Progressive Architecture

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May 1974

Progressive Architecture

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ABP

Louis I. Kahn, 1901–1974

Romaldo Giurgola

To perceive a loss is difficult, to perceive a death impossible; for us now it is like stepping into a crude world of stones and structures, documents of a presence in our life. From those we will have to build, since they are the legacy. But the magic was before, when Louis Kahn's words and acts were with us—beautiful words of the mind, words from convictions and an endless search, strange, new words, yet ancient, atavic. We often could not distinguish the structure behind them, but with a crowding of feelings they sent us to architecture, where we could realize the relationships, tenuous at first, unshakable later.

Those relationships that unite architecture—encounters of the buried approximations of our hopes with light, earth, walls, spaces—for Louis Kahn they were the encounters of a glorious life, a young life, as if it started 20 years ago. Yet it was a long, selfless dedication, and he disappeared like a soldier in a battlefield. He did not want to be better than anyone else, he wanted to be a better man. And he was. He never belittled anyone or anything; he only knew that he had to be reborn over and over again, to be honest, to live with the fear that things would not be as he wanted, to search for the thing to do with the conscious anger of a fight, yet to make poetry. Because for Louis Kahn architecture had to be met as a natural emotional experience; he was not afraid to be burned and to show his wounds.

His architecture was about visualizing abstract theories for us, about playing with the dialectic of shapes, of assumptions; it hoped for more than the sterile logic of functional reason, or the caricature of our careless environment, for no architecture was to be met in that way—it was too important in every man's life. Architecture for Louis Kahn was not a necessity for survival, but the choice for an understanding, a desire for an order between events and elements, not a quantitative, absolute, fixed order, but a relative, active, and infinite one.

The poetry of his words was like the poetry of his buildings: harsh expression, incomplete, not easy to take, inevitably so, since they were really without precedent, generated by a new context and always generating one. The cuts into the big walls, the anguish of the depths and layers of walls, the silence of a room, of a measure captured, the abrupt termination that was a beginning—yes, those things were new and close, at times distasteful in their evidence, but beautiful in their truth. We juxtaposed them to the past because we could not grasp the nature of the present. We were so intent in looking for a synthesis we hurriedly answered all questions only in terms of necessity. In architecture the synthesis was all-encompassing, universal, an architecture with subtitles, either the funereal or playful object of the end of the modern movement. But the order of Louis Kahn was made of presences, with no contest of nature and mind, and no destruction of one for the other. Those presences were the fragment of a world rediscovered, not invented.

Louis Kahn sought the things man has looked for, generation after generation. His architecture was to express them and the worth of them; it was an architecture of everyone, the consequence of a human force conscious of its own inventions, rather than the synthesis of a cyclical conception.

"There is not the next building," he said, as there is not a next time. Time was for experience, and if the time to build was brief for Louis Kahn, the itinerary of his experience was long and rich, centered mainly around a town to which he came back again and again. Philadelphia's setting is that of a simple 18th-Century town, but its fabric is dramatically cut by the deep diagonal of a parkway straight into its core, a direct link between its center and the country. For one entering from the northwest it is a direct contact, an immediate relationship, visual and dimensional. Louis Kahn worked continuously with his students on those relationships of the city: the link between the two rivers, the movement, the places of well-being and of celebration. His houses were designed with those sudden fractures, those immediacies, with something else than the static multiple enclosure made by the classic walls or the solution into atmosphere of the contemporary space. They were something closer to our sense of reaching for the stillness of a room from the external movement, closer to our desire of understanding for all the complexities that make a contact, a relationship.

Before the fifties Louis Kahn was known as a socially concerned architect; he was a member of that group made up of Oscar Stonorov and other Philadelphia architects and the planner Clarence Stein. But while everyone was talking of emergency and survival, he reacted in his own way by transferring the immediate issue into the thought of man's institutions. He saw these as ideological places, yet also as tangible entities, as those aspirations to well-being, learning and health where man recognized his destiny. Housing was not to be built as minimal necessity, but as a conscious way of making a place, an "assembly of rooms" where the act of life was to take form, rooms that were the primordial spaces of that form.

In the work of George Howe, and later of Philip Johnson, there was an aristocratic bearing that humanized the rarified concepts of functionalism; it was an alternative that cut through the dilemma of Wright and Mies. Yet Louis Kahn, sensitive to that alternative, made a beginning alone, a beginning painfully elaborated through the years. The Yale Art Gallery and the Trenton Community Center marked that start; it was as if he sensed the beginning that was to take place soon after—a new culture, embryonic, erratic, yet laboriously reaching for its own values. It was not enough any longer to

Louis Kahn in the Bryn Mawr Dormitories. Photo: Eric Kroll

continue living on talent, opportunities, and cleverness. The itinerary kept Louis Kahn away. The contact with India was prolonged and difficult; it was a different context but the instances were the same: aspirations of people to self-respect, to be better, to be present—an eternal context. The answer was not a universal language but the timeless notion of place.

At Salk Institute the external volumes resolve into the accommodation of the court, shades cutting into the volumes to make available a choice—spaces for a culture expressed in the rhythmical sequence of rooms and efficient laboratories. At Ahmedabad the scale is gradual, from the intimacy of a room to the explosion of the open space through roofed terraces protected from the dust and wind. At Dacca the majestic sequence of rooms and ambulatories, dense spaces, clustered, not dispersed to exhibit themselves, is punctuated by the round and triangular openings that trade shade for the open sky. In Venice the meeting place was a bridge, the parameter a distance, the measure a sweeping gesture across the water. And finally, Israel, the place of man's initiation; the Jerusalem Synagogue in silence and light, walls of prayer, decision for man's limits.

His was the itinerary of a great ambassador across the world, concerned not with problem-solving and "know-how," but directed by an urgency and a passion in a search available to anyone. Finally, this incomplete itinerary includes the university as an encounter, a crossroad for the mind, a place where the thoughts and actions of man are evaluated, where freedom was passionately pursued with his students. "Architecture belongs to the university, the profession to the market place," he would say. To come back to the university was like returning to his home town. Ideas were to be questioned there, not languages. It was a test that exhausted him at the end of the day.

Louis Kahn made architecture, architecture for us to believe, not one permitted, with a role, visual or entertaining, beautiful, rational, monumental, expensive, economic, fast, flexible, modular, plastic, spontaneous, codified, for sale, with strategies—but *buildings among people,* an architecture full of old and new things, done by a man who knew their passions, their wits, their particulars, and their glory. It was not an ambitious exercise to express the essence, but simply a primordial act like making a tool for drinking water or searching for a cosmic rapport.

For Louis Kahn the primordial act had to be rediscovered, for self-respect, learning, understanding, value. His methods were intuitive, implicit, simple, and personal. Instructions were clear—the drawings, images of walls, windows, light, spaces—not bureaucratic documents. He said "a carpenter must read them; they should tell him about the possible." They could not be forgotten.

All because Louis Kahn was bound to the destiny of man and his institutions. He took upon himself the role of realizing man's conjectures and his possibilities, of making that link between his finite being and the infinite of nature. It was a risk, however, "touching upon hope," as Loren Eisley said, since Louis Kahn's architecture was not built with the realization that something had already occurred, but for a decision that something will.

Author: Mr. Giurgola, one of Louis Kahn's most prominent followers and friends, is a partner in the firm of Mitchell/Giurgola Associates.

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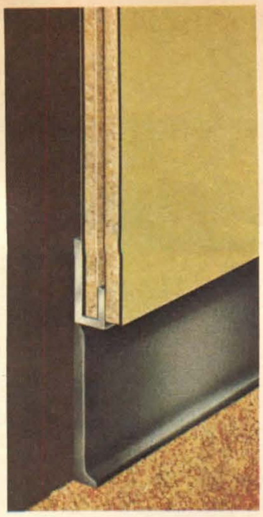

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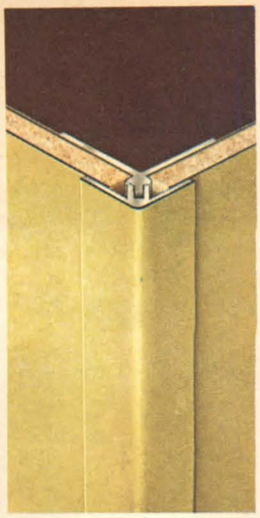

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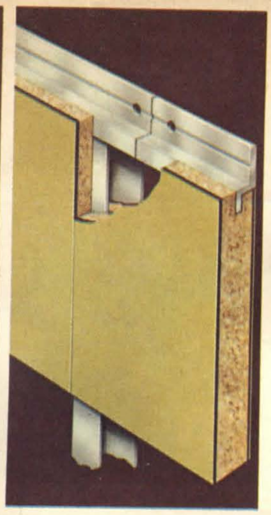

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Notices

Appointments

John Lebduska, AIA has joined Pomeroy, Lebduska & Associates, PC, formerly Lee Harris Pomeroy Associates, New York City.

Anthony DiFrancisco has joined S.E. Architects, Somerville, Mass., as principal architect.

The George M. Ewing Company, Philadelphia, has named **Charles T. Goulding** director of architecture and partner. Named as associate partners are: **William G. Gove, Michael A. DiCroce, Raymond C. Lynch, Edward R. Lewis, Griffith J. Johnston** and **Edwin J. Travis.**

Donald S. Gill, AIA has formed Deasy, Bolling & Gill, Architects, Los Angeles, formerly Deasy & Bolling, Architects.

Michael Tribble, AIA has joined Clark Godwin Harris & Li Architects, Charlotte, N.C., as a partner.

G. Gordon Fluke, Jr. and **Satish Khanna** were appointed associates of Rahenkamp Sachs Wells & Associates, Philadelphia.

Spangler Beall Salogga Bradley, Decatur, Ill., is now Beall Salogga Bradley Likins Dillow with the naming of **Gary S. Likins, AIA** and **L. Eugene Dillow, Jr., AIA** as partners.

Perkins & Will appointed as senior associates in its New York offices: **John B. Lodes, Wim Swaan,** and *John Wainio*.

Anne Bunting, AID has joined The Office of Bahr Hanna Vermeer & Haecker Architects, Omaha, Neb.

Robert C. Gerst has been named associate architect of Jones/Mayer & Associates, St. Louis.

James Moberly has been appointed design director of the Honolulu office of Cannell & Chaffin Commercial Interiors.

Jim Schoenfelder has been named head of the new energy management department of Hansen Lind Meyer, Iowa City, Iowa.

William K. Bielenberg has joined Jova/Daniels/Busby, Atlanta, Ga., as construction administrator.

Malcolm Carpenter, Rebecca Hawk and **Carol Bale Malcolm** have joined the San Francisco office of The Hall and Goodhue Community Design Group.

John M. Laping, AIA has been named a managing partner of Kideney, Smith, Fitzgerald & Partners, Buffalo, N.Y.

New addresses

RTKL Associates, Inc., Village Square, Village of Cross Keys, Baltimore, Md., 21210.

O'Malley & Associates, Inc., Village Square, Village of Cross Keys, Baltimore, Md. 21210.

Fong, Jung, Nakaba Associates has opened a new office at 300 Broadway, San Francisco.

The Office of Bahr Hanna Vermeer & Haecker Architects, 535 Nebraska Savings Bldg., Omaha, Neb.

New firms

Royce V. Angell and Dempsey V. Currie have formed **Angell Currie Associates,** 5010 Edison Ave., Colorado Springs, Colo. 80915.

Richard H. McCarthy, NSID and Robert B. Gustafson, NSID, IBD, have formed **McCarthy-Gustafson** with offices in Jamestown, N.Y. and Easton, Pa.

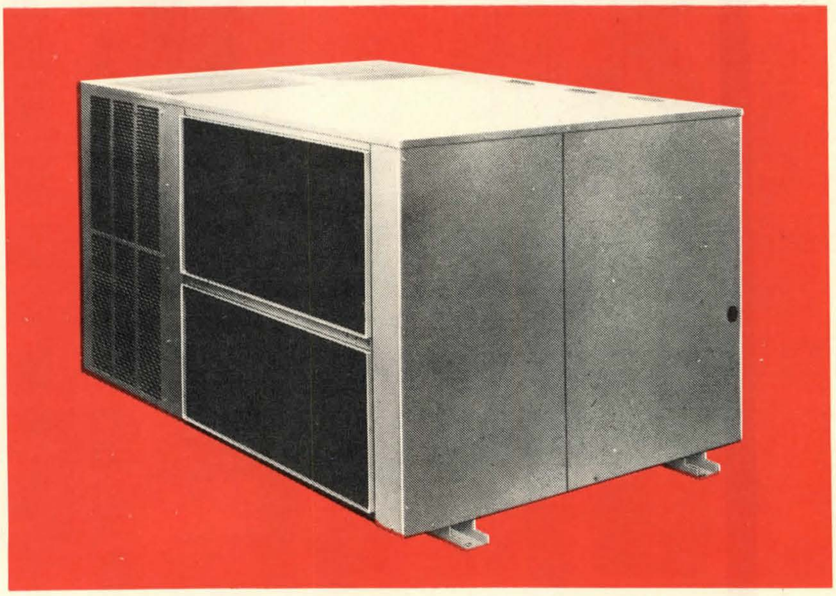
R. Edwin Wilson, William R. Scaife and J. Michael Smith have formed **Medical Design Associates, PA,** 4421 Central Ave., Charlotte, N.C. 28205.

Gin Wong Associates, 5900 Wilshire Blvd., Los Angeles.

Lowell Brody Architect, AIA, 164 Winthrop Pl., Englewood, N.J. 07631.

Roger Margerum AIA, Inc., 512 Lafayette Towers East, Detroit, Mich. 48207.

Thomas E. Lewis, Jr., AIA, has formed Lewis Associates, Inc., 5750 Major Blvd., Orlando, Florida 32805.



Letters from readers

Views

Specifications clinic

Harold Rosen's Specifications clinic "Architectural precast concrete finishes" (P/A, Jan. 1974, p. 92), presented only the basic concepts of precast finishes. It might be appropriate for your readers to know that a comprehensive publication *PCI Architectural Precast Concrete,* sets forth in plain language virtually every consideration faced by the designer. The architect is taken through the logical progression of architectural precast concrete design—from concrete through detailing procedures to actual specifying. The explicit guidelines in the manual help to achieve design objectives quickly, easily, and economically. Manual is available from: Prestressed Concrete Institute, 20 N. Wacker Dr., Chicago, Ill. 60606.

Sidney Freedman, Director
Architectural Precast Division
Prestressed Concrete Institute
Chicago, Ill.

BERLIN STEEL WAS IN BUSINESS SEVENTY THREE YEARS BEFORE THEY SPECIFIED JOIST GIRDERS FOR THE FIRST TIME. ELEVEN DAYS LATER, THEY DID IT AGAIN.

Joist Girders. The advantages they had over I-beams were more than enough for Berlin Steel to specify them for the Sage-Allen Department Store they were building in West Hartford, Connecticut. So much

Joist girders have a simple span design. Which explains why ponding calculations are easier. And why design time is shortened.

more, that eleven days later they specified them again. Only this time for National Plastics and Plating Supply Co. in Plymouth, Connecticut.

Where did Berlin Steel learn about those advantages? From meeting with Vulcraft. The people who knew as

Joist girders need fewer foundations and columns. Which means less work for you and larger bay areas for your clients.

much about joist girders as Berlin did about steel fabricating.

And the first thing the Vulcraft engineers did was show Berlin Steel why joist girders are easier to specify and erect. By explaining that the simple span design of joist girders make ponding calculations easy. And shorten design time.

By telling them about the larger bay areas possible with joist girders. And by talking about the fewer foundations and columns needed with joist girders than with I-beams.

Then came the subject of the advantages joist girders offer after they're erected.

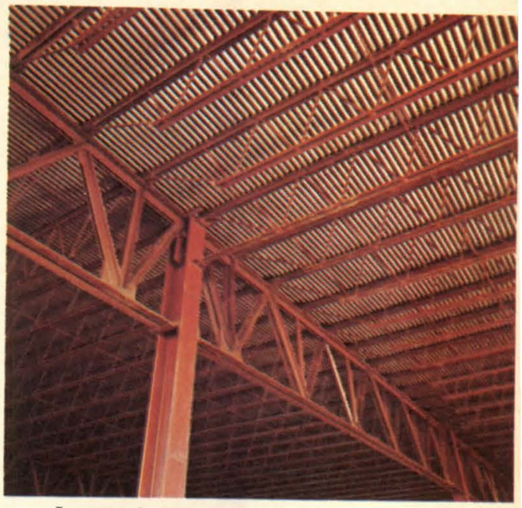
And to explain that topic Vulcraft talked about the modified Warren truss configuration used in joist girders. And that it gave joist girders a high strength to weight ratio.

Joist girders have a modified Warren truss configuration using hot rolled double angle sections for top and bottom chords and single and double angle sections for web members. What that means is a high strength to weight ratio.

They mentioned further, that bar joist erection was faster. Because top chord panel points show joist location, eliminating a lot of measuring.

Finally, the matter of ducts, pipes and conduits came up. And Vulcraft explained how these things go right through a joist girder. Something no one can say about an I-beam.

What it all added up to for Berlin Steel was a change. A change from I-beams to another roof-framing system. A roof-framing system that was more economical and easier to erect



Joist girders have top chord panel points that show joist location. Which makes a lot of measuring unnecessary.

for anything over 10,000 square feet.

It wasn't surprising to Vulcraft, though. Because architects and engineers all over the country are discovering the advantages joist girders have over I-beams.

Joist girders already have spaces for pipes, conduits, and ducts to run through. So you don't have to cut them yourself.

If you'd like more information about how joist girders can work for you, send for Vulcraft's Joist Girder Specification Guide. Just contact your local Vulcraft sales office. Or write P.O. Box 17656, Charlotte, N.C. 28211. Or call (704) 366-7000. You'll find a few things even Berlin Steel didn't know. Until they asked.

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Sage-Allen Department Store, West Hartford, Connecticut; Architect: Associated Architects, Farmington, Connecticut / General Contractor: Bartlett-Brainard & Eacott, Inc., Bloomfield, Connecticut / Consulting Engineer: Hallisey Engineering Associates, Inc., Hartford / Steel Fabricator: Berlin Steel Construction Company, Inc., Berlin, Connecticut. National Plastics and Plating Supply Co., Plymouth, Connecticut: Architect: Andrew C. Rossetti, Bristol, Connecticut / General Contractor: S. Carpenter Construction Co., Bristol / Consulting Engineer: Hallisey Engineering Associates, Inc. / Steel Fabricator: Berlin Steel Construction Co., Inc.

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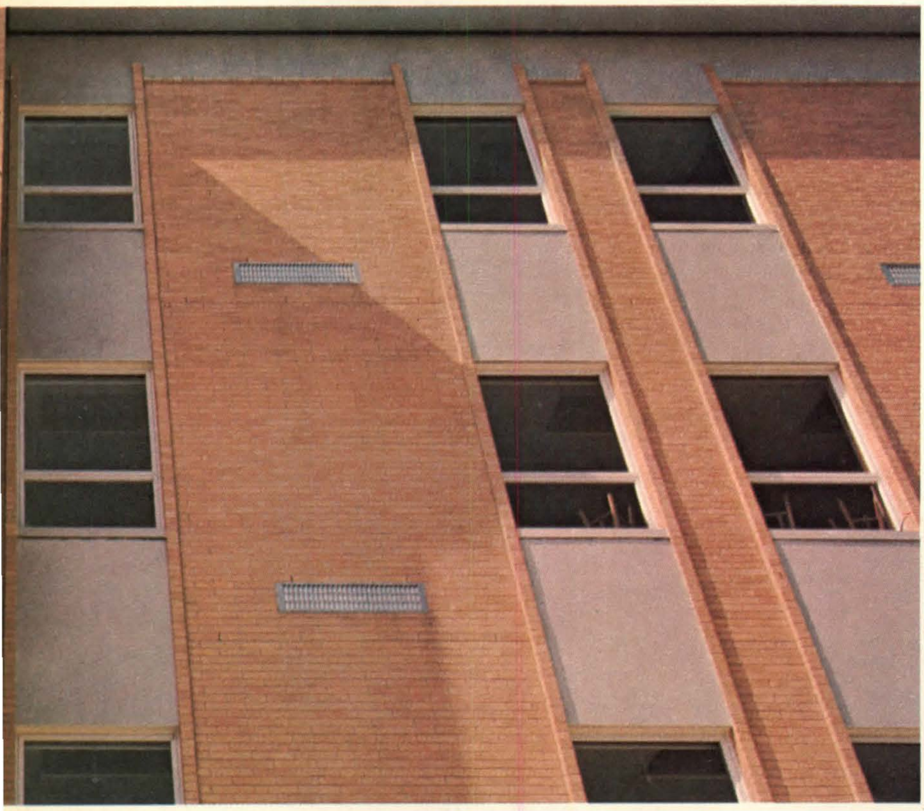

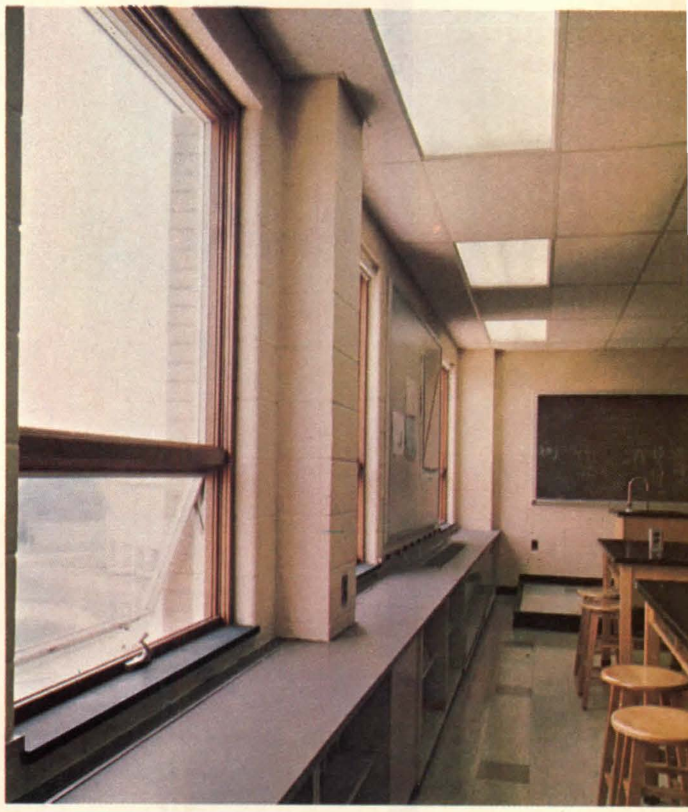

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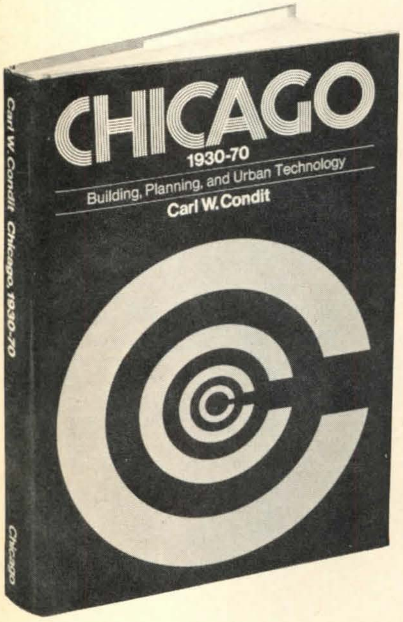

Chicago: 1910–1929—Building, Planning and Urban Technology *by Carl Condit. Chicago, University of Chicago Press, 1973, 353 pp., 59 illus., $12.50.* **Chicago: 1930–1970—Building, Planning and Urban Technology** *by Carl Condit. Chicago, University of Chicago Press, 1974, 351 pp., 115 illus., $12.50.*

Reviewed by Leonard K. Eaton, professor of architecture at the University of Michigan, Ann Arbor.

Architecturally speaking, Chicago is the capital of the United States, and for many years Professor Carl Condit of Northwestern University has been known as the most important chronicler of its achievements in the building art. These two volumes will come as somewhat of a surprise to those who are familiar with his earlier writings. In *The Chicago School of Architecture* (1964) he concentrated on the giants of the eighties and nineties, dealing exhaustively with the technical and architectural achievements of Jenney, Root, Adler and Sullivan, Holabird and Roche, and a host of minor figures as well. Trained as a civil engineer, Condit viewed their buildings essentially as works of structural art, taking an intellectual position rather close to that of Mies van der Rohe. In other books he was much concerned with the aesthetic qualities of bridges, dams, and [continued on page 103]

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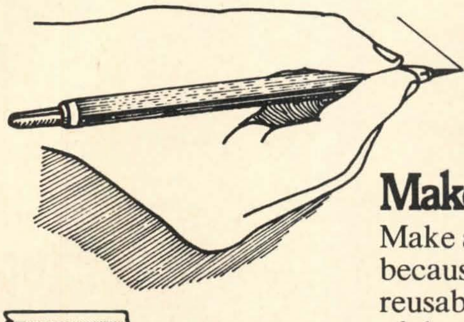

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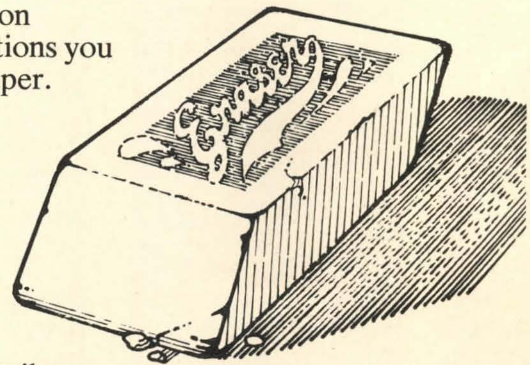

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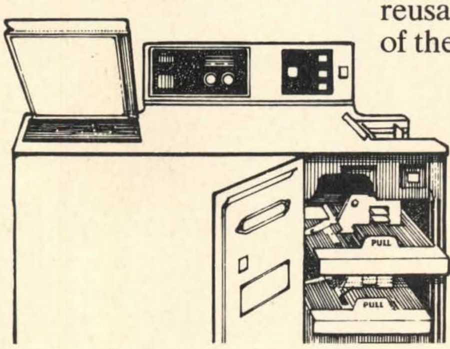

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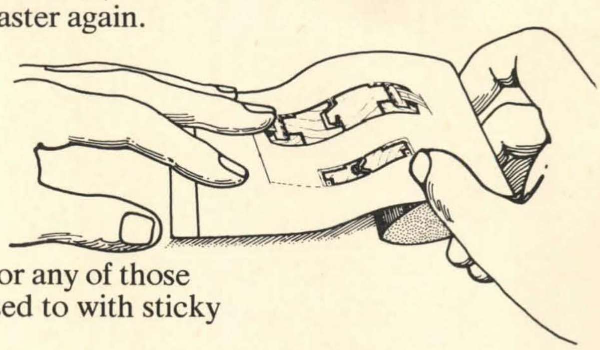

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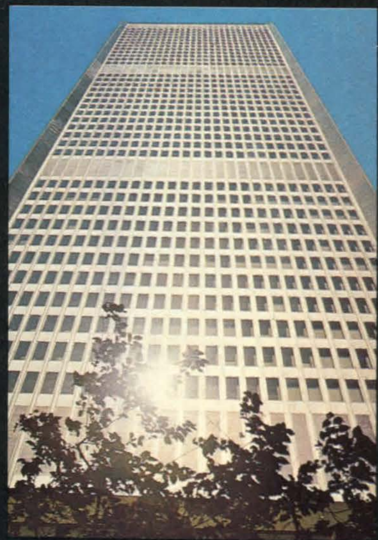

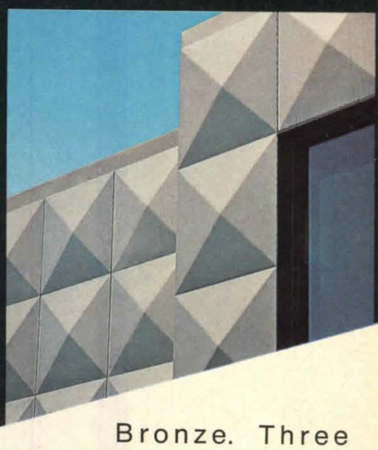

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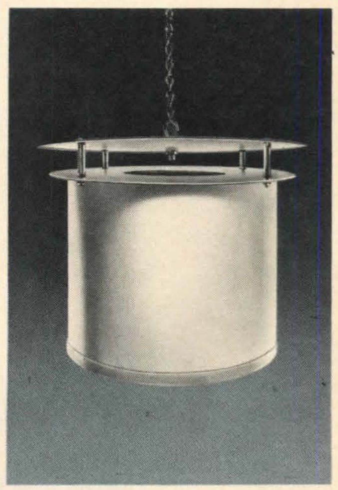

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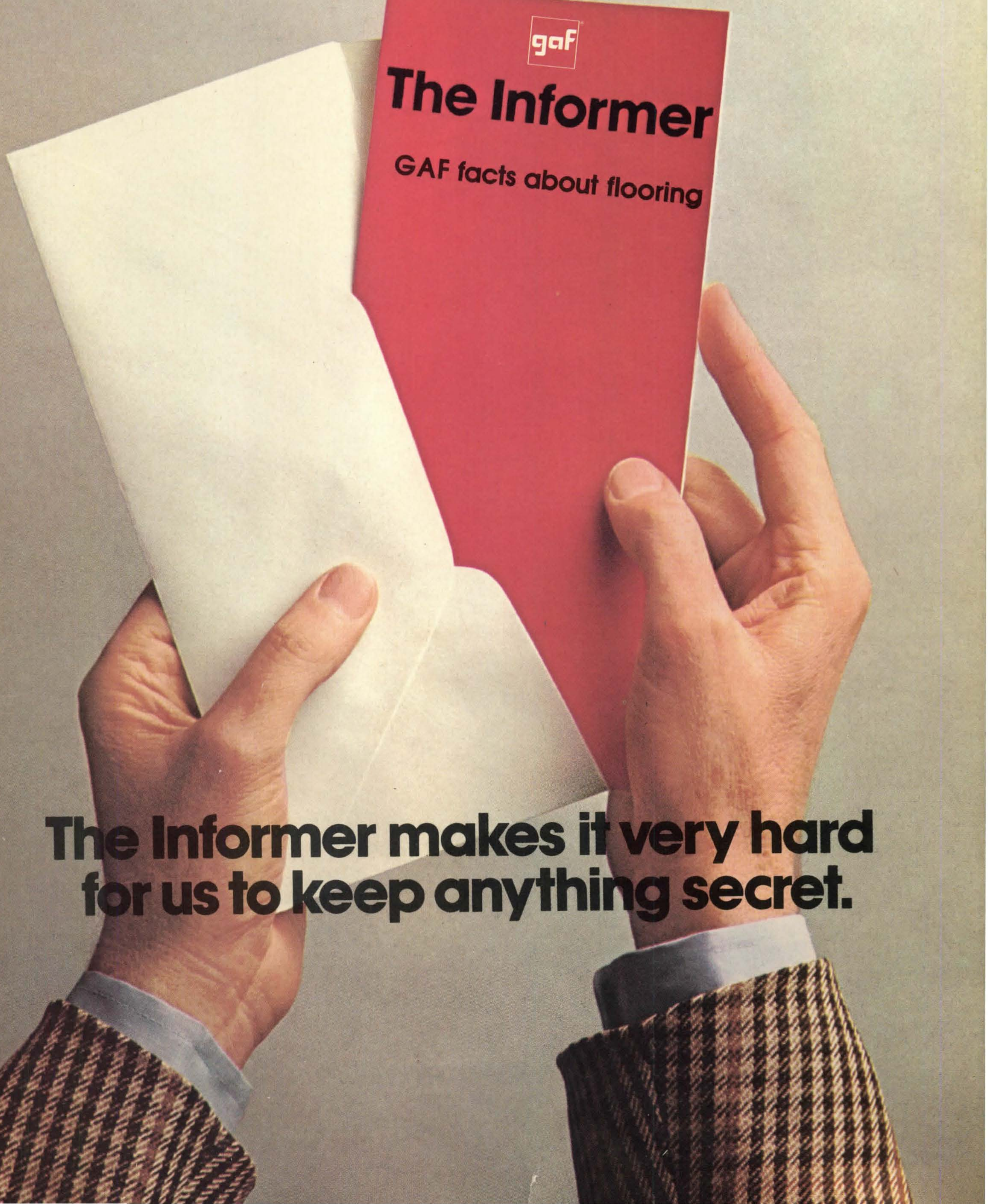

Contents

News report

Schools need special designs . . . accommodating turf graffiti

Attractive nuisance

The schoolhouse has become an attractive nuisance to kids challenging them to surmount such barriers as walls, rooftops, and locked doors. Architects can help school officials and custodians reduce the number of vandalisms by recognizing that children react to school buildings in certain ways, and that design can overcome some of them.

A study by John Zeisel, sociologist at Harvard University's department of architecture, for Boston's Public Facilities Department lists five areas where design common sense can deter breakage and damage to school property: roof access, entrances, play areas, graffiti, and surfaces. In the first three areas Zeisel's main recommendations are to put temptation out of way by removing as much hardware as possible and by locating roofs out of range of climbable trees and high enough to be inaccessible to a child with a 12-ft piece of lumber—the usual makeshift "ladder." Entrances, while planned to be open to the community, should also avoid such obvious come-ons as all-glass entrances. If glass is used, pull-down grilles should cover the transparent doorways when the building is closed. Doors should have astragal coverings to prevent forced entry by use of coathangers.

In play areas, designers ought to provide some surfaces for

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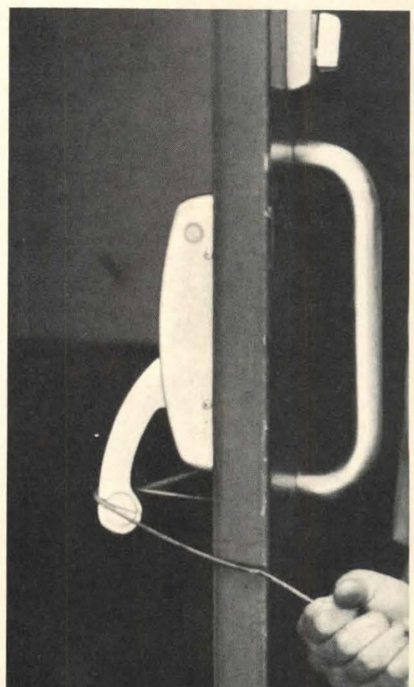

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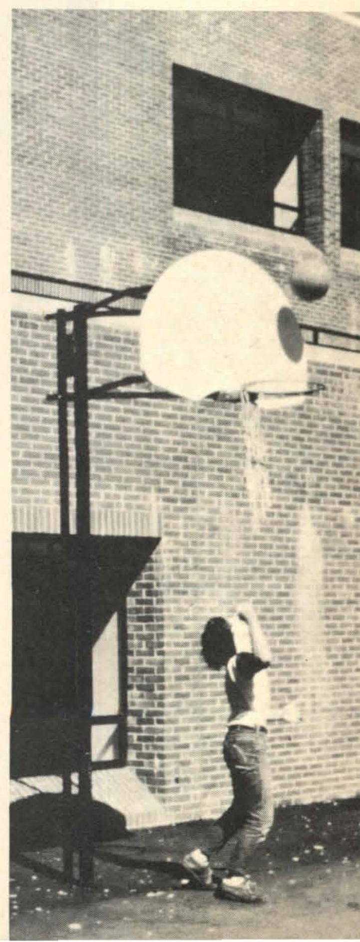

. . . to prevent broken windows. Photos: John Zeisel

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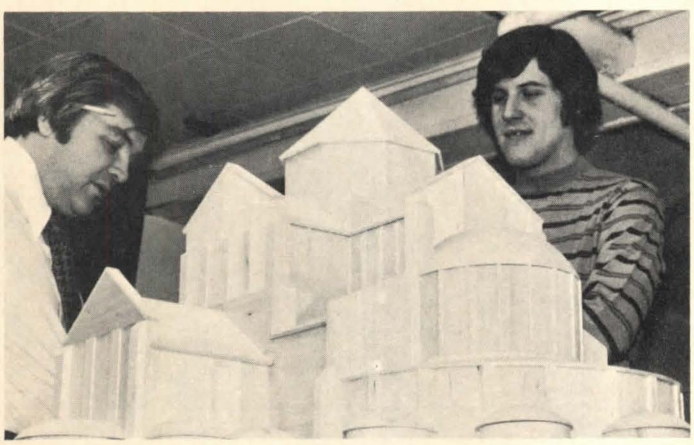
Education City. Photo: courtesy R. Fleischman Architects, Inc.

Award-winning Lewis Palmer Elementary



Cluny abbey model with Patton and Lundberg

Sampson Funeral Home

graffiti, such as walls where "goals" can be painted on for soccer games, and conversation corners where youths can socialize. Here the environment should not include trash containers that invite burning the contents, planters that could double as ash trays, or plantings that are easily damaged or catch litter. Avoid unnecessary niches, such as those created by depressed entrances or delivery docks, as these are otherwise used for prying at windows and picking locks.

Green light for two schools

"Education City" was the nickname of Richard Fleischman's plan for an elementary school which won for him and the school one of the two top prizes in this year's AASA–AIA school design competition—the Walter Taylor award.

The open plan is for two main "avenues"—Market and Main Streets—which form a major axis of the school, with a traffic light proposed for the intersection. Most of the school is buried underground to contrast with the monotonous pattern of single-story brick homes in the neighborhood. The school is Bellflower Elementary in Mentor, Ohio; Richard Fleischman Architects, Inc. is located in Cleveland, and the award was presented by the American Association of School Administrators co-sponsored by the American Institute of Architects.

The other top award, the Shirley Cooper award, went to Lewis-Palmer Elementary School in the new town of Woodmoor near Monument, Colo., by the firm Muir and Young of Colorado Springs. Here school officials wanted a semi-open plan with six traditional classrooms and six open ones. A variety of woods was used to give a ski lodge character to the building and to suit the country club theme of the new town.

The jury comprised school administrators and AIA members Robert L. Browne of Memphis, Tenn., Sarah P. Harkness of Cambridge, Mass., Louis R. Saur of St. Louis, Mo., and Donald M. Shaffer of Albuquerque, N. Mex.

Largest church in Christendom

St. Peter's Abbey at Cluny, France, for 400 years was the largest Christian edifice, but the 12th-Century Romanesque structure was torn down in the early 1800s. Now its massive scale is once again visually evident from a 10-ft-long replica rendered $\frac{3}{16}$ in. to 1 ft. The basswood model took industrial designer George Patton, Jr., and his assistant Gordon Lundberg, a student, 400 hours to complete. Batton teaches at the Rhode Island School of Design where the basilica recently was exhibited in conjunction with a gallery exhibition. Patton worked from illustrations by Kenneth Conant, a 79-year-old medievalist who began excavations at Cluny in 1928. The church was 615 ft long, just 90 ft shorter than St. Peter's in Rome. The model is part of RISD's museum collection.

Cemetery competition—no place for deadbeats

Three winners for excellence in the funerary arts have received awards from the New England Chapter of the Victorian Society in America for their achievements. In announcing the awards, the chapter recalled the words of historian Edgar Kaufman who said: "Cemeteries were planned for the beauty of life, not the grimness of death."

The awards were presented in Boston to Alan Chesney of Mount Auburn Cemetery, Cambridge, for his role in landscape architecture; to Jonathan Fairbanks, curator of American decorative arts at the Museum of Fine Arts, Boston, for his exhibition, "Confident America," depicting funeral sculpture; and to Mr. and Mrs. Kenneth E. Sampson of Brockton, Mass., who have kept intact through four generations their Victorian funeral parlor at 309 Main St. The terra cotta mansion is the former Gardner Kingman House designed by Brockton architect Wesley Lyng Minor.

AIA convention swings

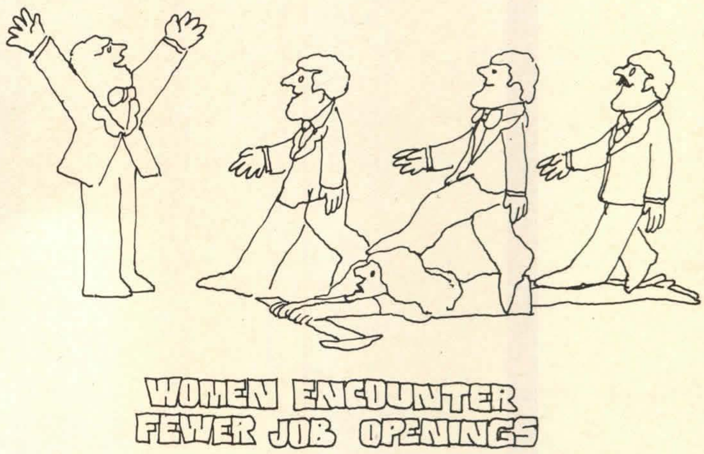
The late 19th Century Pension Building in Washington, D.C. will come alive May 22 when the American Institute of Architects stages a ball in the multi-tiered space as one of its social galas held in conjunction with the annual AIA convention, May 20–23. Convention headquarters will be the Sheraton Park Hotel. The theme this year is "A Humane Architecture" which will be introduced in talks May 21 and discussed in workshops the following two days.

The Pension Building, semi-restored, will be treated as a piazza for the evening event. Theatrical lighting by Claude Engle III of Washington will accent the massive columns making them appear free standing. The building was designed by Montgomery Meigs in the 1880s as a place for Civil War veterans to receive pensions and for Grant's inauguration.

Pension Building

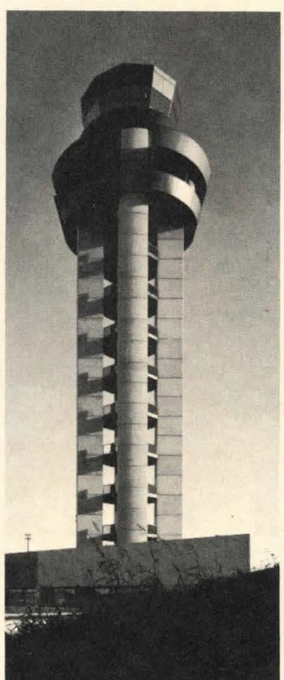
Second class architect

A survey conducted by the New York State Association of Architects/AIA shows that women in the profession don't fare as well as men. Women are paid less than men—$15,000 versus $22,000—even though qualifications seemed evenly matched. Men usually held positions in the higher echelons while women consistently appeared in jobs with lesser responsibilities and lower salaries. More women then men did not receive the salary they requested when hired, and more men than women received salary increases when they became registered.



Control tower prototype

A 196-foot-tall air traffic control tower, designed for the Federal Aviation Administration, has been installed at the new Dallas-Fort Worth Airport in Texas. The prototype was developed by Welton Becket and Associates' Houston office. Hollow concrete modular units 10 ft square weighing 20 tons were used to form the service core. Uniform size and weight were planned to facilitate trucking to the site. The tower was designed for major airports to offer greater speed of completion, better quality control, and more flexibility when new equipment is added.



Prototype control tower

Wainwright contest

In precedent-setting action, the National Trust for Historic Preservation and the State of Missouri have cooperated to save the threatened Wainwright Building in St. Louis, and Missouri is preparing to hold a competition to pick an architect for converting the building to state office space. The contest will be for restoration and renovation of the Wainwright and for an addition of over 100,000 sq ft. The 10-story Wainwright, designed in 1890-92 by Louis Sullivan and Dankmar Adler, occupies a quarter of the block on its downtown site and must be connected in some way to the new building addition.

Team Four, urban planners in St. Louis, was instrumental in securing the Wainwright for the state, which was seeking to consolidate and expand its office space in St. Louis. Until the

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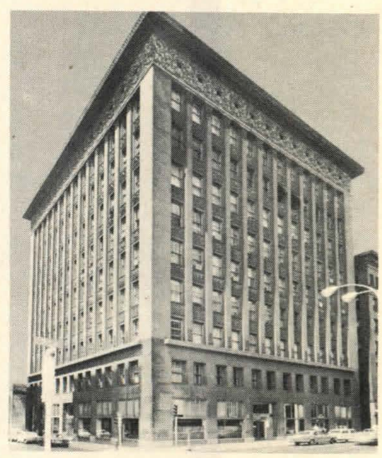


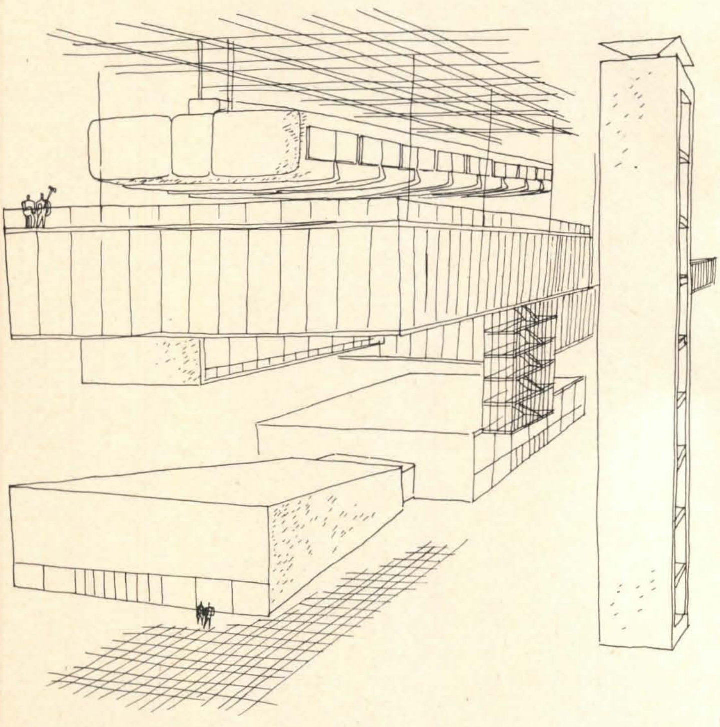
Wainwright building. Photo: Piaget for HABS

News report continued from page 23

National Trust took an option on the building, the Wainwright, a pioneer in modern skyscrapers, was under threat of demolition. Inquiries about the competition may be sent to the Director of Design and Construction, State Capitol Building, Jefferson City, Mo. 65101.

New York competition

Deadline for entries in the third annual New York Society of Architects design competition is May 15. Buildings and interiors eligible are any substantially completed within New York's five boroughs since Jan. 1, 1970. Jurors will be graphic designer Ivan Chermayeff and architects Herman J. Jessor, Philip Johnson, Dean Bernard P. Spring, Edgar Tafel, and Robert Venturi. Additional information is available from the Society, 101 Park Ave., N.Y.C. 10017.



Reginald Malcolmson exhibit

"Visionary Projects," an exhibit of work by Irish-born architect Reginald Malcolmson, dean of the college of Architecture and Design, University of Michigan, will be exhibited through May 18 at the American Institute of Architects headquarters, Washington, D.C. Thereafter the show of photographic panels will be on view at the Arkansas Art Center, Little Rock, July 15–Aug. 18; Museum of Art, University of Michigan, Ann Arbor, Sept. 1–30; Museum of Science & Industry, Chicago, Ill., Oct. 15–Nov. 17; and Bryn Mawr College near Philadelphia, Pa., Dec. 1–30. The show is sponsored by the International Exhibitions Foundation, Washington, D.C.

Expo '74

Looking more like a synthesis of nature and civilization than the bold chest-beating, man-surmounts-environment kind of development of past fairs, Expo '74 opens May 4 at Spokane, Wash. and will continue for six months until its Nov. 3 closing. The United States Pavilion by Naramore Bain Brady & Johanson of Seattle is a tent structure of translucent fabric spanning a nearly 90,000-sq-ft area. The membrane is suspended from cables fastened to a 130-ft-high crown. Construction was delayed briefly when a pulley broke tearing the fabric, but repairs were made quickly. The building is expected to remain as a permanent structure after the fair although its use is undetermined. Under serious consideration is the possibility of its serving as an environmental center of offices for various government and private agencies.

Most of the pavilions at the fair are a standard, recyclable, boxlike module designed by Adkison, Leigh, Sims, and Cuppage of Spokane. Exceptions include the Kodak Pavilion, a bubble structure designed by Franz Schwenk, architect with Kodak's home office, Rochester, N.Y.; American Forestry Pavilion by Miles Yanick of Spokane; Carousel Building, designated to be a permanent structure, by People's Space Architectural Company, Spokane; and the Washington State Pavilion, to be turned into an opera house after the fair, by Walker, McGough, Foltz & Lyerla of Spokane. Both the Ford and General Motors Company buildings are prefabricated structures—Ford's being a geodesic dome. The largest pavilion by a foreign government is the Soviet Union's, and it is the standard module design supplied by Expo.

The Japanese pavilion is by Ken Nakajima, landscape architect, and Mutsuo Okabayashi, design contractor, both of Tokyo; China, by Brooks, Hensley & Creager of Spokane; Korea, Swoo Geun Kim, Seoul; Australia, R.H. Thomas and Brooks, Hensley & Creager of Spokane in association with James McCormick and Richard Johnson of Australia; West Germany, Durma Company of Frankfort; and Iran, Jaromir Smejc, chief designer; with consulting architects Tan/Brookie/Kundig of Spokane.

The Canadians, who first backed out of participation, now have developed a 100-acre island in the Spokane River as their contribution to the fair's theme: "Celebrating Tomorrow's Fresh, New Environment."

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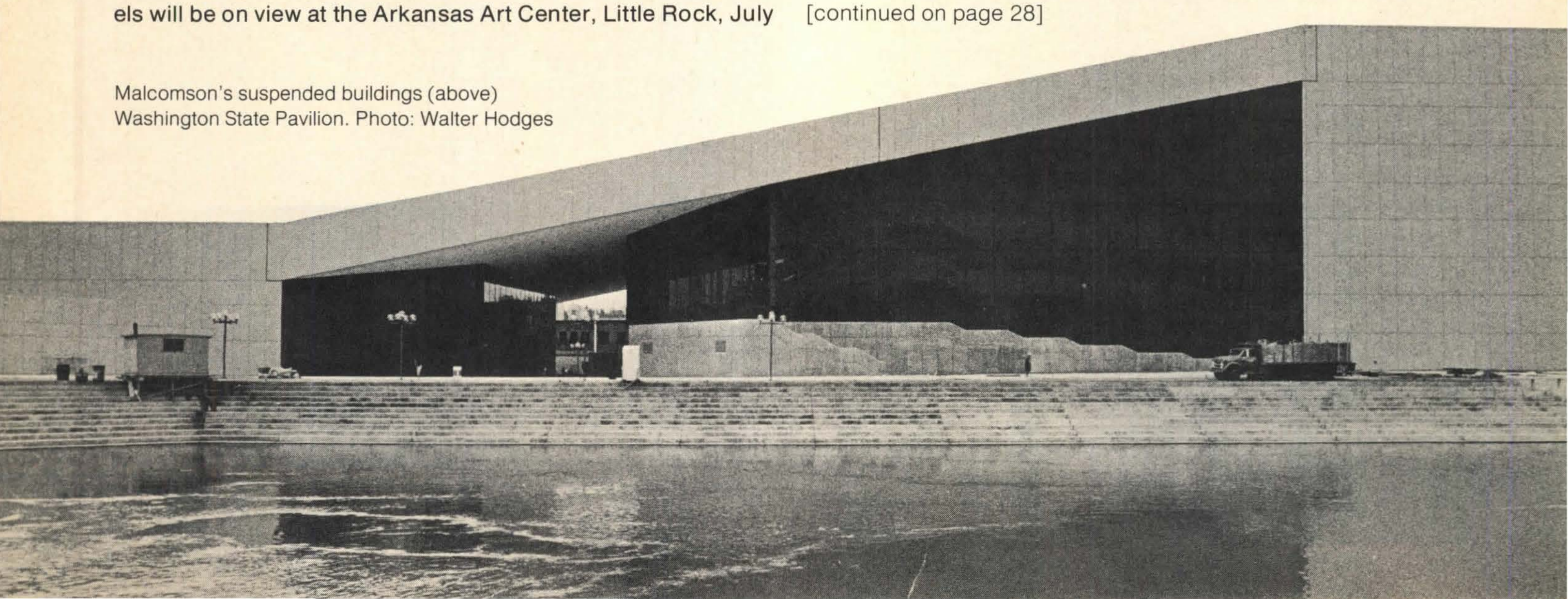
Malcomson's suspended buildings (above)
Washington State Pavilion. Photo: Walter Hodges



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News report continued from page 24

AIA 1974 honor awards

The American Institute of Architects will present eight honor awards for 1974 on May 20 in Washington, D.C. during its annual convention. The ceremony will follow the keynote address by Mayor Thomas Bradley of Los Angeles.

Recipients of this year's awards and the buildings for which they were cited are **I.M. Pei & Partners,** New York, N.Y. for the Paul Mellon Center for the Arts, The Choate School, Wallingford, Conn.; **Daniel L. Dworsky, FAIA & Associates,** Los Angeles, Calif. for the Multi-purpose Track and Field Stadium, University of California, Los Angeles; **Wolf Associates,** Charlotte, N.C. for North Carolina National Bank, Charlotte; **Richard Meier & Associates,** New York, N.Y. for Twin Parks Northeast Housing, Bronx, N.Y.

Holabird & Root, Chicago, Ill. for the Illinois Bell Telephone Co. 4A Equipment Building, Northbrook, Ill.; **Hugh Newell Jacobsen, FAIA,** interiors, and **John Carl Warnecke & Associates,** exteriors, both of Washington, D.C. for Renwick Gallery, Smithsonian Institution, Washington, D.C.; **Mitchell/Giurgola Associates Architects,** Philadelphia, Pa. for MDRT Foundation Hall, Adult Learning Research Laboratory, American College of Life Underwriters, Bryn Mawr, Pa.; and **William Morgan Architects,** Jacksonville, Fla. for the Morgan residence, Atlantic Beach, Fla.

Jurors for the awards were David A. Pugh, FAIA of Portland, Ore., chairman; Richard M. Bennett, FAIA, Chicago, Ill.; Ellamae Ellis League, FAIA, Macon, Ga.; Charles Gwathmey, AIA, New York City; and John Carl Becker, student at Harvard Graduate School of Design.

Calendar

Through May. Architectural models, drawings, and objects from the architecture and design collection of the Museum of Modern Art, New York City.

May 13–17. Third South African Building Research Congress, "Research for Better Building," City Hall, Durban, Natal, S.A.

May 17–23. Annual convention of the National Architectural Secretaries Association, Washington, D.C.

May 20–23. AIA national convention, Washington, D.C.

May 26–June 1. International congress of the Federation Internationale de la Precontrainte and the Prestressed Concrete Institute, New York City.

May 26–June 14. Tour of Moroccan architecture sponsored by the Society of Architectural Historians.

May 27–30. Third biennial symposium on lower cost housing problems, Montreal.

May 30–June 1. Fifth international conference of the Environmental Design Research Association, University of Wisconsin, Milwaukee.

June 16–21. Twenty-fourth International Design Conference, Aspen, Colo.

June 17–19. Eleventh annual Design Automation Workshop, Denver, Colo.

June 18–22. Fifty-third annual meeting of the National Council of Architectural Registration Boards, Dallas, Tex.

June 24–28. Institute on industrial archaeology sponsored by Rensselaer Polytechnic Institute, Troy, N.Y.

June 30. Entries due for "Work of Women in Architecture" ex-
[continued on page 32]


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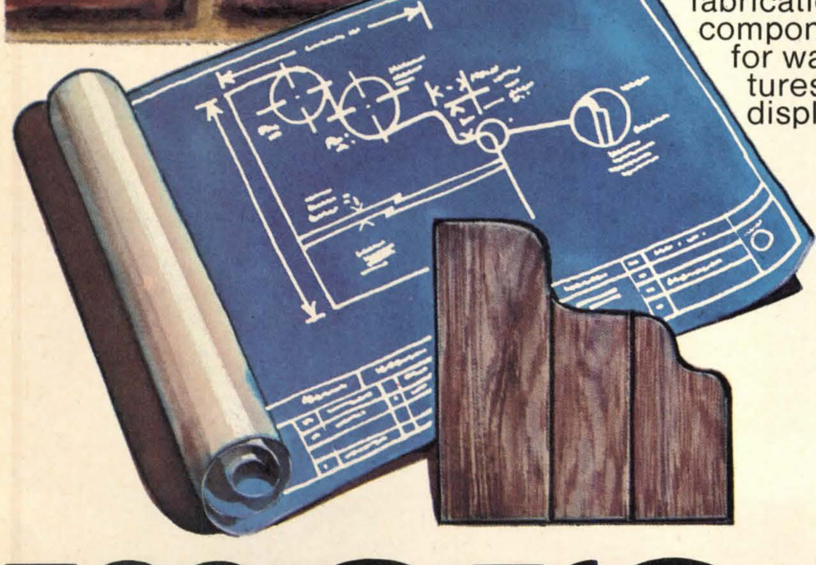

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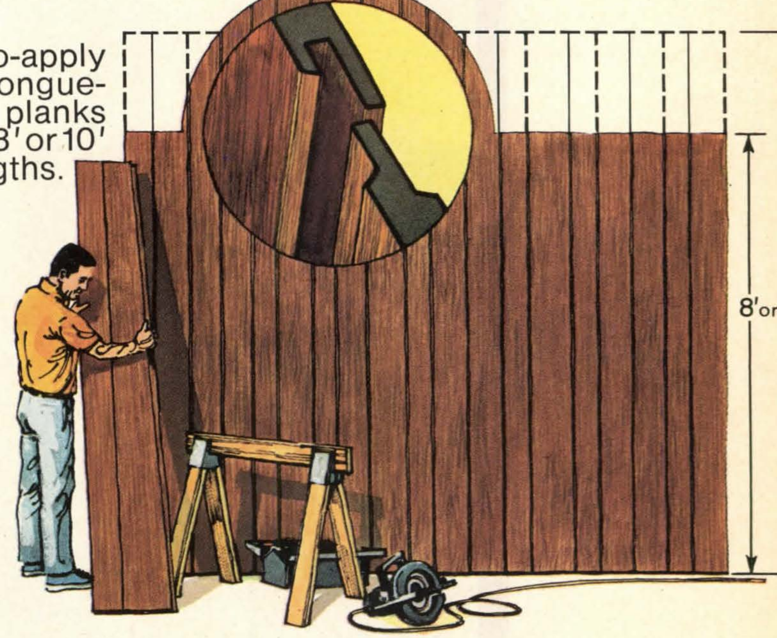

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News report continued from page 28

hibit organized by the Archive of Women in Architecture (sponsored by the Architectural League of New York).

July 3–6. First joint national conference of the National Society of Interior Designers and the American Institute of Interior Designers, Denver, Colo.

Washington report

Ethics vs. bids

There's a sizeable straw floating on the congressional seas at the moment offering some hope of staving off restrictive bidding requirements for professional services, and architects, engineers, and other professionals are grabbing for it enthusiastically.

The straw is a bill (HR 13546) floated by Rep. Lawrence Hogan (R. Md.). One paragraph long, it would simply require insertion of a clause in all A-E contracts to permit termination of a contract and assessment of damages and costs against any A-E firm convicted of violating existing laws concerning payoffs, kickbacks, deals for political favors, or the like. It would not require other changes in present contract forms or procedures so current systems of negotiation would continue.

The Maryland lawmaker used a three-day session on legislative matters (sponsored by AIA, ASCE, ACEC) as a launching pad for his bill—and got an enthusiastic reception, plus ample indication that the assembled professionals would start at once to build support for the measure. The action may have come none too soon—and it may be too late—to stave off the rush of legislation in state assemblies (particularly in Maryland) requiring price-bidding and to mitigate the instructions and regulations on bidding being prepared by federal construction agencies.

Another matter of importance emerged from Washington in late March with the publication (and immediate implementation) of General Services Administration's new "Energy Conservation Design Guidelines." Developed by a three-member team led by AIA's Research Institute, the "guidelines" are aimed at an overall saving of about 20 percent in energy used in office and commercial buildings. There's little doubt the scheme will be adopted quickly for privately owned construction projects as well.

Key to the procedure is an "energy budget" of 55,000 Btus per sq ft per year (with a higher "budget"—100,000 Btus/sq ft/year for buildings that use "new sources" of energy, such as solar heating, wind-drive generators or the like).

The new guidelines are similar to those suggested recently by the National Bureau of Standards but are based on a number of actual structures used as criteria. GSA emphasized that the rules are not "inflexible" and may later be modified. Guideline copies are available from GSA regional offices or from Walter Meisen, Assistant Commissioner for Construction Management, GSA, Washington, D.C. 20405. [E. E. Halmos]

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News report

Architecture west

Los Angeles—Harwell Hamilton Harris, now 70, was in town from his North Carolina home to join a tour of his 1930s houses (one from the 40s) arranged by Helen Park, president of the SoCal Society of Architectural Historians. Harris saw without flinching the wood interior of one of them "antiqued" white over gold, and the much acclaimed Fellowship Park pavilion (his own house) dwarfed by a king-size bed and TV set. The miracle is that so many of his houses are still close to their original state—two still occupied by original owners.

Harris has a unique place in the wood tradition of Southern California. His straightforward modular use of the material contrasts with the Greenes who were reluctant to let go of a line without giving it a final sculptural turn. Harris hadn't visited Japan then but he displayed an extraordinary ability to interpret the scale and the exposed wood of the Japanese house, and to combine these characteristics with the contemporary Western floor plan.

In Southern California, wood construction has some lack of cooperation from the climate—winter rains swell the wood and summer drought contracts it. Harris always allowed for movement of wood in such ways as board and batten exteriors and by spacing the wide boards he used for fascias and soffits. Beginning with his first house in 1934, he designed for some years almost exclusively in wood; this makes it all the more surprising to recall that he spent four years in Neutra's

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Harris home, Fellowship park, 1935.

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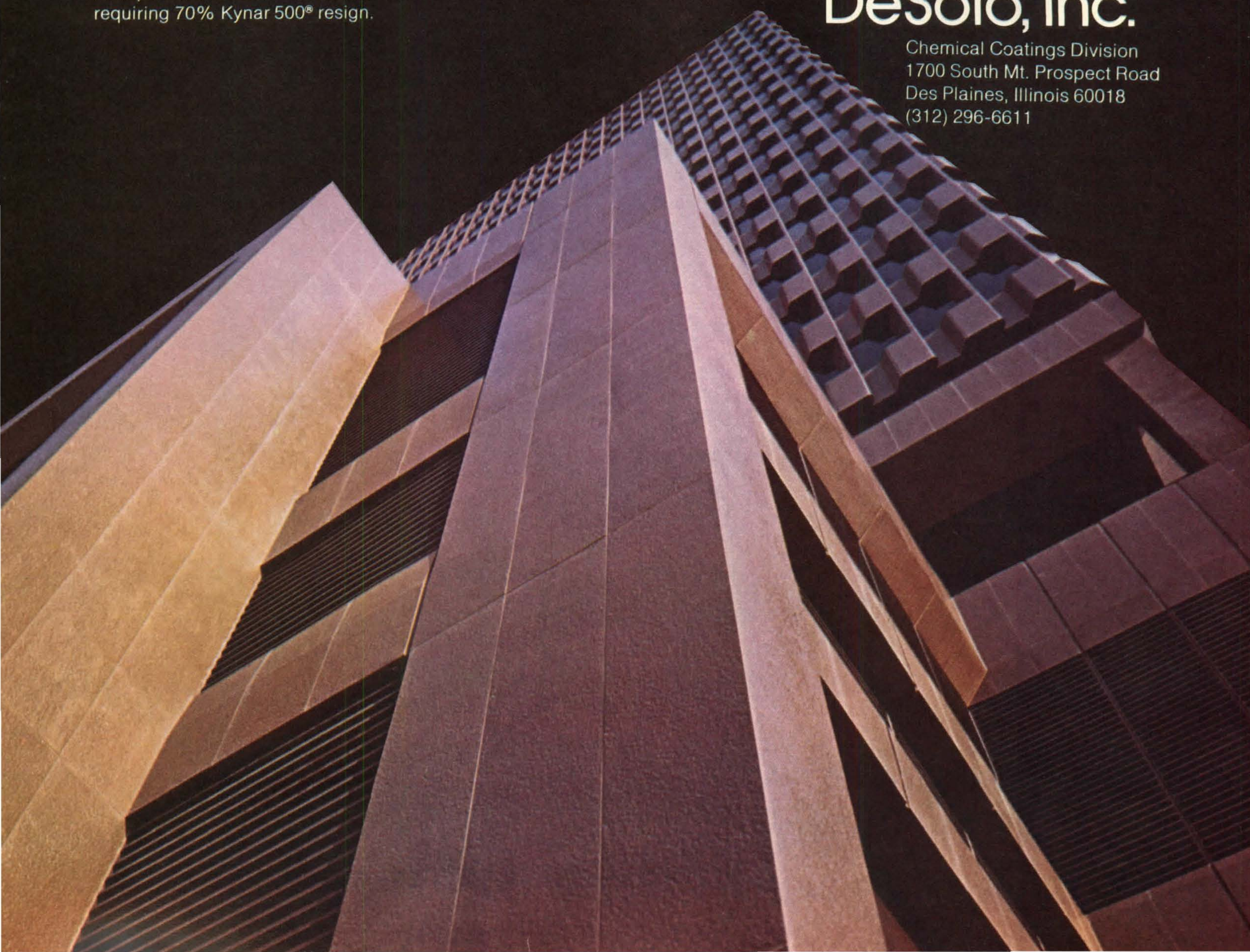

If granite is strictly for building exteriors, why didn't someone tell Union Bank, San Francisco?

There are those that hold that *the* place for granite is the outside wall for that big, monumental building that comes along once every century. But the building owner and the management of the Union Bank of San Francisco and their architects had other ideas. They liked the warm, natural colors of granite. They were aware of how polished granite resists weather, stains and all types of traffic as no other building material is capable. They knew it requires virtually no maintenance. Doesn't fade or deteriorate. And that it would fit into their plans on a cost-in-place basis. So it was employed. On the plaza to cradle a fountain and pool. As exterior furniture. Inside it was used as facing for walls on the first floor, in heavy traffic areas. Focal points that at once blend and accent. Warm. Lasting. Beautiful.

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INSTALLMENT
LOAN

Architecture west continued from page 38

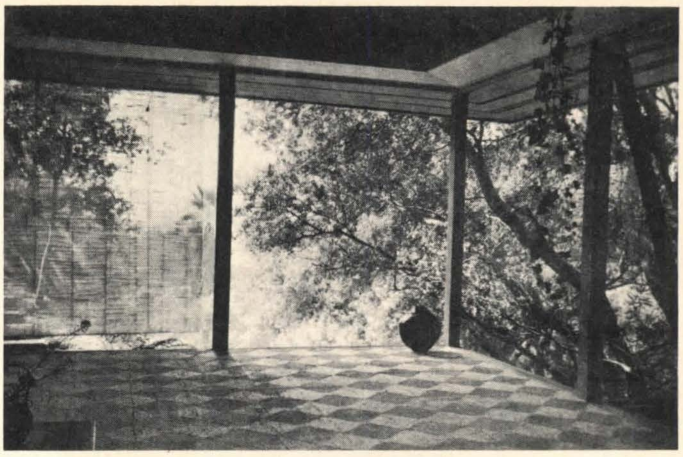
office, but except for the order and modularity, he carried little from Neutra into his own style.

Harris' house for editor-publisher John Entenza was his only one that had a relation to the International Style. And it happened to have been the Case Study House program of Entenza's *Arts & Architecture* magazine that opened up a new direction in the fifties for the small, steel-framed house. But by that time Harris was working in another climate with other materials—in Texas where he was teaching architecture.

After 30 or 40 years the built-ins in a house seem quaint but those by Harris survive because they were based, in the first place, on close observation. He had an extraordinary number of baths and dressing rooms for small houses, all very elegant. One dressing room still has the Japanese wallpaper in gold and orange. The efficient kitchens also seem to be derived not from surveys but from the experience of a superb cook—Mrs. Harris.

Across the street from Harris' Hawk House is Schindler's Lowe House. The Harris dwelling is finely scaled, and the Schindler is scaled to 14-in. divisions of the concrete slip form and repeated in the 14-in. wood siding. But Harris could do a *tour de force;* his 1941 Havens house in Berkeley was a system of floating balconies in the form of inverted gables. But by then the economy had changed. The Depression put an indelible mark on the houses of the thirties, as well as on the architects. The chance to build was an opportunity Harris grasped as if it were the definitive work on which he must be judged.

The Depression also had its positive side—time. It was a period in which the single dwelling received the attention most architectural offices would now give, for instance, to a library. The full flavor of the thirties was evoked when he prefaced an explanation of his own home with the simple statement: "I had some doors stored on the place and they got rained on and. . . ." It was in the same spirit that Schindler once said of a design: "I had four 4-0-4-0 sash in the garage and. . . ."

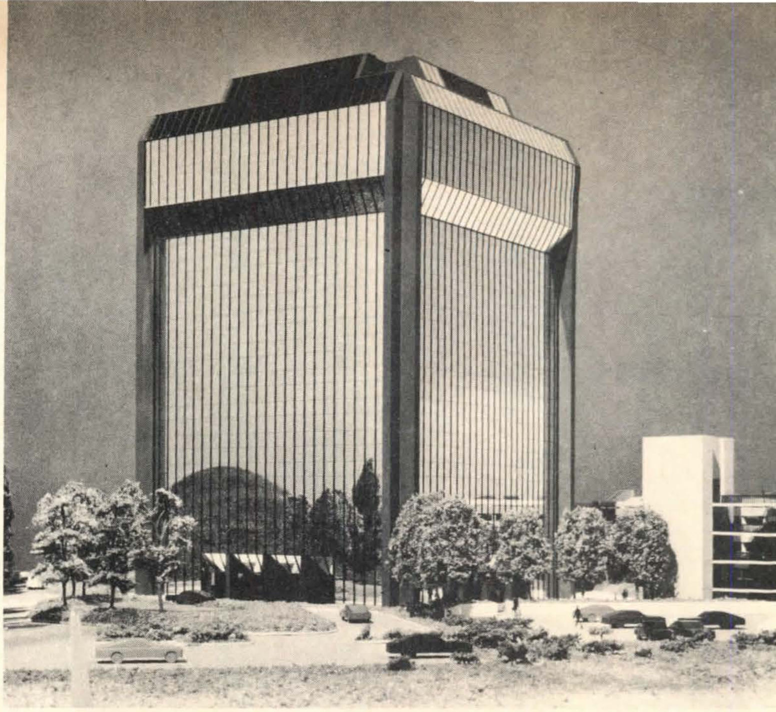


Harris living room with removable panels. Photos: Fred R. Dapprich

Getting finished houses photographed sensitively often involved sacrifices. The architects had their heads under the black cloth looking into the ground glass as the shots were set up. The two prestigious PPG awards which clinched Harris' fame were the result of good design well recorded. But the cash from the reward was also welcomed as it offset the loss carried by the architect on time spent on design above the call of duty. [Esther McCoy]

News report

Buildings on the way up



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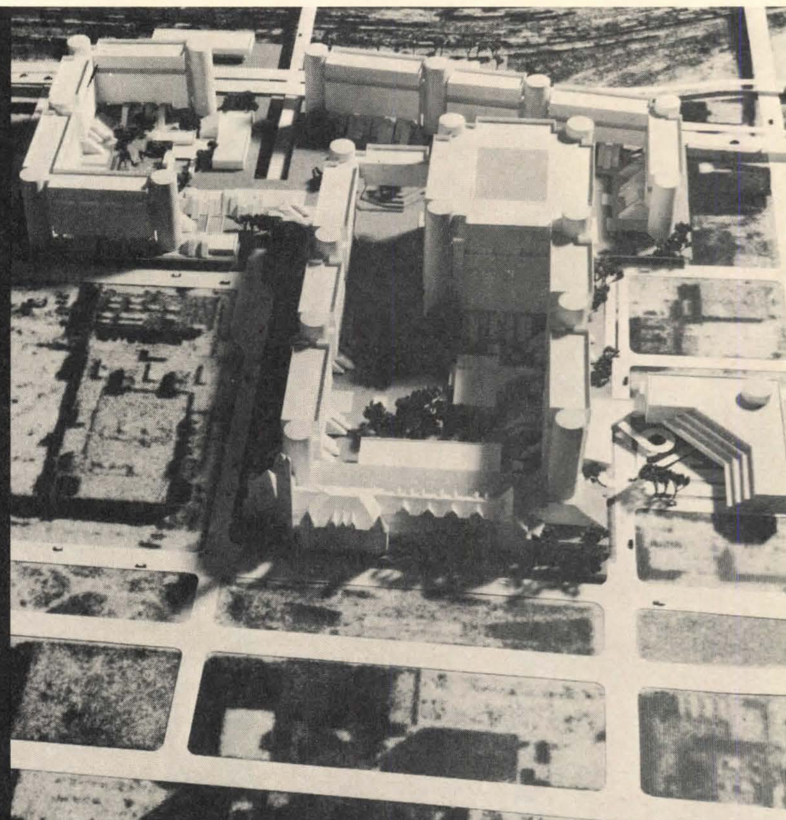

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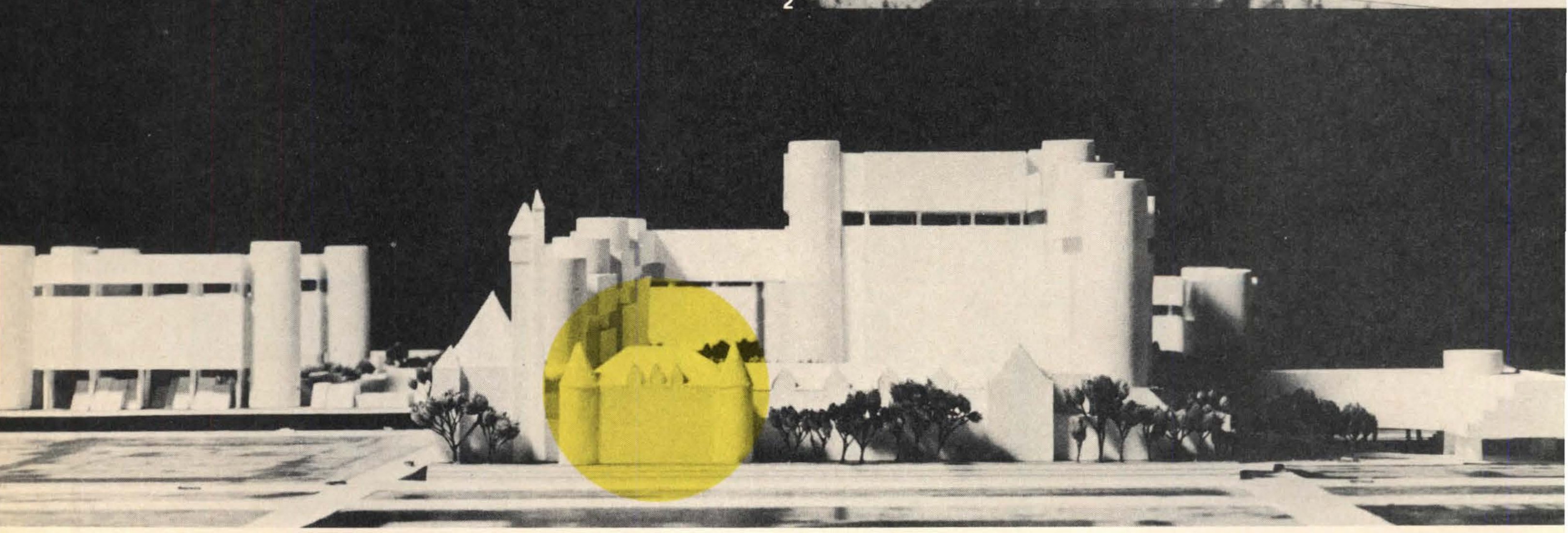


1 Developer Charles King and Associates of Burlingame, Calif., is building the 17-story San Francisco International Office Center designed by M. Arthur Gensler Jr. & Associates, Inc. of San Francisco. The project is a mile south of San Francisco International Airport. The tower is set at a 45 degree angle to the street providing maximum views of the Bay.

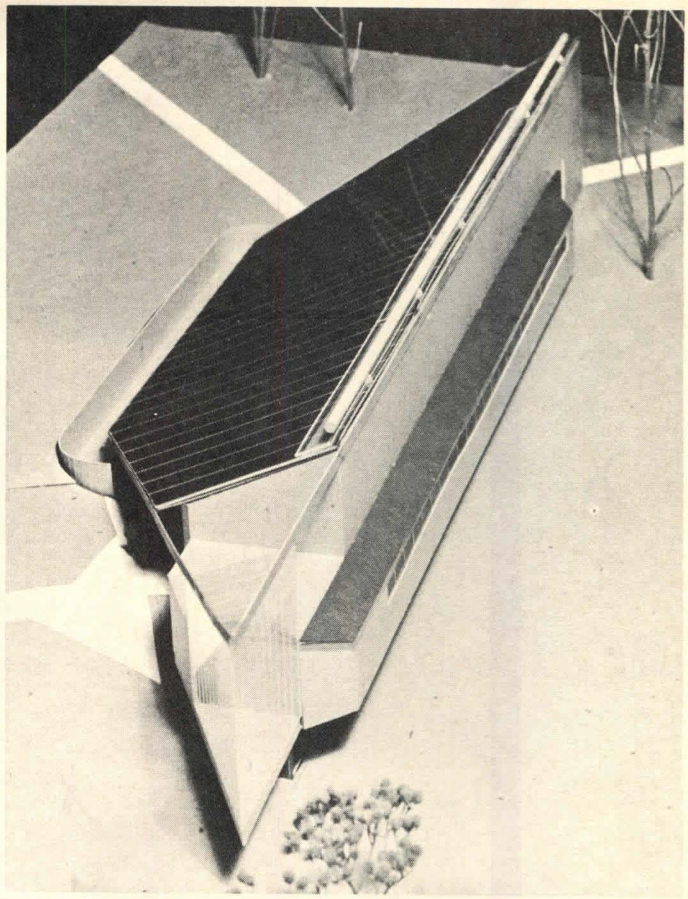
2 In the quickening pace to convert railyards into new developments, a Southern team of planners, architects, and economists has come up with a redevelopment proposal for the Romanesque Union Station in St. Louis, designed in 1891 by Theodore C. Link of St. Louis. The plan, at least a year and a half from entering the construction phase, would convert the 50-acre site into a mixed-used town-in-town based on a transportation theme: air, rail, and wheels. Space for Amtrak operations will be provided as well as check-ins for airport bus and limousine service, and a terminus for city bus and proposed rapid transit. A hotel would be built around the station's multistory atrium; elsewhere on the site would be housing, commercial and recreational structures. The firms composing the team are architects Jova/Daniels/Busby and urban planners Eric Hill Associates, both of Atlanta, Ga.; and economists Laventhol, Krekstein, Horwath and Horwath of Miami, Fla.

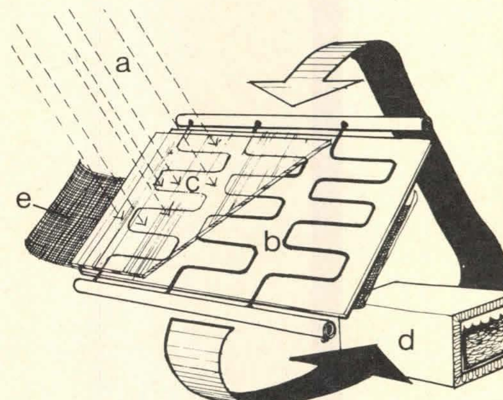
3 The Grad Partnership of Newark, N.J. has designed to complement the natural environment the Fireman's Fund American Insurance Co.'s eastern regional office, Bernards Township, N.J. Brown and bronze will be colors used in the brick, glass, and aluminum materials; windows on the south will let in sunlight to help warm the building while the all-glass north wall will be a supplement to interior illumination. The structure will be finished in late 1975.

4 Pomona First Federal Savings & Loan will bring to its lower California desert setting an indoor oasis of greenery and color. The two-story, aggregate concrete structure has a sunken first level and a second level which appears to float in a column-free space. Michael Black, AIA, and landscape architect Michael Buccino, both of Palm Springs, plan to offset the purple- and rust-colored interior with lavish plantings.

5 Using a plotted chart to show how a solar roof system for Madeira School's new science building would pay for itself over a 30-year amortization period with a saving of $1500 annually in heating and cooling, Washington, D.C. architect Arthur Cotton Moore won approval for his untraditional design. The building in McLean, Va., will go into construction in September. Its simple heating system collects the rays (sunlight a) into water-filled coils (b) whose heat is trapped by glass (c) and then stored in an insulated tank (d). The heat operates conventional air-handling units, and a standard roof structure (e) was used. The school's "prow" is tipped by a greenhouse.

6 Students probably never had their own office building before, but that's what they're getting in the $37 million Professional Quadrangle at the University of Pittsburgh. Designed by Celli-Flynn and Associates of Pittsburgh, coordinating architects, in conjunction with Johnstone, Newcomer & Valentour, N. John Cunzolo & Associates, and the Peter F. Loftus Corporation, the structure will have in addition to offices for both students and faculty, lecture halls, lounges, and television facilities. Construction will be complete in 1976.





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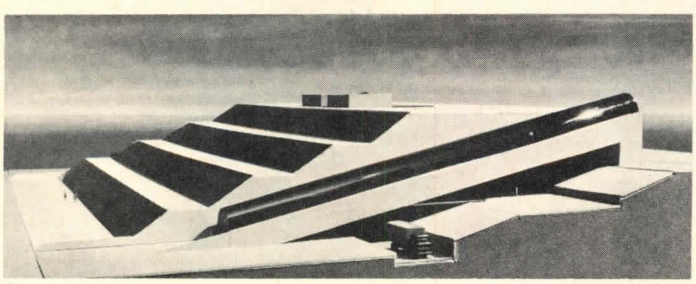
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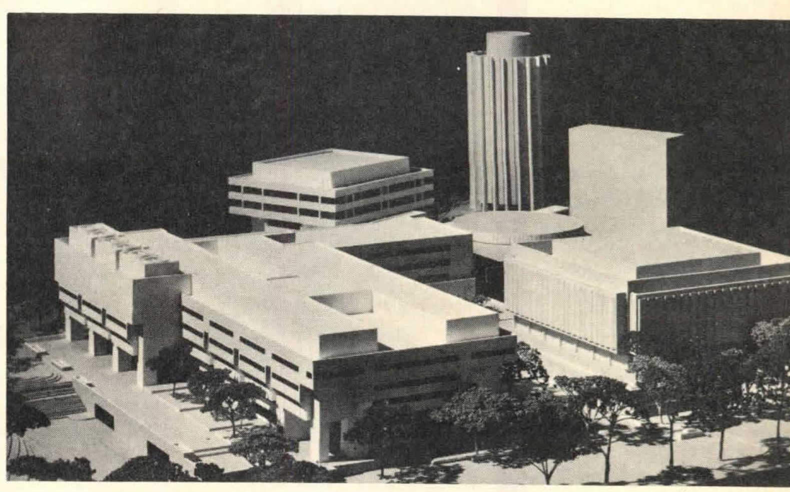
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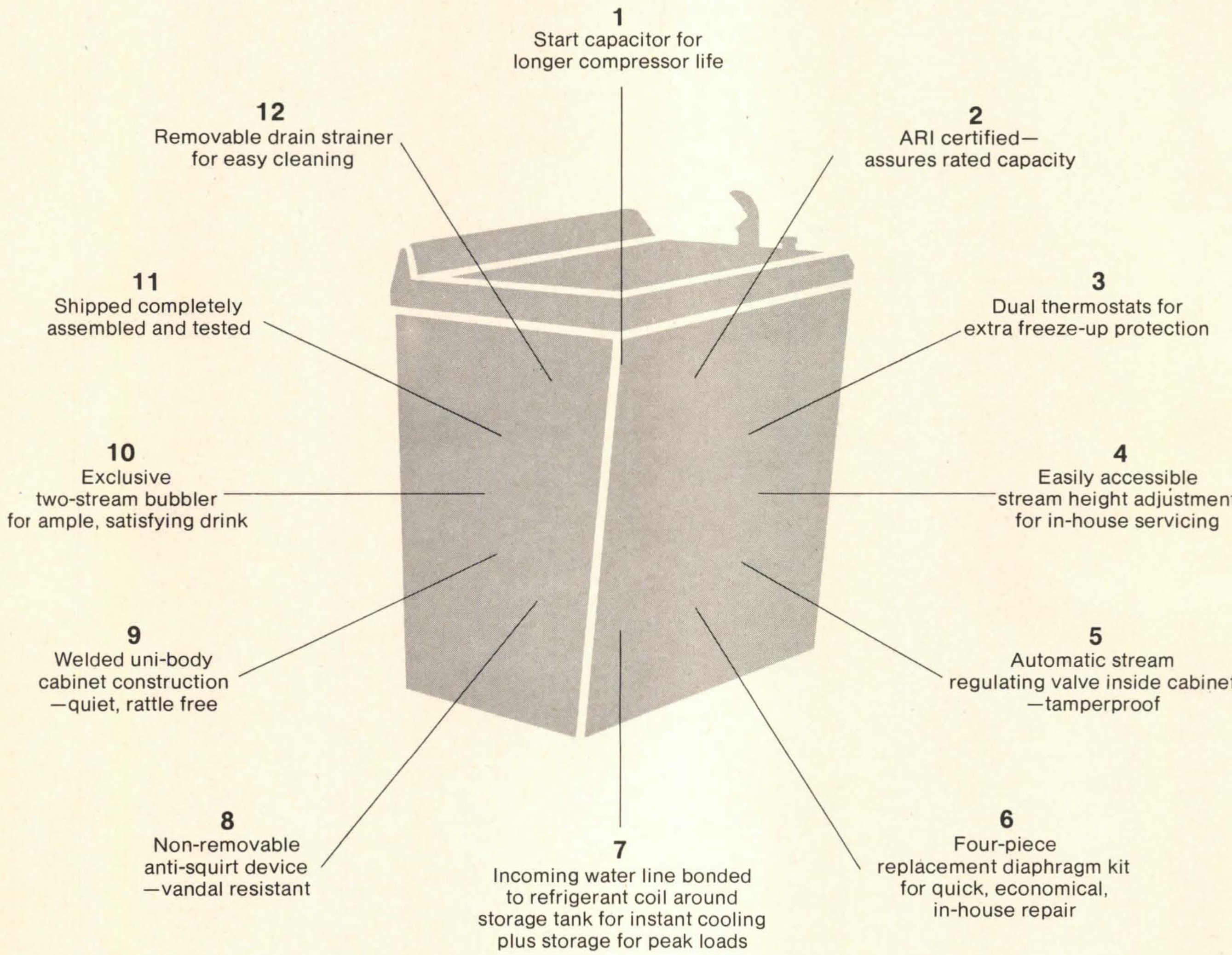

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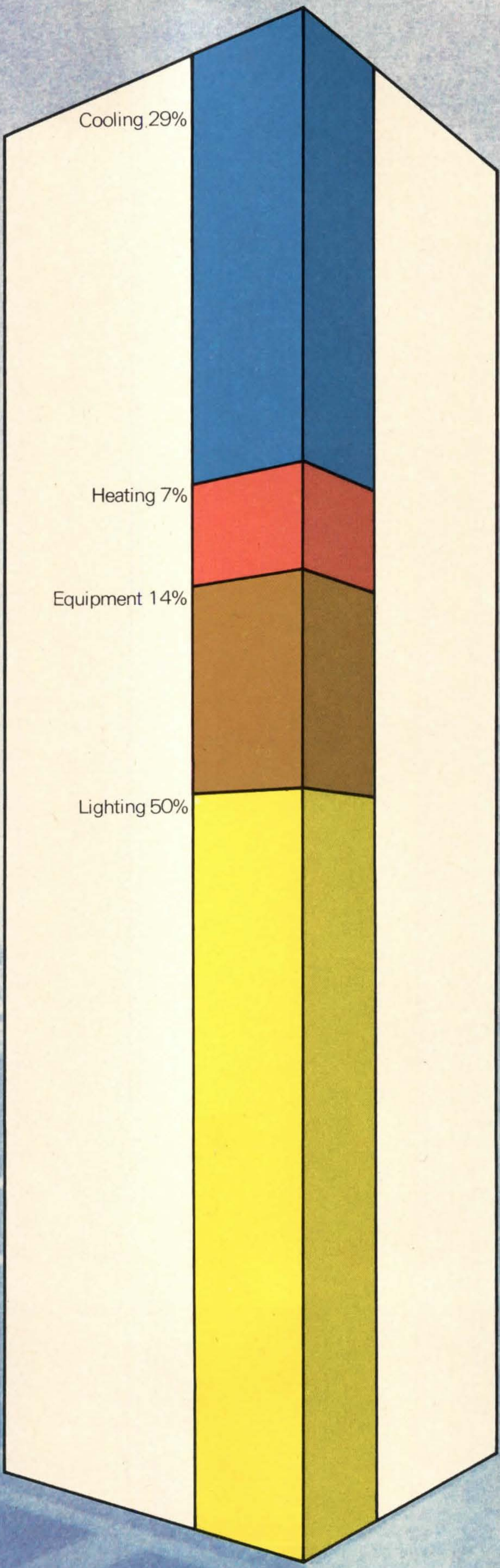

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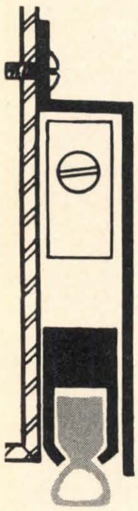

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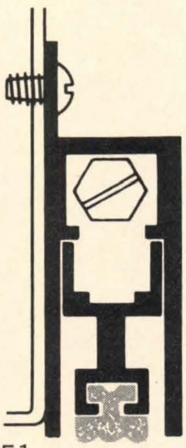

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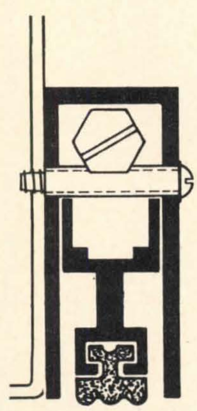

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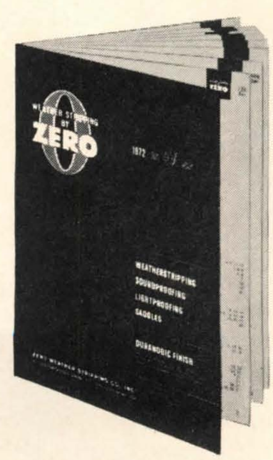

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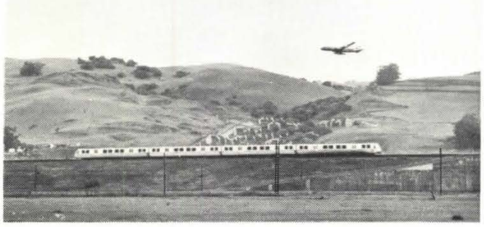

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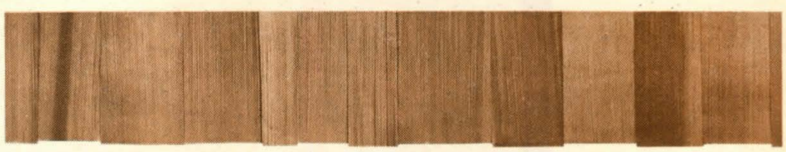

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Progressive Architecture: Editorial

A humane architecture?

May 1974

AIA Headquarters, Washington, D.C. Photo: Ezra Stoller. © ESTO

There is a bitter irony in the AIA's choice of Washington, D.C. as the site of a convention on the theme "A Humane Architecture." The plan of Washington is a vast abstraction, and its stock of inviting buildings is steadily being engulfed by overbearing monuments and commercial blockbusters.

Even granting the superhuman scale of the city's grand axes and parade-scale avenues, the fabric along and between them could have been humane; it could have been in scale with the individual on foot, for instance, and expressive of his activities. Paris proves the point. But Washington fails, largely because of L'Enfant's incessant, overscaled street grid, slashed with avenues, across which the functions of everyday life drift without focus. The city's most humane enclaves occur where that network is interrupted—in Georgetown, in outlying residential neighborhoods, and in a couple of corners of the Southwest Urban Renewal Area.

As the republic grew, and developed imperial pretentions, Washington's monumental structures expanded in scale and pretentions. Compare the bombastic Supreme Court building, for instance, with the sublime understatement of the White House or the cozy eccentricity of the original Smithsonian buildings. The big landmarks of the 1930s, the Jefferson Memorial and the National Gallery by John Russell Pope, display the most calculated monumentality, with forms that are seductive from afar, cool and sparsely detailed closeup.

In recent decades, monumentality has become almost an obsession; it is as if modern architects have tried to prove that they could match the gravity of Pope's landmarks. Try walking around the John F. Kennedy Arts Center, with its quarter-mile perimeter of blinding white marble, spiked with an endless succession of columns in the form of enormous gilded toothpicks; try walking the length of its Grand Foyer, longer than the longest home-run baseball hit, lined with identical, Cinerama-sized mirrors, and lacking even one solitary seat.

Stroll out into L'Enfant Plaza, if you dare, without the cover of a taxi or limousine; walk around the 500-ft perimeter of its central, circular reflecting pool and see how long its finely-honed granite rim holds your interest. Consider, from behind its construction fence, the not-quite-finished Hirshhorn Museum, where the highly personal art collection of an unpretentious man will go into a building shaped liked an enormous military pillbox, raised on colossal concrete underpinnings; if it weren't belittled by the thousands of feet of repetitive office façades behind it, the museum would have looked insufferably arrogant.

For members of the AIA, there is no way to ignore the AIA Headquarters. Here is a building intended expressly to complement the AIA's own historical Octagon House. After several earlier schemes were rejected by Washington's Fine Arts Commission as incompatible with the earlier landmark, this is the design accepted by both the AIA board and the commission. Could they really have thought that seven stories of projecting concrete spandrel panels, stretching 250 ft without interruption from one corner of the site to the other, would be a sympathetic backdrop for the Octagon? To quote Ada Louise Huxtable in The New York Times (Mar. 17 1974), "The Octagon has lost presence; it now looks like a toy. The Octagon garden, while almost the same size as before in square feet, is unbelievably diminished by too much paving and too few trees and the heavy-handed, looming presence behind it." She could well have added that anyone who walks up to the building, or past it, is "diminished" by the experience—a punishment one comes to expect in Washington. For oppressive scale and poverty of foreground interest at pedestrian level, Washington is unmatched even by larger U.S. cities (except for parts of L.A.).

Washington was never meant to be an intimate city. But why must architects keep making it more forbidding?

John Morris Dixon

The fifth façade in Abington

At the Ogontz campus of Pennsylvania State University in Abington, Dagit/Saylor's massive new gymnasium does not, surprisingly, overwhelm its small-scaled neighbors.

Designing a gymnasium is not one of the more difficult architectural problems. But it can be a complicated and serious problem when the commission calls for building an especially large one—40,000 sq ft—that will not overwhelm an old eastern campus; in this case, an old estate not far from Philadelphia, made up largely of small Victorian-era buildings carefully placed among clusters of fine old trees on gently rolling hills.

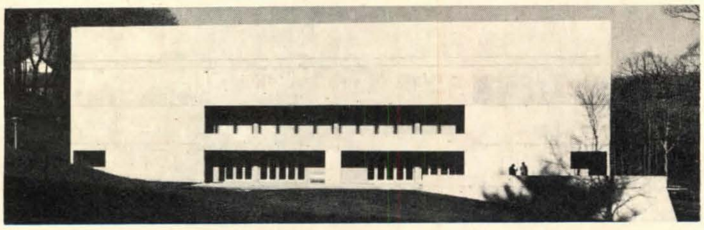
In such circumstances, one of the first things you would expect an architect to do is to think quite seriously about the site, even though the precedent for this mode of thinking seems not to have been especially strong at Ogontz, where the uninspired bulk of an earlier, large theater building on the crest of a hill now dominates many campus views. But Dagit/Saylor did think about the site, and although the spot finally selected presented some problem of its own, these were solved with unusual finesse in the early stages of design.

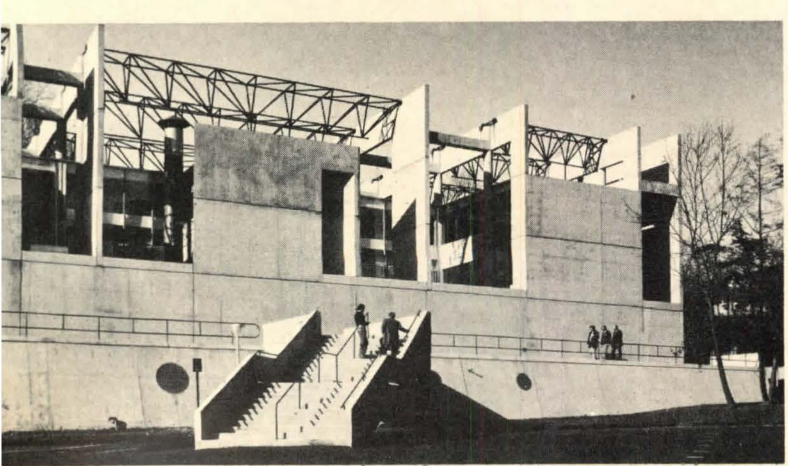
The only site appropriate for a building of the size required was at the lowest point of the campus, in the bottom of a valley surrounded by the two hills on which most of the buildings stand. Here, the large gymnasium would be centrally located, it would be "off the skyline," as it were, and it could also become a valued link between the two sides of the campus. The only objection to siting it here, however, was that its roof would be visible from almost any point on the surrounding hills. And the prospect of looking down into the valley at 40,000 sq ft of uninterrupted roof had little appeal to anyone, especially to the architects.

Their solution to this problem was to fracture the roof, to break it down into smaller units, and, in effect, to turn the *entire roof* and its supports into a massive three-dimensional piece of sculpture that would be more in scale with the other campus buildings. There was a double advantage to this solution, however, which has as much to do with the function of the building as it does with its visual impact. The program called for three large, flexible, free-span spaces, of which the lobby would be the smallest, then an auxiliary gymnasium for dance and gymnastics, and a large gymnasium that could accommodate a basketball court or two full-size practice courts when the bleachers are retracted. These spaces were placed along the longitudional axis of the building where they are separated from each other by faculty offices and the service cores, producing the effect of breaking the building into several zones, which could then be expressed on the exterior. The three systems of weathering-steel pipe trusses that span the 25-ft lobby, the 48-ft auxiliary gymnasium and the 114-ft main gymnasium were extruded from the building and brought above the roof, where they now exhibit not *only* a straightforward expression of the roof-support structure, but also contribute an important sense of smaller visual scale to the building. This scheme was beneficial to the interior, also. With a ceiling now uncluttered by the structural elements so common to gymnasiums, the building lends itself more readily to the other nonathletic uses the school wishes to make of it.

If the visual importance of the roof has caused it to become fractured—to become, in effect, what Le Corbusier called the fifth façade—the elevations are exactly the opposite. From the ground level, the building relates to nothing except the ground; there are no other buildings around it, nor are there any others on the same plane. Consequently, at this level, the mass of the building was allowed to be expressed; the building could be articulated quite directly as a concrete monolith. But again, as with the roof, here the decision to express the building in a particular manner is logically justified. Since the gymnasium is not air conditioned, the interior was to be protected from direct sunlight as much as possible. Principal in charge Charles Dagit, Jr., relates that "the building was always thought of as a concrete monolith with steel above; the front and back walls were conceived as superscale elements to filter light. The glass sits 10 feet behind the big walls and the light penetrates the building through the large openings. This device," he adds, "solved some of our sunlight problems, and the concrete piers and stairs rising out of the side of the building also serve as sun baffles." Elsewhere, stationary metal louvers keep the sun out.

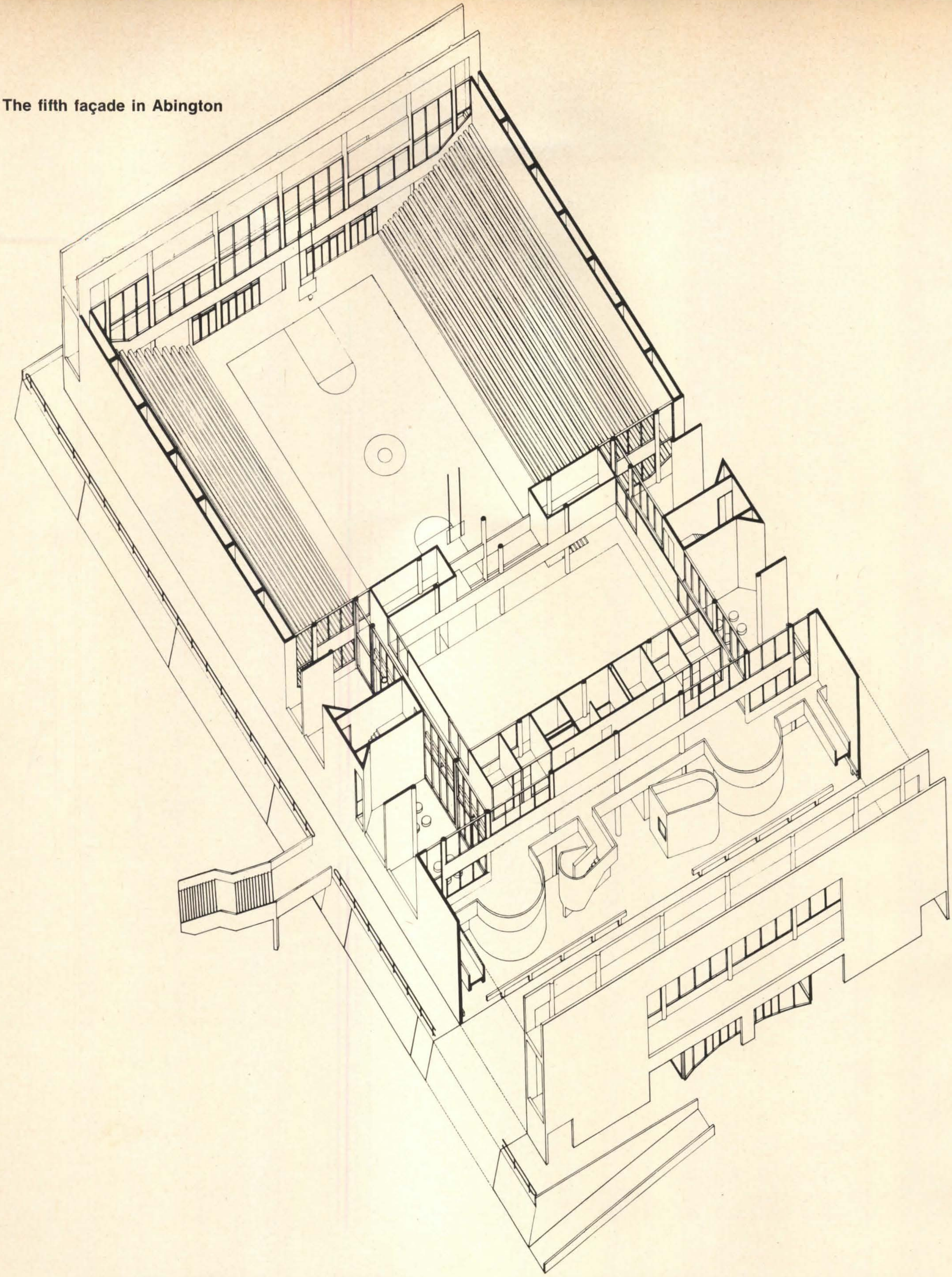
From the beginning, Dagit says, the building was conceived as a large box within a structural frame. Although it is now actually more like three boxes within a structural frame, it is hard to imagine that the ability of the large, open spaces to perform their intended functions has in any way been impaired. The organization of spaces and circulation patterns throughout





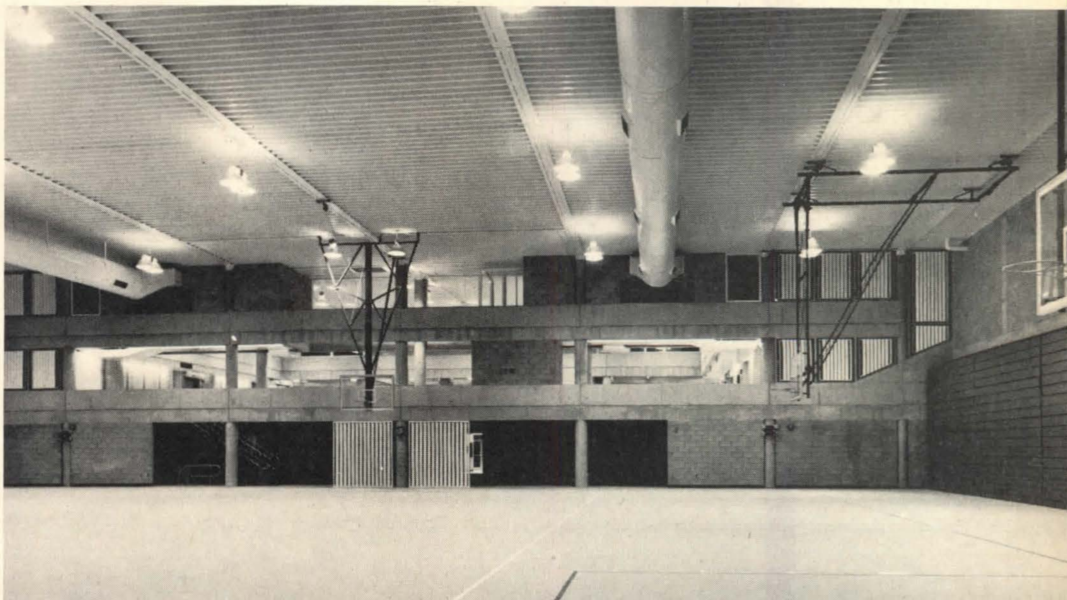
By siting the huge gymnasium in a valley between the two hills of the campus, the building's roof became its most visible aspect; this "fifth façade" was then "fractured" to bring the massive form more into scale with the older, smaller buildings typical of the former estate.

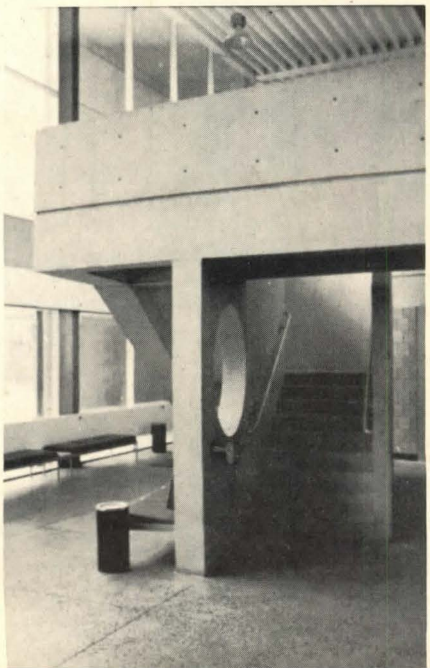
The fifth façade in Abington



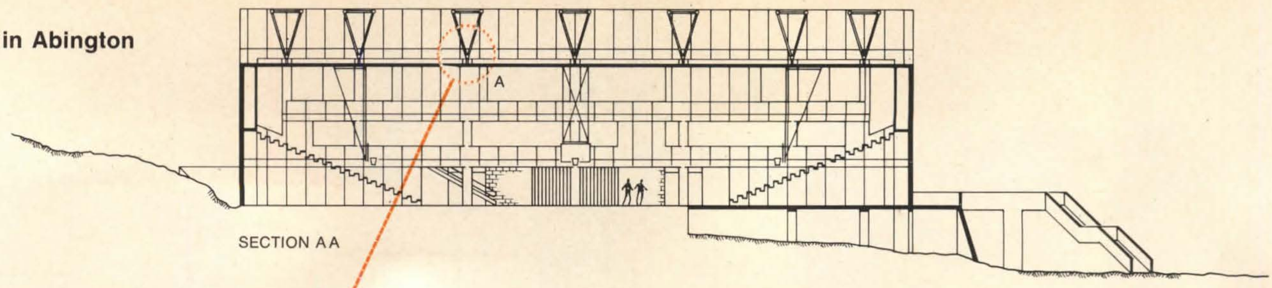
the building are extremely well thought out. From the main entrance, players go directly to the locker rooms and then out the other side to the courts, while spectators pass the ticket booth before going directly to the bleachers. Access to the auxiliary gymnasium is direct and simple, as it is to the mezzanine level above the main lobby. On the highest level, faculty offices have visual contact through the open spaces to both gymnasiums. The building is, in other words, easily read even by a newcomer, and this in itself is no small feat, especially in a structure of this size and complexity. In fact, the more you become familiar with this building, the harder it becomes not to be impressed by its clarity and logic, and you wish it could become a standard textbook example, because there is much more here than initially meets the eye. [David Morton]

With the roof structure brought out to the building's exterior, the spacious, clean interior became more appealing for other, non-athletic uses. Areas atop ticket booth and lobby restrooms (above) double as classrooms.

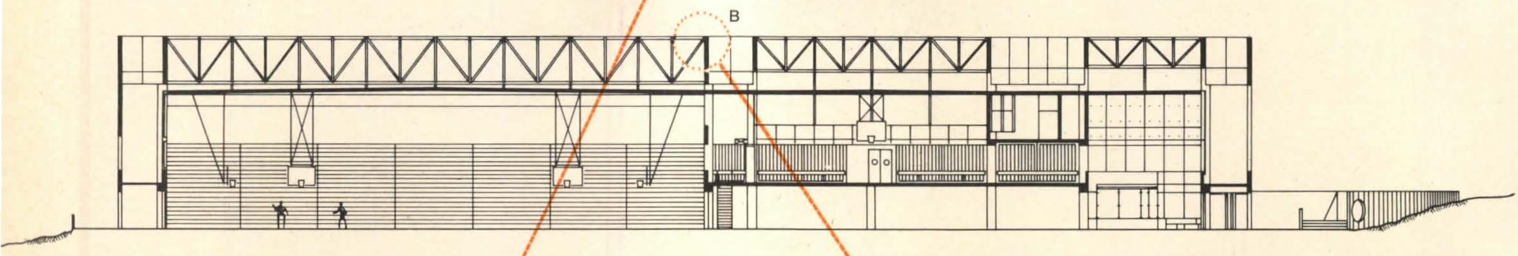




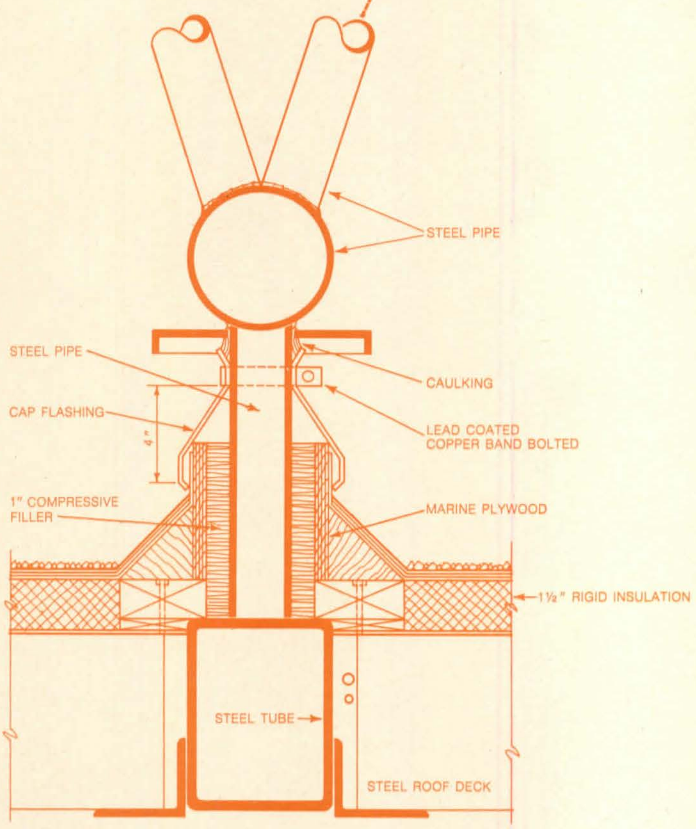
The fifth facade in Abington



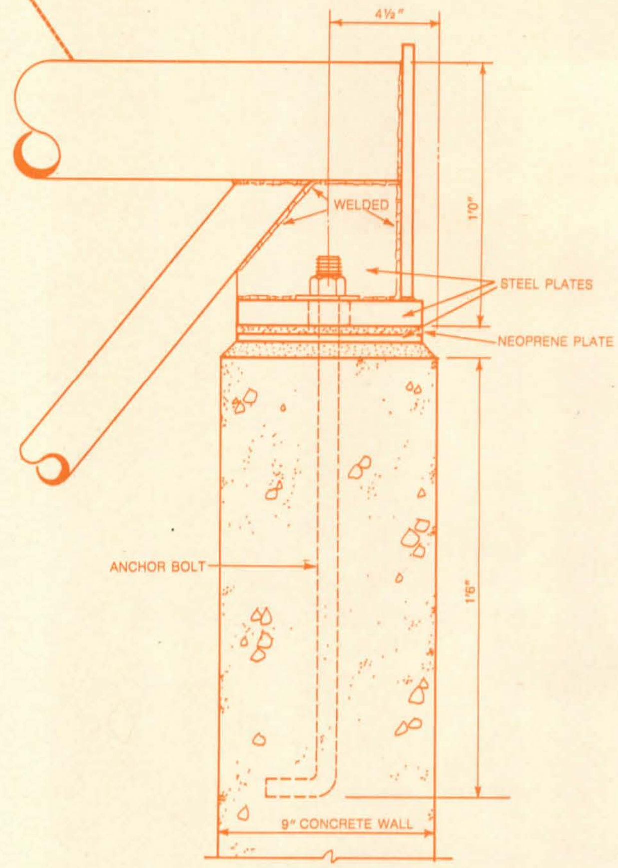
SECTION AA



SECTION BB



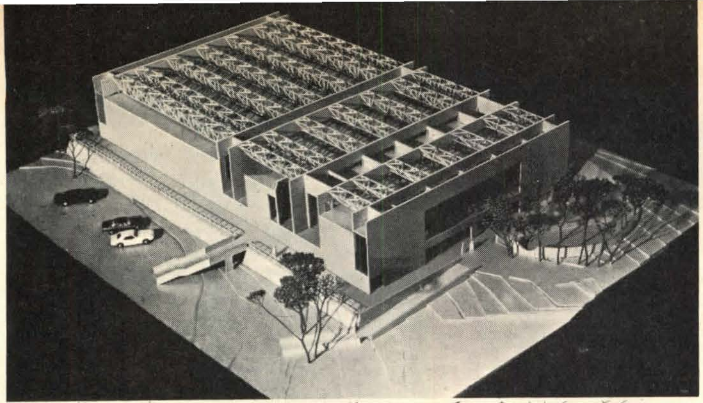
TYPICAL ROOF CONNECTION A 1½" = 1'0"

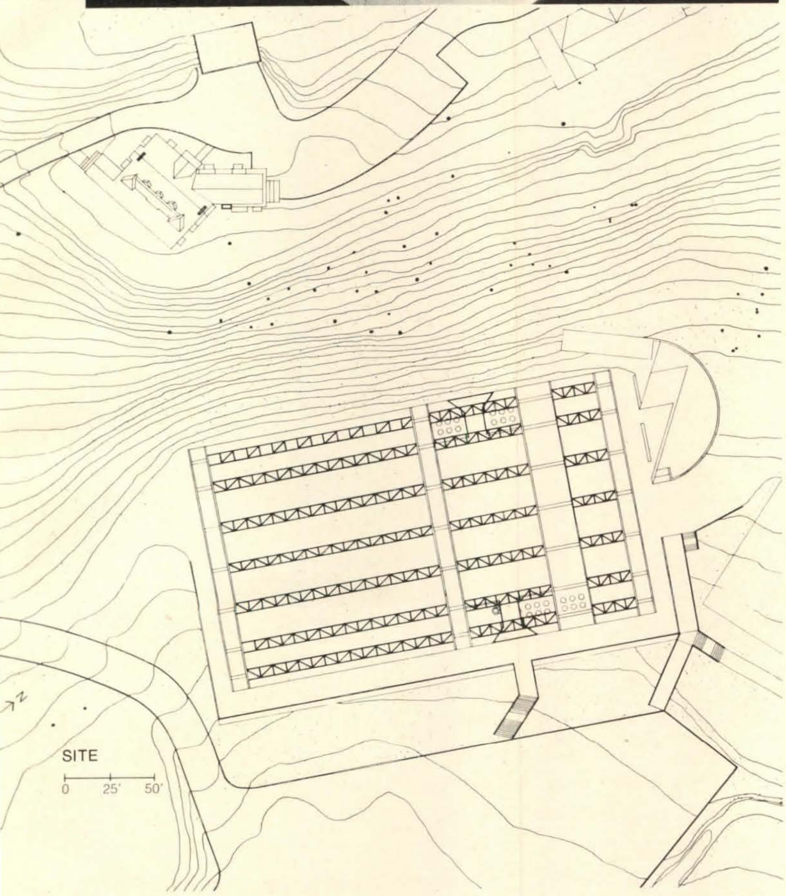


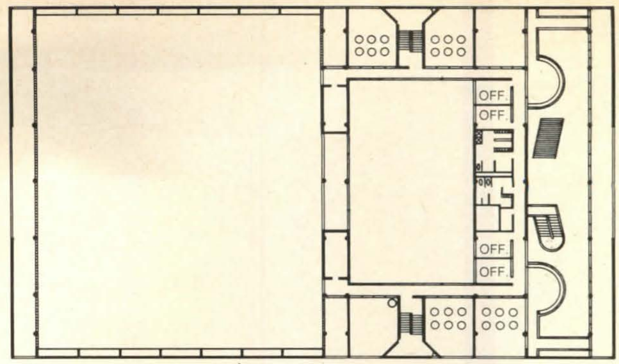
TRUSS END DETAIL B

Data

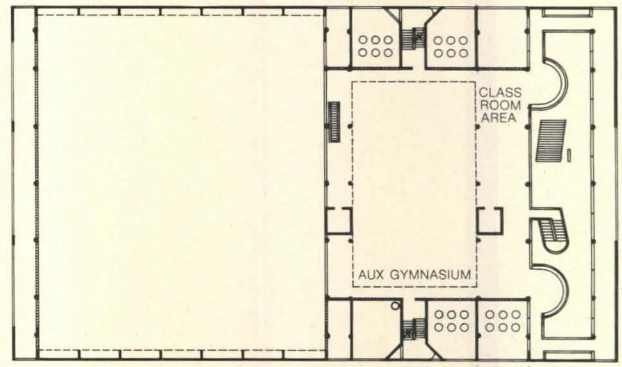
Project: Physical Education Building.
Location: Ogontz Campus, Pennsylvania State University, Abington, Pa.
Architects: Dagit/Saylor, Charles E. Dagit, Jr., principal in charge.
Program: a 40,000-sq-ft gymnasium designed to be as flexible as possible; main area to accommodate basketball court or two full-size practice courts, with bleacher seating for 2000 spectators. In addition, an auxillary gymnasium was required where dance or gymnastics could occur simultaneously with main-gym activities. Four faculty offices required to have views to each gym; entire structure designed so that sunlight could not enter playing areas.
Structural system: exposed, poured-in-place concrete foundation, columns, beams, walls, and floor. Exposed, long-span steel deck ceiling is supported by exposed weathering steel pipe trusses.
Major materials: in addition to concrete and steel, exposed concrete block is used for interior walls. Concrete gymnasium floor is covered with special, seamless sport tread flooring material; other concrete floors are polished. Piping, duct work, and metal doors are painted bright colors.
Client: The General State Authority, Harrisburg, Pa.
Costs: $1.8 million; $45 per sq ft.
Consultants: Paul H. Yeomans, Inc., mechanical; McCormick Taylor Associates, structural.
Photography: Harris & Davis; except p. 67 bottom left, David Morton.



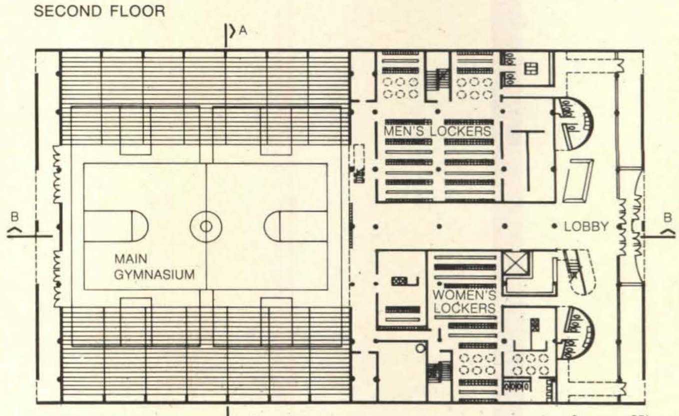




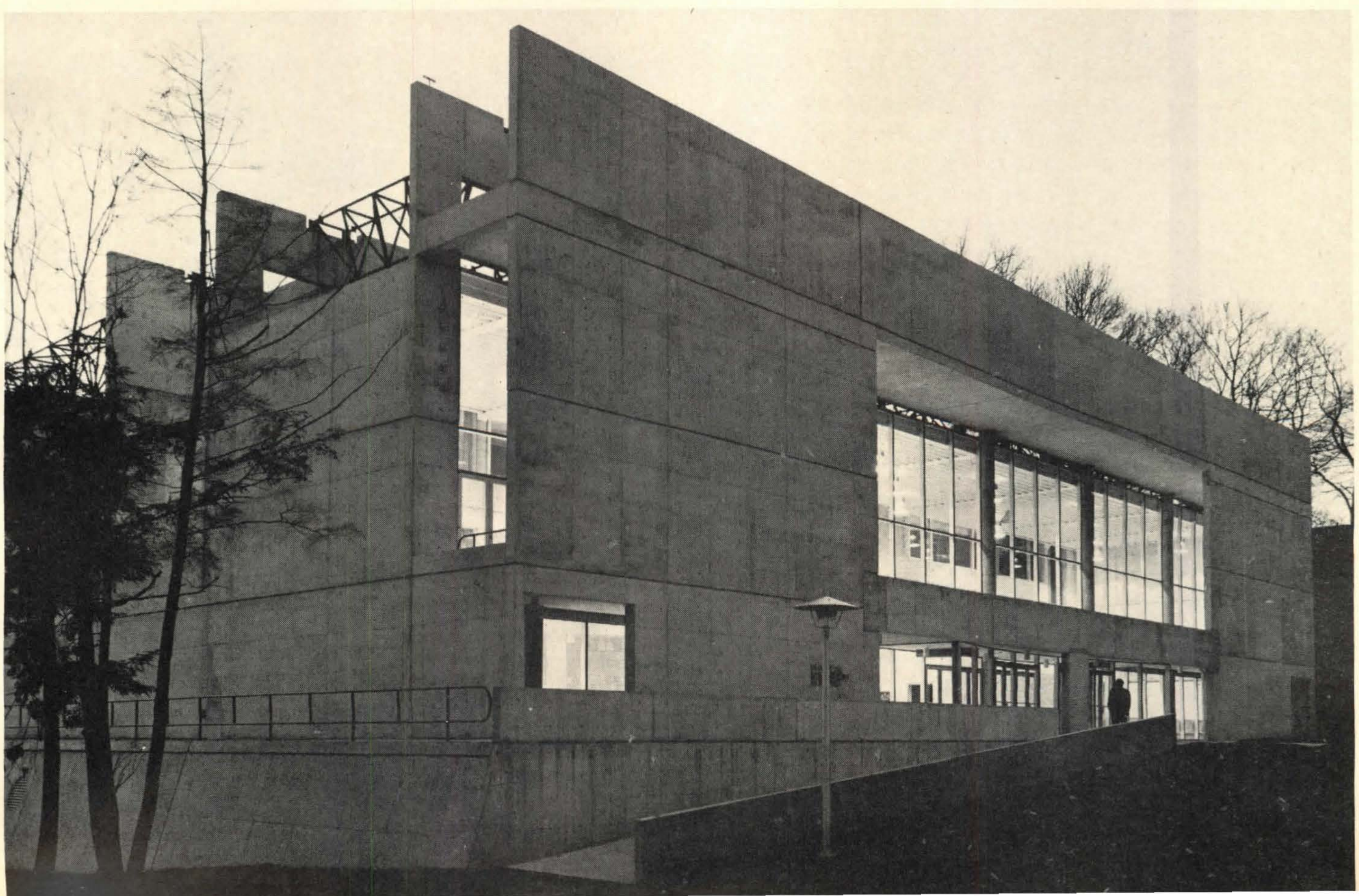
THIRD FLOOR



SECOND FLOOR



FIRST FLOOR



Learning through play

A day care facility, based on a modular, movable, and highly flexible series of components, permits active use and almost constant change in a learning situation.

The Josyln Multi-Service Center in Providence, R.I. was organized three years ago by a professional social worker who made the stable but low-income neighborhood aware of the state's HEW funds for lacking community services. As the name implies, the center provides a range of social services in an old, wood-frame school building with the first floor used primarily as a day care center for 40 three- to five-year-old children.

The design project for the day care facility was given to architects Stanley Thomasson and Raymond Abraham. Rather than design a one-off solution for the specific space, both felt that day care, as early education, should be approached as a prototypical situation, based on specific educational objectives. Their approach was to design a system that would accommodate all of these educational goals, then apply that system to the given space. The single prototypical teaching module—evolved through a process of physically defining educational ideas—is a 4'x4'x6' unit. The upper (orange) portion on overhead tracks is the teachers' storage, positioned at a height inaccessible to children. Four vertical, hinged storage and work components under the orange unit are for the children's use.

In addition to the teaching module, another separate component was designed for use in conjunction with the module; basically a hinged cube, it can be easily modified to form a table or chair. Also separate from the basic module, but an integral part of the educational program, is a Junglegym filled with colored vinyl-coated foam shapes that can be used for play and seating. The last separate element is a series of individual children's lockers on casters that roll on tracks to permit their use in conjunction with the teaching module. The locker backs include tack spaces.

In the application of the system to the Joslyn Center space, the ground floor was zoned to accommodate the various parts of the system and their relation to each other. The central part of the space is a "wet" area and the adjacent zone accommodates the entrance and lockers. The teaching module and the play module (Junglegym) form the next two zones with the table/chair component stored along the periphery.

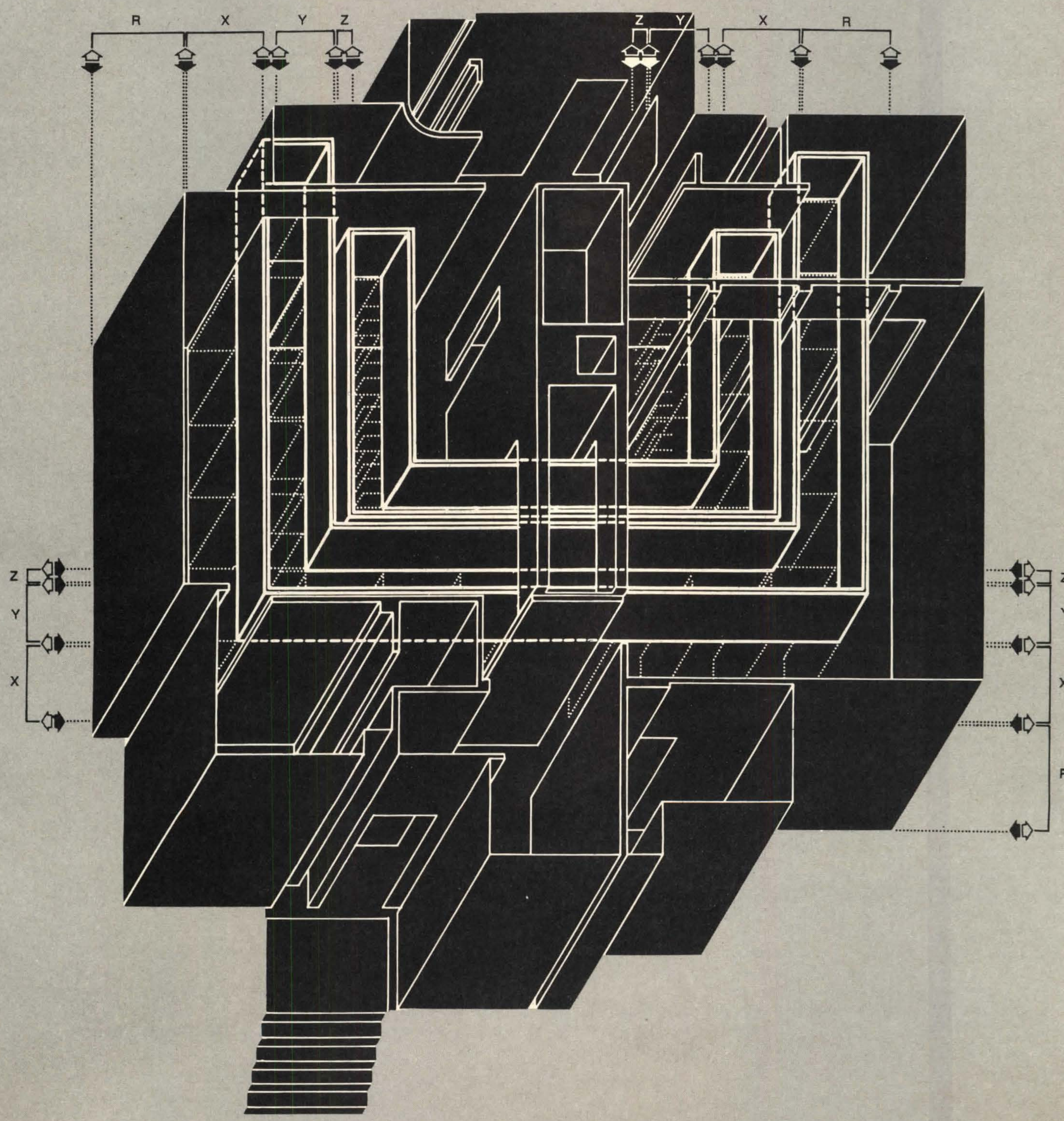
While in the closed (neutral) position, the four teaching modules are located, one at each of the four corners of their zone. These modules are free to move to any point in the zone and, as the lower portion of the module unfolds, it begins to define areas of teaching either within its own zone or extended into the play zone. One or more of the modules can be used simultaneously in conjunction with the table/chair components, the vinyl-coated foam cubes, and the movable locker system. [Sharon Lee Ryder]

Criteria:

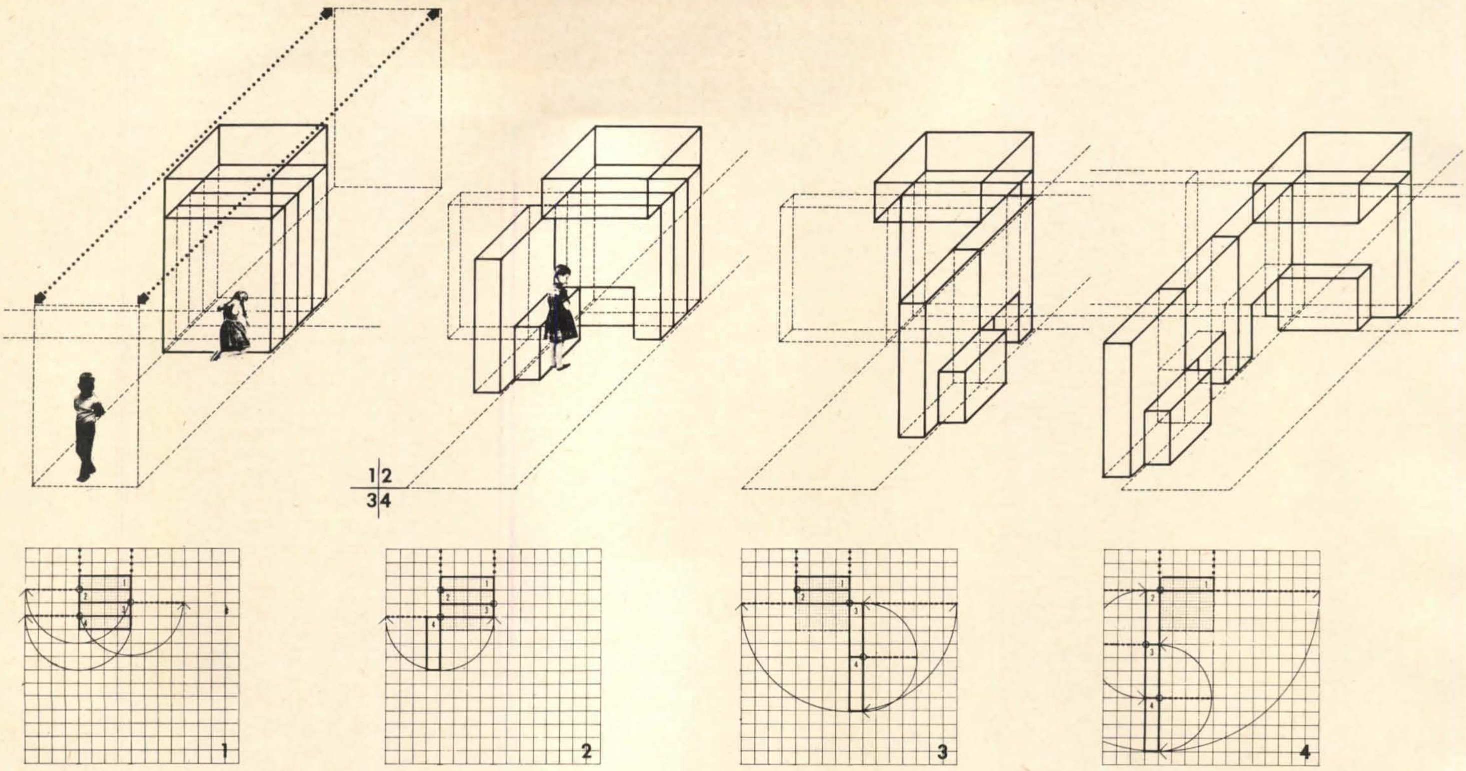
1 System must permit an educational environment that is responsive to the individual behavioral characteristics of both the teacher and the child.

2 System must be adaptable to a wide range of programmatic and physical facilities, leaving options for program planning decisions.

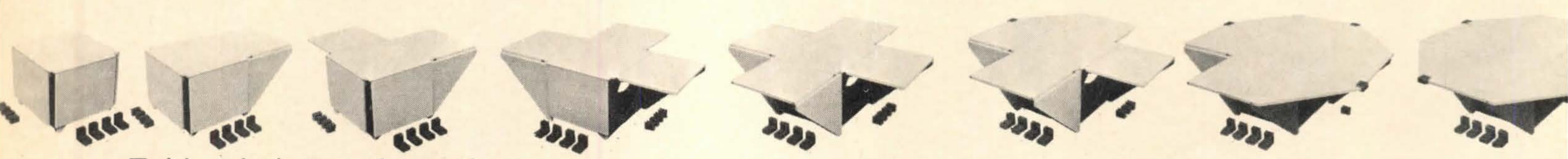
3 System must encourage spontaneity in the learning process by acting as a catalyst for a continuous creative reinterpretation of the learning process



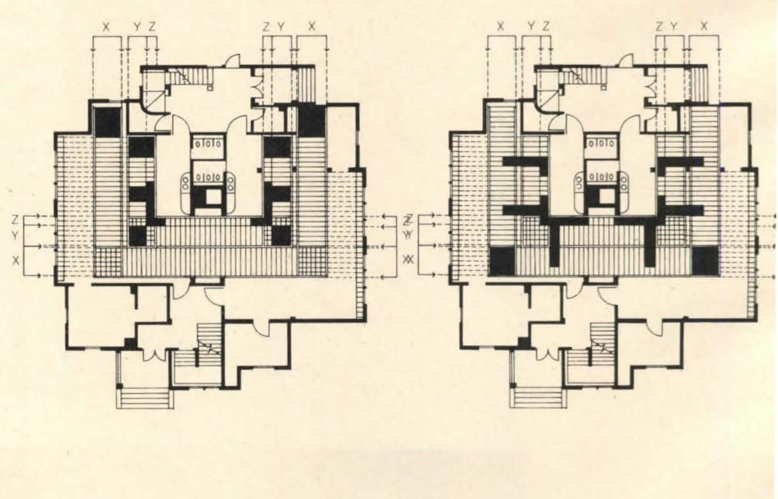
Learning through play



Basic teaching module unfolding sequence



Table/chair transformation



Prototype I has been conceived of as a spatial toy consisting of a series of mobile activity modules which generate overlapping spatial zones which are structured by a range of physical scales and transitional territories. It has been developed as a test model in response to the complexity of the early childhood learning processes.

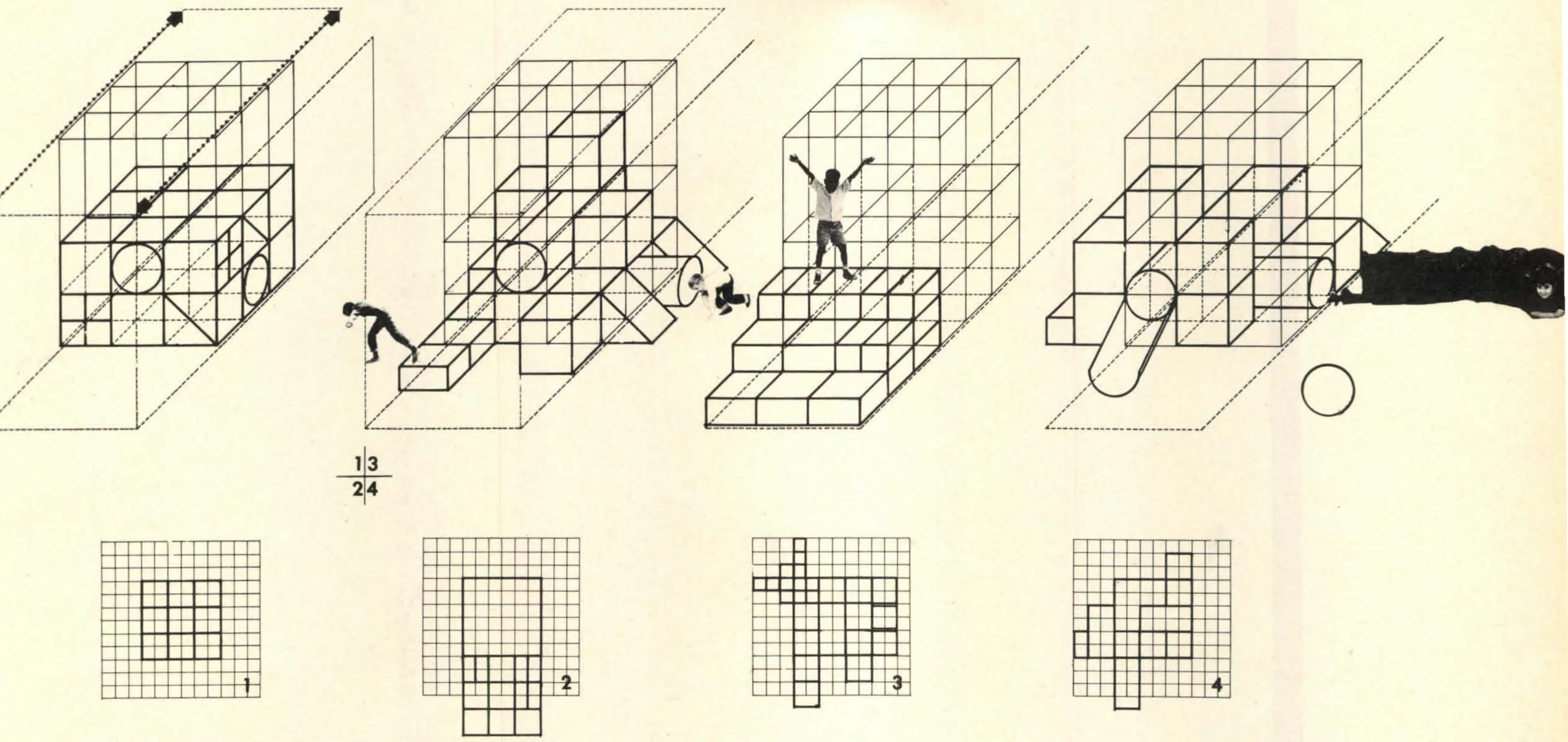
The apparent capability of the child to experience and perceive spatial entities without fragmentation of the elements leads to the assumption that the child perceives the environment as a set of interrelated information. The rigidity or permissiveness of an environment controls the degree of separation or integration of the child's aural, visual, and tactile aspects.

Multi-Activity-Zones for Education (M.A.Z.E.) has transformed the fixed feature space, as manifested in the traditional classroom, into a non-programmed informal space which permits the child not only to structure space through control of his own activities, but to develop his own identity in the process.

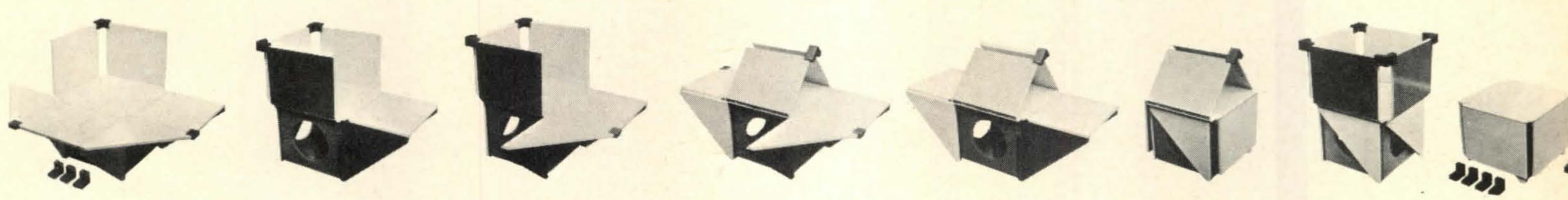
An interchangeable set of components function primarily as environmental control elements and as containers for a wide range of teaching-learning media and stimuli for tactile interaction. The application of this system of dynamic activity modules results in a higher degree of flexibility and adaptability in terms of scale, the range and interaction of activities, the quantity of teaching-learning units and the range of educational programs it can serve.

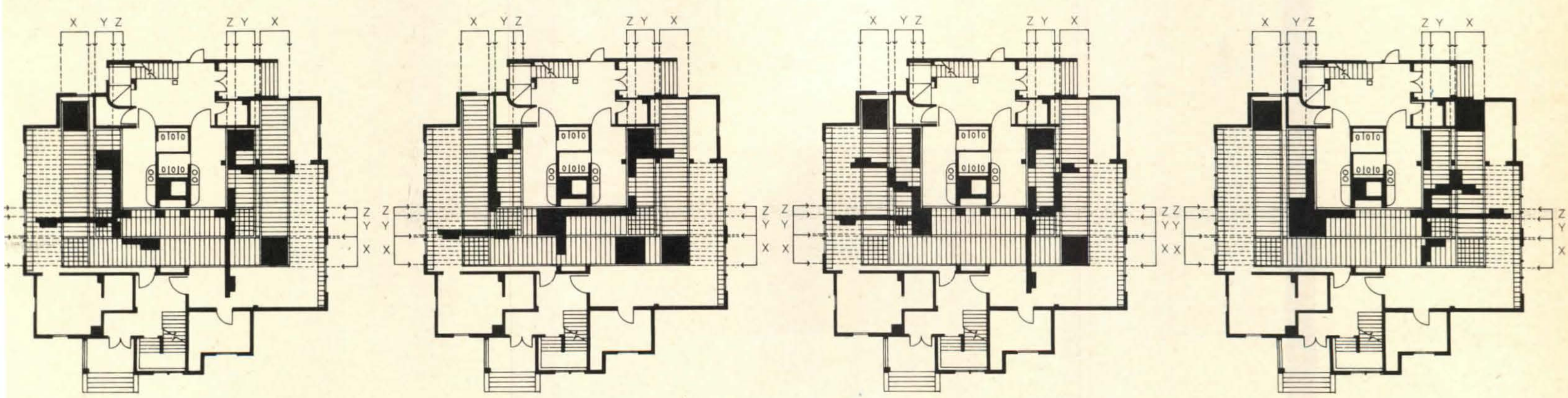
A more economical approach in spatial organization will derive from a maximum continuous use of territories, consolidation of fragmentary media and equipment into multifunctional activity modules and its adaptability to existing structures as well as new construction.

Space is structured by time rather than physical properties. Feedback from operational outputs of test models will provide a means for continuous re-evaluation of its ability to respond to the continuously changing and expanding needs of the child in a dynamic learning process."



Play module change sequence

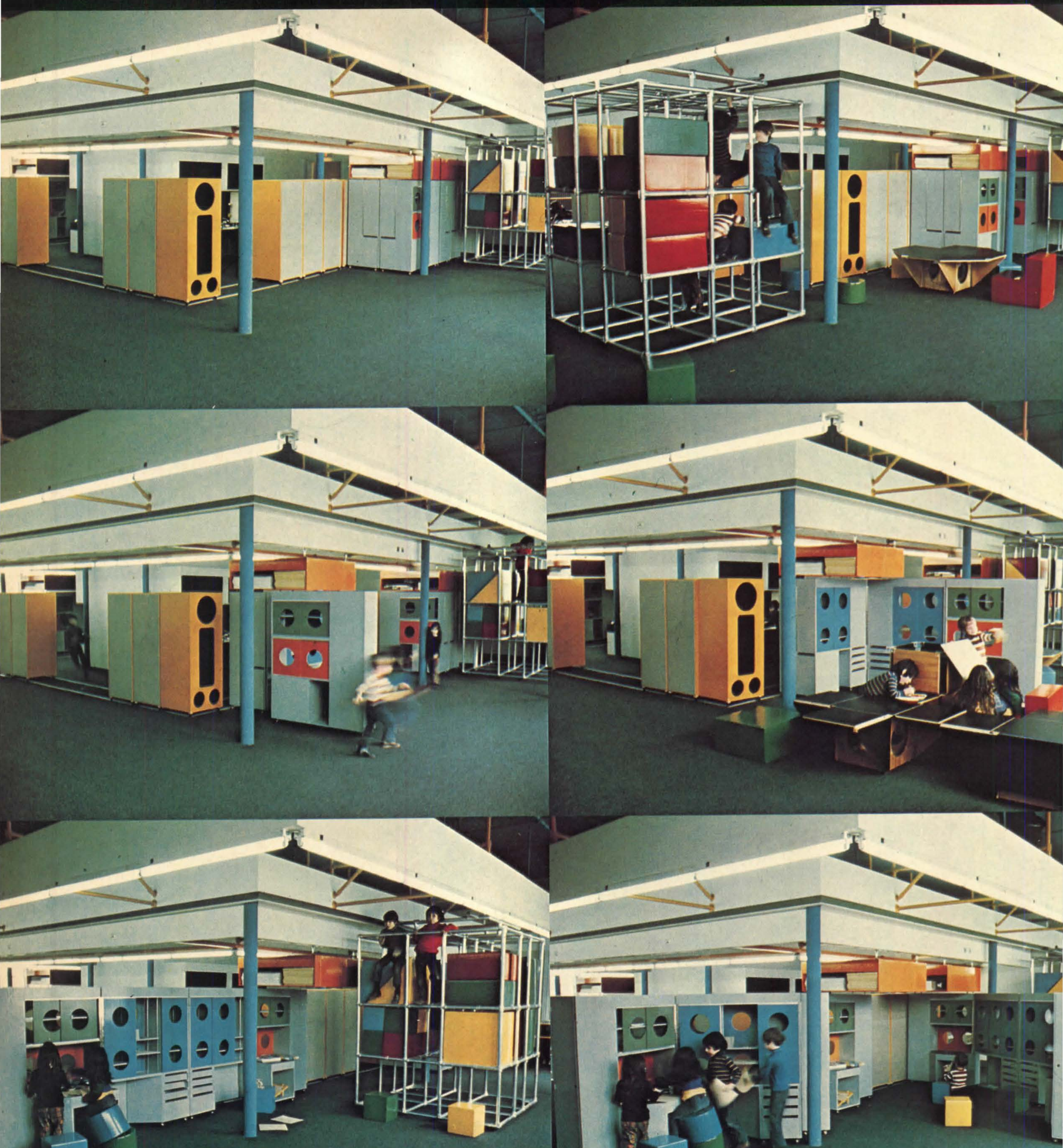




Change of spatial pattern generated by the continuous modules and zones

Activity zones

Zone R: Random play/informal groups
Zone X: Pattern play
Zone Y: Specialized learning/equipment storage
Zone Z: Entrance/individual storage



Sequence of change as modules
unfold into space

Kresge College, University of California at Santa Cruz

How to make a place

For the sixth college built on the campus at Santa Cruz, architects Moore and Turnbull have threaded a village street through the forest, expressing the mix of uses along it with a series of façades and 'monuments.'

At Kresge College, there are no stretches of lawn criss-crossed by paths leading to properly institutional buildings. Instead, an asphalt street winds up a wooded hill, punctuated by plazas. The buildings that line this street and frame the plazas flash white-painted facades with occasional areas of primary colors. Irregularly punctured false fronts increase the importance of the street. The scale is intimate; the effect is of a Mediterranean village, set incongruously in the midst of a redwood forest.

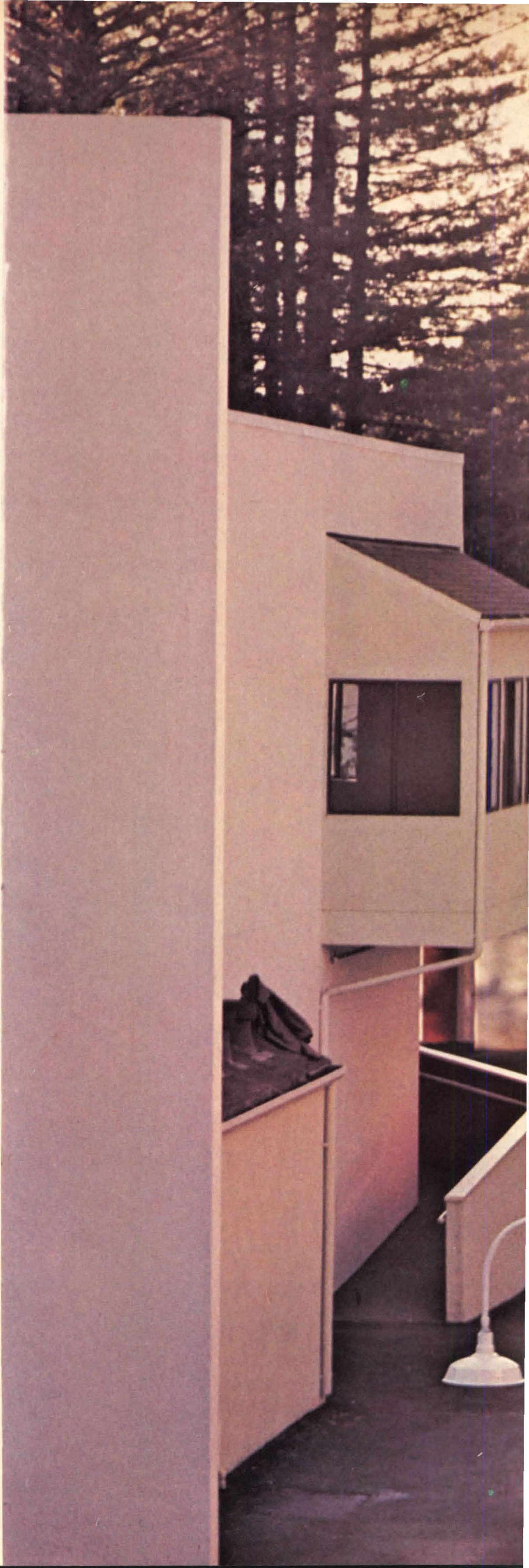
Those already familiar with the work of Charles Moore and William Turnbull, architects for Kresge, will find their bearings easily. The cut-out-cardboard-model quality of the buildings echoes such previous work as the Santa Barbara Faculty Club. They are kin to the basic, low-cost building contractor's vernacular, but their appeal is obviously to the world of architects' architecture.

The symbolism of the village is everywhere. Doors open directly onto the street and have numbered plaques. The lower plaza has a sunken, stepped arena for an outside lounge area. At its center is the main drain of a complex waterworks that recalls the gardens of old Spain. Orange trees reinforce the Mediterranean image.

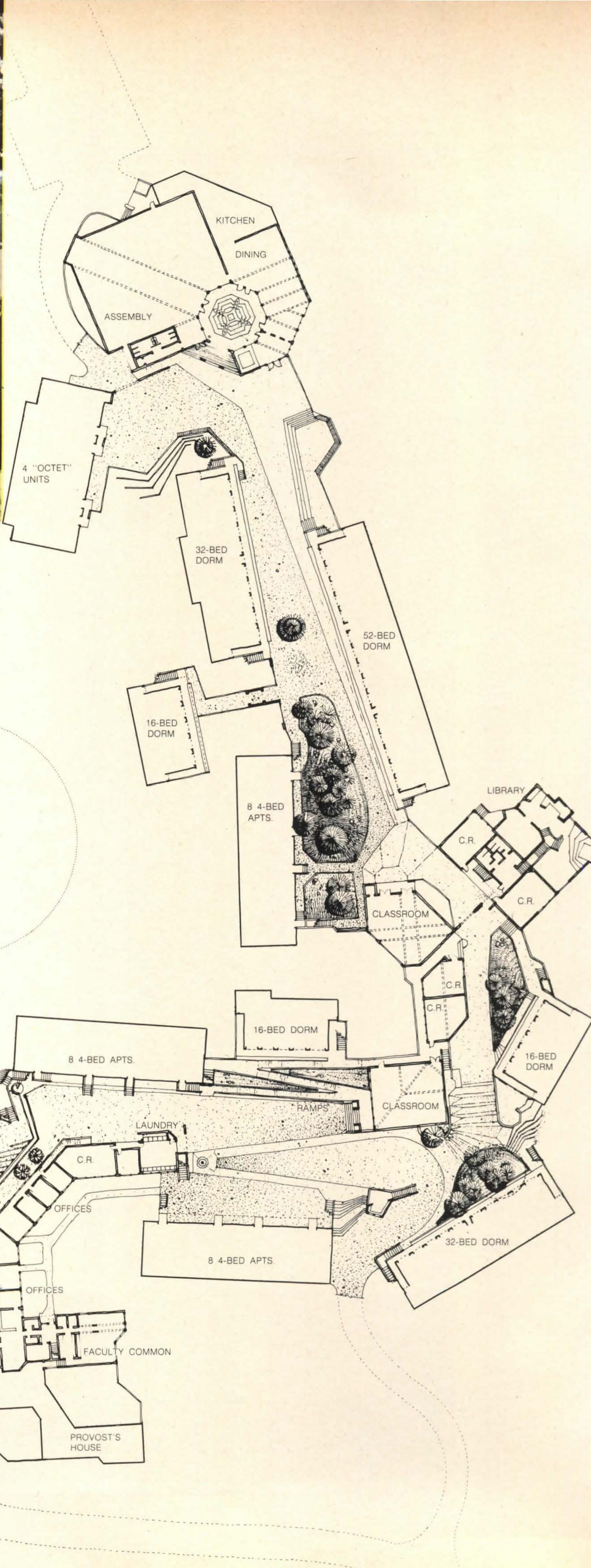
In the middle plaza, a public rostrum of imposing character states the importance of the vox populi. A laundromat stands for the village well. Further on there is a triumphal arch, a stretch of promenade, and finally another plaza with space for an outside cafe. This plaza culminates in a fountain court, another souvenir from the Moors or possibly from Rome.

Why all this imagery? Why make a college into a village? The answer lies partly in the architects' social concept of the college. They felt that the students should not lead anomic lives, that the architecture of the college should provide opportunity for many different patterns of human association. Accordingly they discarded the traditional hierarchy of spaces: an academic and administrative core with a periphery of residential and social areas. They thought rather of shopping centers and villages, where a mixed-use building pattern

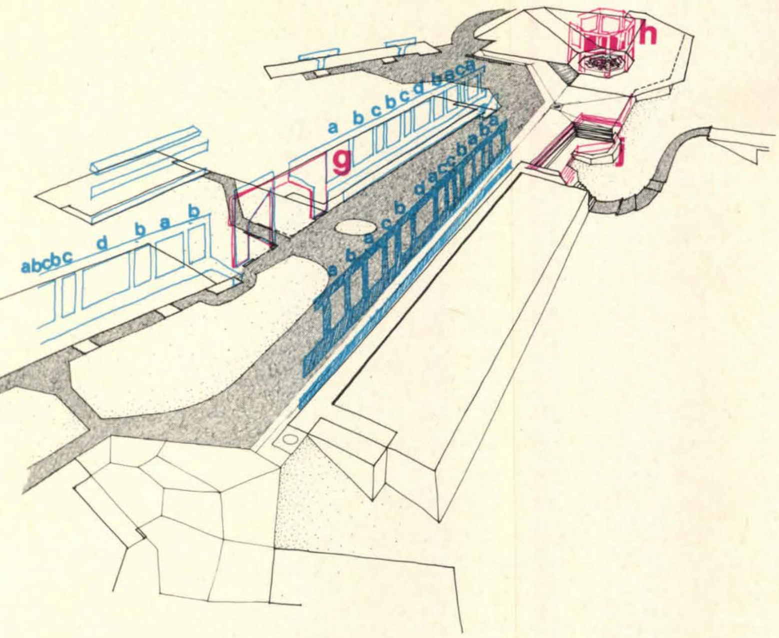
Photo: Morley Baer



On the forest side, Kresge College is painted camouflage brown, revealing only glimpses of the white façades along the winding "village streets." Photo: Morley Baer.



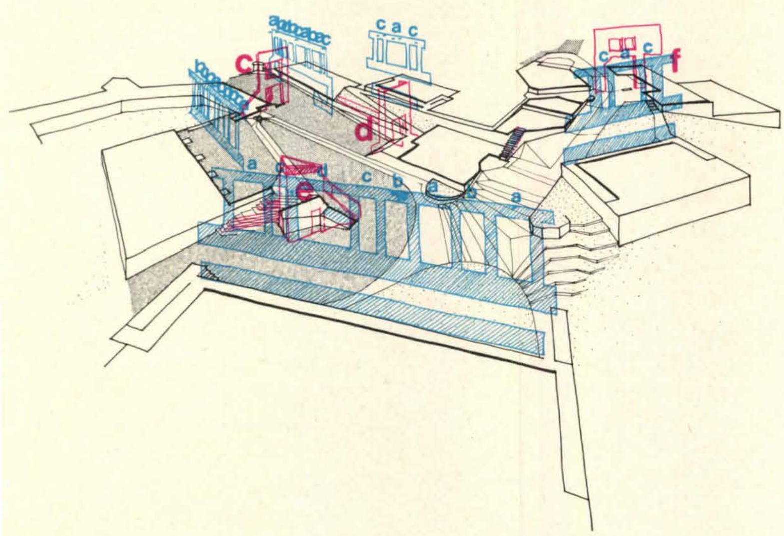
SITE PLAN, SHOWING PUBLIC INTERIOR SPACES



causes people to rub shoulders in the street at any time.

The site was an important factor in the design. The University of California at Santa Cruz is spectacularly situated on 2000 acres of rolling coastland of mixed forest and meadow. The land was acquired in 1961 at the dawn of the ecological era, and preservation of its natural quality become the overriding concern of the campus planners. No axial vistas have been carved through the forest to connect building complexes. Instead one's view is steered diagonally up or down wooded lanes to catch glimpses of buildings that seem to take their place at random in the landscape.

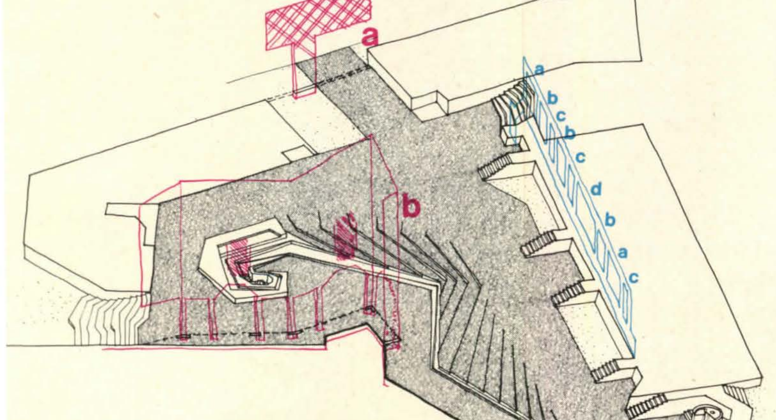
U.C. Santa Cruz is well known as a showplace of contemporary architecture. A list of those responsible for its earlier "colleges"—Wurster, Bernardi & Emmons, Joseph Esherick & Associates, Ernest J. Kump & Associates, Campbell & Wong, Hugh Stubbins & Associates—reveals the university's determination to involve as many important firms as possible. Most of the colleges continue the San Francisco Bay Region tradition of informal design which looks back to the Spanish-Mexican heritage on the one hand and indigenous, vernacular farm buildings on the other. Compared with their Eastern counterparts, they all suggest the Mediterranean village, but when their more conventionally collegiate site plans are compared to Kresge's the resemblance is seen to be superficial.



The west side of the campus, for which William Turnbull did a master plan in 1967, is characterized by steep ravines and rocky knolls covered with redwood groves. Thomas Church, consulting landscape architect for the campus, had warned that these were the most challenging natural features of the site because they created a landscape out of scale with the conventional academic one. This was the area designated for College 6, as Kresge was then called.

The site finally chosen by the architects was a narrow, redwood-studded ridge with a vertical drop of 82 ft from one end to the other. Such a restricted area dictated a tightly organized scheme of strong linear character. Fortunately this jibed with the architects' village concept.

Two years passed before the state released funds for a staff and student body. During this time the architects, working with the site and a hypothetical client, completed a design which won a P/A Citation in 1969 (P/A, Jan. 1970, p. 82).



The 1000-ft "street" rises 45 ft from entrance "arena" (bottom left in plan) to octagon at top of ridge. Superimposed on sketches of street segments (above) are residential building façades (in blue) and key "monuments" (in red): a. gateway; b. post office and provost; c. laundry; d. telephone arch; e. rostrum/trash bin; f. "triumphal arch"; g. telephones; h. octagon and fountain; j. outdoor cafe.

Two things contributed to its total revision. First, there was a gift of money from the Kresge family. The university at Santa Cruz has an unusual financial structure: state funds pay for only a portion of construction—classrooms, labs, and offices for administration and faculty; through room and board fees, students themselves pay back various long-term loans for residence halls and eating facilities. Private funds make possible additional construction such as library reading rooms, conference rooms, faculty commons, and living quarters for a Provost and several faculty members within each college.

The second factor was in the input from the new staff and student body, which was quartered temporarily in a married student housing development. From the beginning the college was shaped according to the principles of behavioral psychology. Kresge's Assistant Provost, Michael Kahn, had taught previously at the Institute for Behavioral Studies in Southern California. He and Provost Robert Edgar worked with students to formulate a theme for Kresge with the con-

Photo: Morley Baer

Photo: Morley Baer

Vlain gate (above) leads into "arena" (top and right), spiraling down o central drain. Postal boxes are at leading corner of provost office ront (below right). Farther along 'street" are laundry / rostrum (see cover) and telephone arch (below).

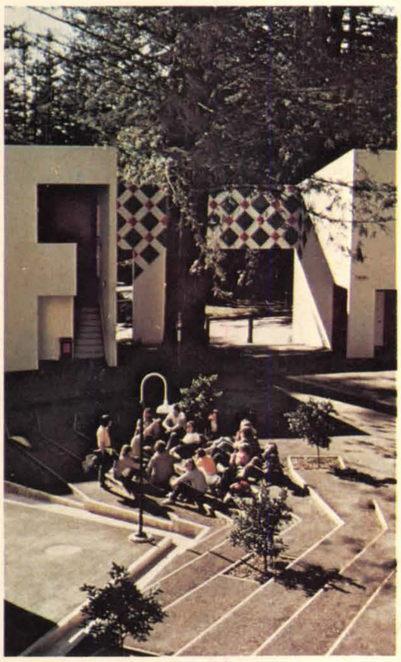


Photo: Karl Smith

Photo: Karl Smith

Photo: Rob Super

cept of the encounter group as the fundamental unit of a living-learning environment. Although it was optional, the students were generally organized into "kin-groups" of about 25—each with a faculty or staff leader—who lived and worked together as closely as possible.

In 1970, a course called "Creating Kresge College" drew enthusiastic student participation. It gave students an almost unheard-of opportunity to have a role in the design process for an educational plant within a great bureaucratic institution. The following year students John Ashbaugh, Jim Palmer, Guy Wulfing and Robbie Kramarz chose to do further independent studies using survey research techniques to determine student environmental needs. Furniture, types of accommodations, attitudes toward public space and privacy, and eating facilities were the main topics of investigation.

Planning at Kresge involved a major effort on all sides to reevaluate familiar organizational patterns and building types. The resulting juxtaposition of residential and academic units, plus the dispersal of facilities usually collected in multipurpose buildings meant that virtually every other building on the street had to be planned and budgeted separately.

Other innovations occurred in the planning of the residential units. Of the 650 students enrolled, 325 live on campus. Instead of the usual dormitory system there is a choice of living arrangements. There are six dormitory buildings with eight-person units, four apartment buildings with four-person units, and a building with four "octet" units, each housing eight students who design their own living spaces. The architects originally wanted all the living spaces to be the do-it-yourself kind provided with knocked-down space-making elements and furniture, but this idea was too strongly against the bureaucratic grain. For the students involved, making their own place has meant coping with a web of building and fire codes, as well as the abrasive process of community decision-making.

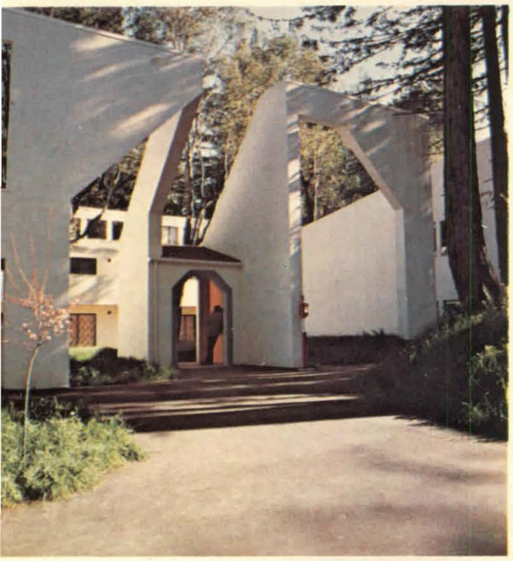
A most profitable innovation was the elimination of corridors in the residential buildings. Combined with elimination of maid and linen service, this means that the college saves $30,000 a year in maintenance fees to the university. These savings, along with others gained by eliminating centralized dining facilities and student union, were used in a complex set of trade-offs that yielded additional programmed facilities, along with the lowest student fees in the university.

For those who worked long and hard at planning Kresge its innovative achievements fall short of initial goals, but to the outside observer they make Kresge the most remarkable college on campus. It will be interesting to see whether the future colleges (two more are in the works) follow its lead.

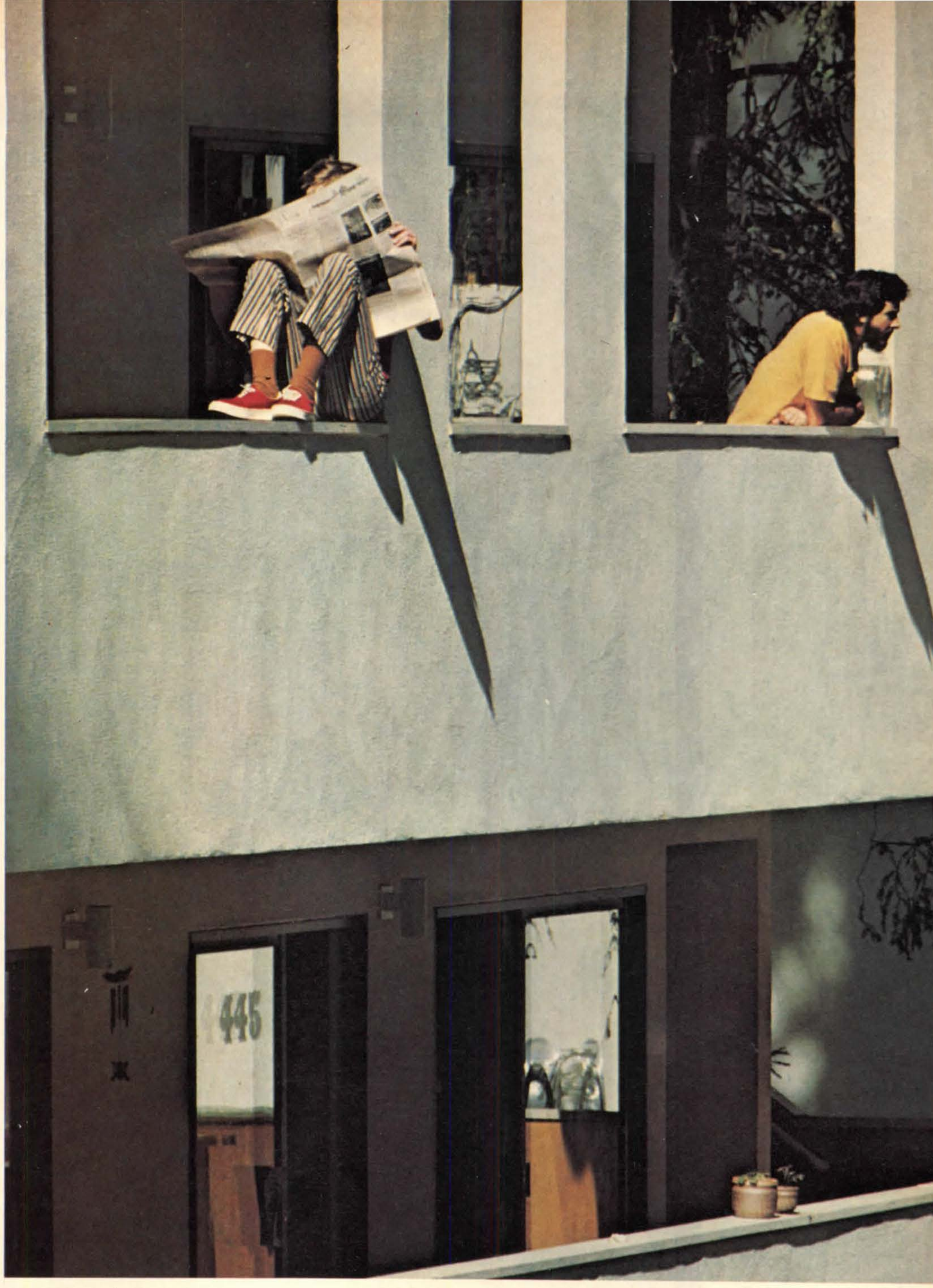
What about the visual realization of the architects' village plan? Does the use of architectural metaphor have any deeper meaning than that of stagecraft, with its connotations of impermanency and gimcrackery?

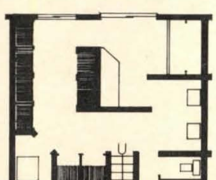
To this the architects respond that their stagecraft is quite serious. Americans have traditionally gone to faraway places to have their sensory awareness expanded by settings so untypical of the U.S.A. that they take on the quality of stage sets. Historically, architecture is full of patent façade-making, of which the false-fronted Western town is one vivid example.

Moore and Turnbull emphasize that their intent is not, as at

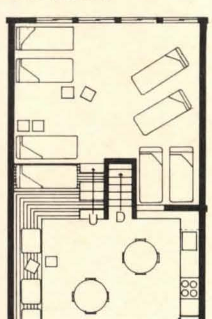


Photos: Morley Baer (above); Rob Super (right and below)

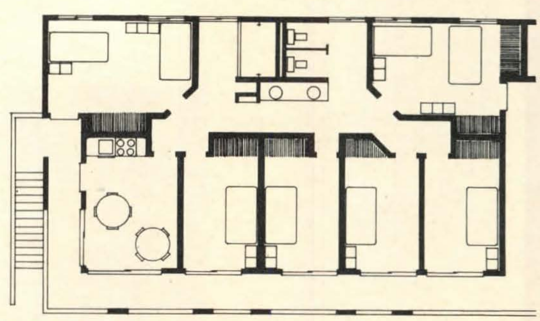




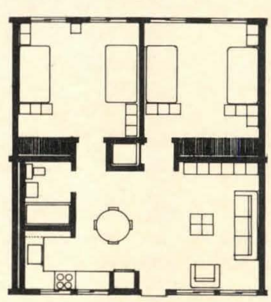
LOWER LEVEL



"OCTET" UNIT
0 10'

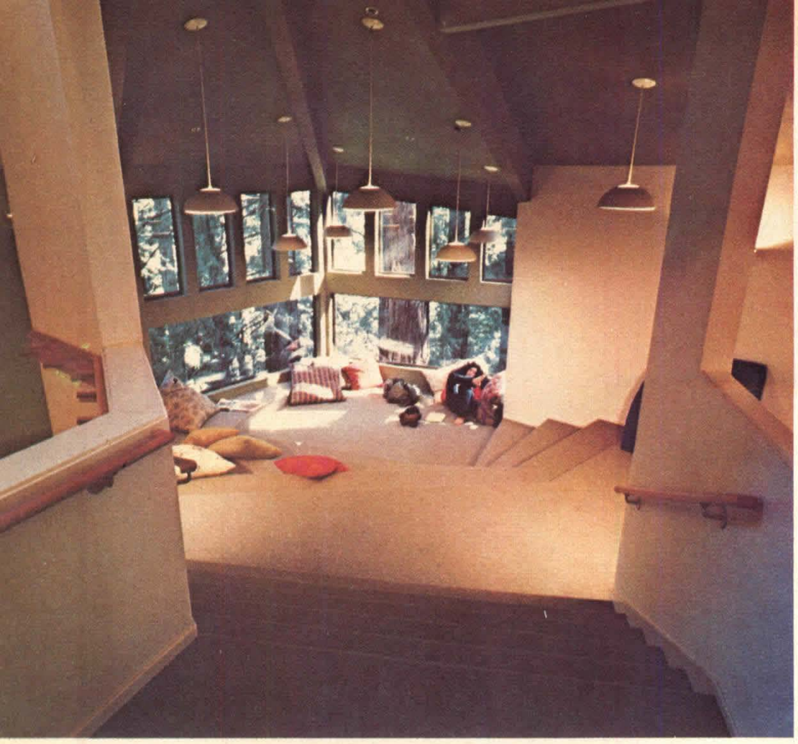


TYPICAL 8-BED SUITE



4-BED APARTMENT

Student quarters are entered from porches at two levels, with parapets for sunning and street-watching. Huge "ears" on telephone booth (top left) line street at entrance to off-street living unit. "Octet" units (photo left) allow for a do-it-themselves mezzanine.



Library floor steps down toward forest-side bay window.

Color in assembly room truss-skylight and classroom seating.

How to make a place

Disneyland, to recapture the past or to authenticate unreality. Instead, they say, they have used a timeless symbolism to make a new, real place for a succession of impermanent inhabitants. If college life is a metaphor for life in the world outside, why shouldn't architecture heighten the experience.

So far, most of the students are entirely persuaded by the place. They rightly feel that it is the only college plan that suits the kin-group structure. Some of the students are put off by the intense focus on the street and would like to be able to escape through the backs of the buildings into the forest; but these same students agree that there is not much privacy or peace to be found anywhere on campus. Since the architecture of Kresge does not have a passive effect, it is probable that the dissident ones will depart, leaving a student body with a growing reverence for the place.

The architects count strongly on this dependency. Without careful maintenance, the stuccoed wood-frame buildings may, with the aid of vines growing over them, self-destruct in less than their allotted lifetime of 40 years. The architects did not choose impermanence. Cuts in the budget that have plagued the University of California system in general over the past five years have reduced the building budget to the cheap-job category. Equally drastic cuts have hit operating and maintenance budgets. This suggests some interesting possibilities. If people do care for the places they help to make and remake in the course of their passage through them, then enough measures of devotion may accrue to Kresge to prolong its life indefinitely. Failing that, we may project a fantasy in which a benefactor comes forward, as in the case of Bernard Maybeck's similarly constructed San Francisco Palace of Fine Arts, and furnishes the funds to have the beloved ruin cast in concrete.[Sally Woodbridge]

Data

Project: Kresge College, University of California, Santa Cruz, Calif.
Architects: MLTW/Turnbull Associates and Charles W. Moore Associates; principals in charge: Charles W. Moore, William Turnbull, Jr., Robert Simpson; project managers: Robert Calderwood, Karl Smith, Consulting Architects (original design, prior to reprogramming): Elston & Cranston.
Client: Regents of the University of California; office of planning and construction, University of California, Santa Cruz: John Wagstaff, campus architect; Theresa Yuen, project architect.
Program: 20 eight-person suites, 27,000 sq ft; 32 four-person apartments, 23,200 sq ft; 4 eight-person octet units only partially partitioned, 4400 sq ft; administrative space, 12,025 sq ft; library, 2500 sq ft; teaching space, 9075 sq ft; provost's house, 3600 sq ft; recreation space, 6200 sq ft; dining room and kitchen, 4050 sq ft; assembly hall, 5240 sq ft.
Site: wooded and hilly, with ridge to low point elevation change of approximately 45 ft. Buildings located along a curved spine nearly 1000 ft.
Structural system: wood frame.
Mechanical system: self-contained fan-coil units in residential spaces; combination of central forced air and fin-tube convectors in administration; central forced air elsewhere.
Major materials: painted stucco exterior walls, asphalt shingle roofing, gypsum board interior walls.
Costs: see P/A Building Cost Analysis, p. 118.
Consultants: Mai Arbegast, horticultural consultant; Spilsted & Associates with the architects, interior design; Loran A. List, mechanical; Dale J. Fehr, electrical; Steve H. Sassoon & Associates, structural; Richard C. Peters, Peters & Clayberg, lighting; Marc Treib with the architects, graphics; Bolt, Beranek & Newman, acoustics; Harry John Dutton, food service; Koch & Company, Wood & Tower, cost control; Bogard Construction, Inc., general contractor, Kennedy Engineers (roads off-site utilities).

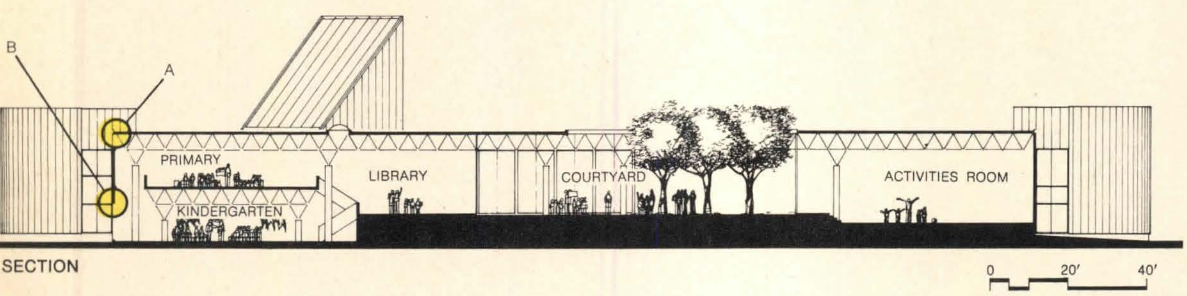
The "street" progression culminates with a long straightway on top of the ridge, where converging façades focus attention on the pierced octagonal core of the assembly-dining building. Inside the Octagon, painting of walls and fountain recapitulates Mediterranean plaza theme. Outside, a terraced dining area leads down toward a footbridge crossing a forested ravine towards center of campus. Photos, this page and opposite: Morley Baer.


CALIFORNIA REPUBLIC

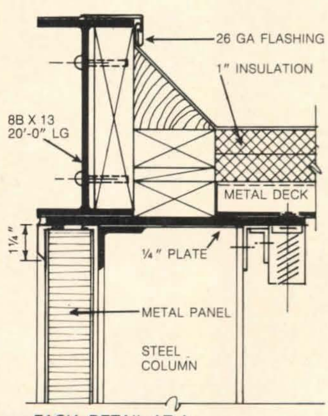
I'm an architecture

I'm an architecture

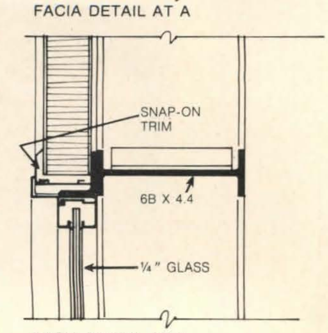
In a process that CRS terms "squatting," parents, kids, and faculty were asked what they thought the school should be. At right, some of the kids give their ideas and help to design the new school.



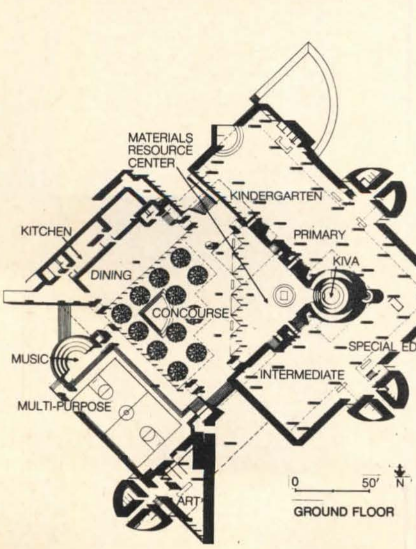
SECTION



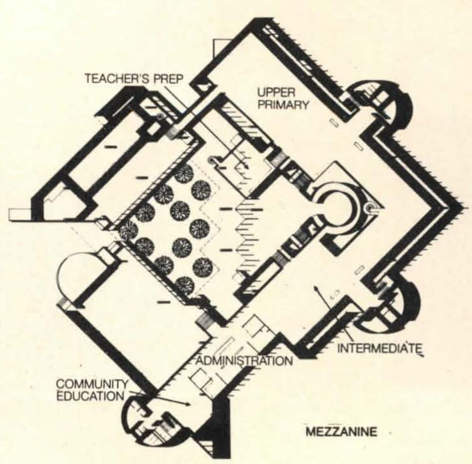
FACIA DETAIL AT A



FACIA DETAIL AT B



GROUND FLOOR



MEZZANINE

The Fodrea Elementary School, a community facility as well as a school, involved parents and kids, administrators and faculty in the process of designing the building.

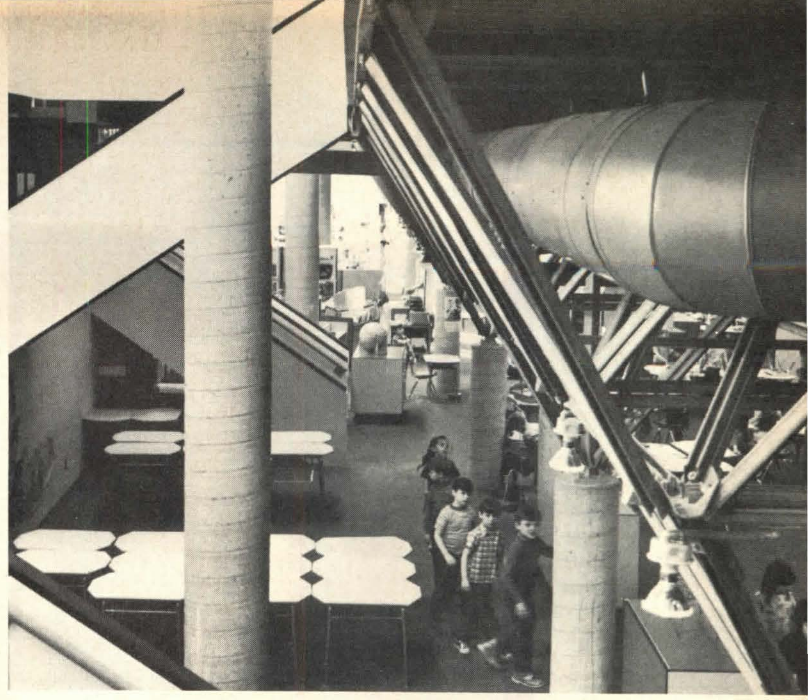
What happens when you ask 15 fourth, fifth, and sixth graders to design their own school? Exactly what you would expect: the kids want slides, ramps, tunnels, robot teachers, push-button desks, waterbeds, and even a tunnel of love where, as one youngster said, "bigger people can go to kiss their girls."

The new Fodrea Community School, designed by Caudill, Rowlett, Scott for a low-income area of Columbus, Ind. is a community facility as well as a school. In addition to elementary education, there is space for adult education, child-adult recreation, civic organization meetings, and eventually a Head Start program. The commitment, says CRS, is to learning as part of the daily life process.

The designers set up an office in the school administration building—a process they term "squatting"—and worked with kids, parents, faculty, and administration in gathering their ideas for a schematic design. This newest school for Columbus was designed under a program begun in 1956 by the Cummins Engine Company Foundation which pays the architectural design fees for all new major buildings in order to ensure a high caliber of design. While all of the kids' suggestions were not incorporated into the design, there are ramps, slides, and tunnels (but not of love). The center of the school is an open court, seen as a community concourse, from which people are never excluded. The school facility will function year 'round from early morning to late evening. Some kids even wanted to sleep over.

The school houses 640 students, ages 6 to 11, in kindergarten, primary, upper primary, intermediate, and special education in a two-level open plan. The structural system—a space frame with metal deck on concrete columns—and the exposed mechanical system are painted in bright colors and form the major design elements of the interior spaces. The exterior skin—a prefabricated, foam-filled panel with a baked enamel finish—was clipped to the steel structure on site. Finished on two sides, it provides an easily maintained interior wall surface as well.

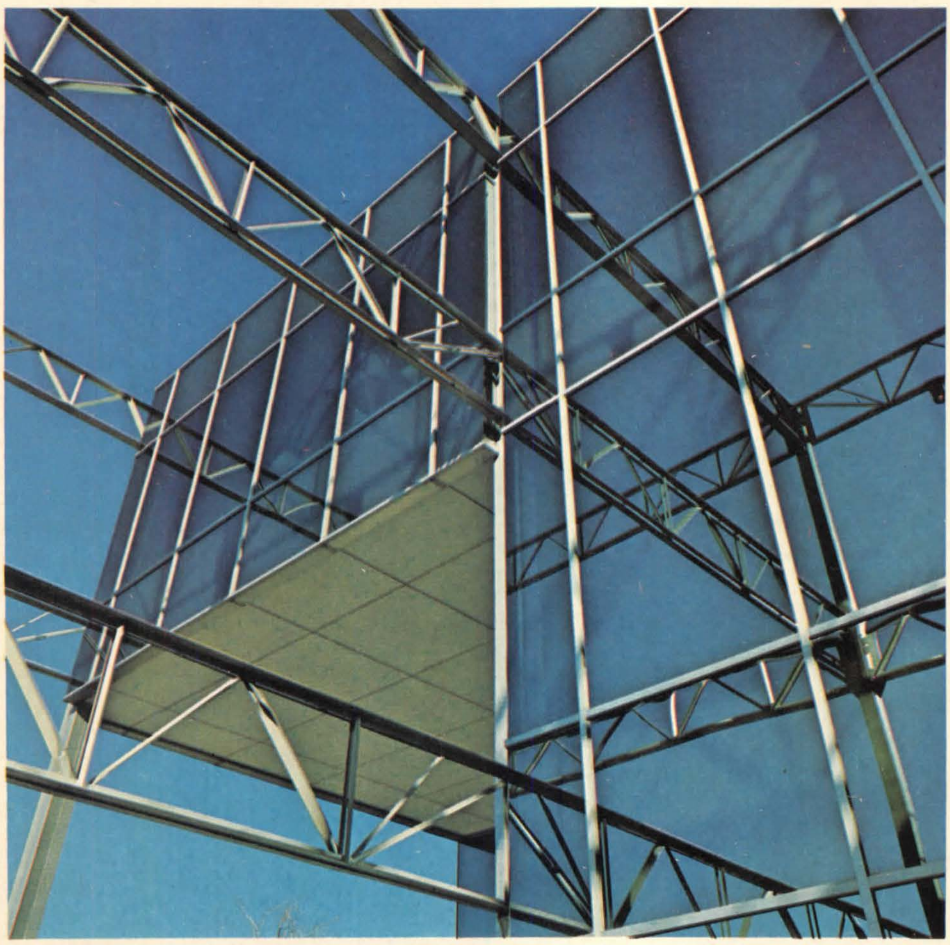
One youngster said of his participation, "I'm an architecture." He wasn't wrong except, perhaps, grammatically. [Sharon Lee Ryder]



Data

Project: Fodrea Community School, Columbus, Ind.
Architects: Caudill, Rowlett, Scott; Truitt B. Garrison, project manager; Paul A. Kennon, director of design; C.A. Lagreco, designer; D. Wayne McDonnell, technologist; A. Dean Taylor, associate architect.
Program: elementary school and community facility.
Structural system: space frame with metal decking on concrete columns.
Mechanical system: rooftop HVAC units.
Major materials: exterior, prefabricated, foam-filled panels with baked enamel finish, glass; interior, painted space frame and metal decking, carpet.
Cost: $1,637,000; $28.50/sq ft.
Photography: Balthazar Korab.

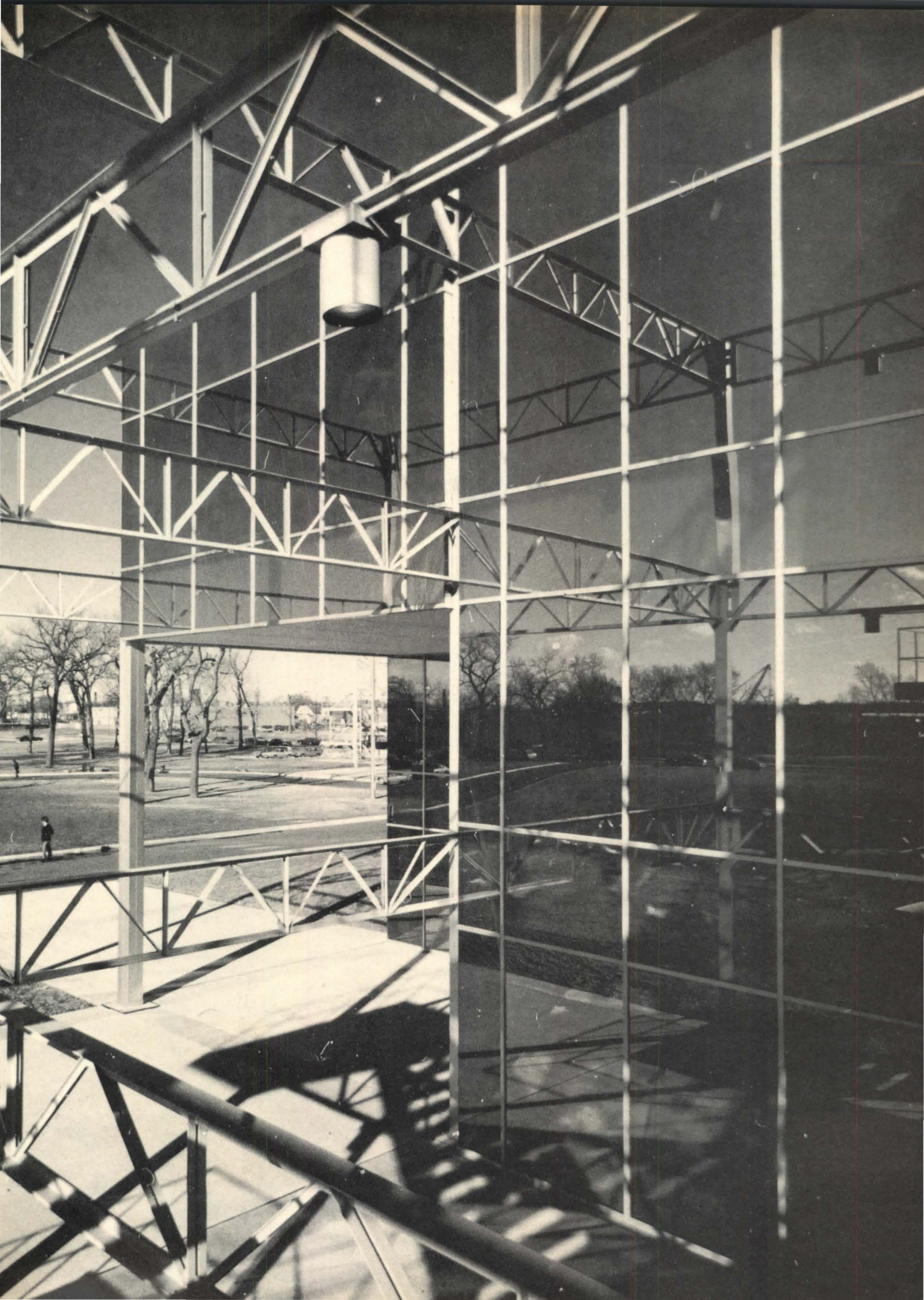
An image for technology

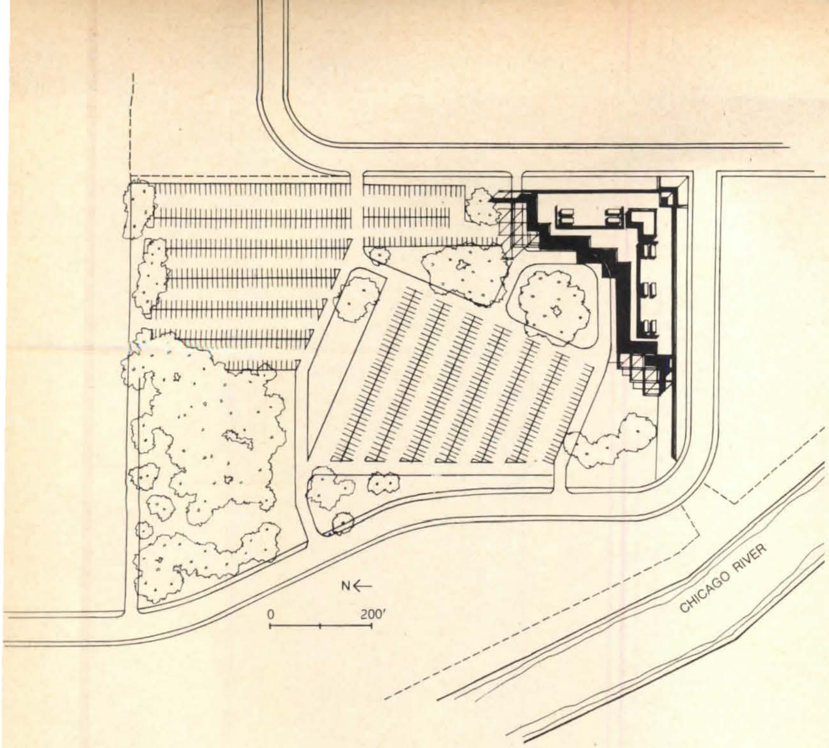


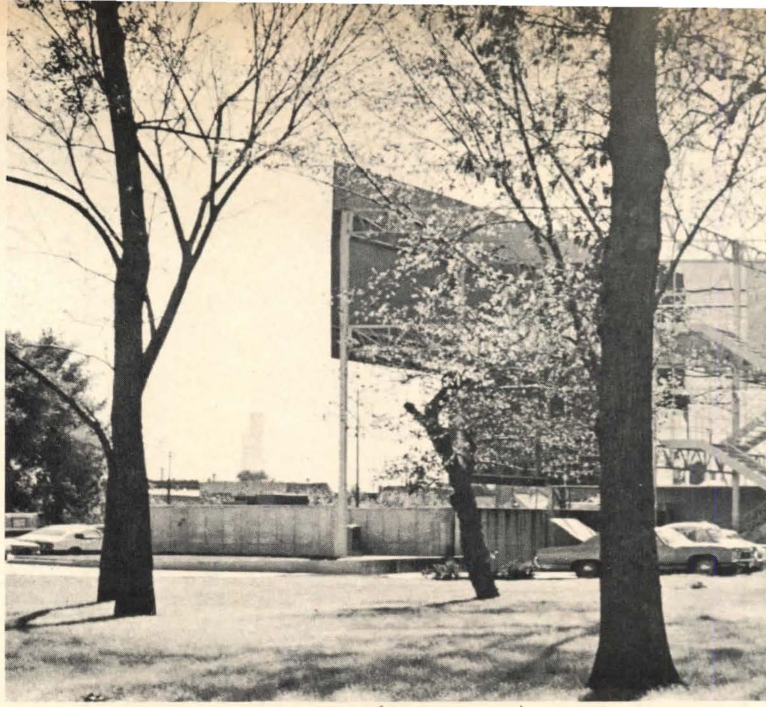
The third fast-tracked Bell and Howell school completed by Caudill, Rowlett, Scott expresses well the nature of its building systems and the technology which it houses.

The DeVry Institute, Chicago, is the third Bell and Howell technical school completed by Caudill, Rowlett, Scott. It has a program similar to the first two (P/A, Feb. 1972, p. 74): flexible classroom and laboratory space, student commons and dining, along with faculty and administrative offices.

The Bell and Howell electronics engineering schools are profitmaking enterprises, operating four quarterly terms with

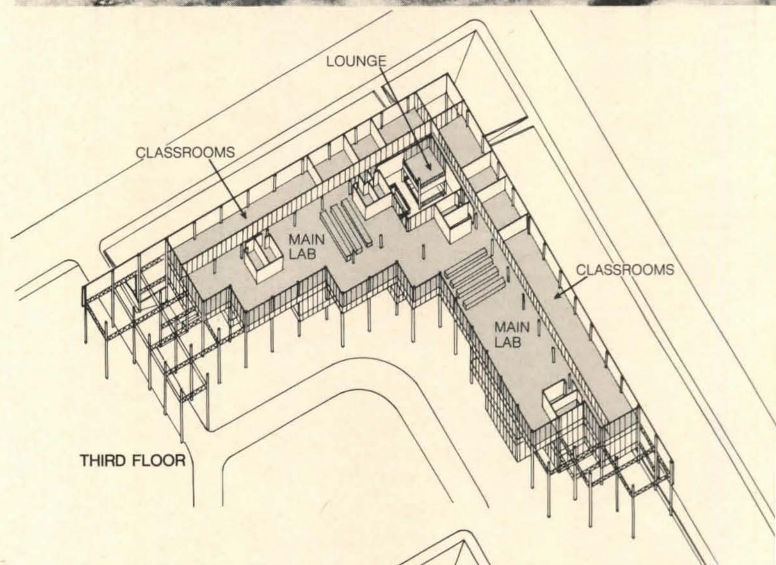


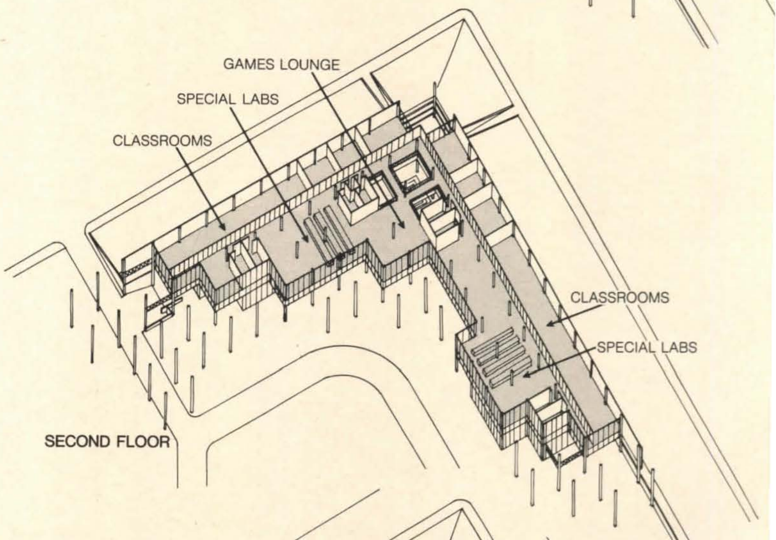




three shifts a day. With each new quarter, the sizes and types of classes vary, so the structure had to be highly flexible to accommodate constant change, durable but inexpensive. Like the first two schools, DeVry/Chicago is a systems building based on a high degree of compatibility between components. Four major systems—structural, HVAC, exterior skin, and ceiling/lighting—were pre-bid on performance specifications after the schematic design phase, and construction was started before detailed design was finished. With this system of fast-tracking, design and construction of the school were completed in 13 months at the cost of $27 per sq ft.

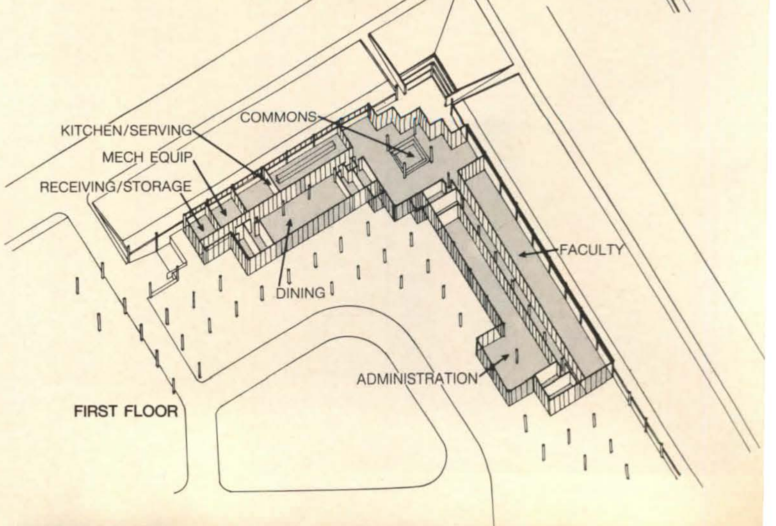
The three-story, L-shaped building is located along the south and east corner of the site to take advantage of the mature trees and view to the north and west. The top two floors contain classrooms built to conform to a 2'-6"-sq module against the solid south and east walls; the open lab zone, on a 5-ft-sq module, is on the glazed side of the building. On the ground floor are faculty and administrative offices, kitchen/dining facilities and, at the intersection of the two wings, a student commons area, three stories high. The image of the building reflects well the technology of its systems. While the two previous schools were planned for the expansion, which has already occurred since completion, this is the first school, feels designer Norman Hoover, that clearly expresses its system of parts, its flexibility, and its potential for growth. [Sharon Lee Ryder]

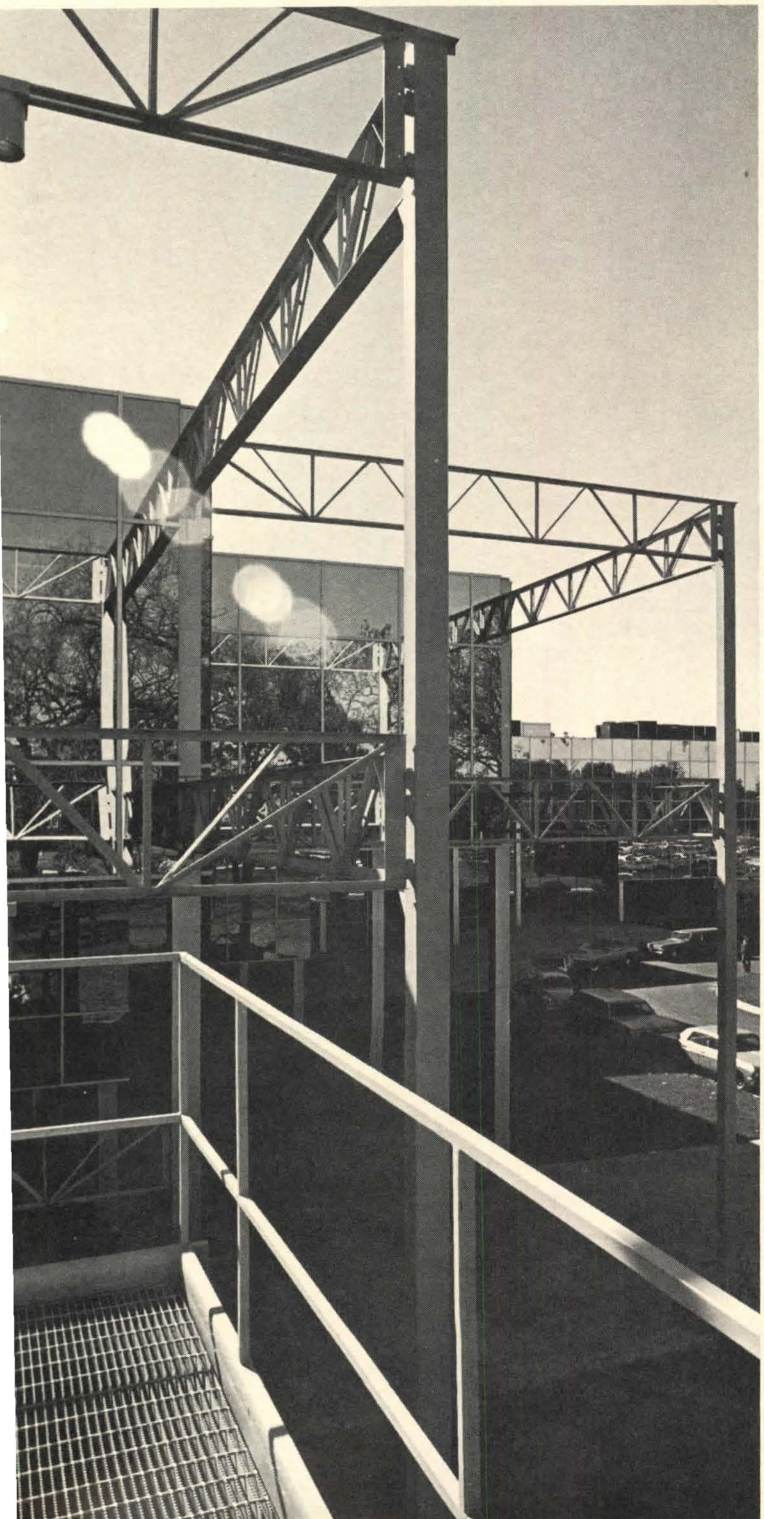


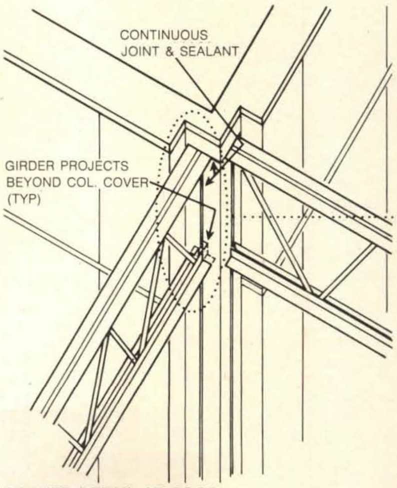


Data

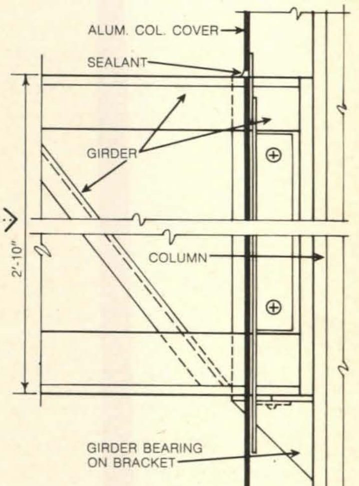
Project: DeVry Institute, a Bell and Howell technical school, Chicago, Ill.
Architects: Caudill, Rowlett, Scott; Joe Scarano, project manager; G. Norman Hoover, partner in charge; Peter Gumpel, designer.
Program: flexible classroom and laboratory space to accommodate 4500-5000 students.
Site: 17 acres on the Chicago River.
Structural system: 8 in. tube columns with open web bar joists on a 5-ft module.
Mechanical system: package rooftop units with peripheral electrical radiant heating units.
Major materials: weathering steel, mirror glass, bar joists.
Costs: $27/sq ft.
Photography: Orlando Cabanban.







CORNER DETAIL AT ROOF



GIRDER DETAIL

Miller residence, Lakeville, Conn.

House III

The third in a series of houses by Peter Eisenman is discussed first by the architect, then by P/A and finally by the owner—each from different viewpoints.

To Adolph Loos & Bertold Brecht

This house, completed in 1971, is the third in a series which together represent for me a search for the nature of the form-meaning relationship in architecture. My work attempts to isolate those aspects of architectural form, usually called structure, that affect our understanding of the man-made environment and which at present are not explained by traditional architectural theories of aesthetics, function, or even new theories of meaning.

My concern for meaning in this context is not with the making of images or symbols, but rather with how the structure of form affects any meaning. It is my belief that in every building we make as architects, no matter what meaning we may wish to give them—functional, social, or symbolic—there is a potential level of communication that may exist merely because the structure of architectural form affects meaning, and because of our innate capacity to understand this effect; because of the way we see and think.

It has become clear to me that any attempt to express this concern for the structure of the form in the actual form itself tends to isolate the individual from the environment of that form. For example, in Jean-Luc Godard and Jean Gorin's short film, *A Letter To Jane,* the formal structure of the film tended to neutralize its content and, in a sense, the real content of the film was, in effect, its structure. This forced the viewer to consider the intention of the film in some new way. Initially the audience howled and booed, because intuitively they realized that they were being cut off from what they knew and expected. This same effect can also be true of the relationship of an individual to a house.

Because of the way the formal structure seems to influence an individual, its expression reduces or takes away known meaning; and when the meaning is reduced the structure becomes exaggerated. Since a structure per se has no meaning, any understanding of it is dependent on some sense of itself—its logical consistency, its appearance of certainty or completeness. An architecture which is the product of the expression of structure must also be complete in itself if it is to bear any relationship to the formal structure. This expression of the formal system produces an architecture divested of traditional meaning, that admits no adjustment and alteration; it excludes the design of those things which, through design, reinforce traditional meaning, such as interior finishes, the location and style of furniture, or the installation of lighting. Consequently while the architectural system—the formal structure—may be complete, the environment "house" is almost a void. And quite unintentionally—like the audience of the film—the owner has been alienated from his environment.

In this sense, when the owner first enters "his house" he is an intruder; he must begin to regain possession—to occupy a foreign container. In the process of taking possession the owner begins to destroy, albeit in a positive sense, the initial unity and completeness of the architectural structure. The interior "void" resulting from a complete architectural structure seems to act as both a background and a foil, almost as a conscious stimulant for the activity of the owner. However, it is not so much the completeness of the formal structure as presented by the architect, but rather the environment's absence of traditional meanings that triggers this sense of exclusion, which works dialectically to stimulate the owner to a new kind of participation in the design process. In such a situation, choosing interior finishes, adding walls, placing furniture, and installing lighting, is no longer concerned with the purpose of fitting some preconceived idea of good taste or completing some "set piece" scheme of either the owner or the architect. By acting in response to a given structure, the owner is now almost working against this pattern.

By working to come to terms with this structure, design is not decoration but rather becomes a process of inquiry into one's own latent capacity to understand any man-made space. This capacity is underdeveloped at present precisely because man is always presented with an environment complete with meanings, functions, etc.; hence one is not challenged to question it. Thus a study which was initially concerned with the form and structure of the man-made environment, may also inevitably tend to neutralize its content in such a way that another level of consciousness about the intentions of architecture may be potentially revealed.

(**Note:** The title was suggested to me by Kenneth Frampton; the concept of intruder was first discussed in reference to my work, with Emilio Ambasz.) [Peter Eisenman]

One man's fit . . .

Before going to Lakeville to see House III I had seen the model photographs and drawings. I saw that, typical of Eisenman's work, the first drawing for this house was a simple cube. Here, however, a second cube was placed on the diagonal of the first one early in the design stage, thus producing two distinct grid systems that were ultimately to be integrated with each other within a single formal system. As the design continued, the basic volume of the cubes was progressively elaborated and refined through a rigorous and systematic series of "movements," and gradually transformed into a highly complex three-dimensional formal structure.

Even though the drawings indicated places such as "kitchen," "bedroom," "bath," etc., it was difficult for me to

interpret how the volumes so indicated represented, either in themselves or in their relationships to each other, spaces that people could actually live in with even a modicum of comfort and privacy. Primarily, I could only see the drawings and model photographs as a vastly complicated, although beautiful and fascinating formal exercise. And because Eisenman rarely discusses problems of function—he especially considers the problems of the single-family house to be quite well known and not in need of elaboration—he was of little help.

Not until I was actually inside the house did I gradually come to realize that not only does it function as a house, but it performs well as one, perhaps even better than many that avow a great concern for function. In order to understand this aspect of it, though, you must be willing to do two things: first, you must either rid yourself of or suspend any conventional notions of what a house should be; and second, you must not let the formal structure get in your way or, even more important, you must not try to justify it in any "practical" sort of way. As with any other custom-designed, single-family house, this one, particularly, should be accepted on its own terms, or it should be forgotten.

If you accept its conditions, though, you might be surprised, as I was. On its simplest level, you will find an intelligent, well-thought-through house. You will note that from a covered portico you enter the house to a foyer. Opposite is a coat closet, and directly behind it, off a small vestibule, is the downstairs bathroom. To the right of the foyer you go directly to the living room, and at its far end, the dining area. To the left of the foyer you go around the centrally located staircase into the kitchen, and if you continue through it, you arrive back at the dining area. At the top of the stairs you come to a bridge that traverses the two-story inner volume; off one side of it are the children's bedrooms and bath, and off the other side are the parents' room, guest room/study and bath—both sides separated from each other by the bridge and the voids on either side of it. From the entrance you can go directly to any room in the house (except the dining area) without going through any other room.

The arrangement of spaces could hardly be more practical or functional, even when they are not organized around a rigid formal structure, as they are here. But the fact that they are organized within such conditions brings up another aspect of the house, namely that the formal structure, which may at first seem excessive and overly elaborate, was responsible for generating those spaces and for causing them to take their final configuration and organization. With this in mind you begin to appreciate that the formal structure is as integral an aspect of the house as is its function, that the form and the function of this house are one, that they are inextricably bound to each other, and that neither could exist as it does without the other. Ultimately, you begin to see, as I did, that like a piece of music the synthesis of the individual pieces becomes a whole that transcends its parts. And it is then that, in the same way some people attend a concert with a score, you want to return with drawings to read the structure for a greater appreciation of its intricacies and their orchestration into a complex but unified whole. [David Morton]

I guess you win, Peter

"Aha," this is my chance to get even," I said to myself (smacking my lips in vengeful glee), when I was first asked by *Progressive Architecture* to write a few words about "what it is like to be the client-owner-occupant of a really innovative house." According to the editor, my thoughts would "lend an invaluable sense of reality to what the reader might otherwise see as an abstract design solution."

"You bet your sweet ass I'll lend some reality to your readers," I vowed as I picked up my pen, mightier indeed than the sword, and started to do battle. For since that spring day in 1969 when I first approached Peter Eisenman about designing a weekend house in Lakeville, Conn. for my family, my trials and tribulations as a home-builder had out-Blandinged Mr. Blanding. I had become in many ways the architect's cliché client: bitter, angry, frustrated, vengeful. And here I was being asked to let it all hang out in the free press. So OK, fellas, you asked for it. I'm ready. Let's start hanging out.

First, the bad news. The house we built, with no major changes in the original plan, cost at least *double* the original estimate. (And it's still not really finished.)

It took almost twice as long to build as promised.

I've already spent $1600 trying to stop a leak in the living room ceiling that's ruined the ceiling, the dining room table, and my disposition. And it's still leaking.

There's a second leak in the house that can only be stopped when we enclose a patio—at about $5000.

The tile floor in our living room has cracked in several places because of frost heaves. And the tiles on the patio have chipped and broken because I'm told they're not made for outdoor use. (Now they tell me.)

Half the radiators in the house had to be replaced (at no cost to me, I must admit). And even with the new radiators, the heating is only adequate.

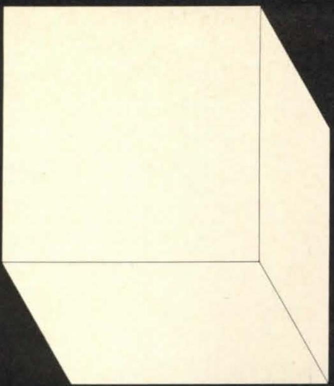
In summer, the upstairs bedrooms are like ovens, mainly because the huge handsome windows don't open. They weren't supposed to.

There are too few closets, too many windows, and probably there is not enough money in the world to get the house finished the way I want it finished. Well, I feel better now. I've said it all, and I'm glad. Only it's not as simple as all that.

There's good news, too. For like the tale of the father and his prodigal son, I love this house—warts and all—with a passion bordering on obsession. (Bordering, hell. My wife says it *is* an obsession.) We've been living there three years, and every single weekend for me has been pure, simple joy.

Living in the house is a *sensuous* experience. I can literally sit for hours in the living room and enjoy the internal views: the sun-strewn pattern of shadows that cascade on and off the walls; the shape and form of the white beams; the exhilarating feeling of space—narrow, then double-height, opening out, then closing. Architecturally the house is enormously *interesting,* in the full sense of the word.

I find it beautiful, too—every nook, every corner. (I have never found an ugly or awkward spot in the house, and be-



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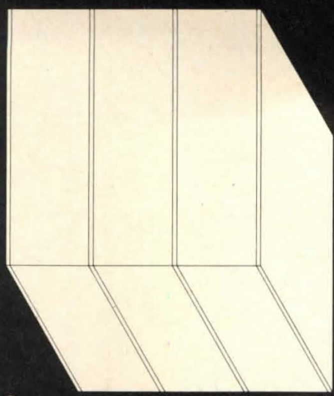

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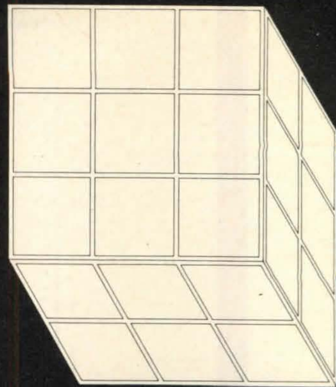

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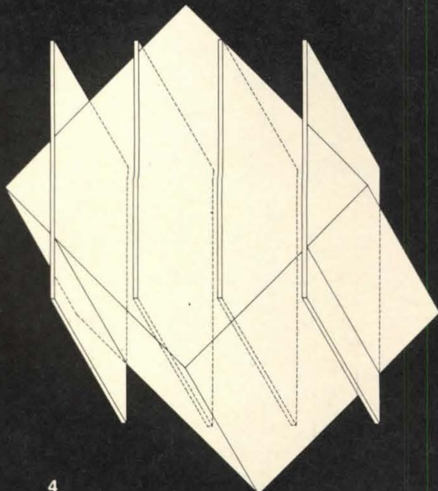

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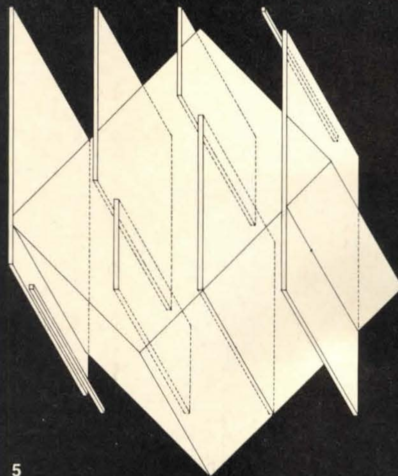

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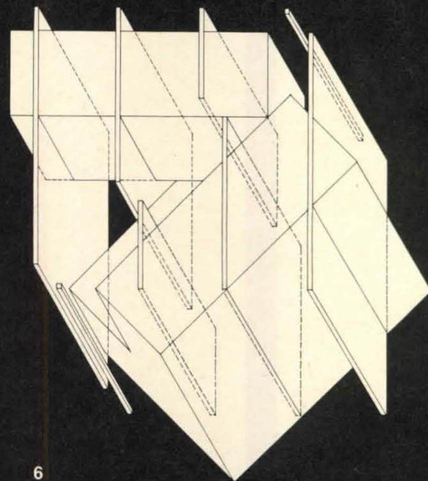

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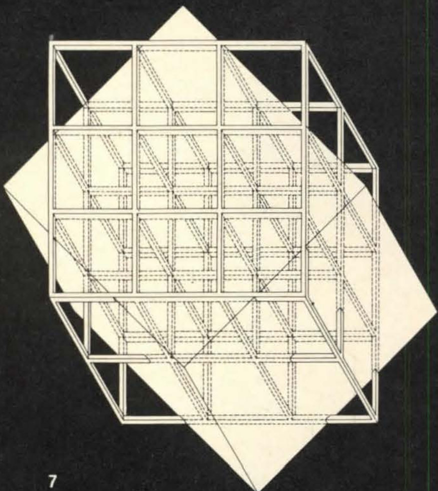

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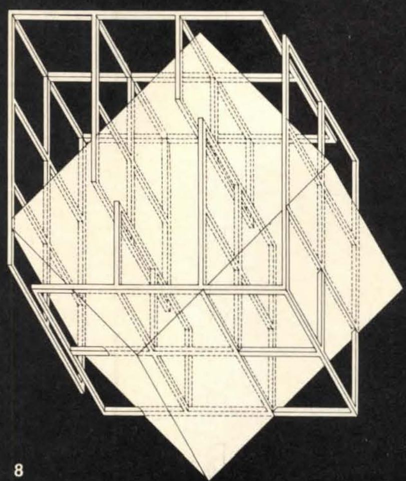

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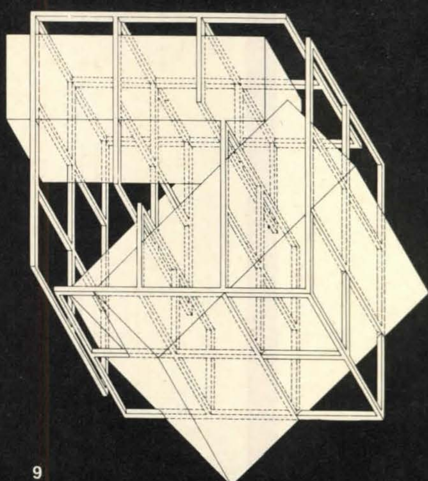

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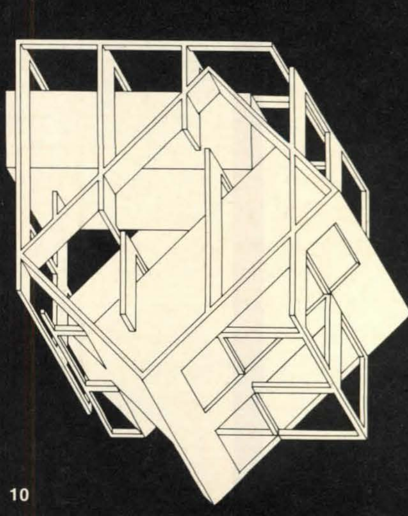
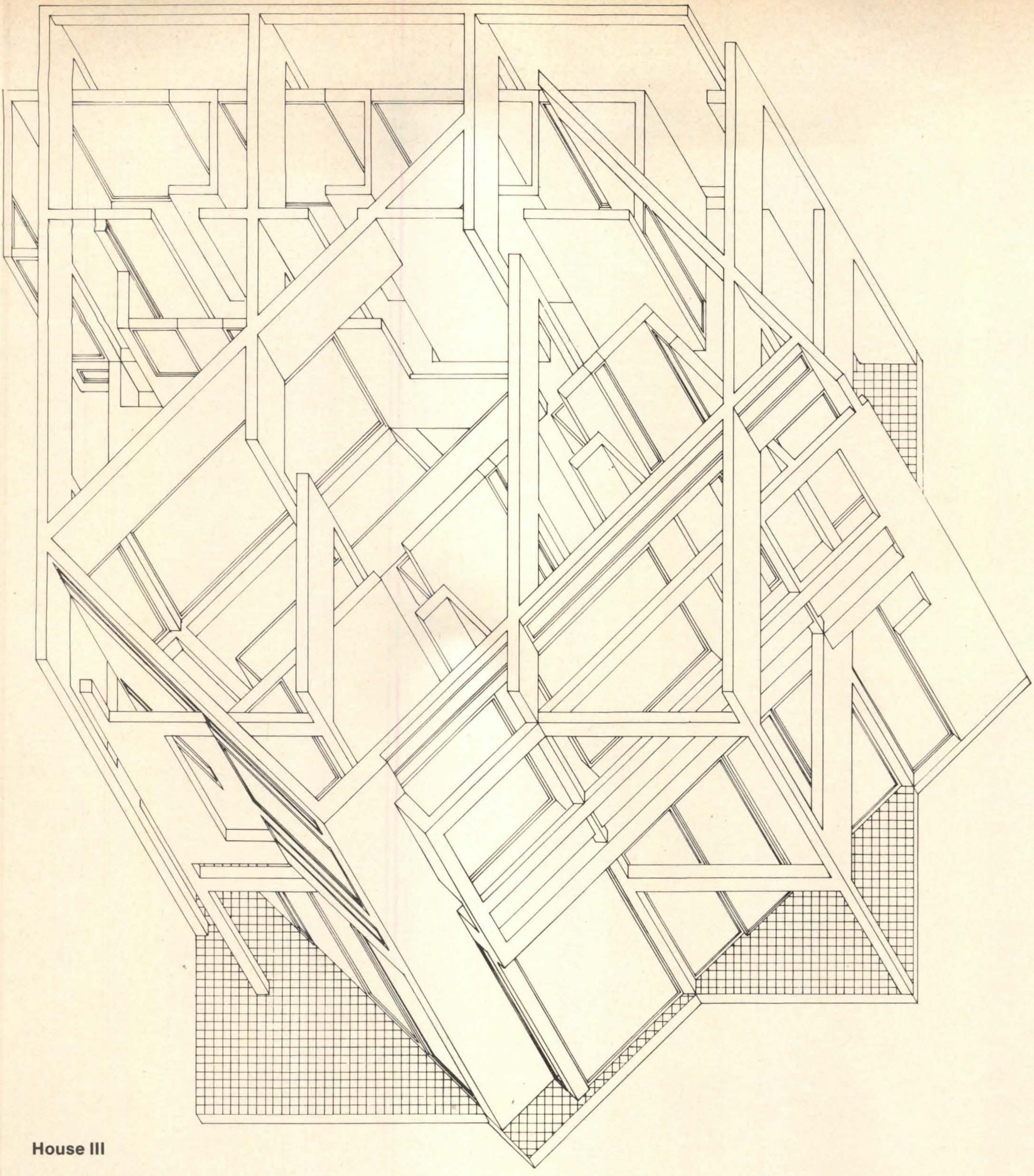


10

The form of House III was generated through a series of transformations in the relationships between solid, plane, and grid. Here, 10 key drawings from the complete series show that the solid (volume) (1) is first divided by planes (walls) (2) and then by the grid (columns) (3). The next three diagrams (4, 5, and 6) show the solid-plane relationship. The solid is rotated in relation to the planes (4), the planes are then sheered (5), and as a result of this action the solid splits and rotates (6). The same process is repeated (7, 8, and 9) in the relationship between the solid and grid. Finally the two processes of transformation—solid-plane and solid-grid—are united (10) into the complex relationship of volume-wall-column of the house.



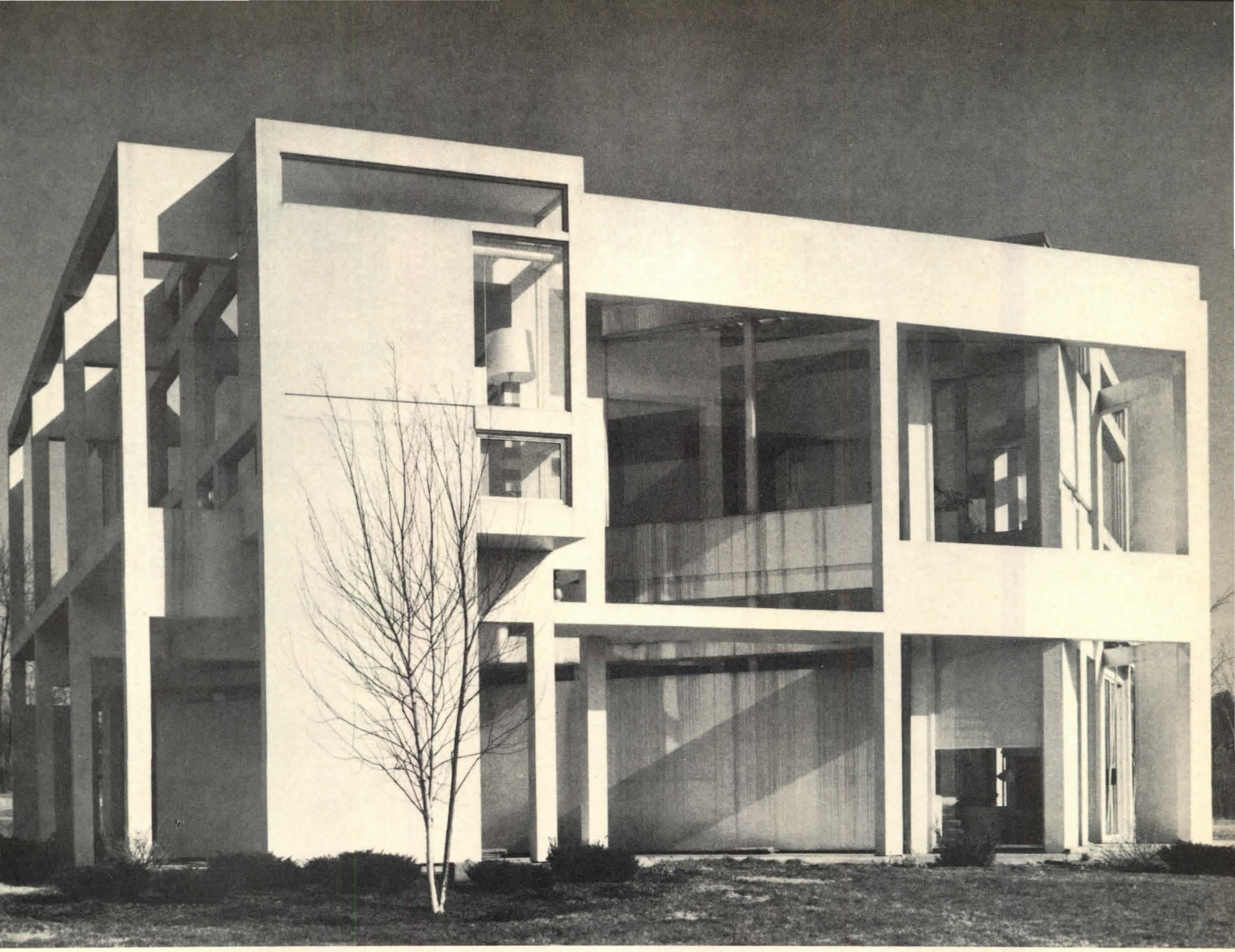
House III

lieve me, I've looked.) I love the view from my bed, where a solid white beam cuts across the room and rides up against the wall, framing a narrow window; and the view looking straight up from the living room sofa from where I can see hundreds of small translucent squares of skylight; and the view at the top of the stairs, which opens out to an array of beams and windows and catwalks. The interior views are a delight. It's like living inside a Mondrian painting.

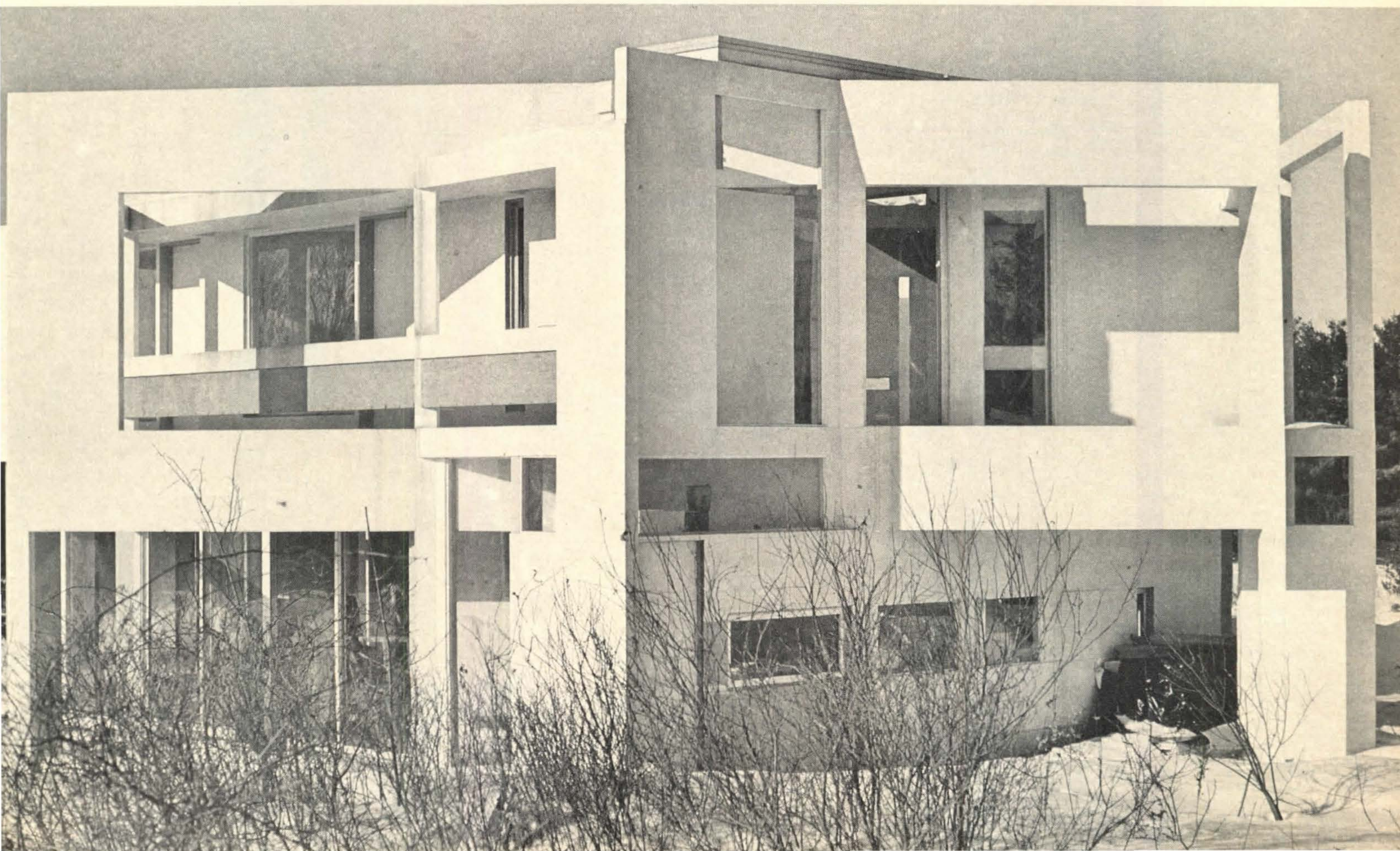
And since this is True Confession time, I'll confess that one of my favorite features in the house is a series of L-shaped beams that jut out at right angles from the walls. I hated them in the plans, I hated them during construction, and I hated them when we moved in. Peter kept saying, "Live with them a while, and if you still hate them a year from now, we'll tear them down." I'm ready to admit now that they break up the space, and make it a lot more interesting.

It's literally a huge window of a house (there are 9 different-shaped windows in the master bathroom alone). The openness is a liberating experience: snowfalls envelop you; seasons surround you. Every Friday night when we leave our closed-in, almost-bricked-up apartment house in Manhattan, I'm filled with great, happy expectation.

Some people say Peter Eisenman's architecture is too abstract; that it's not functional. Frankly, I find it tough to judge whether our house (or any house, for that matter) is really functional. I remember Peter's asking lots of questions during the planning stage about whether we entertained a lot, whether we wanted privacy from the children, etc. But I don't



View from N.W. (above), from S.E. (below).



House III

remember our answers, and it wouldn't matter if I did. The fact is, our life has changed enormously since we first started building. We've gone from three children to five. Our attitude toward weekend guests is different. We have new interests we didn't have then. What was functional for us yesterday is foolishness for us today. All I ask of our house is that it be adaptable; that its space be able to ebb and flow with the changing needs of our family. And on those counts I must say the house works. We're thinking of building another bedroom downstairs, of making a new front hall, of maybe adding on a screened porch, and the house seems to accommodate these changes naturally. So my vote is in: the house is functional.

But what pleases me most about the house is the way it works with the kind of furniture we wanted. Our concept, from the start, was to build a modern version of a Mykonos house. And that's the way we've furnished it: with country peasant furniture. We've gone *against* the grain of the house, instead of with it. We've filled it with Moroccan rugs, French country tables, clay pots filled with geraniums, hanging plants, antique Austrian chests, etc. And to our taste, it works perfectly. The contrast of the white sculptured house with the warm roughhewn antiques and textured fabrics is a contrast that pleases us enormously. I guess a good house is like a good Chanel dress. No matter what accessories you add, it works.

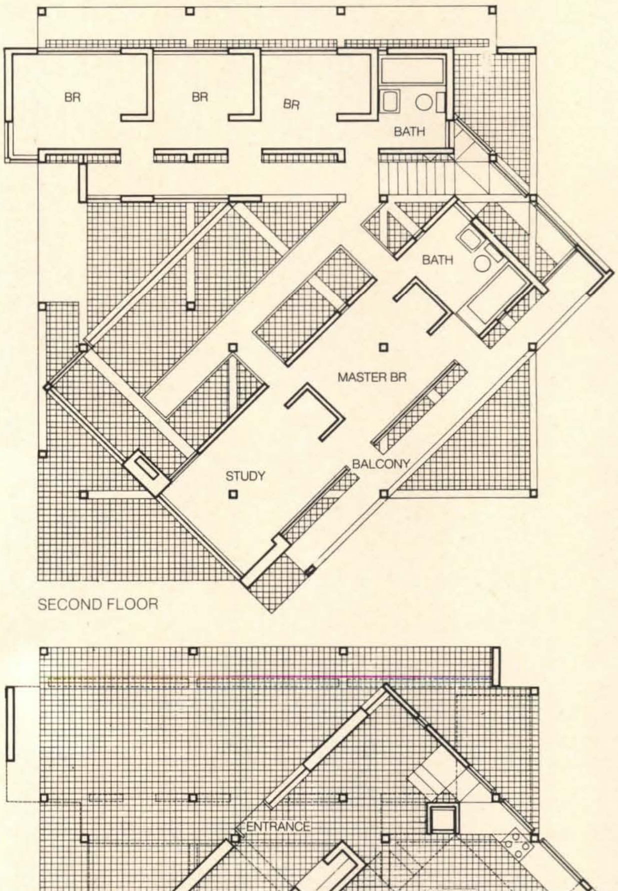
And to Peter's credit, he never tried to argue us out of our point of view. There's no doubt he would have preferred us to furnish the house architecturally: Barcelona chairs, Eames chairs, a Stendig sofa, a steel and glass coffee table (with maybe one lonely Oriental rug for color). But he always respected our point of view—and never tried to sway us.

So it's time now to add up the ledger: the pros versus the cons. And I have to admit, the pros win. I feel about our house a lot like I feel about my five years in the Army: I'm glad I went through it, but I'm glad it's over. My one major reservation is that building a house like ours (or any house, for that matter) is a luxury reserved for the rich. If you can afford the mistakes, and the delays, and the leaks, and the cracks, and the hundreds of calamities that will surely happen, then it's a marvelous experience. But if you can't afford them, watch out.

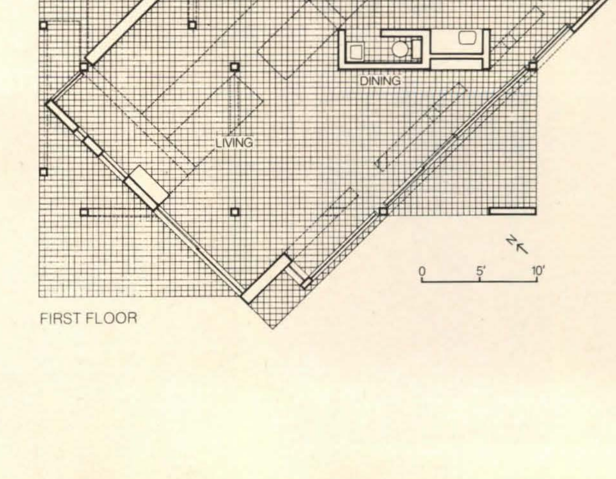
But even for impoverished me, the fact still remains that if I had to list the great pleasures of my life, I would list: my wife, my children, my work, and my house. I guess you win, Peter. [Robert Miller]

Data

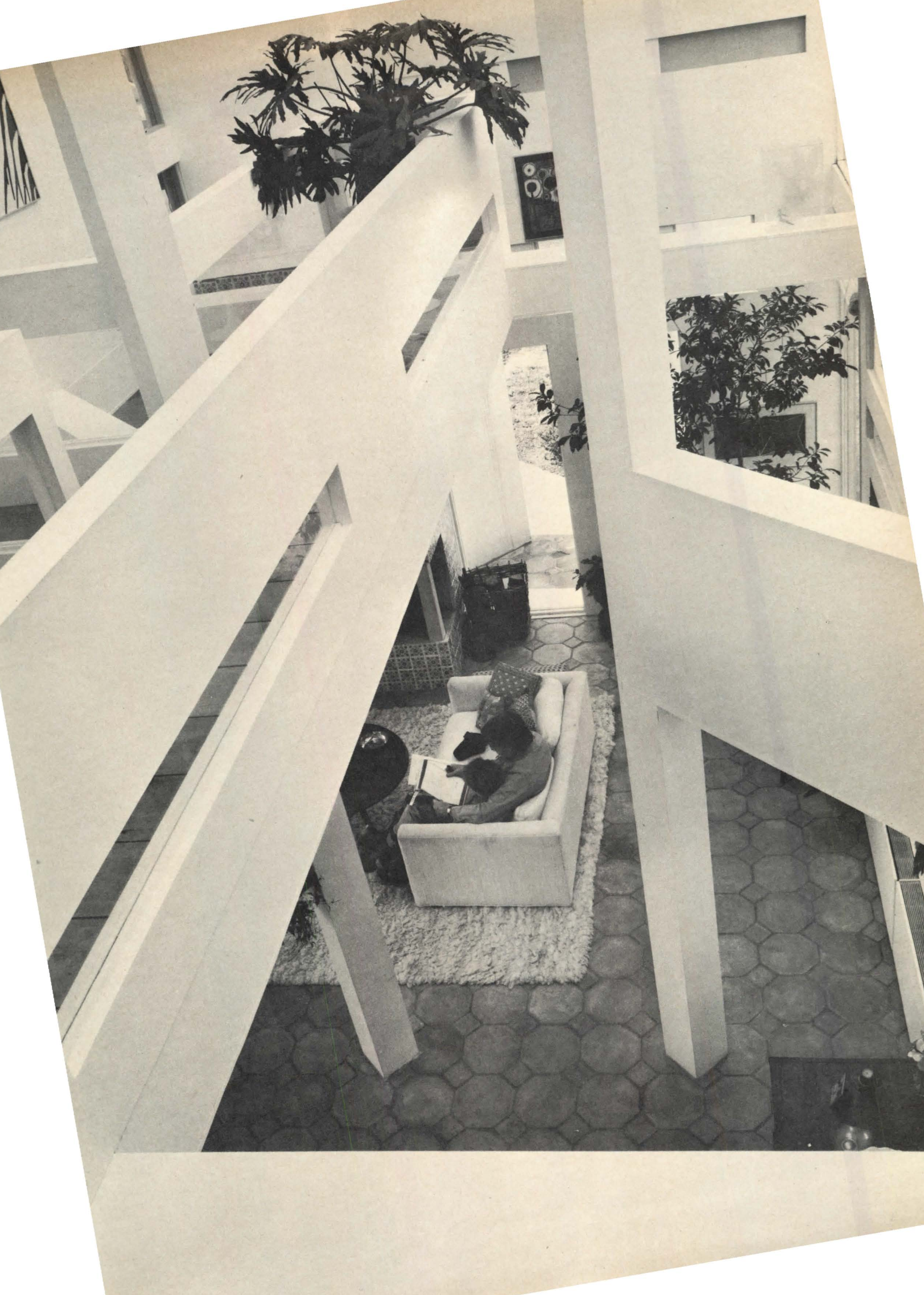
Project: House III, Lakeville, Conn.
Architect: Peter Eisenman; assistants, Gregory Gale, Joe Simons.
Program: vacation and weekend house for a family of seven.
Site: 4½ cleared acres in the wooded Berkshire foothills in the extreme N.W. corner of Conn.
Structural system: poured concrete and concrete slab foundation; post and beam wood frame.
Mechanical system: electric heating by individual floor units.
Major materials: plywood, silicone-painted walls; gypsum board, painted partitions; terra cotta floor tiles downstairs; soft pine floorboard upstairs; insulated plastic translucent skylights; silicone-painted plywood roof.
Consultants: George Langer, mechanical; Geiger-Berger, structural.
Client: Mr. and Mrs. Robert Miller.
Costs: withheld at request of clients.
Photography: Martin Tornallyay except p. 93, David Morton; p. 97 bottom, Peter Eisenman.



SECOND FLOOR



FIRST FLOOR



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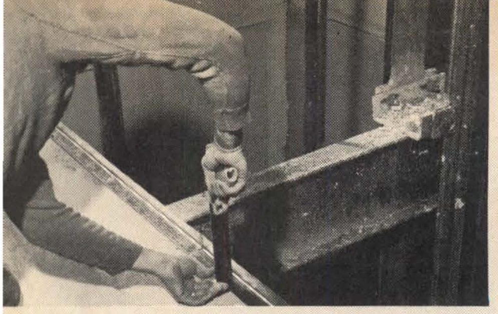
Books continued from page 15

other works of pure engineering. With Condit one never got very far from the structural facts of the case, and it is reasonable to say that he gave the elements a much-needed emphasis in architectural history. What was missing in his analyses was essentially the same thing that was missing in the architecture of Mies: a social and environmental concern. Thus he wrote the history of the great buildings of the eighties and nineties without a great deal of reference to the cultural milieu from which they sprang. This omission was perhaps understandable. Although the problems of the pre-World War I era were great, they did not seem beyond solution, and in fact, the tone of the period was generally optimistic. Walter Lord called it "The Good Years," and even Lincoln Steffens, a hard judge, found more hope in Chicago than in any of the other cities which he visited. Thus Condit begins his first volume with an excellent discussion of the Burnham plan, and correctly remarks, "In 1910 Chicago had every reason to be confident of its future prosperity and to believe unquestioningly in the realization of the grand vision

[continued on page 143]



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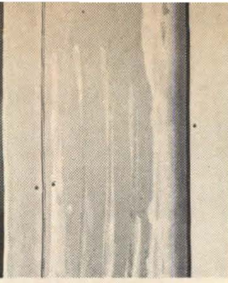

4. Applying finish layers

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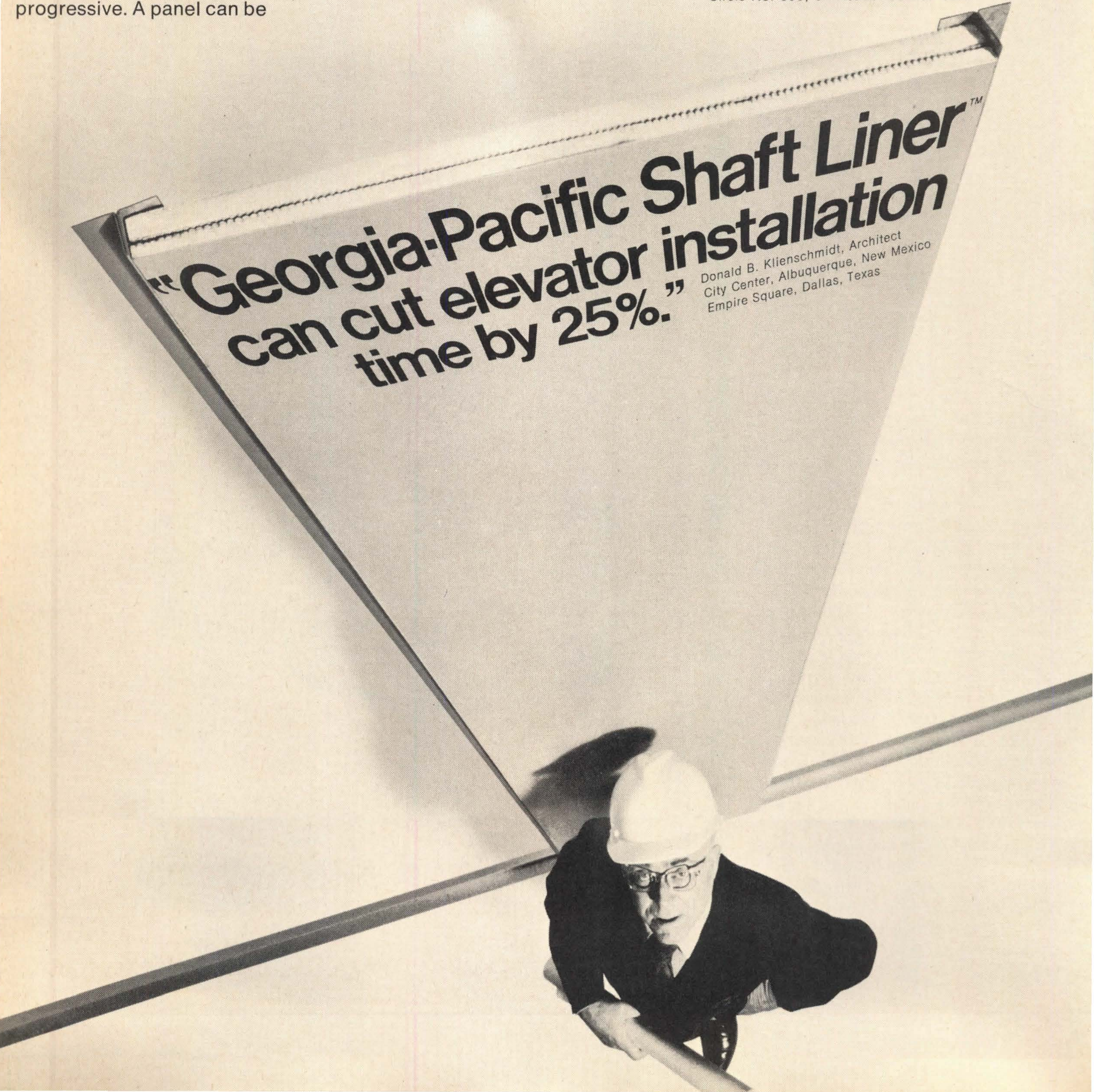


Specifications clinic

Thermal properties of building materials—Part II

Harold J. Rosen, PE, FCSI

Continuing last month's article, the writer concludes by naming the various types of insulation available and describing the properties and K values of each one.

Many different forms of insulation are available to the specifier to select and evaluate in meeting a structure's requirements for thermal design. These are rigid board, blanket or batt, blown or poured, foamed-in-place, and reflective. Rigid insulation can be further classified as organic, inorganic, and plastic. Brief descriptions of their properties and K values follow.

Inorganic rigid insulation is available as glass fiber, glass foam, and perlite. Glass fiber is made from glass that is converted to a fiber and compressed into rigid boards of varying densities using thermosetting resins. These glass fiber boards come with vapor barrier faces consisting of aluminum, mylar, glass cloth, and kraft paper. The K value for rigid glass fiber board is in the range of 0.23 and the material can be specified to meet the requirements of Federal Specifications HH-I-558. Federal Specifications HH-I-526 is applicable to roof insulation.

Glass foam or cellular glass results when glass has been foamed to produce closed cells. The K value or rigid glass foam board is in the range of 0.40 and can be specified to meet the requirements of Fed. Spec. HH-I-551.

Perlite boards are made with perlite and mineral binders and are primarily used for roof insulation. The K value is in the range of 0.36 and the board can be specified to meet the requirements of Fed. Spec. HH-I-529.

Organic rigid board insulation is available as wood fiber, cane fiber, and cork. The wood and cane fiber boards are manufactured by felting the fibers and then impregnating them with asphalt or coating them with asphalt to make them water resistant when used as roof insulation. The wood and cane fiber boards have a K value in the range of 0.36. Cork board has been used principally for cold storage application and roof insulation; however cost and availability has reduced its use and manufacture. Wood or cane fiber boards can be specified to meet the requirements of Fed. Spec. LLL-1-535.

Plastic rigid board insulations are made from polystyrene, polyurethane and, more recently, from phenol-formaldehyde, which is produced in Europe and is not in full production in this country. Polystyrene board has a K value range of 0.20 to 0.26, urethane a K value of 0.15, and phenol-formaldehyde a K value of 0.22. Urethane insulation can be specified to meet Fed. Spec. HH-I-530, and polystyrene, HH-I-524.

Glass fiber, mineral or rock wool, and cotton are used for blanket or batt type insulations. The loose fibers are formed into blankets and enclosed in kraft paper. Rock and mineral wools are made by melting suitable furnace slags and fiberizing the molten material. The densities of blanket or batt type insulation vary from ½ lb to 1½ lbs and have K values in the range of 0.25 to 0.35. Some blankets have vapor barrier facings on one side. Batts or blankets are used primarily for installation between studs or joists. Made in widths to accommodate standard spacings, they often have paper flanges for nailing or stapling to wood members. Mineral fiber batt and blanket type insulation can be specified to meet the requirements of Fed. Spec. HH-I-521.

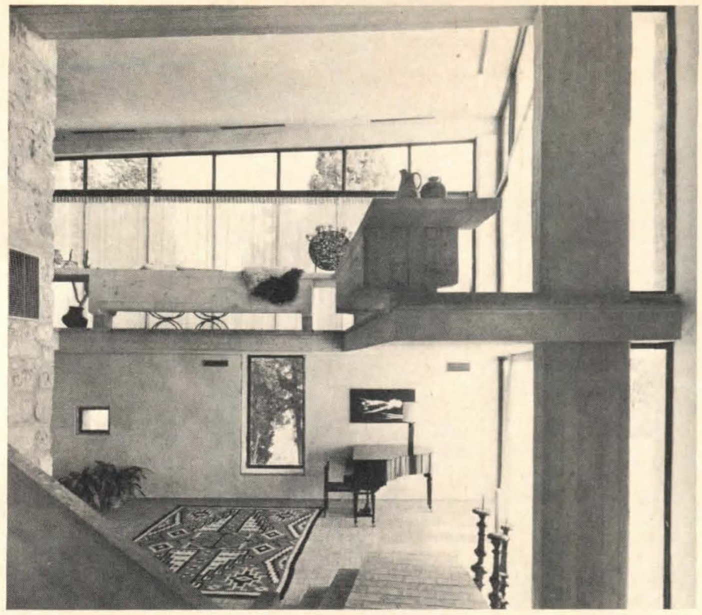
Blown or poured insulation is made from perlite, vermiculite, and glass fiber. Perlite is volcanic rock which is crushed and graded into small pellets. Vermiculite is made by expanding mica at high temperatures and then grinding the product to pellet size. Glass wool pellets are similarly produced by converting the glass fiber into pellets. Blown fill, normally used to insulate side walls and attic floors of residences, is applied by a blower. Poured fills are usually deposited by pouring from bags or containers directly into masonry cavity walls or open attic floor areas. Loose mineral wool or glass can be specified to meet the requirements of Fed. Spec. HH-I-530; granular perlite, HH-I-574 and vermiculite HH-I-585.

Foamed-in-place insulations comprise the organic plastics such as polyurethane and ureaformaldehyde. Although polyurethane has been used for roof and wall insulation, its flame spread and smoke development characteristics have made it quite suspect. Specifiers have been loathe to use this material except under controlled conditions or in configurations that would prevent or minimize the possibility of fire. Ureaformaldehyde is receiving more attention as a foamed-in-place insulation in view of its lower flame spread characteristics. The K value for urethane is about 0.15 and for ureaformaldehyde it is about 0.20.

Reflective type insulations consist mainly of aluminum foil sometimes laminated to kraft paper. Accordian type reflective insulations are usually manufactured for application between wood studs and wood joists. When applied in these areas the material fans out forming several air spaces between several layers of aluminum. Aluminum foil is also used as a lamination on gypsum wallboard and gypsum lath. Used in this manner it provides a vapor barrier and a reflective insulation.

Author: Harold J. Rosen is an independent construction specifications consultant in Merrick, New York.

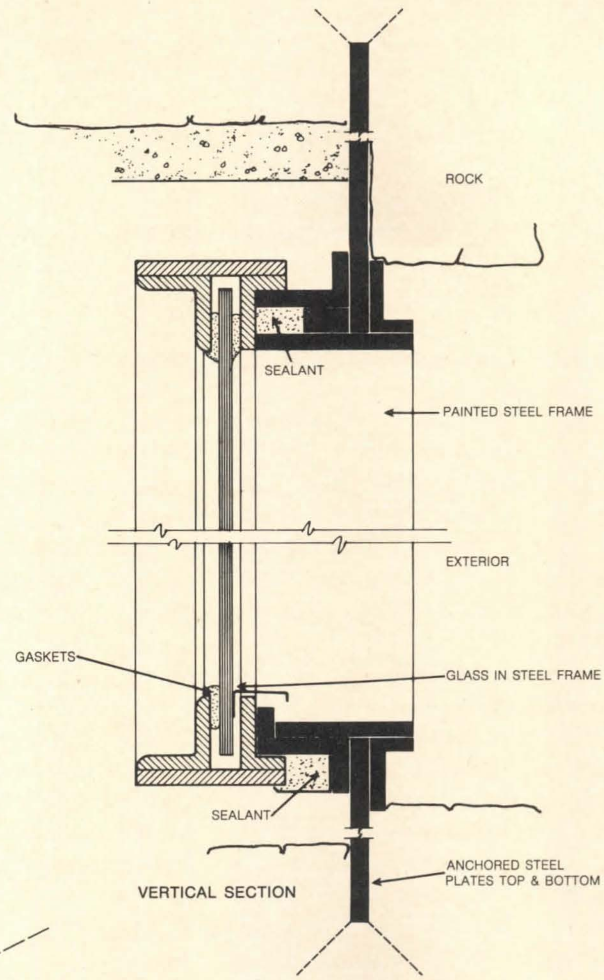
Steel windows



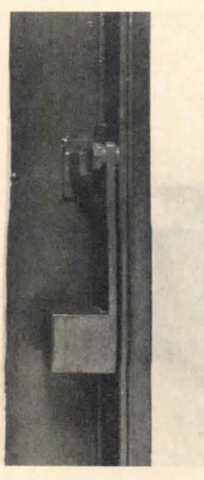
Your next project will probably *not* be detailing new windows for an old farmhouse near Florence. However, architect Theodore Waddell's renovation/conversion of an old Tuscan farmhouse in Fiesole, Italy (P/A, June 1969 p. 132) called for window sections that could solve a number of problem conditions. Relationships between new windows and old stone walls (2 ft thick) were critical, as were details at new concrete construction. Glazing as small as one foot and as large as an entire wall had to be dealt with. Some had to pivot vertically, some required hinging, either horizontal or vertical, some to swing in, some out.

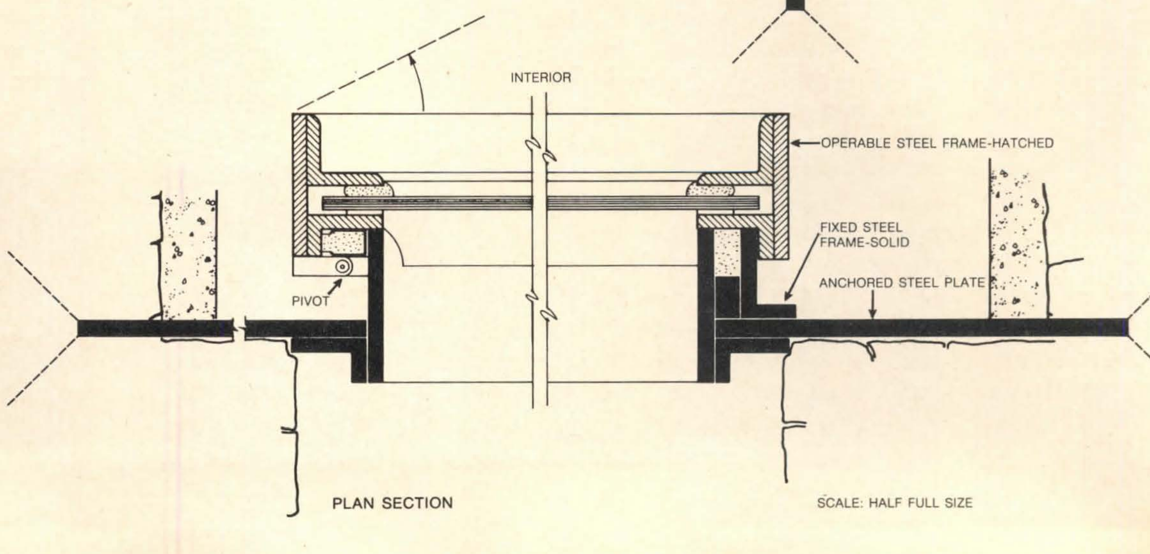
Waddell's solutions are built-up compositions of standard steel bars and angles, carefully assembled for each condition. Vertically pivoted panels in large glass walls have no fixed mullions. They are, as the architect notes, "sculptures, the passage from indoors to outdoors becomes a transition. . . ." Windows in the old walls are hinged, opening to exactly 90 degrees, and are almost entirely contained by the wall thickness. All closers and lock handles are skillfully designed to be out of the way when the frames are closed, their dimension within the frame.

Architect: Theodore Waddell
Fabrication: Ditta Adone Ermini of Incisa Valdarno
Photography: details, Raffaelo Bencini; interior, Balthazar Korab



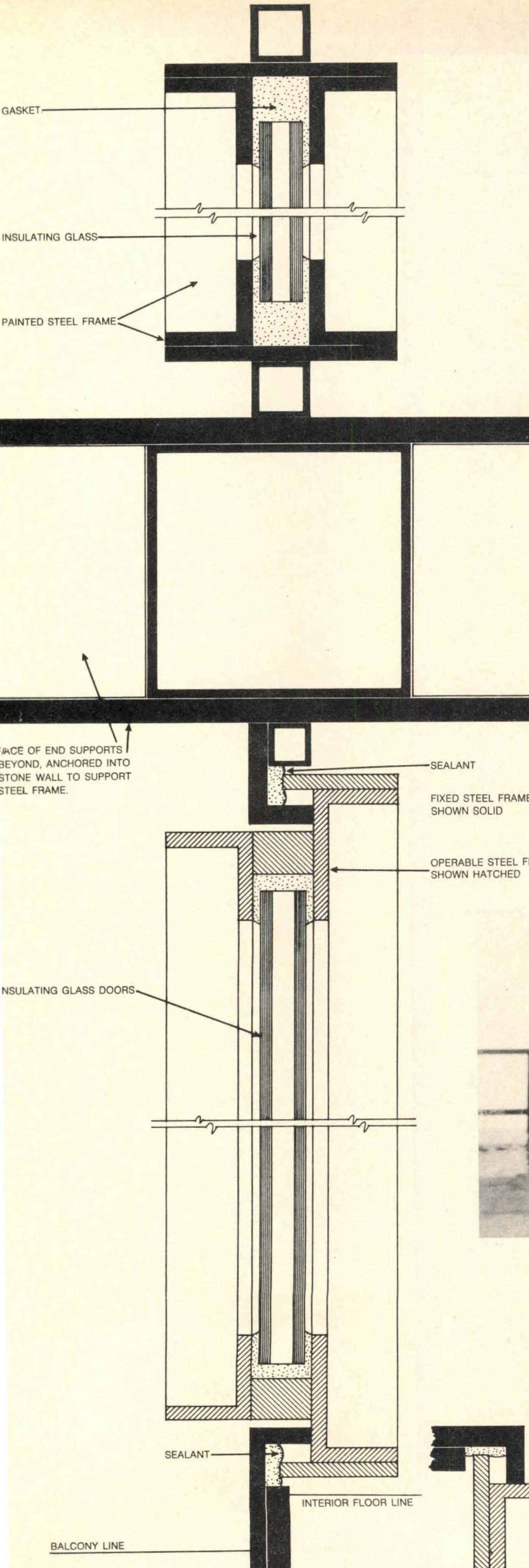
VERTICAL SECTION



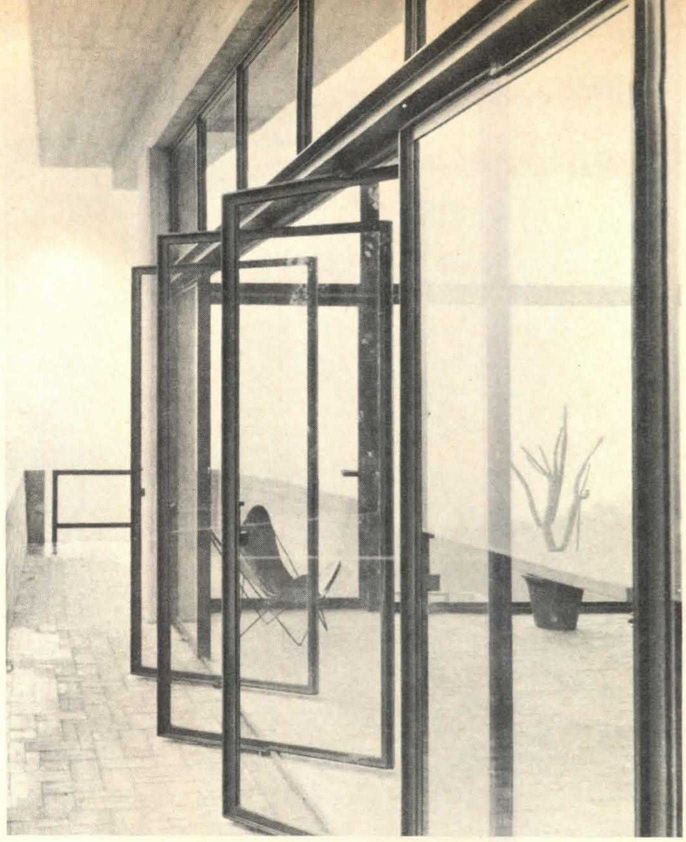


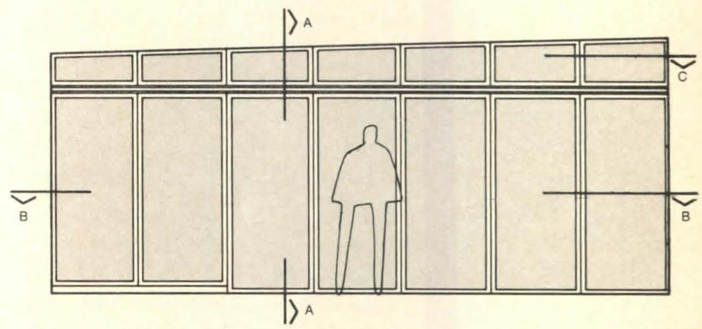
PLAN SECTION

SCALE: HALF FULL SIZE

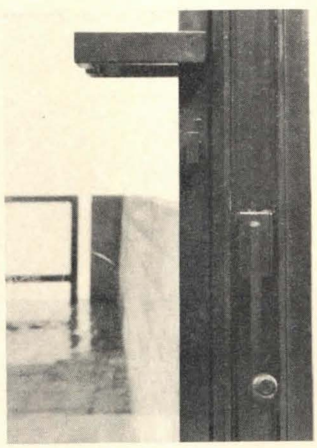


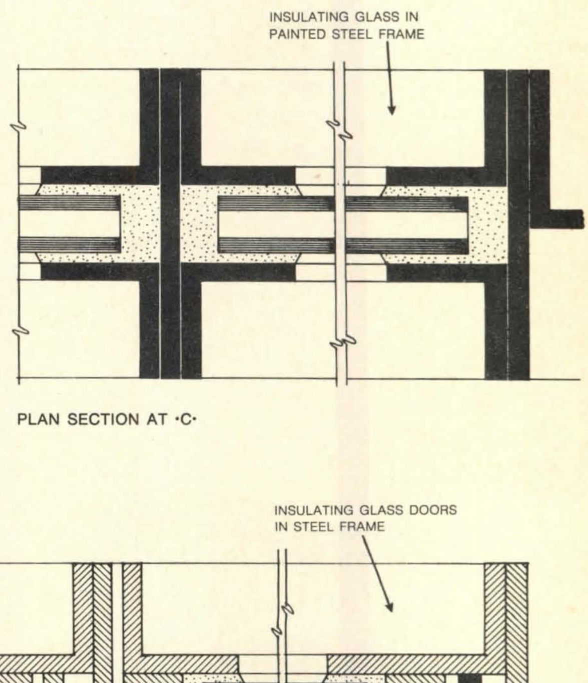
VERTICAL SECTION AT ·A·A



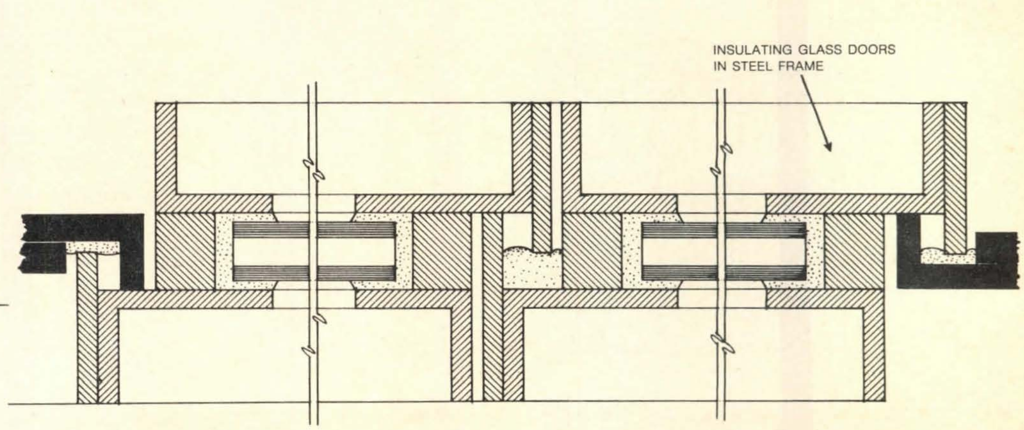


ELEVATION





PLAN SECTION AT ·C·



PLAN SECTION AT ·B·B

SCALE: HALF FULL SIZE

A guide to escalator planning

Calvin L. Kort

Vertical transportation needs in many building types have brought escalators into the picture in increasing numbers, and architects should know their potential.

The use of escalators has expanded from department stores and subway stations to office buildings, hotels, hospitals, outpatient buildings, schools, stadiums, museums, etc. Why has their use increased so significantly during the past decade?

The answer is two-fold. First, people have become accustomed to escalators and often prefer them to elevators for up to two or three floor runs. Second, the inherent high carrying capacity of escalators has made them economically preferable to elevators under certain conditions. There is, however, a limit to the number of floors for which escalators should be provided. If the escalators are arranged in a "criss-cross" manner so that the "up" exit of the lower escalator is immediately adjacent to the "up" entrance of the upper escalator, the overall transfer time between escalators is minimal. This arrangement, together with an escalator speed of 120 fpm, has been used successfully for heights up to six floors above the building entrance level.

Escalators, therefore, should be considered for practically all types of buildings as a substitute for or supplement to an elevator system, provided the traffic capacity requirements justify their use economically. The economic analysis should include the initial costs, space use, and maintenance costs of both the escalator and elevator installations.

Although designers occasionally include escalators in their plans for convenience or aesthetic reasons, the escalator applications encountered most frequently are:

Office buildings

1 An office building with large floor areas on the floors immediately above or below the building entrance level. If the peak loadings to these floors are sufficiently large, escalators can be economically justified as indicated by the following example: A six-story single-occupancy building with a net rentable area of 60,000 sq ft per floor, and an average density of 120 sq ft per person, or a population of 500 persons per floor. Assuming an arrival rate of 20 percent of the population in a five-minute period, the vertical transportation system will be required to carry 100 persons per floor every five-minutes. To provide capacity for this arrival peak would require seven elevators equipped with a morning peak zoning operation. Two 32-in. escalators between each floor, arranged so that both escalators are operated in the same direction during the morning and evening peaks would provide more than sufficient capacity. The cost of these escalators together with the cost of one elevator for the handicapped and for freight service would be less than that of the seven passenger elevators and one freight elevator when all costs including areas used and maintenance costs are considered.

2 An office building located on a sloping site and designed with building entrances at two levels. The natural inclination of the building designer is to design the elevators to operate from both levels. This double lower terminal condition decreases the elevator efficiency by about 15 to 20 percent. Even if additional elevators are included to maintain the desired level of elevator service, the service frequently becomes unattractive at the upper loading level due to the arrival of partially full cars from the lower level and the need of passengers who entered at the lower level to wait for further loading at the upper loading level (which may or may not occur).

The installation of escalators between the two lower entrance levels permits an elevator arrangement with a single lower terminal. The improvement of service, decreased cost of elevators, saving of core space, and reduced maintenance costs frequently justify the additional cost of escalators between the building entrance levels.

3 The presence of a company cafeteria on an upper floor of a building can seriously affect the quality of service provided by the elevators serving the cafeteria floor. It is normally recommended that such dining facilities be located on the building entrance floor or on a floor located directly above or below this level. Escalators are frequently used to connect the building entrance level to the cafeteria level. If the escalators are located so they lead directly into the approach of the cafe-

Author: Calvin L. Kort is a consulting engineer and head of his own firm, specializing in vertical transportation. He has spent 13 years with a major elevator manufacturer and 14 years as a partner in charge of vertical transportation with Jaros, Baum & Bolles, consulting engineers. Two of his major design responsibilities were the World Trade Center and the Sears Tower.

teria lines, the convenience and immediate availability of the escalators make them a most attractive solution to the traffic movement problem created by the cafeteria facilities.

Hospitals

1 Escalators are used in hospitals to transport staff, visitors, and ambulatory patients to an upper floor level which then becomes the lower terminal for the public elevator system. This requirement is often encountered where new hospital buildings are constructed on sloping sites adjacent to existing hospital buildings. The use of escalators under these conditions again eliminates the double lower terminal problem, thereby limiting the elevator requirements to the typical patient floors above.

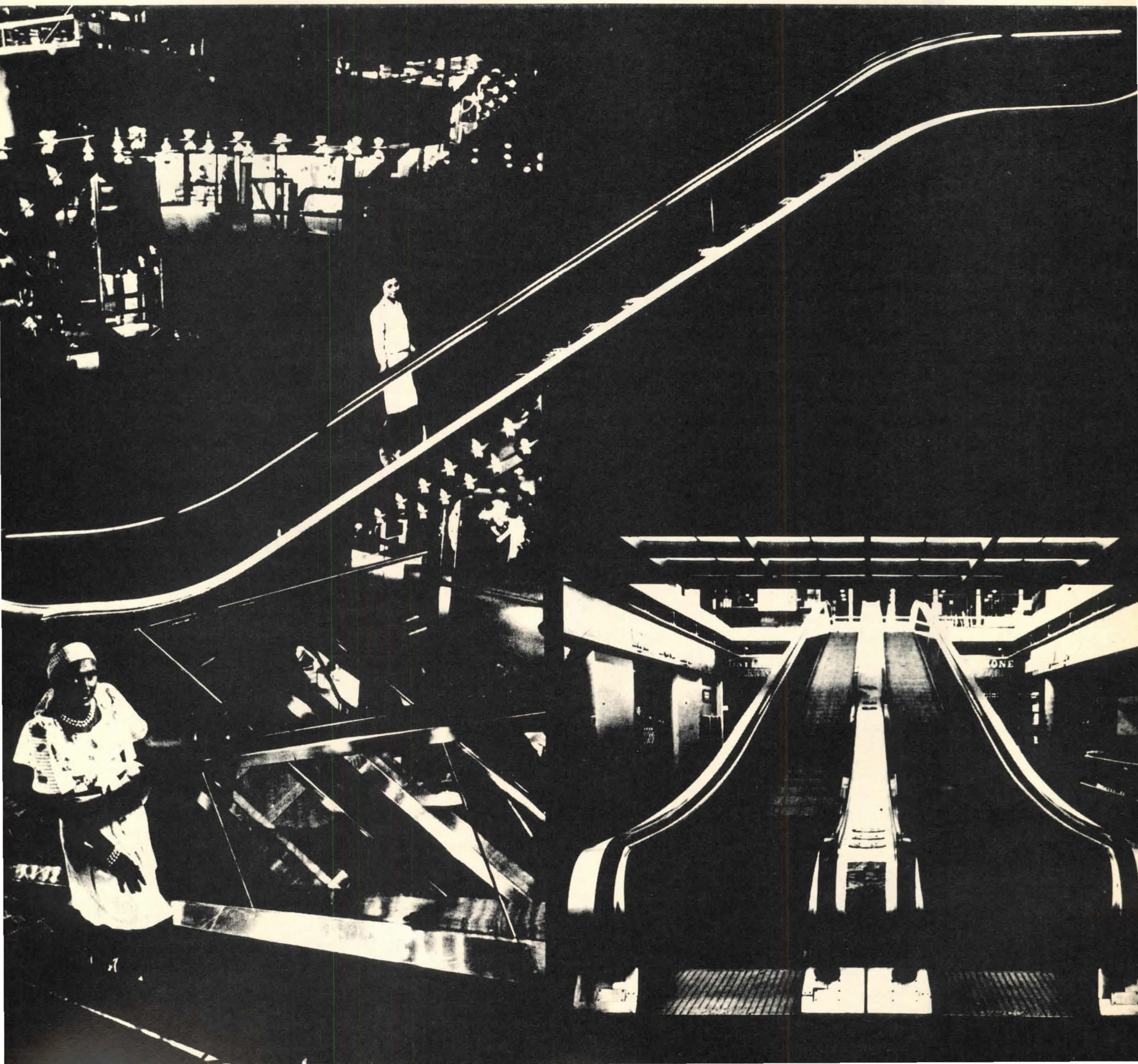
2 Escalators in hospital buildings are also used to connect out-patient clinics to the building entrance level. The patient and escort loads to the out-patient facilities are frequently sufficient to economically justify the use of escalators.

Hotels

The existence of many facilities normally provided on the hotel entrance level frequently makes it impractical to locate ballrooms, banquet facilities, and hospitality and meeting rooms on this level. As a result, these facilities are usually located above or below the main hotel entrance level. If the loads created by these facilities are imposed on the elevator system, it may become unsatisfactory. Therefore, it is frequently necessary to install additional ballroom elevators or escalators to serve these special facilities. If the vertical distance between the ballrooms, banquet rooms, etc. and the hotel entrance level is not excessive, escalators are usually the most economical and practical solution.

Schools

Classroom buildings are characterized by heavy traffic movements at the beginning of classes and during classroom breaks. Traffic counts have been conducted in high-rise



schools which indicate that during the classroom break period as many as 80 percent of the students on a floor will move to another floor during a five-minute peak period. Although a portion of the students will use the stairs for one to three floors or more, most of the students use the vertical transportation system. In a multistory school building with large classroom facilities, escalators should be considered for connecting the classroom floors, cafeterias, lounges, and building entrance levels, as probably the most economical solution. Elevators can then be used to serve the faculty facilities, administrative offices, laboratory facilities, and special classes located on the upper floors of the building. Separate freight elevators should be considered for moving school supplies, food, etc. In addition, elevator service should be provided for handicapped persons to all building levels.

Courthouses

Courthouses with a large number of courtrooms combined with a high usage factor are possible candidates for escalators. If the large courtrooms are located on the lower floors, the peak loads created by the persons attending the trail during the trial recesses and endings can be carried most expeditiously and economically by escalators.

Escalator selection

Once it has been decided that escalators are to be used, the numbers, size, and speed of the escalator equipment must be determined.

After arriving at the peak loading condition, the number of escalators required for the building can readily be determined by applying the following escalator ratings. (You will note that the "actual ratings" listed below are considerably below the "nominal ratings" provided by the equipment manufacturers. These "actual ratings" are the result of traffic counts made on escalators under full demand conditions, i.e., under conditions when the escalator demand exceeded the carrying capacity of the escalators. These capacity capabilities will vary somewhat, depending on the usage, location, layout, etc. of the escalators.)

Escalator width	Speed	Nominal rating	Actual rating
32 in.	90 fpm	5000/hr	3600/hr
32 in.	120 fpm	6700/hr	4200/hr
48 in.	90 fpm	8000/hr	5400/hr
48 in.	120 fpm	10700/hr	6500/hr

In applying the above escalator rating to the building requirements, consideration must be given to the speed of the escalators. While escalators with either a 90 fpm or 120 fpm could be used for some applications, it has been found from experience that certain speeds are preferable for certain applications. Where it is preferable to use a 90 fpm speed during off-peak and 120 fpm during peak periods, two-speed escalators can be purchased for an extra cost of about $3000 per escalator. An example of this application would be a large garage facility which combined parking for a large office building with public parking for a large shopping center. Under this condition, the 120 fpm speed would be preferable during the office building peak periods, while the 90 fpm speed would be preferable for the traffic to and from the shopping center. Other examples would be a subway station, where the 120 fpm speed is desired during peak traffic hours and the 90 fpm speed during off-peak periods, and a department store where the higher speed is used on the escalators leading away from the building entrance to relieve congestion. Two-speed escalators are also used where the 90 fpm speed provides sufficient capacity for the existing building requirements, but population forecasts indicate the need for the 120 fpm speed sometime in the future.

The following speed recommendations should be used as a general guide only, as building location, variable usages, etc. could have an effect on the speed selection.

Type of building	Recommended speed
Large office buildings	120 fpm
Small office buildings in large urban areas	120 fpm
Small office buildings in suburban areas	90 fpm
Special purpose buildings, e.g., museums, library	90 fpm
Large convention centers and exhibition areas	90/120 fpm (two speed)
Department stores	90 fpm
Hotels	90 fpm
Hospitals and out-patient buildings	90 fpm
Schools	120 fpm
Courthouses	90 fpm
Airport terminals	90 fpm
Subways	90/120 fpm (two speed)

Under certain conditions, the above calculations indicate that in order to obtain the required escalator capacity characterized by heavy one-direction flow, it is necessary to run all the escalators in the same direction. Under this condition, it is desirable to provide stairs in the immediate vicinity of the escalators to provide for the small amount of traffic flow which may occur in the opposite direction. Examples of this application are stadiums, garages, theaters, subways, etc.

Special requirements

High floor heights. The manufacturers have designed the standard escalators for supports at the upper and lower ends of the trusses. When the floor heights and truss lengths exceed certain limitations, it is necessary to introduce an additional intermediate structural support or supports below the truss. This critical point will vary with the manufacturer, but consideration should be given to the addition of these supports on 32-in.-wide escalators for vertical heights in excess of 23 ft and on 48-in.-wide escalators for vertical heights in excess of 18 ft.

Heavy duty escalators with high floor heights require trusses which provide an increased escalator radius at the upper end of the truss. This increased radius effectually reduces the forces imposed on the individual escalator components, a requirement necessary to extend the life expectancy of these components and maintain quiet operation. The in-

creased escalator machine sizes required to provide the horsepower output for these high-rise escalators make it necessary to provide an escalator machine room outside the escalator truss. The machine rooms can be located either directly below the upper end of the escalator trusses or directly beyond the upper end of the trusses, and must be located so as to permit direct chain connections between the escalator machines and the escalator drive sprockets. In addition the machine room should be of sufficient size to permit access for maintenance and repair requirements.

Outdoor installations. Escalators installed in areas which are exposed to weather require special weatherproofing treatment. The escalator balustrading, including deck covers, interior panels, shirt panels, should be constructed of corrosion resisting material.

The interior structure of the escalator, including the truss, drip pans, etc., should be painted with rust inhibitive paints. Special noncorrosive metals should be used for certain components, such as step axle bushings, and handrail guides. All tracks, step assemblies, chain bushings, etc., and all machined surfaces should be treated with a rust preventive compound. All hardware should be cadmium plated. Motors should be provided with special insulation and the controllers should have drop-proof enclosures. Escalator pits equipped with drains should be included in the escalator design.

Concentric newels. Since the escalator machine is normally located in the upper horizontal section of the escalator truss, this section is usually longer than the horizontal section at the lower end of the truss. As a result, the lower escalator newel of the upper escalator does not line up with the upper newel of the lower adjacent escalator when a "criss-cross" escalator arrangement is used. If, for aesthetic reasons, the building designer desires to line up these newels so that they are concentric with each other, this can be done at a relatively small expense by adding a truss extension to the lower end of the upper escalator.

Modular escalator design

Within the past two years a newly designed escalator has been introduced featuring a number of major design changes. The escalator machines have been removed from the upper end of the truss and located within the inclined section of the truss. Units for vertical heights up to 20 ft use one drive unit assembly. Multiple units are used for vertical heights in excess of 20 ft. The new design eliminates the requirement of step chains. The steps are pushed over the top curve by driving an endless chain of laminated tooth links which carry the step assemblies. This design concept greatly reduces the chain and step roller loads, which should in turn reduce wear on the step rollers, tracks, etc. The escalator is designed to fit within the space requirements of conventional type escalators.

This escalator design is particularly advantageous for application to escalators connecting levels with high vertical travels. The need for trusses with an increased upper radius, machine rooms located outside the truss, etc. are eliminated.

A major redesign of an escalator involves the design of many new components which will be subjected to many years of continuous use. These components must provide a high degree of reliability and provide an escalator operation which is quiet and free of vibration during its entire operating life. Therefore, a great deal of engineering skill is required to make such a major design transition without encountering future field problems. The manufacturer, however, is confident that the new escalator will meet all performance criteria and have made it their standard production unit.

Optional features

Some of the numerous optional features offered at extra cost by the manufacturers are:

1 Various types of interior panel treatments, including stainless steel, bronze aluminum, and laminated glass.

2 Various types of skirt panel and deck cover constructions, including stainless steel, bronze, and aluminum.

3 Skirt switches which stop the escalator should footwear be caught between the step and skirt panel.

4 A "fault-finder" device which is connected to the escalator safety circuits and illuminates a jewel to indicate which safety circuit has been activated.

5 Two-speed arrangement, allowing operation at either 90 fpm or 120 fpm.

6 Comb lights which illuminate the entrance and exit portions of the escalator.

7 Illuminated interior panels which can be obtained for either horizontal portions of the escalator or for the entire length of the escalator.

8 Light rays and/or treadle devices, which may be located directly in the approach to one or both ends of the escalator. When the escalator traffic becomes very light, it is possible to arrange the escalator to operate in one direction or both directions when desired. Interruption of the light beams or pressure on the treadle device will start the escalator in the desired direction and cause it to run for a period of time sufficient to carry the person to the end of the escalator. After this period, the escalator shuts down, available for operation in either direction as may be required.

Design evaluation techniques

Brian Bowen

The fourth in the P/A Building Cost File series, the author discusses the various techniques used for the evaluation of design and planning alternatives.

Having looked at methods of developing cost data files and using the information for estimating and cost planning purposes (P/A, July 1973, p. 88; Oct. 1973, p. 92; and Feb. 1974, p. 56), it seems appropriate that the P/A Building Cost File look at various methods used for the evaluation of design and planning alternatives. This is also opportune as the latest buzz words to appear in the litany of design—value engineering, life-cycle costing, cost-benefit analysis, etc.—have gained some common currency over recent years and, in the process, have caused a fair degree of confusion. We have a tendency to get carried away by the latest buzz word, causing a number of ideas to be rushed into print that may have been better considered to mature a while. This article will attempt to untangle some of the terminology and examine the issues involved in using these techniques creatively.

First, what is important is to realize that all these methods are not ends in themselves, but rather comparative techniques for choosing between two or more courses of action. Thus the life-cycle cost of a particular building design is practically meaningless unless it is compared to that of an alternative solution. Before considering the various techniques for conducting evaluations between design and planning alternatives, we should not ignore the traditional method of arriving at decisions based on capital cost evaluation only. This is considered passé these days, but it is still surprising how many clients, after having been given an exhaustive analysis of long-term life-cycle costs, discounted to present values, at various rates of discount, over different cost horizons, will still ask: "Yes, but how much extra do I have to find to be able to install system B instead of system A?" This of course is a very real problem, because some of our clients are quite unable to raise the funds necessary to spend a dollar to save a dollar—others of course do not really care or understand.

Life-cycle costing. This is a technique involving the appraisal of the initial costs, the operating and maintenance expenses, and the renovation and replacement costs of a facility, component, or material, over a selected life-cycle or estimated useful life period. Life-cycle cost studies may be applied to: analyzing alternative methods of satisfying space needs (e.g. to build new or to renovate an existing building, to build for long-term life or for temporary, short-term use and to rebuild later); appraising long-term implications involved between alternate system designs (e.g. a dual duct v. terminal reheat HVAC system, a masonry wall v. curtain wall); evaluating cost differentials between material or component selections (e.g. resilient tile v. carpet, concrete block v. demountable partitions); analyzing operational systems costs (e.g. self-service retail concept compared to traditional, inhouse laundry v. commercial service).

Generally in these studies, quality and performance differences are assumed equal or ignored—a defect which the next method of appraisal attempts to correct.

Value analysis (synonymous with value engineering). This establishes a concept of value in relation to the specific problem being examined. It provides a methodology for selecting the best balanced cost-value solution, taking into account not only first and annual costs but also functional adequacy. Now the equations are becoming a little difficult—suddenly a concept of value has been introduced and this can be an awkward problem to define objectively. Partly because of this, value analyses tend to compare functions on a statistically quantifiable basis only (e.g. equal "U" values) or to admit into the range of alternates studied only those solutions meeting fixed performance parameters. Value analysis can be applied to the same range of problems identified above as being appropriate for use with life-cycle costing, although it is most effective when used to rationalize system design and material and component choices. There is a tendency for it to be applied to "after the fact" design appraisals, when obviously more is to be gained by using the disciplinary processes involved at early design concept stages.

Cost-benefit analysis. This is a technique for examining alternative problem solutions, not only in terms of costs and values, but also taking into account functional, social, and other intangible transactions that may be involved. A "bal-

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ance sheet" is drawn up with positive costs and benefits on one side of the ledger and negative ones on the other. All factors are quantified as far as possible into monetary terms or other quantities (e.g. time differentials). Cost-benefit is most appropriate for use where major planning decisions are involved, in which several parties are likely to be affected by the outcome, e.g. to expand an existing airport or to build a new one and, if so, where; to decide the location of a new highway, etc. The method can also be used in evaluating large-scale building decisions, especially where these affect a wide range of people and organizations, as does a major downtown redevelopment, for example.

Methods of calculation.

Thus, as we move through the four basic systems of evaluation—capital cost, life-cycle, value analysis, cost-benefit—the ingredients of the evaluatory technique become more and more subjective, as concepts of value are introduced and intangible elements require quantification. Obviously any

Any method of appraising two different courses of action implies standard methodology

method of appraising two different courses of action must be carried out on exactly the same basis. This implies that a standard methodology and set of rules for each is developed and this is where we begin to encounter some problems.

As all the techniques involve combining capital and annual expenditures into one figure, the methods used to equate these different costs, which occur at different times, can significantly affect results and hence the decisions based on the calculations. Some swear by the reduction of all costs to present values by discounting future expenditures back to current worth; others feel more comfortable with a uniform annual cost approach in which capital costs are spread over a selected period of years for recovery. Where revenues are involved, the rate of return on investment is a more common method of calculation. In all these, selection of appropriate interest or discount rates, and their interrelationship to inflation forecasts, are critical if realistic appraisals are to be made.

Cost escalation is especially problematical as many argue that provision for future inflation is already taken into account in current market interest and discount rates. Most economists agree that the "real" rate of interest lies between 3 and 4 percent per annum, thus, if current interest rates are 8 or 9 percent per annum, then investors are anticipating future price inflation of 5 percent annually. In this case it would not be necessary to escalate estimates of future costs for operating and maintenance for instance in general, but it would be necessary to identify any elements in the calculations which may be expected to inflate at a higher-than-average rate.

Durability. Most studies require that the probable durability of either a complete building or its components be established. Theoretically, durability should be determined on the basis of observed probabilities of failure, but surprisingly, there appears to be very little information available on anticipated life expectancies of many building systems and materials. This is particularly so for longer life elements, such as curtain walls. Generally, if only because we are constantly aware of the repair and maintenance problem, there is a tendency to over-estimate replacement cycles. Some studies indicate that the replacement cost of components due to failure and wear and tear may reach as high as 100 percent of the original building cost over a 50-year life-cycle—and this excludes any work classified as renovations or alterations. Establishing realistic life expectancies is particularly essential when two alternatives involving quite different life-cycles are the subject of study (e.g. paint v. wall covering).

Operating and maintenance cost data. A serious deterrent to the use of life-cycle/value analysis/cost-benefit techniques, is the general shortage of reliable operating and maintenance cost information, especially in the form in which it is needed for these studies. It is bad enough, as we know, attempting to estimate capital cost expenditures, but at least we generally know something about these, or we know where to go to obtain the necessary data. O & M costs are another matter—we are not familiar with them because the construction industry is rarely involved in operating and maintaining buildings and thus does not obtain any significant quantities of cost feedback. Where data are available, they are often found to be in the wrong form for use in applying to evaluation studies during design. The cost framework within which O & M costs are collected tends to be dictated by accountants who are more interested, quite correctly, in the financial control of the process, than they are in identifying how much has been spent on which part of which building. It is not surprising to find for example that O & M costs for multi-building operating units, such as a university campus, are not available for individual buildings. Also it will usually be found that the costs are collected on a labor-material basis and can rarely be separated into functional operations such as: exterior repainting as distinct from interior.

An essential part of any life-cycle/value analysis program, in my view, is to bring about a closer cooperation between design and construction teams and operation and maintenance forces, in order that any new building may be monitored during its life and the results fed back to improve future design and provide information for conducting studies of alternative solutions. The Building Owners' and Managers' Association (BOMA) maintains a cost feedback system for office buildings its members manage. The data are published annually and perhaps widening this system to other building types would be useful to the entire value problem.

Appraisal of quality. A great deal has been written about the problems of appraising and specifying quality and performance levels for buildings and their components and I am not going to add any comments here. Suffice it to say that concepts of value may well vary from owner to owner, from architect to architect, and it is obviously important to ensure that the same value objectives are being applied from project to project. Apart from statistical methods of identifying quality, e.g. "U" values, temperatures, bearing capacities, etc., comparisons can be made by adopting ranking systems in which points are assigned to various qualities and each alternative is then subjectively ranked against these criteria.

To conclude, no one should doubt that the design evaluation techniques discussed are powerful tools for arriving at sound and rational decisions on design alternates. However, because of their power, full value will not be obtained from them unless the problems reviewed above are addressed and solved. This means reading, attending seminars, and practising before unleashing studies on clients.

P/A building cost analysis

Building type: College

Classification No. 721

Project: Kresge College, University of California

Location: Santa Cruz, Calif.

Architect: MLTW/Moore and Turnbull
Owner: The Regents of the University of California
General Contractor: Bogard Construction Co., Inc.

Tender date/completion: Oct. 1971–Nov. 1973
Market conditions: Very competitive
Cost index:

Elemental category	Element cost		Element amount		Cost per sq ft		%
	Quantity	Unit Rate	Sub	Group	Sub	Group	
100 Foundations	**54,109 sq ft**	**5.25**		**283,956**		**2.80**	**7.9**
110 Normal foundations	54,109 sq ft	5.25	283,956		2.80		
120 Basement excavation	—	—	—		—		
130 Special foundations	—	—	—		—		
200 Building shell	**291,329 sq ft**	**3.36**		**978,372**		**9.65**	**27.1**
210 Structure	**109,727 sq ft**	**4.34**	**475,779**		**4.69**		
211 *Lowest floor construction*	54,109 sq ft	2.89	156,309		1.54		
212 *Upper floors construction*	47,307 sq ft	2.99	141,243		1.39		
213 *Roof construction*	64,420 sq ft	2.86	178,227		1.76		
220 Roof finishes	**65,541 sq ft**	**0.83**	**54,343**		**0.54**		
230 Exterior cladding	**127,493 sq ft**	**3.41**	**434,597**		**4.29**		
231 *Basement walls*	—	—	—		—		
232 *Exterior walls above grade*	104,143 sq ft	3.50	364,407		3.59		
233 *Windows*	14,236 sq ft	2.52	35,913		0.35		
234 *Entrances & storefront*	9,114 sq ft	3.76	34,277		0.34		
240 Stairs	**102 sq ft**	**133.85**	**13,653**		**0.13**		
300 Interiors	—	—		**634,491**		**6.25**	**17.6**
310 Partitions and doors	**88,676 sq ft**	**2.04**	**181,630**		**1.79**		
320 Interior finishes	—	—	**231,959**		**2.28**		
321 *Floor finishes*	92,216 sq ft	1.04	95,665		0.94		
322 *Ceiling finishes*	92,216 sq ft	0.81	75,100		0.74		
323 *Wall finishes*	177,352 sq ft	0.35	61,194		0.60		
330 Specialties & equipment	—	—	**220,902**		**2.18**		
331 *Specialties & fittings*	—	—	154,852		1.53		
332 *Equipment*	—	—	66,050		0.65		
400 Conveying systems	—	—		**Nil**		—	—
410 Elevators	—	—	—		—		
420 Moving stairs and walks	—	—	—		—		
500 Mechanical & electrical				**1,041,879**		**10.27**	**28.8**
510 Mechanical			**655,655**		**6.46**		
511 *Plumbing and drainage*	322 No.	903.91	291,058		2.87		
512 *Fire protection*	—	—	109,544		1.08		
513 *HVAC*	1,248,764 cu ft	0.20	255,053		2.51		
520 Electrical			**386,224**		**3.81**		
521 *Distribution*	—	—	329,195		3.25		
522 *Lighting*	—	—	57,029		0.56		
523 *Special systems*	—	—	—		—		
600 General conditions & profit	—	—		**253,053**		**2.50**	**7.0**
Net building cost: $				**3,191,751**	**$**	**31.47**	
900 Site development	**253,466 sq ft**	**1.65**		**416,992**		**4.11**	**11.6**
Total cost: $				**3,608,743**	**$**	**35.58**	

Based on data supplied by MLTW/Moore and Turnbull.
Cost and performance analysis prepared by HANSCOMB ROY Associates Inc.

Performance & Specification Data

Areas and volumes
Gross floor area (GFA): 101,416 sq ft
Net floor area: 85,081 sq ft
Volume: 1,248,764 sq ft
Exterior wall area: 127,493 sq ft
Roof area: 62,420 sq ft
No. of stories above grade: 2
No. of basement levels: 0

Ratios
Net/GFA — 0.839:1
Volume/GFA — 12.313:1
Ext. wall/GFA — 1.257:1
Roof/GFA — 0.615:1
Lin. ft. partitions/GFA — 0.080:1

Capacities
Percent ext. wall glazed: 11.17%
Soil characteristics: thick topsoil on sandy/clayey residual sub-soil
Density plumbing fixt.: 1/315 sq ft
Heating capacity: 40 btu/hr/sq ft
Cooling capacity: none
Ventilation capacity: 0.75 CFM/sq ft (avg.)
Lighting intensity: 35 Fc (avg.)

Outline Specifications
100 3000 psi concrete strip footings and pad foundations.
211 3000 psi concrete slab on grade and suspended wood framing and plywood deck floor and balconies.
212 Wood framing and plywood deck with glued laminated beams where required.
213 Wood framing and plywood deck with glued laminated beams where required
220 4 Ply built-up felt roofing with one ply of resin sized sheathing paper and metal flashings, composition shingles, and roof lights.
232 Generally stucco on expanded metal lath on bitumen impregnated sheathing board, wood framing, thermal insulation, and gypsumboard. Also some 2500 psi concrete walls at ground level.
233 Aluminum fixed, sliding and awning windows with sheet, polished plate, and wired glass.
234 Aluminum sliding glass doors and wood and metal prehung doors.
240 Generally concrete stairs finished with carpet.
310 Partitions are generally wood framing with gypsumboard.
321 Quarry tiles, seamless flooring, resilient flooring with rubber base, magnesium oxychloride cement flooring, hardwood strip flooring, and carpet.
322 Generally gypsumboard painted or concrete painted.
323 Generally gypsumboard painted.
331 Mirrors, toilet accessories, chalkboards, tackboards, metal fireplaces, mailboxes, window shades, audio visual blinds, kitchen cabinets.
332 Walk in refrigerators, kitchen appliances, food service equipment.
511 C.I. and copper piping standard for this type of building.
512 Fire extinguishers and sprinkler system.
513 Central forced hot air heating generally with hot water circulating system to convectors and fan coils. Separate local exhaust fans for kitchens and bathrooms.
521-3 Distribution system is 120/208, 3 phase, 4 wire including power, light, fire alarm, telephone and communication system and outside lighting and distribution.
600 General contractors initial mobilization, supervision, overhead, and profit.
900 Landscaping, bituminous concrete paved areas, grading, concrete paving, ramps, retaining walls, steps, and drainage.

Cost per cu ft: $2.89

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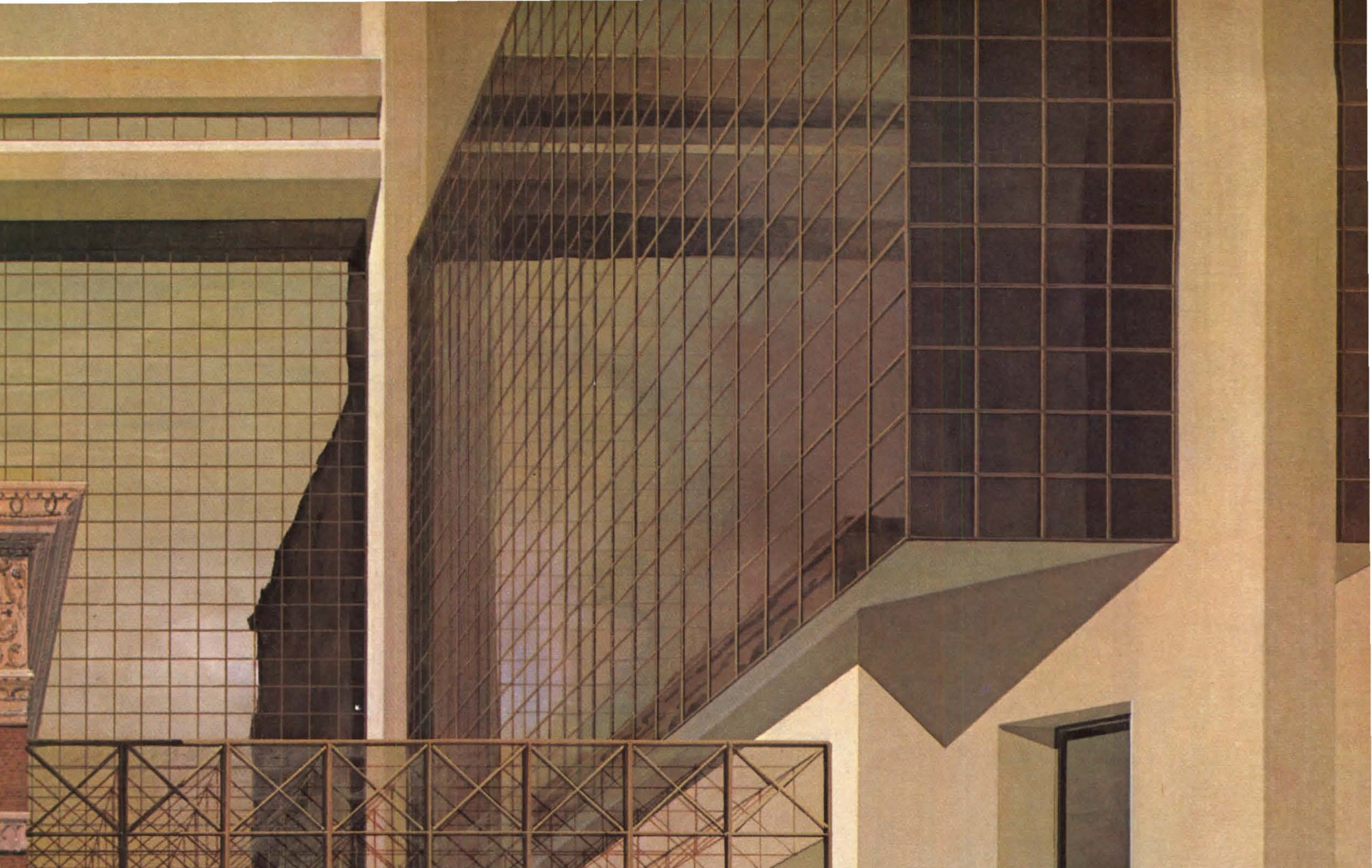

lesign.

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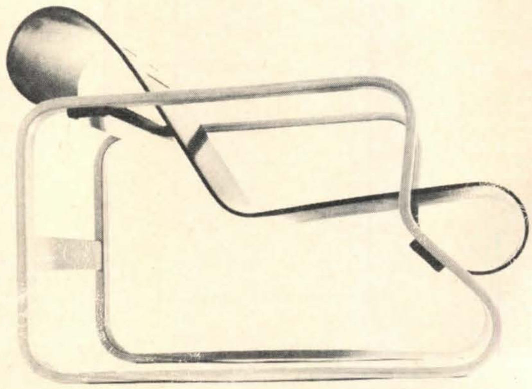
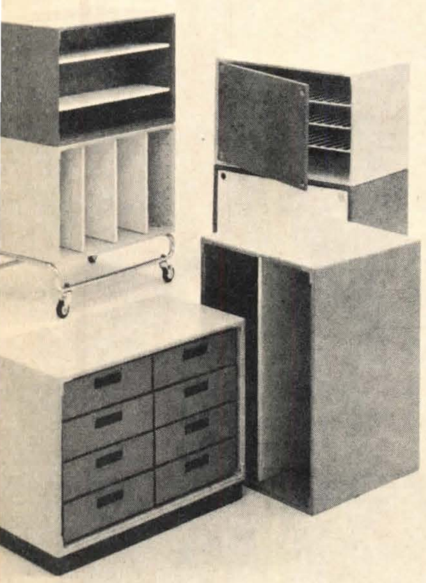
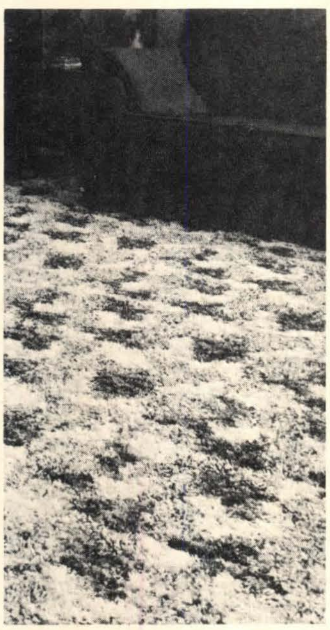
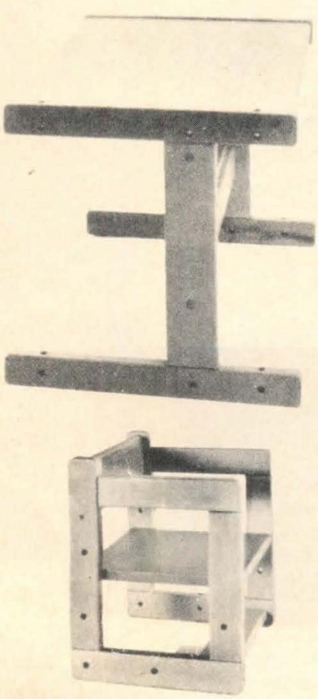
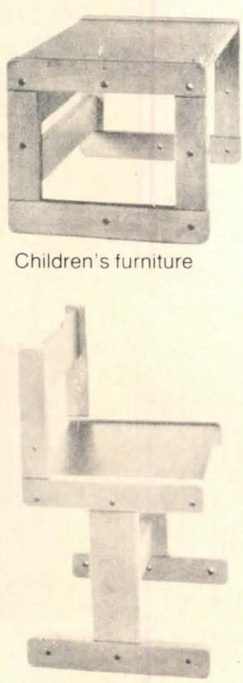

Scroll chair


School casework


Shag carpet




Children's furniture

Classic scroll chair, with seat and back made of bent flat plywood, was first designed by Alvar Aalto and is again in limited production and on display at the Museum of Modern Art and at company's New York and Chicago showrooms. International Contract Furnishings, Inc.
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Teredowood. A wormwood pickled in sea water, it comes only from Puget Sound, and is in limited supply. Special appeal for occasional tables, desks, credenzas, curio and gun cabinets, bars, and picture frames. It can also be used in homes and for accent wood in cocktail lounges, clubs, Teredowood.
Circle 102 on reader service card

Tropic Oak. A special process gives door trim the appearance of oak but is less costly. It is real wood refinished in either walnut, maple, or provincial white. Comes in complete sets and random lengths. International Moldings, Inc.
Circle 103 on reader service card

School casework. Composed of three basic components—bases, containers, and panels—which combine with shelves and doors to form book stacks, cupboards, and tables, etc. Lightweight basic storage units are cast-in-one piece, rigid polyurethane; metal shelves have foamed-in-placed urethane core. Panels have foamed-in-place urethane core and can be used horizontally or vertically. Features are doors that hinge in any direction, portable sinks that fill and drain through a simple coupling, and injection molded polypropylene tote trays. Cameron-McIndoo.
Circle 104 on reader service card

Multilevel shag carpet. 100 percent space dyed nylon in a random cut and loop design is available in 12-ft widths and 12 colorways. Lewis Carpet Mills, Inc.
Circle 105 on reader service card

Pineline lounge chair. Urethane seat, back, and side cushions, side and back panels are solid pine wood, random width boards. Box-shaped, planks are joined together with exposed construction bolts. Chair, two- or three-seater loungers are available upholstered in a variety of vinyls and soft fabrics; occasional tables, dining chairs and table coordinate. Suitable for residence halls, student apartments. Thonet Industries, Inc.
Circle 106 on reader service card

Exterior wall system consists of structural panels, windows, doors, spandrels, connection devices. Each component is completely prefinished and manufactured to the right size. Exterior finish can be aggregate embedded in epoxy, textured paint, or other prefinished materials. Stress-plus Inc.
Circle 107 on reader service card

Children's furniture. Basic elements are chairs, tables, and benches that can be joined together and accessorized with large nylon bolts. Wheel and rocker attachments, canopies, and writing boards are also available. A chair can become a train, a bench or a boat. Scaled in size for five age groups, one to eight, each in different color. Rudd International Corp.
Circle 108 on reader service card
[continued on page 124]

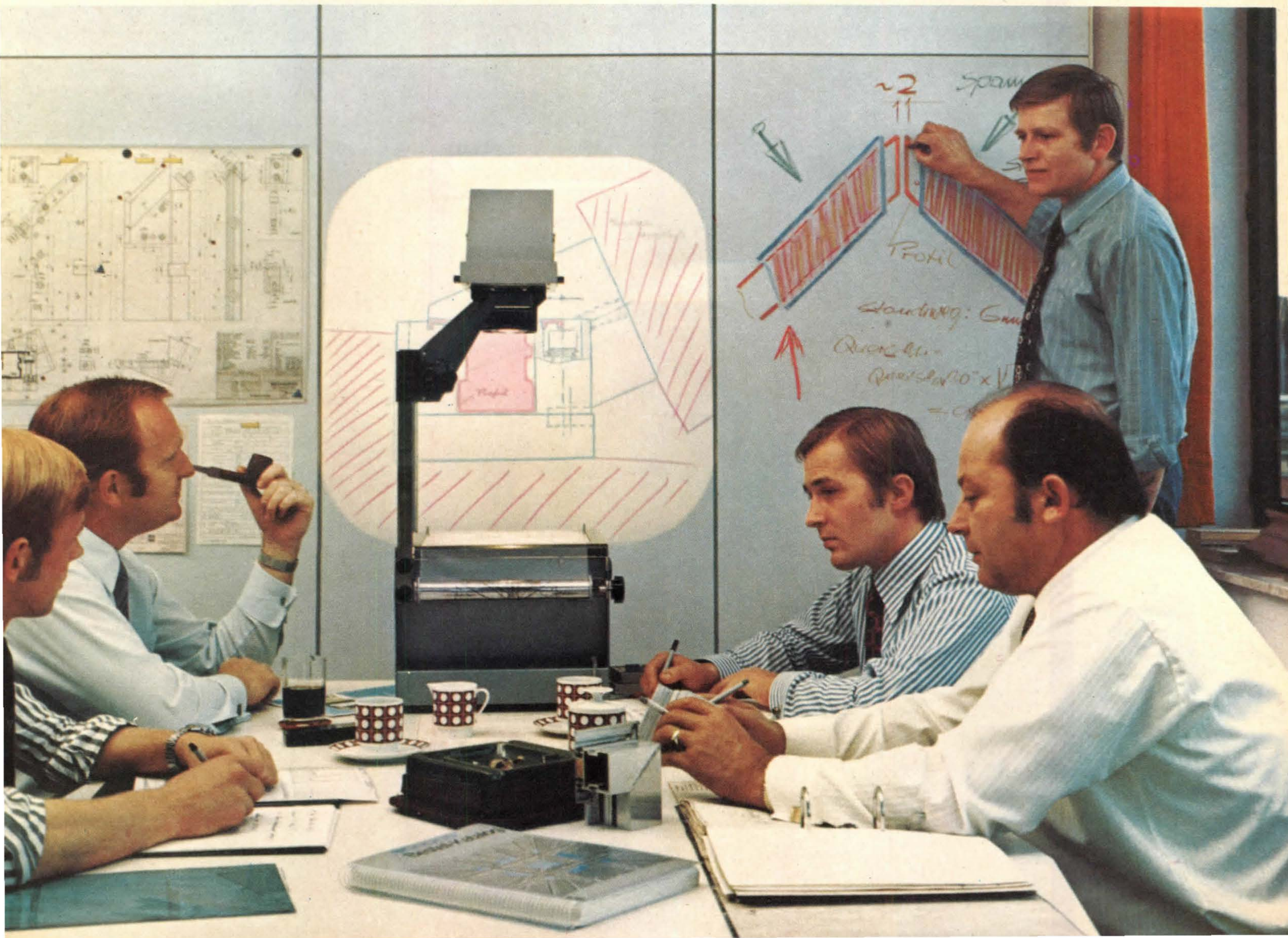
New "Rite-On, Wipe-Off"*
Writing System
Paints A Pretty Picture

The pretty picture is this: 1. New system combines AllianceWall porcelain wall panels and dry marker pens to create a completely dustless writing system. 2. Porcelain panels come with a special finish that enhances both writing and erasing. 3. Writing dries instantly and can be erased with a dry cloth or eraser. 4. Every inch of every office wall becomes a productive work surface. 5. Laminated to low-cost gypsum board, the panels are fire-proof, inexpensive to install and maintenance free. 6. No special lighting system is necessary. 7. Boards are guaranteed for 50 YEARS and can be used with any partition system.

*"Rite-On, Wipe-Off" dry marker pens are now available through local AllianceWall distributors.

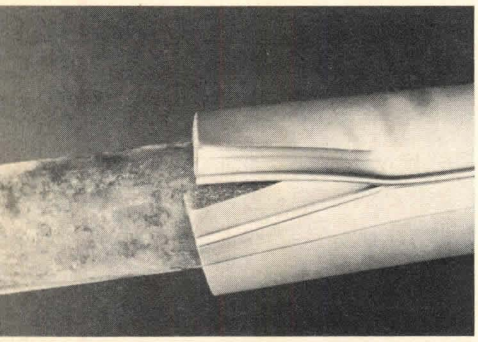
Other plants:
Okmulgee, Oklahoma; Genk, Belgium and Seden, Denmark

AllianceWall®
CORPORATION
Box 247, Alliance, Ohio 44601
Circle No. 320, on Reader Service Card

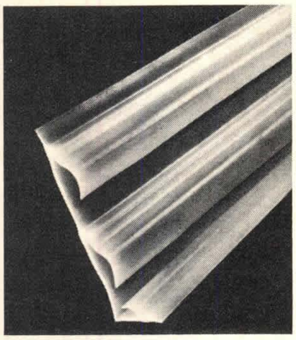


Products and literature continued from page 122

Lounge chair



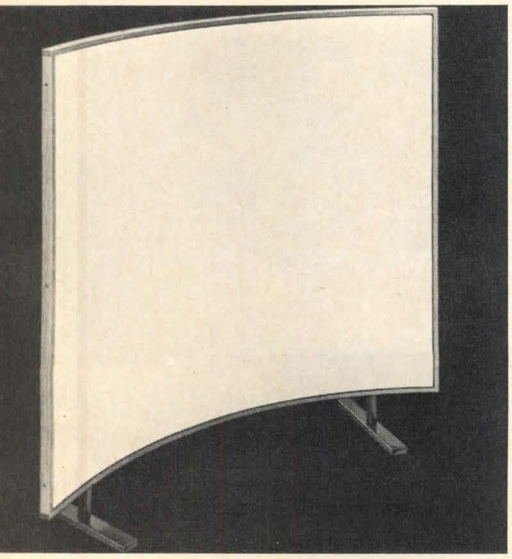
Thermazip



Noise barrier gaskets

Telephone booth

Two-drawer file



Area divider

Lounge chair. Split-back design, chair has a molded shell of rigid urethane with encapsulated wood parts. 26½" x 24½" x 28" high. Suitable for hotel-motel guest rooms, restaurants, and cocktail lounges. Shelby Williams Industries, Inc.
Circle 109 on reader service card

Thermazip. A PVC jacket with an inner insulating layer of flexible polyurethane foam or fiberglass, depending on the application, provides a waterproof cover that eliminates condensation and resists abrasion. Ideal for interior or exterior pipes, it helps prevent freezing, maintains flow and controls sound. Jacketing is cut to length and wrapped around pipe. "Insta-Grip" closure allows re-entry for inspection. Special Ell and Tee fittings complete installation. Accessible Products Co.
Circle 110 on reader service card

Noise-barrier gaskets. Made of extruded polypropylene to function as three airlocks, noise reduction is equivalent to that of five beads of permanent commerical caulk, states maker. For use on edges around doors, windows, wall and ceiling panels, air-conditioner ducts, blower and mechanical-equipment housings and other industrial and commercial applications. Available in a natural off-white polypropylene color and standard 12-ft lengths. It is installed with an adhesive or flush rivets and can be fitted and mitered with a razor blade. Other lengths available on special order. Ferro Corp.
Circle 111 on reader service card

Telephone booth. Compact, it projects less than 14 in. from the wall and is less than 24 in. wide. Booth is lightweight and is shipped unassembled. Shelf for writing or for mounting directory holders is provided. Side surfaces are suede-finish high-pressure plastic laminate in walnut woodgrain, solid red, black, or blond maple woodgrain finishes. Two or more booths can be moduled so that each station has a common wall with the next; additional booths can be added at any time. Open aluminum self-cleaning bar shelf is standard but solid plastic surface shelf in matching color is available. A three-way lighted "phone" sign canopy which lights the booth interior is available as an option. Acoustics Development Corp.
Circle 112 on reader service card

Two-drawer lateral file unit. Part of the Crestwood Collection, unit is 31½ x 19" x 30" high overall, will accommodate legal or letter size files, and is equipped with pendaflex rods. Drawers are suspended on ball bearing extension guides. Available in choice of olive ash burl, walnut veneer, or black vinyl top. Exterior surfaces are walnut veneers and hardwoods. R-way Furniture Company.
Circle 113 on reader service card

Area dividers. Free-standing wood-framed, fabric-covered, units are available in straight or curved styles with sound absorptive faces on both sides, each with steel open bases holding the divider 4 in. from the floor. Walnut or oak trim, dividers come in a selection of finishes. Fabrics are applied front and back, are stain and soil resistant and serve as tack surfaces. Depth of each divider is 1-¾ in., width is 60 in. and heights are 56, 64, and 72 in. Rose Mfg. Co.
Circle 114 on reader service card
[continued on page 128]

No Place Does It Like Dallas

DALLAS CONTRACT SHOW

JULY 10·12

1974

The Dallas Market Center – the innovative market – presents a fresh and exciting new contract experience with new concepts and ideas for contract buyers and specifiers.

Plan to attend the first annual Dallas Contract Show marking the dedication of the new World Trade Center and the Design Center of Contract furnishings on the sixth floor as well as the other many fine contract showrooms within the Dallas Market Center.

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__Yes I would like to pre-register for the first annual Dallas/Contract Show, July 10 – 12, 1974.

Name __________

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Now available.
Feldman 1974-75 Full Color Lighting Catalog

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612 South Wall Street
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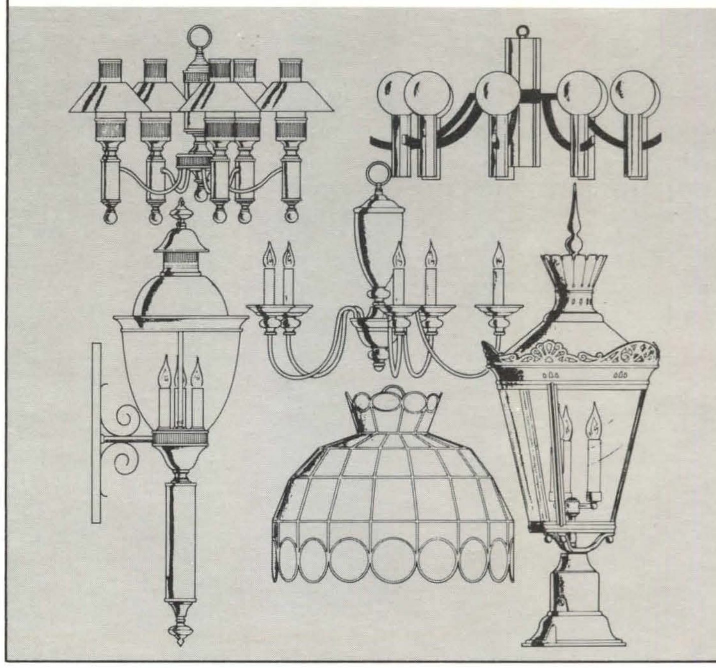
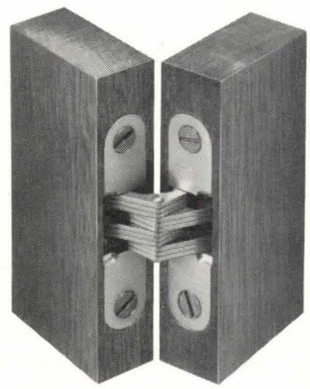
since 1918



Circle No. 342, 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 jambs. 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. 373, on Reader Service Card

Circle No. 338, on Reader Service Car

Confidence Man

At Dow Badische when he puts our "Performance Certification" label on a carpet you can be sure it will live up to its promises.

Promises, promises. Every fiber producer or carpet manufacturer is full of them every time you specify contract carpet. But at Dow Badische we base our performance promises on facts.

Whenever you see our Performance Certification label on a carpet made of Dow Badische specially engineered fibers and yarns, it means that (1) the actual carpet construction has also been specially engineered to meet our high performance standards and (2) the carpet has been rigorously tested to prove it.

Our "confidence men" don't take their jobs lightly. They know that if the carpet you specify doesn't live up to its promises, you'll never specify another one made of our products. That's why they make doubly sure that any carpet bearing our label gives satisfaction. To you and your client.

Look for our Performance Certification label on carpets next time you have an installation job. At Dow Badische we back our promises with facts. After all, we have a reputation for confidence-building to protect.

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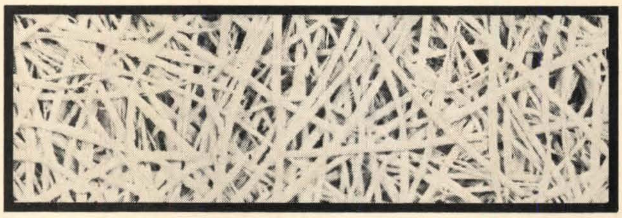
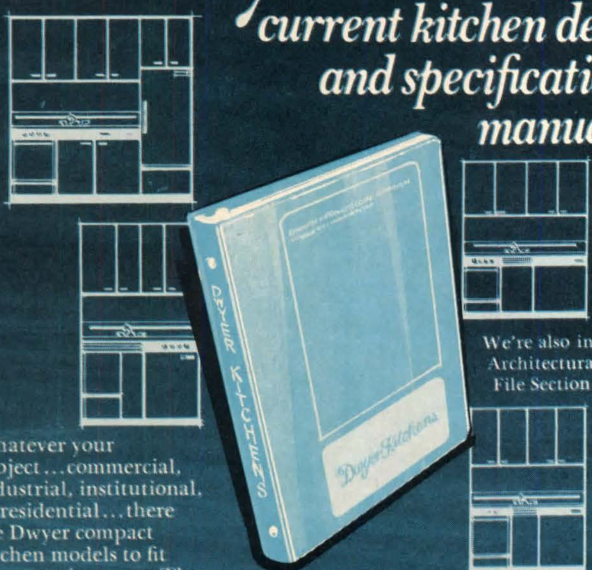




Products and literature continued from page 124

Mobile shelving system. A storage shelving on wheels, units glide on flanged wheels along top leveling steel tracks, shelves are adjustable. Options include turn-glide mechanism to permit movement of loaded files and a locking device that helps reduce theft. Available with end panels finished in woodgrain or your choice of colors. Kidde Merchandising Equipment Group, Inc.
Circle 115 on reader service card

Semi-recessed hand dryer features stainless steel and all-metal construction, low wattage ratings. Units are 9-7/9" x 13½" with a cover depth of 3" and are available in 115 VAC and 230 VAC with UL approval. Electric-Aire Corp.
Circle 116 on reader service card

Tablet. Lightweight, flexible, and molded in one piece, it has no laminated edges to chip if the chair is knocked over. Larger than hardwood and particle board laminated, it accommodates the left-hander. Available in neutral maple and walnut brown tones or in colors to match maker's shell colors or nearly any color of designer's choice. Fixtures Mfg. Corp.
Circle 117 on reader service card

Glide-Guide. Designed for use with the parallel ruling straightedge, it eliminates the use of make-shift cardboard edge strips, provides smooth even surface for both edges of parallel rule, is simple to install or remove, reverses for right or left hand use, states maker. William J. McNeil, Architect.
Circle 118 on reader service card

Literature

Spectator seats. High-density polyethylene with an aluminum alloy framing system makes units easy to clean and maintain and suitable for both indoor and outdoor stadiums and arenas, states maker. Booklet shows wide color and style choice. Sport Seating Company.
Circle 201 on reader service card

Drawing reproduction. Equipment, applications, and materials used to reproduce drawings are described and illustrated in color brochure. Eastman Kodak Company.
Circle 202 on reader service card

Doors. Brochure illustrates commercial and residential doors, gives product details, and price guide. Emphasizes fire-rated doors designed to meet specifications for decorative hardwoods, special overlays, and finishes. U.S. Plywood.
Circle 203 on reader service card

Flooring systems. Resilient synthetic surfacings are said to be suitable for multipurpose gymnasium floors, basketball courts, roofdecks, tennis courts, football and baseball fields, playground areas, indoor and outdoor running tracks as well as industrial, hospital, food service areas. Color brochure is available from 3M Company.
Circle 204 on reader service card
[continued on page 132]

Would you believe

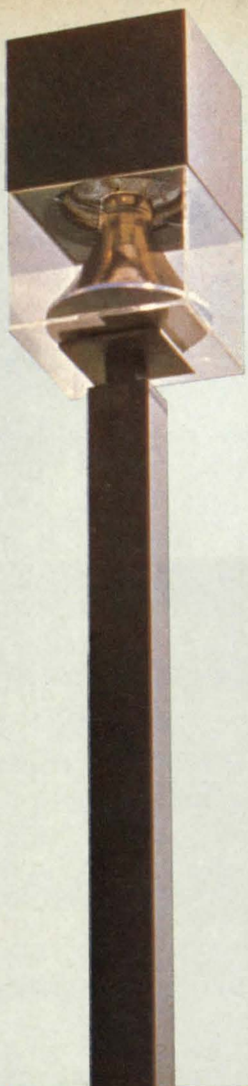
...that the energy consumption of this beautiful

Pericline Contemporary

is only

one watt of energy for 55 sq. ft.

of excellent illumination*?



It's a fact!

... that no other area lighting luminaire can match this energy efficiency.

... that only the Pericline Contemporary produces this efficient illumination without the glare that destroys night vision.

... that the lighting uniformity ratio is an excellent 2:1.

... that you can get all this from an architecturally conceived product that is decorative, light and human and is an environmental tool working day and night.

... that the Pericline Contemporary offers aesthetic values, outstanding lighting performance and more energy economies than any other lighting luminaire available.

... that the Pericline Contemporary is available in two sizes, with a wide range of wattages for all small and large area lighting needs.

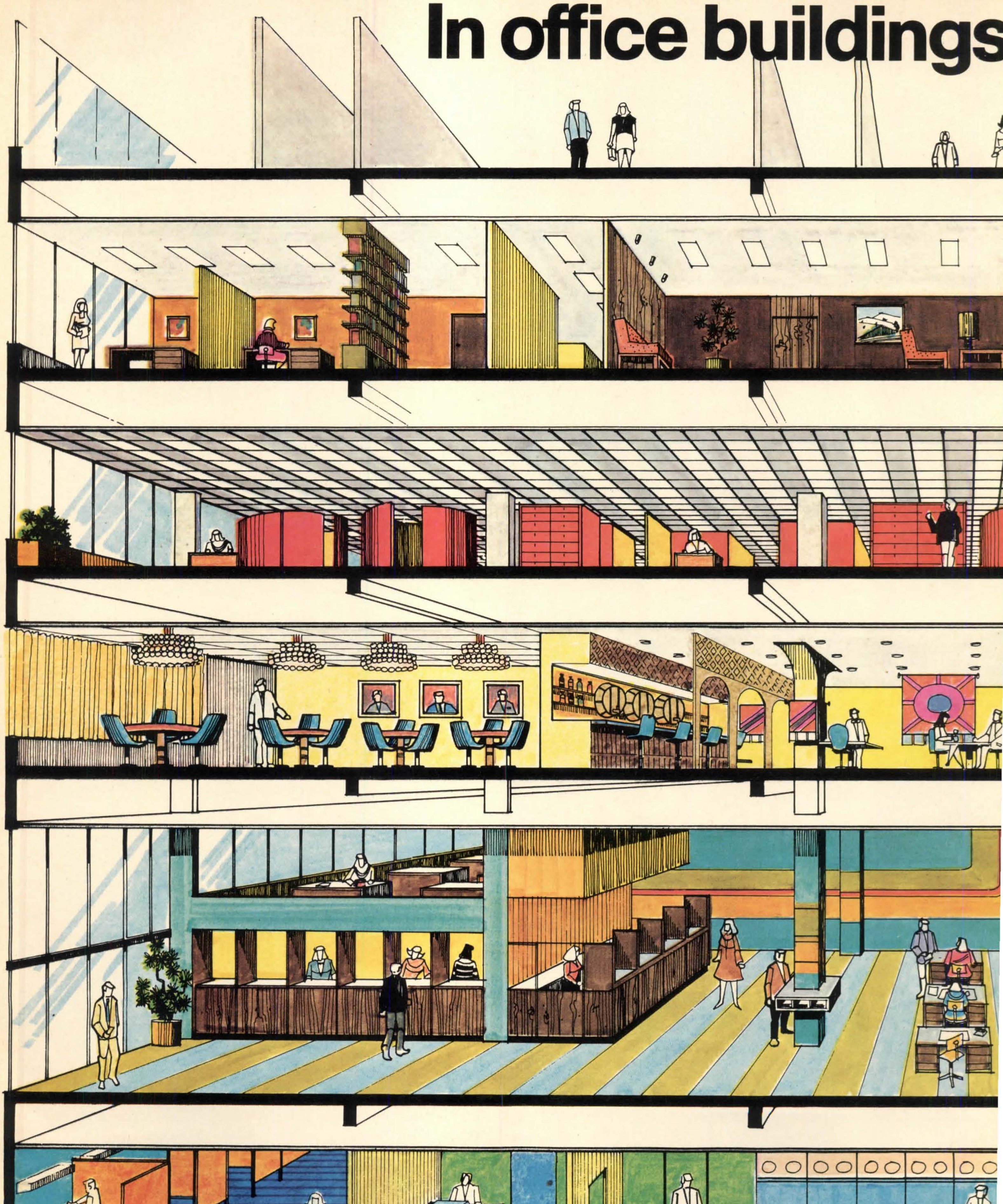
* Based on a 400W High Pressure Sodium lamp with 27 ft. mounting height, 170' x 130' staggered spacing, producing .55 footcandles at the least illuminated point in the area. Comparison data of a broad range of representative area lighting luminaires, spaced to produce the same level of illumination, is available on request.

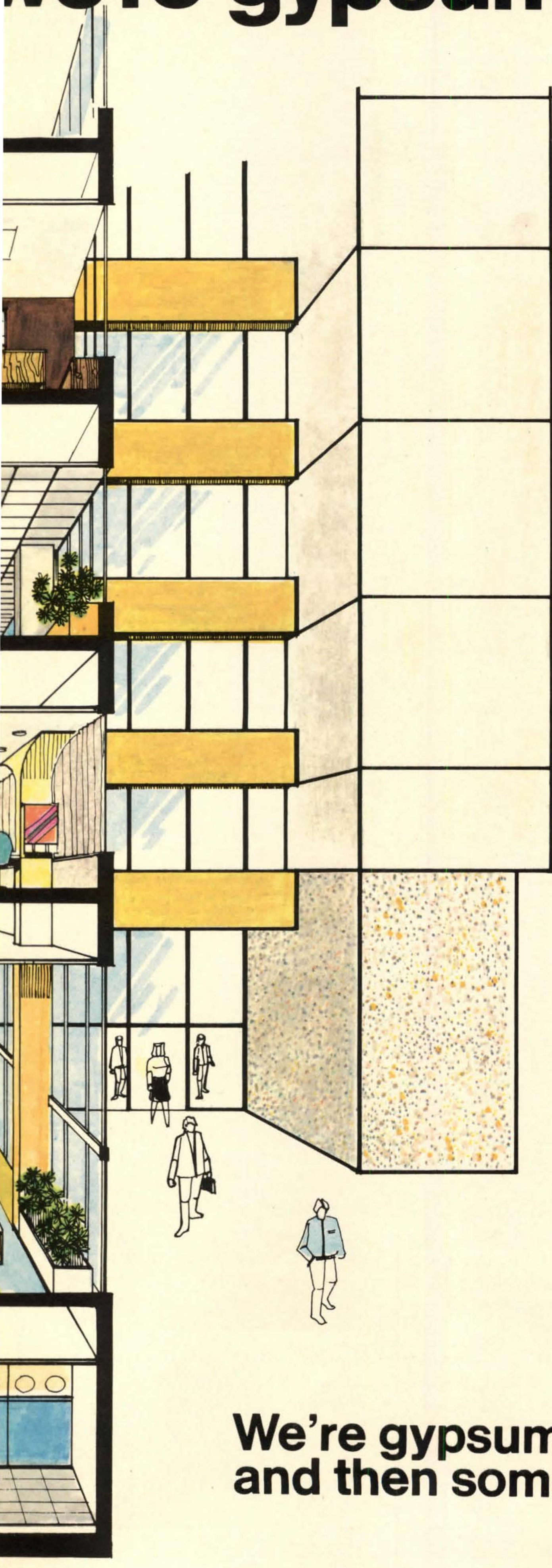
Environments Thru Lighting

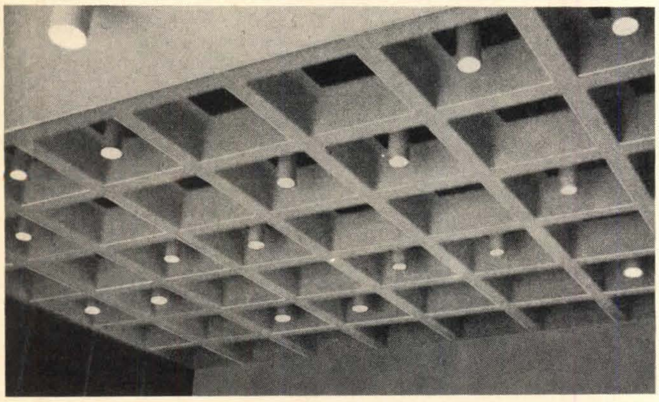
MOLDCAST LIGHTING

Division of Weil-McLain Co. Inc.
164 Delancy Street, Newark, N. J. 07105
In Canada: Varco Industries Ltd., Montreal 379

In office buildings







Products and literature continued from page 128

Gypsumboard. A guide for using residential, commercial, and institutional wall and floor/ceiling systems, catalog features descriptions, specifications, and application details for 19 products and 10 joint system materials. Georgia-Pacific Corp.
Circle 205 on reader service card

Plastic laminates. Folder includes color reproductions of each laminate design and color. In addition to showing the available finishes, colors, and patterns, it provides basic technical and specification information. Exxon Chemical Company U.S.A.
Circle 206 on reader service card

Instant fountains and water displays are illustrated in 1974 catalog. Available in kit form, pre-engineered packages of equipment are shipped to the job site complete with fountain hardware, pumps, piping, valves, and underwater lights, ready for placement. A hook-up to power puts them into operation. Roman Fountains, Inc.
Circle 207 on reader service card

Porcelain-on-steel chalkboards are described in 1974 brochure. Shown are all 10 standard colors including a silver screen gray which can serve as a projection screen. Alliancewall Corp.
Circle 208 on reader service card

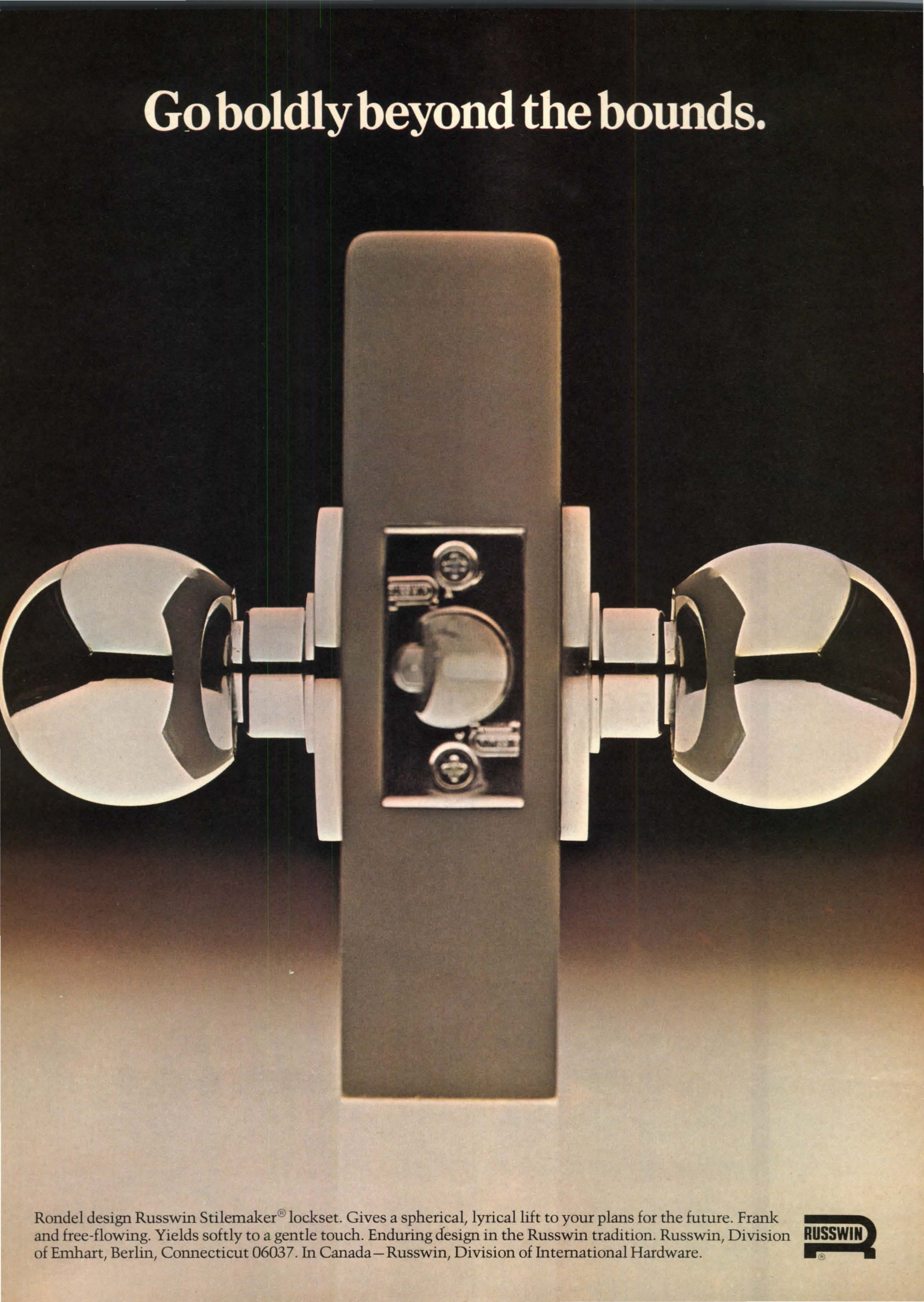
Insulated metal wall systems. Booklet gives specifications and erection procedures for rated fire and explosion walls, acoustical walls, and insulated wall systems, shows broad range of shapes and sizes and lists available finishes. The Binkley Company.
Circle 209 on reader service card

Alarms and accessories. 80-page catalog illustrates and describes manufacturer's complete line of burglar, fire, and hold-up alarm devices and accessories. A. W. Fruh & Co.
Circle 210 on reader service card

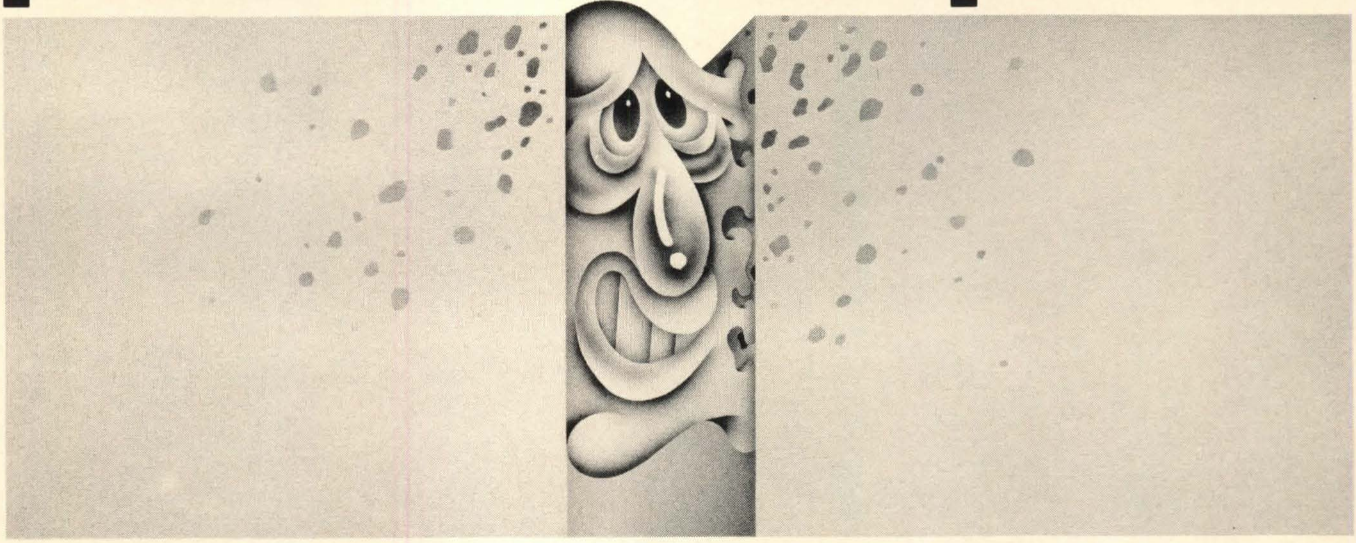
Architectural signage, identification systems, and directories are described and illustrated in this company's brochure. Companion brochure covers metal letters and plaques, gives mounting details and outline specifications. Andco Industries.
Circle 211 on reader service card

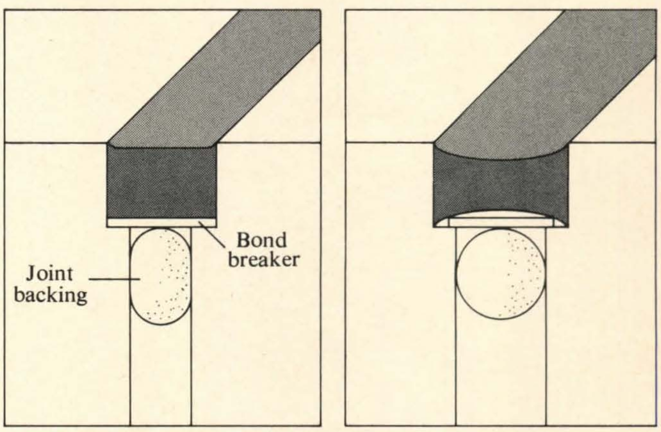
Playground equipment. 92-page color catalog gives descriptions, features, weights, and prices of product line. Includes playground equipment in metal or wood, outdoor nursery equipment, sports equipment, park equipment, shelters, and mobile recreation units. Complies with safety standards for recreational equipment for public parks and playgrounds. Game Time, Inc.
Circle 212 on reader service card

Plumbing fixtures/water heaters. 28-page, full-color brochure covers complete specifications on company's entire line. Guide is available to contractors, builders, and specifiers. Briggs.
Circle 213 on reader service card


Go boldly beyond the bounds.
Rondel design Russwin Stilemaker® lockset. Gives a spherical, lyrical lift to your plans for the future. Frank and free-flowing. Yields softly to a gentle touch. Enduring design in the Russwin tradition. Russwin, Division of Emhart, Berlin, Connecticut 06037. In Canada—Russwin, Division of International Hardware.
RUSSWIN

How to avoid sealant problems when you design precast concrete panels.

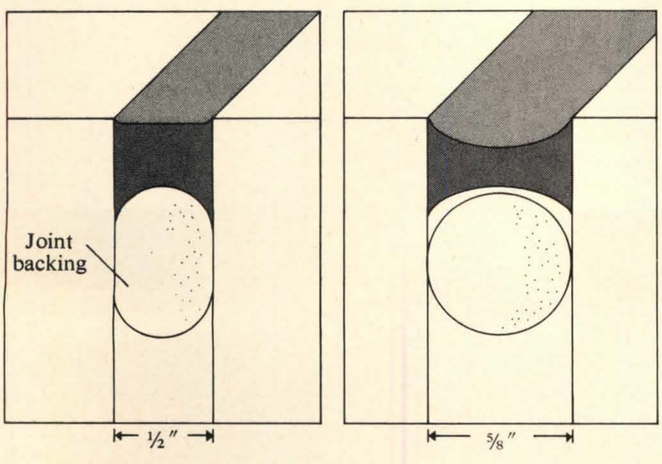




Obviously, you don't want sealant-adhesive failure in the joints between precast panels. And certainly we — Tremco — don't want it. So here's a brief guide to potential problem areas and tips on how to avoid them.

Let's start with design. When you're designing a joint, be sure it's wide enough to allow the sealant to move within its capabilities. If the joint is found to be too small on-site, it will have to be saw-cut to sufficient width — a costly procedure. A good rule of thumb is to design ½-inch wide joints for panels up to 15 feet, ⅝-inch or wider, for longer panels. An even better rule of thumb is to consult your Tremco man while you're in the design stage.

Two ways we help. Tremco has been solving sealant problems for more than 45 years, so our man can bring a lot of experience to bear on your problems. Second, in response to the special needs of the precast industry, we've developed DYmeric®, a two-part polymer sealant designed to take the stress and movement common to precast cladding. It's also capable of sealing joints up to 2 inches wide in one application, without sagging. And you don't need a primer. With this kind of help, the odds are you can avoid a lot of the following problems.

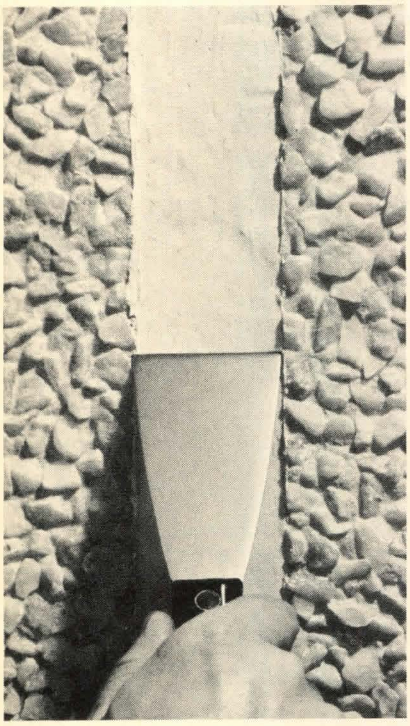


Form release agents: friend and foe. Form release agents are a necessity, but they can also create major problems for sealants.

The same action that prevents adhesion between the panel and the form can impair adhesion of the sealant bead to the joint interface. This could happen weeks or months after caulking, depending on the type of sealant, the type of release agent and the amount of joint movement.

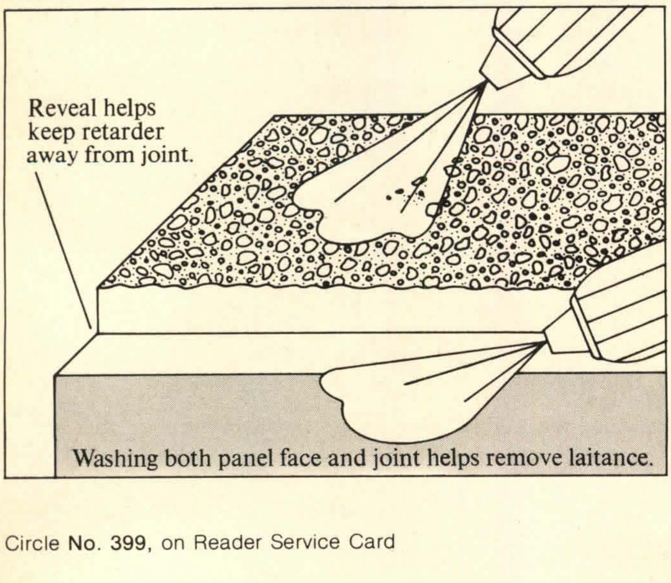
Some release agents are less troublesome than others. However, you can only be sure of good sealant adhesion if two things are done. First, the joint interface should be thoroughly cleaned the same time as the panel face, when it is removed from the form.

Second, be sure the joint interface is cleaned just before caulking. Your Tremco man can help you find the most economical way to get this done.



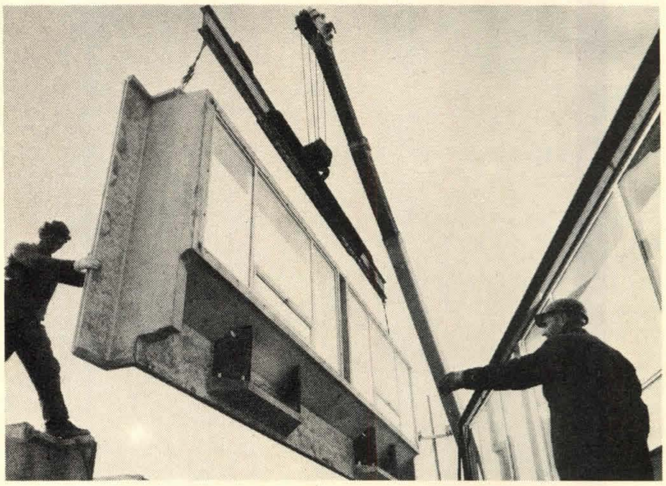
Don't take a powder. Another common problem that affects sealant adhesion is laitance on the joint interface. A frequent cause of this powdery surface condition is the use of retarder on exposed aggregate panels. A slight change in joint design can often help prevent the retarder from migrating to the joint face.

However, it's a good idea to specify that high pressure water spray be used on the joint surface as well as the face of the panel, during the process of exposing the aggregate. Even then, though laitance has been successfully removed, the joint has to be thoroughly cleaned just before caulking. Since each case is different, your best bet is still to talk to your Tremco man and use DYmeric.



Washing both panel face and joint helps remove laitance.

Waterproofing woes. While Tremco makes clear waterproofing coatings for masonry panels, we want to warn you that ours, like all the others, can cause sealant failure when they're improperly used.



Our advice is to caulk first, then waterproof. But sometimes specifications call for waterproofing at the factory, to protect the panels during transit and storage. If so, the joint should be protected from overspray. Your best bet, as always, is thorough cleaning of the joint interfaces just prior to caulking. Your Tremco man can help you decide on the right cleaning method for specific circumstances.

To sum it all up you can count on Tremco to help seal and weatherproof precast buildings better because it's the kind of thing we've been doing for more than 45 years. With some 15 basic job-proven sealants to choose from, such as MONO®, DYmeric®, and Lasto-Meric®, and our unique TREMproof® waterproofing systems and our roof edging system, Tremline®, your Tremco man can recommend the systems that are exactly right for your job.

So talk to Tremco first. And you won't have joint sealing problems later. For help, contact your Tremco rep. Or Tremco, Cleveland, Ohio 44104. Toronto, Ontario M4H 1G7.

TREMCO®
The water stoppers

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Circle No. 378, on Reader Service Card

Our Elongated Toilets Give You Something To Cheer About All Year Long!

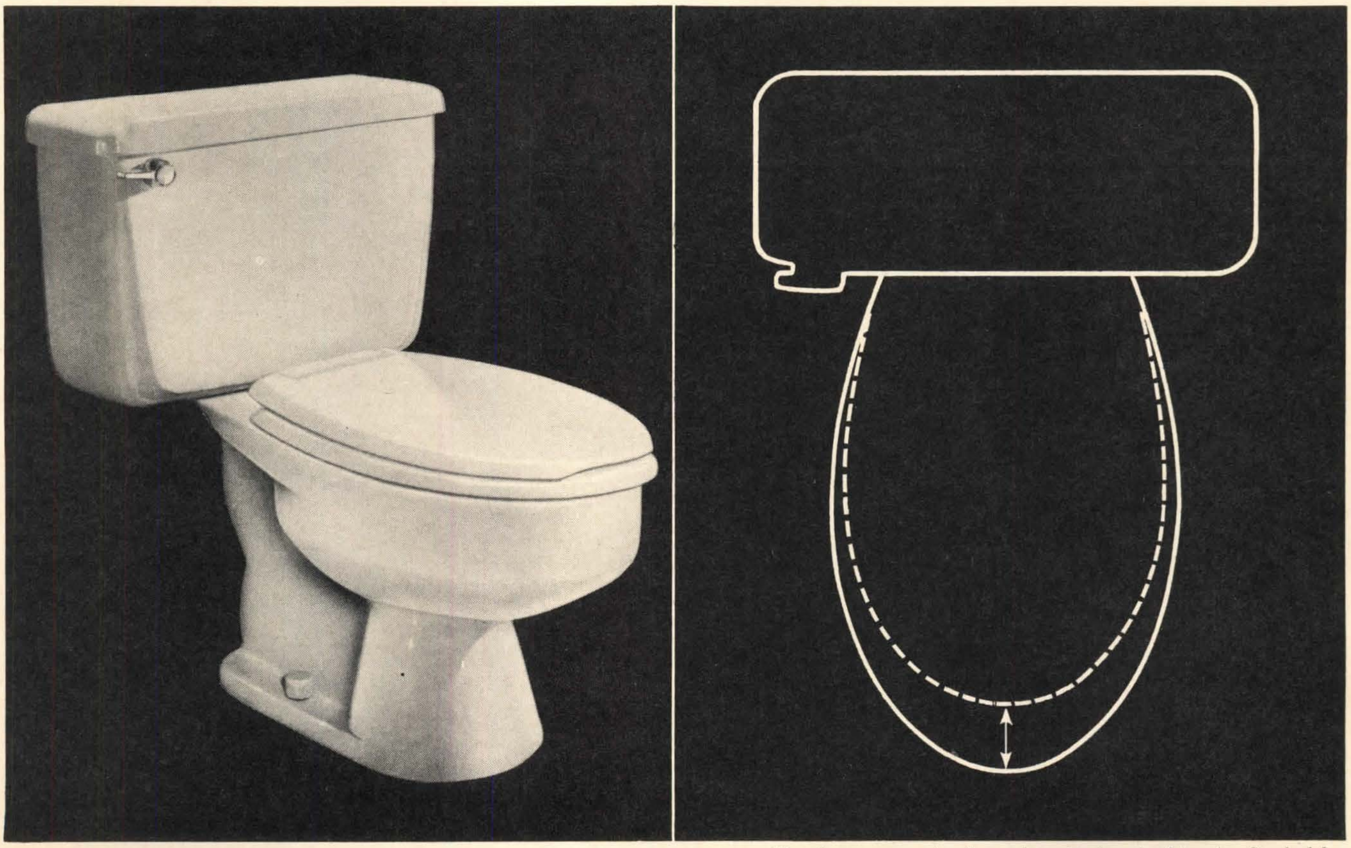
The larger water area means better sanitation. Easier cleaning. The elongated shape – more comfort. All points that score with your customers. But you've got to tell 'em to sell 'em.

Re-modeling jobs? It's a natural. Roughing-in is the same as regular toilets.

Pocket the extra profit. All along the line. Cadet, Compact, Luxor, Glenwall, Carlyle and Yorkville toilets come with elongated bowls. There is even an elongated Water-Saver Cadet that uses 1/3 less water.

Talk it over with your American-Standard distributor. He's in the business of fielding winners.

The Original Super Bowl



AMERICAN STANDARD

PLUMBING / HEATING

Circle No. 321, on Reader Service Card

Circle No. 324, on Reader Service C

ASG

Our name says the Glass Company, and that's saying a lot.

Over the years, ASG has come to stand for both pioneering and innovation. And ASG is constantly working to bring you new and better products in everything from float, plate and window glasses to insulating, reflective, tempered, wired, laminated, patterned and lighting glasses. We're always on the lookout for new developments to help you perform your job better and more easily. And ASG backs what it sells with service that makes a difference. Service that includes the willingness and expertise to work with you on special projects and problems. ASG service also means things like delivery where and when you want it, along with the most advanced package designs in the industry. Just a few of the things that make ASG, the Glass Company, the only name to look to for versatility plus quality in both product and service. Write us for complete information.

ASG Industries Inc.

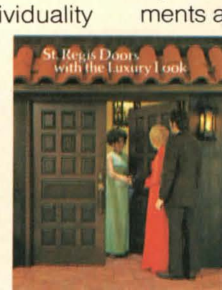
The Glass Company, P.O. BOX 929, KINGSPORT, TENN. 37662

Doors of Malaysian Meranti

Open invitation to gracious living.

The richly carved wood panels and hand-cast grilles of these *Valencia* style doors express her taste—her lifestyle. They add the character and individuality *she* looks for in a home. And *she's* the decision maker.

The elegance and quality of these carved wood panel doors are great persuaders to house-hunters. *Valencia* is only one of the many styles in our line of solid quality doors of exotic Malaysian Meranti, old-growth, vertical grain Douglas Fir and West Coast Hemlock—machined and assembled by skilled artisans. Many styles are available to fulfill your special design requirements and your clients' taste. These impressive doors open the way to years of client satisfaction.



To see our complete line of distinctive doors—that heighten the appeal of your home—send for our new color catalog of interior and exterior wood panel doors. Write: Lumber, Plywood and Door Division, St. Regis Paper Company, P.O. Box 1593A, Tacoma, Washington 98401.

ST REGIS

Circle No. 376, on Reader Service Card

Books continued from page 103

that Burnham had set before it." (p. 89)

When, however, he sat down, about 1965, to write the story of the building art in Chicago from the plan of 1909 to the present, he was confronted by a radically different historical period. In brief, an almost equally brillant architectural achievement had gone hand in hand with a disastrously deteriorating urban environment. By the middle of the last decade it was obvious to anyone that Chicago as a city was in deep trouble. Condit, as both an acute observer and a man with a social conscience, could no longer, like a convinced Miesian, concentrate on the strictly architectural problem. What were the reasons for Chicago's difficulties? To answer this question, he was driven to expand his inquiries and take in a whole range of questions which he had not previously considered. These include problems of sanitation, transportation, real estate values, governmental policy, and brute economic pressure. Hence we find in Volume I a long and provocative chapter on "The Structures and Arteries of Urban Transportation"; this section is probably as thorough an analysis of this problem as has ever been made for any major American city. Condit concludes that by 1929 Chicago had a balanced, multilayered transportation network which served it well, yet he adds that "Years of economic paralysis, war, militarism, racism, and civic bankruptcy took a frightful toll, and the city never regained either its stature or its once unassailable confidence in the future." (p. 290)

The second volume, which will probably be of greater interest to practitioners, quite properly begins with a treatment of the World's Fair of 1933. This event, Condit says, played a key role in bringing modern architecture to Chicago, particularly in its use of color. He follows it with an approving nod toward the brave, though inadequate and frequently misguided, housing programs under the New Deal, and then proceeds to his central problem: the amazing flowering of commercial, industrial, and public architecture in the city since the second World War. In summary he views this renaissance as having been achieved at the expense of almost every human value traditionally associated with urban life. Because quotations give so accurate an idea of the tone of the book, it is again appropriate: "This rage to build anywhere for a quick profit resulted at the very least in street congestion, lethal atmospheric pollution, and the burying of decent neighborhoods of single-family houses and walkup apartments in the shadows of lumpish and disfigured giants." (p. 82) Dozens of similar passages could be cited.

With regard to individual buildings, Condit's analyses are as acute as ever. Judging by the space devoted to it and the amplitude of the illustrations, which fortunately include transverse and longitudinal sections, his favorite is the Civic Center of 1963–65. He quotes Reyner Banham's shrewd assessment of the building and gleefully goes into the rather ludicrous series of events surrounding the advent of the famous Chicago Picasso. Most significant, however, because it is so revealing of his critical position, is his discussion of the John Hancock Center. After an exceptionally clear and thorough treatment of the structural problems, which includes several paragraphs on the famous caisson scandal, he concludes that it is an architectural triumph, but raises serious ques-

[continued on page 146]

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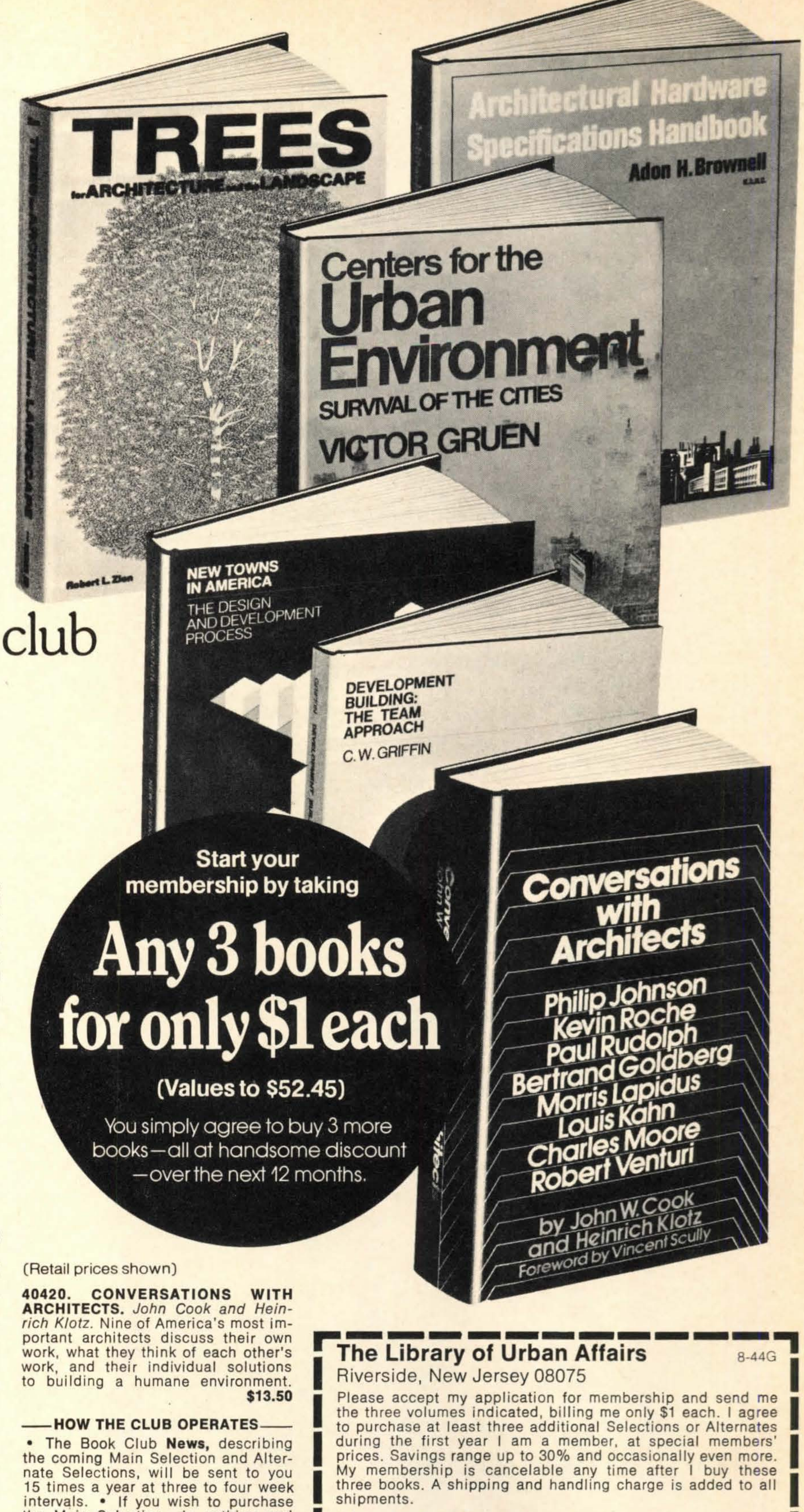

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Books continued from page 143

tions about its impact on urban ecology. The North Michigan Avenue site, he says, was plainly an error in view of the number of functions which this megastructure was bound to disturb. Further, it is grossly out of scale with its surroundings, it is an overwhelming traffic generator for a street that was already loaded to capacity, and it established an ominous zoning precedent. Certainly it was a victory for money and technology, but, asks Condit, is this the way our resources ought to be used? The question is all the more relevant when one considers the colossal energy consumption of such a building. Other buildings that receive full treatment are the Brunswick and the new McCormick Place. Of course the influence of Mies is very strong in different ways in all of these, as in a host of others, and Condit does not hesitate to grant him a full share of credit for the revival of the structural art in the city of its origin. For Chicago architectural buffs (and who among us can fail to be fascinated by the city's achievements?) the structural and architectural analyses will probably be the most welcome portions of the two volumes, but in the mind of this reviewer, they are not the most significant pages. The most important aspects of the work are precisely those in which he moves away from purely technological and architecural criticism and attempts to relate the building art to the whole incredibly complex fabric of urban life. This effort, as we have seen, involves him in some value judgments of a kind that are somewhat unusual in architectural history.

Condit has, in fact, joined the small group of writers who are trying to broaden the scope of architectural history. He has refused to see buildings as isolated works of art or technological mastery and has attempted to understand them in relation to the social order of which they are a part. This is an enormously difficult task, and it has certainly involved him in what Geoffrey Scott called "The Ethical Fallacy." This should disturb no one. Like most of the circle around Berenson, Scott was an elitist to the very core, and it is time to toss his fallacies into the dustbin where they belong. With certain of his buildings Condit could, indeed, have been even more ruthless than he is. The Chicago Circle Campus, for example, may be interesting construction, it may be designed on the golden section, but to say that it "... can in no way be regarded as an unqualified success" is not enough. The place is, in truth, an environmental catastrophe. It is interesting to note that Condit has arrived at a critical position in his writing rather like that of Vincent Scully, who is usually conceived to be at the other end of the architectural spectrum. In his *American Architecture and Urbanism* Scully is almost as angry with the urban renewers of New Haven as Condit is with the decision-makers of Chicago. All those who care about architecture ought to welcome these notes of righteous indignation in historical writing. They are something new, and they are very much needed. Condit does not hesitate to quote the newspaper columnist Mike Royko on Mayor Daley's vision for the city, and he himself notes with fine irony that Daley has "a very limited idea of civic excellence." His writing is, in fact, marked throughout by verve and nice turns of phrase.

It remains to be noted that each volume possesses an exhaustive bibliography and an excellent index. There are also a number of valuable tables and charts. The illustrations are not as lavish as we might hope [continued on page 148]

Congregation Beth El, New London, Conn.; Architect: Paul Rudolph, FAIA, New York, N.Y.; Roofer: H. R. Hillery Company, Groton, Conn.

Books continued from page 146

for, but this deficiency is undoubtedly attributable to the skyrocketing cost of architectural publishing. In short, these two volumes will not be comfortable reading for the architectural profession, but they ought to be required. Recently the Reverend Jesse Jackson pointed to the great towers of Chicago's skyline and told his followers that those buildings were the reason that they were poor, cold, hungry, and jobless. Is anybody listening?

Building materials

Major materials suppliers for buildings featured this month, as they were supplied to P/A by the architects.

Kresge College, University of California, Santa Cruz. (p. 76). *Architects: MLTW/Turnbull Associates, San Francisco with Charles W. Moore, Essex Conn.* Reinforced concrete: Lonestar Cement. Wood: San Lorenzo Lumber. Wood roof: Weyerhauser. Stucco: Graniterock. Gypsum board: Kaiser Cement & Gypsum. Hardwood flooring: L&D Floors. Carpet: Wellco Decathlon. Seamless flooring: Universal Protective Coatings. Asphalt shingle roofing: Johns-Manville. Waterproofing: Sonneborn-DeSoto. Insulation: Owens Corning. Windows: Fentron, Premier Aluminum Products. Wood doors: Cal Wood Door. Hardware: Falcon Lock; Norton Door Closure Co., and LCN closers; Von Duprin panic devices. Paint and stain: Fuller-O'Brien. Lighting: Lightolier, Leviton, Luxo, Prescolite, Shaper, Smoot Holman, Solo, Sterner, Sunbeam Wellmade. Plumbing fixtures: American Standard. Temperature controls: Honeywell. Boilers: Crane. Air handling units and fin tube radiation: Trane. Pumps: Bell & Gossett. Furnishings, administration: chairs, Boling Chair Co. and Stendig; Tables, Thompson; secretarial desks and chairs and files, Steelcase, Faculty common furnishings: table, Artek; chairs, Artek and Metroplitan. Classroom furnishings: chairs, Brown Jordan, Special Canvas, Boling Chair Co., Steelcase; tables, Thompson. Library furnishings: chairs, Thonet, Boling Chair Co. and Stendig; tables, Thompson. Residential unit furnishings: beds and special desks, Norco; storage cubes, Palaset; chairs, Jacobson/McKinness, Thonet; tables, Artek; storage, Palaset.

DeVry Institute, Chicago, Ill. (p. 88). *Architects: Caudill, Rowlett, Scott.* Steel structure: Romac. Exterior metal panels: Cupples. Window wall: Cupples. Glass: LOF. Carpet: Bigelow. Ceiling: Armstrong. Partitions: Hauserman. HVAC units: Mammoth.

Fodrea Elementary School, Columbus, Ind. (p. 84). *Architects: Caudill, Rowlett, Scott,* Roof structure: Space frame, Unistrut Corp. Exterior panels: H.H. Robertson Co. Glass: PPG Industries. Skylight: PAM, Hillsdale Industries. Carpet: Alexander Smith. Hollow metal doors and frames: Emenco. Hard-

[continued on page 151]

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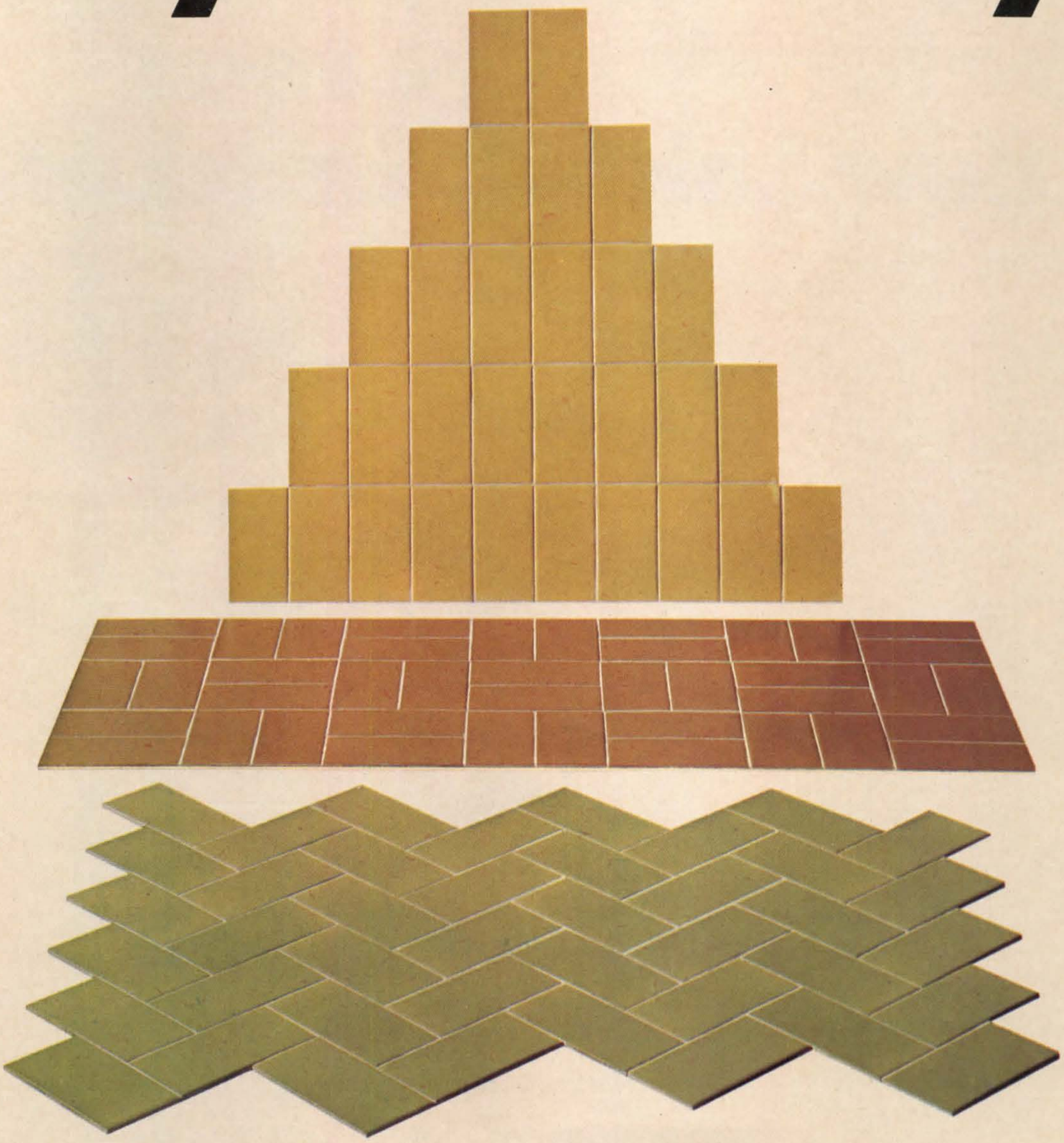

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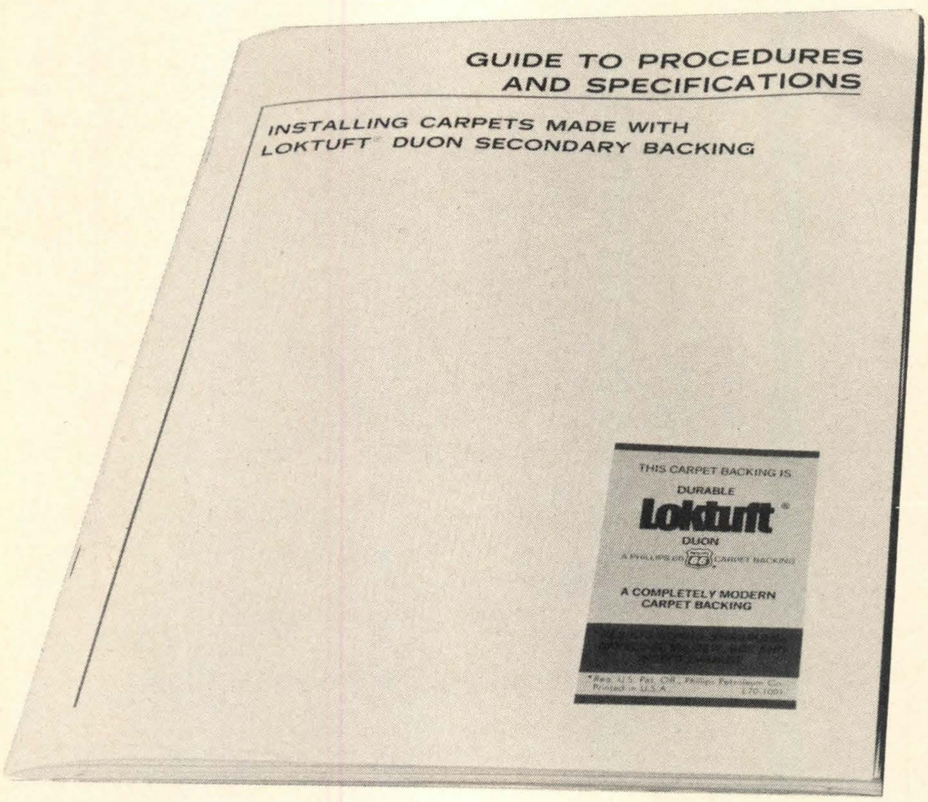

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Building materials continued from page 148

ware: Sargent. Lighting: Fluorescent, Williams; Industrial incandescent, Miller; mercury luminaire, G.E. HVAC units: Nesbitt.

Physical Education Building, Ogontz Campus, Pennsylvania State University, Abington, Pa. (p. 64). *Architects: Dagit/Saylor.* Concrete: Warner Concrete. Cor-Ten pipe: U. S. Steel. Special seamless gymnasium flooring: Robbins Sport Tread. Long-span steel decking: Q Deck, H.H. Robertson. Built up roof: GAF Corp. Coal tar pitch waterproofing: Celotex Corp. Rigid insulation: Grefco, Inc. Concrete block partitions: Fizzano Block. Aluminum windows: Decatur Iron and Steel. Doors: U. S. Plywood. Aluminum entrance doors: Alumaline. Stainless steel hardware: Sargent. Interior paint: M. A. Bruder and Sons. Bleachers: Vecta Group. Athletic equipment: Porter Athletic Equipment. Elevators: Corbett Elevator Co. Lighting fixtures: Lightolier (exterior), Hofco and Lightolier (interior). Plumbing: Kohler Co., Milwaukee Valve Co., Reading Industries. Hot water heating system: Weil McLain. Standard fin tube, Titus Manufacturing.

House III, Lakeville, Conn. (p. 92). *Architect: Peter Eisenman.* Plywood: Weyerhaeuser. Terra-cotta Mexican floor tiles: Country Floors. Insulated skylight ceiling: Kalwall. Glazing: LOF. Sliding glass and aluminum doors: Arcadia. Kitchen and laundry equipment: G.E. Electric individual floor heating units: Federal Pacific. Bathroom fixtures: Crane.

P/A in June

P/A's June subject matter will center around **Environmental Impact.** Architects are trained to have a profound respect for the environment surrounding their design projects. The main features in June are meant to expand that respect through the reader's exposure to several different viewpoints and disciplines.

The prestigious partnership of Wallace McHarg Roberts & Todd in Philadelphia has crusaded for a cooperative rather than combative relationship between man and nature. Its planning work sets high standards for intelligence, thoroughness, and craftsmanship. With its guidance, developers, government agencies, and other clients for land-banked areas to be retained for their natural beauty can still find space to build without fear of flooding. An excursion into their office reveals the same lively organization as we find in their work.

Environmental impact reporting, as used by Willis & Associates and required by California law, is a method of measuring the effects of development which goes beyond just assessing ecological concerns of a given piece of land. Beverly Willis is trying to establish national standards for environmental impact reporting as authorized under the National Environmental Policy Act of 1970.

The Dean of the Princeton School of Architecture and principal in the firm of Geddes, Brecher, Qualls & Cunningham discusses the design relationship of buildings to their sites, illustrating his point of view with his own buildings at the Institute for Advanced Studies at Princeton and with the work of other architects.

When architects labor to achieve their aesthetic triumphs, they frequently overlook the expressive power of landscaping. The distinguished Connecticut landscape architect A.E. Bye attempts to suggest in a brief but thoughtful photographic essay what moods nature could express for the sensitive designer.

For many years now John Hejduk, who is the head of the architecture department at New York's esteemed Cooper Union, has been one of the most influential teachers and architectural theorists in the U.S. Hejduk has found what he considers to be the right client relationship in his commission to design a house in Ridgefield, Conn. for his Cooper Union colleague and friend of long standing, the above-mentioned landscape architect A.E. Bye.

Malcolm Wells is an "architect/conservationist" in Cherry Hill, N.J. who advocates an ecological rating system for buildings. He will discuss the immense water run-off problems created by the built environment. His own underground office, just completed, will be featured to demonstrate his concepts and conviction.

July

In the July issue, P/A will emphasize a theme of **Preserving the recent past,** with outstanding recent efforts to halt the demise of near-historic works.

Also featured will be a new hospital in Mesa/Tempe, Ariz., a striking building by Caudill, Rowlett, Scott, and an example of architect-community action results.

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Architects: For group leader positions with experience on working drawings for schools, shopping centers and medical projects. Key positions open to 200 man office. Daverman Associates, Inc., 200 Monroe, N.W., Grand Rapids, Michigan 49502. An equal opportunity employer.

Architects for Peace Corps/Vista-Action: Volunteer overseas and U. S. Low income housing projects, design of schools, hospitals, community centers, etc. Most openings —singles; some couples. Information: Bruce Mazzie, Action, OCP Box A-2, Washington, D.C. 20525.

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Faculty Positions: The School of Architecture at Rice University, Houston, Texas, is accepting applications for faculty positions which will be available for next fall, contingent on funding. All positions will be on a part-time basis, with opportunity for joint appointment in our off-campus Center for Community Design and Research and/or private practice. Openings in annually-renewable positions are for lectureships in areas of Urban and Regional Development Economics, in Natural Environment Planning, and Human Behavioral and Social Impacts of Environmental Design. Openings at instructor rank (annual appointment) are for teaching in architectural design studio at freshman, sophomore, and junior/senior levels. Openings on two or three-year appointments at assistant professor ranks are for teaching in design studio at junior/senior and at graduate levels, respectively. Minimum qualifications include appropriate academic and professional experience. Salaries are open and will be commensurate with qualifications. We are an Affirmative Action/Equal Opportunity Employer, and solicit applications from all qualified persons. Please direct inquiries with resumes to Alan Y. Taniguchi, Director of School of Architecture, Rice University, Houston, Texas 77001.

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Situations wanted

Architect: Architect wishes to relocate to the S.W. USA or west coast. A.I.A., Assoc. A.I.P., registered Illinois and Florida. NCARB certificate. M.C.R.P., B. Arch. 5 years diversified professional experience including European travel. Seeking responsible and challenging position with firm for mutual growth. Resume on request, P.O. Box 370664, Miami, Fla. 33137.

Architect: A.I.A., NCARB, registered in several states, seventeen years experience including five years in Europe. Strong architectural/engineering/construction/financial management background; interested in organization, client relations, consulting, coordination and of complex projects. Seeks affiliation or position with architect/engineer/developer. Prefer New York, New Jersey or Pennsylvania area but will also relocate for the right opportunity. Reply to Box #1361-682, *Progressive Architecture.*

Architect: A young architect is seeking a challenging design/land planning/management position with a progressive organization in the west. Will consider work with developers or a university situation. B.S. in Environmental Design; M. Arch.; 8 years of diversified experience. Emphasis in housing and educational facilities. Reply to Box #1361-683, *Progressive Architecture.*

Architect: NCARB, Illinois registration, M. Arch., 16 years of comprehensive experience presently responsible for design in office. Capable of rational design experienced in directing a team toward this end. Would like long term association with full design responsibility to principals, prefer diversified firm. Resume on request. Reply to Box #1361-685, *Progressive Architecture.*

Architect/Planner: 35, family, multiple degrees, NCARB, principal of firm, with comprehensive experience in top-level management, marketing, conceptual design, client relations and financing for large scale hospital and development projects, seeks partnership/equity position with architectural, consulting or development firm. Reply to Box #1361-686, *Progressive Architecture.*

Architectural Designer: Top grad, 10 years experience in urban design, desires work in architectural firm. Top skills in design, drafting, delineation, rendering, models, working drawings, cost estimating plus experience in landscape design interiors, planning. Reply to Box #1361-687, *Progressive Architecture.*

Architectural Graduate: B.A. '71, M. Arch, July '74, Iowa State University, Graduate program including PUD & Urban design. Thesis, regional shopping center, involved computer models for market & financial study, extensive building-type study, design. $1\frac{1}{2}$ years diversified experience. Desire permanent position. Resume upon request. Reply to: A. Dean Morton, 103 Orange Avenue, Ames, Iowa 50010.

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Architectural Graduate: B. Arch., Pratt, 1973, B.A., Art History, Columbia, 1969. Curriculum stressed design and planning, required courses in drafting, professional practice, structures, building services. Employment with land developer involves surveying, drafting, planning, design, management, maintenance, other responsibilities. Seek architectural employment offering solid experience, variety, advancement. Fredric Fastow, 191 Robby Lane, New Hyde Park, N.Y. 11040.

Architectural Graduate: B. Architecture; B.S., Environmental Design; M.S. Urban-Environmental studies; 26. Currently designer with architecture/planning firm seeking position with design conscious Northeast firm engaged in diverse architecture/planning projects offering exposure to all phases of practice. Will consider other localities. Resume and portfolio on request. Reply to Box #1361-689, *Progressive Architecture.*

Architectural Lecturer: B.S. Arch. and Master Arch., 14 years international experience in Europe and U.S.A. lecturing in areas of graphics, structures and design. Experience in all forms of classroom activities and university duties. Desire position in architectural/engineering faculty. Resume, and examples on request. c/o F.G. Collins, 234 Olympia Drive, St. Louis, Mo. 63135.

Architectural Specification Writer: Career-oriented professional member of C.S.I., with extensive experience in construction specification writing, materials research, and cost evaluation. Resume submitted upon request. Reply to Box #1361-690, *Progressive Architecture.*

Contract Interior Designer: Young lady, design degree, professional society membership. Free to travel. Can handle client contact, administrative work, package presentation, bid documents and usual designer responsibilities. 13 years comprehensive experience: institutional, educational and commercial buildings. Interested in Great Lakes, Ohio Valley or Gulf Coast areas. Reply to Box #1361-691, *Progressive Architecture.*

Director of Design: 31, NCARB, registered architect numerous states. B.S. Engineering; B.S. Architecture; M.S. Architecture; European study; teaching experience; 8 years designer and planner, experienced all phases of architecture, design awards. 200 completed projects of all types—50G to 31M. Proven ability for quality work while producing profits. Desire director of design position, large city location. Resume, references and brochure of work on request. Reply to Box #1361-692. *Progressive Architecture.*

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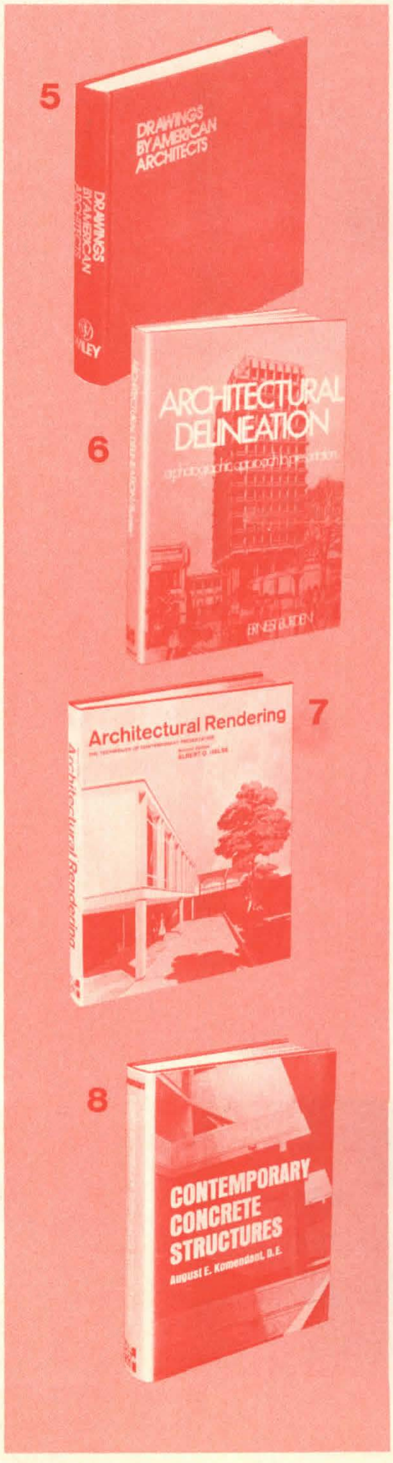

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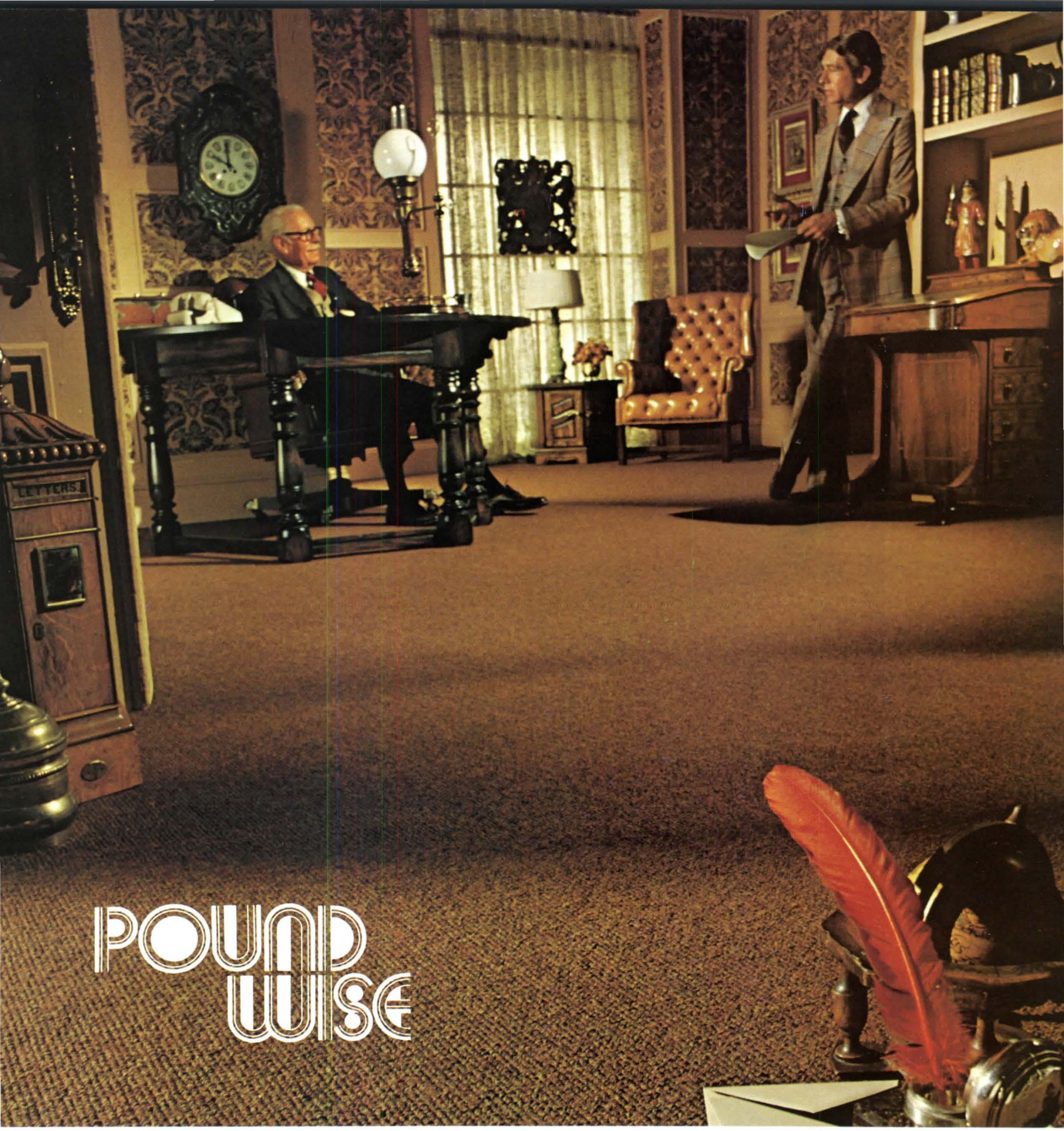

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