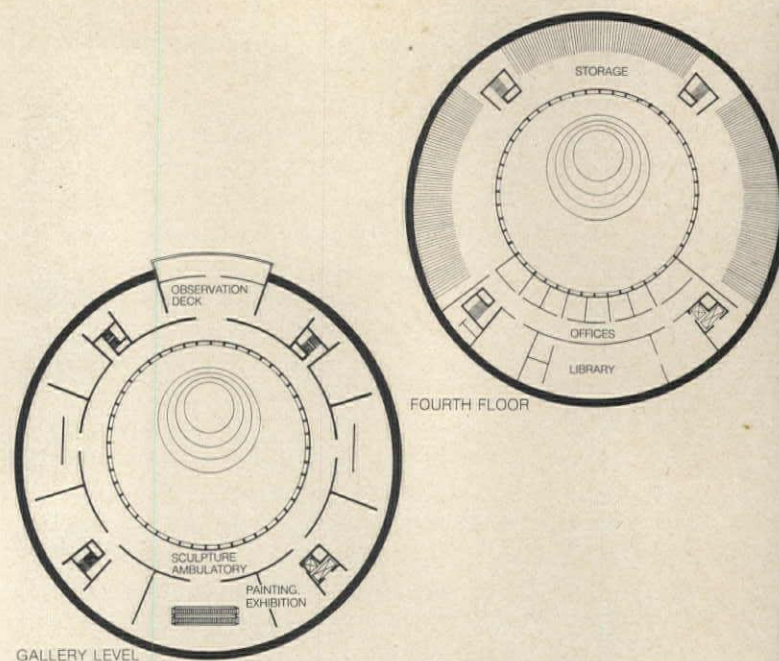
Since the building represents "architecture" without really obeying its code, and resembles sculpture without in fact being sculpture, the public has to find analogues for the form—doughnut, military bunker—to explain the confusion of signs. Yet the museum does emit signs that refer closely to monument—that powerful, enigmatic object that has been an important part of the heritage of "high culture." Inward-turning, large-scaled and monolithic, certain monuments of the past—pyramids, tombs, temples—have embodied complex cultural meanings, without having to make explicit their functions.

Because the Hirshhorn can so freely give off these signs, and because it does serve a cultural function, it seems to signify a monument to "high culture." Yet after repeated trips to the museum, it fails to retain that level of dimension, interpretation, the ineffable presence that informs other monuments. The essence of monuments, by which they express the highest aspirations and achievements of their age, cannot be found in the Hirshhorn Museum. Thus it is ultimately banal, empty of "surprise." The architecture either reflects the design weaknesses of its architect, or it reflects the spirit of the times as one without dimension and substantial content. After all, in this consumer-based economy, isn't cultural experience simply reduced to a compulsive and ritualistic partaking of a shared fabricated myth? By consuming all its signs, one believes one can reach cultural enlightenment.

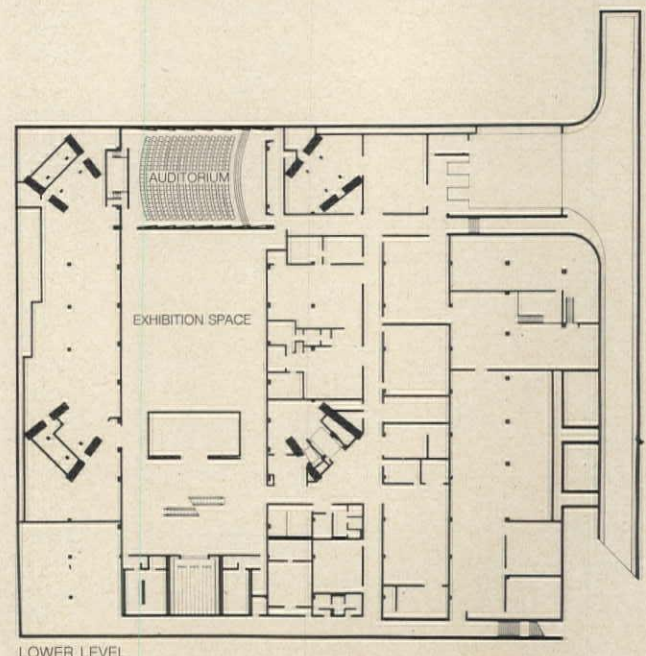
If this is correct then the museum should not be castigated for embracing no meanings except show and display. And this is precisely the point. The museum makes a display of culture with its references to architecture, art, and monument. It allows the *consumption of show* to take place quickly and easily, and in reverse, the *show of consumption* to happen more effectively. It is not surprising that programmatically, the museum is a smashing success. Its circular galleries for exhibiting paintings and sculpture, organized around an open circular court, allow museum-goers to do exactly what they came to do: participate in the act of consuming culture quickly and efficiently.

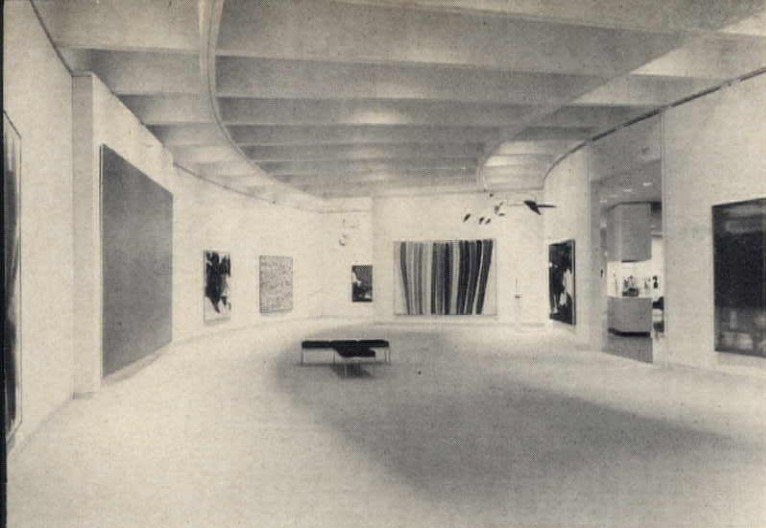
Without doubt one can criticize the museum for making a gesture at being a cultural monument, while succeeding in only being monumental—in scale and in size. But there's no denying it. If the building lacks a true content, its clients and public seem to want that sort of thing. The Hirshhorn's basic problem is that it relates too directly to the value system from which it sprung. And the building has the ability to communicate instantly; the monolithic form has power and therefore appeal. It has a wholeness, a singleness of purpose. People who lack an integrated cultural context, but who aspire to "high culture" can respond and grasp this image quickly, easily. The form is in fact that message. If there's anything wrong with that, it isn't all Bunshaft's fault.

Although the genesis of the Hirshhorn's form can be seen as a logical outgrowth of its cultural milieu and of Bunshaft's own work, the form was just as much the product of a network of other related personal aspirations. One determinant of the form (and location) was the desire of Jo-



As the plan indicates, the ground level is open except for a small glass-enclosed lobby. The building's configuration is actually defined by two circles, the smaller placed within the larger, with an eccentricity of 4 ft.





The 15 foot-high galleries with 3-ft-deep coffers provide easy circulation. Critics earlier feared a repeat of the Guggenheim Museum's problems in hanging large paintings on curving walls, but here the 735-foot outer circumference allows walls to curve gently. SOM also built a full-scale mockup 20-ft long to test curves. Nevertheless 20-ft-long painting (left in photo) required built-out wall.

seph Hirshhorn, donor of the collection, to have the museum housed in its own distinctive building on the Mall. Perhaps as much a determinant of the final physical form and placement of the museum was the ambition of Nathaniel Owings of SOM to create a third axis across the Mall at Eighth Street as part of a Mall re-design.

When Hirshhorn gave his \$25 million collection of 4000 paintings and 1600 pieces of sculpture to the Smithsonian Institution in 1966, he did so with the stringent agreement that his collection would have a separate Smithsonian building on the Mall, paid for by Congress, and named after Hirshhorn in perpetuity. It also permitted him and Smithsonian Secretary S. Dillon Ripley to have final design review of the architectural plans. In other words, if the advisory body on Washington architecture, the Commission on Fine Arts (FAC) or the National Capital Planning Commission (NCPC), the agency with control over bulk and height of Washington buildings, were to reject the design of the Hirshhorn Museum and Sculpture Garden, Hirshhorn could declare the agreement void.

So it is not surprising that at the time of preliminary approvals (1967), the siting, shape, and massing of the museum building, usually discussed at FAC meetings, received scant attention. Any criticism was directed at its 586-foot-long sunken (7 ft) sculpture garden stretching across the Mall, with a retaining wall as high as 18 ft.

The museum received the same sort of critical treatment in the 1967 NCPC deliberations. As one member of the NCPC recently commented, the site was already designated in the 1966 legislation creating the Hirshhorn. Since the NCPC knew that rejection endangered the agreement, they gave preliminary approval.

The link to Nathaniel Owings (and SOM) was revealed before legislation creating the Hirshhorn Museum was passed. At the June 1966 congressional hearings on the establishment of the museum, James Bradley, assistant undersecretary of the Smithsonian stated, "We have been advised by the architects, who are Skidmore, Owings & Merrill, that 'the housing of a great art collection on the Mall will implement our plans for a great axis extending across the Mall' then through Market Square, which is an integral part of the Pennsylvania Avenue plan."

Bradley's statement was more interesting than it seems



The paintings and sculptures, installed by Charles Froom were quite sensitively handled despite uniform height and width of gallery spaces. While lighting in the painting galleries is kept completely artificial, (incandescent spots, floods, and wall washers on concentric tracks), the sculpture ambulatories have glazed walls overlooking the fountain court. Heat-absorbing insulating glass set into concrete spandrel beams and columns have 4'-7" reveals. In these outer galleries Venetian terrazzo paves the floors. The boldness of the pattern, however does overwhelm the installation.



At the ground level, walls about 8-ft-high (photo, below) enclose the museum on the sides. Architect Bunshaft feels that walls were mandatory to act as backdrops for the sculpture exhibited on the plaza level. Nevertheless the walls seal off interaction with the street. Inside the walls, the enclosed spaces are barren despite the sculptures. While the spaces are well-differentiated between the walls and the building's elevated mass, or between the space under the drum and the open circular space (above) of the 115 ft in diameter fountain court, there is no progression. The space reads as open-but-hemmed-in, to open-but-slightly oppressive, to open-but-unoppressive.





The large rectangular lower level underneath the plaza contains auditorium and additional exhibition galleries (above). Here art and sculpture could be installed in an open volumetric arrangement.

at first glance. It first indicates an early commission to SOM before legislation was passed, and therefore before GSA would go through its usual architect-procurement procedures required for government-owned buildings. But it also brings into question the role of Nathaniel Owings, Chairman of the President's Council on Pennsylvania Avenue, on influencing the designation of that particular site for the museum, and having SOM selected as its architects.

No small plans

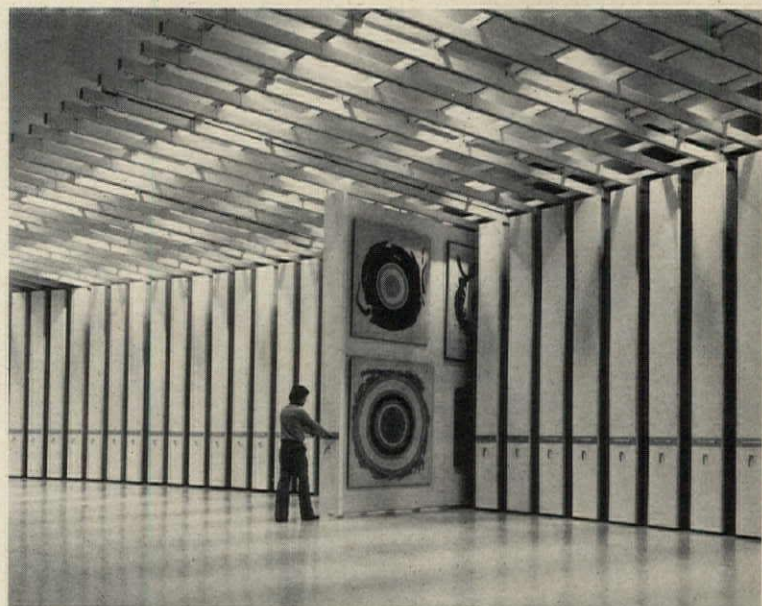
After Owings was made chairman of the Pennsylvania Avenue Plan, he obtained, for SOM's San Francisco office, a commission from the Department of Interior to execute a Mall re-design. The "great axis extending across the Mall" to which Bradley referred appeared in both the early versions of the Pennsylvania Avenue Plan and the Mall re-design. The site of the present Hirshhorn was perfect for anchoring that cross-axis. In those days (early 1960s) an 1863 three-story brick building housing the Armed Forces Medical Museum and Institute of Pathology occupied that site. It never appeared on any of the Pennsylvania Avenue or Mall re-design schemes, even though it was to be declared a landmark in 1965. Embarrassingly enough, it had to be torn down in 1966 when the Hirshhorn was approved. (A loop-hole around its designation was found: the collections were declared worthy of landmark status.)

During this time that Mall projections were conflicting with landmark designations, and nobody was noticing, Hirshhorn was negotiating for the site and for the new separate (from the Smithsonian) building. Hearsay has it that Owings first convinced the Smithsonian and Hirshhorn the new Hirshhorn museum should be located on this cross-Mall axis. Sources close to the incident also allege that Owings then actually proposed the first scheme (around 1965), a building that was to be partially buried and very unobtrusive, in response to the rumor that the FAC would approve no more buildings on the Mall. But Hirshhorn rejected the design for its lack of assertiveness.

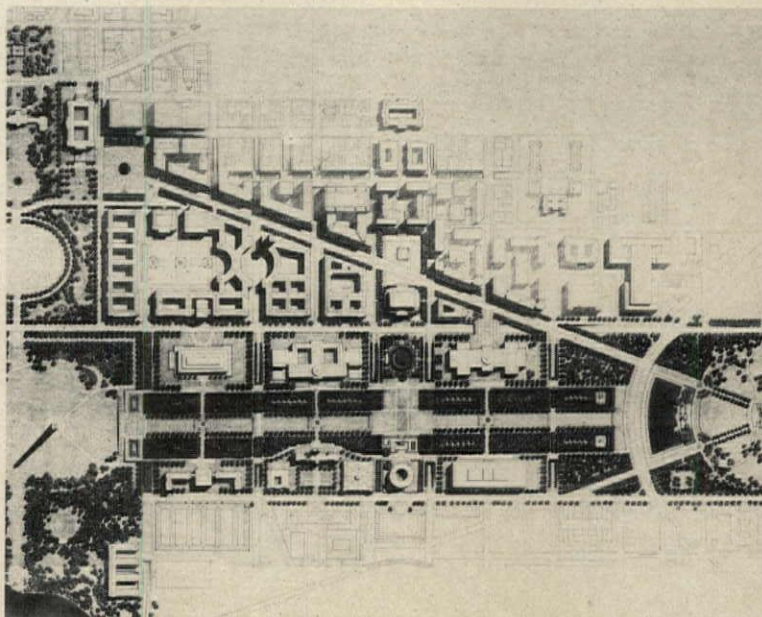
If this were so, it would be quite logical for Owings to quickly bring in the firm's supreme form-giver—Bunshaft—to design the Hirshhorn. It's not too difficult to perceive the value of erecting the building on the south side of the Mall, with a garden stretching across the Mall. This axis thereby



An observation deck on the third level overlooks the Mall, the only break in the exterior surface of the drum (above). While the view from within is impressive, the problem of orienting the seating towards a concave wall becomes evident. A storage level (below) has been placed atop the building, where racks for paintings pull out on tracks. This level, like the other two floors is completely glazed on the inner wall facing the fountain court. While formally consistent and desirable for the offices here, the window wall necessitates a special lining curtain in the storage area. Fixed incandescent spots set into the concrete slab provide light.



Site plan mall, Capitol to Washington Monument





created would, it seems, act as an incremental step in the eventual implementation of the Pennsylvania Avenue Plan, not yet passed by Congress.

Nevertheless, when members of Congress, then the NCPC, eventually began protesting (1971) the intrusion of the garden on the "tapis vert" of the Mall—even though it was depressed—Bunshaft quickly acted. He reduced the size to 356'x156', turned it parallel to the length of the Mall, depressed it 14 ft and placed it in the tree-lined side panel.

So the cross-axis has two ends (the Hirshhorn Museum and the first phase of the National Sculpture Garden designed by SOM, San Francisco, just south of the Archive building) but no middle. According to the architects, this minor cross-axis fulfills part of L'Enfant's 1791 grand scheme for Washington. Actually however, not until the McMillan Commission report in 1902 did this small cross-axis definitely appear.

While the McMillan Commission's plan was well received, it had to await the arrival of Owings, Hirshhorn, and other interested parties on the scene before this section was at all implemented. Somehow they sensed this opportunity in the prosperous mid-60s to mesh their motives with historical precedent for the creation of monuments and monumental schemes. All in the name of Art.

Only the more "abstract" objectives of SOM's original plan were attained, however. SOM received (and still has) numerous projects to execute for the Mall and thereabouts. Unless serious objections are raised in Congress in the next month or so, the newest version of the Pennsylvania Avenue Plan, so influenced by Owings, will go into effect. With regard to the actual museum, the government and Smithsonian officials who pushed it along attained cultural acclaim. Joseph Hirshhorn got a memorial to himself and to his fulfillment of the American Dream. Washington, Capital of the 18th Century, is graced with an historically appropriate "monument." And all Gordon Bunshaft got was a lot of criticism. Yet he gave everybody what they wanted: partner Nat Owings an anchor for the Mall re-design; immediate client Joseph Hirshhorn a memorable memorial; general client, the U.S. government, a relatively inexpensive (\$16 million) symbol of "high culture." And he gave us, the American public, a true image of ourselves, our values, myths, and aspirations. [Suzanne Stephens]

Bunshaft points to the 9-ft-deep coffers of the drum's soffit (top left) as an example of his detailing. While the coffered soffit does convey a sense of drama in its molding, the scale of the dimensions tends to diminish rather than magnify perception of the "detailing." One reaches the 136' x 156'-wide Sculpture Garden (above) on the other side of Jefferson Drive by going down stairs that debouch into a funnel-shaped passage, and then out into the garden. Depressed 14 ft, the gravel-lined 1.3-acre garden has been landscaped rather sparsely with trees and hedges. The sculpture is well placed in relation to the Kafkaesque setting however, ingeniously creating a surreal landscape where a natural one is missing. Originally the Sculpture Garden was to have connected to the museum's lower level which included a restaurant, but budgetary considerations necessitated a cutback in ancillary spaces.

Data

Project: Hirshhorn Museum and Sculpture Garden, Washington, D.C.

Architects: Skidmore, Owings & Merrill, New York; Gordon Bunshaft, partner-in-charge; Frederick Gans, Sherwood Smith and Leon Moed, associate partners.

Client: Smithsonian Institution (design and construction under supervision of General Services Administration).

Program: to create a separate museum facility to house about 6000 works of art donated by Joseph Hirshhorn.

Site: 4.4 acres on the south side of the Capitol Mall.

Structural system: reinforced concrete structure is raised 14 ft off the ground by poured concrete core supports. Two ring girders cantilever off inner and outer edges of core supports to carry the drum. They are reinforced with 30 post-tensioned tendons per support. Radial post-tensioned concrete beams spanning inner and outer walls carry each floor level. Foundation is provided by 99 steel H piles under piers.

Mechanical system: forced air distribution using municipal steam and internally produced chilled water.

Major materials: Swenson pink granite aggregate precast panels; reinforced concrete; Venetian terrazzo and carpeting for the floors; precast concrete and sand float plaster for wall surfaces; sand float plaster and painted concrete for the ceilings.

Consultants: Weidinger Associates, New York, structural engineers; Jaros, Baum & Bolles, New York, mechanical and electrical; Edison Price, New York, lighting; Piracci Construction Co., Baltimore, general contractor.

Costs: \$16 million overall estimate.

Photographs: Ezra Stoller and ESTO©, except pp. 46 top left and this page top left, Stan Ries.

Too little from Tange

The Minneapolis Society of Fine Arts Park, the first example of Kenzo Tange's work in this country illustrates that good intentions and talented architects don't always guarantee great architecture.

There's no getting around it. Kenzo Tange missed in Minneapolis. The bronze-tinted glass and white-glazed brick museum, theater, and college buildings he designed for the Minneapolis Society of Fine Arts Park simply do not do what was intended: They do not blend harmoniously with the existing buildings on the site, nor with the small-scale residential neighborhood surrounding them. Nor on the other hand, do they succeed as assertive works of architectural merit that can stand alone. They straddle that gray area in between.

The entire complex, occupying a four-acre site, was designed to provide a mix of activities and uses for the larger Minneapolis community. The museum addition thus connects physically with the new Children's Theater Company and School and links visually to the nearby Minneapolis College of Art and Design building. Together these structures, along with the existing 1915 McKim Mead & White museum and the Morrison Hall and Design School buildings for the College of Art should form an arts "village." But such large-scale elements with identical materials and massing hardly achieve these picturesque ideals. The buildings are grouped around a central open space that performs no real function. Furthermore the museum wings are still oriented to the street in Beaux Arts alignment with the McKim Mead & White structure. Thus the central space remains their "backyard."

In designing his 110,000-sq-ft museum addition, Tange filled out the ends of the original 120,000-sq-ft 1915 classical building with large symmetrical wings. The new version of a Beaux Arts parti was executed to complement the spaces of the renovated McKim Mead & White building. Tange also selected the brittle reflective surfaces of brick and glass to unobtrusively link the wings to the older, massive but modulated, façade. Unfortunately, the materials neither blend in with the older granite structure, nor create enough of a dissonance to work in counterpoint to it. Brick, even if glazed white, may refract light, but still has too



Minneapolis Institute of Art expansion, north façade.

much opacity and mass; it does not recede.

Although the old museum has been retained, the new additions "camouflage" all but the front elevation facing Washburn Fair Oaks Park. Tange located the main entrance on a side elevation between the museum's new east wing and the Children's Theater to tie the museum to the theater, and thereby strengthen the museum's community appeal. The relocation of the main entrance means that the old façade no longer serves any purpose. Kept only for its image value, it thus becomes an artifact much like the contents on display within. This reading of the façade—a stated intention from the beginning—reveals a lack of understanding of the preserved museum's role as sign. A prominent entrance façade, with its accumulated meanings from the past, should in fact serve as an entrance. Otherwise, the signs are misleading. When a façade is retained so obviously for its decorative value only, it brings into question the whole concept behind preservation. What difference would it make really if the façade were simply dismantled



Aerial view of Minneapolis Society of Fine Arts Park.

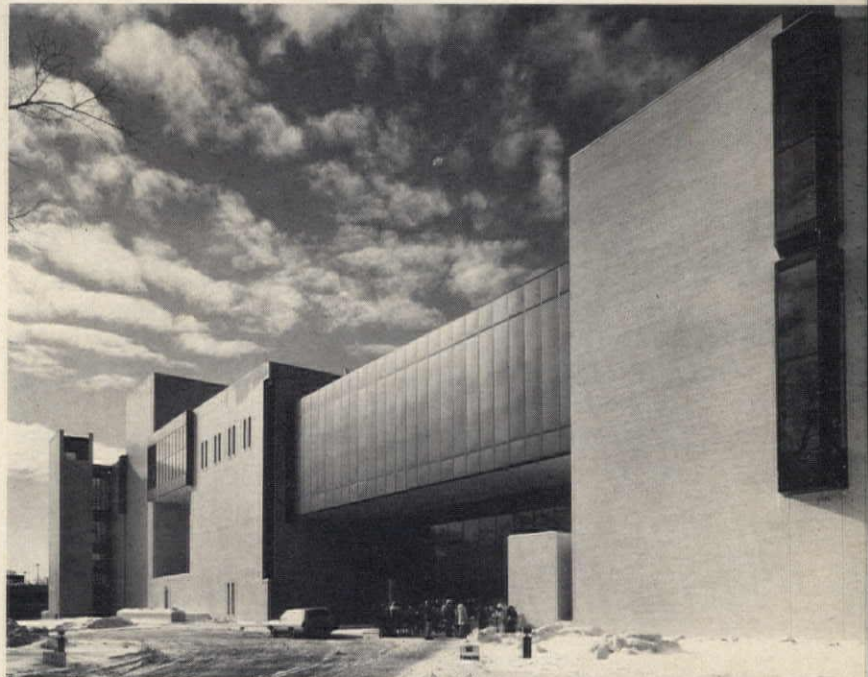
and reassembled inside? Or why not dismember it completely, and exhibit only the fragments?

The lack of analytical thinking about the nature of preservation and expansion is both startling and depressing when viewed against the background of history and intentions that created the Arts complex.

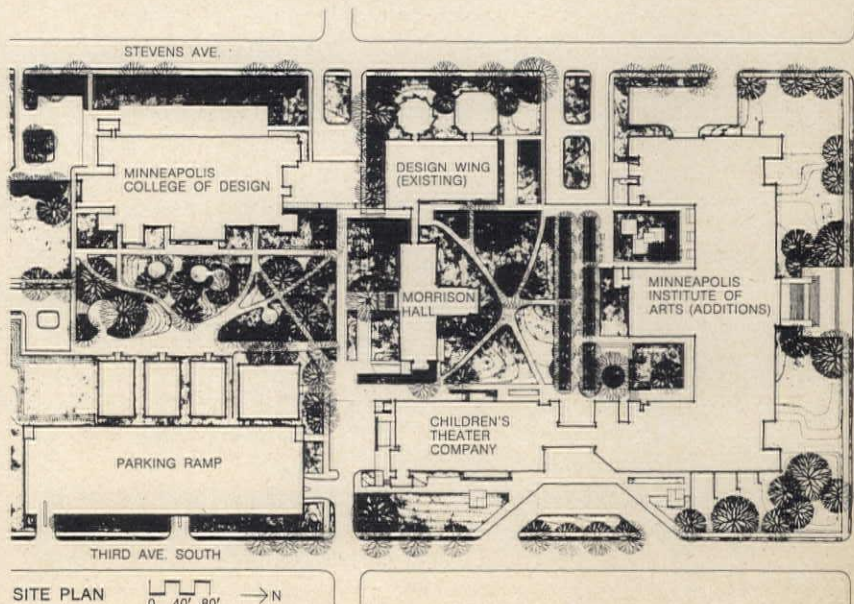
All three buildings result from the vast effort instigated by the Society of Fine Arts in Minneapolis (the client who operates, funds, and administers the arts complex) in planning and programming. In 1965 when the Society hired Hodne/Stageberg, Minneapolis architects to produce a development concept for the entire complex, the firm conducted extensive research into the museum's needs and costs for construction and operation. By talking to the staff and interviewing the community they concluded that the museum should serve as a regional center for scholarly research and at the same time attempt to become a focus for community activity. Both client and architects saw the need to counteract the community's general image of the museum as stuffy, austere, and static.

Instead of selecting these architects so familiar with the project to design the new facilities, the Society turned to an architect with an international reputation. Kenzo Tange was selected, despite the fact his office is located in Japan. Tange's reputation for architecture and urban design and his interest in working with the existing building governed the selection. And it was to be his first realized U.S. commission. Parker Kline Associates, Inc. of Minneapolis, noted for its attention to good workmanship, follow-through, and detail, was selected as the local architects.

In addition, the Society of Fine Arts brought in Construction Management Services of Minneapolis to reduce building costs through fast-tracking. Tange reportedly resisted the fast-track concept initially because he feared he might lose design control. Even Parker Kline admits having apprehensions about contracting three distinct facilities separately: much time would have to be spent coordinating the design and construction of the buildings and getting the contractors to work together. (The museum was bid first, the college building next, the theater last.) Besides sending out 28 separate contracts for the complex, and working with nine separate contractors and multiple clients (museum, college, and theater staffs) Parker Kline also had to



The main entrance (above) has been shifted from the north façade of the McKim Mead & White building to the east elevation where it links museum with Children's Theater. Old entrance is used only for ceremonies.



Minneapolis Institute of Arts

coordinate consultants located in San Francisco, Chicago, and New York: a mammoth undertaking on any level.

Nevertheless, the architects were able to get the project built within schedule, stockpile steel for the framing, and pre-buy concrete for the foundations, the precast ceiling, and floor planks. Thus they saved five to six million dollars on materials costs on the three buildings. (The total cost of the three buildings came to \$23 million, not including furnishings, graphics, or interior design costs.) To the architects' credit, workmanship appears not to have suffered in the process and the detailing is well executed.

The museum plan reflects to a great degree the intensive programming undertaken. Graphics, photography, and decorative arts exhibition galleries all have curatorial offices connecting directly to them. Rather than the curators being relegated behind-the-scenes in the administrative section, both they, and some pieces from the collection kept in "live" storage, are accessible to scholars, docents, and the public. (The painting galleries, however, do not have a similar set-up). Lecture halls, seminar rooms, and classrooms were placed near the exhibition galleries, and several galleries are outfitted with electrical outlets so that they can be easily transformed into other uses.

To further increase the museum's educational role, an audiovisual system (identical to the one used at the Hirshhorn) has been installed, based on a magnetic loop system inserted under the flooring for shortwave radio broadcasting. But despite the educational intentions, inflationary operating costs have toned down the educational program. Exhibits in particular will remain unchanging and rather traditional for the time being.

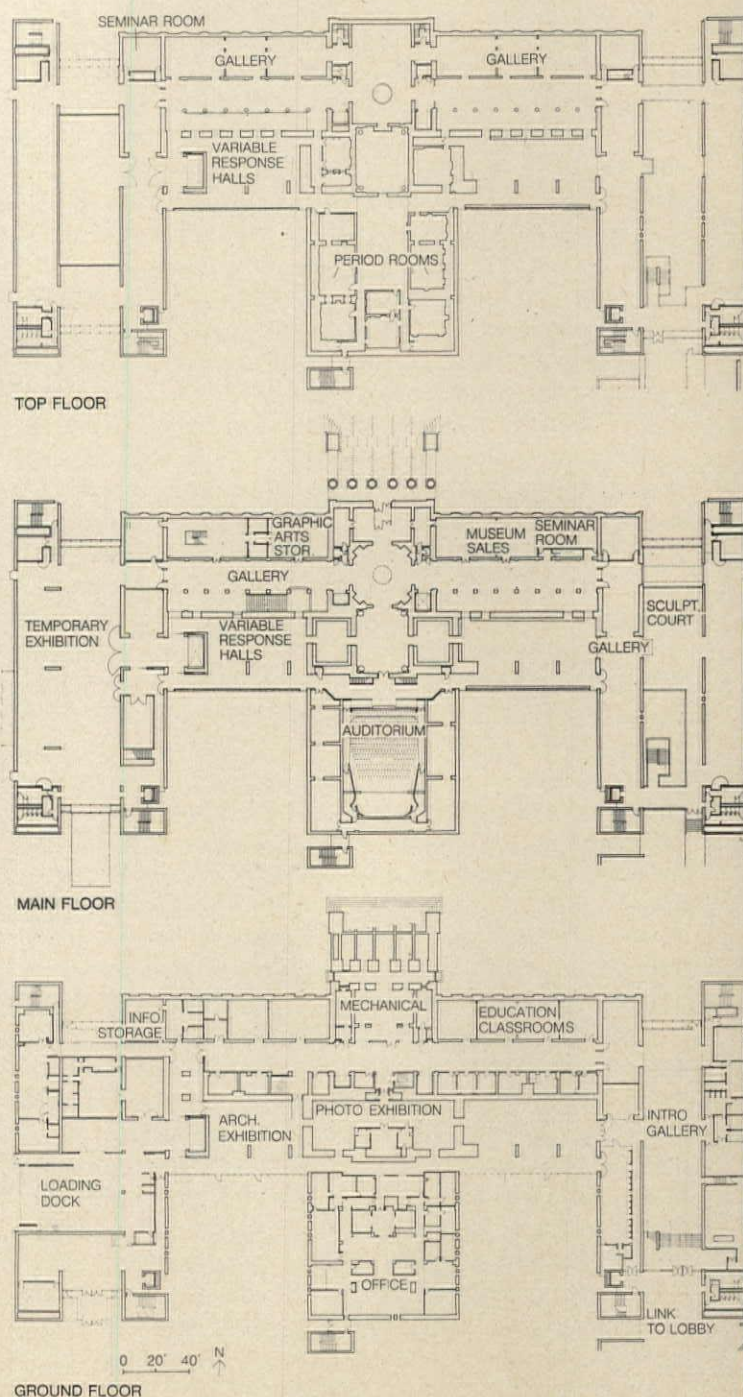
In terms of architecture, it would seem that the classically symmetrical new museum wings would do little to change the formal, imposing image the museum presents to the community. Scale, plan, and size reinforce the institutional characteristics of the older Beaux Arts building without in fact duplicating its architectural quality. The fault probably lies in the treatment of the new wings as "Beaux Arts" additions in the most schematic way—in the alignment and size of the spaces. Combining the parti of one style, austerity of mass, line, and detail of the "modern" period, with the materials of a commercial vernacular is tricky.

Whether or not it would have made any difference, granite and precast concrete were carefully considered by the architects, but dropped for economic reasons. Tange also had wanted to use glass more extensively, but the cold climate and the need for 50 percent relative humidity levels in the galleries called for an incredible energy investment. In the museum's most successful space, the open three-level-high sculpture court, the skylight originally conceived eventually became an artificially lit luminous ceiling. It is much to consultant Leonard Auerbach's credit that the artificial illumination does in fact provide an ambient light.

The disappointing results, architecturally and urbanistically, raise several questions: were they from the fact that Tange simply wasn't familiar enough with American architecture—including the domestic version of Beaux Arts—to handle the difficult task of adding onto the building? Could it be he left too many areas of decision not totally worked



The new buildings are organized around a mid-block open space.



out, since his office was so far away? Or was his approach not similar enough to Parker Kline's for a true application of his ideas to be translated into the built product? Or could he not have been familiar enough with the fast-tracking process to be able to work out the necessary design concepts in the given amount of time?

Probably all of the above holds true. There are many aspects of the building—the detailing, the lighting, the indoor three-story-high sculpture court, the vitrines for the objets d'art, that make it a pleasant museum. But the design could have gone further in the communication of a certain image to the community, in illustrating how an older building might be preserved and expanded, and in how the existing context could be acknowledged and even reinforced. Or if the museum had been just great architecture all other failings might have been forgiven. Tange is too talented an architect to let this remain his only building in the U.S. Fortunately he has other commissions. Let's hope they turn out more successfully. [Suzanne Stephens]

Data

Project: Minneapolis Institute of Arts, Minneapolis Society of Fine Arts Park, Minneapolis, Minn.

Architect: Kenzo Tange & URTEC; Parker Klein Associates of Minneapolis, associated architects. Kenzo Tange, designer; Leonard S. Parker, principal-in-charge; Gary J. Mahaffey, project architect.

Client: Minneapolis Society of Fine Arts.

Program: double the exhibition and office space of existing Institute of Fine Arts by adding 110,000-sq-ft while blending in with both the 1915 Beaux Arts structure and the existing neighborhood.

Site: Four acres facing a park on which the 1915 museum and two other college buildings already stand.

Structural system: steel frame with precast concrete plank floor and roof slabs. Steel lattice supports window walls where they are triple-glazed.

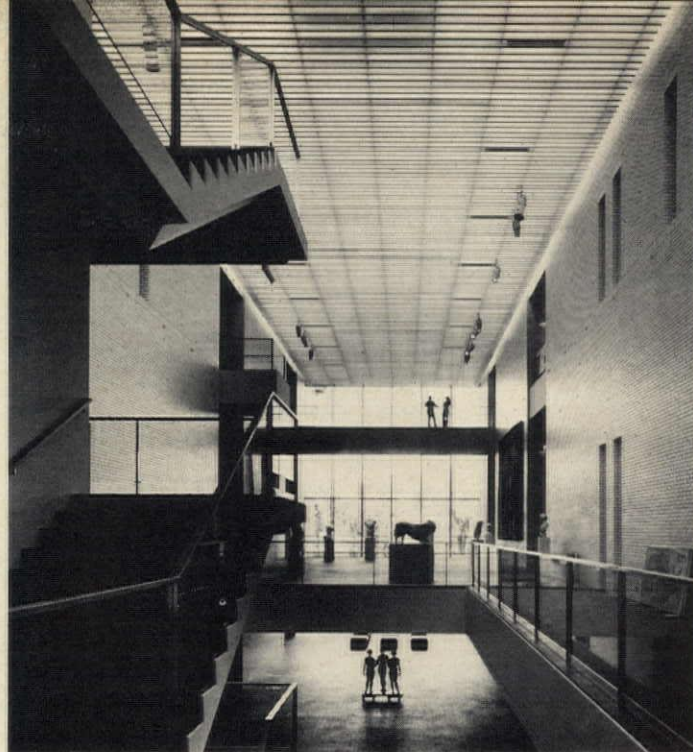
Major materials: white glazed face brick, dark colored aluminum curtain wall, tinted glass; wood parquet flooring and granite flooring, acoustical tile ceilings, stud and plaster partitions.

Mechanical system: penthouse supply units provide cooling and heating along with controlled ventilation. Hot water for heating, steam soft humidity supplied from central basement boiler. Variable volume mechanical system, capable of maintaining 50 percent relative humidity.

Cost: \$7,344,930; remodeling, \$18 sq. ft; new const. \$35 sq. ft.

Consultants: Charles Wood Associates, Minneapolis, landscape architects; Vignelli Associates, New York, interior designers; Michaud Cooley Hallberg & Erikson, Minneapolis, mechanical; Meyer Borgman & Johnson, Minneapolis, structural; Leonard S. Auerbach, San Francisco, lighting; M.A. Mortenson Co. Minneapolis, general contractor.

Photographs: Phillip MacMillan James pp. 49 (middle), 50, 51 (middle and bottom); Warren Reynolds, p. 48, 49 (top) and 51 (top).



In the three-story Sculpture Court a combination of incandescent and fluorescent fixtures has been mounted on pipes and behind extruded aluminum baffles (2" x 6") on the ceiling to create an ambient light.



Interior and graphics designers Lella and Massimo Vignelli created clear plastic vitrines (above) with specially designed double-headed screws and silicone sleepers to achieve weightless but secure setting for objects. New galleries (below) have movable partitions while older galleries retain their spatial quality; in both, walls are off-white, lighting is on tracks.

Bridge through Court leads to tapestry hall; here quartz incandescent spots are filtered through ultraviolet plate glass to preserve tapestries.



Varied reflections in Houston

The Contemporary Arts Museum by Gunnar Birkerts, like the Museum of Fine Arts addition by Mies van der Rohe, raises questions of a museological nature.

Sited diagonally across from one another and offering seemingly opposing visual images to the hot Houston sun, are Gunnar Birkerts' Contemporary Arts Museum and Mies van der Rohe's addition to the Museum of Fine Arts. Basic differences of cultural purpose between the two museums would seem to imply differences in formal terms. But these two examples are less interesting for their contrasts than for their points of similarity.

Their presence together on the same site is less an intention than an accident, representing as it does two distinct periods of Houston's growth. As buildings designed to contain particular institutional activities, both museums reflect very much the same issues inherent in the building type, although their basic programs are, in broad terms, different. These issues, in fact, seem to result from their formal similarities. Finally, both are interesting in the context of the particular work of their architects, and serve as a measuring point for their concerns. Perhaps it is in such a generalized program as a museum that these concerns become more clearly revealed.

The Museum of Fine Arts and the Contemporary Arts Museum represent opposing viewpoints to the question of purpose. The former has generally been an historical museum whose own collection was its basis for being. The latter has always been timely, eschewing a traditional collection as such, and employing new and avant-garde media for its messages.

With the latest Museum of Fine Arts addition, however, Mies was essentially given a program to provide a space for changing exhibitions. Inherent in Birkerts' program for the CAM was a like amount of indeterminacy. The results are, in a generic sense, similar, due no doubt to the nature of the problem as stated.

The Museum of Fine Arts

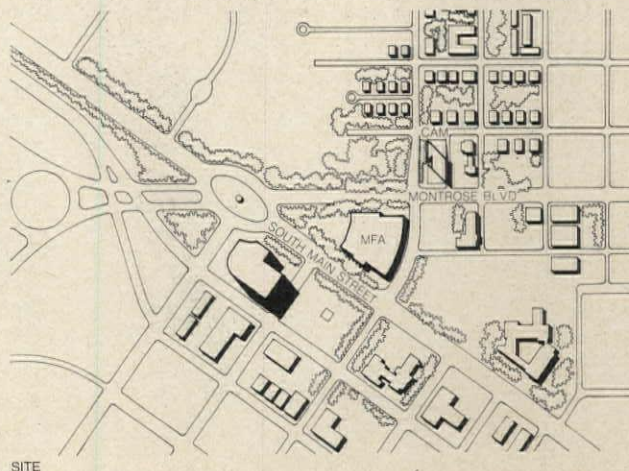
In 1924 the site for the MFA, on the South Main Street strip near the Rice Institute, marked Houston's new growth phase circa 1917. Such a site clearly had a "cultural" lo-

cational purpose, and the immediate neighbors were a prestigious hotel and an exclusive residential enclave.

The site is the intersection of South Main and Montrose Boulevard. Although the streets were laid out on opposing grids they inevitably collided by the 1920s, due to automobile-induced linear expansion from the city core. The resultant triangular site and rotary has been a major formal constraint for the eventual shape of the Museum.

Mies's new addition, the Brown Pavilion, is the end product of a major plan (prepared in 1957), its first phase being Cullinan Hall. The spatial qualities of the present museum are due to the initial concept of Cullinan Hall as an addition to an existing context and as a formal response to site conditions. It has been variously reported that when he first came to view his commission, Mies observed, "But in this climate you cannot have an open patio." Rather than enclosing the U-shape of the existing building, Mies inserted a large enclosed volume into the void, thereby creating Cullinan Hall. A blueprint dated 1954 also shows the eventual extension, the second phase of which is the new Brown Pavilion. Essential differences from that proposal and the final version are the change from a light-color to a dark building, and a less open lower level.

Apparently, the need for expanded administrative spaces was not anticipated in the early scheme. Gradual expansion of the existing building necessitated such a provision, and the visual image evolved into a more closed form. Paradoxically, this change was brought about by the in-





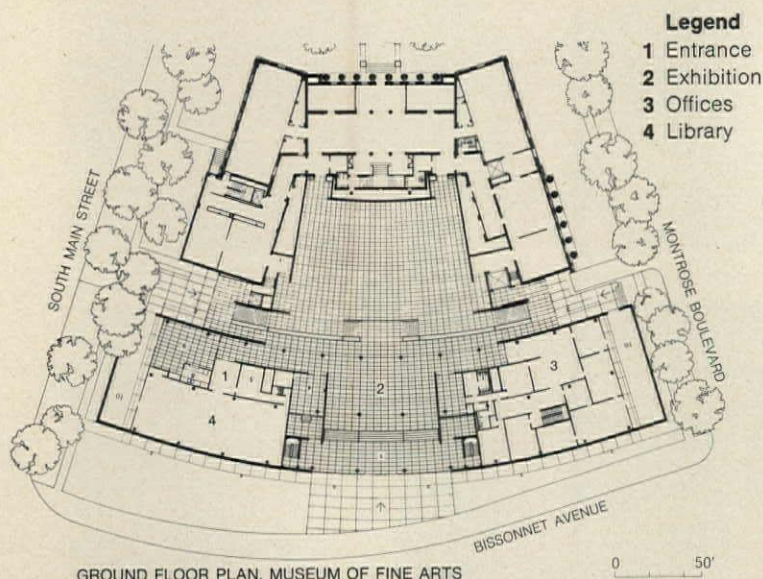
The Contemporary Arts Museum by Gunnar Birkerts (above and below) is located near Mies van der Rohe's new wing of the Museum of Fine Arts (above).



Contemporary Arts Museum

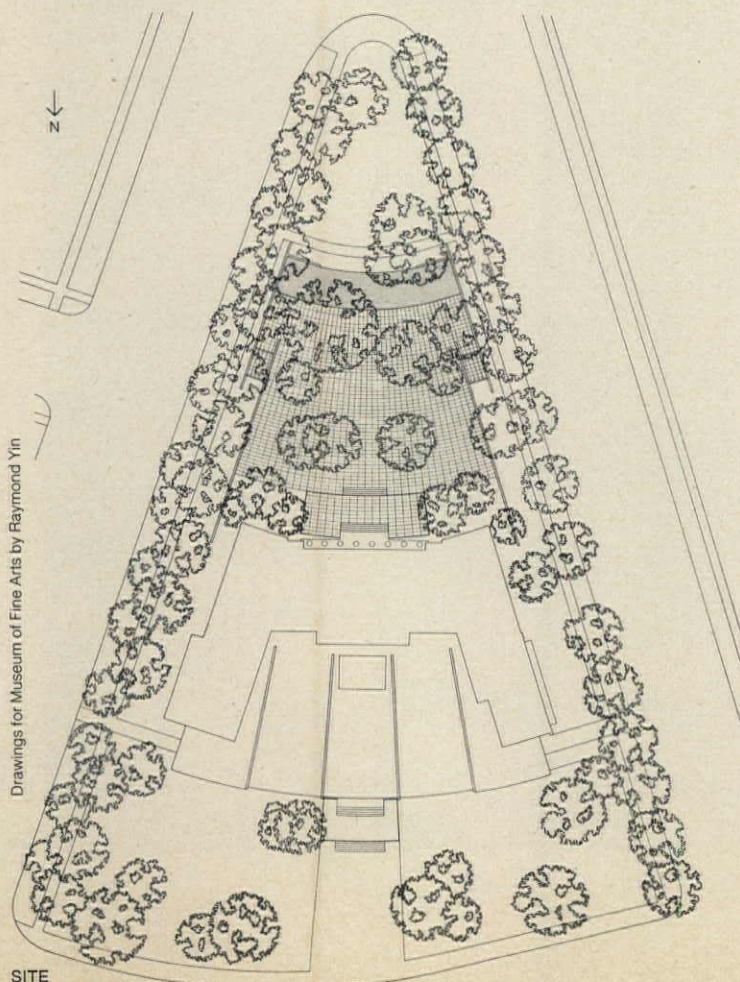


Exterior of Brown Pavilion.



GROUND FLOOR PLAN, MUSEUM OF FINE ARTS

Plan of Museum of Fine Arts (above) indicates the addition of the Brown Pavilion onto the Cullinan Hall designed by Mies, inserted into the open-space of original U-shaped structure. Site plan (below).



crease of the permanent collection. The resultant *parti* of old building for collection, new for changing exhibitions, would appear now to have effectively limited the expansion of the Museum's permanent collection. Further, Mies' large loft space would not take well to incursion.

As a symbol, the old Cullinan Hall would seem to have been a more potent image, with its taut glass membrane, gently curving and clear to vision—a jewel box of a container. Its white-painted steel was undoubtedly a gesture to harmonize with the original classical building. The Brown Pavilion, having to include certain new necessities is a more closed form. Its dark glass and black-painted steel further neutralize its effect; its iconography creates a veneer acceptable to the corporate elite supporting it.

As a space, Cullinan was the largest example of Mies's so-called "universal" space, and certainly his only major building open to the public. The Brown Pavilion, as an interior, provides us with one of his most elaborate spatial events: a progression of levels, the slot between both spaces for vertical connections, and the overlooking of one large space by another.

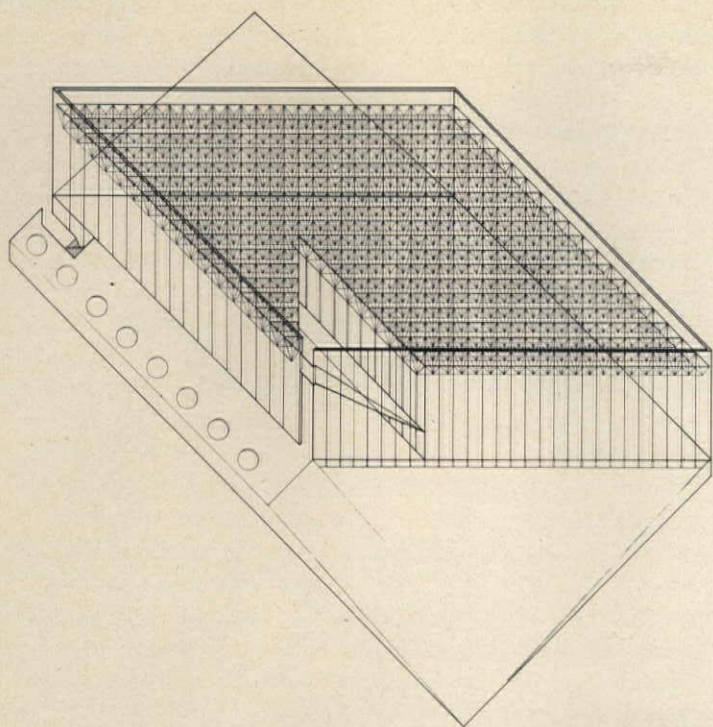
Contemporary Arts Museum

The birth of the Contemporary Arts Association was a similar impulse to that of the MFA. It occurred at an analogous point of the city's history as the MFA—a wave of growth. This time, however, it was in 1948, during Houston's incredible post-war expansion. An impulse to bring to the public contemporary statements in art and industrial design was the genesis of the Association. After several public shows in existing institutions, a metal building based on a 30-60 degree triangle (designed by Houston Architects Mackie and Kamrath) was sited downtown in November 1949. By 1955 the Contemporary Arts Museum was moved, then added to before it was abandoned in 1964.

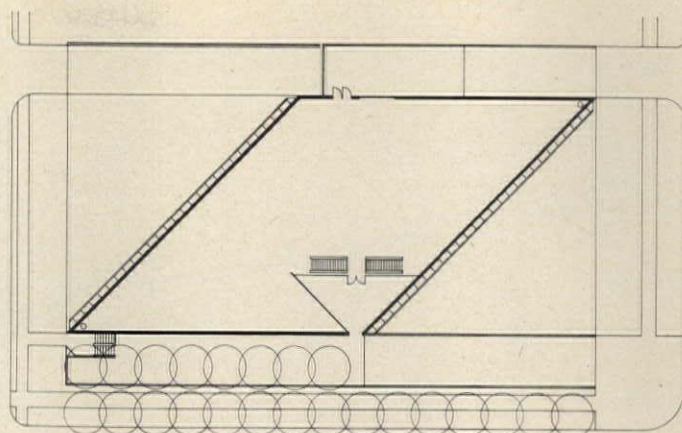
Gunnar Birkerts was presented with a site selected by his client, facing an expanding building by a distinguished architect. This context was also that of a changing neighborhood, for without zoning (Houston has none) the process of an evolving urban fabric was intensified at this critical junction. To the west is the still-intact grain of a residential neighborhood (although many of the houses have been converted to galleries and other uses) while to the east on Main Street are large-scale buildings (including the MFA) sitting in open spaces.

The geometry of the CAM is clearly an inflection to the shift in street direction, as well as an urban gesture to the MFA itself. Birkerts characterizes his treatment as a "scale-less object," meant to bridge between two contextual fabrics. It was sheathed in stainless steel to recall the notion of a warehouse, but also to remove it from the ordinary to the particular, as art.

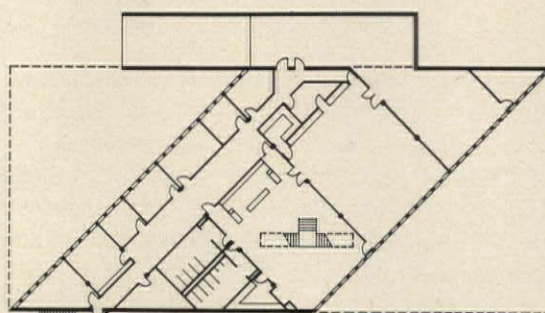
Additionally, the parallelogram plan configuration resulted in greater continuous wall space for the same square footage than would a rectangle; the dynamic space of the 135 degree geometry was also desired by the architect. Early discussions started ambitiously, with a concept that the building's skin might even have total transparency or the ability to become opaque. The early model in clear



Isometric (above) showing space frame roof cutaway at CAM's entrance.

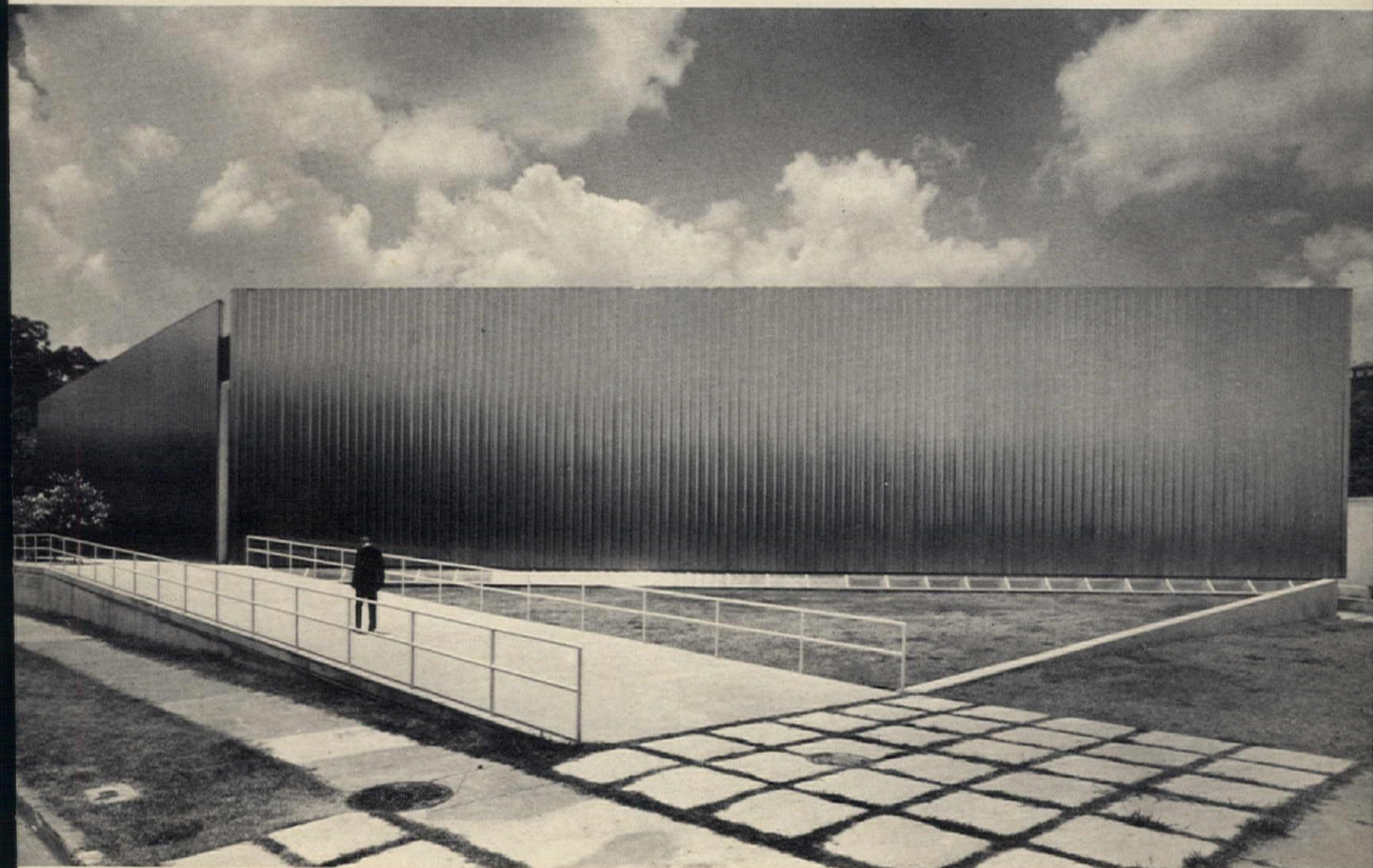


MAIN LEVEL CONTEMPORARY ARTS MUSEUM



LOWER LEVEL

Entrance at 135 degree corner of the Contemporary Arts Museum.



Contemporary Arts Museum



The multileveled spaces where Brown Pavilion meets Cullinan Hall of MFA.

acrylic shows this concept, but the realities of budget and curatorial functions necessitated a conventional enclosure.

The result is, curiously, a kind of internal space not unlike that of its neighbor, except with inversions. Where Mies was neoclassical in proportion and relationships of elements, Birkerts has a neutral expression, nevertheless possessing certain large-scale, monumental qualities. Where Mies uses long-span girders to frame the space, Birkerts' space frame is nearly a horizontal version of the skin, unmodulated in its activity. Where Mies gives us a glass box, Birkerts gives us an opaque box.

Comparison of solutions

The Museum of Fine Arts may be seen as a further elaboration of Mies's concerns of the middle 1950s. Certainly a statement derived from IIT's Crown Hall, the Museum's Cullinan Hall phase also embodied Mies's surprising readiness to accommodate a difficult site, curving his building envelope as he did with both the Reichsbank and Krefeld Silk Industry projects. The final version of the Brown Pavilion, with its split-level interior, would seem also to be a realization of the internal concept for the unbuilt Library and Administration Building at IIT.

Recent work by Gunnar Birkerts has shown a tendency away from the complex form of his earlier work, (e.g., the Atrium House in Grand Rapids, Mich.) to an increasing simple geometry. The wrappings for these shapes inevitably demonstrate new materials, particularly prefabricated materials; the CAM is such an instance. As the architect states, "I like to bring it to one form if I can."

Employment of a technique of construction, or *Baukunst*, become the essence of expression in Mies's work. The Museum of Fine Arts, Houston, is another example of this refined vocabulary, one which is not intrinsically specific to any building type. To Birkerts, the ideal order of *geometry* would seem to occupy a similar iconological position.

Also, the issue of display remains an inherent one, and the provision of a large loft space in both cases begs the question of whether this solution is, in the end, flexible. Mies provided a regular series of structural points (also with electric connections) in the ceiling of both Cullinan and Brown; from here the famous floating panels were to have been suspended. The space is otherwise modulated only

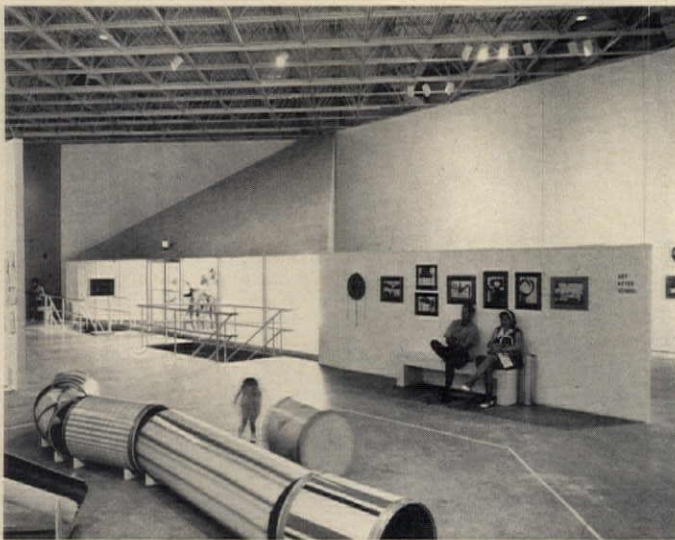
by two mechanical supply ducts. Birkerts likewise provided connecting points at intervals on the off-the-shelf Unistrut space frame, along with lighting tracks, and attachment points in the floor set in a regular pattern. The "prows" of the CAM also contain an exposed round supply duct, while the only other event in the space is the triangular entrance lobby. Is such an approach flexible? William C. Agee, new director of the Museum of Fine Arts, states that the context demands performance from the works shown and "good things look good, bad things look bad." James Harithas, new director of the Contemporary Arts Museum, likes his space but finds the neutral container was denied by the insertion of the entry. He feels that the space was made particular in this gesture, setting up rules of exhibit organization contrary to the original intent.

Minor problems also persist in both, inevitably centering around the support spaces to the main gallery space: inadequate storage, loading dock too small, obsolete elevator (MFA), and so forth. The question arises whether these are faults of design or of the process setting the stage for design. Simply, the case exists for a more meaningful programming process, or the input of the real users of a building into a design activity.

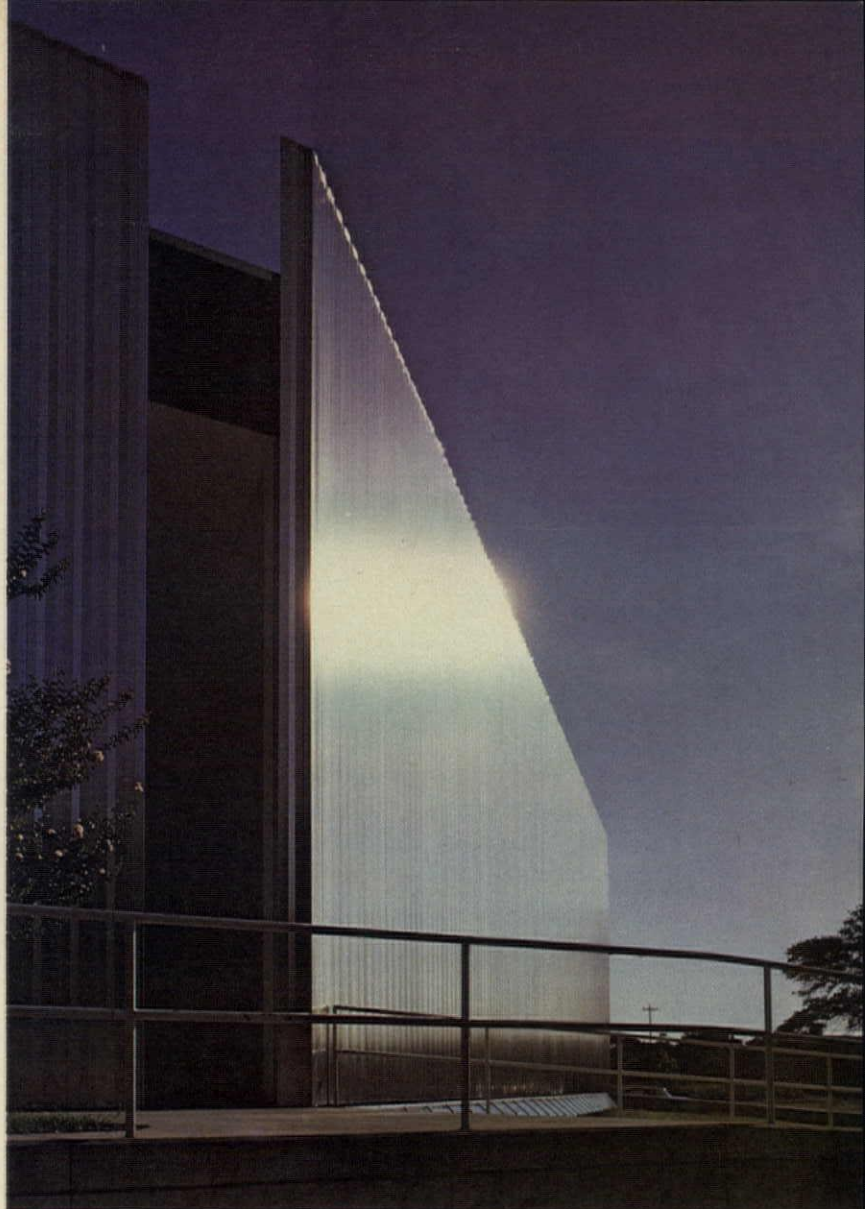
Both the MFA and CAM are interesting in the problems they ignore. Primary among these is the question of lighting. Even in instances where artificial light was the source in the artists' studios (usually the case at the CAM), the problem would still seem to be more than simply excluding sunlight. In this sense, the question of the control of light might reasonably appear to be a basis for the museum's internal organization. Yet, modern architecture, or that phase of it rooted in the so-called International Style, has been indifferent to this issue: in such a way the uniform admission of light by the MFA or its exclusion by the CAM follow this tradition. Birkerts had provided controlled skylights in the original design, but they were cut after bids. Mies's building has had an unfortunate addition of curtains and exterior awnings due to an expanse of east and west exposure. However, the essential tendency is reductionist, and seems contrary to current attitudes that would increase alternatives in all fields of human activity.

In these instances, the final results leave us with the paradox of intentions and their realization. Adherence to a 20-year-old master plan on the part of the Museum of Fine Arts, coupled with the response to increasing and diverse requirements, has tended to make certain areas of the building "fussy" while keeping the gallery space clear. The problem is complicated by the very real prospect of a finite limit on the size of the permanent collection imposed by the architecture and the site itself. The geometry of the CAM has, in actual use, proved to be more particular than generalized, and the dynamic shape of the space has, in effect, created more installation problems than it possibly solved.

Inevitably then, a more developed process of problem definition would have paved the way not only for better functioning facilities, but also for a better representation of the contained activities. Further, any enlargement of a visual vocabulary to evoke this content and deal with the intrinsic issue of display and lighting would indicate a future step in the right direction. With this in mind, both Houston museums must be regarded as incomplete statements. [Peter C. Papademetriou]



Loftlike interiors of CAM are lit entirely artificially. Neutral space is designed to accommodate different installations, although the insertion of the entry with a triangular lobby somewhat diminishes that effect.



CAM's slotted entrance (above) opens into wedge-shaped space (below).



Data

Project: Contemporary Arts Museum, Houston, Tex.

Architect: Gunnar Birkerts & Associates; project director, Charles Fleckenstein; director of construction, Gunars Egups.

Program: 17,500-sq-ft museum for the display of contemporary art and industrial design.

Site: one-half city block fronting on a corner of the intersection at Montrose Blvd and Bissonnet St., adjacent to the Museum of Fine Arts, Houston.

Client: The Contemporary Arts Association, Houston.

Structure: steel frame and steel stud with concrete slab floor and steel space frame and deck roof; exterior walls are insulated stainless steel panels; interior partitions are gypsum wallboard.

Mechanical system: gas-fired roof top units for warm air and cool air; forced air distribution.

Consultants: inspecting architect, Charles Tapley & Associates; structural, Robert M. Darvas & Associates; mechanical and electrical, Hoyem Associates Inc.; lighting consultant, Edison Price, Inc.; contractor, P.G. Bell & Company.

Costs: \$600,000; \$34.35/sq ft.

Photography: Balthazar Kórab, pp. 53, 55 and 57 left top, right top and bottom; Hedrick-Blessing, p. 54, 56; Hickey & Robertson, p. 57 left middle.

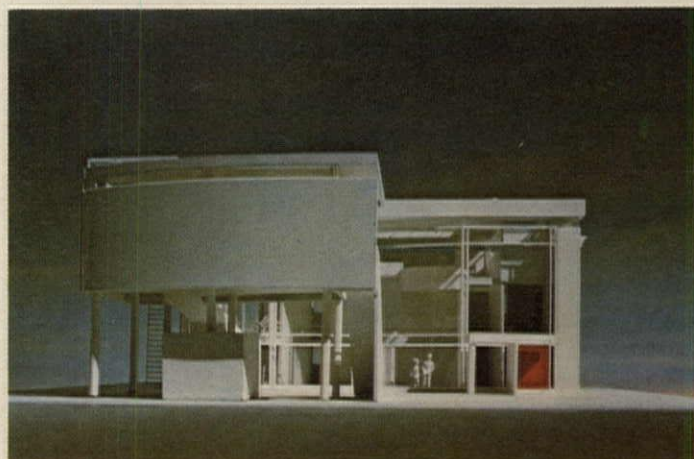
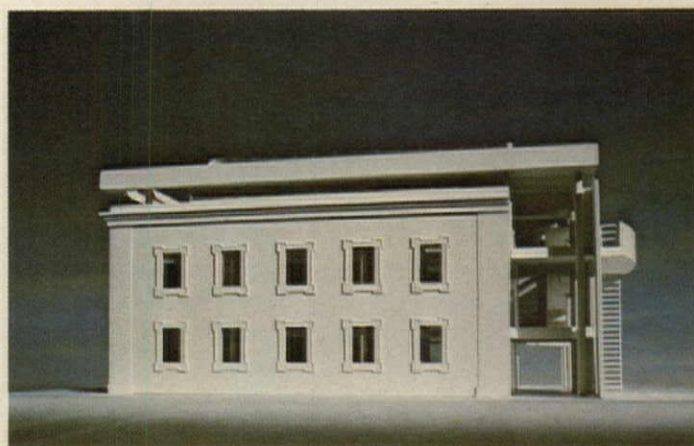
MOMA, Italian style

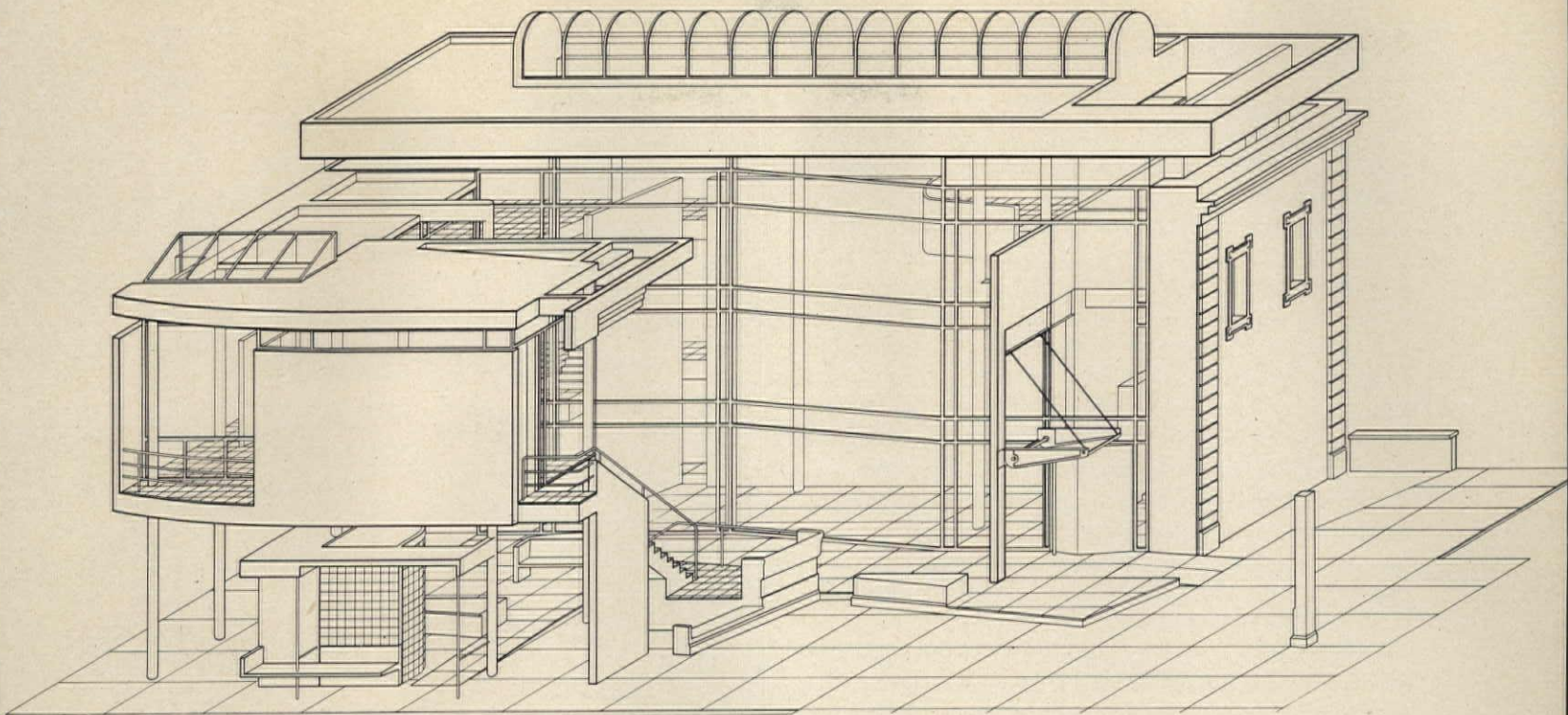
An international group of architects will convert Villa Strozzi in Florence into a museum for modern art. One of the three stable buildings will be done by Richard Meier, who recently completed its design.

Several years ago the Strozzi family gave their large, hilltop villa with its eight hectares of land, stables, and orangerie to the city of Florence. The complex sat empty and unkempt for four years before the city decided that the mid-19th century buildings (designed by Florentine architect Guiseppi Poggi in the neorenaissance style befitting the then-Capital of Italy) could be turned into a modern art museum, and also into a needed cultural and recreational center for the large working-class neighborhood that shares the south bank of the Arno River. The Commune di Firenze and the Society Artespa (a group that promotes the arts) invited an international group of architects to design projects for the individual parts of the complex. Alvar Aalto intends a new, detached pavilion; Ignazio Gardella, Alan Irvine, and Carlo Scarpa will convert the villa into gallery spaces; Giovanni Michelucci—the grand master of modern architecture in Florence—will design a restaurant and open-air theater, using parts of the old orangerie; Hans Hollein and Richard Meier will convert three old stable buildings, which enclose a courtyard, into new spaces for exhibiting paintings, sculpture, and prints, and also into facilities for theater, film, and video.

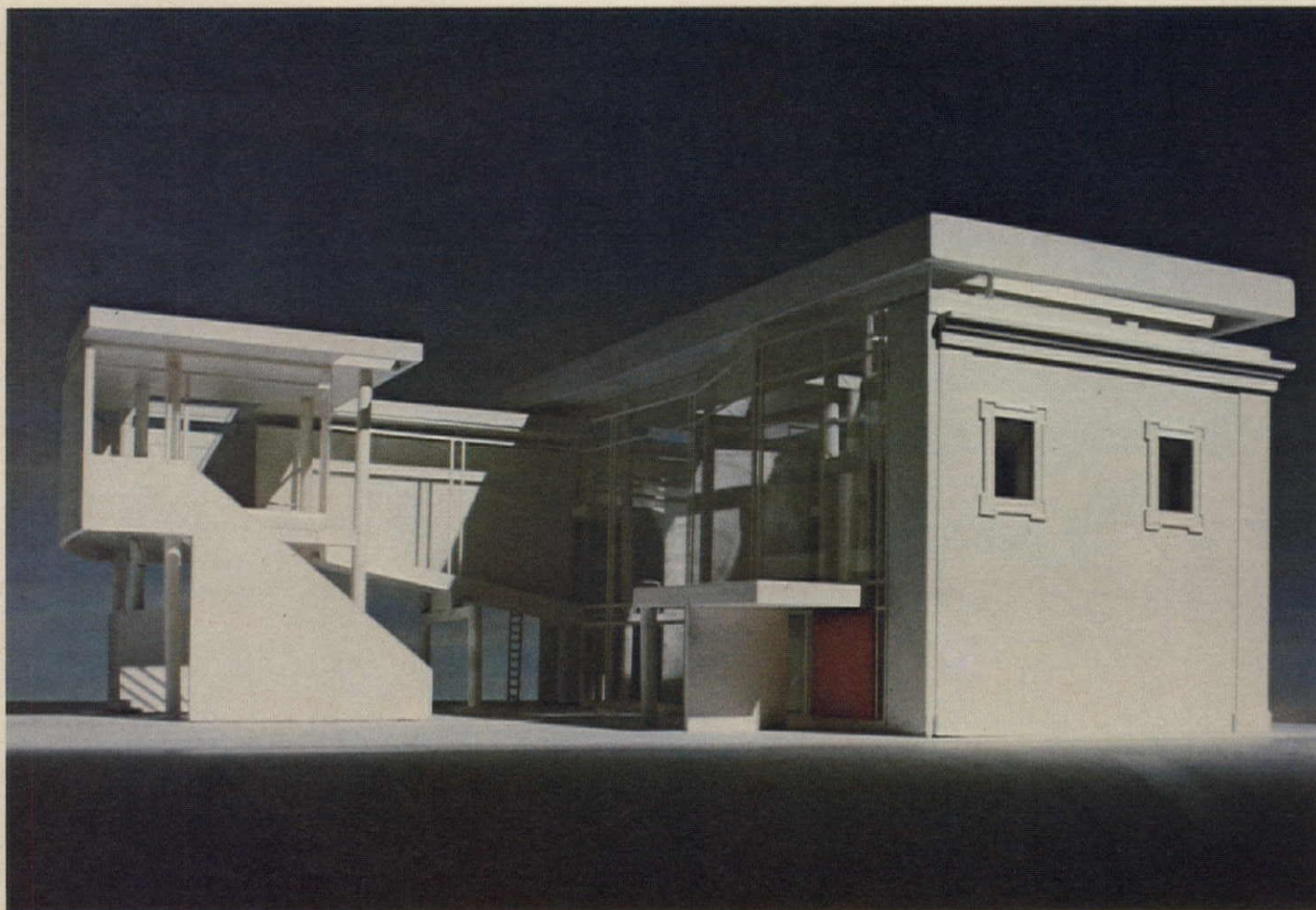
"Architects don't work in Italy the way we do," Meier notes; "one day they bring a piece of paper with an exquisite detail on it, the next week they bring another piece of paper with another exquisite detail on it." The suspense, it seems, makes it all the more interesting. Being American, though, Meier went full force ahead and designed his stable building, and even built a model which now stands in the Mayor's office—one condition was that local residents would approve all designs, as they now have done.

All of the villa's buildings were in poor condition and had suffered alterations throughout their history. And some of them, particularly the stables, were of dubious architectural merit. Consequently, the reconstruction of Meier's stable involves only the restoration of parts that were stipulated by Florence's superintendant of fine arts.





In the stable building Richard Meier is renovating into art galleries, only parts of the structure stipulated by the city's superintendent of fine arts could be retained. A clear distinction has been maintained between the old and new, as seen in the north-west elevations (above and below) and in the south, east, and north elevations (facing page, top to bottom).



Museum of Modern Art, Florence, Italy

The principal walls—the two facing the approach and the courtyard entry—are retained and restored to maintain the historical character of the complex. The rest of the stable is substantially gutted, later additions are removed, and the entire rear wall facing the courtyard is removed to open the interior to north light and to views of Florence.

The new work is clearly contrasted to the old and, in fact, it is separated from it. The new roof plane has been lifted away from the existing cornice; the new side wall—farthest from the courtyard—has been pulled away from the building. From the courtyard entry, the function of the old walls is retained, but now they are revealed to be a screen, which in turn appears to be lifted away from the new structure. Old and new are related to each other through a studied compatibility of mass and scale, and through the use, for new floors and walls, of the same dark gray stone that makes up the old building.

The new three-story structure shows a simple grid of round steel columns; these were developed from, and in counterpoint to, the openings of the existing walls. The plan is organized along a continuous circulation loop between the two main gallery spaces. The galleries, along with the ramped spaces and their alterations of solid and transparent planes, not only provide a structure of movement, but also impart a sense of spatial involvement. The visitor's visual experience is not limited only to the works of art, but is extended to the building itself and its environs.

Meier has made no attempt to relate old and new through the more customary, superficial paraphrasing or mimicking of the old in the new, which usually results in a disservice to both. Here, simple stylistic associations are avoided; old and new remain distinct. Yet through the more subtle, architectonic analysis of the mass and scale of old and new, each is brought into a relationship of respect for the other, and ultimately each enhances the other with a force that could not have been possible otherwise. [David Morton]

Data

Project: Museum of Modern Art, Florence, Italy (stable portion).

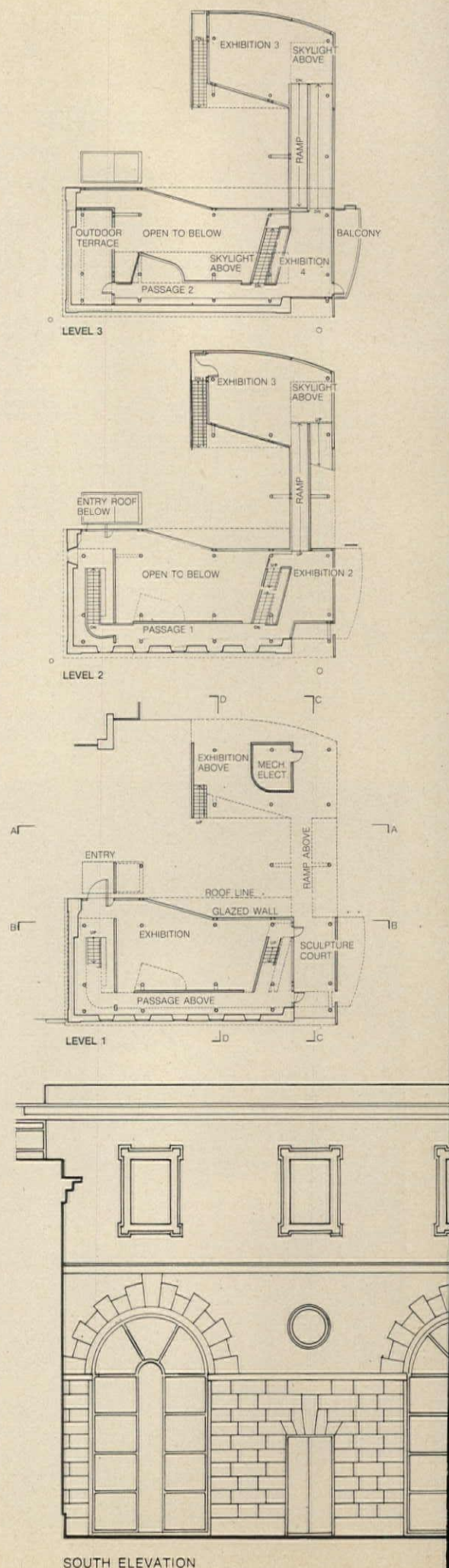
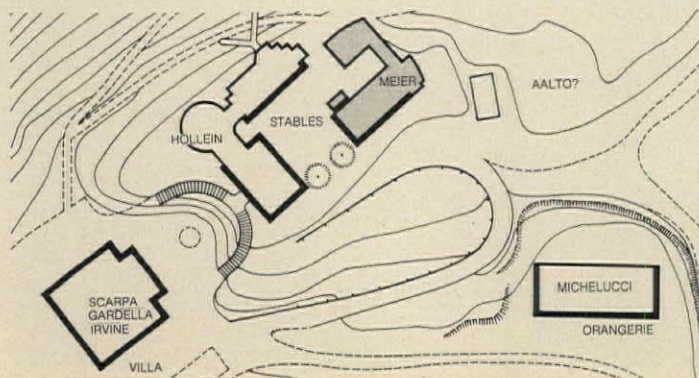
Architects: Richard Meier & Associates Architects; Richard Meier, Henry Smith-Miller.

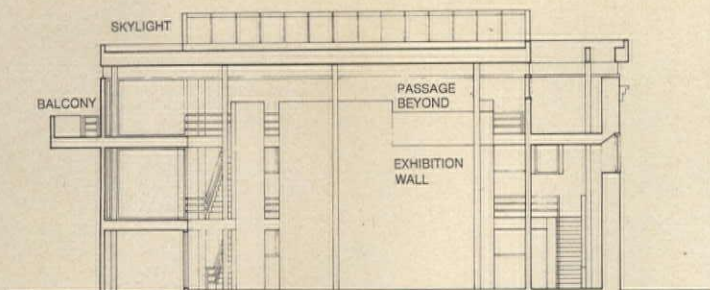
Program: reconstruction and conversion of mid-19th century stables into part of a modern art museum; remaining portions being designed by other architects include main villa and its buildings.

Site: eight hectares, on a hill above the south bank of the Arno River.

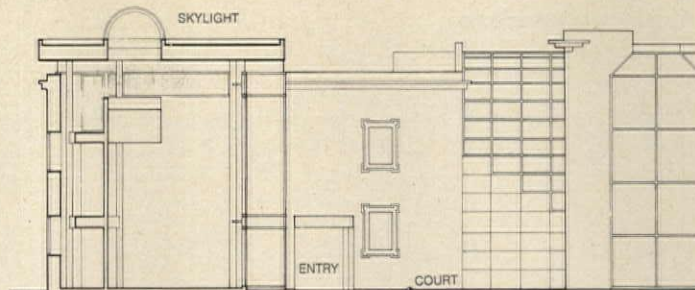
Client: Commune di Firenze.

Photography: Louis Checkman, p. 58, 59.

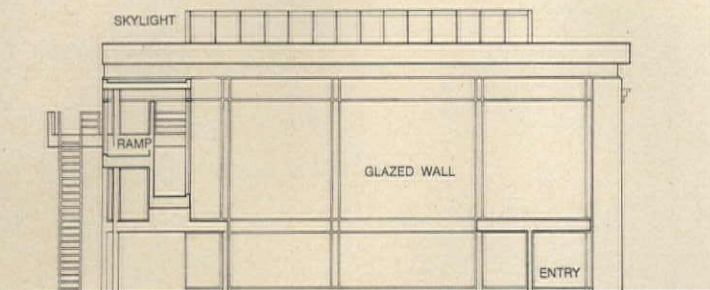




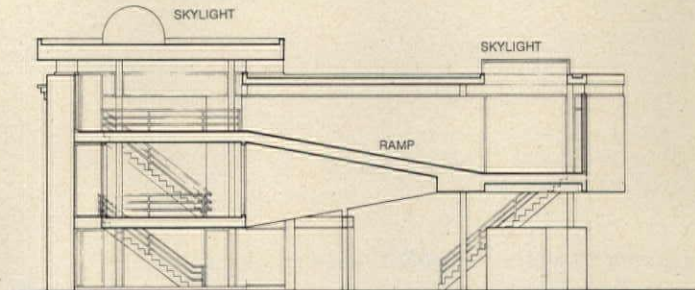
SECTION BB



SECTION DD



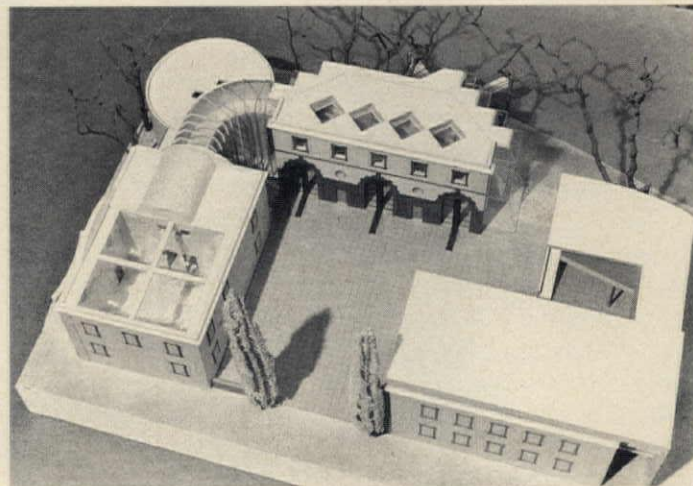
SECTION AA



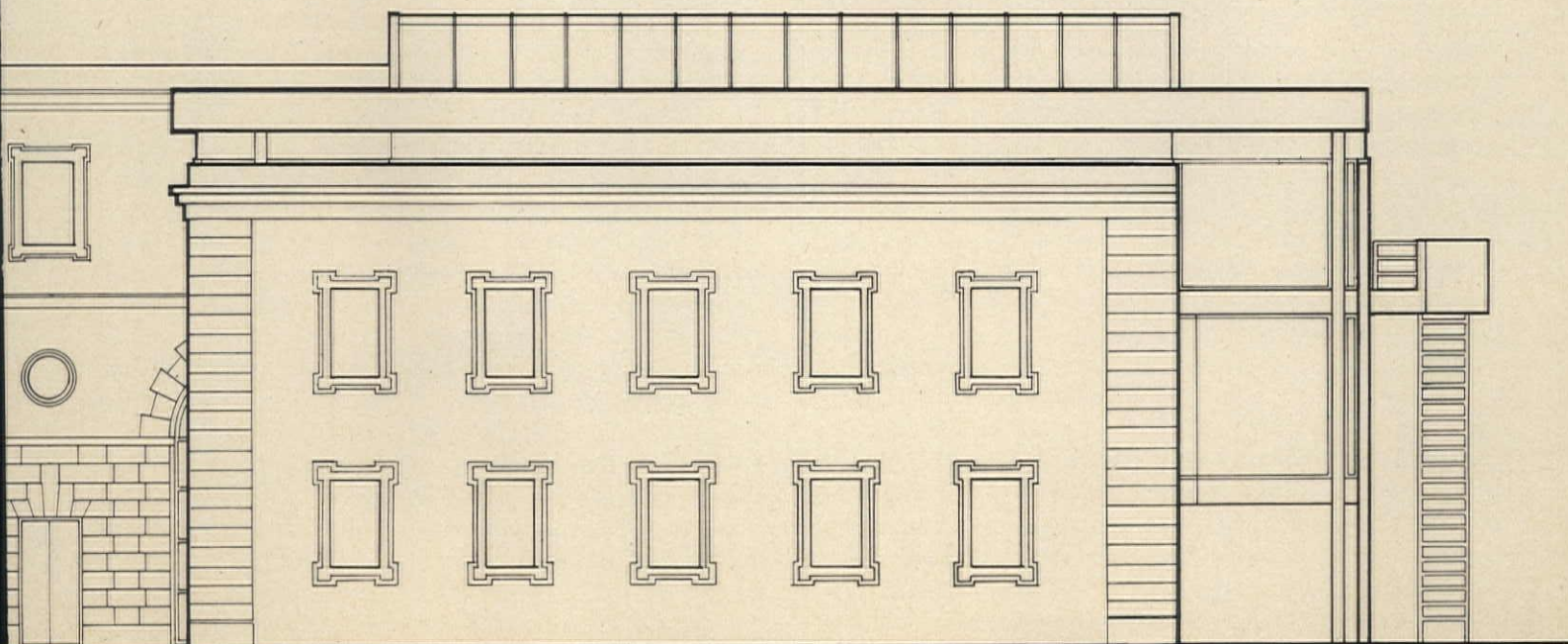
SECTION CC



In the existing three-building complex of stables (above) all walls facing the approach will be retained and restored. The two structures to the



north and west of Meier's building (above) are to be restored by Viennese architect Hans Hollein to complete the enclosure around the courtyard.



The art of high art

The way in which an object is exhibited can give a curator an opportunity to 'comment,' thus providing viewers with clues to help understand its message.

To exhibit is defined by Webster as "to show," a definition so benign as to almost deceive the viewer about content and so meager that it seems hardly befitting the elevated status accorded objects in most museum collections. Museums are the invention of democracy, an idea manifest in the French Revolution when the palace of the French kings was stormed by the peasants, making art accessible to more than the few who could afford to patronize it. As institutions, they have changed little in the last 175 years; they remain repositories of "works of art," with perhaps only a change in the definition of what art is. As places for the exhibition of painting and sculpture, the museum differs little from the original milieu intended for their viewing. But as a place for the exhibition of objects (historical artifacts or contemporary ones), the context has been altered from one of *use* (function) to one of *view* (art).

A favorite preoccupation of the Museum of Modern Art, according to Arthur Drexler, its curator of architecture, "is taking objects out of context in an effort to provoke associations and perceptions that would otherwise not be available—out of the familiar into the unfamiliar—which is, after all, the poetic function of the metaphor." This preoccupation is not just current, however. A review of the 1934 Machine Art show (when Philip Johnson was curator) begins "Did you know that a frying pan is a piece of art work? . . . As a matter of fact, the old skittle, when burnished up and displayed on a bit of black velvet, shows off to considerable advantage. And what the museum set out to illustrate by the exhibit becomes immediately apparent . . . these mundane articles have a certain beauty of symmetry and design."

The intention, and therefore the choice of context, becomes an important consideration in the exhibition of any object, and there are perhaps as many ways of exhibiting objects as there are art and architecture critics; they range from the literal representation to the polemic, from the display of an object for the visual and artistic qualities of its forms, to the use of objects for commentary. Basically, there are four intentional categories which describe the re-

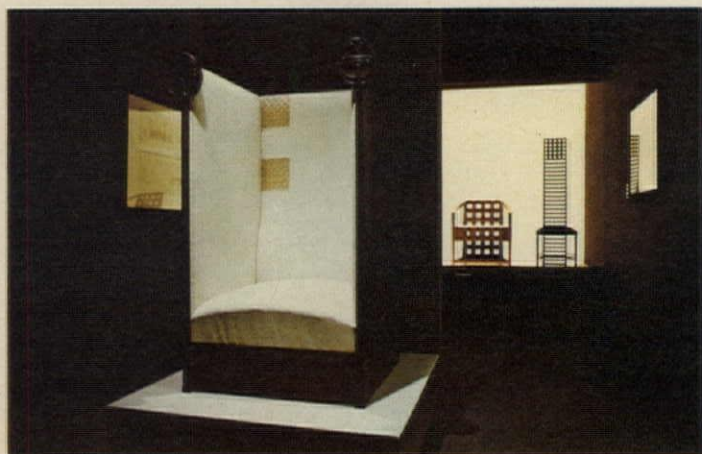
lationship of object to its setting: the pure object, shown for its visual and/or functional qualities; the object as image, used to represent an idea; the object in context, where the way in which it is exhibited comments on the value of the object or its role; the object as context, with the viewer as participant or observer.

The exhibition of object, in its pure form, is well illustrated by the Museum of Modern Art's recent show of Charles Rennie Mackintosh chairs, an exhibit executed by MOMA curator of design, Emilio Ambasz. As chairs, their primary purpose was functional; their content as "art" was secondary. The nature of their placement in a museum, however, reverses this relationship; the setting in which they are viewed becomes of prime importance, reinforcing the viewer's ability to make this transition. For this installation, the walls of the gallery were painted a dark, gray-purple (darkness, not color, being most important). A few of the more elaborate chairs were singled out and spotlighted; the others are backlit with warm incandescent light and arranged chronologically. The installation suggests an ambience similar to that in which the chairs were originally used, but without enough specificity or familiarity to compete with or detract from the prime concern—the object as art form. The success of this installation can be measured by its gentle, persuasive, and almost subliminal effect on the viewer. Of similar intent, but of questionable success, was the show of Charles Eames chairs: these were objects to be viewed for their artistic qualities, but the garish installation quickly dispelled any possibility of transcending the banalities of function into the realm of art.

In contrast to the object as pure art form is the use of the *object as image*. Here, the purpose of the exhibition is to represent an idea suggested by the object or its content. An exhibit on birth and population, designed by the Castigliones, uses as its central image a series of pink and blue bows, conveying clearly the theme of the exhibition, while at the same time giving a strong visual form to an idea which exists only in concept. Another example of the use of object as content or message is the Archizoom contribution to the Italian Domestic Landscape Show (MOMA, 1971). Asked to give a point of view about the nature of design, the group presented a universal void, a conscious nonentity. Because of the very fact that it almost did not ex-



The chairs of Charles Rennie Mackintosh, an exhibit at the Museum of Modern Art, installed by its Curator of Design, Emilio Ambasz.



Interior architecture

ist, it had to be reinterpreted within the context of the show as a political/philosophical statement against the basic postulates of the exhibition. And as its meaning was gained in its relation to the rest of the exhibition, its physical form also relied on its surroundings for its definition. The room, with a series of pivoted openings along one side, was created out of its black surrounds with cold fluorescent lights, monochromatic surfaces and no definition of scale.

The object in context could also be found in this exhibition. Sofas, chairs, lamps and accessories, divided into three categories according to reasons for their inclusion, all were shown in their own (albeit beautifully designed) packing crates. On one level, the crate as container solved the immediate functional problems of a traveling show. It provided separate places for each object to be displayed individually—along with large scale photographic details—and determined a fixed relationship between the viewer and the object. On a metaphoric level, the crates became a street scene, mimicking the urban environment with its attendant cultural and political issues; the juxtaposition of the high-tech object with the rough wood crate suggests poetic

The Archizoom contribution to the Italian Domestic Landscape Show, a polemic statement about the nature of design, is a physical void which gains its meaning from its surroundings. Created with light out of darkness, it has monochromatic finish and no details. It is antidesign in sharp contrast to the high-tech objects in the rest of the show.

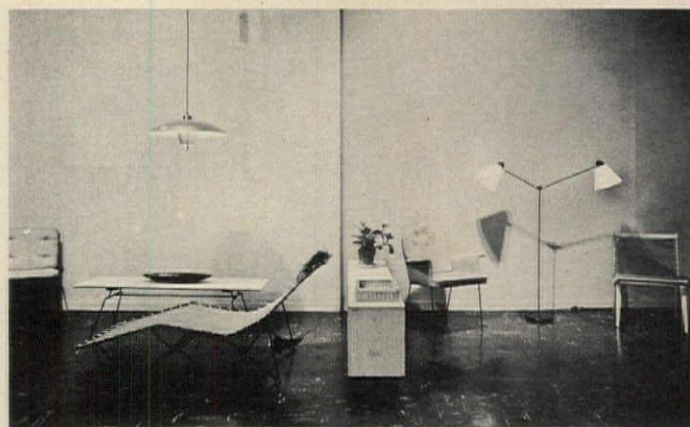


Photo: Courtesy of the Museum of Modern Art

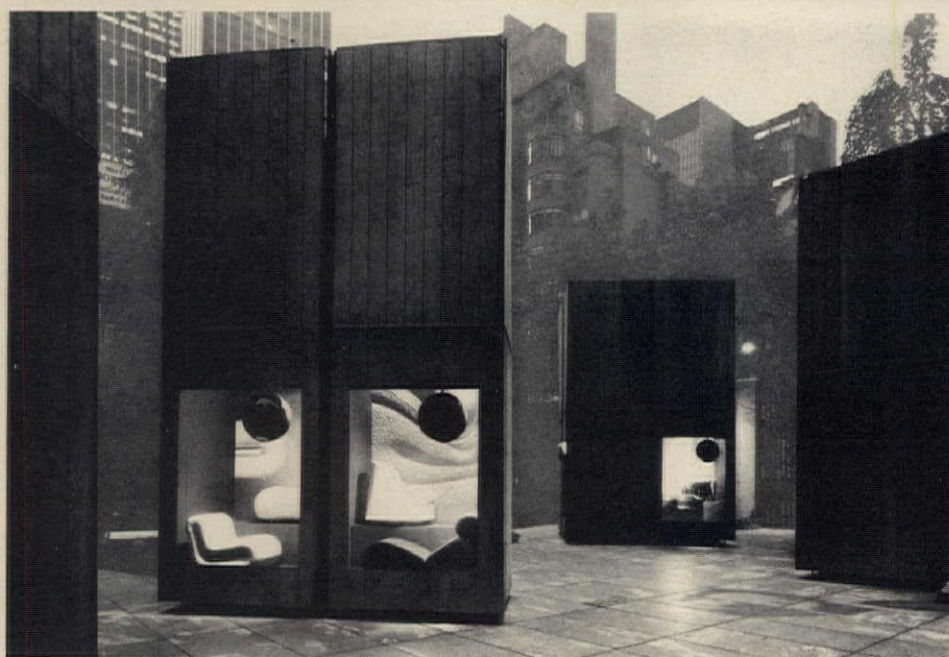


Photo: George Cserna

Two exhibitions of furniture (above), by MOMA's Curator of Architecture, Arthur Drexler. Photo, top, is of "Good Design" exhibition in the early 1950s; photo below is exhibition of Eames chairs done 20 years later.



Photo: Alessandro Magris



Crate containers, in mimicking the urban environment, set-up tenuous scale relationships between objects they contain and their surroundings.

ironies on many levels. On a more subtle contextual level, all of the objects in this show were placed outside, all of the environments were placed inside, while the whole exhibition was deliberately wrapped up in the ambivalence of social and political issues.

The object as context can embody two extremes. The first is the denial of the traditional role of observer/observed, through viewer participation in the object and therefore the implication that the object as exhibit does not exist except as it is experienced. Two relatively recent (if

rather pedantic) examples were mounted in the Museum of Modern Art's garden: Frei Otto's recent work was displayed under a tent structure of his own design, and a house by Marcel Breuer was commissioned by MOMA after World War II to show the public what a "modern" house was. Both examples provide primary experience where the viewer is free to select what is seen and to establish his own relationship to it. In another MOMA show entitled *Spaces* Robert Morris' landscape became complete only through the participation of the viewer. The landscape es-

Interior architecture

established unexpected and ambiguous scale relationships between object and viewer that could only be resolved in the mind of the person experiencing it.

Another exhibition of similar nature designed by Raimund Abraham and shown at the Architectural League of New York, used sounds which were activated by a triggering device as one approached a series of hollow metal tubes suspended in a room. The intensity of sound varied according to the proximity of the viewer to the tube and the pitch of sound varied according to its diameter. As the small room which contained the exhibit was painted with a blue fluorescent paint and lit with ultraviolet light, the physical boundaries disintegrated and space became relative to the viewer and defined by the generation of sound.

The other extreme of object as context is the exploration

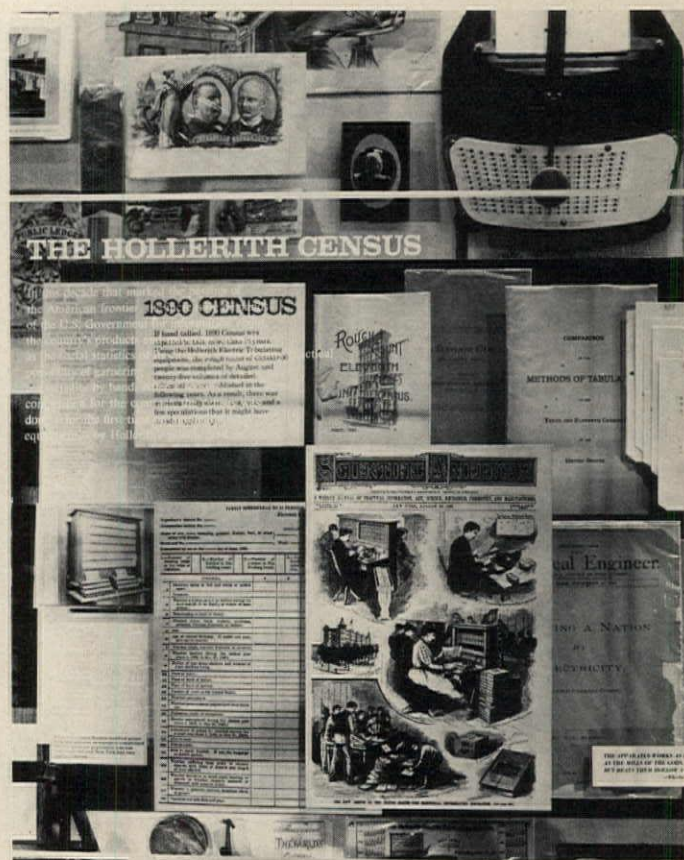
of the generative forces and implication suggested by an object which, through emphasis, tends to relegate the actual object to a role of secondary importance, and allows the participant to be only observer. IBM's *Computer Perspective*, designed by the Eames office, overlays fact (written) with object and image (visual). The three layers of simultaneous information weave a tapestry of social, political, and economic history as a device for understanding the development of the computer. As the visual structure of information is tightly organized, the lack of connections (cause and effect) is often not apparent. In the end, the over-abundance of related information and its nonhierarchical structuring tend to obscure the history of the computer in a factual, visual fabric that becomes something quite different from any of its parts. [Sharon Lee Ryder]

Photo: Courtesy of A. Castiglione



Castiglione's birth and population exhibit (above) where an image represents an idea. Breuer "modern" house (below) built in MOMA's garden.

Photo: Courtesy of the Museum of Modern Art

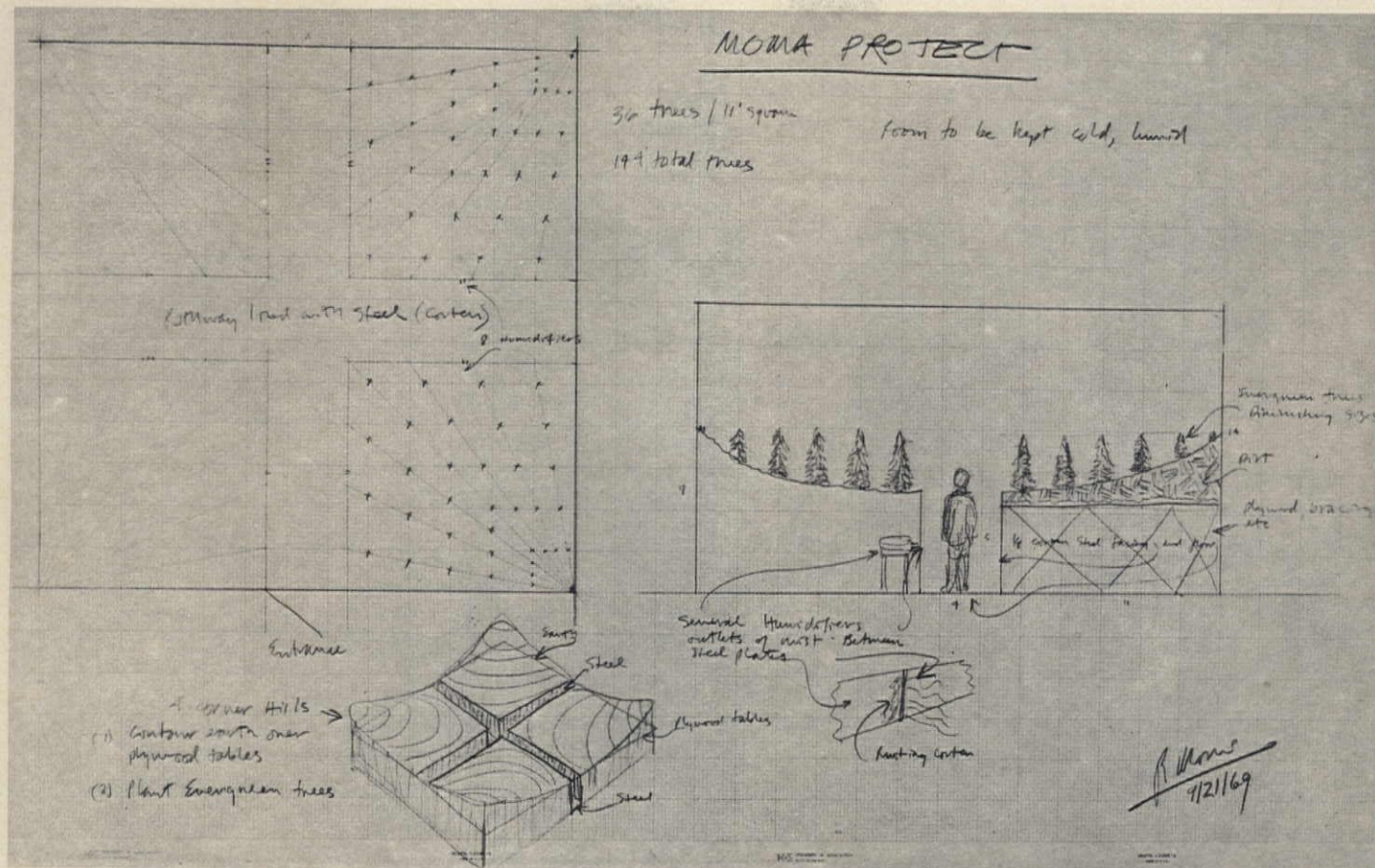


Eames Computer Prospective (above), amasses information as context. Frei Otto exhibit at MOMA (below) displayed under tent designed by him.



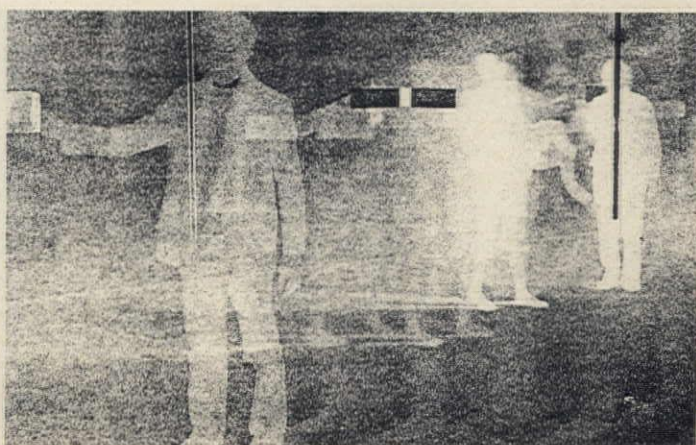
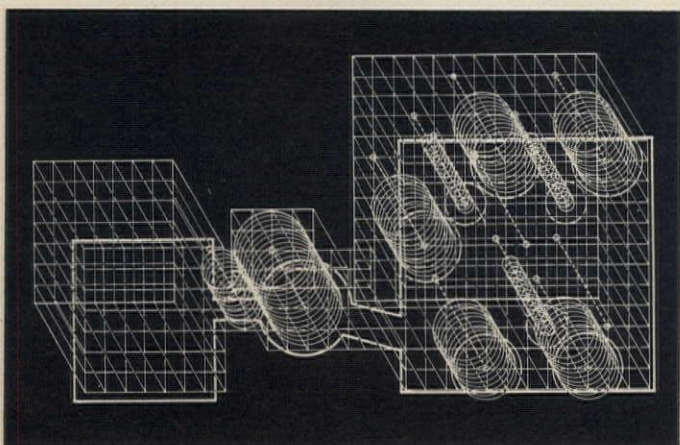
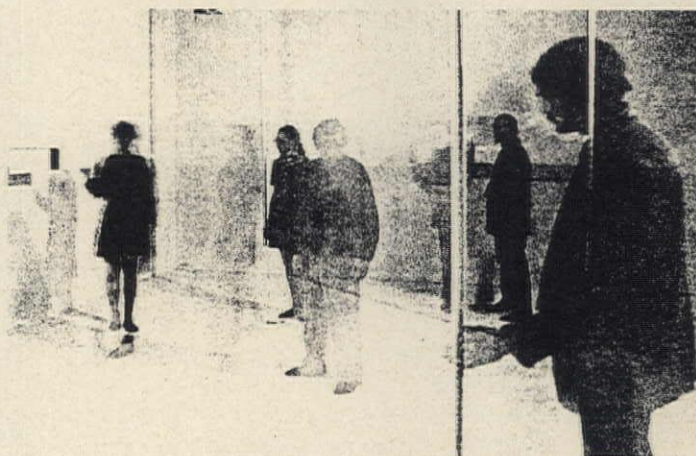
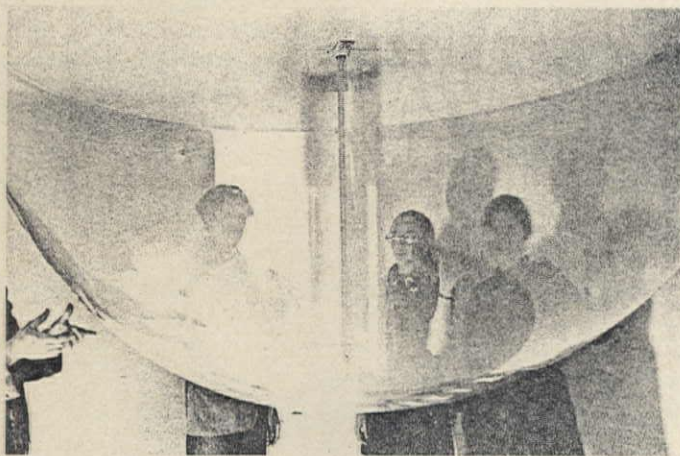
Photo: Courtesy of the Charles Eames Office

Photo: BSTO ©



Robert Morris Landscape (above) created ambiguities between viewer and object. Raimund Abraham constructed space through sound (below) rather

than walls. Sound was generated according to the viewer's proximity to hollow tubes, creating an exhibition relative to the viewer's position.



A touch of De Stijl

A project begun by a De Stijl master of architecture, Gerrit Rietveld, is completed 10 years later by his surviving partner. It is a restless home for van Gogh.

How would you complete Schubert's "Unfinished" *Symphony in B Minor*? Or Proust's uncompleted novel, *Remembrance of Things Past*? Or Michelangelo's raw statuary, the *Slaves*? Unfinished works of art dot the artistic landscape. The Vincent van Gogh Museum in Amsterdam is one example, a project begun by Gerrit Rietveld (1888–1964), De Stijl architect, furniture designer, and co-founder of CIAM, scarcely a year before his death. His talented design partner, J. van Dillen, died prematurely two years later, leaving the remaining partner, J. van Tricht, to complete the work. Little wonder the museum opened 10 years after the awarding of the commission.

It stands on one flank of Amsterdam's Museumplein, the stately axial mall on which it observes the height limit imposed by its neighbors, a 1925 Expressionist villa and the Stedelijk Museum. Nearby is the great Rijksmuseum, keeper of much of the Netherlands' artistic legacy. The van Gogh Museum is a good neighbor. Though it shows a Cubist pedigree foreign to its surroundings, its scale is carefully controlled; a sizable portion of its bulk lies below grade level. What is visible is a chunky cubic mass spinning off lesser bodies like a condensing star creating planets.

The project arose from demands by Dr. V.W. van Gogh, nephew of the neo-Impressionist painter, that his father Theo's collection of 230 of Vincent's paintings, complete correspondence, and works by Vincent's contemporaries be housed by the Dutch government in a special permanent display. The van Gogh Foundation established conditions: paintings should be exhibited mainly in overhead daylight; the museum should be a place of creative recreation; a lecture hall and meeting rooms should be provided. Aware of eager foreign collectors, the Dutch Government agreed.

Rietveld's sketches dealt with lighting and urban scale. A grid of 11 by 11 bays covered by 5 meter cubes was piled roughly into a pyramid, progressively stepping back from basement to ground floor on one side, ground floor to first floor on three sides, and second and third floors on two

sides. A fourth floor (penthouse and conference room) sat in a corner of the tower. Within the building's center was to be a void expanding upward, not unlike such precedents as Frank Lloyd Wright's Guggenheim Museum (1946–1959 New York). Each floor level would receive some direct overhead light from a flat roof pierced with glass.

In a major appraisal of Rietveld's work, Theodore Brown (1958) suggested that Rietveld designed from interior outward, giving the impression that exterior treatment took second place to interior space. If such is the case, it is Rietveld's concept of the great interior space which anchors the finished building and orients the intruding spaces that whirl about the center. However, van Tricht takes exclusive credit for the interior design of the museum, which throws serious doubt on the extent of the Master's influence.

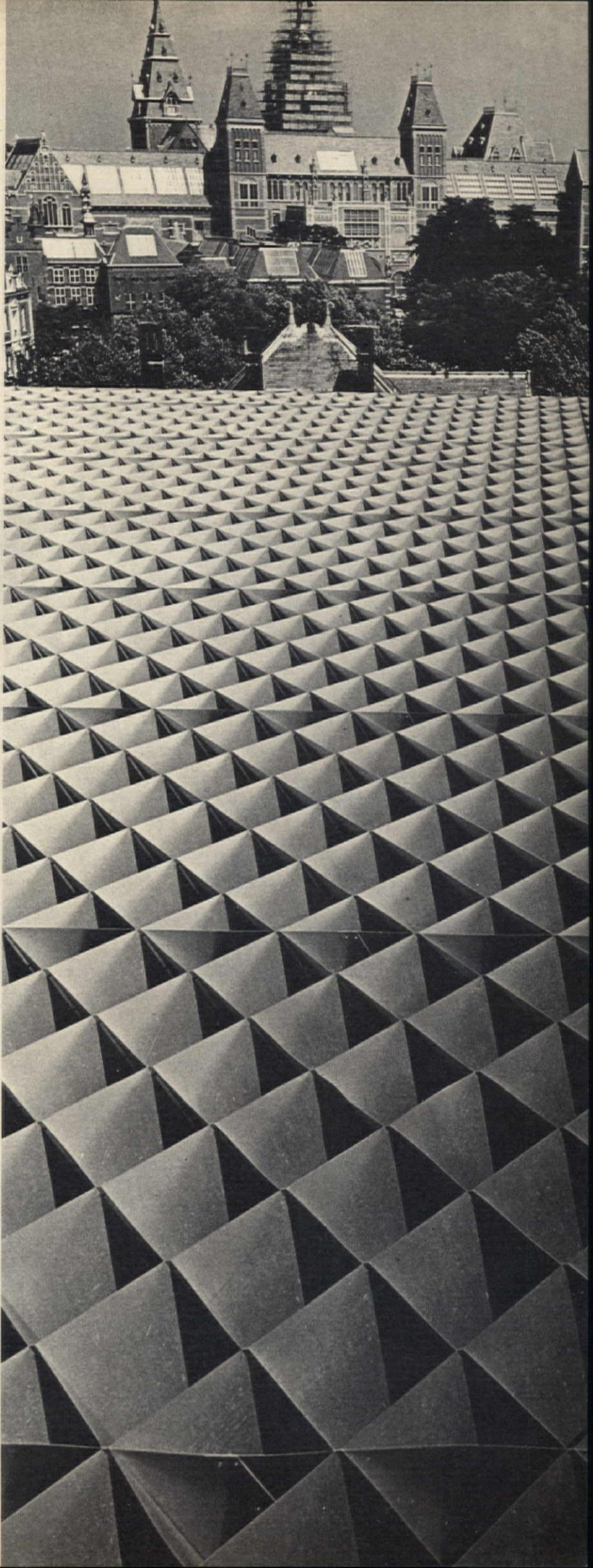
A strong sense of spatial movement is expressed from the very moment a visitor enters the building. This occurs on Paulus Potterstraat a half flight above a basement of offices, workshops, kitchen, auditorium, and mechanicals. The ground floor shows an awareness of Rietveld's definition of space: a convergence of planes and lines, of space rushing about an intense locus. After the low entrance ceiling, the building seems to dissipate, upward towards the roof and outward past columns and around walls to windows that are suggested if not directly visible. On this floor are cloakrooms, offices, exhibitions, bookshop, library, painting room for visitors, terrace restaurant, and a decidedly theatrical freestanding staircase in a corner of the atrium, the principal means of public vertical circulation.

Above are additional exhibition spaces and some surprises as well. The first floor continues the pinwheel motion of ricocheting energies. All this is then swiftly and skillfully subdued on the second floor, which turns a blank face to the exterior save at one corner of a tight, rectangular gallery. Even the central atrium is sealed off. Here drawings, watercolors, and prints, all sensitive to sunlight, are given a dark intimate setting of man-made light. The third floor is once again open to the atrium, though its exterior is controlled as below. Overhead is a fully luminous ceiling.

The lighting and interior form and color were studiously fashioned to provide what is arguably too neutral a context for the art of van Gogh. Natural light passes through a suspended *brise de soleil*, 224 pyramidal skylights, and a plas-



Views of Vincent van Gogh Museum: on Museumplein (south elevation), from *brise de soleil* (east to Rijksmuseum), and at main entrance on Paulus Potterstraat (north elevation).



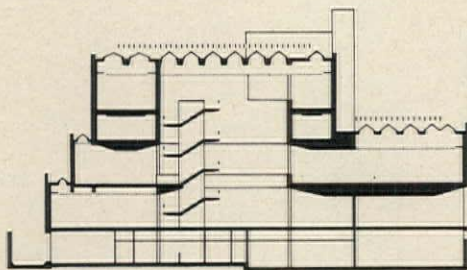
Vincent van Gogh Museum

tic diffusing grid to enter the space. (Fluorescent tubes add reinforcement.) Below this, off-white painted fiberboard covers brick walls in display areas. Neatly enclosed services and structural elements are also off-white. The floor is of brown or orange carpet.

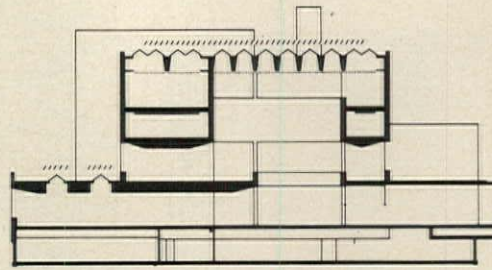
The composite effect is a curiously bland interior despite the spatial exercises. Van Tricht deliberately sought this sinuous yet tranquil equilibrium. (Rietveld's interiors, beginning with the remarkable house for Mrs. Truus Schröder-Schräder, 1925 Utrecht, were far more animated, employing services and structure as conscious participants in spatial movement.) Whatever were the Master's intentions, the paintings float helplessly about, small and intensely emo-

tional handwritten messages pinned on giant bulletin boards. They compete for attention under a soft undifferentiated light that clashes with a strong outside glare.

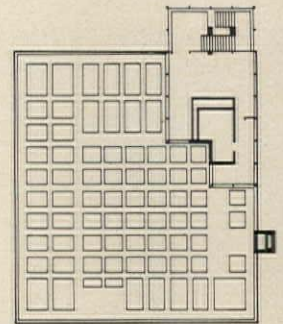
Rietveld's partners are not solely responsible for this disappointment. Museums designed without regard to their contents are not uncommon, and Rietveld's envisioned structure, albeit a fascinating space, hardly showed much sympathy for van Gogh's work. But the museum is a memorable space. In it one can almost hear Rietveld saying, "If, for a particular purpose, we separate, limit and bring into human scale a part of unlimited space, it is (if all goes well) a piece of space brought to life as reality. In this way, a special segment of space has been absorbed into our human system . . . Was that general space, then, not to be experienced as a reality? It was not real until there was introduced in it a limitation . . ." [Roger Yee]



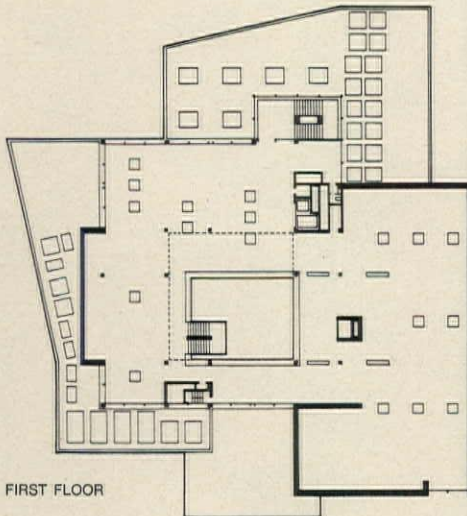
SECTION A-A



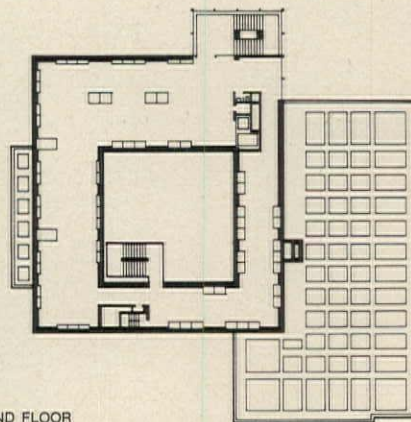
SECTION B-B



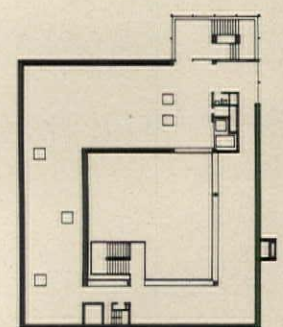
PENTHOUSE



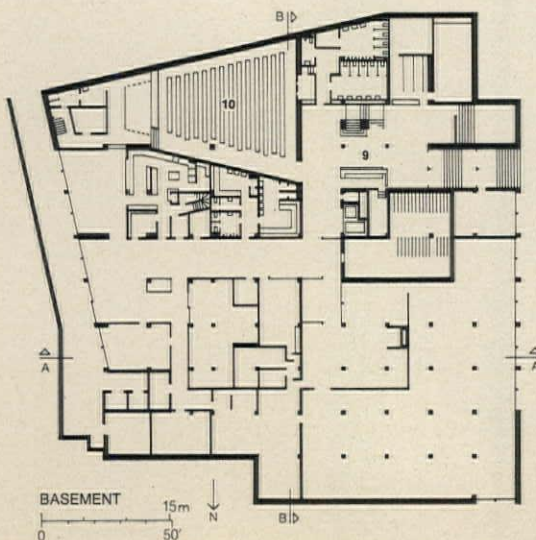
FIRST FLOOR



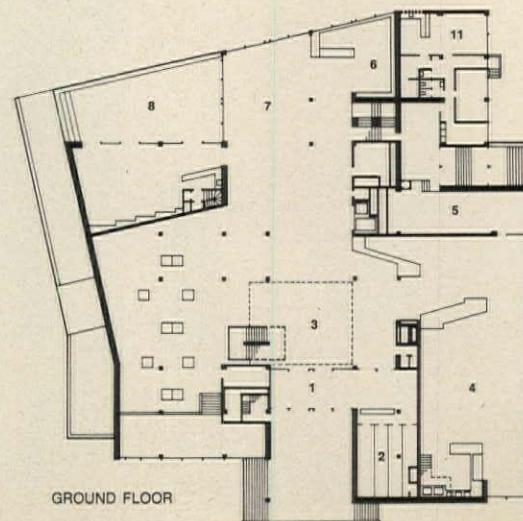
SECOND FLOOR



THIRD FLOOR



BASEMENT



GROUND FLOOR

Legend

- 1 Entrance
- 2 Cloakroom
- 3 Central hall
- 4 Public art education
- 5 Library
- 6 Museum shop
- 7 Lounge
- 8 Terrace restaurant
- 9 Foyer
- 10 Auditorium
- 11 Office

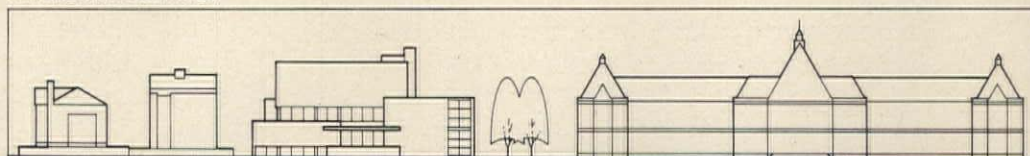


Terrace restaurant on southeast corner of museum ground floor overlooks Museumplein.



Above: staircase at atrium northeast corner. Below: north elevation.

POTTERSTRAAT ELEVATION



Data

Project: Vincent van Gogh Museum, Amsterdam, Netherlands.

Architects: Gerrit Rietveld, J. van Dillen, J. van Tricht.

Client: Dept. of Cultural Affairs, Recreation and Social Welfare, Vincent van Gogh Foundation, State Office of Works.

Program: museum and ancillary facilities to house art collection of Theo van Gogh. Floor area not available.

Site: flat terrain on north shoulder/east end of Museumplein, bounded by this and Van de Veldestraat and Paulus Potterstraat.

Structural system: reinforced concrete, steel staircase.

Mechanical system: rooftop HVAC.

Major materials: exterior, cream white split concrete brick set with color-compatible mortar, glass, dark-painted hardwood window frames, painted steel (staircase tower), basalt lava steps and terrace; interior, fire treated wood fiberboard display walls, painted synthetic plaster resin walls, perforated acoustical metal tile ceilings, needle felt carpet in orange or brown.

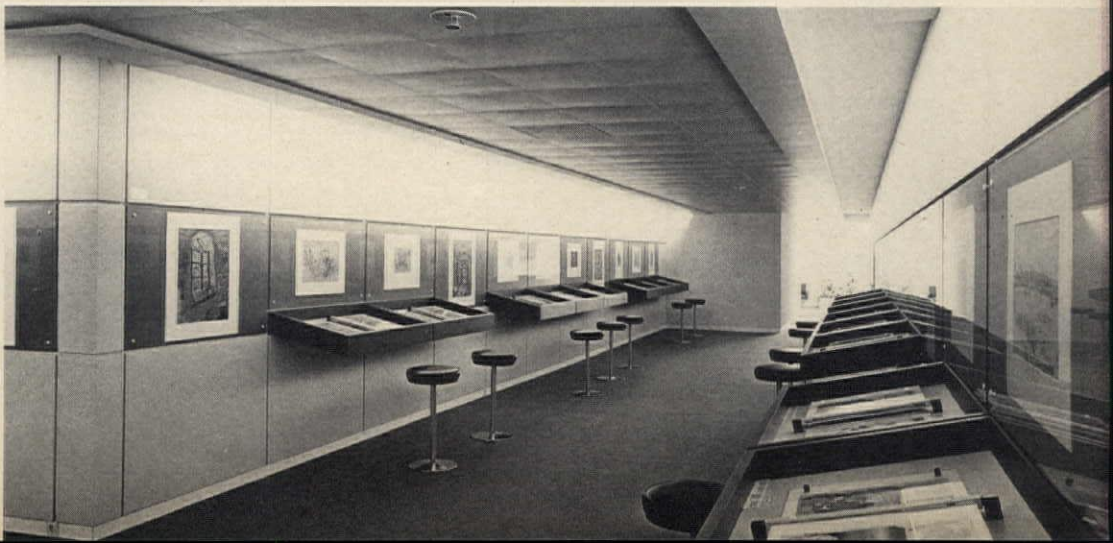
Consultants: Cooperative Association Engineering Bureau Van Steenis, structural; Consultants Deerns Ltd., mechanical; Consultants Ir. V.M.A. Peutz Ltd., acoustical and environmental; J. van Tricht, B.N.A., interior; State Purchasing Office, furnishings; NEDAM Ltd., general contractor.

Photography: Jan Versnel.



Third floor painting gallery is washed in soft diffused natural light.

Secluded calm of second floor gallery invites pause and contemplation.



Meet the materials technologist

Harold J. Rosen, P.E., FCSI

The technological explosion has left architects poorly prepared to specify sound buildings. Failure to answer this fundamental challenge could be disastrous.

Imagine if Ralph Nader got tough on defective buildings. Just what should a client expect? The owner of a new building is entitled to a finished product that is free of leaky roofs, wet basements, peeling paint, corroding metal, and cracking plaster. He should expect sealants in building joints to perform properly, door hardware to operate smoothly, mechanical and electrical systems to function well, and a building so designed that it requires only a typical maintenance program to adequately maintain it.

Yet we still find numerous architectural design award winners and countless additional architect designed buildings plagued with problems that should have been solved on the drawing boards and in the specifications. Unfortunately many of these problems have drawn architects into embarrassing litigation which sometimes results in a perilous financial position.

Often the root cause is the dearth of qualified technical personnel who can transform creative design drawings into successful working details and specifications. It is partly the fault of schools of architecture that do not provide sufficient grounding in the study of materials technology and in the working drawings. Nor have architects been able to keep up with the proliferation of new materials, products, and systems developed by manufacturers. Many of these new products have not been completely de-bugged before marketing. Too often not all of the physical properties or limitations are set forth in the manufacturer's literature. In many instances manufacturers of new products simply are unfamiliar with building design and construction. They do not understand how to test their products for all of the conditions under which the product will be used and abused during the life of the structure.

Out of the frying pan into your building

The development and marketing of new products are essential to the well being of the building industry. New designs create the need for new solutions. The depletion of

certain raw materials requires the search for new ingredients as substitutes. Energy shortages and inflated prices place demands on manufacturers to seek new sources of supply which possess different physical characteristics.

However, a proper understanding of the characteristics, properties, and uses of new products is essential for all concerned with the building process: the architect, the manufacturer, and the contractor. The architect, his professional society, and his educator must recognize that if they are to reduce errors and omissions, avoid litigation, and satisfy the client's needs they must review the *technical* competency of individuals being prepared for the practice of architecture. Similarly, they must provide for a permanent program of continuing education.

The specification writer today must be one who is consciously prepared for his role. Perhaps if we got rid of the connotation "writer" we could envision his proper function in the architect's office. His objective is a written specification detailing the quality of materials, products, and assemblies and the workmanship required to erect, place, and install them. However, in order to produce this final document he must primarily be an expert in materials. He must be able to assess, select, research, and understand them. Also, he must understand contracts to insure that he does not introduce legal vagaries in his documents. His command of the English language in expressing his expertise in materials must be so well founded that he writes specifications concisely and clearly, so they can in no way be subject to grievous misinterpretations or omissions. But above all else he must be a materials expert.

A time bomb in the drafting room

The architectural profession cannot go on ignoring this aspect of its practice. For too long the architect has doted on design considerations. Formerly when we dealt only with basic materials such as wood, masonry, concrete, and steel, when Sweet's Catalogs were only a handful of volumes reflecting the measurable number of building materials and products, the architect could be the master builder. With the technological explosion, the traditionally educated architect is in no way prepared to understand and master new products. Consideration must be given to expanding the architecture school curriculum to include a more comprehensive program of materials technology. Or, an architectural engineering program should be created in the architecture schools so that technically minded students as well as those who are design oriented can matriculate. We need *graduate* spec writers.

Nor can the practicing architect or specifier avoid continuing his education. He will become technologically obsolete if he does not stay abreast of continuing developments of materials and products. In addition, performance specification, slowly emerging as a tool in the development of systems building, can be best understood and applied by materials oriented technicians. If the architect is to survive, he must recognize his current limitations. He must make provisions for the advancing technology by educating himself and by insisting that the schools of architecture turn out students who are qualified in materials technology. □

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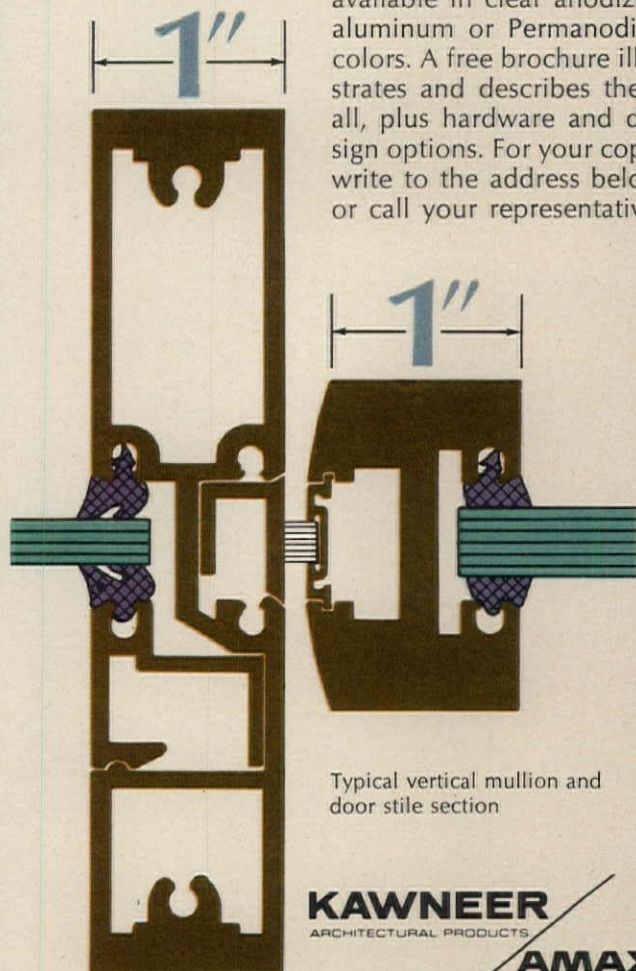
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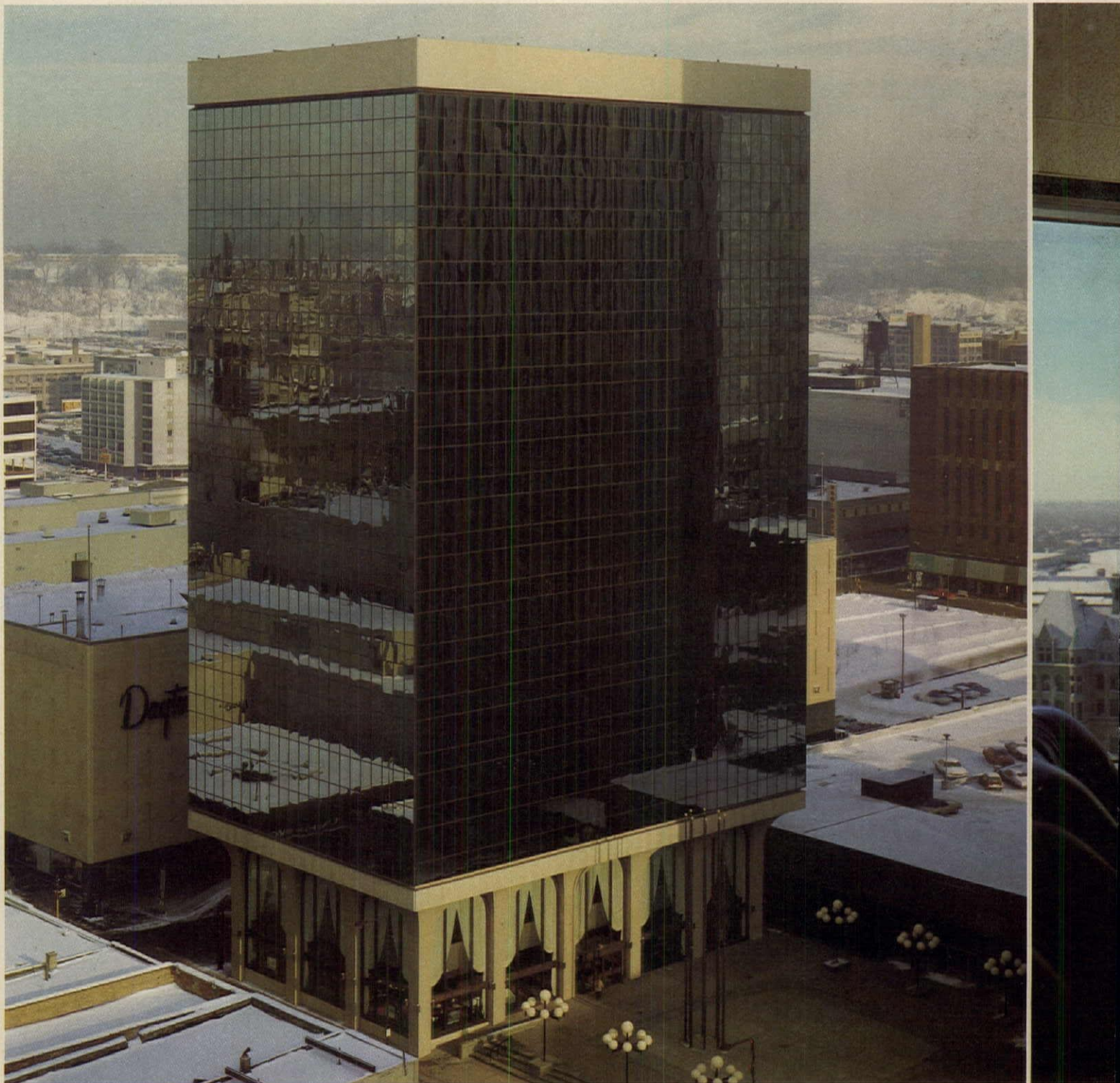
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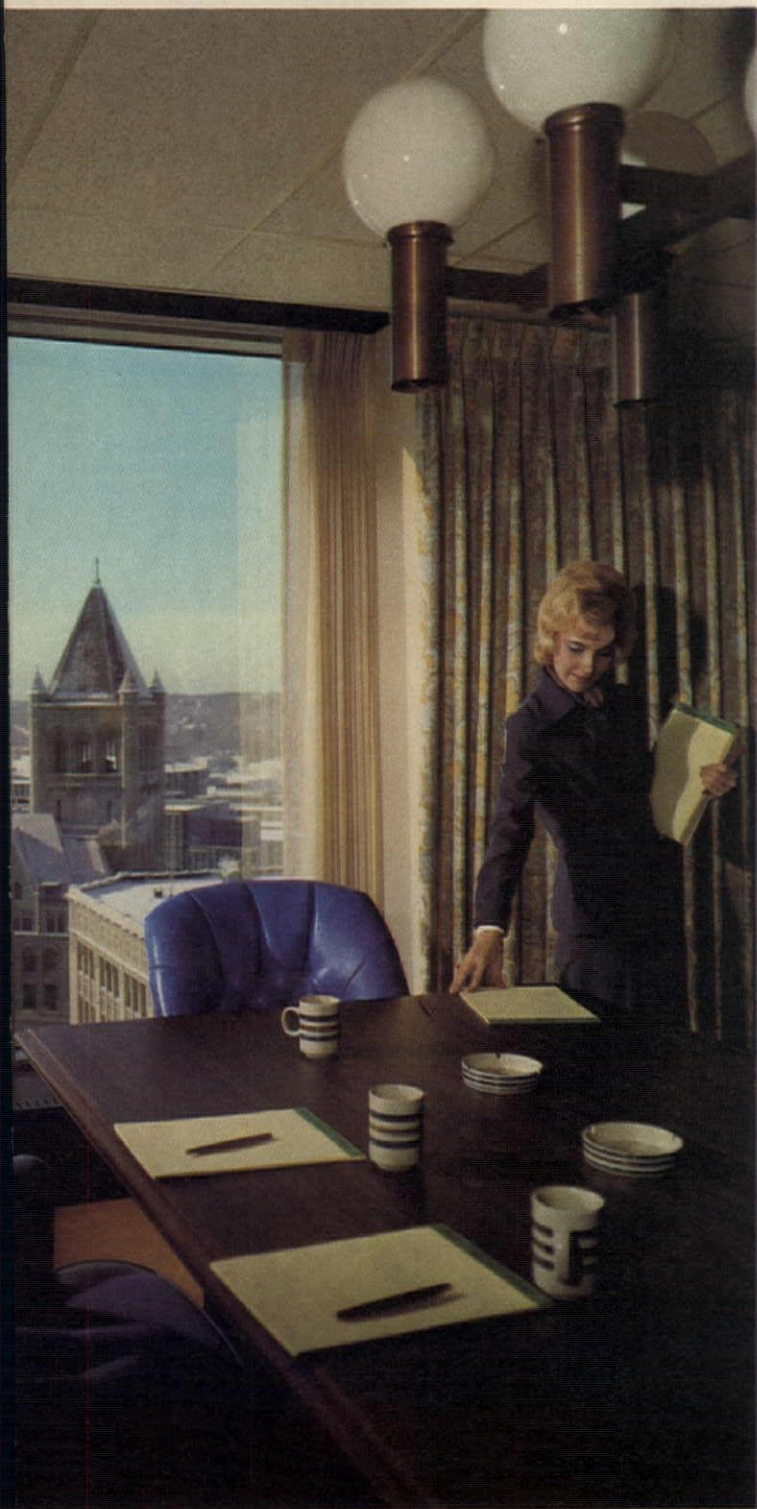


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Smoke gets in your van Eycks



East Sculpture Hall, National Gallery of Art, Washington, D.C.

Fire and theft evoke the genius in man and nature, and few targets are as delectable as museums: vast or intimate, intricate or plain—always vulnerable.

The idea is crazy. Fill a space with fragile, priceless objects. And invite the public in. Scores of museums do this every day. It is the balance of unstated trust and subtle precaution that permits the paintings, sculpture, and other art objects on display to tolerate this ambivalence as well as they do. However, their ultimate survival depends on how well museums understand and control fire and security.

Three great institutions of art generously opened their doors to P/A to discuss their attitudes towards these problems. The Metropolitan Museum of Art, New York, the National Gallery of Art, Washington, D.C., and the Museum of Modern Art, New York represent a variety of physical plants. The "Met" is a huge complex structure of many additions, multiple points of entry, and changing elevations. The National Gallery is a tightly symmetrical single entry space which will soon include a new addition exceeding its original size. "MOMA" is a small single entry building with a spacious sculpture garden fronting a busy city street. Speaking on behalf of these museums are Arthur Rosenblatt, Vice Director for Architecture, Metropolitan Museum of Art, Dr. David Scott, Client Representative for the East Addition, National Gallery of Art, and Arthur Drexler, Director, Department of Architecture and Design, Museum of Modern Art.

The joys and sorrows of a museum staff begin with the social attitudes of its visitors. A profound change in their demographic composition occurred in the 1960s. A genteel audience of upper middle class patrons has given way to a far broader spectrum of society. "There were once cheers all around when our attendance reached 100," recalls Drexler. Any frequenter of museums and galleries can witness the engulfing of the ancient regime. Moreover, in today's teeming crowds there are mischief-makers.

Museums are public places. Besides playing hosts to serious students of art, they invite tourists, headline followers, and social outcasts. Each group has different reasons for entering; each observes its own behavioral customs. Even among the serious students is a disconcerting minority that persists in *touching* the art. "From the conservator's point of view," says Scott, "human grease is difficult, even impossible, to excise once it penetrates a surface. We really must keep hands off art. Just see where the guards rest their hands on the marble and wood doorways of the Gallery." Artists themselves are occasional offenders. Drexler remembers the woman who fingered the swirls of a painting saying, "I'm an artist. I know how to do this."

Tourists and headline followers coming to "do" the museum or a special temporary exhibit are the greatest source of wear and tear. Most damage is due to unintentional carelessness. In its impressive "Masterpieces of Tapestry" the

Met agonized over crowds so dense that individuals were pressed distressingly close to the delicate fabrics. It now regulates attendance of its special programs, and posts waiting times for overflow crowds. Nevertheless, the lady swinging the colossal handbag is inevitable.

Perhaps saddest of museum tales involve the elderly, the deranged, the delinquent, and the politically motivated. Rosenblatt says, "We were reluctant to place objects under glass, but then vandals began acting like the idols of the hour." America is stingy with its public spaces, and museums have been a refuge for society's outcasts. "Architects should be aware of this," Drexler feels. "We have come to recognize a floating population which 'lives' with us. They may be well off or poor, have time on their hands, and come to the museum. Here they find warm bodies, a place to eat, restrooms, and shelter."

It is impossible to anticipate everything they desire, and museums must take prudent risks. "Glass protection is often indicated where the art is controversial or fragile, in a transitional area, or potentially offensive to certain people," says Scott. "Though some early Italian Byzantine works are vulnerable, they are unattractive to vast audiences. Generalizations are not possible." He recalls a woman engaged in a violent dialogue with a rather innocuous portrait painting. And Picasso's "Guernica," a shrine for political activists, was attacked by a self-proclaimed revolutionary wielding a can of red spray paint. "He felt he had to comment on Picasso's statement," Drexler recounts. "He said Picasso would have understood."

In the labyrinth

Circulation through a museum should be readily comprehensible, unencumbering, and leisurely for obvious reasons: visitor orientation, accommodation of crowds and their service requirements, and effective fire and security surveillance. A central hall, a sculpture garden, or coherent changes of scale can give visitors a sense of direction that enables them to spend a pleasant afternoon without constantly distracting the museum security staff. Apparently signs are of little help. "I don't always read them myself," admits Scott. Drexler adds, "Museum-going is primarily a visual experience. My own bias is that I think signs are a designer's cop out." Special temporary exhibitions require

signage. Boasting a recent surfeit (five), the Met stationed an army of standards bearing exhibition posters with arrows.

A range of gallery sizes is commended for welcomed surprise as well as aptness for housing objects of differing visual intensity and physical size. The central halls of the Met and the National Gallery, generous in a way our era poorly appreciates, have demonstrated their flexibility as staging areas for large attendances. The museums indicate there is much a designer can do to influence visitors. He can partition galleries to create generous circulation "loops" that encourage visitors to pause in their processional movement by carefully shifting circulation path alignments. (Drexler believes that Miesian random movement circulation is too confusing without a dominant axis.) He can continually inform visitors of their progress by offering them changing views of prominent visual markers. He can minimize unwanted intrusions into public, private, service, and emergency spaces by judiciously separating and concentrating functional areas around principal activities at respectable distances apart. What few visitors find for themselves are those "aesthetic blemishes," toilets, telephones, coatrooms, giftshops, and cafeterias.

What of the museum's traditional defensive mechanisms? Guards, glass, stanchions, and platforms are clearly visible in the three museums. It may be asking too much of the human species to expect schoolchildren and holiday crowds to observe model behavior for an hour or more without some assistance.

While not ascribing venal thoughts to their visitors, the museums feel that uniformed guards stationed at conspicuous locations improve visitor compliance with museum regulations. What should a guard look like? According to Scott, "One attitude has been to dress security forces as congenial overgrown college students in blazers and sports slacks. The guards themselves dislike this." A good guard knows his administrators trust his ability and integrity. He also knows the public recognizes his authority, which is largely inspired by his visual aspect. The National Gallery uses police uniforms, MOMA adopts a military dress. The Met encompasses these and plainclothesmen.

Other traditional aids such as glass (sometimes acrylic) over paintings, display cases to isolate objects, stanchions that forestall excessive proximity to displays, and raised

Technics: Museum fire and security control

platforms which establish a perceivable psychological distance, continue to protect museum contents. Sprinklers are confined to areas away from art display and storage. Standpipes and extinguishers are in strategic locations.

Now to their succor are added electric and electronic devices more suggestive of intergalactic struggles than century old problems. To their credit, the costly hardware systems installed in the three museums perform so unobtrusively that few visitors will ever notice them. This does not seem to presage the decline of security personnel for these museums. As Rosenblatt insists, "There are no security formulas! The problems change with the nature of the art displayed and the design of the exhibition. Each installation requires its own security plan and budget. Fire and security detection adds another layer of security which enhances the visual presence of guards."

Zap!

A little arsenal of fire and security control systems is at the disposal of the architect today. If its innermost technical secrets are too complicated to involve designers, its capabilities are not. Specialists may be unavoidable in planning, selecting, and installing a coordinated central fire and security detection network. But effective deployment depends on the knowledgeable architect. Towards system design, the architect must consider issues like: 1 boundaries of functional areas on floor plans and elevations, 2 controlling codes and standards, 3 physical dimensions of spaces to be protected, 4 internal air flow patterns, 5 service layouts, 6 hierarchies of entry points into the museum such as doors, windows, and skylights, 7 materials and construction, and 8 building personnel.

Fire and security problems generate vital signs of life which an automated control system must detect at the *signal generator* (a manual station or automatic detector), relay to a *signal processor* (control center console) for amplification and analysis, and communicate through a *signal transducer* (such as siren, flashing light, or computer graphic display) to supervisory personnel, who must then take decisive action.

This conceptual framework is capable of many modifications. An alarm circuit is either *open* or *closed* so that the opposite condition triggers an alarm. (Closed circuit systems are inherently more reliable because they report system failure and actual alarms.) False alarms are detected by *supervision*, electronic surveillance of the system itself. *Annunciation* is exact identification of the circuit or detector which signals for help.

Hot licks

Fire and security detectors usually report to a central station in the contemporary museum installation. However, the nature of sensory transmissions associated with each destructive force necessitates different methods of discrimination. Fire detectors, small devices resembling light bulb sockets surface or flush mounted in ceilings and doorways (detector positioning is a precise business), are basically sensitive to changes in air temperature, visibility, and ion content. Security detectors, small often miniaturized elec-

tronic assemblies concealed among architectural elements, notice changes in radiated energy patterns, physical vibrations, and current flowing through electric circuitry.

There are four stages in the life of a fire: incipient, smoldering, flame, and heat. A significant but invisible amount of combustion particles rises upwards in a stream of heated gas during what can be a lengthy incipient stage of minutes, hours, or days. An *ionization* detector can detect the presence of these particles in its ionization chamber. After comparing its findings with acceptable variations of normal air temperature, pressure, and relative humidity, it issues an alarm. This is the earliest fire warning.

When a fire reaches the smoldering stage, the collective mass of combustion particles attains sufficient optical density to become visible as smoke. There is as yet no flame or significant heat produced. Smoke particles enter the incandescent illuminated labyrinth chamber of a *photoelectric* detector where they scatter light, which is in turn detected by photoelectric cell. The sensitivity of the detector is determined by the user. Both this and ionization detectors are extensively used by museums to provide the earliest possible warning of fire in exhibition and art storage rooms.

When a fire reaches the flame stage, ignition occurs, the level of visible smoke often decreases, and the amount of heat generated increases. Transmitted infrared radiation (IR) is sensed by *infrared* detector, which awaits a modulated and sustained transmission before signaling. Constant IR or short flickering phenomena are often ignored.

At the heat stage, a fire develops heat, flame, smoke, and toxic gases, usually within seconds. A *thermal* detector is sensitive to rate of temperature rise, fixed temperature level, or both. The detector is rated for a specific temperature.

Assisting these signal generators are a host of ancillary devices whose purposes are to signal alarm, isolate endangered from safe areas, and fight fire. Because of the delicate nature of a museum's living and displayed contents, these defensive mechanisms must frequently respond well before the flame stage of fire. Included are manual fire stations, ionization and smoke actuated door closers, temperature actuated skylight releasers, sprinklers, Halon, fusible link duct closers, and air exhaust systems.

Museums generally depend on staff and municipal fire fighters to quickly identify and control fire. (The Met has its own fire department.) As mentioned before, sprinklers are avoided in rooms where art is displayed or stored, but are useful elsewhere. One notable exception is the new Getty Museum, Malibu, Calif., where dry sprinklers protect the galleries. Halon 1301, a costly liquified gas that discourages combustion with least toxic danger to human aspiration among gas extinguishing systems, guards art storage rooms. It is released after a predetermined warning period during which fire fighters may attempt to control the fire.

Sticky fingers

Museums acquisitions are often so well known that their black marketing is quite risky. As anyone knows, this fact of life is as effective a deterrent as the death penalty is for homicide. So in addition to the daily temptations of visitors, museums must anticipate things that go bump in the night.

Security systems deal with *perimeter* and *area* control. Perimeter protection covers the door, windows, skylights, and other openings in the museum's skin. Area protection covers the volume within.

Simplest of security detectors are the perimeter controls, *electromechanical* systems. They wrap a continuous closed electronic circuit which is inexpensive, easy to install, and easy to spot around the museum. Snap action switches, wire, tape, foil, and pressure-sensitive mats are applied to vulnerable openings, where they regulate entry. Some of these same devices are applicable to perimeter control of museum exhibits such as display cases.

Electronic security door hardware give important first line defense. They physically control passage by the use of electric strikes, solenoid locking bolts, magnetic locks, electronic override of key cylinder locks, and panic devices, when used in concert with special contact switch hinges. Passage is effected by remote switch, pushbutton, card reader, special key, toggle switch, and sequential operation cypher system. Surveillance is maintained by closed electric circuit and complex electronic devices which are discussed later. Life safety considerations may dictate a fail safe release of locked security hardware in the event of fire and power failure.

On a higher technical plane are the electronic transceiver (transmitter plus receiver) systems that transmit energy (as sound, light, or electromagnetic radiation) into a space whose receptivity establishes specific patterns that intruders disturb. Technically sophisticated and sometimes mad-denyingly sensitive, they sweep over individual objects as well as large expanses of floor. A brief outline follows.

Capacitance alarm systems: connect the ungrounded object to be protected to an electronic circuit with a capacitance unit so that its electrical capacitance-to-ground effect is part of a balanced radio frequency (RF) circuit. The body capacitance of a person approaching the object disturbs the field, turning on a transistor which initiates the alarm. Capacitance systems are used widely in major museums.

Ultrasonic intrusion systems: saturate an area to be protected with sensitive high frequency sound waves and pick up a standing wave pattern. Motions within the area disturb the received pattern and trigger an alarm. This offers both directional and wide coverage. Installation must carefully avoid sources of turbulence.

Microwave intrusion systems: emit an RF greater than 10 million Hz (cycles per second) and continually measure the microwave energy reflected back from surrounding surfaces. An intruder's movements cause dissimilarity between received patterns and trigger an alarm. Microwave is economical for large spaces, and is relatively unaffected by air currents, temperature change, vibrations, and loud noises. One problem: microwaves penetrate wood, sheet-rock walls, and glass, and must be precisely aimed.

Audio detection systems: are described as "long range hearing aids." They listen for unusual noises and sound alarms when the amplitude level exceeds a predetermined limit. Discrimination of sound quality is possible; loud ambient sounds can be ignored in favor of certain types and numbers of disturbances within a given time period. How-

ever, false alarms can be occasional problems.

Vibration detection systems: protect objects that should not be moved: paintings, sculpture, furniture, and other displays. Tiny anonymous detectors are glued, taped, or placed on objects to be protected to signal an alarm when jarred above a threshold tolerance. Museums coordinate them with visual surveillance and security paging devices.

Photoelectric systems: create invisible barrier lines drawn across space between light sources (emitting visible light or invisible ultraviolet and infrared) and sensors (a distance of 800 to 1000 ft). They can be set for darkness too, to be triggered when light and even the IR of an intruder's body are detected. But blockage by ordinary building operations must be avoided.

Closed circuit television (CCTV): transmit images from TV cameras via coaxial cable to monitor screens. CCTV is employed with other detection systems which request visual inspection of suspicious circumstances. TV cameras now feature automated aperture adjustment for changing footcandle readings, zoom lens for isolating details in a larger survey, and tilt and pan carriage mount for tracking moving objects. Images are in crisp black and white.

Gotcha

What disciplines these gossiping informers of fire and security problems are the central station systems designed to energize, process, and act on their signals. State of the art controls are computer consoles that regulate all building mechanical operations as well as fire and security control. They may be directly connected to municipal police and fire departments, whose battalion chiefs can use them to coordinate internal activities—as well as override computer programs in emergencies.

The capabilities of these systems are formidable, and it is not surprising that vast, Piranesian spaces like the Met have installed them. Duties might include: energy management for levels of occupancy, control of building machinery, lights, and door hardware, logging of operating times for equipment, monitoring of sprinkler control valves, fire pumps, audio communications, emergency electric power starting systems, and fire and security detection circuits. A computer implemented building emergency plan is available which might: bring elevators to the first floor for fire fighters, send appropriate internal and external alarm notifications, monitor emergency equipment, and isolate alarm location and type on building plans projected on console monitor screens.

Would governing New York City be easier than controlling museum fire and security? Cooperation among an architect, manufacturers, contractors, and the by now apprehensive client can make the problems quite manageable. And they must be resolved. For better or worse, our cultural heritage has historically migrated into our museums. As Scott summarizes, "The responsibilities of a museum are to collect, conserve, display, and educate. It must grow. Its collection must change. More than anything else, a museum must preserve what past and present generations have found meaningful for future generations to appraise." [Roger Yee]

Malpractice claims

Bernard Tomson and Norman Coplan

Personal injury or property damage for which the architect is only indirectly responsible may not be fully indemnifiable by active wrong-doer but may be prorated among all parties charged. Complicated legalities, as in the case cited below, could ensue.

Architects' increasing exposure to liability arising out of claims for malpractice is reflected not only in the large number of lawsuits instituted against them throughout the country, but also in judicial determinations defining the applicable rules of law which appear to have extended the area of potential liability.

An example of changing legal doctrine is the rule which has been promulgated in several jurisdictions that even though an architect charged with errors or omissions may be held liable for personal injury or property damage for which at most he is only indirectly or passively responsible (and which was directly and actively occasioned by some other party, such as a contractor), he may not require the active and primary wrong-doer to fully indemnify him against such liability. Rather, the liability is to be prorated among all parties charged, in proportion to their fault. The doctrine of proration, as distinguished from indemnification, can engender very complicated legal issues.

Illustrating the extent of the areas of architectural liability and the complexities of prorating fault is the New York case of *Greenberg v. The City of Yonkers* (358 N.Y.S. 2d 453). This case involved a fire of incendiary origin in a community center which caused the death of nine children and two women and injured several other persons who were trapped on the fourth floor of the Center's renovated building. The defendants in the action were the Center itself, the architect who had designed the renovation, and the manufacturer of plastic panels. In accordance with the architect's plans, acrylic panels had been installed as decorative screening around the building's third floor balcony which overlooked the second floor auditorium. The fire ignited the panels and in the fire, the deaths and injuries were caused.

The trial of the action was divided into two stages. The first stage was on the issue of liability. The plaintiffs' action against the manufacturer was dismissed on the ground that there was no proof submitted by the plaintiffs to the jury es-

tablishing the negligence of the manufacturer. However, a verdict was rendered in favor of the plaintiffs against the defendant Center and the architect. At that point in the trial, the Center and the architect, and their insurance carriers, settled the plaintiffs' claims for \$915,500. The Center's contribution was \$700,000 and the contribution of the architect was \$215,500.

The second stage of the trial before the same jury was to apportion the responsibility between the owner and the architect and to determine the cross claims which had been interposed by these defendants against the manufacturer. The jury, under the rule which had been recently promulgated by the Court of Appeals in New York and which called for apportionment of fault as among joint or concurrent tort-feasors, determined that the responsibility, as between owner and architect, was 30 percent liability assessed against the owner and 70 percent liability assessed against the architect. However, in this second phase of the trial, evidence was introduced relating to the negligence of the manufacturer. This evidence, according to the Court, showed that despite the manufacturer's knowledge of the "hazardous flammability rate" and "heavy smoke density factor" of acrylic, it had been advertised as a material having a "slow burn rate" usable in the interiors of buildings and "safe for children." The jury thus had concluded that the manufacturer should be held liable for 60 percent of the owner's 30 percent liability to the plaintiffs and for 70 percent of the architect's 70 percent liability to the plaintiffs.

On appeal, the manufacturer did not raise any factual issue concerning the jury's second stage verdict that it had been guilty of negligence. Instead, it argued that since the first stage verdict exonerated it of liability directly to the plaintiffs, it had been error to compel it to participate in the second stage of the trial and that there could be no apportionment between it and the other defendants since it had not been found liable directly to the plaintiffs. In rejecting this argument, the Court said:

"(The Manufacturer's) argument has a superficial allure if the trial's second stage is regarded solely as an apportionment proceeding. In fact, however, the second stage was also a trial of Center's and Architect's claims over against Manufacturer for its negligence in the sale of Acrylite for use in the making of architectural paneling. If the plaintiffs had proceeded only against Center and Architect and recovered judgment against them, it is clear beyond doubt that the latter could thereafter have commenced an action for indemnity against Manufacturer predicated upon Manufacturer's negligence and, in that separate action, Center and Architect could have sought an apportionment of responsibility. It would be anomalous to deny Center and Architect indemnity because they proceeded by cross claims against Manufacturer instead of by independent action."

The manufacturer also contended, on appeal, that the architect and owner could not be granted indemnification for even a part of their liability as they had been actively responsible for the damages to the plaintiffs. The Court rejected this argument, pointing out that under the prevailing legal rule calling for apportionment of liability among all parties contributing to the loss, even a primary tort-feasor was entitled to a proportionate indemnification measured by the respective fault of each party involved. □

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Books

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1930s postcard views of Rockefeller Center, NYC.



Progressive and Academic Ideals at the Turn of the Twentieth Century by William H. Jordy. N.Y., Doubleday, 1972. 420 pp, \$15.

The Impact of European Modernism in Mid-Twentieth Century by William H. Jordy. N.Y., Doubleday, 1972. 469 pp, \$15.

The last two books of a four-volume series, *American Buildings and Their Architects*, begun by William H. Pierson, Jr., (Vols. 1 and 2) and continued by Jordy, carry American architecture from the last quarter of the 19th century past the middle of the 20th. Jordy focuses on very few buildings, all of which mark some aesthetic, technological, or social advance. Of the 13 chapters in his two books, 8 are about single buildings—the Robie, Gamble, and Dodge houses, Boston Public Library, Philadelphia Savings Fund Society Building, Ferry Dormitory, Richards Medical Research Building, and the Guggenheim Museum. The philosophical focus appears in the subtitles. "Functionalism as Fact and Symbol" describes Sullivan's approach to commercial buildings and banks, and "The Laconic Splendor of the

[continued on page 86]

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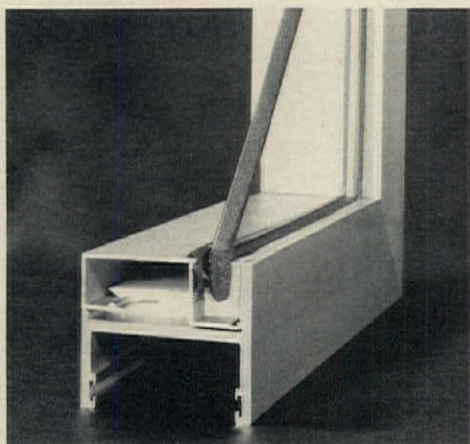
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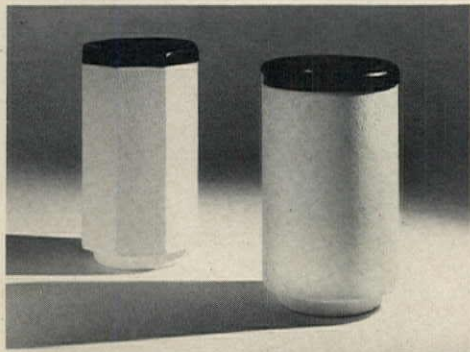
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Glazing system



Trash receptacles



Le Stelle

Ceiling diffuser provides five different unobstructed air flow patterns which are directed across the ceiling surface. Diffuser faces are available in two-way-corner, one-, two-, three-, or four-way factory set air patterns. Any of the five faces can be used in combination to fit 24"x48" openings. Hart & Cooley Mfg. *Circle 101 on reader service card*

Vinyl asbestos tile. Manufacturer can again offer specifiers and users a complete line of 1/8 in. tile. Temporarily discontinued last year due to the raw materials shortage, it is now available in 61 colors. Asrock Floor Products. *Circle 102 on reader service card*

Glazing system features pre-tensioned clips which receive a snap-in glazing bead. Knock-out pressure can be adjusted from 10 to 40 lbs per sq ft. Other components in the system include a closed cell PVC tape sealant with a vinyl roll-in lock strip which places the tape in compression. It will accommodate glazing thickness of 3/16 in. and 1/4 in. Wausau Metals Corp. *Circle 103 on reader service card*

Trash receptacles. Tops are constructed of textured ABS ebony and the main units are constructed of Synceram. A removable inner liner can be re-used. Comes 18 in. square or round, 30 in. high. L. Paul Brayton Ltd. *Circle 104 on reader service card*

Le Stelle. Armchair and sofa are formed of rigid frames of hinged steel tubes that are laid flat, then covered with a polyurethane cold foam, which when folded and fastened, gives them shape. Forms are then covered with dacron. Atelier International, Ltd. *Circle 105 on reader service card*



Elevator access control. Both off-line and on-line models limit the use to authorized persons only by use of the invisibly coded plastic card. Restrictions include personal identification, time of day and/or day of week as well as authorized floors or groups of floors. Rusco Electronic Systems. *Circle 106 on reader service card*

Flame-resistant chair. Said to be especially suitable for theaters and auditoriums, Neoprene foam cushioning material is combined with flame-resistant plastic and acrylic/nylon flame-resistant upholstery. Meets the specifications for flame resistance outlined in the New York Port Authority code. American Seating. *Circle 107 on reader service card*

Roll-up window awnings. Adjusts by a pull strap from inside the building to any one of three pre-set canopy positions, or rolls up till the canopy is stored in its case. All awning hardware is of extruded, anodized aluminum. The canopy is made of a mildew and tear resistant vinyl fabric reinforced with a polyester scrim middle layer. Comes in sizes ranging from 2 1/2 ft to 12 ft wide and in a variety of standard and special order colors in solids or stripes. Carefree of Colorado. *Circle 108 on reader service card*

Exposed aggregate panels. Stone aggregate is bonded to a matrix of fiber glass-reinforced plastic, sand, and inorganic filler to form the panel. Factory trimmed to standard widths and lengths, they are particularly suitable for exterior building skins, pre-fabricated panel systems, spandrel panels, curtain walls, and modular building components. Offered in white, chocolate, gray, black, and special colors by request. Available in the U.S. Graham Products Ltd. *Circle 109 on reader service card*

Storm clip. A structural formed clip designed to eliminate wind uplift problem in anchoring trusses or rafters to wallplates. Constructed from heavy 18 gauge zinc-coated steel, they are nailed to the side of each truss or rafter and nailed to the wall; may also be used to anchor studs to plates. Size is 1 1/2"x1 1/2"x4 5/8". The Panel Clip Co. *Circle 110 on reader service card* [continued on page 90]

Kohler originals

Kohler Fiberglass and Acrylics.
So easy to maintain. So convenient.
And now in decorator colors.

More Kohler originals for your building or remodeling plans. Smart acrylic bar sinks; easy to install vanity lavs; and The Bath — in Fiberglass — 5½ x 7' of pure bathing luxury.

Upper left — Kohler bar sinks in tough, colorful acrylic. Bright bold colors are Black Black, Sunflower, and Antique Red. The smartly designed Europa faucet is offered in chromium or gold electroplate.

Lower left — Perfect for remodeling — or new construction — Kohler's new vanity lavs. Tough acrylic in three marble patterns — Grey, Green or Brown on White. In two convenient sizes.

Lower right — The Bath. Made of Fiberglass — in Black Black and 6 other decorator acclaimed colors and white. Alterna faucets and Suburban showerheads.



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products
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Steel floor/acoustical ceiling unit.

Cellular, structural floor decking and an architectural ceiling that incorporates acoustical control have been merged into a single unit. Each unit consists of two hat-shaped sections which serve as a form for a floor of poured-in-place concrete. Each unit is 24-in. wide, from 1½-in. to 7½-in. deep to accommodate various span and load conditions, and in a length to suit the job requirements with clear spans of 36 ft possible. A 1-in.-thick pad of glass fibers, field-installed in each hat section is the sound-absorbing medium. Hat sections can function as raceways for wiring and as air ducts. American Iron and Steel Institute.

Circle 111 on reader service card

Fabric collection. The designs have been adapted from the porcelains, paintings, and textiles at the American China Trade Museum. Fabrics are available at Lee/Jofa.

Circle 112 on reader service card

Steel floor/acoustical ceiling unit

Molded tubs/showers. Units are molded of fiberglass-reinforced polyester resin. Seamless construction eliminates caulking, grouting, states maker. Units meet requirements of Uniform Plumbing Code and are approved for use in FHA construction. Lasco Industries.

Circle 113 on reader service card

Roof exhauster. According to the maker, its primary application is the removal of stale and toxic air from large areas in industrial and commercial buildings. Constructed of heavy gauge galvanized sheet steel, its sizes range from a 20-in. to a 42-in. fan and a ½ hp to a 5 hp motor. ITT Holub Industries.

Circle 114 on reader service card

Cycle garage, which maker states offers vandal and theft resistant shelter for bicycles at apartments, dormitories, public buildings, schools, or office complexes, measures 16 ft long, 4 ft high at the rear, and 5 ft high at the entrance door. Trim is constructed from 3/16" anodized aluminum, and side, back, and roof panels are fabricated from 26 ga vinyl coated galvanized steel; has ¼ in. thick aluminum doors. Inside it features 9 ga chain link fence partitions framed with 1½"x1½" galvanized angle iron. The structure is designed for installation on concrete anchoring pads. Factory pre-assembled panels. Quality Industries, Ind.

Circle 115 on reader service card
[continued on page 92]



A beautiful way to cut HVAC costs.

Levolor Riviera Blinds

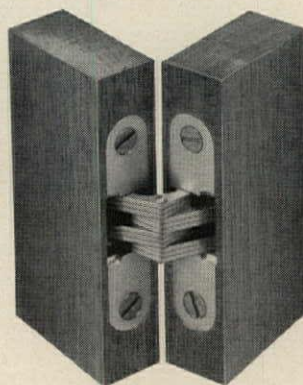
The most functional shading device ever invented is now also the most beautiful. Levolor Riviera's keep out sun and glare with the turn of our Magic Wand (You can't "over-turn" either, thanks to the exclusive *Guardian Tilter®). Let your imagination soar...you have more than 100 colors to choose from. Send for our complete manual. Levolor Lorentzen, Inc., 720 Monroe St., Hoboken, N.J. 07030.

*Guardian Tilter is a trademark of Levolor Lorentzen, Inc.

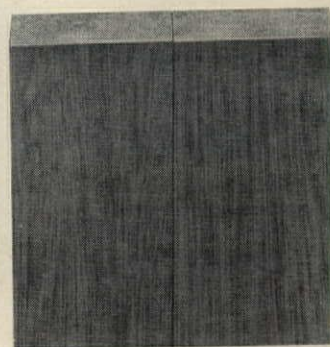


Circle No. 344, on Reader Service Card

The hinge that hides



NOW YOU SEE IT



NOW YOU DON'T

The Soss Invisibles—for a custom look for any room! These amazing hinges hide when closed, eliminating unsightly gaps, hinges, and door jams. They're the perfect hidden touch for doors, doorwalls, storage cabinets, built-in bars, stereos, and TV's. Specify the Soss Invisibles wherever looks matter. See listing in Sweet's or write for catalog: Soss Manufacturing Co., Division of SOS Consolidated, Inc., P.O. Box 8200, Detroit, Mich. 48213.

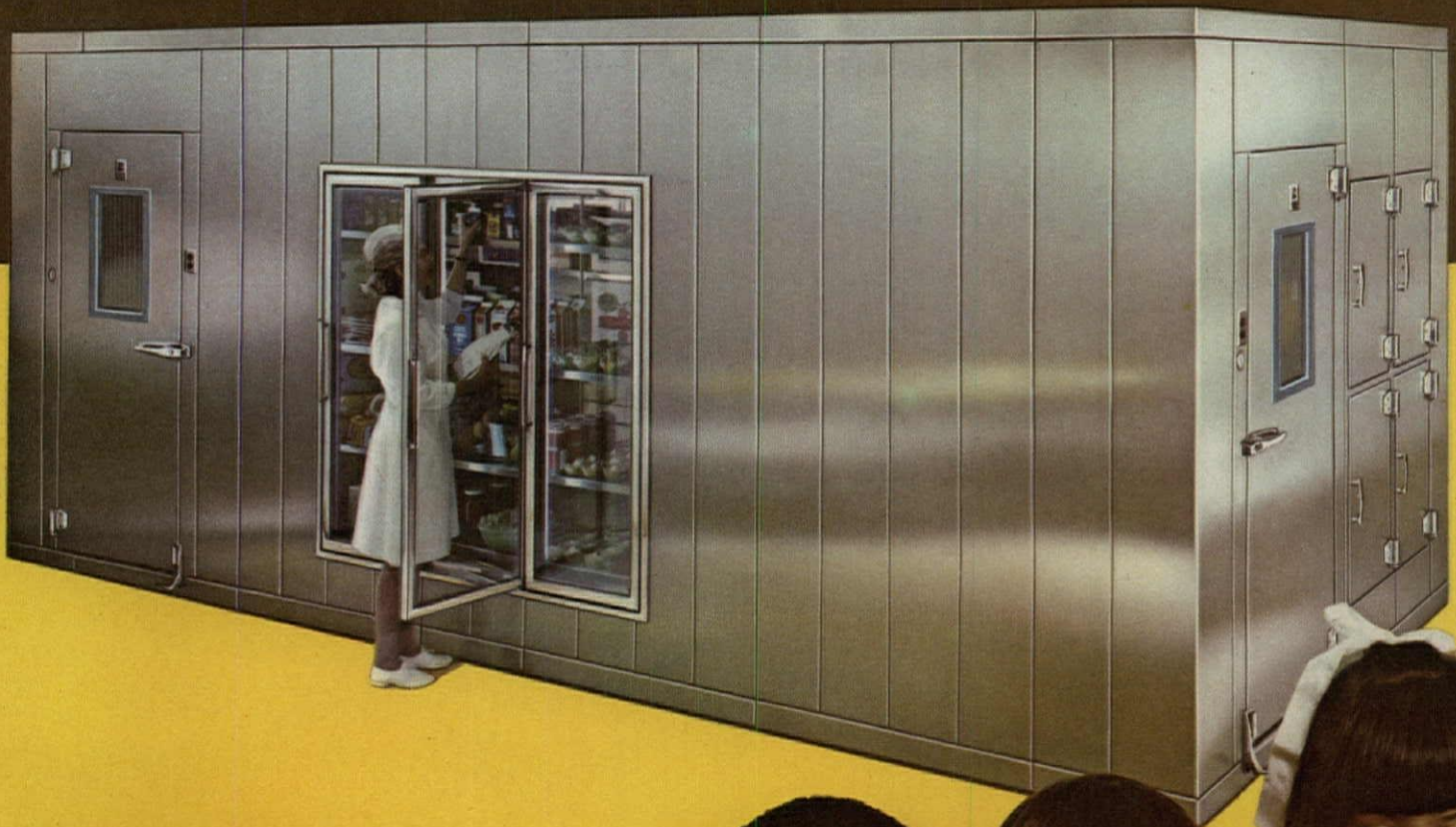


the SOSS
Invisibles

Circle No. 354, on Reader Service Card

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Bally Walk-In Coolers and Freezers can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of foamed-in-place urethane. Choice of stainless steel, galvanized or patterned aluminum. Easy to enlarge . . . easy to relocate. Refrigeration systems from 35°F. cooling to minus 30°F. freezing. Subject to fast depreciation and investment tax credit. (Ask your accountant.) Write for 28-page book and urethane wall sample. **Bally Case & Cooler, Inc., Bally, Pennsylvania 19503.** Phone: (215) 845-2311.

Address all correspondence to Dept. PA-3.

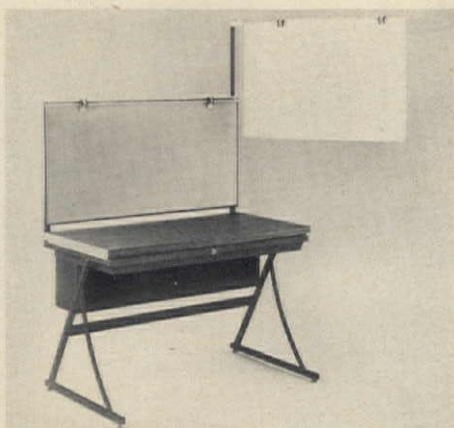


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Circle No. 326, on Reader Service Card



Products continued from page 90



Design desk. Features a built-in file, a tool drawer, both vertical and horizontal reference surfaces, and pivot reference arm. Walnut-grained desk surface slides forward on full-suspension system revealing three-section file that can hold letter and legal size documents as well as technical manuals. Has a privacy panel that creates a partition with a push-pin surface. Plan Hold Corp.

Circle 116 on reader service card

Thermal horizontal slider window.

Of aluminum exterior frame interlocked with a rigid vinyl interior frame, window swings in for cleaning from inside. Suggested for both residential and commercial prime and replacement application. Other features include white or bronze baked-on enamel finish, complete weather stripping, and a sill with protected drain holes to prevent accumulation of rain water. FHA, VA, and AAMA approved. Thermal-Barrier. Circle 117 on reader service card

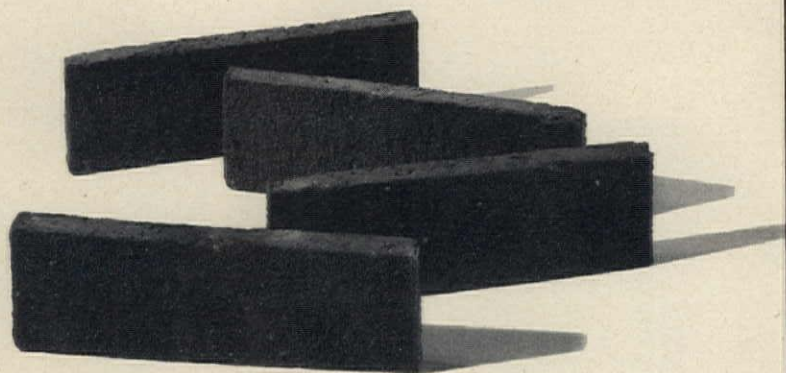
Natural stone. Composed of aggregate or marble chips individually coated with epoxy, maker states it has a compression strength of 16000 psi but is totally porous, is unaffected by freeze, thaw, or intense heat, and is impervious to salt, gasoline, grease, common acids, alkalis, and fertilizers. Over 200 sizes, textures, and color combinations are available in natural aggregates and pure marble chips. Suggested applications are for lobbies, plazas, patios, pool decks, floors, walkways, driveways. Astro-Stone Corp. Circle 118 on reader service card

Floor closer for lead-lined and extra heavy exterior and interior doors, 2-in.-thick or larger weighing up to 1000 lbs provides maximum door opening at 85, 90, 95, or 105 degrees. Concealed unit is available in all standard and plated finishes. Rixson-Firemark, Inc. Circle 119 on reader service card

Literature

Electric unit heater system. Design guide is written specifically to aid designers of industrial and commercial heating systems using electric unit heaters as the prime heat source. Manual tells how to figure heat loss and heater sizing, selection and placement of heaters, control of the unit heaters, and more. Merkel Electric Products. Circle 201 on reader service card

Gypsum board products. Catalog provides technical data, building code references, shows cutaway diagrams of wall and ceiling systems, gives tips on general product uses, applications, and limitations. Georgia-Pacific Corp. Circle 202 on reader service card [continued on page 94]



Brickettes®

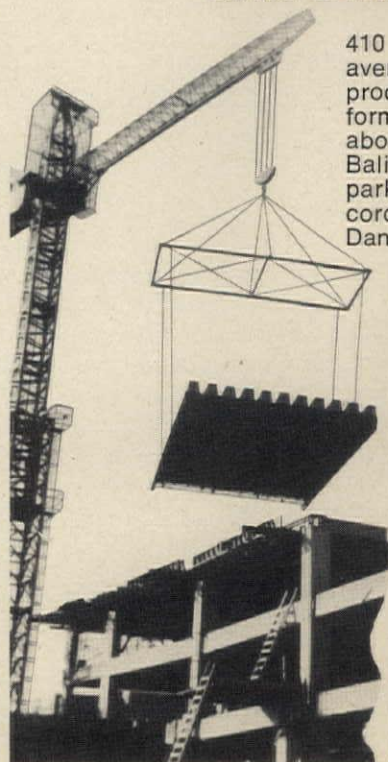
Real, half-inch-thick bricks that save up to 5% of floor space.

When the specs call for real bricks, specify Brickettes or equal. Because kiln-fired Brickettes are thinner than regular-size brick, they provide your clients with more usable floor space. This means Brickettes actually pay for themselves in just a few years.

Brickettes are available in a wide variety of decorator colors and have been used for many commercial installations: Holiday Inn, McDonald's and Zales to name a few.

For more information and the name of your nearest Brickettes supplier, write Modern Methods Inc., Owensboro, Ky. 42301.

MFG's flying long forms save 33% in formwork costs and 5 months' time.



410 fiber glass long forms, averaging 20 pours each, produced a 33% saving in formwork costs on the 10 above-grade stories on Baltimore County's new parking garage. And according to the Contractor, Dance Construction Company, they'll save 5 months time in completing the 275,000 sq. ft. of formwork and meet rigid appearance specs for the ceiling. Send for our brochure: Flying Long Forms.



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4 MILES OF ZERO UPKEEP

Firestone Country Club, is home of one of the most celebrated golf courses in the world. But snowmobiling, horseback riding, even drag racing, all unauthorized, were doing a lot of damage. So it had to be fenced in.

Firestone's engineering department considered both galvanized and aluminized fence fabric. The decision: *Page* aluminized fabric. One important reason was that aluminized fabric lasts three to five times longer than galvanized. The other reasons: there was little possibility of rust, and absolute minimal long range maintenance.

In other words, zero upkeep. All of which makes a pretty good case for *Page* aluminized fence fabric. Makes sense, doesn't it?

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Page Fence Division



TERNE, FRANÇOIS MANSARD AND THE CONTEMPORARY IDIOM

Few architectural elements are more traditional than the classic mansard roof. Its current adaptation to highly contemporary design thus provides a dramatic example of "the very old becoming the very new," a phrase which Frank Lloyd Wright once applied to Terne metal itself. And wherever such fascia elements are used, the outstanding functional characteristics of Terne, along with its inherent affinity for both form and color, are available at relatively moderate cost.

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ARCHITECTS: CHAN-RADAR & ASSOCIATES, AND
WEITON BECKETT AND ASSOCIATES
SAN FRANCISCO, CALIFORNIA

ROOFER: MARELICH MANUFACTURING COMPANY
SAN BRUNO, CALIFORNIA

Circle No. 368, on Reader Service Card



Literature continued from page 92

Gypsum board usage. Titled, "Recommended Specifications for the Application and Finishing of Gypsum Board," brochure contains sketches to illustrate correct procedures. Especially suggested for designers, architects, contractors, and building officials. Gypsum Association.
Circle 203 on reader service card

Structural masonry units. Catalog gives information and specifications about load-bearing, sound-absorbing Soundblox which permit sound control to be built into the structure of a building. Includes performance data, and in-use application illustrations. The Proudfoot Co., Inc.
Circle 204 on reader service card

Panels, porcelain enamel on steel and aluminum, are shown in 16-page catalog, which includes technical drawings, data, and product description. Alliancewall Corp.
Circle 205 on reader service card

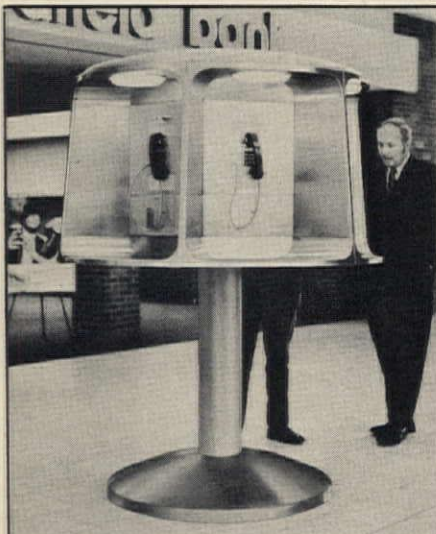
Louver catalog offers details on fixed and operating architectural aluminum louvers, power plant louvers, cooling tower screens, operators and controls for all air handling requirements, and gives complete technical information on free area, static pressure drop, and the air flow for each of its louvers. Includes color chips of available finishes. Construction Specialties, Inc.
Circle 206 on reader service card

Utility column. Bulletin SO-101 describes the unit's standard and optional features. Available from stock with vinyl sides in two solid colors and two wood grain patterns they are equipped with one or two specification grade duplex receptacles. Optional equipment includes an adjustable incandescent lamp, intercom speakers and switch, additional colors and woodgrains, and additional receptacles for power and telephone. Bulletin also contains suggested specifications. Stocked in three basic heights, 8'-6", 9'-6" and 10' but available in heights up to 22'. Square D Company.
Circle 207 on reader service card

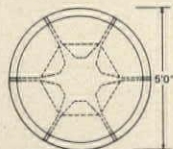
Washroom equipment. Additions to 1975 catalog include, among others, recessed electric hand/hair dryers and soap dispensers and surface mounted ashtray and waste receptacle combination unit. Request catalog No. P-7506. Bobrick Washroom Equipment.
Circle 208 on reader service card

Mortars, grouts and adhesives. Full-color brochure details new information, uses, and specification data for expanded line of ceramic tile grout and joint filler available in 14 colors plus natural, black, and white. Catalog also includes information on thin-set mortars as well as latex emulsion and solvent-type adhesives. The UPCO Co.
Circle 209 on reader service card

Office Interior System of factory-fabricated walls for enclosed areas and divider walls and screens for open areas are illustrated in brochure. Included are cabinetry, work surfaces, power columns, and accessories. Hauserman, Inc.
Circle 210 on reader service card
[continued on page 97]



Six telephones in a five-foot diameter

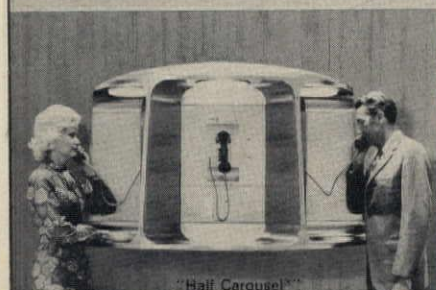


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Seacrest ACOUSTONE[®] CEILING PANELS **Foil-backed to save energy.**

Count up the savings reflected by the exclusive foil backing in this large module ACOUSTONE panel. Installed resistance to heat flow to an R-Value of 11.08 lowers cooling costs up to 40%, heating costs as much as 10%. Permits smaller equipment capacities. And decreased "breathing" reduces soiling to cut maintenance costs. Count on foil-backing for better sound attenuation, too. These panels deliver .70 to .80 NRC, 35 to 39 STC performance. When it comes to aesthetics, Seacrest pattern ACOUSTONE has it all for you. The fresh, frothy, deep-textured look of a surfing sea. And its high light reflectance allows for energy-saving wattage cut-backs, too. For specifics on fire, acoustical and thermal properties, consult SA-905 in Sec. 9.1 of Sweet's Architectural File. Or call your U.S.G. Technical Representative.



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COMPANY _____

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BUILDING AMERICA

Literature continued from page 94

Roofing insulation. Four-color catalog illustrates and describes Millox II, a combination of urethane foam and mineral fiberboard designed for Class 1 roofing systems as specified by Factory Mutual. Millox II offers "C" factors of 0.08 for a 2-in. thickness down to a "C" factor of 0.05 for a 3-in. thickness. Brochure gives technical specifications for all major deck systems. Apache Foam Products Company.
Circle 211 on reader service card

Spec-Data II. A microfilmed information service for architects, designers, and engineers which contains data from manufacturers of building products updated every 90 days. All data is indexed for rapid retrieval by manufacturer's name, brand or trade name, and product description. A brochure describing service is available from Information Handling Services.
Circle 212 on reader service card

Area lighting catalog illustrates "Dual" area lighting fixture that uses two lamps and two optical systems in a single fixture as well as single task luminaires identical in appearance to the Dual fixture so they may be interchanged. Data includes fixture cut-away, area lighting comparisons, installation and maintenance illustrations, performance and specification data. Guth Lighting.
Circle 213 on reader service card

Steel decking for floors and roofs are shown and described in 32-page catalog which includes load span tables, dimensioned drawings, absorption data, fire ratings, and more. Request catalog B114. Bowman Construction Products, Elwin G. Smith.
Circle 214 on reader service card

Floor system for multiple-unit residential construction is described in 16-page, four-color brochure. Included are tables, details, design examples, fire ratings, specifications, and installation photos. Epic Metals Corporation.
Circle 215 on reader service card

Sport seating. Modular units combine contour-molded seats of high-density polyethylene supported by an aluminum framework. Permanent, portable bleachers, and telescoping styles, with or without backs, are lightweight and can be assembled at the site. Color brochure shows the various seat models, includes diagrams, has recommended tread depths and seat and riser heights to facilitate installation on steel, concrete, or wood frameworks. Sport Seating Co.
Circle 216 on reader service card

Roof insulation. Fesco-Foam is a thermal roof insulation supplied in 3'x4' boards and specified thickness, consisting of a bottom layer of Fesco Board roof insulation, a core of polyurethane foam, and a top surface of asphalt-saturated roofing felt. It is suitable for insulating metal, nailable and non-nailable roof decks, may be applied using hot bitumens, approved cold adhesives and/or mechanical fasteners. Require no joint taping. Literature is available from Johns-Manville.
Circle 217 on reader service card

"Weathering" for sale . . . Cabot's BLEACHING OIL

Home by Techbuilt Inc., N. Dartmouth, Mass.;
Architect: Fred Della Paolera; Cabot's Bleaching
Oil on cedar siding and fence.

The unique "driftwood" look, usually found only in seacoast areas after years of exposure to sea air, may now be attained anywhere in a matter of months. Cabot's #0241 Bleaching Oil, when applied to new wood, provides a delicate gray tone that weathers gradually to a beautiful, natural driftwood gray. Suitable for all untreated exterior wood surfaces, any type of lumber. Everybody talks about the weather . . . Cabot's has done something about it.

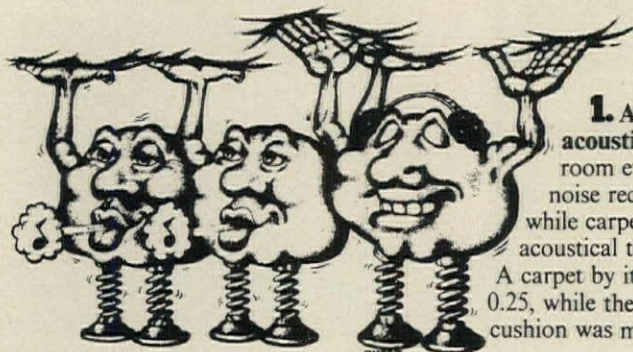
Samuel Cabot Inc.

One Union St., Dept. 328, Boston, Mass. 02108

- ☐ Send information on Cabot's Bleaching Oil
☐ Send Cabot's handbook on wood stains.

Before you pull the padding out from under another rug, read this.

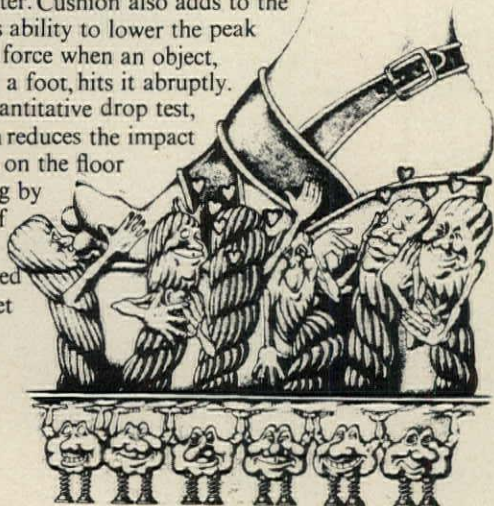
Whenever your carpeting budget is up against the wall, the first thing you're tempted to do is pull out the cushion. Before you do, consider the underlying contributions carpet cushion can make to your next installation.



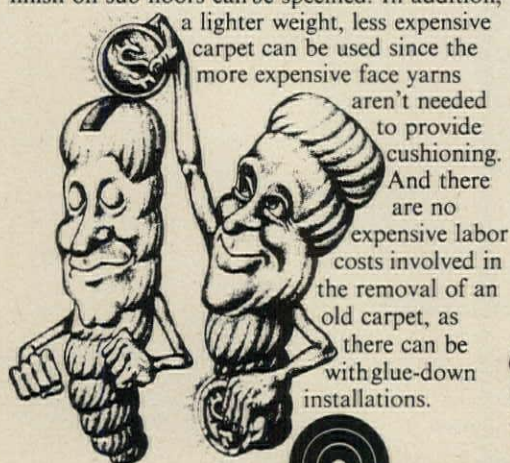
1. A carpet cushion more than doubles a carpet's acoustical properties. A carpet with cushion makes a room even more quiet. In tests to measure impact noise reduction, carpet only received a +14 rating, while carpet over cushion had a +25 rating. In a similar acoustical test measurements were taken for noise reduction. A carpet by itself measured a noise reduction coefficient of only 0.25, while the coefficient for a carpet over cushion was more than twice as great, 0.65.

2. Separate cushion makes a carpet seem thicker and more luxurious.

It upgrades the carpet's underfoot feel and simply makes it feel better. Cushion also adds to the carpet's ability to lower the peak impact force when an object, such as a foot, hits it abruptly. In a quantitative drop test, cushion reduces the impact exerted on the floor covering by one-half when compared to carpet alone.



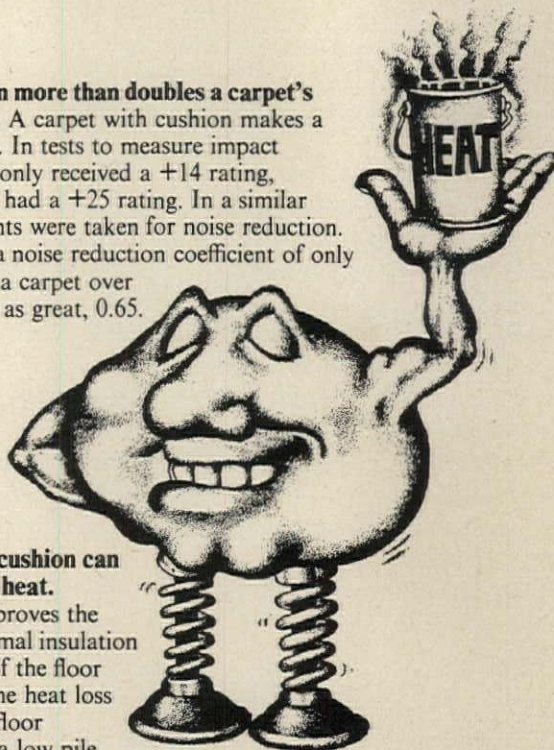
4. The initial cost of a cushioned carpet need not be more expensive. Instead of putting money into a sub-floor, you can put it into a cushion. A cushion plus carpet can mask surface irregularities so that a lower-grade, less costly finish on sub-floors can be specified. In addition,



a lighter weight, less expensive carpet can be used since the more expensive face yarns aren't needed to provide cushioning. And there are no expensive labor costs involved in the removal of an old carpet, as there can be with glue-down installations.

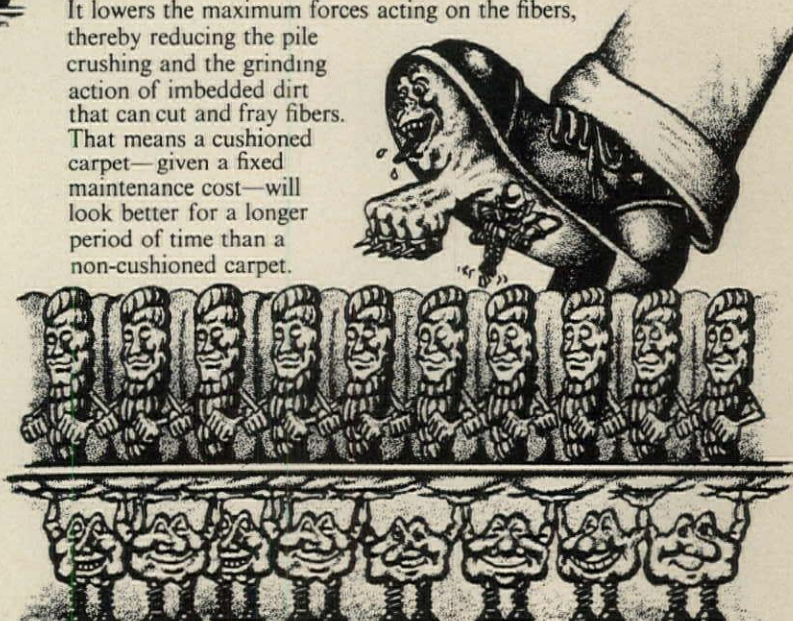
3. Carpet cushion can help retain heat.

Cushion improves the overall thermal insulation properties of the floor covering. The heat loss factor of a floor covered by a low pile carpet and a cushion is about one-third of what it would be with the same carpet alone.




5. Separate cushion makes a carpet easier to maintain.

It lowers the maximum forces acting on the fibers, thereby reducing the pile crushing and the grinding action of imbedded dirt that can cut and fray fibers. That means a cushioned carpet—given a fixed maintenance cost—will look better for a longer period of time than a non-cushioned carpet.



6, 7, 8. and more reasons why carpet cushion will add life, and cost less to install, can be found in our new brochure. For your free copy of "The Supporting Facts about Carpet Cushion," write: Carpet Cushion Council, P.O. Box 2048, Dalton, Georgia 30720 (404) 278-3176.

 carpet cushion council

P/A Book Store

Described on the following pages are architectural books that are now available to you from leading publishers. Each has been selected for its usefulness to you in the various aspects of your professional practice.

Book orders will be forwarded to the publishers who will bill you direct, including all required state and local taxes. As purchases of professional and business publications are tax deductible, we suggest that you retain copies of the publishers' invoices.

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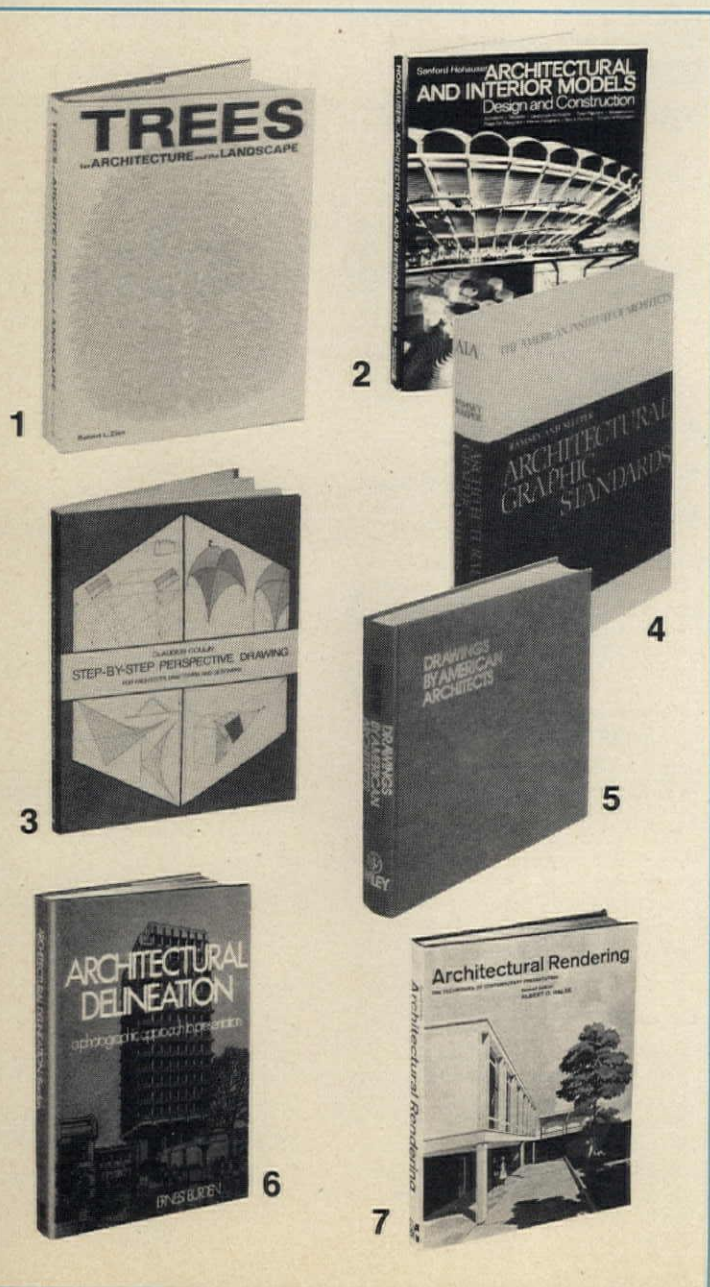
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Technical/Design

1 Trees: For Architecture and Landscape

By Robert L. Zion, 168 pp., illus., . . . \$25.00

Everything an architect should know about using trees to complement the buildings he designs. Includes aesthetic factors such as leaf and bark texture, height, spread, density and coloration — practical considerations such as cost, planting, maintenance, and rate of growth.

Circle B601 under Books.

2 Architectural and Interior Models

By Sanford Hohauser, 180 pp., illus., . . . \$22.50

Covers the building and use of models for presentation purposes. Includes construction techniques. Explains possibilities in animation. Shows how to display, ship and photograph models most effectively. "Comprehensive coverage . . . detailed information."

—AIA Journal

Circle B602 under Books.

3 Step-By-Step Perspective Drawing: For Architects, Draftsmen, and Designers

By Claudius Coulin, 112 pp., illus., . . . \$13.95

Beginning with an explanation of drawing instruments and materials, this book proceeds into details of descriptive geometry, from simple isometric projections through perspective renderings of complicated inclined planes and rounded forms. Fully indexed for quick reference.

Circle B603 under Books.

4 Architectural Graphic Standards

By C. G. Ramsey and H. R. Sleeper, 695 pp., 6th Edition . . . \$44.95

Accurate, authoritative information on standards and practices, materials and assemblies, details and specifications. Includes specifics on foundations, site-

work, concrete and masonry construction, metals, carpentry, finish materials, thermal and moisture protection, curtain walls, doors, windows, furnishings, air conditioning, fire extinguishing systems, and emergency power facilities.

Circle B604 under Books.

5 Drawings By American Architects

Compiled by Alfred M. Kemper, 613 pp., . . . \$33.00

A collectors' item for all who wish to bridge the gap between design ideas and visual communication. Covers an essential aspect of the architect's profession — the rendering of drawings for the purpose of communicating with his client. Features drawings of many American architects across the country, showing the quality of the small office's work as well as drawings submitted by major firms.

Circle B605 under Books.

6 Architectural Delineation A Photographic Approach to Presentation

By Ernest Burden, 288 pp., illus., 1971 . . . \$21.95

In this illustrated book, the author demonstrates a simple, flexible method of using photography to depict architectural projects in true perspective. Also how to create models for photography and how to put together an effective slide presentation.

Circle B606 under Books.

7 Architectural Rendering The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp., illus., 2nd edition, 1972 . . . \$24.50

This completely up-dated revision of the most widely used guide to architectural rendering covers all working phases from pencil strokes to finished product — and shows you how to obtain the desired mood, perspective, light and color effects, select the proper equipment and work in different media.

Circle B607 under Books.



8 Construction Inspection Handbook

By James J. O'Brien,
512 pp., 140 illus. . . . \$17.95

Outlines the duties, requirements and interests of the construction inspector. Describes the "whys" as well as the "how-tos" involved in observation of construction quality. Including handy checklists to work from, the book shows you exactly what should be reviewed and inspected.

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9 Housing Demand: Mobile, Modular or Conventional?

By Harold A. Davidson,
442 pp., . . . \$17.50

Covers the supply and quality of mobile home parks; taxation policies and zoning regulation concerning mobile homes; financing of mobile home purchases; mobile homes as a factor in solving low-income housing problems; the competitive relationship between sales of mobile and modular units.

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10 A Dictionary of Architectural Science

Compiled by Henry J. Cowan,
300 pp., . . . \$10.95

Contains approximately 4500 entries. Although the major concentration is on the scientific aspects of architecture, also included are the most frequently encountered terms from neighboring fields, such as fine arts, the history of architecture, the craft traditions of the building industry and more.

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11 Architects' Data

By Ernst Neufert, 354 pp., . . . \$17.95

Ready-to-use plans given in simply dimensioned diagrams, drawn to scale, designed in metric units. Includes many different building sections, forms, i.e., roofs, walls, floors; heating, ventilating, insulating, lighting systems; greenhouses, private homes, high rises, department stores; roads, gardens, farms, airports.

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12 Architecture and Color

By Waldron Faulkner,
146 pp., . . . \$16.50

An informative volume on color fundamentals and color harmony, as well as a highly practical guide to the functional aspects of color in building materials. The details, on types of tinted glass used to reflect heat and allow the passage of light, including charts of their levels of effectiveness. Also types and grades of colored building materials, information on colors used for identification purposes or for camouflage, and aids in selection of materials.

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13 Architectural Hardware Specifications Handbook

By Adon H. Brown,
171 pp., . . . \$14.95

A reference book of hardware items used in construction. Of special interest to architects, specifications writers, designers, draftsmen. Covers six most frequently used systems for writing hardware specifications. More than 700 illustrations.

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14 Perspective: a new system for designers

By Jay Doblin,
68 pp., illus., . . . \$7.50

The first system developed to solve the kind of drawing problems encountered by designers. Eliminates the complex mechanical drawing that an architect normally employs in his traditional way of working with plans and elevations. The system offers a simpler method of visualizing any three dimensional object accurately and quickly.

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15 Alvar Aalto

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plete works from 1963-'70. Including detailed plans and sections.

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16 Handbook of Housing Systems for Designers and Developers

By Laurence Stephan Cutler
and Sherrie Stephens Cutler,
234 pp., . . . \$17.50

Enables today's builders, developers, architects to meet the critical housing need by performing more efficiently; achieving new design, building, and management techniques; vastly increasing scope and productivity of their efforts. Graphics, plans provide a "kit of parts." Reader can participate in systems design and building process.

Circle B616 under Books.

17 Restaurant Planning & Design

By Fred Lawson,
180 pp., . . . \$24.95

Develops in detail the elements that go into successful restaurant planning. Not only provides a step-by-step guide in design procedure for the architect and designer, but presents essential technical information in convenient form which will be of value to all catering administrators.

Circle B617 under Books.

18 Second Book of Offices

By John Pile,
274 pp., illus., . . . \$19.95

Presents every detail of office plan and decor, materials furnishings and finishes from the reception room area through the general offices to the private office and the executive floor, including recreation areas, dining rooms, cafeterias, conference/board rooms.

Circle B618 under Books.

19 Young Designs in Color

By Barbara Plumb,
168 pp., illus., Color . . . \$15.95

Pictures and descriptions of all kinds of dwellings, from one-room apartments to country estates, show how color, design, and construction are being used by imaginative people to create exciting personal settings.

Circle B619 under Books.

20 A Bucket of Oil

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90 pp., . . . \$10.95

This book features practical techniques for energy and resource conservation. Covers: architecture, climate codes, comfort, day lighting, geometry and orientation, heat flow, human needs, lighting, mechanical systems, natural ventilation, outdoor spaces, programming, planning, and more.

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Edited by David E. Link,
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Hi-rise or low cost, condo, multi-family custom or townhouse, here's a design book that shows you the very best every class. Complete collection of designs with over 200 illustrations featuring techniques used by some of the nation's leading builders, planners and designers.

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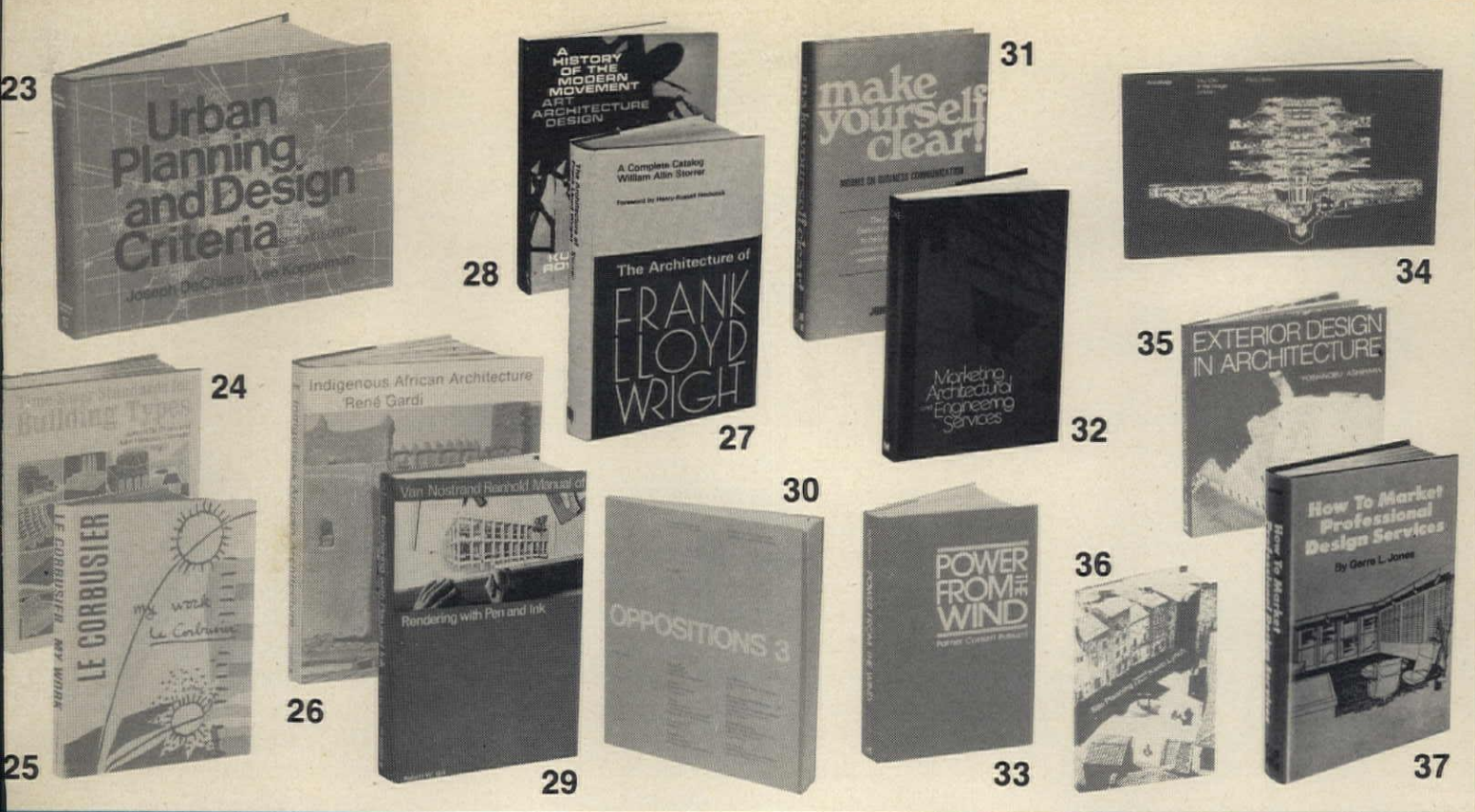
An up-to-date reference on all phases in the development of a site plan: land use, pedestrian and vehicular circulation, visual design and natural elements in site organization, calculations for contours, grading and earthwork, drainage, alignment of horizontal and vertical curves.

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By Joseph DeChiara
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25 Le Corbusier My Work

By Le Corbusier, 112 pp., illus., ... \$25.00

Written and designed by Le Corbusier, this book explains and illustrates the principles which determine all his work. In addition to his drawings, the author presents photographs, paintings and sculpture to reinforce his premise that architecture must be integrated with all other art forms.

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26 Indigenous African Architecture

By Rene Gardi, 50 pp., 230 illus., ... \$32.50

Shows how African architecture still reflects men's life style. Highlights the problems of making improvements without endangering the beauty and appropriateness of the vernacular architecture. Building techniques and the credible versatility of this architecture are described in full detail, beautifully shown in pictures and plans.

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27 The Architecture of Frank Lloyd Wright: A Complete Catalog

By William Allin Storrer, \$11.95

The first fully complete catalog of every building designed by Wright that was actually constructed — 433 in all — includes a photograph of practically every one of them, and a descriptive note on the materials used, the plan, and the circumstances of construction. Publisher will bill you direct before shipping any book.

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28 History of the Modern Movement Art, Architecture, Design

By Kurt Rowland, 240 pp., ... \$13.50

Complete, well-integrated study, evaluation, and history of the Modern Movement in art, architecture, and design from 1880 to today. Describes the effects of such influences as the Art Nouveau, the early work of Frank Lloyd Wright and spatial concepts of de Stijl. Profusely illustrated.

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29 Rendering With Pen And Ink

By Robert W. Gill, 368 pp., illus., ... \$12.50

A copiously illustrated guide to the techniques and methods of rendering, including sections on perspective, projection, shadow, reflections, and on how to draw cars, ships, aircraft, trees, and human figures. The author also describes the very wide range of instruments and equipment currently in use.

Circle B629 under Books.

30 Oppositions 3

Published by The Institute for Architecture and Urban Studies 128 pp., illus., ... \$6.00

A journal for ideas and criticism in architecture with articles and book reviews by Anthony Eardley, William Ellis, Kenneth Frampton, William Huff, Fred Koetter, Ram Koolhaas, Charles Moore, Alan Plattus, Manfredo Tafuri.

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Progressive Architecture

Notices

Appointments

A. Allen Hitchcock, AIA has been appointed an associate of Kann + Ammon, Inc. Baltimore, MD.

Richard L. Anderson has been named vice president, director of design and John J. Keczmarski has been appointed director of planning for Rogers & Vaeth, Inc., Columbia, Md.

M. Garland Reynolds, Jr., AIA, director of Welton Becket & Associates Atlanta office has been named a senior vice president of this Los Angeles-based firm.

Karl Klokke has been named director of architecture and Jack Spack assistant director of architecture for Albert C. Martin & Associates, Los Angeles.

James Alan Cardoza, AIA has been elected an associate of William Kessler & Associates, Inc., Grosse Pointe, Mich.

Ben E. Graves, Hon. AIA has joined K/M Associates, Inc., Chicago, as vice president.

Joe Davis, Tom Fish, and Dennis Ward have been appointed associates of Locke Wright Foster, Inc., Architects-Planners, Oklahoma City, Okla.

Frank J. Malone has joined Kenneth Balk & Associates, Inc., St. Louis, Missouri, as director of construction management.

New addresses

Dennis Jenkins Associates, 2728 S.W. 28 Lane, Miami, Fla. 33133.

The George S. Rider Company, 1234 Terminal Tower, Cleveland, Ohio 44113.

Neish Owen Rowland & Roy (formerly Searle Wilbee Rowland), 40 University Ave., Toronto, Canada M5J 2G3.

Youssef S. Bahri, AIA Architect, 1 S. Division, Peekskill, N.Y. 10566.

New firms

Design Resource Associates has been established at 11480 Sunset Hills Rd., Reston, Va. 22090. Partners are William L. Elkjer, RA, associate AIP, W. Henry Gordon, PE, and John J. Gattuso, ASLA.

James, Scheible, Zaccagni, Galayda, Inc., has been formed at 17117 W. Nine Mile Rd., Southfield, Mich. 48075. Principals are Robert James, president, Donald Scheible, secretary, Joseph Zaccagni, treasurer, and George Galayda, vice president.

Gordon P. Rogers, AIA, Edward Hammarskjold, AIA, and Charles W. Scurlock, AIA have formed Rogers/Hammarskjold/Scurlock AIA, Architects/Planners, 521 S. Riverview Dr., Kalamazoo, Mich. 49004.

Arthur Yonan has established Yonan Structural Engineering, 2020 Lunt Ave., Chicago 60645.

Peter Kämpf & Associates Architects & Planners, Pier 33, The Embarcadero, San Francisco 94111.

Mary Elizabeth Lattimore, historic preservation planner, has formed a private consulting service to provide historic preservation technical assistance. Offices are at 419 Morel Bldg., 5 Bull St., P.O. Box 8301, Savannah, Ga. 31402.

Organizational changes

Benham-Blair & Affiliates, Inc., Oklahoma City, Okla., has acquired the firm of Wildman & Morris, 111 New Montgomery St., San Francisco, which will serve as the West Coast headquarters under the direction of Robert T. Greigg.

RYA Corporation is the new corporate name of the holding company made up of four Dallas-based design companies formerly known as the RYA Professional Group.

Flad & Associates, Inc. is the new name for John J. Flad & Associates, Milwaukee, Wisc.

Maurice Wolff, AIA and Alvin Kargan, AIA have merged to form Wolff & Kargan, Architects, PC, 605 Third Ave., New York City 10016.

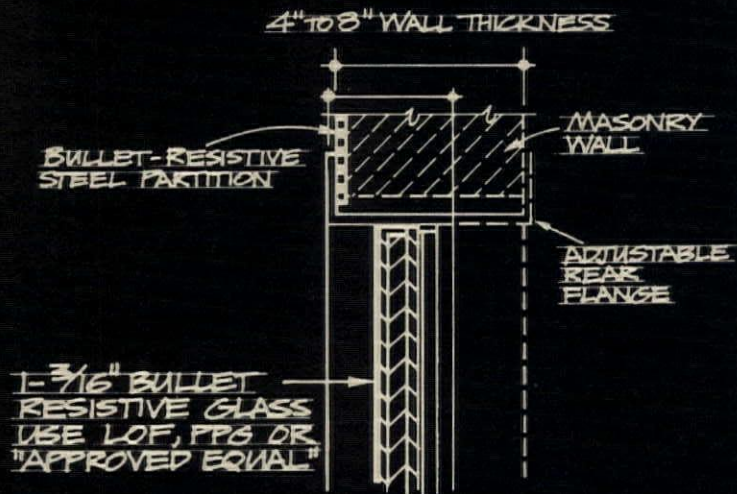
KZF Environmental Design Consultants, Architects-Engineers-Planners-Designers, Cincinnati, Ohio, have added an Urban Systems Studio to provide varied consulting services.

Richardson Nagy Martin is the new name for Walter Richardson Associates, Costa Mesa, Calif.

Ladd & Kelsey have merged with Stewart Woodard & Associates to form Ladd, Kelsey, Woodard with offices in Newport Center, Newport Beach, Calif.

EDAW Inc. has opened an office at 315 W. Oak St., Fort Collins, Colo. 80521.

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Dean of New School of Architecture: The state of Florida recently authorized a new six year professional program in architecture to be located at Florida A & M University in Tallahassee. Applicants must have professional degree in architecture and experience equivalent to that required for NCARB certification. A good record of teaching

experience in an architecture program is required. University administrative experience is desirable. Salary commensurate with background and experience. Resumes or nominations of qualified individuals should be sent to: Dr. Lawrence Tanzi, Search Committee Chairman, 209 Collins Bldg., 107 W. Gaines St., Tallahassee, Florida 32304.

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Faculty Position: Available Sept. 1975. Position involves teaching courses in Design/Research Methods in Architecture and Computer applications. Candidates should have a M. Architecture degree, teaching and professional experience. Salary and rank commensurate with qualifications. Send resume to: Robert C. Utzinger, Director of Architecture, College of Environmental Design, University of Colorado, Boulder, Colo. 80302. An Equal Opportunity/Affirmative Action Employer.

Faculty Position: The University of Michigan's College of Architecture and Urban Planning and School of Natural Resources are seeking a faculty member to begin September 1975. This position is a ten-month, tenure-track joint appointment at the Assistant Professor level between the Program in Urban Planning and the Program in Landscape Architecture. The major portion of the appointment is in Urban Planning, the minor in Landscape Architecture. The candidate must have degrees in Landscape Architecture and in Urban Planning. Experience in a professional office and/or teaching is required. The applicant should have a broad knowledge of Landscape Architecture and Urban Planning, plus special competence and skill in design and physical planning. He or she will teach courses in site planning principles and techniques, physical planning principles and techniques, and methods of graphic communication. Reply with resume and references by March 28, 1975, to Gerald E. Crane, Chairman, Urban Planning Program, College of Architecture and Urban Planning, 2000 Bonisteel Blvd., Ann Arbor, Michigan 48105. The University of Michigan is a non-discriminatory affirmative action employer.

Faculty Position Open for September 1975: Architect wanted to teach at first or second year levels in five year B. Arch. curriculum. Minimum requirements: M. Arch. degree and

two years teaching experience. Professional experience desired. Salary and rank commensurate with qualifications. Send resume and three letters of reference to: John H. Spencer, Chairman, Department of Architecture, Hampton Institute, Hampton, Va. 23668. Hampton Institute is an Equal Opportunity Employer.

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Architect: Spaniard, 32 yrs. old, B. Arch. May '74; seeking employment with architectural or construction firm, preferably with overseas links. Experience includes: 3 yrs. architectural consultant for glass applications in construction—Madrid. 1 yr. architectural illustrator—N.Y. A. Estebanez, 279-22nd St., Brooklyn, N.Y. 11215.

Architect: B. Arch., NCARB, registered, licensed in Connecticut; 12 years extensive experience in design, production, coordination, specification, shop drawings and project management. Seeking position with developers/engineers/architects. Location open. Call or write: Patels, 139 West Walk, West Haven, Ct., 06516, (203) 933-4844.

Architect: NCARB, registered Florida, Georgia. Age 30, married. 7 years experience in commercial, institutional, residential and recreational projects with emphasis on budget control and liaison with contractors. Good designer and can run production team efficiently. Presently office manager in Florida firm. Any location considered. David R. Spear, P.O. Box 561, Maitland, FL. 32751.

Architect: 29, married, family, B. Arch., M.L.A. (Penn.). Seeking challenging design oriented position integrating architecture with the natural environment. Experience includes all phases of building design from client contact to construction supervision including technical coordination and ecological site analysis. Excellent references. Any geographical location considered. Reply to Box #1361-796, *Progressive Architecture*.

[continued on page 106]

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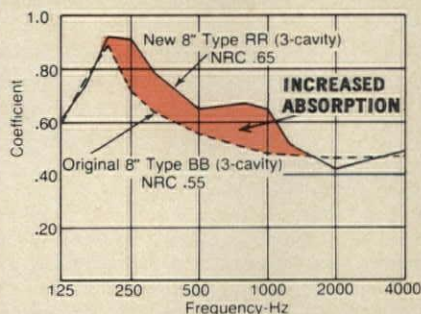
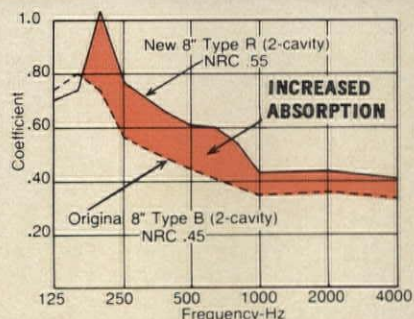


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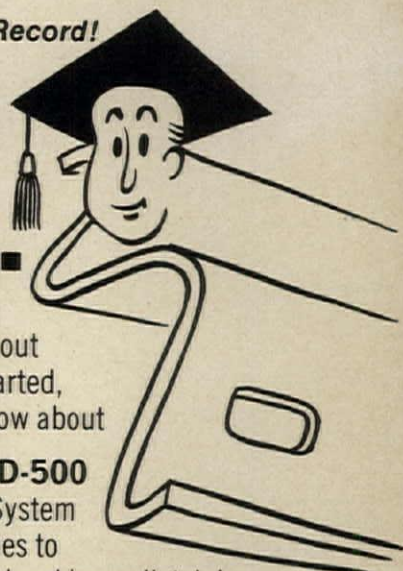
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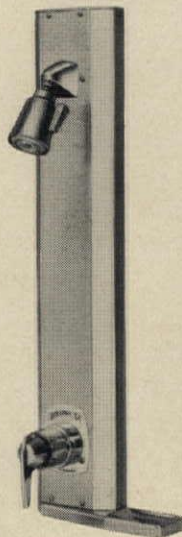
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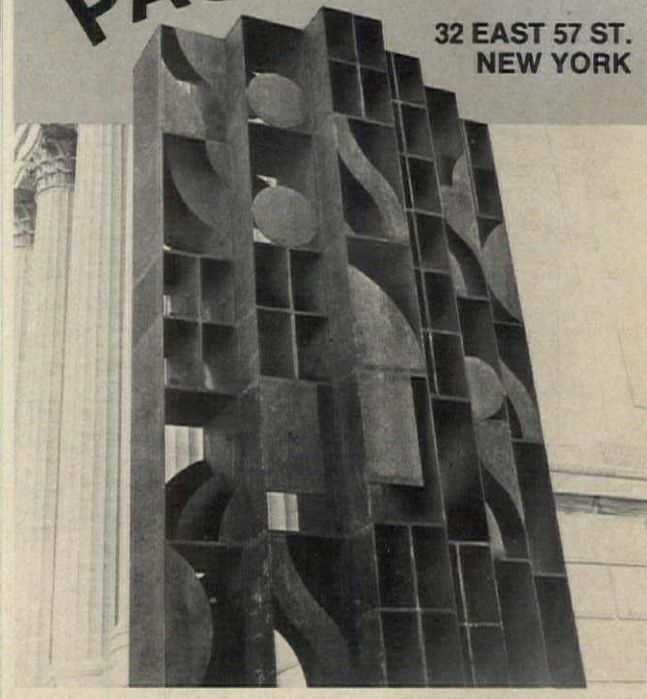
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