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ARCHITECTURAL RECORD

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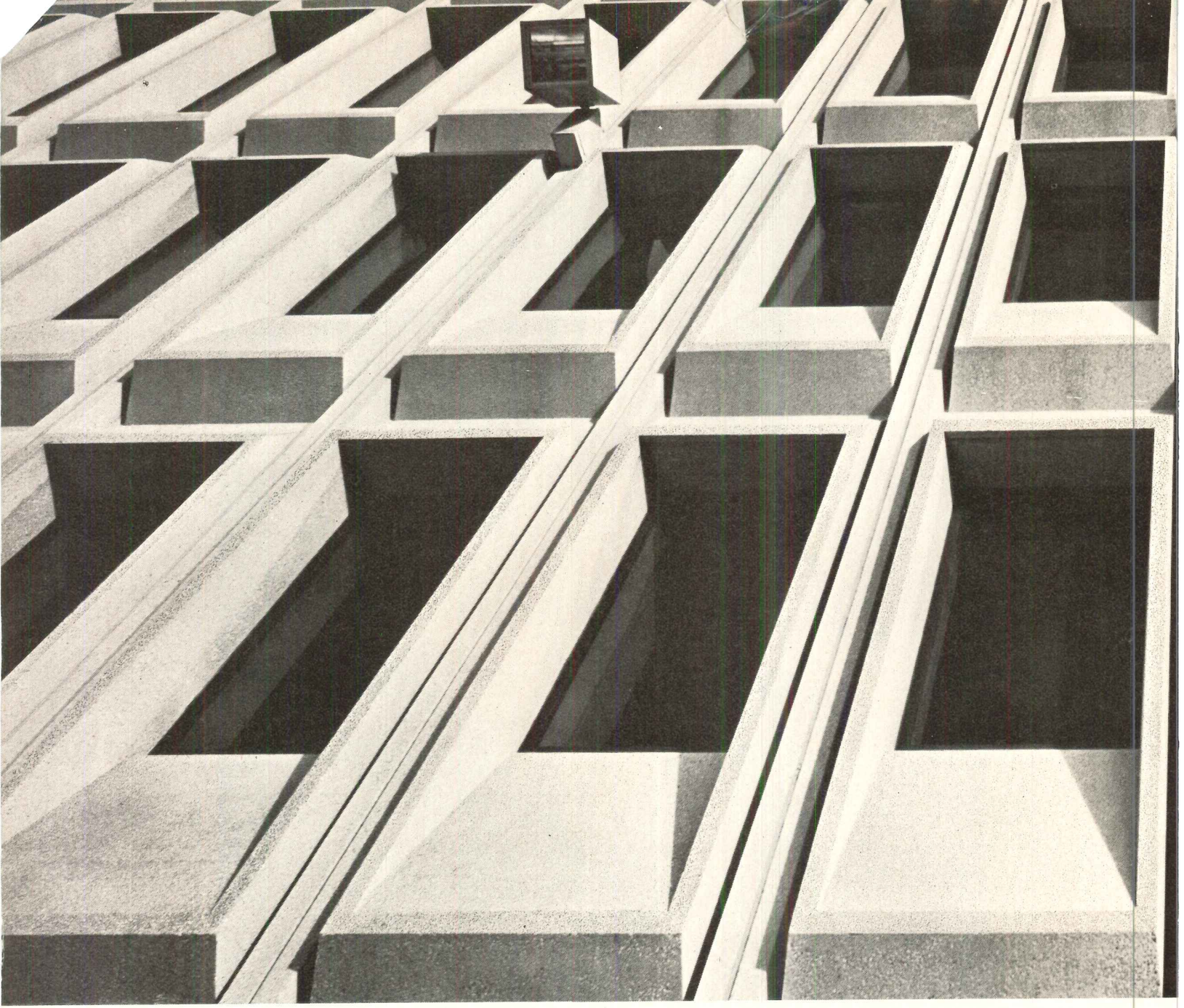

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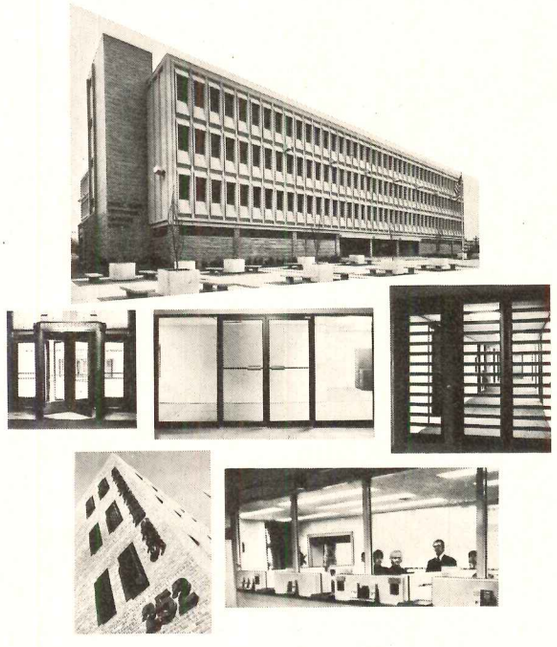

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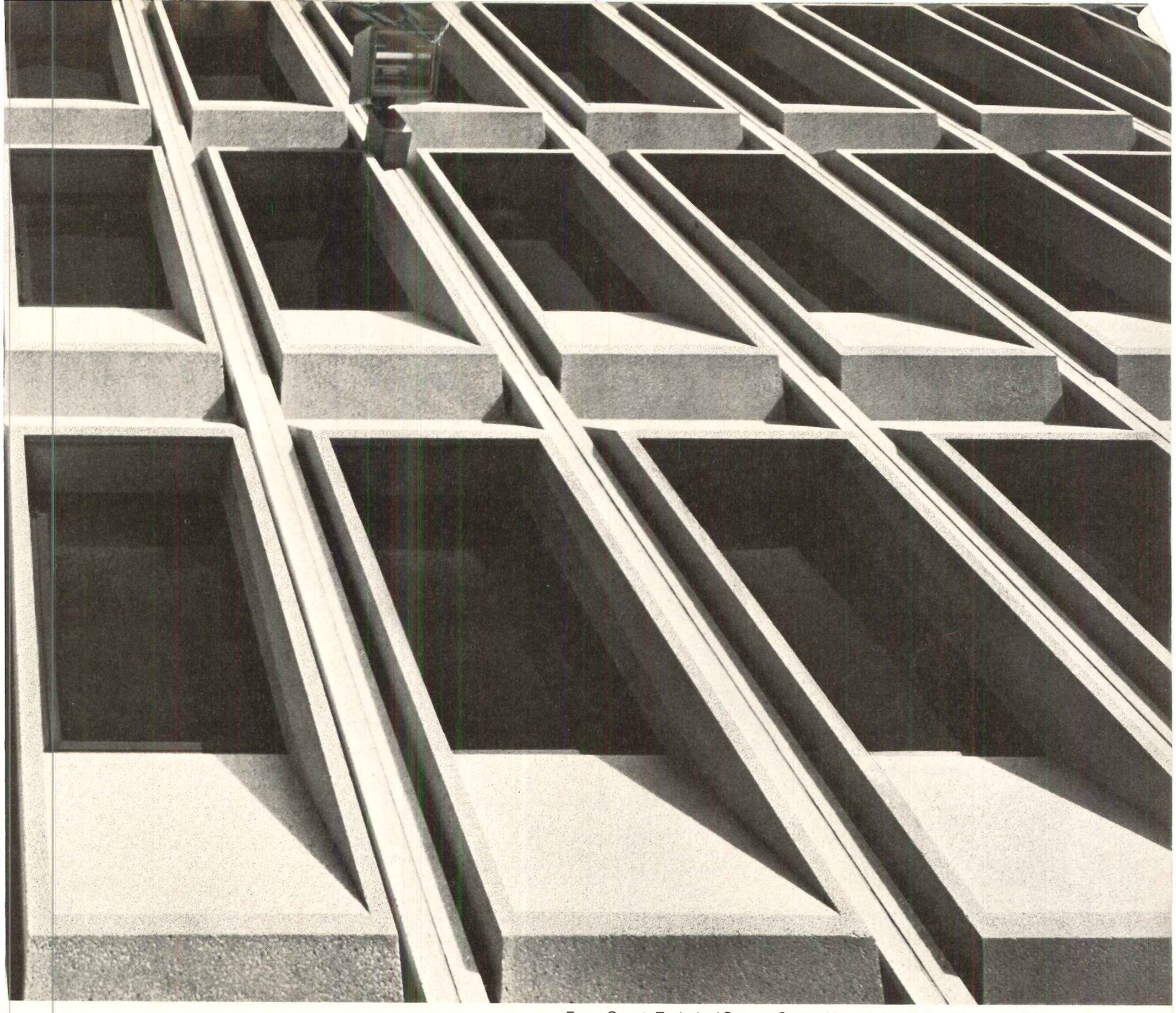

Essex County Technical Careers Center, Newark, N.J. Robert Moran, Architect

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Letters to the editor

Your May issue is now, and will remain, an essential document for all who still think the world can be made a better place to be.

I hope and trust that this exceptional piece of journalism is just a beginning. Since I am not aware of anyone else, however, who will keep such an international outpouring of design talent from withering and dying, I respectfully suggest that your organization must.

Of course, those who rose to the challenge are not necessarily entitled to an ongoing effort to transform a contest into a new and dynamic professional development. But I do believe a couple of billion people are entitled.

William Houseman, Editor
The Environment Monthly
Bronx, New York

The May issue of RECORD on "Human Settlements" is a truly remarkable undertaking. I have read it only twice so far and find much still available and asking for further observation.

This kind of a magazine issue is a reflection of a proud profession stating goals of great import—yet, still looking for the guidance to begin fulfillment of the omnipresent needs.

John D. Bloodgood, AIA
Des Moines, Iowa

I congratulate you on your public spirit in drawing attention to the immense housing problem of the developing countries around the world, and in offering constructive proposals.

It is my hope that by giving Government Ministers and senior officials the opportunity to study the winning designs in the exciting competition you organized, you will have provided a real challenge to them to deal with this particularly urgent problem of our time.

Sir John Prideaux,
Chairman,
National Westminster Bank, Ltd.
London, England

You are to be congratulated on your issue on "Human Settlements." Most striking about the solutions in your architectural contest for the problem of handling hundreds of thousands of urban squatters is the fact that the architects stuck with local building products readily available and included huge elements of self-help—the only way that those problems can be solved not only in the Third World, but in our world, too, as we have seen in trying to handle slums in places like New York City, Cleveland and Detroit.

Your effort was an outstanding one and well worth the try to show that it would be possible to do something for the squatters, if only we could make our world governments work a little better.

Richard W. O'Neill
Housing Advisory Council, Ltd.
Lakeville, Connecticut

Needless to say, I was disappointed when RECORD (formerly my favorite architectural periodical) in its June News Reports omitted one of the architects nominated to the NIBS board, namely,

Rudard A. Jones, AIA
Research Professor of Architecture
and Director, Small Homes Council-
Building Research Council

I wish to respond to Robert Miller's piece of new journalism about New Haven's Dixwell Fire Station, June 1976, in part because I had the same architectural training, though a few years later, and consequently am embarrassed that his views should be considered representative.

The problem with the "inclusivists" is that the expression of their doctrine has rapidly become as strident as that of the "monumentalists" they scorn. Although Mr. Miller's essay is fun to read, in a baroque ingroupish sort of way, he unfortunately relies for most of his points on distortions and inaccuracies.

For example, the "ring road" that he projects as a current threat has been dead for at least five years. For another, at least half of New Haven's renewal areas (5 out of 9, to be exact) are not clearance projects. Instead they are neighborhood conservation projects focusing on residential rehabilitation, parks, schools and other small-scale public amenities.

Mr. Miller has also got his good guys/bad guys theory totally confused regarding town-gown relations with Yale, which have been much more cooperative over the years than he allows.

With the critical hindsight fashionable in the '70s, he condemns a whole era that brought a new optimism and energy to the city. Sure, there were mistakes, but the level of professionalism and commitment was much too high to be dismissed with jokes and oversimplifications.

I agree with only two things in Mr. Miller's piece: the firehouse is a splendid building, and New Haven has an eccentric, charming, and wholly unpredictable architectural personality.

Susan E. Hochschild
New Haven, Connecticut
Redevelopment Agency

Calendar

AUGUST

2-13 Washington Women Architects Exhibition, on display at the Inter-American Development Bank Gallery, Washington, D.C.

23-25 The National Structural Engineering Conference, Madison, Wis. Contact: Prof. C. G. Salmon, Engineering Building, University of Wisconsin, Madison, Wis. 53706.

SEPTEMBER

1-19 Art by Architects Art Show, Valley Bank Center, Phoenix, Ariz. Show is being held in connection with the AIA Western Mountain Regional Conference on Energy at Mountain Shadows Resort, Scottsdale, Ariz. Contact: Renae Lindley, AIA Collaborating Arts Committee, 384 E. Coronado Rd., Phoenix, Ariz. 85004.

3, 10, 17, 24 Conference on Solar Energy Applications for Buildings, Oakland Museum, Oakland, Calif.

17-18 Two-day course on "Firesafety in Buildings," Massachusetts Institute of Technology, Cambridge. Co-sponsored by University Extension, University of California, Berkeley, and MIT. Contact: Continuing Education in City, Regional, and Environmental Planning, University Extension, University of California, 2223 Fulton St., Berkeley, Calif. 94720.

21-22 New York University's School of Continuing Education seminar, "Energy Management in Buildings." Contact: Ms. Heidi E. Kaplan, Information Services Manager, Dept. 14NR, New York Management Center, 360 Lexington Ave., New York, N.Y. 10017.

OCTOBER

12-15 "Noise and Vibration Control of Mechanical and Electrical HVAC Equipment in Buildings," Cambridge, Mass., a course conducted by Bolt Beranek and Newman Inc. Contact: Miss Gloria A. Cianci, Bolt Beranek and Newman Inc., 50 Moulton St., Cambridge, Mass. 02138.

17-20 National Lighting Convention/Seminar, Dunes Hotel, Las Vegas, sponsored by the American Home Lighting Institute (AHLI). Contact: Barbara Kuehn, American Home Lighting Institute, 230 N. Michigan Ave., Chicago, Ill. 60601.

19-20 New York University's School of Continuing Education seminar, "Energy Management in Buildings," San Francisco. Contact: Ms. Heidi E. Kaplan, Information Services Manager, Dept. 14NR, New York Management Center, 360 Lexington Ave., New York, N.Y. 10017.

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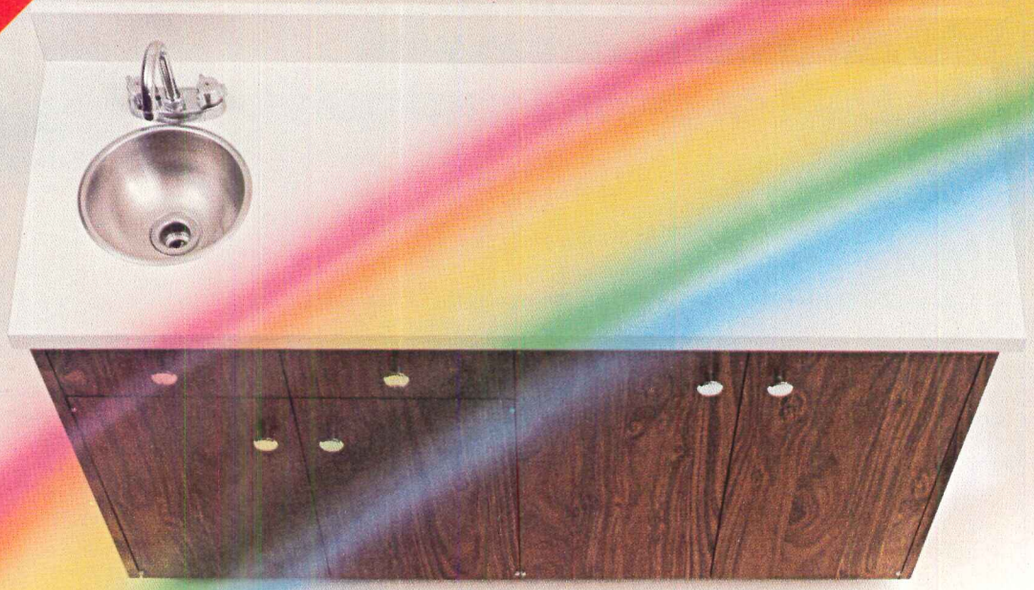

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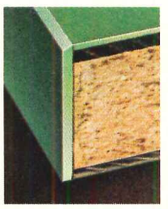

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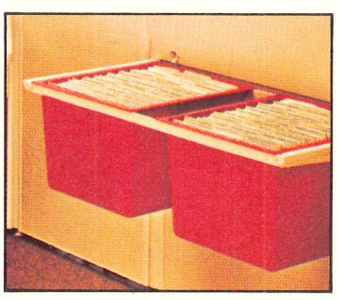

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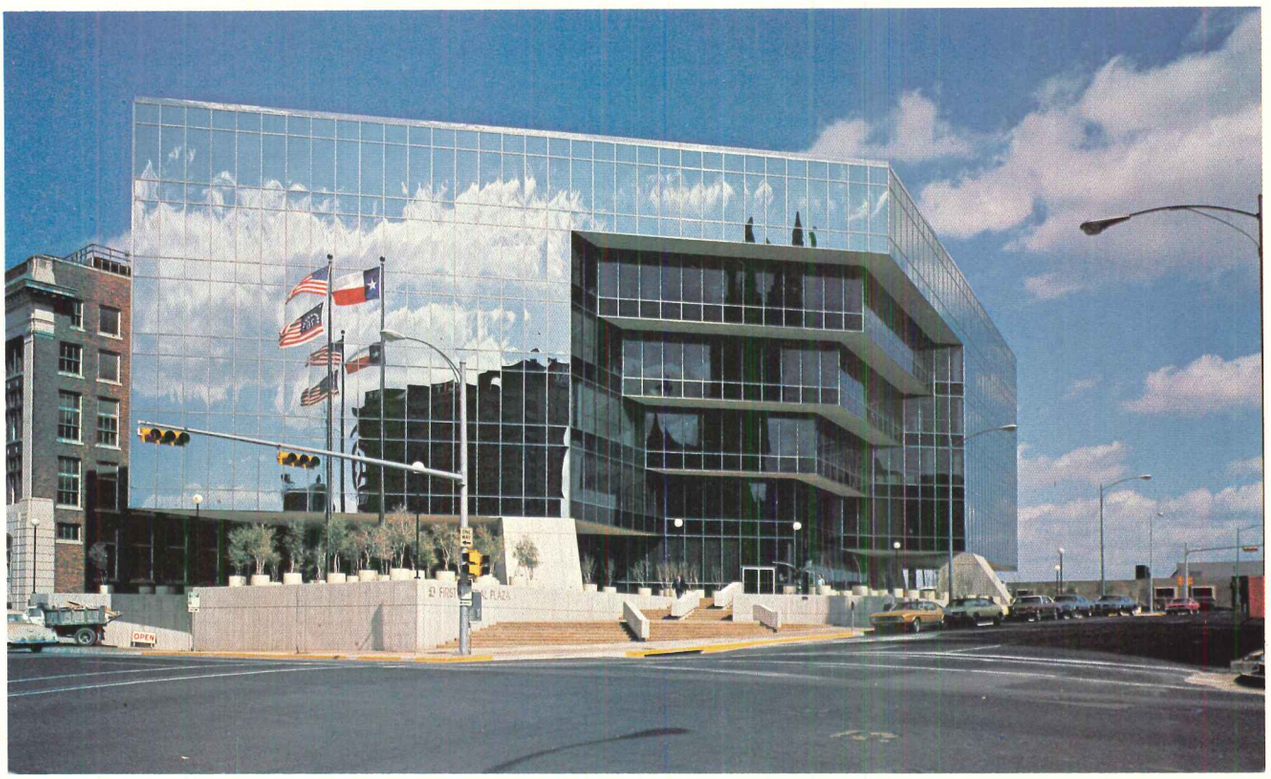
Thomas Mann, 1924



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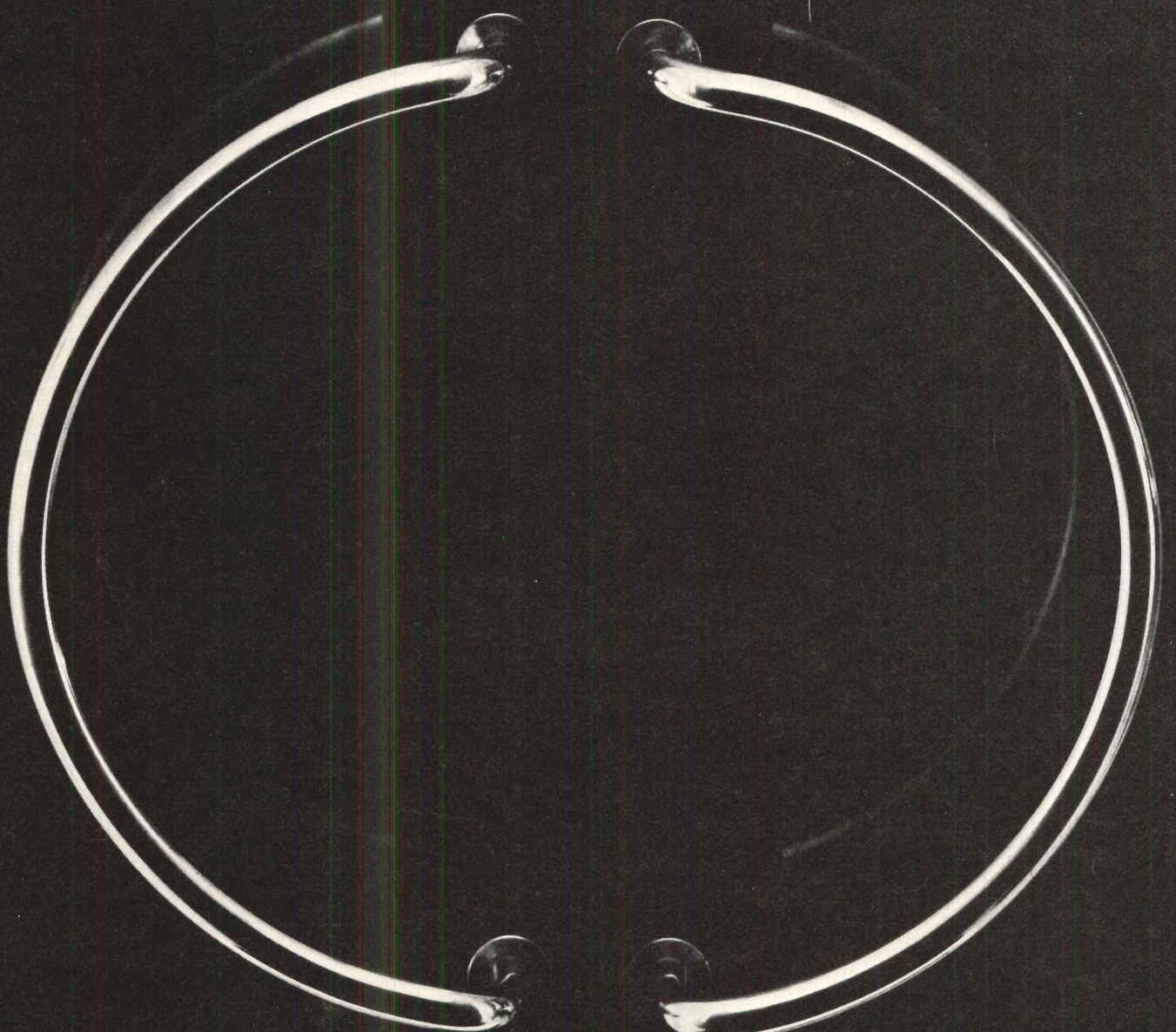

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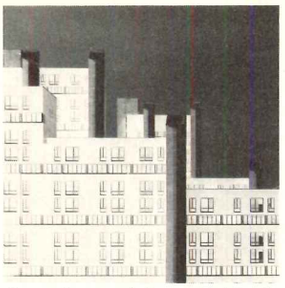

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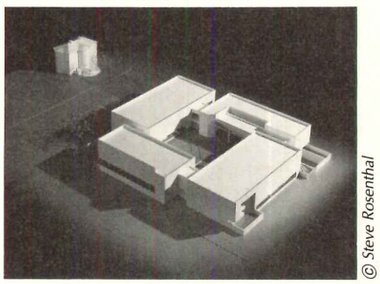

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ARCHITECTURAL BUSINESS

FEATURES

BUILDING TYPES STUDY 491

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NEXT MONTH IN RECORD

Building Types Study: Public Administration Buildings— How well are we designing for the public realm?

The question of the quality and the efficiency of our public architecture has lately become a subject of increasing concern both to architects and to governmental agencies. The September Building Types Study will present some of the most notable successes.

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Some random thoughts on celebrations, sailboats, and cities

In an article last month on "The Shape of Celebration," the authors wrote that "if we go about it carefully, we can design the mysterious dimensions of celebration right into our public realm. . . ." Couldn't help thinking about those "mysterious dimensions" as—with quite a few million other people—we headed into New York City to see the ships of Operation Sail. Such an effective job of warning people about driving to the city had been done that the trains were jammed (so jammed that the conductors couldn't get through to collect tickets). And do you know that no one complained—indeed everyone was making sort of a party out of the trip. Instructions on how to use the subway to reach vantage points along the river were cheerfully given. There were almost no cars on the city streets, and people walked towards the river laughing and swinging their picnic baskets. New York's ubiquitous hot-dog vendors slapped on the sauerkraut and mustard with uncommon style and élan; people were polite even at the most crowded viewing points; and the policemen seemed to be looking, at least this day, not for trouble but for ways to help.

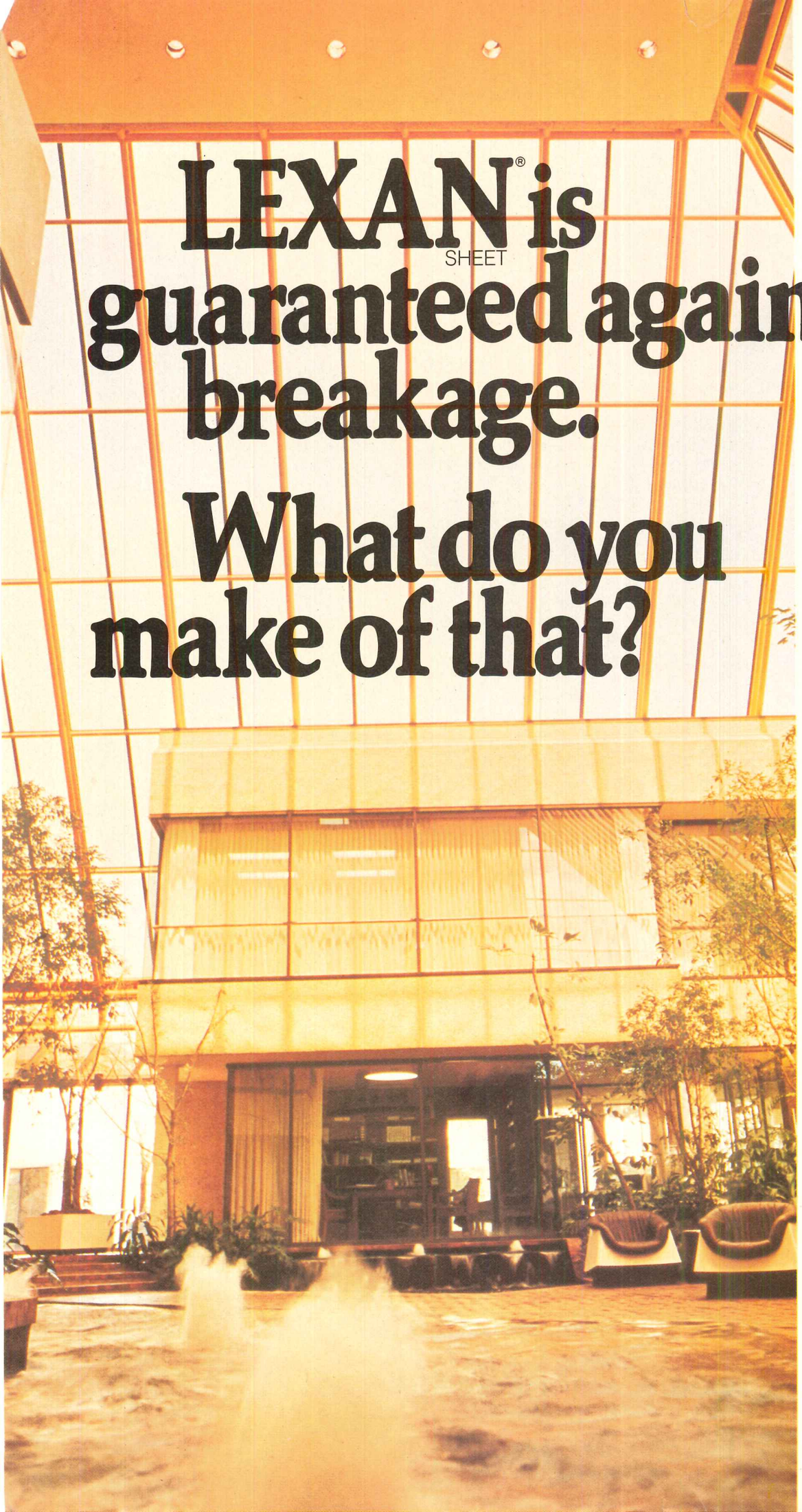
New York City hasn't had an awful lot to be festive about lately—but the City (if you can personalize eight million residents and five or more million visitors) had a wonderful time on the Fourth of July—and the mood seems to be sticking. It's as though everybody had such a good time swinging through the streets being pleasant to each other that they decided to keep it up even though the celebration was over and the ships have slid down the river and headed off for other cities or for home.

I'm not sure (though I'd guess) that the same "mysterious dimension" was at work in other cities—and if it was at work, I think we ought to give the most serious thought as to how we can recapture it regularly. Last month's article on "The Shape of Celebration" concluded that "We need a great many more splendid places [and events] to inspire and nurture the outpouring of joy in our cities. All that is needed to make more of them happen . . . is a methodical, pragmatic process. If we go about it carefully, we can literally design the mysterious dimensions of celebration right into our public realm." The Fourth of July sure suggests we ought to try.

A related, not-too-serious thought: As the ships and boats of Operation Sail (not just the square riggers, but the contemporary ocean racers and the spectator fleet) moved down the river, I couldn't help but wonder if there were some design (or design-philosophy) lessons for architects and engineers in the work of the naval architects. Racing sailboats are of course beautiful—and it is a totally lean and functional kind of beauty. Their engineering is "on the edge"—everything is as strong as it needs to be but not an ounce heavier than that. Ocean cruising boats tend to be more conservative—with hulls designed to move comfortably though the sea rather than move as fast as possible. Sails and fittings and equipment are designed with a safety margin—and there are even elements of decoration for the sake of decoration: teak trim outside, mahogany paneling inside, bronze fittings instead of super-engineered stainless, maybe even a beautiful wooden mast and boom instead of the mandatory special-alloy go-fast aluminum of racing boats. In either case, there is a kind of perfection and level of excellence that we might consider. Naval architecture, like "our" architecture, is a very personal art. It has its design superstars, like Ted Hood and Charley Morgan and Doug Peterson, who while they use computers in their calculation still make their boats go better because they are just a bit better at putting their pencil points in the right place. And—as in the design of buildings—there is, after all these years, no one right way—and therefore continuing experimentation. If you've never done it, go take a look at a big sailboat someday and wonder if there are any lessons.

To go back to cities for a moment: In our December issue, RECORD is going to examine the role of architects in rebuilding the vitality of our smaller cities and towns—by finding ways to keep industry in town, restoring worthwhile older buildings, building key new elements of housing and commercial space, recycling less-than-landmark but nonetheless-worthwhile older buildings for new use—and by devising new planning concepts that will tie all this together. If you've been involved in, or know about, such a "revitalization" effort, please drop me a line and tell me about it. We're interested in finding and publishing real success stories—not "dream designs" but real projects that are complete or at least well underway, that are well accepted by the people of the town, and—most especially—that are soundly financed. Our hope is that with this issue we can demonstrate the role of the architect not just as designer and planner; but perhaps as developer and most certainly as catalyst for real community effort.

—Walter F. Wagner Jr.



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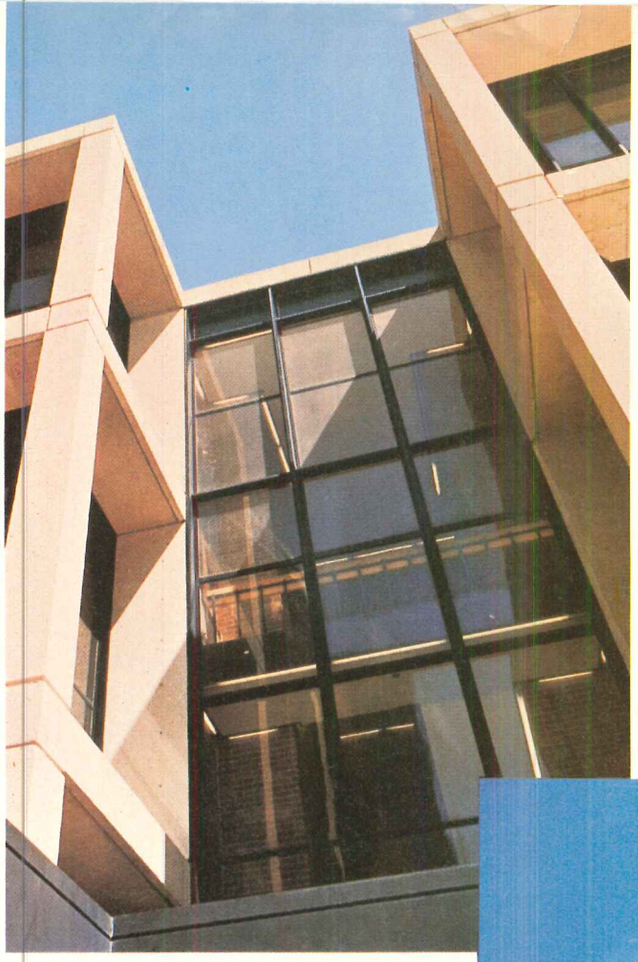

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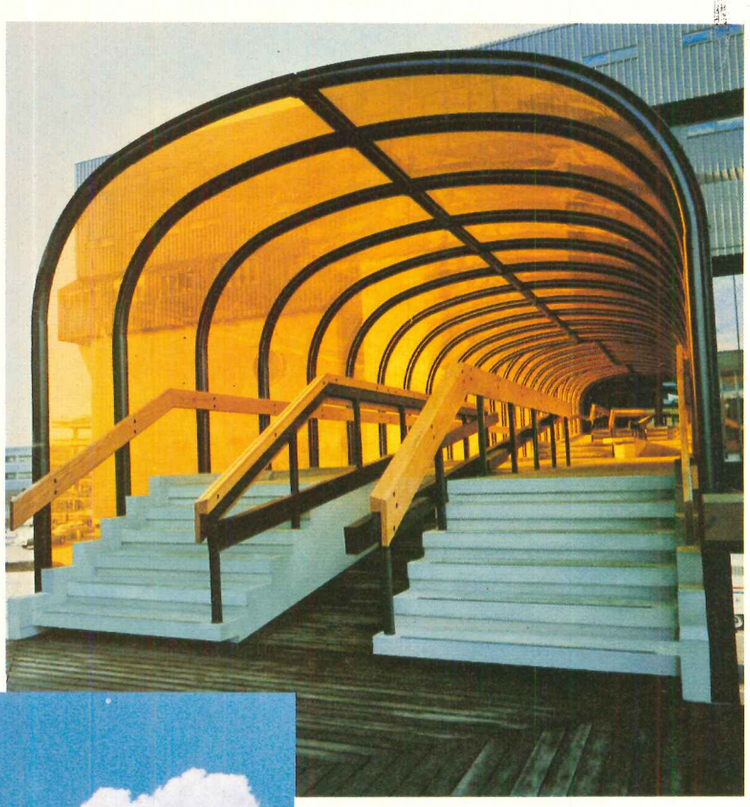
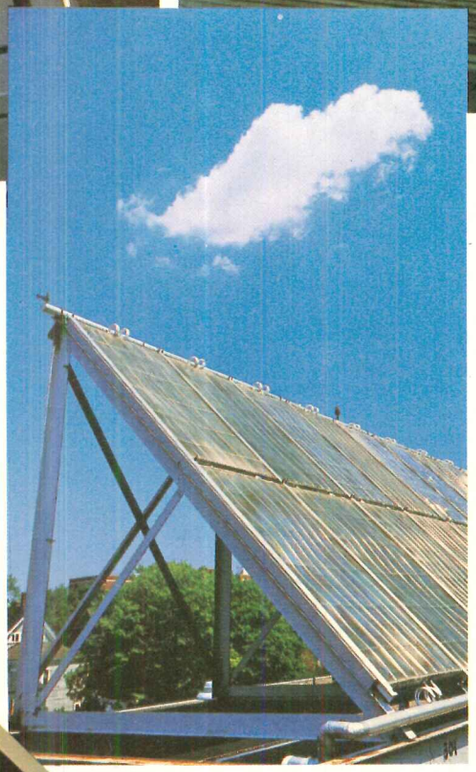
Photo: Walt Disney Magnet School
Chicago, IL
Architect: Perkins & Will



Long lasting enclosed walkways.

Domes and enclosed walkways of LEXAN sheet are weather resistant, color stable, and offer high light transmission.

Photo: Provincial Court & Remand Centre
Calgary, Alberta, CANADA
Architects: Long Mayell & Associates



Light weight solar collector panels.

LEXAN sheet .040 and .080 mils thick offers high light transmission, physical toughness, high heat stability, and environmental resistance.

Photo: Grover Cleveland Junior High School
Dorchester, MA

Strong passenger shelters.

Durable passenger shelters with LEXAN MR-4000 mar resistant panels protect passengers from the weather, and resist damage by vandals.

Photo: TRI-MET System
Portland, OR
Architect: Skidmore, Owings & Merrill

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GENERAL ELECTRIC CO.
Sheet Products Section
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Pittsfield, MA 01201

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A Tectum Roof Deck absorbs rather than reflects noise to assist in "knocking down" the overall sound level to make it easier to comply with OSHA standards.

Tectum is adaptable to plant renovation. When OSHA requires better sound absorption, Tectum wall and ceiling panels help lower noise levels.

Tectum is beautiful, but beauty is just a bonus. Here, it's a lightweight, but structurally strong roof deck suitable for built-up roofing. A thermal insulator with a 0.57 "k" factor.

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For more information, write Gold Bond Building Products, Division of National Gypsum Company, Dept. AR-86T, Buffalo, New York 14225.

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BUILDING PRODUCTS

For more data, circle 10 on inquiry card

Preliminary frame analysis determines simple steel frame with braced core most efficient.

Eastern Properties Office Building, Lexington, Ky., is a 33,300-sq-ft structure designed to accommodate a radio station, a corporate headquarters for a large financial organization, a computer operation, and a complete printing shop.

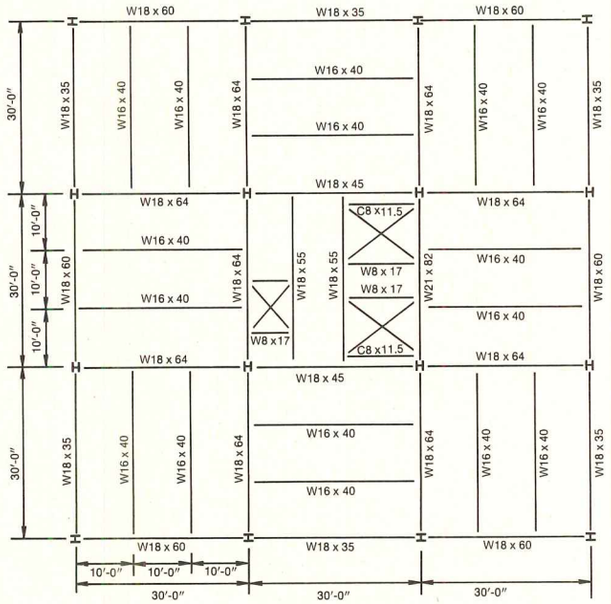
The owners, along with the project's structural engineers, White, Walker & McReynolds, requested a preliminary analysis based on a building having six supported levels. Several framing schemes were investigated, but the most efficient proved to be a simple connected frame with a braced core. Because of various other factors involved, the owner decided on a 4-level structure with a 5th-level mechanical penthouse. The framing scheme, however, remained essentially the same as that recommended by the framing study. "We selected structural steel for the framing material because of its ease and speed in erection, lower cost, and its structural ability to support the clear spans required by the owner," reports Bank Management Associates, construction managers for the project. "Based on Bethlehem's preliminary framing analysis, we selected the scheme that would be the most economical and use the smallest amount of steel necessary."

Erected in 30 days

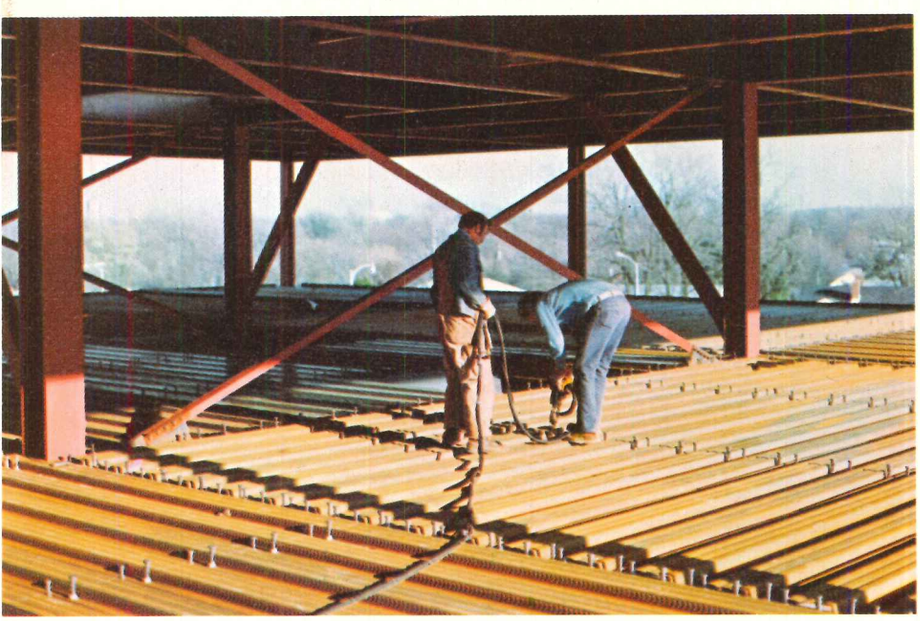
The office, situated on an elevated site, rises 66 ft 6 in. from its on-grade, 93-ft-sq base. ASTM A572 Grade 50 high-strength steel is used in the base tier portion of all columns. The balance of the steel is A36. The entire structural frame was erected within one month and is expected to be ready for occupancy within eight months.

Wind loads are accommodated in the central core by X-bracing in one direction and K-bracing in the other. The core houses all vertical transportation, fire protection equipment, restrooms, mechanical, and electrical shafts.

Spray-on fire protection is applied in accordance with the BOCA building code specifications. Columns are rated for 2 hours; beams for 1 hour.



Typical floor framing plan illustrates the structure's generous column-free bays. The frame is designed for a live load of 100 psf plus 25 psf for partitions.



The floor system consists of a 3¼-in. lightweight composite concrete topping over 2-in. non-cellular composite steel deck. Floor-to-floor height is 12 ft. Bethlehem furnished all of the structural steel requirements for the building.

Owner: Eastern Properties, Inc., Lexington, Ky.; *Architects:* Johnson/Romanowitz, and W. D. Hatcher III, consulting architect, Lexington, Ky.; *Structural Engineer:* White, Walker & McReynolds, Lexington, Ky.; *Fabricator/Erector:* Englert Engineering Company, Nashville, Tenn.; *Contractor:* White & Congleton Co., Inc., Lexington, Ky.

depend on Bethlehem

Early involvement of Bethlehem's Sales Engineering Buildings Group enabled the owner to obtain optimum steel frame economy for the building.

Call on us early in the design stage

You will gain maximum benefit from our preliminary frame analysis if you call on us before committing your design to a particular construction material. This allows our Sales Engineering Buildings Group and your structural engineer maximum freedom to develop the most favorable steel framing system for the building under study. Our early involvement will also help minimize design changes later on. Two or three weeks are normally required to complete the study, although preparation time varies with the complexity of the building's design.

Other services available

Our Sales Engineering Division offers a variety of technical and advisory services, plus a host of technical and product literature . . . all designed to help you develop the optimum structural frame for your building.

For more detailed information we suggest you get in touch with the Bethlehem Sales Office nearest you.

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Cleveland (216) 696-1881
Detroit (313) 336-5500
Houston (713) 659-8060
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Milwaukee (414) 272-0835
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Bradley Washfountains make washroom dollars work harder, too. Washfountains cut installation costs, produce significant water and energy cost savings, and save floor space and maintenance costs. Write for our WASHROOM/SHOWER ROOM PLANNING GUIDE. Bradley Corporation, 9101 Fountain Boulevard, Menomonee Falls, WI 53051.

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While the demand for antebellum mansions isn't what it once was, there are plenty of opportunities for a paint product good enough to bear the name Olympic. The product is Olympic Overcoat, a beautifully durable, flat, acrylic-latex finish that's the perfect answer for hardboard, concrete, stucco or any exterior surface that must be painted. (Anyplace you don't use stain.)

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Federal Sign's quality manufacturing means your client's identification system will be as attractive and durable as your design.

Professional installation assures the appearance, safety and durability of the identification—both inside and out. Across the country, Federal installation crews use sound engineering skill and specialized equipment to get the job done right.

If your client wishes, regularly scheduled maintenance can keep his identification as effective as it is the day we install it. An optional leasing plan can free your client's capital for other needs and provide tax advantages.

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It is a superb union of architecture,
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Epic Metals Corporation is proud to be part of the team
that completed the structure
before the scheduled date, within the budget.
Epic's delivery and erection of all materials
met the exacting requirements of a critical schedule,
specialized construction procedures,
and the ultimate function of this monumental addition
to the Smithsonian Institution.

Architect:
Hellmuth, Obata & Kassabaum

Structural Engineer:
LeMessurier Associates, Inc.

Construction Manager:
Gilbane Building Company

Epic Metals Corporation: Furnished and erected 520,000 square feet of steel composite floor deck and roof deck.

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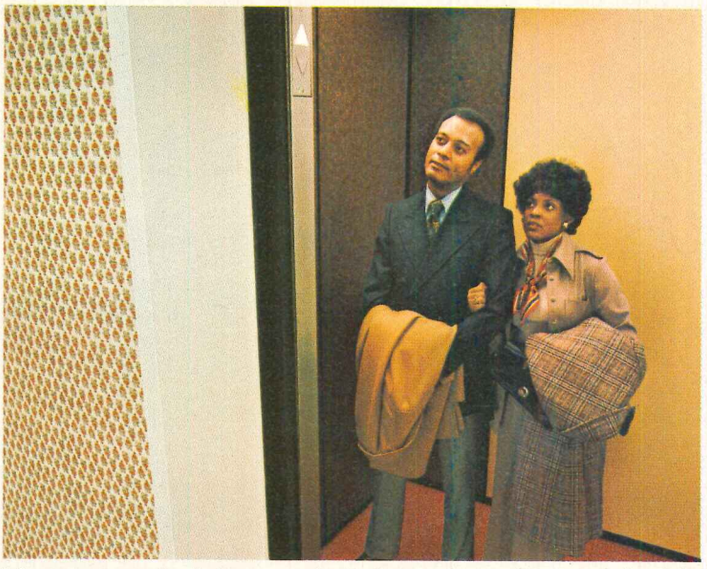
You told us what you wanted in a pre-engineered elevator system...and the price you needed for today's market.

The Otis GO-LINE has it, and much more.

You asked for a wide choice of carrying capacities so you could precisely satisfy your building's needs. We gave you eleven different selections to choose from. You wanted off-the-shelf delivery and fast, efficient installation by experienced crews to prevent a lot of problems. The GO-LINE has it.



You requested large, digital readout fixtures inside the car so passengers can position themselves for prompt exit at desired floors. You wanted highly visible directional lanterns, located in both car entrance columns, combined with an audible signal to alert waiting passengers. The GO-LINE has it.

You told us you wanted fast, positive door operation with instant door reversal to protect entering and exiting passengers. You specified solid state control to improve equipment reliability. You wanted control panels designed for easy accessibility by wheelchair riding passengers. The GO-LINE has it.

You wanted the option of adding special emergency equipment, emergency lighting and power, telephones, intercoms and key switch control. You asked for a wide choice of easy-to-maintain wall panels, with a variety of carpet and ceiling colors to match your building's decor. The GO-LINE has it.

And you asked us to maintain the traditional Otis quality...at a price you can live with. We did what you asked. The GO-LINE has it all.

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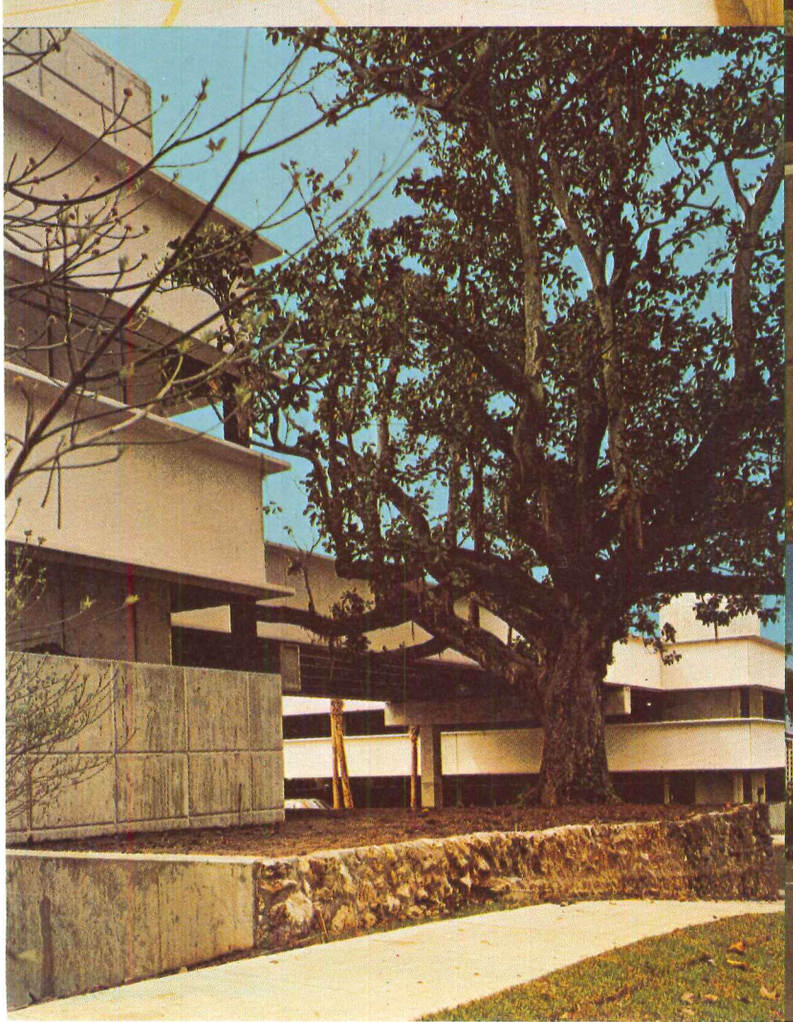

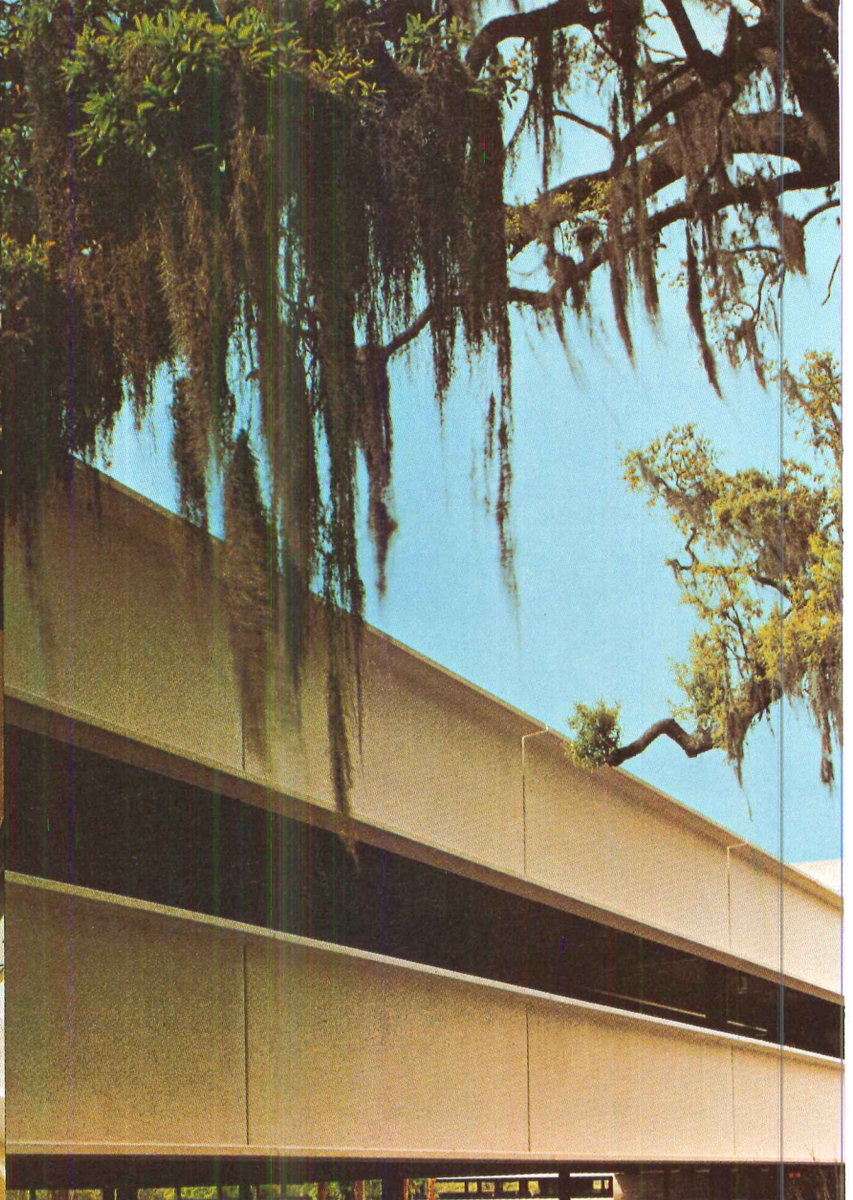

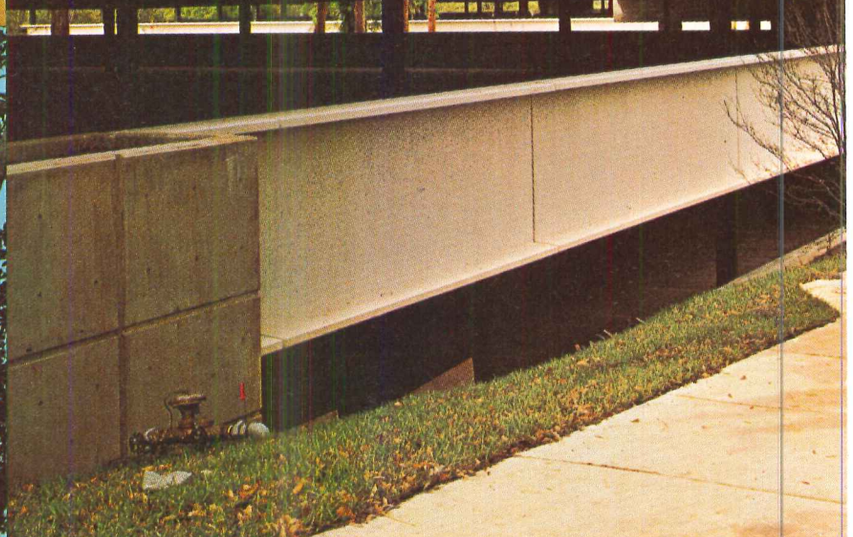

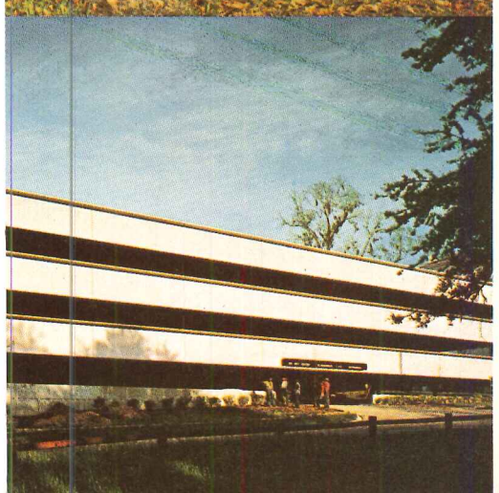

The steel-framed, long-span system: a natural choice for five new Florida parking garages.

Five new open-deck parking garages, accommodating up to 3,402 cars, are serving Florida's state employees in Capitol Center—a complex of government offices in Tallahassee.

The steel-framed, long-span concept was chosen over competitive systems for reasons combining economy, construction speed and aesthetics.

From the start, sites were selected and the respective structures designed with every intention of preserving visual harmony with the existing buildings and landscaping of Capitol Center. The happy result of this careful planning is that most of the trees are still there!

THE GREATEST ECONOMY

As many as eight different structural systems were used as models for evaluation. This in-depth study, which examined construction speed as well as material costs, showed that structural steel framing with composite cast-in-place concrete decks had the potential for the greatest economy.

The decision proved wise. Construction cost per car is figured at approximately $2,400—a unit cost substantially lower than comparable facilities in Florida.

NO FIRE PROTECTIVE MATERIALS NEEDED!

One of the decisive elements in establishing the low-cost estimate for the steel-framing system was the fact that the steel structures could be left exposed and unprotected—except for painting.

Changes in the regulations of a number of building codes (and fire insurance rates) have been effected through a research project carried out at Scranton, Pa., under the auspices of the American Iron and Steel Institute. The dramatic and fully documented Scranton Fire Test was an actual auto burnout in a normally occupied open-deck public parking garage. It confirmed the results of previous tests: *an automobile fire in these structures is a low-hazard fire.*

STANDARD MODULE

For all the five facilities (named Alpha, Beta, Gamma, Delta and Epsilon) the designers selected a standard bay module, which proved to be a major factor in cost-cutting.

Each bay measures 55-ft. wide with a 20-ft. distance between columns and a floor-to-floor height of 10-ft. These dimensions allow angle (58 degrees) parking for standard-size cars and perpendicular parking for compact cars.

Self-parking is, of course, made easier by this amount of long-span, column-free space.

3,446 tons of ASTM A36 steel went into the five facilities which, together, have a floor area of 1,074,909 sq. ft. Only two column sizes were used throughout: W10 x 49 and W10 x 72. All beams are W24's with the majority weighing 68 lbs. per linear foot. Design loads are 50 psf for roofs and floors.

United States Steel is ready to help you with your design of a long-span, open-deck garage. For a Structural Report on the Capitol Center Parking Garages, and for further information, write to U.S. Steel, P.O. Box 86 (C614), Pittsburgh, Pa. 15230. Or contact a USS Construction Representative through your nearest USS Sales office.

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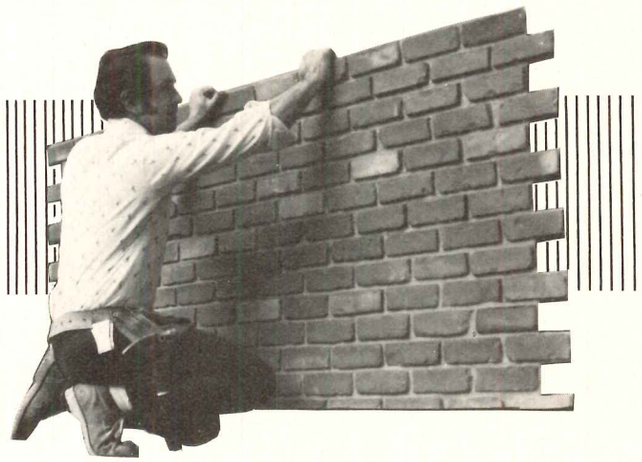
Schweizer Associates, Winter Park, Fla.

Steel Fabricators: Joint venture organization: Musselman Steel Fabricators, Inc., (Prime Coordinator), Tampa, Fla.
Aesco Steel, Montgomery, Alabama.
Florida Steel Corp., Jacksonville, Fla.
Steel Erector: North Florida Erection Co., Inc., Jacksonville, Fla.

THE CARPENTERS MASONRY...



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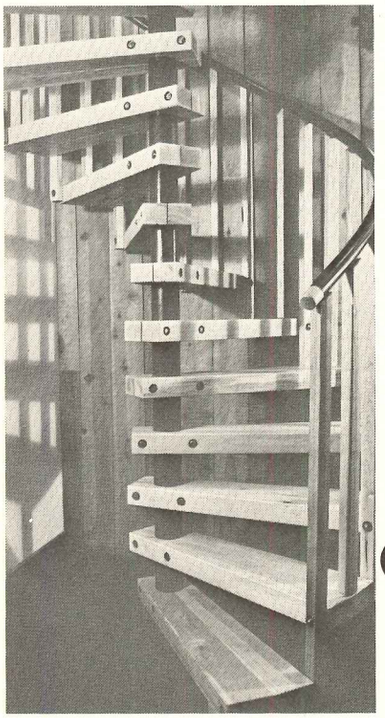

scott·douglas
design

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AR-8

Dear Monsanto,
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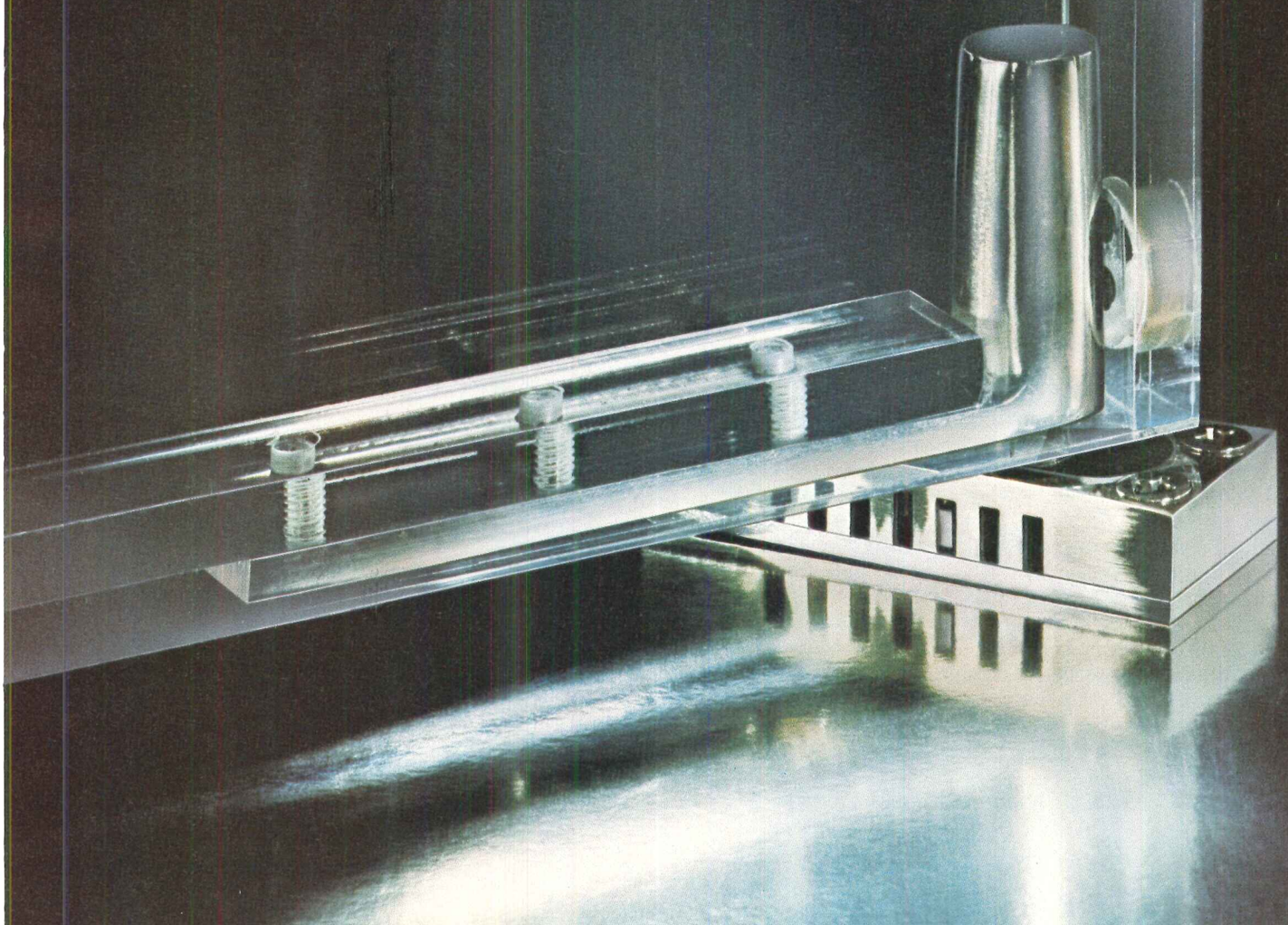
The beauty of Hager's Raconteur® pivot is that you can't see it. It's perfect for concealed applications in executive offices, libraries, private clubs, luxury condominiums, apartments and homes. Raconteur® rack and pinion pivots will support any 1-3/4" wood or metal interior door weighing up to 150 lbs. Paneled walls of doors with uninterrupted lines are possible because Raconteur® completely concealed pivots require no frames. And Raconteur® pivots allow doors to open 105°. Pivot components are made from fine quality brass, stainless steel, rolled steel and cast iron, eliminating sagging common with other concealed hinges. Plastic plugs allow for simple concrete floor installation. Alignment is easily adjustable. Available in satin brass and satin chromium decorator finishes. Raconteur® Patent No. 3,394,428. Ask your architectural hardware consultant about Hager's complete selection of fine quality door hardware. Hager Hinge Company, 139 Victor Street, St. Louis, Mo. 63104. Everything hinges on Hager!

HAGER®



New Light

Open-space office designs call for a new approach to illumination. Here it is.

Harbor Lights® were invented for open-space layouts. Their slender columns stand free, can be moved anywhere you wish, and plug into normal electrical outlets. They shine their high-intensity light to the ceiling for a reflected sea of even, pleasing, glare-free illumination.

Harbor Lights save energy, too. In a 10,000 sq. ft. office, a designer used a total of 20 Harbor Lights, instead of the 400 fluorescent tubes it would have taken to get the same light level. The tubes would have used 16,000 watts. The Harbor Lights use only 8,000 watts.

Everybody feels better about desk work because the fluorescent glare is gone.

Harbor Lights aren't the only news from Harbor.

Open space offices come to life with our free-standing screens that provide pleasant work areas without the expense and wasted space of conventional walls. And it won't cost a nickel to reposition them when the need arises.

Harbor furniture functions without hampering personal movement. It blends right in with truly flexible filing systems people can reach and use while sitting in their desk chairs.

The open office. An idea that's sweeping the world of interior environmental design. It calls for a whole new set of interior fixtures and furniture. You'll find everything you need at Harbor.

We've put the office environment in a new light.

Harbor®

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For more data, circle 24 on inquiry card

Elmer E. Botsai recently assumed the chairmanship of the University of Hawaii's Department of Architecture. As Botsai is also first vice president and president-elect of the AIA, 50 per cent of his time will be free for AIA work over the next two years. He will continue as a member of the Northern California Chapter of the AIA and as a principal of Botsai Everstreet & Rosenberg, Inc., of San Francisco.

Cesar Pelli will become Dean of the Yale University School of Architecture in January. Currently teaching at the UCLA School of Architecture and Urban Planning, Pelli has held the Charlotte Shepherd Davenport professorship in architecture and the William Henry Bishop Visiting Professorship of Architecture, both at Yale. Pelli will remain partner-in-charge of design at Gruen Associates, Los Angeles.

Gerald M. McCue has been named associate dean of the Harvard School of Design and chairman of the Department of Architecture. He will also assume the post of professor of architecture and urban design at the Harvard Graduate School of Design. McCue is a senior partner in the San Francisco-based firm McCue/Boone/Tomsick, and served as chairman of the Department of Architecture at the University of California, Berkeley from 1966 to 1971.

HUD has announced plans to provide Federal backing for state agencies involved in the construction of apartment buildings. The terms proposed by HUD were: if any local agency-funded housing development fails, the local agency must first absorb any amount of the loss up to 3 per cent of the face amount of the mortgage; beyond that, HUD would cover 80 per cent of the remaining loss and the local agency would cover 20 per cent. The move was authorized by the Housing and Community Development act of 1974.

The AIA has created a committee to research possible changes in its ethics, a topic that will come before the national convention next year. The 1977 Issues Committee will also look into membership and dues. Chaired by AIA secretary-elect Robert M. Lawrence, the ethics research team will divide into four task forces: advertising, expanded practice, foreign practice, and free sketches.

A $10,000 first prize in the urban design competition "Biscayne West" recently went to Ralph E. Johnson, of Kellum and Smith in Columbus, Ohio. Jurors in the competition—which called for the design of a 10-acre community with 7,000 residential units—included architects Paul Rudolph and Harry Weese, and city of Miami, planning director George Actor.

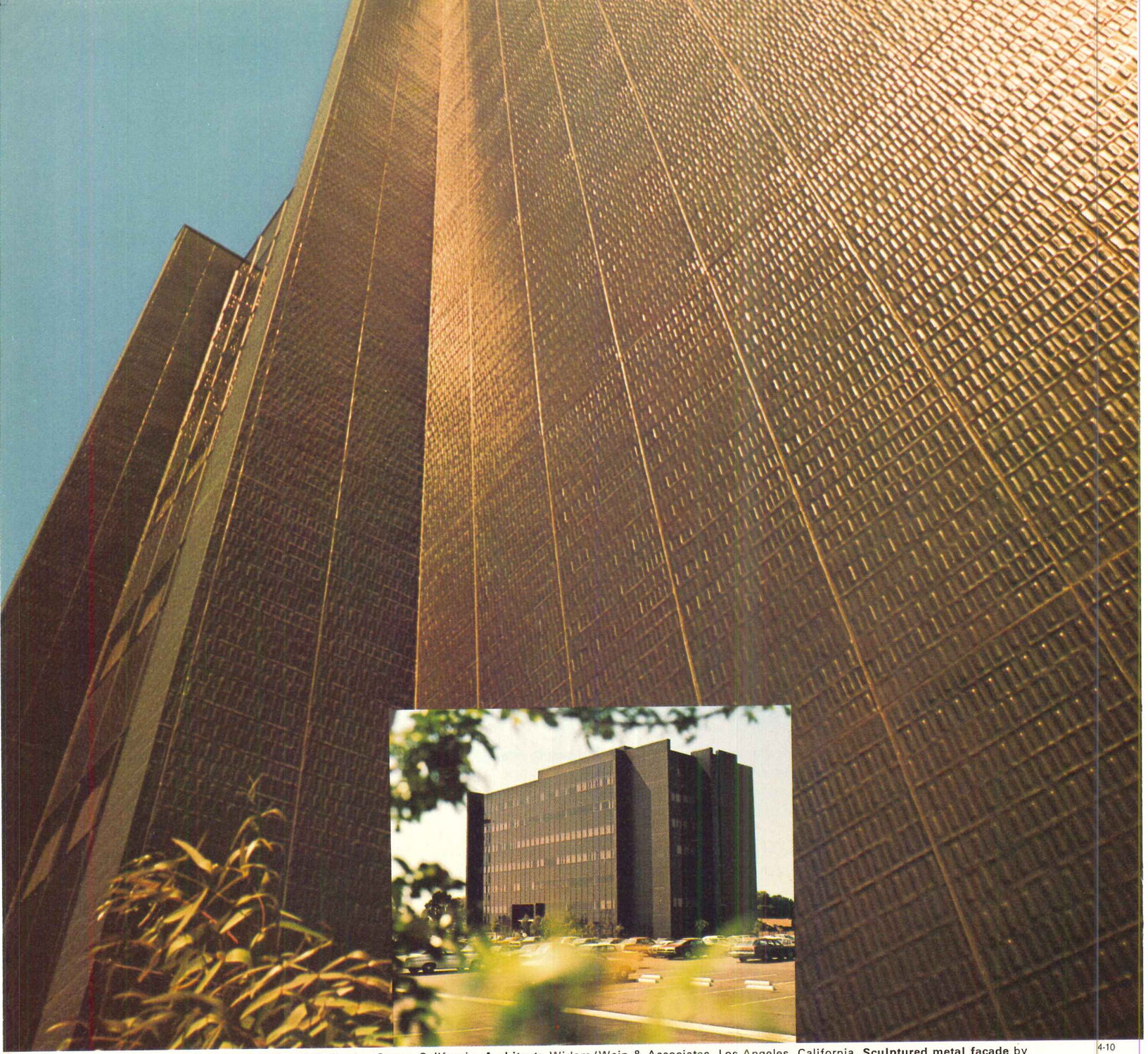
Hugh A. Stubbins recently received honorary membership in the Boston Architectural Center. Stubbins, president of Hugh Stubbins and Associates, Inc. of Cambridge, was recognized for "his years as an educator and his outstanding achievements both national and international."

The effects of energy conservation practices and new building designs on human comfort is the topic of a symposium scheduled for February 11, 1977 at the National Bureau of Standards, Gaithersburg, Md. The meeting is sponsored by the NBS Institute for Basic Standards, and the NBS Institute for Applied Technology. For more information, contact the symposium co-chairmen: Dr. R. W. Mangum, B122 Physics Building, 301/921-2098 or Dr. J. E. Mill, B107 Building Research Bldg., 301/921-3512, National Bureau of Standards, Washington, D.C. 20234.

Warner Howe was recently sworn into the board of directors of the National Institute of Building Sciences. Howe, structural engineer member of the ACEC and owner of Gardner and Howe, Structural Engineers, in Memphis, was appointed by President Ford for a two-year term.

Killington Ski Area is holding a design competition, open to architects and designers in New England and New York State, for the first and main building of a new village development in Sherburne, Vt. Three equal winners to receive $2,500 apiece will be chosen by the jury, which includes architects Roy W. Banwell Jr., Charles J. Hubbard 2d, and Paul Willen; Sherburne planning commission chairman Michael J. Holland; and Sherburne Corporation president Preston L. Smith. A final winner, chosen by the Killington management from among the finalists, will execute the project. For more information, contact the competition's professional adviser, Dybvig/Leytham, North Turnbridge, Vt. 05077, 802/889-5572. A fee, payable to Dybvig/Leytham, should accompany the application and will be refunded for any materials returned complete and in good order within 10 days.

The editors of ARCHITECTURAL RECORD invite submissions for RECORD INTERIORS of 1977 and RECORD HOUSES and Apartments of 1977. Deadlines for receipt of material are: October 1, 1976 for RECORD INTERIORS, to be featured in the January 1977 issue; and November 1, 1976 for RECORD HOUSES and Apartments, for the 1977 mid-May issue. For further details contact Barclay Gordon, ARCHITECTURAL RECORD, 1221 Avenue of the Americas, New York City 10020. Telephone: (212) 997-2334.



Palm Harbor General Hospital, Garden Grove, California. **Architect:** Widom/Wein & Associates, Los Angeles, California. **Sculptured metal facade** by Warnel Corporation, South El Monte, California. **Coil Coater:** California Finished Metals, Inc., Cucamonga, California.

4-10

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Carter building policies would return to traditional Democratic stands

A victory by Democrat Jimmy Carter in the November Presidential election would reportedly lead to new policies in numerous areas of concern to the construction industry. Among them: housing goals, mass transit and highway funding, land use planning, work safety rules, energy conservation, and labor relations.

Following the traditional Democratic Party philosophy in making full employment and economic growth a top-priority goal, Carter makes clear that he would run the risk of rising inflation to achieve a faster economic recovery and to reduce the number of unemployed.

Carter indicates his primary weapons against inflation would be increasing worker productivity, solving materials supply bottlenecks that drive up prices, and supporting a vigorous council on wage and price stability backed up by standby wage-price controls authority. In addition, he would try to reduce the Federal government's deficit by streamlining the government bureaucracy and by making delivery of government services more efficient.

Housing and urban affairs—In attacking the problem of urban decay, Carter would seek a national commitment to build 2.5 million new housing units per year through the use of direct Federal subsidies and low interest loans to stimulate low and middle income housing; through expansion of the Section 202 Direct Subsidy Housing Program for the Elderly; through rehabilitation of existing urban housing, with some of the work possibly being done by public service jobholders; and through a Federal push to direct more mortgage money into the private housing market. Carter also favors a five-year extension of Federal revenue sharing with State government, accompanied by annual funding increases to compensate for the effects of inflation.

Transportation—Arresting the physical deterioration of the nation's transportation system and pushing to complete work on urban transit systems are Carter's first priorities in this area. He would substantially boost the amount of money available to mass transit from the Highway Trust Fund and ease the current limits on the use of Federal funds as operating subsidies by local transit authorities. However, he would also reorder highway priorities, emphasizing rehabilitation rather than major new construction, and thus would support programs to rebuild the nation's deteriorating railroad roadbeds.

Energy—Carter proposes to reconcile the often conflicting goals of conservation and energy development, calling for a nationwide conservation program to include mandatory building insulation improvements and tough fuel efficiency standards for motor vehicles. He favors Federal controls on oil imports, permanent stockpiles to assure the nation a 30-day reserve energy supply, an increase in coal production, and stronger research and development efforts in the solar energy field.

Environment—Carter would restrict "unnecessary dams and public works projects by the Army Corps of Engineers and would resist attempts to weaken the Clean Air Act. He favors stepping up Federal land use planning assistance to the states, enforcing strict water pollution standards, and expanding solid waste disposal research.

Safety rules—Carter appears to support a shift in the implementation of Federal safety laws. Although he favors a strengthening of the Occupational Safety and Health Act, he hopes to do this by shifting more of the implementation responsibilities from the Federal government to the states.

Labor relations—Carter is on record favoring passage of a *common situs* picketing bill and repeal of Section 14(B) of the Taft-Hartley Act—the "right-to-work" clauses. His position on both issues has been somewhat cloudy in the past. In 1971, as governor of Georgia, Carter sent a letter to the National Right to Work Committee pledging his support for maintaining right to work in his state. Early in his Presidential campaign, however, he said he would sign repeal if Congress passed it, but would not work actively for such a measure. Since, he has assured labor groups that he actively favors repeal of 14(B) and passage of *common situs*.

To help flesh out many of his positions, Carter has appointed approximately 20 task forces of experts in various fields which will be reporting to him throughout the campaign. Although the exact membership of the task forces is not known, those names that have surfaced publicly indicate Carter has tapped traditional party advisors to serve him. Carter officials claim that with the exception of two or three groups that will be asked for specific reports, the role of the task forces will be strictly advisory.—*Frank Swoboda/Leon Walczak, World News, Washington.*

Buffalo gets UMTA approval for rail transit system . . .

Buffalo, New York will get a fixed guideway transit system, thanks in large part to a no-strike pledge by contractors and laborers who will work on the project. The Urban Mass Transit Administration announced early in June that it had made an agreement "in principle" to provide $269 million for a 6.5 mile light rail system. Miami recently was given the go-ahead for a similar rail project.

Transportation secretary William T. Coleman, Jr. explained that while the Buffalo system was a virtual certainty, he was legally prohibited from giving the project final approval because preliminary engineering and environmental studies were incomplete. Coleman said the major breakthrough was the no-strike pledge. "Buffalo produced the first written no-strike agreement of the type we have been seeking, and it weighed importantly in our decision," he added. Last month the Construction Industry Employers Association of Buffalo endorsed a no-strike, stoppage, or lockout contract, and the Western New York Construction Industry Coalition for Economic Recovery including labor participants agreed to the no-stoppage commitment.

Both DOT and Buffalo officials said that the system—over $95 million less expensive than the original rail rapid transit plan estimate of $425 million—will be more flexible. Increased use of existing rail rights of way and elimination of a totally dedicated exclusive right of way were factors leading to the lower cost light rail system. However, because of downtown congestion and the need to bypass several hospital zones, the downtown segment will be totally underground. Coleman estimated the preliminary engineering contracts would be awarded by September and actual construction would start late next year.

Another important part of the DOT grant stipulates that except for a normal inflation factor, which was not specified, the ceiling on the grant was the original amount of $269 million, and cost increases resulting from other factors would not be covered by Federal funds. A grant of $102 million in New York State funds has also been pledged to the project.—*John K. Higgins, Jr., World News, Washington.*

But Denver gets rejection for its rail network

In its first formal rejection of Federal aid to a city for a rail transit system, the Urban Mass Transportation Administration has turned down a proposed $733 million, 22-mile rail network in Denver.

UMTA administrator Robert E. Patricelli said that "an improved bus system will provide the same ridership and quality of service" in Denver "at substantially less cost." Therefore, he promised to act quickly on Denver's application for a $31 million grant to buy 170 buses and new bus facilities. Patricelli said UMTA would also be receptive to an application by Denver for a Federal loan to buy rights of way and other real estate for an eventual rail system.

"We do recognize that the situation may change in the future in a way that favors rail transit," he said. "That would be the case if Denver were to put in place a community development and growth management program of which transit were an integral part and which created the conditions for higher transit ridership."

Denver's application, Patricelli said, showed that in the short term buses would be more viable than rail. But unlike Buffalo, Denver did not show that the non-transportation benefits of a rail line would outweigh any economic disadvantage. Patricelli said Denver had done an excellent job obtaining assurances of no work stoppage and had commited itself to capturing the increased value of real estate should a transit line be built. "But we don't want to make a poor transit decision just because of that," he said.

Patricelli also said Denver does not experience the severe freeway congestion common to other cities and does not have the density to make rail transit practical.—*Roger Smith, World News, Washington.*

Six states consider laws requiring recertification

Minnesota and Iowa are among several states considering legislation that would require recertification of architects and engineers. In Minnesota, the legislature recently passed a law enabling the architectural registration board to establish a recertification program. The board has not yet acted. In Iowa, a bill requiring a mandatory program of continuing education for architects and engineers has passed one house and is under consideration by the other.

California, Ohio, Wisconsin and Florida are among the other states investigating additional requirements for professional license renewal. Most have proposed mandatory continuing education courses, but some are considering periodic re-examination.

The National Society of Professional Engineers (NSPE) is opposing such actions, and the American Institute of Architects (AIA) has set up a board-level task force to recommend programs it would find acceptable.

NSPE has endorsed a recommendation of the National Council of Engineering examiners stating that continuing education efforts should be supported but on a voluntary basis, stimulated from within the profession. Mandatory requirements for re-examination are "unfeasible and unnecessary," the resolution continues. NSPE recommends that "continued practice be made the primary criterion of competence" if licensing boards are forced to adopt recertification requirements, according to Gayle N. Wright, NSPE's director of professional engineers in construction.

By September, the AIA task force plans to develop a recertification program that would be acceptable to every state, thereby allowing reciprocation. "It is important for AIA to take a leadership position in this matter," says James E. Ellison, AIA's administrator for education and research. "We don't want to leave it up to each individual state."

AIA believes many forms of professional development could be used to demonstrate "currency." These methods include, besides continuing education, independent-study, public service, service to the profession and continued architectural practice.—*Judith H. Dobrzynski, World News, Washington.*

HABITAT: The U. N. Conference on Human Settlements in Vancouver was hampered by political posturing—but established some important new directions for international cooperation in housing the world's million of poor. . . .

The HABITAT conference, which met in Vancouver, Canada from May 31–June 11, was concerned with the explosive growth of human settlements throughout the world and the tremendous demand this has created for services and facilities to meet the needs of the earth's 4,000 million people. Its purpose was to focus upon the world-wide concern about the environment as it relates to the more than 900 million homes in which people live throughout the globe. Its aim was to view the human habitat from the environmental standpoint, linking physical, economic and social elements in a strategy aimed at improving the living spaces of the earth's population.

Three basic documents were to emerge from the conference:

- A declaration of principles setting out the problems and opportunities involved in human settlements, suggesting general principles for dealing with them, and proposals for action;
- A set of specific recommendations for national action, by which the governments represented at HABITAT would draw up a common agenda for tackling settlement problems at the country and local level;
- Programs for international cooperation, which would suggest how the United Nations can reorganize its machinery so as to cope most effectively with human settlements problems, and what kinds of action the world community can take to promote solutions to these problems.

The planners of HABITAT had spent the last two years developing these three major documents and substantial agreement had already been reached on much of their contents. To debate and formalize these documents within the two weeks of the conference, HABITAT held four simultaneous meetings every morning and afternoon. Each of the 140 countries attending the conference was entitled to be represented at all of these meetings. The four meetings consisted of plenary meetings held at the Queen Elizabeth Theater, and gatherings of each of three main committees located in nearby hotels.

- Committee I considered the draft declaration of principles and the programs for international cooperation.
- Committee II was concerned with how countries could organize themselves to deal with settlements problems from the point of view of policies, planning and management.
- Committee III tackled the anatomy and physiology of human settlements: the shelter, infrastructure, services and land which make up the physical entity and maintain the functions of the living community. It also dealt with the important aspect of public participation in the building and operation of settlements.

Among the questions which Committee III addressed were: How can the world go about building enough dwellings for the world's people, when an estimated 323 million new units are needed between 1960 and 1980 just to keep up with population growth and necessary replacement? What standards should be followed to assure adequate sanitation, transport, communications and other services in human settlements? How can people be given equal access to such services as education, health and nutrition? What devices can be used to assure public control of land use so as to achieve long-term objectives? How can local communities be encouraged to harness the often untapped resources of citizen participation in the making of decisions that concern the people?

Meeting in plenary sessions and in the three committees were approximately 2,500 men and women who came as members of the official delegations to the conference, which included delegations from United Nations agencies, regional intergovernmental organizations, national liberation movements and certain non-governmental bodies.

The Secretary-General of the conference was Enrique Peñalosa, a former Minister of Agriculture of Colombia and Executive Director of the Inter-American Development Bank. In his opening address he pointed out that in no country, not even the most developed or socially aware, are the needs of all the people fully met with respect to their basic living environment—the towns, cities and villages of the world.

For the NGO's HABITAT was a platform

At the HABITAT conference the so-called NGO's (non-governmental organizations) held their meetings and staged their exhibitions in the empty hangars of a former marine air base at Jericho Beach near downtown Vancouver. The NGO's were a mixed assortment of interest groups which included at one pole such well-known and environmentally comprehensive organizations as the Sierra Club and the World Society for Ekistics, and, at the other, less well-known groups with a particular focus—such as opposing mercury pollution or the construction of nuclear power plants. Included among the meetings and exhibits at Jericho Beach were those of various radical groups. Several organizations within Communist bloc countries such as Red China and Cuba held exhibits at the Forum.

The purpose of all these organizations was to formulate ideas and principles, which would be transmitted to the official delegations from the participating countries. These delegations met in assembly at the Queen Elizabeth Theatre in downtown Vancouver and separately at nearby hotels. Leading spokesmen for the developing countries such as the noted author, lecturer and economist Barbara Ward and the anthropologist Margaret Mead gave major speeches at the HABITAT Forum and remained behind the scenes in Vancouver to help act as liaison between the NGO's and the official delegations.

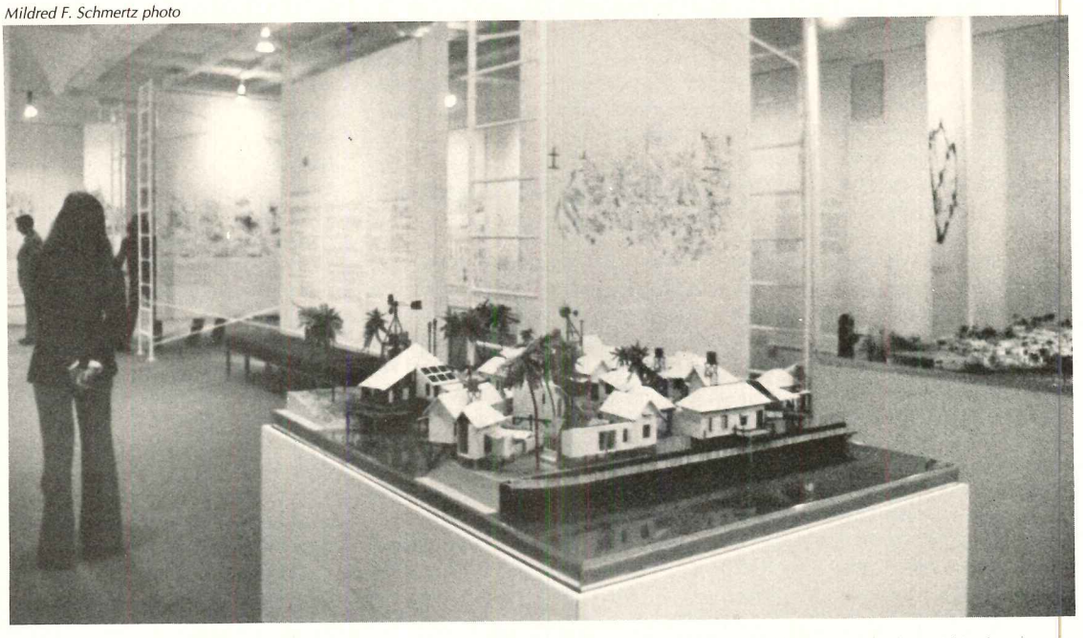
Some of the strongest reasoning came at the NGO Forum

For example, the Vancouver Symposium is an NGO group sponsored by the International Institute for Environment and Development, the National Audubon Society and the Population Institute, and includes among its members Maurice Strong, Barbara Ward, R. Buckminster Fuller, Jean Gottman, Aprodicio Laquian, Margaret Mead and Eduardo Terrazas. This group—the most distinguished and articulate at the HABITAT conference—urged that certain priorities should be set by the nations of the world. They argue for: "control over land use; the organization of the whole national territory as the basis of settlements planning; and the reinforcement of intermediate

Sergus Neilson

Blake Hughes, publisher of RECORD and president of the IAF with Ian Athfield, winner of the international competition.

Mildred F. Schmertz photo



The winning designs in the International Design Competition for the Urban Environment of Developing Countries focused on Manila, were displayed at the Vancouver Art Gallery during the HABITAT conference. Shown in the foreground is Athfield's model of the neighborhood complex within the new settlement to be constructed with self-help in Manila.

cities and rural settlements to create systems which strengthen agriculture and lessen the pressure on the biggest cities." They also call for the creation of better balanced communities in which the mix of different social groups, occupations, housing and amenities ends all forms of social segregation. They urge that means be devised for the securing by the community of unearned increment from land sales. For developing societies, the Vancouver Symposium favors the encouragement in migrant communities of the full range of self-help, by means of security of tenure and assistance with essential services. In common with other groups they plead that special emphasis be given to the provision of clean water by a specific date; a moratorium on the adoption of nuclear power generation, and the development of environmentally safe and economically cheap "income energies" such as solar power.

Because they believe that human settlement issues are among the most fateful ever to confront mankind they urge that national, regional and local governments be reorganized to respond to the new emphasis on human settlements and that a commitment be made on the part of the international community to make the basic services for human settlements a capital assistance priority. They call for a new direction in research and academic institutions to give the problems of human settlements the attention and the database they require.

What did HABITAT accomplish? It may be too early to say

Unfortunately several of the most important conference documents, including the declaration of principles prepared by Committee I, were turned by amendments into instruments of political propaganda against Israel by the Palestinian Arabs. HUD Secretary Carla A. Hills, head of the U.S. delegation, was one of several western leaders who urged the UN conferees to put aside extraneous political issues and to endorse the human settlement issues upon which the delegates were united. Said Mrs. Hills: "To permit international arguments that have separated nations for more than three decades to shatter this fresh search for better ways of living together breaks faith with human beings we represent all over the world. At issue is additional language proposed by Arab countries with the support of others which condemns Zionism as racist and thus threatens the survival of Israel in the community of nations. This lack of cooperation constitutes a travesty destroying the chance for a consensus on otherwise non-controversial issues that we as nations had agreed to address." Mrs. Hills' plea left her opponents unmoved, however, and the United States, Israel, Great Britain and the nations allied with them did not prevail. The Palestine Liberation Organization and the African bloc succeeded in making their amendments stick, and the Western block, tragically, was obliged to vote against the declaration of principles which—except for the P.L.O. amendments—they strongly supported.

The measure of success must await action taken by participating nations

For it must be remembered, as Enrique Peñalosa pointed out toward the end of the conference, that its success cannot be fairly measured in terms of formal consensus at Vancouver, but rather in the policies and programs set in motion there. He believes that the discussions of land use, water, reorganization of government, energy supply and popular participation will have a major impact. Said Penalosa: "Here I would like you to consider the argument of those who say conferences of this kind produce nothing but paper. If this conference plays a catalytic role in a new world attack on water problems, that alone would repay our effort a hundred times over. If this conference leads no more than 20 nations to implement new and progressive laws on land use, that alone will repay our entire effort."

The creation of new institutional arrangements to implement the national human settlement policies articulated at the conference will come about more slowly and will differ from country to country. As for popular participation, this will depend more upon the people than their governments and is a struggle which will probably go on for ever. Even where governments have accepted the concept, real participation on the part of people in the control of their environment requires constant organization, alertness and political pressure.

The entire subject of citizen participation was sharply focused at the Vancouver Conference by The International Architectural Foundation, a new foundation conceived by RECORD, which encourages the direct participation of architects in the planning of human settlements.

The IAF's role at HABITAT was visible and influential

The IAF's purposes were similar to those of the NGO's. The presence of the Foundation was an unofficial effort to bring to the attention of the nations of the world the planning and design principles which it supports.

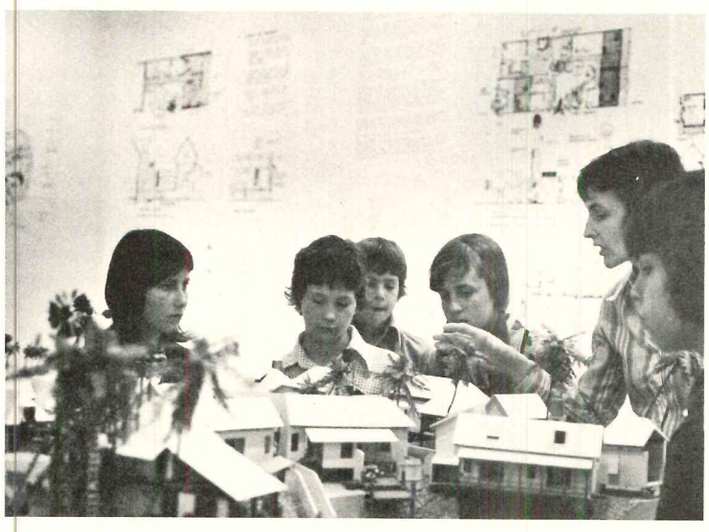
To this end, IAF staged a handsome exhibition at the prominently located Vancouver Art Gallery just down the street from the Queen Elizabeth Theatre. It included the first, second and third prize winning designs, the four honorable mentions and other interesting submissions for the IAF sponsored International Design Competition for Developing Countries Focused on Manila (RECORD, May 1976). The exhibit was presented in the context of a brilliant collection of photographs of vernacular architecture in developing countries by Arthur Erickson of Gutheim/Seelig/Erickson.

Of great interest to everyone who attended the exhibition were the two beautifully constructed models (photos below) of the first prize made by the winner, Ian Athfield, of New Zealand, for the design show, under a grant from his government. One model shows a community of 500 families which in the Philippines form a social unit called a *barangay*. The other is of a *purok* or neighborhood unit within the barangay.

A private opening and dinner honoring Athfield was held for the leading dignitaries at the HABITAT conference, and the exhibition itself drew broad public interest—including brief picketing. (Anti-Marcos factions in Vancouver picketed the Vancouver Art Gallery and the Queen Elizabeth Theater during the visit of Imelda Marcos, the Governor of Manila and wife of President Ferdinand P. Marcos of the Philippines.)

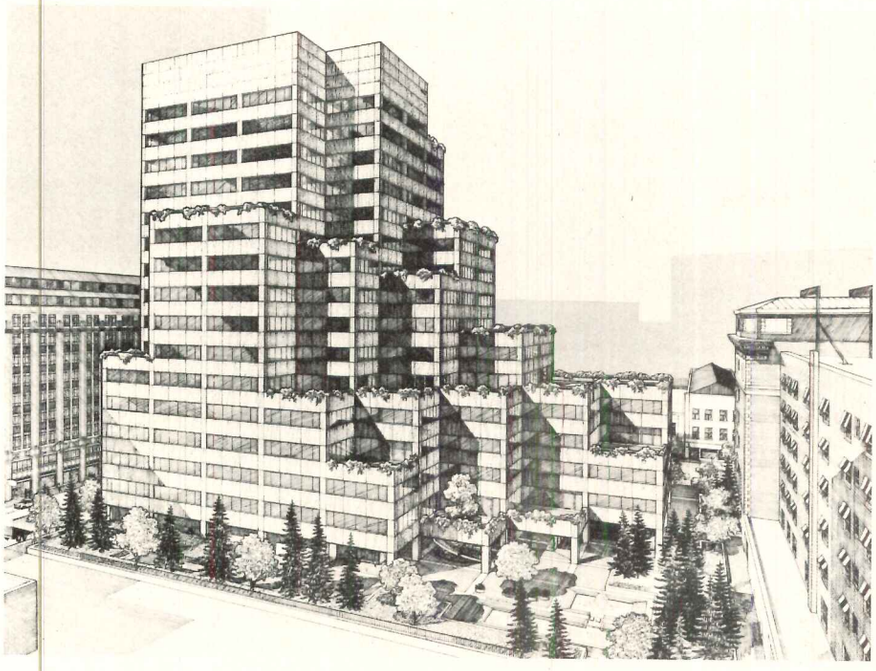
Ian Athfield spent much of his time with the NGO's at the HABITAT Forum, constructing a prototypical squatter's house out of local scrap (below), discussing his project with other architects and planners who work with the poor in developing countries and speaking to the intense and lively audiences who congregated at the Forum. He was a very persuasive advocate for the principles of squatter autonomy and self-help within a flexible and adaptable government financed infrastructure.

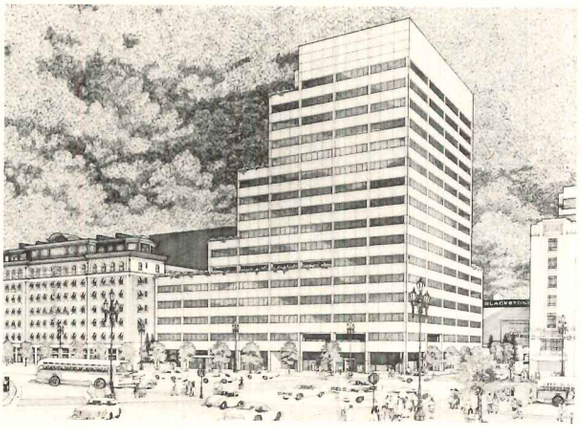
Of the HABITAT exhibits which focused upon design and planning ideas and processes at the level of implementation, the IAF competition exhibit was by far the most prominent, the best organized and the most intelligible to laymen and professionals alike. —*M.F.S.*



Visitors to the exhibit were particularly attracted to Athfield's models which are beautifully made and express great feeling for the lifestyle and aspirations of the Manila squatter who will build his house with his own hands within the designed framework.

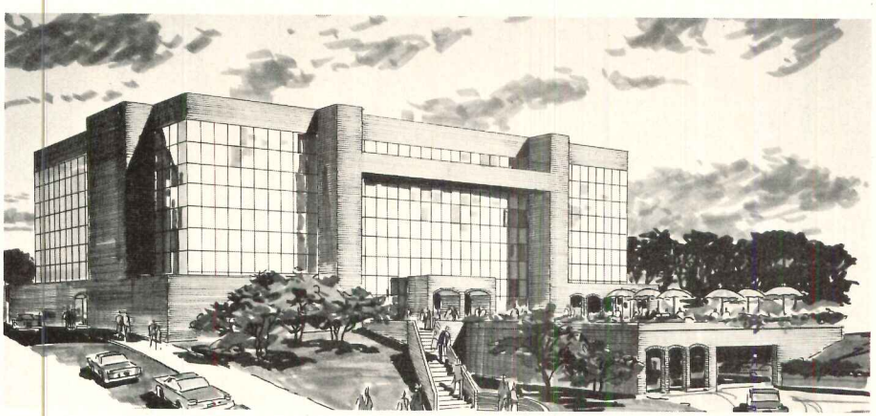
At the HABITAT Forum a number of prototypical squatter houses were constructed including this one, built by Athfield and a team of students within five days with scrap materials available on the site. Athfield proposes to work closely with the squatters.





Insurance complex by Warnecke gives impetus to San Francisco's Market Street face-lift

This design by John Carl Warnecke and Associates for the State Compensation Insurance Fund Home Office Building is being built on San Francisco's upper Market Street, as a substantial part of a renewal process underway in that area of the city. The 17-story, L-shaped building stands relatively unbroken on the cross street; and on the Market Street side, tapers down with a series of landscaped roof terraces to a height compatible with the adjacent San Franciscan Hotel top cornice level, and with a landscaped balcony at the 80-foot level. Unlike the custom on Market Street, the building is built out to the sidewalk and opens to a plaza in back. Paved with brick, granite and concrete, the public plaza surrounds a large two-tiered pool and has an open circular stair that leads to a second floor cafeteria with an outdoor dining terrace. Clad in granite, the building has 322,000 square feet of office space, approximately half to be leased to tenants until State Fund can fully move in. Construction costs are estimated at $20 million.

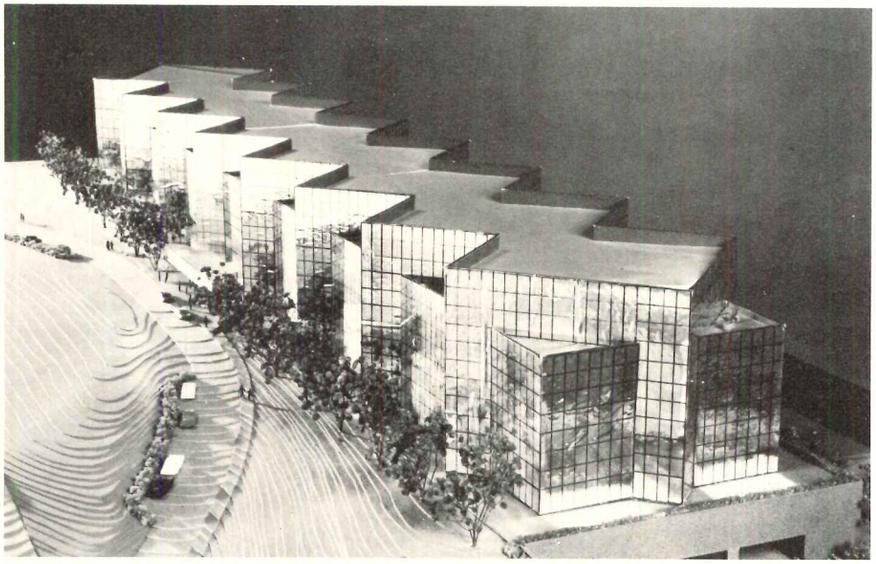


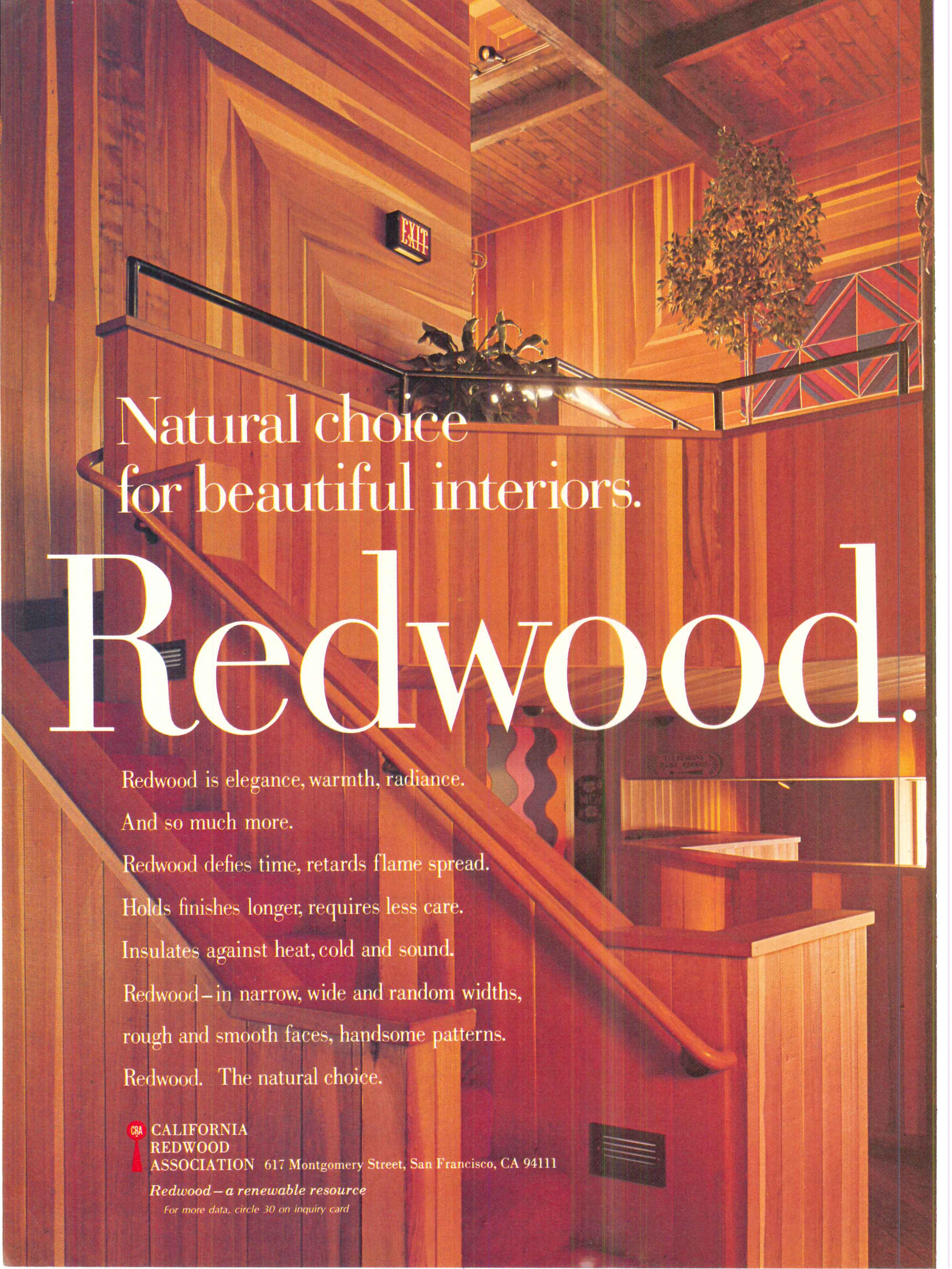
Milwaukee to get new brewery office by Franzen

Designed by Ulrich Franzen and Associates, Miller Brewing Company's $11.5 million corporate headquarters in Milwaukee is expected to be completed by December 1977. Sited on top of a hill overlooking the existing brewery complex, the five-story, tan brick and glass structure aims for a related design. "We don't want it to become just another office building," Franzen said. "The supporting brick podium with a series of arches inside and the entrance lobbies with arched doorways suggest an ambience that relates itself to the traditional 'brewery' image." The 150,000-square-foot structure, part of Miller's $30 million expansion program, will house executive offices, accounting, marketing-sales and employee-industrial relations departments. A five-tier, 600 car parking garage will be built to the west.

Odell designs new R. J. Reynolds headquarters

R. J. Reynolds Industries, Inc. is scheduled to move its foreign operations' headquarters late next year from Geneva, Switzerland to this half-million-square-foot building in Winston-Salem, N.C. The five-story World Headquarters, designed by Odell Associates, Inc., will be sheathed in mirror glass that reflects over 82 per cent of the solar heat and light reaching it. Inside, a central control system will adjust the temperature and lighting for maximum effectiveness with minimum energy use. Lower floors provide extra-angled outside bays for offices and conference rooms. The largely open plan interior, designed by ISD Incorporated, will also include a 350-seat auditorium and a 500-seat employee cafeteria.





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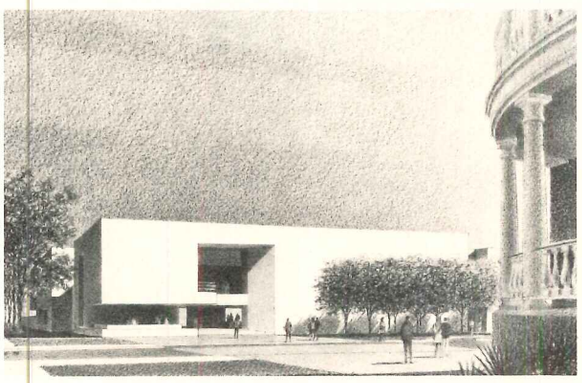
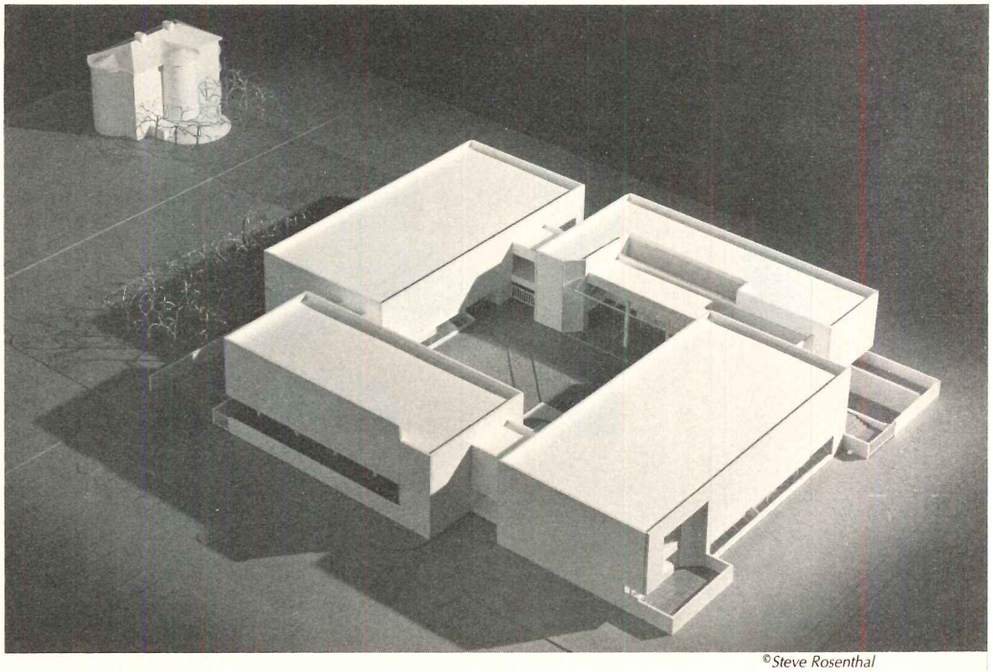
In a national competition to design new facilities for the country's oldest museum in Charleston, S.C., this design by Crissman and Solomon was awarded first place, primarily for the visual rapport created with an adjacent landmark structure, the 173-year-old Joseph Manigault House. Jury members were architects Hugh A. Stubbins and Ambrose Richardson and attorney Robert Hollings; their professional advisor was Dean Harlan E. McClure. Construction of the $4 million Charleston Museum is expected to begin next year.





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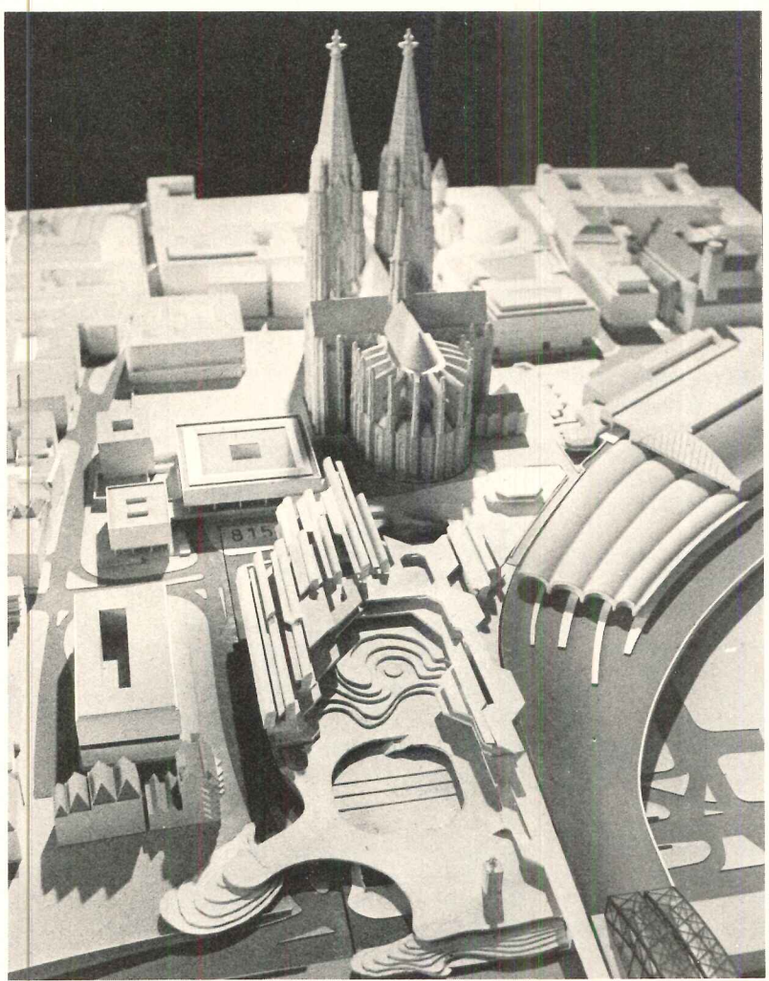

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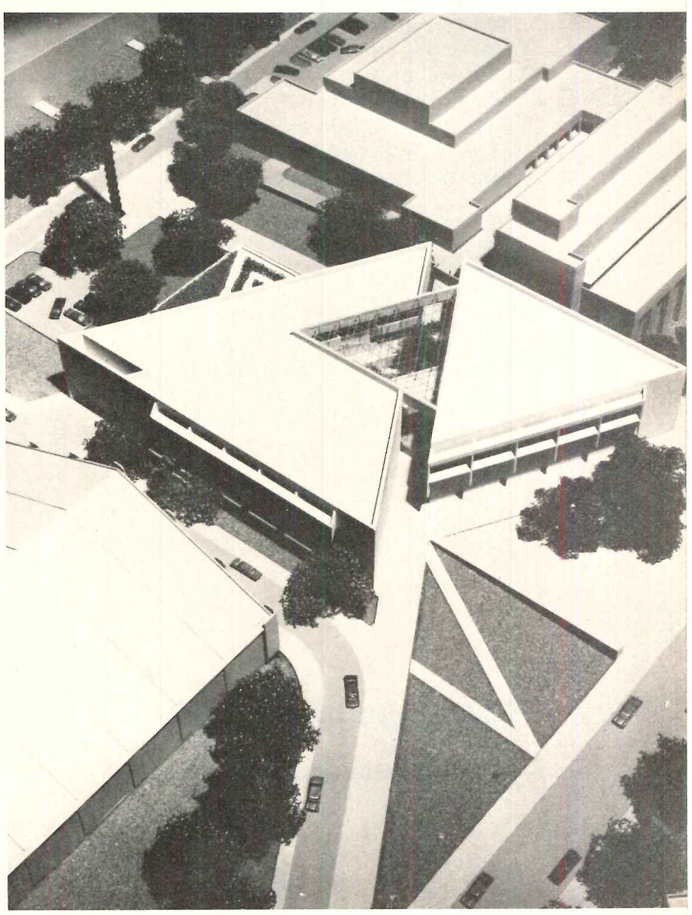
Cologne architects contrast new museum to Gothic cathedral

First place in Cologne, Germany's design competition for its new Wallraf-Richartz Museum, housing German collections of modern art, was recently won by Peter Busmann and Godfrid Haberer. As structurally vigorous as the adjacent Cologne Cathedral, the steel and concrete building has a cascading series of quarter-circular roof structures, each glassed in to the north to light the galleries. Outdoor plazas have seating platforms facing the Rhine, blending in with the Rheingarten, a downtown recreation area. Beneath is a major concert hall. Construction, subject to approval by city officials, will take approximately ten years and $30 million.

Art museum for Indiana campus designed by Pei

I.M. Pei Associates has completed preliminary plans and this model for the Indiana University Art Museum Building in Bloomington. The approximately $10.2 million project, estimated to take two years to complete, awaits review by the state legislature. Conceived as two juxtaposed triangles, the three-story wings will be joined by a skylighted sculpture garden. The large triangle will house museum galleries; the small one, a library and special exhibits. Sited in the center of campus on a main walkway, the interior garden allows students to pass through on their way to the adjacent Fine Arts Building.



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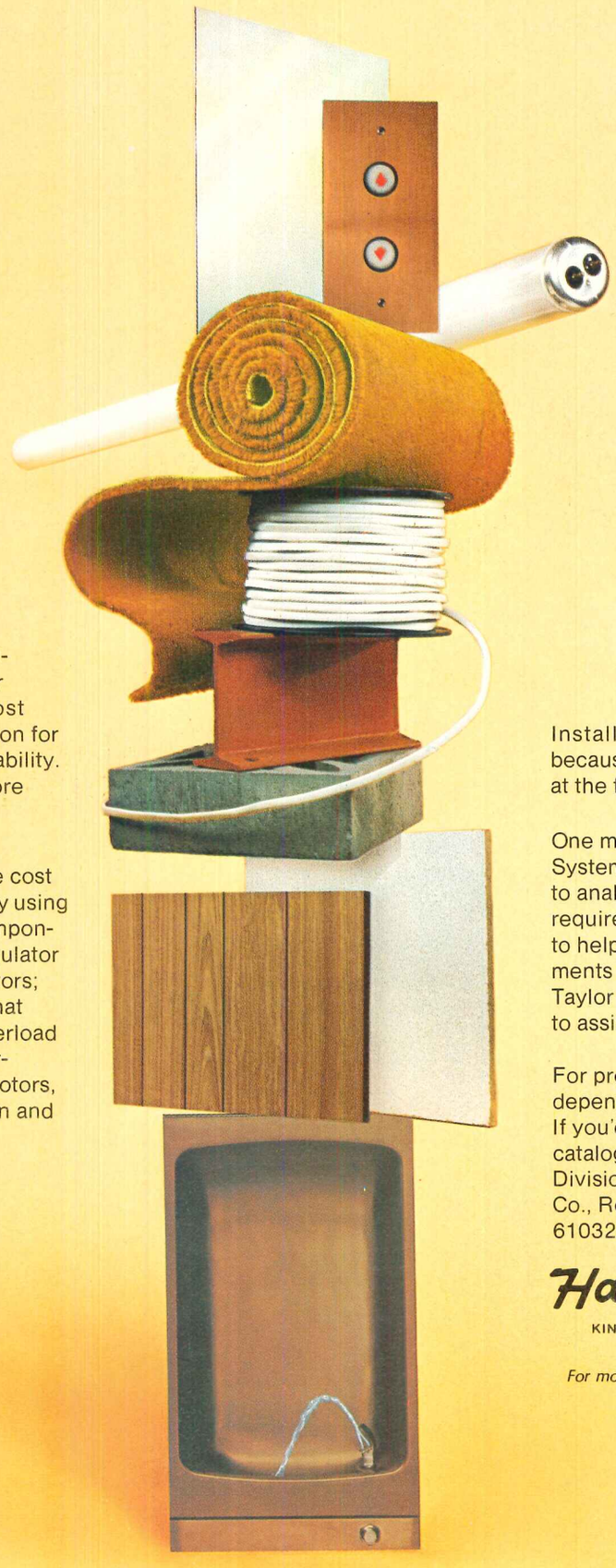

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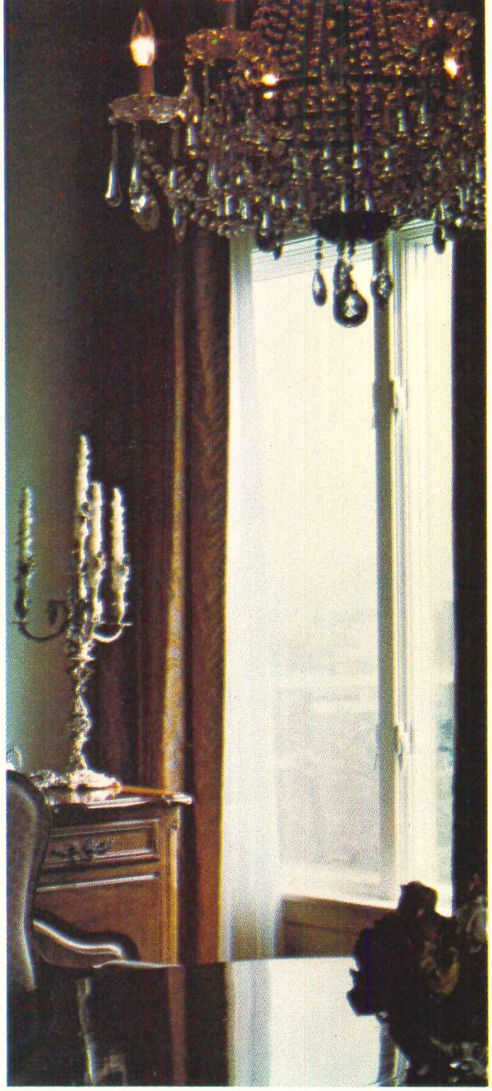

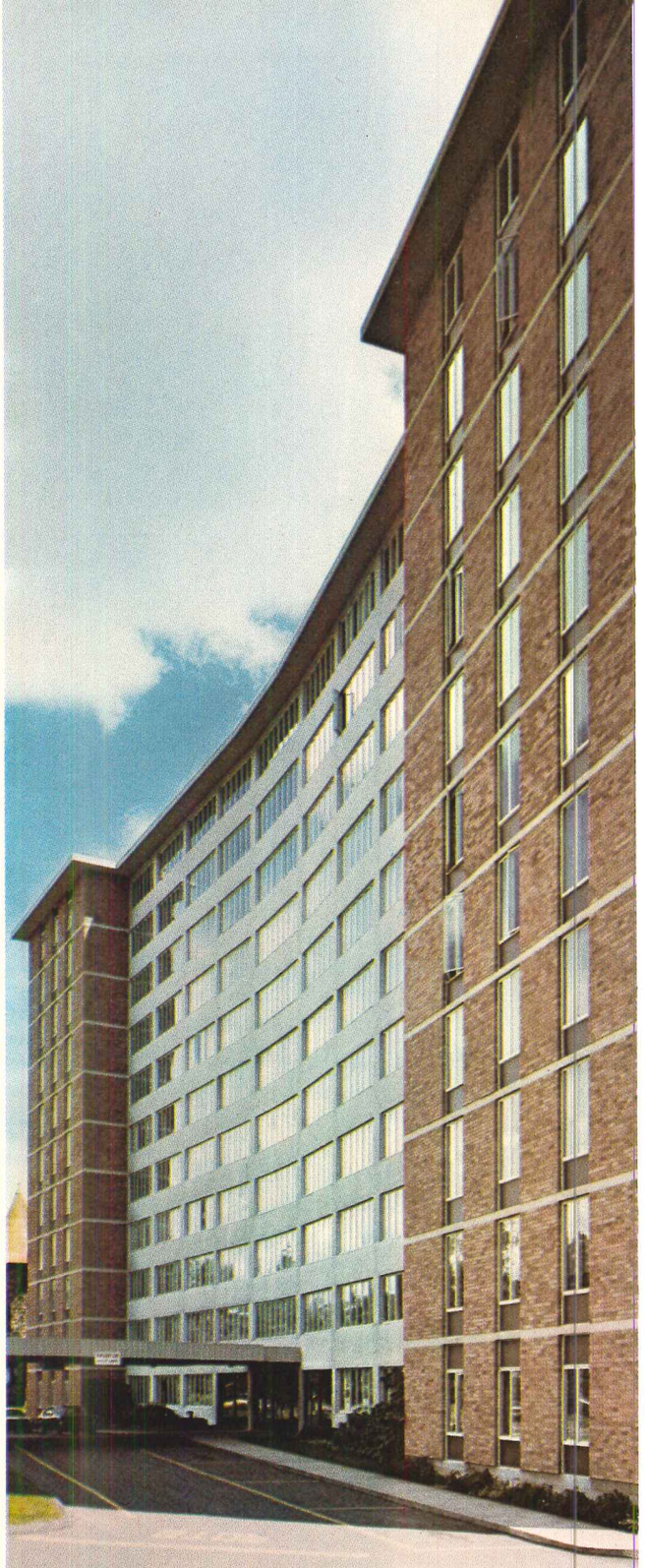

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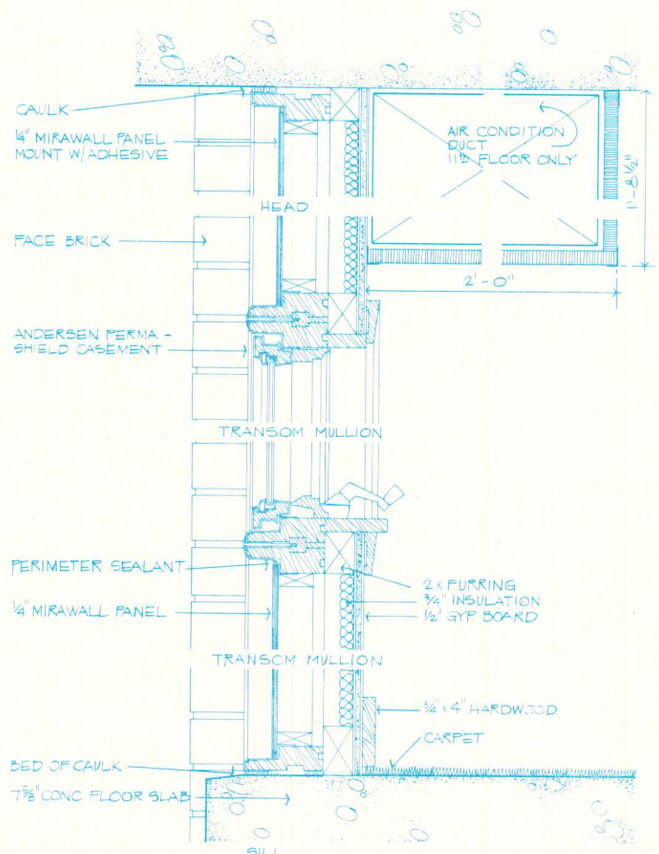

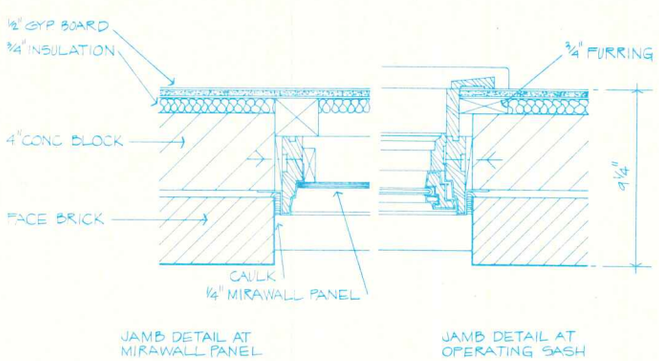

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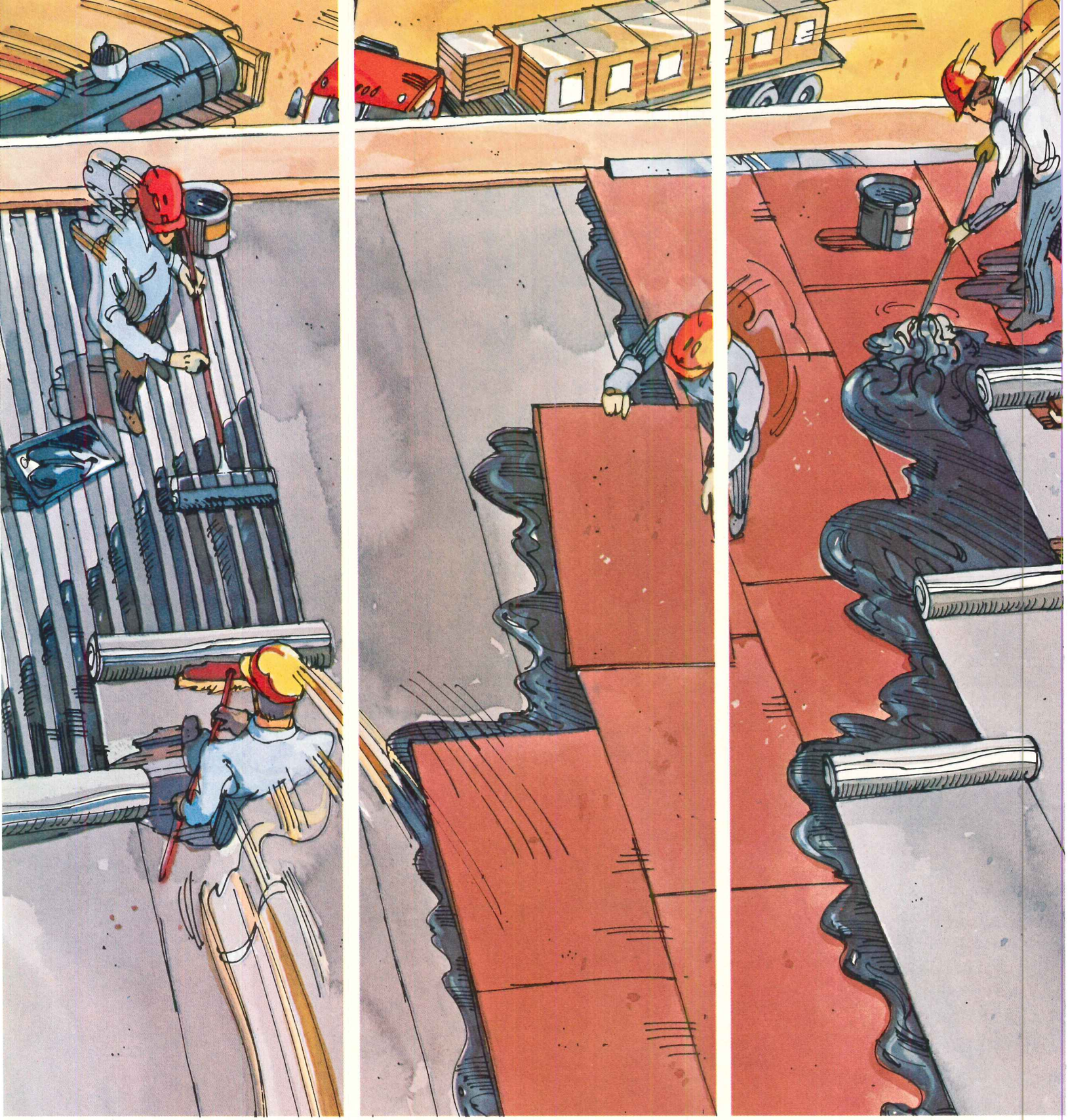

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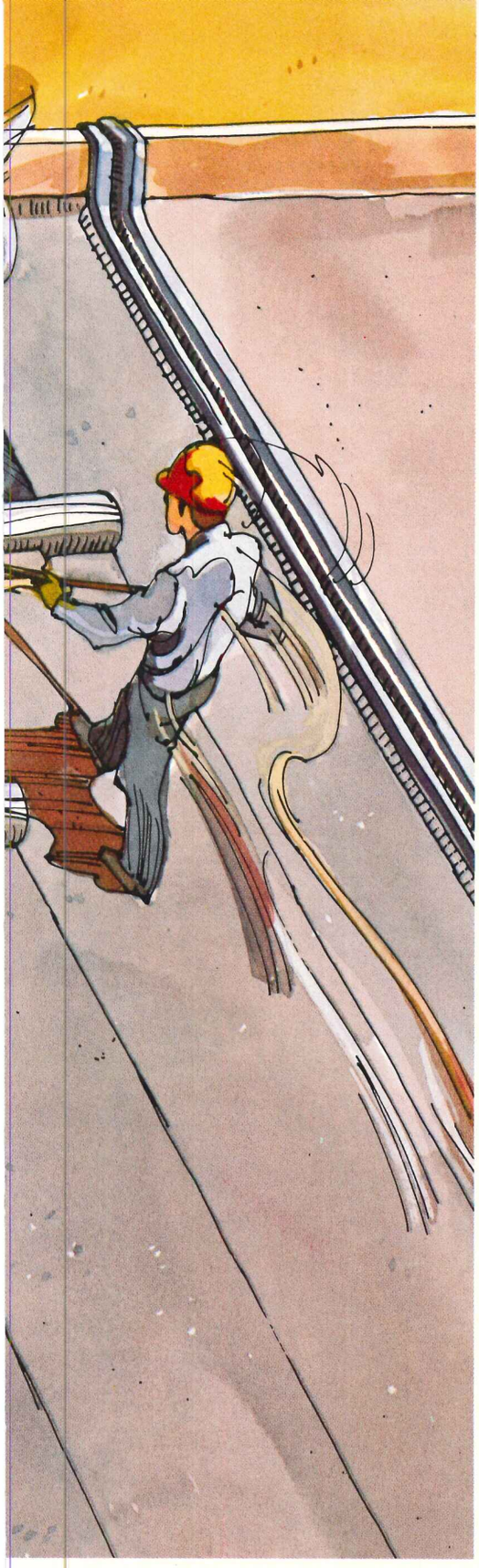

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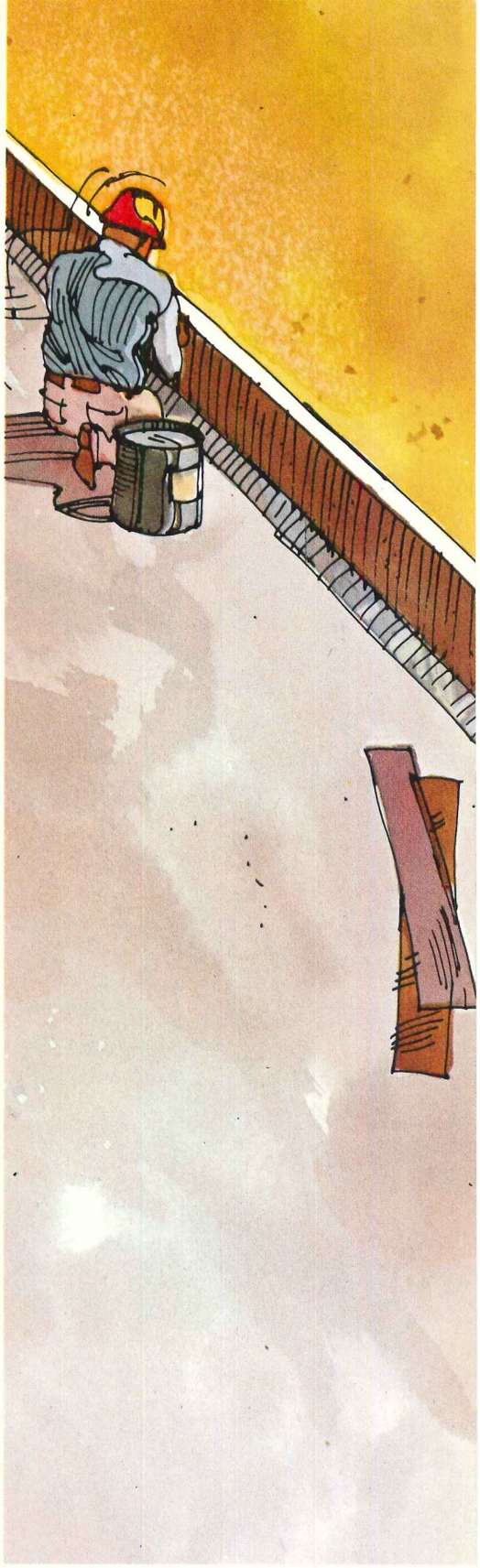

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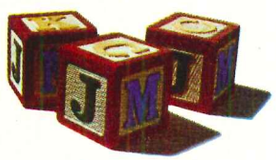

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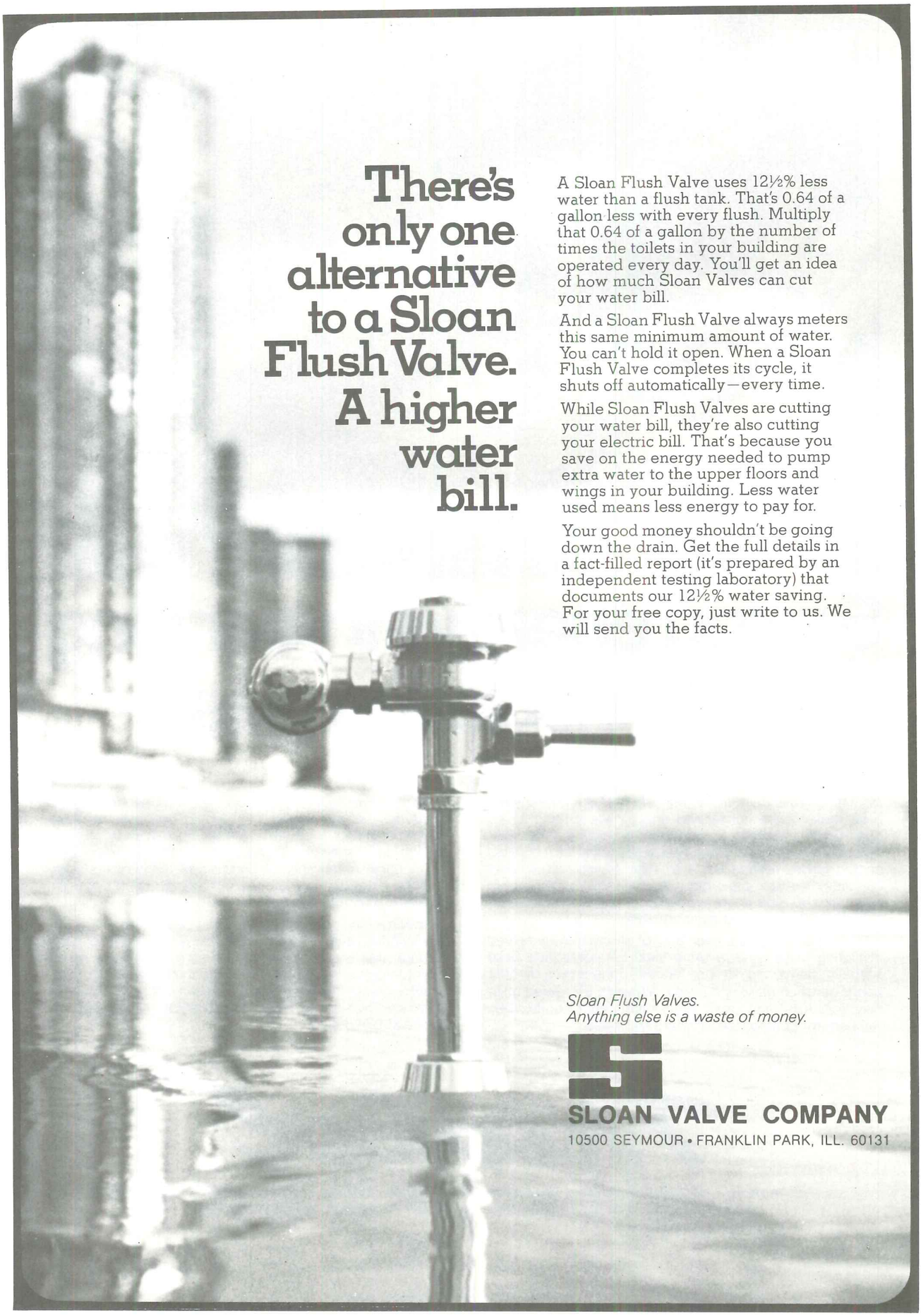

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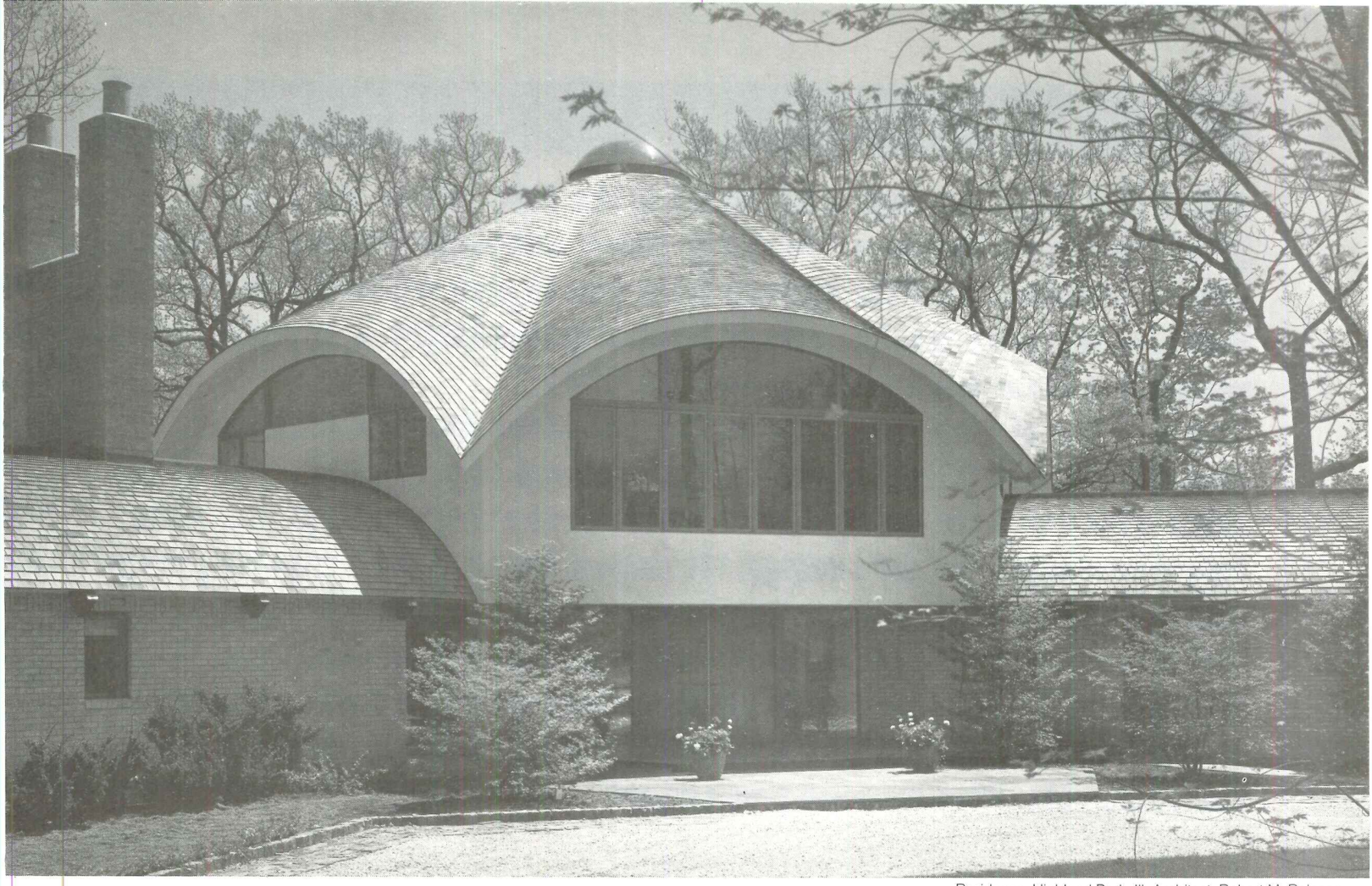

Residence, Highland Park, Ill. Architect: Robert M. Roloson.

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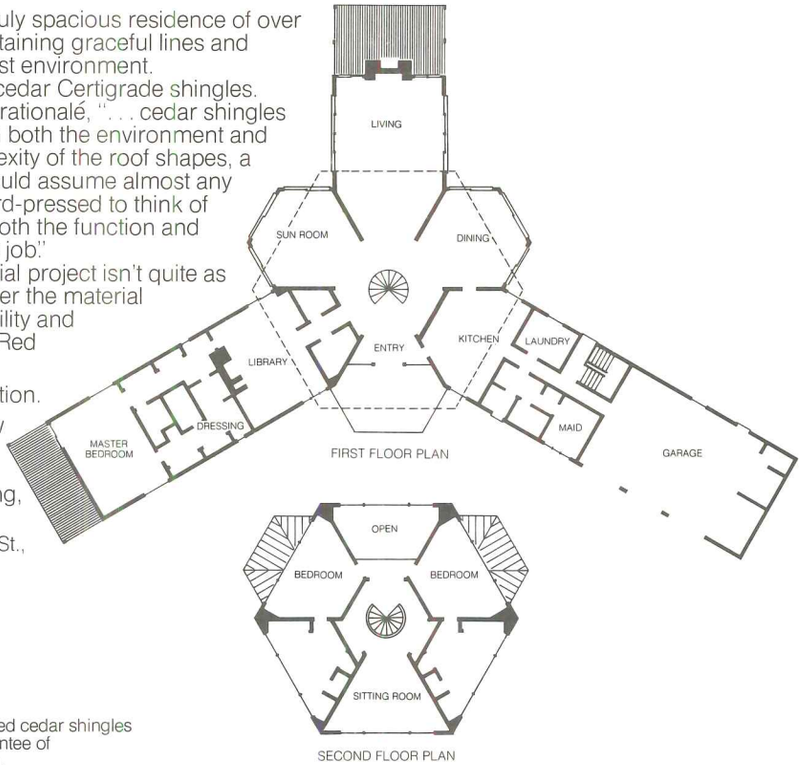

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Planned parenthood: how to beget and raise a branch or subsidiary

by Bradford Perkins, Llewelyn-Davies Associates

Branch offices and subsidiaries were two of the major issues facing growing firms before the latest recession. Today, of course, expansion is not the foremost concern of most firms. Nevertheless, better management of the existing firm is still a major issue, and some firms are looking to new services or new geographic areas to help them deal with the current changes in the market for architectural, engineering and planning services. And thus, even today, the management of branch offices and subsidiaries can be a consideration in a firm's plans.

Branches and subsidiaries are really two separate issues, but so many of the general management guidelines are the same that they can be summarized here together. In fact, virtually all of the management guides are identical, for the primary difference between a branch and a subsidiary is that the latter offers a service different from that of the parent. Once this factor is accounted for, the remainder of the recommendations in this article should apply.

Six reasons for opening a branch or subsidiary

The first guidelines deal with the question of whether or not to set up a branch or subsidiary. Many offices have been established because a firm got a project in a nice city; met someone who wanted to start an interesting service as a subsidiary financed, of course, by your firm; or the market grass looked greener somewhere else. All of these can be part of a legitimate basis for opening a new office, but, as a general rule, a new office should be justified because it fits some carefully analyzed part of an over-all business plan. The business planning process for a design firm has already been described in an earlier article ("Why and How to Plan Professional Firm Management," RECORD, March 1972). A major point of this article is that major decisions—such as the opening of a new office—should be the result of a thorough review of the goals, strengths and weaknesses of the firm. Then, if one or more of the following six reasons for opening an office exists, it is far more likely to succeed.

1. The firm has a growing number of clients and potential clients in a region who expect local representation. This is one of the most valid reasons, for most clients believe that the firm they use should be close enough to respond to their day-to-day needs.

2. A corollary is, of course, that the firm has projects too far away to adequately control and service without a local office. The rule of thumb here is that if a firm has a substantial volume of work farther away than can be easily visited in one day, another office should be considered.

3. Even if the projects are readily accessible, or are even in the same city, it may be desirable to have a separate office or subsidiary company to establish a separate marketing image. One major firm has had two offices in the same metropolitan region—one for suburban work and one to qualify for city projects. More commonly, however, offices in the same area are for services where a separate image is important. This is particularly true if the parent firm has an established image that is not supportive of the proposed new service. For example, an architectural firm considering establishing a construction management arm should consider organizing it as a separate company.

4. Internal image is often as important as external image. Many firms have spun off some of their specialist departments in order to keep or to attract better staff. Engineering, interiors, construction management, and planning groups have often been set up separately to keep them from feeling second-class.

5. A similar approach has been taken to attract or keep younger management. In some cases branches serve as invaluable training grounds for younger management. In other cases, branches are a useful safety valve for an impatient second generation.

6. In a few cases, a new office might be established for even less tangible reasons. Some offices—including a number in New York and Washington, as well as many overseas—were established to give the firm a "national" or "international" image. In still other cases, the reason may be simply to give the firm a new challenge in an interesting region.

Any new office might be established for more than one of the above reasons and, in general, no two new offices or subsidiaries are established for exactly the same reasons. Part of the reason for the diversity is, of course, the great difference in types of offices that can be established.

Regional differences can translate into marked differences between offices of the same firms. In our case, because of regional differences in funding of hospitals and housing—our two largest client groups—there are major variations in the staffing and orientation of our offices. One in Toronto is staffed to meet the schedule, administrative and service requirements of a predominantly public-agency client list, while the other in New York is oriented primarily to service landowners, developers and non-governmental institutions.

Service spin-offs often lead to new offices

The differences are even greater between the various new services that a firm can offer. Programming, space planning, specialist facility planning (educational, hospital, industrial, etc.), and urban and regional planning are all attractive because they are a potential source of future design commissions. The drawback with them, however, is that once they are part of a larger firm they are hard to sell as a separate service unless they can also be offered as a service to other design firms as well. Too often if the client wants only a programming or planning service, he will look to a specialist organization with a clear reputation in the field. If he hires an architect or engineer who also does planning, he may assume that these preliminary services should be included in the regular design fee.

Engineering presents a different set of problems. Additional fees are relatively easy to obtain, but qualified staff are not. Many engineers do not want to be members of architectural firms (the same is true of architects in engineering firms) because they assume that promotion will be closed off at some level below the top. Moreover, it is often difficult for the parent to maintain a steady workload for such a group. This workload issue is particularly serious for mechanical and electrical engineering groups, which have proven to be the most difficult to make successful. Most successful engineering or architectural subsidiaries are in firms that are relatively specialized and that can establish relatively straightforward and routine working relationships between the two types of design organizations.

Interior design is, on the other hand, one of the easier complementary design capabilities to add—if the parent company has a "design reputation" and clients who regularly need its service. Still others—such as a restoration and rehabilitation subsidiary, and landscape architecture—are appropriate where they are complementary to the work and image of the parent. For example, a firm with a long established reputation among Federal clients has added a restoration subsidiary. Because of its established contracts, it has an

continued on page 54

entrée to a large number of potential clients for this new service.

Construction management has been a popular addition in recent years, but too few have recognized its unique requirements for either qualitative or financial success. Construction management requires cost estimators, scheduling specialists, field superintendents and other skills that can rarely be offered by a small new firm. Of equal importance—without these skills and a substantial track record—it is a hard service to sell. A few CM subsidiaries—such as CM Associates (part of CRS Design Associates, Inc.)—have overcome these handicaps through an intelligent marketing strategy and operating tactic, but they are the exception.

Even more exceptional are successful real estate development subsidiaries. Whether inspired by John Portman's success in building a national reputation (and presumably a fortune), a desire to manufacture their own clients, a feeling of knowledge superior to their average developer clients', or some other motivation, many architects have experimented with development. Because of the inherent risks of highly leveraged investments—particularly in a difficult economy—the successes have been few and far between. In several cases even major firms have almost been bankrupted by ignoring still another rule in branch or subsidiary management: be careful not to lose sight of or risk unnecessarily the foundation of the firm's strength in the pursuit of any new venture.

Is the new office feasible?
Six questions to ask yourself

The central theme of the above notes is clearly that a new subsidiary or branch must make sense within the over-all plan for the firm's future growth and change in both professional and business terms. A goal of added volume and profits alone is rarely enough.

Therefore, the over-all firm's business plan must recognize not only that there is a potential market for a new office, but also that each market has unique requirements. Once these factors are established, it is important to review the answers to the other issues bearing on the feasibility of opening a new office.

1. Can the firm afford the required investment? This investment must be estimated using pessimistic assumptions, but even under the best of circumstances, a new office in a city where the firm already has work rarely costs less than $50,000 to get off the ground. The cost of a foreign office—or a new service such as construction management—can easily exceed $200,000.

2. Is there a strong probability that the firm will be able to secure a continuing volume of work? A new office is rarely justified if it cannot generate a steady fee volume of at least $500,000 per year. Any lower number makes it hard to justify the investment, the cost of the extra management required, or the headaches. Some experienced firms argue that you must be able to get local work to justify an office. It is not enough, they say, to serve a region. There must be an underlying foundation of local contracts. This reasoning has, for example, recently led several firms to close their New York City branches.

3. Will the firm be offering a better service? Better has to be defined in two ways: better than the firm's current service has been without the new office, and better than the new office's primary competition. The only way to be assured of an adequate volume of work is to have something better to offer. A number of firms have rushed into new fields—such as construction management—without taking the steps to make their new offering credible.

4. Can the new office be properly staffed? This is, of course, the best way to provide a better service. In the case of construction management it can be a real concern due to the lack of good, experienced people available at reasonable salaries for a new firm. In the case of a foreign office, it may be that good people will not commit their families and themselves to live there.

5. Can the most important staffing position—that of the head of the office—be filled with a proven leader? A branch or subsidiary is inevitably shaped and structured to respond to the personality of its local leadership. This means that in style and outlook it can differ markedly from the parent firm. This issue is discussed further on in this article.

6. And, even if a good leader can be found, will the top management of the firm be willing to make regular support and review visits to the new office and its clients? A sure formula for disaster is to establish an outpost and then abandon it. Even in the unlikely event that the local leadership is good enough to survive on its own, and the office thrives, it will grow away from the parent company, leaving the home office with a serious problem in the future. The branch or subsidiary must be made to feel that it is an important part of the whole firm. More than one prominent firm has—by ignoring its branches or making them feel like stepchildren of the parent company—sown the seeds of future palace revolts.

Therefore, it is important that the senior principals have a personal commitment to participate in the on-site development of a branch or subsidiary. This does not mean that senior management should either constantly second-guess the local management or try to run their day-to-day affairs. Each firm must find its own proper balance between local independence and senior management support. This seems to go counter to the management anecdote that one of the reasons for the Roman Empire's long successful history was the absence of the telephone, airplane, train or other rapid form of communication. A province had to survive on its own. The real lesson, however, is that decentralization and strong local management—not necessarily independence—are important.

Along with effective leadership
marketing is essential

Assuming, once again, that a firm has a plan that provides a satisfactory answer to each of the above, the issue becomes implementation. Here, also, there are some general guidelines.

As was noted above, effective local leadership is almost always essential if a new office or subsidiary is to thrive. Moreover, this local management must provide effective leadership in at least three major areas: marketing, general business and finance, and, of course, the services being offered.

Most firms try to build around at least a strong salesman unless the parent firm has a very strong central business development group with some spare time. This person should have proven ability. One of the most common mistakes has been to assume someone can sell a service just because he says he can. Sales ability must, however, be matched with the other two noted above. If they cannot be found in one person, then it is best to supplement the first person with other senior personnel as financial and operational issues develop. CRS, for example, has traditionally used a three-man team—one for each skill—to lead each of its subsidiaries and branches.

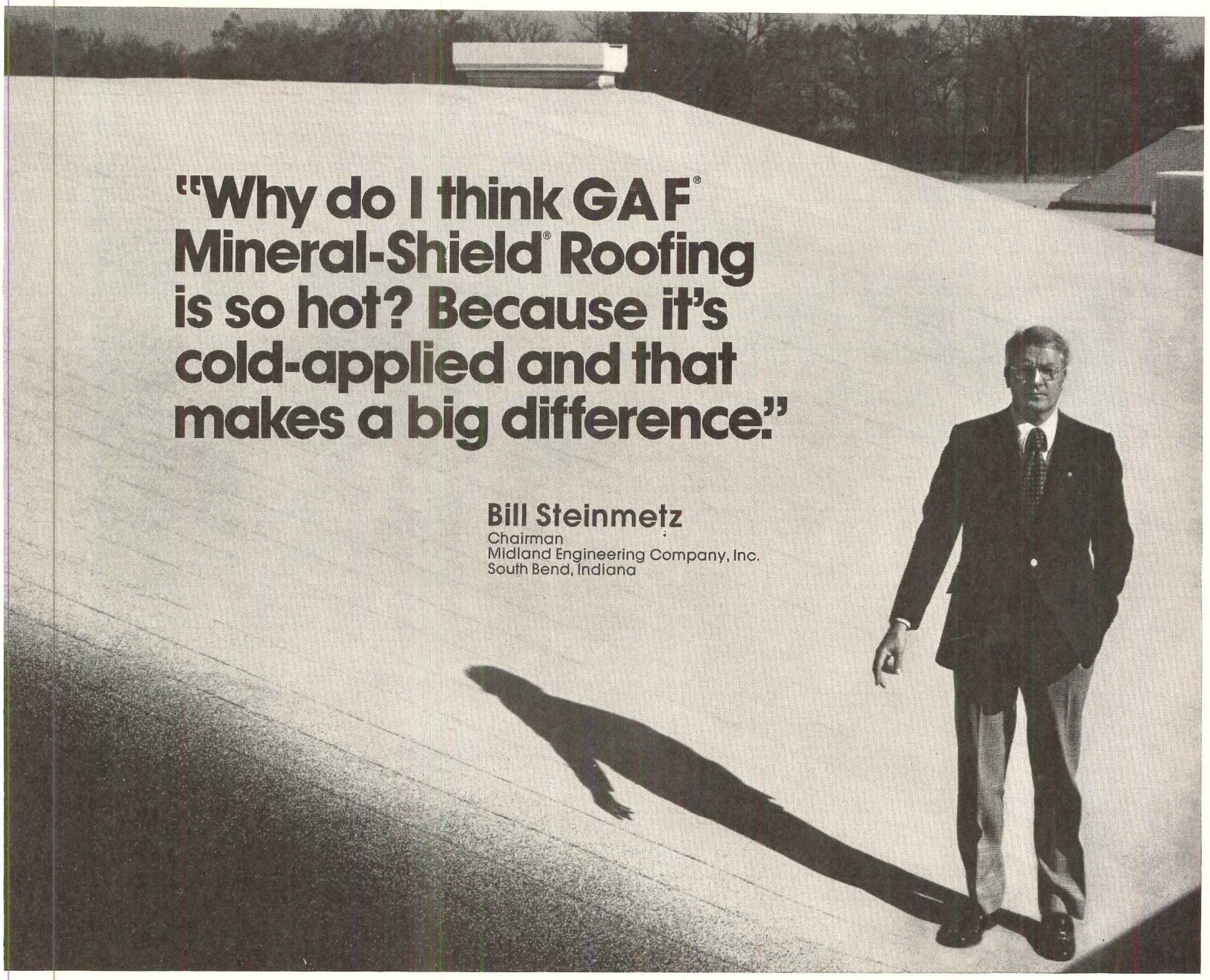
Whatever the staffing the selection should be based on the individual's abilities to survive independently, but loyalty to the parent and an understanding of the over-all organization's objectives should also be sought. If this is ignored, problems are inevitable whether or not the office is a success.

Coincident with selection of the proper leadership for a new office must be a clear statement of the management protocols and other guidelines they—and the rest of the firm—will be expected to follow. These guidelines should cover such items as the types of financial commitments that can be made at the local level, who the new office managers report to, and all other major elements of the parent-branch relationship. It is always more difficult and costly to impose these later.

One of the most important areas to include in the guidelines is the new office's marketing efforts. This article stresses sales as the most necessary skill—at least in the initial years of a new office. Most firms minimize their financial exposure by using a strong business development effort to get one or more jobs for the new service or region before opening the office. Many others accomplish the same goal by acquiring a firm already established in the target field. Once a firm secures work by whatever techniques, of course, business development skills must be matched with general management and technical abilities. Local management must coordinate its efforts with the rest of the firm. For example, whether or not the new office has its own specialized marketing plan, a branch's marketing must be coordinated with all other offices. Not only does this avoid the embarrassment and waste of two offices competing for the same project (a relatively common occurrence in some big firms), but also it helps bring to bear the full marketing assets (contracts, presentation skills, prior experience, etc.) of the over-all firm.

Central reporting is equally important in the financial areas. As a general rule, a branch or subsidiary should have its own financial management controls (project cost, volume, overhead and even the monthly accrual-basis profit and loss statement already discussed in the earlier article "Financial Management of the Professional Firm," RECORD, May 1972),

continued on page 57



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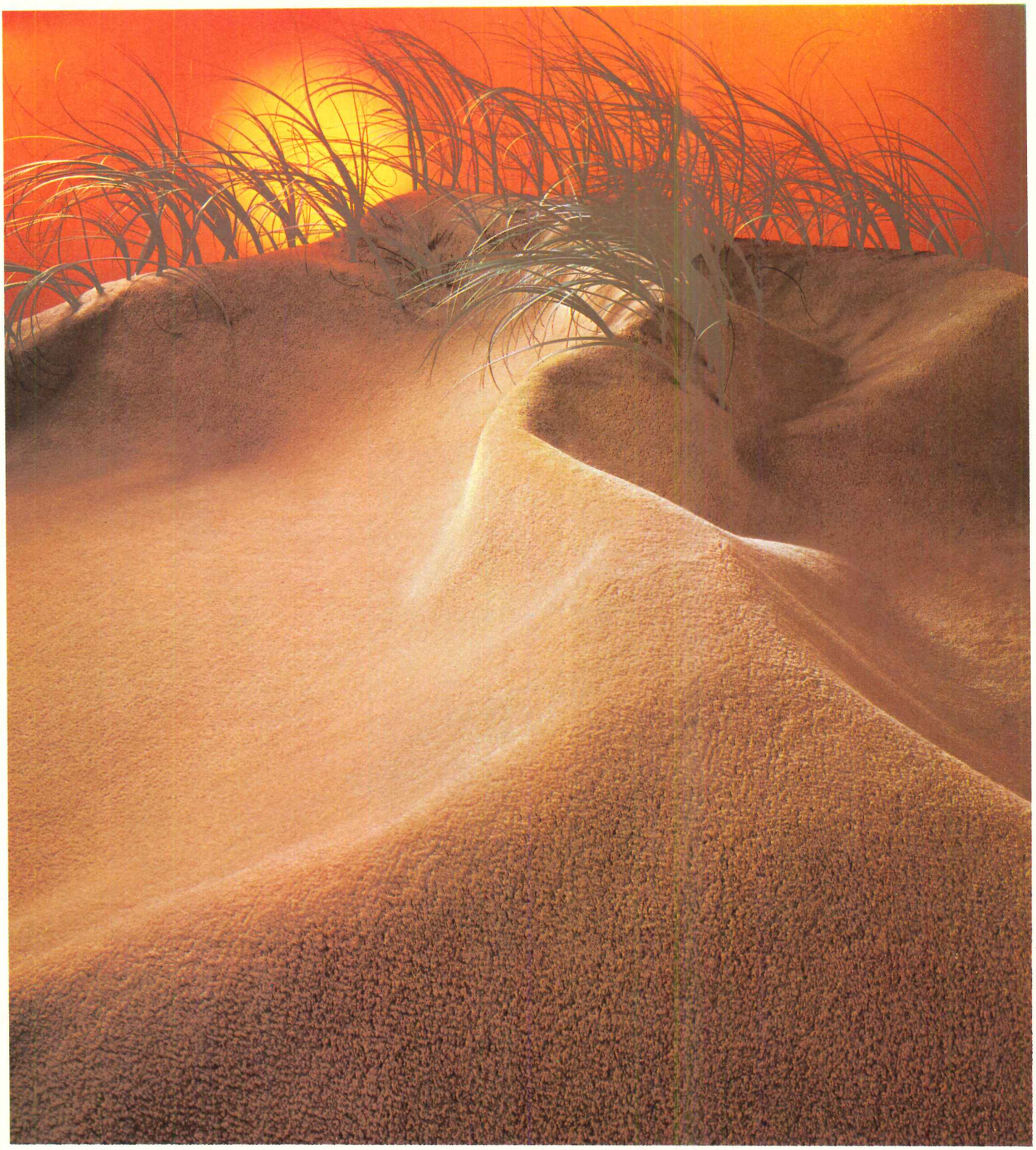

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ARCHITECTURAL BUSINESS *continued from page 54*

but separate payroll and accounting are functions of tax and other considerations.

If the office is reasonably close and communication with the parent company is easy, accounting can be centralized and branch accounting limited to basic record keeping by a bookkeeper or bookkeeper/secretary. If the office is remote, decentralized accounting may be necessary. Whether centralized or decentralized, though, the branch's management controls and accounting should be structured to fit into a regular (usually monthly) standardized reporting format for the entire firm.

Some new financial techniques must be added to standardized controls. The most important of these is an agreed upon interbranch billing approach. There is no general formula for this, but in our case, offices share staff and negotiate fees between offices on an arm's length basis. In situations where a lump sum fee cannot be negotiated, we bill at one times direct salary expense for administrative or business development help, two times where one office is merely providing staff, and our full rate of two and one half times direct salary expense where the office supplying the additional staff has a major role in bringing in or managing the project. The guidelines and differences are administered by the over-all firm's executive committee.

Other administrative matters—including personnel policies—should be as consistent as possible across the firm. Not only should a branch take advantage of the experience of the parent, but also it is remarkable how quickly the employees will spot what they think are inequities in the treatment between offices of the firm. Some difference in treatment is possible in at least one personnel area, however; the management of a branch can—and probably should—be offered some performance incentives. But, it is dangerous to tie the incentives to the branch alone. In many firms—including ours—the compromise is reached by offering branch managers a share of the central profit pool but adjusting his percentage share of this single pool periodically based on the individual's success in the management of his branch. To tie it to the branch alone can make it difficult to re-allocate work between offices or share staff, among other problems.

General firm-wide quality and production controls are also important, but firms differ in how best to achieve this. A few firms—such as CRS—have centralized almost all of their production staff in order to achieve better efficiency and control. Our firm, on the other hand, has tried to centralize some decisions on how the workload is allocated between offices, but have sought to build local capabilities in order to provide more responsive local service. Both approaches can work.

Over-all, the management of a branch or a subsidiary is really little different than management of the parent. Both require effective day-to-day control of at least three major areas: business development; finance and administration; and the service being offered. The new factor added is the need for effective communications between offices in order to make them function as a single entity.

New Inryco N-R-G-Bloc™ A Fire-Tested Preset Insert with complete flexibility in service fittings

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Because it is filled with thermal fiber until it is activated, the N-R-G-Bloc functions in fire situations as an integral part of the concrete slab. Tests at Underwriters' Laboratories, Inc., qualify N-R-G-Bloc for a new 2-hour UL rating (D-847)* requiring only ½" of fireproofing under it when used in a stone concrete slab—up to 1⅛" less than untested rib-activated presets.

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*Using flush service fitting. Other ratings are available.

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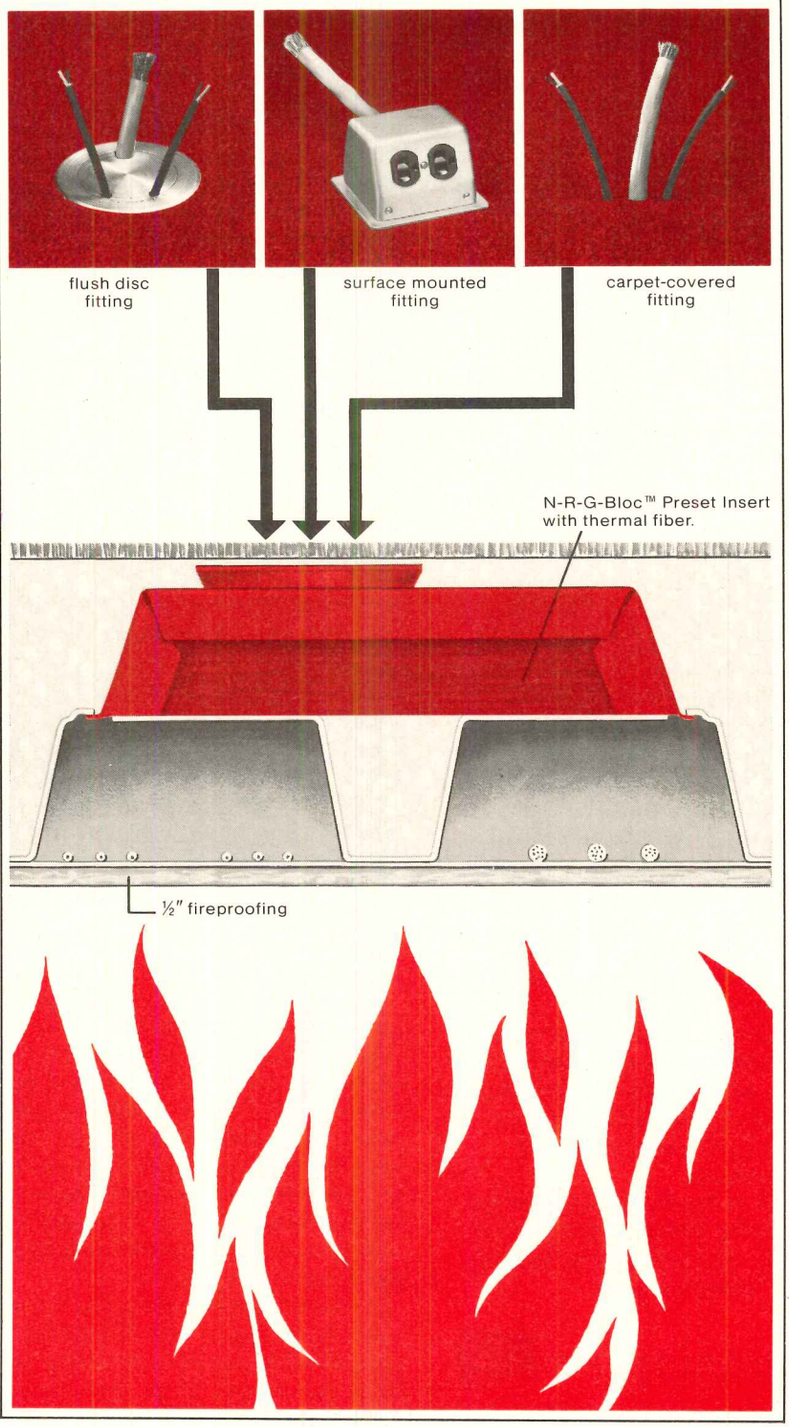

Building type: apartment buildings (low rise)

Building system	Average $/SF	Average %TOT	High average $/SF	High average %TOT
Foundations	$ 0.78	3.6	$ 0.68	2.9
Substructure	0.58	2.7	0.42	1.8
Superstructure	2.23	10.2	2.52	10.9
Exterior closure	2.86	13.1	3.64	15.7
Roofing	0.36	1.6	0.36	1.6
Partitions	2.60	11.9	2.49	10.8
Wall finishes	1.11	5.1	0.99	4.3
Floor finishes	1.56	7.1	1.38	6.0
Ceiling finishes	0.92	4.2	1.20	5.2
Specialties	0.25	1.1	0.33	1.4
Conveying systems	0.0	0.0	0.0	0.0
Plumbing	2.21	10.1	3.20	13.8
Fire protection	0.06	0.3	0.07	0.3
Hvac	1.90	8.7	1.53	6.6
Electrical	1.97	9.0	2.57	11.1
General conditions	1.23	5.6	1.14	4.9
Net building cost	20.62	94.3	22.52	97.3
Equipment	1.24	5.7	0.63	2.7
Gross building cost	21.86	100%	23.15	100%
Sitework	0.67	3.1	0.46	2.0
Construction cost	$22.53		$23.61	

Apartments (low- to moderate-income)
128 Units

24 1-Bedroom	650 sq ft/unit
68 2-Bedroom	850 sq ft/unit
36 3-Bedroom	1,072 sq ft/unit
Laundry building	710 sq ft Total
Carport (12,800 SF = 128)	100 sq ft/unit

INDEXES: August 1976 — 1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.5	539.6	506.9	533.1	519.4	+ 9.1
Atlanta	7.5	612.4	577.5	605.3	593.7	+ 3.2
Baltimore	8.5	622.7	585.5	611.0	596.7	+13.1
Birmingham	7.3	476.6	443.3	463.9	457.4	+ 6.7
Boston	9.0	545.2	515.2	552.2	530.8	+10.6
Buffalo	9.1	578.1	542.9	570.1	553.3	+ 6.5
Chicago	8.3	570.7	542.7	552.4	544.5	+ 3.9
Cincinnati	8.8	613.3	577.2	603.0	587.7	+16.3
Cleveland	9.0	589.4	554.6	579.6	562.7	+12.0
Columbus, Ohio	8.2	525.4	493.5	521.9	505.9	+ 3.2
Dallas	7.9	513.2	501.0	506.6	495.4	+ 3.6
Denver	8.4	589.3	554.4	584.5	571.5	+ 9.4
Detroit	9.8	624.5	595.9	633.9	609.6	+10.9
Houston	7.4	507.7	476.8	496.6	487.8	+11.6
Indianapolis	7.8	482.2	453.9	474.7	464.3	+ 8.2
Kansas City	8.7	533.1	503.8	525.0	510.8	+ 8.9
Los Angeles	8.5	614.9	562.2	599.2	585.4	+ 9.5
Louisville	7.6	514.2	482.9	502.2	492.4	+ 6.9
Memphis	8.4	547.4	514.0	529.1	517.9	+ 7.5
Miami	7.9	597.7	569.5	595.7	586.9	+17.7
Milwaukee	8.7	619.1	581.4	614.6	593.9	+ 9.5
Minneapolis	8.9	556.9	524.0	550.0	537.2	+ 6.7
Newark	9.0	501.2	470.7	498.1	485.0	+ 2.5
New Orleans	7.5	532.1	502.3	523.9	512.1	+12.7
New York	10.0	554.3	515.5	544.6	533.1	+ 2.9
Philadelphia	9.1	590.8	562.9	592.1	573.4	+ 9.4
Phoenix (1947 = 100)	8.2	317.5	298.2	313.6	305.4	+ 8.6
Pittsburgh	8.9	516.6	486.1	516.4	499.2	+ 7.0
St. Louis	8.7	552.3	521.4	547.3	534.9	+ 9.0
San Antonio (1960 = 100)	7.6	216.2	203.8	211.4	207.0	+14.3
San Diego (1960 = 100)	8.7	252.0	236.7	249.6	248.0	+19.9
San Francisco	9.6	810.3	740.7	803.7	777.3	+10.3
Seattle	8.6	542.1	485.3	532.5	514.5	+11.2
Washington, D.C.	8.4	526.4	494.3	518.8	503.9	+ 7.7

Cost differentials compare current local costs, not indexes, on a scale of 10 based on New York

Tables compiled by Dodge Building Cost Services, McGraw-Hill Information Systems Company

HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES — 1941 average for each city = 100.00

Metropolitan area	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975 (Quarterly) 1st	2nd	3rd	4th	1976 (Quarterly) 1st	2nd	3rd	4th
Atlanta	329.8	335.7	353.1	384.0	422.4	459.2	497.7	544.8	575.0	583.8	585.3	597.2	598.7	602.6	604.1		
Baltimore	280.9	295.8	308.7	322.8	348.8	381.7	420.4	475.5	534.3	538.7	540.2	579.6	581.1	609.7	611.2		
Birmingham	270.7	274.7	284.3	303.4	309.3	331.6	358.3	402.1	421.2	438.6	440.1	447.4	448.9	469.0	469.5		
Boston	262.0	265.7	277.1	295.0	328.6	362.0	394.4	437.8	462.5	484.1	485.6	511.7	513.2	535.7	537.2		
Chicago	320.4	328.4	339.5	356.1	386.1	418.8	444.3	508.6	529.6	539.2	540.7	558.6	560.1	560.3	561.8		
Cincinnati	278.3	288.2	302.6	325.8	348.5	386.1	410.7	462.4	500.1	518.0	519.5	549.1	550.6	602.9	604.4		
Cleveland	300.7	303.7	331.5	358.3	380.1	415.6	429.3	462.2	509.5	516.6	518.1	529.5	531.0	578.7	580.2		
Dallas	266.9	270.4	281.7	308.6	327.1	357.9	386.6	436.4	477.9	488.3	489.8	498.1	499.6	506.1	507.6		
Denver	297.5	305.1	312.5	339.0	368.1	392.9	415.4	461.0	510.0	530.4	531.9	552.1	553.6	580.3	581.8		
Detroit	296.9	301.2	316.4	352.9	377.4	409.7	433.1	501.0	538.7	554.4	555.9	596.0	597.5	615.1	616.6		
Kansas City	261.0	264.3	278.0	295.5	315.3	344.7	367.0	405.8	444.9	481.1	482.5	507.6	509.1	523.8	525.3		
Los Angeles	302.7	310.1	320.1	344.1	361.9	400.9	424.5	504.2	531.8	546.7	548.2	592.6	594.1	599.1	600.6		
Miami	284.0	286.1	305.3	392.3	353.2	384.7	406.4	447.2	485.5	499.5	501.0	557.4	558.9	588.1	589.6		
Minneapolis	289.4	300.2	309.4	331.2	361.1	417.1	412.9	456.1	488.6	513.9	515.4	536.5	538.0	548.3	549.8		
New Orleans	259.8	267.6	274.2	297.5	318.9	341.8	369.7	420.5	442.1	463.5	465.0	493.2	494.7	522.8	524.3		
New York	304.0	313.6	321.4	344.5	366.0	395.6	423.1	485.3	515.3	524.1	525.5	532.0	533.5	539.4	540.9		
Philadelphia	286.6	293.7	301.7	321.0	346.5	374.9	419.5	485.1	518.5	531.5	533.0	566.0	567.5	581.8	583.3		
Pittsburgh	271.1	275.0	293.8	311.0	327.2	362.1	380.3	424.4	465.6	475.2	476.7	508.0	509.5	508.5	510.0		
St. Louis	288.3	293.2	304.4	324.7	344.4	375.5	402.5	444.2	476.7	497.5	499.0	527.4	528.9	542.7	544.2		
San Francisco	386.0	390.8	402.9	441.1	465.1	512.3	561.0	632.3	672.5	716.0	717.5	751.8	753.3	790.1	791.6		
Seattle	275.0	283.5	292.2	317.8	341.8	358.4	371.5	424.4	450.2	472.5	474.0	513.6	515.1	525.9	527.4		

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 ÷ 200.0 = 75%) or they are 25% lower in the second period.

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Homer Grove, Administrator
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The Dodge/Sweet's Construction Outlook

A midyear update: We're safely headed upwards. . .

Recovery of the construction industry from its worst recession in a generation first began more than a year ago—in early 1975 when the housing market turned up. This beginning of the recovery sequence was reinforced during the summer and fall of 1975 by the release of billions in impounded appropriations from the highway and sewer Trust Funds. And finally—in only the past few months—an unmistakable upturn has taken hold in the construction market that means most to the design professions: nonresidential building.

Now that both the residential and nonresidential building cycles are safely headed upward, it is time to stop talking about recovery and consider the potential for expansion in the quarters ahead. Here are some important things to keep in mind about 1976's outcome (which by now is half history):

- Contracting for nonresidential buildings will continue to improve steadily over the balance of 1976, but the year's total will fall short of 1975's $32 billion. Thus . . .
- *All* of this year's gain in construction contract value will be confined to one area only—the housing market.
- Square footage will show a disproportionately large gain in 1976, mostly because of a heavy shift in the "mix" of building types, and partly because inflation in construction (as elsewhere) has slowed a bit. The southward and westward drift of construction activity, which was so pronounced in the early 1970s, is being temporarily reversed.
- Nonbuilding construction, lacking a superproject the magnitude of last year's trans-Alaska pipeline in 1976, will barely hold even with 1975's high level of contracting.

Nonresidential building

Nonresidential building reached its cyclical low point in December, 1975—exactly a year after the housing cycle bottomed out. And from January to May, each successive month has brought a higher rate of contracting for nonresidential buildings. However, each of the several submarkets in this group is showing its own unique variation of the recovery process.

Commercial building's recovery has been a blend of a vigorous expansion of stores/shopping centers and stagnation of office buildings. *Stores and other retail facilities,* responding to last year's recovery of homebuilding and the sharp rise in retail sales, were first of all the major nonresidential building types to turn up. In 1976's first half, retail building was running 20 per cent ahead of 1975's value and is expected to finish the year with a 25 per cent improvement in contract value (15 per cent in square footage).

Office building, by contrast, was still behind last year's weak rate of contracting at mid-1976, and isn't likely to finish the year any better than even with the 1975 total, making it two bad years in a row for the office building market.

Manufacturing building, now just beginning its recovery, will fall far short of last year's record $6.8 billion for two reasons. For the time being, business plans for capital spending are showing the natural reluctance of most manufacturers to add more capacity while they are still working below their optimum rate of plant utilization. It may take as much as a year before today's excess capacity is either brought into use or scrapped, and only then will indus-

National estimates 1976

Second Update July 1976

Construction Contract Value
(millions of dollars)

		1975 Actual	1976 Forecast	Per Cent Change
Nonresidential Buildings	Office Buildings	$ 4,036	$ 4,100	+ 2
	Stores & Other Commercial	5,353	6,650	+24
	Manufacturing	6,878	4,100	−40
	Total Commercial & Manufacturing	$16,267	$ 14,850	− 9
	Educational	$ 5,914	$ 5,400	− 9
	Hospital & Health	3,762	4,500	+20
	Other Nonresidential Buildings	6,065	6,150	+ 1
	Total Institutional & Other	$15,741	$ 16,050	+ 2
	Total Nonresidential	$32,008	$ 30,900	− 3
Residential Buildings	1- & 2-Family Homes	$25,445	$ 35,350	+39
	Apartments	4,710	8,050	+71
	Total Housekeeping	$30,155	$ 43,400	+44
	Total Nonhousekeeping	$ 1,115	$ 1,400	+26
	Total Residential	$31,270	$ 44,800	+43
Nonbuilding Construction	Highways & Bridges	$ 8,871	$ 7,900	−11
	Utilities	7,453	9,500	+27
	Sewer & Water	6,531	7,000	+ 7
	Other Nonbuilding Construction	5,576	4,150	−26
	Total Nonbuilding	$28,431	$ 28,550	— —
Total Construction		$91,709	$104,250	+14
Dodge Index (1967 = 100)		166	189	

Floor Area of New Buildings
(millions of square feet)

		1975 Actual	1976 Forecast	Per Cent Change
Nonresidential Buildings	Office Buildings	109	110	+ 1
	Stores & Other Commercial	309	355	+15
	Manufacturing	148	155	+ 5
	Total Commercial & Manufacturing	566	620	+10
	Educational	152	130	−14
	Hospital & Health	65	75	+15
	Other Nonresidential Buildings	182	185	+ 2
	Total Institutional & Other	399	390	− 2
	Total Nonresidential	965	1,010	+ 5
Residential Buildings	1- & 2-Family Homes	1,180	1,540	+31
	Apartments	229	375	+64
	Total Housekeeping	1,409	1,915	+36
	Total Nonhousekeeping	33	40	+21
	Total Residential	1,442	1,955	+36
Total Buildings		2,407	2,965	+23

trial building reach a full stride.

Besides that, a lot of last year's extraordinary total of industrial construction (maybe as much as half) was a one-shot response—in the form of a $4 billion surge of refineries, petrochemical, plants, etc.—to the 1973/74 energy crisis. That's not something you'd expect to be sustained no matter how boomy business conditions get over the next year or two.

Partial recovery toward a normal level of industrial construction means a little better than $4 billion in 1976, and that is 40 per cent less than last year's unusual circumstances brought forth.

Institutional and other nonresidential building were right on target at midyear, running virtually even with 1975's total. That's how our forecast for the full year remains.

Within the institutional group of building types the important changes from last year are: educational building—down nearly 10 per cent; hospital/health facilities—up 20 per cent.

A higher second half rate of contracting for all nonresidiential buildings will reduce the midyear shortfall of 10 per cent to about three per cent by year's end, setting up the prospect for a sizeable gain in calendar year 1977.

Residential building

Housing piled up a huge 44 per cent lead during the first five months of 1976, but sustaining that margin over 1975's residential building through the second half of this year will require an infusion of new demand. That's because the one-family side of the housing market, which has been the source of almost all of the gain up to now, has relatively little room left for further expansion, and may already be leveling off at an annual rate of 1.1 million units. This means that from here on, most of the gain must come from the apartment side of the market which, as architects know only too well, has been all too dormant lately.

Apartment starts never could break through the very low 275,000 ceiling at any time in 1975, but that didn't mean the multi-family market was entirely unresponsive to improving economic conditions. The steady decline in the rental vacancy rate over the year (from 6.1 per cent to 5.5 per cent) meant that things had become pretty tight by early 1976. And even though the national rate of apartment building didn't show much improvement, *regional* data revealed a progressive recovery taking hold last year. One-by-one, the regions turned around—first the West, next the Northeast, then the Midwest, and finally (but not until the first quarter of 1976) the South. So unlike last year's situation, when the different regional cycles of multi-family building were nullifying one another, we've finally reached the point where all four regions are on the way up. By this year's second quarter, the national rate of apartment starts was comfortably beyond the 300,000 barrier and, with rates of 450,000 and 525,000 in the third and fourth quarters, the 1976 total could reach 400,000 multifamily units.

This total, along with 1.1 million single-family homes, would yield 1.5 million housing starts for the year. At 1976 costs, this prices out to $44.8 billion (including $1.4 billion of "nonhousekeeping" residential buildings), a gain of better than 40 per cent over last year's badly depressed housing market.

Nonbuilding construction

Nonbuilding construction, with a 10 percent lead over 1975 contracting at midyear, is destined to lose all or most of that advantage by the end of 1976. That's because there was some unusual activity in the second half of last year that won't be coming up again this year—e.g., large segments of the Alaska pipeline, and a spree of highway contracting that resulted from the release of impounded Trust Fund money as an anti-recessionary stimulus to the economy.

On the plus side, contracting for electric power plants has been coming on even stronger than the high rate anticipated in our earlier forecast. With well over $5 billion of new utility construction contracted before the year was half complete, the expected 1976 total of this work can now be raised to between $9 and $10 billion. That is roughly 25 per cent more than the former high of $7.5 billion in 1975! (Bear in mind that a single project plus or minus can make quite a difference here.)

The net result of more electric power construction and less pipeline and highway work in 1976: a total nonbuilding construction value of $28.6 billion—unchanged from last year's amount except for the type of work being done.

Total construction

Total construction contract value forecast for 1976—$104 billion—is still close to last October's original expectation of a 15 per cent cyclical gain over 1975's depressed market. And now, with half the year on the record books, it is twice as firm a forecast as when it was first made.

But to architects, it isn't the increasing size of the construction market that counts as much as the composition of that market. (Who needs $104 billion of highways?) Right now we're in the midst of a strong transition from a market which in 1975 was dominated by single-family housing and heavy (nonbuilding) construction to one which puts greater emphasis on nonresidential buildings and apartments. And this is what the architect has been waiting for two long, lean years to happen.

—George A. Christie
Vice president and chief economist
McGraw-Hill Information Systems Company

Regional estimates 1976

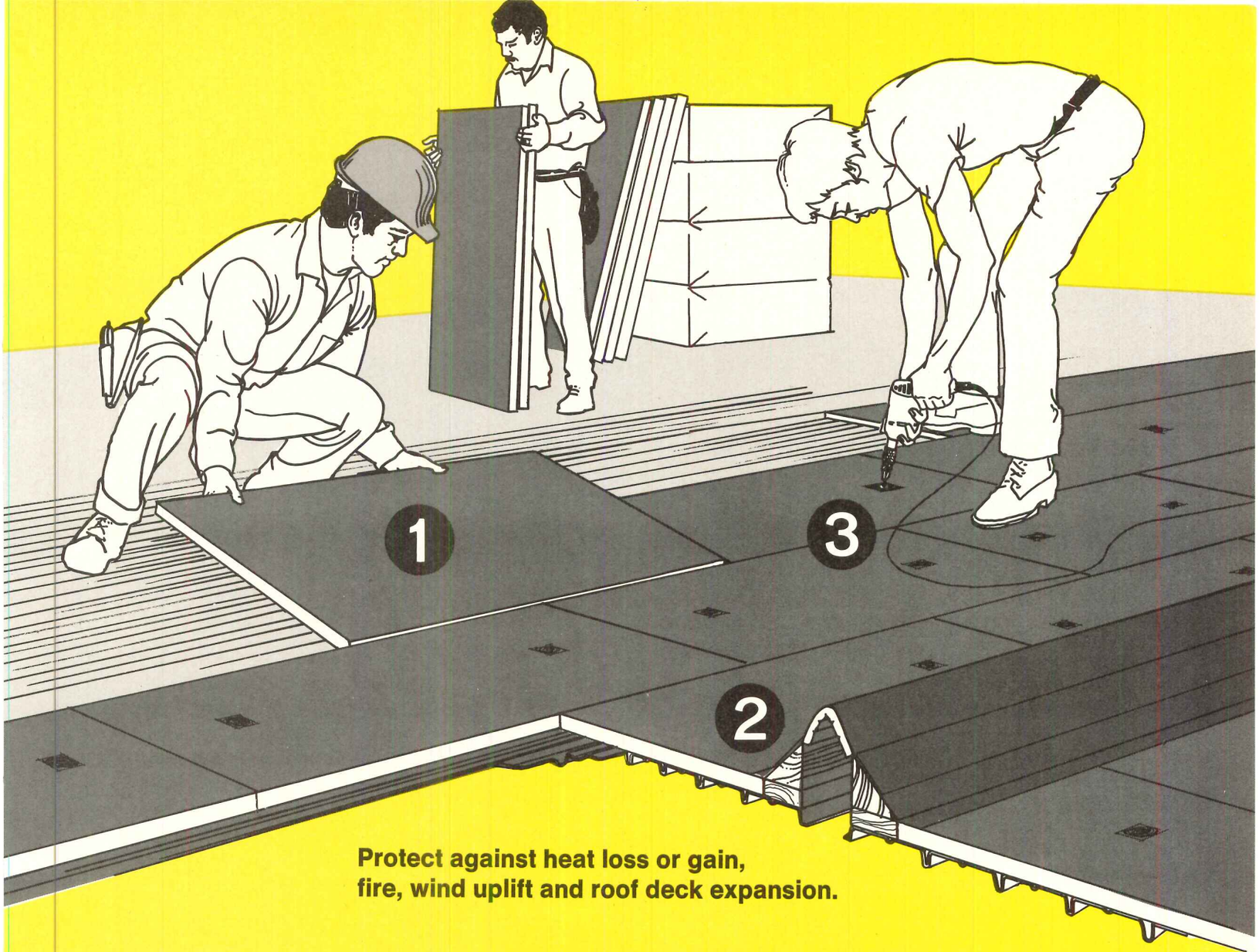
Second Update July 1976

Construction Contract Value
(millions of dollars)

	Northeast (Conn., D.C., Del., Mass., Md., Maine, N.H., N.J., N.Y., Eastern Pa., R.I., Va., Vt.)			Midwest (Northern Ill., Ind., Iowa, Ky., Mich., Minn., N. Dak., Ohio, Western Pa., S. Dak., Wis., W. Va.)		
	1975 Actual	1976 Forecast	Per Cent Change	1975 Actual	1976 Forecast	Per Cent Change
Nonresidential Buildings						
Commercial & Manufacturing	$ 2,724	$ 2,850	+ 5	$ 3,318	$ 3,415	+ 3
Other	3,694	3,935	+ 7	3,953	3,980	+ 1
Total	$ 6,418	$ 6,785	+ 6	$ 7,271	$ 7,395	+ 2
Residential Buildings						
1- & 2-Family Homes	$ 3,896	$ 5,655	+45	$ 6,065	$ 8,410	+39
Apartments	1,037	1,690	+63	1,175	2,015	+72
Nonhousekeeping	156	285	+83	166	255	+54
Total	$ 5,089	$ 7,630	+50	$ 7,406	$10,680	+44
Nonbuilding Construction						
Highways & Bridges	$ 1,340	$ 1,500	+12	$ 2,501	$ 2,135	−15
Other	4,012	5,250	+31	4,619	5,310	+15
Total	$ 5,352	$ 6,750	+26	$ 7,120	$ 7,445	+ 5
Total Construction	$16,859	$21,165	+26	$21,797	$25,520	+17

Construction Contract Value
(millions of dollars)

	South (Ala., Ark., Fla., Ga., Southern Ill., Kans., La., Miss., Mo., N. C., Nebr., Okla., S. C., Tenn., Tex.)			West (Alaska, Ariz., Calif., Colo., Hawaii, Idaho, Mont., Nev., N. Mex., Ore., Utah, Wash., Wyo.)		
	1975 Actual	1976 Forecast	Per Cent Change	1975 Actual	1976 Forecast	Per Cent Change
Nonresidential Buildings						
Commercial & Manufacturing	$ 5,236	$ 5,105	− 3	$ 4,989	$ 3,480	−30
Other	4,593	4,675	+ 2	3,501	3,460	− 1
Total	$ 9,829	$ 9,780	− 1	$ 8,490	$ 6,940	−18
Residential Buildings						
1- & 2-Family Homes	$ 9,323	$13,045	+40	$ 6,161	$ 8,240	+34
Apartments	1,050	1,850	+76	1,448	2,495	+72
Nonhousekeeping	409	440	+ 8	384	420	+ 9
Total	$10,782	$15,335	+42	$ 7,993	$11,155	+40
Nonbuilding Construction						
Highways & Bridges	$ 3,139	$ 2,605	−17	$ 1,891	$ 1,660	−12
Other	6,106	6,655	+ 9	4,823	3,435	−29
Total	$ 9,245	$ 9,260	−−	$ 6,714	$ 5,095	−24
Total Construction	$29,856	$34,375	+15	$23,197	$23,190	−−



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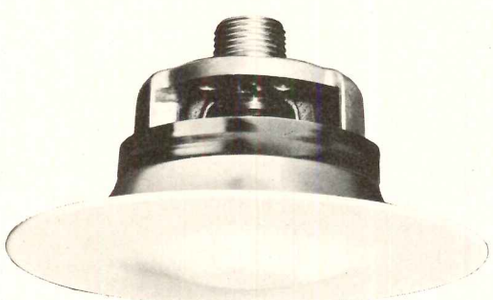

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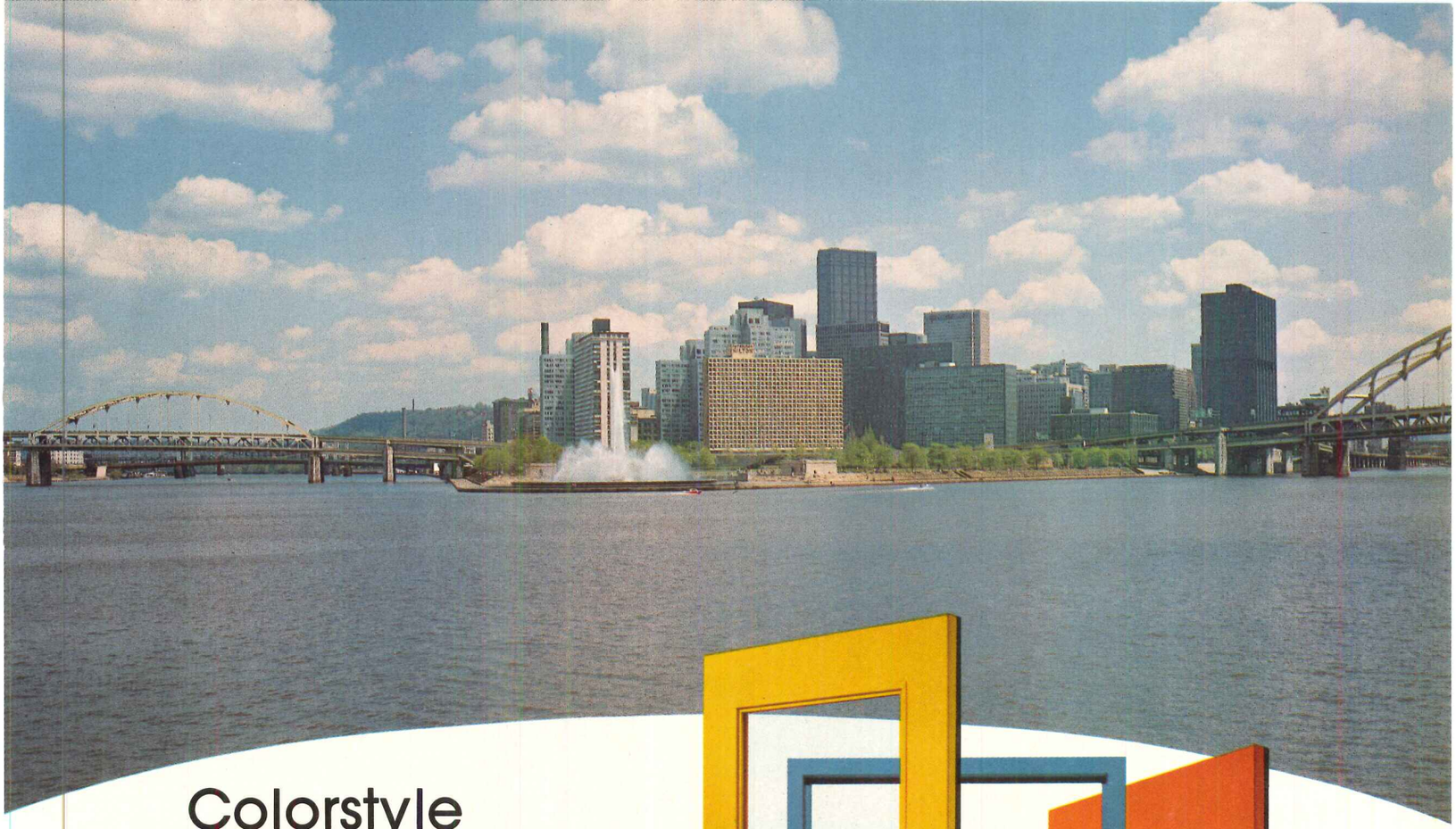

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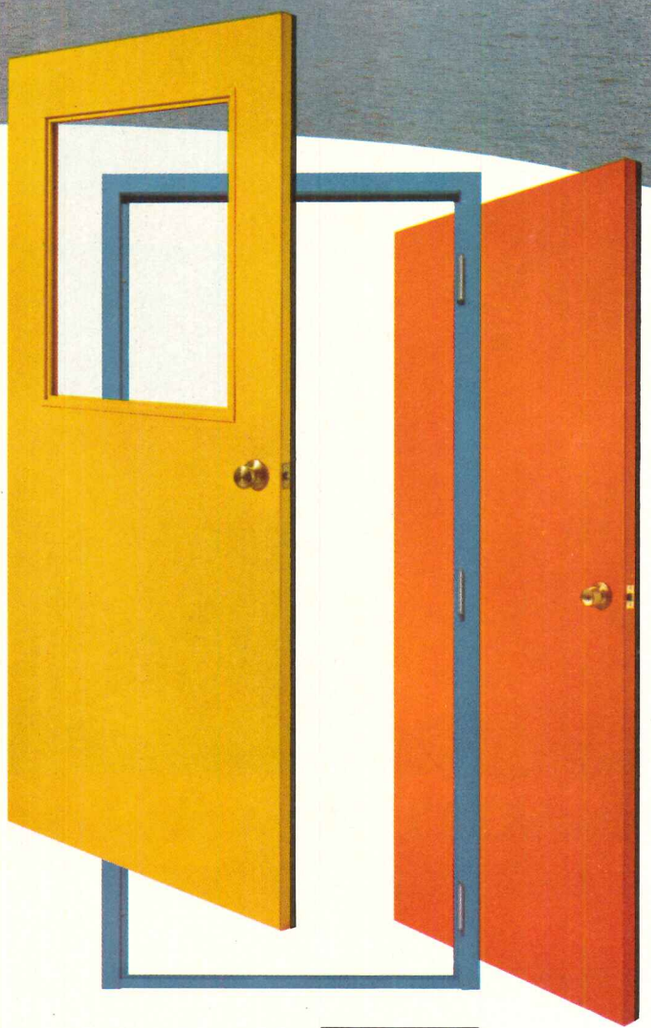

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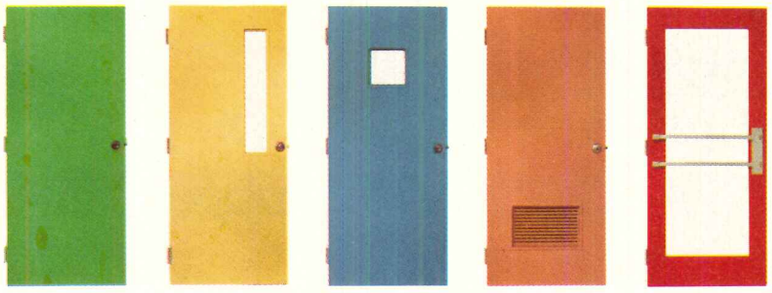

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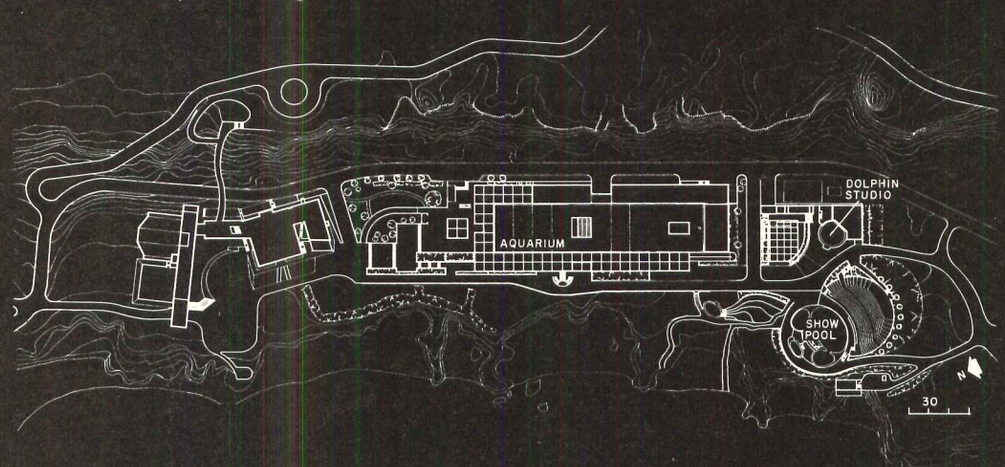
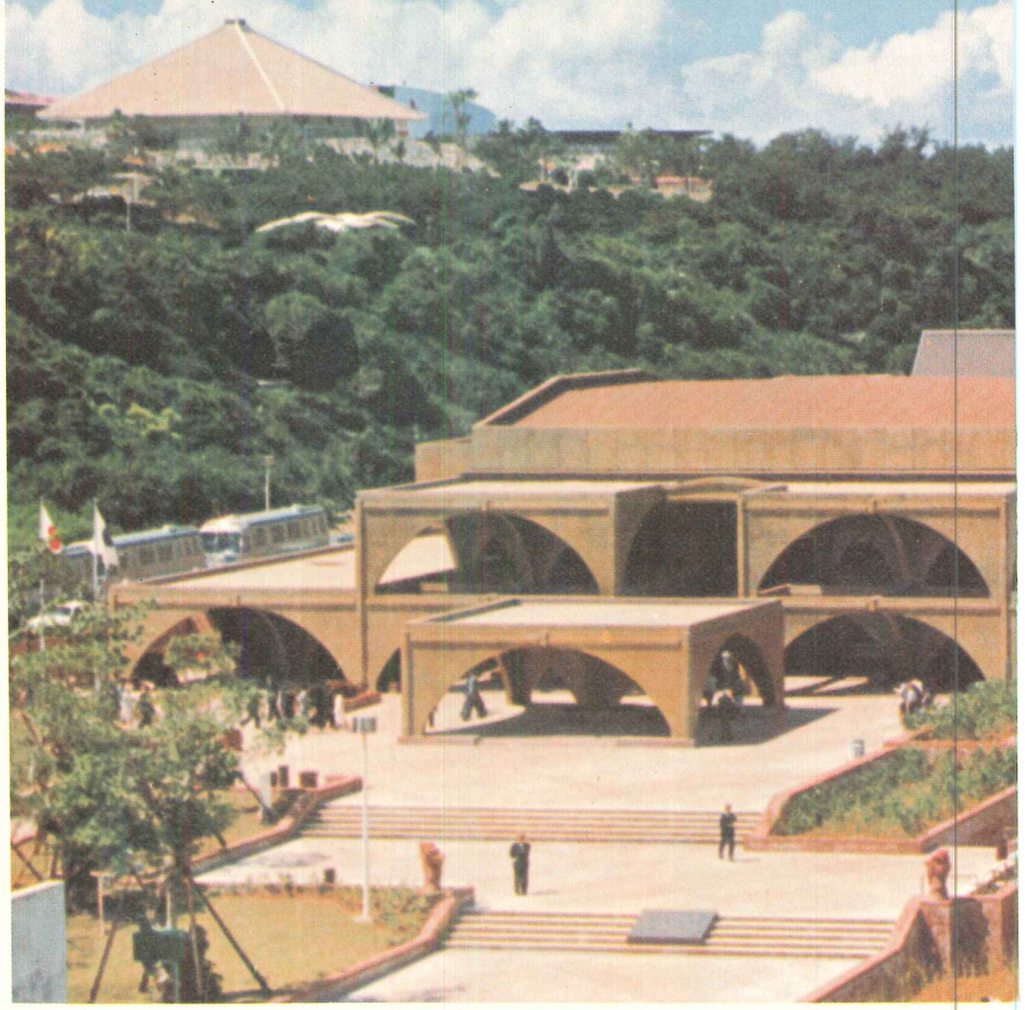
FUMIHIKO MAKI

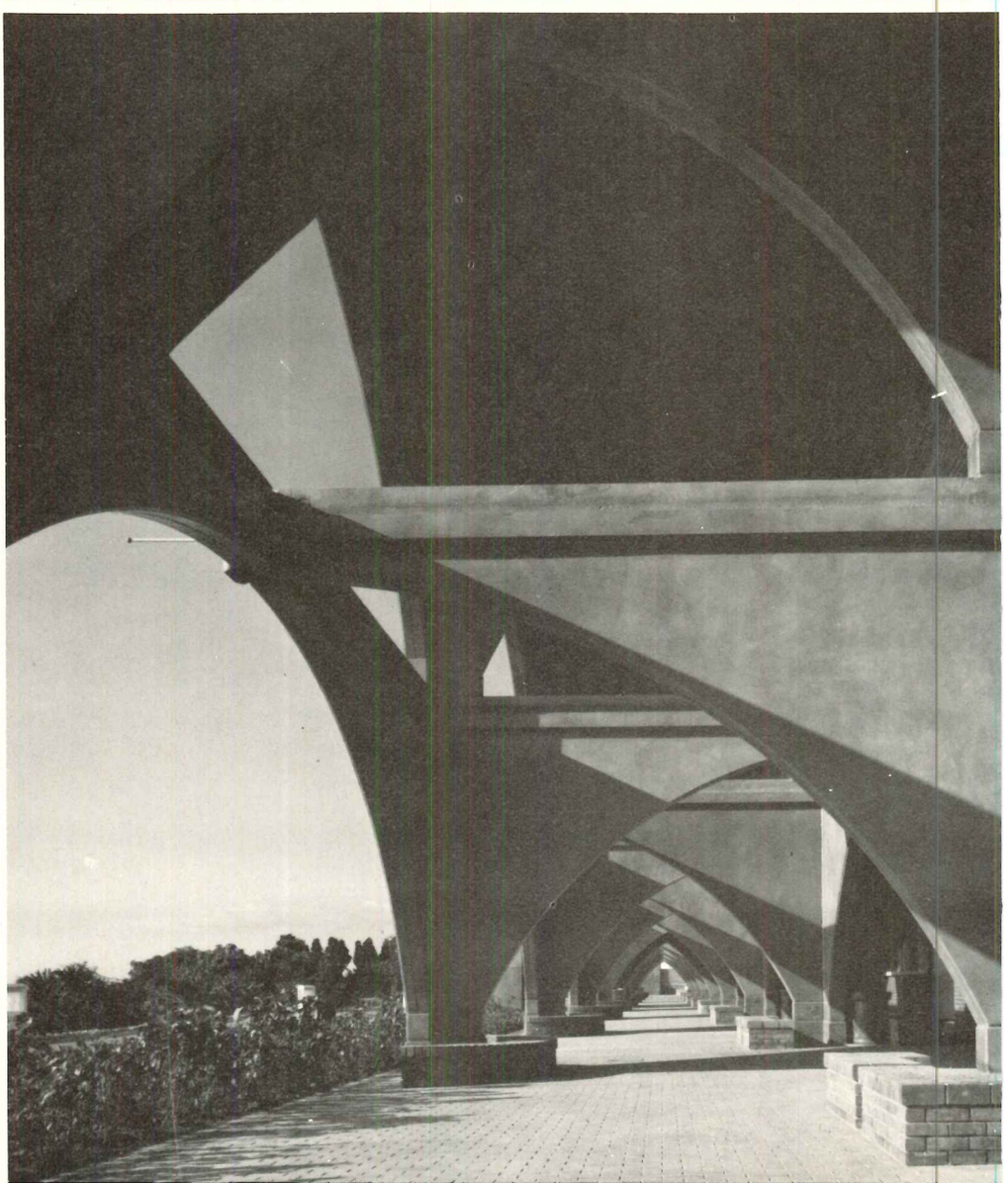
There is an old Japanese word, *shibui,* and like many old Japanese words, it succinctly conveys a richly connotative idea. Restrained elegance is implied, or subtlety of expression. A building that is scaled and positioned to reveal as much about its surroundings as about itself is *shibui,* and the three by Maki and Associates in this article are similarly connotative, deriving formal character and imagery from the nature of their context. The National Aquarium on Okinawa (above, overleaf), the Toyota Kuragaike Commemorative Hall (page 74), and the Osaka Prefectural Sports Center (page 78) illustrate the developing design tenets of a remarkable architect and teacher, fusing perceptions of both the East and West with an understanding not seen since Frank Lloyd Wright, while lending impetus to the contextual or inclusivist thrust of theory in the United States today. As architect Heather Willson Cass explains in her essay (page 78) this is human experience—rough-edged, unpredictable, imperfect—given fulsome form. The only claim to "completeness" is of a kind that recalls a gesture of the great Zen master, Rikiu, showing his son how to go about cleaning the family garden. After hours, he chided the boy that the work was not "complete enough." So Rikiu stepped toward a tree, shook a branch, scattering gold and crimson leaves on the scrubbed stone paths. Fumihiko Maki is still shaking that branch, showing how architecture may yet become "complete enough."

—William Marlin



NATIONAL AQUARIUM, OKINAWA





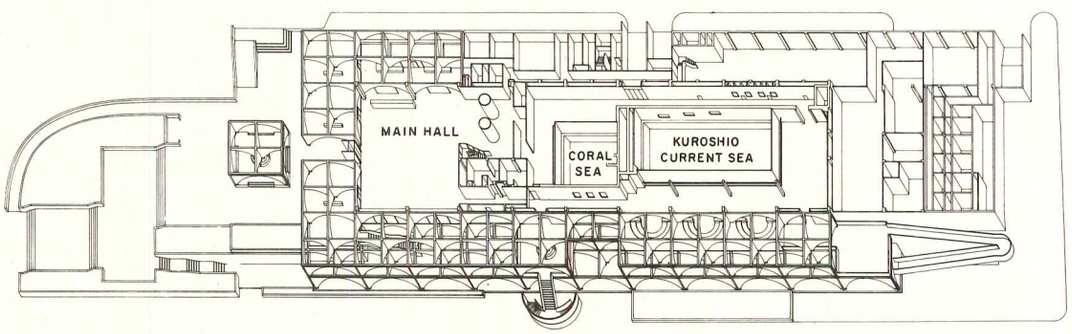
The lay of the land and the movement of the sun set the scale of this enchanting structural sequence, encrusting a narrow north-south site between a rocky shoreline and a steep, verdant rise. Seemingly of the sea, rather than just beside it, the Aquarium, the only permanent facility in the International Ocean Exposition of 1975, is a "path of shade," as Maki describes it, using two-level arcades as a sun- and windbreaker, thus determining the building's major expressive element and defining its processional nature.

The arcades, setting up an almost lyrical rhythm, are composed of concrete arches that express the dry-jointed juncture of precast three-hinged parts. This technique shortened construction time and, crucial to the area, did not require skilled labor to achieve an otherwise sophisticated configuration. Involving elements that act as a post-and-beam (two of them creating the three-hinged arch) and as floor or roof slabs, the system achieves maximum flexibility with minimum means. Nearly 300 post-and-beam elements and 150 of the floor slabs were used here, wrapping about the internalized spectator areas, framed in steel, while recurrently disclosing dramatic views of the natural environment.

The spectator areas inside show actual biological groupings within the world's biggest fish tanks. The first, 12 meters square and over two meters high, represents the Coral Sea, with some 6,000 fish, and shows life in shallower waters. Natural sunlight dapples in here from above, keeping the coral alive, and highlighting the sea-floor landscape in which most fish develop. The other tank, 12 by 27 meters and 3.5 meters high, represents the Japan Current, with some 8,000 fish, and shows life in deeper, outer waters. Including sharks and rays, these waters are kept deliberately still to simulate actual conditions. Thus these two tanks, being sizable semblances of the aqueous habitat, allow the tendencies and territoriality of the species to form.

Lining the tanks, which are viewed through expansive panels of frameless acrylic, are comfortable carpeted lounge areas, bathed in background music, where visitors can quietly contemplate the spectacle amidst subdued colors. These exhibits are a cause of reflection in a visual sense, too, as the corridors and lounges, with their lighting and finishes, pick up the evanescent play of light, water and marine life within the tanks and one is brought to wonder whether it wasn't the group biology of human beings that Maki was trying to display for the benefit of the fish. Visitors are further schooled by specific exhibits in the areas around the tanks, each concentrating on a particular species, set of interacting species, or pattern of biological and social behavior. This constant cross-reference between the comprehensive marine environment and the more specialized traits within it makes for an effective, accurate depiction, engenders a more fluid arrangement of spectator space, and

The National Aquarium on Okinawa is a processional enclosure whose scale is conditioned by the nature of the climate and the contours of its seaside site. From the entrance plaza (above, left foreground), two-level arcades, made of precast concrete, protect visitors from the bright sun and provide engaging views of the environment (left). At the north end of the complex, just downhill, is the Dolphin Theater (right), where visitors are seated beneath a huge arch-hung fish net.



Photos courtesy of Maki and Associates

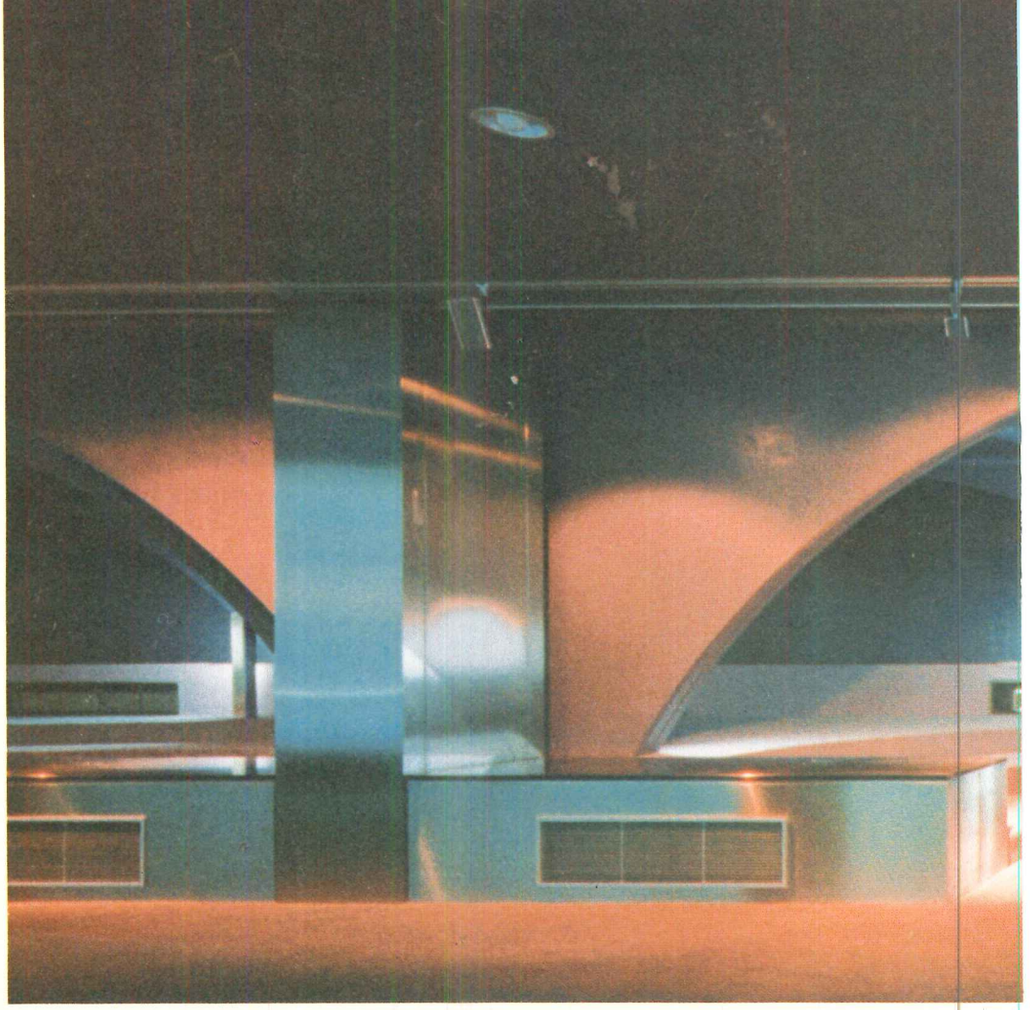
avoids the familar exhibition fallacy of people bunching together around repetitive little windows in order to get a glimpse of one fish or another taken out of its larger environmental context. In this design, the naturalness of that context, not the superclassification of curators, called the shots. What one experiences is an immersion in what is real—not an artificial rendition—to an extent that the displays have an almost surreal impact on the senses.

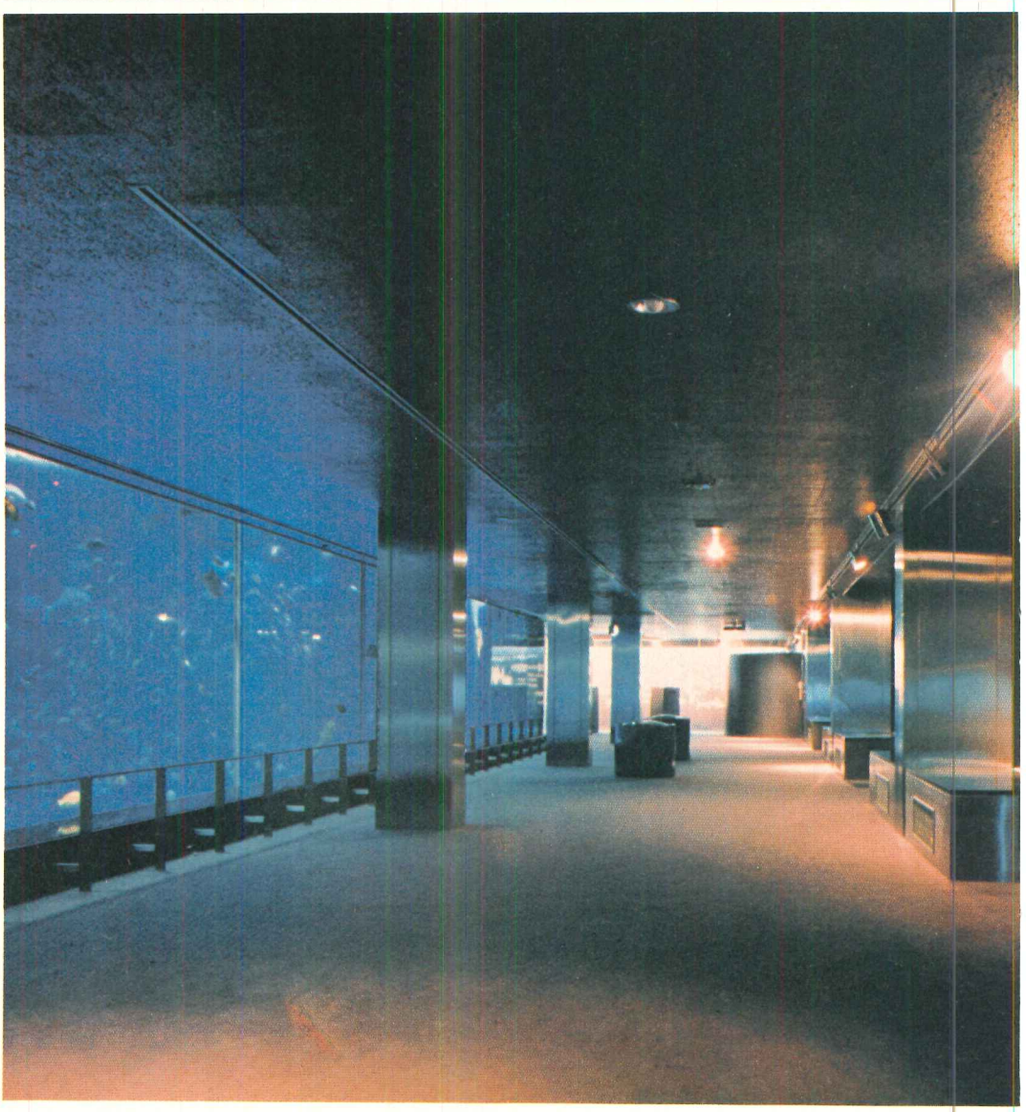
Outside and to the south of the Aquarium is a facility called Dolphin Land, which has two components. Okichan Hall is a small theater with live underwater shows and films dealing with the scientific aspects of these markedly intelligent large-brained dolphins. Whistling and clicking around hydrophones, their "conversation" is amplified, while those frequencies beyond our audible range are picked up on an oscillograph. Just downhill and adjacent is the separate Dolphin Theater, its stepped-up spectator section protected by a fish net canopy that is suspended from a simple bow-shaped arch. Here the shows are cast in high comic relief, what with high jumps, tail walks, and mid-air turns.

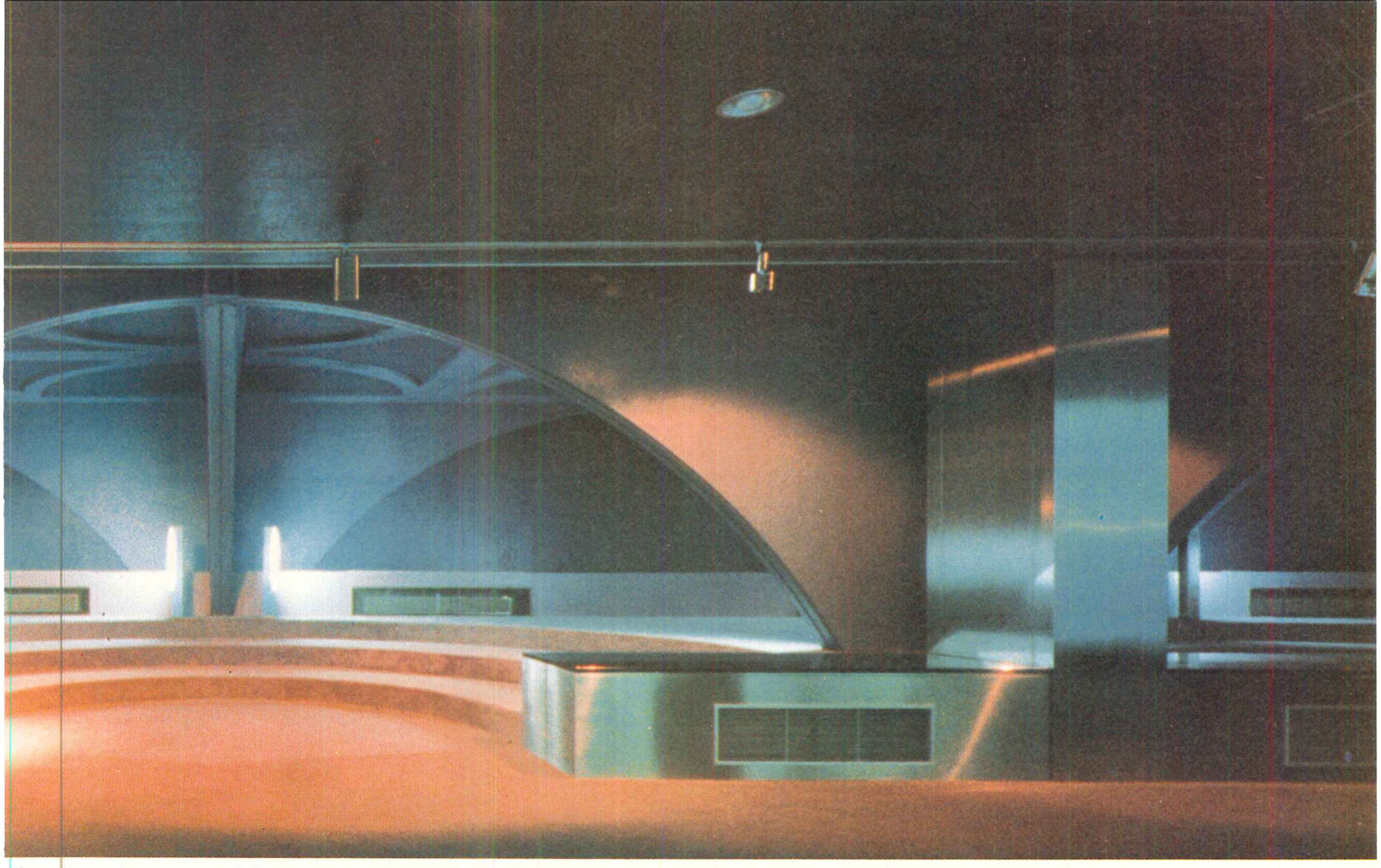
In the same sense that the design of the Aquarium and its exhibitions defer to the nature of marine life, the general scale and specific detailing of the structure itself are meant to evoke the characteristics of local custom and culture. The external wall surfaces are painted amber, much like the color used on many Okinawan houses. The rounded tile-covered handrails pick up designs of long local lineage. There are fierce lion statues guarding either side of the entrance plaza at the northern end of the complex where the play of arches and a bow-shaped roof, going back to the traditional use of such formal themes in native culture, intimates the arcaded walkways just beyond and confides the over-all character of the building composition even before one enters. Out of both climatic and cultural circumstances, then, the Aquarium is cadenced long and low on its site and, with its arcade, one knows right away how the building was made and, with the infernal summer sun, why the arcades run the way they do and what important function they perform.

Also telling is the way that the concrete and steel-framed internal structure enfolding the exhibitions also "reads" true. Tucked back under the precast concrete sections, brick surfaces, laid up over the lower portions of concrete and of a color that complements the amber of the outer arcade, tell the story of a function within that is sharply distinguished from the sun-shielding circulation function of the arcade itself. Articulating such opposites clearly, Maki reconciles them. The arches, without actually expressing internal function, provide a congruous, connective theme. A more discerning relationship between function and form is effectively established.

NATIONAL AQUARIUM, Marine Life Park, Okinawa. Client: *Ministry of Trade and Industry.* Architects: *Maki and Associates.* Engineers: *Kimura (structural); P.T. Morimura (mechanical).* Contractor: *JV—Kajima, Konoike, Tokyu, Sumitomo, Kumagaya, Zentaro.*







The interior exhibition and spectator areas, in contrast to the spritely, sun-shielding theme of the arched arcades outside, are muted and quiet. Lounge areas (above) are ranged repetitively opposite the large fish tanks (left) in which are housed true-to-life renditions of the actual habitat of shallow- and deep-water species. The major entranceway area (right) confides the arcaded character of the external form, while preserving and distinguishing the reinforced concrete and steel-framed vocabulary of the internal structure.

TOYOTA COMMEMORATIVE HALL

The splicing of structure and landscape is a familiar Japanese tradition, but too rarely has it found sensitive interpretation in recent times. This combined guesthouse and exhibition hall for the Toyota Motor Company, built to celebrate its ten millionth car, comes to terms with its environment, the eastern outskirts of Nagoya—tactfully borrowing its best aspects and turning inward from the worst.

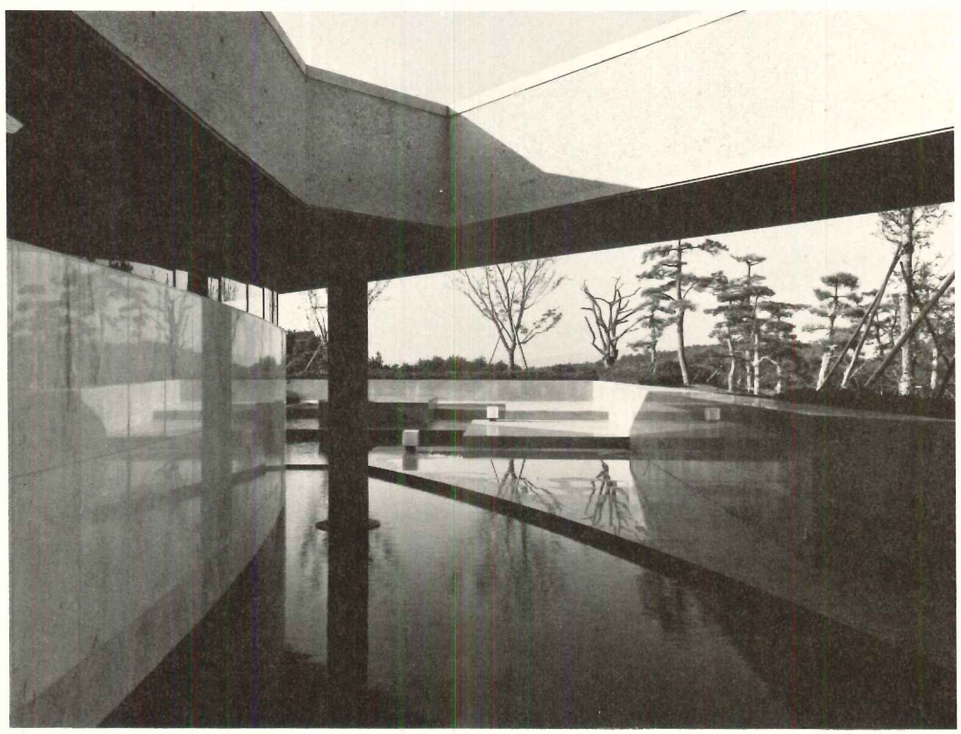
The best include its plateau-like site, at the foot of the Mikawa Mountains and overlooking Kuragaike Pond with its well-maintained municipal park. The worst aspects include the usual views of suburban sprawl, with its attendant sprinkling of commercial and leisure-time facilities.

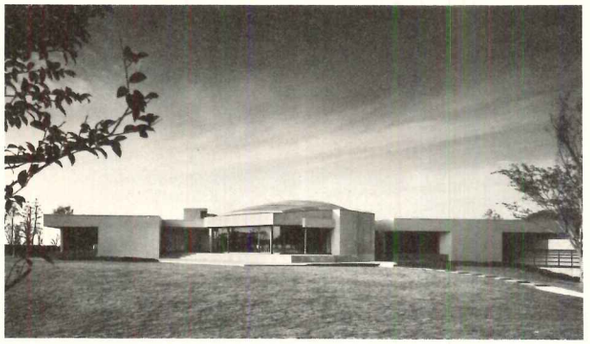
The dual functions to be accommodated demanded great dexterity from Maki as he approached the problem of taking care of both private (guesthouse) and public (exhibition hall) activities in such a way that there would be no clash and a lot of composure. In that composure, or at least the appearance of it, is still a rule of behavior and protocol in Japan, this may be said to be a traditional work in the best sense.

The plan is basically two interconnected triangles. The guesthouse, set directly on grade, is for travelers who want a serene closure to rest, talk, and have meals. The exhibition hall, on the other hand, is open to all comers and, burrowed below grade, its deeper bulk is kept in scale and proportion with the much smaller guesthouse.

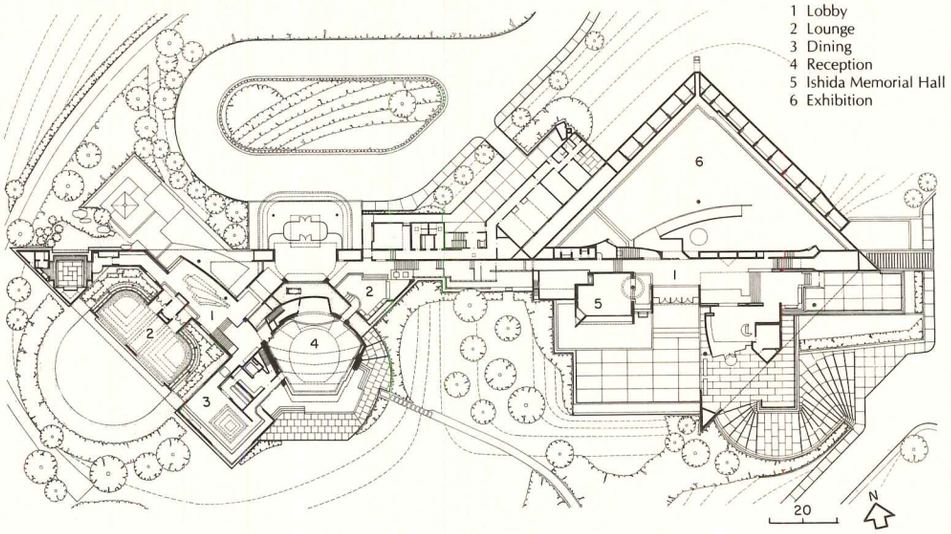
The key to understanding the design of the building is to trace the procession of space as one purpose gives way to another, each disclosing varied vistas within and around the complex. This is especially true of the guesthouse triangle into which many functions have been worked, whereas the exhibition hall triangle, apart from its lobby and the Taizo Ishida Memorial Room (named for the company's president), is essentially singular in function despite its larger bulk.

The entrance of the guesthouse on the cool northern exposure, in contrast to that of the exhibition hall on the far southern flank, gives way inside to an informal, slightly elevated lounge set at an angle to the foyer. This subtle separation between the people arriving and those waiting to greet them is a gesture of protocol, and provides a spot for gathering one's thoughts before the encounter begins. This concern for feelings is evident in Maki's use of varied, intimate, and warm spaces throughout. The so-called formal lounge, for example, looks out on a semi-circular garden of white sand that is enclosed with landscaped embankments, which conceal the view of the roofs of neighboring buildings. It was felt that such a compact, lovely, and protective space was more suitable for the arrival of small groups of guests, which are the rule here, to allow time to calm down and to settle in while admiring the attractive vista.





The Toyota Kuragaike Commemorative Hall is skillfully set into a rolling site and consists of two interconnected triangles joined by a dramatically stepped hall that is roofed over with quarterdomes of framed glass (right). The joinery between structure and landscape is carefully planned for and timed, such as the placement of this curving wall and encroaching outdoor pool (above) marking the lobby and entrance foyer of the guestroom section of the complex.



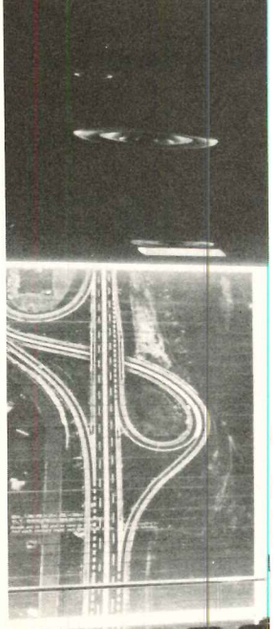
Other rooms in this section seem similarly separate, though there is frequent visual cross-reference between them by way of small courtyards. From the lobby of the formal lounge, for example, one passes by a view toward a pool outside that embraces the periphery of the building at this point. Moving down a hall that suddenly angles left, one steps into a traditional Japanese room, with *tatami* mats on the floor, which in turn reveals the far end of the outdoor pool, its surrounding garden, and the range of distant mountains. Back past the formal lounge, one enters the VIP reception room, which is a semi-circular space cut out from the southeastern edge of the triangle, while just beyond, in its apex, is a formal dining room, rising to a pyramidal ceiling configuration, with a spectacular view of Karagaike Pond—a view which has been deliberately kept to this moment. In a classic example of the old Japanese concept of "borrowed scenery" *(shakkei),* the garden outside was depressed, the landscape having been shaved just enough to secure the best view of the pond below, while the sides were built up as if to "frame" the perspective.

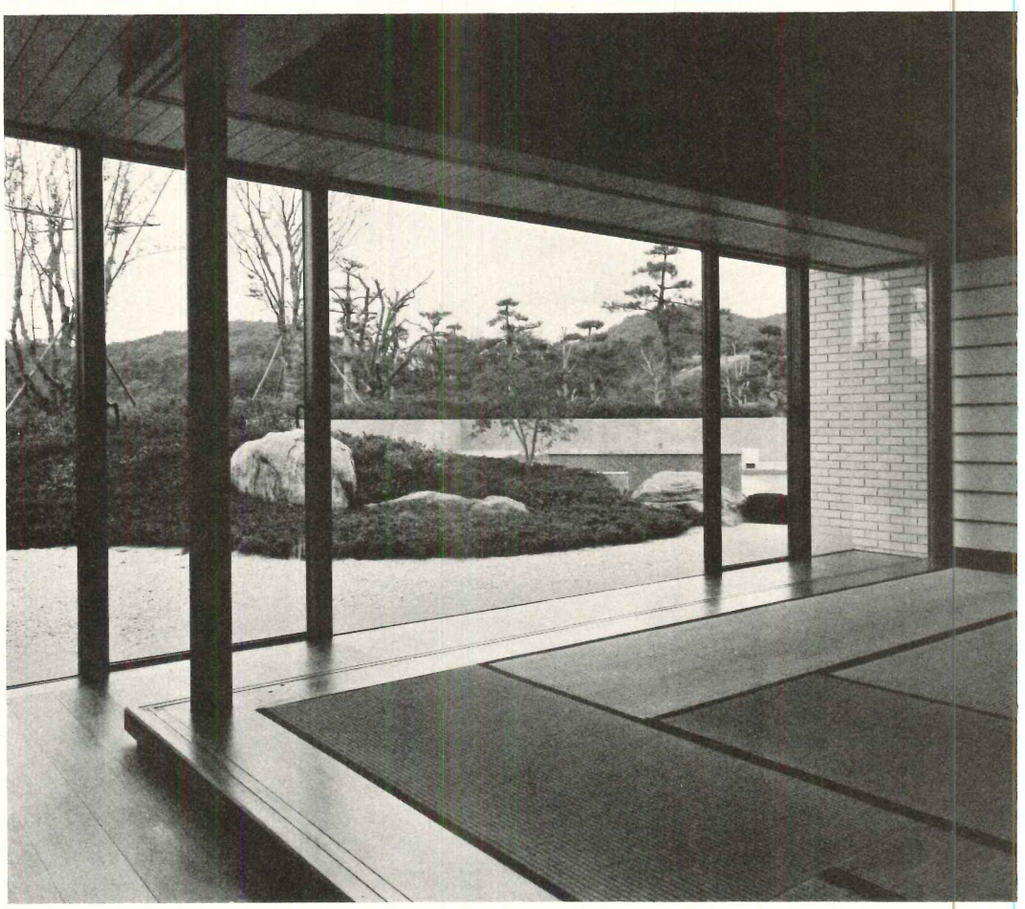
This handling of scenery goes far beyond the emulation of custom, however. Not only does it selectively cut off views of nearby buildings, such as the golf club next door, but it makes the Commemorative Hall less obtrusive on the landscape when seen from the roadway below the site. Though such selectively "framed" views to the outside are surprisingly rare—there are only nine, really—they are contrived with consummate skill, as is the location and timing of one's encounters with the internalized courtyard spaces. Taken with the variegation of shape in the rooms themselves, this framing of outside scenery and inclusion of indoor splatches of it conspire to make the building seem far bigger than it is and its rooms seem at once intimate and expansive.

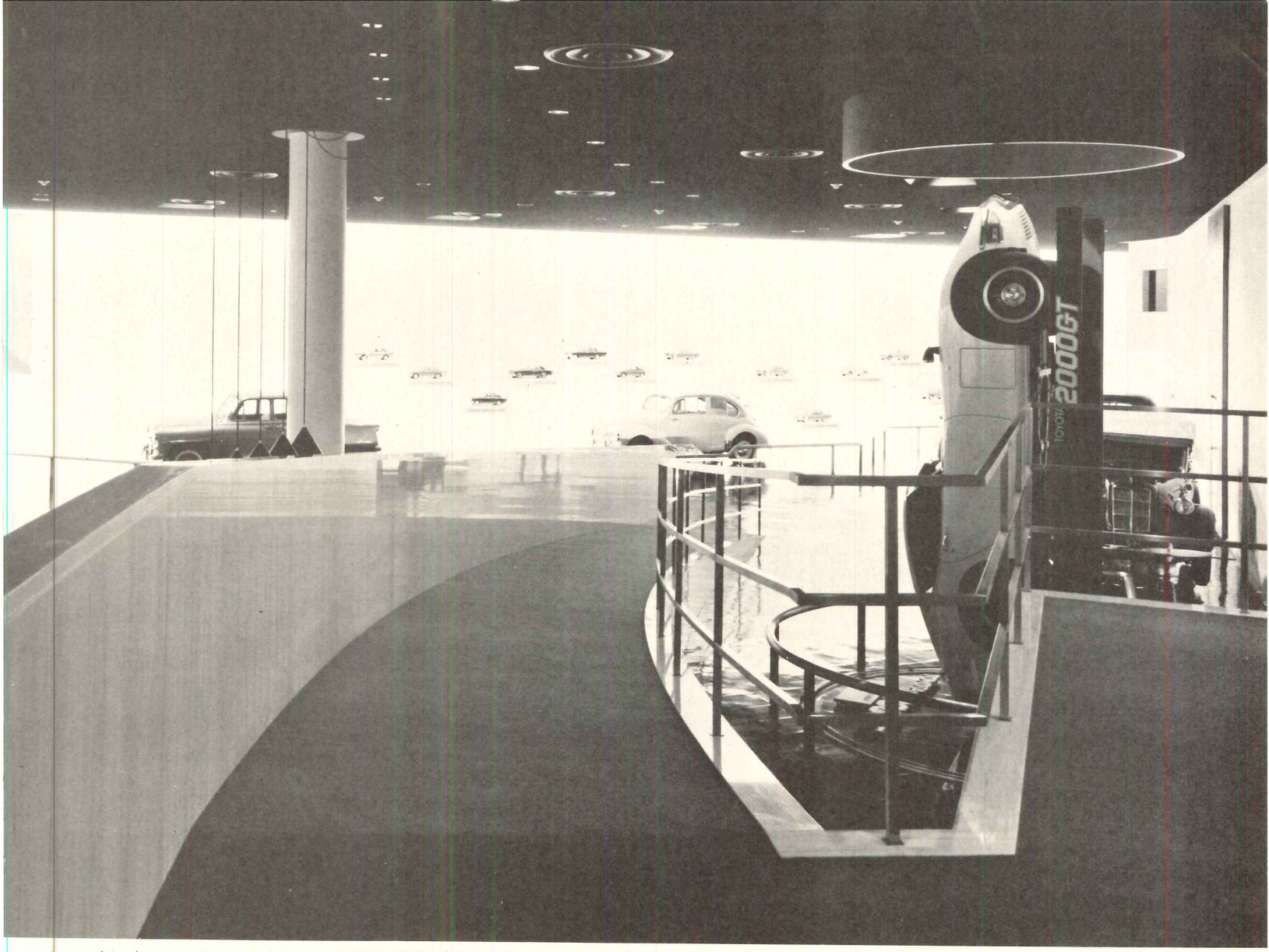
The guesthouse triangle is connected to the exhibition hall triangle by a long straight hall which, taking advantage of the site, steps down gradually and, now and again, looks out on the landscape. Overhead are quarter-domes of framed glass that lend an almost fanciful dimension to the business of walking from one triangular zone to the other. In no sense, though, is this suddenly capricious, for this bright and airy ambiance prepares one for the more dim and cavernous area of the exhibition hall itself. Entering on a mezzanine level, a curving downward ramp then feeds into the angular space.

The two side walls of this triangle are illuminated by skylights and artificial lighting, and over a dozen large glass plates, with illustrations emblazoned on them by Shinya Izumi, a collaborator of Maki, enliven the expansive surfaces. Again, in an honored Japanese sense, this part of the building succeeds in seeming bigger than it actually is and, at the same time, sublimating itself in the terrain.

TOYOTA KURAGAIKE COMMEMORATIVE HALL, Nagoya, Japan. Client: *Toyota Motor Company.* Architects: *Maki and Associates.* Engineers: *Kimura (structural); Sogo (mechanical).* Contractor: *Takenaka Komuten Co.*







Located in the second triangle of the complex, downhill from the guesthouse section, is an underground exhibition hall (above) with skylit spaces. Returning uphill, a variety of guest rooms are composed within that triangular plan, including the lobby of the formal lounge with its view of an outdoor pool (middle left), a traditional Japanese room with garden views (upper left), and a magnificent formal dining room for which the most spectacular view of all is saved—Kuragaike Pond (lower left). Typical of the overall composure of the building, a stepped up waiting room, off from the entrance at an angle (right) is a place of poise as people meet each other and, by way of the building, the beauty of its surroundings.

ARCHITECTURE AS HUMAN EXPERIENCE

By Heather Willson Cass

The three buildings by Fumihiko Maki shown here skillfully blend the material means of expression with an intuitive, interpretive response to the nature of their locale and use. They are metaphors—a sense of structure as a semblance of life.

Although his work has not been widely published in the United States, Maki, at 47, is not a newcomer to the international scene. A 1952 graduate of Tokyo University, where he worked under Kenzo Tange, Maki entered Cranbrook Academy the same year, receiving a Master of Architecture degree in 1953 and, the next year, a second Master's from Harvard's Graduate School of Design, where Joseph Lluis Sert was his mentor. After Harvard, he worked for Skidmore, Owings & Merrill and then for Sert, Jackson.

In 1956, accepting a teaching position at the Washington University School of Architecture, in St. Louis, he became the first member of a notable young faculty being assembled by Joseph Passonneau, the new dean. Until 1962, except for travel in Europe and Asia in 1958 as a fellow of the Graham Foundation, he taught urban design at Washington, returning to Harvard as an associate professor until 1965.

During this period, Maki focused primarily on the principles and problems of urban design. In 1960, with several other young Japanese architects, he brought out a booklet called *Metabolism,* dealing with the design of future cities. The title was not meant to have a "far-out" connotation but, really a "far-in" one, for it expressed the idea that growth, change, aging, replacement, and regeneration—metabolic processes—are as natural to human habitation as to human beings, and that the design of cities should express and allow for these processes.

This idea is basic to Japanese thought, and its contrast with that of the West is symbolized by the traditional attitudes of the two cultures toward sacred places. In the West, temples and churches have been built in stone, as if to shelter inviolable truths and irrevocable realities. But in Japan, shrines, like that at Ise, have been built of unpainted wood which—like all living matter—is subject to the metabolic cycle. Ritualizing this, Ise, first built in the seventh century, was *designed* to be destroyed and reconstructed, of new wood, every 20 years. Thus, this most sacred of Japanese places—very old and very new—embodies the dualism of impermanence and continuity.

The five "Metabolists," as the group came to be known (RECORD, Sept. 1970) were architects Kiyonori Kikutake, Noriaki Kurokawa, Masato Ohtaka, critic Noboru Kawazoe, and Maki. While they shared a commitment to yet a second dualism—principles of design informed by processes of technology—the essays in the booklet were no more of a single philosophical piece than, say, the emphasis and direction of the so-called New York Five, with their predisposition for Corbusian precedent, or of the "contextual" tenets of Robert Venturi, Romaldo Giurgola, Charles Moore and their offspring. Such differences are undoubtedly related to the varied influences to which the Japan Five had been exposed, and all except Maki had studied and worked exclusively in Japan. It is not surprising, therefore, that his essay, "Toward Group Form," written with Ohtaka, attempted to reconcile the deterministic object-oriented tradition of the West with the indeterminate evolution-oriented tradition of Japan.

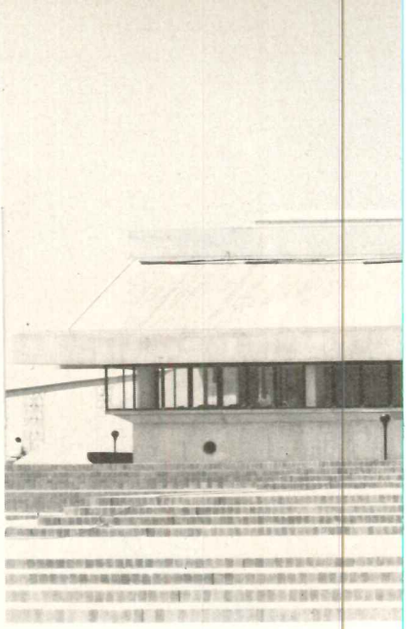
Their essay proposed groupings of buildings to create a total image which would endure, even as specific elements of the "group form" are adapted or replaced over time. Although the proposal rejects the Western image of "image"—single, static, complete enclosures for one function or another—it does not deny the value of such structures as consciously positioned *elements,* pointing up the over-all character of the larger physical and social configuration surrounding them.

The other proposals in *Metabolism* adopted a more literal translation of the traditional Japanese perception of "process." Kurokawa, for example, proposed self-contained "living cells" with a planned life cycle, existing in a medium which would supposedly unite these cells and express continuity from one generation to the next. Although few examples of this approach have been built, Kurokawa's photogenic experiments have come to symbolize the Metabolists and, to the extent that they do, Maki's work is far removed from them now, what with so many products of this process-oriented school being celebrations of high technology rather than evocations of existing environmental patterns. "Group form," as conceived by Maki and Ohtaka, and developed in two of Maki's later booklets published in the U.S.—*Investigations in Collective Form, Movement Systems in the City*—deals pragmatically with such patterns. Which is why it may be ventured that Maki's approach is more applicable to helping solve the problems of urban regeneration.

The essay of 1960 predates the complexity-and-contradiction thesis of Venturi and the "partial-vision" pathway of Giurgola. Yet there are unmistakable, tantalizing similarities which relate to a common concern for acknowledging that unevenness and unpredictability of the physical environment which Maki called the "honky-tonk"—which is to say, the innate variety and vitality of city life.

It is almost as though an underground conceptual river, transversing familiar barriers of culture, had started spouting to the surface like artesian wells. With his concern for what Giurgola would soon be calling "connectivity," Maki was not merely anticipating an imminent theoretical shift in architecture but also verifying the validity of something larger and more enduring than any *one* practitioner. No one person was, in the early 1960s, "discovering" a principle of architectural and urban de-

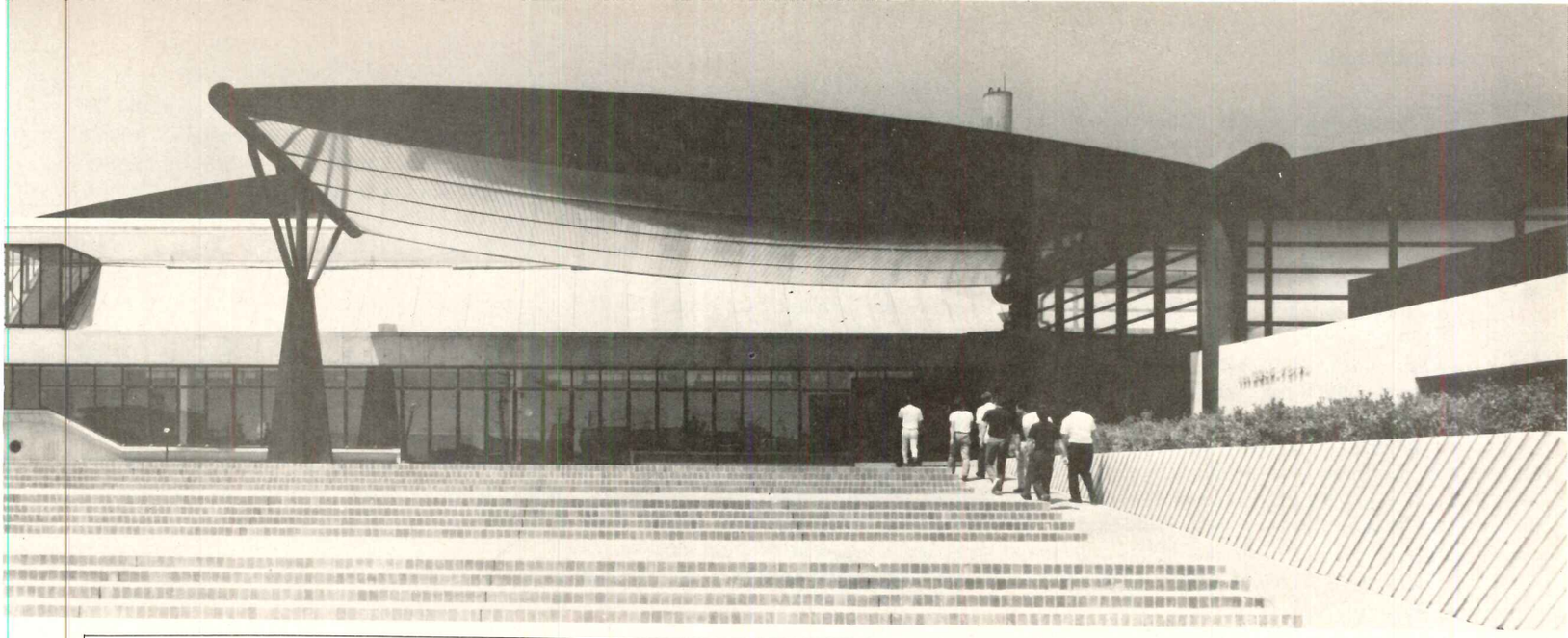
Mrs. Cass, an architect and assistant professor at the University of Maryland School of Architecture, recently worked in Japan as a fellow of the Luce Foundation.

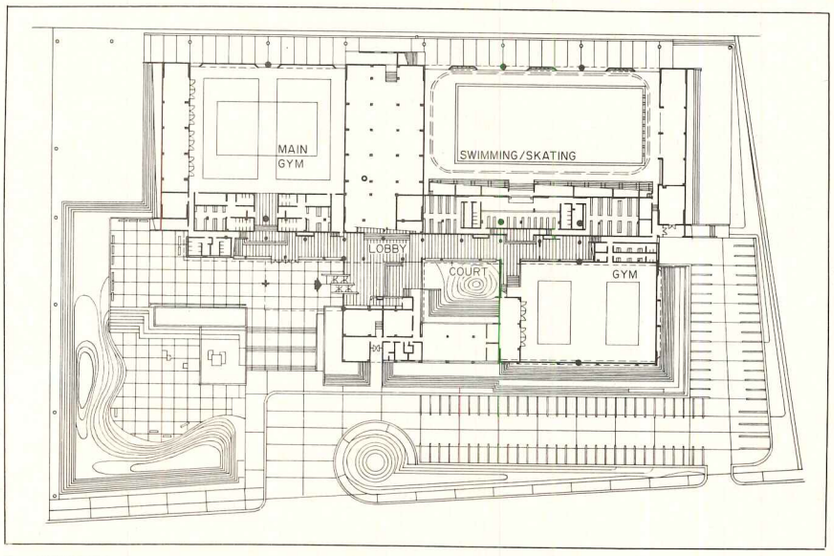


Osaka Prefectural Sports Center

Set alongside a canal that divides the industrial belt of Rinkai from a close-grained urban neighborhood, this facility is sewn into the environmental fabric and acts as a transitional seam between the factory and housing districts. In a country given to physical culture—from *jiu-jitsu* to basketball—the sports center is a popular community outlet with a main gym for basketball, volley ball, and other indoor activities; an indoor pool that doubles as a skating rink in winter; a second gym; and various meeting rooms, lounges, offices, and restaurants. It is as an exercise in urban design, however, that the building, wrapped around an internal courtyard (middle right), really shows its stuff. The "butterfly" roof structure, composed by girders of weathering steel, was fabricated on grade and hoisted into place in just 12 days. This configuration, fluttering from huge tubular roof beams carried on columns, conveys the industrial imagery of the factories and, with its large curving girders, relates well to the roofs of the nearby neighborhood. Inside, as seen in the pool room for example (lower right), the structural system reads as a light, elegant tracery. Outside, as seen at the entrance plaza for example (above), it proffers itself in the friendly fashion of an old-time front porch, succinctly explaining the larger vocabulary of the building with a couple of elements that point toward the higher roof elements. This sports center, like the National Aquarium (page 70) and the Toyota Commemorative Hall (page 74), is as exacting as it is innovative in material terms but, as important for the future, it is a metaphor alluding to the actualities of the physical environment.

OSAKA PREFECTURAL SPORTS CENTER. Client: *Osaka Prefectural Government.* Architects: *Maki and Associates.* Engineers: *Shigeru Aoki Laboratory* (structural); *Sakurai Architectural Engineers* (mechanical). Contractor: *Zenitaka-Gumi Construction Co.*

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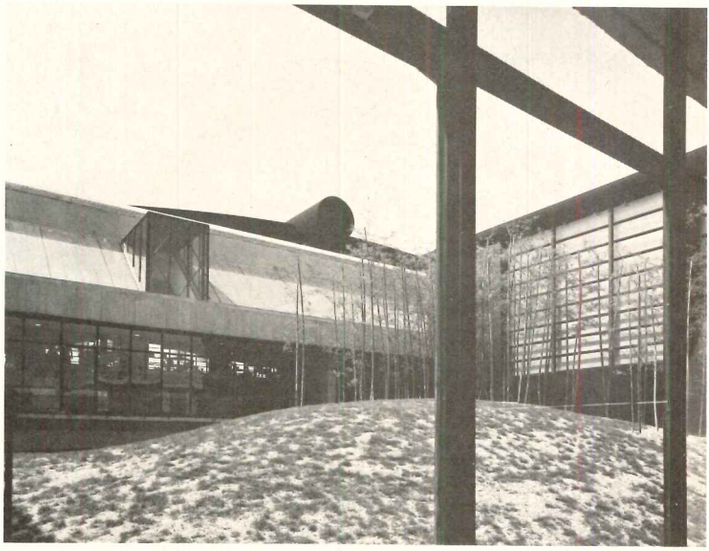


sign, though many, Maki included, were simultaneously perceiving a principle that is now being characterized with the terms "contextual," "inclusivistic," "associative," or "incremental"—a principle engendering architectural elements that engage the gears of the given environment rather than stripping them through violent shifts in scale. Maki must be considered one of these artesian wells, spouting from a source that was, at the same time, nurturing cultural terrain far removed from his own origins.

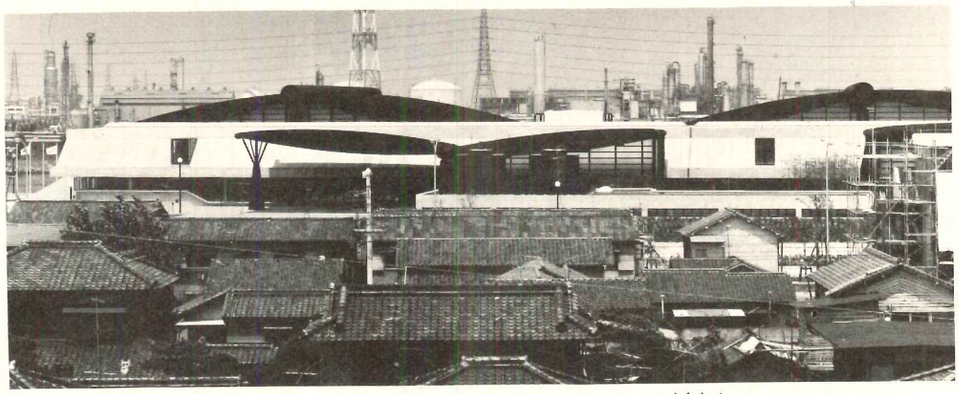
It was as an associate professor at Harvard that Maki developed specific architectural proposals with which to try out his perceptions of urban reality. One was for a "City Room," a cynosure of life with all of its elbow- and idea-rubbing, at the exchange point of a city's transportation systems. The form, plaza-like in scale, was roofed for year-round use. Providing for human proximity, it expressed space as *place*—the traditional Japanese conception that space, and what goes on in it, is the true reality of material boundaries.

Just as his exposure to Western thought had provided insights which permitted a more universal view of Metabolism, Maki's own heritage contributed richly to his thinking about the real purpose of urban design.

That discipline, as it was being taught in those years, was conceived as a necessary linkage between the individual buildings designed by architects and the statistic-strewn overview of city planners with their familiar bent for sweeping decisions. In Japanese tradition, there has been no need for such a linkage. The house, to take a simple example, was never seen as a single, complete object, but as one increment within its surroundings. Space was not defined by fixed walls. Even the humblest farmer's house set aside a niche for nature. An elaborate palace, like Katsura, had "rooms" whose material boundaries, inside and out, were literally movable to allow for the mutability of daily circumstance. Houses in this tradition were perceived, from every which-way, as part of the garden which, in turn, was perceived as part of the landscape beyond. And when there wasn't enough openness around a house for a garden, hints of openness were designed into the structural configuration by orienting certain areas toward a neighboring or even distant landscape, selectively "pruning" the environment as one would crop a photograph. Such borrowing from the natural or man-made terrain, an old concept and custom in Japan, directly relates to the present-day concern for instilling contextual properties into the design of our buildings. Indeed, for philosophical as well as applied precedents, a more earnest study of Japanese art, architecture, and letters would seem to be in order for anyone trying to create a more coherent body of theory out of the welter of words currently associated with the contextual approach to design.

By 1965, with two cultures under his belt, Maki returned to Tokyo, opened an office, and quickly branched out from the trunk of urban design. In addition to the three buildings shown here, his most important works in recent years have included several small complexes, many individual buildings, and some larger-scale projects. Yet the theoretical thread running through this work, that still-developing idea of what urban design consists of, pulls all of these efforts into a legible, consistent pattern. Maki is not an architect *or* an urban designer. He is an architect *and* an urban designer with a sense of the accountability that an individual building must express to its environment, going beyond the physical limits of its site to assess the wider ramifications of scale. Maki is a student of the word *and* a maker of connective elements—all of his buildings being "urban design."

It is thoroughly consistent, then, that a specific style or "look" has not emerged; at least in the sense that most people think of style. But if we were to think of it, as Frank Lloyd Wright once suggested, as being similar to integrity—internal, integrating—then we can definitely say that these works, and many others born of similar perceptions, have true style as opposed to *a* style.



Osaka Prefectural Sports Center threads through a contrasting environmental fabric.

The Osaka Prefecture Sports Center illustrates (above) this, mediating between a heavy industrial belt and, across a channel, a cluster of low traditional-style houses. Instead of sauntering into place with a sanctimonious air, it discreetly establishes a "buffer zone" between incompatible uses of land, deriving its form from both the glass and steel of the industrial plants and from the curved roofs of the houses. While reality is not refuted, its harsher aspects are redeemed. The physical and cultural context both contribute to and place constraints upon subjective design impulses.

Another dimension of Maki's approach must be measured here—"social" contextualism. Formal properties derive from a frank acknowledgement of the many ways, specific as well as not so specific, in which people will use a building, and this is very interpretive. In this sense, the architect must do more than register the physical facts of the surroundings as the design concept unfolds. He must *imagine*, in as objective a way as possible, how people thereabouts will most likely experience what he is setting about to do. A critic Yuichiro Kojiro has put it, this process of perception and surmise postulates "a developmental relationship between human actions and architectural spaces." Furthermore, this relationship is reciprocal, producing at least two identifiable design strategies. The first considers how people would inhabit the building—a notion of some lineage in Japan which can be described as the "imagined landscape." The second strategy considers how people would be affected by the building they inhabit—a notion of "primary landscape" wherein neutral spaces, not unlike neutral particles in physics, are inherently susceptible to being "charged" by the presence of people.

"Imagined landscape" is like conjuring up a stage set, following the actors about, taking cues for design from their interaction. Which is why Maki enjoys the analogy of the architect to the director of movies who develops a mental image of how elements of his unreeling drama are sequenced. The "primary landscape," a term found in literary criticism in Japan, is Maki's strategy for figuring out what mental images of the environment are built up in people—children are a particular concern here—as they experience what he has created. "The issue is how to create spaces," says Maki, "which permit flexibility of use while preserving their own individual character beyond the duration of any one function." He feels it is as vital that a building give people a positive "charge," an imagery to hang onto, as it is to allow for changing uses. Indeed, many buildings are so flexible, so superbly practical and packaged for impermanence, that they really do not exist at all. People may do any number of things, very efficiently, within a building's boundaries, but there is nothing for them to take away from the building—no enhancing, orienting association in the "mind's eye" which can gradually leaven the way they see the world around them. This kind of concern *is* "romantic," but in an exacting, functional connotation. Its imagery of positive human benefit does not pre-determine forms vying with function but generates forms that allow spontaneous "reprogramming," as Louis Kahn put it—people using space for purposes that were not on the list of things to allow for. In Japan, such "romantic" concerns have never been thought of as unrational; neither were they in the work of men like Wright and Aalto, whose sense of style—of integrity—is only now beginning to be fully understood for its philosophical value. Indeed, it is the tired tenet of so-called rationalism in design that is in need of a richer connotation.

Fumihiko Maki's work offers a humanistically derived format for function, a format with fit in the everyday environment. It is not architecture as object; it expresses and serves the object *of* architecture—human enhancement. An "objective" architecture? At last. Perhaps it is what the modern movement was trying for.

And then there were twelve . . . The

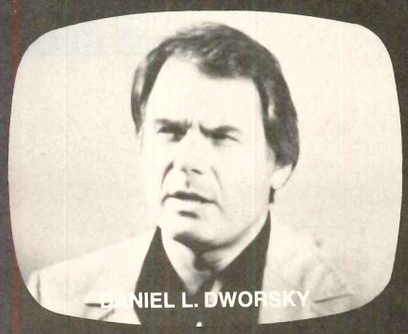
LOS ANGELES 12

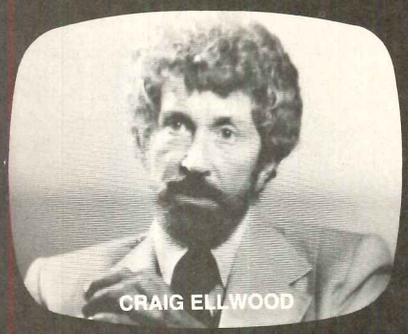
A new traveling exhibition shows that—in thought and deed—architecture is alive and well in the city of angels.

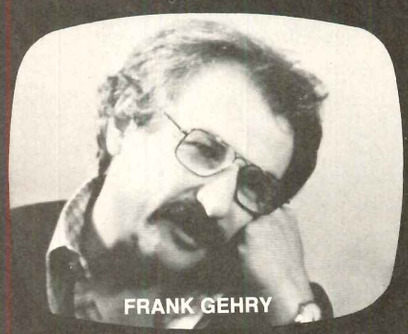
Environmental Communications

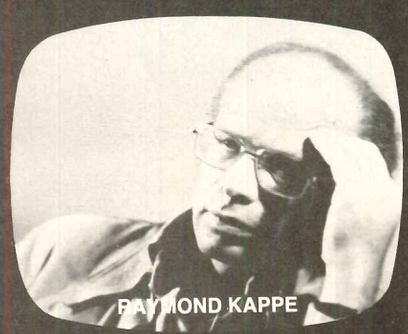
First there was the New York Five, then the Chicago Seven, and now—with a numerical proliferation that befits the nation's largest urban sprawl—the Los Angeles 12. The most benign so far of the local architectural number groups, the 12 are Roland Coate, Daniel L. Dworsky, Craig Ellwood, Frank Gehry, Raymond Kappe, John Lautner, Jerrold Lomax, Anthony Lumsden, Leroy Miller, Cesar Pelli, James Pulliam, and Bernard Zimmerman. Whereas much ink was spilled trying to discern what groups like the New York Five had in common (RECORD, February 1974, pages 113-116), the Los Angeles 12 candidly admit that what they have in common is nothing, save the fact that all of them work in Los Angeles. Diversity—in scale and quantity and kind of work, as well as in style—is a key to the group, just as perhaps it is a key to their city. And whereas other architectural groups of this kind have been accused (correctly, many think) of creating a media non-event with the merest of public relations hype, the Los Angeles 12 blithely confess that public relations is one of their goals. "The purpose of the Los Angeles 12," says Jerrold Lomax, "is not to show that we are the only good architects in Los Angeles, but to show that there is good architecture being done here."

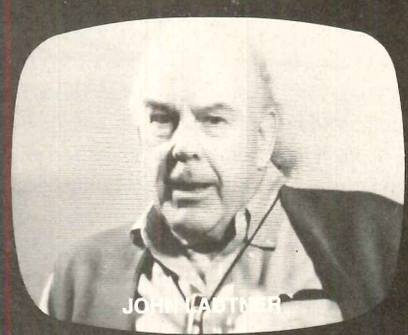
The Los Angeles 12 idea is the brain child, two years in gestation, of architecture students at Cal Poly in Pomona, who wanted to document some of the better architecture being done in Los Angeles, and who focused on the work of architects who had been practicing there for at least twelve years. The result of their work is an impressive exhibition, which opened in Los Angeles in May, which then moved to the Aspen International Design Conference, and which is traveling thence











Morton Neikrug photos

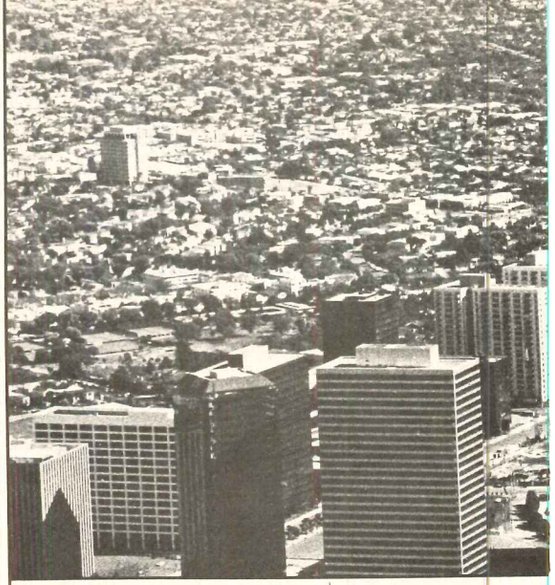
throughout the United States and to London. The exhibit consists of various video-tapes, slide projections, a photographic history of Los Angeles, and photographic and model displays, which describe the 12 architects' backgrounds and attitudes as well as their work.

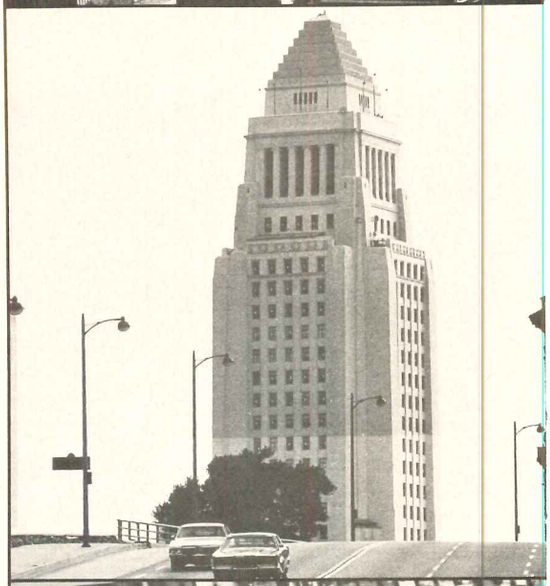
One of the things that is particularly interesting about the Los Angeles 12 is that they are in Los Angeles, a city that has lately acquired a lot of snob appeal in some quarters. It is fashionable nowadays, for instance, to prefer the cacophonous splendors of Los Angeles (as captured, say, in Michelangelo Antonioni's film *Zabriskie Point*) to the softer and more traditional blandishments of a city like San Francisco. Or, if you are one of the group of enthusiasts led by the English architectural critic Reyner Banham, it is fashionable to prefer Los Angeles to just about anywhere else in the world. For those in the know, Los Angeles is in, it is chic, and—we are led to believe—it is unique.

To think this, though, is slightly to miss the really important point about Los Angeles, which is not that it is unique, but that it is in many ways typical—the twentieth-century American automobilistic city *par excellence*. Los Angeles, the old saw goes, is a series of suburbs in search of a center. It has very few really large-scale buildings or public places; instead it has what seems an infinite expanse of small-scale events, almost randomly conjoined and tied together by streets and roads, and by the world's largest freeway system. The result is a vast suburbanistic sea, a man-made environment of extraordinary visual power (if not of conventional beauty) that is characterized by wild juxtapositions, jolting jumps of scale, and, as a whole ensemble, by a truly thrilling blandness. "It looks about a foot and a half high and five hundred miles wide," one observer noted. And architect Charles Moore, a Los Angeles resident, has called it "the world's largest and most expansive floating environmental crap game"—a remark that can be understood by remembering that crap games can be fun.

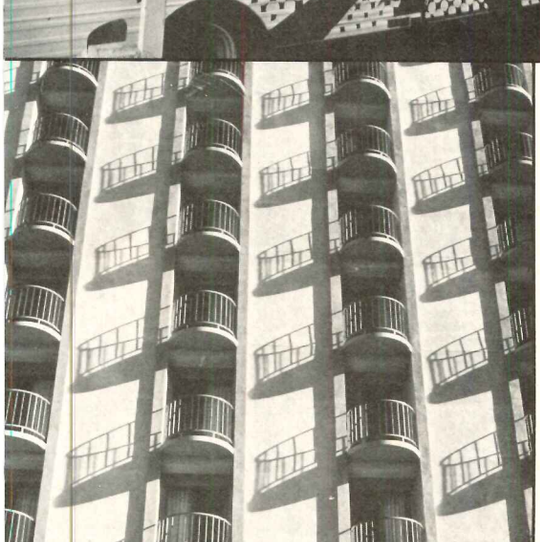
Apart from the freeways themselves (which, as many people have pointed out, often approach the level of high art) there has been in Los Angeles a minimum expenditure of care in the public realm. Anthony Lumsden, one of the Los Angeles 12, explains it this way: "For the first time in history, the common man has access to things that only kings had access to previously. Historically, most environments that are pleasurable have been achieved out of the hard labor of the common man, but today in America —and especially in Los Angeles—there is a democratic expression of the appetites of people. There is a tendency for each of the people to have a Versailles of his own. In Los Angeles, the ordinary man has not perceived the lack of community; the next appetite will be for community priorities, once there is a satisfaction of individual priorities."

So far, though, the community priorities do seem to have been slow in coming in





Environmental Communications photos

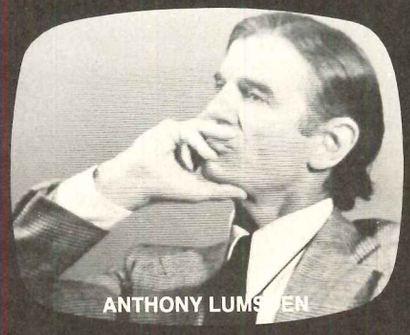


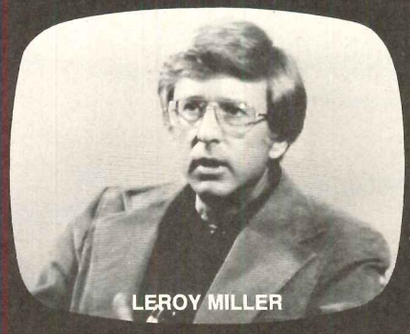
"Most of the architecture built in a community like ours is not really controlled by the architect; to some degree the work of architects affects the total picture, but the momentum of the whole is greater than the work of the individual."—Dworsky

"Why is our work missing here? What are we passing by, what aren't we doing? What aren't we listening to?"—Gehry

"In many cases architecture is limiting itself by particular esthetic interests that don't allow it to be involved with very, very many important disciplines in nature and in society."—Lumsden


JERROLD LOMAX


ANTHONY LUMSDEN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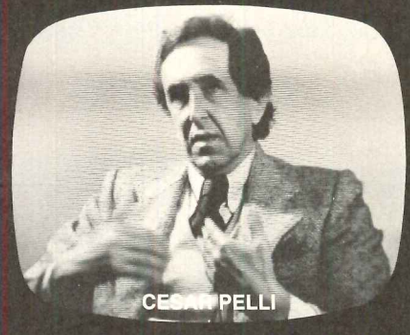
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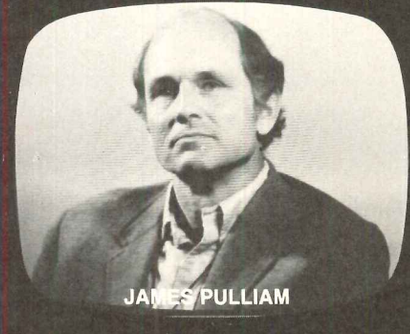
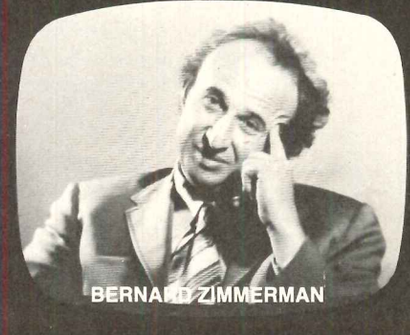

JAMES PULLIAM


BERNARD ZIMMERMAN

Morton Neikrug photos

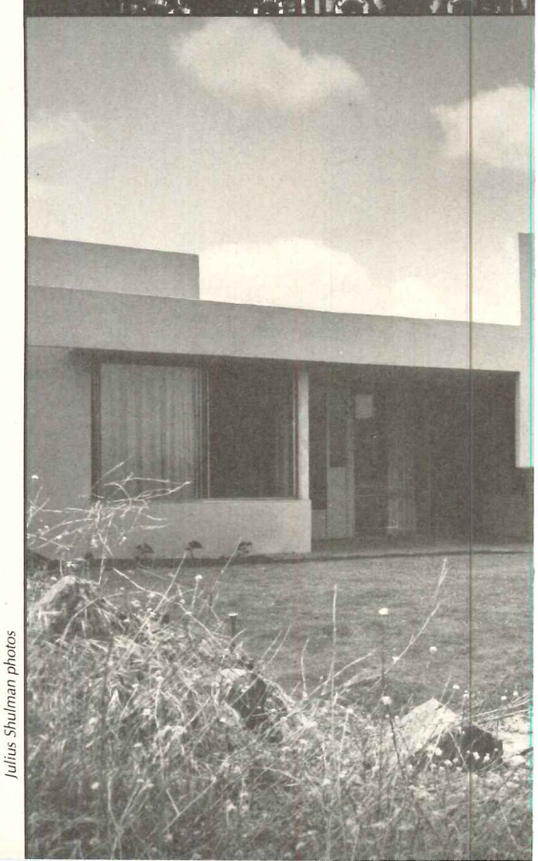
Los Angeles, and the whole city—like, indeed, so many American suburbs—seems a disorderly mishmash that is, at least in conventional terms, "unplanned." It is a collection of bigger or smaller, more or less convincing palaces of Versailles—little oases of private pleasure connected by driveways to the rest of the urban/suburban network.

The question for architects is this: what meaning do the traditional concepts of architecture and planning have in a setting like this? Indeed, since the setting is in so many ways typical of so much of the recently built environment, what meaning do these concepts have, period? What does "context" mean in Los Angeles? Or what does "order" mean, or "hierarchy," or, for that matter, what does "planning" mean? Los Angeles, of course, does not provide any straightforward answers to questions like these (and perhaps the fact that it provides the questions is enough). What it also provides, in addition to the questions, are some unsettling delights. "The best housing in Los Angeles," says Roland Coate, "is done by anonymous builders. What I like most are the streets where the houses go all the way from Gothic to International Style, rambling on and on for block after block with what appears to some people pure anonymity, but what appears to me to be an exciting fantasyland to wander through. If you go to Bel Air you can see it at the million-dollar level, and if you go to Culver City you can see it at the twenty-thousand-dollar level. But the fantasy is essentially the same."

The excitement of Los Angeles—and the fact that it is an excitement that flies in the face of much conventional wisdom—gives the city its power and its interest. Roland Coate, again, puts it this way: "When you talk about architecture in Los Angeles, you can't escape the fact that this is a fantastically easy city to live in because it is one of the easiest cities to move around in. I see people coming from the East all the time, and it takes them about a year to get over their New York attitude. Then suddenly they're having a great time."

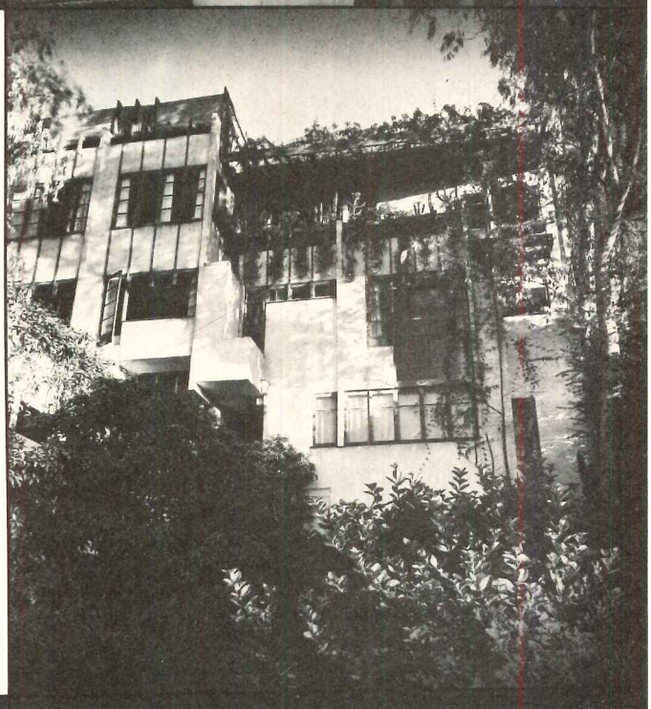
Los Angeles, if it still has not discovered its center, seems at least in recent years to have discovered its identity. The Los Angeles 12 exhibit shows, encouragingly, that architecture and architects are a part of it. An ironic footnote, however, to all of this—obvious, but necessarily added—is that that identity may have been achieved as Los Angeles (and cities like it everywhere) nears its last gasp, for there is the unpleasant fact that without gasoline cars cannot run, and that without cars Los Angeles can't run. And, unlike the remains of ancient cities visited by tourists, Los Angeles, without its people and its cars and its activity, will make a lousy ruin.

Another point to the Los Angeles 12 exhibit is this: it is good, for a change, to see architects confidently promoting themselves, their profession, and their city. So here is a message to the Boston 21, the Buffalo 3.2, and the Wyoming 1: Please let us hear from you.

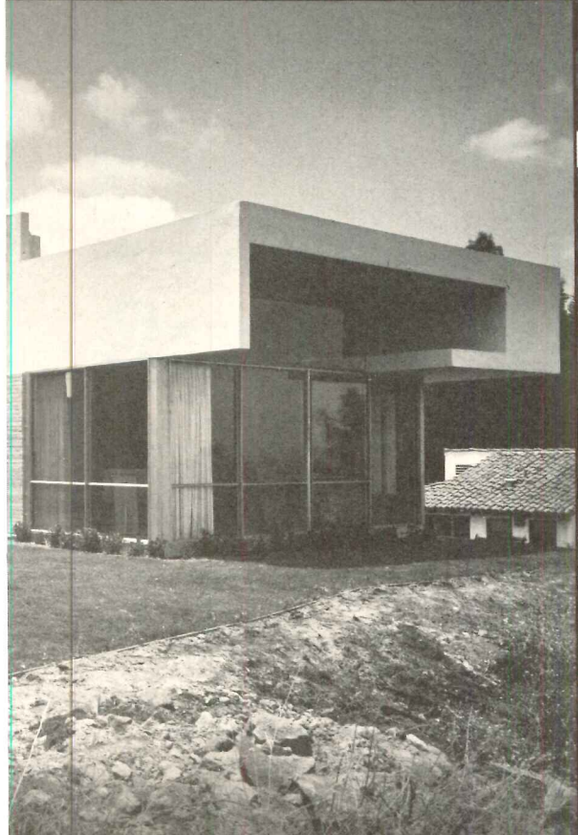


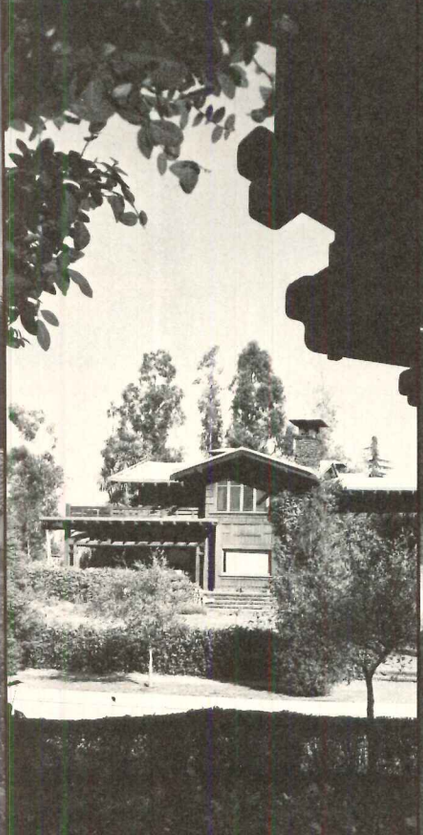
Julius Shulman photos

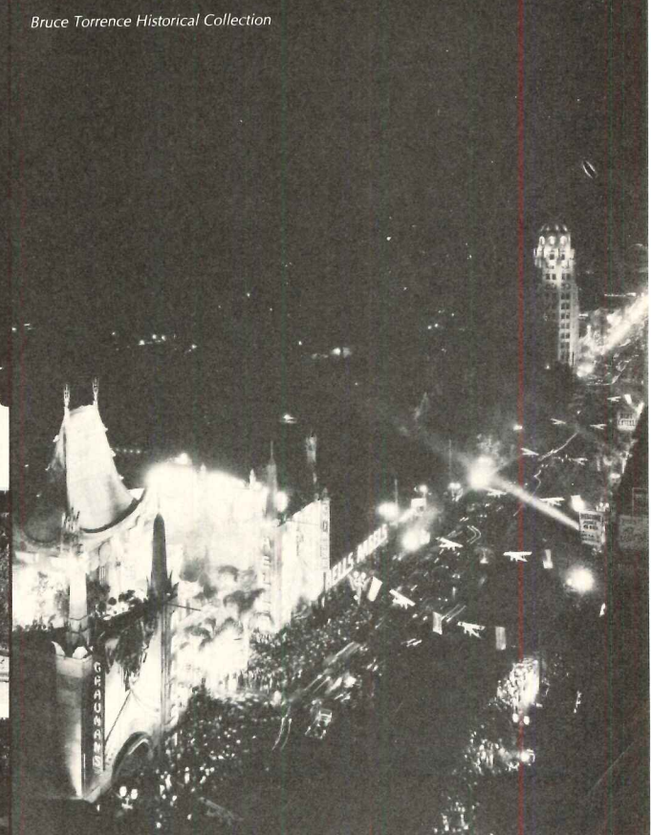
"The things that stand out in Los Angeles are the individual's expression. At the turn of the century, architects were artists and were considered individuals, and they practiced as individuals, and they did individual buildings. I would like to see us return to the art in architecture. We had it, and we ought to get it back."—Gehry



Bruce Torrence Historical Collection





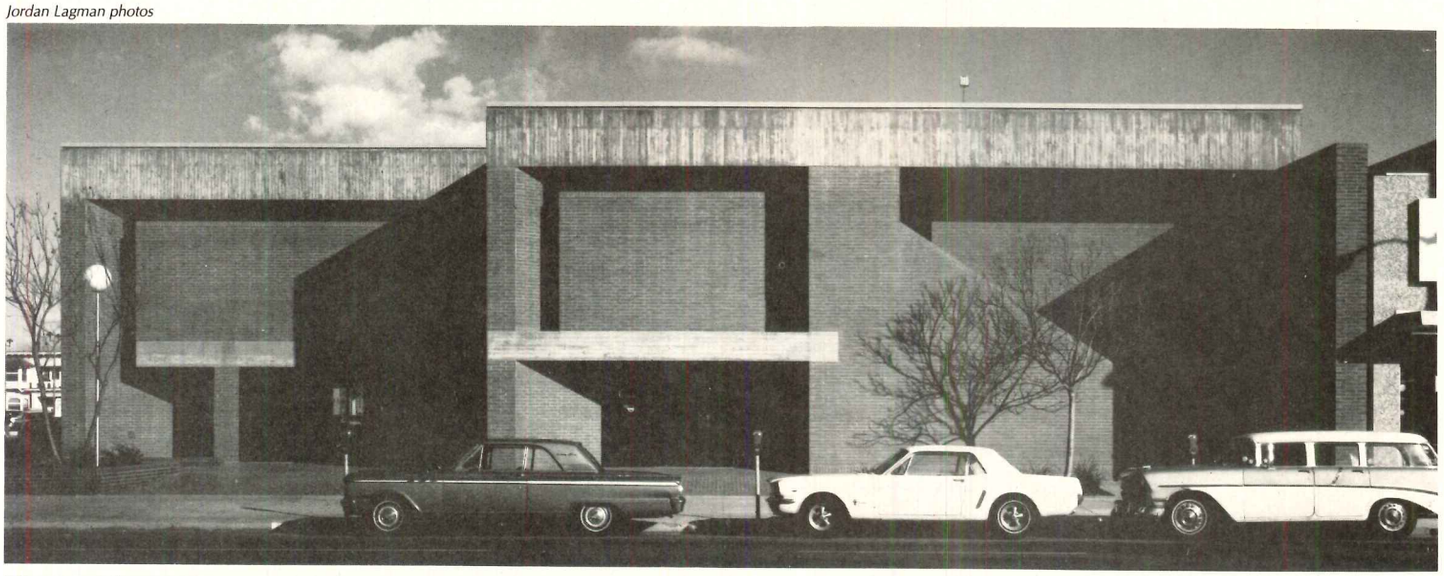


Some of the architecture shown in the traveling exhibition: The work of the Los Angeles 12 is as individual and diverse as Los Angeles itself

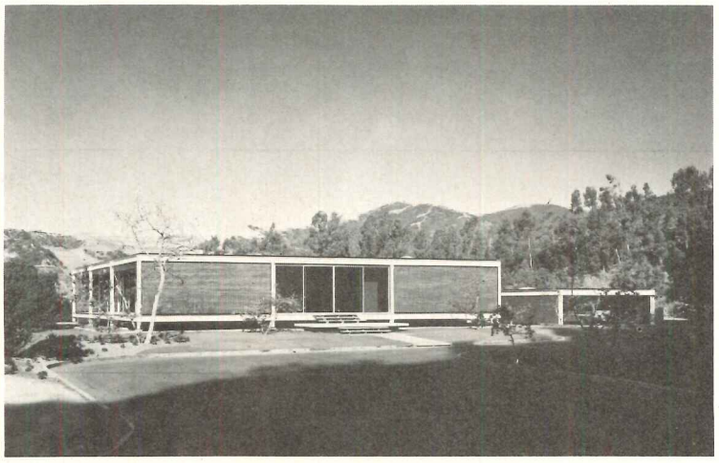
Jesse Alexander

ROLAND COATE, having designed many single-family residences, has created a strong, dominant form for the Jesse Alexander house (above and left). Constructed of concrete for fire protection (a material which also represents to Coate the symbolism and technology of Los Angeles' omnipresent freeways) the design evolved from a desire to achieve a sculptural form while maintaining functionalism. The configuration of the house is a result of its burrowing into the hillside, partly as an experiment in energy conservation. In order to intergrate the house with the site even further, some sections have been covered with earth.

Jordan Lagman photos

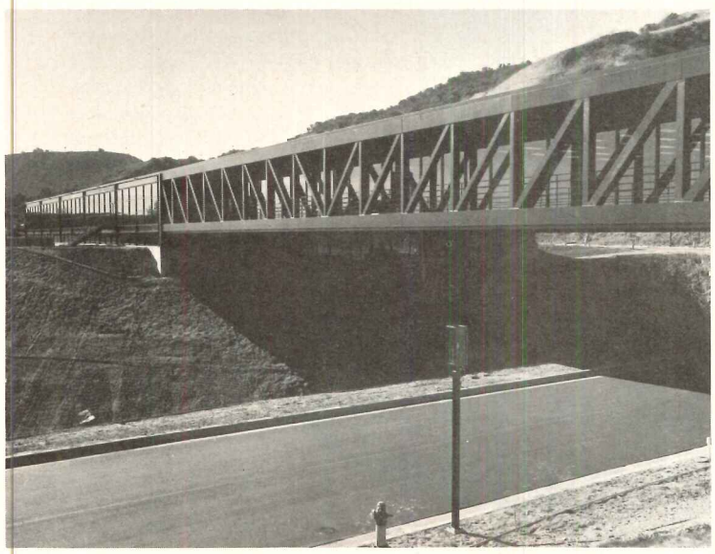


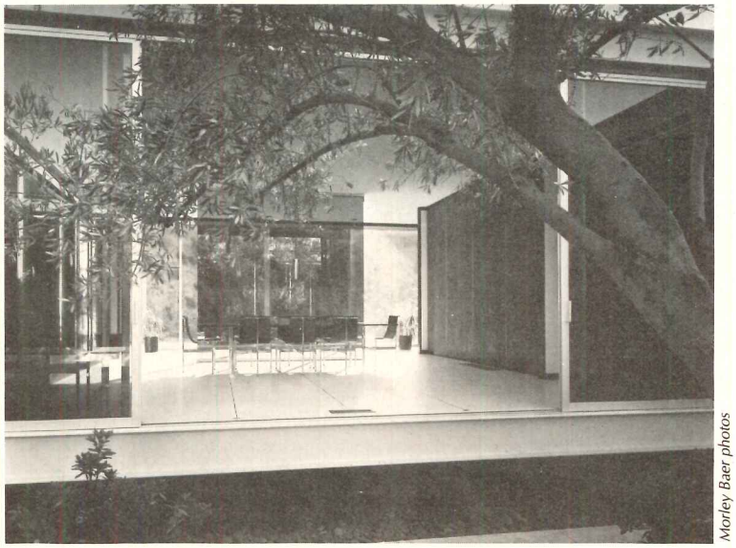
DANIEL DWORSKY of Daniel Dworsky & Associates, emphatically believing that "form should follow (a building's) comprehensive functions," has designed this branch bank in Long Beach (above and left) with a bold simplicity in appearance, which also, functionally, permits an abundant quantity and quality of natural light to enter the main banking floor. For a corner lot in Long Beach, Dworsky designed a T-shaped building, allowing a small plaza for people on this heavily trafficked commercial street. The configuration also allowed space for an exterior staircase leading to a community room on the upper floor, often used at night. The use of glass on the rim of the building's perimeter, at street level and nearly surrounding the front brick panels, permits light into the interiors in an interesting pattern. While the exterior exudes a strong image, the massiveness of the interior banking floor is softened by the amount and quality of light. Three large skylights enhance this feeling, adding yet another dimension.



CRAIG ELLWOOD of Craig Ellwood Associates firmly believes that "the spirit of architecture is its truthfulness to itself—its clarity and logic with respect to its materials and structures." His designs reflect this philosophy and are exceedingly spare, with great clarity and simple directness of form.

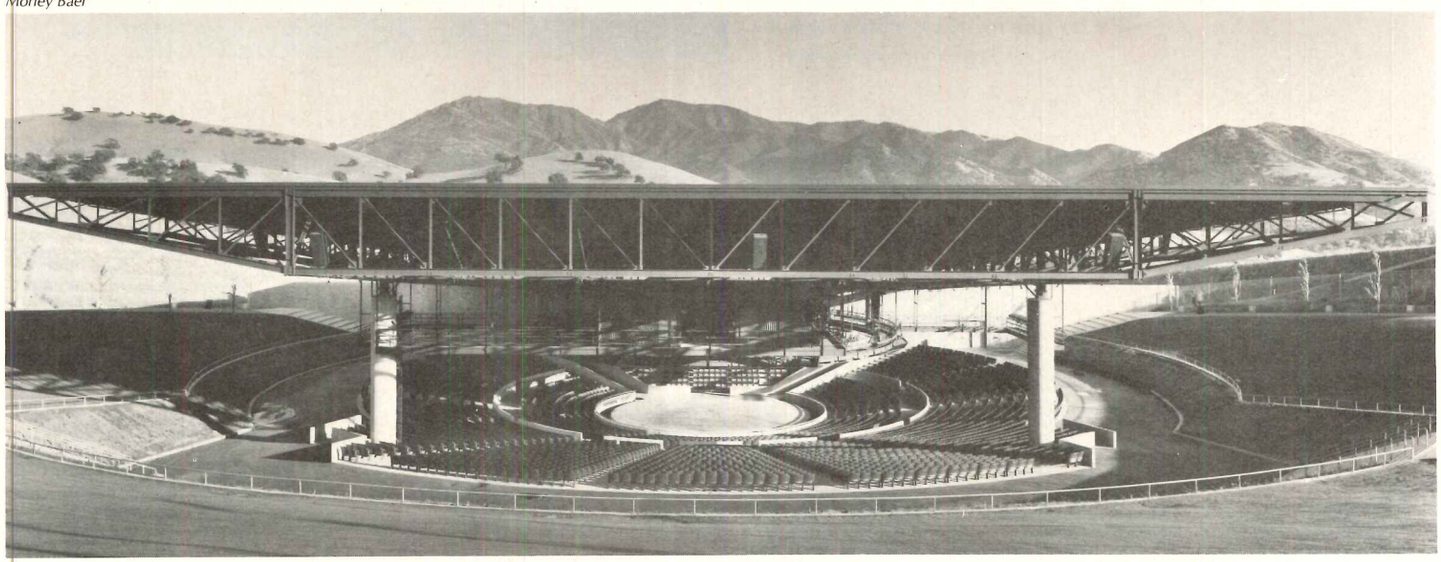
The firm's most recently completed project is the Art Center College of Design in Pasadena. Located in the foothills overlooking the Rose Bowl stadium, this linear structure—624 feet long and 144 feet wide—spans a gorge. Its central portion (below), glass enclosed and supported by a Pratt truss, is its striking focal point. On both sides of the bridge, there are two levels (the lower level partially below grade) that accommodate classrooms and a cafeteria (right) and meeting areas (bottom right). The bridge houses conveniently and centrally located administrative offices and library.





Morley Baer photos

Morley Baer



FRANK GEHRY of Frank Gehry & Associates has an unusual, evolving design philosophy which is expressed through an open, freewheeling approach to architecture (RECORD, June 1976).

The Concord Pavilion, Concord, California (above), the West's newest open-air performing arts center, is an exciting trapezoid-shaped steel truss roof, supported minimally on two columns and a concrete block sound wall, allowing for maximum flexibility in use, while accommodating 8000 people for performances.

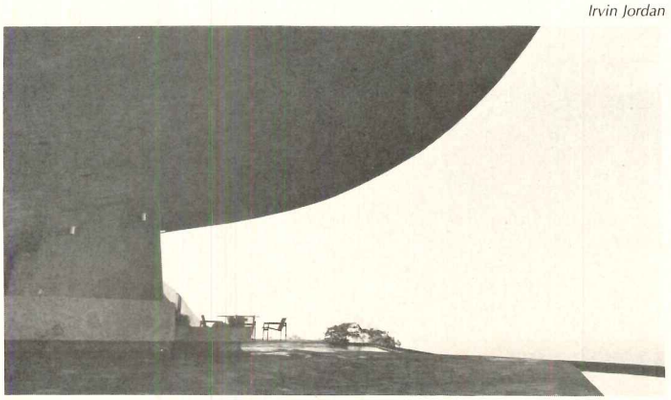
A residence for artist Ron Davis, in Malibu, California (left), is an example of what Gehry calls "cheapscape architecture" where inexpensive materials are used in a nonstereotypical way. Constructed of corrugated, galvanized metal, Gehry designed the house in, again, a trapezoidal shape to create spatial illusions, with the interior almost completely open for flexibility. Changes in natural light are captured through use of extensive and odd-shaped windows.

Julius Shulman

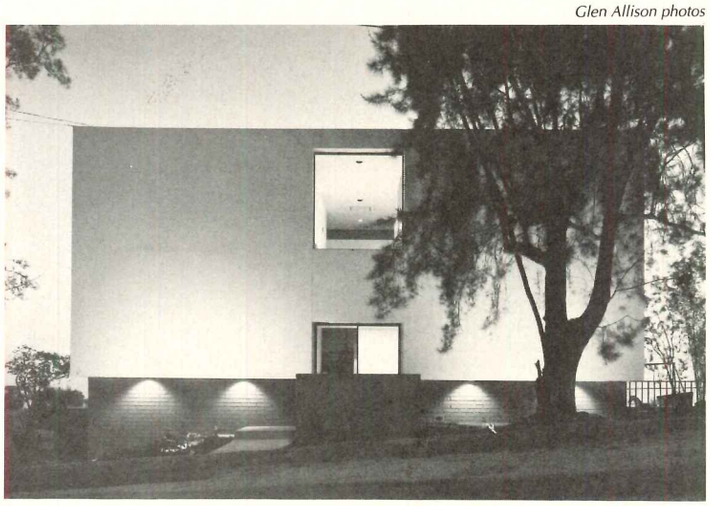
RAYMOND KAPPE of Kahn Kappe Lotery Boccato sums up the underlying motivation in his work over the last 10 years as searching for "diversity within consistency"—diversity in design using factory-built systems, composed of modules, panels, components, or a combination of these. He experimented with this concept in the mechanical and electrical systems in the design of his own house located in Santa Monica Canyon. Because of poor soil conditions, six concrete piers were sunk, forming the foundation base, and laminated wood beams span between the tops of the piers. There are no interior columns, allowing a desired multi-level, partially open floor plan. A variety of windows admit an abundant amount of light on the heavily wooded site, and permit views to trees in the canyon.

Irvin Jordan

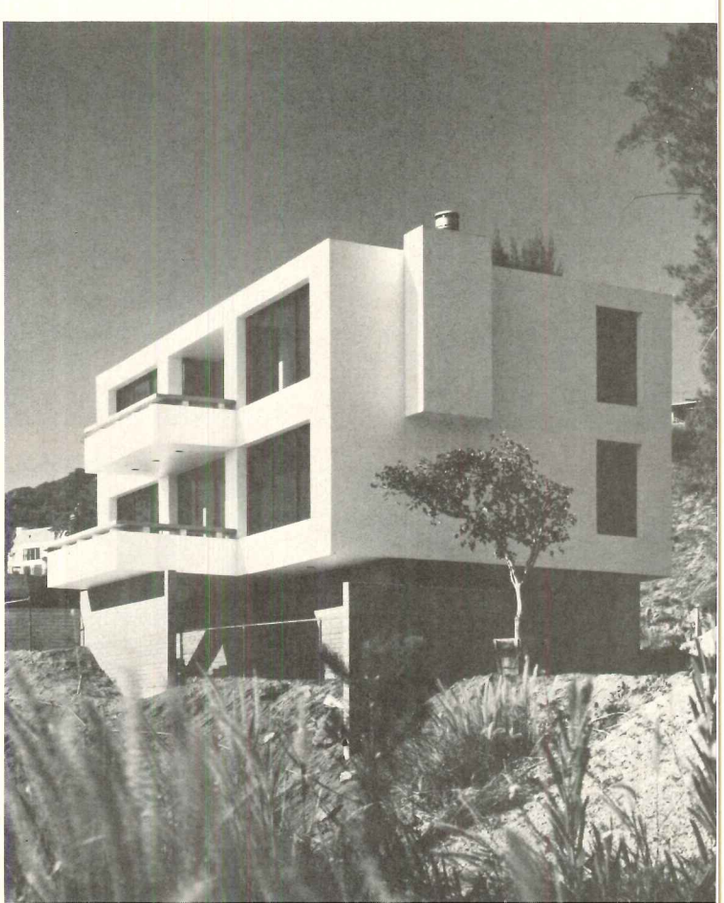
JOHN LAUTNER, noted for his highly individualistic residences, has designed a house in Acapulco (right) that demonstrates his philosophy that architecture becomes a valid, enduring art if it continuously searches to answer total basic human needs—emotionally as well as physical—in shelter. The house, constructed of concrete on a steep site, incorporates sweeping overhangs, creating a strong form. As part of the over-all concept, a pool of water on the main deck is positioned to hide the lower hillside while visually merging with Acapulco Bay.

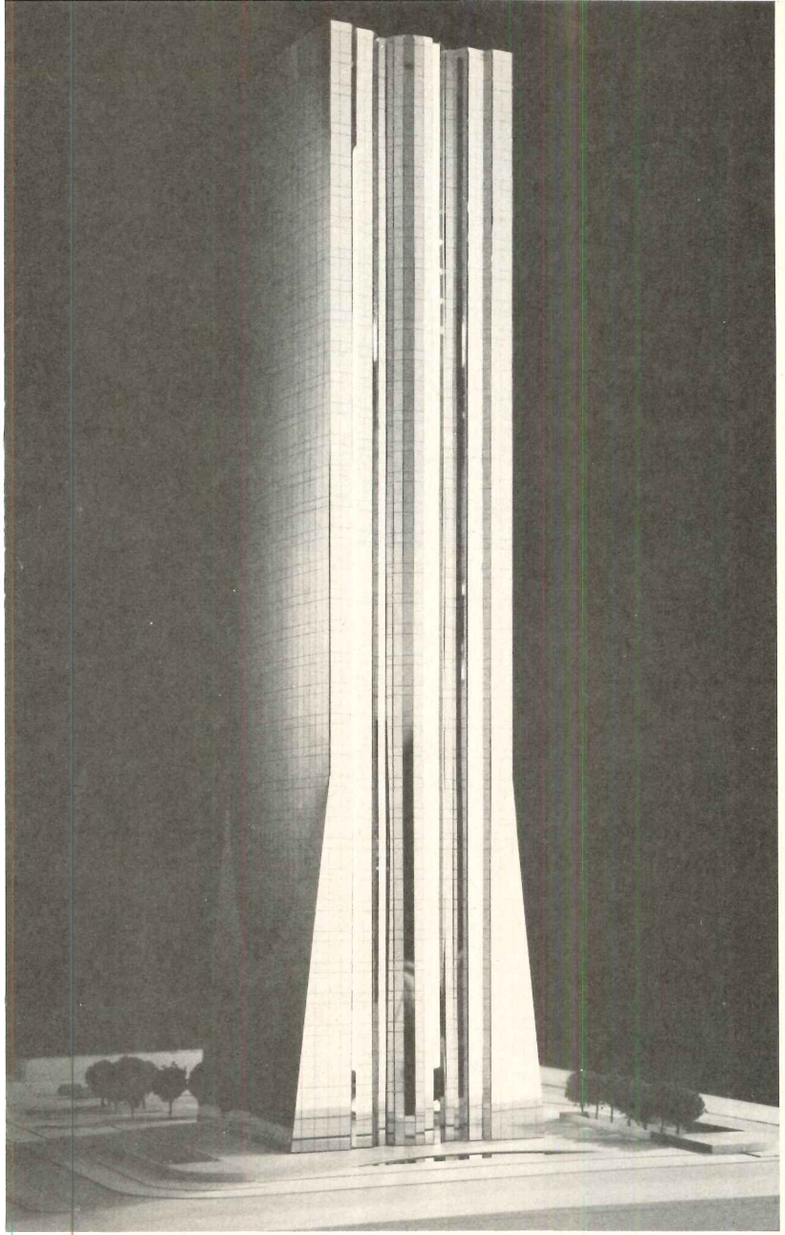


Glen Allison photos



JERROLD LOMAX of Lomax-Mills-Associates strongly believes that "design should return to the architect-artist. . . . A good architect is concerned with his client's needs and has the talent to translate these into an artistic, exciting, functional space that reflects architecture as art." In the design of his own house in West Hollywood Hills, he created an especially strong, crisp form by insetting all windows and doors 15 inches to give a depth and separation of planes. This separation is continued at the front elevation (above) where the house cantilevers over the brick foundation, giving the appearance that the house floats. The decks and largest windows and glass doors are located on the downhill side (right), oriented to views of Los Angeles below and, beyond that, to the Pacific Ocean.





ANTHONY LUMSDEN, Vice President–Principal for Design at Daniel Mann Johnson & Mendenhall, has designed some of the most innovative work in Los Angeles (RECORD, May 1975).

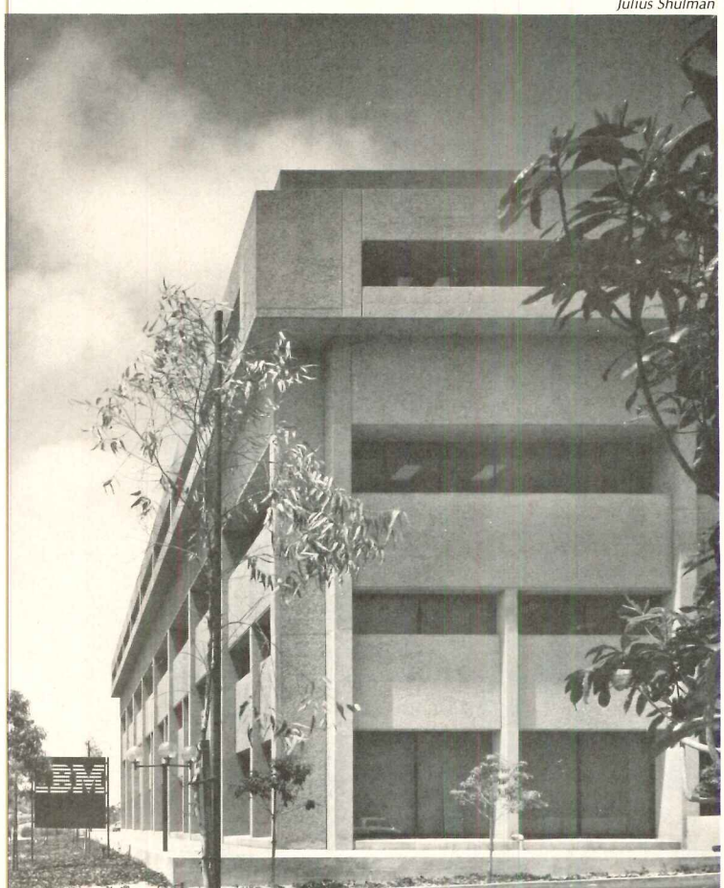
The Century Bank Plaza office tower (below) was one of the first Los Angeles buildings sheathed in a dark "glass membrane" that responded to differing orientations. The angular,

Dale Lang

non-symmetrical configuration partly evolved from the owner's requirement that the building wrap around an existing five-story structure on the site that the bank occupied. Upon completion of the new building, the low-rise structure was demolished and replaced with a park.

The Bank Bumi Daya (left), to be built in Jakarta, Indonesia, is a study in creating a visual symbol for the owner, while providing a variety of spaces for bank operations and rental space for offices and restaurants. The typical floor of the tower is slightly convex; the lower floors are flared outward to accommodate needed banking space; and a six-story parabolic curve is generated at the intersection of lower and upper floors—all sheathed in mirror-glass.

Julius Shulman

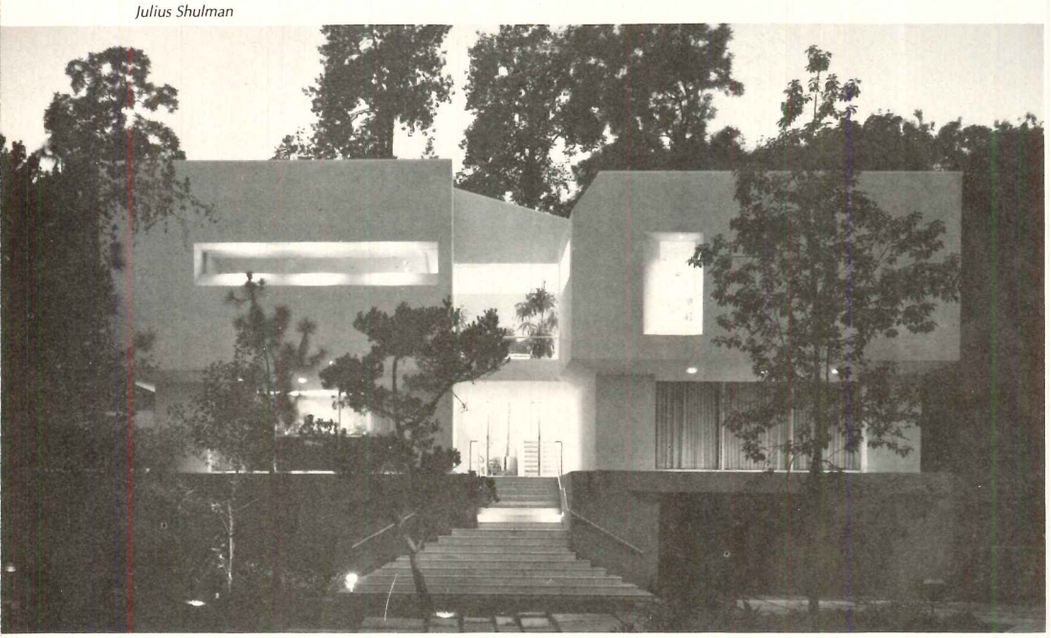


LEROY MILLER of Leroy Miller Associates has designed mostly small- and medium-sized commercial projects, one of which is the International Business Machines office building in San Diego (left). "Architecture is the expression of man's values, and cannot be separated from the value system of clients and architects," says Miller. "What we care about most shows up in our buildings." Miller cares about "simplicity with dignity in design," and the IBM building demonstrates that concern, for it is in contrast to other structures in a chaotic strip commercial area adjacent to a freeway. The appearance is enhanced in a subtle way by special attention to proportions and the effect of light and shadow on the exterior through the size and placement of windows and columns.

Fred Clarke photos

CESAR PELLI, Partner and Director of Design at Gruen Associates, has recently been appointed Dean of the Yale School of Architecture. His latest designs include the San Bernadino City Hall and Exhibition Center (left), the center of a 93-acre renewal project, and the controversial Pacific Design Center in low-rise West Los Angeles (above). PDC is the city's newest contract furnishing showcase. Its physical statistics are staggering: 130 feet high, 245 feet wide, and 530 feet long (if it were set on end, it would be 40 stories high). Despite its size the interior spaces are appropriately humanely scaled; and a grand space as Gallery Mall is covered by a sky-lit barrel vault. Its exterior is of blue opaque glass, with bronze glass enclosing the protruding circular escalator well seen in the photo above.

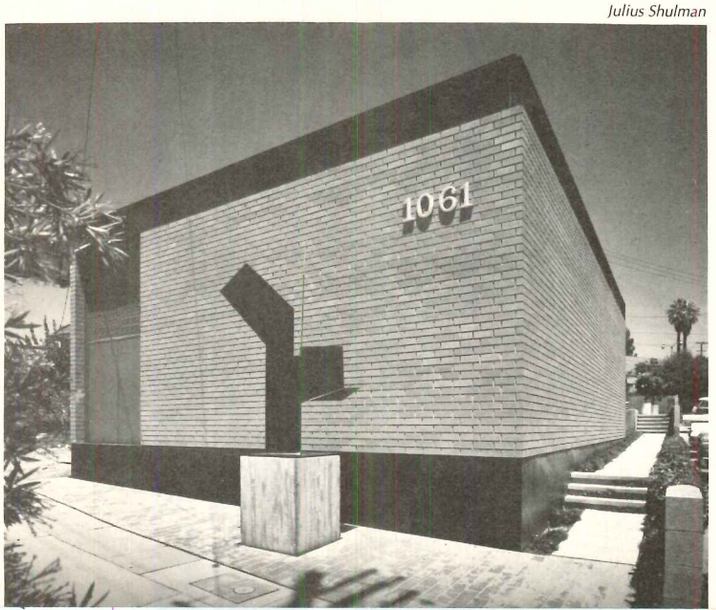
Julius Shulman

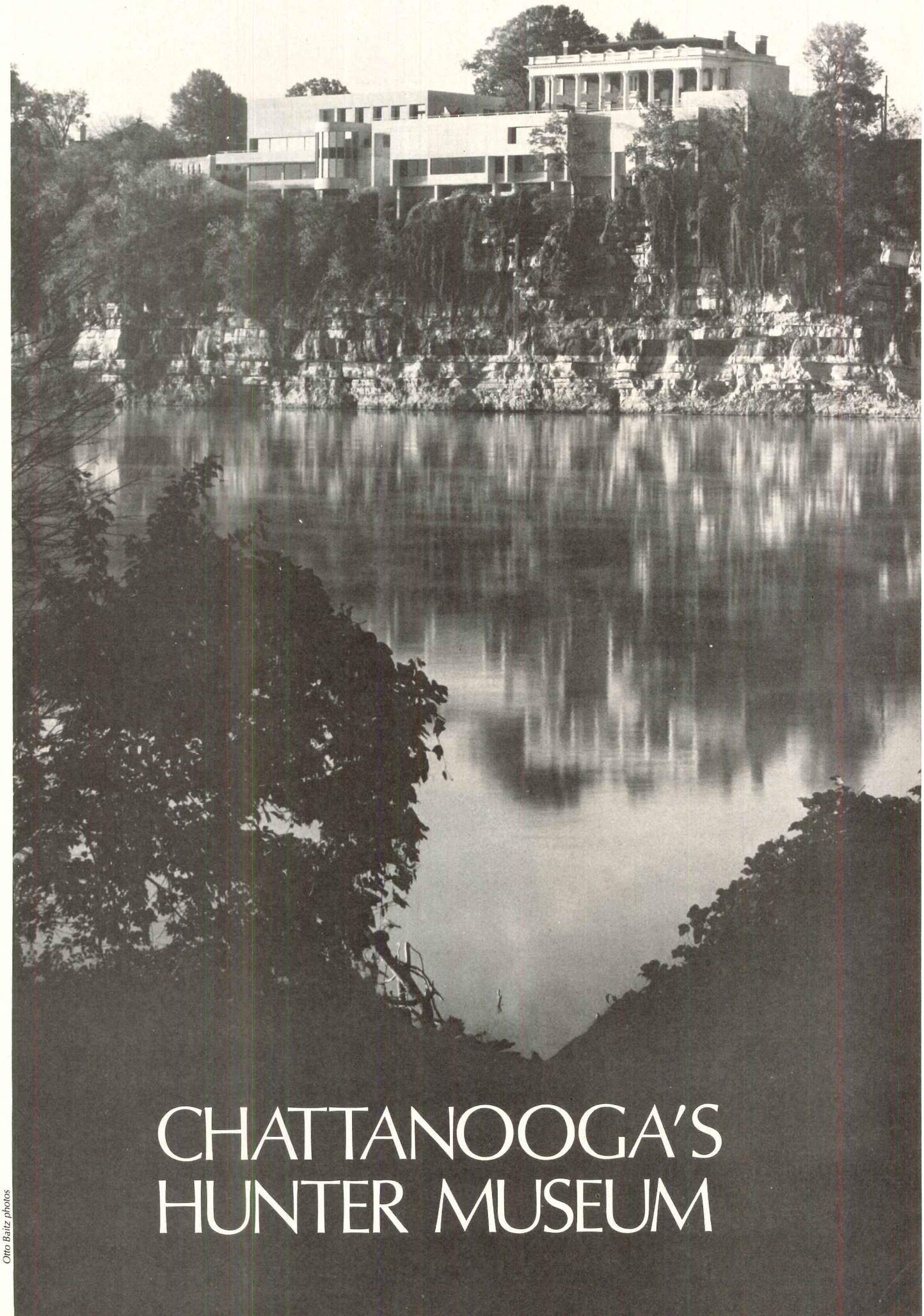


JAMES PULLIAM, of Pulliam, Matthews and Associates, designed the Bernard Heidemann residence, outside Los Angeles (RECORD, mid-May 1973) to provide what Pulliam's philosophy encompasses as affording "elements of comfort, delight and surprise, and which complement and expand the living experience." The house has a stark appearance as a result of its square design, enhanced by deep set windows (from two to six feet) and finishing of heavily-textured white stucco. It was, however, constricted to a corner portion of the linear site to accommodate swimming pool and tennis court.

Julius Shulman

BERNARD ZIMMERMAN, of Zimmerman, Robbin and Associates, attempts to create "architecture which humanizes the experience of the people who use it." To this end, while meeting the functions of the photographic studio shown here (which include a darkroom, studio and office) two separate buildings, connected by a glass bridge, were designed. One building is windowless and faced with brick for the work area (right); and the office is in a smooth concrete building (not shown)—both on a long, narrow lot in Los Angeles.





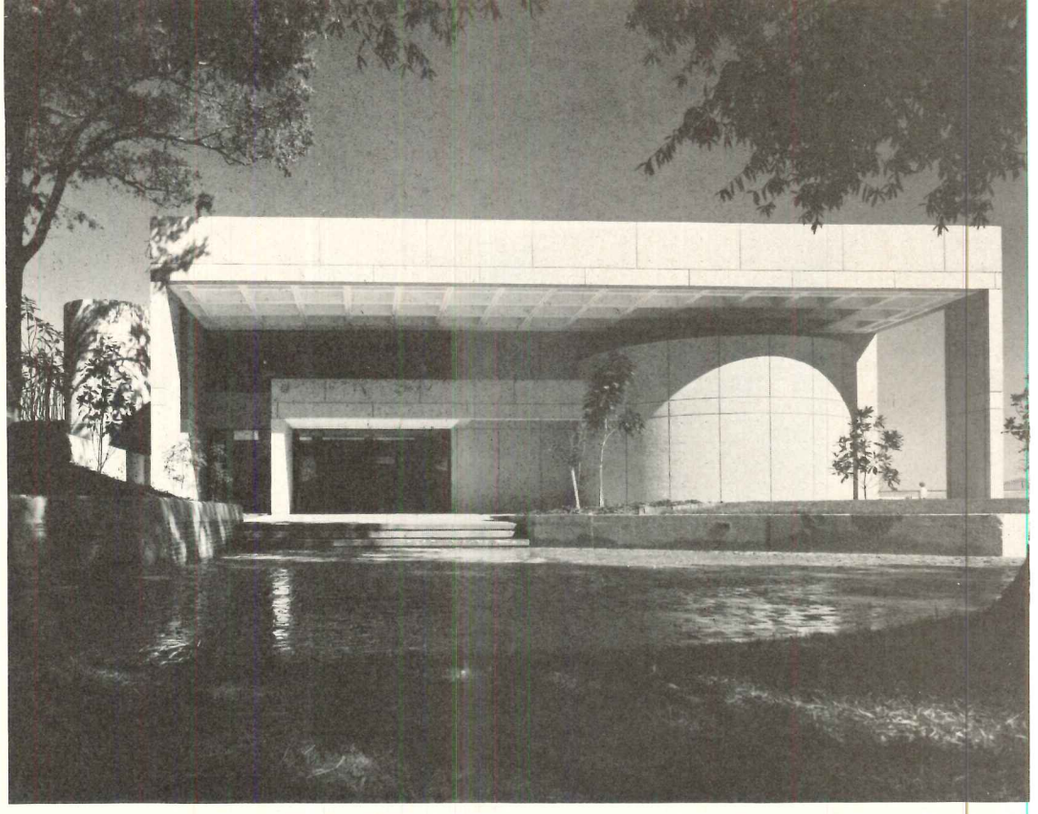
CHATTANOOGA'S HUNTER MUSEUM

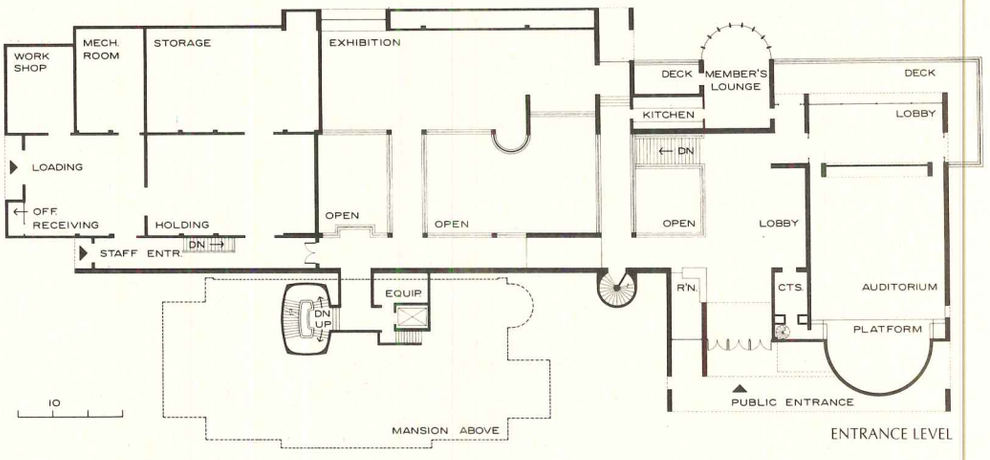
Otto Baitz photos

Located atop prominent limestone bluffs on the Tennessee River, Chattanooga's Hunter Museum of Art forms an appropriately romantic image in sympathy with its spectacular location. And it does this against great odds, as the mansion, which originally housed all of the institution's programs (and lends the major romance), could easily have been engulfed in a recently completed "expansion" that was several times larger—being some 50,000 square feet. The new structure, designed by architects Derthick & Henley, both continues the visual importance of the mansion and complements its natural surroundings by becoming one with them; the major part is recessed into the bluffs immediately in front of the older building and below the level of its base—a circumstance made possible because of an earth "overburden" on the rock eliminating the need for extensive blasting. Where the expansion is visible, its exposed poured-concrete walls (which form the structure) contain a limestone aggregate to match the bluff, and they are segmented and cantilevered in such a way as to appear to be growing from the rock. Curved projections echo the semi-circular colonnade on the front of the mansion, and brick paving echoes the older cladding. The intent is a building in harmony with all of the elements of its surroundings—and one that saves its visual impact for the interior with a commendable architectural politeness. And as such, it squarely faces the increasingly important visual problem of relating new and valued older structures.

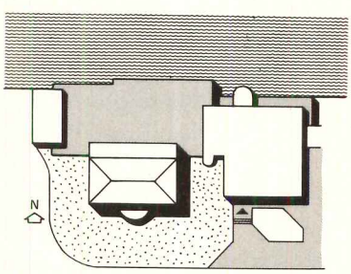
Within the new facility, budgeted at $2.3 million, are classrooms for the museum art school located below the lobby and the 180-seat auditorium. Most importantly, there is the double-height exhibition space used for temporary shows of contemporary art. This exhibition space can be expanded into a storage area on the main exhibition-level and below the holding and storage area (plan, right). The rooms of the mansion have been refurbished to near-original condition, and contain the museum's permanent displays of mostly older paintings.

HUNTER MUSEUM OF ART, Chattanooga, Tennessee. Owner: *The Board of Trustees.* Architects: *Derthick & Henley.* Engineers: *Bennett & Pless, Inc.* (structural); *George Campbell & Associates, Inc.* (mechanical/electrical). General contractor: *Raines Brothers, Inc.*



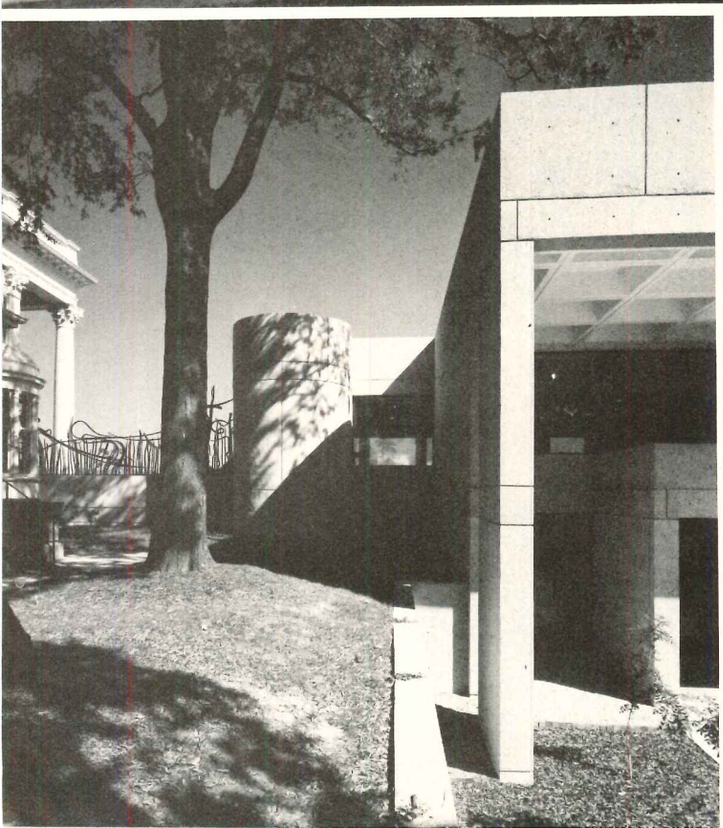


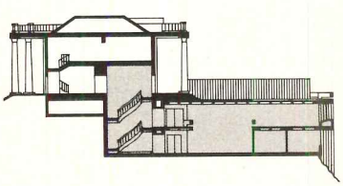
ENTRANCE LEVEL



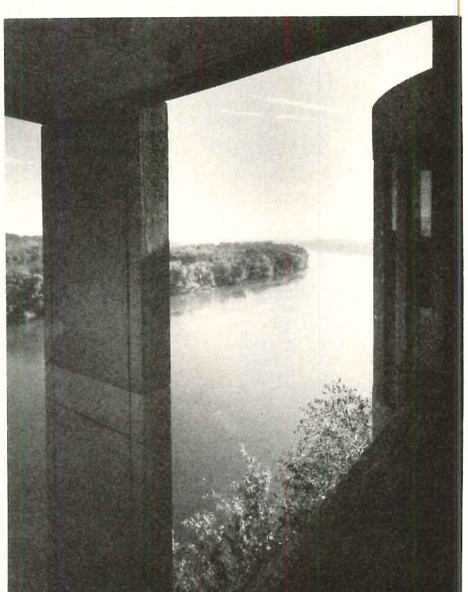
As seen in the site plan above, only the three elements consisting of the original mansion, the small loading dock and the new entrance pavilion (also top photo opposite) are visible to the arriving visitor. The bulk of the building (plan, opposite) is located below the river-front sculpture terrace which forms the "backyard" of the mansion. From the lobby (photo above) the exhibition space (photo right) on the same level and a lower level are immediately evident.

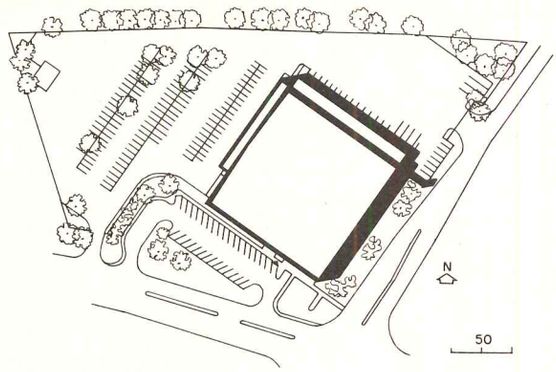
CHATTANOOGA'S HUNTER MUSEUM





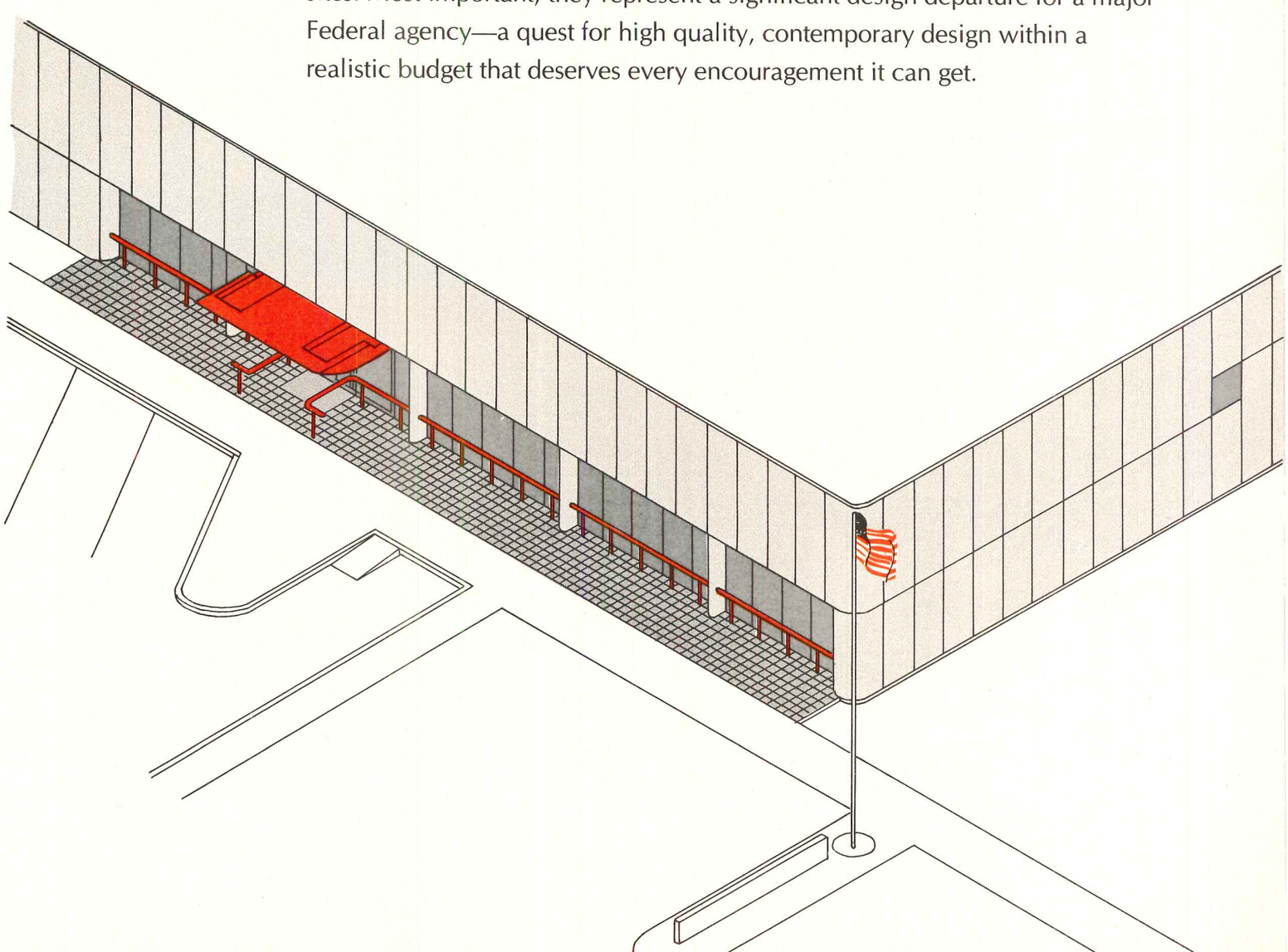
By the arrangements of the two buildings, spectacular views of the Tennessee River are obtained for both the original and new buildings (photo right). As seen in the section above, the various rooms of the new addition face the river in a poured concrete structure designed to blend with the limestone bluff into which they are recessed. The manipulation of the grades between new and old buildings can be seen in the photo, left. The rounded structure contains the stair, which connects the upper and middle levels of the entrance pavilion.

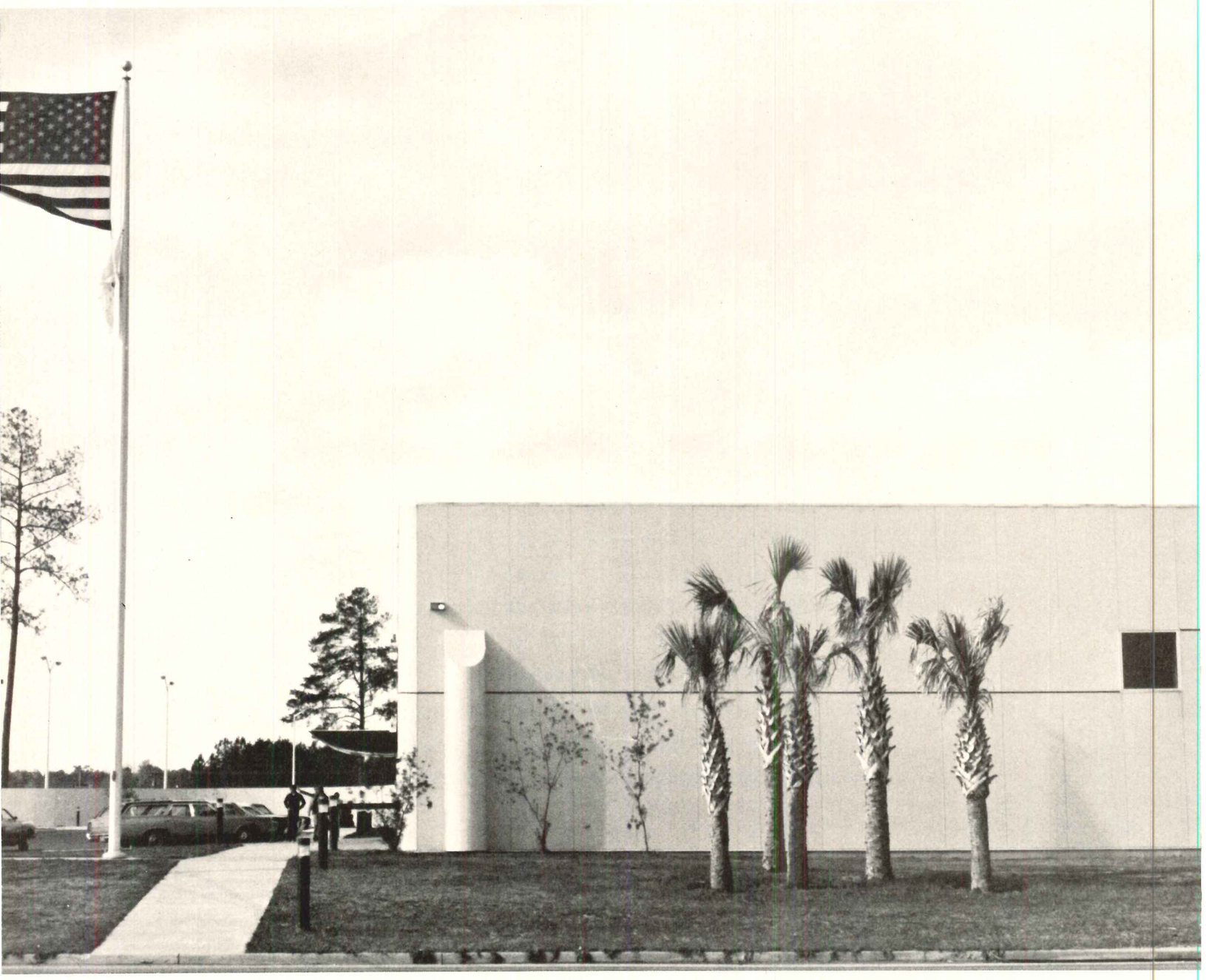


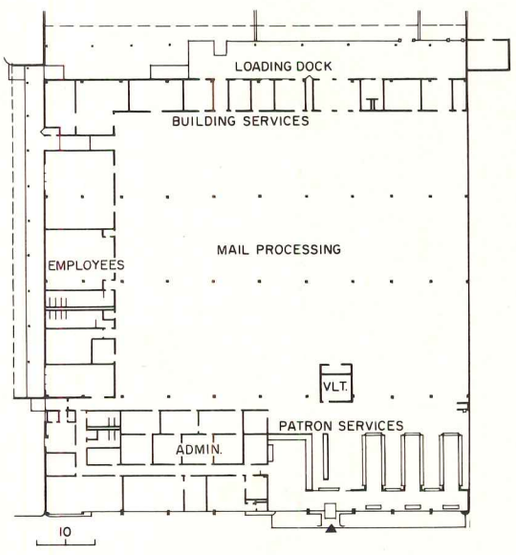


A NEW REGIONAL PROTOTYPE DESIGNED FOR THE U.S. POSTAL SERVICE EMERGES IN THE SOUTHEAST

What started as a single facility—a regional process and distribution center for Florence, South Carolina—has now become three. Nearly identical structures are now complete in Fort Myers, Florida and McAllen, Texas. These will soon be joined by a fourth in Gulfport, Mississippi. Others may follow. All are the work of architects/engineers Lyles, Bissett, Carlisle & Wolff. The sketch below hints at the character of these buildings. They are industrial in function but not in flavor. They are designed for fast erection and easy expansion. They are adaptable to a variety of flat, suburban sites. Most important, they represent a significant design departure for a major Federal agency—a quest for high quality, contemporary design within a realistic budget that deserves every encouragement it can get.







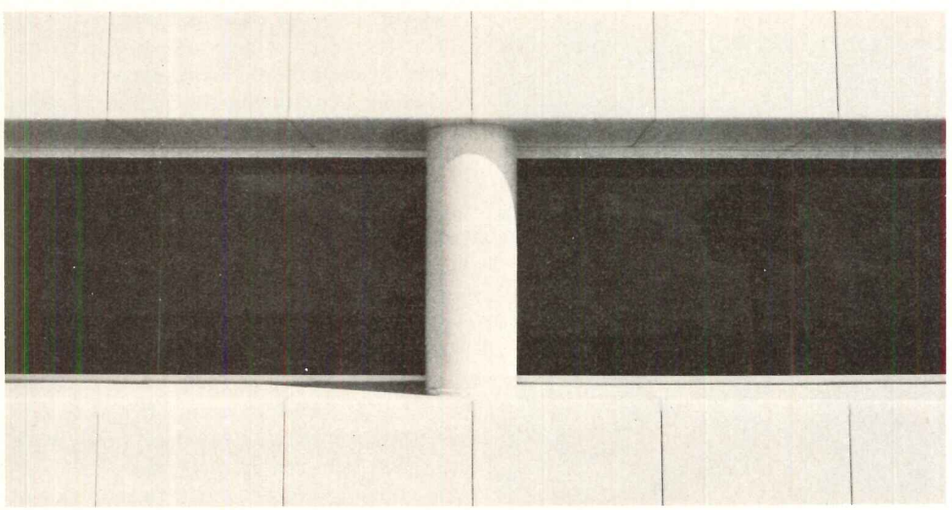
"The objectives set for these prototype designs," says design director John Paul McGowan of LBC&W, were that they should be clean, handsome, economical buildings, built with industrial components and technology, but non-industrial in character. They were to provide the community with a new type of Federal building, one that is straightforward and non-monumental, and one that is well sited and landscaped."

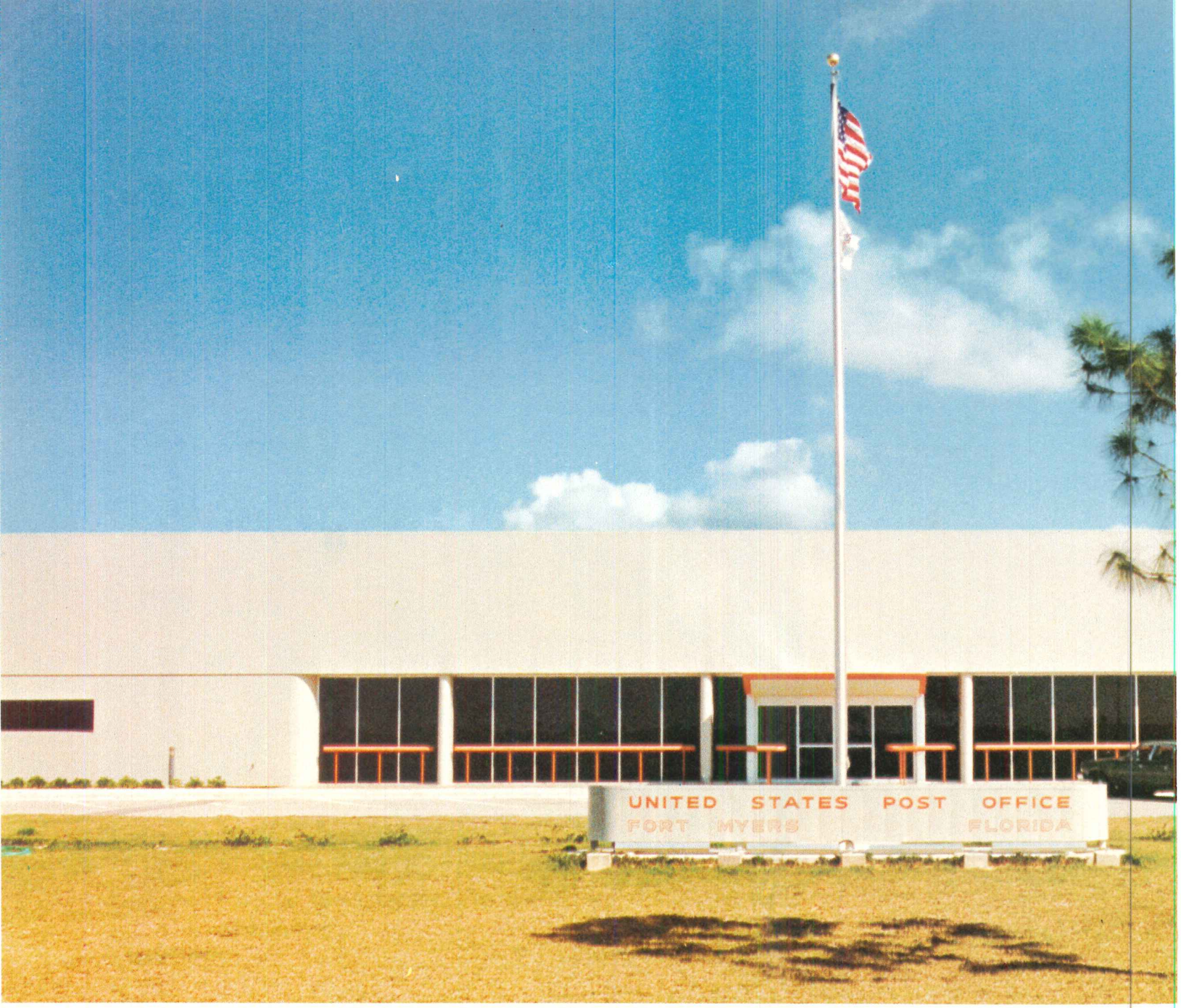
The Fort Myers facility, shown above, is typical in its development of these objectives. Like the others, it is a pre-engineered, light steel frame, clad in a four-inch, foam-filled metal panel, finished in porcelain and flush mounted to the structural frame. Bay sizes, spans and column dimensions were selected to conform with the several systems now on the market. The generic plan is almost square and contains approximately 50,000 square feet. Within this volume, the largest space is set aside for mail processing—a 33,000-square-foot workroom of automated and semi-automated processing equipment that operates 24 hours a day. Flanking this space on three sides are small work spaces, employee service spaces, and a small patron area that functions as a local post office. The fourth side of the vast work space is kept open for purposes of future expansion. In this event, exterior panels can be easily dismantled, then remounted to enclose a new bay. Truck loading docks wrap around two sides of the structure for convenient servicing by various kinds of Post Office vehicles from neighborhood runabouts to giant trailers.

The buildings are not frontal in the way

that so many post offices used to be. The public is led to the main entry by brightly-painted hand rails and enters under a metal canopy also painted a bright red-orange (photo above). These rails are steel pipes, bent around corners of narrow radius without any visible deformation of their circular section. Rails and canopy are bright accents against an otherwise white facade, a welcome moment of color intoxication in an otherwise sober composition. Behind these rails are floor-to-ceiling, tinted glass window walls that mark the limits of the public areas. A strip of quarry tile reinforces those limits and unites inside and out.

The Postal Service authorized the development of new counters, writing desks and display cases. These were designed in plywood by the architects and faced in plastic laminate.



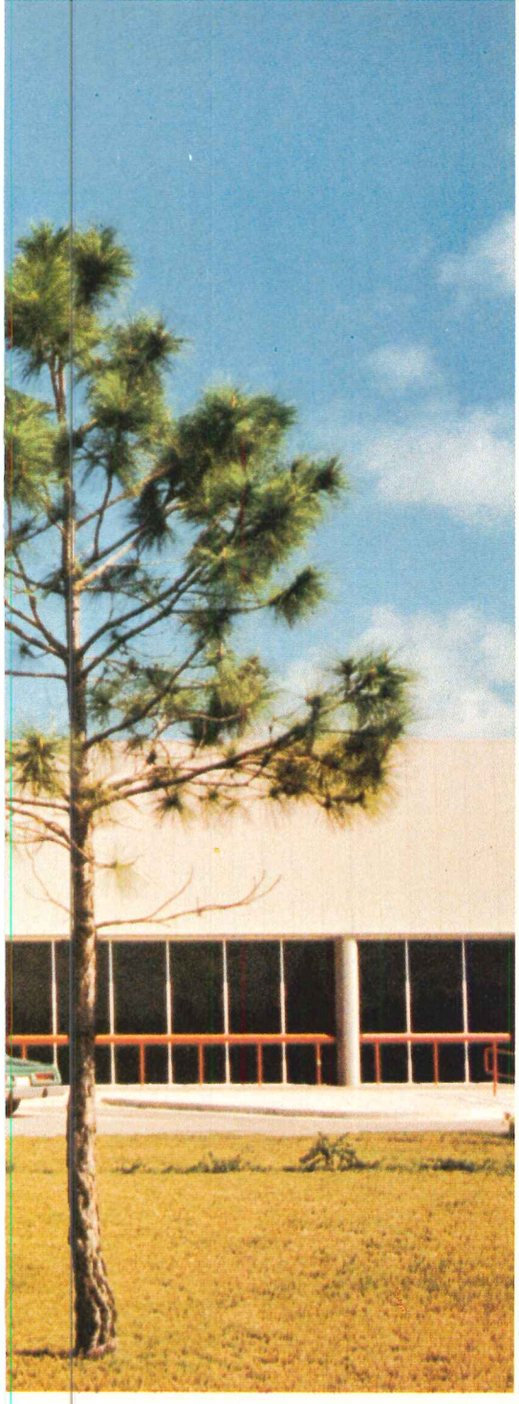


A light-gray vinyl is the prototypical wall covering. This palette of materials was selected for durability and ease of maintenance as well as for modest construction cost which averaged about $30 per square foot—including landscaping—over the three projects.

The success of these structures, derives from the design quality obtained from simple, industrial components used in a clear-headed way with an eye to scale, to detail, and to pleasant massing. Of at least equal interest is the decision by the Postal Service to seek a pre-engineered, prototypical building form. The existing inventory of sectional center facilities like these, though wrapped in different skins to suit particular site surroundings, mostly have the same plan, spatial dispositions and volumes. What is different about the new, pre-engineered structures is that design and construction times have been dramatically reduced. And in view of the fact that the activity of mail processing, whether carried on in Texas, Florida or South Carolina, is virtually identical, a strong case is made for building replication.

Yet another pre-engineered center, by a different architect, is underway in Garland, Texas, and others will almost certainly follow. If their design quality remains as high as at Florence, where the new facility won a State AIA design award, they will welcome additions to the light industrial sites to which they are adapted.

The architect's fee for the Center at Florence was negotiated and fell within the normal range for buildings of this type. In spite



George C. Grigg photos

of the adaptive character of the two later centers, fees were not substantially reduced owing to the heavy requirement for redrawing as well as the specification of certain new interior finish materials.

POSTAL SECTIONAL CENTER FACILITY AND ANNEXES, Florence, South Carolina, Fort Myers, Florida and McAllen, Texas. Owner: *U.S. Postal Service, Southern Region*—Bill Wright, general manager, Design and Construction Division. Architects/engineers: *LBC&W of South Carolina*—John McGowan, director of design; Jerry F. Friedner, project architect. Associate architects: *W.R. Frizzell Associates* (for Fort Myers), *Rike & Ogden, Architects* (for McAllen). Contractors: *Ruscon Construction Company* (for Florence); *B.E. Beecroft Company, Inc.* (for McAllen); *Dawson Construction Company* (for Fort Myers).

Eastwood, Roosevelt Island, New York City, N.Y. by Sert, Jackson Associates, as seen from Queens

High-rise, high-density, low- to moderate-income urban housing is under attack these days as inhumane, the cause of feelings of isolation and helplessness, and contributory to the collapse of the family, crime, juvenile delinquency, vandalism, indifference and neglect. Low-rise row or semi-detached housing, on the other hand, is argued to be humane, the source of feelings of well-being, and contributory to family harmony, law abiding behavior and concern for the immediate environment—one's own garden. High-rise housing is also attacked on esthetic grounds as harsh, stark, punitive, hostile, looming, cold and oppressive—imposing a rational, industrial, managerial ethic upon the captive human spirit. Low-rise housing, on the contrary, is acclaimed as the opposite of all these bad things.

In his article "Density: The Architect's Urban Choices and Attitudes" (February 1976, pages 95-100) architect Herbert McLaughlin argues that the higher densities required by expensive urban land can often be achieved more cheaply by low-rise buildings and that cities and people would be better off for it. His figures support the first part of his argument, but only in the projects cited for which no community facilities except underground parking are taken account of in his comparisons. The second part of his argument—that low-rise housing is always better—is open to serious question.

High-rise, high-density housing doesn't have to be bad. If combined with medium- and low-rise elements and thoughtfully designed to a program which incorporates a broad range of community facilities and well-planned recreational space, it can be very humane indeed.

Josep Lluis Sert, who designed Eastwood on Roosevelt Island in New York City (left and cover) and Riverview in Yonkers (also included in this study) is a leading spokesman for, and designer of, balanced, compact housing designed with an equal emphasis upon community and privacy within a range of densities. For him, balance is the key word which implies a correct relationship of all parts to the whole. At Eastwood and Riverview he and his team attempted to achieve a balance between the number of dwellings and the supporting services and amenities available. Balance was sought between people and automobiles, buildings and open space, people and trees, passive and active recreation, and between natural and man-made amenities.

Eastwood and Riverview have many qualities which were achieved through intelligent planning rather than the expenditure of money. A variety of dwelling sizes and plan layouts have been provided to offer a *range of choices* to families and individuals of different needs and life styles. Most units are open to the air and good views in at least two directions permitting cross ventilation, natural light and sunlight. All tenants have access to recreational land and other land has been set aside for community garden plots. Good proportions, scale, color and texture were achieved without additional expense.

These two projects were constructed by the New York State Urban Development Corporation under the Federal 236 rental program. Twin Parks East by Giovanni Pasanella Associates, built by other developers, was also 236. Through the use of this and other funding mechanisms it was possible to include an unusual mix of community facilities within these structures or on the sites. These include schools, daycare centers, recreational facilities for the aged, communal laundries, playgrounds, parks, open space, plazas, garages and commercial facilities. In addition areas have been set aside for future facilities.

The fourth project included in this study was also built within the Federal 236 rental program. Mott Haven Infill in the South Bronx, designed by architects Ciardullo and Ehmann, is a fine example of its kind: The spatial arrangements within the units are extremely well conceived, and economies in construction and use of materials kept costs to a minimum. Unfortunately, however, the project has only one built-in public amenity—a common playground between two rows of attached dwellings. Housing of this type is being seriously proposed by some architects and planners as preferable to developments like Eastwood, Riverview and Twin Parks East. The question is—preferable for whom? Mothers with small children can keep them under surveillance in the tiny private yards of Mott Haven or in the public playground, but where are the amenities for everyone else?

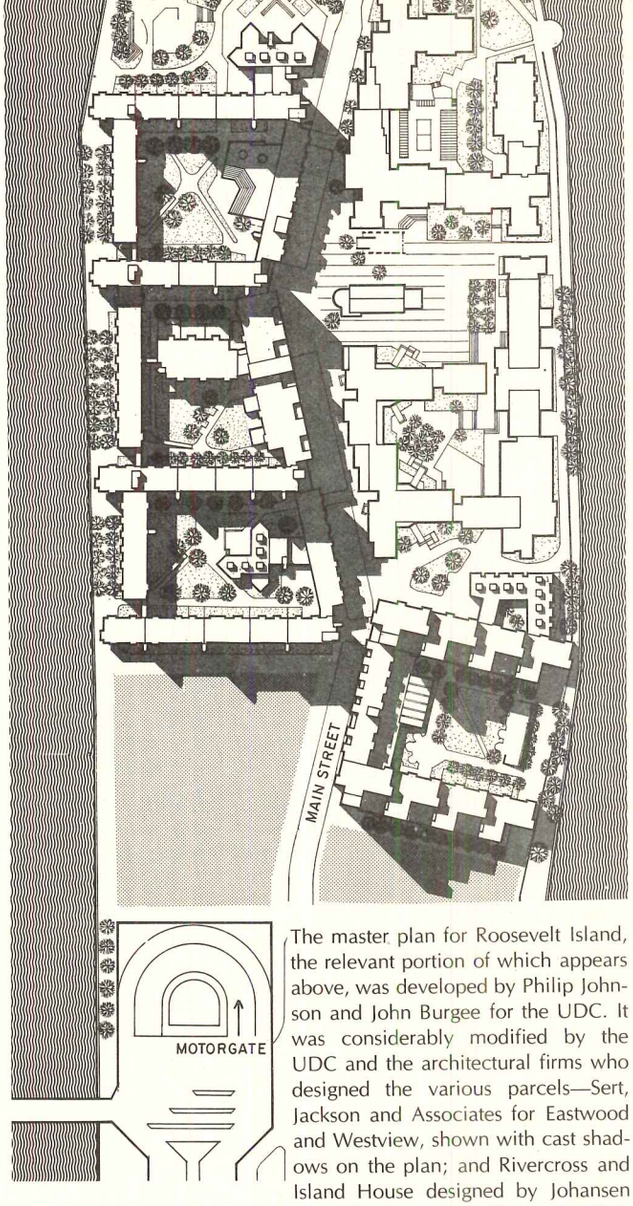
Mott Haven Infill is a feasible alternative to the first three projects only if community facilities of the quality possessed by Eastwood, Riverview and Twin Parks East become available in Mott Haven. This is not to say that the only way to get them is by constructing complexes of such size and boldness as these. But it is one way.

—Mildred F. Schmertz

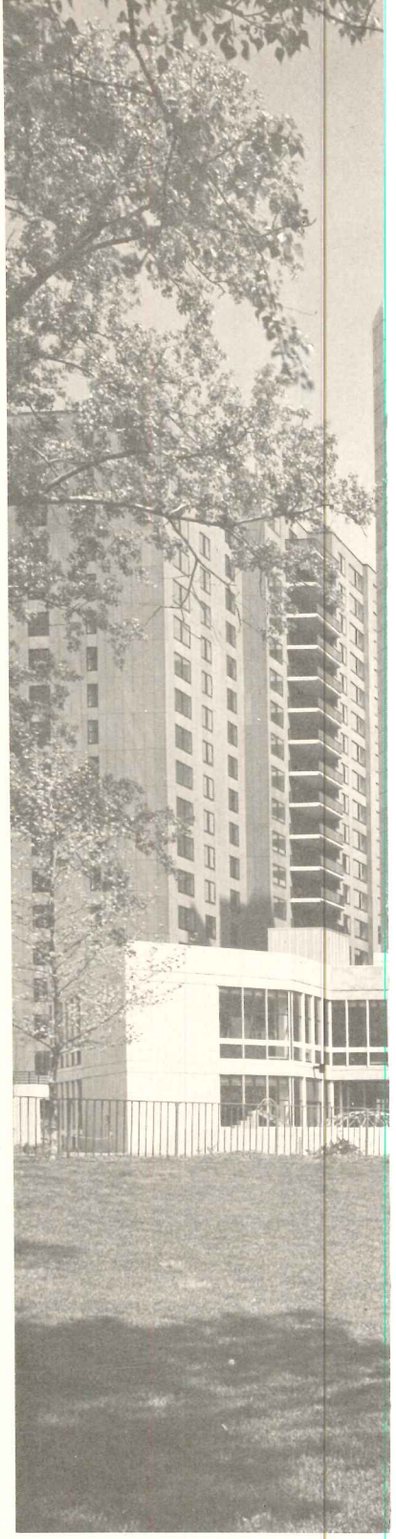
DESIGN ALTERNATIVES FOR LOW- TO MODERATE-INCOME URBAN HOUSING

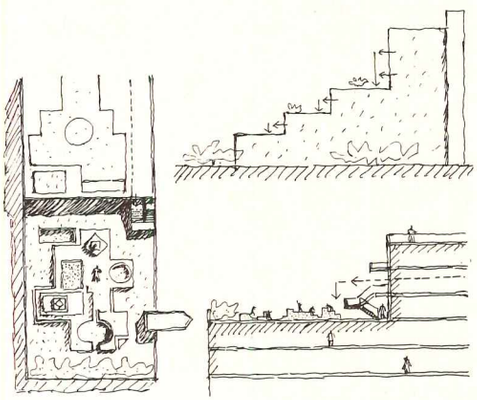
EASTWOOD: A LOW- TO MODERATE-INCOME HOUSING DEVELOPMENT ON ROOSEVELT ISLAND IN NEW YORK CITY IS A HIGHLY EXPERIMENTAL AND INNOVATIVE NEW-TOWN-IN-TOWN

From its very beginning, Roosevelt Island was conceived as a community with a balance of services and amenities tightly integrated into the residential fabric. It includes a complete school system composed of a series of mini-schools, two of which have been completed within the Eastwood complex, allowing every child to walk to school on the island. The two-story structure in the foreground of the photograph (far right) is an elementary school and daycare center. Health facilities and community meeting rooms are integrated within the residential buildings. Commercial space for local services such as groceries, drug stores, dry cleaning shops and small restaurants has been provided on the lower floors of the residential buildings which front upon the major pedestrian networks. Cars entering the island must park in a garage, designed by Kallmann & McKinnell, located near the point of motor access. From there an electric bus transports island residents and visitors to the units.

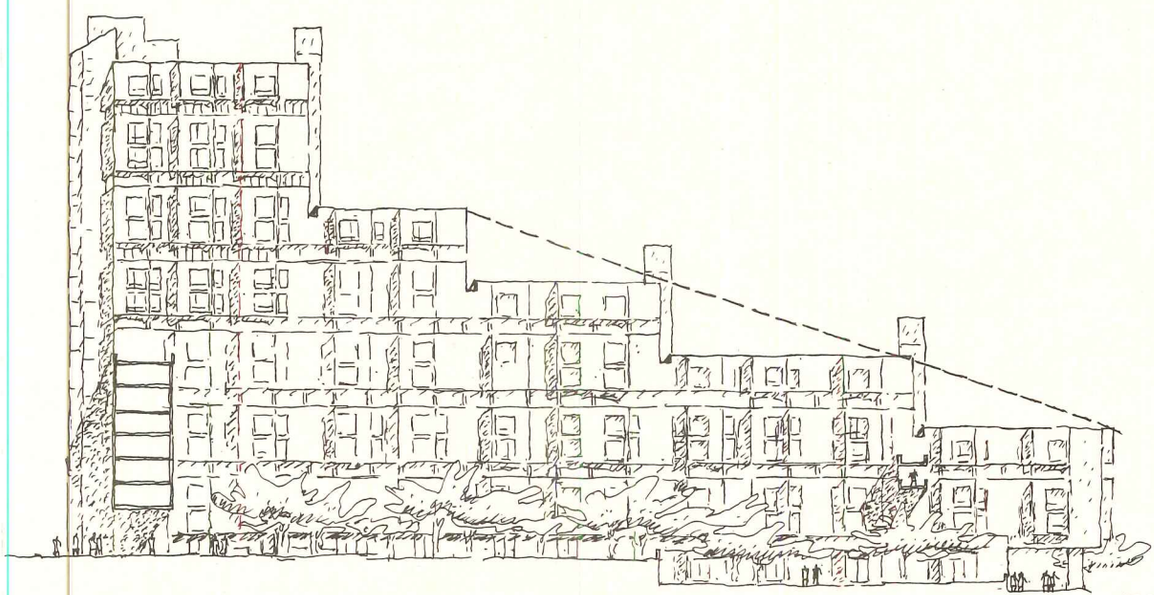


The master plan for Roosevelt Island, the relevant portion of which appears above, was developed by Philip Johnson and John Burgee for the UDC. It was considerably modified by the UDC and the architectural firms who designed the various parcels—Sert, Jackson and Associates for Eastwood and Westview, shown with cast shadows on the plan; and Rivercross and Island House designed by Johansen and Bhavnani and shown in line. Nonetheless, the basic ideas of Johnson and Burgee were maintained. Their plan called for a principal street winding down the center of the island and this has been implemented as the plan indicates. Buildings were to step down from this central spine to the water's edge and they do. Pedestrians and cyclists were to be able to move around the entire perimeter of the island unimpeded by traffic and the construction facilitates this.





The mix of incomes on Roosevelt Island ranges from low to high—rich and poor and those in between living within a few hundred yards of each other. Eastwood consists of 1003 units of low- and moderate-income housing for approximately 4,000 people. It is located on the east side of the island facing the principal bisecting street called Main Street to the west and Queens across the river to the east. At Eastwood, senior citizens with minimum incomes of $7000 and maximum incomes of $13,500 pay $191 per month, heat, gas and electricity included, for a studio apartment. The studios are reserved for the elderly only, and there are 139 of these units. One-bedroom apartments are available to the elderly and to young couples with incomes between $10,500 and $13,500 who pay a monthly rent of $281. Of these, 145 units are for the elderly and 195 for young couples. 266 two-bedroom apartments



The photograph (opposite page left) taken from the entrance ramp which connects the island to a bridge from Queens, looks south toward Eastwood and Westview. The photograph above looks north toward Eastwood with an elementary school and small park in the foreground. The dotted diagonal line on the sketch at left is an over-all control line for determining the profile of the terraces. Staying within the shallow angle creates a restful contour. If Sert had prevailed over the UDC, the terraced roofs would have become play areas for children under their mother's surveillance as shown in the sketch (opposite page left). The UDC opposed this idea on the grounds that it would add considerably to costs to make the terraced roofs usable and safe, and that supervision would still be difficult.

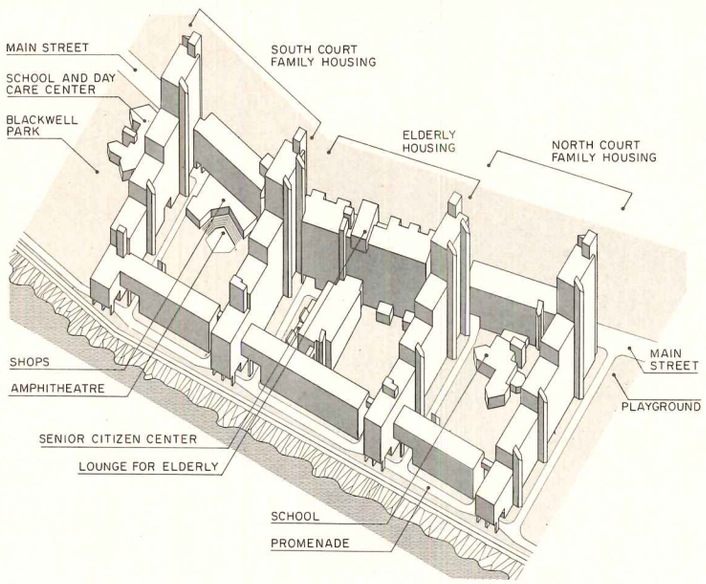
are available to persons with incomes of $14,000 to $22,000 depending on family size and the rent is $359 per month. 189 three-bedroom units rent for $395 per month and go to couples earning $15,000 to $23,000, again depending on family size. To get one of the 69 four-bedroom units a couple must have at least three children and an income ranging from $16,000 to $26,000. For this unit they must pay $421 per month ($764 is the fair market monthly rent for an equivalent apartment in New York City).

Westview (included in the bottom photo on page 102 but not otherwise illustrated or discussed in this article) consists of 360 units of middle-income housing constructed to the west of Main Street and facing the Manhattan skyline. Also designed by Sert, Jackson and Associates, its rents including utilities range from $320 for studios to $877 for three-bedroom apartments. Two other parcels designed for higher incomes and therefore beyond the scope of this article are Rivercross, a luxury cooperative, and Island House, for free-market rentals—designed by Johansen and Bhavnani.

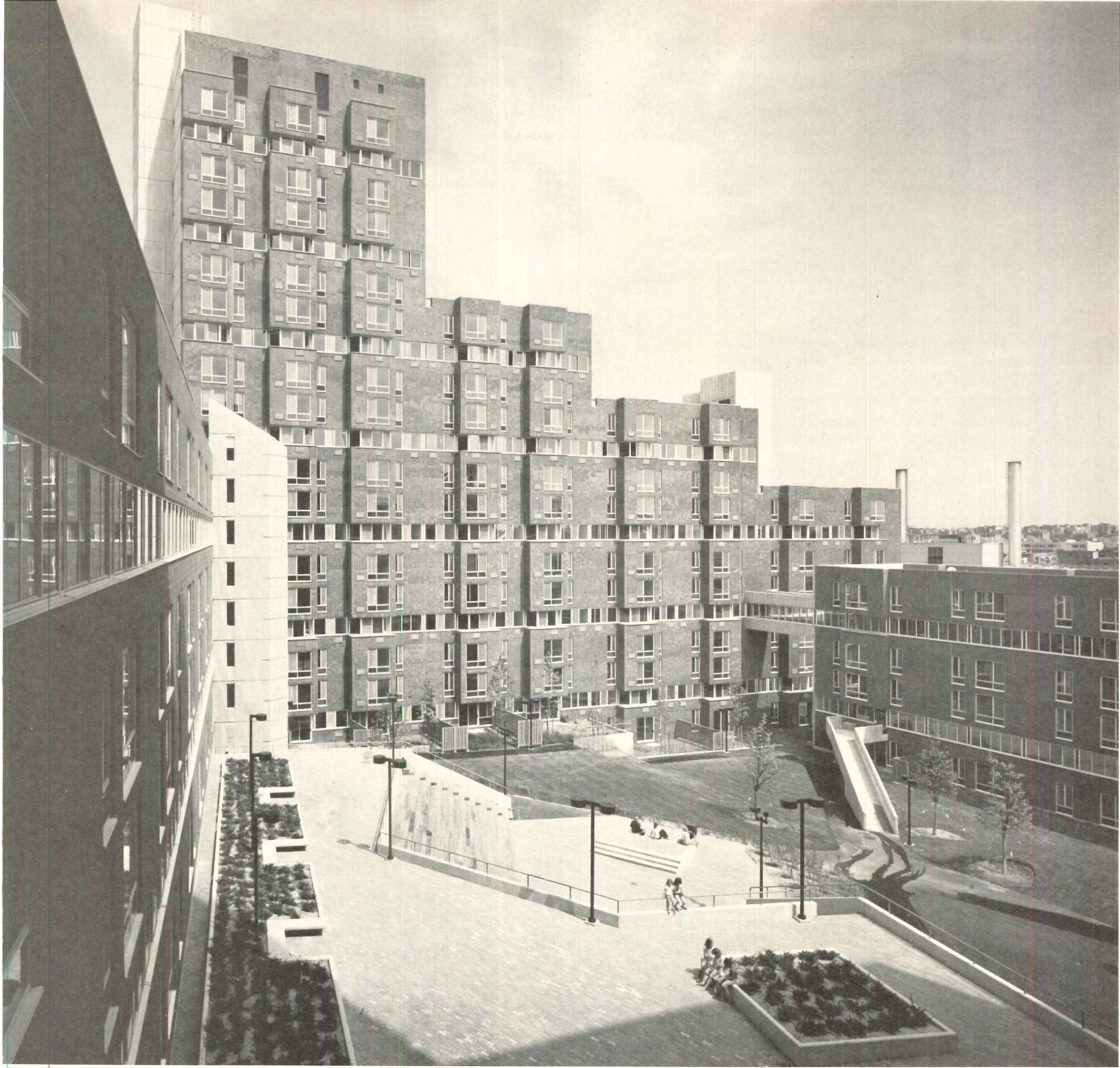
The three parcels on the east side of Roosevelt Island which comprise Eastwood cover approximately six acres. The residential buildings have a density of 166 dwelling units per acre, net. They have been placed to form a series of well-defined courtyards landscaped with large existing trees, lawns and paved walks, punctuated by natural rock outcroppings. From each courtyard one can see the East River, visible through a large pass-through. These three major courtyards are defined by stepped buildings which rise from six stories up to twenty-two stories at Main Street. At regular intervals between the tall-stepped buildings are seven-story buildings which face Main Street and admit daylight to what would otherwise be a canyon. The Eastwood buildings along Main Street project over the sidewalk forming a continuous protected arcade a thousand feet long. The commercial areas in this arcade are at present renting very slowly as prospective merchants wait for the residential units to fill up. As the shops gradually open, however, Main Street will become progressively more lively. Schools, community meeting rooms and the residential elevator lobbies also enliven the arcade.

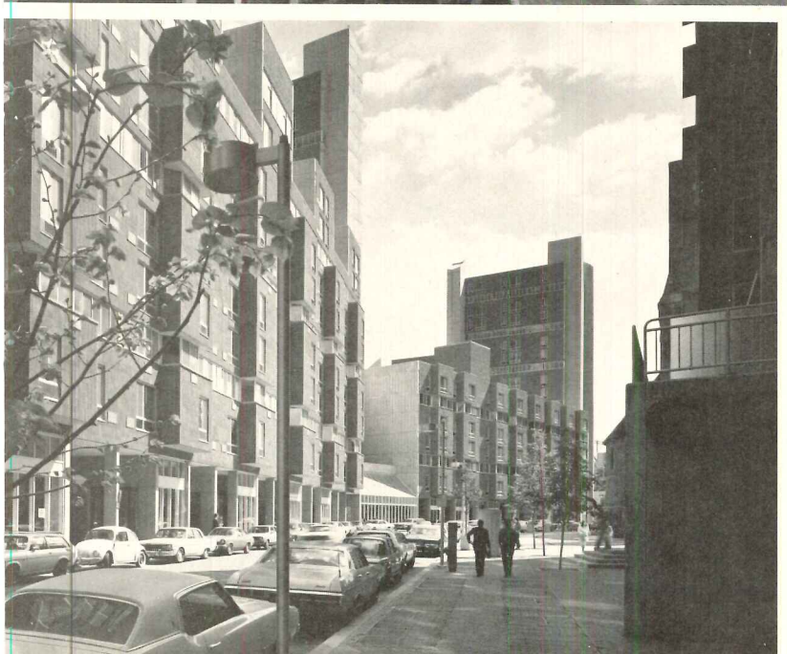
The tallest buildings at Eastwood are not by New York standards very tall at all. Isolated tower forms were deliberately avoided by the architects, largely because of the limited human amenities provided by these forms but also because such shapes would appear dwarfed by nearby Manhattan. The best views from Roosevelt Island are up and down the river, not directly east or west. The views down river are handsomely framed by the 59th Street bridge. For this reason, most units in the taller buildings look south, down river. Even though only a small percentage of the units actually face the water's edge, nearly all of the units have some visual relationship to the water.

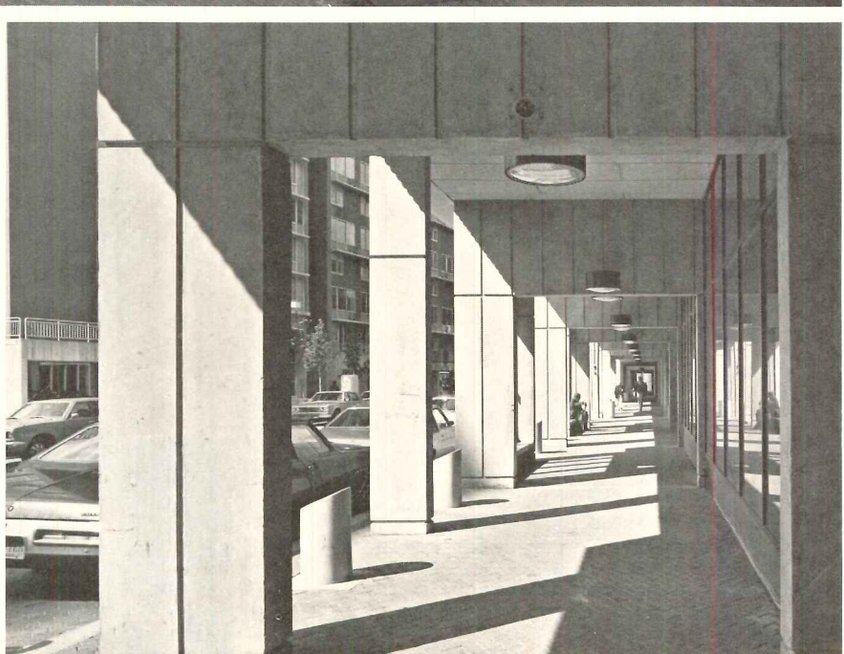
Eastwood contains approximately 300 units especially designed for the elderly. These units are clustered into a T-shaped building in the center court. The elderly have their own lobby, a senior citizens center and will eventu-



The plaza in the photo above opens off Main Street and includes a landmark church to be seen at the far left of the photograph. The glass-enclosed space is in front of one of the residential lobbies. The amphitheater in the foreground of the residential courts (opposite page top) has commercial facilities underneath. This courtyard, one of four in Eastwood, enhances the views from the buildings' corridors. The subtle bend of Main Street can be seen in the photo at right. This bend is preferable to a long unbroken vista and will discourage rapid movements of traffic until the streets are closed to cars as planned. The arcade (right) is for pedestrian use.







ally have a health care center.

The type of dwelling units developed by Sert, Jackson Associates for Eastwood (but not for Westview because UDC—but not Sert—believes that higher rent paying tenants do not want to go up or down stairs in their apartments) are organized around the elevator access system called "skip stop." The elevator stops at every third floor only and from this corridor level floor, inhabitants take a private stair up or down one flight to their apartments. A third apartment is at the corridor level. Thus a three-story stack of apartments is the basic cluster which is repeated vertically.

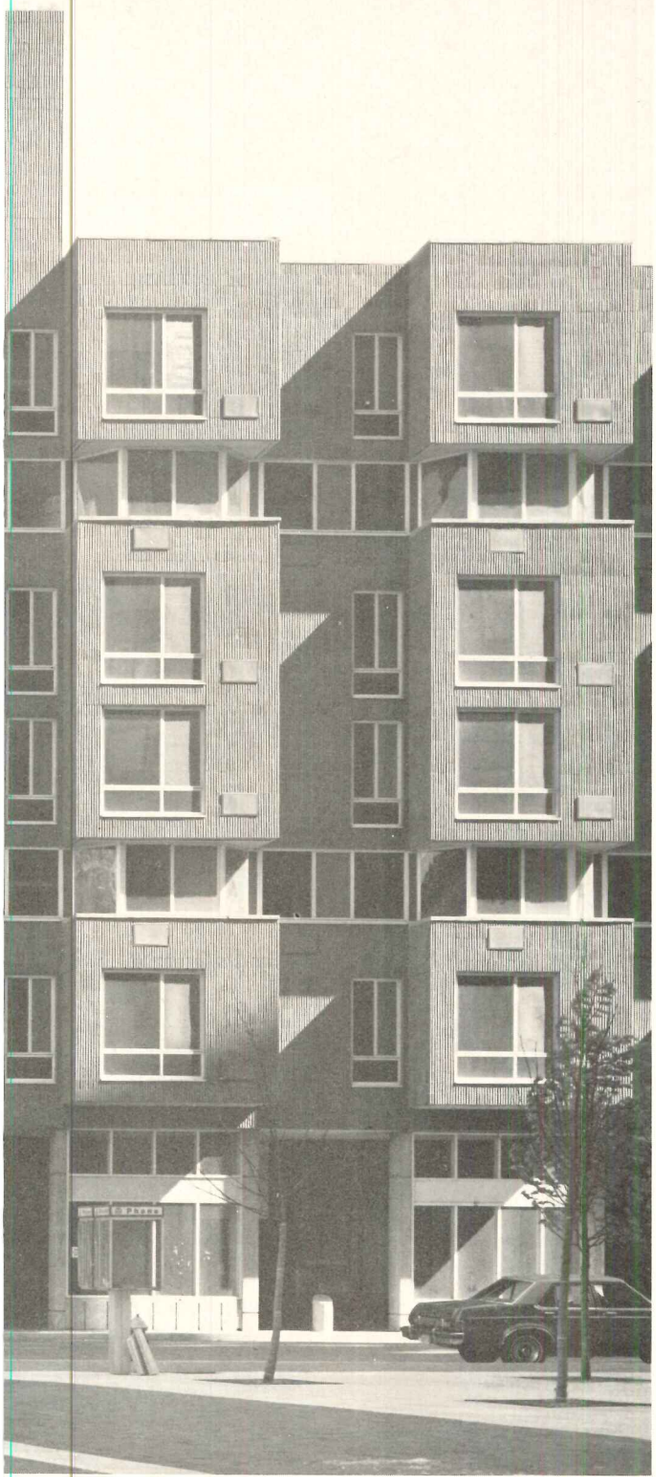
The basic living unit found above or below the corridor level is composed of two modules. The living module is a single through-space containing the living room, dining area and the kitchen. Adjacent is the bedroom module which has a bedroom on each side of a central bathroom. By adding another bedroom module, a four-bedroom unit is achieved, and by adding a half module, a three-bedroom unit (see plans opposite page top). All dwelling units get direct sunlight and most have two different exposures since they are floor-through apartments. Because the living module is one space subdivided by two low counter-height walls, and since all windows have operable sash, cross ventilation is possible. Only the corridor apartments are not floor-through units.

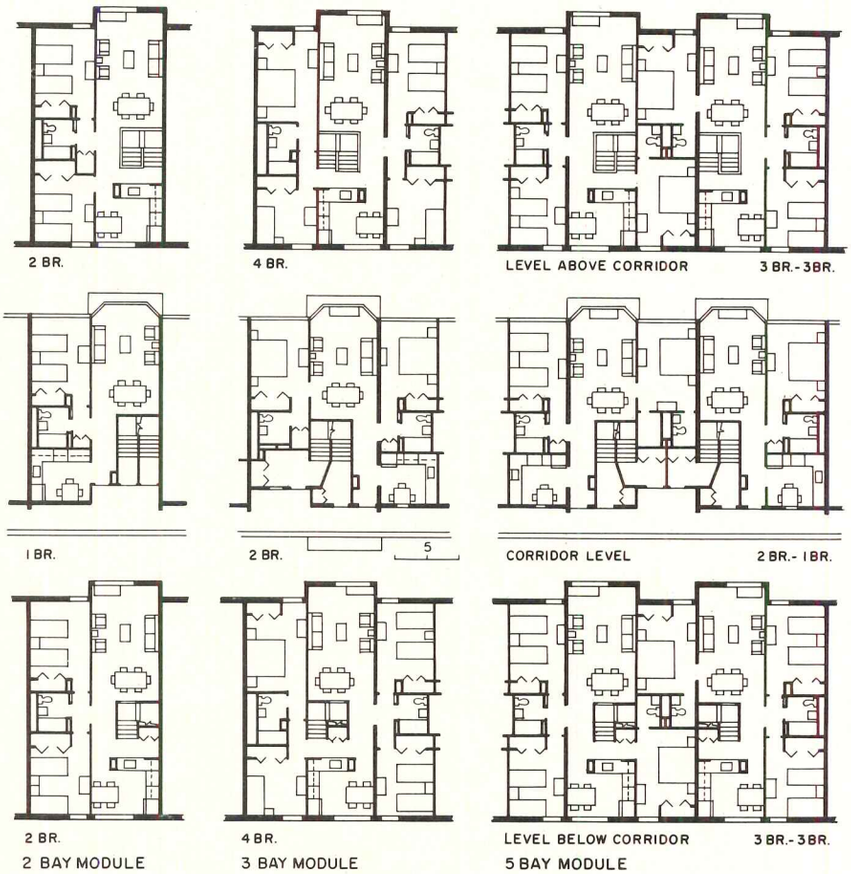
All the larger dwelling units, for families with many children, are concentrated in lower buildings and in units which are on ground level. The latter have small yards fenced in.

The structural system for all of the residential buildings consists of 8-inch concrete bearing walls and 6½-inch post-tensioned slabs. Non-bearing walls are brick cavity. Metal forms were used to cast the walls and "flying tables" for the slabs. The elevator towers and stair towers were slip-formed from metal forms. The mechanical provisions include all electric, heat and air conditioning sleeves. Tenants may install air conditioning units at their own expense if they desire, but it is probable that for many the cross ventilation will be adequate for all but the hottest days of summer. Trash disposal is by means of a vacuum system which propels trash under pressure through large pipes to a central processing plant for the island.

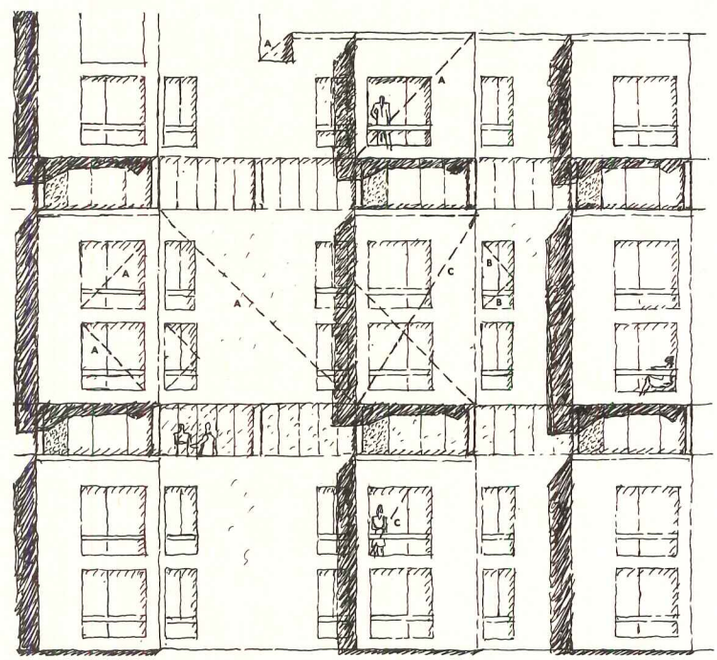
The total project includes 1.09 million square feet of residential space, 15 thousand square feet of commercial space, and 47 thousand square feet of schools, day care center and senior citizens center. The cost was $35 million total; $30 per square foot; $35 thousand per dwelling unit, including schools, commercial space and all community spaces. These figures do not include parking.

EASTWOOD, ROOSEVELT ISLAND, New York, N.Y. Client: *New York State Urban Development Corporation.* Architects: *Sert, Jackson and Associates, Inc.—William Lindemulder (project manager); Edward T. M. Tsoi (project architect).* Engineers: *Paul Weidlinger Associates (structural); Cosentini Associates (plumbing and mechanical); Eitingon & Schlossberg Associates (electrical).* General contractors: *Building Systems Housing Corporation and Turner Construction Corporation.*





Shown above are the basic planning modules at three different levels. In the typical elevation (left), the projecting elements are living rooms. The sketch below shows the proportioning system for the facades. 'A' denotes a square, slightly tall to correct for perspective. 'B' is a double square, and 'C' is a golden section. Windows were carefully studied to arrive at an harmonious division of glass. Each projection is proportioned as a golden rectangle. Sert, a disciple of Le Corbusier, adapts the latter's Modulor dimensions wherever possible. Two views of a floor-through unit show their virtues—cross ventilation, views from the dwelling in two directions and exposure to sunlight during different times of the day.

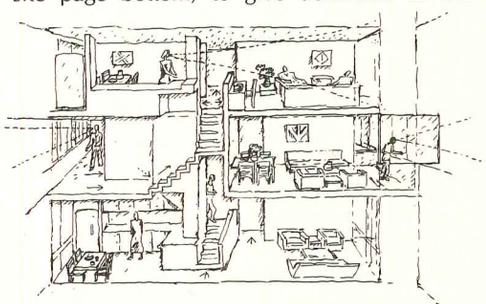


RIVERVIEW IN YONKERS: DESIGNED AFTER EASTWOOD TO SERVE AS A PROTOTYPE FOR SIMILAR BLOCKS IN ITS NEIGHBORHOOD

Sert, Jackson and Associates began design for Riverview 1 and 2 in 1970. Constructed by the UDC, it is a two-stage community of 798 moderate-income rental apartments on a 7.8 acre (six city blocks) site within an urban renewal area near the previously decaying downtown core of Yonkers, New York. Financed by the Federal 236 rental program for approximately 3200 people, it has a density of 103 dwelling units per acre net.

An elementary school already existed at the center of the site. To the south of the school is phase 1 of Riverview and to the north is phase 2. Although the site is surrounded by existing development on all sides, Riverdale Avenue is the most active edge, with a good mix of retail facilities.

In response to these site conditions, the architects designed the Riverdale Avenue edge of the new housing complex as a continuous wall along the property line (see photo opposite page bottom) to give definition to the

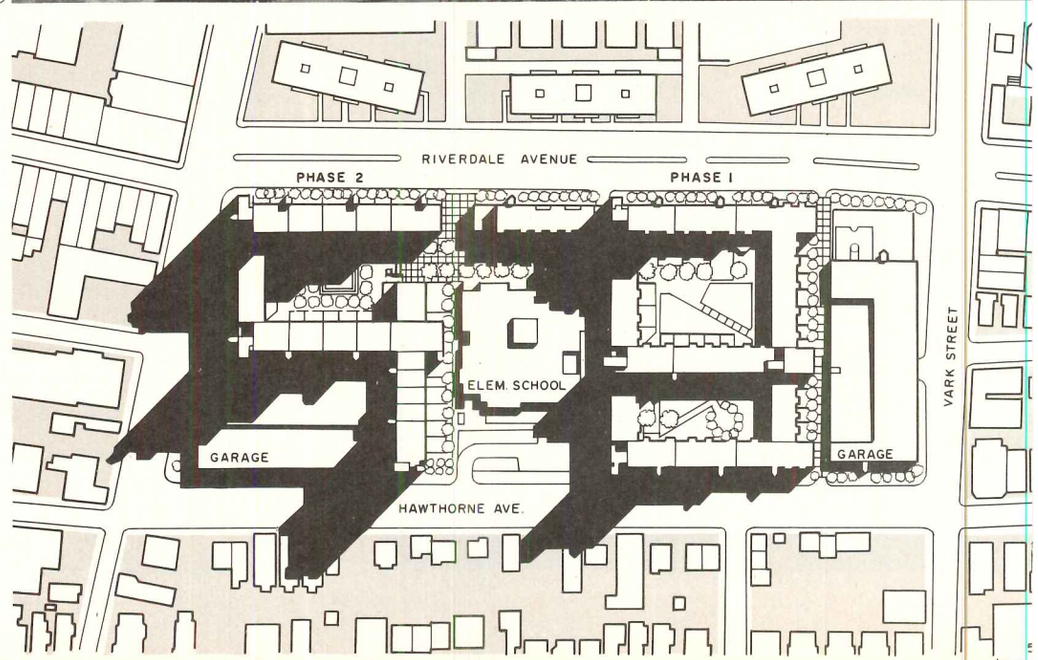


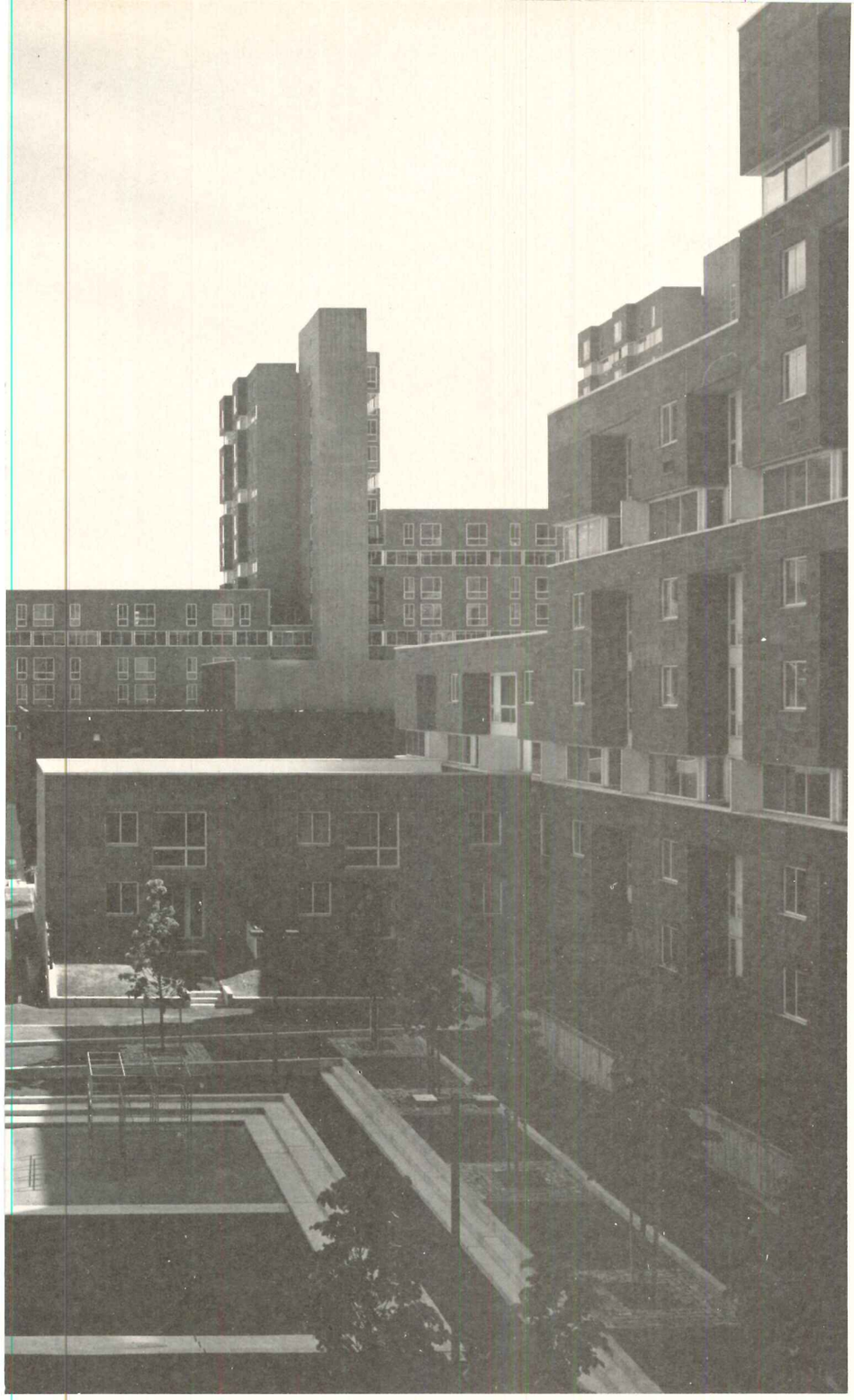
street. To continue the kind of mixed uses in adjoining blocks, the new development includes along this street, shops, a day care center and a community lounge. As the previously cited photo indicates, the new configuration on Riverdale Avenue is a combination of high and low buildings punctuated by the vertical stair shafts. The buildings are taller along Prospect Street, which faces a mixture of residential and commercial uses. Parking garages are located at the outer edges of the site to minimize the intrusion of cars onto the site.

As in Eastwood on Roosevelt Island, the buildings are arranged to form well-defined courtyards. These courtyards provide a sense of place for the community, are interesting to look at from the apartments and corridors which face them and provide an oasis from the noise and confusion of the adjacent streets.

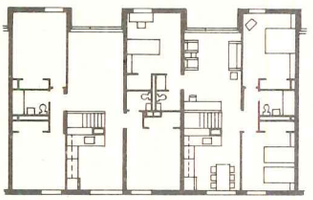
RIVERVIEW HOUSING PHASES 1 AND 2, Yonkers, N.Y. Client: *New York State Urban Development Corporation.* Architects: *Sert, Jackson and Associates, Inc.—William Lindemulder* (project manager); *Robert Campbell* (project architect). Engineers: *Paul Weidlinger Associates* (structural); *Batlan and Oxman* (electrical and mechanical). Contractors: *Phase 1: Building Systems Housing Corporation; Phase 2: Halpern Building Corporation.*

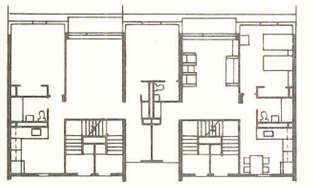
© *Steve Rosenthal photos*

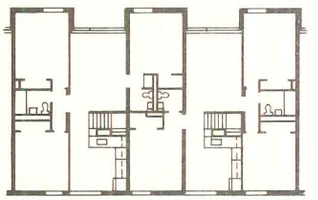




The unit plan for phase 1 of Riverview is similar to Eastwood. The unit plan used in phase 2 is a further development of the three-story skip-stop module. The fundamental difference is in the living bay. The private stair is an "L"-shape and does not take up as much area. As a result, the living room is pulled back and its window is recessed three feet behind the bedroom exterior wall. This recess permits the units on the corridor level, which are not cross-ventilated, to be compensated by having a small balcony off the living room (see sketch opposite page). These modifications bring about a significant change in the exterior expression. The photograph (left) looks south toward phase 1, but flanking the vista to the east and west are two wings of phase 2. In the phase 2 facades the bedrooms, instead of the living rooms, protrude. Shown below is a mock-up of the kitchen, dining and living area within the basic module. The cost of the total of 815 thousand square feet of residential space, parking, commercial and community facilities and landscaping was $27 million total; $33.10 per square foot; or $33,-750 per dwelling unit.





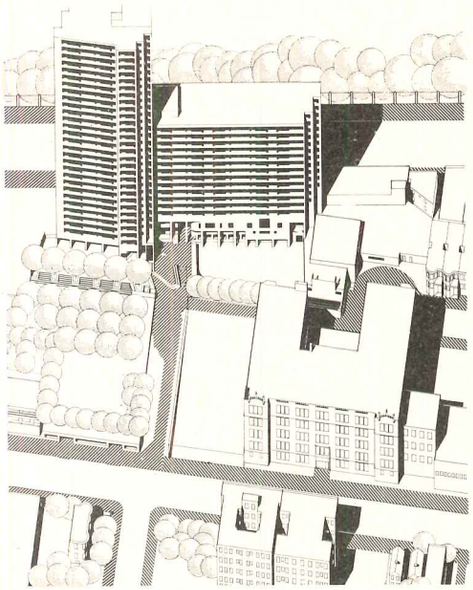


5 BAY MODULE

TWIN PARKS EAST: BRONX VEST POCKET HOUSING WITH TWO SCHOOLS AND A CENTER FOR THE AGED TUCKED UNDER ITS TOWERS

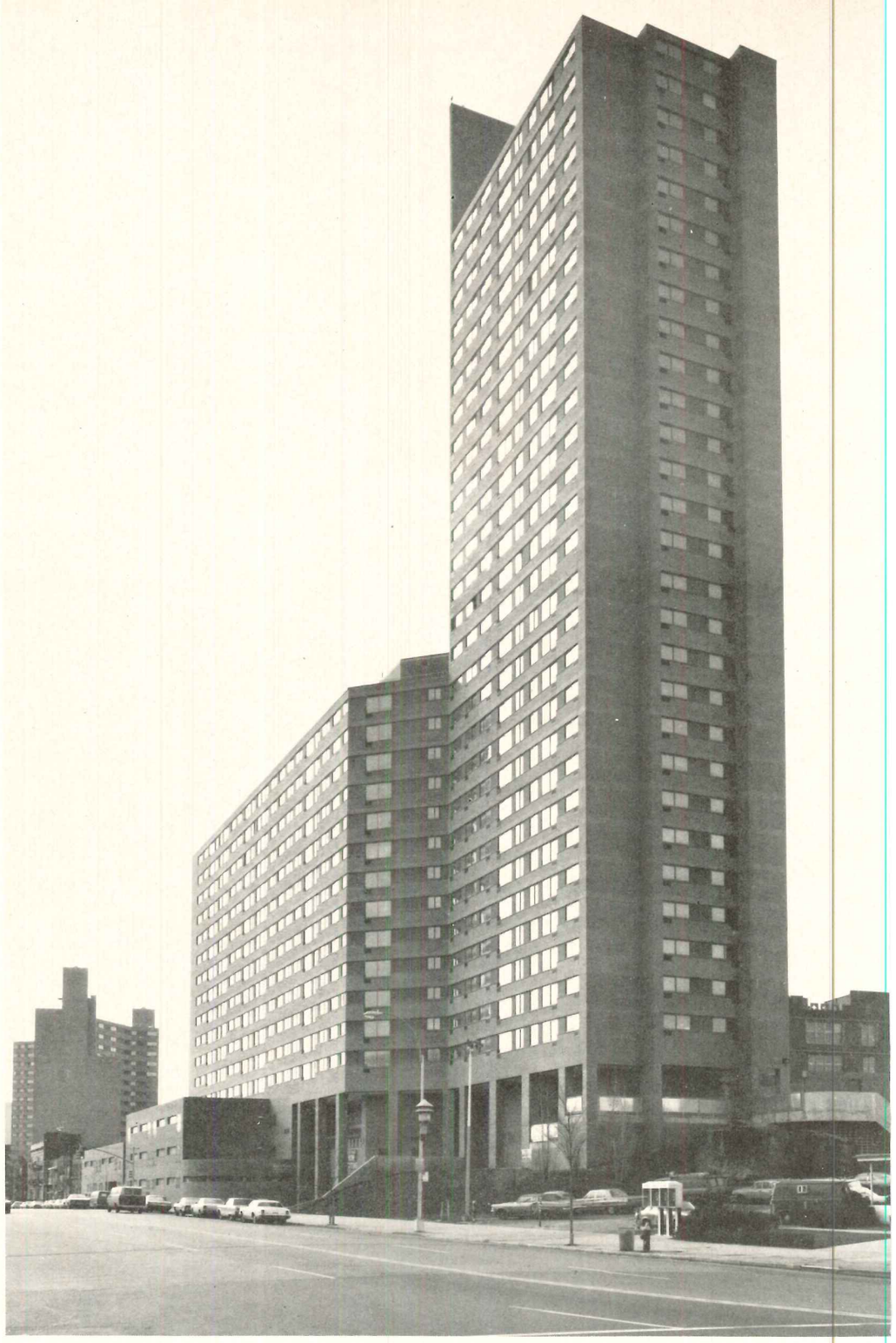
Twin Parks East by Giovanni Pasanella Associates is a project of the New York City Educational Construction Fund and the De Matteis Organizations. It contains 599 apartments at a density of 135 units per acre and an elementary school P.S. 205. The school has two components, 205A for grades 1-4, and 205B, an early childhood center. Also included are parking facilities, community spaces and a center for the aged.

As can be seen on the site plan (opposite page) and in the comprehensive photograph below it, sites 1 and 1A are developed as twin buildings, which face the Bronx Zoological Gardens and form an entrance to East 187th Street, the main shopping street of the large, cohesive Italian community in this part of Twin Parks. These two buildings, one of which is 18 stories high and the other 16, are intended as



housing for the elderly and between them have 150 studio apartments, 120 one-bedroom apartments and 29 two-bedroom apartments. At the base of site 1 is the 8-thousand-square-foot center for the aged, a two-story structure comprising the first two floors of the tower shown at the top of the opposite page and to the right of the drawing (p. 112). Across the street on the first two floors of the other tower is the early childhood center PS 205B. Programmed for the New York City Board of Education for 480 pupils, it operates all year and provides day care facilities in the summer months.

The school shares its site with 160 apartment units. The site itself is small and irregular. Since it had to accommodate housing as well as the school, it was necessary to put the school on two floors and to place the smaller administrative and service areas beneath the

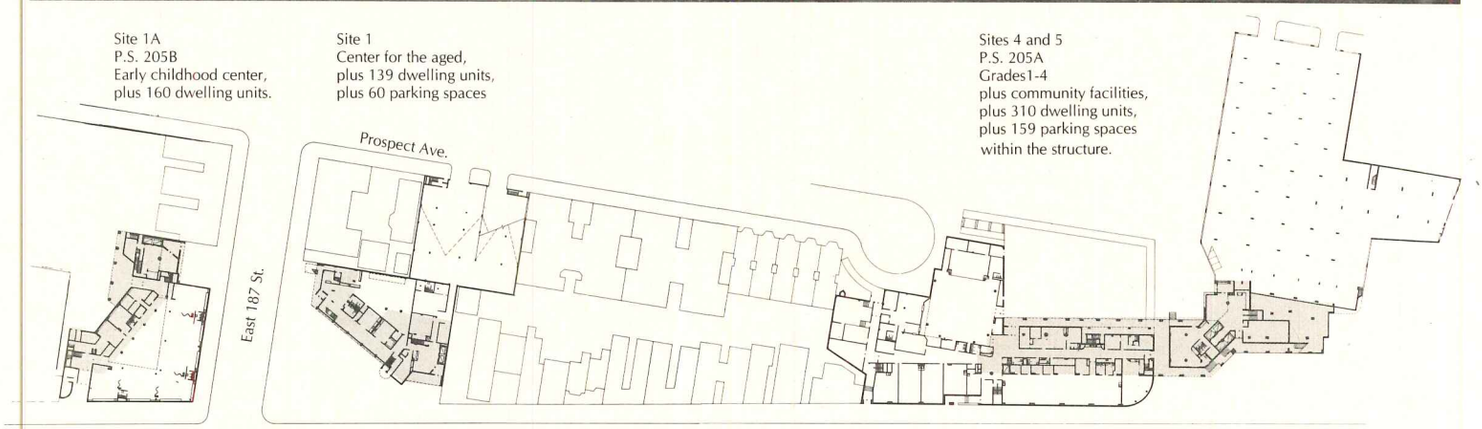


The view above looks south along Southern Boulevard. The complex in the foreground known as Keith Plaza divides 310 dwelling units into two elements—one 28 stories high and the other 15. This structure houses grades 1-4 of P.S. 205 in the three- and two-story elements which flank the street. There are 11 thousand square feet of community facilities within the structure and 159 parking spaces. The sketch (left) shows the recreational space at the rear of the structure which was created by closing a portion of Prospect Avenue and an east-west street. The view (opposite page top) looks north. It shows the 16 story, 139 dwelling unit tower which includes a center for the aged on its first two floors and parking for 60 cars. Its opposite element, left, has 160 units and the early childhood center of P.S. 205.

Site 1A
P.S. 205B
Early childhood center,
plus 160 dwelling units.

Site 1
Center for the aged,
plus 139 dwelling units,
plus 60 parking spaces

Sites 4 and 5
P.S. 205A
Grades1-4
plus community facilities,
plus 310 dwelling units,
plus 159 parking spaces
within the structure.



housing, since they could be more easily planned within the housing column spacing. The larger classroom areas are placed away from the apartment structure and at the street line of the site where there is more natural light and ventilation.

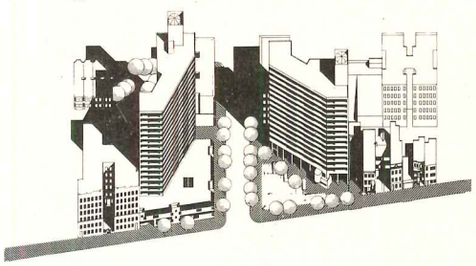
In designing this 22.5-thousand-square-foot school. Pasanella tried to make it one which would live comfortably with the ever-changing philosophies of education. At present it is an open plan school but it can be altered to provide conventional classrooms upon demand. Should this become necessary, the school is planned so that demountable partitions could be set up to divide the space into standard classrooms of 940 and 800 square feet in area.

The program also called for a multi-purpose area to be used by all of the students. It was placed in the middle interior of the school and is a two-story space open to adjoining class areas on both floors (see photos right).

Sites 4-5 contain two towers, one 15 stories high, and the other 28 stories. Together they have a total of 310 apartments—28 studios, 80 one-bedroom apartments and 148 two-bedroom apartments. Beneath the 15-story tower is P.S. 205A grades 1 through 4. Each grade occupies a single teaching station complex designed as a flexible space—for 110 to 125 students—that can be subdivided into four equal classrooms with an average class register of 28.

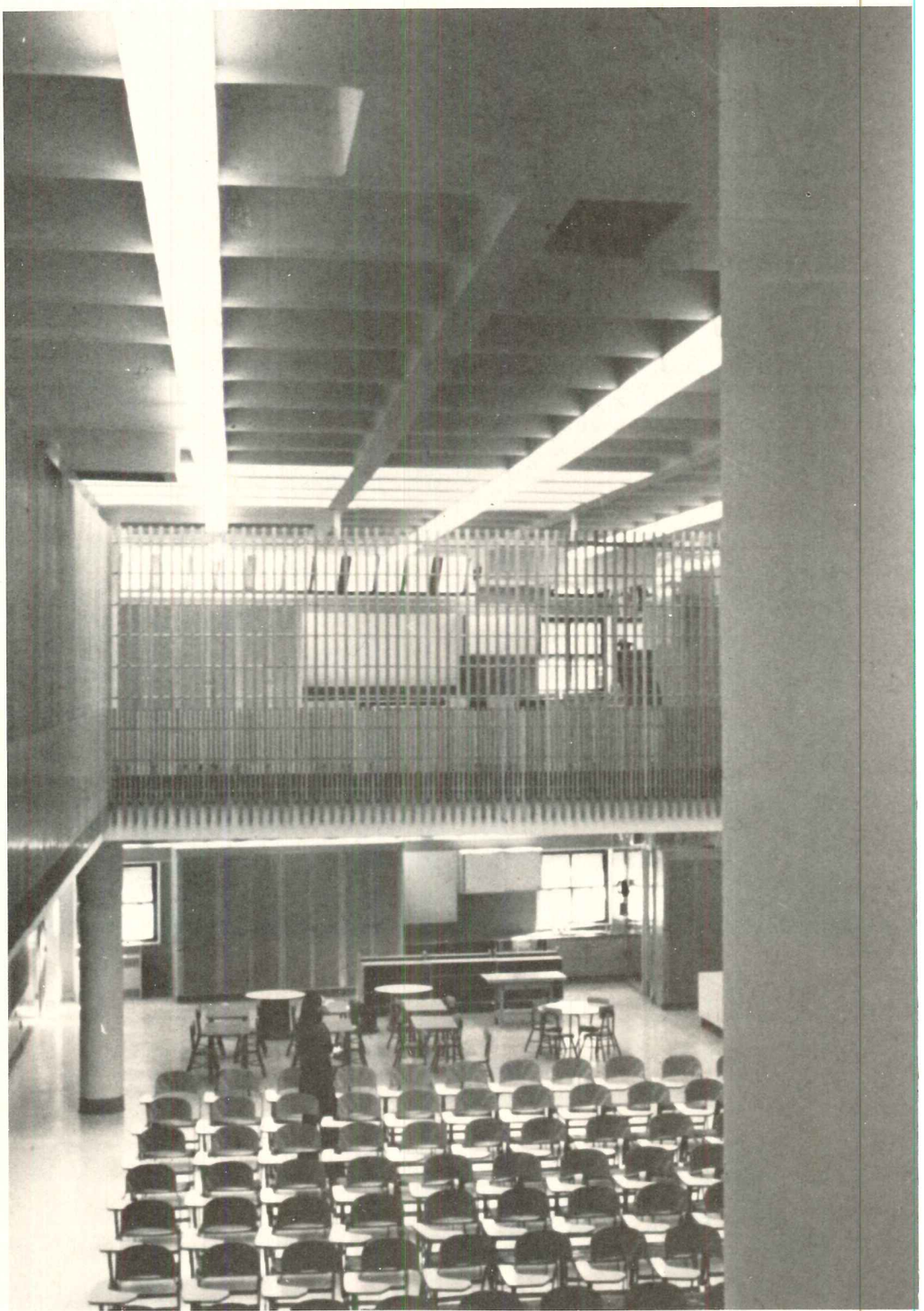
The teaching complex includes teaching stations, a team center and small study rooms. Each teaching complex is located on the Southern Boulevard face of the school and is served by a central staircase. Facilities to be used by both the school and the community, such as the large assembly-lunch-play area, a community room and special teaching classrooms have been located on the ground level adjacent to administrative areas. The library, art-science classrooms and audio-visual facilities are situated above on the second and third levels. The entire school area is 55,000 square feet.

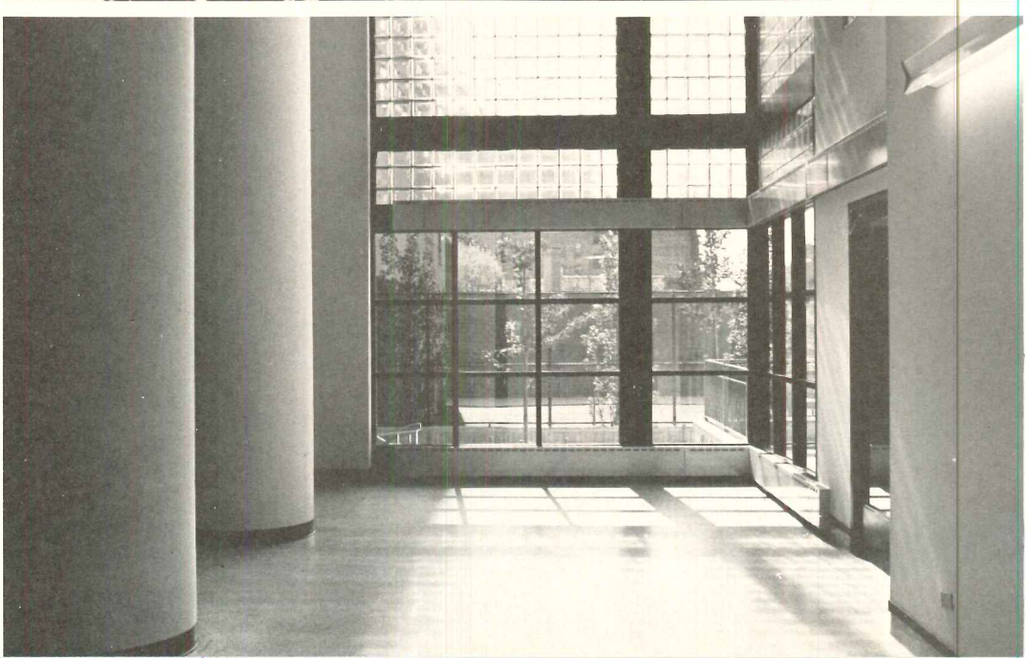
The school has been sited to maintain the elevation line of the two-family residences which extend down the boulevard. It acts as a transition element from the street to the tall housing above.

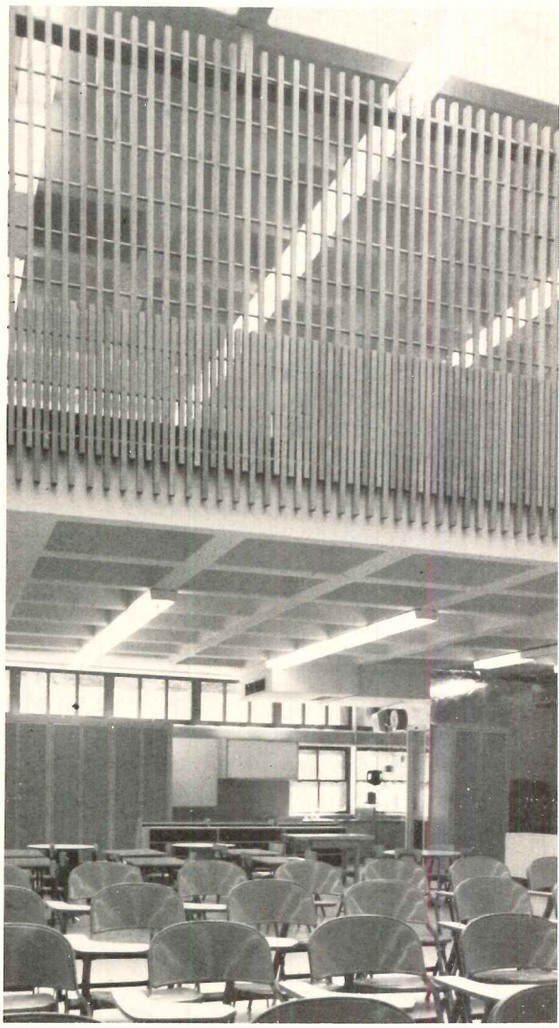


Total cost of Twin Parks East was $24 million including $5 million for the schools. The cost per unit was $39 thousand including the schools, parking and the center for the aged.

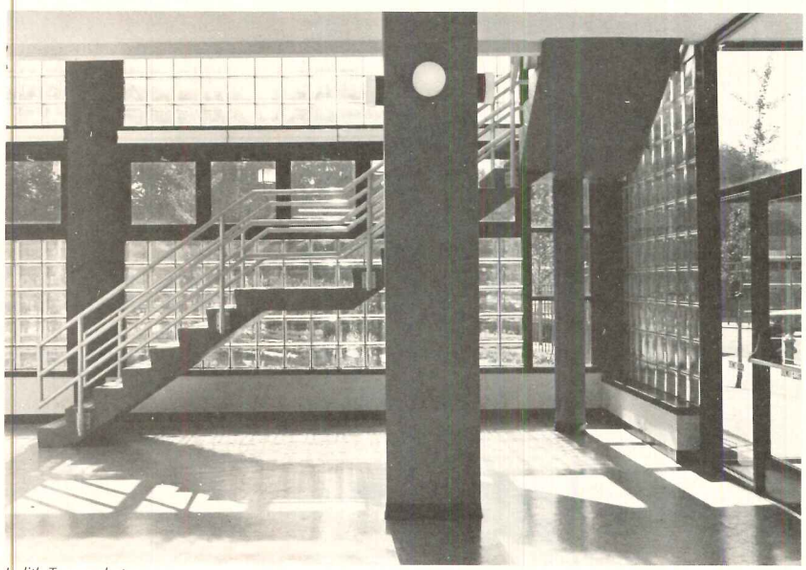
TWIN PARKS EAST, The Bronx, New York, N.Y. Clients: *New York City Educational Construction Fund, New York City Board of Education and the De Matteis Organizations.* Architects: *Giovanni Pasanella Associates.* Consultants: *Irwin G. Cantor* (structural); *Herbert Pomerantz & Assocs.* (mechanical).

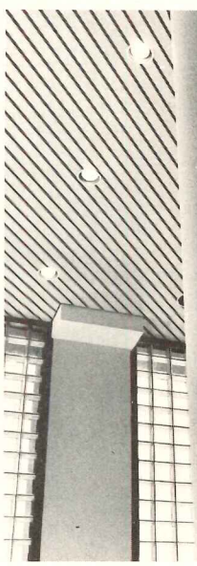


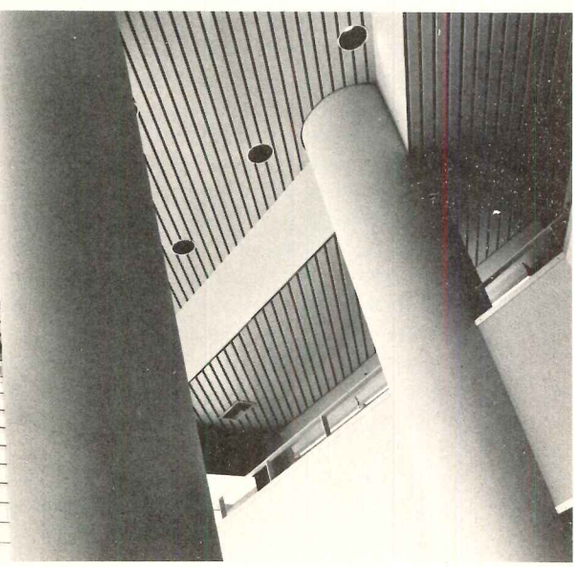




The views above and to the left are of the two-story-high space within P.S. 205B, the early childhood center. The columns marching down the side help carry 16 floors of dwelling units. Walls are of large white tiles, which contrast well with the natural finish wood slats that screen the surrounding mezzanine. The photographs below show Pasanella's choice of building materials for the public spaces. His use of glass block in combination with exposed metal ceilings is handsome and practical. The sketch of the two towers (left) shows how the school, the plaza and the center for the aged interrelate.







Judith Turner photos

MOTT HAVEN INFILL IN THE SOUTH BRONX: A LOW-RISE VERY-LOW-COST APPROACH WITH LIMITED BUT SIGNIFICANT AMENITIES

One of the major advantages of the three high-density projects just reviewed is that their size and concentration makes it economically possible for them to occupy large aggregations of desirable land. Roosevelt Island, the site of Eastwood, is surrounded by beautiful river views, is adjacent to parks and a river promenade, and is within a very brief aerial tram ride to and from central Manhattan. Riverview in Yonkers overlooks the Hudson and the Palisades and is close to downtown Yonkers. The two sites in Twin Parks East overlook the beautiful open space of the Bronx Zoo and are near the New York Botanical Garden.

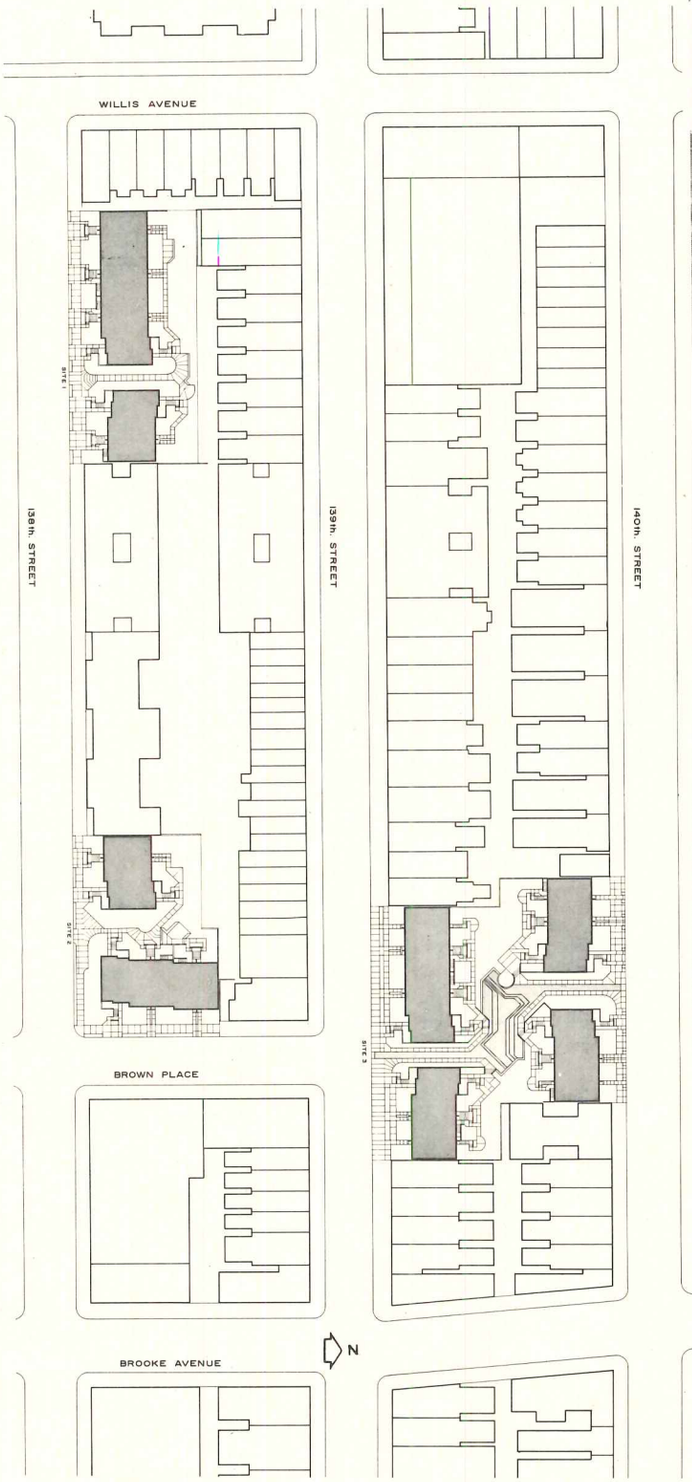
The new row housing in Mott Haven, however, has been plugged into an old depressed neighborhood under a flight path to LaGuardia. Although living rooms and master bedrooms can be cross ventilated provided bedroom doors are left open, these rooms have been supplied with air conditioners so that windows may be closed to shut out the noise from low flying jets. Putting aside the question as to whether such a site should have been upgraded at all, it must be said that architects John Ciardullo and Wayne Ehmann made the most of the limited potential which was there.

Mott Haven Infill, also known as Plaza Boriquen, like the three other projects shown in this study, was financed under the Federal 236 rental program. At a density of 50 units per acre (Eastwood-166, Riverview-103, Twin Parks East-135), the architects have designed three-story row houses providing simplexes, duplexes or triplexes for rent at $38 per room, which by New York City standards is quite low. Over 60 per cent of these units have four bedrooms and two baths, making them feasible for large families. Every tenant family has its own small garden adjacent to its entrance.

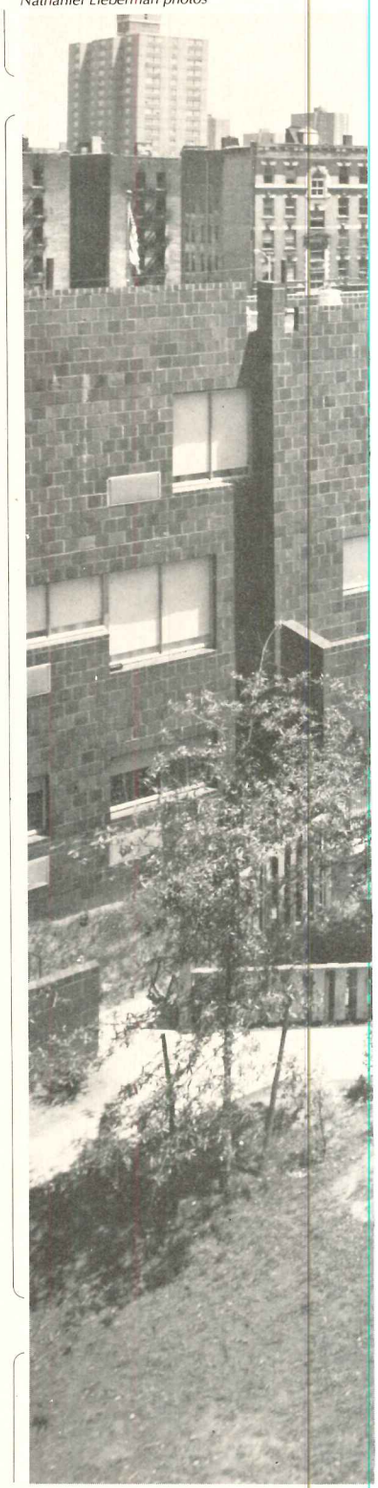
At Mott Haven, each tenant has demonstrated pride of possession of this outdoor space. Individual families have not only erected fences at their own expense, but have planted flowers, shrubs and have built patios. Each family has expressed its own particular taste and feeling in its garden.

The architects consider it a plus that the only shared public amenity is the large separately funded playground shown in the photo at right. They emphasize that the tenant families have privacy, and that mothers can watch and call to their children at play. They point out that their project has no public stair wells, public corridors, public lobbies, elevators or in their words: "other such areas which foster indifference and anonymity and require extensive maintenance."

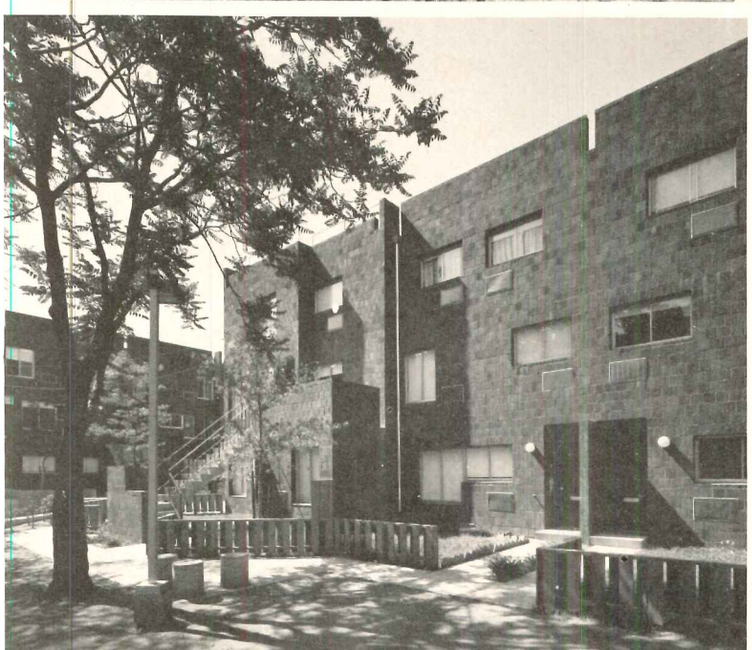
MOTT HAVEN INFILL, South Bronx, N.Y. Clients: *South Bronx Community Housing Corporation and the New York Bank for Savings.* Architects: *Ciardullo Ehmann.* Contractor: *J. Baranello & Sons.*

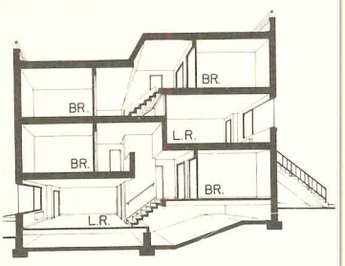


Nathaniel Lieberman photos



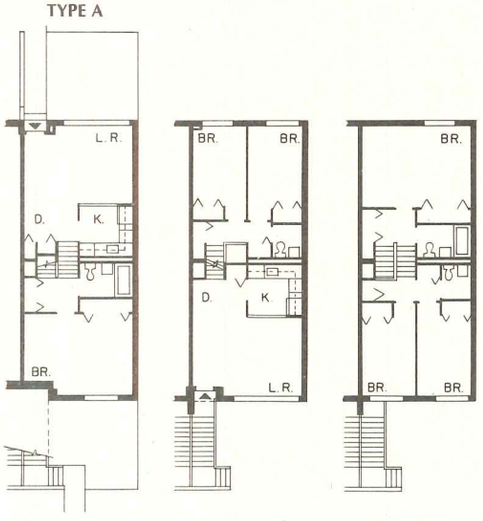
Base construction costs not including land cost, contractors' profit and architects' and consultants' fees but including site work, were $22 per square foot, $24.6 thousand per unit and $4.3 thousand per rental room. The architects point out that there would be additional substantial cost savings for full block or larger developments of this type. Unfortunately Mott Haven bears the burden of scattered site development—additional architectural work in the preparation of construction documents; extra guard service to protect more than one site at a time; separate excavations as well as additional supervision and coordination.





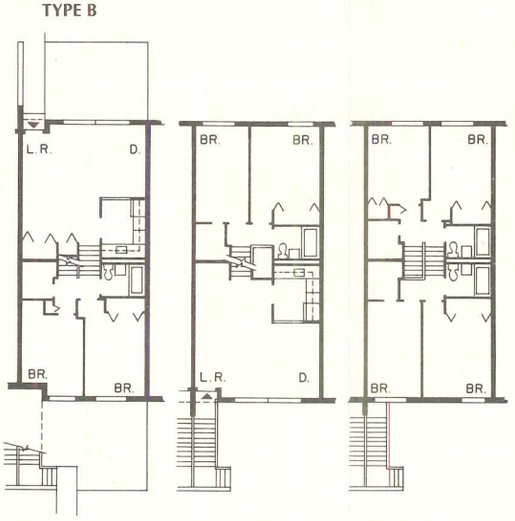
The interior views at left show how a typical low to moderate income dwelling in this South Bronx scattered site development would look if it were occupied by a high-income childless couple who had met each other in architectural school. Such couples, fortunately, do not have to choose to live in the path of low flying jets—at least not yet. Remove this pair and their correct furnishings from the mind's eye and substitute an untidy young family of six who have bought their furniture right there in the Bronx. Then examine the plans and the section above. It is clear that in terms of well planned space this family is getting a lot of value by today's standards for its $38 per room. Storage space is comparatively generous and kitchens, though small to conform to the square foot minimums per dwelling unit of the Federal 236 rental program, are well related to the living and dining areas. Only in the "C" units do the kitchens have windows, which of course limits maternal surveillance. Central heating has been provided for clusters up to ten units. The construction is semi-fireproof with 3 by 10 inch wood floor joists, brick and block solid masonry exterior walls, and metal stud and gypsum wallboard two-hour fire walls. Both double-hung and sliding anodized aluminum windows have been used with $^{3}/_{16}$ inch glazing to resist jet noise. Stairs within the dwelling units are of oak and exterior stairs are of concrete. All roofs are flat.

TYPE A



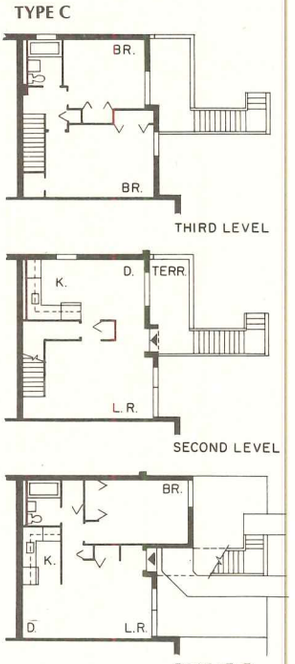
FIRST LEVEL SECOND LEVEL THIRD LEVEL

TYPE B



FIRST LEVEL SECOND LEVEL THIRD LEVEL

TYPE C



5

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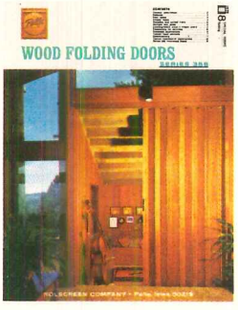

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For more data, circle 51 on inquiry card

It gave us a chance to show you the advantages of Dylite® expanded polystyrene tapered roof board in this unusual photo combining both "Before" and "After" at once.

When the rains came, the first of 19 roofs, scheduled for correction of persistent drainage problems, had just been finished at this Kansas apartment complex (see arrow). The other 18 buildings still had their original roofing.

The Taper Tile* system manufactured from Dylite now covers all 19 buildings, a total of 175,000 sq. ft. Pre-tapered panels enabled the contractor to put custom-designed positive drainage over existing flat decks without structural alteration. The panels have a maximum thickness of 3 inches in some areas; 6 inches in others. Thermal conductivity (k) is 0.22 at 0°F, giving a very substantial saving in heating and cooling costs.

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Want to know more? Write ARCO Polymers, Inc., Dept. 1004, 1500 Market Street, Philadelphia, PA 19101.

CAUTION: The foamed polystyrene described in this advertisement is combustible and should not be exposed to open flame or other ignition sources.

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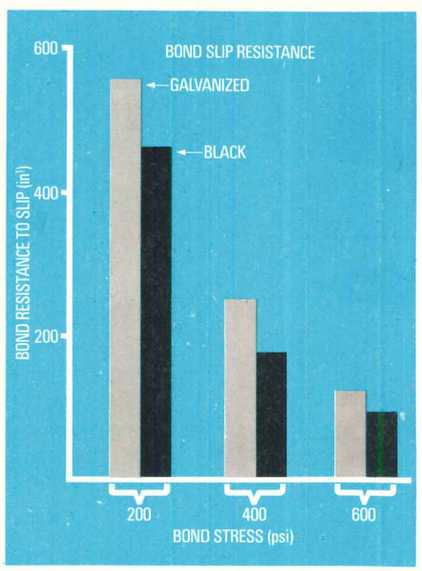
**Trademark of Contour Packaging, Inc., Lenexa, Ka., who was the supplier on this project. Contractor: Western Roofing Company, Kansas City, Mo.*

For more data, circle 52 on inquiry card

GALVANIZED REBAR GIVES CONCRETE A BETTER GRIP—AND THEN INSURES IT

Galvanizing strengthens concrete's grip on reinforcing steel and then prevents corrosion from prying it loose.

Extensive tests employing American Concrete Institute procedure 208-58 showed that the bond of concrete to galvanized steel was equal to or usually better than the bond of concrete to black steel. The graph shows typical results. The layer of zinc which galvanizing metallurgically bonds into the steel rebar insures against subsurface rust pressure which can force the concrete away from the steel, causing cracking, staining and spalling. Even in the aggressive marine environment of Bermuda, galvanized rebar has kept its grip on concrete for over 25 years with no sign of loosening.



An increasing number of architects and highway engineers are specifying galvanized rebar to prevent concrete deterioration in buildings and bridge decks.

If you would like more information, write on your letterhead for a copy of our booklet "GALVANIZED REINFORCING BAR—Undercover Protection For Concrete."

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For more data, circle 57 on inquiry card

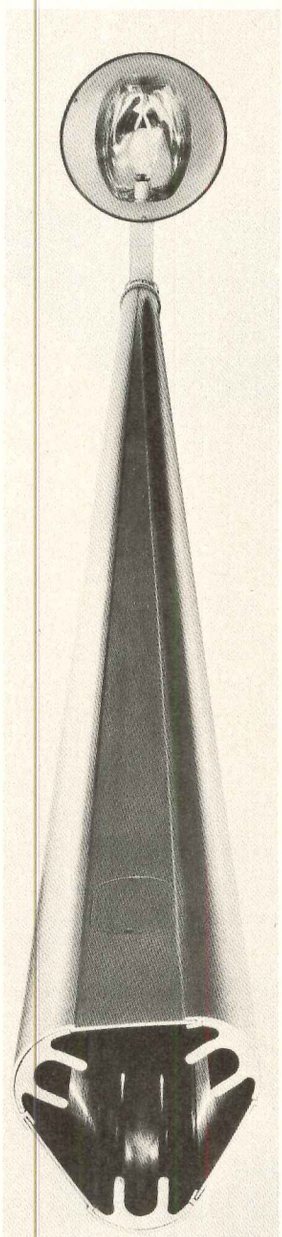
Marvin Windows

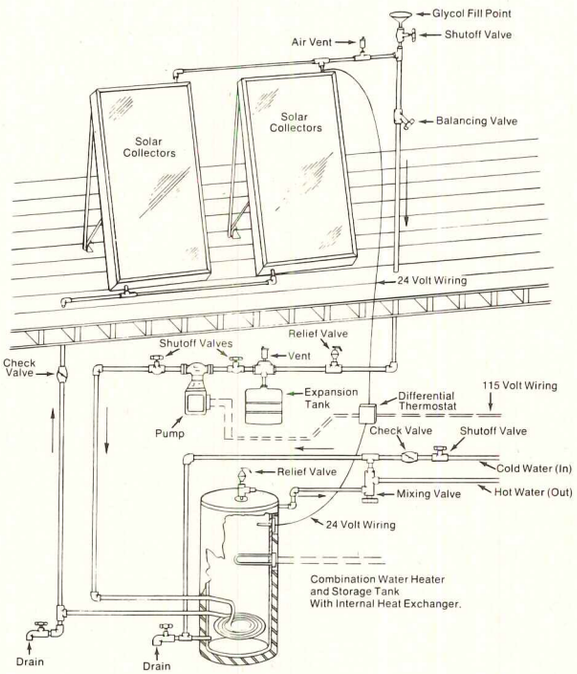
For more information, circle item numbers on Reader Service Inquiry Card, pages 157-158.

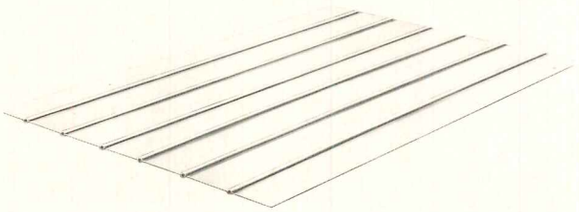
High-strength lighting poles up to 40 feet

The company's *TRI-ROUND* aluminum lighting poles start out triangular at the base and terminate at the top in a round configuration, providing strength and light weight. The patented design features three tongue-and-groove extruded sections bonded with structural adhesive. The pole can take many luminaires. ▪ Crouse-Hinds Co., Syracuse, N.Y.

Circle 300 on inquiry card



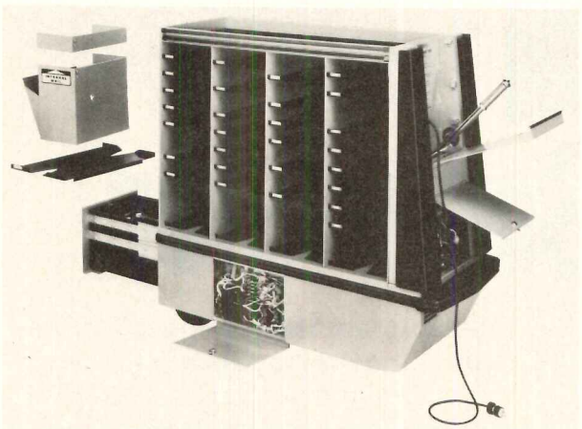




Solar collector spawns domestic hot water system

In an effort to make solar heating more practical and widespread, the company has developed a domestic hot water system to be marketed under the tradename *Solar-Bank.* The package features the company's "Tube-in-Strip" collector panel (above) furnished in glass-covered, weathertight units, enclosed in an extruded aluminum housing. The package also contains a storage tank, pump, heat exchanger, valves and other components, which previously had to be purchased separately. The system—which is said to provide up to 100 per cent of the domestic hot water requirements for both residential and commercial buildings—is an outgrowth of the "Tube-in-Strip" solar collector, in which the absorber plate and the tubes are one integral sheet of copper. ▪ Revere Copper and Brass Inc., Rome, N.Y.

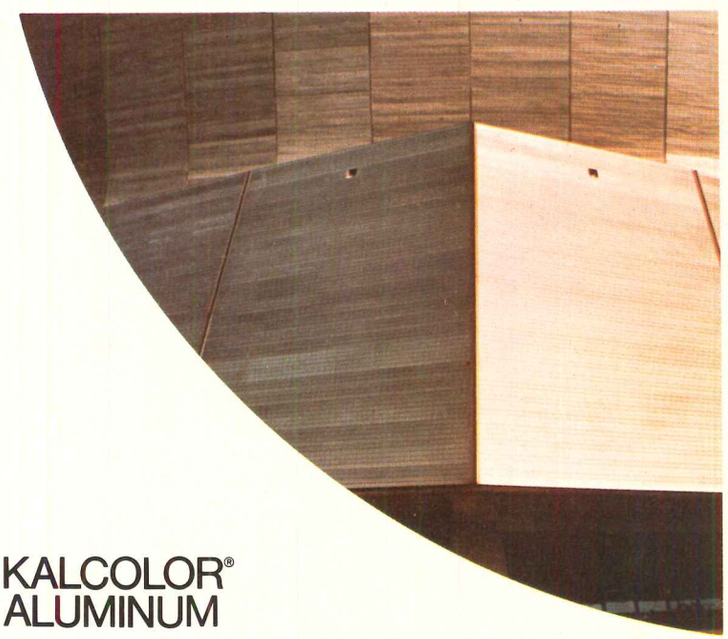
Circle 301 on inquiry card

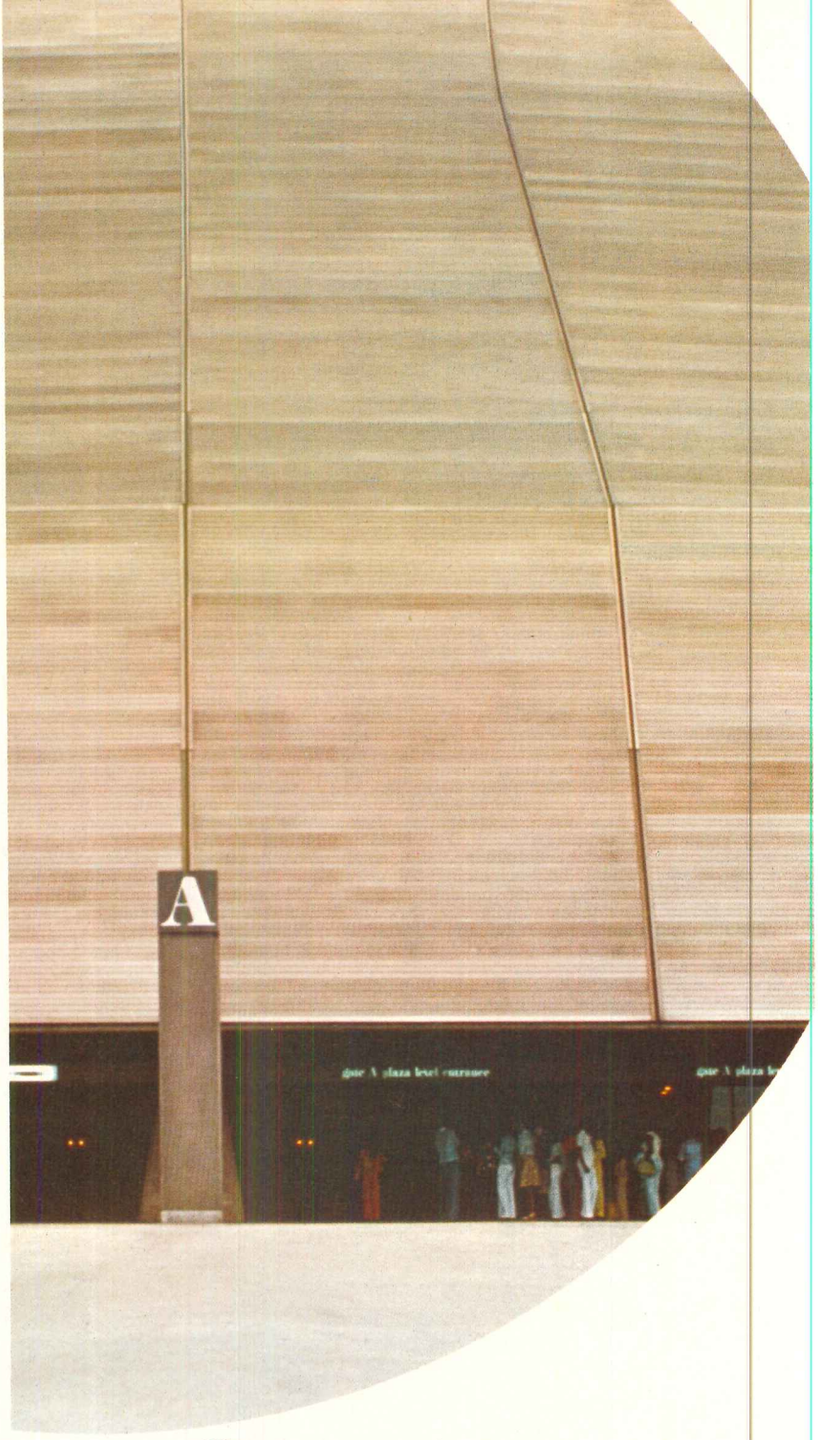


Mailmobile office delivery system employs invisible guidepath

The company's development of guidance devices and systems for use by the defense and aerospace industries has led to *Mailmobile,* a self-propelled, unmanned vehicle which tracks and follows an invisible floor guidepath. The path is applied as an imperceptible fluorescent chemical that is harmless to carpeting, tile or other flooring materials. It may be chemically erased and altered, and can be "coded" at any number of points to automatically stop at timed intervals (above right). *Mailmobile* travels at 1.5 feet per second, signaling its presence with a pair of flashing lights and a soft "beep" tone. Power to drive the unit is supplied by standard industrial batteries providing a minimum of eight hours of operation. The batteries are recharged by connecting a power cord in the unit (above, right of unit) to a 15-amp, 115-volt outlet. In the mailroom, *Mailmobile* can be manually maneuvered (right) and returned to its guidepath by means of a retractable handle. ▪ Lear Siegler, Inc./Automated Systems, Zeeland, Mich.

Circle 302 on inquiry card





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ALUMINUM

For more data, circle 58 on inquiry card

For more information, circle item numbers on Reader Service Inquiry Card, pages 157-158.

CONSTRUCTION COSTS / Escalated costs for every building trade, material, testing service, supply item, etc., for all states and Canada are given in the 1976 edition of "Construction Cost Guide." These projected costs are presented along with detailed procedures and data for design professionals and contractors, public officials, etc. Supplementary "Bidding Notes" explain some causes of bid variations, bond requirements, consulting fees, etc.; a "Local Cost Experience" table gives regional breakdown of cost factors. This publication is available in an 8- by 9-in. ring binder for $29.95 ($26.95 as a refill set for 1975 editions), from Research Guide Publications, 139 West Colorado Blvd., Pasadena, Calif. 91105.

AUTOMATED FILING / Small- to medium-sized offices can benefit from the space- and time-saving features of the *"Minitrieve Ltd.* automated document filing system, according to an illustrated four-page brochure. The 10-ft wide units are 8- to 10-ft high; 6½- to 11-ft deep, and can hold as many as 100 37½-in.-long file containers, any one of which can be retrieved and returned in 17 seconds. ▪ Supreme Equipment & Systems Corp., Brooklyn, N.Y.

Circle 400 on inquiry card

COLD-FORMED STEEL / A catalog lists computer programs available to those involved in the design of floor decks, ceiling and wall systems, and other structures using cold formed steel. Subjects covered by the various programs include sectional properties, load table for diaphragm-braced channels and beams, and elastic buckling loads and stiffness analysis of uniformly loaded orthotropic hyperbolic paraboloid shells. ▪ American Iron and Steel Institute, Washington, D.C.

Circle 401 on inquiry card

PLYWOOD SIDING / A 12-page color brochure features end-use photos of both "Ruf-Sawn 316" overlaid plywood, and "Ruf-Sawn" redwood plywood. Patterns, grades and sizes are given, along with product descriptions, application instructions and finishing recommendations for both sidings. ▪ Simpson Timber Co., Seattle, Wash.

Circle 402 on inquiry card

BUILDING TRIM / Fascia systems, batten fascias, soffits, copings and gravel stops in a choice of 16 colors plus *Duranodic* bronze are detailed in this 1976 full-color catalog. Featured are two new products: "Snap-lock" coping and "Snap-on" gravel stops, said to be water-tight and easy to install. The catalog includes installation photos, details and color chips. ▪ Construction Specialties, Inc., Cranford, N.J.

Circle 403 on inquiry card

STEEL WINDOWS / A detailed booklet gives recommended specifications for many types of steel windows, including architectural and commercial projected, guard and security windows, and fire-rated window requirements. ▪ Steel Window Institute, Cleveland, Ohio.

Circle 404 on inquiry card

ROOFING SYSTEMS / "Build a Better Roof" is a 24-page brochure explaining the cost-cutting benefits of plywood roofing systems. Various grades of plywood are reviewed, and such new roofing techniques as built-in-place plywood roofs, long-span systems, preframed panelized roofs and plywood for bonded roofs are discussed. Engineering tables are included. ▪ American Plywood Assn., Tacoma, Wash.

Circle 405 on inquiry card

VAULT CONSTRUCTION / A 12-page brochure on "Grid-Crete" includes a photo sequence showing how the bank vault construction is installed. Technical information covers the current 5R, 6R and 9R insurance ratings, load tables, and line drawings showing exactly where the "Grid-Crete" sheets should be placed in a wall, roof or floor. ▪ Wheeling-Pittsburgh Steel Corp., Pittsburgh, Pa.

Circle 406 on inquiry card

CONCRETE IMPRINTING / Fifteen concrete patterns in a choice of 20 colors are possible using the "Bomanite" process. A new four-page brochure includes color photos of actual applications on malls, driveways, embankments, etc., as well as step-by-step installation information. ▪ Bomanite Corp., Palo Alto, Calif.

Circle 407 on inquiry card

MORTAR / "Everbond" is a resinous spall-resistant emulsion designed to permanently bond concrete, masonry and tile, and to patch and to resurface precast architectural panels, concrete floors, etc. A data sheet gives performance properties, application specifications, benefits and limitations. ▪ L & M Construction Chemicals Inc., Omaha, Neb.

Circle 408 on inquiry card

INSULATING CONCRETE / Information on the use of perlite insulating concrete for floor fills and heated and unheated slabs-on-grade is included in an eight-page bulletin. Thermal insulation qualities, sound transmission data, and fire ratings are given, along with mix proportions and physical properties. ▪ Perlite Institute, Inc., New York City.

Circle 409 on inquiry card

BUILDING STONE / Professionals may obtain copies of the 1976-77 "Stone Catalog," containing indices of quarriers and trade names, a glossary of terms, and a separate full-color section on granite, limestone, marble, bluestone, greenstone, obsidian, quartzite, slate, sandstone and speciality stone. ▪ Building Stone Institute, New York City.

Circle 410 on inquiry card

GROUT / "Non-Shrink" is a non-metallic grout which is said to expand uniformly and to maintain stability even under wet conditions. A four-page brochure details such uses as structural steel erection, machinery installation and precast, prestressed concrete applications. Tables showing compressive strength, setting times and expansion data are included. ▪ Set Products, Inc., Macedonia, Ohio.

Circle 411 on inquiry card

CELLULOSIC INSULATION / Both the professional and the homeowner may benefit from the installation advice in this new brochure: "Standard Recommended Practice for the Application of Cellulosic Loose Fill Insulation." How-to-do-it drawings—as well as necessary precautions—are given for the insulation of attics, sidewall cavities and floor voids of single- and multi-family dwellings. ▪ National Cellulose Insulation Mfrs. Assn., Chicago, Ill.

Circle 412 on inquiry card

ENAMEL COATING / New *Acripoxy* high-performance architectural coating is described in this color folder. A two-part, water-base, low-odor enamel, *Acripoxy* dries to a hard, shiny finish, and meets environmental and USDA regulations. Specifications on surface and coating requirements, and fire ratings, are given. ▪ The Sherwin-Williams Co., Cleveland, Ohio.

Circle 413 on inquiry card

Two good names...

Acrylite®
ACRYLIC SHEET
MOLDING COMPOUNDS

and

XT® polymer

and now another

CY/RO
INDUSTRIES

A new company, a new name, a new world of exciting possibilities in transparent plastics. A partnership of the experience and know-how of American Cyanamid and Rohm GmbH. Integrating the highest standards of quality of the United States and Europe. Bringing you Acrylite® acrylic sheet and molding compounds–and XT® polymer–as you know them . . . American technology and invention . . . expertise in production, marketing, and distribution. The quality and service you've learned to rely on from Cyanamid. And more–much more. The Continental leadership, research tradition and creative design which are the hallmark of Rohm GmbH. A combined commitment to innovation in transparent plastics, seeking out the most demanding applications for high performance plastic products. Synergizing to create broad new spectrums of properties . . . new solutions for unfulfilled needs. New conceptions . . . enabling new departures for industry, new lifestyles for individuals. Let CY/RO help you design the future. CY/RO Industries, Wayne, New Jersey 07470

CY/RO is the news in transparent plastics.

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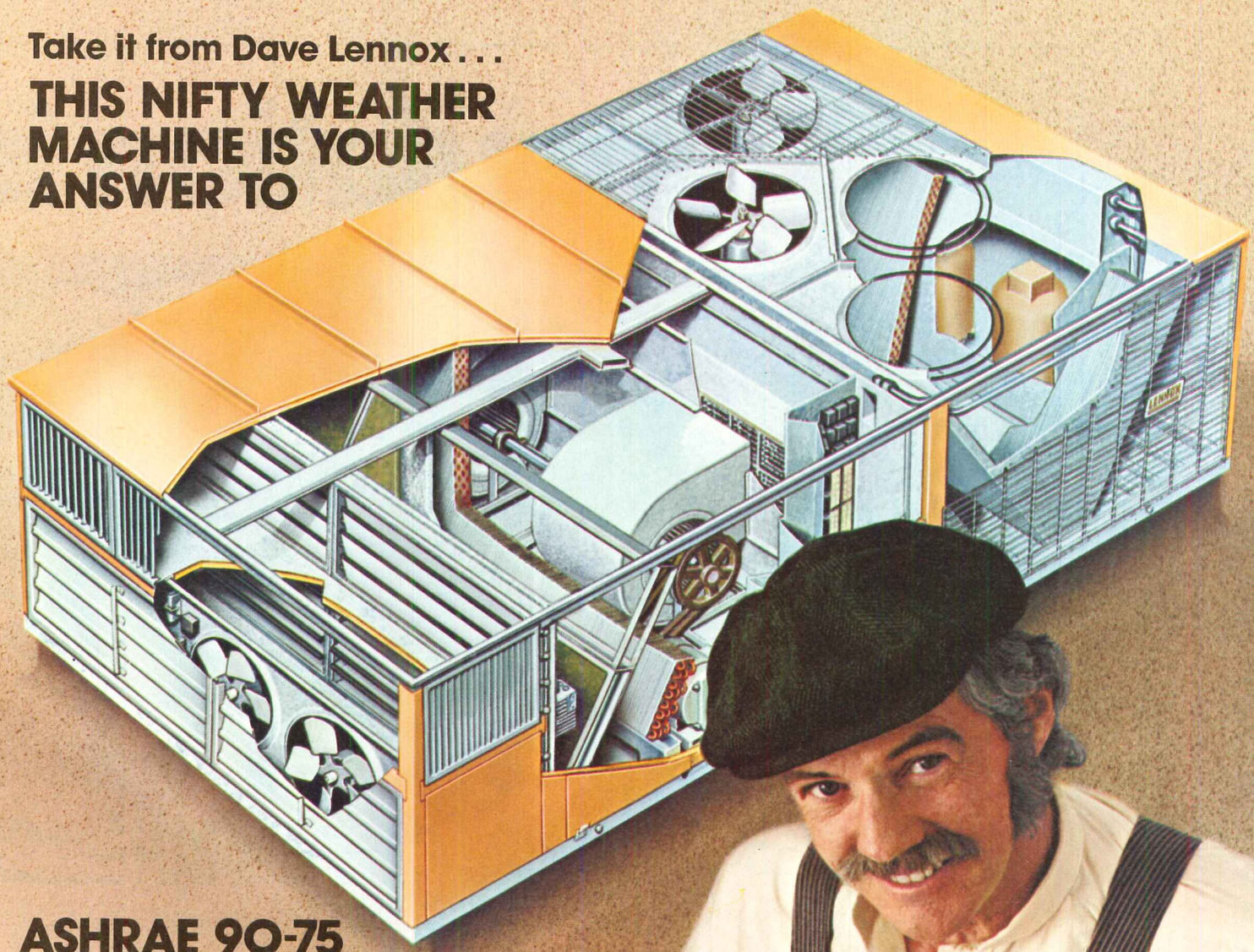
A Partnership of Cyanamid Plastics, Inc. and Rohacryl, Inc.

For more data, circle 59 on inquiry card

Take it from Dave Lennox . . .

THIS NIFTY WEATHER MACHINE IS YOUR ANSWER TO



ASHRAE 90-75 ENERGY GUIDELINES.

The new Lennox DSS1 system lets you design your own single zone HVAC package to surpass ASHRAE 90-75 energy guidelines. The DSS1 offers extraordinary flexibility . . . efficient operation and service . . . exceptional energy savings . . . and consequent cost savings.

Here are a few of the many DSS1 options that give you the right size, right energy, right cost for your application:

- 26 to 45 tons cooling; up to 950,000 Btuh heating.
- Two-speed, first stage compressor saves energy.
- Heat recovery package (allows recovery of heat from refrigeration in supermarkets and restaurants; controls humidity without losing heat).
- Power Saver™ package (allows use of outdoor air for cooling).
- Power Saver II™ (allows recovery of heat from lighting).
- Latent Load Discriminator™ (increases partial-load EER up to 30%).
- Heat pump options available soon.
- Solid state, energy-saving control system.

Get the facts.

For complete information, see your Lennox Territory Manager. Or write: Lennox Industries Inc., 672 South 12th Avenue, Marshalltown, Iowa 50158.

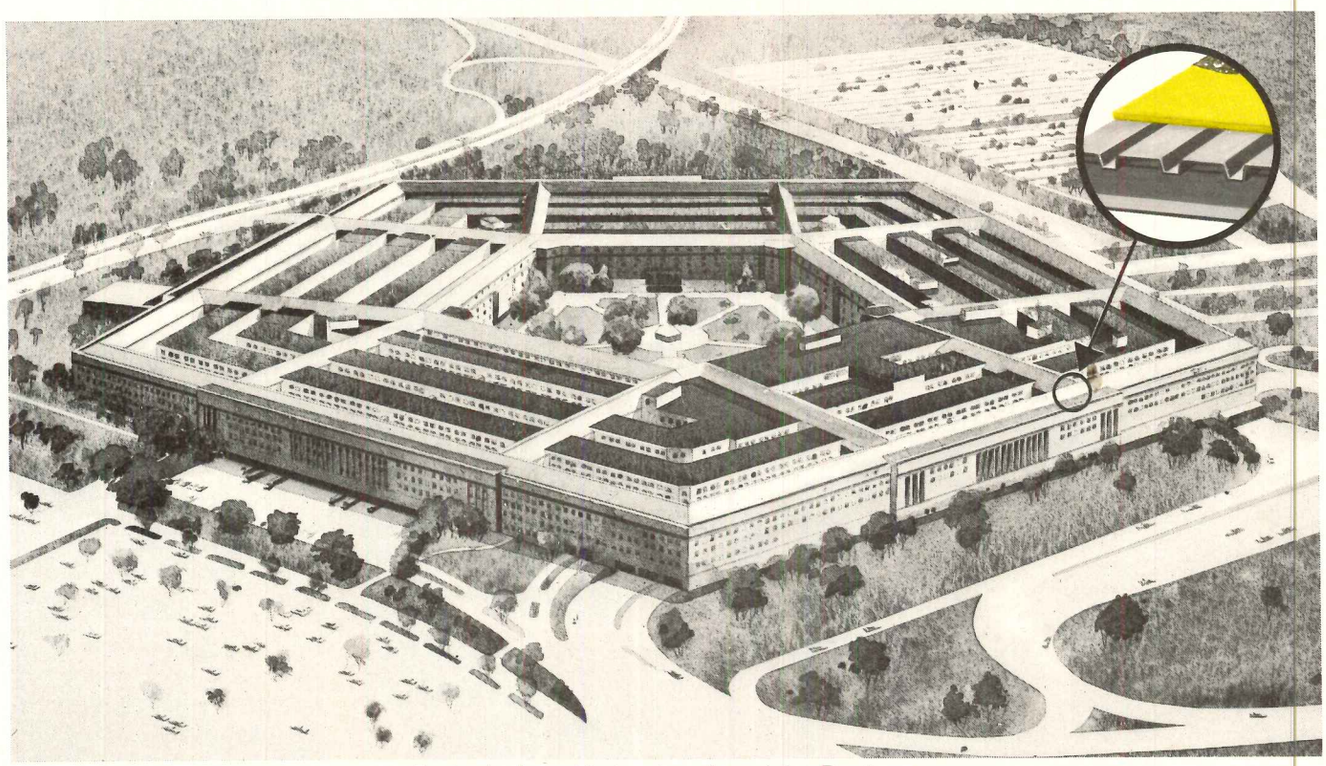
LENNOX®
AIR CONDITIONING • HEATING

"Attaboy, Dave!"

Nifty problem-solving ideas from Lennox.

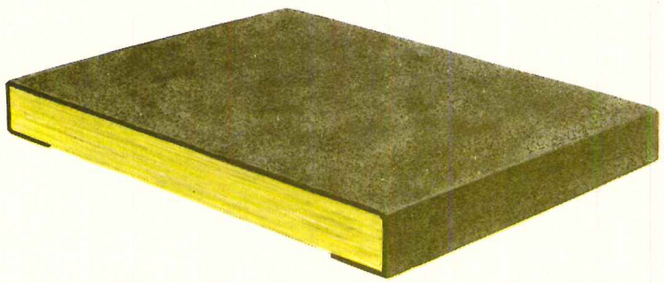
For more data, circle 60 on inquiry card

Insulation is



Projected cost to heat and cool the Pentagon
for the next 20 years, if it were built today using only 15/16-inch Fiberglas roof insulation:

$2,541,454



Owens-Corning Fiberglas roof insulation—the only glass fiber roof insulation on the market. Dimensionally stable. Retains thermal value. Easier to apply than organic/mineral boards. For over 30 years, the *best* base for built-up roof decks.

The Pentagon—world's largest office building.

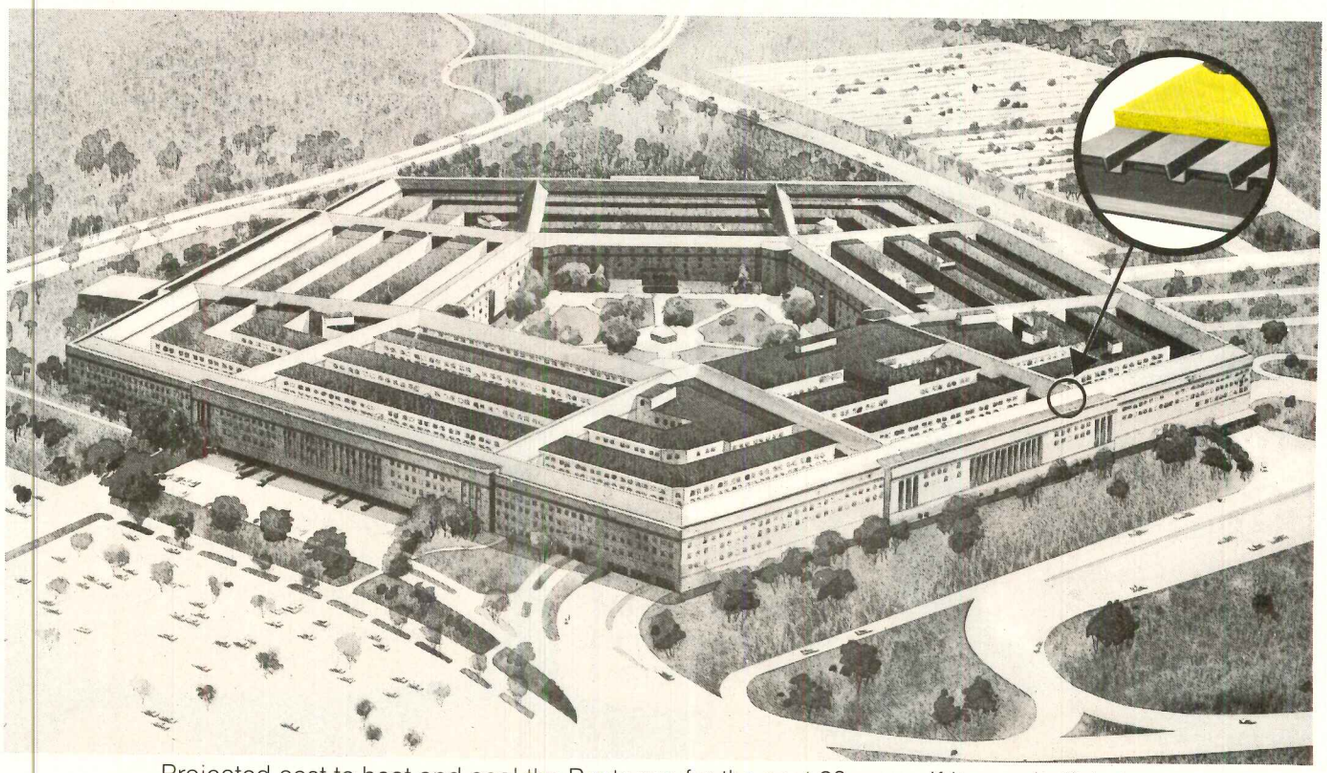
If it were being designed by *today's* architects for *today's* soaring heating and cooling costs, we trust it would have the specifications of the version on the right.

This version has a full 2¼-inch layer of roof insulation, instead of the thinner layer that has been usual for offices, schools, stores and other commercial buildings for the past 20 or 30 years.

Using thicker 2¼-inch Fiberglas*

*T.M. Reg. O.-C.F.

cheaper than oil



Projected cost to heat and cool the Pentagon for the next 20 years, if it were built today using thicker 2¼-inch Fiberglas roof insulation (*after* allowing for the cost of thicker insulation!):

$1,207,500

roof insulation saves money two different ways:

A saving of $1,333,954

1. It saves on energy costs. Estimated savings per year, based on gas heat and electric cooling in the Washington area, with a projected increase in energy costs at 7% per year and estimated future savings discounted at 10% per year: $66,697 —or $1,333,954 every 20 years.

2. It saves on construction costs. The estimated first cost of this energy-tight Pentagon would be *lower* than if the less efficient version were built! Reason: the improved thermal performance of the roof would permit use of smaller-capacity, *less costly* heating and cooling equipment. Amazingly, the estimated savings would be large enough to cover the added cost of the thicker roof insulation *twice* over.

Important: Thicker Fiberglas roof insulation also makes sense when it's time to re-roof *existing* buildings. It should pay for itself in a few years, then go on saving thousands in fuel bills for years to come.

Ask our "talking" computer

Our EMS II (Energy Management System) computer can give you savings figures on your next roofing job —by phone! You'll get projected energy *and* equipment savings, plus *payback* period. (Actual savings may vary.) For details, call your local O.-C.F. rep. or write: I.C. Meeks, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Owens-Corning is Fiberglas

OWENS/CORNING FIBERGLAS TRADEMARK®

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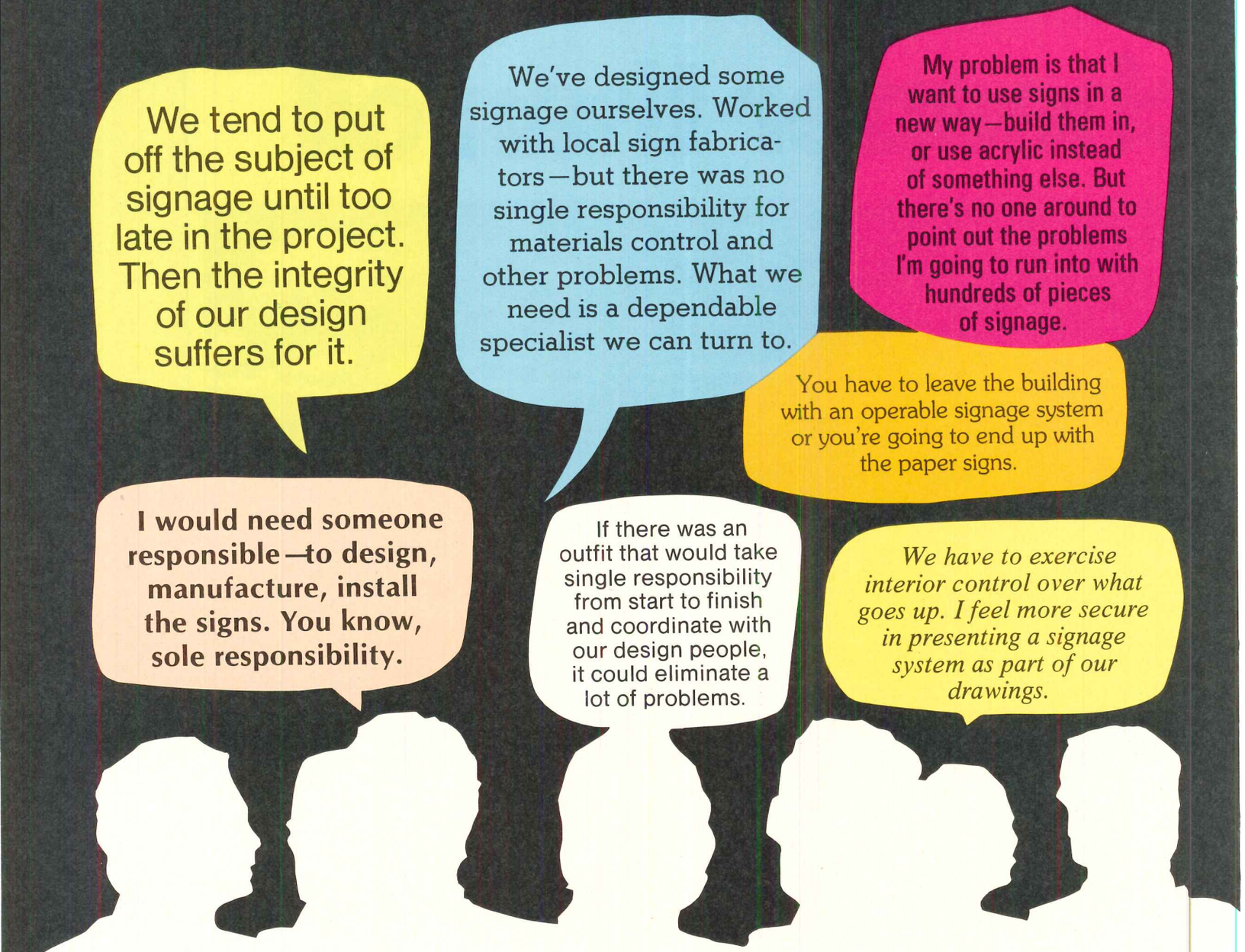

Architects discuss responsibility (or the lack of it) for signage systems.

Matthews takes total responsibility for signage systems, from design through installation.

Our Architectural Division specializes solely in total signage systems. We coordinate with the architect on design, development, fabrication and installation of every system. We integrate the signage with the building's esthetics. We design each system to be flexible and adaptable to spatial changes. We fabricate and install every component, interior and exterior. And we assume full responsibility for the total project, start to finish.

When you think of signage as a subsystem, think of Matthews—for total identification systems that keep people moving. Write for full information to: Jas. H. Matthews & Co., 1315 West Liberty Avenue, Pittsburgh, PA 15226.

JHM MATTHEWS
Architectural Division

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Building: First International Building, Dallas, Texas, completed and occupied late 1974. Architects: Helmuth-Obata & Kassabaum, Inc., Harwood K. Smith & Partners, Inc., Dallas; Consulting Engineers: Ellisor & Tanner, Dallas; General Contractor: Henry C. Beck Co., Dallas; Fireproofing Contractor: Carpenter Plastering Co., Dallas.

Why Zonolite® Monokote® fireproofing is as basic as the steel it protects.

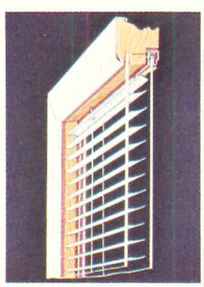
The optimum fire protection system still remains the subject of much research and debate. But one fact is recognized: no matter what combination of sprinklers, smoke detectors and other devices are used, there should be no trade-off in basic structural protection. Zonolite® Monokote® fireproofing provides the basic protection needed to maintain the structural integrity of your building.

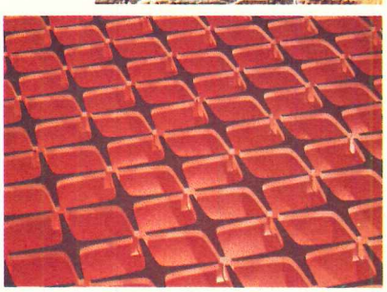
- ☐ Monokote protects steel columns, beams and decks, which can buckle and fail at 1100° F, and minimizes the chance of costly structural steel repairs.
- ☐ Monokote helps contain fire by minimizing the passage of heat through steel decks and concrete floors.
- ☐ Monokote becomes an integral part of your structure, sheathing supporting members with a permanent, durable, protective, monolithic surface.
- ☐ Monokote is quickly and safely spray applied to desired thicknesses for up to four hours of protection.

Monokote is a proven product, backed by the long and extensive fireproofing experience of W. R. Grace & Co. For complete information on fireproofing that is as basic as the steel it protects, contact your local Zonolite Monokote representative or write Construction Products Division, W.R. Grace & Co., 62 Whittemore Avenue, Cambridge, Massachusetts 02140. In Canada, 66 Hymus Road, Scarborough, Ontario M1L 2C8.

GRACE

Architectural Record's comprehensive presentation of new and improved building products





PRODUCT REPORTS

Coming in mid-October

Architectural Record's *Product Reports* issue is devoted in its entirety to a comprehensive view of the year's most significant developments in building products. It represents an outstanding advertising value for manufacturers of building products because it offers . . .

- The largest paid architect and engineer subscriber audience ever made available to advertisers—some 45,000 architects and engineers.
- A unique editorial atmosphere. *Product Reports* is the only publication where architects and engineers can obtain, all in one place, a comprehensive view of the year's most significant developments in building products. With this issue in their hands they are totally receptive to learning more about products.
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- *Product Reports* is the principal product update for Architectural Record's subscribers in the U.S. and Canada—those architects and engineers verified by Dodge Reports to be designing over 90 per cent of all architect-planned building in the U.S.
- Reduced charge for four-color advertising because four-color is used throughout the editorial as well as advertising pages.

Product Reports is where architects and engineers go for product ideas. What better time to reach them than when they are thinking product!

Closing date for advertising: September 15.

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ARCHITECTURAL RECORD

1221 Avenue of the Americas New York 10020

Nearly two decades have passed since the late Frank Lloyd Wright's comment on Follansbee Terne was first published. No comparable product has ever received such an endorsement from such a source, and we reprint his statement here in the belief that time has not lessened its fundamental impact or its relevance to contemporary design.

FOLLANSBEE
FOLLANSBEE STEEL CORPORATION
FOLLANSBEE, WEST VIRGINIA

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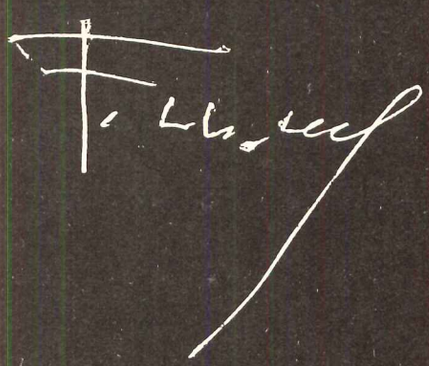
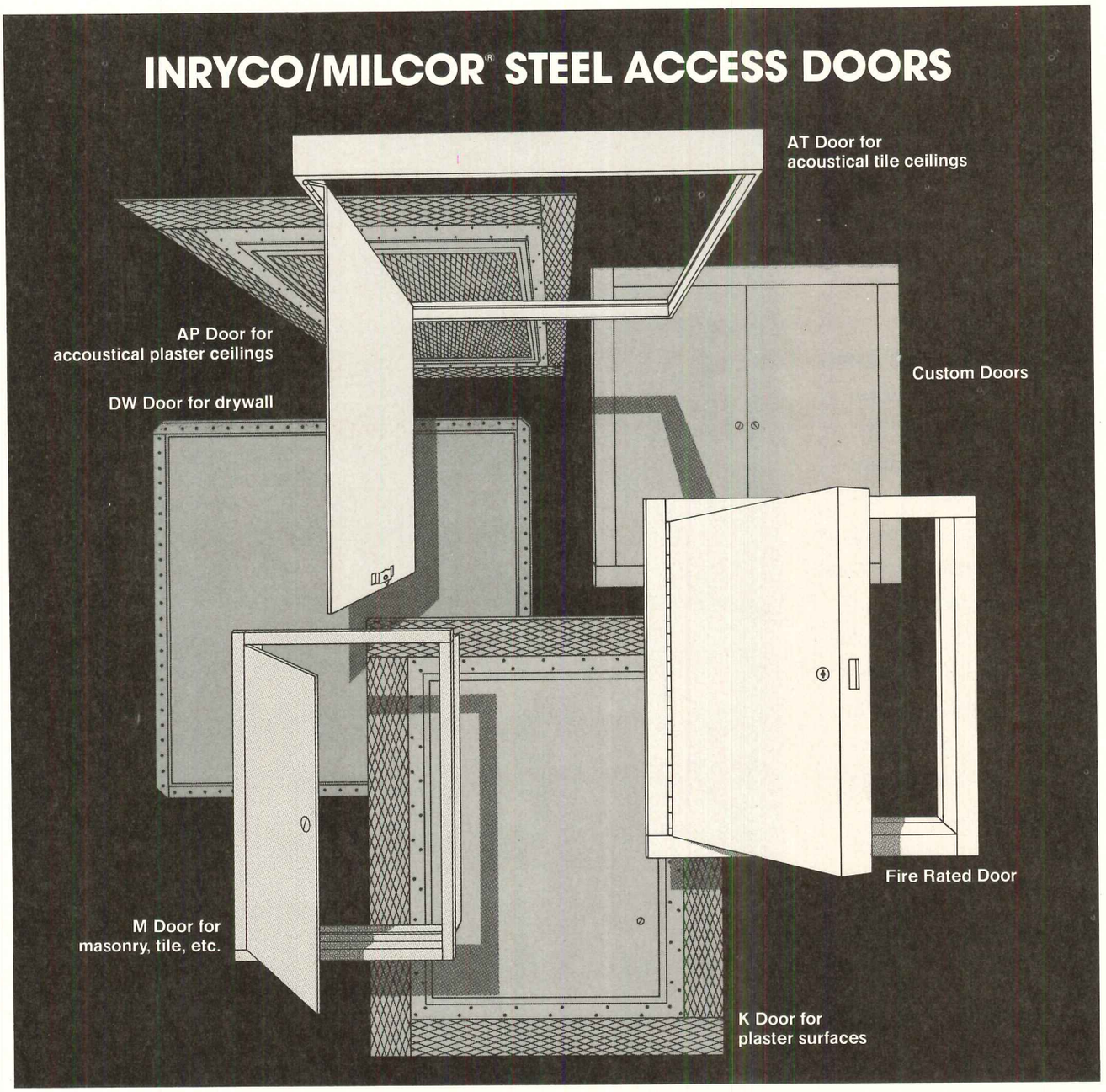
Imaginative new conceptions in architecture can frequently trace their origin to a basically simple idea. One of the oldest types of roofing, terne metal, thus lends itself to many dramatic new applications in the contemporary idiom. Because of its inherent adaptability in both form and color, Follansbee Terne permits the visible roof area to become a significant part of structural design. Thus by re-discovering and re-interpreting a time-tested material, we make out of the very old the very new. I have furthermore found terne superior to other roofing metals in economy, color-adherence, heat-reflection, permanence, workability, and low coefficient of expansion.



INRYCO/MILCOR® STEEL ACCESS DOORS



58 varieties
stocked to meet most needs...
special sizes and modifications made to order

Inryco/Milcor Steel Access Doors for walls and ceilings provide service openings in any type of surface without encroaching upon design. They are carefully made, rigidly constructed, durable and dependable.

Our offering includes: fire rated doors, in sizes up to 48" x 48", to help you meet code requirements... ceiling doors which, when covered with acoustical tile or plaster, contribute to sound control... flush panel doors, in styles for plaster, drywall and masonry, which can be finished to blend inconspicuously with the surrounding surface.

There are 58 standard units to choose from—most of them readily available at one of our nationwide stocking locations near you. And each year we produce thousands of doors in non-standard sizes and modified designs to satisfy special needs.

For complete information, see Sweet's, section 8.12/Inr. Or write for catalog 33-1 to: Milcor Division; INRYCO, Inc.; Dept. H, 4033 West Burnham Street; Box 393; Milwaukee, Wisconsin 53201.

Inryco
an Inland Steel company

General Offices: Melrose Park, Illinois
Formerly INLAND-RYERSON CONSTRUCTION PRODUCTS CO.

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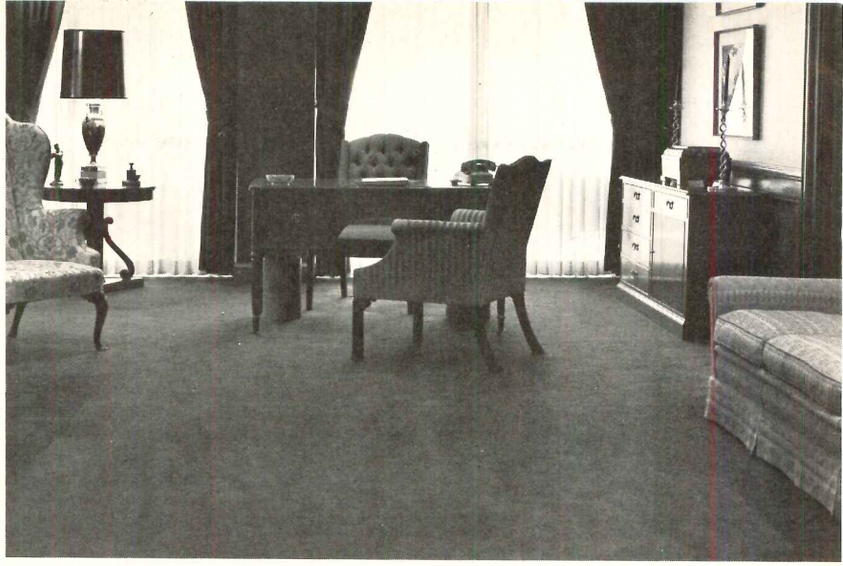

Bank after bank after bank counts on proven carpet by Bigelow.

If you're doing a bank job, you can create your own specifications for the carpet you want. And we can make it for you.

However, Bigelow has another practical suggestion: specify carpeting that has already proven it can take the hard use (not to mention abuse) bank customers deal out. Carpet that has repeatedly demonstrated it can take a beating year after year after year.

Bigelow has that kind of proven in actual bank use carpeting ready for you in a wide selection of carpet styles and patterns. Carpet that is the result of research and development combined with the realistic experience gained in hundreds of bank installations.

And Bigelow will do more than just sell you proven carpet. We'll give you expert counselling in installation and the best advice available on maintenance. It's a total package designed to assure you that you can specify Bigelow with total confidence.

Bigelow®

RUGS & CARPETS SINCE 1825
A SPERRY AND HUTCHINSON COMPANY

AMERICA'S MOST EXPERIENCED CARPET MAKER

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I'd like to hear the proof on Bigelow's proven carpets for banks.

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Print Clearly

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CITY _____

STATE _____ ZIP _____

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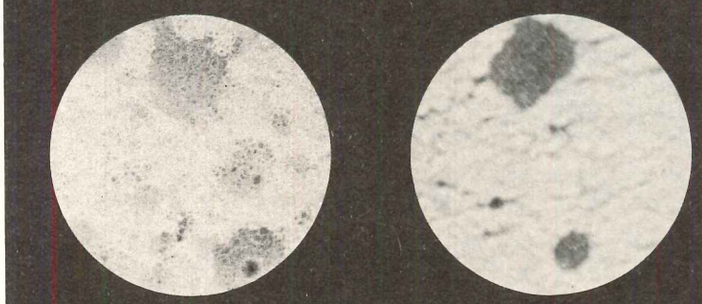
Concrete is dense, right? Wrong...



One of these pictures is of concrete, the other of ocean sponge. They look a lot alike, and have a lot in common. They both soak up moisture like a, well, like a sponge.

Look at both pictures closely. If you can tell the difference, we'll send you a genuine Florida sponge. If you can't tell the difference, write us and we'll tell you which is which, and also tell you some exciting things about **VIP•TER POLYMER COATINGS.** Things that can save you time and money when choosing waterproof coatings and sealants for your next project.

At VIP we know a lot about concrete and we know what it takes to protect and beautify it efficiently and economically.

So we'd like to sell you a better job. One that will last longer, look prettier, and save you time and money. Before you make a decision on your next exterior coating job, call Ivan Morales, Jr. for detailed specs and analysis.

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SIDE SLIDING STORE FRONT SECURITY

grilles & closures

Unique side-sliding design means more freedom in architectural treatment.

Dynaflair grilles and closures are free forming and bend around curves. Eliminates floor track without sacrificing security; cuts costs in renovations. No motors or controls—can be closed and opened by the touch of a finger. Grilles offer excellent visibility and unobstructed air flow; Closures provide maximum security with clear see-through Lexan panels fitted into the tubular extruded aluminum hinge members.

Available in a wide range of colors and patterns, Dynaflair grilles and closures have been used by most major developers and mall operators; more than 2,000 installations in the U.S. alone.

Call collect or write for complete catalog and nearest representative.

DYNAFLAIR CORPORATION
555 Broad Hollow Road, Melville, N.Y. 11746 (516) 420-9898

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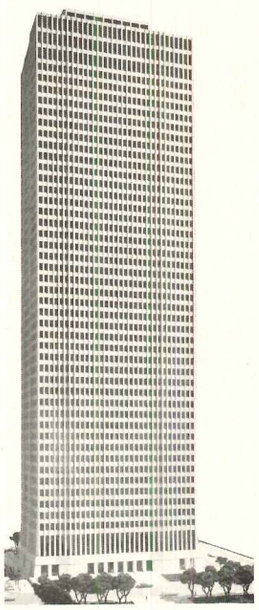
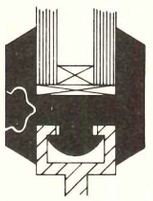
High and Dry



After four years of tough Houston weather, not one single leak has ever appeared in any of One Shell Plaza's 4700 windows. The reason: F. H. Maloney's patented STA-WIND double glazed system, designed to resist everything wind and weather can do outside—and maximize energy efficiency inside.



STA-WIND* provides extra support for high wind loading. It's one of many F. H. Maloney glazing systems for all types of construction.

*U.S. Pat. #3,580,276

F. H. Maloney Company, Inc.
Construction Products Department • 2301 Texas Avenue
P. O. Box 287 • Houston, Texas 77001 • (713) 223-3161
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Plaster in a roll™ the no problem heavy duty wallcover that covers problem walls ...including concrete block!

Plaster in a Roll™ goes up like wall paper over every conceivable surface including *poured masonry, concrete block, plaster, gypsum board, expanded foam, metal, glass, wood* and *plastic.*

Easily installed by any wall covering applicator, this unique *gypsum impregnated jute* product bridges small voids, hides blemishes and bumps. An optional *anti-graffiti* protective coating provides a tough, clear, low-gloss finish, highly resistant to most common stains.

If you're involved in renovation or construction in *hospitals, hotels, motels, schools, apartments, public buildings* or any *high traffic area*...if you're looking for *lead paint hazard elimination* or want a one-step process that takes you from a problem to a finished wall...take a look at *Flexi-Wall* covering systems.

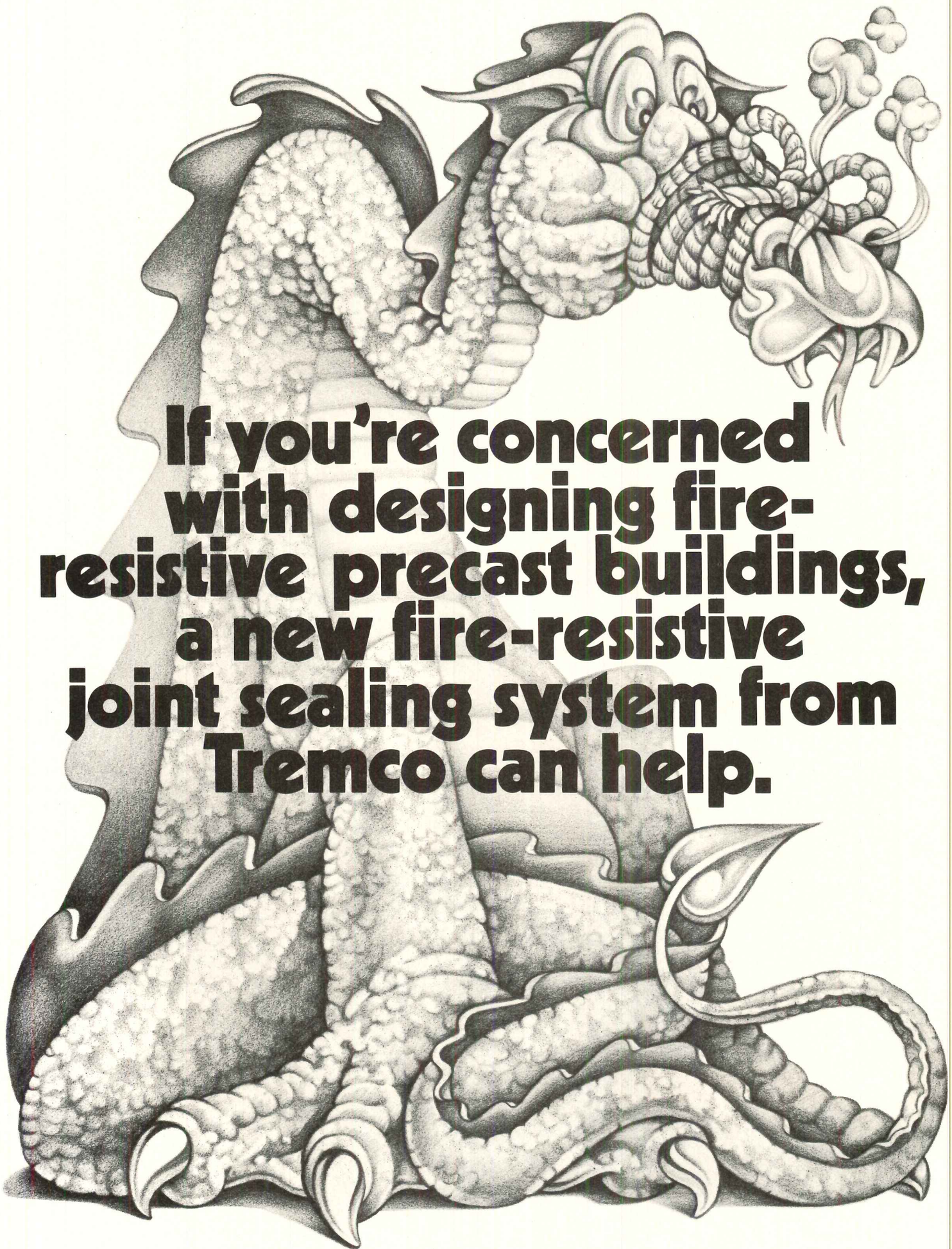
We're a one-step time and money saver which can turn your problem walls into a decorator's dream. Specify Flexi-Wall Plaster in a Roll™ wherever you would use Type III heavy duty vinyl wall-covering.

Call (803) 855-0500

For complete architectural data and swatch book, write Flexi-Wall Systems, P.O. Box 477, Liberty, South Carolina 29657.

(Sweet's Architectural and Interior Design Files #9.13/Fl., Spec/Data File, Section 9/Wall Coverings. Means Building Construction Cost Data/Wall Covering Gypsum.)

FLEXI-WALL®
Plaster in a Roll™


If you're concerned
with designing fire-
resistive precast buildings,
a new fire-resistive
joint sealing system from
Tremco can help.

Although precast concrete panels themselves are fire-resistant, you know that the openings between them can be a hazard if fire breaks out in a building.

But if joints are properly designed and sealed, they can resist the passage of flames, heat and hot gases.

In the search for fire-resistive joints, Tremco participated in a series of fire tests in conjunction with the Prestressed Concrete Institute. (See note.)

The result: an exclusive joint sealing system for precast concrete panels that is fire-resistive as well as weatherproof. A system that can achieve required fire endurances of two to four hours at the joint.

To start off: the right materials.

It became clear during the testing that fire endurance is influenced by the type of joint, joint width, panel thickness and the joint sealing system.

Of all the materials tested, the best results were provided by DYmeric® sealant and Cerablanket*-FS. DYmeric is a two-part, high-performance sealant that Tremco formulated especially for precast construction. Cerablanket-FS is a pure ceramic fiber blanket made from alumina-silica fibers. It's manufactured exclusively for Tremco by Johns-Manville.

Under test conditions the Tremco Fire-Resistive Joint Sealing System prevented passage of flame or hot gases and stopped transmission of heat beyond the temperature limits in ASTM E-119.

*Trademark of Johns-Manville.

Requirements for 2-hour fire endurance on 3 types of joints.

A one-stage butt joint requires a 5-inch thick panel, 1-inch DYmeric sealed joint and a 3-inch depth of Cerablanket-FS. (Figure 1)

A two-stage shiplap joint requires a 5-inch thick panel, ½-inch DYmeric sealed joint and 1½-inch depth of Cerablanket-FS. (Figure 2)

A two-stage joint with air chamber requires a 5-inch thick panel, ½-inch DYmeric sealed joint and 1¼-inch depth of Cerablanket-FS. (Figure 3)

More help from Tremco.

When you use the Tremco Fire-Resistive Joint Sealing System, you also get the weather-proofing advantages of DYmeric. It can take extra stress and movement common to precast cladding. Can seal joints up to two inches wide without sagging. And it doesn't require a primer.

What's more, Tremco can help you with other sealing and weatherproofing problems. With some 15 basic job-proven sealants, including MONO® and Lasto-Meric®; our unique TREMproof® waterproofing systems, and the TREMline® roof edging system, your Tremco man can recommend the systems that are exactly right for your job.

See him soon for details on any of them including the Tremco Fire-Resistive Joint Sealing System. Or contact Tremco, Cleveland, Ohio 44104. Toronto, Ontario M4H 1G7.

Note: The details of these tests are reported in a paper co-authored by Engineer Armand H. Gustaffero, of The Consulting Engineers Group, Inc., Glenview, Illinois, and Manager, Melvin S. Abrams, Fire Research Section, Portland Cement Association, Skokie, Illinois. The paper is entitled, "Fire Tests of Joints Between Precast Concrete Wall Panels." It was published in PCI Journal September-October 1975 issue and reprinted as Portland Cement Association Research and Development Bulletin RD039.01B.

Figure 1

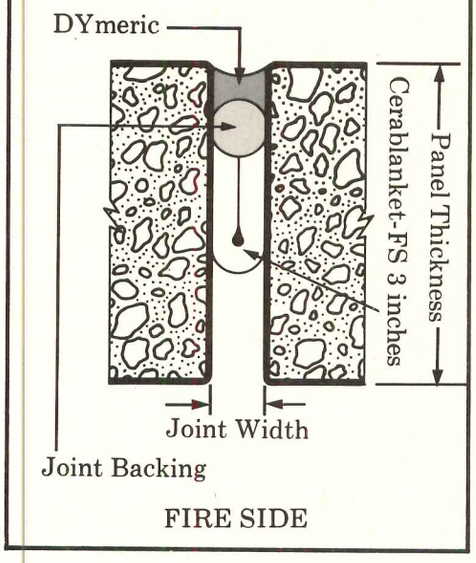


Figure 2

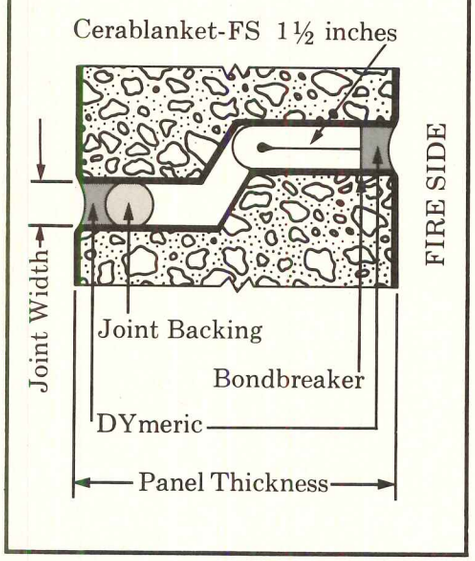
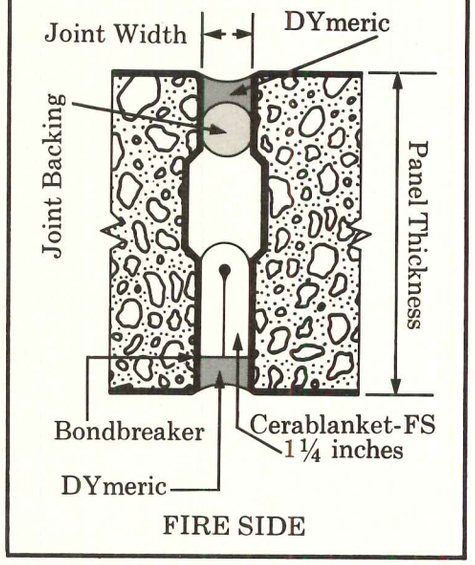


Figure 3



Drawings not to scale.

TREMCO®

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You're calling us 600 times a day. Sweet's BUYLINE®: 800-255-6880. The fastest way to find 45,000 local reps of manufacturers with catalogs in Sweet's.

THE ROOF: PART ONE

CELOTEX ANSWERS ROOFING QUESTIONS ASKED BY ARCHITECTS.

Q. Can I increase roof insulation values for energy conservation purposes without substantially increasing the weight of the roof or the height of parapet walls?

A. Here is a comparison of different types of roof insulation materials showing the thickness required for each to give the same insulating value.

fiberglass	1-5/8 in.
perlite	2-1/2 in.
fiberboard	2-1/2 in.
urethane	1 in.

In addition, urethane is three to six times lighter in weight than the other materials.

Celotex makes Tempchek® urethane roof insulation. It is recommended for exactly the purpose you are asking about.

Q. I design buildings in various parts of the country in many different climates. My standard design calls for a steel deck with rigid insulation. What roofing system can I specify as a standard that will perform in all weather conditions?

A. There is a system that has been the mainstay of the industry for many years and has successfully waterproofed millions of squares of roofing in every area of the country. It is our Series 300 roofing system. It utilizes a Vaporbar® coated base sheet and three plies of perforated asphalt felt, applied with hot asphalt. Result: a total of four waterproofing layers of hot asphalt gives the building maximum protection from the elements, while the four plies of felt material give the system maximum strength for resisting external stresses and forces that so often damage roofs. It must be recognized, however, that numerous two-ply coated felt systems have also performed well.

To give you additional reassurance, Celotex offers a Roofing Bond or Inspection and Service Contract on the completed roof when applied according to Celotex published specifications.

Q. I'm located in the upper Midwest. During cold weather there is frost on steel decks. If roof insulation is secured with asphalt, will there be positive adhesion?

A. It is doubtful. However, you can achieve positive adhesion, and a Factory Mutual Class I Rating, by fastening the roof insulation to the deck with the Insulfast Nail/Disc System from Celotex. With Insulfast Nails, your roof insulation can also be installed in a moderate wind.

Q. When are expansion joints required?

A. The responsibility for determining the need for structural expansion joints is that of the architect and/or structural engineer. However, all agree that they are needed if:

1. There is a change in direction of steel framing.
2. Deck material changes, e.g., between steel and concrete sections.
3. There is a difference in elevation of adjoining decks.
4. A single dimension of a building exceeds 200 feet.

Celotex makes a complete line of Expansion Joint Shields for waterproofing the opening created by structural roof expansion joints. For flexibility in design, they are available with copper, stainless steel, aluminum and galvanized metal flanges, and all are available with straight flange, curb flange and curb-to-wall configuration. Connecting tees, corners and crossovers are prefabricated in the same metals and designs, saving on-job labor.

If you have questions about roofing, please send them to us. We want to assist in any way we can, and we think that starting a dialogue with you through this series of ads may prove fruitful for both of us.

Send your inquiries to John Hasselbach, Commercial Roofing Department, The Celotex Corporation, Tampa, Florida 33622.

Celotex®
BUILDING PRODUCTS
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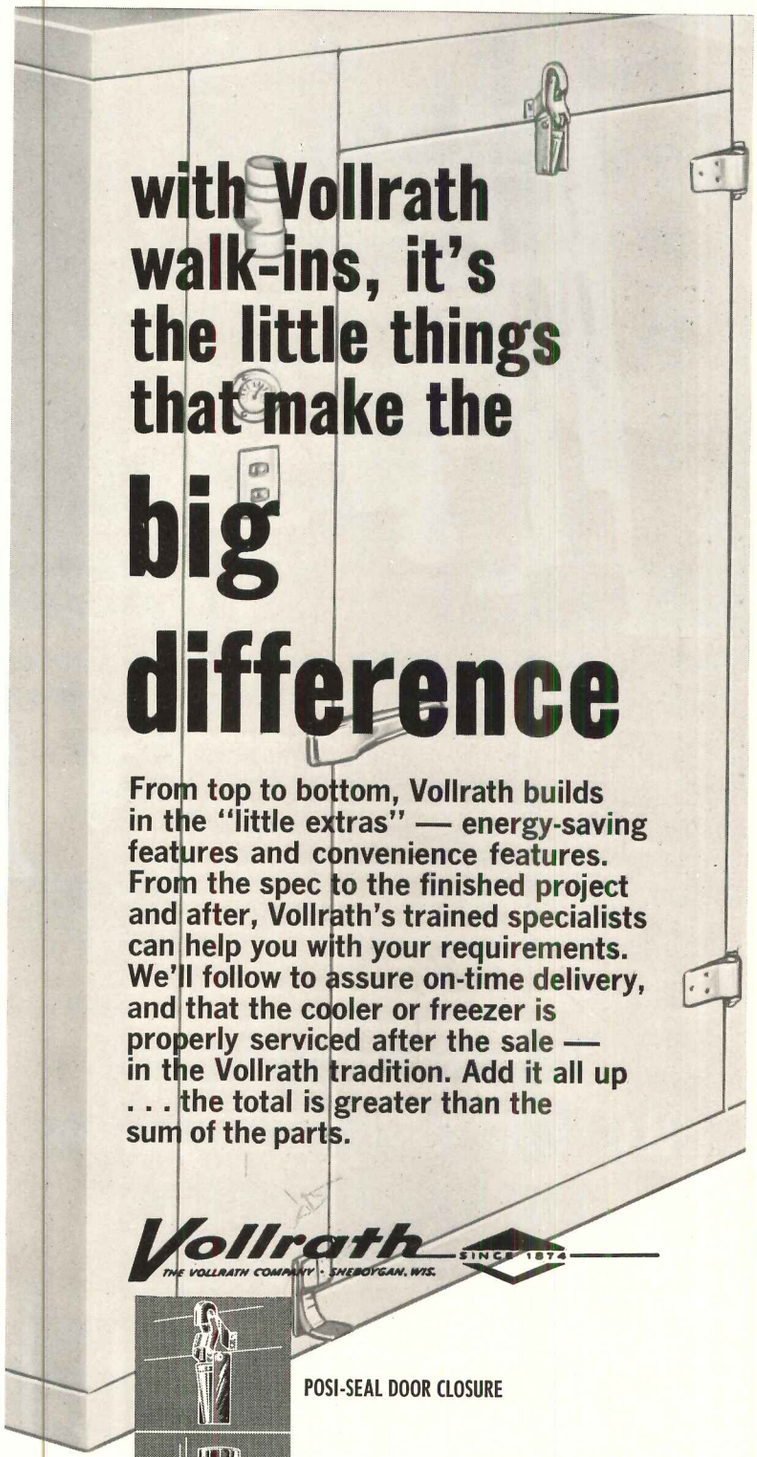

with Vollrath walk-ins, it's the little things that make the big difference

From top to bottom, Vollrath builds in the "little extras" — energy-saving features and convenience features. From the spec to the finished project and after, Vollrath's trained specialists can help you with your requirements. We'll follow to assure on-time delivery, and that the cooler or freezer is properly serviced after the sale — in the Vollrath tradition. Add it all up . . . the total is greater than the sum of the parts.

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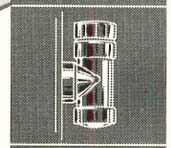
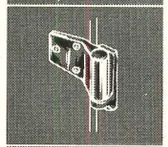
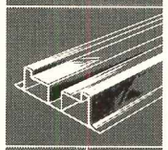
POSI-SEAL DOOR CLOSURE



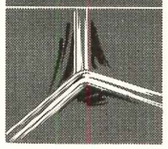
HEATED AIR VENT



OPTIONAL SPRING HINGES



TEMP-GUARD VINYL SCREEDS (FLOORLESS WALK-INS)



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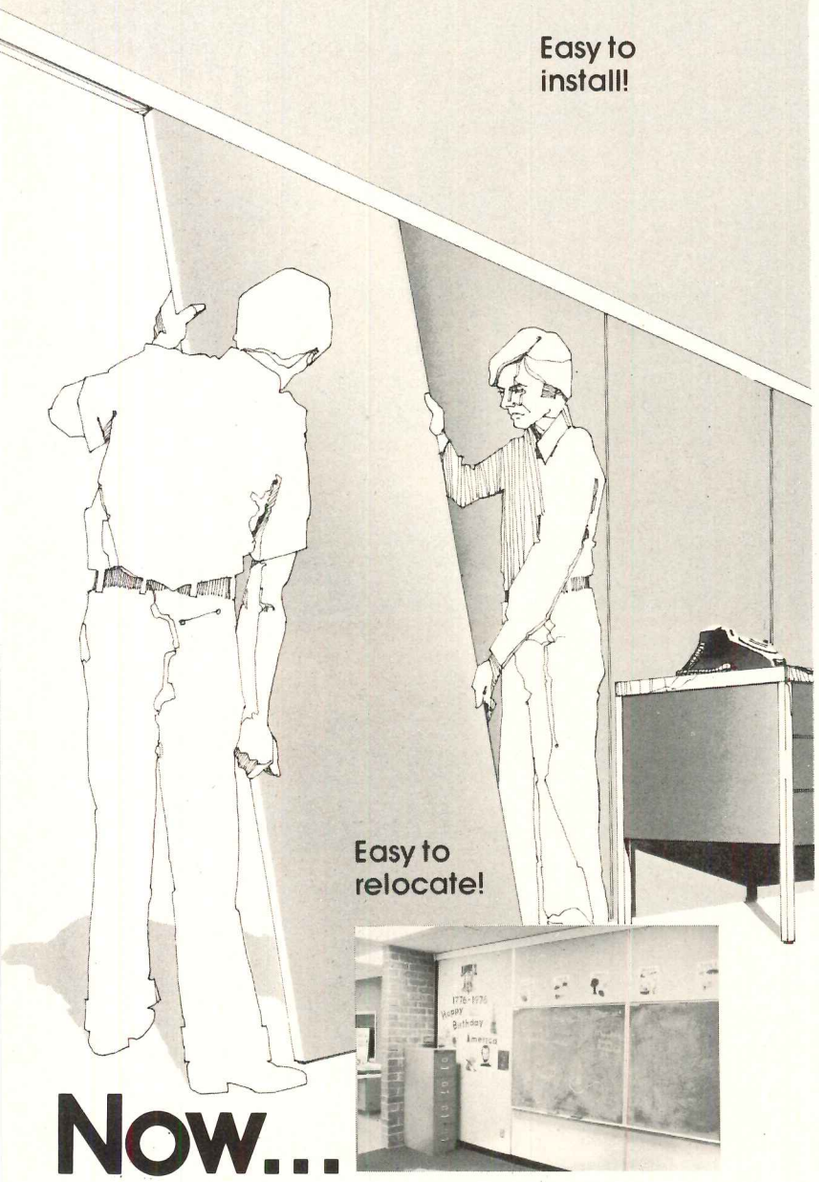

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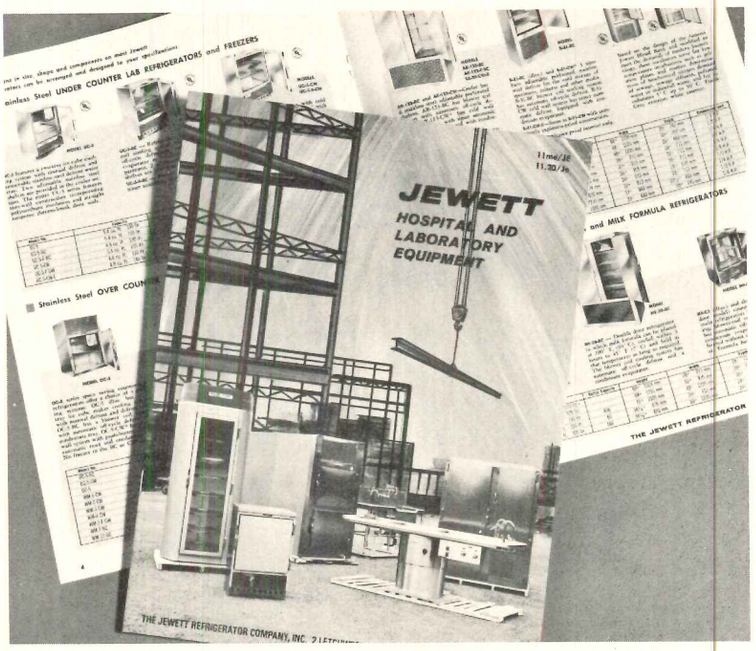

New health-care equipment catalog shows dimensions in metric as well as in inches

Health Care Equipment Catalog describes and illustrates Jewett's comprehensive line of stainless steel refrigerators and freezers for hospital and lab installation, as well as autopsy and morgue equipment. The line includes free-standing, counter-top, under-counter, and wall-mounted models. The new 8 page brochure includes metric as well as English dimensions and temperature ranges.

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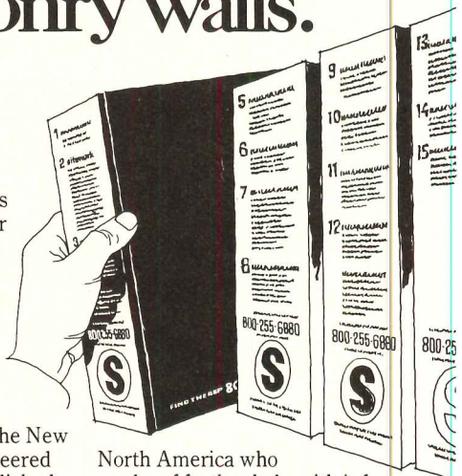
How to pick up the latest information on loadbearing masonry walls.



Just turn to Sweet's
Catalog 4.4d/m in the architectural and engineering Sweet's files for the U.S. and Canada. There, for the first time, you will find eight illustrated pages filled with information on brick and concrete masonry units for the increasingly popular, thin-wall engineered loadbearing masonry system. Everything from design details to case histories and cost.

This indispensable booklet, "The New and Modern Capabilities of Engineered Loadbearing Walls" has been published by the INTERNATIONAL MASONRY INSTITUTE with the cooperation of the Brick Institute of America and the National Concrete Masonry Association. Listed on the back page are all the national masonry associations in North America who can be of further help with information or technical counsel on this economical and revolutionary building system.

You cannot afford to overlook this Sweet's insert. Pick up the latest word on masonry now.

The International Masonry Institute®
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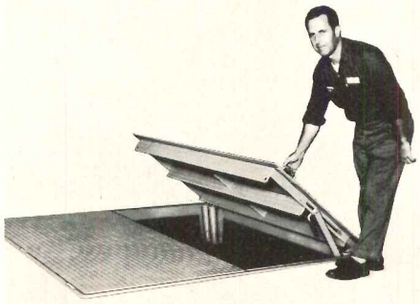
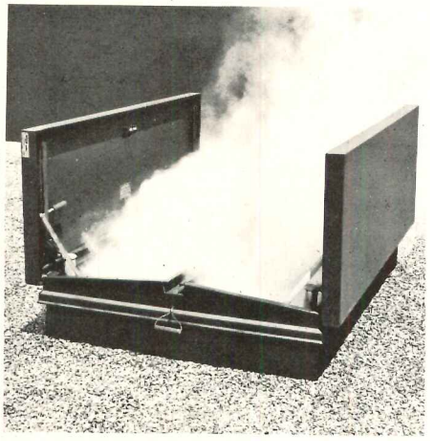
HORIZONTAL DOORS BY BILCO



Bilco Floor, Pit and Sidewalk Door: Rugged heavy-duty steel construction. Features smooth, easy operation, automatic hold-open device, heavy forged brass hinges. Aluminum models available with stainless steel hardware for corrosive conditions. Eight standard sizes. Special sizes to order.

Bilco Roof Scuttle: For ladder access to the roof. Features floating cover action and positive lock-open with operating handle for safe, easy, one-hand closing. In steel or aluminum construction. Also available in standard sizes for ship stair and normal stair as well as special sizes to order.



Bilco Fire Vent: Features the exclusive Bilco Thermolatch® that provides instantaneous release in emergency, prevents accidental opening. Available for electrical actuation by smoke detector or other emergency device. Eight standard sizes with UL and FM labels. Also available in special sizes.

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BEST IN DESIGN, BEST IN WORKMANSHIP, BEST IN RELIABILITY

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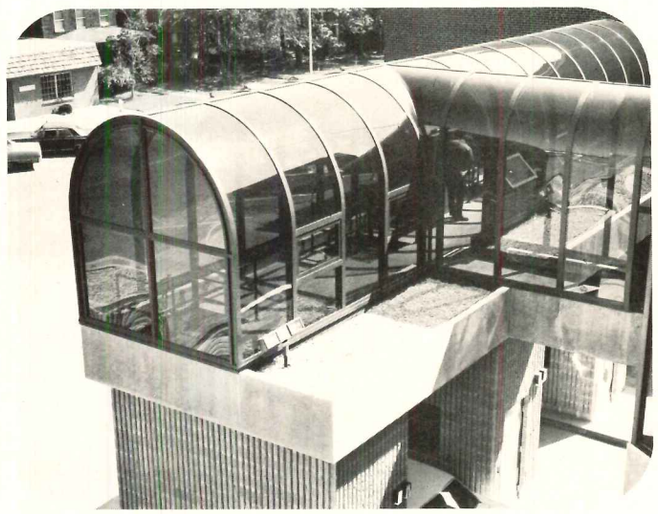

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Contractor: O. Jorgensen & Sons Construction Co., Inc.

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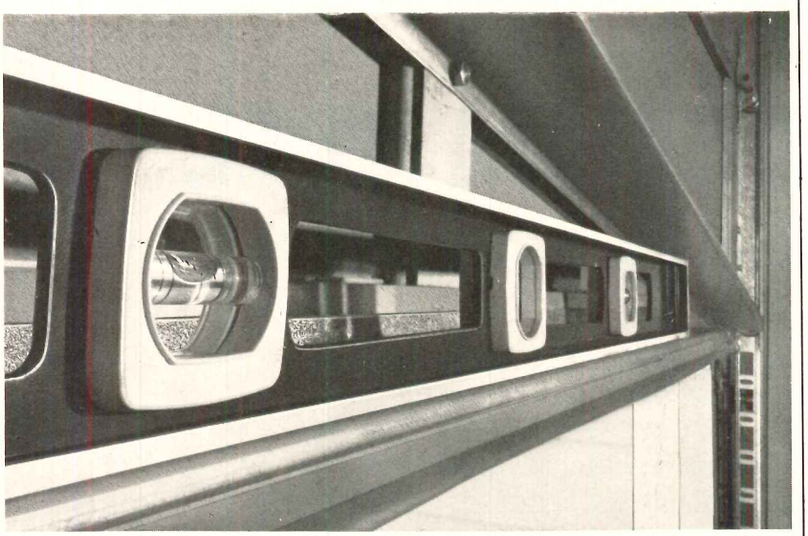

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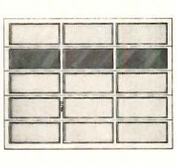
It's this extra concern for quality that's made Raynor a brand you can depend on for residential, commercial and industrial doors made of wood, aluminum, fiberglass or steel.

Call us for more specifics. 815/288-1431. Or write Raynor Manufacturing Company, Dept. AR, Dixon, IL 61021, for the name of the Raynor factory-trained distributor/installer near you.



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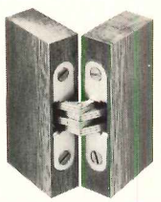

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Soss Invisible Hinges can't be seen or tampered with when a door is closed. Hinge bodies are mortised into the door and jamb to discourage any intruder. Specify Soss invisibility for beauty *and* security. Our new catalog includes application and installation ideas on all 20 models. Look for it in Sweet's, or write to Soss Mfg. Co., Div. of SOS Consolidated Inc., P. O. Box 8200, Detroit, Mich. 48213.

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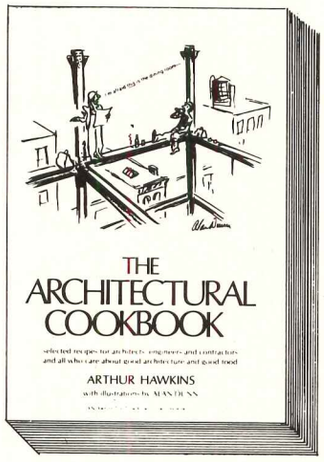
Now—a Cookbook especially for architects, engineers, contractors,



and all who care about good architecture and good food

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Here's a fun-filled idea that's been cooking on the back burner for a long time . . .

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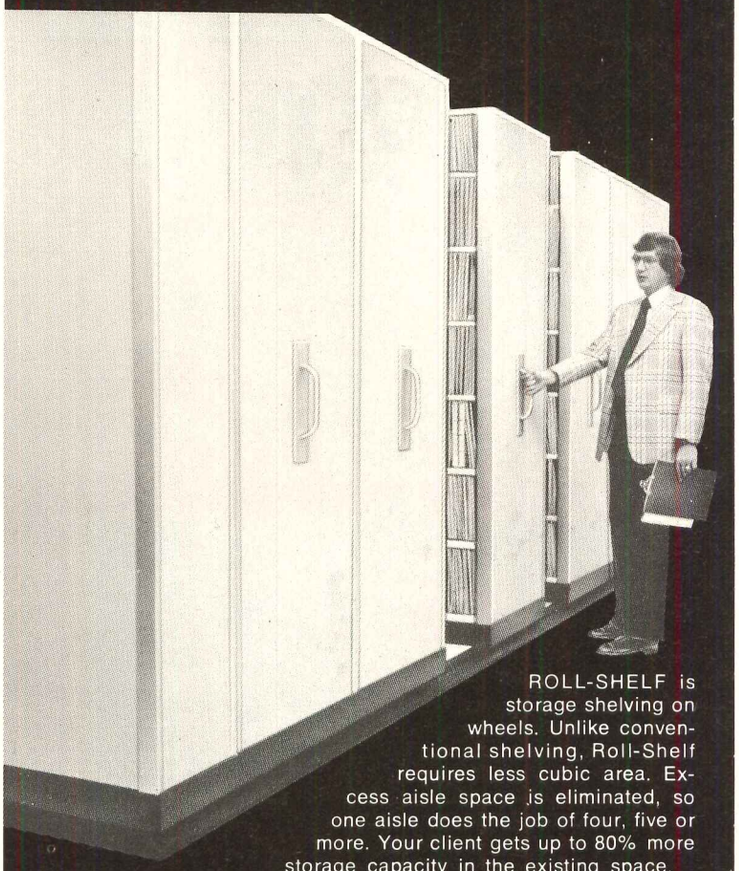

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End panels are available in colors or wood grain plastic laminates and help to beautify interiors. And, ROLL-SHELF is easy to install.

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See MEG's catalog in Sweet's Interior Design File. Reference No: 11.10/KI

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designs:

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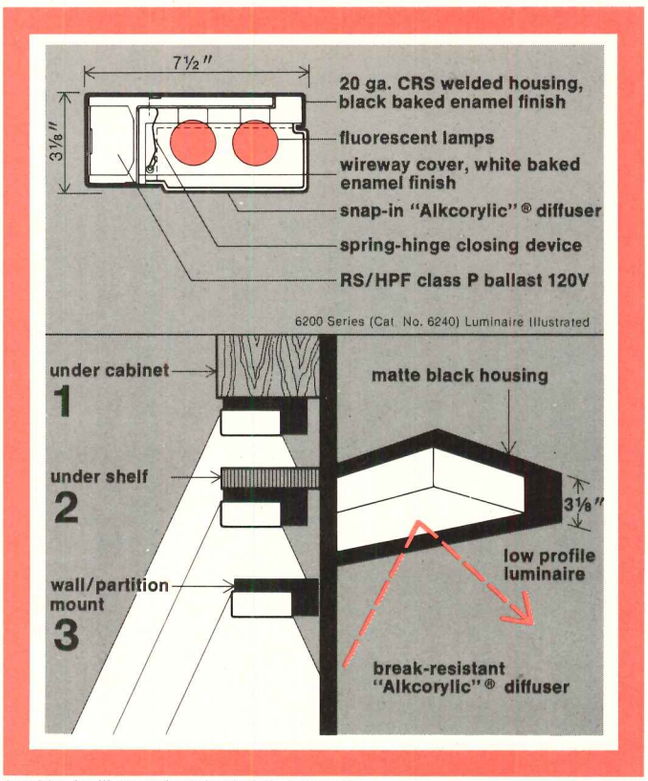

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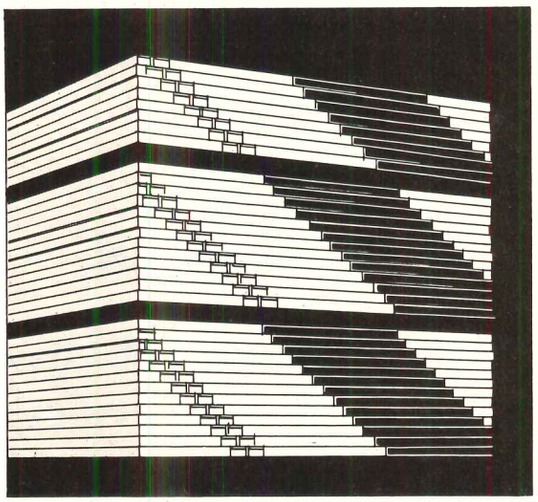

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recycle roof decks!

add slope to drains and insulation with one material...*All-weather Crete.*

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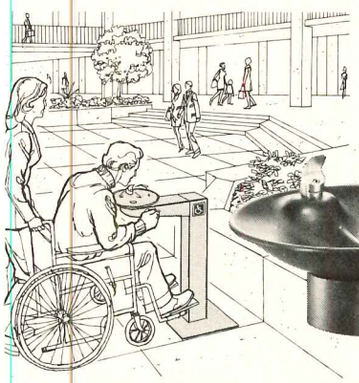

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Model 3376

Haws®

DRINKING FOUNTAINS

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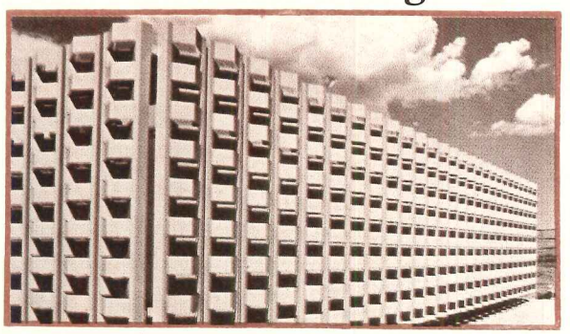
C/S Screening



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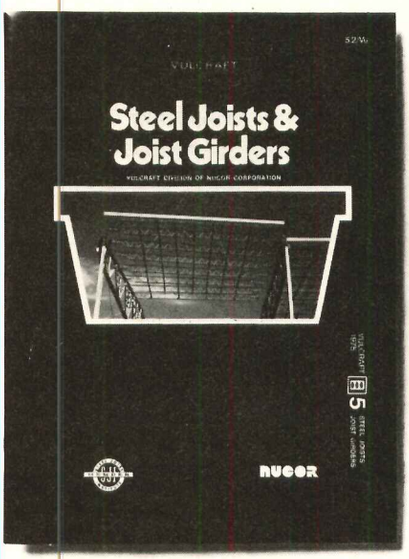

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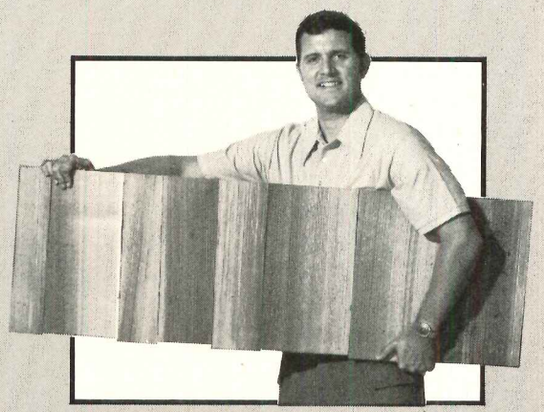
What's the newest way to install cedar shakes and shingles?



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This *Handbook*, prepared exclusively by NCARB, is the only official publication dealing with the NCARB Professional Examinations. Its contents are invaluable to examination candidates and practitioners alike. As a study aid, the examination candidate will receive actual 1976 Professional Examination information and a chance to experience the real 1975 Professional Examination.

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- The complete 1975 Professional Examination TIPs and selected questions and answers from that examination
- Summaries of candidate performance on the 1975 Professional Examination
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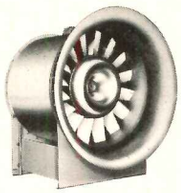

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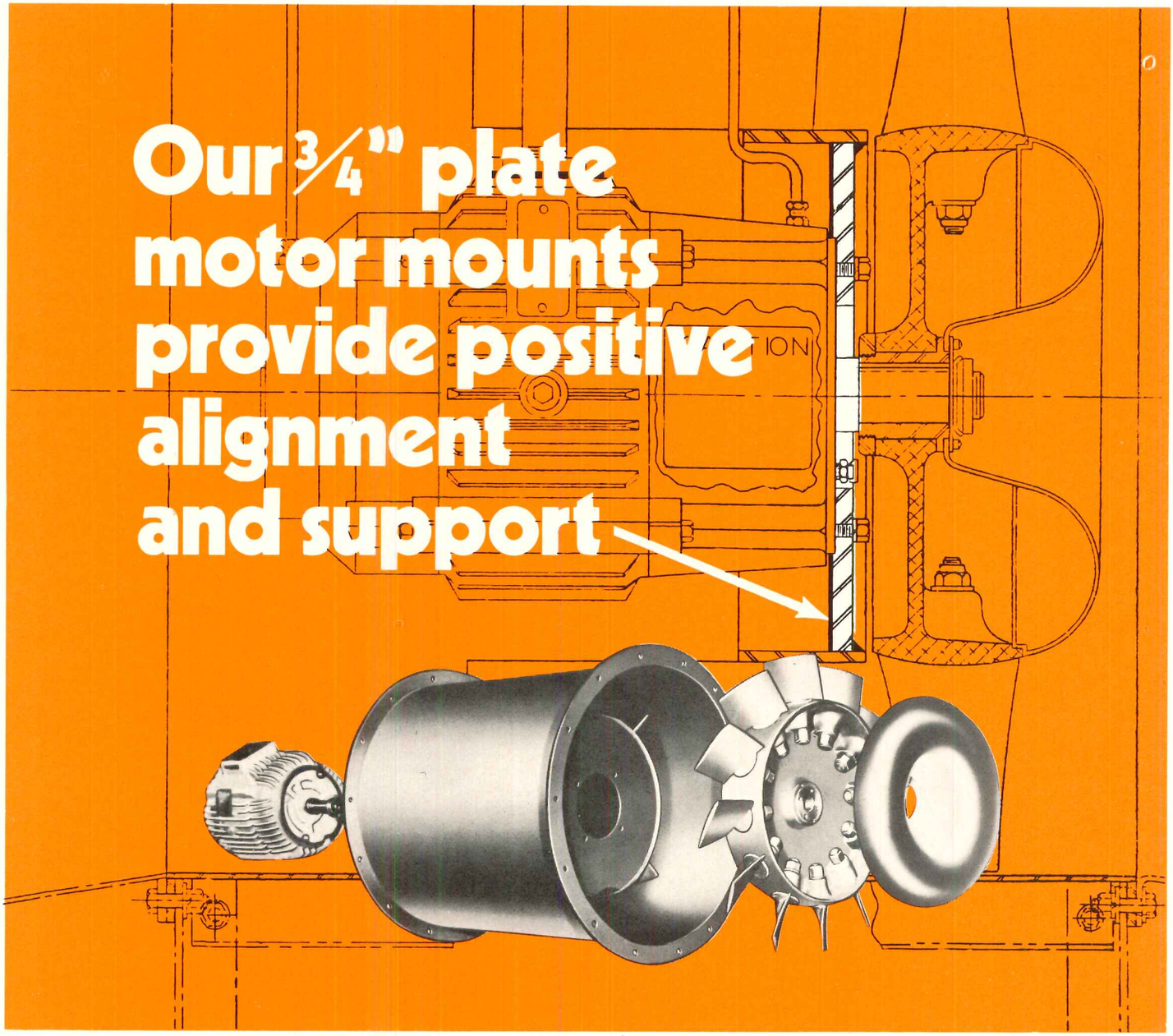

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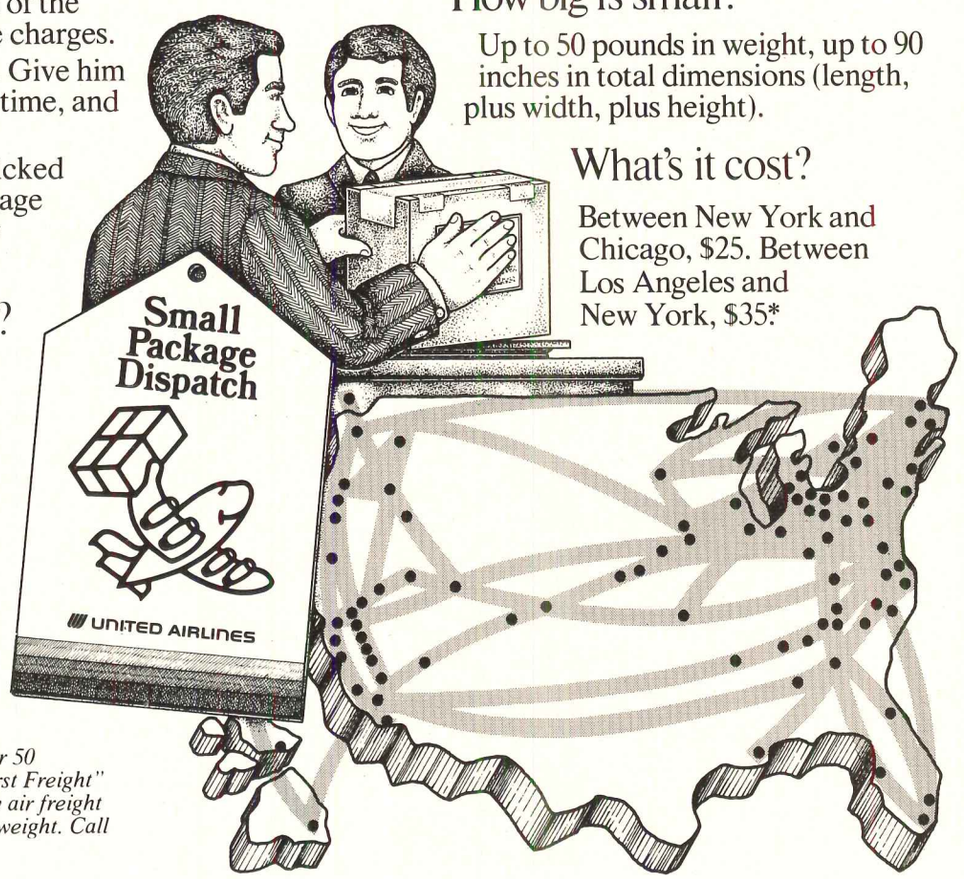

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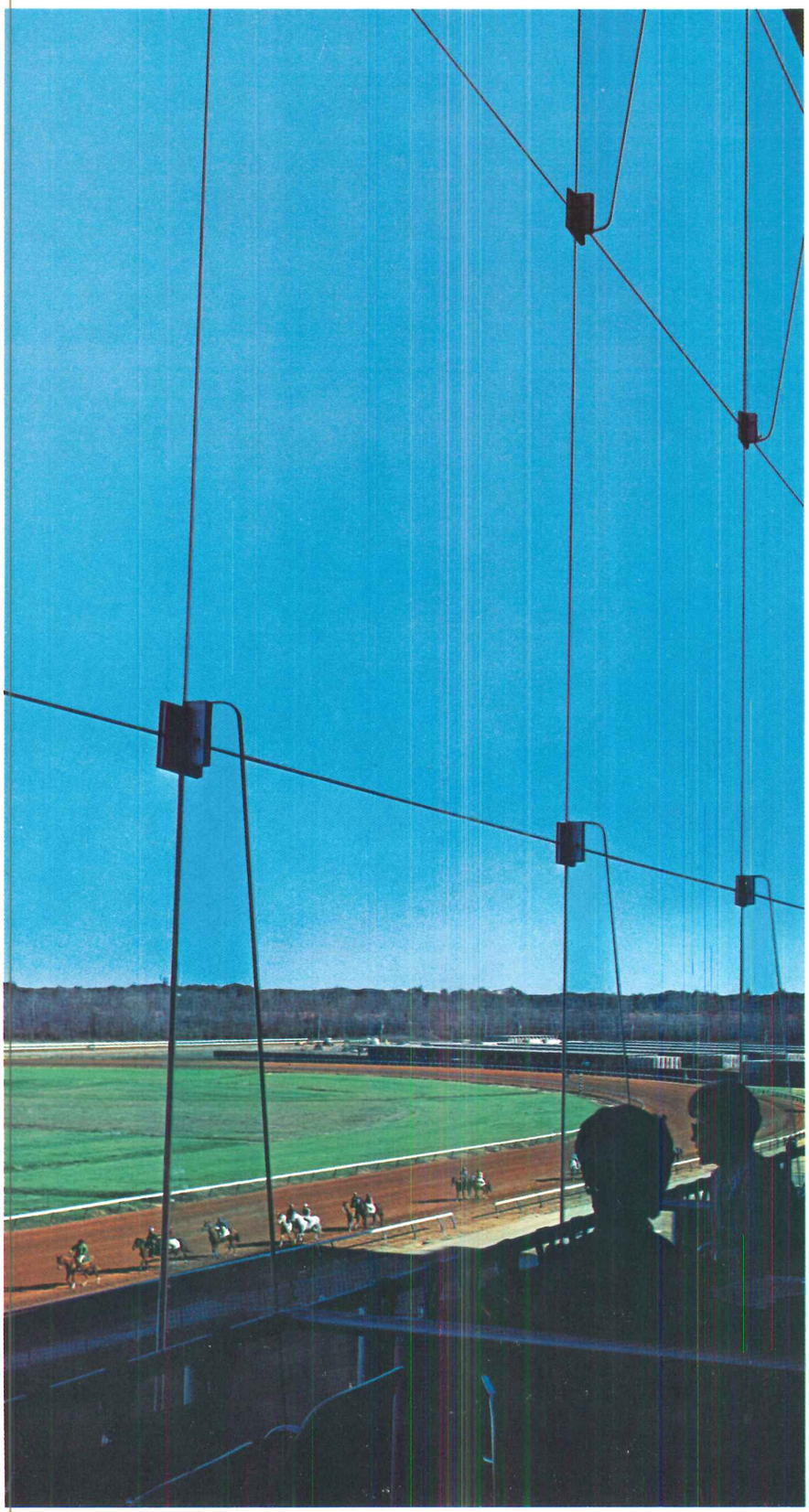

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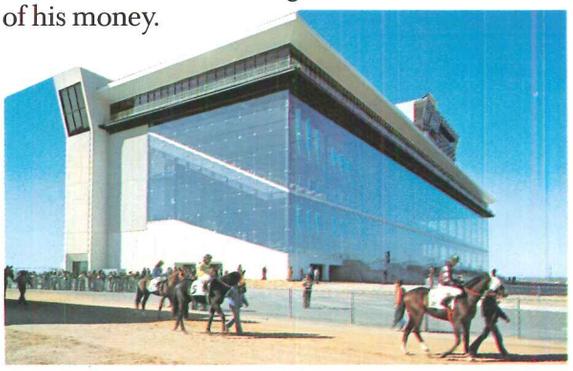

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